

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DISTRICT II-ARTESIA O.C.D.
APPLICATION FOR PERMIT TO DRILL OR REENTER

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

JAN 22 2019

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC0061672A
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY LP		8. Lease Name and Well No. LUSITANO 27-34 FED COM 713H 319562
3a. Address 333 West Sheridan Avenue Oklahoma City OK 73102	3b. Phone No. (include area code) (800)583-3866	9. API Well No. 30-015-45658
4. Location of Well (Report location clearly and in accordance with any State requirements: *) At surface NENW / 235 FNL / 1762 FWL / LAT 32.1079052 / LONG -103.768793 At proposed prod. zone SESW / 20 FSL / 2310 FWL / LAT 32.0794957 / LONG -103.7671482		10. Field and Pool, or Exploratory PURPLE SAGE / WOLFCAMP 98220
11. Sec., T. R. M. or Blk. and Survey or Area SEC 27 / T25S / R31E / NMP		12. County or Parish EDDY
13. State NM		
14. Distance in miles and direction from nearest town or post office*	15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 235 feet	16. No of acres in lease 240
17. Spacing Unit dedicated to this well 320	18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1750 feet	19. Proposed Depth 11788 feet / 22079 feet
20. BLM/BIA Bond No. in file FED: CO1104	21. Elevations (Show whether DF, KDB, RT. GL., etc.) 3335 feet	22. Approximate date work will start* 03/09/2019
23. Estimated duration 45 days	24. Attachments	
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)		
1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).		4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification. 6. Such other site specific information and/or plans as may be requested by the BLM.
25. Signature (Electronic Submission)	Name (Printed/Typed) Linda Good / Ph: (405)552-6558	Date 08/28/2018
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 01/17/2019
Title Assistant Field Manager Lands & Minerals Office CARLSBAD		
Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. Conditions of approval, if any, are attached.		
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.		

RW 1-25-19

APPROVED WITH CONDITIONS

NSP
Required
(Instructions on page 2)

INSTRUCTIONS

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

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

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

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, 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 directionally 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 well 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 will 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 connects this information to allow 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: NENW / 235 FNL / 1762 FWL / TWSP: 25S / RANGE: 31E / SECTION: 27 / LAT: 32.1079052 / LONG: -103.768793 (TVD: 0 feet, MD: 0 feet)
PPP: NENW / 100 FNL / 2310 FWL / TWSP: 25S / RANGE: 31E / SECTION: 27 / LAT: 32.108268 / LONG: -103.767021 (TVD: 11470 feet, MD: 11477 feet)
BHL: SESW / 20 FSL / 2310 FWL / TWSP: 25S / RANGE: 31E / SECTION: 34 / LAT: 32.0794957 / LONG: -103.7671482 (TVD: 11788 feet, MD: 22079 feet)

BLM Point of Contact

Name: Tenille Ortiz

Title: Legal Instruments Examiner

Phone: 5752342224

Email: tortiz@blm.gov

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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.

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PECOS DISTRICT DRILLING OPERATIONS CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMLC0061672A
WELL NAME & NO.:	LUSITANO 27-34 FED COM 713H
SURFACE HOLE FOOTAGE:	235'N & 1762'/W
BOTTOM HOLE FOOTAGE:	20'S & 2310'/W
LOCATION:	SECTION 27, T25S, R31E, NMPM
COUNTY:	EDDY

Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

A. Hydrogen Sulfide

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

B. CASING

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

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

2. The minimum required fill of cement behind the 7 5/8" intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**
- ❖ In **Medium/High Cave/Karst Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Option 2:

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

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- b. Second stage above DV tool:
 - Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**
- ❖ In **Medium/High Cave/Karst Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

In case of lost circulation, operator has proposed to pump down 10 3/4" X 7 5/8" annulus. Operator must run a CBL from TD of the 7 5/8" casing to surface. Submit results to the BLM.

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

- Cement should tie-back at least 200 feet into previous string. Operator shall provide method of verification. **Excess calculates to 0% - additional cement may be required.**

Alternate Casing Design:

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

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

5. The minimum required fill of cement behind the 8 5/8" intermediate casing is

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.
- ❖ In **Medium/High Cave/Karst Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Option 2:

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

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

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**
- ❖ In **Medium/High Cave/Karst Areas** if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.

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

5. The minimum required fill of cement behind the 5-1/2" production casing is:
 - Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification. **Excess cement calculates to negative 9% - additional cement may be required.**

C. PRESSURE CONTROL

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

2.

Option 1:

- i. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi.**
- ii. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M) psi. Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi).**

Option 2:

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

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GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties

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

☒ Eddy County

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

☒ Lea County

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

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.

- BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
 4. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity 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 integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.

- c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
 - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

1. All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.
2. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

Devon Energy Annular Preventer Summary

1. Component and Preventer Compatibility Table

The table below, which covers the drilling and casing of the 10M MASP portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

6-3/4" Production hole section, 10M requirement

Component	OD	Preventer	RWP
Drillpipe	4.5"	Fixed lower 4.5" Upper 4.5-7" VBR	10M
HWDP	4.5"	Fixed lower 4.5" Upper 4.5-7" VBR	10M
Drill collars and MWD tools	4.75"	Upper 4.5-7" VBR	10M
Mud Motor	4.75"	Upper 4.5-7" VBR	10M
Production casing	5.5"	Upper 4.5-7" VBR	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

VBR = Variable Bore Ram. Compatible range listed in chart.

2. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. The pressure at which control is swapped from the annular to another compatible ram is variable, but the operator will document in the submission their operating pressure limit. The operator may chose an operating pressure less than or equal to RWP, but in no case will it exceed the RWP of the annular preventer.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
 - a. SIDPP and SICP

- b. Pit gain
 - c. Time
- 8. Regroup and identify forward plan
- 9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram.

General Procedure While Tripping

- 1. Sound alarm (alert crew)
- 2. Stab full opening safety valve and close
- 3. Space out drill string
- 4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
- 5. Confirm shut-in
- 6. Notify toolpusher/company representative 7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
- 8. Regroup and identify forward plan
- 9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram.

General Procedure While Running Casing

- 1. Sound alarm (alert crew)
- 2. Stab crossover and full opening safety valve and close
- 3. Space out string
- 4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
- 5. Confirm shut-in
- 6. Notify toolpusher/company representative 7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
- 8. Regroup and identify forward plan
- 9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to compatible pipe ram.

General Procedure With No Pipe In Hole (Open Hole)

- 1. Sound alarm (alert crew)
- 2. Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)

3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
 - a. SICP
 - b. Pit gain
 - c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA thru Stack

1. PRIOR to pulling last joint of drillpipe thru the stack.
 - a. Perform flowcheck, if flowing:
 - b. Sound alarm (alert crew)
 - c. Stab full opening safety valve and close
 - d. Space out drill string with tool joint just beneath the upper pipe ram.
 - e. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
 - f. Confirm shut-in
 - g. Notify toolpusher/company representative
 - h. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
 - a. Sound alarm (alert crew)
 - b. Stab crossover and full opening safety valve and close
 - c. Space out drill string with upset just beneath the compatible pipe ram.
 - d. Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
 - e. Confirm shut-in
 - f. Notify toolpusher/company representative
 - g. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - h. Regroup and identify forward plan
3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
 - a. Sound alarm (alert crew)
 - b. If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
 - c. If impossible to pick up high enough to pull the string clear of the stack:
 - d. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close

- e. Space out drill string with tooljoint just beneath the upper pipe ram.
- f. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.) g. Confirm shut-in
- h. Notify toolpusher/company representative
- i. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
- j. Regroup and identify forward plan

PECOS DISTRICT SURFACE USE CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMLC0061672A
WELL NAME & NO.:	LUSITANO 27-34 FED COM 713H
SURFACE HOLE FOOTAGE:	235'/N & 1762'/W
BOTTOM HOLE FOOTAGE:	20'/S & 2310'/W
LOCATION:	SECTION 27, T25S, R31E, NMPM
COUNTY:	EDDY

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Lesser Prairie-Chicken Timing Stipulations
 - Below Ground-level Abandoned Well Marker
 - Cave/Karst
 - Range
 - Watershed
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

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.

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 contaminants.

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 valves, 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.

V.

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.

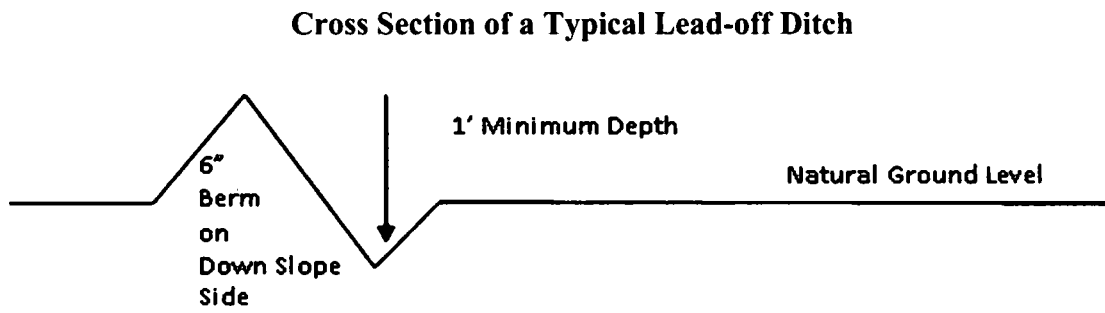
Turnouts

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.



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:

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

Cattle guards

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

Fence Requirement

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

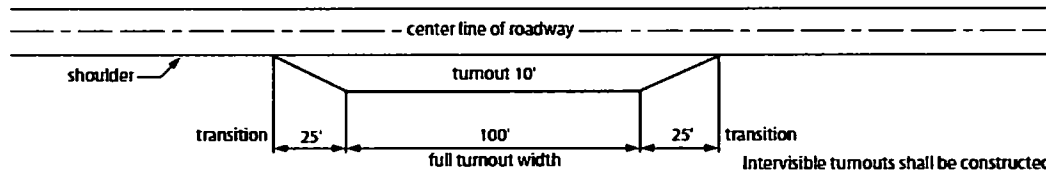
Public Access

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

Construction Steps

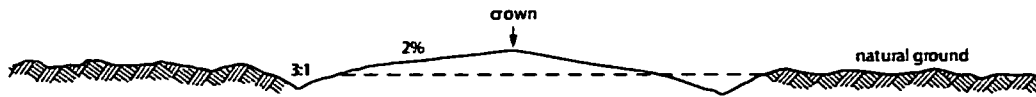
1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

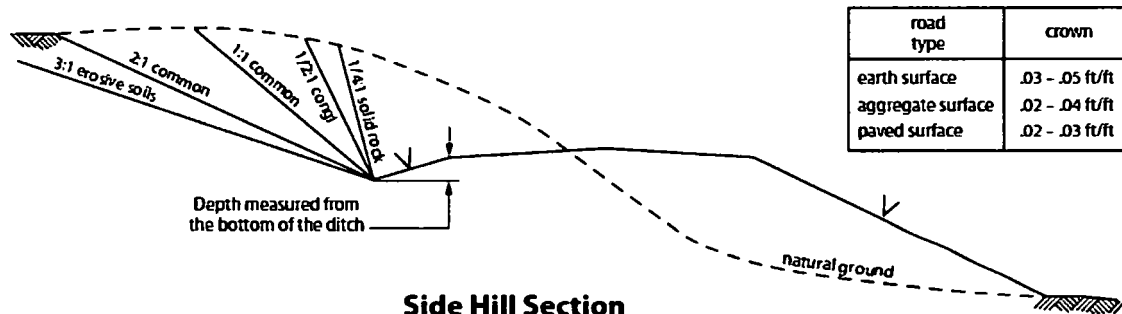


Typical Turnout Plan

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

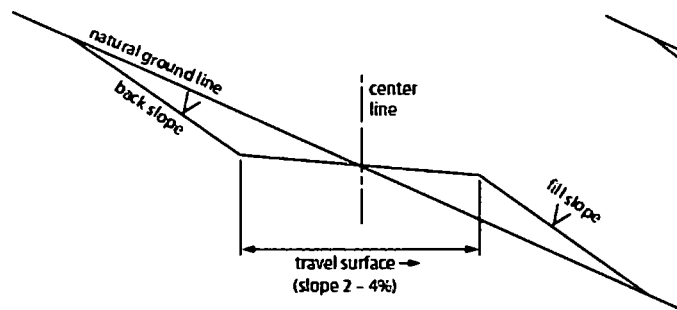


Level Ground Section

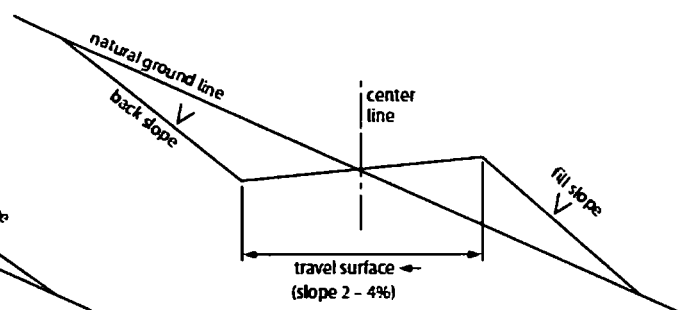


road type	crown
earth surface	.03 - .05 ft/ft
aggregate surface	.02 - .04 ft/ft
paved surface	.02 - .03 ft/ft

Side Hill Section



Typical Outsloped Section



Typical Insloped Section

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

VI. 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.

- | | |
|--|--|
| <input type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3 |
| <input type="checkbox"/> seed mixture 2 | <input type="checkbox"/> seed mixture 4 |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> 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.

VII. 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).

VIII. 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:

<u>Species</u>	<u>lb/acre</u>
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



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

Operator Certification Data Report

01/18/2019

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: Linda Good

Signed on: 08/28/2018

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City

State: OK

Zip: 73102

Phone: (405)552-6558

Email address: Linda.Good@dvns.com

Field Representative

Representative Name: Ray Vaz

Street Address: 6488 Seven Rivers Hwy

City: Artesia

State: NM

Zip: 88210

Phone: (575)748-1871

Email address: ray.vaz@dvns.com



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

Application Data Report

01/18/2019

APD ID: 10400033370

Submission Date: 08/28/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Show Final Text

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400033370

Tie to previous NOS?

Submission Date: 08/28/2018

BLM Office: CARLSBAD

User: Linda Good

Title: Regulatory Compliance
Professional

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMLC0061672A

Lease Acres: 240

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue

Zip: 73102

Operator PO Box:

Operator City: Oklahoma City State: OK

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Master Development Plan name: Cotton Draw 1 MDP

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: PURPLE SAGE

Pool Name: WOLFCAMP

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL Multiple Well Pad Name: Number: 3

Well Class: HORIZONTAL LUSITANO 27 WELLPAD

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

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

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: Lusitano_27_34_Fed_Com_713H_C_102_signed_20180824081008.pdf
Lusitano_27_34_Fed_Com_713H_Additional_points_required_20180824081017.pdf

Well work start Date: 03/09/2019 Duration: 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 Vertical Datum: NAVD88

Survey number: 6427

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	235	FNL	1762	FWL	25S	31E	27	Aliquot NENW	32.1079052	-103.768793	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 125635	3335	0	0
KOP Leg #1	50	FNL	2310	FWL	25S	31E	27	Aliquot NENW	32.108406	-103.76702	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 125635	-7880	11235	11215
PPP Leg #1	100	FNL	2310	FWL	25S	31E	27	Aliquot NENW	32.108268	-103.767021	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 125635	-8135	11477	11470

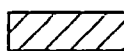
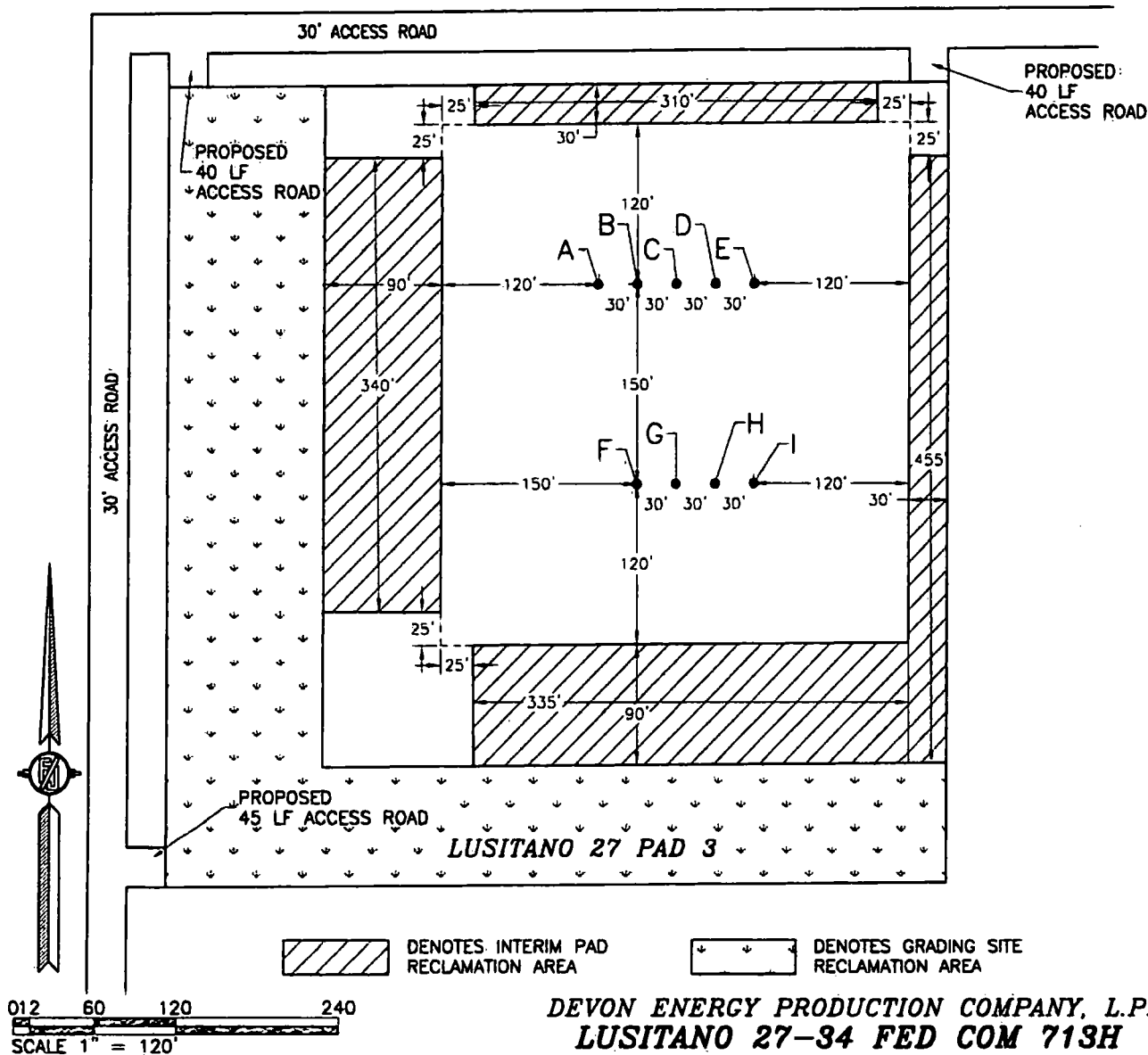
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	20	FSL	2310	FWL	25S	31E	34	Aliquot SESW	32.0794957	-103.7671482	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMLC0061672A	-8453	22079	11788
BHL Leg #1	20	FSL	2310	FWL	25S	31E	34	Aliquot SESW	32.0794957	-103.7671482	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMLC0061672A	-8453	22079	11788

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

A - LUSITANO 27-22 FED COM 232H
B - LUSITANO 27-34 FED COM 733H
C - LUSITANO 27-34 FED COM 622H
D - LUSITANO 27-34 FED COM 333H
E - LUSITANO 27-34 FED COM 713H

F - LUSITANO 27-34 FED COM 233H
G - LUSITANO 27-34 FED COM 533H
H - LUSITANO 27-34 FED COM 523H
I - LUSITANO 27-34 FED COM 534H

SEC. 22
SEC. 27



DENOTES INTERIM PAD
RECLAMATION AREA



DENOTES GRADING SITE
RECLAMATION AREA

1.921± ACRES INTERIM PAD RECLAMATION AREA
2.646± ACRES GRADING SITE RECLAMATION AREA
3.699± ACRES NON-RECLAIMED AREA

8.266± ACRES LUSITANO 27 PAD 3

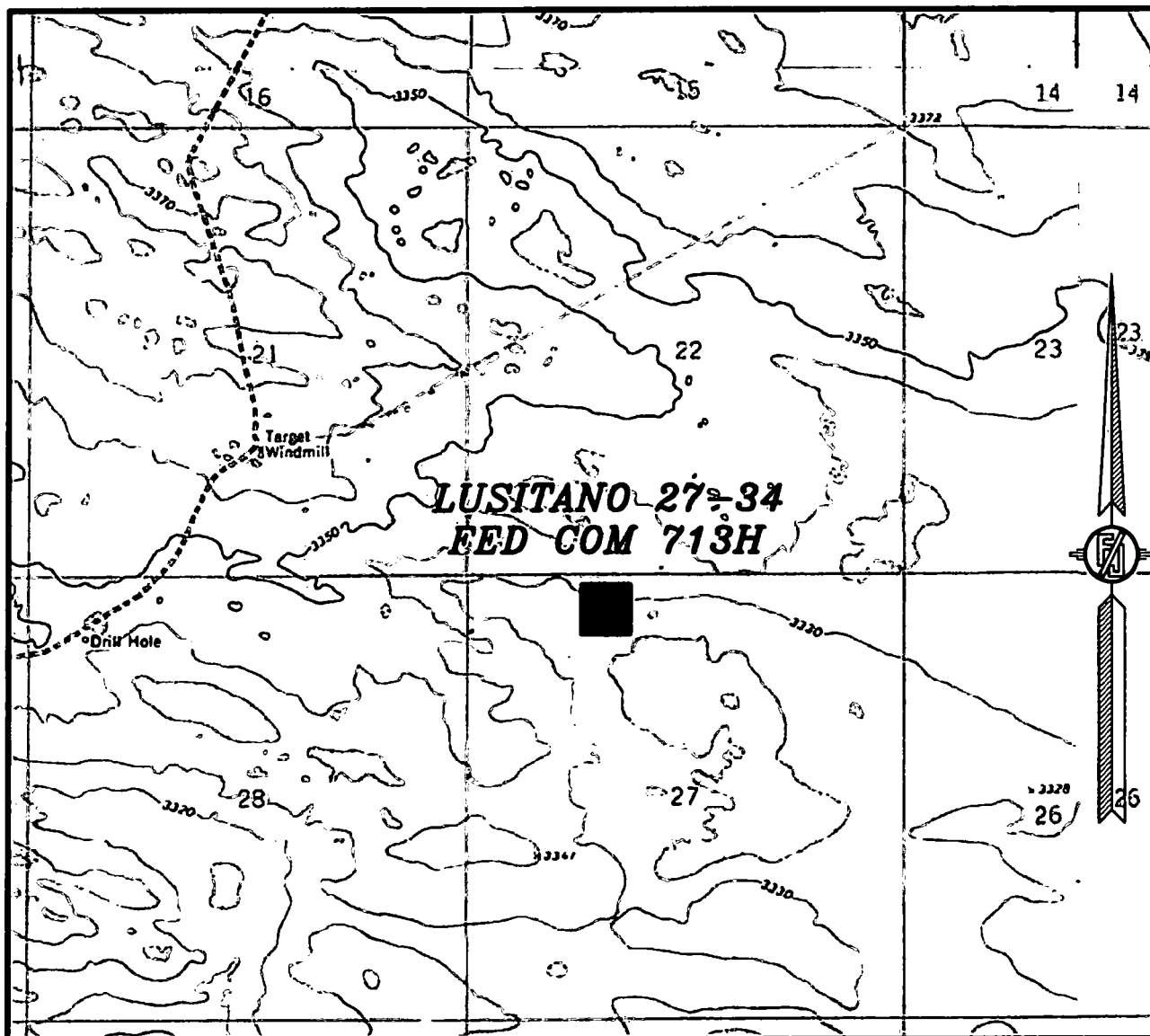
**DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 713H
LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM**

AUGUST 1, 2018

SURVEY NO. 6427

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

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



USGS QUAD MAP:
PHANTOM BANKS

NOT TO SCALE

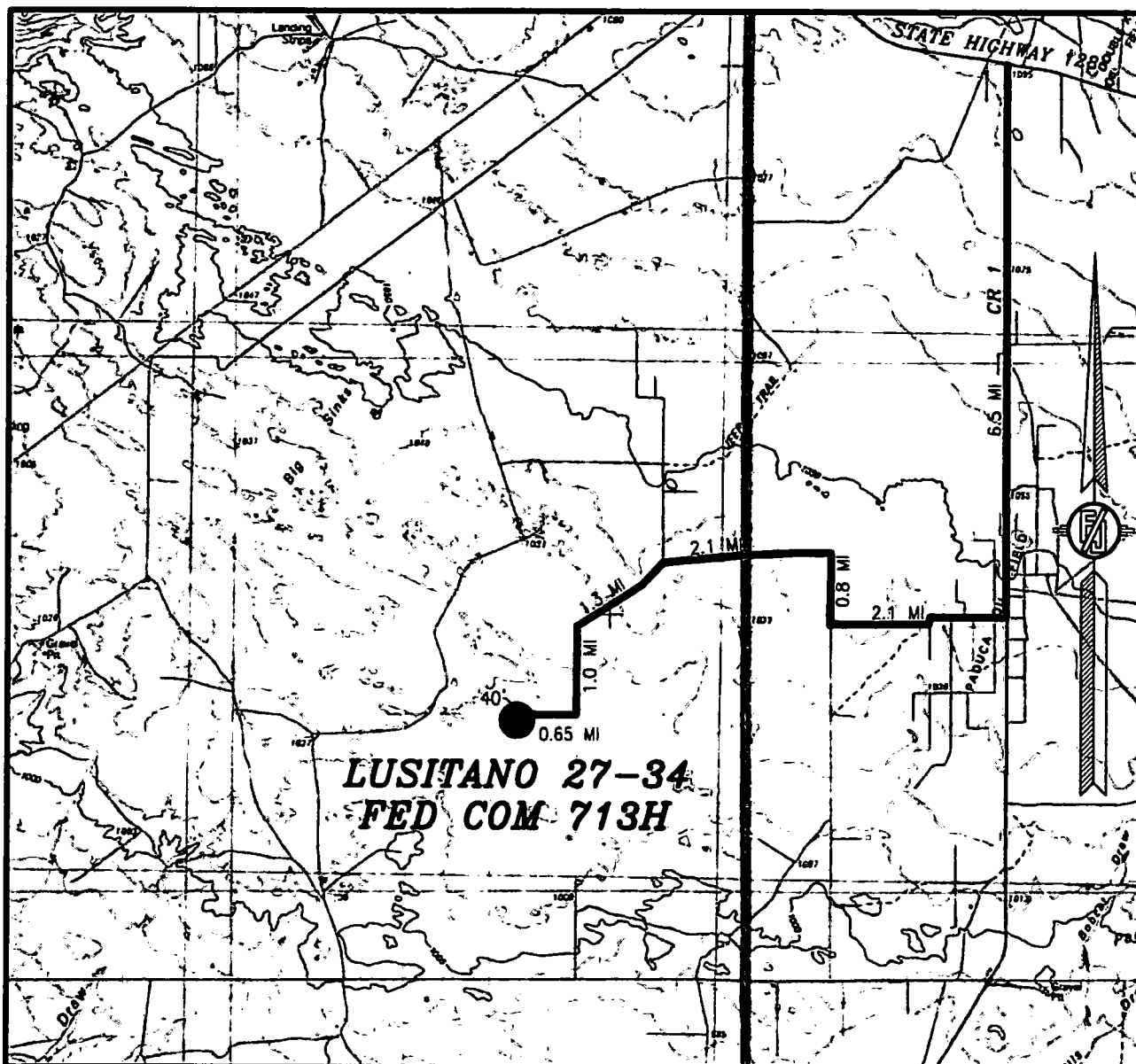
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 713H
LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018

SURVEY NO. 6427

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

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



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 713H

LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF

SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

LAND STATUS: BLM

DIRECTIONS TO LOCATION

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

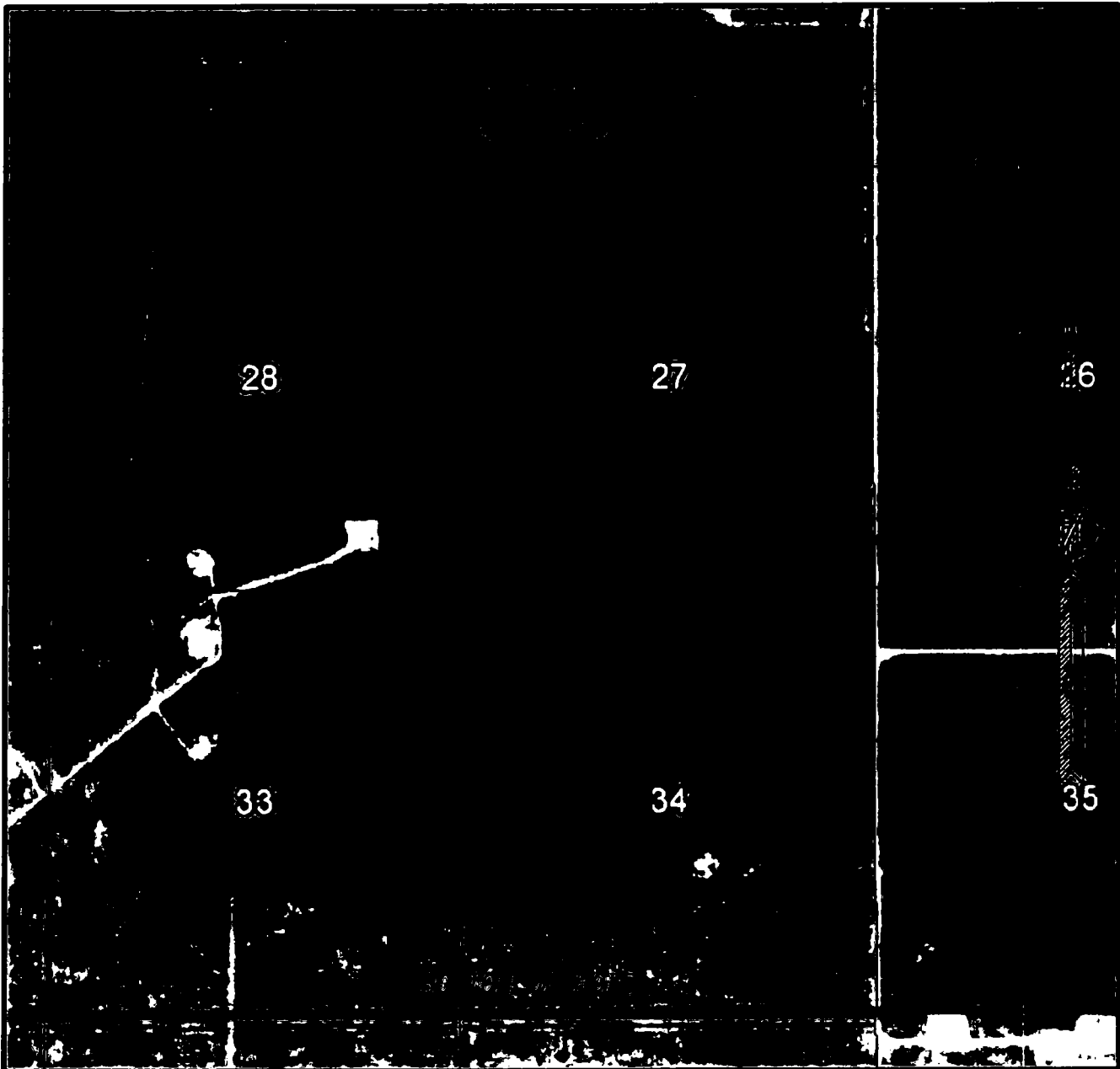
AUGUST 1, 2018

SURVEY NO. 6427

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

CARLSBAD, NEW MEXICO

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



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2017

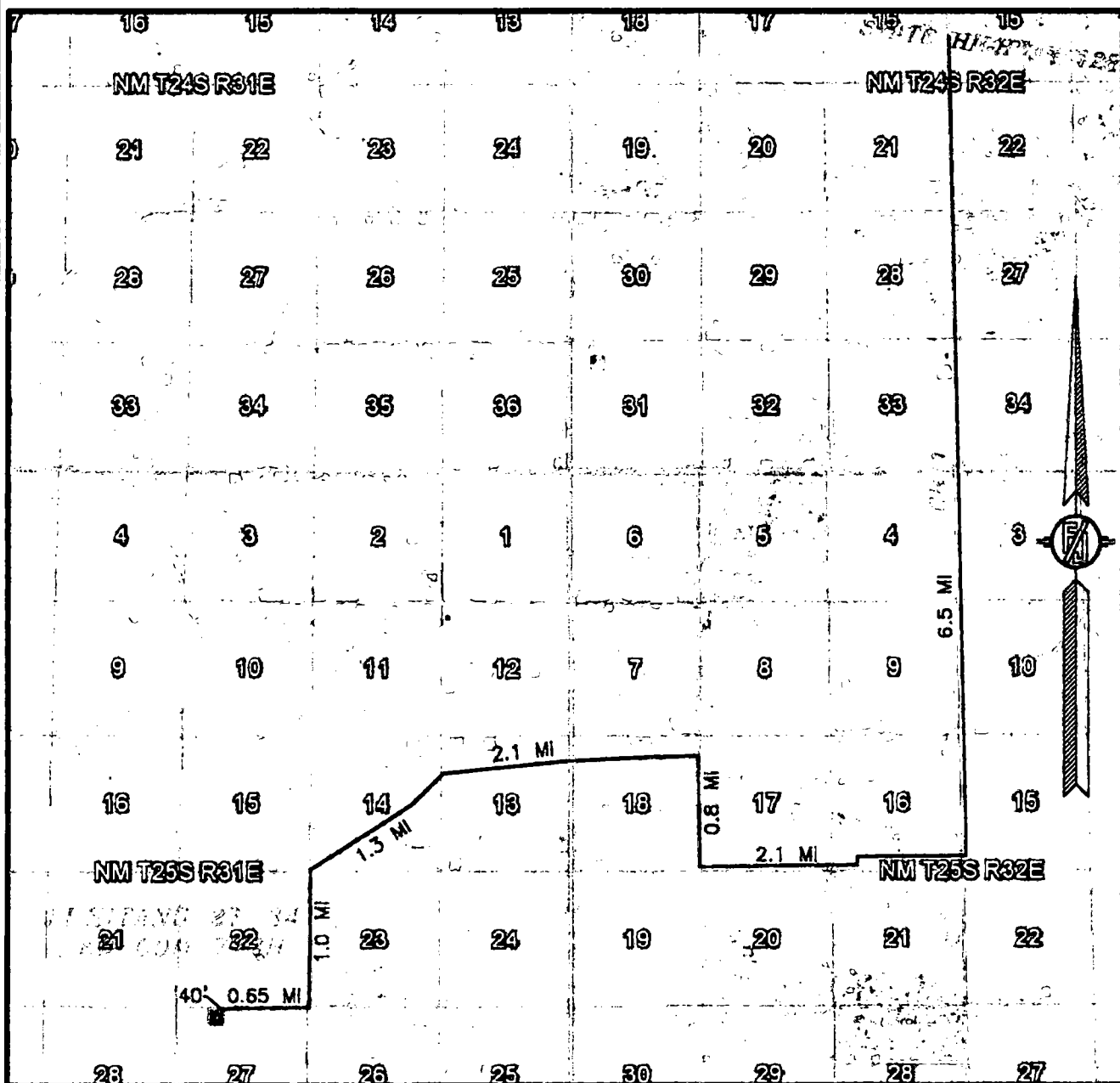
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 713H
LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018

SURVEY NO. 6427

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

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



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 NOVEMBER 2017

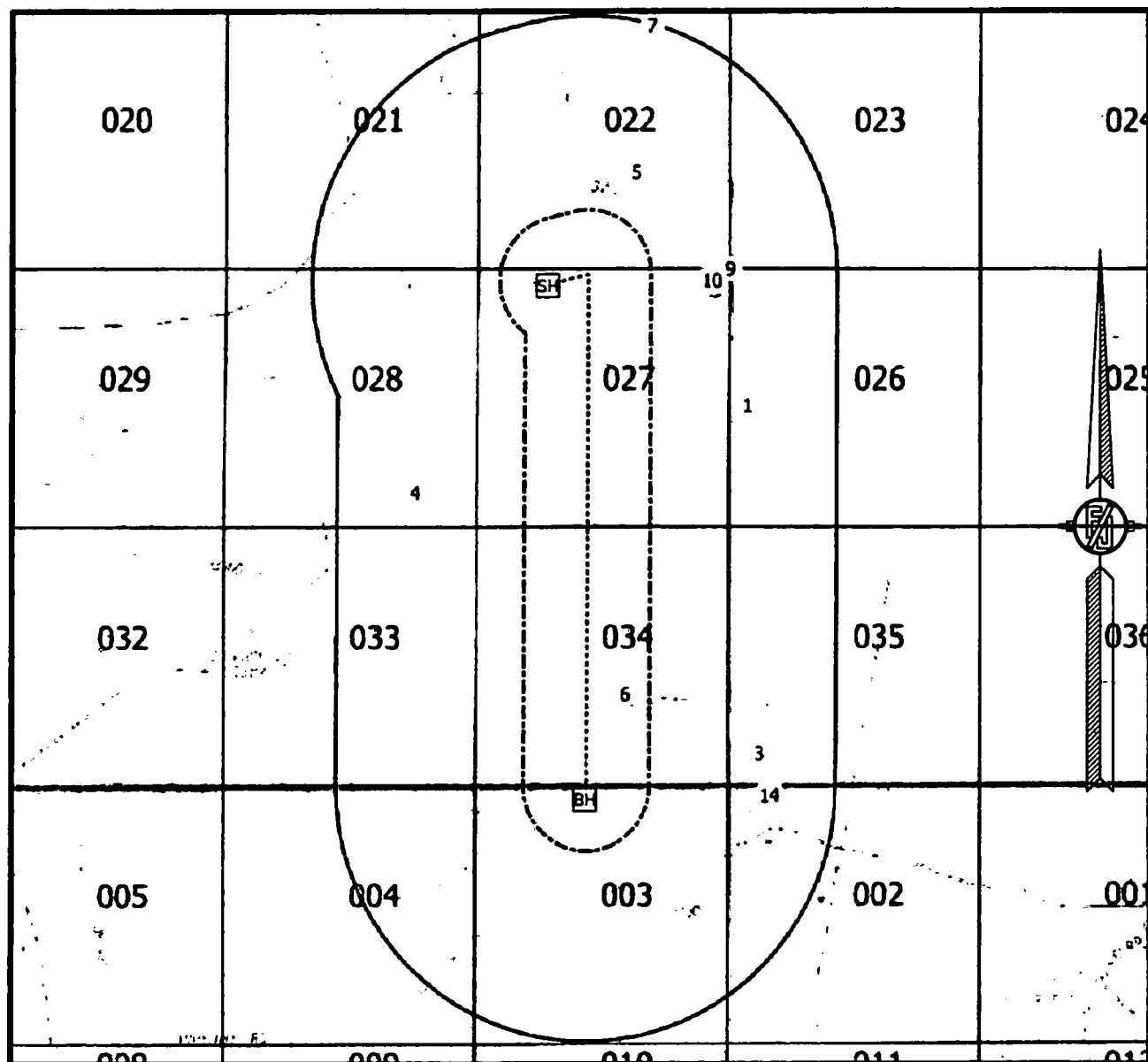
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 713H
 LOCATED 235 FT. FROM THE NORTH LINE
 AND 1762 FT. FROM THE WEST LINE OF
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 LAND STATUS: BLM

AUGUST 1, 2018

SURVEY NO. 6427

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

1-MILE MAP



NOT TO SCALE

WELL DATA FROM NMOCD GIS - 8/1/18

[SH] SURFACE LOCATION

[BH] BOTTOM OF HOLE

(XX) WELLS WITHIN 1 MILE

----- WELL PATH

----- 1/4 MILE BOUNDARY

----- 1-MILE BOUNDARY

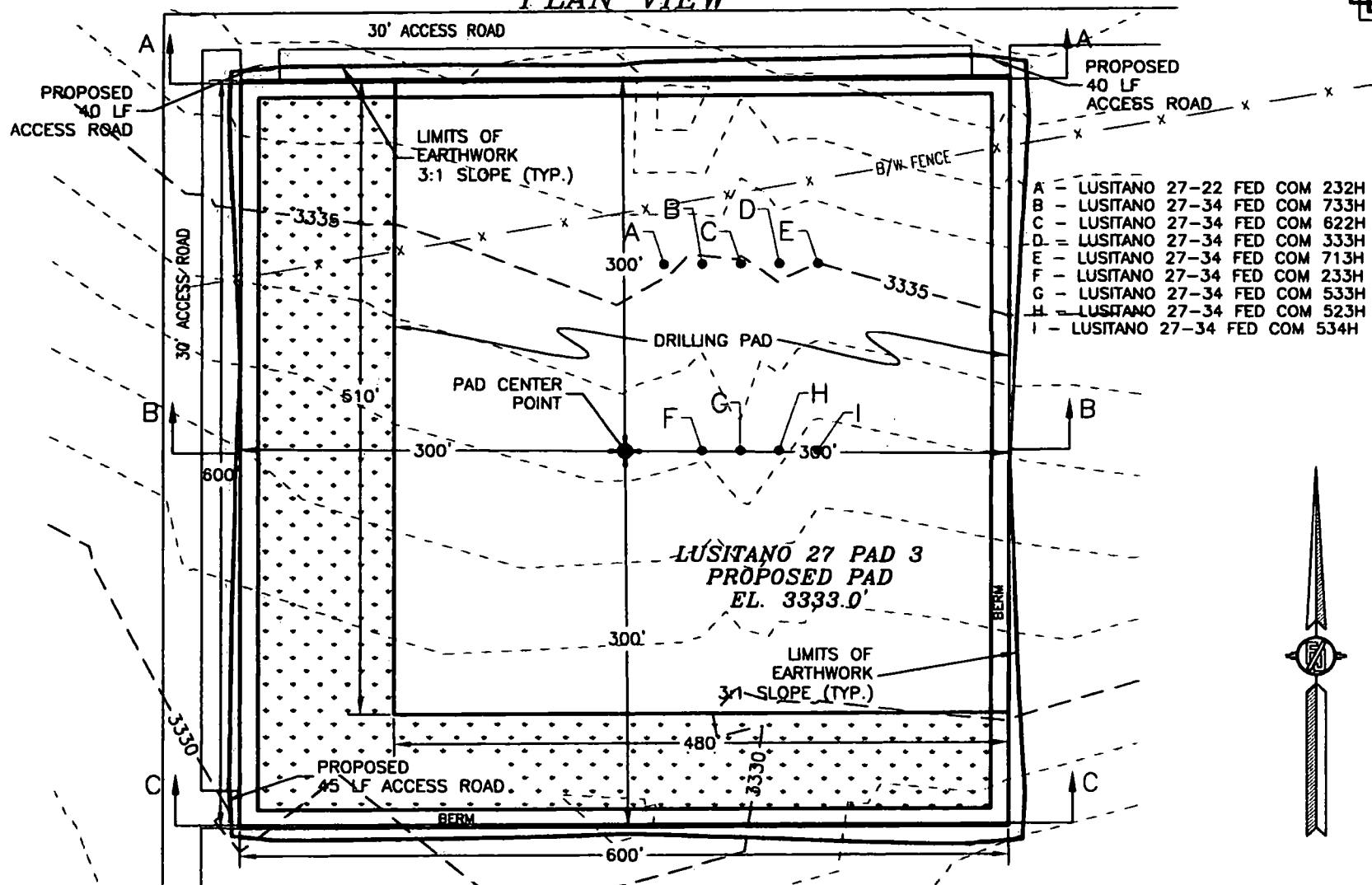
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 713H
 LOCATED 235 FT. FROM THE NORTH LINE
 AND 1762 FT. FROM THE WEST LINE OF
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 LAND STATUS: BLM

AUGUST 1, 2018

SURVEY NO. 6427

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

PLAN VIEW



**DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27-34 FED COM 71SH
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO**

0 12 60 120 240

SCALE 1" = 120'

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

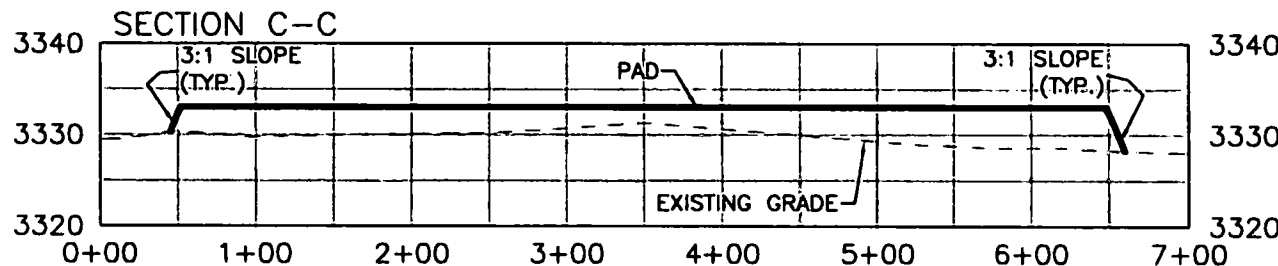
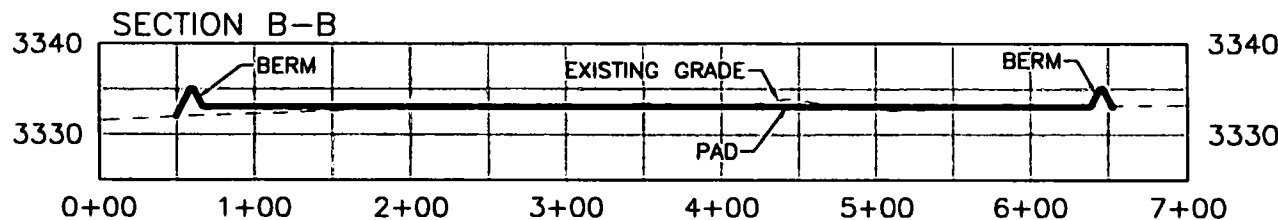
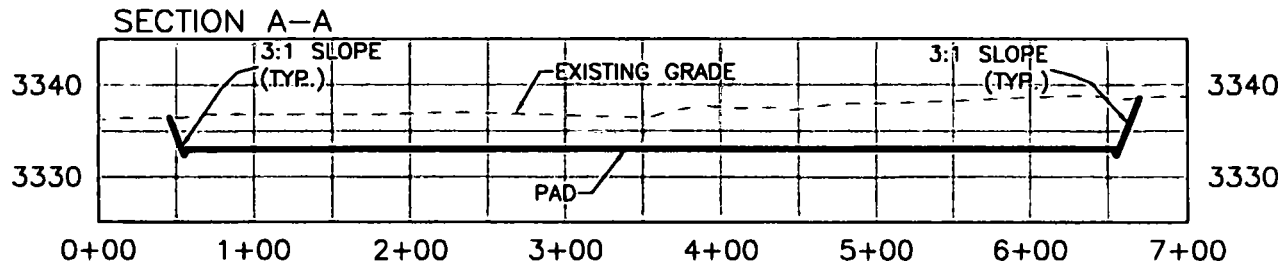
EARTHWORK QUANTITIES ARE ESTIMATED

AUGUST 1, 2018

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

SHEET 1-2
SURVEY NO. 6427 

CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
 FOR LUSITANO 27-34 FED COM 713H
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

0 12 60 120 240
 SCALE 1" = 120' - 1" = 20' VER

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

EARTHWORK QUANTITIES ARE ESTIMATED

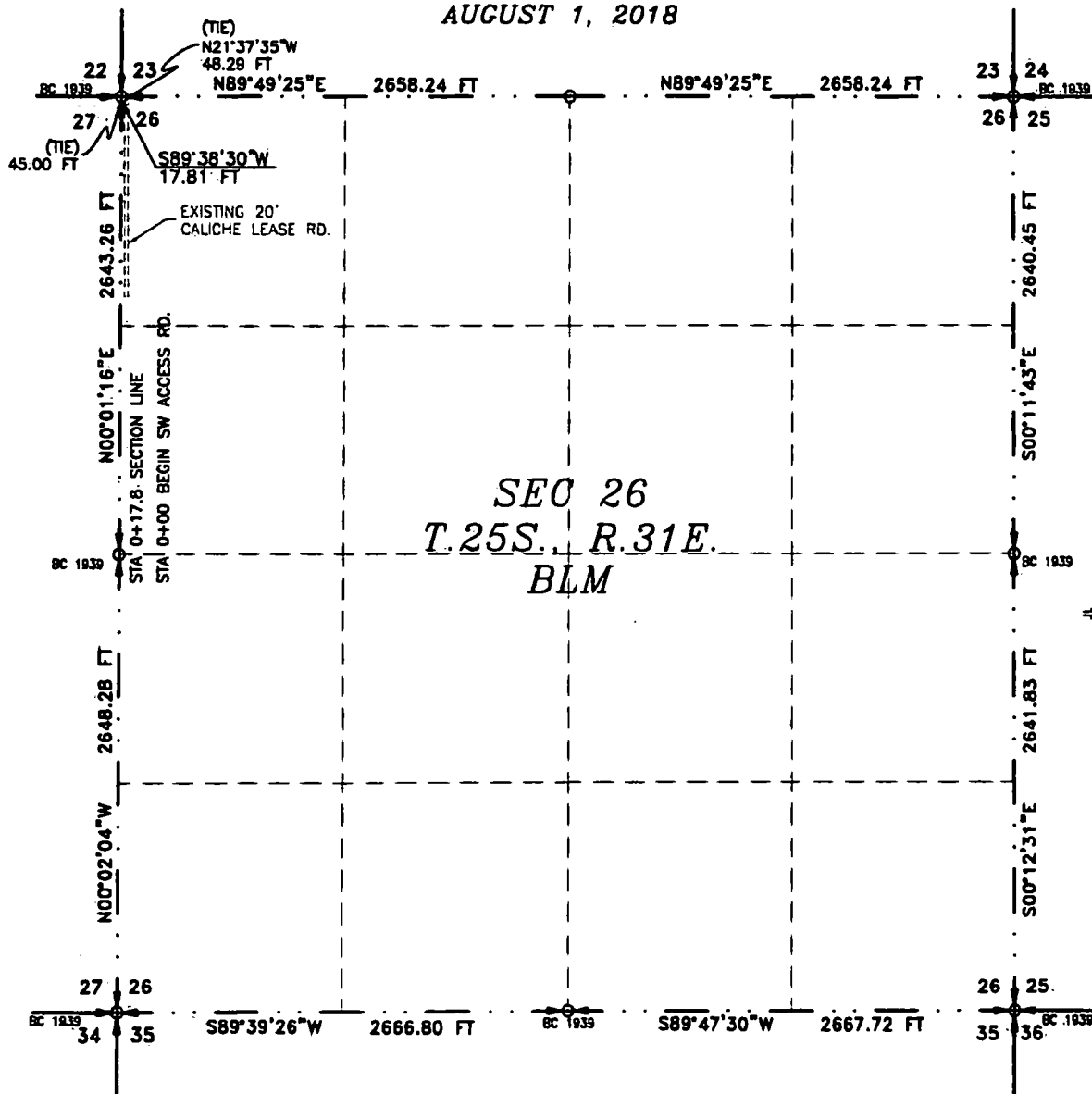
AUGUST 1, 2018
 MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

SHEET 2-2
 SURVEY NO. 6427

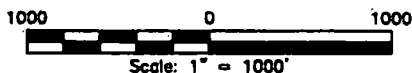
ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 593H, 523H, 534H)

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



SEE NEXT SHEET (2-4) FOR DESCRIPTION



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.

SHEET: 1-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

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

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

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

SURVEY NO. 6427

301 SOUTH CANAL
(575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

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

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

DESCRIPTION

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

SOUTHWEST ACCESS ROAD

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

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

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

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

SURVEYOR CERTIFICATE

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

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

FILMON F. JARAMILLO
FILMON F. JARAMILLO, PLS. 12797

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

SURVEY NO. 6427

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.

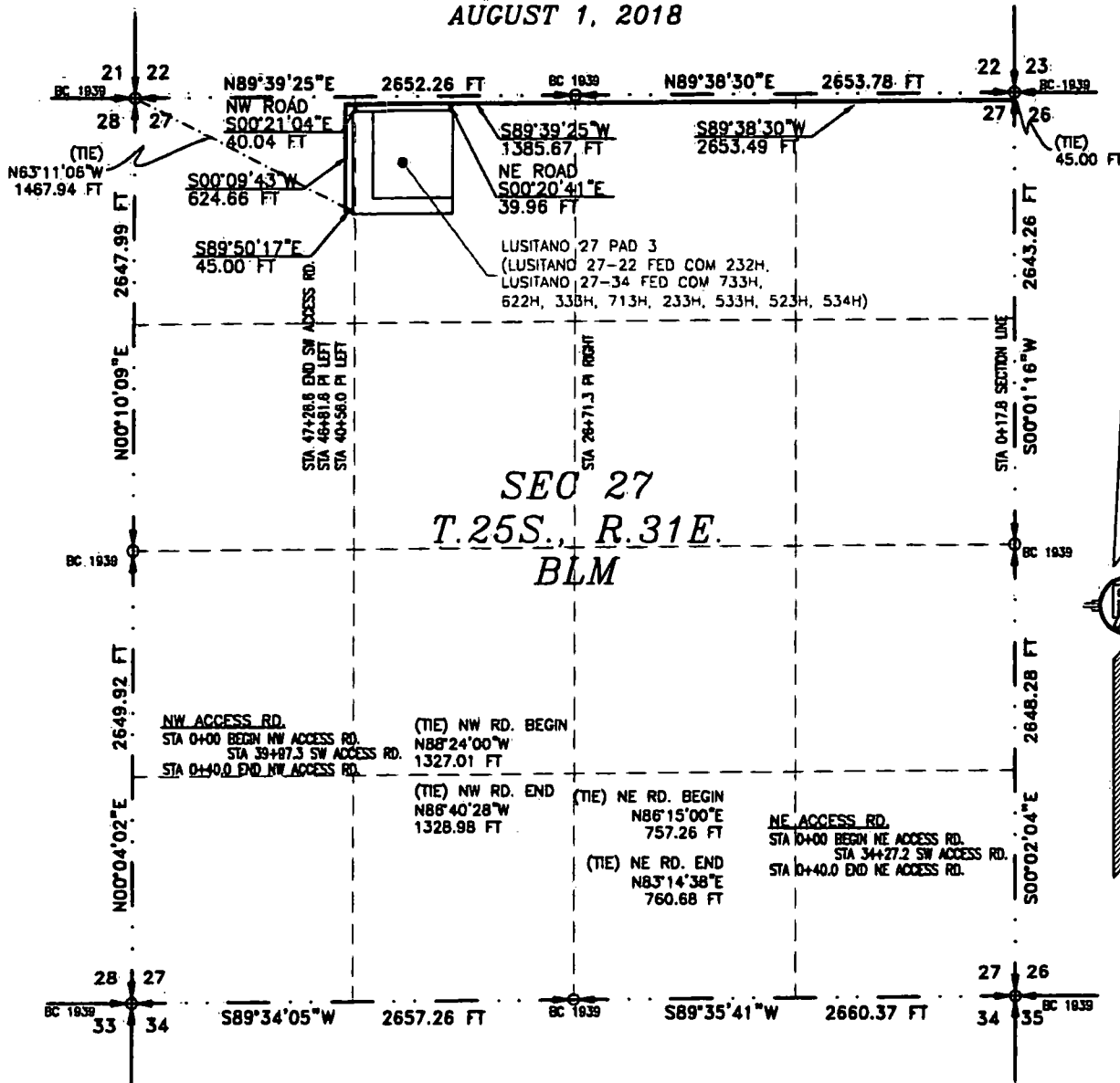
SHEET: 2-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

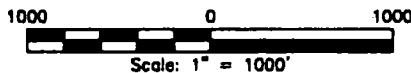
ACCESS ROAD PLAT

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

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



SEE NEXT SHEET (4-4) FOR DESCRIPTION



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.

SHEET: 3-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

I, FILMON 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 AUGUST 2018

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

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

SURVEY NO. 6427

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 633H, 523H, 534H)

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

DESCRIPTION

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

SOUTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

THENCE S89°38'30"W A DISTANCE OF 2653.49 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°39'25"W A DISTANCE OF 1385.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S00°09'43"W A DISTANCE OF 624.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°50'17"E A DISTANCE OF 45.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°11'06"W, A DISTANCE OF 1467.94 FEET;

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

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

NORTHEAST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°15'00"E, A DISTANCE OF 757.26 FEET;

THENCE S00°20'41"E A DISTANCE OF 39.96 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°14'38"E, A DISTANCE OF 760.68 FEET;

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

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

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°24'00"W, A DISTANCE OF 1327.01 FEET;

THENCE S00°21'04"E A DISTANCE OF 40.04 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°40'28"W, A DISTANCE OF 1328.98 FEET;

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

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

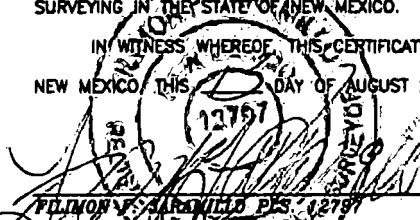
SHEET: 4-4

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

SURVEYOR CERTIFICATE

I, FILMON 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 1st DAY OF AUGUST 2018


FILMON F. JARAMILLO, P.S. 12797

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

SURVEY NO. 6427

Intent ☒ As Drilled ☐

JAN 22 2019

API #

DISTRICT II ARTESIA O.C.D.

Operator Name: Devon Energy Production Co., L.P.	Property Name: Lusitano 27-34 Fed Com	Well Number 713H
---	--	---------------------

Kick Off Point (KOP)

UL C	Section 27	Township 25S	Range 31E	Lot	Feet 50	From N/S NORTH	Feet 2310	From E/W WEST	County EDDY
Latitude 32.108406					Longitude -103.76702				NAD 83

First Take Point (FTP)

UL C	Section 27	Township 25S	Range 31E	Lot	Feet 100	From N/S NORTH	Feet 2310	From E/W WEST	County EDDY
Latitude 32.1082773					Longitude -103.7670201				NAD 83

Last Take Point (LTP)

UL N	Section 34	Township 25S	Range 31E	Lot	Feet 100	From N/S SOUTH	Feet 2310	From E/W WEST	County EDDY
Latitude 32.0797156					Longitude -103.7671481				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☒Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number
----------------	----------------	-------------

APD ID: 10400033370

Submission Date: 08/28/2018

Highlighted data
reflects the most
recent changes.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Show Final Text

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	UNKNOWN	3338	0	0	ALLUVIUM	NONE	No
2	RUSTLER	2498	840	840	SALT	NONE	No
3	BASE OF SALT	-872	4210	4210	SALT	NONE	No
4	DELAWARE	-927	4265	4265	SANDSTONE	NATURAL GAS,OIL	No
5	BONE SPRING	-4862	8200	8200	LIMESTONE,SANDSTONE	NATURAL GAS,OIL	No
6	WOLFCAMP	-8302	11640	11640	SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M

Rating Depth: 11788

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

Requesting Variance? YES

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

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

Choke Diagram Attachment:

Lusitano_27_34_Fed_Com_713H_WLFMP_10M_BOPE_Double_Ram_and_CLS_Schematic_Remote_Kill_Line_20181210123748.pdf

BOP Diagram Attachment:

Lusitano_27_34_Fed_Com_713H_WLFMP_10M_BOPE_Double_Ram_and_CLS_Schematic_Remote_Kill_Line_20181210123757.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Pressure Rating (PSI): 5M

Rating Depth: 11788

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

Requesting Variance? YES

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

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

Choke Diagram Attachment:

Lusitano_27_34_Fed_Com_713H_5M_BOPE_CK_20180824084109.pdf

BOP Diagram Attachment:

Lusitano_27_34_Fed_Com_713H_5M_BOPE_CK_20180824084124.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	14.75	10.75	NEW	API	N	0	908	0	908	-6993	-7781	908	J-55	40.5	STC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	8.75	7.625	NEW	API	N	11235	12135	11215	11788			900	P-110	29.7	OTHER - FLUSHMAX	1.125	1.25	BUOY	1.6	BUOY	1.6
3	INTERMEDIATE	9.875	7.625	NEW	API	N	0	12135	0	11215	-6993	-11343	12135	P-110	29.7	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
4	PRODUCTION	6.75	5.5	NEW	API	N	0	22079	0	11788	-6993	-17388	22079	P-110	20	OTHER - VAM SG	1.125	1.25	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_713H_SurfCsg_Ass_20180824084326.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_713H_Int_Csg_Ass_20180824084518.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_713H_Int_Csg_Ass_20181210124152.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_713H_ProdCasing_Ass_20180824084758.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	0	0	0	0	0	0	N/A - SEE ATTACHED DRILLING PLAN	0

SURFACE	Lead		0	908	586	1.33	13.2	780	50	C	Class C + adds
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INTERMEDIATE	Lead		0	8135	1200	1.85	9	2220	30	TUNED	TUNED LIGHT
INTERMEDIATE	Tail		8135	12135	747	1.33	13.2	993	30	H	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		11935	22079	661	1.33	13.2	965	10	H	0.125 lbs/sack Poly-E-Flake

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP	
Well Name: LUSITANO 27-34 FED COM	Well Number: 713H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
908	1121 5	OTHER : CUT BRINE	8.5	9							
0	908	WATER-BASED MUD	8.5	9							
1121 5	1178 8	OIL-BASED MUD	10	10.5							

Section 6 - Test, Logging, Coring

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

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

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

DS,GR,MUDLOG

Coring operation description for the well:

N/A

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6436

Anticipated Surface Pressure: 3842.64

Anticipated Bottom Hole Temperature(F): 177

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Lusitano_27_34_Fed_Com_713H_H2S_Plans_20180822134939.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

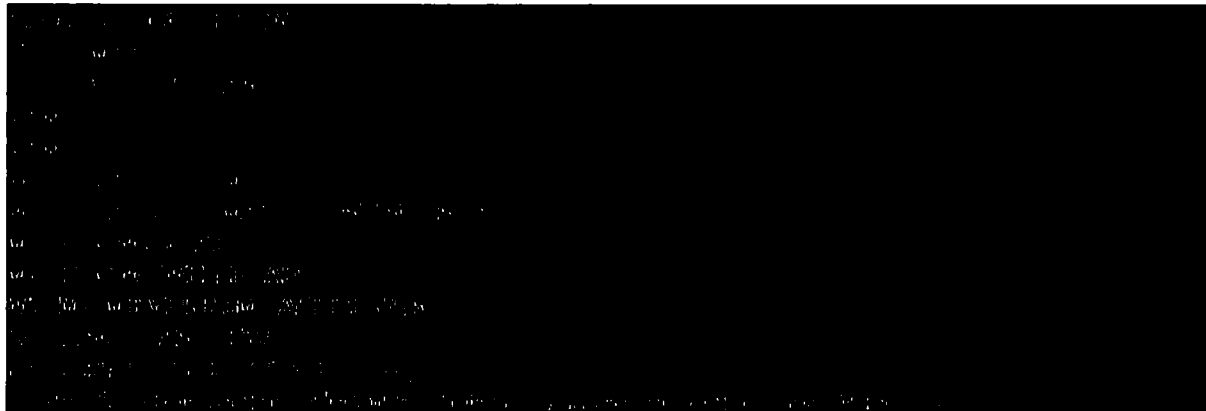
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Lusitano_27_34_Fed_Com_713H_Dir_Plan_20180824090129.pdf

Lusitano_27_34_Fed_Com_713H_Plot_20180824090143.pdf

Lusitano_27_34_Fed_Com_713H_Permit_Plan_1_20180824090153.pdf

Other proposed operations facets description:



Other proposed operations facets attachment:

Lusitano_27_34_Fed_Com_713H_Clsd_Loop_20180824090303.pdf

Lusitano_27_34_Fed_Com_713H_7.625_29.70_P110_Flushmax_20180827113646.pdf

Lusitano_27_34_Fed_Com_713H_Gas_Capture_Plan_20180827113701.pdf

Lusitano_27_34_Fed_Com_713H_8.625_32_P110EC_VAM_FJL_NA_7.875_SD_20181203135345.PDF

Lusitano_27_34_Fed_Com_713H_5.5_x_20_P110_EC_VAMSG_20181210132313.pdf

WLFMP_Wellhead_Schematic_10.75x7.625x5.5_20181210132727.pdf

WLFMP_Wellhead_Schematic_Contingency_13.375x8.625x5.5_20181210132728.pdf

MB_Verb_10M_20181210135336.docx

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

MB_Wellhd_10M_20181210135337.pdf

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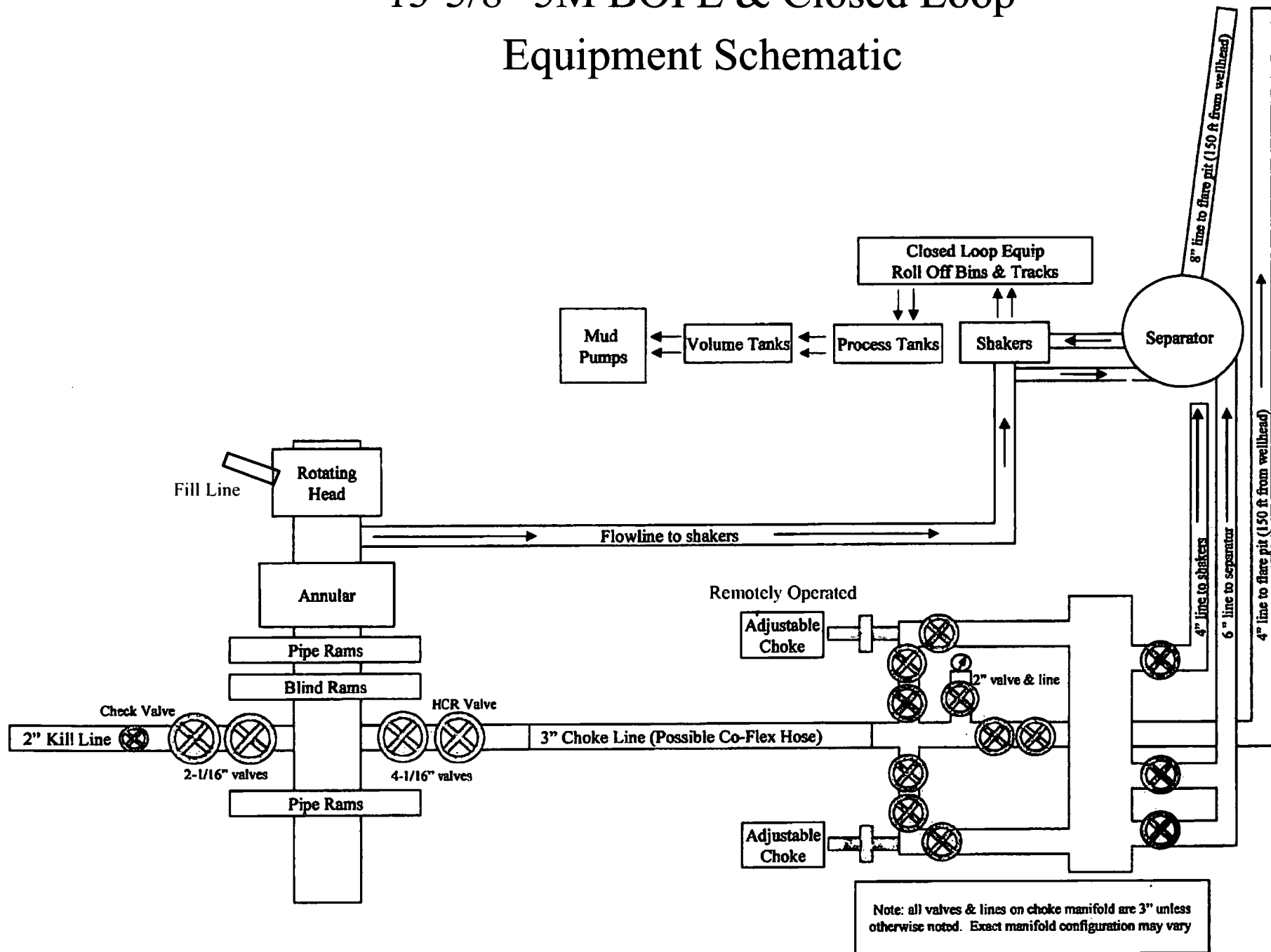
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Lusitano_27_34_Fed_Com_713H_8.625_32__P110EC___7.875_SD__BTC__20190107052817.pdf

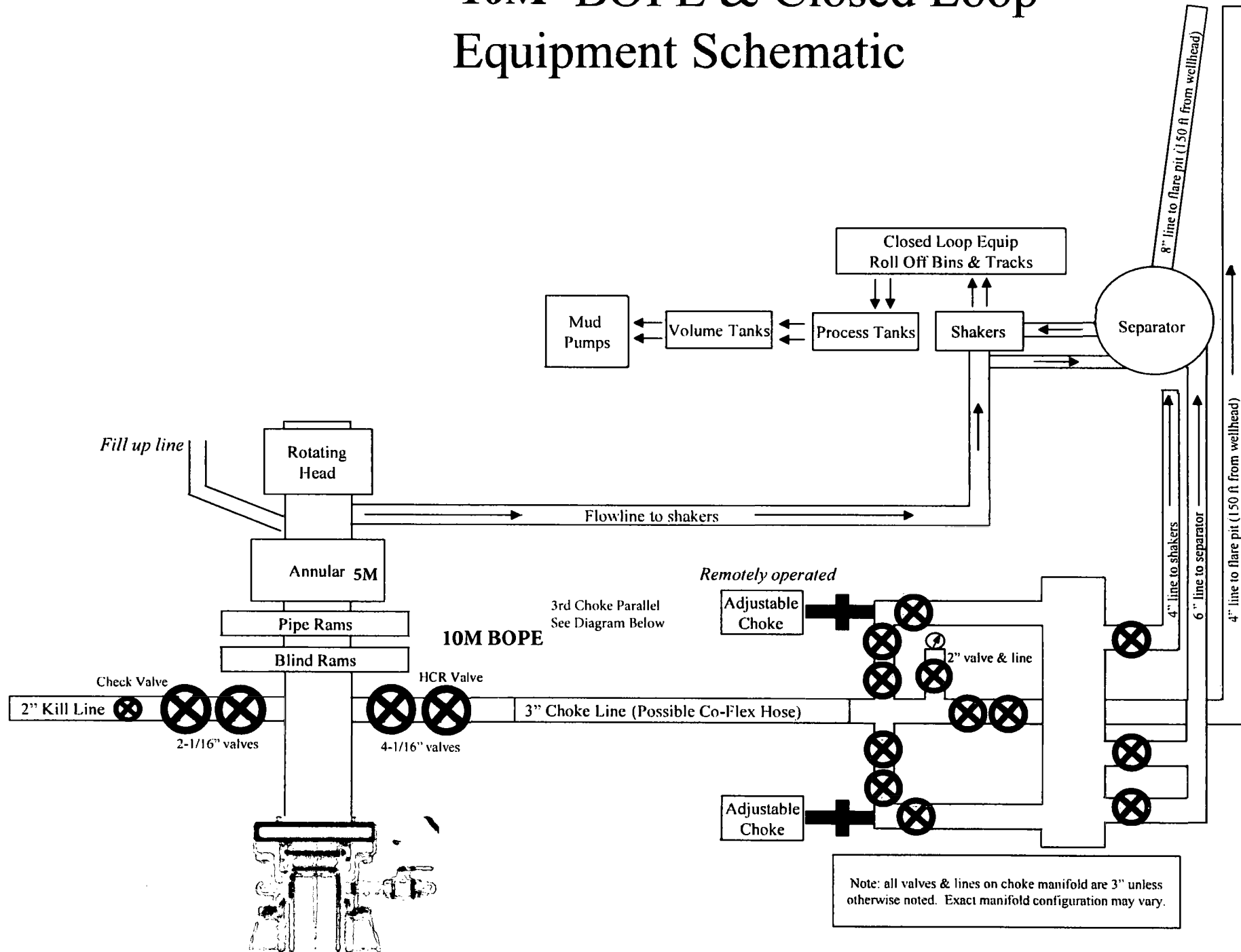
Other Variance attachment:

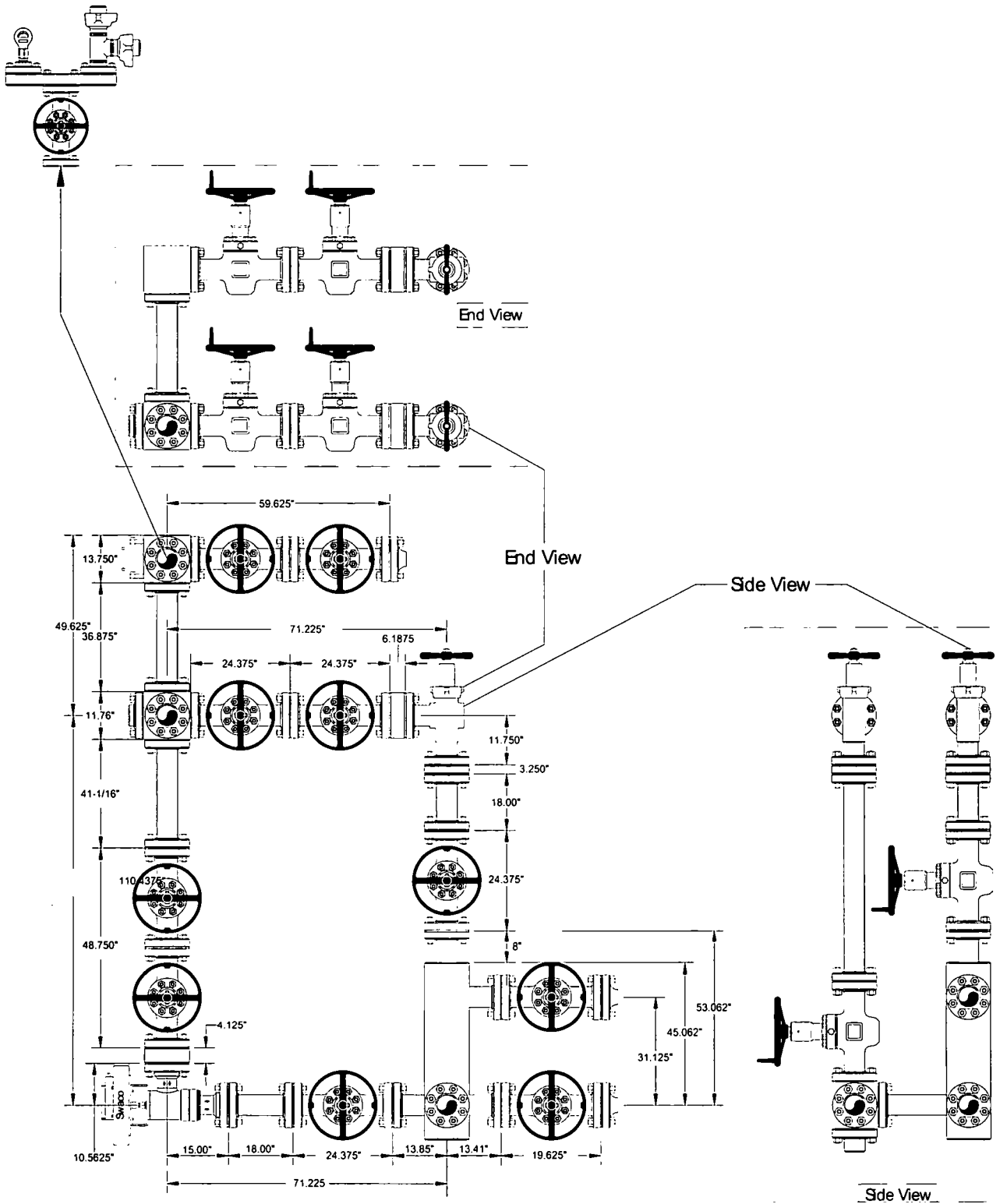
Lusitano_27_34_Fed_Com_713H_Co_flex_20180824090342.pdf

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



10M BOPE & Closed Loop Equipment Schematic

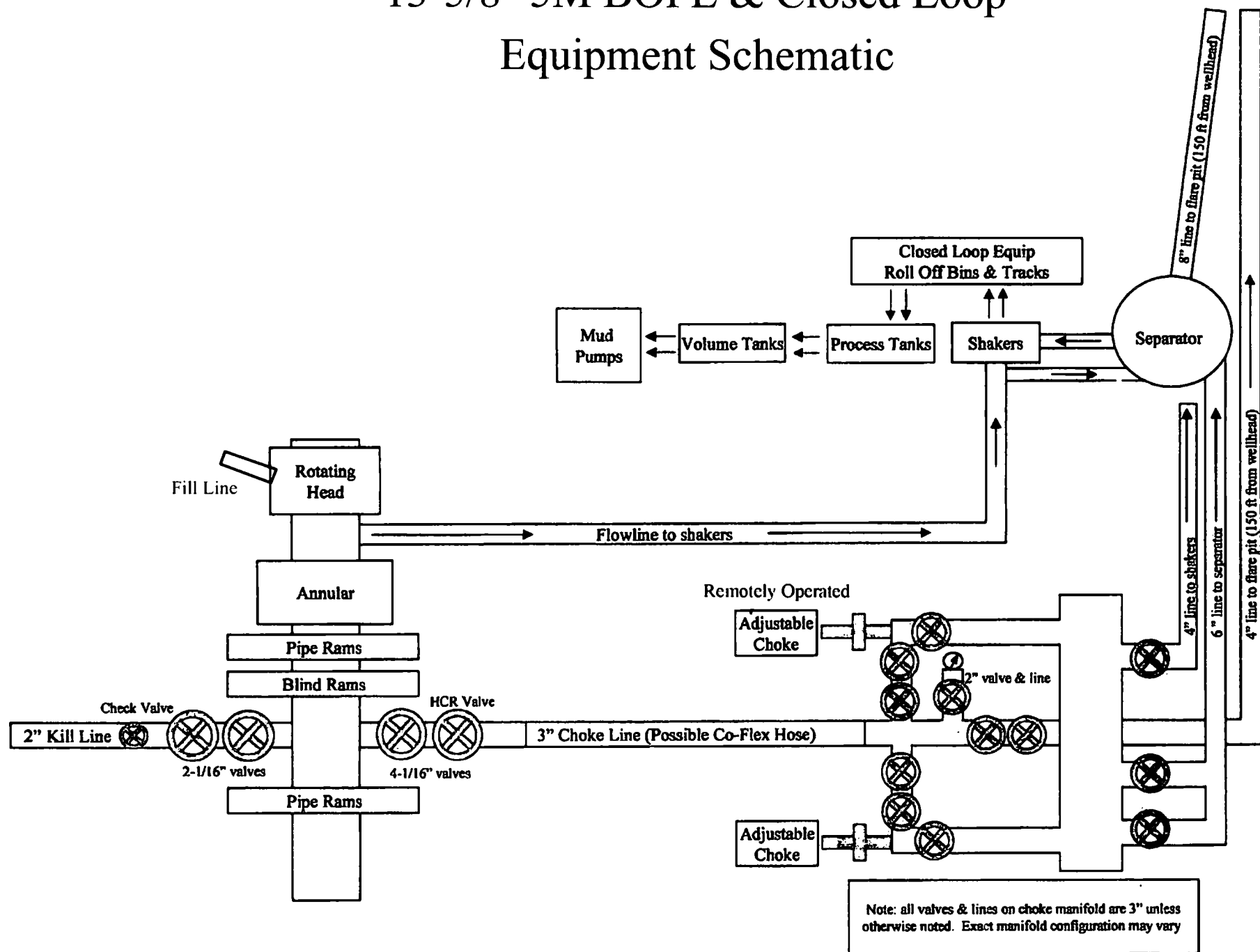




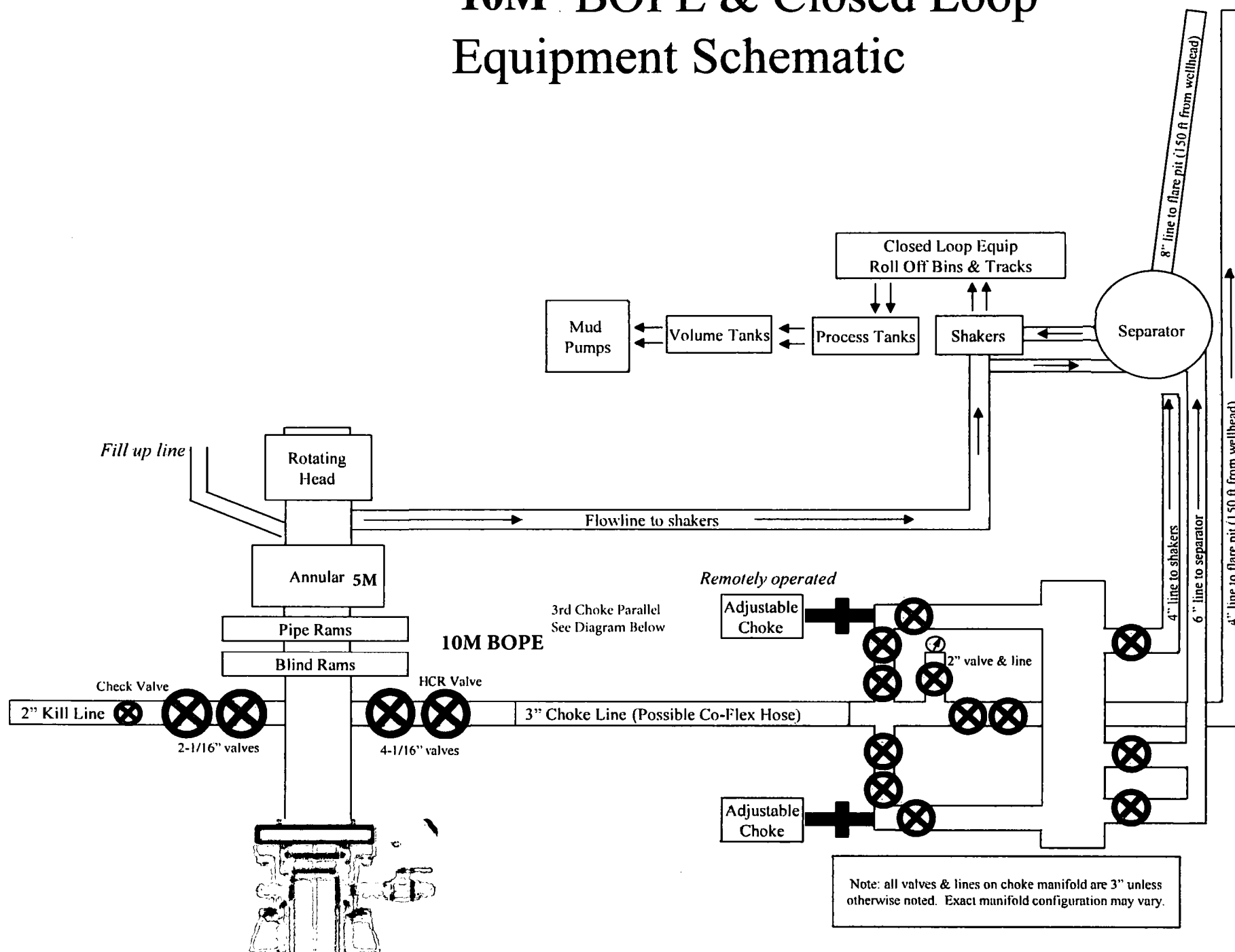
Helmerich & Payne
Rg 282

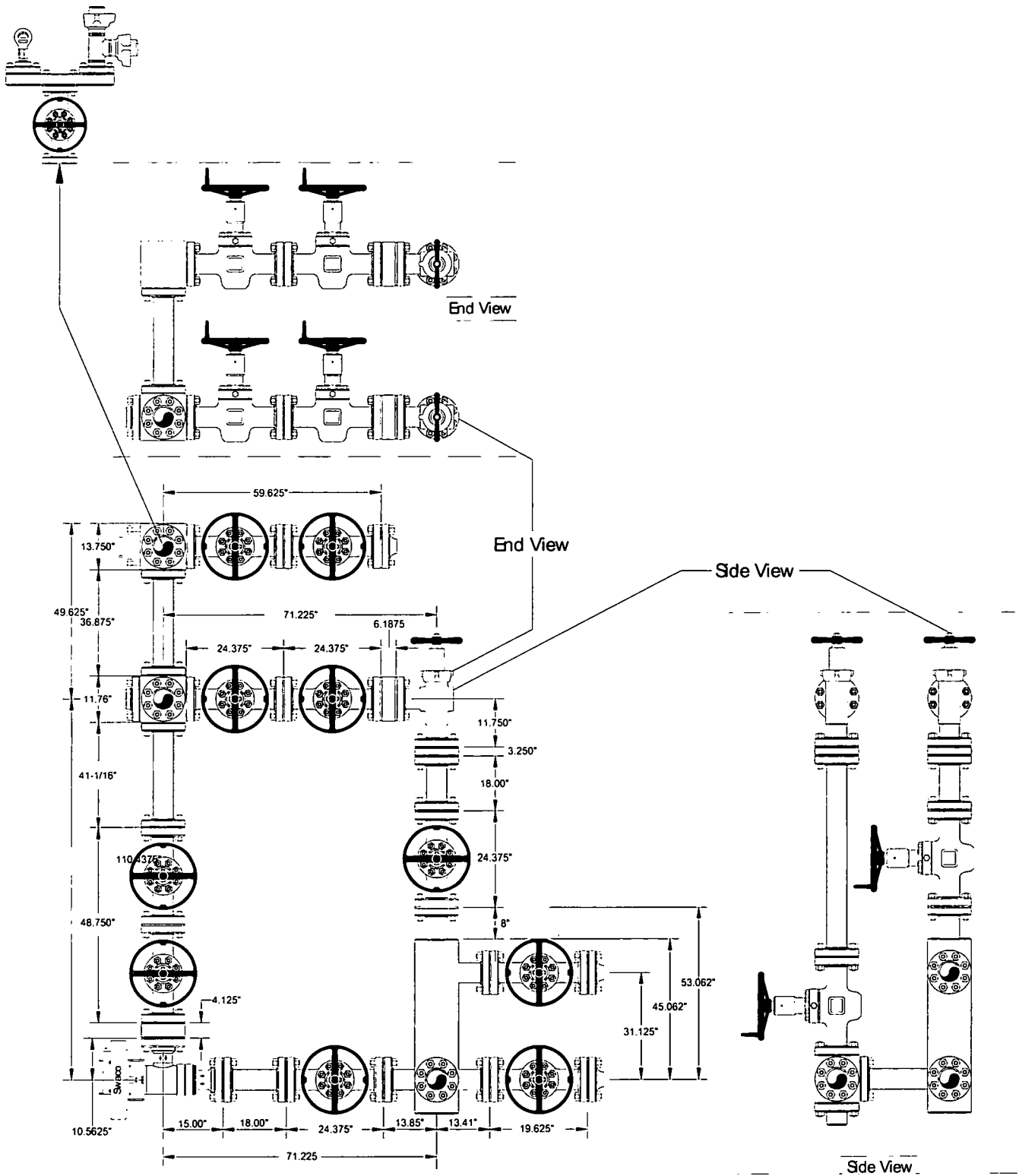
CAMERON

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



10M BOPE & Closed Loop Equipment Schematic





Helmerich & Payne
Fig 282

CAMERON

Name: Jeanette	Date: 7-19-06	Working Pressure:	# J-5132-E
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All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

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

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

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

Casing Assumptions and Load Cases

Intermediate

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

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

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

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

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

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

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

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

Casing Assumptions and Load Cases

Intermediate

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

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

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

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



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

Hydrogen Sulfide (H₂S) Contingency Plan

For

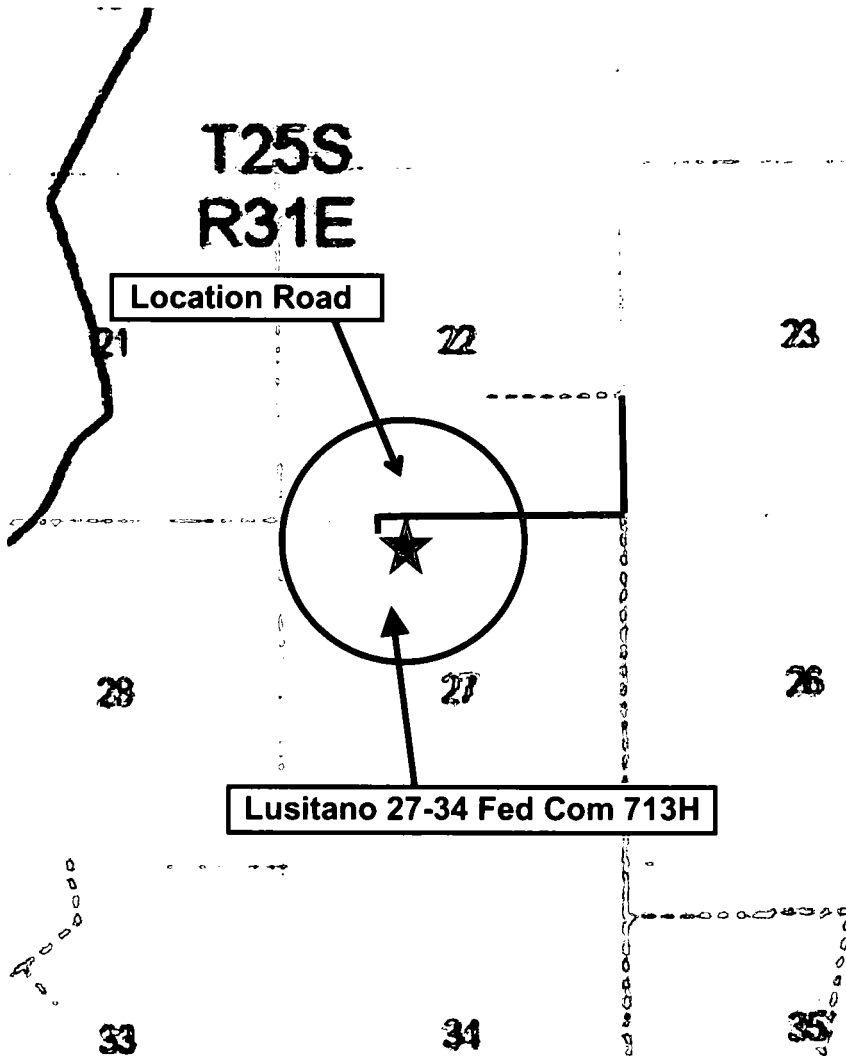
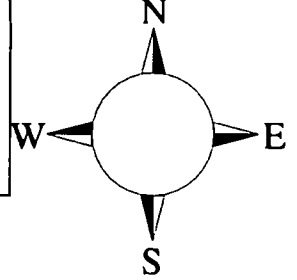
Lusitano 27-34 Fed Com 713H

**Sec-27 T-25S R-31E
235' FNL & 1762' FWL
LAT. = 32.1079052' N (NAD83)
LONG = 103.7687931' W**

Eddy County NM

Lusitano 27-34 Fed Com 713H

This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H₂S, including warning signs, wind indicators and H₂S monitor.



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

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

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H₂S and SO₂

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

Contacting Authorities

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 (H₂S) 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 (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S 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 H₂S 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 H₂S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan.

II. HYDROGEN SULFIDE TRAINING

Note: All H₂S 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 H₂S.

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. H₂S detection and monitoring equipment:

Portable H₂S monitors positioned on location for best coverage and response. These units have warning lights which activate when H₂S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

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

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 H₂S circulated to surface. Proper mud weight, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

5. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H₂S trim.
- B. All elastomers used for packing and seals shall be H₂S 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 H₂S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

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

Prepared in conjunction with

Dave Small



WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 27-T25S-R31E

Lusitano 27_34 Fed Com 713H

Wellbore #1

Permit Plan 1

Anticollision Report

21 August, 2018

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date 8/21/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	22,079.71	Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 27-T25S-R31E						
Gunnison 34 Fed #001 (P&A) - Wellbore #1 - Wellbore #						Out of range
Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit PI	2,500.00	2,500.10	119.95	102.45	6.853 CC	
Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit PI	2,550.00	2,550.10	120.21	102.35	6.731 ES	
Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit PI	2,700.00	2,700.04	124.10	105.18	6.560 SF	
Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit PI	2,500.00	2,501.80	153.23	135.72	8.751 CC	
Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit PI	7,550.00	7,562.42	184.27	130.18	3.406 Alert, ES	
Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit PI	7,750.00	7,759.51	187.49	131.97	3.377 Alert, SF	
Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit PI	3,089.48	3,090.64	135.05	113.37	6.229 CC	
Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit PI	3,200.00	3,200.77	135.38	112.90	6.022 ES	
Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit PI	3,900.00	3,901.79	151.76	124.23	5.513 SF	
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit PI	2,500.00	2,500.10	59.98	42.48	3.427 Alert, CC	
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit PI	2,550.00	2,549.90	60.24	42.38	3.373 Alert, ES	
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit PI	22,079.71	22,018.85	661.04	349.67	2.123 Minor Risk, SF	
Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit PI	11,200.00	11,201.87	1,346.01	1,266.46	16.920 CC	
Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit PI	22,079.71	22,095.29	1,358.49	1,045.89	4.346 Alert, ES, SF	
Lusitano 27_34 Fed Com 736H - Wellbore #1 - Permit PI						Out of range
Lusitano 27-34 Fed Com 235H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Pla	2,500.00	2,500.20	29.96	12.46	1.712 Minor Risk, CC	
Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Pla	2,550.00	2,550.20	30.22	12.36	1.692 Minor Risk, ES, SF	
Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Pla	10,777.95	10,737.86	1,356.16	1,279.88	17.779 CC	
Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Pla	22,079.71	21,315.20	1,492.56	1,200.12	5.104 ES, SF	
Lusitano 27-34 Fed Com 336H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 528H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 536H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 626H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 718H - Wellbore #1 - Wellbore						Out of range

Offset Design	Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1											Offset Site Error:	0.00 ft
Survey Program:	0-MWD+HDGM											Offset Well Error:	0.50 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.10	0.10	0.50	0.50	-90.36	-0.76	-119.95	119.95				
50.00	50.00	50.10	50.10	0.50	0.50	-90.36	-0.76	-119.95	119.95	118.95	1.01	119.176	

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

Anticollision Report

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Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
100.00	100.00	100.10	100.10	0.52	0.52	-90.36	-0.76	-119.95	119.95	118.92	1.04	115.829	
150.00	150.00	150.10	150.10	0.59	0.59	-90.36	-0.76	-119.95	119.95	118.77	1.18	101.597	
200.00	200.00	200.10	200.10	0.70	0.70	-90.36	-0.76	-119.95	119.95	118.55	1.40	85.408	
250.00	250.00	250.10	250.10	0.84	0.84	-90.36	-0.76	-119.95	119.95	118.28	1.68	71.583	
300.00	300.00	300.10	300.10	0.99	0.99	-90.36	-0.76	-119.95	119.95	117.98	1.97	60.736	
350.00	350.00	350.10	350.10	1.15	1.15	-90.36	-0.76	-119.95	119.95	117.66	2.29	52.351	
400.00	400.00	400.10	400.10	1.31	1.31	-90.36	-0.76	-119.95	119.95	117.33	2.62	45.809	
450.00	450.00	450.10	450.10	1.48	1.48	-90.36	-0.76	-119.95	119.95	117.00	2.95	40.621	
500.00	500.00	500.10	500.10	1.65	1.65	-90.36	-0.76	-119.95	119.95	116.66	3.29	36.432	
550.00	550.00	550.10	550.10	1.82	1.82	-90.36	-0.76	-119.95	119.95	116.32	3.64	32.993	
600.00	600.00	600.10	600.10	1.99	1.99	-90.36	-0.76	-119.95	119.95	115.97	3.98	30.127	
650.00	650.00	650.10	650.10	2.16	2.16	-90.36	-0.76	-119.95	119.95	115.62	4.33	27.706	
700.00	700.00	700.10	700.10	2.34	2.34	-90.36	-0.76	-119.95	119.95	115.27	4.68	25.636	
750.00	750.00	750.10	750.10	2.51	2.52	-90.36	-0.76	-119.95	119.95	114.92	5.03	23.849	
800.00	800.00	800.10	800.10	2.69	2.69	-90.36	-0.76	-119.95	119.95	114.57	5.38	22.290	
850.00	850.00	850.10	850.10	2.87	2.87	-90.36	-0.76	-119.95	119.95	114.22	5.73	20.919	
900.00	900.00	900.10	900.10	3.04	3.04	-90.36	-0.76	-119.95	119.95	113.87	6.09	19.705	
950.00	950.00	950.10	950.10	3.22	3.22	-90.36	-0.76	-119.95	119.95	113.51	6.44	18.622	
1,000.00	1,000.00	1,000.10	1,000.10	3.40	3.40	-90.36	-0.76	-119.95	119.95	113.16	6.80	17.651	
1,050.00	1,050.00	1,050.10	1,050.10	3.58	3.58	-90.36	-0.76	-119.95	119.95	112.80	7.15	16.776	
1,100.00	1,100.00	1,100.10	1,100.10	3.75	3.75	-90.36	-0.76	-119.95	119.95	112.45	7.51	15.982	
1,150.00	1,150.00	1,150.10	1,150.10	3.93	3.93	-90.36	-0.76	-119.95	119.95	112.09	7.86	15.259	
1,200.00	1,200.00	1,200.10	1,200.10	4.11	4.11	-90.36	-0.76	-119.95	119.95	111.74	8.22	14.599	
1,250.00	1,250.00	1,250.10	1,250.10	4.29	4.29	-90.36	-0.76	-119.95	119.95	111.38	8.57	13.993	
1,300.00	1,300.00	1,300.10	1,300.10	4.46	4.46	-90.36	-0.76	-119.95	119.95	111.02	8.93	13.434	
1,350.00	1,350.00	1,350.10	1,350.10	4.64	4.64	-90.36	-0.76	-119.95	119.95	110.67	9.29	12.919	
1,400.00	1,400.00	1,400.10	1,400.10	4.82	4.82	-90.36	-0.76	-119.95	119.95	110.31	9.64	12.441	
1,450.00	1,450.00	1,450.10	1,450.10	5.00	5.00	-90.36	-0.76	-119.95	119.95	109.95	10.00	11.998	
1,500.00	1,500.00	1,500.10	1,500.10	5.18	5.18	-90.36	-0.76	-119.95	119.95	109.60	10.35	11.584	
1,550.00	1,550.00	1,550.10	1,550.10	5.36	5.36	-90.36	-0.76	-119.95	119.95	109.24	10.71	11.198	
1,600.00	1,600.00	1,600.10	1,600.10	5.53	5.53	-90.36	-0.76	-119.95	119.95	108.88	11.07	10.837	
1,650.00	1,650.00	1,650.10	1,650.10	5.71	5.71	-90.36	-0.76	-119.95	119.95	108.53	11.43	10.499	
1,700.00	1,700.00	1,700.10	1,700.10	5.89	5.89	-90.36	-0.76	-119.95	119.95	108.17	11.78	10.180	
1,750.00	1,750.00	1,750.10	1,750.10	6.07	6.07	-90.36	-0.76	-119.95	119.95	107.81	12.14	9.881	
1,800.00	1,800.00	1,800.10	1,800.10	6.25	6.25	-90.36	-0.76	-119.95	119.95	107.46	12.50	9.598	
1,850.00	1,850.00	1,850.10	1,850.10	6.43	6.43	-90.36	-0.76	-119.95	119.95	107.10	12.85	9.331	
1,900.00	1,900.00	1,900.10	1,900.10	6.61	6.61	-90.36	-0.76	-119.95	119.95	106.74	13.21	9.079	
1,950.00	1,950.00	1,950.10	1,950.10	6.78	6.78	-90.36	-0.76	-119.95	119.95	106.38	13.57	8.840	
2,000.00	2,000.00	2,000.10	2,000.10	6.96	6.96	-90.36	-0.76	-119.95	119.95	106.03	13.93	8.613	
2,050.00	2,050.00	2,050.10	2,050.10	7.14	7.14	-90.36	-0.76	-119.95	119.95	105.67	14.28	8.397	
2,100.00	2,100.00	2,100.10	2,100.10	7.32	7.32	-90.36	-0.76	-119.95	119.95	105.31	14.64	8.192	
2,150.00	2,150.00	2,150.10	2,150.10	7.50	7.50	-90.36	-0.76	-119.95	119.95	104.95	15.00	7.997	
2,200.00	2,200.00	2,200.10	2,200.10	7.68	7.68	-90.36	-0.76	-119.95	119.95	104.60	15.36	7.811	
2,250.00	2,250.00	2,250.10	2,250.10	7.86	7.86	-90.36	-0.76	-119.95	119.95	104.24	15.72	7.633	
2,300.00	2,300.00	2,300.10	2,300.10	8.04	8.04	-90.36	-0.76	-119.95	119.95	103.88	16.07	7.463	
2,350.00	2,350.00	2,350.10	2,350.10	8.22	8.22	-90.36	-0.76	-119.95	119.95	103.52	16.43	7.300	
2,400.00	2,400.00	2,400.10	2,400.10	8.39	8.39	-90.36	-0.76	-119.95	119.95	103.16	16.79	7.145	
2,450.00	2,450.00	2,450.10	2,450.10	8.57	8.57	-90.36	-0.76	-119.95	119.95	102.81	17.15	6.996	
2,500.00	2,500.00	2,500.10	2,500.10	8.75	8.75	-90.36	-0.76	-119.95	119.95	102.45	17.50	6.853 CC	
2,550.00	2,550.00	2,550.10	2,550.10	8.93	8.93	-161.75	-0.76	-119.95	120.21	102.35	17.86	6.731 ES	
2,600.00	2,599.99	2,600.09	2,600.09	9.10	9.11	-161.87	-0.76	-119.95	120.99	102.77	18.21	6.643	
2,650.00	2,649.97	2,650.07	2,650.07	9.28	9.29	-162.06	-0.76	-119.95	122.29	103.72	18.57	6.587	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,700.00	2,699.94	2,700.04	2,700.04	9.45	9.47	-162.33	-0.76	-119.95	124.10	105.18	18.92	6.560 SF		
2,750.00	2,749.88	2,749.57	2,749.57	9.63	9.64	-162.56	-0.56	-120.03	126.52	107.26	19.27	6.566		
2,800.00	2,799.79	2,799.06	2,799.05	9.80	9.82	-162.68	0.03	-120.29	129.63	110.01	19.62	6.608		
2,850.00	2,849.66	2,848.61	2,848.59	9.97	10.00	-162.69	1.00	-120.70	133.36	113.39	19.97	6.679		
2,900.00	2,899.54	2,901.54	2,898.43	10.15	10.19	-162.68	2.07	-121.17	137.21	116.88	20.33	6.749		
2,950.00	2,949.41	2,948.31	2,948.27	10.33	10.35	-162.67	3.15	-121.63	141.06	120.39	20.67	6.825		
3,000.00	2,999.28	3,001.84	2,998.11	10.50	10.55	-162.66	4.23	-122.09	144.91	123.88	21.03	6.890		
3,050.00	3,049.15	3,048.02	3,047.94	10.68	10.71	-162.65	5.31	-122.56	148.77	127.39	21.37	6.961		
3,100.00	3,099.02	3,102.13	3,097.78	10.85	10.90	-162.64	6.39	-123.02	152.62	130.88	21.74	7.020		
3,150.00	3,148.80	3,147.72	3,147.62	11.03	11.07	-162.63	7.47	-123.49	156.47	134.40	22.08	7.088		
3,200.00	3,198.77	3,202.43	3,197.46	11.21	11.26	-162.62	8.55	-123.95	160.33	137.88	22.45	7.143		
3,250.00	3,248.64	3,247.42	3,247.29	11.39	11.42	-162.61	9.62	-124.41	164.18	141.40	22.78	7.207		
3,300.00	3,298.51	3,302.73	3,297.13	11.56	11.62	-162.61	10.70	-124.88	168.03	144.88	23.15	7.257		
3,350.00	3,348.38	3,347.12	3,346.97	11.74	11.78	-162.60	11.78	-125.34	171.89	148.40	23.49	7.318		
3,400.00	3,398.25	3,403.02	3,396.81	11.92	11.98	-162.59	12.86	-125.80	175.74	151.88	23.86	7.365		
3,450.00	3,448.13	3,446.83	3,446.64	12.10	12.13	-162.58	13.94	-126.27	179.59	155.40	24.19	7.423		
3,500.00	3,498.00	3,503.32	3,496.48	12.28	12.34	-162.58	15.02	-126.73	183.45	158.87	24.57	7.466		
3,550.00	3,547.87	3,546.53	3,546.32	12.46	12.49	-162.57	16.10	-127.19	187.30	162.40	24.90	7.521		
3,600.00	3,597.74	3,603.62	3,596.16	12.63	12.70	-162.56	17.18	-127.66	191.15	165.87	25.28	7.561		
3,650.00	3,647.61	3,646.23	3,645.99	12.81	12.85	-162.56	18.25	-128.12	195.01	169.40	25.61	7.614		
3,700.00	3,697.49	3,703.92	3,695.83	12.99	13.05	-162.55	19.33	-128.58	198.86	172.87	25.99	7.651		
3,750.00	3,747.36	3,745.93	3,745.67	13.17	13.20	-162.55	20.41	-129.05	202.71	176.39	26.32	7.702		
3,800.00	3,797.23	3,804.21	3,795.51	13.35	13.41	-162.54	21.49	-129.51	206.57	179.86	26.70	7.736		
3,850.00	3,847.10	3,845.64	3,845.34	13.53	13.56	-162.54	22.57	-129.97	210.42	183.39	27.03	7.785		
3,900.00	3,896.97	3,904.51	3,895.18	13.71	13.77	-162.53	23.65	-130.44	214.27	186.86	27.42	7.816		
3,950.00	3,946.85	3,945.34	3,945.02	13.89	13.92	-162.53	24.73	-130.90	218.12	190.39	27.74	7.864		
4,000.00	3,996.72	4,004.81	3,994.86	14.07	14.13	-162.52	25.80	-131.36	221.98	193.85	28.13	7.892		
4,050.00	4,046.59	4,045.04	4,044.69	14.25	14.27	-162.52	26.88	-131.83	225.83	197.38	28.45	7.938		
4,100.00	4,096.46	4,105.11	4,094.53	14.43	14.49	-162.51	27.96	-132.29	229.68	200.84	28.84	7.964		
4,150.00	4,146.33	4,144.75	4,144.37	14.61	14.63	-162.51	29.04	-132.75	233.54	204.38	29.16	8.009		
4,200.00	4,196.20	4,205.40	4,194.21	14.79	14.85	-162.51	30.12	-133.22	237.39	207.84	29.55	8.033		
4,250.00	4,246.08	4,244.45	4,244.04	14.98	14.99	-162.50	31.20	-133.68	241.24	211.37	29.87	8.076		
4,300.00	4,295.95	4,305.70	4,293.88	15.16	15.21	-162.50	32.28	-134.14	245.10	214.83	30.27	8.098		
4,350.00	4,345.82	4,344.15	4,343.72	15.34	15.35	-162.50	33.35	-134.61	248.95	218.37	30.58	8.141		
4,400.00	4,395.69	4,406.00	4,393.56	15.52	15.57	-162.49	34.43	-135.07	252.80	221.82	30.98	8.160		
4,450.00	4,445.56	4,443.85	4,443.39	15.70	15.70	-162.49	35.51	-135.53	256.66	225.36	31.29	8.202		
4,500.00	4,495.44	4,506.30	4,493.23	15.88	15.93	-162.49	36.59	-136.00	260.51	228.82	31.69	8.219		
4,550.00	4,545.31	4,543.56	4,543.07	16.06	16.06	-162.48	37.67	-136.46	264.36	232.36	32.01	8.260		
4,600.00	4,595.18	4,606.59	4,592.91	16.24	16.29	-162.48	38.75	-136.92	268.22	235.81	32.41	8.276		
4,650.00	4,645.05	4,643.26	4,642.74	16.43	16.42	-162.48	39.83	-137.39	272.07	239.35	32.72	8.316		
4,700.00	4,694.92	4,706.89	4,692.58	16.61	16.64	-162.47	40.91	-137.85	275.92	242.80	33.12	8.330		
4,750.00	4,744.80	4,742.96	4,742.42	16.79	16.77	-162.47	41.98	-138.31	279.78	246.34	33.43	8.369		
4,800.00	4,794.67	4,807.19	4,792.26	16.97	17.00	-162.47	43.06	-138.78	283.63	249.79	33.84	8.382		
4,850.00	4,844.54	4,842.66	4,842.09	17.15	17.13	-162.46	44.14	-139.24	287.48	253.34	34.14	8.420		
4,900.00	4,894.41	4,907.49	4,891.93	17.33	17.36	-162.46	45.22	-139.70	291.34	256.78	34.55	8.431		
4,950.00	4,944.28	4,942.37	4,941.77	17.52	17.49	-162.46	46.30	-140.17	295.19	260.33	34.86	8.468		
5,000.00	4,994.15	5,007.78	4,991.61	17.70	17.72	-162.46	47.38	-140.63	299.04	263.77	35.27	8.479		
5,050.00	5,044.03	5,042.07	5,041.44	17.88	17.85	-162.45	48.46	-141.09	302.89	267.32	35.57	8.515		
5,100.00	5,093.90	5,091.92	5,091.28	18.06	18.02	-162.45	49.53	-141.56	306.75	270.82	35.93	8.538		
5,150.00	5,143.77	5,141.77	5,141.12	18.25	18.20	-162.45	50.61	-142.02	310.60	274.32	36.29	8.560		
5,200.00	5,193.64	5,208.38	5,190.96	18.43	18.44	-162.45	51.69	-142.49	314.45	277.75	36.70	8.568		
5,250.00	5,243.51	5,241.47	5,240.79	18.61	18.56	-162.45	52.77	-142.95	318.31	281.31	37.00	8.603		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,300.00	5,293.39	5,308.68	5,290.63	18.79	18.80	-162.44	53.85	-143.41	322.16	284.74	37.42	8.610	
5,350.00	5,343.26	5,341.18	5,340.47	18.98	18.92	-162.44	54.93	-143.88	326.01	288.30	37.71	8.644	
5,400.00	5,393.13	5,408.97	5,390.31	19.16	19.16	-162.44	56.01	-144.34	329.87	291.73	38.14	8.650	
5,450.00	5,443.00	5,440.88	5,440.14	19.34	19.27	-162.44	57.08	-144.80	333.72	295.29	38.43	8.684	
5,500.00	5,492.87	5,509.27	5,489.98	19.52	19.52	-162.44	58.16	-145.27	337.57	298.72	38.85	8.689	
5,550.00	5,542.75	5,540.58	5,539.82	19.71	19.63	-162.43	59.24	-145.73	341.43	302.28	39.14	8.723	
5,600.00	5,592.62	5,609.57	5,589.66	19.89	19.88	-162.43	60.32	-146.19	345.28	305.71	39.57	8.726	
5,650.00	5,642.49	5,640.28	5,639.49	20.07	19.99	-162.43	61.40	-146.66	349.13	309.28	39.86	8.760	
5,700.00	5,692.36	5,709.86	5,689.33	20.25	20.24	-162.43	62.48	-147.12	352.99	312.70	40.29	8.762	
5,750.00	5,742.23	5,739.99	5,739.17	20.44	20.35	-162.43	63.56	-147.58	356.84	316.27	40.57	8.795	
5,800.00	5,792.11	5,789.84	5,789.01	20.62	20.53	-162.42	64.64	-148.05	360.69	319.76	40.93	8.812	
5,850.00	5,841.98	5,839.69	5,838.84	20.80	20.70	-162.42	65.71	-148.51	364.55	323.26	41.29	8.829	
5,900.00	5,891.85	5,889.54	5,888.68	20.99	20.88	-162.42	66.79	-148.97	368.40	326.75	41.65	8.846	
5,950.00	5,941.72	5,939.39	5,938.52	21.17	21.06	-162.42	67.87	-149.44	372.25	330.25	42.00	8.862	
6,000.00	5,991.59	5,989.24	5,988.36	21.35	21.24	-162.42	68.95	-149.90	376.11	333.75	42.36	8.879	
6,050.00	6,041.46	6,039.09	6,038.19	21.54	21.42	-162.42	70.03	-150.36	379.96	337.24	42.72	8.894	
6,100.00	6,091.34	6,088.95	6,088.03	21.72	21.60	-162.41	71.11	-150.83	383.81	340.74	43.08	8.910	
6,150.00	6,141.21	6,138.80	6,137.87	21.90	21.78	-162.41	72.19	-151.29	387.67	344.23	43.43	8.925	
6,200.00	6,191.08	6,188.65	6,187.71	22.09	21.96	-162.41	73.26	-151.75	391.52	347.73	43.79	8.940	
6,250.00	6,240.95	6,238.50	6,237.54	22.27	22.14	-162.41	74.34	-152.22	395.37	351.22	44.15	8.955	
6,300.00	6,290.82	6,288.35	6,287.38	22.45	22.31	-162.41	75.42	-152.68	399.23	354.72	44.51	8.970	
6,350.00	6,340.70	6,338.20	6,337.22	22.64	22.49	-162.41	76.50	-153.14	403.08	358.21	44.87	8.984	
6,400.00	6,390.57	6,388.05	6,387.06	22.82	22.67	-162.41	77.58	-153.61	406.93	361.71	45.22	8.998	
6,450.00	6,440.44	6,437.91	6,436.89	23.00	22.85	-162.40	78.66	-154.07	410.78	365.20	45.58	9.012	
6,500.00	6,490.31	6,487.76	6,486.73	23.19	23.03	-162.40	79.74	-154.53	414.64	368.70	45.94	9.026	
6,550.00	6,540.18	6,537.61	6,536.57	23.37	23.21	-162.40	80.82	-155.00	418.49	372.19	46.30	9.039	
6,600.00	6,590.06	6,587.46	6,586.41	23.55	23.39	-162.40	81.89	-155.46	422.34	375.69	46.66	9.052	
6,650.00	6,639.93	6,637.31	6,636.24	23.74	23.57	-162.40	82.97	-155.92	426.20	379.18	47.01	9.065	
6,700.00	6,689.80	6,687.16	6,686.08	23.92	23.74	-162.40	84.05	-156.39	430.05	382.68	47.37	9.078	
6,750.00	6,739.67	6,737.01	6,735.92	24.10	23.92	-162.40	85.13	-156.85	433.90	386.17	47.73	9.091	
6,800.00	6,789.54	6,786.86	6,785.76	24.29	24.10	-162.40	86.21	-157.31	437.76	389.67	48.09	9.103	
6,850.00	6,839.41	6,836.72	6,835.59	24.47	24.28	-162.40	87.29	-157.78	441.61	393.16	48.45	9.115	
6,900.00	6,889.29	6,886.57	6,885.43	24.66	24.46	-162.39	88.37	-158.24	445.46	396.66	48.81	9.127	
6,950.00	6,939.16	6,936.42	6,935.27	24.84	24.64	-162.39	89.44	-158.70	449.32	400.15	49.16	9.139	
7,000.00	6,989.03	6,986.27	6,985.11	25.02	24.82	-162.39	90.52	-159.17	453.17	403.65	49.52	9.151	
7,050.00	7,038.90	7,036.12	7,034.94	25.21	25.00	-162.39	91.60	-159.63	457.02	407.14	49.88	9.162	
7,100.00	7,088.77	7,085.97	7,084.78	25.39	25.18	-162.39	92.68	-160.09	460.88	410.64	50.24	9.174	
7,150.00	7,138.65	7,135.82	7,134.62	25.57	25.35	-162.39	93.76	-160.56	464.73	414.13	50.60	9.185	
7,200.00	7,188.52	7,185.67	7,184.46	25.76	25.53	-162.39	94.84	-161.02	468.58	417.63	50.96	9.196	
7,250.00	7,238.39	7,235.53	7,234.29	25.94	25.71	-162.39	95.92	-161.49	472.44	421.12	51.31	9.207	
7,300.00	7,288.26	7,285.38	7,284.13	26.13	25.89	-162.39	96.99	-161.95	476.29	424.62	51.67	9.217	
7,350.00	7,338.13	7,335.23	7,333.97	26.31	26.07	-162.38	98.07	-162.41	480.14	428.11	52.03	9.228	
7,400.00	7,388.01	7,385.08	7,383.81	26.49	26.25	-162.38	99.15	-162.88	484.00	431.61	52.39	9.238	
7,450.00	7,437.88	7,434.93	7,433.64	26.68	26.43	-162.38	100.23	-163.34	487.85	435.10	52.75	9.249	
7,500.00	7,487.75	7,484.78	7,483.48	26.86	26.61	-162.38	101.31	-163.80	491.70	438.60	53.11	9.259	
7,550.00	7,537.62	7,534.63	7,533.32	27.05	26.79	-162.38	102.39	-164.27	495.56	442.09	53.46	9.269	
7,600.00	7,587.49	7,584.49	7,583.16	27.23	26.96	-162.38	103.47	-164.73	499.41	445.59	53.82	9.279	
7,650.00	7,637.36	7,634.34	7,632.99	27.41	27.14	-162.38	104.55	-165.19	503.26	449.08	54.18	9.288	
7,700.00	7,687.24	7,684.19	7,682.83	27.60	27.32	-162.38	105.62	-165.66	507.12	452.57	54.54	9.298	
7,750.00	7,737.11	7,734.04	7,732.67	27.78	27.50	-162.38	106.70	-166.12	510.97	456.07	54.90	9.307	
7,800.00	7,786.98	7,783.89	7,782.51	27.97	27.68	-162.38	107.78	-166.58	514.82	459.56	55.26	9.317	
7,850.00	7,836.85	7,833.74	7,832.34	28.15	27.86	-162.38	108.86	-167.05	518.67	463.06	55.62	9.326	

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

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 27-T25S-R31E
Site Error: 0.00 ft
Reference Well: Lusitano 27_34 Fed Com 713H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
TVD Reference: RKB @ 3360.00ft
MD Reference: RKB @ 3360.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
7,900.00	7,886.72	7,883.59	7,882.18	28.33	28.04	-162.38	109.94	-167.51	522.53	466.55	55.98	9.335	
7,950.00	7,936.60	7,933.44	7,932.02	28.52	28.22	-162.37	111.02	-167.97	526.38	470.05	56.33	9.344	
8,000.00	7,986.47	7,983.30	7,981.86	28.70	28.40	-162.37	112.10	-168.44	530.23	473.54	56.69	9.353	
8,050.00	8,036.34	8,033.15	8,031.69	28.89	28.58	-162.37	113.17	-168.90	534.09	477.04	57.05	9.362	
8,100.00	8,086.21	8,083.00	8,081.53	29.07	28.75	-162.37	114.25	-169.36	537.94	480.53	57.41	9.370	
8,150.00	8,136.08	8,132.85	8,131.37	29.26	28.93	-162.37	115.33	-169.83	541.79	484.03	57.77	9.379	
8,200.00	8,185.96	8,182.70	8,181.21	29.44	29.11	-162.37	116.41	-170.29	545.65	487.52	58.13	9.387	
8,250.00	8,235.83	8,232.55	8,231.04	29.62	29.29	-162.37	117.49	-170.75	549.50	491.01	58.49	9.395	
8,300.00	8,285.70	8,282.40	8,280.88	29.81	29.47	-162.37	118.57	-171.22	553.35	494.51	58.85	9.404	
8,350.00	8,335.57	8,332.25	8,330.72	29.99	29.65	-162.37	119.65	-171.68	557.21	498.00	59.20	9.412	
8,400.00	8,385.44	8,382.11	8,380.56	30.18	29.83	-162.37	120.72	-172.14	561.06	501.50	59.56	9.420	
8,450.00	8,435.32	8,431.96	8,430.39	30.36	30.01	-162.37	121.80	-172.61	564.91	504.99	59.92	9.428	
8,500.00	8,485.19	8,481.81	8,480.23	30.55	30.19	-162.37	122.88	-173.07	568.77	508.49	60.28	9.435	
8,550.00	8,535.06	8,531.66	8,530.07	30.73	30.36	-162.37	123.96	-173.53	572.62	511.98	60.64	9.443	
8,600.00	8,584.93	8,581.51	8,579.91	30.91	30.54	-162.36	125.04	-174.00	576.47	515.48	61.00	9.451	
8,650.00	8,634.80	8,631.36	8,629.74	31.10	30.72	-162.36	126.12	-174.46	580.33	518.97	61.36	9.458	
8,700.00	8,684.67	8,681.21	8,679.58	31.28	30.90	-162.36	127.20	-174.92	584.18	522.46	61.72	9.466	
8,750.00	8,734.55	8,731.07	8,729.42	31.47	31.08	-162.36	128.28	-175.39	588.03	525.96	62.07	9.473	
8,800.00	8,784.42	8,780.92	8,779.26	31.65	31.26	-162.36	129.35	-175.85	591.89	529.45	62.43	9.480	
8,850.00	8,834.29	8,830.77	8,829.09	31.84	31.44	-162.36	130.43	-176.31	595.74	532.95	62.79	9.487	
8,900.00	8,884.16	8,880.62	8,878.93	32.02	31.62	-162.36	131.51	-176.78	599.59	536.44	63.15	9.494	
8,950.00	8,934.03	8,930.47	8,928.77	32.20	31.80	-162.36	132.59	-177.24	603.45	539.94	63.51	9.501	
9,000.00	8,983.91	8,981.51	8,979.79	32.39	31.98	-162.36	133.65	-177.70	607.28	543.40	63.88	9.507	
9,050.00	9,033.78	9,031.56	9,029.84	32.57	32.17	-162.42	134.20	-177.94	610.91	546.65	64.25	9.508	
9,100.00	9,083.65	9,081.47	9,079.75	32.76	32.35	-162.52	134.24	-177.95	614.33	549.72	64.62	9.507	
9,150.00	9,133.52	9,131.34	9,129.62	32.94	32.53	-162.62	134.24	-177.95	617.75	552.77	64.97	9.508	
9,200.00	9,183.39	9,181.21	9,179.49	33.13	32.71	-162.72	134.24	-177.95	621.16	555.83	65.33	9.508	
9,250.00	9,233.27	9,231.09	9,229.37	33.31	32.89	-162.81	134.24	-177.95	624.58	558.89	65.69	9.508	
9,300.00	9,283.14	9,280.96	9,279.24	33.50	33.06	-162.91	134.24	-177.95	628.00	561.95	66.05	9.508	
9,350.00	9,333.01	9,330.83	9,329.11	33.68	33.24	-163.01	134.24	-177.95	631.42	565.01	66.41	9.508	
9,400.00	9,382.88	9,380.70	9,379.08	33.86	33.42	-163.10	134.24	-177.95	634.84	568.08	66.76	9.509	
9,450.00	9,432.75	9,430.57	9,428.95	34.05	33.60	-163.10	135.28	-177.94	638.22	571.09	67.13	9.507	
9,500.00	9,482.62	9,480.44	9,478.82	34.23	33.79	-162.71	140.75	-177.88	641.44	573.93	67.50	9.502	
9,550.00	9,532.50	9,530.32	9,528.70	34.42	33.97	-161.93	150.61	-177.77	644.56	576.69	67.87	9.497	
9,600.00	9,582.37	9,580.19	9,578.57	34.60	34.15	-160.81	164.24	-177.62	647.78	579.56	68.22	9.495	
9,650.00	9,632.24	9,630.06	9,628.44	34.79	34.31	-159.44	180.84	-177.44	651.33	582.77	68.56	9.500	
9,700.00	9,682.11	9,679.93	9,678.31	34.97	34.46	-157.88	199.58	-177.23	655.49	586.61	68.87	9.517	
9,750.00	9,731.98	9,729.80	9,728.18	35.16	34.60	-156.21	219.66	-177.01	660.56	591.41	69.14	9.553	
9,800.00	9,781.86	9,779.68	9,778.06	35.34	34.73	-154.50	240.38	-176.79	666.81	597.46	69.35	9.615	
9,850.00	9,831.73	9,829.55	9,827.93	35.53	34.85	-152.79	261.18	-176.56	674.52	605.03	69.49	9.707	
9,900.00	9,881.60	9,879.42	9,877.80	35.71	34.96	-151.12	281.63	-176.33	683.89	614.36	69.52	9.837	
9,950.00	9,931.47	9,929.29	9,927.67	35.89	35.05	-149.58	300.80	-176.12	695.08	625.64	69.44	10.010	
10,000.00	9,981.34	9,979.16	9,977.54	36.08	35.15	-148.01	320.43	-175.91	708.23	638.96	69.27	10.224	
10,050.00	10,031.22	10,029.04	10,027.42	36.26	35.23	-146.66	337.55	-175.72	723.40	654.45	68.95	10.492	
10,100.00	10,081.09	10,078.91	10,077.29	36.45	35.31	-145.26	355.51	-175.52	740.61	672.05	68.56	10.803	
10,150.00	10,130.96	10,128.78	10,127.16	36.63	35.38	-144.03	371.55	-175.35	759.85	691.80	68.05	11.166	
10,200.00	10,180.83	10,178.65	10,177.03	36.82	35.44	-142.88	386.59	-175.18	781.08	713.63	67.45	11.580	
10,250.00	10,230.70	10,228.52	10,226.90	37.00	35.50	-141.83	400.67	-175.03	804.23	737.44	66.78	12.043	
10,300.00	10,280.57	10,278.39	10,276.77	37.19	35.58	-140.46	419.18	-174.82	829.25	763.06	66.19	12.529	
10,350.00	10,330.45	10,328.27	10,326.65	37.37	35.58	-140.46	419.18	-174.82	855.99	790.86	65.13	13.143	
10,400.00	10,380.32	10,378.14	10,376.52	37.56	35.65	-139.11	437.71	-174.62	884.26	819.75	64.51	13.707	
10,450.00	10,430.19	10,428.01	10,426.39	37.74	35.69	-138.34	448.50	-174.50	914.12	850.40	63.72	14.347	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,500.00	10,480.06	10,050.00	9,918.57	37.93	35.75	-137.28	463.44	-174.34	945.42	882.38	63.03	14.999		
10,550.00	10,529.93	10,050.00	9,918.57	38.11	35.75	-137.28	463.44	-174.34	977.99	915.95	62.04	15.765		
10,600.00	10,579.81	10,064.83	9,924.71	38.29	35.80	-136.34	476.94	-174.19	1,011.74	950.36	61.37	16.485		
10,650.00	10,629.69	10,073.88	9,928.28	38.48	35.84	-136.15	485.26	-174.10	1,046.53	985.90	60.63	17.261		
10,700.00	10,679.61	10,082.26	9,931.47	38.66	35.87	-136.14	493.01	-174.01	1,082.03	1,022.13	59.90	18.063		
10,750.00	10,729.57	10,100.00	9,937.84	38.84	35.93	-135.57	509.56	-173.83	1,118.30	1,058.91	59.38	18.831		
10,800.00	10,779.55	10,100.00	9,937.84	39.02	35.93	-136.14	509.56	-173.83	1,154.95	1,096.39	58.56	19.721		
10,850.00	10,829.54	10,100.00	9,937.84	39.20	35.93	-136.72	509.56	-173.83	1,192.27	1,134.48	57.78	20.633		
10,900.00	10,879.54	10,100.00	9,937.84	39.37	35.93	-65.79	509.56	-173.83	1,230.19	1,173.15	57.04	21.566		
10,950.00	10,929.54	10,115.94	9,943.13	39.54	35.99	-64.80	524.59	-173.67	1,268.59	1,211.97	56.63	22.403		
11,000.00	10,979.54	10,121.44	9,944.86	39.72	36.01	-64.46	529.81	-173.61	1,307.82	1,251.75	56.07	23.325		
11,050.00	11,029.54	10,126.63	9,946.44	39.89	36.02	-64.14	534.75	-173.55	1,347.70	1,292.15	55.55	24.261		
11,100.00	11,079.54	10,131.53	9,947.90	40.06	36.04	-63.84	539.44	-173.50	1,388.18	1,333.11	55.07	25.209		
11,150.00	11,129.54	10,150.00	9,953.02	40.23	36.11	-62.71	557.18	-173.31	1,429.42	1,374.59	54.83	26.069		
11,200.00	11,179.54	10,150.00	9,953.02	40.41	36.11	-62.71	557.18	-173.31	1,470.85	1,416.51	54.35	27.064		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	1.80	-1.80	0.50	0.50	-168.56	-150.18	-30.40	153.23				
50.00	50.00	48.20	48.20	0.50	0.50	-168.56	-150.18	-30.40	153.23	152.22	1.01	152.284	
100.00	100.00	101.80	98.20	0.52	0.52	-168.56	-150.18	-30.40	153.23	152.19	1.04	147.727	
150.00	150.00	148.20	148.20	0.59	0.59	-168.56	-150.18	-30.40	153.23	152.05	1.18	130.175	
200.00	200.00	201.80	198.20	0.70	0.71	-168.56	-150.18	-30.40	153.23	151.82	1.41	108.767	
250.00	250.00	248.20	248.20	0.84	0.83	-168.56	-150.18	-30.40	153.23	151.56	1.67	91.738	
300.00	300.00	301.80	298.20	0.99	0.99	-168.56	-150.18	-30.40	153.23	151.25	1.98	77.378	
350.00	350.00	348.20	348.20	1.15	1.14	-168.56	-150.18	-30.40	153.23	150.94	2.29	67.052	
400.00	400.00	401.80	398.20	1.31	1.32	-168.56	-150.18	-30.40	153.23	150.60	2.62	58.391	
450.00	450.00	448.20	448.20	1.48	1.47	-168.56	-150.18	-30.40	153.23	150.28	2.95	52.001	
500.00	500.00	501.80	498.20	1.65	1.65	-168.56	-150.18	-30.40	153.23	149.93	3.30	46.456	
550.00	550.00	548.20	548.20	1.82	1.81	-168.56	-150.18	-30.40	153.23	149.60	3.63	42.221	
600.00	600.00	601.80	598.20	1.99	2.00	-168.56	-150.18	-30.40	153.23	149.24	3.99	38.427	
650.00	650.00	648.20	648.20	2.16	2.16	-168.56	-150.18	-30.40	153.23	148.90	4.32	35.446	
700.00	700.00	701.80	698.20	2.34	2.35	-168.56	-150.18	-30.40	153.23	148.54	4.68	32.706	
750.00	750.00	748.20	748.20	2.51	2.51	-168.56	-150.18	-30.40	153.23	148.20	5.02	30.504	
800.00	800.00	801.80	798.20	2.69	2.70	-168.56	-150.18	-30.40	153.23	147.84	5.39	28.441	
850.00	850.00	848.20	848.20	2.87	2.86	-168.56	-150.18	-30.40	153.23	147.50	5.73	26.753	
900.00	900.00	901.80	898.20	3.04	3.05	-168.56	-150.18	-30.40	153.23	147.13	6.09	25.146	
950.00	950.00	948.20	948.20	3.22	3.21	-168.56	-150.18	-30.40	153.23	146.79	6.43	23.813	
1,000.00	1,000.00	1,001.80	998.20	3.40	3.40	-168.56	-150.18	-30.40	153.23	146.42	6.80	22.528	
1,050.00	1,050.00	1,048.20	1,048.20	3.58	3.57	-168.56	-150.18	-30.40	153.23	146.08	7.14	21.449	
1,100.00	1,100.00	1,101.80	1,098.20	3.75	3.76	-168.56	-150.18	-30.40	153.23	145.71	7.51	20.399	
1,150.00	1,150.00	1,148.20	1,148.20	3.93	3.92	-168.56	-150.18	-30.40	153.23	145.37	7.85	19.509	
1,200.00	1,200.00	1,201.80	1,198.20	4.11	4.11	-168.56	-150.18	-30.40	153.23	145.00	8.22	18.635	
1,250.00	1,250.00	1,248.20	1,248.20	4.29	4.28	-168.56	-150.18	-30.40	153.23	144.66	8.57	17.888	
1,300.00	1,300.00	1,301.80	1,298.20	4.46	4.47	-168.56	-150.18	-30.40	153.23	144.29	8.93	17.149	
1,350.00	1,350.00	1,348.20	1,348.20	4.64	4.64	-168.56	-150.18	-30.40	153.23	143.95	9.28	16.515	
1,400.00	1,400.00	1,401.80	1,398.20	4.82	4.83	-168.56	-150.18	-30.40	153.23	143.58	9.65	15.882	
1,450.00	1,450.00	1,448.20	1,448.20	5.00	4.99	-168.56	-150.18	-30.40	153.23	143.23	9.99	15.336	
1,500.00	1,500.00	1,501.80	1,498.20	5.18	5.18	-168.56	-150.18	-30.40	153.23	142.87	10.36	14.789	
1,550.00	1,550.00	1,548.20	1,548.20	5.36	5.35	-168.56	-150.18	-30.40	153.23	142.52	10.70	14.314	
1,600.00	1,600.00	1,601.80	1,598.20	5.53	5.54	-168.56	-150.18	-30.40	153.23	142.15	11.07	13.836	
1,650.00	1,650.00	1,648.20	1,648.20	5.71	5.71	-168.56	-150.18	-30.40	153.23	141.81	11.42	13.419	
1,700.00	1,700.00	1,701.80	1,698.20	5.89	5.90	-168.56	-150.18	-30.40	153.23	141.44	11.79	12.998	
1,750.00	1,750.00	1,748.20	1,748.20	6.07	6.06	-168.56	-150.18	-30.40	153.23	141.09	12.13	12.629	
1,800.00	1,800.00	1,801.80	1,798.20	6.25	6.25	-168.56	-150.18	-30.40	153.23	140.72	12.50	12.255	
1,850.00	1,850.00	1,848.20	1,848.20	6.43	6.42	-168.56	-150.18	-30.40	153.23	140.38	12.85	11.926	
1,900.00	1,900.00	1,901.80	1,898.20	6.61	6.61	-168.56	-150.18	-30.40	153.23	140.01	13.22	11.592	
1,950.00	1,950.00	1,948.20	1,948.20	6.78	6.78	-168.56	-150.18	-30.40	153.23	139.66	13.56	11.298	
2,000.00	2,000.00	2,001.80	1,998.20	6.96	6.97	-168.56	-150.18	-30.40	153.23	139.29	13.93	10.997	
2,050.00	2,050.00	2,048.20	2,048.20	7.14	7.14	-168.56	-150.18	-30.40	153.23	138.95	14.28	10.732	
2,100.00	2,100.00	2,101.80	2,098.20	7.32	7.33	-168.56	-150.18	-30.40	153.23	138.58	14.65	10.460	
2,150.00	2,150.00	2,148.20	2,148.20	7.50	7.49	-168.56	-150.18	-30.40	153.23	138.23	14.99	10.220	
2,200.00	2,200.00	2,201.80	2,198.20	7.68	7.69	-168.56	-150.18	-30.40	153.23	137.86	15.36	9.973	
2,250.00	2,250.00	2,248.20	2,248.20	7.86	7.85	-168.56	-150.18	-30.40	153.23	137.52	15.71	9.754	
2,300.00	2,300.00	2,301.80	2,298.20	8.04	8.04	-168.56	-150.18	-30.40	153.23	137.15	16.08	9.529	
2,350.00	2,350.00	2,348.20	2,348.20	8.22	8.21	-168.56	-150.18	-30.40	153.23	136.80	16.42	9.329	
2,400.00	2,400.00	2,401.80	2,398.20	8.39	8.40	-168.56	-150.18	-30.40	153.23	136.43	16.79	9.123	
2,450.00	2,450.00	2,448.20	2,448.20	8.57	8.57	-168.56	-150.18	-30.40	153.23	136.09	17.14	8.940	
2,500.00	2,500.00	2,501.80	2,498.20	8.75	8.76	-168.56	-150.18	-30.40	153.23	135.72	17.51	8.751 CC	
2,550.00	2,550.00	2,548.20	2,548.20	8.93	8.92	120.18	-150.18	-30.40	153.36	135.51	17.85	8.591	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,600.00	2,599.99	2,601.81	2,598.19	9.10	9.12	120.44	-150.18	-30.40	153.78	135.56	18.22	8.440		
2,650.00	2,649.97	2,648.17	2,648.17	9.28	9.28	120.87	-150.18	-30.40	154.47	135.91	18.56	8.323		
2,700.00	2,699.94	2,701.86	2,698.14	9.45	9.47	121.46	-150.18	-30.40	155.46	136.53	18.93	8.214		
2,750.00	2,749.88	2,748.08	2,748.08	9.63	9.64	122.22	-150.18	-30.40	156.76	137.49	19.27	8.137		
2,800.00	2,799.79	2,802.01	2,797.99	9.80	9.83	123.11	-150.18	-30.40	158.38	138.74	19.63	8.067		
2,850.00	2,849.66	2,847.86	2,847.86	9.97	10.00	124.15	-150.18	-30.40	160.31	140.34	19.97	8.027		
2,900.00	2,899.54	2,902.26	2,897.74	10.15	10.19	125.19	-150.18	-30.40	162.35	142.01	20.34	7.981		
2,950.00	2,949.41	2,947.61	2,947.61	10.33	10.35	126.21	-150.18	-30.40	164.44	143.76	20.68	7.952		
3,000.00	2,999.28	3,002.52	2,997.48	10.50	10.55	127.20	-150.18	-30.40	166.58	145.53	21.05	7.913		
3,050.00	3,049.15	3,047.35	3,047.35	10.68	10.71	128.16	-150.18	-30.40	168.77	147.38	21.39	7.891		
3,100.00	3,099.02	3,102.78	3,097.22	10.85	10.91	129.10	-150.18	-30.40	171.01	149.25	21.76	7.858		
3,150.00	3,148.90	3,147.10	3,147.10	11.03	11.07	130.02	-150.18	-30.40	173.29	151.19	22.10	7.842		
3,200.00	3,198.77	3,203.03	3,196.97	11.21	11.27	130.91	-150.18	-30.40	175.62	153.14	22.47	7.814		
3,250.00	3,248.64	3,246.84	3,246.84	11.39	11.43	131.78	-150.18	-30.40	177.98	155.18	22.81	7.804		
3,300.00	3,298.51	3,303.29	3,296.71	11.56	11.63	132.63	-150.18	-30.40	180.39	157.20	23.19	7.780		
3,350.00	3,348.38	3,346.58	3,346.58	11.74	11.78	133.45	-150.18	-30.40	182.83	159.32	23.52	7.774		
3,400.00	3,398.25	3,403.55	3,396.45	11.92	11.99	134.25	-150.18	-30.40	185.32	161.42	23.90	7.754		
3,450.00	3,448.13	3,446.33	3,446.33	12.10	12.14	135.03	-150.18	-30.40	187.83	163.60	24.23	7.752		
3,500.00	3,498.00	3,503.80	3,496.20	12.28	12.35	135.79	-150.18	-30.40	190.38	165.77	24.61	7.735		
3,550.00	3,547.87	3,546.07	3,546.07	12.46	12.50	136.53	-150.18	-30.40	192.97	168.03	24.94	7.737		
3,600.00	3,597.74	3,604.06	3,595.94	12.63	12.71	137.25	-150.18	-30.40	195.58	170.26	25.33	7.723		
3,650.00	3,647.61	3,645.81	3,645.81	12.81	12.85	137.95	-150.18	-30.40	198.23	172.57	25.65	7.727		
3,700.00	3,697.49	3,704.31	3,695.69	12.99	13.06	138.64	-150.18	-30.40	200.90	174.86	26.04	7.715		
3,750.00	3,747.36	3,745.56	3,745.56	13.17	13.21	139.30	-150.18	-30.40	203.60	177.24	26.36	7.722		
3,800.00	3,797.23	3,804.57	3,795.43	13.35	13.42	139.95	-150.18	-30.40	206.33	179.58	26.75	7.712		
3,850.00	3,847.10	3,845.30	3,845.30	13.53	13.57	140.58	-150.18	-30.40	209.08	182.01	27.08	7.722		
3,900.00	3,896.97	3,904.83	3,895.17	13.71	13.78	141.19	-150.18	-30.40	211.86	184.39	27.47	7.713		
3,950.00	3,946.85	3,945.05	3,945.05	13.89	13.93	141.79	-150.18	-30.40	214.66	186.87	27.79	7.724		
4,000.00	3,996.72	4,005.08	3,994.92	14.07	14.14	142.37	-150.18	-30.40	217.49	189.30	28.18	7.717		
4,050.00	4,046.59	4,044.79	4,044.79	14.25	14.28	142.94	-150.18	-30.40	220.33	191.83	28.50	7.730		
4,100.00	4,096.46	4,105.34	4,094.66	14.43	14.50	143.49	-150.18	-30.40	223.20	194.30	28.90	7.724		
4,150.00	4,146.33	4,144.53	4,144.53	14.61	14.64	144.03	-150.18	-30.40	226.09	196.87	29.22	7.738		
4,200.00	4,196.20	4,205.60	4,194.40	14.79	14.86	144.56	-150.18	-30.40	229.00	199.38	29.61	7.733		
4,250.00	4,246.08	4,244.28	4,244.28	14.98	15.00	145.07	-150.18	-30.40	231.92	201.99	29.93	7.749		
4,300.00	4,295.95	4,305.85	4,294.15	15.16	15.22	145.57	-150.18	-30.40	234.87	204.54	30.33	7.744		
4,350.00	4,345.82	4,344.02	4,344.02	15.34	15.36	146.06	-150.18	-30.40	237.83	207.18	30.65	7.761		
4,400.00	4,395.69	4,406.11	4,393.89	15.52	15.58	146.53	-150.18	-30.40	240.81	209.76	31.05	7.756		
4,450.00	4,445.56	4,443.76	4,443.76	15.70	15.71	146.99	-150.18	-30.40	243.80	212.44	31.36	7.774		
4,500.00	4,495.44	4,493.64	4,493.64	15.88	15.89	147.45	-150.18	-30.40	246.81	215.09	31.72	7.782		
4,550.00	4,545.31	4,545.05	4,545.05	16.06	16.07	147.87	-150.14	-30.23	249.70	217.62	32.08	7.784		
4,600.00	4,595.18	4,596.75	4,596.75	16.24	16.25	148.23	-150.00	-29.60	252.25	219.81	32.44	7.776		
4,650.00	4,645.05	4,648.50	4,648.48	16.43	16.43	148.52	-149.76	-28.52	254.45	221.66	32.79	7.759		
4,700.00	4,694.92	4,700.29	4,700.25	16.61	16.61	148.74	-149.42	-26.98	256.30	223.15	33.15	7.731		
4,750.00	4,744.80	4,752.12	4,752.03	16.79	16.79	148.89	-148.97	-24.99	257.79	224.29	33.51	7.694		
4,800.00	4,794.67	4,803.97	4,803.82	16.97	16.97	148.98	-148.42	-22.53	258.92	225.06	33.86	7.647		
4,850.00	4,844.54	4,855.83	4,855.60	17.15	17.15	149.00	-147.77	-19.62	259.69	225.48	34.21	7.591		
4,900.00	4,894.41	4,907.71	4,907.37	17.33	17.33	148.97	-147.02	-16.25	260.10	225.54	34.56	7.525		
4,950.00	4,944.28	4,959.59	4,959.09	17.52	17.51	148.87	-146.16	-12.42	260.15	225.24	34.91	7.451		
5,000.00	4,994.15	5,011.45	5,010.77	17.70	17.69	148.70	-145.21	-8.14	259.84	224.58	35.26	7.369		
5,050.00	5,044.03	5,063.30	5,062.40	17.88	17.87	148.48	-144.15	-3.40	259.17	223.56	35.61	7.278		
5,100.00	5,093.90	5,115.13	5,113.95	18.06	18.06	148.19	-142.99	1.79	258.15	222.19	35.96	7.179		
5,150.00	5,143.77	5,166.92	5,165.42	18.25	18.24	147.83	-141.73	7.44	256.78	220.48	36.31	7.072		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.00	5,193.64	5,218.67	5,216.79	18.43	18.42	147.40	-140.36	13.53	255.07	218.42	36.66	6.959		
5,250.00	5,243.51	5,270.37	5,268.05	18.61	18.60	146.90	-138.90	20.07	253.02	216.02	37.00	6.838		
5,300.00	5,293.39	5,321.03	5,318.24	18.79	18.78	146.35	-137.39	26.85	250.70	213.34	37.36	6.711		
5,350.00	5,343.26	5,370.92	5,367.65	18.98	18.96	145.79	-135.89	33.56	248.36	210.65	37.72	6.585		
5,400.00	5,393.13	5,420.81	5,417.05	19.16	19.14	145.22	-134.39	40.28	246.05	207.97	38.08	6.462		
5,450.00	5,443.00	5,470.69	5,466.46	19.34	19.32	144.64	-132.88	47.00	243.77	205.33	38.44	6.342		
5,500.00	5,492.87	5,520.58	5,515.87	19.52	19.50	144.04	-131.38	53.72	241.51	202.71	38.80	6.224		
5,550.00	5,542.75	5,570.46	5,565.28	19.71	19.68	143.44	-129.88	60.44	239.27	200.11	39.16	6.110		
5,600.00	5,592.62	5,620.35	5,614.69	19.89	19.86	142.82	-128.38	67.15	237.07	197.54	39.53	5.998		
5,650.00	5,642.49	5,670.23	5,664.10	20.07	20.04	142.20	-126.88	73.87	234.89	195.00	39.89	5.888		
5,700.00	5,692.36	5,720.12	5,713.50	20.25	20.22	141.56	-125.38	80.59	232.74	192.48	40.25	5.782		
5,750.00	5,742.23	5,770.00	5,762.91	20.44	20.40	140.91	-123.88	87.31	230.62	190.00	40.62	5.678		
5,800.00	5,792.11	5,819.89	5,812.32	20.62	20.58	140.24	-122.38	94.03	228.53	187.54	40.99	5.576		
5,850.00	5,841.98	5,869.78	5,861.73	20.80	20.76	139.57	-120.87	100.74	226.47	185.12	41.35	5.477		
5,900.00	5,891.85	5,919.66	5,911.14	20.99	20.95	138.88	-119.37	107.46	224.44	182.72	41.72	5.380		
5,950.00	5,941.72	5,969.55	5,960.55	21.17	21.13	138.18	-117.87	114.18	222.45	180.36	42.09	5.285		
6,000.00	5,991.59	6,019.43	6,009.95	21.35	21.31	137.47	-116.37	120.90	220.49	178.03	42.46	5.193		
6,050.00	6,041.46	6,069.32	6,059.36	21.54	21.49	136.75	-114.87	127.62	218.56	175.74	42.82	5.104		
6,100.00	6,091.34	6,119.20	6,108.77	21.72	21.68	136.01	-113.37	134.33	216.67	173.48	43.19	5.016		
6,150.00	6,141.21	6,169.09	6,158.18	21.90	21.86	135.26	-111.87	141.05	214.82	171.25	43.57	4.931 Alert		
6,200.00	6,191.08	6,218.98	6,207.59	22.09	22.05	134.50	-110.37	147.77	213.00	169.06	43.94	4.848 Alert		
6,250.00	6,240.95	6,268.86	6,257.00	22.27	22.23	133.72	-108.86	154.49	211.22	166.91	44.31	4.767 Alert		
6,300.00	6,290.82	6,318.75	6,306.41	22.45	22.42	132.93	-107.36	161.20	209.49	164.80	44.68	4.688 Alert		
6,350.00	6,340.70	6,368.63	6,355.81	22.64	22.60	132.13	-105.86	167.92	207.79	162.73	45.05	4.612 Alert		
6,400.00	6,390.57	6,418.52	6,405.22	22.82	22.79	131.32	-104.36	174.64	206.13	160.70	45.43	4.538 Alert		
6,450.00	6,440.44	6,468.40	6,454.63	23.00	22.97	130.49	-102.86	181.36	204.52	158.72	45.80	4.465 Alert		
6,500.00	6,490.31	6,518.29	6,504.04	23.19	23.16	129.65	-101.36	188.08	202.95	156.77	46.18	4.395 Alert		
6,550.00	6,540.18	6,568.18	6,553.45	23.37	23.35	128.79	-99.86	194.79	201.42	154.87	46.55	4.327 Alert		
6,600.00	6,590.06	6,618.06	6,602.86	23.55	23.53	127.93	-98.36	201.51	199.94	153.01	46.93	4.261 Alert		
6,650.00	6,639.93	6,667.95	6,652.26	23.74	23.72	127.05	-96.86	208.23	198.51	151.20	47.31	4.196 Alert		
6,700.00	6,689.80	6,717.83	6,701.67	23.92	23.91	126.16	-95.35	214.95	197.12	149.44	47.68	4.134 Alert		
6,750.00	6,739.67	6,767.72	6,751.08	24.10	24.09	125.25	-93.85	221.67	195.78	147.72	48.06	4.074 Alert		
6,800.00	6,789.54	6,817.60	6,800.49	24.29	24.28	124.34	-92.35	228.38	194.50	146.06	48.44	4.015 Alert		
6,850.00	6,839.41	6,867.49	6,849.90	24.47	24.47	123.41	-90.85	235.10	193.26	144.44	48.82	3.959 Alert		
6,900.00	6,889.29	6,917.37	6,899.31	24.66	24.66	122.47	-89.35	241.82	192.07	142.88	49.20	3.904 Alert		
6,950.00	6,939.16	6,967.26	6,948.71	24.84	24.85	121.52	-87.85	248.54	190.94	141.36	49.58	3.851 Alert		
7,000.00	6,989.03	7,017.15	6,998.12	25.02	25.04	120.56	-86.35	255.26	189.86	139.90	49.96	3.801 Alert		
7,050.00	7,038.90	7,067.03	7,047.53	25.21	25.22	119.58	-84.85	261.97	188.83	138.50	50.34	3.751 Alert		
7,100.00	7,088.77	7,116.92	7,098.94	25.39	25.41	118.60	-83.34	268.69	187.86	137.15	50.72	3.704 Alert		
7,150.00	7,138.65	7,166.80	7,146.35	25.57	25.60	117.61	-81.84	275.41	186.95	135.85	51.10	3.659 Alert		
7,200.00	7,188.52	7,216.69	7,195.76	25.76	25.79	116.61	-80.34	282.13	186.09	134.61	51.48	3.615 Alert		
7,250.00	7,238.39	7,266.57	7,245.17	25.94	25.98	115.60	-78.84	288.85	185.29	133.43	51.86	3.573 Alert		
7,300.00	7,288.26	7,316.05	7,294.18	26.13	26.17	114.61	-77.37	295.42	184.58	132.34	52.24	3.533 Alert		
7,350.00	7,338.13	7,365.24	7,342.98	26.31	26.36	113.79	-76.03	301.41	184.10	131.48	52.62	3.499 Alert		
7,400.00	7,388.01	7,414.48	7,391.92	26.49	26.54	113.16	-74.83	306.79	183.84	130.85	52.99	3.469 Alert		
7,436.71	7,424.62	7,450.67	7,427.92	26.63	26.67	112.81	-74.04	310.35	183.79	130.53	53.26	3.451 Alert		
7,450.00	7,437.88	7,463.77	7,440.97	26.68	26.72	112.71	-73.77	311.55	183.80	130.43	53.36	3.444 Alert		
7,500.00	7,487.75	7,513.09	7,490.10	26.86	26.91	112.46	-72.84	315.70	183.94	130.21	53.73	3.423 Alert		
7,550.00	7,537.62	7,562.42	7,539.29	27.05	27.09	112.39	-72.05	319.24	184.27	130.18	54.10	3.406 Alert, ES		
7,600.00	7,587.49	7,611.74	7,588.53	27.23	27.26	112.51	-71.40	322.15	184.79	130.33	54.46	3.393 Alert		
7,650.00	7,637.36	7,661.04	7,637.77	27.41	27.44	112.83	-70.89	324.44	185.48	130.67	54.82	3.384 Alert		
7,700.00	7,687.24	7,710.30	7,687.00	27.60	27.62	113.32	-70.51	326.11	186.38	131.21	55.17	3.378 Alert		

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

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 27-T25S-R31E
Site Error: 0.00 ft
Reference Well: Lusitano 27_34 Fed Com 713H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
TVD Reference: RKB @ 3360.00ft
MD Reference: RKB @ 3360.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth Depth (ft)	Vertical Depth (ft)	Measured Depth Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,750.00	7,737.11	7,759.51	7,736.20	27.78	27.79	114.00	-70.28	327.16	187.49	131.97	55.52	3.377	Alert, SF	
7,800.00	7,786.98	7,808.65	7,785.33	27.97	27.96	114.85	-70.18	327.59	188.83	132.96	55.87	3.380	Alert	
7,850.00	7,836.85	7,858.37	7,835.05	28.15	28.13	115.81	-70.18	327.60	190.36	134.14	56.22	3.386	Alert	
7,900.00	7,886.72	7,908.24	7,884.92	28.33	28.31	116.77	-70.18	327.60	191.95	135.38	56.57	3.393	Alert	
7,950.00	7,936.60	7,958.11	7,934.80	28.52	28.48	117.72	-70.18	327.60	193.59	136.67	56.92	3.401	Alert	
8,000.00	7,986.47	8,007.98	7,984.67	28.70	28.66	118.64	-70.18	327.60	195.28	138.01	57.27	3.410	Alert	
8,050.00	8,036.34	8,057.86	8,034.54	28.89	28.83	119.56	-70.18	327.60	197.02	139.40	57.62	3.419	Alert	
8,100.00	8,086.21	8,107.73	8,084.41	29.07	29.01	120.45	-70.18	327.60	198.81	140.84	57.97	3.430	Alert	
8,150.00	8,136.08	8,157.60	8,134.28	29.26	29.18	121.33	-70.18	327.60	200.65	142.33	58.32	3.441	Alert	
8,200.00	8,185.96	8,197.45	8,174.12	29.44	29.32	121.97	-70.92	327.60	203.51	144.98	58.52	3.477	Alert	
8,250.00	8,235.83	8,234.20	8,210.74	29.62	29.44	122.39	-73.96	327.61	209.43	150.90	58.53	3.578	Alert	
8,300.00	8,285.70	8,270.32	8,246.47	29.81	29.55	122.63	-79.23	327.61	218.42	160.05	58.36	3.742	Alert	
8,350.00	8,335.57	8,305.53	8,280.91	29.99	29.66	122.71	-86.52	327.63	230.35	172.30	58.05	3.968	Alert	
8,400.00	8,385.44	8,339.63	8,313.77	30.18	29.76	122.65	-95.59	327.64	245.11	187.51	57.60	4.255	Alert	
8,450.00	8,435.32	8,372.42	8,344.81	30.36	29.86	122.48	-106.14	327.66	262.55	205.51	57.04	4.603	Alert	
8,500.00	8,485.19	8,400.00	8,370.43	30.55	29.94	122.27	-116.37	327.67	282.54	226.42	56.12	5.035		
8,550.00	8,535.06	8,433.63	8,400.94	30.73	30.03	121.95	-130.50	327.69	304.82	249.17	55.65	5.477		
8,600.00	8,584.93	8,461.93	8,425.93	30.91	30.10	121.64	-143.76	327.71	329.32	274.45	54.87	6.002		
8,650.00	8,634.80	8,488.66	8,448.92	31.10	30.17	121.31	-157.40	327.74	355.85	301.80	54.05	6.584		
8,700.00	8,684.67	8,513.84	8,469.97	31.28	30.23	120.98	-171.22	327.76	384.24	331.03	53.22	7.220		
8,750.00	8,734.55	8,537.53	8,489.19	31.47	30.29	120.67	-185.05	327.78	414.34	361.96	52.38	7.910		
8,800.00	8,784.42	8,559.76	8,506.71	31.65	30.34	120.36	-198.75	327.80	446.00	394.45	51.56	8.651		
8,850.00	8,834.29	8,580.62	8,522.64	31.84	30.38	120.07	-212.21	327.82	479.08	428.33	50.75	9.440		
8,900.00	8,884.16	8,600.00	8,537.00	32.02	30.42	119.81	-225.23	327.84	513.46	463.49	49.96	10.277		
8,950.00	8,934.03	8,618.49	8,550.28	32.20	30.46	119.55	-238.09	327.86	549.01	499.78	49.23	11.152		
9,000.00	8,983.91	8,635.66	8,562.23	32.39	30.49	119.31	-250.42	327.88	585.62	537.11	48.51	12.071		
9,050.00	9,033.78	8,650.00	8,571.93	32.57	30.52	119.12	-260.88	327.90	623.21	575.47	47.74	13.053		
9,100.00	9,083.65	8,666.87	8,582.99	32.76	30.55	118.89	-273.71	327.92	661.68	614.49	47.19	14.021		
9,150.00	9,133.52	8,681.04	8,592.00	32.94	30.58	118.70	-284.65	327.94	700.95	654.36	46.59	15.044		
9,200.00	9,183.39	8,700.00	8,603.61	33.13	30.62	118.45	-299.64	327.96	741.00	694.70	46.30	16.005		
9,250.00	9,233.27	8,700.00	8,603.61	33.31	30.62	118.45	-299.64	327.96	781.69	736.46	45.23	17.283		
9,300.00	9,283.14	8,718.64	8,614.55	33.50	30.65	118.21	-314.74	327.98	822.89	777.85	45.04	18.271		
9,350.00	9,333.01	8,729.74	8,620.81	33.68	30.67	118.07	-323.89	328.00	864.72	820.13	44.59	19.392		
9,400.00	9,382.88	8,750.00	8,631.81	33.86	30.72	117.82	-340.91	328.02	907.20	862.66	44.55	20.366		
9,450.00	9,432.75	8,750.00	8,631.81	34.05	30.72	117.82	-340.91	328.02	949.87	906.07	43.80	21.688		
9,500.00	9,482.62	8,750.00	8,631.81	34.23	30.72	117.82	-340.91	328.02	993.22	950.09	43.13	23.028		
9,550.00	9,532.50	8,768.21	8,641.16	34.42	30.75	117.60	-356.53	328.05	1,036.73	993.60	43.13	24.039		
9,600.00	9,582.37	8,776.56	8,645.29	34.60	30.77	117.50	-363.79	328.06	1,080.72	1,037.88	42.83	25.231		
9,650.00	9,632.24	8,784.47	8,649.10	34.79	30.79	117.41	-370.73	328.07	1,125.04	1,082.47	42.57	26.431		
9,700.00	9,682.11	8,800.00	8,656.29	34.97	30.82	117.23	-384.49	328.09	1,169.75	1,127.20	42.55	27.491		
9,750.00	9,731.98	8,800.00	8,656.29	35.16	30.82	117.23	-384.49	328.09	1,214.58	1,172.46	42.13	28.831		
9,800.00	9,781.86	8,800.00	8,656.29	35.34	30.82	117.23	-384.49	328.09	1,259.81	1,218.05	41.75	30.173		
9,850.00	9,831.73	8,800.00	8,656.29	35.53	30.82	117.23	-384.49	328.09	1,305.38	1,263.96	41.42	31.515		
9,900.00	9,881.60	8,818.48	8,664.37	35.71	30.87	117.01	-401.11	328.12	1,350.84	1,309.27	41.57	32.498		
9,950.00	9,931.47	8,824.34	8,666.82	35.89	30.88	116.95	-406.43	328.13	1,396.70	1,355.28	41.43	33.716		
10,000.00	9,981.34	8,829.93	8,669.10	36.08	30.89	116.89	-411.53	328.13	1,442.76	1,401.46	41.30	34.933		
10,050.00	10,031.22	8,850.00	8,676.89	36.26	30.95	116.67	-430.03	328.16	1,489.27	1,447.76	41.51	35.880		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	2.40	-2.40	0.50	0.50	-179.83	-150.00	-0.45	150.00					
50.00	50.00	47.60	47.60	0.50	0.50	-179.83	-150.00	-0.45	150.00	148.99	1.01	149.094		
100.00	100.00	102.40	97.60	0.52	0.52	-179.83	-150.00	-0.45	150.00	148.96	1.04	144.536		
150.00	150.00	147.60	147.60	0.59	0.59	-179.83	-150.00	-0.45	150.00	148.83	1.18	127.557		
200.00	200.00	202.40	197.60	0.70	0.71	-179.83	-150.00	-0.45	150.00	148.59	1.41	106.363		
250.00	250.00	247.60	247.60	0.84	0.83	-179.83	-150.00	-0.45	150.00	148.33	1.67	89.899		
300.00	300.00	302.40	297.60	0.99	0.99	-179.83	-150.00	-0.45	150.00	148.02	1.98	75.678		
350.00	350.00	347.60	347.60	1.15	1.14	-179.83	-150.00	-0.45	150.00	147.72	2.28	65.696		
400.00	400.00	402.40	397.60	1.31	1.32	-179.83	-150.00	-0.45	150.00	147.37	2.63	57.119		
450.00	450.00	447.60	447.60	1.48	1.47	-179.83	-150.00	-0.45	150.00	147.06	2.94	50.942		
500.00	500.00	502.40	497.60	1.65	1.65	-179.83	-150.00	-0.45	150.00	146.70	3.30	45.450		
550.00	550.00	547.60	547.60	1.82	1.81	-179.83	-150.00	-0.45	150.00	146.37	3.63	41.356		
600.00	600.00	602.40	597.60	1.99	2.00	-179.83	-150.00	-0.45	150.00	146.01	3.99	37.599		
650.00	650.00	647.60	647.60	2.16	2.16	-179.83	-150.00	-0.45	150.00	145.68	4.32	34.716		
700.00	700.00	702.40	697.60	2.34	2.35	-179.83	-150.00	-0.45	150.00	145.31	4.69	32.003		
750.00	750.00	747.60	747.60	2.51	2.51	-179.83	-150.00	-0.45	150.00	144.98	5.02	29.875		
800.00	800.00	802.40	797.60	2.69	2.70	-179.83	-150.00	-0.45	150.00	144.61	5.39	27.831		
850.00	850.00	847.60	847.60	2.87	2.86	-179.83	-150.00	-0.45	150.00	144.28	5.73	26.200		
900.00	900.00	902.40	897.60	3.04	3.05	-179.83	-150.00	-0.45	150.00	143.91	6.10	24.608		
950.00	950.00	947.60	947.60	3.22	3.21	-179.83	-150.00	-0.45	150.00	143.57	6.43	23.319		
1,000.00	1,000.00	1,002.40	997.60	3.40	3.41	-179.83	-150.00	-0.45	150.00	143.20	6.80	22.047		
1,050.00	1,050.00	1,047.60	1,047.60	3.58	3.57	-179.83	-150.00	-0.45	150.00	142.86	7.14	21.004		
1,100.00	1,100.00	1,102.40	1,097.60	3.75	3.76	-179.83	-150.00	-0.45	150.00	142.49	7.51	19.964		
1,150.00	1,150.00	1,147.60	1,147.60	3.93	3.92	-179.83	-150.00	-0.45	150.00	142.15	7.85	19.103		
1,200.00	1,200.00	1,202.40	1,197.60	4.11	4.12	-179.83	-150.00	-0.45	150.00	141.78	8.22	18.238		
1,250.00	1,250.00	1,247.60	1,247.60	4.29	4.28	-179.83	-150.00	-0.45	150.00	141.44	8.56	17.516		
1,300.00	1,300.00	1,302.40	1,297.60	4.46	4.47	-179.83	-150.00	-0.45	150.00	141.06	8.94	16.784		
1,350.00	1,350.00	1,347.60	1,347.60	4.64	4.63	-179.83	-150.00	-0.45	150.00	140.72	9.28	16.171		
1,400.00	1,400.00	1,402.40	1,397.60	4.82	4.83	-179.83	-150.00	-0.45	150.00	140.35	9.65	15.545		
1,450.00	1,450.00	1,447.60	1,447.60	5.00	4.99	-179.83	-150.00	-0.45	150.00	140.01	9.99	15.016		
1,500.00	1,500.00	1,502.40	1,497.60	5.18	5.19	-179.83	-150.00	-0.45	150.00	139.64	10.36	14.475		
1,550.00	1,550.00	1,547.60	1,547.60	5.36	5.35	-179.83	-150.00	-0.45	150.00	139.30	10.70	14.015		
1,600.00	1,600.00	1,602.40	1,597.60	5.53	5.54	-179.83	-150.00	-0.45	150.00	138.92	11.08	13.542		
1,650.00	1,650.00	1,647.60	1,647.60	5.71	5.70	-179.83	-150.00	-0.45	150.00	138.58	11.42	13.139		
1,700.00	1,700.00	1,702.40	1,697.60	5.89	5.90	-179.83	-150.00	-0.45	150.00	138.21	11.79	12.722		
1,750.00	1,750.00	1,747.60	1,747.60	6.07	6.06	-179.83	-150.00	-0.45	150.00	137.87	12.13	12.365		
1,800.00	1,800.00	1,802.40	1,797.60	6.25	6.26	-179.83	-150.00	-0.45	150.00	137.50	12.51	11.995		
1,850.00	1,850.00	1,847.60	1,847.60	6.43	6.42	-179.83	-150.00	-0.45	150.00	137.16	12.85	11.677		
1,900.00	1,900.00	1,902.40	1,897.60	6.61	6.61	-179.83	-150.00	-0.45	150.00	136.78	13.22	11.346		
1,950.00	1,950.00	1,947.60	1,947.60	6.78	6.78	-179.83	-150.00	-0.45	150.00	136.44	13.56	11.062		
2,000.00	2,000.00	1,997.60	1,997.60	6.96	6.95	-179.83	-150.00	-0.45	150.00	136.08	13.92	10.777		
2,050.00	2,050.00	2,048.11	2,048.11	7.14	7.13	-179.90	-149.92	-0.26	149.92	135.65	14.27	10.502		
2,100.00	2,100.00	2,098.63	2,098.63	7.32	7.31	179.87	-149.66	0.33	149.66	135.03	14.63	10.229		
2,150.00	2,150.00	2,149.14	2,149.12	7.50	7.49	179.49	-149.22	1.33	149.24	134.25	14.99	9.959		
2,200.00	2,200.00	2,199.62	2,199.58	7.68	7.66	178.94	-148.61	2.74	148.65	133.31	15.34	9.690		
2,250.00	2,250.00	2,250.08	2,250.00	7.86	7.84	178.24	-147.82	4.55	147.91	132.21	15.69	9.424		
2,300.00	2,300.00	2,300.49	2,300.36	8.04	8.02	177.36	-146.85	6.77	147.03	130.98	16.05	9.161		
2,350.00	2,350.00	2,350.86	2,350.64	8.22	8.19	176.31	-145.71	9.39	146.04	129.64	16.40	8.902		
2,400.00	2,400.00	2,401.18	2,400.85	8.39	8.37	175.08	-144.39	12.42	144.96	128.20	16.76	8.649		
2,450.00	2,450.00	2,451.43	2,450.96	8.57	8.55	173.67	-142.89	15.84	143.81	126.69	17.12	8.402		
2,500.00	2,500.00	2,501.61	2,500.97	8.75	8.72	172.07	-141.23	19.66	142.63	125.16	17.47	8.163		
2,550.00	2,550.00	2,551.75	2,550.89	8.93	8.90	99.06	-139.39	23.88	141.50	123.67	17.83	7.938		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,599.99	2,601.85	2,600.74	9.10	9.08	97.40	-137.37	28.50	140.47	122.29	18.18	7.726	
2,650.00	2,649.97	2,651.93	2,650.52	9.28	9.26	95.77	-135.19	33.51	139.53	121.00	18.53	7.528	
2,700.00	2,699.94	2,701.97	2,700.22	9.45	9.44	94.17	-132.83	38.92	138.68	119.80	18.89	7.343	
2,750.00	2,749.88	2,752.00	2,749.84	9.63	9.62	92.60	-130.30	44.72	137.91	118.67	19.24	7.167	
2,800.00	2,799.79	2,801.99	2,799.38	9.80	9.80	91.05	-127.60	50.91	137.21	117.61	19.60	7.001	
2,850.00	2,849.66	2,851.96	2,848.82	9.97	9.99	89.51	-124.72	57.50	136.58	116.62	19.96	6.843	
2,900.00	2,899.54	2,901.86	2,898.14	10.15	10.17	87.81	-121.68	64.47	136.02	115.70	20.32	6.695	
2,950.00	2,949.41	2,951.68	2,947.35	10.33	10.35	86.02	-118.57	71.60	135.58	114.90	20.68	6.557	
3,000.00	2,999.28	3,001.50	2,996.56	10.50	10.54	84.23	-115.47	78.72	135.27	114.23	21.04	6.430	
3,050.00	3,049.15	3,051.31	3,045.76	10.68	10.73	82.43	-112.36	85.84	135.09	113.70	21.40	6.313	
3,089.48	3,088.53	3,090.64	3,084.61	10.82	10.87	81.00	-109.91	91.46	135.05	113.37	21.68	6.229 CC	
3,100.00	3,099.02	3,101.13	3,094.97	10.85	10.91	80.62	-109.25	92.96	135.05	113.30	21.76	6.207	
3,150.00	3,148.90	3,150.95	3,144.18	11.03	11.10	78.82	-106.15	100.09	135.15	113.03	22.12	6.110	
3,200.00	3,198.77	3,200.77	3,193.39	11.21	11.29	77.02	-103.04	107.21	135.38	112.90	22.48	6.022 ES	
3,250.00	3,248.64	3,250.58	3,242.59	11.39	11.48	75.23	-99.93	114.33	135.75	112.90	22.84	5.943	
3,300.00	3,298.51	3,300.40	3,291.80	11.56	11.67	73.45	-96.83	121.46	136.24	113.04	23.20	5.872	
3,350.00	3,348.38	3,350.22	3,341.01	11.74	11.86	71.68	-93.72	128.58	136.87	113.31	23.56	5.808	
3,400.00	3,398.25	3,400.03	3,390.22	11.92	12.05	69.93	-90.61	135.70	137.63	113.71	23.92	5.753	
3,450.00	3,448.13	3,449.85	3,439.42	12.10	12.24	68.20	-87.50	142.82	138.52	114.23	24.29	5.704	
3,500.00	3,498.00	3,500.33	3,488.63	12.28	12.43	66.50	-84.40	149.95	139.53	114.88	24.65	5.661	
3,550.00	3,547.87	3,549.49	3,537.84	12.46	12.63	64.82	-81.29	157.07	140.66	115.66	25.01	5.625	
3,600.00	3,597.74	3,599.30	3,587.05	12.63	12.82	63.17	-78.18	164.19	141.92	116.55	25.36	5.595	
3,650.00	3,647.61	3,649.12	3,636.25	12.81	13.01	61.55	-75.08	171.32	143.28	117.56	25.72	5.570	
3,700.00	3,697.49	3,701.06	3,685.46	12.99	13.21	59.96	-71.97	178.44	144.77	118.68	26.09	5.549	
3,750.00	3,747.36	3,748.76	3,734.67	13.17	13.40	58.41	-68.86	185.56	146.36	119.92	26.44	5.535	
3,800.00	3,797.23	3,801.43	3,783.88	13.35	13.61	56.88	-65.76	192.68	148.06	121.25	26.81	5.523	
3,850.00	3,847.10	3,848.39	3,833.08	13.53	13.79	55.40	-62.65	199.81	149.86	122.70	27.16	5.518	
3,900.00	3,896.97	3,901.79	3,882.29	13.71	14.00	53.95	-59.54	206.93	151.76	124.23	27.53	5.513 SF	
3,950.00	3,946.85	3,948.03	3,931.50	13.89	14.18	52.53	-56.43	214.05	153.75	125.88	27.87	5.517	
4,000.00	3,996.72	4,002.16	3,980.71	14.07	14.39	51.16	-53.33	221.18	155.84	127.60	28.24	5.518	
4,050.00	4,046.59	4,047.66	4,029.91	14.25	14.57	49.82	-50.22	228.30	158.01	129.43	28.58	5.528	
4,100.00	4,096.46	4,102.52	4,079.12	14.43	14.79	48.52	-47.11	235.42	160.27	131.31	28.96	5.535	
4,150.00	4,146.33	4,147.29	4,128.33	14.61	14.97	47.25	-44.01	242.55	162.61	133.32	29.29	5.551	
4,200.00	4,196.20	4,202.89	4,177.54	14.79	15.19	46.02	-40.90	249.67	165.03	135.36	29.67	5.562	
4,250.00	4,246.08	4,246.93	4,226.74	14.98	15.36	44.83	-37.79	256.79	167.52	137.51	30.01	5.583	
4,300.00	4,295.95	4,303.25	4,275.95	15.16	15.59	43.67	-34.69	263.91	170.08	139.69	30.39	5.597	
4,350.00	4,345.82	4,346.56	4,325.16	15.34	15.76	42.54	-31.58	271.04	172.71	141.99	30.72	5.623	
4,400.00	4,395.69	4,403.62	4,374.37	15.52	15.99	41.45	-28.47	278.16	175.40	144.30	31.10	5.640	
4,450.00	4,445.56	4,446.20	4,423.57	15.70	16.16	40.40	-25.36	285.28	178.16	146.73	31.43	5.669	
4,500.00	4,495.44	4,503.98	4,472.78	15.88	16.39	39.37	-22.26	292.41	180.97	149.16	31.81	5.688	
4,550.00	4,545.31	4,545.83	4,521.99	16.06	16.56	38.38	-19.15	299.53	183.84	151.70	32.14	5.720	
4,600.00	4,595.18	4,604.35	4,571.20	16.24	16.79	37.42	-16.04	306.65	186.77	154.24	32.53	5.742	
4,650.00	4,645.05	4,645.47	4,620.40	16.43	16.96	36.48	-12.94	313.77	189.74	156.89	32.85	5.776	
4,700.00	4,694.92	4,704.72	4,669.61	16.61	17.19	35.58	-9.83	320.90	192.77	159.52	33.24	5.799	
4,750.00	4,744.80	4,745.10	4,718.82	16.79	17.36	34.71	-6.72	328.02	195.84	162.27	33.56	5.835	
4,800.00	4,794.67	4,805.08	4,768.03	16.97	17.60	33.86	-3.62	335.14	198.95	164.99	33.96	5.859	
4,850.00	4,844.54	4,844.74	4,817.23	17.15	17.76	33.04	-0.51	342.27	202.11	167.83	34.27	5.897	
4,900.00	4,894.41	4,905.45	4,866.44	17.33	18.00	32.24	2.60	349.39	205.30	170.63	34.67	5.921	
4,950.00	4,944.28	4,944.37	4,915.65	17.52	18.16	31.47	5.71	356.51	208.54	173.55	34.99	5.960	
5,000.00	4,994.15	4,994.19	4,964.86	17.70	18.36	30.72	8.81	363.63	211.81	176.47	35.34	5.993	
5,050.00	5,044.03	5,044.01	5,014.06	17.88	18.56	29.99	11.92	370.76	215.12	179.42	35.70	6.026	
5,100.00	5,093.90	5,106.18	5,063.27	18.06	18.81	29.29	15.03	377.88	218.46	182.35	36.10	6.051	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,150.00	5,143.77	5,143.64	5,112.48	18.25	18.96	28.81	18.13	385.00	221.83	185.42	36.41	6.092	
5,200.00	5,193.64	5,206.54	5,161.69	18.43	19.22	27.94	21.24	392.13	225.23	188.41	36.82	6.117	
5,250.00	5,243.51	5,243.28	5,210.89	18.61	19.37	27.30	24.35	399.25	228.66	191.54	37.13	6.159	
5,300.00	5,293.39	5,306.91	5,260.10	18.79	19.62	26.68	27.45	406.37	232.12	194.59	37.54	6.184	
5,350.00	5,343.26	5,342.91	5,309.31	18.98	19.77	26.07	30.56	413.49	235.61	197.77	37.84	6.226	
5,400.00	5,393.13	5,407.27	5,358.52	19.16	20.03	25.49	33.67	420.62	239.12	200.86	38.26	6.250	
5,450.00	5,443.00	5,442.54	5,407.72	19.34	20.17	24.92	36.78	427.74	242.66	204.10	38.56	6.293	
5,500.00	5,492.87	5,492.36	5,456.93	19.52	20.38	24.36	39.88	434.86	246.22	207.30	38.92	6.327	
5,550.00	5,542.75	5,542.18	5,506.14	19.71	20.58	23.82	42.99	441.99	249.80	210.52	39.28	6.360	
5,600.00	5,592.62	5,592.00	5,555.35	19.89	20.78	23.30	46.10	449.11	253.40	213.77	39.64	6.393	
5,650.00	5,642.49	5,641.81	5,604.55	20.07	20.98	22.79	49.20	456.23	257.02	217.03	39.99	6.427	
5,700.00	5,692.36	5,708.37	5,653.76	20.25	21.25	22.30	52.31	463.36	260.67	220.25	40.42	6.450	
5,750.00	5,742.23	5,741.45	5,702.97	20.44	21.39	21.82	55.42	470.48	264.33	223.62	40.71	6.493	
5,800.00	5,792.11	5,808.73	5,752.18	20.62	21.66	21.35	58.52	477.60	268.01	226.87	41.14	6.515	
5,850.00	5,841.98	5,841.08	5,801.38	20.80	21.79	20.90	61.63	484.72	271.71	230.28	41.43	6.558	
5,900.00	5,891.85	5,890.90	5,850.59	20.99	22.00	20.45	64.74	491.85	275.42	233.63	41.79	6.591	
5,950.00	5,941.72	5,940.72	5,899.80	21.17	22.20	20.02	67.85	498.97	279.15	237.00	42.15	6.623	
6,000.00	5,991.59	6,009.47	5,949.01	21.35	22.48	19.60	70.95	506.09	282.89	240.31	42.58	6.644	
6,050.00	6,041.46	6,040.35	5,998.21	21.54	22.61	19.20	74.06	513.22	286.65	243.78	42.87	6.687	
6,100.00	6,091.34	6,109.83	6,047.42	21.72	22.89	18.80	77.17	520.34	290.43	247.12	43.30	6.707	
6,150.00	6,141.21	6,139.99	6,096.63	21.90	23.02	18.41	80.27	527.46	294.21	250.63	43.59	6.750	
6,200.00	6,191.08	6,189.80	6,145.84	22.09	23.22	18.03	83.38	534.58	298.02	254.07	43.95	6.781	
6,250.00	6,240.95	6,239.62	6,195.04	22.27	23.42	17.67	86.49	541.71	301.83	257.52	44.31	6.812	
6,300.00	6,290.82	6,289.44	6,244.25	22.45	23.63	17.31	89.59	548.83	305.65	260.98	44.67	6.842	
6,350.00	6,340.70	6,339.26	6,293.46	22.64	23.83	16.96	92.70	555.95	309.49	264.46	45.03	6.873	
6,400.00	6,390.57	6,389.07	6,342.67	22.82	24.03	16.61	95.81	563.08	313.34	267.94	45.39	6.903	
6,450.00	6,440.44	6,438.89	6,391.87	23.00	24.24	16.28	98.92	570.20	317.20	271.44	45.75	6.933	
6,500.00	6,490.31	6,488.71	6,441.08	23.19	24.44	15.96	102.02	577.32	321.07	274.95	46.12	6.962	
6,550.00	6,540.18	6,538.53	6,490.29	23.37	24.65	15.64	105.13	584.44	324.94	278.47	46.48	6.992	
6,600.00	6,590.06	6,588.34	6,539.50	23.55	24.85	15.33	108.24	591.57	328.83	282.00	46.84	7.021	
6,650.00	6,639.93	6,638.16	6,588.70	23.74	25.05	15.03	111.34	598.69	332.73	285.53	47.20	7.049	
6,700.00	6,689.80	6,687.98	6,637.91	23.92	25.26	14.73	114.45	605.81	336.64	289.08	47.56	7.078	
6,750.00	6,739.67	6,737.79	6,687.12	24.10	25.46	14.44	117.56	612.94	340.55	292.63	47.92	7.106	
6,800.00	6,789.54	6,787.61	6,736.33	24.29	25.67	14.16	120.66	620.06	344.48	296.19	48.28	7.134	
6,850.00	6,839.41	6,837.43	6,785.53	24.47	25.87	13.88	123.77	627.18	348.41	299.76	48.65	7.162	
6,900.00	6,889.29	6,887.25	6,834.74	24.66	26.08	13.61	126.88	634.30	352.35	303.34	49.01	7.190	
6,950.00	6,939.16	6,937.06	6,883.95	24.84	26.28	13.35	129.99	641.43	356.30	306.93	49.37	7.217	
7,000.00	6,989.03	6,986.88	6,933.16	25.02	26.49	13.09	133.09	648.55	360.25	310.52	49.73	7.244	
7,050.00	7,038.90	7,036.70	6,982.36	25.21	26.69	12.84	136.20	655.67	364.22	314.12	50.10	7.270	
7,100.00	7,088.77	7,086.52	7,031.57	25.39	26.90	12.59	139.31	662.80	368.19	317.73	50.46	7.297	
7,150.00	7,138.65	7,136.33	7,080.78	25.57	27.10	12.35	142.41	669.92	372.16	321.34	50.82	7.323	
7,200.00	7,188.52	7,186.15	7,129.99	25.76	27.31	12.11	145.52	677.04	376.14	324.96	51.18	7.349	
7,250.00	7,238.39	7,235.97	7,179.19	25.94	27.51	11.88	148.63	684.17	380.13	328.59	51.55	7.375	
7,300.00	7,288.26	7,285.79	7,228.40	26.13	27.72	11.65	151.73	691.29	384.13	332.22	51.91	7.400	
7,350.00	7,338.13	7,335.60	7,277.61	26.31	27.92	11.43	154.84	698.41	388.13	335.86	52.27	7.425	
7,400.00	7,388.01	7,385.42	7,326.81	26.49	28.13	11.21	157.95	705.53	392.14	339.50	52.63	7.450	
7,450.00	7,437.88	7,435.24	7,376.02	26.68	28.33	11.00	161.06	712.66	396.15	343.15	53.00	7.475	
7,500.00	7,487.75	7,485.05	7,425.23	26.86	28.54	10.79	164.16	719.78	400.16	346.80	53.36	7.499	
7,550.00	7,537.62	7,536.63	7,476.18	27.05	28.75	10.58	167.36	727.12	404.15	350.41	53.74	7.520	
7,600.00	7,587.49	7,592.19	7,531.16	27.23	28.97	10.38	170.57	734.47	407.61	353.44	54.17	7.525	
7,650.00	7,637.36	7,647.85	7,586.35	27.41	29.19	10.22	173.46	741.10	410.38	355.79	54.58	7.518	
7,700.00	7,687.24	7,703.60	7,641.73	27.60	29.41	10.08	176.03	747.00	412.44	357.45	54.99	7.500	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,750.00	7,737.11	7,759.41	7,697.25	27.78	29.62	9.97	178.29	752.16	413.80	358.41	55.39	7.471	
7,800.00	7,786.98	7,815.26	7,752.89	27.97	29.83	9.90	180.22	756.58	414.45	358.68	55.78	7.431	
7,850.00	7,836.85	7,871.12	7,808.60	28.15	30.04	9.85	181.82	760.26	414.40	358.25	56.15	7.380	
7,900.00	7,886.72	7,926.97	7,864.36	28.33	30.24	9.83	183.10	763.19	413.64	357.12	56.52	7.318	
7,950.00	7,936.60	7,982.78	7,920.12	28.52	30.43	9.85	184.05	765.37	412.17	355.29	56.88	7.246	
8,000.00	7,986.47	8,038.54	7,975.85	28.70	30.62	9.88	184.67	766.80	410.00	352.78	57.23	7.165	
8,050.00	8,036.34	8,094.21	8,031.52	28.89	30.81	9.95	184.97	767.48	407.13	349.56	57.56	7.073	
8,100.00	8,086.21	8,146.50	8,083.81	29.07	30.98	10.04	185.00	767.55	403.67	345.76	57.91	6.971	
8,150.00	8,136.08	8,203.63	8,133.68	29.26	31.17	10.13	185.00	767.55	400.14	341.86	58.28	6.866	
8,200.00	8,185.96	8,246.24	8,183.56	29.44	31.31	10.22	185.00	767.55	396.62	338.01	58.61	6.767	
8,250.00	8,235.83	8,303.88	8,233.43	29.62	31.50	10.32	185.00	767.55	393.10	334.12	58.99	6.664	
8,300.00	8,285.70	8,345.99	8,283.30	29.81	31.64	10.41	185.00	767.55	389.58	330.27	59.31	6.568	
8,350.00	8,335.57	8,404.14	8,333.17	29.99	31.83	10.51	185.00	767.55	386.07	326.37	59.69	6.468	
8,400.00	8,385.44	8,445.73	8,383.04	30.18	31.96	10.60	185.00	767.55	382.55	322.53	60.02	6.374	
8,450.00	8,435.32	8,498.36	8,435.66	30.36	32.13	10.83	184.18	767.55	378.93	318.58	60.35	6.279	
8,500.00	8,485.19	8,552.43	8,489.44	30.55	32.29	11.77	178.75	767.56	374.78	314.11	60.67	6.178	
8,550.00	8,535.06	8,604.81	8,540.81	30.73	32.43	13.44	168.68	767.57	370.27	309.26	61.01	6.069	
8,600.00	8,584.93	8,654.74	8,588.75	30.91	32.56	15.75	154.75	767.60	365.79	304.40	61.39	5.959	
8,650.00	8,634.80	8,701.70	8,632.56	31.10	32.67	18.55	137.89	767.62	361.88	300.08	61.80	5.856	
8,700.00	8,684.67	8,745.37	8,671.94	31.28	32.76	21.71	119.04	767.65	359.18	296.95	62.23	5.772	
8,744.16	8,728.73	8,781.11	8,703.03	31.45	32.83	24.65	101.41	767.68	358.31	295.74	62.56	5.727	
8,750.00	8,734.55	8,785.64	8,706.88	31.47	32.83	25.05	99.04	767.68	358.32	295.72	62.60	5.724	
8,800.00	8,784.42	8,822.53	8,737.59	31.65	32.90	28.44	78.61	767.71	359.94	297.09	62.85	5.727	
8,850.00	8,834.29	8,866.18	8,764.41	31.84	32.95	31.75	58.29	767.74	364.56	301.66	62.90	5.796	
8,900.00	8,884.16	8,886.80	8,787.74	32.02	32.99	34.92	38.45	767.77	372.55	309.87	62.67	5.944	
8,950.00	8,934.03	8,914.63	8,807.99	32.20	33.02	37.88	19.37	767.80	384.13	321.98	62.15	6.180	
9,000.00	8,983.91	8,939.92	8,825.57	32.39	33.05	40.62	1.19	767.83	399.35	338.01	61.35	6.510	
9,050.00	9,033.78	8,962.91	8,840.84	32.57	33.07	43.12	-15.99	767.86	418.11	357.80	60.30	6.933	
9,100.00	9,083.65	8,983.85	8,854.14	32.76	33.09	45.38	-32.16	767.88	440.18	381.09	59.09	7.450	
9,150.00	9,133.52	9,000.00	8,863.99	32.94	33.10	47.12	-44.96	767.90	465.31	407.66	57.65	8.072	
9,200.00	9,183.39	9,020.37	8,875.89	33.13	33.11	49.28	-61.49	767.92	493.15	436.74	56.40	8.744	
9,250.00	9,233.27	9,036.34	8,884.81	33.31	33.12	50.95	-74.74	767.94	523.42	468.38	55.04	9.509	
9,300.00	9,283.14	9,050.00	8,892.14	33.50	33.13	52.36	-86.26	767.96	555.82	502.13	53.69	10.353	
9,350.00	9,333.01	9,064.47	8,899.60	33.68	33.14	53.82	-98.66	767.98	590.08	537.60	52.48	11.244	
9,400.00	9,382.88	9,076.89	8,905.75	33.86	33.14	55.05	-109.45	768.00	625.96	574.65	51.31	12.199	
9,450.00	9,432.75	9,088.37	8,911.23	34.05	33.15	56.17	-119.53	768.01	663.25	613.02	50.23	13.204	
9,500.00	9,482.62	9,100.00	8,916.58	34.23	33.16	57.28	-129.87	768.03	701.77	652.49	49.28	14.241	
9,550.00	9,532.50	9,100.00	8,916.58	34.42	33.16	57.28	-129.87	768.03	741.48	693.44	48.04	15.434	
9,600.00	9,582.37	9,118.03	8,924.44	34.60	33.16	58.95	-146.09	768.05	781.90	734.38	47.52	16.453	
9,650.00	9,632.24	9,126.58	8,928.00	34.79	33.16	59.73	-153.87	768.07	823.26	776.48	46.79	17.597	
9,700.00	9,682.11	9,134.56	8,931.21	34.97	33.17	60.44	-161.17	768.08	865.35	819.23	46.12	18.763	
9,750.00	9,731.98	9,150.00	8,937.12	35.16	33.17	61.79	-175.43	768.10	908.17	862.42	45.75	19.850	
9,800.00	9,781.86	9,150.00	8,937.12	35.34	33.17	61.79	-175.43	768.10	951.39	906.37	45.02	21.134	
9,850.00	9,831.73	9,150.00	8,937.12	35.53	33.17	61.79	-175.43	768.10	995.24	950.87	44.37	22.431	
9,900.00	9,881.60	9,150.00	8,937.12	35.71	33.17	61.79	-175.43	768.10	1,039.65	995.85	43.80	23.737	
9,950.00	9,931.47	9,167.60	8,943.40	35.89	33.18	63.27	-191.87	768.12	1,084.14	1,040.43	43.71	24.806	
10,000.00	9,981.34	9,173.09	8,945.26	36.08	33.18	63.72	-197.04	768.13	1,129.18	1,085.81	43.37	26.037	
10,050.00	10,031.22	9,178.28	8,946.96	36.26	33.18	64.14	-201.94	768.14	1,174.55	1,131.48	43.07	27.270	
10,100.00	10,081.09	9,183.19	8,948.54	36.45	33.18	64.53	-206.59	768.15	1,220.22	1,177.41	42.81	28.503	
10,150.00	10,130.96	9,200.00	8,953.62	36.63	33.19	65.84	-222.61	768.17	1,266.35	1,223.53	42.82	29.572	
10,200.00	10,180.83	9,200.00	8,953.62	36.82	33.19	65.84	-222.61	768.17	1,312.43	1,269.90	42.53	30.861	
10,250.00	10,230.70	9,200.00	8,953.62	37.00	33.19	65.84	-222.61	768.17	1,358.78	1,316.51	42.27	32.144	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1		Offset Site Error:		0.00 ft	
Survey Program: 0-MWD+HDGM															Offset Well Error:		0.50 ft	
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor						
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)							
10,300.00	10,280.57	9,200.00	8,953.62	37.19	33.19	65.84	-222.61	768.17	1,405.39	1,363.34	42.05	33.421						
10,350.00	10,330.45	9,200.00	8,953.62	37.37	33.19	65.84	-222.61	768.17	1,452.22	1,410.36	41.86	34.691						
10,400.00	10,380.32	9,200.00	8,953.62	37.56	33.19	65.84	-222.61	768.17	1,499.26	1,457.56	41.70	35.953						

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.10	-0.10	0.50	0.50	-90.37	-0.39	-59.98	59.98				
50.00	50.00	49.90	49.90	0.50	0.50	-90.37	-0.39	-59.98	59.98	58.97	1.01	59.595	
100.00	100.00	100.10	99.90	0.52	0.52	-90.37	-0.39	-59.98	59.98	58.95	1.04	57.919	
150.00	150.00	149.90	149.90	0.59	0.59	-90.37	-0.39	-59.98	59.98	58.80	1.18	50.819	
200.00	200.00	200.10	199.90	0.70	0.70	-90.37	-0.39	-59.98	59.98	58.58	1.40	42.708	
250.00	250.00	249.90	249.90	0.84	0.84	-90.37	-0.39	-59.98	59.98	58.31	1.68	35.807	
300.00	300.00	300.10	299.90	0.99	0.99	-90.37	-0.39	-59.98	59.98	58.01	1.97	30.371	
350.00	350.00	349.90	349.90	1.15	1.15	-90.37	-0.39	-59.98	59.98	57.69	2.29	26.185	
400.00	400.00	400.10	399.90	1.31	1.31	-90.37	-0.39	-59.98	59.98	57.36	2.62	22.907	
450.00	450.00	449.90	449.90	1.48	1.48	-90.37	-0.39	-59.98	59.98	57.03	2.95	20.317	
500.00	500.00	500.10	499.90	1.65	1.65	-90.37	-0.39	-59.98	59.98	56.69	3.29	18.217	
550.00	550.00	549.90	549.90	1.82	1.82	-90.37	-0.39	-59.98	59.98	56.35	3.63	16.501	
600.00	600.00	600.10	599.90	1.99	1.99	-90.37	-0.39	-59.98	59.98	56.00	3.98	15.065	
650.00	650.00	649.90	649.90	2.16	2.16	-90.37	-0.39	-59.98	59.98	55.65	4.33	13.856	
700.00	700.00	700.10	699.90	2.34	2.34	-90.37	-0.39	-59.98	59.98	55.30	4.68	12.819	
750.00	750.00	749.90	749.90	2.51	2.51	-90.37	-0.39	-59.98	59.98	54.95	5.03	11.927	
800.00	800.00	800.10	799.90	2.69	2.69	-90.37	-0.39	-59.98	59.98	54.60	5.38	11.146	
850.00	850.00	849.90	849.90	2.87	2.87	-90.37	-0.39	-59.98	59.98	54.25	5.73	10.462	
900.00	900.00	900.10	899.90	3.04	3.04	-90.37	-0.39	-59.98	59.98	53.89	6.09	9.853	
950.00	950.00	949.90	949.90	3.22	3.22	-90.37	-0.39	-59.98	59.98	53.54	6.44	9.313	
1,000.00	1,000.00	1,000.10	999.90	3.40	3.40	-90.37	-0.39	-59.98	59.98	53.19	6.80	8.826	
1,050.00	1,050.00	1,049.90	1,049.90	3.58	3.57	-90.37	-0.39	-59.98	59.98	52.83	7.15	8.389	
1,100.00	1,100.00	1,100.10	1,099.90	3.75	3.75	-90.37	-0.39	-59.98	59.98	52.48	7.51	7.992	
1,150.00	1,150.00	1,149.90	1,149.90	3.93	3.93	-90.37	-0.39	-59.98	59.98	52.12	7.86	7.631	
1,200.00	1,200.00	1,200.10	1,199.90	4.11	4.11	-90.37	-0.39	-59.98	59.98	51.76	8.22	7.300	
1,250.00	1,250.00	1,249.90	1,249.90	4.29	4.29	-90.37	-0.39	-59.98	59.98	51.41	8.57	6.997	
1,300.00	1,300.00	1,300.10	1,299.90	4.46	4.46	-90.37	-0.39	-59.98	59.98	51.05	8.93	6.718	
1,350.00	1,350.00	1,349.90	1,349.90	4.64	4.64	-90.37	-0.39	-59.98	59.98	50.70	9.28	6.461	
1,400.00	1,400.00	1,400.10	1,399.90	4.82	4.82	-90.37	-0.39	-59.98	59.98	50.34	9.64	6.221	
1,450.00	1,450.00	1,449.90	1,449.90	5.00	5.00	-90.37	-0.39	-59.98	59.98	49.98	10.00	6.000	
1,500.00	1,500.00	1,500.10	1,499.90	5.18	5.18	-90.37	-0.39	-59.98	59.98	49.63	10.35	5.793	
1,550.00	1,550.00	1,549.90	1,549.90	5.36	5.36	-90.37	-0.39	-59.98	59.98	49.27	10.71	5.600	
1,600.00	1,600.00	1,600.10	1,599.90	5.53	5.53	-90.37	-0.39	-59.98	59.98	48.91	11.07	5.419	
1,650.00	1,650.00	1,649.90	1,649.90	5.71	5.71	-90.37	-0.39	-59.98	59.98	48.56	11.42	5.250	
1,700.00	1,700.00	1,700.10	1,699.90	5.89	5.89	-90.37	-0.39	-59.98	59.98	48.20	11.78	5.091	
1,750.00	1,750.00	1,749.90	1,749.90	6.07	6.07	-90.37	-0.39	-59.98	59.98	47.84	12.14	4.941 Alert	
1,800.00	1,800.00	1,800.10	1,799.90	6.25	6.25	-90.37	-0.39	-59.98	59.98	47.48	12.50	4.800 Alert	
1,850.00	1,850.00	1,849.90	1,849.90	6.43	6.43	-90.37	-0.39	-59.98	59.98	47.13	12.85	4.666 Alert	
1,900.00	1,900.00	1,900.10	1,899.90	6.61	6.61	-90.37	-0.39	-59.98	59.98	46.77	13.21	4.540 Alert	
1,950.00	1,950.00	1,949.90	1,949.90	6.78	6.78	-90.37	-0.39	-59.98	59.98	46.41	13.57	4.421 Alert	
2,000.00	2,000.00	2,000.10	1,999.90	6.96	6.96	-90.37	-0.39	-59.98	59.98	46.05	13.93	4.307 Alert	
2,050.00	2,050.00	2,049.90	2,049.90	7.14	7.14	-90.37	-0.39	-59.98	59.98	45.70	14.28	4.199 Alert	
2,100.00	2,100.00	2,100.10	2,099.90	7.32	7.32	-90.37	-0.39	-59.98	59.98	45.34	14.64	4.096 Alert	
2,150.00	2,150.00	2,149.90	2,149.90	7.50	7.50	-90.37	-0.39	-59.98	59.98	44.98	15.00	3.999 Alert	
2,200.00	2,200.00	2,200.10	2,199.90	7.68	7.68	-90.37	-0.39	-59.98	59.98	44.62	15.36	3.906 Alert	
2,250.00	2,250.00	2,249.90	2,249.90	7.86	7.86	-90.37	-0.39	-59.98	59.98	44.27	15.71	3.817 Alert	
2,300.00	2,300.00	2,300.10	2,299.90	8.04	8.04	-90.37	-0.39	-59.98	59.98	43.91	16.07	3.732 Alert	
2,350.00	2,350.00	2,349.90	2,349.90	8.22	8.21	-90.37	-0.39	-59.98	59.98	43.55	16.43	3.651 Alert	
2,400.00	2,400.00	2,400.10	2,399.90	8.39	8.39	-90.37	-0.39	-59.98	59.98	43.19	16.79	3.573 Alert	
2,450.00	2,450.00	2,449.90	2,449.90	8.57	8.57	-90.37	-0.39	-59.98	59.98	42.84	17.15	3.498 Alert	
2,500.00	2,500.00	2,500.10	2,499.90	8.75	8.75	-90.37	-0.39	-59.98	59.98	42.48	17.50	3.427 Alert, CC	
2,550.00	2,550.00	2,549.90	2,549.90	8.93	8.93	-161.80	-0.39	-59.98	60.24	42.38	17.86	3.373 Alert, ES	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
2,600.00	2,599.99	2,600.11	2,599.89	9.10	9.11	-162.04	-0.39	-59.98	61.02	42.80	18.21	3.350	Alert	
2,650.00	2,649.97	2,649.87	2,649.87	9.28	9.29	-162.42	-0.39	-59.98	62.32	43.75	18.57	3.357	Alert	
2,700.00	2,699.94	2,700.16	2,699.84	9.45	9.47	-162.93	-0.39	-59.98	64.14	45.22	18.92	3.390	Alert	
2,750.00	2,749.88	2,749.78	2,749.78	9.63	9.65	-163.54	-0.39	-59.98	66.49	47.22	19.27	3.450	Alert	
2,800.00	2,799.79	2,800.31	2,799.69	9.80	9.83	-164.23	-0.39	-59.98	69.37	49.74	19.62	3.535	Alert	
2,850.00	2,849.66	2,849.56	2,849.56	9.97	10.00	-164.97	-0.39	-59.98	72.73	52.76	19.97	3.641	Alert	
2,900.00	2,899.54	2,900.56	2,899.44	10.15	10.19	-165.67	-0.39	-59.98	76.20	55.87	20.33	3.748	Alert	
2,950.00	2,949.41	2,949.31	2,949.31	10.33	10.36	-166.31	-0.39	-59.98	79.67	58.99	20.68	3.853	Alert	
3,000.00	2,999.28	2,999.18	2,999.18	10.50	10.54	-166.89	-0.39	-59.98	83.15	62.12	21.03	3.954	Alert	
3,050.00	3,049.15	3,049.13	3,049.13	10.68	10.72	-167.29	-0.18	-59.98	86.61	65.23	21.38	4.050	Alert	
3,100.00	3,099.02	3,099.09	3,099.09	10.85	10.90	-167.38	0.47	-59.98	90.03	68.30	21.74	4.142	Alert	
3,150.00	3,148.90	3,149.04	3,149.03	11.03	11.08	-167.20	1.54	-59.98	93.41	71.32	22.09	4.229	Alert	
3,200.00	3,198.77	3,201.07	3,198.90	11.21	11.26	-166.97	2.73	-59.98	96.78	74.33	22.45	4.311	Alert	
3,250.00	3,248.64	3,248.81	3,248.77	11.39	11.43	-166.75	3.93	-59.98	100.15	77.35	22.80	4.393	Alert	
3,300.00	3,298.51	3,301.30	3,298.64	11.56	11.62	-166.54	5.13	-59.98	103.52	80.36	23.16	4.470	Alert	
3,350.00	3,348.38	3,348.58	3,348.51	11.74	11.79	-166.35	6.32	-59.98	106.89	83.39	23.50	4.548	Alert	
3,400.00	3,398.25	3,401.53	3,398.38	11.92	11.98	-166.16	7.52	-59.98	110.26	86.39	23.87	4.620	Alert	
3,450.00	3,448.13	3,448.35	3,448.25	12.10	12.15	-165.99	8.72	-59.98	113.63	89.42	24.21	4.694	Alert	
3,500.00	3,498.00	3,501.76	3,498.12	12.28	12.34	-165.83	9.91	-59.98	117.01	92.43	24.58	4.761	Alert	
3,550.00	3,547.87	3,548.12	3,547.99	12.46	12.50	-165.68	11.11	-59.98	120.38	95.46	24.92	4.831	Alert	
3,600.00	3,597.74	3,601.99	3,597.86	12.63	12.70	-165.53	12.31	-59.98	123.76	98.47	25.29	4.894	Alert	
3,650.00	3,647.61	3,647.89	3,647.73	12.81	12.86	-165.40	13.50	-59.98	127.13	101.51	25.63	4.961	Alert	
3,700.00	3,697.49	3,702.22	3,697.60	12.99	13.06	-165.27	14.70	-59.98	130.51	104.51	26.00	5.020		
3,750.00	3,747.36	3,747.66	3,747.47	13.17	13.22	-165.15	15.90	-59.98	133.89	107.55	26.34	5.084		
3,800.00	3,797.23	3,802.45	3,797.34	13.35	13.42	-165.03	17.09	-59.98	137.27	110.56	26.71	5.139		
3,850.00	3,847.10	3,847.43	3,847.21	13.53	13.58	-164.92	18.29	-59.98	140.65	113.60	27.05	5.200		
3,900.00	3,896.97	3,902.68	3,897.08	13.71	13.77	-164.81	19.49	-59.98	144.03	116.60	27.42	5.252		
3,950.00	3,946.85	3,947.20	3,946.96	13.89	13.93	-164.71	20.68	-59.98	147.41	119.65	27.76	5.310		
4,000.00	3,996.72	4,002.91	3,996.83	14.07	14.13	-164.61	21.88	-59.98	150.79	122.65	28.14	5.359		
4,050.00	4,046.59	4,046.97	4,046.70	14.25	14.29	-164.52	23.07	-59.98	154.17	125.70	28.47	5.415		
4,100.00	4,096.46	4,103.14	4,096.57	14.43	14.49	-164.43	24.27	-59.98	157.55	128.70	28.85	5.461		
4,150.00	4,146.33	4,146.74	4,146.44	14.61	14.65	-164.35	25.47	-59.98	160.93	131.75	29.18	5.515		
4,200.00	4,196.20	4,203.37	4,196.31	14.79	14.85	-164.27	26.66	-59.98	164.31	134.75	29.56	5.558		
4,250.00	4,246.08	4,246.51	4,246.18	14.98	15.01	-164.19	27.86	-59.98	167.69	137.80	29.89	5.610		
4,300.00	4,295.95	4,303.60	4,296.05	15.16	15.21	-164.12	29.06	-59.98	171.07	140.80	30.28	5.651		
4,350.00	4,345.82	4,346.28	4,345.92	15.34	15.36	-164.04	30.25	-59.98	174.46	143.85	30.61	5.700		
4,400.00	4,395.69	4,403.83	4,395.79	15.52	15.57	-163.97	31.45	-59.98	177.84	146.85	30.99	5.739		
4,450.00	4,445.56	4,446.05	4,445.66	15.70	15.72	-163.91	32.65	-59.98	181.22	149.90	31.32	5.786		
4,500.00	4,495.44	4,504.06	4,495.53	15.88	15.93	-163.84	33.84	-59.98	184.61	152.90	31.70	5.823		
4,550.00	4,545.31	4,545.82	4,545.40	16.06	16.08	-163.78	35.04	-59.98	187.99	155.96	32.03	5.869		
4,600.00	4,595.18	4,604.29	4,595.27	16.24	16.29	-163.72	36.24	-59.98	191.37	158.95	32.42	5.903		
4,650.00	4,645.05	4,645.59	4,645.14	16.43	16.44	-163.66	37.43	-59.98	194.76	162.01	32.75	5.948		
4,700.00	4,694.92	4,704.52	4,695.01	16.61	16.65	-163.61	38.63	-59.98	198.14	165.01	33.13	5.980		
4,750.00	4,744.80	4,745.36	4,744.89	16.79	16.79	-163.56	39.83	-59.98	201.53	168.07	33.46	6.023		
4,800.00	4,794.67	4,804.75	4,794.76	16.97	17.01	-163.50	41.02	-59.98	204.91	171.06	33.85	6.053		
4,850.00	4,844.54	4,845.13	4,844.63	17.15	17.15	-163.45	42.22	-59.98	208.30	174.12	34.17	6.095		
4,900.00	4,894.41	4,904.98	4,894.50	17.33	17.37	-163.40	43.42	-59.98	211.68	177.11	34.57	6.124		
4,950.00	4,944.28	4,944.90	4,944.37	17.52	17.51	-163.36	44.61	-59.98	215.07	180.18	34.89	6.165		
5,000.00	4,994.15	5,005.21	4,994.24	17.70	17.73	-163.31	45.81	-59.98	218.45	183.17	35.28	6.192		
5,050.00	5,044.03	5,044.67	5,044.11	17.88	17.87	-163.27	47.01	-59.98	221.84	186.23	35.60	6.231		
5,100.00	5,093.90	5,105.44	5,093.98	18.06	18.08	-163.22	48.20	-59.98	225.22	189.22	36.00	6.256		
5,150.00	5,143.77	5,144.44	5,143.85	18.25	18.22	-163.18	49.40	-59.98	228.61	192.29	36.32	6.295		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.00	5,193.64	5,205.67	5,193.72	18.43	18.44	-163.14	50.60	-59.98	231.99	195.28	36.71	6.319		
5,250.00	5,243.51	5,244.21	5,243.59	18.61	18.58	-163.10	51.79	-59.98	235.38	198.35	37.03	6.356		
5,300.00	5,293.39	5,305.90	5,293.46	18.79	18.80	-163.06	52.99	-59.98	238.76	201.33	37.43	6.379		
5,350.00	5,343.26	5,343.98	5,343.33	18.98	18.94	-163.03	54.19	-59.98	242.15	204.40	37.75	6.415		
5,400.00	5,393.13	5,406.13	5,393.20	19.16	19.16	-162.99	55.38	-59.98	245.54	207.39	38.15	6.436		
5,450.00	5,443.00	5,443.75	5,443.07	19.34	19.30	-162.96	56.58	-59.98	248.92	210.46	38.46	6.472		
5,500.00	5,492.87	5,506.36	5,492.94	19.52	19.52	-162.92	57.78	-59.98	252.31	213.44	38.87	6.492		
5,550.00	5,542.75	5,543.52	5,542.82	19.71	19.66	-162.89	58.97	-59.98	255.69	216.52	39.18	6.527		
5,600.00	5,592.62	5,606.59	5,592.69	19.89	19.88	-162.86	60.17	-59.98	259.08	219.50	39.58	6.545		
5,650.00	5,642.49	5,643.29	5,642.56	20.07	20.01	-162.83	61.36	-59.98	262.47	222.57	39.89	6.579		
5,700.00	5,692.36	5,706.82	5,692.43	20.25	20.24	-162.79	62.56	-59.98	265.85	225.55	40.30	6.597		
5,750.00	5,742.23	5,743.06	5,742.30	20.44	20.37	-162.76	63.76	-59.98	269.24	228.63	40.61	6.630		
5,800.00	5,792.11	5,807.05	5,792.17	20.62	20.60	-162.74	64.95	-59.98	272.63	231.61	41.02	6.647		
5,850.00	5,841.98	5,842.83	5,842.04	20.80	20.73	-162.71	66.15	-59.98	276.01	234.69	41.32	6.679		
5,900.00	5,891.85	5,907.28	5,891.91	20.99	20.96	-162.68	67.35	-59.98	279.40	237.67	41.74	6.695		
5,950.00	5,941.72	5,942.60	5,941.78	21.17	21.09	-162.65	68.54	-59.98	282.79	240.75	42.04	6.726		
6,000.00	5,991.59	6,007.51	5,991.65	21.35	21.32	-162.63	69.74	-59.98	286.18	243.72	42.45	6.741		
6,050.00	6,041.46	6,042.37	6,041.52	21.54	21.44	-162.60	70.94	-59.98	289.56	246.80	42.76	6.772		
6,100.00	6,091.34	6,107.74	6,091.39	21.72	21.68	-162.57	72.13	-59.98	292.95	249.78	43.17	6.786		
6,150.00	6,141.21	6,142.14	6,141.26	21.90	21.80	-162.55	73.33	-59.98	296.34	252.86	43.47	6.816		
6,200.00	6,191.08	6,207.97	6,191.13	22.09	22.04	-162.53	74.53	-59.98	299.72	255.83	43.89	6.829		
6,250.00	6,240.95	6,241.91	6,241.00	22.27	22.16	-162.50	75.72	-59.98	303.11	258.92	44.19	6.859		
6,300.00	6,290.82	6,308.20	6,290.87	22.45	22.40	-162.48	76.92	-59.98	306.50	261.89	44.61	6.871		
6,350.00	6,340.70	6,341.68	6,340.75	22.64	22.52	-162.46	78.12	-59.98	309.89	264.98	44.91	6.901		
6,400.00	6,390.57	6,408.43	6,390.62	22.82	22.76	-162.43	79.31	-59.98	313.27	267.95	45.33	6.912		
6,450.00	6,440.44	6,441.45	6,440.49	23.00	22.88	-162.41	80.51	-59.98	316.66	271.04	45.62	6.941		
6,500.00	6,490.31	6,508.66	6,490.36	23.19	23.12	-162.39	81.71	-59.98	320.05	274.00	46.04	6.951		
6,550.00	6,540.18	6,541.22	6,540.23	23.37	23.23	-162.37	82.90	-59.98	323.44	277.09	46.34	6.980		
6,600.00	6,590.06	6,608.89	6,590.10	23.55	23.48	-162.35	84.10	-59.98	326.82	280.06	46.76	6.989		
6,650.00	6,639.93	6,640.99	6,639.97	23.74	23.59	-162.33	85.30	-59.98	330.21	283.15	47.06	7.017		
6,700.00	6,689.80	6,709.13	6,689.84	23.92	23.84	-162.31	86.49	-59.98	333.60	286.12	47.48	7.026		
6,750.00	6,739.67	6,740.76	6,739.71	24.10	23.95	-162.29	87.69	-59.98	336.99	289.21	47.77	7.054		
6,800.00	6,789.54	6,809.36	6,789.58	24.29	24.19	-162.27	88.89	-59.98	340.37	292.17	48.20	7.062		
6,850.00	6,839.41	6,840.53	6,839.45	24.47	24.31	-162.25	90.08	-59.98	343.76	295.27	48.49	7.089		
6,900.00	6,889.29	6,909.59	6,889.32	24.66	24.55	-162.24	91.28	-59.98	347.15	298.23	48.92	7.096		
6,950.00	6,939.16	6,940.30	6,939.19	24.84	24.66	-162.22	92.48	-59.98	350.54	301.33	49.21	7.123		
7,000.00	6,989.03	7,009.82	6,989.06	25.02	24.91	-162.20	93.67	-59.98	353.92	304.29	49.64	7.130		
7,050.00	7,038.90	7,040.07	7,038.93	25.21	25.02	-162.18	94.87	-59.98	357.31	307.39	49.93	7.157		
7,100.00	7,088.77	7,089.96	7,088.80	25.39	25.20	-162.17	96.07	-59.98	360.70	310.42	50.28	7.173		
7,150.00	7,138.65	7,139.84	7,138.68	25.57	25.38	-162.15	97.26	-59.98	364.09	313.44	50.64	7.189		
7,200.00	7,188.52	7,189.73	7,188.55	25.76	25.56	-162.14	98.46	-59.98	367.48	316.47	51.00	7.205		
7,250.00	7,238.39	7,239.61	7,238.42	25.94	25.74	-162.12	99.66	-59.98	370.86	319.50	51.36	7.221		
7,300.00	7,288.26	7,289.50	7,288.29	26.13	25.92	-162.10	100.85	-59.98	374.25	322.53	51.72	7.236		
7,350.00	7,338.13	7,339.38	7,338.16	26.31	26.10	-162.09	102.05	-59.98	377.64	325.56	52.08	7.251		
7,400.00	7,388.01	7,389.27	7,388.03	26.49	26.28	-162.07	103.24	-59.98	381.03	328.59	52.44	7.266		
7,450.00	7,437.88	7,439.15	7,437.90	26.68	26.45	-162.06	104.44	-59.98	384.42	331.62	52.80	7.281		
7,500.00	7,487.75	7,489.03	7,487.77	26.86	26.63	-162.05	105.64	-59.98	387.80	334.65	53.16	7.296		
7,550.00	7,537.62	7,538.92	7,537.64	27.05	26.81	-162.03	106.83	-59.98	391.19	337.68	53.51	7.310		
7,600.00	7,587.49	7,588.80	7,587.51	27.23	26.99	-162.02	108.03	-59.98	394.58	340.71	53.87	7.324		
7,650.00	7,637.36	7,638.69	7,637.38	27.41	27.17	-162.00	109.23	-59.98	397.97	343.74	54.23	7.338		
7,700.00	7,687.24	7,688.57	7,687.25	27.60	27.35	-161.99	110.42	-59.98	401.36	346.77	54.59	7.352		
7,750.00	7,737.11	7,738.46	7,737.12	27.78	27.53	-161.98	111.62	-59.98	404.75	349.80	54.95	7.366		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,800.00	7,786.98	7,788.34	7,786.99	27.97	27.71	-161.96	112.82	-59.98	408.13	352.82	55.31	7.379		
7,850.00	7,836.85	7,838.23	7,836.86	28.15	27.89	-161.95	114.01	-59.98	411.52	355.85	55.67	7.392		
7,900.00	7,886.72	7,888.11	7,886.73	28.33	28.06	-161.94	115.21	-59.98	414.91	358.88	56.03	7.406		
7,950.00	7,936.60	7,938.00	7,936.61	28.52	28.24	-161.93	116.41	-59.98	418.30	361.91	56.39	7.419		
8,000.00	7,986.47	7,987.88	7,986.48	28.70	28.42	-161.91	117.60	-59.98	421.69	364.94	56.74	7.431		
8,050.00	8,036.34	8,037.77	8,036.35	28.89	28.60	-161.90	118.80	-59.98	425.08	367.97	57.10	7.444		
8,100.00	8,086.21	8,087.65	8,086.22	29.07	28.78	-161.89	120.00	-59.98	428.46	371.00	57.46	7.456		
8,150.00	8,136.08	8,137.54	8,136.09	29.26	28.96	-161.88	121.19	-59.98	431.85	374.03	57.82	7.469		
8,200.00	8,185.96	8,187.42	8,185.96	29.44	29.14	-161.87	122.39	-59.98	435.24	377.06	58.18	7.481		
8,250.00	8,235.83	8,237.31	8,235.83	29.62	29.32	-161.86	123.59	-59.98	438.63	380.09	58.54	7.493		
8,300.00	8,285.70	8,287.19	8,285.70	29.81	29.50	-161.84	124.78	-59.98	442.02	383.12	58.90	7.505		
8,350.00	8,335.57	8,337.08	8,335.57	29.99	29.68	-161.83	125.98	-59.98	445.41	386.15	59.26	7.516		
8,400.00	8,385.44	8,386.96	8,385.44	30.18	29.85	-161.82	127.18	-59.98	448.79	389.18	59.62	7.528		
8,450.00	8,435.32	8,436.85	8,435.31	30.36	30.03	-161.81	128.37	-59.98	452.18	392.21	59.98	7.539		
8,500.00	8,485.19	8,486.73	8,485.18	30.55	30.21	-161.80	129.57	-59.98	455.57	395.24	60.34	7.551		
8,550.00	8,535.06	8,536.62	8,535.05	30.73	30.39	-161.79	130.77	-59.98	458.96	398.26	60.70	7.562		
8,600.00	8,584.93	8,586.50	8,584.92	30.91	30.57	-161.78	131.96	-59.98	462.35	401.29	61.05	7.573		
8,650.00	8,634.80	8,636.39	8,634.79	31.10	30.75	-161.77	133.16	-59.98	465.74	404.32	61.41	7.584		
8,700.00	8,684.67	8,686.27	8,684.66	31.28	30.93	-161.76	134.36	-59.98	469.13	407.35	61.77	7.594		
8,750.00	8,734.55	8,736.16	8,734.54	31.47	31.11	-161.75	135.55	-59.98	472.51	410.38	62.13	7.605		
8,800.00	8,784.42	8,786.04	8,784.41	31.65	31.29	-161.74	136.75	-59.98	475.90	413.41	62.49	7.615		
8,850.00	8,834.29	8,835.93	8,834.28	31.84	31.47	-161.73	137.95	-59.98	479.29	416.44	62.85	7.626		
8,900.00	8,884.16	8,885.81	8,884.15	32.02	31.65	-161.72	139.14	-59.98	482.68	419.47	63.21	7.636		
8,950.00	8,934.03	8,935.70	8,934.02	32.20	31.82	-161.71	140.34	-59.98	486.07	422.50	63.57	7.646		
9,000.00	8,983.91	8,985.58	8,983.89	32.39	32.00	-161.71	141.53	-59.98	489.46	425.53	63.93	7.656		
9,050.00	9,033.78	9,035.47	9,033.76	32.57	32.18	-161.70	142.73	-59.98	492.85	428.56	64.29	7.666		
9,100.00	9,083.65	9,085.35	9,083.63	32.76	32.36	-161.69	143.93	-59.98	496.23	431.59	64.65	7.676		
9,150.00	9,133.52	9,135.24	9,133.50	32.94	32.54	-161.68	145.12	-59.98	499.62	434.62	65.01	7.686		
9,200.00	9,183.39	9,185.12	9,183.37	33.13	32.72	-161.67	146.32	-59.98	503.01	437.65	65.37	7.695		
9,250.00	9,233.27	9,235.01	9,233.24	33.31	32.90	-161.66	147.52	-59.98	506.40	440.68	65.73	7.705		
9,300.00	9,283.14	9,284.89	9,283.11	33.50	33.08	-161.65	148.71	-59.98	509.79	443.70	66.08	7.714		
9,350.00	9,333.01	9,334.78	9,332.98	33.68	33.26	-161.65	149.91	-59.98	513.18	446.73	66.44	7.723		
9,400.00	9,382.88	9,384.66	9,382.85	33.86	33.44	-161.64	151.11	-59.98	516.57	449.76	66.80	7.733		
9,450.00	9,432.75	9,434.55	9,432.72	34.05	33.61	-161.63	152.30	-59.98	519.96	452.79	67.16	7.742		
9,500.00	9,482.62	9,484.43	9,482.59	34.23	33.79	-161.62	153.50	-59.98	523.34	455.82	67.52	7.751		
9,550.00	9,532.50	9,534.32	9,532.47	34.42	33.97	-161.61	154.70	-59.98	526.73	458.85	67.88	7.760		
9,600.00	9,582.37	9,584.20	9,582.34	34.60	34.15	-161.61	155.89	-59.98	530.12	461.88	68.24	7.768		
9,650.00	9,632.24	9,634.09	9,632.21	34.79	34.33	-161.60	157.09	-59.98	533.51	464.91	68.60	7.777		
9,700.00	9,682.11	9,683.97	9,682.08	34.97	34.51	-161.59	158.29	-59.98	536.90	467.94	68.96	7.786		
9,750.00	9,731.98	9,733.86	9,731.95	35.16	34.69	-161.58	159.48	-59.98	540.29	470.97	69.32	7.794		
9,800.00	9,781.86	9,783.74	9,781.82	35.34	34.87	-161.58	160.68	-59.98	543.68	474.00	69.68	7.803		
9,850.00	9,831.73	9,833.63	9,831.69	35.53	35.05	-161.57	161.88	-59.98	547.07	477.03	70.04	7.811		
9,900.00	9,881.60	9,883.51	9,881.56	35.71	35.23	-161.56	163.07	-59.98	550.45	480.06	70.40	7.819		
9,950.00	9,931.47	9,933.40	9,931.43	35.89	35.41	-161.56	164.27	-59.98	553.84	483.09	70.76	7.827		
10,000.00	9,981.34	9,983.28	9,981.30	36.08	35.58	-161.55	165.47	-59.98	557.23	486.12	71.12	7.835		
10,050.00	10,031.22	10,033.17	10,031.17	36.26	35.76	-161.54	166.66	-59.98	560.62	489.14	71.48	7.843		
10,100.00	10,081.09	10,083.05	10,081.04	36.45	35.94	-161.53	167.86	-59.98	564.01	492.17	71.84	7.851		
10,150.00	10,130.96	10,132.94	10,130.91	36.63	36.12	-161.53	169.06	-59.98	567.40	495.20	72.20	7.859		
10,200.00	10,180.83	10,182.82	10,180.78	36.82	36.30	-161.52	170.25	-59.98	570.79	498.23	72.56	7.867		
10,250.00	10,230.70	10,232.71	10,230.65	37.00	36.48	-161.52	171.45	-59.98	574.18	501.26	72.91	7.875		
10,300.00	10,280.57	10,282.59	10,280.52	37.19	36.66	-161.51	172.65	-59.98	577.57	504.29	73.27	7.882		
10,350.00	10,330.45	10,332.48	10,330.40	37.37	36.84	-161.50	173.84	-59.98	580.95	507.32	73.63	7.890		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,400.00	10,380.32	10,382.36	10,380.27	37.56	37.02	-161.50	175.04	-59.98	584.34	510.35	73.99	7.897	
10,450.00	10,430.19	10,432.25	10,430.14	37.74	37.20	-161.49	176.24	-59.98	587.73	513.38	74.35	7.905	
10,500.00	10,480.06	10,482.13	10,480.01	37.93	37.38	-161.48	177.43	-59.98	591.12	516.41	74.71	7.912	
10,550.00	10,529.93	10,532.02	10,529.88	38.11	37.55	-161.48	178.63	-59.98	594.51	519.44	75.07	7.919	
10,600.00	10,579.81	10,581.90	10,579.75	38.29	37.73	-161.47	179.82	-59.98	597.90	522.47	75.43	7.926	
10,650.00	10,629.69	10,631.80	10,629.63	38.48	37.91	-161.47	181.02	-59.98	601.11	525.32	75.79	7.931	
10,700.00	10,679.61	10,681.73	10,679.55	38.66	38.09	-161.45	182.22	-59.98	603.72	527.57	76.15	7.928	
10,750.00	10,729.57	10,731.69	10,729.49	38.84	38.27	-161.41	183.42	-59.98	605.71	529.20	76.51	7.917	
10,800.00	10,779.55	10,781.66	10,779.45	39.02	38.45	-161.38	184.34	-59.98	607.07	530.21	76.87	7.898	
10,850.00	10,829.54	10,831.65	10,829.44	39.20	38.63	-161.38	184.61	-59.98	607.82	530.60	77.22	7.871	
10,900.00	10,879.54	10,881.65	10,879.44	39.37	38.81	-90.04	184.61	-59.98	607.98	530.40	77.58	7.837	
10,950.00	10,929.54	10,931.65	10,929.44	39.54	38.99	-90.04	184.61	-59.98	607.98	530.05	77.93	7.802	
11,000.00	10,979.54	10,981.65	10,979.44	39.72	39.17	-90.04	184.61	-59.98	607.98	529.70	78.28	7.766	
11,050.00	11,029.54	11,031.65	11,029.44	39.89	39.35	-90.04	184.61	-59.98	607.98	529.34	78.64	7.732	
11,100.00	11,079.54	11,081.65	11,079.44	40.06	39.52	-90.04	184.61	-59.98	607.98	528.99	78.99	7.697	
11,150.00	11,129.54	11,131.65	11,129.44	40.23	39.70	-90.04	184.61	-59.98	607.98	528.64	79.34	7.663	
11,200.00	11,179.54	11,181.65	11,179.44	40.41	39.88	-90.04	184.61	-59.98	607.98	528.29	79.69	7.629	
11,250.00	11,229.54	11,231.65	11,229.44	40.58	40.04	-89.82	182.07	-59.99	608.00	527.97	80.02	7.598	
11,300.00	11,279.41	11,280.59	11,277.82	40.74	40.19	-89.50	175.32	-60.01	608.05	527.71	80.34	7.569	
11,350.00	11,328.78	11,329.62	11,325.62	40.89	40.34	-89.18	164.47	-60.05	608.14	527.51	80.63	7.542	
11,400.00	11,377.29	11,378.39	11,372.07	41.04	40.48	-88.87	149.67	-60.10	608.27	527.35	80.92	7.517	
11,450.00	11,424.57	11,426.89	11,416.86	41.18	40.62	-88.57	131.08	-60.16	608.44	527.25	81.19	7.494	
11,500.00	11,470.25	11,475.16	11,459.71	41.32	40.74	-88.28	108.89	-60.24	608.63	527.19	81.45	7.473	
11,550.00	11,513.98	11,523.20	11,500.35	41.44	40.86	-88.00	83.30	-60.33	608.86	527.17	81.69	7.453	
11,600.00	11,555.45	11,571.03	11,538.54	41.55	40.97	-87.74	54.54	-60.43	609.10	527.18	81.92	7.435	
11,650.00	11,594.32	11,618.66	11,574.06	41.65	41.08	-87.49	22.82	-60.54	609.37	527.23	82.14	7.418	
11,700.00	11,630.31	11,666.12	11,606.72	41.74	41.19	-87.27	-11.60	-60.66	609.65	527.30	82.36	7.403	
11,750.00	11,663.13	11,713.42	11,636.31	41.82	41.29	-87.06	-48.48	-60.78	609.94	527.38	82.56	7.388	
11,800.00	11,692.55	11,760.58	11,662.69	41.89	41.39	-86.87	-87.56	-60.92	610.24	527.48	82.76	7.374	
11,850.00	11,718.33	11,807.62	11,685.72	41.96	41.49	-86.71	-128.56	-61.06	610.54	527.59	82.95	7.360	
11,900.00	11,740.28	11,854.57	11,705.27	42.03	41.59	-86.57	-171.23	-61.21	610.84	527.70	83.14	7.347	
11,950.00	11,758.23	11,901.43	11,721.23	42.11	41.69	-86.46	-215.27	-61.36	611.13	527.80	83.33	7.334	
12,000.00	11,772.05	11,948.23	11,733.53	42.21	41.79	-86.37	-260.41	-61.51	611.41	527.89	83.52	7.320	
12,050.00	11,781.63	11,994.99	11,742.10	42.31	41.88	-86.31	-306.37	-61.67	611.68	527.96	83.72	7.307	
12,100.00	11,786.90	12,041.73	11,746.90	42.42	41.98	-86.27	-352.85	-61.83	611.93	528.02	83.91	7.293	
12,150.00	11,788.00	12,089.26	11,748.00	42.53	42.07	-86.26	-400.35	-62.00	612.17	528.07	84.11	7.279	
12,200.00	11,788.00	12,139.26	11,748.00	42.66	42.19	-86.26	-450.35	-62.17	612.42	528.09	84.33	7.262	
12,250.00	11,788.00	12,189.26	11,748.00	42.79	42.31	-86.27	-500.35	-62.34	612.67	528.09	84.58	7.244	
12,300.00	11,788.00	12,239.25	11,748.00	42.94	42.44	-86.27	-550.35	-62.51	612.91	528.07	84.84	7.224	
12,350.00	11,788.00	12,289.25	11,748.00	43.09	42.59	-86.27	-600.35	-62.69	613.16	528.02	85.14	7.202	
12,400.00	11,788.00	12,339.25	11,748.00	43.26	42.75	-86.27	-650.35	-62.86	613.40	527.95	85.45	7.179	
12,450.00	11,788.00	12,389.25	11,748.00	43.44	42.91	-86.27	-700.35	-63.03	613.65	527.86	85.79	7.153	
12,500.00	11,788.00	12,439.25	11,748.00	43.62	43.10	-86.27	-750.35	-63.20	613.90	527.74	86.15	7.126	
12,550.00	11,788.00	12,489.25	11,748.00	43.83	43.28	-86.27	-800.34	-63.38	614.14	527.60	86.54	7.097	
12,600.00	11,788.00	12,539.25	11,748.00	44.03	43.49	-86.28	-850.34	-63.55	614.39	527.44	86.94	7.067	
12,650.00	11,788.00	12,589.25	11,748.00	44.26	43.70	-86.28	-900.34	-63.72	614.63	527.26	87.38	7.034	
12,700.00	11,788.00	12,639.25	11,748.00	44.49	43.93	-86.28	-950.34	-63.89	614.88	527.06	87.82	7.001	
12,750.00	11,788.00	12,689.25	11,748.00	44.73	44.16	-86.28	-1,000.34	-64.07	615.13	526.83	88.30	6.966	
12,800.00	11,788.00	12,739.25	11,748.00	44.98	44.41	-86.28	-1,050.34	-64.24	615.37	526.58	88.79	6.931	
12,850.00	11,788.00	12,789.25	11,748.00	45.24	44.67	-86.28	-1,100.34	-64.41	615.62	526.31	89.31	6.893	
12,900.00	11,788.00	12,839.25	11,748.00	45.51	44.94	-86.29	-1,150.34	-64.58	615.86	526.02	89.84	6.855	
12,950.00	11,788.00	12,889.25	11,748.00	45.80	45.21	-86.29	-1,200.34	-64.76	616.11	525.71	90.40	6.815	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,000.00	11,788.00	12,939.25	11,748.00	46.08	45.50	86.29	-1,250.34	-64.93	616.36	525.38	90.97	6.775	
13,050.00	11,788.00	12,989.25	11,748.00	46.39	45.79	86.29	-1,300.34	-65.10	616.60	525.03	91.57	6.734	
13,100.00	11,788.00	13,039.25	11,748.00	46.69	46.10	86.29	-1,350.33	-65.27	616.85	524.67	92.18	6.692	
13,150.00	11,788.00	13,089.24	11,748.00	47.01	46.42	86.29	-1,400.33	-65.45	617.09	524.28	92.81	6.649	
13,200.00	11,788.00	13,139.24	11,748.00	47.34	46.74	86.29	-1,450.33	-65.62	617.34	523.88	93.46	6.605	
13,250.00	11,788.00	13,189.24	11,748.00	47.68	47.08	86.30	-1,500.33	-65.79	617.59	523.45	94.13	6.561	
13,300.00	11,788.00	13,239.24	11,748.00	48.02	47.42	86.30	-1,550.33	-65.96	617.83	523.02	94.82	6.516	
13,350.00	11,788.00	13,289.24	11,748.00	48.38	47.77	86.30	-1,600.33	-66.13	618.08	522.56	95.52	6.471	
13,400.00	11,788.00	13,339.24	11,748.00	48.73	48.13	86.30	-1,650.33	-66.31	618.32	522.09	96.24	6.425	
13,450.00	11,788.00	13,389.24	11,748.00	49.11	48.50	86.30	-1,700.33	-66.48	618.57	521.59	96.98	6.379	
13,500.00	11,788.00	13,439.24	11,748.00	49.48	48.87	86.30	-1,750.33	-66.65	618.82	521.09	97.73	6.332	
13,550.00	11,788.00	13,489.24	11,748.00	49.87	49.25	86.30	-1,800.33	-66.82	619.06	520.57	98.49	6.285	
13,600.00	11,788.00	13,539.24	11,748.00	50.26	49.65	86.31	-1,850.33	-67.00	619.31	520.03	99.27	6.238	
13,650.00	11,788.00	13,589.24	11,748.00	50.66	50.04	86.31	-1,900.32	-67.17	619.55	519.48	100.07	6.191	
13,700.00	11,788.00	13,639.24	11,748.00	51.06	50.45	86.31	-1,950.32	-67.34	619.80	518.92	100.88	6.144	
13,750.00	11,788.00	13,689.24	11,748.00	51.48	50.86	86.31	-2,000.32	-67.51	620.05	518.33	101.71	6.096	
13,800.00	11,788.00	13,739.24	11,748.00	51.90	51.28	86.31	-2,050.32	-67.69	620.29	517.74	102.55	6.049	
13,850.00	11,788.00	13,789.24	11,748.00	52.33	51.71	86.31	-2,100.32	-67.86	620.54	517.13	103.41	6.001	
13,900.00	11,788.00	13,839.24	11,748.00	52.76	52.14	86.31	-2,150.32	-68.03	620.78	516.51	104.27	5.954	
13,950.00	11,788.00	13,889.23	11,748.00	53.20	52.58	86.32	-2,200.32	-68.20	621.03	515.88	105.15	5.906	
14,000.00	11,788.00	13,939.23	11,748.00	53.64	53.03	86.32	-2,250.32	-68.38	621.28	515.23	106.04	5.859	
14,050.00	11,788.00	13,989.23	11,748.00	54.10	53.48	86.32	-2,300.32	-68.55	621.52	514.57	106.95	5.811	
14,100.00	11,788.00	14,039.23	11,748.00	54.55	53.94	86.32	-2,350.32	-68.72	621.77	513.90	107.86	5.764	
14,150.00	11,788.00	14,089.23	11,748.00	55.02	54.40	86.32	-2,400.32	-68.89	622.01	513.22	108.79	5.717	
14,200.00	11,788.00	14,139.23	11,748.00	55.49	54.87	86.32	-2,450.31	-69.07	622.26	512.53	109.73	5.671	
14,250.00	11,788.00	14,189.23	11,748.00	55.97	55.35	86.33	-2,500.31	-69.24	622.51	511.82	110.68	5.624	
14,300.00	11,788.00	14,239.23	11,748.00	56.44	55.83	86.33	-2,550.31	-69.41	622.75	511.11	111.64	5.578	
14,350.00	11,788.00	14,289.23	11,748.00	56.93	56.31	86.33	-2,600.31	-69.58	623.00	510.38	112.61	5.532	
14,400.00	11,788.00	14,339.23	11,748.00	57.42	56.80	86.33	-2,650.31	-69.76	623.24	509.65	113.59	5.487	
14,450.00	11,788.00	14,389.23	11,748.00	57.92	57.30	86.33	-2,700.31	-69.93	623.49	508.90	114.59	5.441	
14,500.00	11,788.00	14,439.23	11,748.00	58.42	57.80	86.33	-2,750.31	-70.10	623.74	508.15	115.59	5.396	
14,550.00	11,788.00	14,489.23	11,748.00	58.92	58.30	86.33	-2,800.31	-70.27	623.98	507.38	116.60	5.352	
14,600.00	11,788.00	14,539.23	11,748.00	59.43	58.82	86.34	-2,850.31	-70.44	624.23	506.61	117.62	5.307	
14,650.00	11,788.00	14,589.23	11,748.00	59.95	59.33	86.34	-2,900.31	-70.62	624.47	505.83	118.65	5.263	
14,700.00	11,788.00	14,639.23	11,748.00	60.47	59.85	86.34	-2,950.31	-70.79	624.72	505.04	119.68	5.220	
14,750.00	11,788.00	14,689.23	11,748.00	60.99	60.37	86.34	-3,000.30	-70.96	624.97	504.24	120.73	5.177	
14,800.00	11,788.00	14,739.22	11,748.00	61.51	60.90	86.34	-3,050.30	-71.13	625.21	503.43	121.78	5.134	
14,850.00	11,788.00	14,789.22	11,748.00	62.05	61.43	86.34	-3,100.30	-71.31	625.46	502.61	122.85	5.091	
14,900.00	11,788.00	14,839.22	11,748.00	62.58	61.96	86.34	-3,150.30	-71.48	625.70	501.79	123.92	5.049	
14,950.00	11,788.00	14,889.22	11,748.00	63.12	62.50	86.35	-3,200.30	-71.65	625.95	500.95	125.00	5.008	
15,000.00	11,788.00	14,939.22	11,748.00	63.66	63.05	86.35	-3,250.30	-71.82	626.20	500.12	126.08	4.967	Alert
15,050.00	11,788.00	14,989.22	11,748.00	64.21	63.59	86.35	-3,300.30	-72.00	626.44	499.27	127.17	4.926	Alert
15,100.00	11,788.00	15,039.22	11,748.00	64.76	64.14	86.35	-3,350.30	-72.17	626.69	498.42	128.27	4.886	Alert
15,150.00	11,788.00	15,089.22	11,748.00	65.31	64.70	86.35	-3,400.30	-72.34	626.93	497.55	129.38	4.846	Alert
15,200.00	11,788.00	15,139.22	11,748.00	65.87	65.25	86.35	-3,450.30	-72.51	627.18	496.69	130.49	4.806	Alert
15,250.00	11,788.00	15,189.22	11,748.00	66.43	65.81	86.35	-3,500.30	-72.69	627.43	495.81	131.61	4.767	Alert
15,300.00	11,788.00	15,239.22	11,748.00	66.99	66.38	86.36	-3,550.29	-72.86	627.67	494.93	132.74	4.729	Alert
15,350.00	11,788.00	15,289.22	11,748.00	67.56	66.94	86.36	-3,600.29	-73.03	627.92	494.05	133.87	4.690	Alert
15,400.00	11,788.00	15,339.22	11,748.00	68.13	67.51	86.36	-3,650.29	-73.20	628.16	493.15	135.01	4.653	Alert
15,450.00	11,788.00	15,389.22	11,748.00	68.70	68.08	86.36	-3,700.29	-73.38	628.41	492.26	136.15	4.615	Alert
15,500.00	11,788.00	15,439.22	11,748.00	69.27	68.66	86.36	-3,750.29	-73.55	628.66	491.35	137.30	4.579	Alert
15,550.00	11,788.00	15,489.22	11,748.00	69.85	69.24	86.36	-3,800.29	-73.72	628.90	490.44	138.46	4.542	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
15,600.00	11,788.00	15,539.21	11,748.00	70.43	69.82	86.36	-3,850.29	-73.89	629.15	489.53	139.62	4.506	Alert	
15,650.00	11,788.00	15,589.21	11,748.00	71.02	70.40	86.37	-3,900.29	-74.07	629.39	488.60	140.79	4.470	Alert	
15,700.00	11,788.00	15,639.21	11,748.00	71.60	70.99	86.37	-3,950.29	-74.24	629.64	487.68	141.96	4.435	Alert	
15,750.00	11,788.00	15,689.21	11,748.00	72.19	71.58	86.37	-4,000.29	-74.41	629.89	486.75	143.14	4.401	Alert	
15,800.00	11,788.00	15,739.21	11,748.00	72.78	72.17	86.37	-4,050.29	-74.58	630.13	485.81	144.32	4.366	Alert	
15,850.00	11,788.00	15,789.21	11,748.00	73.37	72.76	86.37	-4,100.29	-74.75	630.38	484.87	145.51	4.332	Alert	
15,900.00	11,788.00	15,839.21	11,748.00	73.97	73.36	86.37	-4,150.28	-74.93	630.62	483.93	146.70	4.299	Alert	
15,950.00	11,788.00	15,889.21	11,748.00	74.57	73.95	86.37	-4,200.28	-75.10	630.87	482.98	147.90	4.266	Alert	
16,000.00	11,788.00	15,939.21	11,748.00	75.17	74.56	86.38	-4,250.28	-75.27	631.12	482.02	149.10	4.233	Alert	
16,050.00	11,788.00	15,989.21	11,748.00	75.77	75.16	86.38	-4,300.28	-75.44	631.36	481.06	150.30	4.201	Alert	
16,100.00	11,788.00	16,039.21	11,748.00	76.37	75.76	86.38	-4,350.28	-75.62	631.61	480.10	151.51	4.169	Alert	
16,150.00	11,788.00	16,089.21	11,748.00	76.98	76.37	86.38	-4,400.28	-75.79	631.85	479.13	152.72	4.137	Alert	
16,200.00	11,788.00	16,139.21	11,748.00	77.59	76.98	86.38	-4,450.28	-75.96	632.10	478.16	153.94	4.106	Alert	
16,250.00	11,788.00	16,189.21	11,748.00	78.20	77.59	86.38	-4,500.28	-76.13	632.35	477.18	155.16	4.075	Alert	
16,300.00	11,788.00	16,239.21	11,748.00	78.81	78.20	86.38	-4,550.28	-76.31	632.59	476.20	156.39	4.045	Alert	
16,350.00	11,788.00	16,289.21	11,748.00	79.43	78.82	86.39	-4,600.28	-76.48	632.84	475.22	157.62	4.015	Alert	
16,400.00	11,788.00	16,339.21	11,748.00	80.04	79.43	86.39	-4,650.28	-76.65	633.08	474.23	158.85	3.985	Alert	
16,450.00	11,788.00	16,389.20	11,748.00	80.66	80.05	86.39	-4,700.27	-76.82	633.33	473.24	160.09	3.956	Alert	
16,500.00	11,788.00	16,439.20	11,748.00	81.28	80.67	86.39	-4,750.27	-77.00	633.58	472.25	161.33	3.927	Alert	
16,550.00	11,788.00	16,489.20	11,748.00	81.91	81.30	86.39	-4,800.27	-77.17	633.82	471.25	162.57	3.899	Alert	
16,600.00	11,788.00	16,539.20	11,748.00	82.53	81.92	86.39	-4,850.27	-77.34	634.07	470.25	163.82	3.871	Alert	
16,650.00	11,788.00	16,589.20	11,748.00	83.16	82.54	86.39	-4,900.27	-77.51	634.32	469.24	165.07	3.843	Alert	
16,700.00	11,788.00	16,639.20	11,748.00	83.78	83.17	86.39	-4,950.27	-77.69	634.56	468.24	166.33	3.815	Alert	
16,750.00	11,788.00	16,689.20	11,748.00	84.41	83.80	86.40	-5,000.27	-77.86	634.81	467.22	167.58	3.788	Alert	
16,800.00	11,788.00	16,739.20	11,748.00	85.04	84.43	86.40	-5,050.27	-78.03	635.05	466.21	168.84	3.761	Alert	
16,850.00	11,788.00	16,789.20	11,748.00	85.67	85.06	86.40	-5,100.27	-78.20	635.30	465.19	170.11	3.735	Alert	
16,900.00	11,788.00	16,839.20	11,748.00	86.30	85.70	86.40	-5,150.27	-78.38	635.55	464.17	171.37	3.709	Alert	
16,950.00	11,788.00	16,889.20	11,748.00	86.94	86.33	86.40	-5,200.27	-78.55	635.79	463.15	172.64	3.683	Alert	
17,000.00	11,788.00	16,939.20	11,748.00	87.58	86.97	86.40	-5,250.26	-78.72	636.04	462.12	173.91	3.657	Alert	
17,050.00	11,788.00	16,989.20	11,748.00	88.21	87.60	86.40	-5,300.26	-78.89	636.28	461.10	175.19	3.632	Alert	
17,100.00	11,788.00	17,039.20	11,748.00	88.85	88.24	86.41	-5,350.26	-79.06	636.53	460.07	176.46	3.607	Alert	
17,150.00	11,788.00	17,089.20	11,748.00	89.49	88.88	86.41	-5,400.26	-79.24	636.78	459.03	177.74	3.583	Alert	
17,200.00	11,788.00	17,139.20	11,748.00	90.13	89.52	86.41	-5,450.26	-79.41	637.02	457.99	179.03	3.558	Alert	
17,250.00	11,788.00	17,189.19	11,748.00	90.78	90.17	86.41	-5,500.26	-79.58	637.27	456.96	180.31	3.534	Alert	
17,300.00	11,788.00	17,239.19	11,748.00	91.42	90.81	86.41	-5,550.26	-79.75	637.51	455.91	181.60	3.511	Alert	
17,350.00	11,788.00	17,289.19	11,748.00	92.07	91.46	86.41	-5,600.26	-79.93	637.76	454.87	182.89	3.487	Alert	
17,400.00	11,788.00	17,339.19	11,748.00	92.71	92.10	86.41	-5,650.26	-80.10	638.01	453.82	184.18	3.464	Alert	
17,450.00	11,788.00	17,389.19	11,748.00	93.36	92.75	86.42	-5,700.26	-80.27	638.25	452.77	185.48	3.441	Alert	
17,500.00	11,788.00	17,439.19	11,748.00	94.01	93.40	86.42	-5,750.26	-80.44	638.50	451.72	186.77	3.419	Alert	
17,550.00	11,788.00	17,489.19	11,748.00	94.66	94.05	86.42	-5,800.25	-80.62	638.74	450.67	188.07	3.396	Alert	
17,600.00	11,788.00	17,539.19	11,748.00	95.31	94.70	86.42	-5,850.25	-80.79	638.99	449.62	189.37	3.374	Alert	
17,650.00	11,788.00	17,589.19	11,748.00	95.96	95.35	86.42	-5,900.25	-80.96	639.24	448.56	190.68	3.352	Alert	
17,700.00	11,788.00	17,639.19	11,748.00	96.61	96.00	86.42	-5,950.25	-81.13	639.48	447.50	191.98	3.331	Alert	
17,750.00	11,788.00	17,689.19	11,748.00	97.27	96.66	86.42	-6,000.25	-81.31	639.73	446.44	193.29	3.310	Alert	
17,800.00	11,788.00	17,739.19	11,748.00	97.92	97.31	86.43	-6,050.25	-81.48	639.97	445.37	194.60	3.289	Alert	
17,850.00	11,788.00	17,789.19	11,748.00	98.58	97.97	86.43	-6,100.25	-81.65	640.22	444.31	195.91	3.268	Alert	
17,900.00	11,788.00	17,839.19	11,748.00	99.24	98.63	86.43	-6,150.25	-81.82	640.47	443.24	197.23	3.247	Alert	
17,950.00	11,788.00	17,889.19	11,748.00	99.90	99.29	86.43	-6,200.25	-82.00	640.71	442.17	198.54	3.227	Alert	
18,000.00	11,788.00	17,939.19	11,748.00	100.55	99.94	86.43	-6,250.25	-82.17	640.96	441.10	199.86	3.207	Alert	
18,050.00	11,788.00	17,989.19	11,748.00	101.21	100.60	86.43	-6,300.25	-82.34	641.20	440.02	201.18	3.187	Alert	
18,100.00	11,788.00	18,039.18	11,748.00	101.88	101.26	86.43	-6,350.24	-82.51	641.45	438.95	202.50	3.168	Alert	
18,150.00	11,788.00	18,089.18	11,748.00	102.54	101.93	86.44	-6,400.24	-82.69	641.70	437.87	203.82	3.148	Alert	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
18,200.00	11,788.00	18,139.18	11,748.00	103.20	102.59	86.44	-6,450.24	-82.86	641.94	436.79	205.15	3.129	Alert	
18,250.00	11,788.00	18,189.18	11,748.00	103.86	103.25	86.44	-6,500.24	-83.03	642.19	435.71	206.47	3.110	Alert	
18,300.00	11,788.00	18,239.18	11,748.00	104.53	103.92	86.44	-6,550.24	-83.20	642.43	434.63	207.80	3.092	Alert	
18,350.00	11,788.00	18,289.18	11,748.00	105.19	104.58	86.44	-6,600.24	-83.37	642.68	433.55	209.13	3.073	Alert	
18,400.00	11,788.00	18,339.18	11,748.00	105.86	105.25	86.44	-6,650.24	-83.55	642.93	432.46	210.46	3.055	Alert	
18,450.00	11,788.00	18,389.18	11,748.00	106.53	105.91	86.44	-6,700.24	-83.72	643.17	431.38	211.80	3.037	Alert	
18,500.00	11,788.00	18,439.18	11,748.00	107.19	106.58	86.44	-6,750.24	-83.89	643.42	430.29	213.13	3.019	Alert	
18,550.00	11,788.00	18,489.18	11,748.00	107.86	107.25	86.45	-6,800.24	-84.06	643.66	429.20	214.47	3.001	Alert	
18,600.00	11,788.00	18,539.18	11,748.00	108.53	107.92	86.45	-6,850.24	-84.24	643.91	428.11	215.80	2.984	Alert	
18,650.00	11,788.00	18,589.18	11,748.00	109.20	108.59	86.45	-6,900.23	-84.41	644.16	427.01	217.14	2.967	Alert	
18,700.00	11,788.00	18,639.18	11,748.00	109.87	109.26	86.45	-6,950.23	-84.58	644.40	425.92	218.48	2.949	Alert	
18,750.00	11,788.00	18,689.18	11,748.00	110.54	109.93	86.45	-7,000.23	-84.75	644.65	424.83	219.82	2.933	Alert	
18,800.00	11,788.00	18,739.18	11,748.00	111.21	110.60	86.45	-7,050.23	-84.93	644.89	423.73	221.17	2.916	Alert	
18,850.00	11,788.00	18,789.18	11,748.00	111.89	111.27	86.45	-7,100.23	-85.10	645.14	422.63	222.51	2.899	Alert	
18,900.00	11,788.00	18,839.17	11,748.00	112.56	111.95	86.46	-7,150.23	-85.27	645.39	421.53	223.86	2.883	Alert	
18,950.00	11,788.00	18,889.17	11,748.00	113.23	112.62	86.46	-7,200.23	-85.44	645.63	420.43	225.20	2.867	Alert	
19,000.00	11,788.00	18,939.17	11,748.00	113.91	113.29	86.46	-7,250.23	-85.62	645.88	419.33	226.55	2.851	Alert	
19,050.00	11,788.00	18,989.17	11,748.00	114.58	113.97	86.46	-7,300.23	-85.79	646.13	418.22	227.90	2.835	Alert	
19,100.00	11,788.00	19,039.17	11,748.00	115.26	114.64	86.46	-7,350.23	-85.96	646.37	417.12	229.25	2.819	Alert	
19,150.00	11,788.00	19,089.17	11,748.00	115.94	115.32	86.46	-7,400.23	-86.13	646.62	416.01	230.60	2.804	Alert	
19,200.00	11,788.00	19,139.17	11,748.00	116.61	116.00	86.46	-7,450.22	-86.31	646.86	414.91	231.96	2.789	Alert	
19,250.00	11,788.00	19,189.17	11,748.00	117.29	116.67	86.46	-7,500.22	-86.48	647.11	413.80	233.31	2.774	Alert	
19,300.00	11,788.00	19,239.17	11,748.00	117.97	117.35	86.47	-7,550.22	-86.65	647.36	412.69	234.67	2.759	Alert	
19,350.00	11,788.00	19,289.17	11,748.00	118.65	118.03	86.47	-7,600.22	-86.82	647.60	411.58	236.02	2.744	Alert	
19,400.00	11,788.00	19,339.17	11,748.00	119.33	118.71	86.47	-7,650.22	-87.00	647.85	410.47	237.38	2.729	Alert	
19,450.00	11,788.00	19,389.17	11,748.00	120.01	119.39	86.47	-7,700.22	-87.17	648.09	409.35	238.74	2.715	Alert	
19,500.00	11,788.00	19,439.17	11,748.00	120.69	120.07	86.47	-7,750.22	-87.34	648.34	408.24	240.10	2.700	Alert	
19,550.00	11,788.00	19,489.17	11,748.00	121.37	120.75	86.47	-7,800.22	-87.51	648.59	407.13	241.46	2.686	Alert	
19,600.00	11,788.00	19,539.17	11,748.00	122.05	121.43	86.47	-7,850.22	-87.68	648.83	406.01	242.82	2.672	Alert	
19,650.00	11,788.00	19,589.17	11,748.00	122.73	122.11	86.48	-7,900.22	-87.86	649.08	404.89	244.18	2.658	Alert	
19,700.00	11,788.00	19,639.16	11,748.00	123.42	122.79	86.48	-7,950.22	-88.03	649.32	403.78	245.55	2.644	Alert	
19,750.00	11,788.00	19,689.16	11,748.00	124.10	123.48	86.48	-8,000.21	-88.20	649.57	402.66	246.91	2.631	Alert	
19,800.00	11,788.00	19,739.16	11,748.00	124.78	124.16	86.48	-8,050.21	-88.37	649.82	401.54	248.28	2.617	Alert	
19,850.00	11,788.00	19,789.16	11,748.00	125.47	124.84	86.48	-8,100.21	-88.55	650.06	400.42	249.65	2.604	Alert	
19,900.00	11,788.00	19,839.16	11,748.00	126.15	125.53	86.48	-8,150.21	-88.72	650.31	399.29	251.01	2.591	Alert	
19,950.00	11,788.00	19,889.16	11,748.00	126.84	126.21	86.48	-8,200.21	-88.89	650.55	398.17	252.38	2.578	Alert	
20,000.00	11,788.00	19,939.16	11,748.00	127.52	126.90	86.49	-8,250.21	-89.06	650.80	397.05	253.75	2.565	Alert	
20,050.00	11,788.00	19,989.16	11,748.00	128.21	127.58	86.49	-8,300.21	-89.24	651.05	395.92	255.12	2.552	Alert	
20,100.00	11,788.00	20,039.16	11,748.00	128.89	128.27	86.49	-8,350.21	-89.41	651.29	394.80	256.49	2.539	Alert	
20,150.00	11,788.00	20,089.16	11,748.00	129.58	128.95	86.49	-8,400.21	-89.58	651.54	393.67	257.87	2.527	Alert	
20,200.00	11,788.00	20,139.16	11,748.00	130.27	129.64	86.49	-8,450.21	-89.75	651.78	392.55	259.24	2.514	Alert	
20,250.00	11,788.00	20,189.16	11,748.00	130.96	130.33	86.49	-8,500.21	-89.93	652.03	391.42	260.61	2.502	Alert	
20,300.00	11,788.00	20,239.16	11,748.00	131.64	131.02	86.49	-8,550.20	-90.10	652.28	390.29	261.99	2.490	Minor Risk	
20,350.00	11,788.00	20,289.16	11,748.00	132.33	131.70	86.49	-8,600.20	-90.27	652.52	389.16	263.36	2.478	Minor Risk	
20,400.00	11,788.00	20,339.16	11,748.00	133.02	132.39	86.50	-8,650.20	-90.44	652.77	388.03	264.74	2.466	Minor Risk	
20,450.00	11,788.00	20,389.16	11,748.00	133.71	133.08	86.50	-8,700.20	-90.62	653.01	386.90	266.12	2.454	Minor Risk	
20,500.00	11,788.00	20,439.16	11,748.00	134.40	133.77	86.50	-8,750.20	-90.79	653.26	385.77	267.49	2.442	Minor Risk	
20,550.00	11,788.00	20,489.15	11,748.00	135.09	134.46	86.50	-8,800.20	-90.96	653.51	384.63	268.87	2.431	Minor Risk	
20,600.00	11,788.00	20,539.15	11,748.00	135.78	135.15	86.50	-8,850.20	-91.13	653.75	383.50	270.25	2.419	Minor Risk	
20,650.00	11,788.00	20,589.15	11,748.00	136.47	135.84	86.50	-8,900.20	-91.31	654.00	382.37	271.63	2.408	Minor Risk	
20,700.00	11,788.00	20,639.15	11,748.00	137.16	136.53	86.50	-8,950.20	-91.48	654.25	381.23	273.01	2.396	Minor Risk	
20,750.00	11,788.00	20,689.15	11,748.00	137.85	137.22	86.50	-9,000.20	-91.65	654.49	380.10	274.40	2.385	Minor Risk	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
20,800.00	11,788.00	20,739.15	11,748.00	138.55	137.91	86.51	-9,050.20	-91.82	654.74	378.96	275.78	2.374	Minor Risk	
20,850.00	11,788.00	20,789.15	11,748.00	139.24	138.60	86.51	-9,100.19	-91.99	654.98	377.82	277.16	2.363	Minor Risk	
20,900.00	11,788.00	20,839.15	11,748.00	139.93	139.30	86.51	-9,150.19	-92.17	655.23	376.68	278.54	2.352	Minor Risk	
20,950.00	11,788.00	20,889.15	11,748.00	140.62	139.99	86.51	-9,200.19	-92.34	655.48	375.55	279.93	2.342	Minor Risk	
21,000.00	11,788.00	20,939.15	11,748.00	141.32	140.68	86.51	-9,250.19	-92.51	655.72	374.41	281.31	2.331	Minor Risk	
21,050.00	11,788.00	20,989.15	11,748.00	142.01	141.37	86.51	-9,300.19	-92.68	655.97	373.27	282.70	2.320	Minor Risk	
21,100.00	11,788.00	21,039.15	11,748.00	142.70	142.07	86.51	-9,350.19	-92.86	656.21	372.13	284.09	2.310	Minor Risk	
21,150.00	11,788.00	21,089.15	11,748.00	143.40	142.76	86.52	-9,400.19	-93.03	656.46	370.99	285.47	2.300	Minor Risk	
21,200.00	11,788.00	21,139.15	11,748.00	144.09	143.46	86.52	-9,450.19	-93.20	656.71	369.84	286.86	2.289	Minor Risk	
21,250.00	11,788.00	21,189.15	11,748.00	144.79	144.15	86.52	-9,500.19	-93.37	656.95	368.70	288.25	2.279	Minor Risk	
21,300.00	11,788.00	21,239.15	11,748.00	145.48	144.84	86.52	-9,550.19	-93.55	657.20	367.56	289.64	2.269	Minor Risk	
21,350.00	11,788.00	21,289.14	11,748.00	146.18	145.54	86.52	-9,600.19	-93.72	657.44	366.42	291.03	2.259	Minor Risk	
21,400.00	11,788.00	21,339.14	11,748.00	146.87	146.23	86.52	-9,650.18	-93.89	657.69	365.27	292.42	2.249	Minor Risk	
21,450.00	11,788.00	21,389.14	11,748.00	147.57	146.93	86.52	-9,700.18	-94.06	657.94	364.13	293.81	2.239	Minor Risk	
21,500.00	11,788.00	21,439.14	11,748.00	148.27	147.63	86.52	-9,750.18	-94.24	658.18	362.98	295.20	2.230	Minor Risk	
21,550.00	11,788.00	21,489.14	11,748.00	148.96	148.32	86.53	-9,800.18	-94.41	658.43	361.84	296.59	2.220	Minor Risk	
21,600.00	11,788.00	21,539.14	11,748.00	149.66	149.02	86.53	-9,850.18	-94.58	658.67	360.69	297.98	2.210	Minor Risk	
21,650.00	11,788.00	21,589.14	11,748.00	150.36	149.72	86.53	-9,900.18	-94.75	658.92	359.54	299.38	2.201	Minor Risk	
21,700.00	11,788.00	21,639.14	11,748.00	151.06	150.41	86.53	-9,950.18	-94.93	659.17	358.40	300.77	2.192	Minor Risk	
21,750.00	11,788.00	21,689.14	11,748.00	151.75	151.11	86.53	-10,000.18	-95.10	659.41	357.25	302.16	2.182	Minor Risk	
21,800.00	11,788.00	21,739.14	11,748.00	152.45	151.81	86.53	-10,050.18	-95.27	659.66	356.10	303.56	2.173	Minor Risk	
21,850.00	11,788.00	21,789.14	11,748.00	153.15	152.50	86.53	-10,100.18	-95.44	659.90	354.95	304.95	2.164	Minor Risk	
21,900.00	11,788.00	21,839.14	11,748.00	153.85	153.20	86.53	-10,150.18	-95.62	660.15	353.80	306.35	2.155	Minor Risk	
21,950.00	11,788.00	21,889.14	11,748.00	154.55	153.90	86.54	-10,200.17	-95.79	660.40	352.65	307.75	2.146	Minor Risk	
22,000.00	11,788.00	21,939.14	11,748.00	155.25	154.60	86.54	-10,250.17	-95.96	660.64	351.50	309.14	2.137	Minor Risk	
22,050.00	11,788.00	21,989.14	11,748.00	155.95	155.30	86.54	-10,300.17	-96.13	660.89	350.35	310.54	2.128	Minor Risk	
22,079.71	11,788.00	22,018.85	11,748.00	156.36	155.71	86.54	-10,329.89	-96.24	661.04	349.67	311.37	2.123	Minor Risk, SF	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,600.00	9,582.37	9,707.58	9,679.37	34.60	34.72	18.37	169.26	1,961.14	1,493.99	1,425.63	68.36	21.854	
9,650.00	9,632.24	9,741.99	9,728.82	34.79	34.85	18.36	170.65	1,958.01	1,487.47	1,418.80	68.67	21.662	
9,700.00	9,682.11	9,808.44	9,778.27	34.97	35.09	18.35	172.04	1,954.89	1,480.94	1,411.86	69.09	21.436	
9,750.00	9,731.98	9,841.14	9,827.73	35.16	35.21	18.34	173.43	1,951.76	1,474.42	1,405.04	69.38	21.250	
9,800.00	9,781.86	9,909.29	9,877.18	35.34	35.46	18.33	174.82	1,948.64	1,467.89	1,398.09	69.81	21.027	
9,850.00	9,831.73	9,940.28	9,926.63	35.53	35.57	18.32	176.21	1,945.52	1,461.37	1,391.27	70.10	20.847	
9,900.00	9,881.60	9,989.85	9,976.09	35.71	35.76	18.30	177.60	1,942.39	1,454.85	1,384.39	70.46	20.648	
9,950.00	9,931.47	10,039.42	10,025.54	35.89	35.94	18.29	178.99	1,939.27	1,448.32	1,377.50	70.82	20.452	
10,000.00	9,981.34	10,088.99	10,074.99	36.08	36.12	18.28	180.38	1,936.14	1,441.80	1,370.62	71.18	20.257	
10,050.00	10,031.22	10,138.57	10,124.45	36.26	36.30	18.27	181.77	1,933.02	1,435.27	1,363.74	71.53	20.064	
10,100.00	10,081.09	10,188.14	10,173.90	36.45	36.48	18.26	183.16	1,929.89	1,428.75	1,356.86	71.89	19.874	
10,150.00	10,130.96	10,237.71	10,223.36	36.63	36.66	18.24	184.55	1,926.77	1,422.22	1,349.97	72.25	19.685	
10,200.00	10,180.83	10,287.28	10,272.81	36.82	36.85	18.23	185.94	1,923.65	1,415.70	1,343.09	72.61	19.498	
10,250.00	10,230.70	10,336.85	10,322.26	37.00	37.03	18.22	187.33	1,920.52	1,409.18	1,336.21	72.97	19.312	
10,300.00	10,280.57	10,386.42	10,371.72	37.19	37.21	18.21	188.72	1,917.40	1,402.65	1,329.33	73.33	19.129	
10,350.00	10,330.45	10,436.00	10,421.17	37.37	37.39	18.19	190.11	1,914.27	1,396.13	1,322.44	73.68	18.947	
10,400.00	10,380.32	10,485.57	10,470.62	37.56	37.57	18.18	191.49	1,911.15	1,389.60	1,315.56	74.04	18.768	
10,450.00	10,430.19	10,535.14	10,520.08	37.74	37.76	18.17	192.88	1,908.02	1,383.08	1,308.68	74.40	18.589	
10,500.00	10,480.06	10,584.71	10,569.53	37.93	37.94	18.15	194.27	1,904.90	1,376.56	1,301.80	74.76	18.413	
10,550.00	10,529.93	10,632.44	10,617.15	38.11	38.11	18.14	195.61	1,901.90	1,370.04	1,294.92	75.12	18.239	
10,600.00	10,579.81	10,669.87	10,654.50	38.29	38.25	18.14	196.56	1,899.75	1,363.80	1,288.34	75.46	18.073	
10,650.00	10,629.69	10,707.40	10,691.98	38.48	38.39	18.11	197.37	1,897.94	1,358.19	1,282.39	75.80	17.918	
10,700.00	10,679.61	10,745.04	10,729.58	38.66	38.52	18.09	198.02	1,896.46	1,353.62	1,277.48	76.14	17.779	
10,750.00	10,729.57	10,782.77	10,767.29	38.84	38.66	18.07	198.53	1,895.32	1,350.12	1,273.65	76.47	17.656	
10,800.00	10,779.55	10,820.57	10,805.08	39.02	38.79	18.06	198.89	1,894.52	1,347.69	1,270.89	76.80	17.549	
10,850.00	10,829.54	10,858.41	10,842.92	39.20	38.93	18.05	199.10	1,894.06	1,346.33	1,269.21	77.11	17.459	
10,900.00	10,879.54	10,901.87	10,882.64	39.37	39.08	89.40	199.15	1,893.93	1,346.01	1,268.56	77.45	17.379	
10,950.00	10,929.54	10,948.13	10,932.64	39.54	39.24	89.40	199.15	1,893.93	1,346.01	1,268.22	77.79	17.304	
11,000.00	10,979.54	11,001.87	10,982.64	39.72	39.43	89.40	199.15	1,893.93	1,346.01	1,267.86	78.15	17.224	
11,050.00	11,029.54	11,048.13	11,032.64	39.89	39.59	89.40	199.15	1,893.93	1,346.01	1,267.52	78.49	17.150	
11,100.00	11,079.54	11,101.87	11,082.64	40.06	39.78	89.40	199.15	1,893.93	1,346.01	1,267.16	78.85	17.071	
11,150.00	11,129.54	11,148.13	11,132.64	40.23	39.94	89.40	199.15	1,893.93	1,346.01	1,266.82	79.19	16.998	
11,200.00	11,179.54	11,201.87	11,182.64	40.41	40.13	89.40	199.15	1,893.93	1,346.01	1,266.46	79.55	16.920 CC	
11,200.09	11,179.63	11,201.78	11,182.73	40.41	40.13	89.40	199.15	1,893.93	1,346.01	1,266.46	79.55	16.920	
11,250.00	11,229.54	11,248.28	11,232.78	40.58	40.29	-90.52	199.10	1,893.93	1,346.01	1,266.12	79.89	16.849	
11,300.00	11,279.41	11,289.25	11,283.66	40.74	40.46	-90.55	196.14	1,893.94	1,346.02	1,265.81	80.21	16.781	
11,350.00	11,328.78	11,350.27	11,334.11	40.89	40.62	-90.56	188.67	1,893.96	1,346.03	1,265.50	80.53	16.715	
11,400.00	11,377.29	11,401.33	11,383.73	41.04	40.77	-90.58	176.74	1,893.99	1,346.05	1,265.21	80.84	16.652	
11,450.00	11,424.57	11,452.41	11,432.13	41.18	40.91	-90.59	160.42	1,894.04	1,346.07	1,264.94	81.13	16.592	
11,500.00	11,470.25	11,503.52	11,478.89	41.32	41.05	-90.59	139.84	1,894.09	1,346.10	1,264.68	81.41	16.534	
11,550.00	11,513.98	11,554.64	11,523.65	41.44	41.17	-90.59	115.18	1,894.16	1,346.13	1,264.44	81.68	16.480	
11,600.00	11,555.45	11,605.77	11,566.04	41.55	41.28	-90.59	86.63	1,894.24	1,346.16	1,264.22	81.94	16.428	
11,650.00	11,594.32	11,656.89	11,605.71	41.65	41.38	-90.58	54.41	1,894.32	1,346.20	1,264.00	82.19	16.378	
11,700.00	11,630.31	11,707.99	11,642.34	41.74	41.47	-90.57	18.80	1,894.42	1,346.24	1,263.80	82.44	16.331	
11,750.00	11,663.13	11,759.07	11,675.64	41.82	41.54	-90.55	-19.91	1,894.52	1,346.28	1,263.61	82.67	16.285	
11,800.00	11,692.55	11,810.12	11,705.34	41.89	41.61	-90.53	-61.41	1,894.63	1,346.32	1,263.42	82.90	16.240	
11,850.00	11,718.33	11,861.12	11,731.21	41.96	41.67	-90.50	-105.34	1,894.75	1,346.37	1,263.24	83.13	16.197	
11,900.00	11,740.28	11,912.08	11,753.05	42.03	41.75	-90.47	-151.36	1,894.87	1,346.42	1,263.07	83.35	16.154	
11,950.00	11,758.23	11,962.98	11,770.71	42.11	41.84	-90.44	-199.08	1,895.00	1,346.47	1,262.90	83.57	16.112	
12,000.00	11,772.05	12,013.82	11,784.04	42.21	41.95	-90.40	-248.12	1,895.13	1,346.52	1,262.73	83.79	16.071	
12,050.00	11,781.63	12,064.58	11,792.97	42.31	42.06	-90.36	-298.08	1,895.26	1,346.57	1,262.57	84.00	16.030	
12,100.00	11,786.90	12,115.27	11,797.44	42.42	42.17	-90.32	-348.56	1,895.40	1,346.63	1,262.41	84.22	15.990	

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Eddy County (NAD 83 NM Eastern)
 Reference Site: Sec 27-T25S-R31E
 Site Error: 0.00 ft
 Reference Well: Lusitano 27_34 Fed Com 713H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
 TVD Reference: RKB @ 3360.00ft
 MD Reference: RKB @ 3360.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
12,150.00	11,788.00	12,165.59	11,798.00	42.53	42.29	-90.29	-398.86	1,895.53	1,346.68	1,262.25	84.43	15.950	
12,200.00	11,788.00	12,215.59	11,798.00	42.66	42.41	-90.29	-448.86	1,895.67	1,346.74	1,262.08	84.66	15.908	
12,250.00	11,788.00	12,265.59	11,798.00	42.79	42.55	-90.29	-498.86	1,895.80	1,346.80	1,261.88	84.92	15.860	
12,300.00	11,788.00	12,315.59	11,798.00	42.94	42.69	-90.29	-548.86	1,895.93	1,346.86	1,261.67	85.19	15.810	
12,350.00	11,788.00	12,365.59	11,798.00	43.09	42.85	-90.29	-598.86	1,896.07	1,346.92	1,261.42	85.50	15.754	
12,400.00	11,788.00	12,415.59	11,798.00	43.26	43.02	-90.29	-648.86	1,896.20	1,346.98	1,261.17	85.81	15.696	
12,450.00	11,788.00	12,465.59	11,798.00	43.44	43.20	-90.29	-698.86	1,896.33	1,347.04	1,260.87	86.17	15.632	
12,500.00	11,788.00	12,515.59	11,798.00	43.62	43.39	-90.29	-748.86	1,896.47	1,347.10	1,260.57	86.53	15.567	
12,550.00	11,788.00	12,565.59	11,798.00	43.83	43.59	-90.29	-798.86	1,896.60	1,347.16	1,260.22	86.93	15.496	
12,600.00	11,788.00	12,615.59	11,798.00	44.03	43.80	-90.29	-848.86	1,896.73	1,347.22	1,259.88	87.34	15.425	
12,650.00	11,788.00	12,665.59	11,798.00	44.26	44.02	-90.29	-898.86	1,896.87	1,347.28	1,259.49	87.79	15.347	
12,700.00	11,788.00	12,715.59	11,798.00	44.49	44.25	-90.29	-948.86	1,897.00	1,347.34	1,259.10	88.24	15.269	
12,750.00	11,788.00	12,765.59	11,798.00	44.73	44.50	-90.29	-998.86	1,897.13	1,347.40	1,258.67	88.73	15.185	
12,800.00	11,788.00	12,815.59	11,798.00	44.98	44.75	-90.29	-1,048.86	1,897.27	1,347.46	1,258.23	89.22	15.102	
12,850.00	11,788.00	12,865.59	11,798.00	45.24	45.02	-90.29	-1,098.86	1,897.40	1,347.52	1,257.76	89.75	15.013	
12,900.00	11,788.00	12,915.59	11,798.00	45.51	45.29	-90.29	-1,148.86	1,897.54	1,347.57	1,257.28	90.29	14.925	
12,950.00	11,788.00	12,965.59	11,798.00	45.80	45.57	-90.29	-1,198.86	1,897.67	1,347.63	1,256.77	90.86	14.832	
13,000.00	11,788.00	13,015.59	11,798.00	46.08	45.86	-90.29	-1,248.86	1,897.80	1,347.69	1,256.26	91.44	14.739	
13,050.00	11,788.00	13,065.59	11,798.00	46.39	46.17	-90.29	-1,298.86	1,897.94	1,347.75	1,255.71	92.05	14.642	
13,100.00	11,788.00	13,115.59	11,798.00	46.69	46.48	-90.29	-1,348.86	1,898.07	1,347.81	1,255.15	92.66	14.546	
13,150.00	11,788.00	13,165.59	11,798.00	47.01	46.80	-90.29	-1,398.86	1,898.20	1,347.87	1,254.56	93.31	14.445	
13,200.00	11,788.00	13,215.59	11,798.00	47.34	47.13	-90.29	-1,448.86	1,898.34	1,347.93	1,253.97	93.96	14.346	
13,250.00	11,788.00	13,265.59	11,798.00	47.68	47.47	-90.29	-1,498.86	1,898.47	1,347.99	1,253.35	94.64	14.243	
13,300.00	11,788.00	13,315.59	11,798.00	48.02	47.81	-90.29	-1,548.86	1,898.60	1,348.05	1,252.72	95.33	14.141	
13,350.00	11,788.00	13,365.59	11,798.00	48.38	48.17	-90.29	-1,598.86	1,898.74	1,348.11	1,252.07	96.04	14.036	
13,400.00	11,788.00	13,415.59	11,798.00	48.73	48.53	-90.29	-1,648.86	1,898.87	1,348.17	1,251.40	96.76	13.932	
13,450.00	11,788.00	13,465.59	11,798.00	49.11	48.91	-90.29	-1,698.86	1,899.00	1,348.23	1,250.72	97.51	13.826	
13,500.00	11,788.00	13,515.59	11,798.00	49.48	49.28	-90.29	-1,748.86	1,899.14	1,348.29	1,250.02	98.27	13.721	
13,550.00	11,788.00	13,565.59	11,798.00	49.87	49.67	-90.29	-1,798.86	1,899.27	1,348.35	1,249.30	99.05	13.613	
13,600.00	11,788.00	13,615.59	11,798.00	50.26	50.07	-90.29	-1,848.86	1,899.40	1,348.41	1,248.58	99.83	13.507	
13,650.00	11,788.00	13,665.59	11,798.00	50.66	50.47	-90.29	-1,898.85	1,899.54	1,348.47	1,247.83	100.64	13.399	
13,700.00	11,788.00	13,715.59	11,798.00	51.06	50.88	-90.29	-1,948.85	1,899.67	1,348.53	1,247.07	101.45	13.292	
13,750.00	11,788.00	13,765.59	11,798.00	51.48	51.30	-90.29	-1,998.85	1,899.81	1,348.59	1,246.29	102.29	13.184	
13,800.00	11,788.00	13,815.59	11,798.00	51.90	51.72	-90.29	-2,048.85	1,899.94	1,348.64	1,245.51	103.13	13.077	
13,850.00	11,788.00	13,865.59	11,798.00	52.33	52.15	-90.29	-2,098.85	1,900.07	1,348.70	1,244.71	104.00	12.969	
13,900.00	11,788.00	13,915.59	11,798.00	52.76	52.58	-90.29	-2,148.85	1,900.21	1,348.76	1,243.90	104.87	12.862	
13,950.00	11,788.00	13,965.59	11,798.00	53.20	53.03	-90.29	-2,198.85	1,900.34	1,348.82	1,243.07	105.76	12.754	
14,000.00	11,788.00	14,015.59	11,798.00	53.64	53.47	-90.29	-2,248.85	1,900.47	1,348.88	1,242.23	106.65	12.648	
14,050.00	11,788.00	14,065.59	11,798.00	54.10	53.93	-90.29	-2,298.85	1,900.61	1,348.94	1,241.38	107.56	12.541	
14,100.00	11,788.00	14,115.59	11,798.00	54.55	54.39	-90.29	-2,348.85	1,900.74	1,349.00	1,240.52	108.48	12.435	
14,150.00	11,788.00	14,165.59	11,798.00	55.02	54.86	-90.29	-2,398.85	1,900.87	1,349.06	1,239.64	109.42	12.329	
14,200.00	11,788.00	14,215.59	11,798.00	55.49	55.33	-90.29	-2,448.85	1,901.01	1,349.12	1,238.76	110.36	12.225	
14,250.00	11,788.00	14,265.59	11,798.00	55.97	55.81	-90.29	-2,498.85	1,901.14	1,349.18	1,237.86	111.32	12.120	
14,300.00	11,788.00	14,315.59	11,798.00	56.44	56.29	-90.29	-2,548.85	1,901.27	1,349.24	1,236.95	112.28	12.016	
14,350.00	11,788.00	14,365.59	11,798.00	56.93	56.78	-90.29	-2,598.85	1,901.41	1,349.30	1,236.03	113.26	11.913	
14,400.00	11,788.00	14,415.59	11,798.00	57.42	57.27	-90.29	-2,648.85	1,901.54	1,349.36	1,235.11	114.25	11.811	
14,450.00	11,788.00	14,465.59	11,798.00	57.92	57.77	-90.29	-2,698.85	1,901.68	1,349.42	1,234.17	115.25	11.709	
14,500.00	11,788.00	14,515.59	11,798.00	58.42	58.27	-90.29	-2,748.85	1,901.81	1,349.48	1,233.22	116.25	11.608	
14,550.00	11,788.00	14,565.58	11,798.00	58.92	58.78	-90.29	-2,798.85	1,901.94	1,349.54	1,232.26	117.27	11.508	
14,600.00	11,788.00	14,615.58	11,798.00	59.43	59.29	-90.29	-2,848.85	1,902.08	1,349.60	1,231.30	118.29	11.409	
14,650.00	11,788.00	14,665.58	11,798.00	59.95	59.81	-90.29	-2,898.85	1,902.21	1,349.65	1,230.32	119.33	11.310	
14,700.00	11,788.00	14,715.58	11,798.00	60.47	60.33	-90.29	-2,948.85	1,902.34	1,349.71	1,229.34	120.37	11.213	

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

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 27-T25S-R31E
Site Error: 0.00 ft
Reference Well: Lusitano 27_34 Fed Com 713H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
TVD Reference: RKB @ 3360.00ft
MD Reference: RKB @ 3360.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
14,750.00	11,788.00	14,765.58	11,798.00	60.99	60.86	-90.29	-2,998.85	1,902.48	1,349.77	1,228.35	121.43	11.116		
14,800.00	11,788.00	14,815.58	11,798.00	61.51	61.38	-90.29	-3,048.85	1,902.61	1,349.83	1,227.35	122.48	11.021		
14,850.00	11,788.00	14,865.58	11,798.00	62.05	61.92	-90.29	-3,098.85	1,902.74	1,349.89	1,226.34	123.55	10.926		
14,900.00	11,788.00	14,915.58	11,798.00	62.58	62.46	-90.29	-3,148.85	1,902.88	1,349.95	1,225.33	124.62	10.832		
14,950.00	11,788.00	14,965.58	11,798.00	63.12	63.00	-90.29	-3,198.85	1,903.01	1,350.01	1,224.30	125.71	10.739		
15,000.00	11,788.00	15,015.58	11,798.00	63.66	63.54	-90.29	-3,248.85	1,903.14	1,350.07	1,223.27	126.80	10.647		
15,050.00	11,788.00	15,065.58	11,798.00	64.21	64.09	-90.29	-3,298.85	1,903.28	1,350.13	1,222.23	127.90	10.556		
15,100.00	11,788.00	15,115.58	11,798.00	64.76	64.64	-90.29	-3,348.85	1,903.41	1,350.19	1,221.19	129.00	10.467		
15,150.00	11,788.00	15,165.58	11,798.00	65.31	65.20	-90.29	-3,398.85	1,903.54	1,350.25	1,220.14	130.11	10.377		
15,200.00	11,788.00	15,215.58	11,798.00	65.87	65.75	-90.29	-3,448.85	1,903.68	1,350.31	1,219.08	131.23	10.290		
15,250.00	11,788.00	15,265.58	11,798.00	66.43	66.32	-90.29	-3,498.85	1,903.81	1,350.37	1,218.01	132.36	10.203		
15,300.00	11,788.00	15,315.58	11,798.00	66.99	66.88	-90.29	-3,548.85	1,903.95	1,350.43	1,216.94	133.49	10.117		
15,350.00	11,788.00	15,365.58	11,798.00	67.56	67.45	-90.29	-3,598.85	1,904.08	1,350.49	1,215.86	134.62	10.031		
15,400.00	11,788.00	15,415.58	11,798.00	68.13	68.02	-90.29	-3,648.85	1,904.21	1,350.55	1,214.78	135.77	9.948		
15,450.00	11,788.00	15,465.58	11,798.00	68.70	68.60	-90.29	-3,698.85	1,904.35	1,350.61	1,213.69	136.92	9.864		
15,500.00	11,788.00	15,515.58	11,798.00	69.27	69.17	-90.29	-3,748.85	1,904.48	1,350.67	1,212.60	138.07	9.782		
15,550.00	11,788.00	15,565.58	11,798.00	69.85	69.75	-90.29	-3,798.85	1,904.61	1,350.72	1,211.49	139.23	9.701		
15,600.00	11,788.00	15,615.58	11,798.00	70.43	70.33	-90.29	-3,848.85	1,904.75	1,350.78	1,210.39	140.40	9.621		
15,650.00	11,788.00	15,665.58	11,798.00	71.02	70.92	-90.29	-3,898.85	1,904.88	1,350.84	1,209.27	141.57	9.542		
15,700.00	11,788.00	15,715.58	11,798.00	71.60	71.51	-90.29	-3,948.85	1,905.01	1,350.90	1,208.16	142.74	9.464		
15,750.00	11,788.00	15,765.58	11,798.00	72.19	72.10	-90.29	-3,998.85	1,905.15	1,350.96	1,207.04	143.93	9.386		
15,800.00	11,788.00	15,815.58	11,798.00	72.78	72.69	-90.29	-4,048.85	1,905.28	1,351.02	1,205.91	145.11	9.310		
15,850.00	11,788.00	15,865.58	11,798.00	73.37	73.29	-90.29	-4,098.85	1,905.41	1,351.08	1,204.78	146.30	9.235		
15,900.00	11,788.00	15,915.58	11,798.00	73.97	73.88	-90.29	-4,148.85	1,905.55	1,351.14	1,203.64	147.50	9.160		
15,950.00	11,788.00	15,965.58	11,798.00	74.57	74.48	-90.29	-4,198.85	1,905.68	1,351.20	1,202.50	148.70	9.087		
16,000.00	11,788.00	16,015.58	11,798.00	75.17	75.09	-90.29	-4,248.84	1,905.82	1,351.26	1,201.35	149.90	9.014		
16,050.00	11,788.00	16,065.58	11,798.00	75.77	75.69	-90.29	-4,298.84	1,905.95	1,351.32	1,200.20	151.12	8.942		
16,100.00	11,788.00	16,115.58	11,798.00	76.37	76.30	-90.29	-4,348.84	1,906.08	1,351.38	1,199.05	152.33	8.872		
16,150.00	11,788.00	16,165.58	11,798.00	76.98	76.90	-90.29	-4,398.84	1,906.22	1,351.44	1,197.89	153.55	8.801		
16,200.00	11,788.00	16,215.58	11,798.00	77.59	77.51	-90.29	-4,448.84	1,906.35	1,351.50	1,196.73	154.77	8.732		
16,250.00	11,788.00	16,265.58	11,798.00	78.20	78.13	-90.29	-4,498.84	1,906.48	1,351.56	1,195.56	155.99	8.664		
16,300.00	11,788.00	16,315.58	11,798.00	78.81	78.74	-90.29	-4,548.84	1,906.62	1,351.62	1,194.39	157.22	8.597		
16,350.00	11,788.00	16,365.58	11,798.00	79.43	79.36	-90.29	-4,598.84	1,906.75	1,351.68	1,193.22	158.46	8.530		
16,400.00	11,788.00	16,415.58	11,798.00	80.04	79.98	-90.29	-4,648.84	1,906.88	1,351.73	1,192.04	159.69	8.465		
16,450.00	11,788.00	16,465.58	11,798.00	80.66	80.60	-90.29	-4,698.84	1,907.02	1,351.79	1,190.86	160.94	8.400		
16,500.00	11,788.00	16,515.58	11,798.00	81.28	81.22	-90.29	-4,748.84	1,907.15	1,351.85	1,189.67	162.18	8.336		
16,550.00	11,788.00	16,565.58	11,798.00	81.91	81.84	-90.29	-4,798.84	1,907.28	1,351.91	1,188.49	163.43	8.272		
16,600.00	11,788.00	16,615.58	11,798.00	82.53	82.47	-90.29	-4,848.84	1,907.42	1,351.97	1,187.29	164.68	8.210		
16,650.00	11,788.00	16,665.58	11,798.00	83.16	83.09	-90.29	-4,898.84	1,907.55	1,352.03	1,186.10	165.93	8.148		
16,700.00	11,788.00	16,715.58	11,798.00	83.78	83.72	-90.29	-4,948.84	1,907.69	1,352.09	1,184.90	167.19	8.087		
16,750.00	11,788.00	16,765.58	11,798.00	84.41	84.35	-90.29	-4,998.84	1,907.82	1,352.15	1,183.70	168.45	8.027		
16,800.00	11,788.00	16,815.58	11,798.00	85.04	84.98	-90.29	-5,048.84	1,907.95	1,352.21	1,182.50	169.72	7.968		
16,850.00	11,788.00	16,865.58	11,798.00	85.67	85.62	-90.29	-5,098.84	1,908.09	1,352.27	1,181.29	170.98	7.909		
16,900.00	11,788.00	16,915.58	11,798.00	86.30	86.25	-90.29	-5,148.84	1,908.22	1,352.33	1,180.08	172.25	7.851		
16,950.00	11,788.00	16,965.58	11,798.00	86.94	86.89	-90.29	-5,198.84	1,908.35	1,352.39	1,178.86	173.53	7.794		
17,000.00	11,788.00	17,015.58	11,798.00	87.58	87.53	-90.29	-5,248.84	1,908.49	1,352.45	1,177.65	174.80	7.737		
17,050.00	11,788.00	17,065.58	11,798.00	88.21	88.16	-90.29	-5,298.84	1,908.62	1,352.51	1,176.43	176.08	7.681		
17,100.00	11,788.00	17,115.58	11,798.00	88.85	88.80	-90.29	-5,348.84	1,908.75	1,352.57	1,175.21	177.36	7.626		
17,150.00	11,788.00	17,165.58	11,798.00	89.49	89.45	-90.29	-5,398.84	1,908.89	1,352.63	1,173.98	178.64	7.572		
17,200.00	11,788.00	17,215.58	11,798.00	90.13	90.09	-90.29	-5,448.84	1,909.02	1,352.69	1,172.76	179.93	7.518		
17,250.00	11,788.00	17,265.58	11,798.00	90.78	90.73	-90.29	-5,498.84	1,909.15	1,352.75	1,171.53	181.22	7.465		
17,300.00	11,788.00	17,315.58	11,798.00	91.42	91.38	-90.29	-5,548.84	1,909.29	1,352.80	1,170.29	182.51	7.412		

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

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 27-T25S-R31E
Site Error: 0.00 ft
Reference Well: Lusitano 27_34 Fed Com 713H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
TVD Reference: RKB @ 3360.00ft
MD Reference: RKB @ 3360.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
17,350.00	11,788.00	17,365.58	11,798.00	92.07	92.03	-90.29	-5,598.84	1,909.42	1,352.86	1,169.06	183.80	7.360		
17,400.00	11,788.00	17,415.58	11,798.00	92.71	92.67	-90.29	-5,648.84	1,909.55	1,352.92	1,167.82	185.10	7.309		
17,450.00	11,788.00	17,465.58	11,798.00	93.36	93.32	-90.29	-5,698.84	1,909.69	1,352.98	1,166.58	186.40	7.259		
17,500.00	11,788.00	17,515.58	11,798.00	94.01	93.97	-90.29	-5,748.84	1,909.82	1,353.04	1,165.34	187.70	7.209		
17,550.00	11,788.00	17,565.58	11,798.00	94.66	94.62	-90.29	-5,798.84	1,909.96	1,353.10	1,164.10	189.00	7.159		
17,600.00	11,788.00	17,615.58	11,798.00	95.31	95.28	-90.29	-5,848.84	1,910.09	1,353.16	1,162.85	190.31	7.110		
17,650.00	11,788.00	17,665.58	11,798.00	95.96	95.93	-90.29	-5,898.84	1,910.22	1,353.22	1,161.61	191.62	7.062		
17,700.00	11,788.00	17,715.58	11,798.00	96.61	96.58	-90.29	-5,948.84	1,910.36	1,353.28	1,160.36	192.92	7.015		
17,750.00	11,788.00	17,765.58	11,798.00	97.27	97.24	-90.29	-5,998.84	1,910.49	1,353.34	1,159.10	194.24	6.968		
17,800.00	11,788.00	17,815.58	11,798.00	97.92	97.89	-90.29	-6,048.84	1,910.62	1,353.40	1,157.85	195.55	6.921		
17,850.00	11,788.00	17,865.58	11,798.00	98.58	98.55	-90.29	-6,098.84	1,910.76	1,353.46	1,156.59	196.86	6.875		
17,900.00	11,788.00	17,915.58	11,798.00	99.24	99.21	-90.29	-6,148.84	1,910.89	1,353.52	1,155.34	198.18	6.830		
17,950.00	11,788.00	17,965.58	11,798.00	99.90	99.87	-90.29	-6,198.84	1,911.02	1,353.58	1,154.08	199.50	6.785		
18,000.00	11,788.00	18,015.58	11,798.00	100.55	100.53	-90.29	-6,248.84	1,911.16	1,353.64	1,152.82	200.82	6.740		
18,050.00	11,788.00	18,065.58	11,798.00	101.21	101.19	-90.29	-6,298.84	1,911.29	1,353.70	1,151.55	202.14	6.697		
18,100.00	11,788.00	18,115.58	11,798.00	101.88	101.85	-90.29	-6,348.84	1,911.42	1,353.76	1,150.29	203.47	6.653		
18,150.00	11,788.00	18,165.58	11,798.00	102.54	102.52	-90.29	-6,398.84	1,911.56	1,353.81	1,149.02	204.80	6.611		
18,200.00	11,788.00	18,215.58	11,798.00	103.20	103.18	-90.29	-6,448.84	1,911.69	1,353.87	1,147.75	206.12	6.568		
18,250.00	11,788.00	18,265.58	11,798.00	103.86	103.84	-90.29	-6,498.84	1,911.83	1,353.93	1,146.48	207.45	6.526		
18,300.00	11,788.00	18,315.58	11,798.00	104.53	104.51	-90.29	-6,548.84	1,911.96	1,353.99	1,145.21	208.78	6.485		
18,350.00	11,788.00	18,365.58	11,798.00	105.19	105.18	-90.29	-6,598.83	1,912.09	1,354.05	1,143.93	210.12	6.444		
18,400.00	11,788.00	18,415.58	11,798.00	105.86	105.84	-90.29	-6,648.83	1,912.23	1,354.11	1,142.66	211.45	6.404		
18,450.00	11,788.00	18,465.58	11,798.00	106.53	106.51	-90.29	-6,698.83	1,912.36	1,354.17	1,141.38	212.79	6.364		
18,500.00	11,788.00	18,515.58	11,798.00	107.19	107.18	-90.29	-6,748.83	1,912.49	1,354.23	1,140.10	214.13	6.324		
18,550.00	11,788.00	18,565.58	11,798.00	107.86	107.85	-90.29	-6,798.83	1,912.63	1,354.29	1,138.82	215.47	6.285		
18,600.00	11,788.00	18,615.58	11,798.00	108.53	108.52	-90.29	-6,848.83	1,912.76	1,354.35	1,137.54	216.81	6.247		
18,650.00	11,788.00	18,665.58	11,798.00	109.20	109.19	-90.29	-6,898.83	1,912.89	1,354.41	1,136.26	218.15	6.209		
18,700.00	11,788.00	18,715.58	11,798.00	109.87	109.86	-90.29	-6,948.83	1,913.03	1,354.47	1,134.98	219.49	6.171		
18,750.00	11,788.00	18,765.58	11,798.00	110.54	110.53	-90.29	-6,998.83	1,913.16	1,354.53	1,133.69	220.84	6.134		
18,800.00	11,788.00	18,815.58	11,798.00	111.21	111.21	-90.29	-7,048.83	1,913.29	1,354.59	1,132.40	222.18	6.097		
18,850.00	11,788.00	18,865.58	11,798.00	111.89	111.88	-90.29	-7,098.83	1,913.43	1,354.65	1,131.12	223.53	6.060		
18,900.00	11,788.00	18,915.58	11,798.00	112.56	112.56	-90.29	-7,148.83	1,913.56	1,354.71	1,129.83	224.88	6.024		
18,950.00	11,788.00	18,965.58	11,798.00	113.23	113.23	-90.29	-7,198.83	1,913.69	1,354.77	1,128.54	226.23	5.988		
19,000.00	11,788.00	19,015.58	11,798.00	113.91	113.91	-90.29	-7,248.83	1,913.83	1,354.83	1,127.24	227.58	5.953		
19,050.00	11,788.00	19,065.58	11,798.00	114.58	114.58	-90.29	-7,298.83	1,913.96	1,354.88	1,125.95	228.93	5.918		
19,100.00	11,788.00	19,115.58	11,798.00	115.26	115.26	-90.29	-7,348.83	1,914.10	1,354.94	1,124.66	230.29	5.884		
19,150.00	11,788.00	19,165.58	11,798.00	115.94	115.94	-90.29	-7,398.83	1,914.23	1,355.00	1,123.36	231.64	5.850		
19,200.00	11,788.00	19,215.58	11,798.00	116.61	116.61	-90.29	-7,448.83	1,914.36	1,355.06	1,122.06	233.00	5.816		
19,250.00	11,788.00	19,265.58	11,798.00	117.29	117.29	-90.29	-7,498.83	1,914.50	1,355.12	1,120.76	234.36	5.782		
19,300.00	11,788.00	19,315.58	11,798.00	117.97	117.97	-90.29	-7,548.83	1,914.63	1,355.18	1,119.47	235.72	5.749		
19,350.00	11,788.00	19,365.58	11,798.00	118.65	118.65	-90.29	-7,598.83	1,914.76	1,355.24	1,118.16	237.08	5.716		
19,400.00	11,788.00	19,415.58	11,798.00	119.33	119.33	-90.29	-7,648.83	1,914.90	1,355.30	1,116.86	238.44	5.684		
19,450.00	11,788.00	19,465.58	11,798.00	120.01	120.01	-90.29	-7,698.83	1,915.03	1,355.36	1,115.56	239.80	5.652		
19,500.00	11,788.00	19,515.58	11,798.00	120.69	120.69	-90.29	-7,748.83	1,915.16	1,355.42	1,114.26	241.16	5.620		
19,550.00	11,788.00	19,565.58	11,798.00	121.37	121.38	-90.29	-7,798.83	1,915.30	1,355.48	1,112.95	242.53	5.589		
19,600.00	11,788.00	19,615.58	11,798.00	122.05	122.06	-90.29	-7,848.83	1,915.43	1,355.54	1,111.65	243.89	5.558		
19,650.00	11,788.00	19,665.58	11,798.00	122.73	122.74	-90.29	-7,898.83	1,915.56	1,355.60	1,110.34	245.26	5.527		
19,700.00	11,788.00	19,715.58	11,798.00	123.42	123.43	-90.29	-7,948.83	1,915.70	1,355.66	1,109.03	246.63	5.497		
19,750.00	11,788.00	19,765.58	11,798.00	124.10	124.11	-90.29	-7,998.83	1,915.83	1,355.72	1,107.72	247.99	5.467		
19,800.00	11,788.00	19,815.58	11,798.00	124.78	124.79	-90.29	-8,048.83	1,915.97	1,355.78	1,106.41	249.36	5.437		
19,850.00	11,788.00	19,865.58	11,798.00	125.47	125.48	-90.29	-8,098.83	1,916.10	1,355.84	1,105.10	250.73	5.407		
19,900.00	11,788.00	19,915.58	11,798.00	126.15	126.16	-90.29	-8,148.83	1,916.23	1,355.89	1,103.79	252.10	5.378		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
19,950.00	11,788.00	19,965.58	11,798.00	126.84	126.85	-90.29	-8,198.83	1,916.37	1,355.95	1,102.48	253.48	5.349	
20,000.00	11,788.00	20,015.58	11,798.00	127.52	127.54	-90.29	-8,248.83	1,916.50	1,356.01	1,101.17	254.85	5.321	
20,050.00	11,788.00	20,065.58	11,798.00	128.21	128.22	-90.29	-8,298.83	1,916.63	1,356.07	1,099.85	256.22	5.293	
20,100.00	11,788.00	20,115.58	11,798.00	128.89	128.91	-90.29	-8,348.83	1,916.77	1,356.13	1,098.54	257.60	5.265	
20,150.00	11,788.00	20,165.58	11,798.00	129.58	129.60	-90.29	-8,398.83	1,916.90	1,356.19	1,097.22	258.97	5.237	
20,200.00	11,788.00	20,215.58	11,798.00	130.27	130.29	-90.29	-8,448.83	1,917.03	1,356.25	1,095.90	260.35	5.209	
20,250.00	11,788.00	20,265.58	11,798.00	130.96	130.97	-90.29	-8,498.83	1,917.17	1,356.31	1,094.58	261.73	5.182	
20,300.00	11,788.00	20,315.58	11,798.00	131.64	131.66	-90.29	-8,548.83	1,917.30	1,356.37	1,093.27	263.10	5.155	
20,350.00	11,788.00	20,365.58	11,798.00	132.33	132.35	-90.29	-8,598.83	1,917.43	1,356.43	1,091.95	264.48	5.129	
20,400.00	11,788.00	20,415.58	11,798.00	133.02	133.04	-90.29	-8,648.83	1,917.57	1,356.49	1,090.63	265.86	5.102	
20,450.00	11,788.00	20,465.58	11,798.00	133.71	133.73	-90.29	-8,698.83	1,917.70	1,356.55	1,089.31	267.24	5.076	
20,500.00	11,788.00	20,515.58	11,798.00	134.40	134.42	-90.29	-8,748.83	1,917.83	1,356.61	1,087.98	268.62	5.050	
20,550.00	11,788.00	20,565.58	11,798.00	135.09	135.11	-90.29	-8,798.83	1,917.97	1,356.67	1,086.66	270.01	5.025	
20,600.00	11,788.00	20,615.58	11,798.00	135.78	135.81	-90.29	-8,848.83	1,918.10	1,356.73	1,085.34	271.39	4.999 Alert	
20,650.00	11,788.00	20,665.58	11,798.00	136.47	136.50	-90.29	-8,898.83	1,918.24	1,356.79	1,084.01	272.77	4.974 Alert	
20,700.00	11,788.00	20,715.58	11,798.00	137.16	137.19	-90.29	-8,948.82	1,918.37	1,356.85	1,082.69	274.16	4.949 Alert	
20,750.00	11,788.00	20,765.58	11,798.00	137.85	137.88	-90.29	-8,998.82	1,918.50	1,356.91	1,081.36	275.54	4.925 Alert	
20,800.00	11,788.00	20,815.58	11,798.00	138.55	138.57	-90.29	-9,048.82	1,918.64	1,356.96	1,080.04	276.93	4.900 Alert	
20,850.00	11,788.00	20,865.58	11,798.00	139.24	139.27	-90.29	-9,098.82	1,918.77	1,357.02	1,078.71	278.31	4.876 Alert	
20,900.00	11,788.00	20,915.58	11,798.00	139.93	139.96	-90.29	-9,148.82	1,918.90	1,357.08	1,077.38	279.70	4.852 Alert	
20,950.00	11,788.00	20,965.58	11,798.00	140.62	140.65	-90.29	-9,198.82	1,919.04	1,357.14	1,076.06	281.09	4.828 Alert	
21,000.00	11,788.00	21,015.58	11,798.00	141.32	141.35	-90.29	-9,248.82	1,919.17	1,357.20	1,074.73	282.48	4.805 Alert	
21,050.00	11,788.00	21,065.58	11,798.00	142.01	142.04	-90.29	-9,298.82	1,919.30	1,357.26	1,073.40	283.86	4.781 Alert	
21,100.00	11,788.00	21,115.58	11,798.00	142.70	142.74	-90.29	-9,348.82	1,919.44	1,357.32	1,072.07	285.25	4.758 Alert	
21,150.00	11,788.00	21,165.58	11,798.00	143.40	143.43	-90.29	-9,398.82	1,919.57	1,357.38	1,070.74	286.64	4.735 Alert	
21,200.00	11,788.00	21,215.58	11,798.00	144.09	144.13	-90.29	-9,448.82	1,919.70	1,357.44	1,069.41	288.03	4.713 Alert	
21,250.00	11,788.00	21,265.58	11,798.00	144.79	144.82	-90.29	-9,498.82	1,919.84	1,357.50	1,068.07	289.43	4.690 Alert	
21,300.00	11,788.00	21,315.58	11,798.00	145.48	145.52	-90.29	-9,548.82	1,919.97	1,357.56	1,066.74	290.82	4.668 Alert	
21,350.00	11,788.00	21,365.58	11,798.00	146.18	146.22	-90.29	-9,598.82	1,920.11	1,357.62	1,065.41	292.21	4.646 Alert	
21,400.00	11,788.00	21,415.58	11,798.00	146.87	146.91	-90.29	-9,648.82	1,920.24	1,357.68	1,064.07	293.60	4.624 Alert	
21,450.00	11,788.00	21,465.58	11,798.00	147.57	147.61	-90.29	-9,698.82	1,920.37	1,357.74	1,062.74	295.00	4.603 Alert	
21,500.00	11,788.00	21,515.58	11,798.00	148.27	148.31	-90.29	-9,748.82	1,920.51	1,357.80	1,061.40	296.39	4.581 Alert	
21,550.00	11,788.00	21,565.58	11,798.00	148.96	149.00	-90.29	-9,798.82	1,920.64	1,357.86	1,060.07	297.79	4.560 Alert	
21,600.00	11,788.00	21,615.58	11,798.00	149.66	149.70	-90.29	-9,848.82	1,920.77	1,357.92	1,058.73	299.18	4.539 Alert	
21,650.00	11,788.00	21,665.58	11,798.00	150.36	150.40	-90.29	-9,898.82	1,920.91	1,357.97	1,057.40	300.58	4.518 Alert	
21,700.00	11,788.00	21,715.58	11,798.00	151.06	151.10	-90.29	-9,948.82	1,921.04	1,358.03	1,056.06	301.98	4.497 Alert	
21,750.00	11,788.00	21,765.58	11,798.00	151.75	151.80	-90.29	-9,998.82	1,921.17	1,358.09	1,054.72	303.37	4.477 Alert	
21,800.00	11,788.00	21,815.58	11,798.00	152.45	152.49	-90.29	-10,048.82	1,921.31	1,358.15	1,053.38	304.77	4.456 Alert	
21,850.00	11,788.00	21,865.58	11,798.00	153.15	153.19	-90.29	-10,098.82	1,921.44	1,358.21	1,052.04	306.17	4.436 Alert	
21,900.00	11,788.00	21,915.58	11,798.00	153.85	153.89	-90.29	-10,148.82	1,921.57	1,358.27	1,050.70	307.57	4.416 Alert	
21,950.00	11,788.00	21,965.58	11,798.00	154.55	154.59	-90.29	-10,198.82	1,921.71	1,358.33	1,049.37	308.97	4.396 Alert	
22,000.00	11,788.00	22,015.58	11,798.00	155.25	155.29	-90.29	-10,248.82	1,921.84	1,358.39	1,048.02	310.37	4.377 Alert	
22,050.00	11,788.00	22,065.58	11,798.00	155.95	155.99	-90.29	-10,298.82	1,921.97	1,358.45	1,046.68	311.77	4.357 Alert	
22,079.71	11,788.00	22,095.29	11,798.00	156.36	156.41	-90.29	-10,328.53	1,922.05	1,358.49	1,045.89	312.60	4.346 Alert, ES, SF	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.20	0.20	0.50	0.50	-90.38	-0.20	-29.96	29.96				
50.00	50.00	50.20	50.20	0.50	0.50	-90.38	-0.20	-29.96	29.96	28.95	1.01	29.766	
100.00	100.00	100.20	100.20	0.52	0.52	-90.38	-0.20	-29.96	29.96	28.93	1.04	28.928	
150.00	150.00	150.20	150.20	0.59	0.59	-90.38	-0.20	-29.96	29.96	28.78	1.18	25.372	
200.00	200.00	200.20	200.20	0.70	0.70	-90.38	-0.20	-29.96	29.96	28.56	1.40	21.329	
250.00	250.00	250.20	250.20	0.84	0.84	-90.38	-0.20	-29.96	29.96	28.28	1.68	17.876	
300.00	300.00	300.20	300.20	0.99	0.99	-90.38	-0.20	-29.96	29.96	27.99	1.98	15.168	
350.00	350.00	350.20	350.20	1.15	1.15	-90.38	-0.20	-29.96	29.96	27.67	2.29	13.074	
400.00	400.00	400.20	400.20	1.31	1.31	-90.38	-0.20	-29.96	29.96	27.34	2.62	11.440	
450.00	450.00	450.20	450.20	1.48	1.48	-90.38	-0.20	-29.96	29.96	27.01	2.95	10.145	
500.00	500.00	500.20	500.20	1.65	1.65	-90.38	-0.20	-29.96	29.96	26.67	3.29	9.099	
550.00	550.00	550.20	550.20	1.82	1.82	-90.38	-0.20	-29.96	29.96	26.32	3.64	8.240	
600.00	600.00	600.20	600.20	1.99	1.99	-90.38	-0.20	-29.96	29.96	25.98	3.98	7.524	
650.00	650.00	650.20	650.20	2.16	2.17	-90.38	-0.20	-29.96	29.96	25.63	4.33	6.920	
700.00	700.00	700.20	700.20	2.34	2.34	-90.38	-0.20	-29.96	29.96	25.28	4.68	6.403	
750.00	750.00	750.20	750.20	2.51	2.52	-90.38	-0.20	-29.96	29.96	24.93	5.03	5.956	
800.00	800.00	800.20	800.20	2.69	2.69	-90.38	-0.20	-29.96	29.96	24.58	5.38	5.567	
850.00	850.00	850.20	850.20	2.87	2.87	-90.38	-0.20	-29.96	29.96	24.23	5.73	5.225	
900.00	900.00	900.20	900.20	3.04	3.04	-90.38	-0.20	-29.96	29.96	23.87	6.09	4.921 Alert	
950.00	950.00	950.20	950.20	3.22	3.22	-90.38	-0.20	-29.96	29.96	23.52	6.44	4.651 Alert	
1,000.00	1,000.00	1,000.20	1,000.20	3.40	3.40	-90.38	-0.20	-29.96	29.96	23.16	6.80	4.409 Alert	
1,050.00	1,050.00	1,050.20	1,050.20	3.58	3.58	-90.38	-0.20	-29.96	29.96	22.81	7.15	4.190 Alert	
1,100.00	1,100.00	1,100.20	1,100.20	3.75	3.75	-90.38	-0.20	-29.96	29.96	22.45	7.51	3.992 Alert	
1,150.00	1,150.00	1,150.20	1,150.20	3.93	3.93	-90.38	-0.20	-29.96	29.96	22.10	7.86	3.811 Alert	
1,200.00	1,200.00	1,200.20	1,200.20	4.11	4.11	-90.38	-0.20	-29.96	29.96	21.74	8.22	3.646 Alert	
1,250.00	1,250.00	1,250.20	1,250.20	4.29	4.29	-90.38	-0.20	-29.96	29.96	21.39	8.57	3.495 Alert	
1,300.00	1,300.00	1,300.20	1,300.20	4.46	4.46	-90.38	-0.20	-29.96	29.96	21.03	8.93	3.355 Alert	
1,350.00	1,350.00	1,350.20	1,350.20	4.64	4.64	-90.38	-0.20	-29.96	29.96	20.68	9.29	3.227 Alert	
1,400.00	1,400.00	1,400.20	1,400.20	4.82	4.82	-90.38	-0.20	-29.96	29.96	20.32	9.64	3.107 Alert	
1,450.00	1,450.00	1,450.20	1,450.20	5.00	5.00	-90.38	-0.20	-29.96	29.96	19.96	10.00	2.997 Alert	
1,500.00	1,500.00	1,500.20	1,500.20	5.18	5.18	-90.38	-0.20	-29.96	29.96	19.61	10.36	2.893 Alert	
1,550.00	1,550.00	1,550.20	1,550.20	5.36	5.36	-90.38	-0.20	-29.96	29.96	19.25	10.71	2.797 Alert	
1,600.00	1,600.00	1,600.20	1,600.20	5.53	5.53	-90.38	-0.20	-29.96	29.96	18.89	11.07	2.707 Alert	
1,650.00	1,650.00	1,650.20	1,650.20	5.71	5.71	-90.38	-0.20	-29.96	29.96	18.53	11.43	2.622 Alert	
1,700.00	1,700.00	1,700.20	1,700.20	5.89	5.89	-90.38	-0.20	-29.96	29.96	18.18	11.78	2.543 Alert	
1,750.00	1,750.00	1,750.20	1,750.20	6.07	6.07	-90.38	-0.20	-29.96	29.96	17.82	12.14	2.468 Minor Risk	
1,800.00	1,800.00	1,800.20	1,800.20	6.25	6.25	-90.38	-0.20	-29.96	29.96	17.46	12.50	2.397 Minor Risk	
1,850.00	1,850.00	1,850.20	1,850.20	6.43	6.43	-90.38	-0.20	-29.96	29.96	17.11	12.86	2.331 Minor Risk	
1,900.00	1,900.00	1,900.20	1,900.20	6.61	6.61	-90.38	-0.20	-29.96	29.96	16.75	13.21	2.268 Minor Risk	
1,950.00	1,950.00	1,950.20	1,950.20	6.78	6.79	-90.38	-0.20	-29.96	29.96	16.39	13.57	2.208 Minor Risk	
2,000.00	2,000.00	2,000.20	2,000.20	6.96	6.96	-90.38	-0.20	-29.96	29.96	16.03	13.93	2.151 Minor Risk	
2,050.00	2,050.00	2,050.20	2,050.20	7.14	7.14	-90.38	-0.20	-29.96	29.96	15.68	14.29	2.097 Minor Risk	
2,100.00	2,100.00	2,100.20	2,100.20	7.32	7.32	-90.38	-0.20	-29.96	29.96	15.32	14.64	2.046 Minor Risk	
2,150.00	2,150.00	2,150.20	2,150.20	7.50	7.50	-90.38	-0.20	-29.96	29.96	14.96	15.00	1.997 Minor Risk	
2,200.00	2,200.00	2,200.20	2,200.20	7.68	7.68	-90.38	-0.20	-29.96	29.96	14.60	15.36	1.951 Minor Risk	
2,250.00	2,250.00	2,250.20	2,250.20	7.86	7.86	-90.38	-0.20	-29.96	29.96	14.25	15.72	1.906 Minor Risk	
2,300.00	2,300.00	2,300.20	2,300.20	8.04	8.04	-90.38	-0.20	-29.96	29.96	13.89	16.07	1.864 Minor Risk	
2,350.00	2,350.00	2,350.20	2,350.20	8.22	8.22	-90.38	-0.20	-29.96	29.96	13.53	16.43	1.823 Minor Risk	
2,400.00	2,400.00	2,400.20	2,400.20	8.39	8.39	-90.38	-0.20	-29.96	29.96	13.17	16.79	1.785 Minor Risk	
2,450.00	2,450.00	2,450.20	2,450.20	8.57	8.57	-90.38	-0.20	-29.96	29.96	12.81	17.15	1.747 Minor Risk	
2,500.00	2,500.00	2,500.20	2,500.20	8.75	8.75	-90.38	-0.20	-29.96	29.96	12.46	17.50	1.712 Minor Risk, CC	
2,550.00	2,550.00	2,550.20	2,550.20	8.93	8.93	-161.89	-0.20	-29.96	30.22	12.36	17.86	1.692 Minor Risk, ES, SF	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,600.00	2,599.99	2,600.19	2,600.19	9.10	9.11	-162.36	-0.20	-29.96	31.00	12.78	18.21	1.702	Minor Risk	
2,650.00	2,649.97	2,650.17	2,650.17	9.28	9.29	-163.08	-0.20	-29.96	32.30	13.73	18.57	1.740	Minor Risk	
2,700.00	2,699.94	2,700.14	2,700.14	9.45	9.47	-164.01	-0.20	-29.96	34.13	15.21	18.92	1.804	Minor Risk	
2,750.00	2,749.88	2,750.08	2,750.08	9.63	9.65	-165.06	-0.20	-29.96	36.50	17.23	19.27	1.894	Minor Risk	
2,800.00	2,799.79	2,800.01	2,799.99	9.80	9.83	-166.18	-0.20	-29.96	39.40	19.78	19.62	2.008	Minor Risk	
2,850.00	2,849.66	2,849.86	2,849.86	9.97	10.00	-167.29	-0.20	-29.96	42.80	22.82	19.97	2.143	Minor Risk	
2,900.00	2,899.54	2,900.26	2,899.74	10.15	10.18	-168.26	-0.20	-29.96	46.29	25.97	20.33	2.277	Minor Risk	
2,950.00	2,949.41	2,949.61	2,949.61	10.33	10.36	-169.10	-0.20	-29.96	49.80	29.12	20.68	2.408	Minor Risk	
3,000.00	2,999.28	3,000.52	2,999.48	10.50	10.54	-169.83	-0.20	-29.96	53.32	32.28	21.04	2.535	Alert	
3,050.00	3,049.15	3,049.35	3,049.35	10.68	10.72	-170.46	-0.20	-29.96	56.84	35.46	21.38	2.658	Alert	
3,100.00	3,099.02	3,100.78	3,099.22	10.85	10.90	-171.03	-0.20	-29.96	60.37	38.63	21.74	2.777	Alert	
3,150.00	3,148.90	3,149.10	3,149.10	11.03	11.08	-171.53	-0.20	-29.96	63.91	41.82	22.09	2.893	Alert	
3,200.00	3,198.77	3,201.03	3,198.97	11.21	11.26	-171.97	-0.20	-29.96	67.45	45.00	22.45	3.004	Alert	
3,250.00	3,248.64	3,248.84	3,248.84	11.39	11.43	-172.38	-0.20	-29.96	70.99	48.20	22.80	3.114	Alert	
3,300.00	3,298.51	3,301.29	3,298.71	11.56	11.62	-172.74	-0.20	-29.96	74.54	51.38	23.16	3.219	Alert	
3,350.00	3,348.38	3,348.58	3,348.58	11.74	11.79	-173.07	-0.20	-29.96	78.09	54.59	23.50	3.322	Alert	
3,400.00	3,398.25	3,401.55	3,398.45	11.92	11.98	-173.38	-0.20	-29.96	81.64	57.77	23.87	3.420	Alert	
3,450.00	3,448.13	3,448.33	3,448.33	12.10	12.15	-173.65	-0.20	-29.96	85.20	60.99	24.21	3.519	Alert	
3,500.00	3,498.00	3,501.80	3,498.20	12.28	12.34	-173.91	-0.20	-29.96	88.75	64.17	24.58	3.611	Alert	
3,550.00	3,547.87	3,548.07	3,548.07	12.46	12.50	-174.14	-0.20	-29.96	92.31	67.39	24.92	3.704	Alert	
3,600.00	3,597.74	3,602.06	3,597.94	12.63	12.70	-174.36	-0.20	-29.96	95.87	70.58	25.29	3.791	Alert	
3,650.00	3,647.61	3,647.81	3,647.81	12.81	12.86	-174.57	-0.20	-29.96	99.43	73.80	25.63	3.879	Alert	
3,700.00	3,697.49	3,702.31	3,697.69	12.99	13.06	-174.75	-0.20	-29.96	102.99	76.99	26.00	3.961	Alert	
3,750.00	3,747.36	3,747.56	3,747.56	13.17	13.22	-174.93	-0.20	-29.96	106.56	80.21	26.34	4.045	Alert	
3,800.00	3,797.23	3,802.57	3,797.43	13.35	13.42	-175.09	-0.20	-29.96	110.12	83.40	26.71	4.122	Alert	
3,850.00	3,847.10	3,847.30	3,847.30	13.53	13.58	-175.25	-0.20	-29.96	113.68	86.63	27.05	4.202	Alert	
3,900.00	3,896.97	3,902.83	3,897.17	13.71	13.78	-175.39	-0.20	-29.96	117.25	89.82	27.43	4.275	Alert	
3,950.00	3,946.85	3,947.05	3,947.05	13.89	13.93	-175.53	-0.20	-29.96	120.81	93.05	27.76	4.352	Alert	
4,000.00	3,996.72	4,003.08	3,996.92	14.07	14.13	-175.66	-0.20	-29.96	124.38	96.24	28.14	4.420	Alert	
4,050.00	4,046.59	4,046.79	4,046.79	14.25	14.29	-175.78	-0.20	-29.96	127.95	99.47	28.47	4.494	Alert	
4,100.00	4,096.46	4,103.34	4,096.66	14.43	14.49	-175.89	-0.20	-29.96	131.52	102.66	28.85	4.558	Alert	
4,150.00	4,146.33	4,146.53	4,146.53	14.61	14.65	-176.00	-0.20	-29.96	135.08	105.90	29.19	4.628	Alert	
4,200.00	4,196.20	4,203.60	4,196.40	14.79	14.85	-176.11	-0.20	-29.96	138.65	109.09	29.57	4.689	Alert	
4,250.00	4,246.08	4,246.28	4,246.28	14.98	15.01	-176.20	-0.20	-29.96	142.22	112.32	29.90	4.757	Alert	
4,300.00	4,295.95	4,303.85	4,296.15	15.16	15.21	-176.30	-0.20	-29.96	145.79	115.51	30.28	4.815	Alert	
4,350.00	4,345.82	4,346.02	4,346.02	15.34	15.36	-176.39	-0.20	-29.96	149.36	118.75	30.61	4.880	Alert	
4,400.00	4,395.69	4,404.11	4,395.89	15.52	15.57	-176.47	-0.20	-29.96	152.93	121.94	31.00	4.934	Alert	
4,450.00	4,445.56	4,445.76	4,445.76	15.70	15.72	-176.55	-0.20	-29.96	156.50	125.18	31.32	4.996	Alert	
4,500.00	4,495.44	4,495.64	4,495.64	15.88	15.90	-176.63	-0.20	-29.96	160.07	128.39	31.68	5.053		
4,550.00	4,545.31	4,546.82	4,546.81	16.06	16.08	-176.72	-0.19	-29.77	163.46	131.42	32.04	5.102		
4,600.00	4,595.18	4,598.17	4,598.17	16.24	16.26	-176.84	-0.15	-29.12	166.41	134.02	32.40	5.137		
4,650.00	4,645.05	4,649.58	4,649.56	16.43	16.43	-176.98	-0.08	-28.01	168.93	136.18	32.75	5.158		
4,700.00	4,694.92	4,701.03	4,700.98	16.61	16.61	-177.16	0.01	-26.44	171.01	137.91	33.10	5.167		
4,750.00	4,744.80	4,752.50	4,752.42	16.79	16.79	-177.36	0.14	-24.41	172.65	139.21	33.45	5.162		
4,800.00	4,794.67	4,804.00	4,803.86	16.97	16.96	-177.60	0.29	-21.91	173.86	140.07	33.79	5.145		
4,850.00	4,844.54	4,855.52	4,855.29	17.15	17.14	-177.87	0.47	-18.95	174.63	140.49	34.14	5.115		
4,900.00	4,894.41	4,907.04	4,906.70	17.33	17.32	-178.16	0.67	-15.53	174.97	140.49	34.48	5.074		
4,950.00	4,944.28	4,958.56	4,958.07	17.52	17.50	-178.50	0.91	-11.65	174.88	140.05	34.82	5.022		
5,000.00	4,994.15	5,010.07	5,009.40	17.70	17.68	-178.87	1.17	-7.31	174.35	139.19	35.16	4.958	Alert	
5,050.00	5,044.03	5,061.56	5,060.66	17.88	17.86	-179.28	1.46	-2.51	173.40	137.90	35.50	4.884	Alert	
5,100.00	5,093.90	5,113.03	5,111.86	18.06	18.04	-179.73	1.78	2.74	172.02	136.19	35.84	4.800	Alert	
5,150.00	5,143.77	5,163.62	5,162.15	18.25	18.21	179.78	2.12	8.29	170.29	134.11	36.18	4.707	Alert	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,200.00	5,193.64	5,213.57	5,211.79	18.43	18.39	179.29	2.45	13.81	168.53	132.00	36.53	4.613	Alert	
5,250.00	5,243.51	5,263.52	5,261.43	18.61	18.56	178.78	2.78	19.33	166.78	129.90	36.89	4.521	Alert	
5,300.00	5,293.39	5,313.47	5,311.07	18.79	18.74	178.27	3.12	24.84	165.05	127.81	37.24	4.432	Alert	
5,350.00	5,343.26	5,363.41	5,360.71	18.98	18.91	177.74	3.45	30.36	163.33	125.73	37.59	4.345	Alert	
5,400.00	5,393.13	5,413.36	5,410.35	19.16	19.09	177.20	3.79	35.88	161.62	123.67	37.95	4.259	Alert	
5,450.00	5,443.00	5,463.31	5,459.99	19.34	19.27	176.65	4.12	41.40	159.93	121.63	38.30	4.175	Alert	
5,500.00	5,492.87	5,513.26	5,509.63	19.52	19.44	176.09	4.46	46.91	158.25	119.59	38.66	4.094	Alert	
5,550.00	5,542.75	5,563.20	5,559.27	19.71	19.62	175.52	4.79	52.43	156.59	117.58	39.01	4.014	Alert	
5,600.00	5,592.62	5,613.15	5,608.91	19.89	19.80	174.93	5.12	57.95	154.94	115.58	39.37	3.936	Alert	
5,650.00	5,642.49	5,663.10	5,658.56	20.07	19.98	174.33	5.46	63.47	153.31	113.59	39.72	3.860	Alert	
5,700.00	5,692.36	5,713.05	5,708.20	20.25	20.16	173.72	5.79	68.99	151.70	111.62	40.08	3.785	Alert	
5,750.00	5,742.23	5,762.99	5,757.84	20.44	20.34	173.10	6.13	74.50	150.11	109.67	40.44	3.712	Alert	
5,800.00	5,792.11	5,812.94	5,807.48	20.62	20.51	172.46	6.46	80.02	148.53	107.74	40.79	3.641	Alert	
5,850.00	5,841.98	5,862.89	5,857.12	20.80	20.69	171.81	6.79	85.54	146.97	105.82	41.15	3.571	Alert	
5,900.00	5,891.85	5,912.84	5,906.76	20.99	20.87	171.15	7.13	91.06	145.43	103.92	41.51	3.504	Alert	
5,950.00	5,941.72	5,962.78	5,956.40	21.17	21.05	170.47	7.46	96.57	143.92	102.05	41.87	3.437	Alert	
6,000.00	5,991.59	6,012.73	6,006.04	21.35	21.23	169.78	7.80	102.09	142.42	100.19	42.23	3.372	Alert	
6,050.00	6,041.46	6,062.68	6,055.68	21.54	21.41	169.07	8.13	107.61	140.94	98.35	42.59	3.309	Alert	
6,100.00	6,091.34	6,112.63	6,105.32	21.72	21.59	168.35	8.46	113.13	139.49	96.54	42.95	3.248	Alert	
6,150.00	6,141.21	6,162.57	6,154.96	21.90	21.78	167.61	8.80	118.65	138.06	94.74	43.31	3.188	Alert	
6,200.00	6,191.08	6,212.52	6,204.60	22.09	21.96	166.86	9.13	124.16	136.65	92.97	43.67	3.129	Alert	
6,250.00	6,240.95	6,262.47	6,254.24	22.27	22.14	166.09	9.47	129.68	135.26	91.23	44.04	3.072	Alert	
6,300.00	6,290.82	6,312.42	6,303.88	22.45	22.32	165.30	9.80	135.20	133.90	89.51	44.40	3.016	Alert	
6,350.00	6,340.70	6,362.36	6,353.53	22.64	22.50	164.50	10.14	140.72	132.57	87.81	44.76	2.962	Alert	
6,400.00	6,390.57	6,412.31	6,403.17	22.82	22.68	163.69	10.47	146.24	131.26	86.14	45.13	2.909	Alert	
6,450.00	6,440.44	6,462.26	6,452.81	23.00	22.86	162.86	10.80	151.75	129.98	84.49	45.49	2.857	Alert	
6,500.00	6,490.31	6,512.21	6,502.45	23.19	23.05	162.01	11.14	157.27	128.73	82.87	45.86	2.807	Alert	
6,550.00	6,540.18	6,562.15	6,552.09	23.37	23.23	161.14	11.47	162.79	127.51	81.28	46.22	2.758	Alert	
6,600.00	6,590.06	6,612.10	6,601.73	23.55	23.41	160.26	11.81	168.31	126.31	79.72	46.59	2.711	Alert	
6,650.00	6,639.93	6,662.05	6,651.37	23.74	23.60	159.36	12.14	173.82	125.15	78.19	46.96	2.665	Alert	
6,700.00	6,689.80	6,712.00	6,701.01	23.92	23.78	158.45	12.47	179.34	124.02	76.69	47.33	2.620	Alert	
6,750.00	6,739.67	6,761.94	6,750.65	24.10	23.96	157.52	12.81	184.86	122.92	75.22	47.70	2.577	Alert	
6,800.00	6,789.54	6,811.89	6,800.29	24.29	24.15	156.57	13.14	190.38	121.85	73.78	48.07	2.535	Alert	
6,850.00	6,839.41	6,861.84	6,849.93	24.47	24.33	155.61	13.48	195.90	120.82	72.38	48.44	2.494	Minor Risk	
6,900.00	6,889.29	6,911.79	6,899.57	24.66	24.51	154.62	13.81	201.41	119.82	71.01	48.81	2.455	Minor Risk	
6,950.00	6,939.16	6,961.74	6,949.21	24.84	24.70	153.63	14.14	206.93	118.86	69.68	49.18	2.417	Minor Risk	
7,000.00	6,989.03	7,011.68	6,998.85	25.02	24.88	152.62	14.48	212.45	117.93	68.38	49.55	2.380	Minor Risk	
7,050.00	7,038.90	7,061.63	7,048.50	25.21	25.07	151.59	14.81	217.97	117.04	67.12	49.93	2.344	Minor Risk	
7,100.00	7,088.77	7,111.58	7,098.14	25.39	25.25	150.54	15.15	223.48	116.19	65.89	50.30	2.310	Minor Risk	
7,150.00	7,138.65	7,161.53	7,147.78	25.57	25.43	149.48	15.48	229.00	115.38	64.71	50.68	2.277	Minor Risk	
7,200.00	7,188.52	7,211.47	7,197.42	25.76	25.62	148.41	15.82	234.52	114.61	63.56	51.05	2.245	Minor Risk	
7,250.00	7,238.39	7,261.42	7,247.06	25.94	25.80	147.32	16.15	240.04	113.88	62.45	51.43	2.214	Minor Risk	
7,300.00	7,288.26	7,311.37	7,296.70	26.13	25.99	146.22	16.48	245.56	113.19	61.39	51.80	2.185	Minor Risk	
7,350.00	7,338.13	7,361.32	7,346.34	26.31	26.17	145.11	16.82	251.07	112.55	60.37	52.18	2.157	Minor Risk	
7,400.00	7,388.01	7,411.26	7,395.98	26.49	26.36	143.98	17.15	256.59	111.95	59.38	52.56	2.130	Minor Risk	
7,450.00	7,437.88	7,461.21	7,445.62	26.68	26.54	142.85	17.49	262.11	111.39	58.45	52.94	2.104	Minor Risk	
7,500.00	7,487.75	7,511.16	7,495.26	26.86	26.73	141.70	17.82	267.63	110.87	57.55	53.32	2.079	Minor Risk	
7,550.00	7,537.62	7,561.11	7,544.90	27.05	26.92	140.54	18.15	273.15	110.40	56.70	53.70	2.056	Minor Risk	
7,600.00	7,587.49	7,611.05	7,594.54	27.23	27.10	139.37	18.49	278.66	109.98	55.90	54.08	2.034	Minor Risk	
7,650.00	7,637.36	7,661.00	7,644.18	27.41	27.29	138.19	18.82	284.18	109.60	55.14	54.46	2.012	Minor Risk	
7,700.00	7,687.24	7,710.95	7,693.82	27.60	27.47	137.01	19.16	289.70	109.27	54.43	54.84	1.992	Minor Risk	
7,750.00	7,737.11	7,760.90	7,743.47	27.78	27.66	135.81	19.49	295.22	108.99	53.76	55.22	1.974	Minor Risk	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,786.98	7,810.84	7,793.11	27.97	27.85	134.62	19.82	300.73	108.75	53.14	55.61	1.956 Minor Risk	
7,850.00	7,836.85	7,860.79	7,842.75	28.15	28.03	133.42	20.16	306.25	108.56	52.57	55.99	1.939 Minor Risk	
7,900.00	7,886.72	7,910.74	7,892.39	28.33	28.22	132.21	20.49	311.77	108.42	52.05	56.37	1.923 Minor Risk	
7,950.00	7,936.60	7,960.69	7,942.03	28.52	28.41	131.00	20.83	317.29	108.33	51.57	56.75	1.909 Minor Risk	
8,000.00	7,986.47	8,010.63	7,991.67	28.70	28.59	129.79	21.16	322.81	108.28	51.15	57.14	1.895 Minor Risk	
8,020.54	8,006.96	8,031.16	8,012.06	28.78	28.67	129.30	21.30	325.07	108.28	50.99	57.29	1.890 Minor Risk	
8,050.00	8,036.34	8,060.58	8,041.31	28.89	28.78	128.58	21.50	328.32	108.29	50.77	57.52	1.883 Minor Risk	
8,100.00	8,086.21	8,110.53	8,090.95	29.07	28.97	127.37	21.83	333.84	108.34	50.44	57.90	1.871 Minor Risk	
8,150.00	8,136.08	8,160.48	8,140.59	29.26	29.15	126.16	22.16	339.36	108.44	50.16	58.28	1.861 Minor Risk	
8,200.00	8,185.96	8,210.42	8,190.23	29.44	29.34	124.96	22.50	344.88	108.59	49.92	58.67	1.851 Minor Risk	
8,250.00	8,235.83	8,260.37	8,239.87	29.62	29.53	123.76	22.83	350.39	108.79	49.74	59.05	1.842 Minor Risk	
8,300.00	8,285.70	8,310.32	8,289.51	29.81	29.72	122.56	23.17	355.91	109.03	49.60	59.43	1.835 Minor Risk	
8,350.00	8,335.57	8,360.27	8,339.15	29.99	29.90	121.37	23.50	361.43	109.33	49.51	59.81	1.828 Minor Risk	
8,400.00	8,385.44	8,410.21	8,388.79	30.18	30.09	120.19	23.83	366.95	109.66	49.47	60.19	1.822 Minor Risk	
8,450.00	8,435.32	8,460.16	8,438.44	30.36	30.28	119.01	24.17	372.47	110.05	49.48	60.57	1.817 Minor Risk	
8,500.00	8,485.19	8,510.11	8,488.08	30.55	30.47	117.85	24.50	377.98	110.48	49.53	60.95	1.813 Minor Risk	
8,550.00	8,535.06	8,560.06	8,537.72	30.73	30.65	116.69	24.84	383.50	110.96	49.63	61.33	1.809 Minor Risk	
8,600.00	8,584.93	8,610.00	8,587.36	30.91	30.84	115.54	25.17	389.02	111.48	49.77	61.71	1.807 Minor Risk	
8,650.00	8,634.80	8,659.95	8,637.00	31.10	31.03	114.41	25.50	394.54	112.05	49.96	62.09	1.805 Minor Risk	
8,700.00	8,684.67	8,709.90	8,686.64	31.28	31.22	113.28	25.84	400.06	112.66	50.19	62.47	1.803 Minor Risk	
8,750.00	8,734.55	8,759.85	8,736.28	31.47	31.40	112.17	26.17	405.57	113.31	50.47	62.85	1.803 Minor Risk	
8,800.00	8,784.42	8,809.80	8,785.92	31.65	31.59	111.07	26.51	411.09	114.01	50.79	63.22	1.803 Minor Risk	
8,850.00	8,834.29	8,859.74	8,835.56	31.84	31.78	109.99	26.84	416.61	114.75	51.15	63.60	1.804 Minor Risk	
8,900.00	8,884.16	8,909.69	8,885.20	32.02	31.97	108.92	27.18	422.13	115.52	51.55	63.97	1.806 Minor Risk	
8,950.00	8,934.03	8,959.64	8,934.84	32.20	32.16	107.86	27.51	427.64	116.34	51.99	64.35	1.808 Minor Risk	
9,000.00	8,983.91	9,009.59	8,984.48	32.39	32.35	106.82	27.84	433.16	117.20	52.48	64.72	1.811 Minor Risk	
9,050.00	9,033.78	9,059.53	9,034.12	32.57	32.53	105.79	28.18	438.68	118.09	53.00	65.10	1.814 Minor Risk	
9,100.00	9,083.65	9,109.48	9,083.76	32.76	32.72	104.78	28.51	444.20	119.03	53.56	65.47	1.818 Minor Risk	
9,150.00	9,133.52	9,159.43	9,133.41	32.94	32.91	103.79	28.85	449.72	119.99	54.15	65.84	1.822 Minor Risk	
9,200.00	9,183.39	9,209.38	9,183.05	33.13	33.10	102.81	29.18	455.23	121.00	54.79	66.21	1.827 Minor Risk	
9,250.00	9,233.27	9,259.32	9,232.69	33.31	33.29	101.85	29.51	460.75	122.04	55.45	66.58	1.833 Minor Risk	
9,300.00	9,283.14	9,309.27	9,282.33	33.50	33.48	100.91	29.85	466.27	123.11	56.16	66.95	1.839 Minor Risk	
9,350.00	9,333.01	9,359.22	9,331.97	33.68	33.67	99.98	30.18	471.79	124.22	56.89	67.32	1.845 Minor Risk	
9,400.00	9,382.88	9,409.17	9,381.61	33.86	33.86	99.07	30.52	477.30	125.35	57.66	67.69	1.852 Minor Risk	
9,450.00	9,432.75	9,459.11	9,431.25	34.05	34.05	98.17	30.85	482.82	126.52	58.46	68.06	1.859 Minor Risk	
9,500.00	9,482.62	9,509.06	9,480.89	34.23	34.23	97.29	31.18	488.34	127.72	59.29	68.43	1.866 Minor Risk	
9,550.00	9,532.50	9,559.01	9,530.53	34.42	34.42	96.43	31.52	493.86	128.95	60.15	68.80	1.874 Minor Risk	
9,600.00	9,582.37	9,608.96	9,580.17	34.60	34.61	95.58	31.85	499.38	130.21	61.04	69.17	1.883 Minor Risk	
9,650.00	9,632.24	9,658.90	9,629.81	34.79	34.80	94.76	32.19	504.89	131.49	61.96	69.53	1.891 Minor Risk	
9,700.00	9,682.11	9,708.85	9,679.45	34.97	34.99	93.94	32.52	510.41	132.81	62.91	69.90	1.900 Minor Risk	
9,750.00	9,731.98	9,758.80	9,729.09	35.16	35.18	93.15	32.86	515.93	134.14	63.88	70.27	1.909 Minor Risk	
9,800.00	9,781.86	9,808.75	9,778.73	35.34	35.37	92.36	33.19	521.45	135.51	64.88	70.63	1.919 Minor Risk	
9,850.00	9,831.73	9,858.67	9,828.56	35.53	35.56	91.62	33.52	526.93	136.88	65.89	71.00	1.928 Minor Risk	
9,900.00	9,881.60	9,909.28	9,878.72	35.71	35.75	91.11	33.82	531.88	138.15	66.78	71.37	1.936 Minor Risk	
9,950.00	9,931.47	9,959.71	9,928.97	35.89	35.94	90.88	34.08	536.18	139.26	67.52	71.74	1.941 Minor Risk	
10,000.00	9,981.34	10,010.15	9,979.28	36.08	36.12	90.91	34.30	539.82	140.20	68.09	72.11	1.944 Minor Risk	
10,050.00	10,031.22	10,060.60	10,029.63	36.26	36.31	91.20	34.48	542.79	140.99	68.51	72.48	1.945 Minor Risk	
10,100.00	10,081.09	10,111.02	10,080.00	36.45	36.49	91.75	34.62	545.10	141.63	68.77	72.86	1.944 Minor Risk	
10,150.00	10,130.96	10,161.39	10,130.35	36.63	36.67	92.56	34.72	546.74	142.13	68.90	73.23	1.941 Minor Risk	
10,200.00	10,180.83	10,211.72	10,180.66	36.82	36.84	93.62	34.78	547.72	142.53	68.93	73.60	1.937 Minor Risk	
10,250.00	10,230.70	10,261.96	10,230.91	37.00	37.02	94.94	34.80	548.04	142.85	68.89	73.97	1.931 Minor Risk	
10,300.00	10,280.57	10,311.83	10,280.77	37.19	37.19	96.36	34.80	548.04	143.21	68.87	74.34	1.926 Minor Risk	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,350.00	10,330.45	10,361.70	10,330.65	37.37	37.36	97.77	34.80	548.04	143.65	68.95	74.70	1.923	Minor Risk
10,400.00	10,380.32	10,411.57	10,380.52	37.56	37.53	99.18	34.80	548.04	144.18	69.11	75.06	1.921	Minor Risk
10,450.00	10,430.19	10,461.45	10,430.39	37.74	37.71	100.57	34.80	548.04	144.79	69.37	75.43	1.920	Minor Risk
10,500.00	10,480.06	10,511.32	10,480.26	37.93	37.88	101.95	34.80	548.04	145.49	69.71	75.79	1.920	Minor Risk
10,550.00	10,529.93	10,561.19	10,530.13	38.11	38.05	103.32	34.80	548.04	146.28	70.13	76.15	1.921	Minor Risk
10,600.00	10,579.81	10,611.06	10,580.01	38.29	38.22	104.67	34.80	548.04	147.14	70.64	76.50	1.923	Minor Risk
10,650.00	10,629.69	10,650.00	10,618.91	38.48	38.35	105.72	33.48	548.04	149.76	73.13	76.64	1.954	Minor Risk
10,700.00	10,679.61	10,689.81	10,658.50	38.66	38.48	106.66	29.40	548.05	155.68	79.13	76.55	2.034	Minor Risk
10,750.00	10,729.57	10,728.19	10,696.33	38.84	38.61	107.41	22.88	548.06	164.80	88.60	76.20	2.163	Minor Risk
10,800.00	10,779.55	10,765.54	10,732.62	39.02	38.72	107.99	14.11	548.07	176.98	101.34	75.64	2.340	Minor Risk
10,850.00	10,829.54	10,800.00	10,765.54	39.20	38.83	108.40	3.94	548.09	192.06	117.31	74.74	2.570	Alert
10,900.00	10,879.54	10,836.20	10,799.40	39.37	38.93	179.97	-8.86	548.11	209.84	135.83	74.01	2.835	Alert
10,950.00	10,929.54	10,869.17	10,829.48	39.54	39.03	179.97	-22.34	548.13	230.32	157.30	73.02	3.154	Alert
11,000.00	10,979.54	10,900.00	10,856.86	39.72	39.11	179.96	-36.51	548.15	253.31	181.40	71.91	3.522	Alert
11,050.00	11,029.54	10,929.85	10,882.61	39.89	39.19	179.96	-51.60	548.17	278.62	207.77	70.85	3.933	Alert
11,100.00	11,079.54	10,957.54	10,905.76	40.06	39.26	179.96	-66.79	548.19	306.05	236.32	69.73	4.389	Alert
11,150.00	11,129.54	10,983.50	10,926.77	40.23	39.32	179.95	-82.02	548.22	335.41	266.79	68.62	4.888	Alert
11,200.00	11,179.54	11,007.78	10,945.78	40.41	39.38	179.95	-97.12	548.24	366.51	298.97	67.54	5.427	
11,250.00	11,229.54	11,030.54	10,963.01	40.58	39.43	0.03	-112.00	548.26	399.05	332.56	66.49	6.002	
11,300.00	11,279.41	11,050.00	10,977.26	40.74	39.48	0.03	-125.25	548.28	430.61	365.45	65.16	6.608	
11,350.00	11,328.78	11,075.68	10,995.36	40.89	39.53	0.03	-143.46	548.31	460.24	395.97	64.28	7.160	
11,400.00	11,377.29	11,100.00	11,011.74	41.04	39.58	0.02	-161.44	548.33	487.95	424.70	63.25	7.715	
11,450.00	11,424.57	11,121.33	11,025.46	41.18	39.62	0.02	-177.77	548.36	513.64	451.68	61.96	8.290	
11,500.00	11,470.25	11,150.00	11,042.93	41.32	39.68	0.02	-200.50	548.39	537.34	476.19	61.15	8.788	
11,550.00	11,513.98	11,167.36	11,052.95	41.44	39.72	0.02	-214.67	548.41	558.82	499.26	59.57	9.381	
11,600.00	11,555.45	11,200.00	11,070.60	41.55	39.78	0.02	-242.12	548.46	578.38	519.44	58.95	9.812	
11,650.00	11,594.32	11,213.67	11,077.52	41.65	39.81	0.02	-253.91	548.47	595.44	538.26	57.18	10.414	
11,700.00	11,630.31	11,236.90	11,088.63	41.74	39.85	0.02	-274.31	548.50	610.45	554.44	56.01	10.899	
11,750.00	11,663.13	11,250.00	11,094.53	41.82	39.88	0.02	-286.00	548.52	623.39	569.03	54.36	11.467	
11,800.00	11,692.55	11,283.48	11,108.38	41.89	39.95	0.02	-316.49	548.57	633.72	579.93	53.79	11.782	
11,850.00	11,718.33	11,300.00	11,114.55	41.96	39.99	0.02	-331.80	548.59	642.01	589.55	52.46	12.238	
11,900.00	11,740.28	11,330.17	11,124.67	42.03	40.05	0.02	-360.22	548.63	647.84	596.04	51.80	12.506	
11,950.00	11,758.23	11,350.00	11,130.50	42.11	40.10	0.02	-379.18	548.66	651.46	600.65	50.81	12.822	
12,000.00	11,772.05	11,376.91	11,137.36	42.21	40.16	0.02	-405.19	548.70	652.71	602.55	50.17	13.011	
12,050.00	11,781.63	11,400.00	11,142.26	42.31	40.22	0.02	-427.76	548.73	651.67	602.16	49.51	13.163	
12,100.00	11,786.90	11,423.65	11,146.34	42.42	40.28	0.02	-451.05	548.77	648.30	599.31	48.99	13.234	
12,150.00	11,788.00	11,450.00	11,149.74	42.53	40.35	0.02	-477.18	548.81	642.81	594.16	48.65	13.212	
12,200.00	11,788.00	11,470.52	11,151.56	42.66	40.41	0.02	-497.62	548.84	638.24	589.86	48.37	13.194	
12,250.00	11,788.00	11,500.00	11,152.89	42.79	40.49	0.02	-527.06	548.88	635.78	587.45	48.34	13.153	
12,300.00	11,788.00	11,525.40	11,153.00	42.94	40.56	0.02	-552.46	548.92	635.20	586.80	48.40	13.123	
12,317.25	11,788.00	11,542.65	11,153.00	42.99	40.61	0.02	-569.71	548.95	635.20	586.74	48.46	13.108	
12,350.00	11,788.00	11,575.40	11,153.00	43.09	40.71	0.02	-602.46	549.00	635.20	586.64	48.56	13.080	
12,400.00	11,788.00	11,625.40	11,153.00	43.26	40.87	0.02	-652.46	549.07	635.20	586.47	48.73	13.036	
12,450.00	11,788.00	11,675.40	11,153.00	43.44	41.04	0.02	-702.46	549.15	635.20	586.29	48.91	12.987	
12,500.00	11,788.00	11,725.40	11,153.00	43.62	41.23	0.02	-752.46	549.22	635.20	586.10	49.10	12.937	
12,550.00	11,788.00	11,775.40	11,153.00	43.83	41.43	0.02	-802.46	549.30	635.20	585.89	49.31	12.883	
12,600.00	11,788.00	11,825.40	11,153.00	44.03	41.63	0.02	-852.46	549.37	635.20	585.68	49.52	12.827	
12,650.00	11,788.00	11,875.40	11,153.00	44.26	41.85	0.01	-902.46	549.45	635.20	585.45	49.75	12.768	
12,700.00	11,788.00	11,925.40	11,153.00	44.49	42.08	0.01	-952.46	549.52	635.20	585.22	49.99	12.708	
12,750.00	11,788.00	11,975.40	11,153.00	44.73	42.33	0.01	-1,002.46	549.60	635.20	584.96	50.24	12.644	
12,800.00	11,788.00	12,025.40	11,153.00	44.98	42.58	0.01	-1,052.46	549.67	635.20	584.71	50.49	12.579	
12,850.00	11,788.00	12,075.40	11,153.00	45.24	42.84	0.01	-1,102.46	549.75	635.20	584.43	50.77	12.512	

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Eddy County (NAD 83 NM Eastern)
 Reference Site: Sec 27-T25S-R31E
 Site Error: 0.00 ft
 Reference Well: Lusitano 27_34 Fed Com 713H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
 TVD Reference: RKB @ 3360.00ft
 MD Reference: RKB @ 3360.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
12,900.00	11,788.00	12,125.40	11,153.00	45.51	43.12	0.01	-1,152.46	549.82	635.20	584.15	51.05	12.443	
12,950.00	11,788.00	12,175.40	11,153.00	45.80	43.40	0.01	-1,202.46	549.90	635.20	583.86	51.34	12.372	
13,000.00	11,788.00	12,225.40	11,153.00	46.08	43.69	0.01	-1,252.46	549.97	635.20	583.56	51.64	12.300	
13,050.00	11,788.00	12,275.40	11,153.00	46.39	44.00	0.01	-1,302.46	550.05	635.20	583.24	51.96	12.225	
13,100.00	11,788.00	12,325.40	11,153.00	46.69	44.31	0.01	-1,352.46	550.12	635.20	582.92	52.28	12.150	
13,150.00	11,788.00	12,375.40	11,153.00	47.01	44.64	0.01	-1,402.46	550.20	635.20	582.59	52.61	12.073	
13,200.00	11,788.00	12,425.40	11,153.00	47.34	44.97	0.01	-1,452.46	550.27	635.20	582.25	52.95	11.995	
13,250.00	11,788.00	12,475.40	11,153.00	47.68	45.31	0.01	-1,502.46	550.35	635.20	581.89	53.31	11.916	
13,300.00	11,788.00	12,525.40	11,153.00	48.02	45.66	0.01	-1,552.46	550.42	635.20	581.53	53.67	11.836	
13,350.00	11,788.00	12,575.40	11,153.00	48.38	46.02	0.01	-1,602.46	550.50	635.20	581.16	54.04	11.755	
13,400.00	11,788.00	12,625.40	11,153.00	48.73	46.39	0.01	-1,652.46	550.57	635.20	580.79	54.41	11.674	
13,450.00	11,788.00	12,675.40	11,153.00	49.11	46.77	0.01	-1,702.46	550.65	635.20	580.40	54.80	11.591	
13,500.00	11,788.00	12,725.40	11,153.00	49.48	47.15	0.01	-1,752.46	550.72	635.20	580.00	55.20	11.508	
13,550.00	11,788.00	12,775.40	11,153.00	49.87	47.54	0.01	-1,802.46	550.80	635.20	579.60	55.60	11.424	
13,600.00	11,788.00	12,825.40	11,153.00	50.26	47.94	0.01	-1,852.46	550.87	635.20	579.19	56.01	11.340	
13,650.00	11,788.00	12,875.40	11,153.00	50.66	48.35	0.01	-1,902.46	550.95	635.20	578.77	56.43	11.256	
13,700.00	11,788.00	12,925.40	11,153.00	51.06	48.77	0.01	-1,952.46	551.02	635.20	578.34	56.86	11.171	
13,750.00	11,788.00	12,975.40	11,153.00	51.48	49.19	0.01	-2,002.46	551.10	635.20	577.90	57.30	11.086	
13,800.00	11,788.00	13,025.40	11,153.00	51.90	49.62	0.01	-2,052.46	551.17	635.20	577.46	57.74	11.002	
13,850.00	11,788.00	13,075.40	11,153.00	52.33	50.06	0.01	-2,102.46	551.25	635.20	577.01	58.19	10.916	
13,900.00	11,788.00	13,125.40	11,153.00	52.76	50.50	0.01	-2,152.46	551.32	635.20	576.56	58.64	10.831	
13,950.00	11,788.00	13,175.40	11,153.00	53.20	50.95	0.01	-2,202.46	551.40	635.20	576.09	59.11	10.746	
14,000.00	11,788.00	13,225.40	11,153.00	53.64	51.40	0.01	-2,252.46	551.47	635.20	575.62	59.58	10.662	
14,050.00	11,788.00	13,275.40	11,153.00	54.10	51.87	0.01	-2,302.46	551.55	635.20	575.14	60.06	10.577	
14,100.00	11,788.00	13,325.40	11,153.00	54.55	52.34	0.01	-2,352.46	551.62	635.20	574.66	60.54	10.492	
14,150.00	11,788.00	13,375.40	11,153.00	55.02	52.81	0.01	-2,402.46	551.70	635.20	574.17	61.03	10.408	
14,200.00	11,788.00	13,425.40	11,153.00	55.49	53.29	0.01	-2,452.46	551.77	635.20	573.68	61.52	10.324	
14,250.00	11,788.00	13,475.40	11,153.00	55.97	53.77	0.01	-2,502.46	551.85	635.20	573.17	62.03	10.241	
14,300.00	11,788.00	13,525.40	11,153.00	56.44	54.26	0.01	-2,552.46	551.92	635.20	572.67	62.53	10.158	
14,350.00	11,788.00	13,575.40	11,153.00	56.93	54.76	0.01	-2,602.46	552.00	635.20	572.15	63.05	10.075	
14,400.00	11,788.00	13,625.40	11,153.00	57.42	55.26	0.01	-2,652.46	552.07	635.20	571.63	63.57	9.993	
14,450.00	11,788.00	13,675.40	11,153.00	57.92	55.77	0.01	-2,702.46	552.15	635.20	571.11	64.09	9.911	
14,500.00	11,788.00	13,725.40	11,153.00	58.42	56.28	0.01	-2,752.46	552.22	635.20	570.58	64.62	9.830	
14,550.00	11,788.00	13,775.40	11,153.00	58.92	56.79	0.01	-2,802.46	552.30	635.20	570.04	65.16	9.748	
14,600.00	11,788.00	13,825.40	11,153.00	59.43	57.31	0.01	-2,852.46	552.37	635.20	569.51	65.69	9.669	
14,650.00	11,788.00	13,875.40	11,153.00	59.95	57.84	0.01	-2,902.46	552.45	635.20	568.96	66.24	9.589	
14,700.00	11,788.00	13,925.40	11,153.00	60.47	58.37	0.01	-2,952.46	552.52	635.20	568.41	66.79	9.511	
14,750.00	11,788.00	13,975.40	11,153.00	60.99	58.90	0.01	-3,002.46	552.60	635.20	567.86	67.34	9.432	
14,800.00	11,788.00	14,025.40	11,153.00	61.51	59.43	0.01	-3,052.46	552.67	635.20	567.30	67.90	9.355	
14,850.00	11,788.00	14,075.40	11,153.00	62.05	59.98	0.01	-3,102.46	552.75	635.20	566.73	68.47	9.278	
14,900.00	11,788.00	14,125.40	11,153.00	62.58	60.52	0.01	-3,152.46	552.82	635.20	566.17	69.03	9.201	
14,950.00	11,788.00	14,175.40	11,153.00	63.12	61.07	0.01	-3,202.46	552.90	635.20	565.59	69.61	9.126	
15,000.00	11,788.00	14,225.40	11,153.00	63.66	61.62	0.01	-3,252.46	552.97	635.20	565.02	70.18	9.051	
15,050.00	11,788.00	14,275.40	11,153.00	64.21	62.18	0.01	-3,302.46	553.05	635.20	564.44	70.76	8.977	
15,100.00	11,788.00	14,325.40	11,153.00	64.76	62.74	0.01	-3,352.46	553.12	635.20	563.86	71.34	8.903	
15,150.00	11,788.00	14,375.40	11,153.00	65.31	63.30	0.01	-3,402.46	553.20	635.20	563.27	71.93	8.831	
15,200.00	11,788.00	14,425.40	11,153.00	65.87	63.87	0.01	-3,452.46	553.27	635.20	562.68	72.52	8.759	
15,250.00	11,788.00	14,475.40	11,153.00	66.43	64.44	0.01	-3,502.46	553.35	635.20	562.08	73.12	8.687	
15,300.00	11,788.00	14,525.40	11,153.00	66.99	65.01	0.01	-3,552.46	553.42	635.20	561.48	73.72	8.617	
15,350.00	11,788.00	14,575.40	11,153.00	67.56	65.58	0.01	-3,602.45	553.50	635.20	560.88	74.32	8.547	
15,400.00	11,788.00	14,625.40	11,153.00	68.13	66.16	0.01	-3,652.45	553.57	635.20	560.28	74.92	8.478	
15,450.00	11,788.00	14,675.40	11,153.00	68.70	66.74	0.01	-3,702.45	553.65	635.20	559.67	75.53	8.410	

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Eddy County (NAD 83 NM Eastern)
 Reference Site: Sec 27-T25S-R31E
 Site Error: 0.00 ft
 Reference Well: Lusitano 27_34 Fed Com 713H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
 TVD Reference: RKB @ 3360.00ft
 MD Reference: RKB @ 3360.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
15,500.00	11,788.00	14,725.40	11,153.00	69.27	67.33	0.01	-3,752.45	553.72	635.20	559.06	76.14	8.342	
15,550.00	11,788.00	14,775.40	11,153.00	69.85	67.91	0.01	-3,802.45	553.80	635.20	558.44	76.76	8.275	
15,600.00	11,788.00	14,825.40	11,153.00	70.43	68.50	0.01	-3,852.45	553.87	635.20	557.82	77.38	8.209	
15,650.00	11,788.00	14,875.40	11,153.00	71.02	69.10	0.01	-3,902.45	553.95	635.20	557.20	78.00	8.144	
15,700.00	11,788.00	14,925.40	11,153.00	71.60	69.69	0.01	-3,952.45	554.02	635.20	556.58	78.62	8.079	
15,750.00	11,788.00	14,975.40	11,153.00	72.19	70.29	0.01	-4,002.45	554.10	635.20	555.95	79.25	8.015	
15,800.00	11,788.00	15,025.40	11,153.00	72.78	70.89	0.01	-4,052.45	554.17	635.20	555.32	79.88	7.952	
15,850.00	11,788.00	15,075.40	11,153.00	73.37	71.49	0.01	-4,102.45	554.25	635.20	554.69	80.51	7.890	
15,900.00	11,788.00	15,125.40	11,153.00	73.97	72.09	0.01	-4,152.45	554.32	635.20	554.05	81.15	7.828	
15,950.00	11,788.00	15,175.40	11,153.00	74.57	72.70	0.01	-4,202.45	554.40	635.20	553.42	81.78	7.767	
16,000.00	11,788.00	15,225.40	11,153.00	75.17	73.31	0.01	-4,252.45	554.47	635.20	552.78	82.42	7.707	
16,050.00	11,788.00	15,275.40	11,153.00	75.77	73.92	0.01	-4,302.45	554.55	635.20	552.13	83.07	7.647	
16,100.00	11,788.00	15,325.40	11,153.00	76.37	74.53	0.01	-4,352.45	554.62	635.20	551.49	83.71	7.588	
16,150.00	11,788.00	15,375.40	11,153.00	76.98	75.15	0.01	-4,402.45	554.70	635.20	550.84	84.36	7.530	
16,200.00	11,788.00	15,425.40	11,153.00	77.59	75.76	0.01	-4,452.45	554.77	635.20	550.19	85.01	7.472	
16,250.00	11,788.00	15,475.40	11,153.00	78.20	76.38	0.01	-4,502.45	554.85	635.20	549.54	85.66	7.415	
16,300.00	11,788.00	15,525.40	11,153.00	78.81	77.00	0.01	-4,552.45	554.92	635.20	548.89	86.31	7.359	
16,350.00	11,788.00	15,575.40	11,153.00	79.43	77.63	0.01	-4,602.45	555.00	635.20	548.23	86.97	7.304	
16,400.00	11,788.00	15,625.40	11,153.00	80.04	78.25	0.01	-4,652.45	555.07	635.20	547.57	87.63	7.249	
16,450.00	11,788.00	15,675.40	11,153.00	80.66	78.88	0.01	-4,702.45	555.15	635.20	546.91	88.29	7.194	
16,500.00	11,788.00	15,725.40	11,153.00	81.28	79.50	0.01	-4,752.45	555.22	635.20	546.25	88.95	7.141	
16,550.00	11,788.00	15,775.40	11,153.00	81.91	80.13	0.01	-4,802.45	555.30	635.20	545.58	89.62	7.088	
16,600.00	11,788.00	15,825.40	11,153.00	82.53	80.76	0.01	-4,852.45	555.37	635.20	544.92	90.28	7.036	
16,650.00	11,788.00	15,875.40	11,153.00	83.16	81.40	0.01	-4,902.45	555.45	635.20	544.25	90.95	6.984	
16,700.00	11,788.00	15,925.40	11,153.00	83.78	82.03	0.01	-4,952.45	555.52	635.20	543.58	91.62	6.933	
16,750.00	11,788.00	15,975.40	11,153.00	84.41	82.67	0.01	-5,002.45	555.60	635.20	542.91	92.29	6.882	
16,800.00	11,788.00	16,025.40	11,153.00	85.04	83.30	0.01	-5,052.45	555.67	635.20	542.23	92.97	6.832	
16,850.00	11,788.00	16,075.40	11,153.00	85.67	83.94	0.01	-5,102.45	555.75	635.20	541.56	93.64	6.783	
16,900.00	11,788.00	16,125.40	11,153.00	86.30	84.58	0.01	-5,152.45	555.82	635.20	540.88	94.32	6.734	
16,950.00	11,788.00	16,175.40	11,153.00	86.94	85.23	0.01	-5,202.45	555.90	635.20	540.20	95.00	6.686	
17,000.00	11,788.00	16,225.40	11,153.00	87.58	85.87	0.01	-5,252.45	555.97	635.20	539.52	95.68	6.639	
17,050.00	11,788.00	16,275.40	11,153.00	88.21	86.51	0.01	-5,302.45	556.05	635.20	538.84	96.36	6.592	
17,100.00	11,788.00	16,325.40	11,153.00	88.85	87.16	0.01	-5,352.45	556.12	635.20	538.15	97.05	6.545	
17,150.00	11,788.00	16,375.40	11,153.00	89.49	87.80	0.01	-5,402.45	556.20	635.20	537.47	97.73	6.499	
17,200.00	11,788.00	16,425.40	11,153.00	90.13	88.45	0.01	-5,452.45	556.27	635.20	536.78	98.42	6.454	
17,250.00	11,788.00	16,475.40	11,153.00	90.78	89.10	0.01	-5,502.45	556.35	635.20	536.09	99.11	6.409	
17,300.00	11,788.00	16,525.40	11,153.00	91.42	89.75	0.01	-5,552.45	556.42	635.20	535.41	99.79	6.365	
17,350.00	11,788.00	16,575.40	11,153.00	92.07	90.40	0.01	-5,602.45	556.50	635.20	534.71	100.49	6.321	
17,400.00	11,788.00	16,625.40	11,153.00	92.71	91.06	0.01	-5,652.45	556.57	635.20	534.02	101.18	6.278	
17,450.00	11,788.00	16,675.40	11,153.00	93.36	91.71	0.01	-5,702.45	556.65	635.20	533.33	101.87	6.235	
17,500.00	11,788.00	16,725.40	11,153.00	94.01	92.37	0.01	-5,752.45	556.72	635.20	532.63	102.57	6.193	
17,550.00	11,788.00	16,775.40	11,153.00	94.66	93.02	0.01	-5,802.45	556.80	635.20	531.94	103.26	6.151	
17,600.00	11,788.00	16,825.40	11,153.00	95.31	93.68	0.01	-5,852.45	556.87	635.20	531.24	103.96	6.110	
17,650.00	11,788.00	16,875.40	11,153.00	95.96	94.34	0.01	-5,902.45	556.95	635.20	530.54	104.66	6.069	
17,700.00	11,788.00	16,925.40	11,153.00	96.61	94.99	0.01	-5,952.45	557.02	635.20	529.84	105.36	6.029	
17,750.00	11,788.00	16,975.40	11,153.00	97.27	95.65	0.01	-6,002.45	557.10	635.20	529.14	106.06	5.989	
17,800.00	11,788.00	17,025.40	11,153.00	97.92	96.32	0.01	-6,052.45	557.17	635.20	528.44	106.76	5.950	
17,850.00	11,788.00	17,075.40	11,153.00	98.58	96.98	0.01	-6,102.45	557.25	635.20	527.73	107.47	5.911	
17,900.00	11,788.00	17,125.40	11,153.00	99.24	97.64	0.01	-6,152.45	557.32	635.20	527.03	108.17	5.872	
17,950.00	11,788.00	17,175.40	11,153.00	99.90	98.30	0.01	-6,202.45	557.40	635.20	526.32	108.88	5.834	
18,000.00	11,788.00	17,225.40	11,153.00	100.55	98.97	0.01	-6,252.45	557.47	635.20	525.62	109.58	5.797	
18,050.00	11,788.00	17,275.40	11,153.00	101.21	99.63	0.01	-6,302.45	557.55	635.20	524.91	110.29	5.759	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
18,100.00	11,788.00	17,325.40	11,153.00	101.88	100.30	0.01	-6,352.45	557.62	635.20	524.20	111.00	5.723	
18,150.00	11,788.00	17,375.40	11,153.00	102.54	100.97	0.01	-6,402.45	557.70	635.20	523.49	111.71	5.686	
18,200.00	11,788.00	17,425.40	11,153.00	103.20	101.64	0.01	-6,452.45	557.77	635.20	522.78	112.42	5.650	
18,250.00	11,788.00	17,475.40	11,153.00	103.86	102.30	0.01	-6,502.45	557.85	635.20	522.07	113.13	5.615	
18,300.00	11,788.00	17,525.40	11,153.00	104.53	102.97	0.01	-6,552.45	557.92	635.20	521.36	113.84	5.580	
18,350.00	11,788.00	17,575.40	11,153.00	105.19	103.64	0.01	-6,602.45	558.00	635.20	520.64	114.56	5.545	
18,400.00	11,788.00	17,625.40	11,153.00	105.86	104.32	0.01	-6,652.45	558.07	635.20	519.93	115.27	5.510	
18,450.00	11,788.00	17,675.40	11,153.00	106.53	104.99	0.01	-6,702.45	558.15	635.20	519.21	115.99	5.476	
18,500.00	11,788.00	17,725.40	11,153.00	107.19	105.66	0.01	-6,752.45	558.22	635.20	518.50	116.70	5.443	
18,550.00	11,788.00	17,775.40	11,153.00	107.86	106.33	0.01	-6,802.45	558.30	635.20	517.78	117.42	5.410	
18,600.00	11,788.00	17,825.40	11,153.00	108.53	107.01	0.01	-6,852.45	558.37	635.20	517.06	118.14	5.377	
18,650.00	11,788.00	17,875.40	11,153.00	109.20	107.68	0.01	-6,902.45	558.45	635.20	516.34	118.86	5.344	
18,700.00	11,788.00	17,925.40	11,153.00	109.87	108.36	0.01	-6,952.45	558.52	635.20	515.62	119.58	5.312	
18,750.00	11,788.00	17,975.40	11,153.00	110.54	109.03	0.01	-7,002.45	558.60	635.20	514.90	120.30	5.280	
18,800.00	11,788.00	18,025.40	11,153.00	111.21	109.71	0.01	-7,052.45	558.67	635.20	514.18	121.02	5.249	
18,850.00	11,788.00	18,075.40	11,153.00	111.89	110.39	0.01	-7,102.45	558.75	635.20	513.46	121.74	5.218	
18,900.00	11,788.00	18,125.40	11,153.00	112.56	111.06	0.01	-7,152.45	558.82	635.20	512.73	122.47	5.187	
18,950.00	11,788.00	18,175.40	11,153.00	113.23	111.74	0.00	-7,202.45	558.90	635.20	512.01	123.19	5.156	
19,000.00	11,788.00	18,225.40	11,153.00	113.91	112.42	0.00	-7,252.45	558.97	635.20	511.29	123.91	5.126	
19,050.00	11,788.00	18,275.40	11,153.00	114.58	113.10	0.00	-7,302.45	559.05	635.20	510.56	124.64	5.096	
19,100.00	11,788.00	18,325.40	11,153.00	115.26	113.78	0.00	-7,352.45	559.12	635.20	509.84	125.36	5.067	
19,150.00	11,788.00	18,375.40	11,153.00	115.94	114.46	0.00	-7,402.45	559.20	635.20	509.11	126.09	5.038	
19,200.00	11,788.00	18,425.40	11,153.00	116.61	115.14	0.00	-7,452.45	559.27	635.20	508.38	126.82	5.009	
19,250.00	11,788.00	18,475.40	11,153.00	117.29	115.83	0.00	-7,502.45	559.35	635.20	507.65	127.55	4.980 Alert	
19,300.00	11,788.00	18,525.40	11,153.00	117.97	116.51	0.00	-7,552.45	559.42	635.20	506.93	128.28	4.952 Alert	
19,350.00	11,788.00	18,575.40	11,153.00	118.65	117.19	0.00	-7,602.45	559.50	635.20	506.20	129.00	4.924 Alert	
19,400.00	11,788.00	18,625.40	11,153.00	119.33	117.88	0.00	-7,652.45	559.57	635.20	505.47	129.73	4.896 Alert	
19,450.00	11,788.00	18,675.40	11,153.00	120.01	118.56	0.00	-7,702.45	559.65	635.20	504.73	130.47	4.869 Alert	
19,500.00	11,788.00	18,725.40	11,153.00	120.69	119.24	0.00	-7,752.45	559.72	635.20	504.00	131.20	4.842 Alert	
19,550.00	11,788.00	18,775.40	11,153.00	121.37	119.93	0.00	-7,802.45	559.80	635.20	503.27	131.93	4.815 Alert	
19,600.00	11,788.00	18,825.40	11,153.00	122.05	120.61	0.00	-7,852.45	559.87	635.20	502.54	132.66	4.788 Alert	
19,650.00	11,788.00	18,875.40	11,153.00	122.73	121.30	0.00	-7,902.45	559.95	635.20	501.81	133.39	4.762 Alert	
19,700.00	11,788.00	18,925.40	11,153.00	123.42	121.99	0.00	-7,952.45	560.02	635.20	501.07	134.13	4.736 Alert	
19,750.00	11,788.00	18,975.40	11,153.00	124.10	122.67	0.00	-8,002.45	560.10	635.20	500.34	134.86	4.710 Alert	
19,800.00	11,788.00	19,025.40	11,153.00	124.78	123.36	0.00	-8,052.45	560.17	635.20	499.60	135.60	4.685 Alert	
19,850.00	11,788.00	19,075.40	11,153.00	125.47	124.05	0.00	-8,102.45	560.25	635.20	498.87	136.33	4.659 Alert	
19,900.00	11,788.00	19,125.40	11,153.00	126.15	124.74	0.00	-8,152.45	560.32	635.20	498.13	137.07	4.634 Alert	
19,950.00	11,788.00	19,175.40	11,153.00	126.84	125.43	0.00	-8,202.45	560.40	635.20	497.40	137.80	4.609 Alert	
20,000.00	11,788.00	19,225.40	11,153.00	127.52	126.11	0.00	-8,252.45	560.47	635.20	496.66	138.54	4.585 Alert	
20,050.00	11,788.00	19,275.40	11,153.00	128.21	126.80	0.00	-8,302.45	560.55	635.20	495.92	139.28	4.561 Alert	
20,100.00	11,788.00	19,325.40	11,153.00	128.89	127.49	0.00	-8,352.45	560.62	635.20	495.18	140.02	4.537 Alert	
20,150.00	11,788.00	19,375.40	11,153.00	129.58	128.18	0.00	-8,402.45	560.70	635.20	494.45	140.75	4.513 Alert	
20,200.00	11,788.00	19,425.40	11,153.00	130.27	128.88	0.00	-8,452.45	560.77	635.20	493.71	141.49	4.489 Alert	
20,250.00	11,788.00	19,475.40	11,153.00	130.96	129.57	0.00	-8,502.45	560.85	635.20	492.97	142.23	4.466 Alert	
20,300.00	11,788.00	19,525.40	11,153.00	131.64	130.26	0.00	-8,552.45	560.92	635.20	492.23	142.97	4.443 Alert	
20,350.00	11,788.00	19,575.40	11,153.00	132.33	130.95	0.00	-8,602.45	561.00	635.20	491.49	143.71	4.420 Alert	
20,400.00	11,788.00	19,625.40	11,153.00	133.02	131.64	0.00	-8,652.45	561.07	635.20	490.75	144.45	4.397 Alert	
20,450.00	11,788.00	19,675.40	11,153.00	133.71	132.34	0.00	-8,702.45	561.15	635.20	490.00	145.20	4.375 Alert	
20,500.00	11,788.00	19,725.40	11,153.00	134.40	133.03	0.00	-8,752.45	561.22	635.20	489.26	145.94	4.353 Alert	
20,550.00	11,788.00	19,775.40	11,153.00	135.09	133.72	0.00	-8,802.45	561.30	635.20	488.52	146.68	4.331 Alert	
20,600.00	11,788.00	19,825.40	11,153.00	135.78	134.42	0.00	-8,852.45	561.37	635.20	487.78	147.42	4.309 Alert	
20,650.00	11,788.00	19,875.40	11,153.00	136.47	135.11	0.00	-8,902.45	561.45	635.20	487.03	148.17	4.287 Alert	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Reference	Offset	Reference	Offset	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
20,700.00	11,788.00	19,925.40	11,153.00	137.16	135.80	0.00	-8,952.45	561.52	635.20	486.29	148.91	4.266	Alert
20,750.00	11,788.00	19,975.40	11,153.00	137.85	136.50	0.00	-9,002.45	561.60	635.20	485.55	149.65	4.244	Alert
20,800.00	11,788.00	20,025.40	11,153.00	138.55	137.19	0.00	-9,052.45	561.67	635.20	484.80	150.40	4.223	Alert
20,850.00	11,788.00	20,075.40	11,153.00	139.24	137.89	0.00	-9,102.45	561.75	635.20	484.06	151.14	4.203	Alert
20,900.00	11,788.00	20,125.40	11,153.00	139.93	138.58	0.00	-9,152.45	561.82	635.20	483.31	151.89	4.182	Alert
20,950.00	11,788.00	20,175.40	11,153.00	140.62	139.28	0.00	-9,202.45	561.90	635.20	482.57	152.63	4.162	Alert
21,000.00	11,788.00	20,225.40	11,153.00	141.32	139.98	0.00	-9,252.45	561.97	635.20	481.82	153.38	4.141	Alert
21,050.00	11,788.00	20,275.40	11,153.00	142.01	140.67	0.00	-9,302.45	562.05	635.20	481.07	154.13	4.121	Alert
21,100.00	11,788.00	20,325.40	11,153.00	142.70	141.37	0.00	-9,352.45	562.12	635.20	480.33	154.87	4.101	Alert
21,150.00	11,788.00	20,375.40	11,153.00	143.40	142.07	0.00	-9,402.45	562.20	635.20	479.58	155.62	4.082	Alert
21,200.00	11,788.00	20,425.40	11,153.00	144.09	142.77	0.00	-9,452.45	562.27	635.20	478.83	156.37	4.062	Alert
21,250.00	11,788.00	20,475.40	11,153.00	144.79	143.46	0.00	-9,502.45	562.35	635.20	478.09	157.11	4.043	Alert
21,300.00	11,788.00	20,525.40	11,153.00	145.48	144.16	0.00	-9,552.45	562.42	635.20	477.34	157.86	4.024	Alert
21,350.00	11,788.00	20,575.40	11,153.00	146.18	144.86	0.00	-9,602.45	562.50	635.20	476.59	158.61	4.005	Alert
21,400.00	11,788.00	20,625.40	11,153.00	146.87	145.56	0.00	-9,652.45	562.57	635.20	475.84	159.36	3.986	Alert
21,450.00	11,788.00	20,675.40	11,153.00	147.57	146.26	0.00	-9,702.45	562.65	635.20	475.09	160.11	3.967	Alert
21,500.00	11,788.00	20,725.40	11,153.00	148.27	146.96	0.00	-9,752.45	562.72	635.20	474.34	160.86	3.949	Alert
21,550.00	11,788.00	20,775.40	11,153.00	148.96	147.66	0.00	-9,802.45	562.80	635.20	473.59	161.61	3.930	Alert
21,600.00	11,788.00	20,825.40	11,153.00	149.66	148.36	0.00	-9,852.45	562.87	635.20	472.84	162.36	3.912	Alert
21,650.00	11,788.00	20,875.40	11,153.00	150.36	149.06	0.00	-9,902.45	562.95	635.20	472.09	163.11	3.894	Alert
21,700.00	11,788.00	20,925.40	11,153.00	151.06	149.76	0.00	-9,952.45	563.02	635.20	471.34	163.86	3.876	Alert
21,750.00	11,788.00	20,975.40	11,153.00	151.75	150.46	0.00	-10,002.45	563.10	635.20	470.59	164.61	3.859	Alert
21,800.00	11,788.00	21,025.40	11,153.00	152.45	151.16	0.00	-10,052.45	563.17	635.20	469.84	165.36	3.841	Alert
21,850.00	11,788.00	21,075.40	11,153.00	153.15	151.86	0.00	-10,102.45	563.25	635.20	469.08	166.12	3.824	Alert
21,900.00	11,788.00	21,125.40	11,153.00	153.85	152.56	0.00	-10,152.45	563.32	635.20	468.33	166.87	3.807	Alert
21,950.00	11,788.00	21,175.40	11,153.00	154.55	153.26	0.00	-10,202.45	563.40	635.20	467.58	167.62	3.790	Alert
22,000.00	11,788.00	21,225.40	11,153.00	155.25	153.96	0.00	-10,252.45	563.47	635.20	466.83	168.37	3.773	Alert
22,050.00	11,788.00	21,275.40	11,153.00	155.95	154.66	0.00	-10,302.45	563.55	635.20	466.07	169.13	3.756	Alert
22,079.71	11,788.00	21,305.11	11,153.00	156.36	155.08	0.00	-10,332.16	563.59	635.20	465.63	169.57	3.746	Alert

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 27-T25S-R31E
Site Error: 0.00 ft
Reference Well: Lusitano 27_34 Fed Com 713H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
TVD Reference: RKB @ 3360.00ft
MD Reference: RKB @ 3360.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,250.00	9,233.27	9,329.00	9,319.60	33.31	33.24	22.85	44.86	1,939.53	1,499.16	1,433.48	65.69	22.822		
9,300.00	9,283.14	9,378.61	9,369.14	33.50	33.42	22.90	45.11	1,936.79	1,493.11	1,427.06	66.05	22.607		
9,350.00	9,333.01	9,428.23	9,418.68	33.68	33.60	22.95	45.36	1,934.05	1,487.05	1,420.65	66.40	22.394		
9,400.00	9,382.88	9,477.84	9,468.22	33.86	33.78	23.01	45.60	1,931.31	1,481.00	1,414.24	66.76	22.183		
9,450.00	9,432.75	9,527.45	9,517.76	34.05	33.96	23.06	45.85	1,928.58	1,474.95	1,407.82	67.12	21.974		
9,500.00	9,482.62	9,577.07	9,567.29	34.23	34.14	23.11	46.10	1,925.84	1,468.89	1,401.41	67.48	21.768		
9,550.00	9,532.50	9,626.68	9,616.83	34.42	34.32	23.16	46.35	1,923.10	1,462.84	1,395.01	67.84	21.564		
9,600.00	9,582.37	9,676.30	9,666.37	34.60	34.50	23.22	46.60	1,920.36	1,456.79	1,388.60	68.20	21.362		
9,650.00	9,632.24	9,725.91	9,715.91	34.79	34.68	23.27	46.84	1,917.63	1,450.75	1,382.19	68.55	21.162		
9,700.00	9,682.11	9,775.52	9,765.44	34.97	34.86	23.33	47.09	1,914.89	1,444.70	1,375.79	68.91	20.964		
9,750.00	9,731.98	9,825.14	9,814.98	35.16	35.05	23.38	47.34	1,912.15	1,438.65	1,369.38	69.27	20.768		
9,800.00	9,781.86	9,874.75	9,864.52	35.34	35.23	23.44	47.59	1,909.41	1,432.61	1,362.98	69.63	20.574		
9,850.00	9,831.73	9,924.37	9,914.06	35.53	35.41	23.49	47.84	1,906.68	1,426.57	1,356.58	69.99	20.383		
9,900.00	9,881.60	9,973.98	9,963.60	35.71	35.59	23.55	48.09	1,903.94	1,420.53	1,350.18	70.35	20.193		
9,950.00	9,931.47	10,023.60	10,013.13	35.89	35.77	23.61	48.33	1,901.20	1,414.49	1,343.78	70.71	20.005		
10,000.00	9,981.34	10,066.66	10,056.13	36.08	35.92	23.66	48.55	1,898.87	1,408.51	1,337.45	71.06	19.823		
10,050.00	10,031.22	10,100.00	10,089.44	36.26	36.05	23.70	48.69	1,897.33	1,402.94	1,331.55	71.38	19.653		
10,100.00	10,081.09	10,139.35	10,128.76	36.45	36.19	23.74	48.82	1,895.88	1,397.84	1,326.12	71.72	19.490		
10,150.00	10,130.96	10,175.79	10,165.19	36.63	36.32	23.79	48.91	1,894.90	1,393.22	1,321.17	72.05	19.337		
10,200.00	10,180.83	10,212.30	10,201.70	36.82	36.45	23.83	48.96	1,894.27	1,389.08	1,316.71	72.37	19.194		
10,250.00	10,230.70	10,248.87	10,238.26	37.00	36.58	23.87	48.99	1,893.98	1,385.41	1,312.72	72.69	19.060		
10,300.00	10,280.57	10,305.52	10,283.87	37.19	36.77	23.93	48.99	1,893.96	1,382.11	1,309.05	73.07	18.916		
10,350.00	10,330.45	10,344.36	10,333.75	37.37	36.91	23.99	48.99	1,893.96	1,378.84	1,305.46	73.38	18.790		
10,400.00	10,380.32	10,405.77	10,383.62	37.56	37.12	24.05	48.99	1,893.96	1,375.58	1,301.80	73.78	18.645		
10,450.00	10,430.19	10,444.10	10,433.49	37.74	37.25	24.11	48.99	1,893.96	1,372.31	1,298.22	74.09	18.521		
10,500.00	10,480.06	10,506.03	10,483.36	37.93	37.47	24.17	48.99	1,893.96	1,369.04	1,294.55	74.49	18.379		
10,550.00	10,529.93	10,543.84	10,533.23	38.11	37.60	24.23	48.99	1,893.96	1,365.78	1,290.98	74.80	18.258		
10,600.00	10,579.81	10,593.72	10,583.11	38.29	37.77	24.29	48.99	1,893.96	1,362.52	1,287.36	75.16	18.128		
10,650.00	10,629.69	10,637.21	10,626.59	38.48	37.92	24.36	48.37	1,893.97	1,359.51	1,284.01	75.49	18.009		
10,700.00	10,679.61	10,677.12	10,666.36	38.66	38.06	24.52	45.14	1,893.98	1,357.42	1,281.61	75.80	17.907		
10,750.00	10,729.57	10,716.35	10,705.14	38.84	38.18	24.79	39.27	1,893.99	1,356.32	1,280.21	76.11	17.820		
10,777.95	10,757.51	10,737.86	10,726.21	38.94	38.25	24.98	34.93	1,894.00	1,356.16	1,279.88	76.28	17.779 CC		
10,800.00	10,779.55	10,754.59	10,742.47	39.02	38.31	25.15	31.00	1,894.01	1,356.26	1,279.85	76.41	17.750		
10,850.00	10,829.54	10,791.58	10,777.98	39.20	38.42	25.60	20.66	1,894.04	1,357.29	1,280.60	76.69	17.699		
10,900.00	10,879.54	10,827.11	10,811.39	39.37	38.53	25.77	8.59	1,894.07	1,359.46	1,282.51	76.96	17.666		
10,950.00	10,929.54	10,860.98	10,842.49	39.54	38.63	25.83	-4.83	1,894.11	1,362.43	1,285.23	77.20	17.648		
11,000.00	10,979.54	10,893.09	10,871.18	39.72	38.72	25.83	-19.23	1,894.15	1,366.12	1,288.70	77.42	17.645		
11,050.00	11,029.54	10,923.37	10,897.47	39.89	38.80	25.83	-34.25	1,894.19	1,370.63	1,293.01	77.62	17.659		
11,100.00	11,079.54	10,950.00	10,919.90	40.06	38.87	25.83	-48.80	1,894.23	1,376.03	1,298.26	77.77	17.694		
11,150.00	11,129.54	10,978.50	10,943.13	40.23	38.94	25.83	-65.09	1,894.27	1,382.38	1,304.47	77.91	17.743		
11,200.00	11,179.54	11,000.00	10,960.11	40.41	39.00	25.83	-78.29	1,894.31	1,389.78	1,311.80	77.98	17.823		
11,250.00	11,229.54	11,026.77	10,980.54	40.58	39.06	25.83	-95.59	1,894.36	1,398.20	1,320.14	78.06	17.913		
11,300.00	11,279.41	11,050.00	10,997.58	40.74	39.12	25.83	-111.37	1,894.40	1,407.04	1,328.98	78.07	18.024		
11,350.00	11,328.78	11,072.97	11,013.80	40.89	39.17	25.83	-127.63	1,894.44	1,415.95	1,337.91	78.04	18.144		
11,400.00	11,377.29	11,100.00	11,032.03	41.04	39.23	25.83	-147.58	1,894.50	1,424.79	1,346.76	78.02	18.261		
11,450.00	11,424.57	11,119.58	11,044.64	41.18	39.27	25.83	-162.56	1,894.54	1,433.41	1,355.50	77.91	18.399		
11,500.00	11,470.25	11,150.00	11,063.19	41.32	39.34	25.83	-186.67	1,894.60	1,441.75	1,363.87	77.88	18.513		
11,550.00	11,513.98	11,166.48	11,072.70	41.44	39.38	25.83	-200.13	1,894.64	1,449.60	1,371.90	77.70	18.657		
11,600.00	11,555.45	11,190.02	11,085.60	41.55	39.44	25.83	-219.81	1,894.69	1,456.94	1,379.37	77.57	18.782		
11,650.00	11,594.32	11,213.61	11,097.71	41.65	39.49	25.83	-240.05	1,894.75	1,463.67	1,386.22	77.45	18.899		
11,700.00	11,630.31	11,237.23	11,108.99	41.74	39.55	25.83	-260.81	1,894.80	1,469.70	1,392.37	77.33	19.006		
11,750.00	11,663.13	11,260.89	11,119.42	41.82	39.61	25.83	-282.04	1,894.86	1,474.95	1,397.73	77.22	19.100		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	VD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
11,800.00	11,692.55	11,284.58	11,128.97	41.89	39.67	-65.91	-303.71	1,894.92	1,479.37	1,402.23	77.13	19.179	
11,850.00	11,718.33	11,300.00	11,134.71	41.96	39.71	-65.48	-318.03	1,894.96	1,482.95	1,405.95	77.01	19.257	
11,900.00	11,740.28	11,332.00	11,145.37	42.03	39.80	-65.11	-348.20	1,895.04	1,485.52	1,408.48	77.04	19.282	
11,950.00	11,758.23	11,350.00	11,150.62	42.11	39.85	-64.90	-365.41	1,895.09	1,487.21	1,410.20	77.01	19.312	
12,000.00	11,772.05	11,379.47	11,158.05	42.21	39.93	-64.80	-393.93	1,895.16	1,487.89	1,410.80	77.10	19.299	
12,050.00	11,781.63	11,400.00	11,162.35	42.31	39.99	-64.84	-414.00	1,895.22	1,487.63	1,410.46	77.17	19.277	
12,100.00	11,786.90	11,426.94	11,166.90	42.42	40.06	-65.00	-440.56	1,895.29	1,486.37	1,409.05	77.33	19.222	
12,150.00	11,788.00	11,450.00	11,169.79	42.53	40.13	-65.22	-463.43	1,895.35	1,484.25	1,406.74	77.51	19.150	
12,200.00	11,788.00	11,474.55	11,171.86	42.66	40.20	-65.29	-487.89	1,895.42	1,482.55	1,404.84	77.71	19.078	
12,250.00	11,788.00	11,500.00	11,172.90	42.79	40.27	-65.33	-513.32	1,895.49	1,481.73	1,403.80	77.92	19.016	
12,266.28	11,788.00	11,519.53	11,173.00	42.84	40.33	-65.34	-515.09	1,895.49	1,481.63	1,403.61	78.02	18.991	
12,300.00	11,788.00	11,535.50	11,173.00	42.94	40.38	-65.34	-548.81	1,895.58	1,481.67	1,403.52	78.15	18.959	
12,350.00	11,788.00	11,565.50	11,173.00	43.09	40.54	-65.34	-598.81	1,895.72	1,481.72	1,403.29	78.44	18.890	
12,400.00	11,788.00	11,635.50	11,173.00	43.26	40.71	-65.34	-648.81	1,895.85	1,481.78	1,403.04	78.74	18.818	
12,450.00	11,788.00	11,685.50	11,173.00	43.44	40.88	-65.34	-698.81	1,895.99	1,481.84	1,402.76	79.07	18.740	
12,500.00	11,788.00	11,735.50	11,173.00	43.62	41.08	-65.34	-748.81	1,896.12	1,481.89	1,402.47	79.42	18.659	
12,550.00	11,788.00	11,785.50	11,173.00	43.83	41.28	-65.34	-798.81	1,896.26	1,481.95	1,402.15	79.80	18.572	
12,600.00	11,788.00	11,835.50	11,173.00	44.03	41.49	-65.34	-848.81	1,896.39	1,482.00	1,401.82	80.19	18.482	
12,650.00	11,788.00	11,885.50	11,173.00	44.26	41.71	-65.34	-898.81	1,896.53	1,482.06	1,401.45	80.60	18.387	
12,700.00	11,788.00	11,935.50	11,173.00	44.49	41.95	-65.34	-948.81	1,896.67	1,482.11	1,401.08	81.04	18.289	
12,750.00	11,788.00	11,985.50	11,173.00	44.73	42.20	-65.34	-998.81	1,896.80	1,482.17	1,400.67	81.50	18.187	
12,800.00	11,788.00	12,035.50	11,173.00	44.98	42.46	-65.35	-1,048.81	1,896.94	1,482.23	1,400.26	81.97	18.083	
12,850.00	11,788.00	12,085.50	11,173.00	45.24	42.72	-65.35	-1,098.81	1,897.07	1,482.28	1,399.81	82.47	17.974	
12,900.00	11,788.00	12,135.50	11,173.00	45.51	43.00	-65.35	-1,148.81	1,897.21	1,482.34	1,399.36	82.98	17.864	
12,950.00	11,788.00	12,185.50	11,173.00	45.80	43.29	-65.35	-1,198.81	1,897.34	1,482.39	1,398.87	83.52	17.749	
13,000.00	11,788.00	12,235.50	11,173.00	46.08	43.59	-65.35	-1,248.81	1,897.48	1,482.45	1,398.38	84.07	17.634	
13,050.00	11,788.00	12,285.50	11,173.00	46.39	43.90	-65.35	-1,298.81	1,897.61	1,482.50	1,397.86	84.64	17.515	
13,100.00	11,788.00	12,335.50	11,173.00	46.69	44.22	-65.35	-1,348.81	1,897.75	1,482.56	1,397.33	85.23	17.395	
13,150.00	11,788.00	12,385.50	11,173.00	47.01	44.54	-65.35	-1,398.81	1,897.88	1,482.61	1,396.78	85.84	17.272	
13,200.00	11,788.00	12,435.50	11,173.00	47.34	44.88	-65.35	-1,448.81	1,898.02	1,482.67	1,396.21	86.46	17.148	
13,250.00	11,788.00	12,485.50	11,173.00	47.68	45.23	-65.35	-1,498.81	1,898.15	1,482.73	1,395.62	87.10	17.022	
13,300.00	11,788.00	12,535.50	11,173.00	48.02	45.58	-65.36	-1,548.81	1,898.29	1,482.78	1,395.02	87.76	16.896	
13,350.00	11,788.00	12,585.50	11,173.00	48.38	45.95	-65.36	-1,598.81	1,898.42	1,482.84	1,394.40	88.44	16.767	
13,400.00	11,788.00	12,635.50	11,173.00	48.73	46.32	-65.36	-1,648.81	1,898.56	1,482.89	1,393.77	89.12	16.639	
13,450.00	11,788.00	12,685.50	11,173.00	49.11	46.70	-65.36	-1,698.81	1,898.70	1,482.95	1,393.12	89.83	16.508	
13,500.00	11,788.00	12,735.50	11,173.00	49.48	47.09	-65.36	-1,748.81	1,898.83	1,483.00	1,392.46	90.55	16.378	
13,550.00	11,788.00	12,785.50	11,173.00	49.87	47.49	-65.36	-1,798.81	1,898.97	1,483.06	1,391.78	91.28	16.247	
13,600.00	11,788.00	12,835.50	11,173.00	50.26	47.89	-65.36	-1,848.81	1,899.10	1,483.12	1,391.08	92.03	16.115	
13,650.00	11,788.00	12,885.50	11,173.00	50.66	48.30	-65.36	-1,898.81	1,899.24	1,483.17	1,390.38	92.80	15.983	
13,700.00	11,788.00	12,935.50	11,173.00	51.06	48.72	-65.36	-1,948.81	1,899.37	1,483.23	1,389.66	93.57	15.852	
13,750.00	11,788.00	12,985.50	11,173.00	51.48	49.15	-65.36	-1,998.81	1,899.51	1,483.28	1,388.92	94.36	15.719	
13,800.00	11,788.00	13,035.50	11,173.00	51.90	49.58	-65.37	-2,048.81	1,899.64	1,483.34	1,388.18	95.16	15.587	
13,850.00	11,788.00	13,085.50	11,173.00	52.33	50.02	-65.37	-2,098.81	1,899.78	1,483.39	1,387.41	95.98	15.455	
13,900.00	11,788.00	13,135.50	11,173.00	52.76	50.47	-65.37	-2,148.81	1,899.91	1,483.45	1,386.64	96.81	15.324	
13,950.00	11,788.00	13,185.50	11,173.00	53.20	50.92	-65.37	-2,198.81	1,900.05	1,483.50	1,385.86	97.65	15.193	
14,000.00	11,788.00	13,235.50	11,173.00	53.64	51.38	-65.37	-2,248.81	1,900.18	1,483.56	1,385.06	98.50	15.062	
14,050.00	11,788.00	13,285.50	11,173.00	54.10	51.85	-65.37	-2,298.81	1,900.32	1,483.62	1,384.26	99.36	14.932	
14,100.00	11,788.00	13,335.50	11,173.00	54.55	52.32	-65.37	-2,348.81	1,900.45	1,483.67	1,383.44	100.23	14.802	
14,150.00	11,788.00	13,385.50	11,173.00	55.02	52.80	-65.37	-2,398.81	1,900.59	1,483.73	1,382.61	101.12	14.673	
14,200.00	11,788.00	13,435.50	11,173.00	55.49	53.28	-65.37	-2,448.81	1,900.73	1,483.78	1,381.77	102.01	14.545	
14,250.00	11,788.00	13,485.50	11,173.00	55.97	53.77	-65.37	-2,498.80	1,900.86	1,483.84	1,380.92	102.92	14.417	
14,300.00	11,788.00	13,535.50	11,173.00	56.44	54.26	-65.38	-2,548.80	1,901.00	1,483.89	1,380.06	103.83	14.291	

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

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 27-T25S-R31E
Site Error: 0.00 ft
Reference Well: Lusitano 27_34 Fed Com 713H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Lusitano 27_34 Fed Com 713H
TVD Reference: RKB @ 3360.00ft
MD Reference: RKB @ 3360.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
14,350.00	11,788.00	13,585.50	11,173.00	56.93	54.76	-65.38	-2,598.80	1,901.13	1,483.95	1,379.19	104.76	14.165		
14,400.00	11,788.00	13,635.50	11,173.00	57.42	55.27	-65.38	-2,648.80	1,901.27	1,484.01	1,378.31	105.69	14.041		
14,450.00	11,788.00	13,685.50	11,173.00	57.92	55.77	-65.38	-2,698.80	1,901.40	1,484.06	1,377.42	106.64	13.917		
14,500.00	11,788.00	13,735.50	11,173.00	58.42	56.29	-65.38	-2,748.80	1,901.54	1,484.12	1,376.53	107.59	13.794		
14,550.00	11,788.00	13,785.50	11,173.00	58.92	56.81	-65.38	-2,798.80	1,901.67	1,484.17	1,375.62	108.55	13.672		
14,600.00	11,788.00	13,835.50	11,173.00	59.43	57.33	-65.38	-2,848.80	1,901.81	1,484.23	1,374.71	109.52	13.552		
14,650.00	11,788.00	13,885.50	11,173.00	59.95	57.86	-65.38	-2,898.80	1,901.94	1,484.28	1,373.78	110.50	13.432		
14,700.00	11,788.00	13,935.50	11,173.00	60.47	58.39	-65.38	-2,948.80	1,902.08	1,484.34	1,372.85	111.49	13.314		
14,750.00	11,788.00	13,985.50	11,173.00	60.99	58.92	-65.38	-2,998.80	1,902.21	1,484.40	1,371.91	112.48	13.197		
14,800.00	11,788.00	14,035.50	11,173.00	61.51	59.47	-65.39	-3,048.80	1,902.35	1,484.45	1,370.97	113.48	13.081		
14,850.00	11,788.00	14,085.50	11,173.00	62.05	60.01	-65.39	-3,098.80	1,902.49	1,484.51	1,370.01	114.49	12.966		
14,900.00	11,788.00	14,135.50	11,173.00	62.58	60.56	-65.39	-3,148.80	1,902.62	1,484.56	1,369.05	115.51	12.852		
14,950.00	11,788.00	14,185.50	11,173.00	63.12	61.11	-65.39	-3,198.80	1,902.76	1,484.62	1,368.08	116.53	12.740		
15,000.00	11,788.00	14,235.50	11,173.00	63.66	61.66	-65.39	-3,248.80	1,902.89	1,484.67	1,367.11	117.56	12.629		
15,050.00	11,788.00	14,285.50	11,173.00	64.21	62.22	-65.39	-3,298.80	1,903.03	1,484.73	1,366.13	118.60	12.519		
15,100.00	11,788.00	14,335.50	11,173.00	64.76	62.78	-65.39	-3,348.80	1,903.16	1,484.78	1,365.14	119.65	12.410		
15,150.00	11,788.00	14,385.50	11,173.00	65.31	63.35	-65.39	-3,398.80	1,903.30	1,484.84	1,364.14	120.70	12.302		
15,200.00	11,788.00	14,435.50	11,173.00	65.87	63.92	-65.39	-3,448.80	1,903.43	1,484.90	1,363.14	121.75	12.196		
15,250.00	11,788.00	14,485.50	11,173.00	66.43	64.49	-65.39	-3,498.80	1,903.57	1,484.95	1,362.14	122.82	12.091		
15,300.00	11,788.00	14,535.50	11,173.00	66.99	65.06	-65.39	-3,548.80	1,903.70	1,485.01	1,361.12	123.88	11.987		
15,350.00	11,788.00	14,585.50	11,173.00	67.56	65.64	-65.40	-3,598.80	1,903.84	1,485.06	1,360.11	124.96	11.885		
15,400.00	11,788.00	14,635.50	11,173.00	68.13	66.22	-65.40	-3,648.80	1,903.97	1,485.12	1,359.08	126.04	11.783		
15,450.00	11,788.00	14,685.50	11,173.00	68.70	66.81	-65.40	-3,698.80	1,904.11	1,485.17	1,358.05	127.12	11.683		
15,500.00	11,788.00	14,735.50	11,173.00	69.27	67.39	-65.40	-3,748.80	1,904.24	1,485.23	1,357.02	128.21	11.584		
15,550.00	11,788.00	14,785.50	11,173.00	69.85	67.98	-65.40	-3,798.80	1,904.38	1,485.29	1,355.98	129.31	11.486		
15,600.00	11,788.00	14,835.50	11,173.00	70.43	68.57	-65.40	-3,848.80	1,904.52	1,485.34	1,354.93	130.41	11.390		
15,650.00	11,788.00	14,885.50	11,173.00	71.02	69.17	-65.40	-3,898.80	1,904.65	1,485.40	1,353.88	131.51	11.295		
15,700.00	11,788.00	14,935.50	11,173.00	71.60	69.77	-65.40	-3,948.80	1,904.79	1,485.45	1,352.83	132.62	11.200		
15,750.00	11,788.00	14,985.50	11,173.00	72.19	70.36	-65.40	-3,998.80	1,904.92	1,485.51	1,351.77	133.74	11.107		
15,800.00	11,788.00	15,035.50	11,173.00	72.78	70.97	-65.40	-4,048.80	1,905.06	1,485.56	1,350.71	134.86	11.016		
15,850.00	11,788.00	15,085.49	11,173.00	73.37	71.57	-65.41	-4,098.80	1,905.19	1,485.62	1,349.64	135.98	10.925		
15,900.00	11,788.00	15,135.49	11,173.00	73.97	72.18	-65.41	-4,148.80	1,905.33	1,485.68	1,348.56	137.11	10.836		
15,950.00	11,788.00	15,185.49	11,173.00	74.57	72.79	-65.41	-4,198.80	1,905.46	1,485.73	1,347.49	138.24	10.747		
16,000.00	11,788.00	15,235.49	11,173.00	75.17	73.40	-65.41	-4,248.80	1,905.60	1,485.79	1,346.41	139.38	10.660		
16,050.00	11,788.00	15,285.49	11,173.00	75.77	74.01	-65.41	-4,298.80	1,905.73	1,485.84	1,345.32	140.52	10.574		
16,100.00	11,788.00	15,335.49	11,173.00	76.37	74.62	-65.41	-4,348.80	1,905.87	1,485.90	1,344.23	141.67	10.489		
16,150.00	11,788.00	15,385.49	11,173.00	76.98	75.24	-65.41	-4,398.80	1,906.00	1,485.95	1,343.14	142.81	10.405		
16,200.00	11,788.00	15,435.49	11,173.00	77.59	75.86	-65.41	-4,448.80	1,906.14	1,486.01	1,342.04	143.97	10.322		
16,250.00	11,788.00	15,485.49	11,173.00	78.20	76.48	-65.41	-4,498.80	1,906.27	1,486.07	1,340.94	145.12	10.240		
16,300.00	11,788.00	15,535.49	11,173.00	78.81	77.10	-65.41	-4,548.80	1,906.41	1,486.12	1,339.84	146.28	10.159		
16,350.00	11,788.00	15,585.49	11,173.00	79.43	77.73	-65.42	-4,598.80	1,906.55	1,486.18	1,338.73	147.44	10.080		
16,400.00	11,788.00	15,635.49	11,173.00	80.04	78.35	-65.42	-4,648.80	1,906.68	1,486.23	1,337.62	148.61	10.001		
16,450.00	11,788.00	15,685.49	11,173.00	80.66	78.98	-65.42	-4,698.80	1,906.82	1,486.29	1,336.51	149.78	9.923		
16,500.00	11,788.00	15,735.49	11,173.00	81.28	79.61	-65.42	-4,748.79	1,906.95	1,486.34	1,335.39	150.95	9.846		
16,550.00	11,788.00	15,785.49	11,173.00	81.91	80.24	-65.42	-4,798.79	1,907.09	1,486.40	1,334.27	152.13	9.771		
16,600.00	11,788.00	15,835.49	11,173.00	82.53	80.87	-65.42	-4,848.79	1,907.22	1,486.45	1,333.15	153.31	9.696		
16,650.00	11,788.00	15,885.49	11,173.00	83.16	81.51	-65.42	-4,898.79	1,907.36	1,486.51	1,332.02	154.49	9.622		
16,700.00	11,788.00	15,935.49	11,173.00	83.78	82.14	-65.42	-4,948.79	1,907.49	1,486.57	1,330.89	155.68	9.549		
16,750.00	11,788.00	15,985.49	11,173.00	84.41	82.78	-65.42	-4,998.79	1,907.63	1,486.62	1,329.76	156.86	9.477		
16,800.00	11,788.00	16,035.49	11,173.00	85.04	83.42	-65.42	-5,048.79	1,907.76	1,486.68	1,328.62	158.05	9.406		
16,850.00	11,788.00	16,085.49	11,173.00	85.67	84.06	-65.43	-5,098.79	1,907.90	1,486.73	1,327.49	159.25	9.336		
16,900.00	11,788.00	16,135.49	11,173.00	86.30	84.70	-65.43	-5,148.79	1,908.03	1,486.79	1,326.34	160.44	9.267		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
16,950.00	11,788.00	16,185.49	11,173.00	86.94	85.35	-65.43	-5,198.79	1,908.17	1,486.84	1,325.20	161.64	9.198	
17,000.00	11,788.00	16,235.49	11,173.00	87.58	85.99	-65.43	-5,248.79	1,908.30	1,486.90	1,324.06	162.84	9.131	
17,050.00	11,788.00	16,285.49	11,173.00	88.21	86.64	-65.43	-5,298.79	1,908.44	1,486.96	1,322.91	164.05	9.064	
17,100.00	11,788.00	16,335.49	11,173.00	88.85	87.28	-65.43	-5,348.79	1,908.58	1,487.01	1,321.76	165.26	8.998	
17,150.00	11,788.00	16,385.49	11,173.00	89.49	87.93	-65.43	-5,398.79	1,908.71	1,487.07	1,320.60	166.46	8.933	
17,200.00	11,788.00	16,435.49	11,173.00	90.13	88.58	-65.43	-5,448.79	1,908.85	1,487.12	1,319.45	167.68	8.869	
17,250.00	11,788.00	16,485.49	11,173.00	90.78	89.23	-65.43	-5,498.79	1,908.98	1,487.18	1,318.29	168.89	8.806	
17,300.00	11,788.00	16,535.49	11,173.00	91.42	89.88	-65.43	-5,548.79	1,909.12	1,487.23	1,317.13	170.10	8.743	
17,350.00	11,788.00	16,585.49	11,173.00	92.07	90.54	-65.44	-5,598.79	1,909.25	1,487.29	1,315.97	171.32	8.681	
17,400.00	11,788.00	16,635.49	11,173.00	92.71	91.19	-65.44	-5,648.79	1,909.39	1,487.35	1,314.80	172.54	8.620	
17,450.00	11,788.00	16,685.49	11,173.00	93.36	91.85	-65.44	-5,698.79	1,909.52	1,487.40	1,313.63	173.77	8.560	
17,500.00	11,788.00	16,735.49	11,173.00	94.01	92.50	-65.44	-5,748.79	1,909.66	1,487.46	1,312.47	174.99	8.500	
17,550.00	11,788.00	16,785.49	11,173.00	94.66	93.16	-65.44	-5,798.79	1,909.79	1,487.51	1,311.30	176.22	8.441	
17,600.00	11,788.00	16,835.49	11,173.00	95.31	93.82	-65.44	-5,848.79	1,909.93	1,487.57	1,310.12	177.45	8.383	
17,650.00	11,788.00	16,885.49	11,173.00	95.96	94.48	-65.44	-5,898.79	1,910.06	1,487.62	1,308.95	178.68	8.326	
17,700.00	11,788.00	16,935.49	11,173.00	96.61	95.14	-65.44	-5,948.79	1,910.20	1,487.68	1,307.77	179.91	8.269	
17,750.00	11,788.00	16,985.49	11,173.00	97.27	95.80	-65.44	-5,998.79	1,910.33	1,487.74	1,306.59	181.14	8.213	
17,800.00	11,788.00	17,035.49	11,173.00	97.92	96.46	-65.44	-6,048.79	1,910.47	1,487.79	1,305.41	182.38	8.158	
17,850.00	11,788.00	17,085.49	11,173.00	98.58	97.12	-65.44	-6,098.79	1,910.61	1,487.85	1,304.23	183.62	8.103	
17,900.00	11,788.00	17,135.49	11,173.00	99.24	97.79	-65.45	-6,148.79	1,910.74	1,487.90	1,303.05	184.86	8.049	
17,950.00	11,788.00	17,185.49	11,173.00	99.90	98.45	-65.45	-6,198.79	1,910.88	1,487.96	1,301.86	186.10	7.996	
18,000.00	11,788.00	17,235.49	11,173.00	100.55	99.12	-65.45	-6,248.79	1,911.01	1,488.01	1,300.67	187.34	7.943	
18,050.00	11,788.00	17,285.49	11,173.00	101.21	99.78	-65.45	-6,298.79	1,911.15	1,488.07	1,299.48	188.59	7.891	
18,100.00	11,788.00	17,335.49	11,173.00	101.88	100.45	-65.45	-6,348.79	1,911.28	1,488.13	1,298.29	189.83	7.839	
18,150.00	11,788.00	17,385.49	11,173.00	102.54	101.12	-65.45	-6,398.79	1,911.42	1,488.18	1,297.10	191.08	7.788	
18,200.00	11,788.00	17,435.49	11,173.00	103.20	101.79	-65.45	-6,448.79	1,911.55	1,488.24	1,295.91	192.33	7.738	
18,250.00	11,788.00	17,485.49	11,173.00	103.86	102.46	-65.45	-6,498.79	1,911.69	1,488.29	1,294.71	193.58	7.688	
18,300.00	11,788.00	17,535.49	11,173.00	104.53	103.13	-65.45	-6,548.79	1,911.82	1,488.35	1,293.51	194.83	7.639	
18,350.00	11,788.00	17,585.49	11,173.00	105.19	103.80	-65.45	-6,598.79	1,911.96	1,488.40	1,292.31	196.09	7.590	
18,400.00	11,788.00	17,635.49	11,173.00	105.86	104.47	-65.46	-6,648.79	1,912.09	1,488.46	1,291.11	197.34	7.542	
18,450.00	11,788.00	17,685.49	11,173.00	106.53	105.15	-65.46	-6,698.79	1,912.23	1,488.51	1,289.91	198.60	7.495	
18,500.00	11,788.00	17,735.49	11,173.00	107.19	105.82	-65.46	-6,748.79	1,912.36	1,488.57	1,288.71	199.86	7.448	
18,550.00	11,788.00	17,785.49	11,173.00	107.86	106.49	-65.46	-6,798.79	1,912.50	1,488.63	1,287.51	201.12	7.402	
18,600.00	11,788.00	17,835.49	11,173.00	108.53	107.17	-65.46	-6,848.79	1,912.64	1,488.68	1,286.30	202.38	7.356	
18,650.00	11,788.00	17,885.49	11,173.00	109.20	107.85	-65.46	-6,898.79	1,912.77	1,488.74	1,285.09	203.64	7.310	
18,700.00	11,788.00	17,935.49	11,173.00	109.87	108.52	-65.46	-6,948.79	1,912.91	1,488.79	1,283.89	204.91	7.266	
18,750.00	11,788.00	17,985.49	11,173.00	110.54	109.20	-65.46	-6,998.79	1,913.04	1,488.85	1,282.68	206.17	7.221	
18,800.00	11,788.00	18,035.49	11,173.00	111.21	109.88	-65.46	-7,048.79	1,913.18	1,488.90	1,281.47	207.44	7.178	
18,850.00	11,788.00	18,085.49	11,173.00	111.89	110.55	-65.46	-7,098.79	1,913.31	1,488.96	1,280.25	208.71	7.134	
18,900.00	11,788.00	18,135.49	11,173.00	112.56	111.23	-65.47	-7,148.79	1,913.45	1,489.02	1,279.04	209.98	7.091	
18,950.00	11,788.00	18,185.49	11,173.00	113.23	111.91	-65.47	-7,198.79	1,913.58	1,489.07	1,277.83	211.25	7.049	
19,000.00	11,788.00	18,235.49	11,173.00	113.91	112.59	-65.47	-7,248.79	1,913.72	1,489.13	1,276.61	212.52	7.007	
19,050.00	11,788.00	18,285.49	11,173.00	114.58	113.27	-65.47	-7,298.79	1,913.85	1,489.18	1,275.39	213.79	6.966	
19,100.00	11,788.00	18,335.49	11,173.00	115.26	113.95	-65.47	-7,348.79	1,913.99	1,489.24	1,274.18	215.06	6.925	
19,150.00	11,788.00	18,385.49	11,173.00	115.94	114.64	-65.47	-7,398.79	1,914.12	1,489.29	1,272.96	216.34	6.884	
19,200.00	11,788.00	18,435.49	11,173.00	116.61	115.32	-65.47	-7,448.79	1,914.26	1,489.35	1,271.74	217.61	6.844	
19,250.00	11,788.00	18,485.49	11,173.00	117.29	116.00	-65.47	-7,498.79	1,914.39	1,489.41	1,270.52	218.89	6.804	
19,300.00	11,788.00	18,535.49	11,173.00	117.97	116.69	-65.47	-7,548.79	1,914.53	1,489.46	1,269.29	220.17	6.765	
19,350.00	11,788.00	18,585.49	11,173.00	118.65	117.37	-65.47	-7,598.79	1,914.67	1,489.52	1,268.07	221.45	6.726	
19,400.00	11,788.00	18,635.49	11,173.00	119.33	118.05	-65.48	-7,648.79	1,914.80	1,489.57	1,266.85	222.73	6.688	
19,450.00	11,788.00	18,685.49	11,173.00	120.01	118.74	-65.48	-7,698.79	1,914.94	1,489.63	1,265.62	224.01	6.650	
19,500.00	11,788.00	18,735.49	11,173.00	120.69	119.42	-65.48	-7,748.79	1,915.07	1,489.68	1,264.40	225.29	6.612	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	VD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S	Offset Wellbore Centre +E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
19,550.00	11,788.00	18,785.49	11,173.00	121.37	120.11	-65.48	-7,798.78	1,915.21	1,489.74	1,263.17	226.57	6.575		
19,600.00	11,788.00	18,835.49	11,173.00	122.05	120.80	-65.48	-7,848.78	1,915.34	1,489.80	1,261.94	227.86	6.538		
19,650.00	11,788.00	18,885.49	11,173.00	122.73	121.48	-65.48	-7,898.78	1,915.48	1,489.85	1,260.71	229.14	6.502		
19,700.00	11,788.00	18,935.49	11,173.00	123.42	122.17	-65.48	-7,948.78	1,915.61	1,489.91	1,259.48	230.43	6.466		
19,750.00	11,788.00	18,985.49	11,173.00	124.10	122.86	-65.48	-7,998.78	1,915.75	1,489.96	1,258.25	231.71	6.430		
19,800.00	11,788.00	19,035.49	11,173.00	124.78	123.55	-65.48	-8,048.78	1,915.88	1,490.02	1,257.02	233.00	6.395		
19,850.00	11,788.00	19,085.49	11,173.00	125.47	124.24	-65.48	-8,098.78	1,916.02	1,490.07	1,255.79	234.29	6.360		
19,900.00	11,788.00	19,135.49	11,173.00	126.15	124.92	-65.49	-8,148.78	1,916.15	1,490.13	1,254.55	235.58	6.325		
19,950.00	11,788.00	19,185.49	11,173.00	126.84	125.61	-65.49	-8,198.78	1,916.29	1,490.19	1,253.32	236.87	6.291		
20,000.00	11,788.00	19,235.49	11,173.00	127.52	126.30	-65.49	-8,248.78	1,916.43	1,490.24	1,252.08	238.16	6.257		
20,050.00	11,788.00	19,285.49	11,173.00	128.21	126.99	-65.49	-8,298.78	1,916.56	1,490.30	1,250.85	239.45	6.224		
20,100.00	11,788.00	19,335.49	11,173.00	128.89	127.69	-65.49	-8,348.78	1,916.70	1,490.35	1,249.61	240.74	6.191		
20,150.00	11,788.00	19,385.49	11,173.00	129.58	128.38	-65.49	-8,398.78	1,916.83	1,490.41	1,248.37	242.03	6.158		
20,200.00	11,788.00	19,435.49	11,173.00	130.27	129.07	-65.49	-8,448.78	1,916.97	1,490.46	1,247.14	243.33	6.125		
20,250.00	11,788.00	19,485.49	11,173.00	130.96	129.76	-65.49	-8,498.78	1,917.10	1,490.52	1,245.90	244.62	6.093		
20,300.00	11,788.00	19,535.49	11,173.00	131.64	130.45	-65.49	-8,548.78	1,917.24	1,490.58	1,244.66	245.92	6.061		
20,350.00	11,788.00	19,585.49	11,173.00	132.33	131.14	-65.49	-8,598.78	1,917.37	1,490.63	1,243.42	247.22	6.030		
20,400.00	11,788.00	19,635.49	11,173.00	133.02	131.84	-65.49	-8,648.78	1,917.51	1,490.69	1,242.17	248.51	5.998		
20,450.00	11,788.00	19,685.49	11,173.00	133.71	132.53	-65.50	-8,698.78	1,917.64	1,490.74	1,240.93	249.81	5.968		
20,500.00	11,788.00	19,735.49	11,173.00	134.40	133.23	-65.50	-8,748.78	1,917.78	1,490.80	1,239.69	251.11	5.937		
20,550.00	11,788.00	19,785.49	11,173.00	135.09	133.92	-65.50	-8,798.78	1,917.91	1,490.85	1,238.45	252.41	5.907		
20,600.00	11,788.00	19,835.49	11,173.00	135.78	134.61	-65.50	-8,848.78	1,918.05	1,490.91	1,237.20	253.71	5.877		
20,650.00	11,788.00	19,885.49	11,173.00	136.47	135.31	-65.50	-8,898.78	1,918.18	1,490.97	1,235.96	255.01	5.847		
20,700.00	11,788.00	19,935.49	11,173.00	137.16	136.00	-65.50	-8,948.78	1,918.32	1,491.02	1,234.71	256.31	5.817		
20,750.00	11,788.00	19,985.49	11,173.00	137.85	136.70	-65.50	-8,998.78	1,918.46	1,491.08	1,233.47	257.61	5.788		
20,800.00	11,788.00	20,035.49	11,173.00	138.55	137.40	-65.50	-9,048.78	1,918.59	1,491.13	1,232.22	258.91	5.759		
20,850.00	11,788.00	20,085.49	11,173.00	139.24	138.09	-65.50	-9,098.78	1,918.73	1,491.19	1,230.97	260.22	5.731		
20,900.00	11,788.00	20,135.49	11,173.00	139.93	138.79	-65.50	-9,148.78	1,918.86	1,491.24	1,229.72	261.52	5.702		
20,950.00	11,788.00	20,185.49	11,173.00	140.62	139.48	-65.51	-9,198.78	1,919.00	1,491.30	1,228.48	262.82	5.674		
21,000.00	11,788.00	20,235.49	11,173.00	141.32	140.18	-65.51	-9,248.78	1,919.13	1,491.36	1,227.23	264.13	5.646		
21,050.00	11,788.00	20,285.49	11,173.00	142.01	140.88	-65.51	-9,298.77	1,919.27	1,491.41	1,225.98	265.43	5.619		
21,100.00	11,788.00	20,335.49	11,173.00	142.70	141.58	-65.51	-9,348.77	1,919.40	1,491.47	1,224.73	266.74	5.591		
21,150.00	11,788.00	20,385.49	11,173.00	143.40	142.27	-65.51	-9,398.77	1,919.54	1,491.52	1,223.47	268.05	5.564		
21,200.00	11,788.00	20,435.49	11,173.00	144.09	142.97	-65.51	-9,448.77	1,919.67	1,491.58	1,222.22	269.35	5.538		
21,250.00	11,788.00	20,485.49	11,173.00	144.79	143.67	-65.51	-9,498.77	1,919.81	1,491.63	1,220.97	270.66	5.511		
21,300.00	11,788.00	20,535.49	11,173.00	145.48	144.37	-65.51	-9,548.77	1,919.94	1,491.69	1,219.72	271.97	5.485		
21,350.00	11,788.00	20,585.49	11,173.00	146.18	145.07	-65.51	-9,598.77	1,920.08	1,491.75	1,218.46	273.28	5.459		
21,400.00	11,788.00	20,635.49	11,173.00	146.87	145.77	-65.51	-9,648.77	1,920.21	1,491.80	1,217.21	274.59	5.433		
21,450.00	11,788.00	20,685.49	11,173.00	147.57	146.47	-65.52	-9,698.77	1,920.35	1,491.86	1,215.96	275.90	5.407		
21,500.00	11,788.00	20,735.49	11,173.00	148.27	147.17	-65.52	-9,748.77	1,920.49	1,491.91	1,214.70	277.21	5.382		
21,550.00	11,788.00	20,785.49	11,173.00	148.96	147.87	-65.52	-9,798.77	1,920.62	1,491.97	1,213.45	278.52	5.357		
21,600.00	11,788.00	20,835.49	11,173.00	149.66	148.57	-65.52	-9,848.77	1,920.76	1,492.02	1,212.19	279.83	5.332		
21,650.00	11,788.00	20,885.49	11,173.00	150.36	149.27	-65.52	-9,898.77	1,920.89	1,492.08	1,210.93	281.15	5.307		
21,700.00	11,788.00	20,935.49	11,173.00	151.06	149.97	-65.52	-9,948.77	1,921.03	1,492.14	1,209.68	282.46	5.283		
21,750.00	11,788.00	20,985.49	11,173.00	151.75	150.67	-65.52	-9,998.77	1,921.16	1,492.19	1,208.42	283.77	5.258		
21,800.00	11,788.00	21,035.49	11,173.00	152.45	151.37	-65.52	-10,048.77	1,921.30	1,492.25	1,207.16	285.09	5.234		
21,850.00	11,788.00	21,085.49	11,173.00	153.15	152.07	-65.52	-10,098.77	1,921.43	1,492.30	1,205.90	286.40	5.211		
21,900.00	11,788.00	21,135.49	11,173.00	153.85	152.78	-65.52	-10,148.77	1,921.57	1,492.36	1,204.64	287.71	5.187		
21,950.00	11,788.00	21,185.49	11,173.00	154.55	153.48	-65.53	-10,198.77	1,921.70	1,492.41	1,203.38	289.03	5.164		
22,000.00	11,788.00	21,235.49	11,173.00	155.25	154.18	-65.53	-10,248.77	1,921.84	1,492.47	1,202.12	290.35	5.140		
22,050.00	11,788.00	21,285.49	11,173.00	155.95	154.88	-65.53	-10,298.77	1,921.97	1,492.53	1,200.86	291.66	5.117		
22,079.71	11,788.00	21,315.20	11,173.00	156.36	155.30	-65.53	-10,328.48	1,922.05	1,492.56	1,200.12	292.44	5.104 ES, SF		

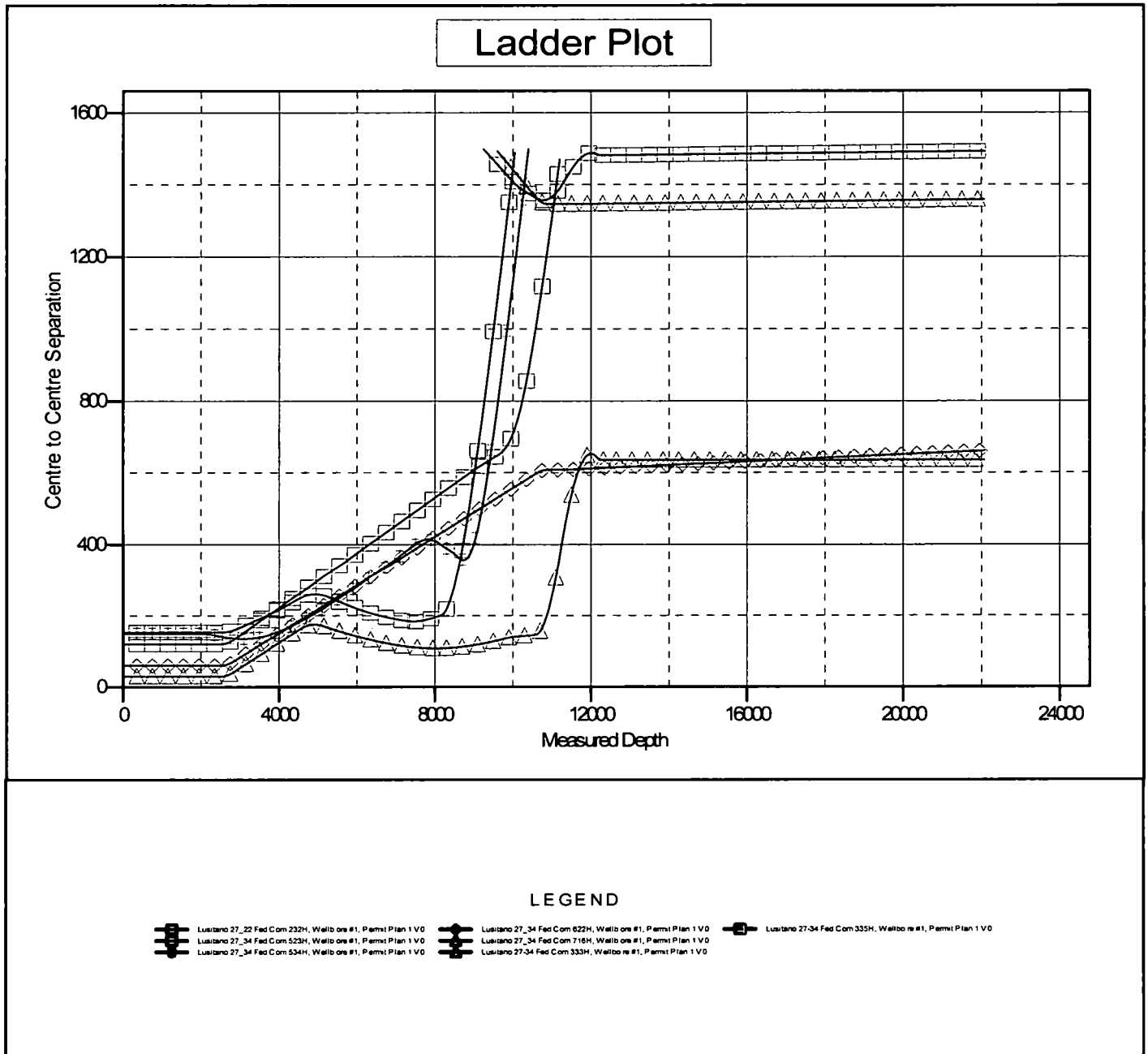
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3360.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Lusitano 27_34 Fed Com 713H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.30°



Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3360.00ft
Reference Site:	Sec 27-T25S-R31E	MD Reference:	RKB @ 3360.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3360.00ft

Offset Depths are relative to Offset Datum

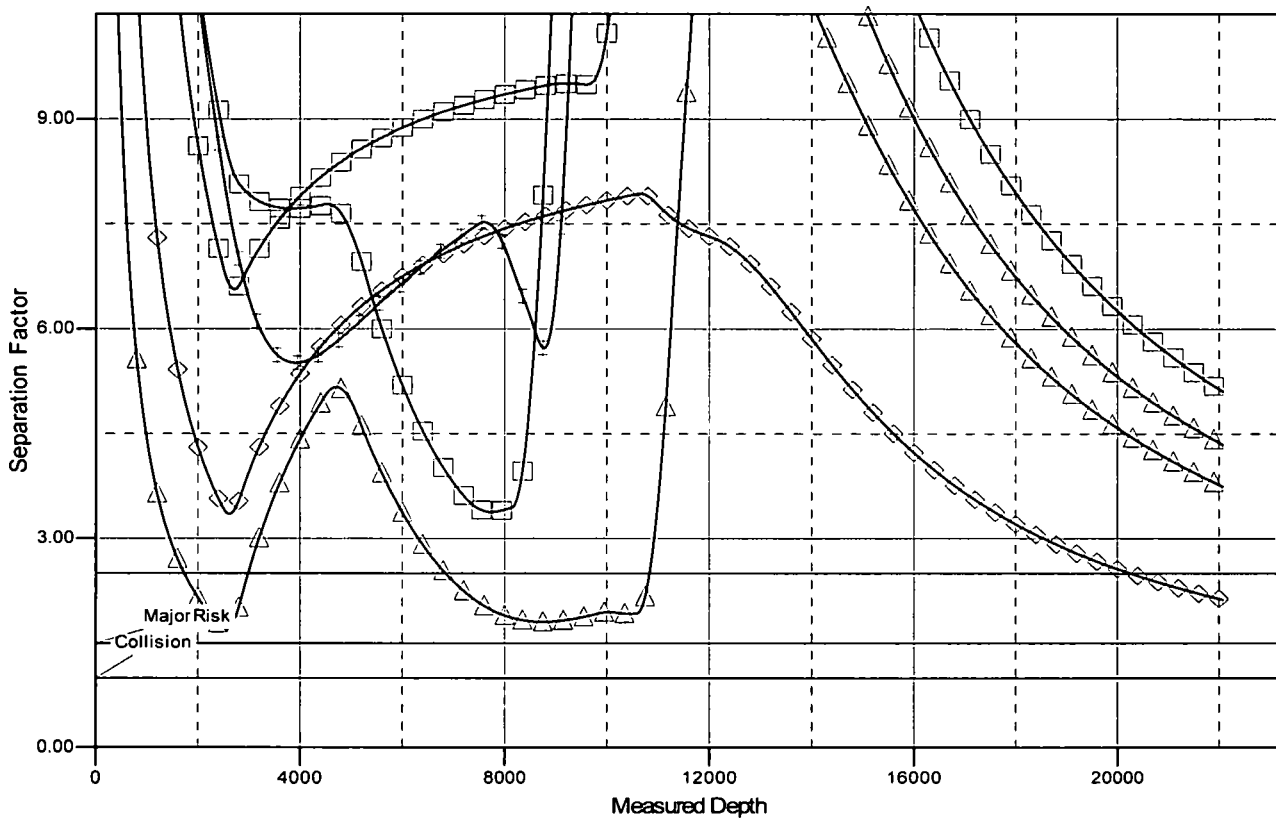
Central Meridian is -104.333334

Coordinates are relative to: Lusitano 27_34 Fed Com 713H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.30°

Separation Factor Plot



LEGEND

Lusitano 27_22 Fed Com 722H, Wellbore #1, Permit Plan 1 V0	Lusitano 27_34 Fed Com 622H, Wellbore #1, Permit Plan 1 V0	Lusitano 27_34 Fed Com 335H, Wellbore #1, Permit Plan 1 V0
Lusitano 27_34 Fed Com 523H, Wellbore #1, Permit Plan 1 V0	Lusitano 27_34 Fed Com 718H, Wellbore #1, Permit Plan 1 V0	
Lusitano 27_34 Fed Com 534H, Wellbore #1, Permit Plan 1 V0	Lusitano 27_34 Fed Com 333H, Wellbore #1, Permit Plan 1 V0	

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 27-T25S-R31E

Lusitano 27_34 Fed Com 713H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

21 August, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	North Reference:	Grid
Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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

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

Well	Lusitano 27_34 Fed Com 713H			
Well Position	+N/-S	0.00 ft	Northing:	403,450.04 usft
	+E/-W	0.00 ft	Easting:	716,134.21 usft
Position Uncertainty		0.50 ft	Wellhead Elevation:	Latitude: 32.107905
				Longitude: -103.768793
				Ground Level: 3,335.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/20/2018	6.91	59.91	47,728.31780968

Design	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	176.88

Plan Survey Tool Program	Date	8/21/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,079.71 Permit Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,828.20	4.10	71.35	2,827.92	3.76	11.13	1.25	1.25	0.00	71.35	
10,611.96	4.10	71.35	10,591.74	181.87	538.73	0.00	0.00	0.00	0.00	
10,885.46	0.00	0.00	10,865.00	185.00	548.00	1.50	-1.50	0.00	180.00	
11,235.50	0.00	0.00	11,215.04	185.00	548.00	0.00	0.00	0.00	0.00	
12,135.50	90.00	179.92	11,788.00	-387.96	548.85	10.00	10.00	0.00	179.92	PBHL - Lusitano 27_3
22,079.71	90.00	179.92	11,788.00	-10,332.16	563.59	0.00	0.00	0.00	0.00	PBHL - Lusitano 27_3

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	North Reference:	Grid
Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
100.00	0.00	0.00	100.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
200.00	0.00	0.00	200.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
300.00	0.00	0.00	300.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
400.00	0.00	0.00	400.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
500.00	0.00	0.00	500.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
600.00	0.00	0.00	600.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
700.00	0.00	0.00	700.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
800.00	0.00	0.00	800.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
900.00	0.00	0.00	900.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,000.00	0.00	0.00	1,000.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,100.00	0.00	0.00	1,100.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,200.00	0.00	0.00	1,200.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,300.00	0.00	0.00	1,300.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,400.00	0.00	0.00	1,400.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,500.00	0.00	0.00	1,500.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,600.00	0.00	0.00	1,600.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,700.00	0.00	0.00	1,700.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,800.00	0.00	0.00	1,800.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,900.00	0.00	0.00	1,900.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,000.00	0.00	0.00	2,000.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,100.00	0.00	0.00	2,100.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,200.00	0.00	0.00	2,200.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,300.00	0.00	0.00	2,300.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,400.00	0.00	0.00	2,400.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,500.00	0.00	0.00	2,500.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,600.00	1.25	71.35	2,599.99	0.35	1.03	403,450.39	716,135.24	32.107906	-103.768790
2,700.00	2.50	71.35	2,699.94	1.40	4.13	403,451.43	716,138.34	32.107909	-103.768780
2,800.00	3.75	71.35	2,799.79	3.14	9.30	403,453.18	716,143.50	32.107914	-103.768763
2,828.20	4.10	71.35	2,827.92	3.76	11.13	403,453.80	716,145.33	32.107915	-103.768757
2,900.00	4.10	71.35	2,899.54	5.40	15.99	403,455.44	716,150.20	32.107920	-103.768742
3,000.00	4.10	71.35	2,999.28	7.69	22.77	403,457.73	716,156.98	32.107926	-103.768720
3,100.00	4.10	71.35	3,099.02	9.98	29.55	403,460.02	716,163.76	32.107932	-103.768698
3,200.00	4.10	71.35	3,198.77	12.26	36.33	403,462.30	716,170.54	32.107938	-103.768676
3,300.00	4.10	71.35	3,298.51	14.55	43.11	403,464.59	716,177.31	32.107945	-103.768654
3,400.00	4.10	71.35	3,398.25	16.84	49.89	403,466.88	716,184.09	32.107951	-103.768632
3,500.00	4.10	71.35	3,498.00	19.13	56.66	403,469.17	716,190.87	32.107957	-103.768610
3,600.00	4.10	71.35	3,597.74	21.42	63.44	403,471.46	716,197.65	32.107963	-103.768588
3,700.00	4.10	71.35	3,697.49	23.71	70.22	403,473.74	716,204.43	32.107969	-103.768566
3,800.00	4.10	71.35	3,797.23	25.99	77.00	403,476.03	716,211.20	32.107976	-103.768544
3,900.00	4.10	71.35	3,896.97	28.28	83.78	403,478.32	716,217.98	32.107982	-103.768522
4,000.00	4.10	71.35	3,996.72	30.57	90.55	403,480.61	716,224.76	32.107988	-103.768500
4,100.00	4.10	71.35	4,096.46	32.86	97.33	403,482.90	716,231.54	32.107994	-103.768478
4,200.00	4.10	71.35	4,196.20	35.15	104.11	403,485.19	716,238.32	32.108000	-103.768457
4,300.00	4.10	71.35	4,295.95	37.44	110.89	403,487.47	716,245.10	32.108007	-103.768435
4,400.00	4.10	71.35	4,395.69	39.72	117.67	403,489.76	716,251.87	32.108013	-103.768413
4,500.00	4.10	71.35	4,495.44	42.01	124.45	403,492.05	716,258.65	32.108019	-103.768391
4,600.00	4.10	71.35	4,595.18	44.30	131.22	403,494.34	716,265.43	32.108025	-103.768369
4,700.00	4.10	71.35	4,694.92	46.59	138.00	403,496.63	716,272.21	32.108031	-103.768347
4,800.00	4.10	71.35	4,794.67	48.88	144.78	403,498.92	716,278.99	32.108038	-103.768325
4,900.00	4.10	71.35	4,894.41	51.16	151.56	403,501.20	716,285.76	32.108044	-103.768303
5,000.00	4.10	71.35	4,994.15	53.45	158.34	403,503.49	716,292.54	32.108050	-103.768281
5,100.00	4.10	71.35	5,093.90	55.74	165.12	403,505.78	716,299.32	32.108056	-103.768259
5,200.00	4.10	71.35	5,193.64	58.03	171.89	403,508.07	716,306.10	32.108062	-103.768237
5,300.00	4.10	71.35	5,293.39	60.32	178.67	403,510.36	716,312.88	32.108068	-103.768215

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	North Reference:	Grid
Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	4.10	71.35	5,393.13	62.61	185.45	403,512.65	716,319.66	32.108075	-103.768193
5,500.00	4.10	71.35	5,492.87	64.89	192.23	403,514.93	716,326.43	32.108081	-103.768171
5,600.00	4.10	71.35	5,592.62	67.18	199.01	403,517.22	716,333.21	32.108087	-103.768150
5,700.00	4.10	71.35	5,692.36	69.47	205.78	403,519.51	716,339.99	32.108093	-103.768128
5,800.00	4.10	71.35	5,792.11	71.76	212.56	403,521.80	716,346.77	32.108099	-103.768106
5,900.00	4.10	71.35	5,891.85	74.05	219.34	403,524.09	716,353.55	32.108106	-103.768084
6,000.00	4.10	71.35	5,991.59	76.34	226.12	403,526.37	716,360.32	32.108112	-103.768062
6,100.00	4.10	71.35	6,091.34	78.62	232.90	403,528.66	716,367.10	32.108118	-103.768040
6,200.00	4.10	71.35	6,191.08	80.91	239.68	403,530.95	716,373.88	32.108124	-103.768018
6,300.00	4.10	71.35	6,290.82	83.20	246.45	403,533.24	716,380.66	32.108130	-103.767996
6,400.00	4.10	71.35	6,390.57	85.49	253.23	403,535.53	716,387.44	32.108137	-103.767974
6,500.00	4.10	71.35	6,490.31	87.78	260.01	403,537.82	716,394.22	32.108143	-103.767952
6,600.00	4.10	71.35	6,590.06	90.07	266.79	403,540.10	716,400.99	32.108149	-103.767930
6,700.00	4.10	71.35	6,689.80	92.35	273.57	403,542.39	716,407.77	32.108155	-103.767908
6,800.00	4.10	71.35	6,789.54	94.64	280.34	403,544.68	716,414.55	32.108161	-103.767886
6,900.00	4.10	71.35	6,889.29	96.93	287.12	403,546.97	716,421.33	32.108168	-103.767864
7,000.00	4.10	71.35	6,989.03	99.22	293.90	403,549.26	716,428.11	32.108174	-103.767843
7,100.00	4.10	71.35	7,088.77	101.51	300.68	403,551.55	716,434.88	32.108180	-103.767821
7,200.00	4.10	71.35	7,188.52	103.79	307.46	403,553.83	716,441.66	32.108186	-103.767799
7,300.00	4.10	71.35	7,288.26	106.08	314.24	403,556.12	716,448.44	32.108192	-103.767777
7,400.00	4.10	71.35	7,388.01	108.37	321.01	403,558.41	716,455.22	32.108199	-103.767755
7,500.00	4.10	71.35	7,487.75	110.66	327.79	403,560.70	716,462.00	32.108205	-103.767733
7,600.00	4.10	71.35	7,587.49	112.95	334.57	403,562.99	716,468.78	32.108211	-103.767711
7,700.00	4.10	71.35	7,687.24	115.24	341.35	403,565.28	716,475.55	32.108217	-103.767689
7,800.00	4.10	71.35	7,786.98	117.52	348.13	403,567.56	716,482.33	32.108223	-103.767667
7,900.00	4.10	71.35	7,886.72	119.81	354.90	403,569.85	716,489.11	32.108229	-103.767645
8,000.00	4.10	71.35	7,986.47	122.10	361.68	403,572.14	716,495.89	32.108236	-103.767623
8,100.00	4.10	71.35	8,086.21	124.39	368.46	403,574.43	716,502.67	32.108242	-103.767601
8,200.00	4.10	71.35	8,185.96	126.68	375.24	403,576.72	716,509.44	32.108248	-103.767579
8,300.00	4.10	71.35	8,285.70	128.97	382.02	403,579.00	716,516.22	32.108254	-103.767557
8,400.00	4.10	71.35	8,385.44	131.25	388.80	403,581.29	716,523.00	32.108260	-103.767536
8,500.00	4.10	71.35	8,485.19	133.54	395.57	403,583.58	716,529.78	32.108267	-103.767514
8,600.00	4.10	71.35	8,584.93	135.83	402.35	403,585.87	716,536.56	32.108273	-103.767492
8,700.00	4.10	71.35	8,684.67	138.12	409.13	403,588.16	716,543.34	32.108279	-103.767470
8,800.00	4.10	71.35	8,784.42	140.41	415.91	403,590.45	716,550.11	32.108285	-103.767448
8,900.00	4.10	71.35	8,884.16	142.70	422.69	403,592.73	716,556.89	32.108291	-103.767426
9,000.00	4.10	71.35	8,983.91	144.98	429.46	403,595.02	716,563.67	32.108298	-103.767404
9,100.00	4.10	71.35	9,083.65	147.27	436.24	403,597.31	716,570.45	32.108304	-103.767382
9,200.00	4.10	71.35	9,183.39	149.56	443.02	403,599.60	716,577.23	32.108310	-103.767360
9,300.00	4.10	71.35	9,283.14	151.85	449.80	403,601.89	716,584.00	32.108316	-103.767338
9,400.00	4.10	71.35	9,382.88	154.14	456.58	403,604.18	716,590.78	32.108322	-103.767316
9,500.00	4.10	71.35	9,482.62	156.42	463.36	403,606.46	716,597.56	32.108329	-103.767294
9,600.00	4.10	71.35	9,582.37	158.71	470.13	403,608.75	716,604.34	32.108335	-103.767272
9,700.00	4.10	71.35	9,682.11	161.00	476.91	403,611.04	716,611.12	32.108341	-103.767250
9,800.00	4.10	71.35	9,781.86	163.29	483.69	403,613.33	716,617.90	32.108347	-103.767229
9,900.00	4.10	71.35	9,881.60	165.58	490.47	403,615.62	716,624.67	32.108353	-103.767207
10,000.00	4.10	71.35	9,981.34	167.87	497.25	403,617.90	716,631.45	32.108360	-103.767185
10,100.00	4.10	71.35	10,081.09	170.15	504.03	403,620.19	716,638.23	32.108366	-103.767163
10,200.00	4.10	71.35	10,180.83	172.44	510.80	403,622.48	716,645.01	32.108372	-103.767141
10,300.00	4.10	71.35	10,280.57	174.73	517.58	403,624.77	716,651.79	32.108378	-103.767119
10,400.00	4.10	71.35	10,380.32	177.02	524.36	403,627.06	716,658.56	32.108384	-103.767097
10,500.00	4.10	71.35	10,480.06	179.31	531.14	403,629.35	716,665.34	32.108390	-103.767075
10,600.00	4.10	71.35	10,579.81	181.60	537.92	403,631.63	716,672.12	32.108397	-103.767053
10,611.96	4.10	71.35	10,591.74	181.87	538.73	403,631.91	716,672.93	32.108397	-103.767050
10,700.00	2.78	71.35	10,679.61	183.56	543.74	403,633.60	716,677.94	32.108402	-103.767034

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	North Reference:	Grid
Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,800.00	1.28	71.35	10,779.55	184.69	547.09	403,634.73	716,681.30	32.108405	-103.767023
10,885.46	0.00	0.00	10,865.00	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
10,900.00	0.00	0.00	10,879.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,000.00	0.00	0.00	10,979.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,100.00	0.00	0.00	11,079.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,200.00	0.00	0.00	11,179.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,235.50	0.00	0.00	11,215.04	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
KOP @ 11236' MD, 50' FNL, 2310' FWL									
11,300.00	6.45	179.92	11,279.41	181.37	548.01	403,631.41	716,682.21	32.108396	-103.767020
11,400.00	16.45	179.92	11,377.29	161.55	548.03	403,611.59	716,682.24	32.108341	-103.767021
11,476.64	24.11	179.92	11,449.13	135.00	548.07	403,585.04	716,682.28	32.108268	-103.767021
FTP @ 11477' MD, 100' FNL, 2310' FWL									
11,500.00	26.45	179.92	11,470.25	125.02	548.09	403,575.06	716,682.29	32.108241	-103.767021
11,600.00	36.45	179.92	11,555.45	72.91	548.17	403,522.95	716,682.37	32.108098	-103.767022
11,700.00	46.45	179.92	11,630.31	6.80	548.26	403,456.84	716,682.47	32.107916	-103.767023
11,800.00	56.45	179.92	11,692.55	-71.31	548.38	403,378.73	716,682.58	32.107701	-103.767024
11,900.00	66.45	179.92	11,740.28	-159.03	548.51	403,291.01	716,682.71	32.107460	-103.767025
12,000.00	76.45	179.92	11,772.05	-253.72	548.65	403,196.32	716,682.86	32.107200	-103.767026
12,100.00	86.45	179.92	11,786.90	-352.48	548.80	403,097.56	716,683.00	32.106928	-103.767027
12,135.50	90.00	179.92	11,788.00	-387.96	548.85	403,062.08	716,683.05	32.106831	-103.767027
12,200.00	90.00	179.92	11,788.00	-452.46	548.95	402,997.58	716,683.15	32.106654	-103.767028
12,300.00	90.00	179.92	11,788.00	-552.46	549.09	402,897.58	716,683.30	32.106379	-103.767029
12,400.00	90.00	179.92	11,788.00	-652.46	549.24	402,797.58	716,683.45	32.106104	-103.767031
12,500.00	90.00	179.92	11,788.00	-752.46	549.39	402,697.58	716,683.59	32.105829	-103.767032
12,600.00	90.00	179.92	11,788.00	-852.46	549.54	402,597.58	716,683.74	32.105554	-103.767033
12,700.00	90.00	179.92	11,788.00	-952.46	549.69	402,497.58	716,683.89	32.105279	-103.767034
12,800.00	90.00	179.92	11,788.00	-1,052.46	549.83	402,397.58	716,684.04	32.105004	-103.767036
12,900.00	90.00	179.92	11,788.00	-1,152.46	549.98	402,297.58	716,684.19	32.104729	-103.767037
13,000.00	90.00	179.92	11,788.00	-1,252.46	550.13	402,197.58	716,684.34	32.104455	-103.767038
13,100.00	90.00	179.92	11,788.00	-1,352.46	550.28	402,097.58	716,684.48	32.104180	-103.767039
13,200.00	90.00	179.92	11,788.00	-1,452.46	550.43	401,997.58	716,684.63	32.103905	-103.767040
13,300.00	90.00	179.92	11,788.00	-1,552.46	550.58	401,897.59	716,684.78	32.103630	-103.767042
13,400.00	90.00	179.92	11,788.00	-1,652.46	550.72	401,797.59	716,684.93	32.103355	-103.767043
13,500.00	90.00	179.92	11,788.00	-1,752.46	550.87	401,697.59	716,685.08	32.103080	-103.767044
13,600.00	90.00	179.92	11,788.00	-1,852.46	551.02	401,597.59	716,685.23	32.102805	-103.767045
13,700.00	90.00	179.92	11,788.00	-1,952.46	551.17	401,497.59	716,685.37	32.102530	-103.767046
13,800.00	90.00	179.92	11,788.00	-2,052.46	551.32	401,397.59	716,685.52	32.102255	-103.767048
13,900.00	90.00	179.92	11,788.00	-2,152.46	551.47	401,297.59	716,685.67	32.101981	-103.767049
14,000.00	90.00	179.92	11,788.00	-2,252.46	551.61	401,197.59	716,685.82	32.101706	-103.767050
14,100.00	90.00	179.92	11,788.00	-2,352.46	551.76	401,097.59	716,685.97	32.101431	-103.767051
14,200.00	90.00	179.92	11,788.00	-2,452.46	551.91	400,997.59	716,686.11	32.101156	-103.767053
14,300.00	90.00	179.92	11,788.00	-2,552.46	552.06	400,897.59	716,686.26	32.100881	-103.767054
14,400.00	90.00	179.92	11,788.00	-2,652.46	552.21	400,797.59	716,686.41	32.100606	-103.767055
14,500.00	90.00	179.92	11,788.00	-2,752.46	552.35	400,697.59	716,686.56	32.100331	-103.767056
14,600.00	90.00	179.92	11,788.00	-2,852.46	552.50	400,597.59	716,686.71	32.100056	-103.767057
14,700.00	90.00	179.92	11,788.00	-2,952.46	552.65	400,497.59	716,686.86	32.099782	-103.767059
14,800.00	90.00	179.92	11,788.00	-3,052.46	552.80	400,397.59	716,687.00	32.099507	-103.767060
14,900.00	90.00	179.92	11,788.00	-3,152.46	552.95	400,297.59	716,687.15	32.099232	-103.767061
15,000.00	90.00	179.92	11,788.00	-3,252.46	553.10	400,197.59	716,687.30	32.098957	-103.767062
15,100.00	90.00	179.92	11,788.00	-3,352.46	553.24	400,097.59	716,687.45	32.098682	-103.767064
15,200.00	90.00	179.92	11,788.00	-3,452.45	553.39	399,997.59	716,687.60	32.098407	-103.767065
15,300.00	90.00	179.92	11,788.00	-3,552.45	553.54	399,897.59	716,687.75	32.098132	-103.767066
15,400.00	90.00	179.92	11,788.00	-3,652.45	553.69	399,797.59	716,687.89	32.097857	-103.767067
15,500.00	90.00	179.92	11,788.00	-3,752.45	553.84	399,697.59	716,688.04	32.097582	-103.767068

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	North Reference:	Grid
Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,600.00	90.00	179.92	11,788.00	-3,852.45	553.99	399,597.59	716,688.19	32.097308	-103.767070
15,700.00	90.00	179.92	11,788.00	-3,952.45	554.13	399,497.59	716,688.34	32.097033	-103.767071
15,800.00	90.00	179.92	11,788.00	-4,052.45	554.28	399,397.59	716,688.49	32.096758	-103.767072
15,900.00	90.00	179.92	11,788.00	-4,152.45	554.43	399,297.59	716,688.63	32.096483	-103.767073
16,000.00	90.00	179.92	11,788.00	-4,252.45	554.58	399,197.59	716,688.78	32.096208	-103.767074
16,100.00	90.00	179.92	11,788.00	-4,352.45	554.73	399,097.59	716,688.93	32.095933	-103.767076
16,200.00	90.00	179.92	11,788.00	-4,452.45	554.87	398,997.59	716,689.08	32.095658	-103.767077
16,300.00	90.00	179.92	11,788.00	-4,552.45	555.02	398,897.59	716,689.23	32.095383	-103.767078
16,400.00	90.00	179.92	11,788.00	-4,652.45	555.17	398,797.59	716,689.38	32.095108	-103.767079
16,500.00	90.00	179.92	11,788.00	-4,752.45	555.32	398,697.59	716,689.52	32.094834	-103.767081
16,600.00	90.00	179.92	11,788.00	-4,852.45	555.47	398,597.60	716,689.67	32.094559	-103.767082
16,700.00	90.00	179.92	11,788.00	-4,952.45	555.62	398,497.60	716,689.82	32.094284	-103.767083
16,800.00	90.00	179.92	11,788.00	-5,052.45	555.76	398,397.60	716,689.97	32.094009	-103.767084
16,900.00	90.00	179.92	11,788.00	-5,152.45	555.91	398,297.60	716,690.12	32.093734	-103.767085
17,000.00	90.00	179.92	11,788.00	-5,252.45	556.06	398,197.60	716,690.27	32.093459	-103.767087
17,100.00	90.00	179.92	11,788.00	-5,352.45	556.21	398,097.60	716,690.41	32.093184	-103.767088
17,200.00	90.00	179.92	11,788.00	-5,452.45	556.36	397,997.60	716,690.56	32.092909	-103.767089
17,300.00	90.00	179.92	11,788.00	-5,552.45	556.51	397,897.60	716,690.71	32.092635	-103.767090
17,400.00	90.00	179.92	11,788.00	-5,652.45	556.65	397,797.60	716,690.86	32.092360	-103.767092
17,500.00	90.00	179.92	11,788.00	-5,752.45	556.80	397,697.60	716,691.01	32.092085	-103.767093
17,600.00	90.00	179.92	11,788.00	-5,852.45	556.95	397,597.60	716,691.16	32.091810	-103.767094
17,700.00	90.00	179.92	11,788.00	-5,952.45	557.10	397,497.60	716,691.30	32.091535	-103.767095
17,800.00	90.00	179.92	11,788.00	-6,052.45	557.25	397,397.60	716,691.45	32.091260	-103.767096
17,900.00	90.00	179.92	11,788.00	-6,152.45	557.39	397,297.60	716,691.60	32.090985	-103.767098
18,000.00	90.00	179.92	11,788.00	-6,252.45	557.54	397,197.60	716,691.75	32.090710	-103.767099
18,100.00	90.00	179.92	11,788.00	-6,352.45	557.69	397,097.60	716,691.90	32.090435	-103.767100
18,200.00	90.00	179.92	11,788.00	-6,452.45	557.84	396,997.60	716,692.04	32.090161	-103.767101
18,300.00	90.00	179.92	11,788.00	-6,552.45	557.99	396,897.60	716,692.19	32.089886	-103.767102
18,400.00	90.00	179.92	11,788.00	-6,652.45	558.14	396,797.60	716,692.34	32.089611	-103.767104
18,500.00	90.00	179.92	11,788.00	-6,752.45	558.28	396,697.60	716,692.49	32.089336	-103.767105
18,600.00	90.00	179.92	11,788.00	-6,852.45	558.43	396,597.60	716,692.64	32.089061	-103.767106
18,700.00	90.00	179.92	11,788.00	-6,952.45	558.58	396,497.60	716,692.79	32.088786	-103.767107
18,800.00	90.00	179.92	11,788.00	-7,052.45	558.73	396,397.60	716,692.93	32.088511	-103.767109
18,900.00	90.00	179.92	11,788.00	-7,152.45	558.88	396,297.60	716,693.08	32.088236	-103.767110
19,000.00	90.00	179.92	11,788.00	-7,252.45	559.03	396,197.60	716,693.23	32.087961	-103.767111
19,100.00	90.00	179.92	11,788.00	-7,352.45	559.17	396,097.60	716,693.38	32.087687	-103.767112
19,200.00	90.00	179.92	11,788.00	-7,452.45	559.32	395,997.60	716,693.53	32.087412	-103.767113
19,300.00	90.00	179.92	11,788.00	-7,552.45	559.47	395,897.60	716,693.68	32.087137	-103.767115
19,400.00	90.00	179.92	11,788.00	-7,652.45	559.62	395,797.60	716,693.82	32.086862	-103.767116
19,500.00	90.00	179.92	11,788.00	-7,752.45	559.77	395,697.60	716,693.97	32.086587	-103.767117
19,600.00	90.00	179.92	11,788.00	-7,852.45	559.92	395,597.60	716,694.12	32.086312	-103.767118
19,700.00	90.00	179.92	11,788.00	-7,952.45	560.06	395,497.60	716,694.27	32.086037	-103.767119
19,800.00	90.00	179.92	11,788.00	-8,052.45	560.21	395,397.61	716,694.42	32.085762	-103.767121
19,900.00	90.00	179.92	11,788.00	-8,152.45	560.36	395,297.61	716,694.56	32.085488	-103.767122
20,000.00	90.00	179.92	11,788.00	-8,252.45	560.51	395,197.61	716,694.71	32.085213	-103.767123
20,100.00	90.00	179.92	11,788.00	-8,352.45	560.66	395,097.61	716,694.86	32.084938	-103.767124
20,200.00	90.00	179.92	11,788.00	-8,452.45	560.80	394,997.61	716,695.01	32.084663	-103.767126
20,300.00	90.00	179.92	11,788.00	-8,552.45	560.95	394,897.61	716,695.16	32.084388	-103.767127
20,400.00	90.00	179.92	11,788.00	-8,652.45	561.10	394,797.61	716,695.31	32.084113	-103.767128
20,500.00	90.00	179.92	11,788.00	-8,752.45	561.25	394,697.61	716,695.45	32.083838	-103.767129
20,600.00	90.00	179.92	11,788.00	-8,852.45	561.40	394,597.61	716,695.60	32.083563	-103.767130
20,700.00	90.00	179.92	11,788.00	-8,952.45	561.55	394,497.61	716,695.75	32.083288	-103.767132
20,800.00	90.00	179.92	11,788.00	-9,052.45	561.69	394,397.61	716,695.90	32.083014	-103.767133
20,900.00	90.00	179.92	11,788.00	-9,152.45	561.84	394,297.61	716,696.05	32.082739	-103.767134
21,000.00	90.00	179.92	11,788.00	-9,252.45	561.99	394,197.61	716,696.20	32.082464	-103.767135

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	North Reference:	Grid
Well:	Lusitano 27_34 Fed Com 713H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
21,100.00	90.00	179.92	11,788.00	-9,352.45	562.14	394,097.61	716,696.34	32.082189	-103.767137
21,200.00	90.00	179.92	11,788.00	-9,452.45	562.29	393,997.61	716,696.49	32.081914	-103.767138
21,300.00	90.00	179.92	11,788.00	-9,552.45	562.44	393,897.61	716,696.64	32.081639	-103.767139
21,400.00	90.00	179.92	11,788.00	-9,652.45	562.58	393,797.61	716,696.79	32.081364	-103.767140
21,500.00	90.00	179.92	11,788.00	-9,752.45	562.73	393,697.61	716,696.94	32.081089	-103.767141
21,600.00	90.00	179.92	11,788.00	-9,852.45	562.88	393,597.61	716,697.08	32.080814	-103.767143
21,700.00	90.00	179.92	11,788.00	-9,952.45	563.03	393,497.61	716,697.23	32.080540	-103.767144
21,800.00	90.00	179.92	11,788.00	-10,052.45	563.18	393,397.61	716,697.38	32.080265	-103.767145
21,900.00	90.00	179.92	11,788.00	-10,152.45	563.32	393,297.61	716,697.53	32.079990	-103.767146
21,999.71	90.00	179.92	11,788.00	-10,252.16	563.47	393,197.90	716,697.68	32.079716	-103.767147
LTP @ 22000' MD, 100' FSL, 2310' FWL									
22,000.00	90.00	179.92	11,788.00	-10,252.45	563.47	393,197.61	716,697.68	32.079715	-103.767147
22,079.71	90.00	179.92	11,788.00	-10,332.16	563.59	393,117.90	716,697.80	32.079496	-103.767148
PBHL; 20' FSL, 2310' FWL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - Lusitano 27_34 I	0.00	0.00	0.00	-10,332.16	563.59	393,117.90	716,697.80	32.079496	-103.767148
- plan misses target center by 10347.52ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
11,235.50	11,215.04	185.00	548.00	KOP @ 11236' MD, 50' FNL, 2310' FWL	
11,476.64	11,449.13	135.00	548.07	FTP @ 11477' MD, 100' FNL, 2310' FWL	
21,999.71	11,788.00	-10,252.16	563.47	LTP @ 22000' MD, 100' FSL, 2310' FWL	
22,079.71	11,788.00	-10,332.16	563.59	PBHL; 20' FSL, 2310' FWL	

Devon Energy

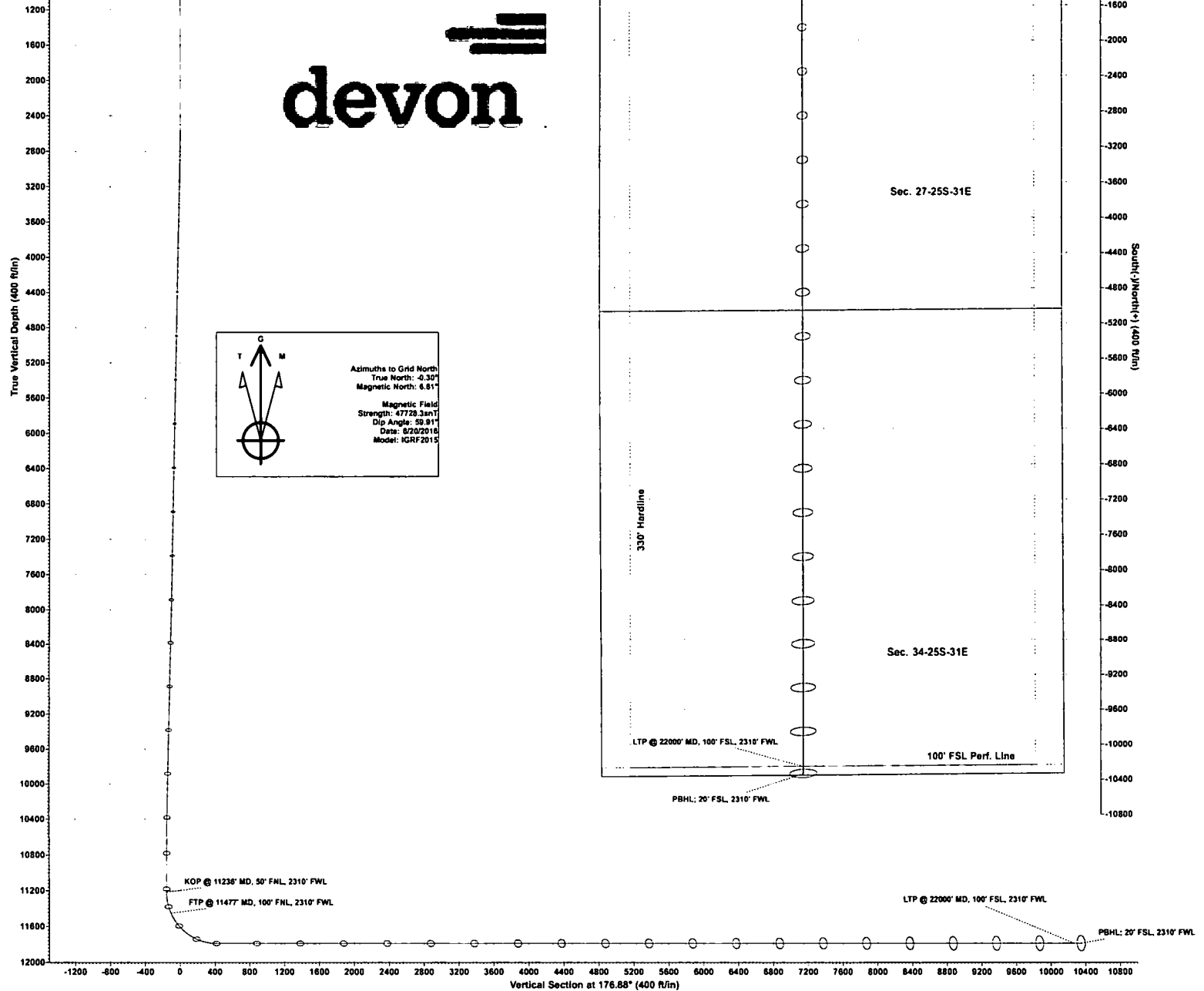
WELL DETAILS: Lusitano 27_34 Fed Com 713H

RKB @ 3360.00ft

3335.00
Northing 403450.04 Easting 718134.21 Latitude 32.107905 Longitude -103.768793

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
2828.20	4.10	71.35	2827.92	3.78	11.13	1.25	-3.14	
10611.96	4.10	71.35	10591.74	181.87	538.73	0.00	-152.26	
10865.48	0.00	0.00	10865.00	185.00	548.00	1.50	-154.88	
11235.50	0.00	0.00	11215.04	185.00	548.00	0.00	-154.88	KOP @ 11236' MD, 50' FNL, 2310' FWL
12135.50	90.00	179.92	11788.00	-387.96	548.85	10.00	417.28	
22079.71	90.00	179.92	11788.00	-10332.16	563.59	0.00	10347.52	PBHL: 20' FSL, 2310' FWL



WCDSC Permian NM

Lusitano 27_34 Fed Com 713H - Permit Plan 1

Eddy County (NAD 83 NM Eastern)

Sec 27-T25S-R31E

Your Ref:

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0		0	0	0	0	0	0
100		0	0	100	0	0	0
200		0	0	200	0	0	0
300		0	0	300	0	0	0
400		0	0	400	0	0	0
500		0	0	500	0	0	0
600		0	0	600	0	0	0
700		0	0	700	0	0	0
800		0	0	800	0	0	0
900		0	0	900	0	0	0
1000		0	0	1000	0	0	0
1100		0	0	1100	0	0	0
1200		0	0	1200	0	0	0
1300		0	0	1300	0	0	0
1400		0	0	1400	0	0	0
1500		0	0	1500	0	0	0
1600		0	0	1600	0	0	0
1700		0	0	1700	0	0	0
1800		0	0	1800	0	0	0
1900		0	0	1900	0	0	0
2000		0	0	2000	0	0	0
2100		0	0	2100	0	0	0
2200		0	0	2200	0	0	0
2300		0	0	2300	0	0	0
2400		0	0	2400	0	0	0
2500		0	0	2500	0	0	0
2600	1.25	71.346	2599.99	0.35	1.03	-0.29	1.25
2700	2.5	71.346	2699.94	1.4	4.13	-1.17	1.25
2800	3.75	71.346	2799.79	3.14	9.3	-2.63	1.25
2900	4.102	71.346	2899.54	5.4	15.99	-4.52	0.35
3000	4.102	71.346	2999.28	7.69	22.77	-6.44	0
3100	4.102	71.346	3099.02	9.98	29.55	-8.35	0

3200	4.102	71.346	3198.77	12.26	36.33	-10.27	0
3300	4.102	71.346	3298.51	14.55	43.11	-12.18	0
3400	4.102	71.346	3398.25	16.84	49.89	-14.1	0
3500	4.102	71.346	3498	19.13	56.66	-16.01	0
3600	4.102	71.346	3597.74	21.42	63.44	-17.93	0
3700	4.102	71.346	3697.49	23.71	70.22	-19.85	0
3800	4.102	71.346	3797.23	25.99	77	-21.76	0
3900	4.102	71.346	3896.97	28.28	83.78	-23.68	0
4000	4.102	71.346	3996.72	30.57	90.55	-25.59	0
4100	4.102	71.346	4096.46	32.86	97.33	-27.51	0
4200	4.102	71.346	4196.2	35.15	104.11	-29.42	0
4300	4.102	71.346	4295.95	37.44	110.89	-31.34	0
4400	4.102	71.346	4395.69	39.72	117.67	-33.26	0
4500	4.102	71.346	4495.44	42.01	124.45	-35.17	0
4600	4.102	71.346	4595.18	44.3	131.22	-37.09	0
4700	4.102	71.346	4694.92	46.59	138	-39	0
4800	4.102	71.346	4794.67	48.88	144.78	-40.92	0
4900	4.102	71.346	4894.41	51.16	151.56	-42.83	0
5000	4.102	71.346	4994.15	53.45	158.34	-44.75	0
5100	4.102	71.346	5093.9	55.74	165.12	-46.67	0
5200	4.102	71.346	5193.64	58.03	171.89	-48.58	0
5300	4.102	71.346	5293.39	60.32	178.67	-50.5	0
5400	4.102	71.346	5393.13	62.61	185.45	-52.41	0
5500	4.102	71.346	5492.87	64.89	192.23	-54.33	0
5600	4.102	71.346	5592.62	67.18	199.01	-56.24	0
5700	4.102	71.346	5692.36	69.47	205.78	-58.16	0
5800	4.102	71.346	5792.11	71.76	212.56	-60.08	0
5900	4.102	71.346	5891.85	74.05	219.34	-61.99	0
6000	4.102	71.346	5991.59	76.34	226.12	-63.91	0
6100	4.102	71.346	6091.34	78.62	232.9	-65.82	0
6200	4.102	71.346	6191.08	80.91	239.68	-67.74	0
6300	4.102	71.346	6290.82	83.2	246.45	-69.65	0
6400	4.102	71.346	6390.57	85.49	253.23	-71.57	0
6500	4.102	71.346	6490.31	87.78	260.01	-73.48	0
6600	4.102	71.346	6590.06	90.07	266.79	-75.4	0
6700	4.102	71.346	6689.8	92.35	273.57	-77.32	0
6800	4.102	71.346	6789.54	94.64	280.34	-79.23	0
6900	4.102	71.346	6889.29	96.93	287.12	-81.15	0
7000	4.102	71.346	6989.03	99.22	293.9	-83.06	0
7100	4.102	71.346	7088.77	101.51	300.68	-84.98	0
7200	4.102	71.346	7188.52	103.79	307.46	-86.89	0
7300	4.102	71.346	7288.26	106.08	314.24	-88.81	0
7400	4.102	71.346	7388.01	108.37	321.01	-90.73	0
7500	4.102	71.346	7487.75	110.66	327.79	-92.64	0
7600	4.102	71.346	7587.49	112.95	334.57	-94.56	0
7700	4.102	71.346	7687.24	115.24	341.35	-96.47	0
7800	4.102	71.346	7786.98	117.52	348.13	-98.39	0

7900	4.102	71.346	7886.72	119.81	354.9	-100.3	0
8000	4.102	71.346	7986.47	122.1	361.68	-102.22	0
8100	4.102	71.346	8086.21	124.39	368.46	-104.14	0
8200	4.102	71.346	8185.96	126.68	375.24	-106.05	0
8300	4.102	71.346	8285.7	128.97	382.02	-107.97	0
8400	4.102	71.346	8385.44	131.25	388.8	-109.88	0
8500	4.102	71.346	8485.19	133.54	395.57	-111.8	0
8600	4.102	71.346	8584.93	135.83	402.35	-113.71	0
8700	4.102	71.346	8684.67	138.12	409.13	-115.63	0
8800	4.102	71.346	8784.42	140.41	415.91	-117.55	0
8900	4.102	71.346	8884.16	142.7	422.69	-119.46	0
9000	4.102	71.346	8983.91	144.98	429.46	-121.38	0
9100	4.102	71.346	9083.65	147.27	436.24	-123.29	0
9200	4.102	71.346	9183.39	149.56	443.02	-125.21	0
9300	4.102	71.346	9283.14	151.85	449.8	-127.12	0
9400	4.102	71.346	9382.88	154.14	456.58	-129.04	0
9500	4.102	71.346	9482.62	156.42	463.36	-130.96	0
9600	4.102	71.346	9582.37	158.71	470.13	-132.87	0
9700	4.102	71.346	9682.11	161	476.91	-134.79	0
9800	4.102	71.346	9781.86	163.29	483.69	-136.7	0
9900	4.102	71.346	9881.6	165.58	490.47	-138.62	0
10000	4.102	71.346	9981.34	167.87	497.25	-140.53	0
10100	4.102	71.346	10081.09	170.15	504.03	-142.45	0
10200	4.102	71.346	10180.83	172.44	510.8	-144.37	0
10300	4.102	71.346	10280.57	174.73	517.58	-146.28	0
10400	4.102	71.346	10380.32	177.02	524.36	-148.2	0
10500	4.102	71.346	10480.06	179.31	531.14	-150.11	0
10600	4.102	71.346	10579.81	181.6	537.92	-152.03	0
10700	2.782	71.346	10679.61	183.56	543.74	-153.67	1.32
10800	1.282	71.346	10779.55	184.69	547.09	-154.62	1.5
10900	0	0	10879.54	185	548	-154.88	1.28
11000	0	0	10979.54	185	548	-154.88	0
11100	0	0	11079.54	185	548	-154.88	0
11200	0	0	11179.54	185	548	-154.88	0
11300	6.45	179.915	11279.41	181.37	548.01	-151.26	6.45
11400	16.45	179.915	11377.29	161.55	548.03	-131.46	10
11500	26.45	179.915	11470.25	125.02	548.09	-94.99	10
11600	36.45	179.915	11555.45	72.91	548.17	-42.95	10
11700	46.45	179.915	11630.31	6.8	548.26	23.07	10
11800	56.45	179.915	11692.55	-71.31	548.38	101.07	10
11900	66.45	179.915	11740.28	-159.03	548.51	188.67	10
12000	76.45	179.915	11772.05	-253.72	548.65	283.22	10
12100	86.45	179.915	11786.9	-352.48	548.8	381.85	10
12200	90	179.915	11788	-452.46	548.94	481.69	3.55
12300	90	179.915	11788	-552.46	549.09	581.55	0
12400	90	179.915	11788	-652.46	549.24	681.4	0
12500	90	179.915	11788	-752.46	549.39	781.26	0

12600	90	179.915	11788	-852.46	549.54	881.12	0
12700	90	179.915	11788	-952.46	549.69	980.98	0
12800	90	179.915	11788	-1052.46	549.83	1080.84	0
12900	90	179.915	11788	-1152.46	549.98	1180.7	0
13000	90	179.915	11788	-1252.46	550.13	1280.56	0
13100	90	179.915	11788	-1352.46	550.28	1380.42	0
13200	90	179.915	11788	-1452.46	550.43	1480.28	0
13300	90	179.915	11788	-1552.46	550.58	1580.14	0
13400	90	179.915	11788	-1652.46	550.72	1680	0
13500	90	179.915	11788	-1752.46	550.87	1779.86	0
13600	90	179.915	11788	-1852.46	551.02	1879.72	0
13700	90	179.915	11788	-1952.46	551.17	1979.58	0
13800	90	179.915	11788	-2052.46	551.32	2079.44	0
13900	90	179.915	11788	-2152.46	551.47	2179.3	0
14000	90	179.915	11788	-2252.46	551.61	2279.16	0
14100	90	179.915	11788	-2352.46	551.76	2379.02	0
14200	90	179.915	11788	-2452.46	551.91	2478.88	0
14300	90	179.915	11788	-2552.46	552.06	2578.74	0
14400	90	179.915	11788	-2652.46	552.21	2678.6	0
14500	90	179.915	11788	-2752.46	552.35	2778.45	0
14600	90	179.915	11788	-2852.46	552.5	2878.31	0
14700	90	179.915	11788	-2952.46	552.65	2978.17	0
14800	90	179.915	11788	-3052.46	552.8	3078.03	0
14900	90	179.915	11788	-3152.46	552.95	3177.89	0
15000	90	179.915	11788	-3252.46	553.1	3277.75	0
15100	90	179.915	11788	-3352.45	553.24	3377.61	0
15200	90	179.915	11788	-3452.45	553.39	3477.47	0
15300	90	179.915	11788	-3552.45	553.54	3577.33	0
15400	90	179.915	11788	-3652.45	553.69	3677.19	0
15500	90	179.915	11788	-3752.45	553.84	3777.05	0
15600	90	179.915	11788	-3852.45	553.99	3876.91	0
15700	90	179.915	11788	-3952.45	554.13	3976.77	0
15800	90	179.915	11788	-4052.45	554.28	4076.63	0
15900	90	179.915	11788	-4152.45	554.43	4176.49	0
16000	90	179.915	11788	-4252.45	554.58	4276.35	0
16100	90	179.915	11788	-4352.45	554.73	4376.21	0
16200	90	179.915	11788	-4452.45	554.87	4476.07	0
16300	90	179.915	11788	-4552.45	555.02	4575.93	0
16400	90	179.915	11788	-4652.45	555.17	4675.79	0
16500	90	179.915	11788	-4752.45	555.32	4775.65	0
16600	90	179.915	11788	-4852.45	555.47	4875.5	0
16700	90	179.915	11788	-4952.45	555.62	4975.36	0
16800	90	179.915	11788	-5052.45	555.76	5075.22	0
16900	90	179.915	11788	-5152.45	555.91	5175.08	0
17000	90	179.915	11788	-5252.45	556.06	5274.94	0
17100	90	179.915	11788	-5352.45	556.21	5374.8	0
17200	90	179.915	11788	-5452.45	556.36	5474.66	0

17300	90	179.915	11788	-5552.45	556.51	5574.52	0
17400	90	179.915	11788	-5652.45	556.65	5674.38	0
17500	90	179.915	11788	-5752.45	556.8	5774.24	0
17600	90	179.915	11788	-5852.45	556.95	5874.1	0
17700	90	179.915	11788	-5952.45	557.1	5973.96	0
17800	90	179.915	11788	-6052.45	557.25	6073.82	0
17900	90	179.915	11788	-6152.45	557.39	6173.68	0
18000	90	179.915	11788	-6252.45	557.54	6273.54	0
18100	90	179.915	11788	-6352.45	557.69	6373.4	0
18200	90	179.915	11788	-6452.45	557.84	6473.26	0
18300	90	179.915	11788	-6552.45	557.99	6573.12	0
18400	90	179.915	11788	-6652.45	558.14	6672.98	0
18500	90	179.915	11788	-6752.45	558.28	6772.84	0
18600	90	179.915	11788	-6852.45	558.43	6872.7	0
18700	90	179.915	11788	-6952.45	558.58	6972.55	0
18800	90	179.915	11788	-7052.45	558.73	7072.41	0
18900	90	179.915	11788	-7152.45	558.88	7172.27	0
19000	90	179.915	11788	-7252.45	559.03	7272.13	0
19100	90	179.915	11788	-7352.45	559.17	7371.99	0
19200	90	179.915	11788	-7452.45	559.32	7471.85	0
19300	90	179.915	11788	-7552.45	559.47	7571.71	0
19400	90	179.915	11788	-7652.45	559.62	7671.57	0
19500	90	179.915	11788	-7752.45	559.77	7771.43	0
19600	90	179.915	11788	-7852.45	559.92	7871.29	0
19700	90	179.915	11788	-7952.45	560.06	7971.15	0
19800	90	179.915	11788	-8052.45	560.21	8071.01	0
19900	90	179.915	11788	-8152.45	560.36	8170.87	0
20000	90	179.915	11788	-8252.45	560.51	8270.73	0
20100	90	179.915	11788	-8352.45	560.66	8370.59	0
20200	90	179.915	11788	-8452.45	560.8	8470.45	0
20300	90	179.915	11788	-8552.45	560.95	8570.31	0
20400	90	179.915	11788	-8652.45	561.1	8670.17	0
20500	90	179.915	11788	-8752.45	561.25	8770.03	0
20600	90	179.915	11788	-8852.45	561.4	8869.89	0
20700	90	179.915	11788	-8952.45	561.55	8969.75	0
20800	90	179.915	11788	-9052.45	561.69	9069.6	0
20900	90	179.915	11788	-9152.45	561.84	9169.46	0
21000	90	179.915	11788	-9252.45	561.99	9269.32	0
21100	90	179.915	11788	-9352.45	562.14	9369.18	0
21200	90	179.915	11788	-9452.45	562.29	9469.04	0
21300	90	179.915	11788	-9552.45	562.44	9568.9	0
21400	90	179.915	11788	-9652.45	562.58	9668.76	0
21500	90	179.915	11788	-9752.45	562.73	9768.62	0
21600	90	179.915	11788	-9852.45	562.88	9868.48	0
21700	90	179.915	11788	-9952.45	563.03	9968.34	0
21800	90	179.915	11788	-10052.5	563.18	10068.2	0
21900	90	179.915	11788	-10152.5	563.32	10168.06	0

22000	90	179.915	11788	-10252.5	563.47	10267.92	0
22079.71	90	179.915	11788	-10332.2	563.59	10347.52	0

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

The Dogleg Severity is in Degrees per 100 feet.

Vertical Section is from Slot and calculated along an Azimuth of 176.878° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

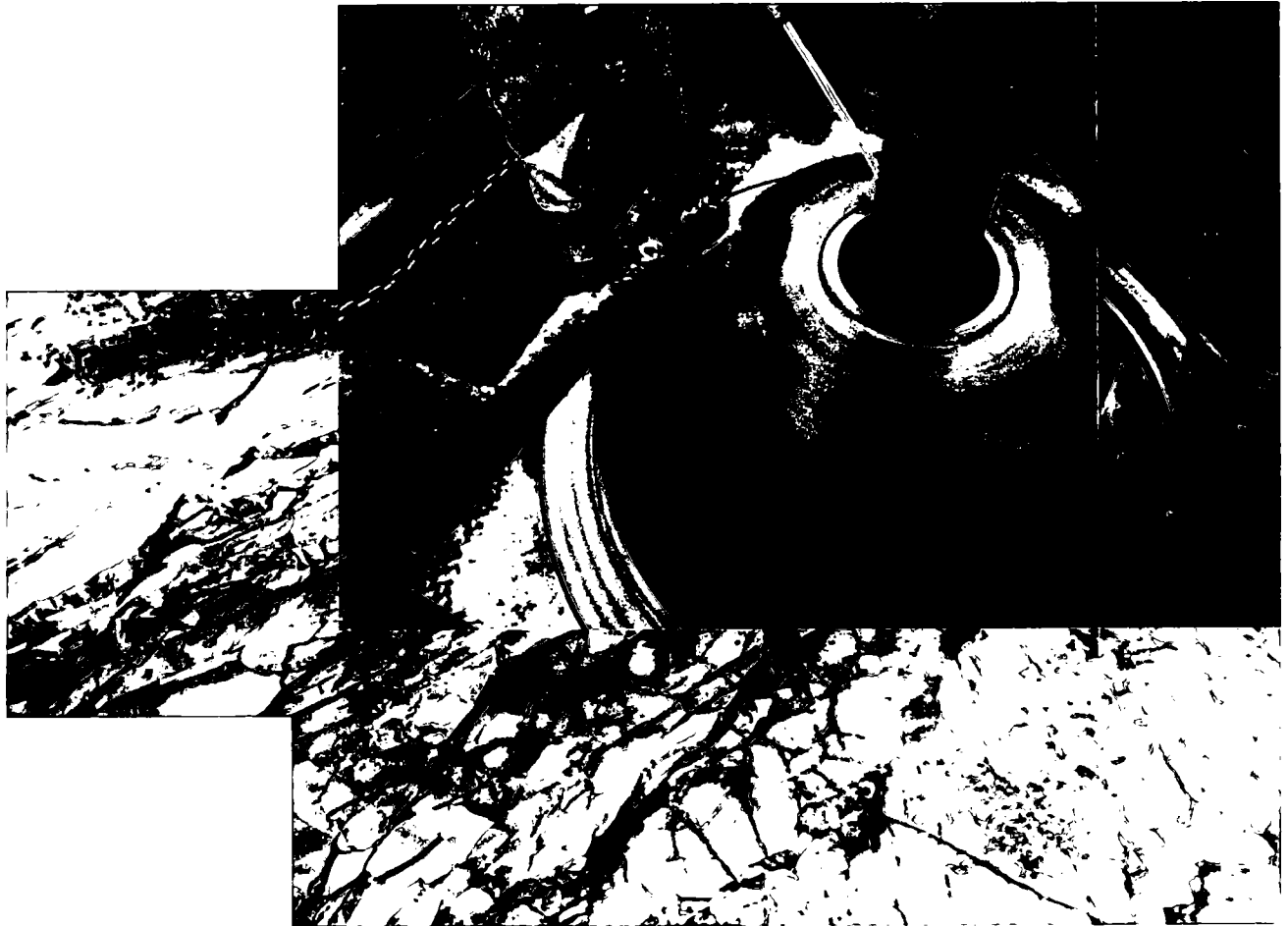
Central meridian is -104.333°.

Grid Convergence at Surface is 0.300°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 22079.71ft.,
the Bottom Hole Displacement is 10347.52ft., in the Direction of 176.878° (Grid).



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.

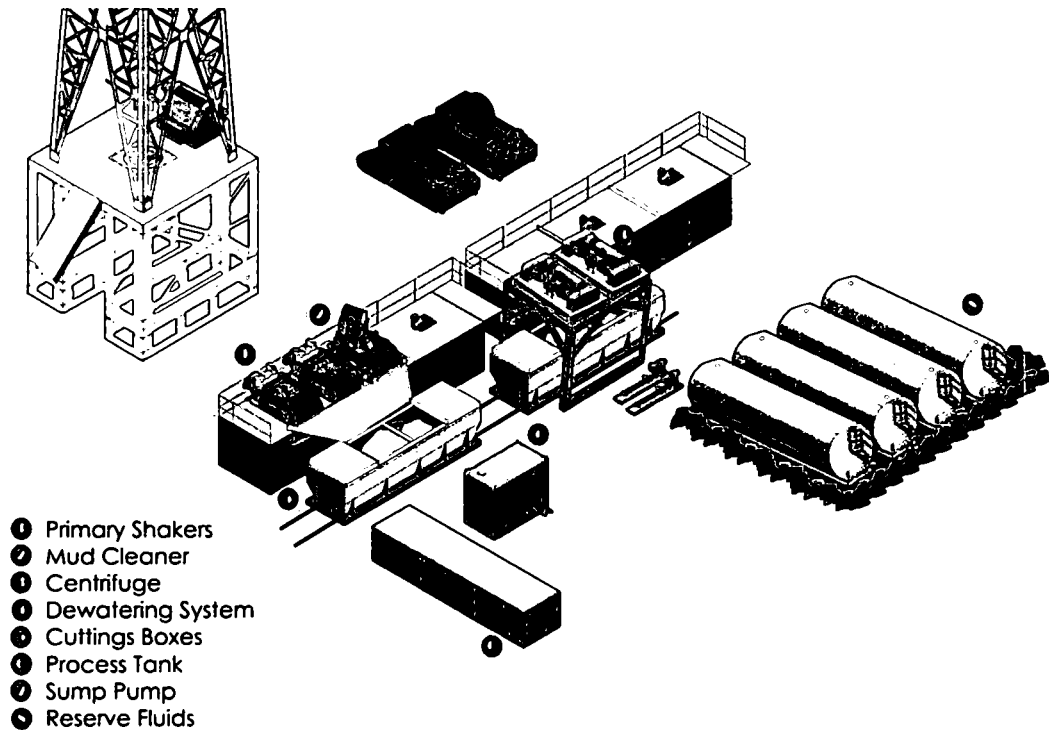
II. Operations and Maintenance Plan

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.



Closed Loop Schematic



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

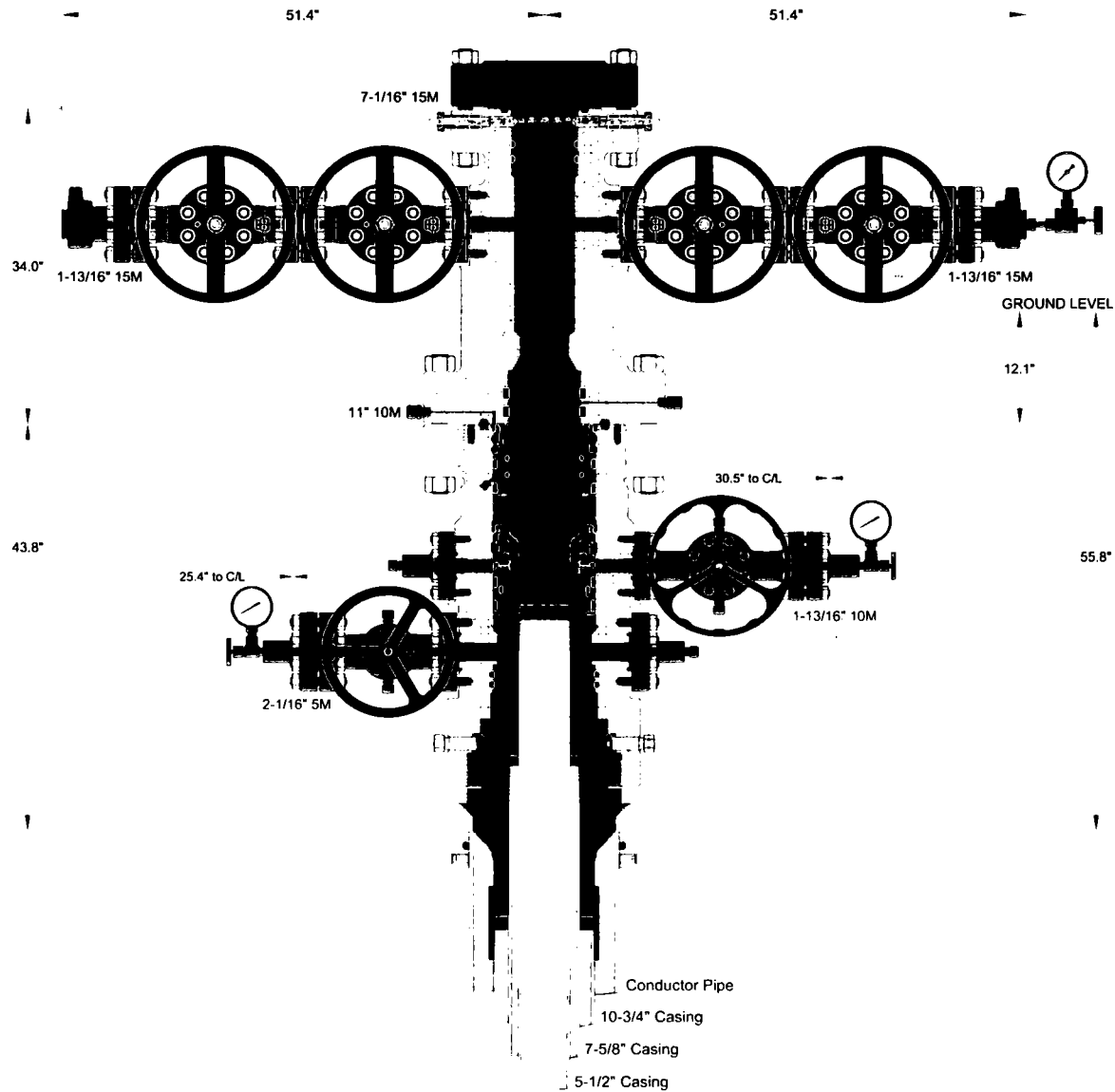
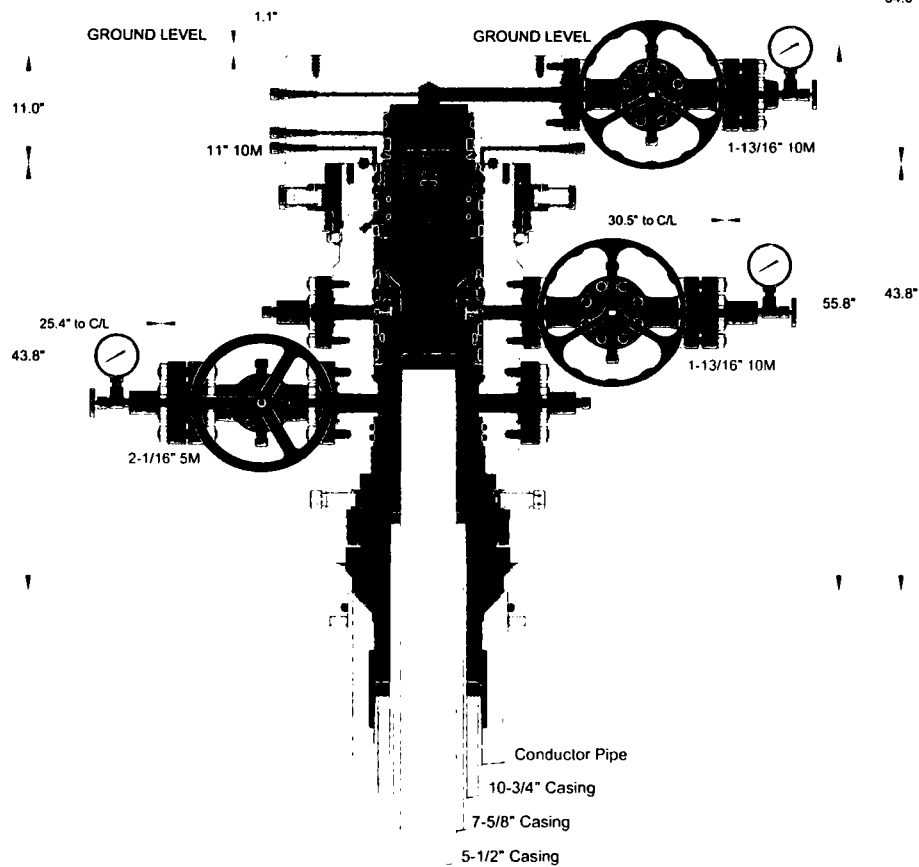
dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

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.



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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION

10-3/4" x 7-5/8" x 5-1/2" 5M MBU-T-CFL-R-DBLO Wellhead System
With 7-5/8" & 5-1/2" Pin Down Rotating Mandrel Hangers,
13-5/8" 5M x 11" 10M DSPA & 11" 10M x 7-1/16" 15M Tubing Head

DLE 20NOV18

ODE0001804



Quotation

Quote Number : ODE0001804

ODESSA WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Date: 10/19/2018

Valid For 30 Days

Page 1 of 8

Bill To: 7323

DEVON ENERGY CORPORATION
PO BOX 3198
OKLAHOMA CITY OK 73101-3198
US

Ship To: 0

DEVON ENERGY CORPORATION
PO BOX 3198
OKLAHOMA CITY OK 73101-3198
US

Quantity	Price	Ext Price
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MBU-T-CFL-R 10-3/4"		
DEVON ENERGY		

DELAWARE BASIN

MBU-T-CFL-R ASSEMBLY
10-3/4" X 7-5/8" X 5-1/2"

QUOTATION SUMMARY:

- MBU-T ASSEMBLY - \$24,148.80
- MANDREL HANGERS & PACKOFFS - \$18,231.00
- TUBING HEAD ASSEMBLY - \$28,243.20
- RENTAL TOOLS = \$4,075.00 PER WELL FOR THE FIRST 45 DAYS; \$220.00 PER DAY THEREAFTER

CACTUS CONTACT:
SCOTT NORDQUIST
MOBILE: 832.803.5055
EMAIL: scott.nordquist@cactuswellhead.com

NOTE: PRICES ARE F.O.B. CACTUS BOSSIER CITY, LA. THE FOLLOWING QUOTATION DOES NOT INCLUDE PRO RATA FREIGHT AND OTHER APPLICABLE MILEAGE AND SERVICES THAT WILL BE CHARGED AT TIME OF INVOICING.

		Quantity	Price	Ext Price
MBU-T-CFL-R ASSEMBLY				
1	125867 HSG,CW,MBU-T-CFL-R-DBLO-SF,10-3/4,11 10M,W/2 1-13/16 10M FP UPR & 2 2-1/16 5M FP LWR,RND BAR,W/O 11 10M THD FLG,6A-PU-EE-NL-1-2	1.00	9,775.00	9,775.00
2	103030 FLG,THD,11 10M W/17.375-2 STUB ACME-2G L.H. THD,4130 75K & 1/T -75 DEG F,PSL2	1.00	1,735.00	1,735.00
3	101970 LANDING RING,CW,CTF,16 CSG X 20 OD X 15.25 ID,W/1/2-13UNC-2B LIFT HOLE	1.00	1,500.00	1,500.00
4	117696 CSGHGR,CW,MBU-T-CFL-R,10-3/4,10-3/4 (45.5#) BC PIN BTM X 11.250-4 STUB ACME-2G LEFT HAND PIN TOP,9.945 MIN BORE,4140 110K,6A-U-AA-1-2	1.00	7,691.00	7,691.00
5	125819 CSGHGR,CW,MBU-T-CFL-R,10-3/4,10-3/4 (45.5#) BC PIN BTM X 11.250-4 STUB ACME-2G LEFT HAND PIN TOP,9.945 MIN BORE,4130 75K,6A-PU-DD-NL-1-2	0.00	7,691.00	0.00
6	VR2 VR PLUG,CW,1-1/2 (1.900) SHARP VEE X 1-1/4 HEX,API 6A-DD-NL	1.00	30.00	30.00
7	610003N VLV,CW,1,2-1/16 3/5M FE AA/DD-NL (API 6A LU AA/DD-NL PSL1 PR2) NON-MONOGRAMMED	1.00	759.00	759.00
8	200002 FLG,COMP,CW,2-1/16 5M X 2 LP,6A-KU-EE-NL-1	2.00	73.60	147.20
9	BP2T BULL PLUG,CW,2 LP X 1/2 LP,API 6A DD-NL	2.00	25.04	50.08
10	FTG1 FTG,GRS,VENTED CAP,1/2 NPT,ALLOY NON-NACE	1.00	6.85	6.85
11	R24 RING GASKET,R24,2-1/16 3/5M	3.00	5.48	16.44
12	780067 STUD,ALL-THD W/2 NUTS,BLK,7/8-9UNC X 6-1/2,A193 GR B7/A194 GR 2H,NO PLATING	8.00	2.35	18.80
13	NVA NEEDLE VALVE,MFA,1/2 10M	1.00	47.25	47.25
14	PG5M PRESSURE GAUGE,5M,4-1/2 FACE,LIQUID FILLED,1/2 NPT	1.00	47.88	47.88
15	VR1 VR PLUG,CW,1-1/4 (1.660) LP X 1-1/4 HEX,API 6A-DD-NL	1.00	39.12	39.12
16	FTG1 FTG,GRS,VENTED CAP,1/2 NPT,ALLOY NON-NACE	1.00	6.85	6.85
17	107412 VLV,CW,SB100,1-13/16 10M FE BB/EE-0,5 (API 6A LU BB/EE-0,5 PSL3 PR2) QPQ TRIM, API 6A PR2 ANNEX F	1.00	1,950.00	1,950.00



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8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

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Page 3 of 8

		Quantity	Price	Ext Price
18	200010 FLG,COMP,1-13/16 10M X 2 LP,5000 PSI MAX WP,4130 60K,6A-KU-EE-NL-1	2.00	74.33	148.66
19	BX151 RING GASKET,BX151,1-13/16 10/15/20M	3.00	6.26	18.78
20	780080 STUD,ALL-THD W/2 NUTS,BLK,3/4-10UNC X 5-1/2,A193 GR B7/A194 GR 2H,NO PLATING	8.00	1.96	15.68
21	BP2T BULL PLUG,CW,2 LP X 1/2 LP,API 6A DD-NL	2.00	25.04	50.08
22	NVA NEEDLE VALVE,MFA,1/2 10M	1.00	47.25	47.25
23	PG5M PRESSURE GAUGE,5M,4-1/2 FACE,LIQUID FILLED,1/2 NPT	1.00	47.88	47.88
				24,148.80

CASING HANGERS & PACKOFFS

24	120272 CSGHGR,CW,MBU-LR2-TP6,FLUTED,11 X 7-5/8 (29.7#) BC PIN BTM X 7.750-4 STUB ACME-2G RIGHT HAND BOX TOP,6A-U-AA-1-1	1.00	5,955.00	5,955.00
25	108908T PACKOFF,CW,MBU-LR,MANDREL,11 10M NOM,W/7.500-4 STUB ACME-2G LH BOX TOP,A/F LANDING HGR NECK,6A-U-AA-1-1	1.00	3,600.00	3,600.00
26	121451 CSGHGR,CW,MBU-LR-UPR-TP8,SN,FLUTED,7-5/8,11 X 5-1/2 (20#) VAM TOP HT PIN BTM X 6.125 4 STUB ACME-2G RIGHT HAND BOX TOP,W/5 HBPV THD,SPEC FOR ROTATING CASING STRING,,6A-U-AA-1-2	1.00	6,876.00	6,876.00
27	120079 PACKOFF,CW,CTF-MBU-3T,11,A/F 7.75 SEAL PREP,W/8.750-4 STUB ACME-2G LH BOX TOP,10000 PSI MAX WP,A/F LANDING ON 45 DEG SHOULDER ON HANGER,6A-U-AA-2-2	1.00	1,800.00	1,800.00
28	BPV5T BPV,H,5 ONE WAY,4130,HYDRO TESTED & API 6A MONOGRAM	0.00	2,950.00	0.00

NOTE:

OPTIONAL SALE ITEM; PRICE NOT INCLUDED IN TOTAL

OPTIONAL RENTAL RATE = \$90.00 PER DAY

18,231.00

RENTAL TOOLS

29	RNM Rental Charge Minimum	1.00	4,075.00	4,075.00
MBU-T RENTAL TOOLS = \$4,075.00 PER WELL FOR THE FIRST 45 DAYS; \$220.00 PER DAY THEREAFTER.				

RENTAL TOOLS INCLUDE THE FOLLOWING ITEMS:

PN 119126 - LIFT RING,CSGHGR,CFL-R,W/14.000-2 STUB ACME-2G LEFT HAND THDS,4140 110K (\$200.00; \$10.00)

PN 120868: RUN TOOL,CW,CSGHGR,MBU-T-CFL-10-7/8,11.250-4 STUB ACME-2G LH BOX BTM X 10-3/4 BC BOX

	Quantity	Price	Ext Price
TOP,W/10.00 MIN BORE,MAX LOAD CAPACITY 1500K (\$200.00; \$10.00)			
PN 117695: TORQUE COLLAR,CW,CSGHGR,CFL,F/13-3/8 NECK,4140 110K (\$100.00; \$5.00)			
PN 800001: COMB TEST PLUG/RET TOOL,CW,11 X 4-1/2 IF (NC50) BOX BTM & TOP,W/1-1/4 LP BYPASS & SPRING LOADED DOGS (\$250.00; \$15.00)			
PN 102332: WBUSH,CW,MBU-LR,LWR,11 X 10.00 ID X 25.00 LG (\$250.00; \$15.00)			
PN 120274: RUN TOOL,CW,CSGHGR,TP6,7.750-4 STUB ACME-2G RIGHT HAND PIN BTM X 7-5/8 BC BOX TOP,W/6.535 MIN BORE & MAXIMUM TORQUE 25000 LBS-FT SPEC FOR ROTATING CASING STRING (\$575.00;\$30.00)			
PN 117945: TORQUE COLLAR,CW,F/USE W RUN TOOL,TP,7.750-4 STUB ACME-2G RIGHT HAND PIN BTM AND A/F 9.00 OD X 5.00 LG BOX CSGHGR NECK,MAXIMUM TORQUE 25000 LBF-FT (\$200.00; \$10.00)			
PN 103066: WASH TOOL,CW,CSGHGR,MBU-LR/MBS(2),FLUTED,11 X 4-1/2 IF (NC50) BOX TOP THDS,FAB (\$400.00; \$20.00)			
PN 102479: RUN TOOL,CW,PACKOFF,MBU-LR-LWR,11 X 4-1/2 IF (NC50) BTM & TOP,W/7.500-4 STUB ACME-2G LH PIN BTM (\$300.00; \$15.00)			
PN 102172: WBUSH,CW,CTH/MBS2-UPR,11 X 7.0 ID X 13.5 LG (\$250.00; \$15.00)			
PN 118739: RUN TOOL,CW,CSGHGR,TP8,6.125-4 STUB ACME-2G RIGHT HAND PIN BTM X 5-1/2 (20#) VAM TOP HT BOX TOP,W/4.696 MIN BORE & MAX LOAD CAPACITY 500K,MAX TORQUE 23000 FT-LBS,SPEC FOR ROTATING CASING STRING,4140 110K (\$550.00; \$30.00)			
PN 103164: WASH TOOL,CW,CSGHGR,MBU-2LR/MBS2-R (3T),FLUTED,11 X 4-1/2 IF (NC50) BOX TOP THDS,FAB (\$250.00; \$15.00)			
PN 115167: RUN TOOL,CW,PACKOFF,CTF-SN,7-5/8,W/8.750-4 STUB ACME-2G LEFT HAND PIN BTM X 4-1/2 IF (NC50) BOX TOP,W/BALL BEARINGS (\$275.00; \$15.00)			
PN 102045: RUN TOOL,PACKOFF,CW,CTF,11 X 4-1/2 IF (NC50),W/5 HBPV MALE THD (\$275.00; \$15.00)			
NOTE: CUSTOMER RESPONSIBLE FOR REPAIRS AND LOST, DAMAGED, OR BEYOND REPAIR TOOLS. RENTAL CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT.			
30	RNM	Rental Charge Minimum	0.00 1,500.00 0.00
11 10M TA CAP RENTAL = \$1,500.00 PER WELL FOR THE FIRST 45 DAYS; \$65.00 PER DAY THEREAFTER.			
RENTAL CONSISTS OF THE FOLLOWING ITEMS:			
PN 121517: TA CAP,CW,DBLHPS,7-5/8,11 10M FLG,W/2 LP OUTLET,F/5.75 CUTOFF,5000 PSI MAX WP,6A-PU-EE-NL-1-1			
NOTE: CUSTOMER RESPONSIBLE FOR LOST, DAMAGED OR BEYOND REPAIR RENTAL TOOLS. RENTAL CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT.			

		Quantity	Price	Ext Price
				4,075.00
TUBING HEAD ASSEMBLY				
31	123779	1.00	13,374.00	13,374.00
	TBGHD,CW,CTH-DBLHPS-SB,7-5/8,11 10M X 7-1/16 15M,W/2 1-13/16 15M FP,ACME VR THD,5.13 MIN BORE & 17-4PH LDS,34.0 LG,RND BAR,6A-PU-EE-0,5-1-2			
32	104700	4.00	3,015.00	12,060.00
	VLV,DSG-22,1-13/16 15M FE EE-0,5 (6A PU EE-0,5 PSL3 PR1),QPQ TRIM			
33	100203	2.00	550.00	1,100.00
	ADPT,TS,FH,1-13/16 15M X 2 FIG 1502 X 9/16 AUTOCLAVE,NON-NACE (INCLUDES SEAL RING) FH25099462-3			
34	100048	1.00	34.55	34.55
	FTG,GRS,VENTED CAP,1/2 NPT,4140 -50F W/ELECTROLESS NICKEL COATING NACE,K-MONEL BALL,INCONEL X-750 SPRING			
35	BX151	6.00	6.26	37.56
	RING GASKET,BX151,1-13/16 10/15/20M			
36	105477	32.00	3.99	127.68
	STUD,ALL-THD W/2 NUTS,BLK,7/8-9UNC X 6,A193 GR B7/A194 GR 2H,NO PLATING			
37	BX158	1.00	91.35	91.35
	RING GASKET,BX158,11 10/15/20M			
38	780083	16.00	42.00	672.00
	STUD,ALL-THD W/2 NUTS,BLK,1-3/4-8UN X 15-1/4,A193 GR B7/A194 GR 2H,NO PLATING			
39	810023	1.00	422.53	422.53
	NEEDLE VALVE,2 WAY ANGLE,9/16,20KSI,SOUR SERVICE,W/O COLLARS & GLANDS			
40	106012	1.00	93.49	93.49
	ADPT,AUTOCLAVE,HIGH PRESSURE, 9/16 MALE TO 9/16 MALE,316SS			
41	PG15M	1.00	230.04	230.04
	PRESSURE GAUGE,15M,9/16 AUTOCLAVE,LIQUID FILLED			
				28,243.20
CONTINGENCY EQUIPMENT				
EMERGENCY EQUIPMENT; INVOICED AS REQUIRED				
42	102470	0.00	3,325.00	0.00
	CSGHGR,CW,MBU-LR,11 X 7-5/8,6A-PU-DD-3-1			
43	102472	0.00	6,170.00	0.00
	PACKOFF,CW,MBU-LR,EMERG,11 10M X 7-5/8,W/7.500-4 STUB ACME-2G LH BOX TOP,6A-U-AA-1-1			
44	102474	0.00	6,135.00	0.00
	CSGHGR,CW,MBU-LR,UPR,11 X 5-1/2,6A-PU-DD-3-1			
45	115873	0.00	5,550.00	0.00
	PACKOFF,CW,CTF-SN,7-5/8,11 X 5-1/2,EMERG,W/5 HBPV BOX THD & 4.93 MIN BORE,10000 PSI MAX WP,4140 80K,6A-U-DD-NL-2-2 (REF115873)			



Quotation

ODESSA WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Quote Number : ODE0001804

Date: 10/19/2018

Valid For 30 Days

Page 6 of 8

	Quantity	Price	Ext Price
NOTE: MUST USE RX RING GASKET			0.00

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For Acceptance of this Quotation
Please Contact Ph: 713-626-8800
sales@cactuswellhead.com

Matl:	70,623.00
Labor:	0.00
Misc:	4,075.00
Sales Tax:	0.00
Total:	74,698.00



Quotation

Quote Number : ODE0001804

ODESSA WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Date: 10/19/2018

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Page 7 of 8

CACTUS WELLHEAD, LLC PURCHASE TERMS AND CONDITIONS

1. **ACCEPTANCE:** Acceptance of Cactus Wellhead, LLC (herein: Company) Purchase Terms and Conditions (herein: CACTUS Purchase Terms) shall be deemed effective upon shipment of the goods and/or rendering of services which are the subject of an order by Customer (defined as the party purchasing CACTUS goods and/or services referred on the invoice). Any proposal made by Customer for additional or different terms and conditions or any attempt by Purchaser to vary in any degree any of the terms and conditions of CACTUS Purchase Terms is hereby rejected. **TO THE EXTENT A PART OF A PROVISION EXCLUSIVELY APPLIES TO GOODS OR SERVICES AND THESE TERMS DOES NOT REQUEST OR CONTEMPLATE SUCH, THE PROVISION DOES NOT APPLY.**

2. **Pricing.** Each Product and Service shall be invoiced at (and Customer shall pay) the respective price shown on the reverse side hereof, or if no price is shown on the reverse side hereof, at the price shown in the current price list of Company. In addition, Customer shall pay any and all additional charges for mileage, transportation, freight, packing and other related charges, as well as any federal, state or local tax, excise, or charge applicable on the sale, transportation, or use of Products and Services, unless otherwise specified.

3. **Terms of Payment.** Customer agrees to pay Company any and all payments due on or before thirty (30) days from invoice date at the designated address of Company. Amounts unpaid after such thirty (30) day period shall bear interest at the lesser of (i) one and one-half percent (1½%) per month or (ii) the maximum rate allowed by law. Customer shall also pay any and all of Company's attorney's fees and court costs if any amounts hereunder are collected by an attorney or through legal proceedings. Company reserves the right, among other remedies, either to terminate this agreement or to suspend further deliveries upon failure of Customer to make any payment as provided herein.

4. **Limited Warranty.** COMPANY MAKES NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE MERCHANTABILITY, FITNESS FOR PURPOSE, DESCRIPTION, QUALITY, PRODUCTIVENESS, ACCURACY OR ANY OTHER MATTER WITH RESPECT TO PRODUCTS OR SERVICES, ALL SUCH WARRANTIES BEING HEREBY SPECIFICALLY AND EXPRESSLY DISCLAIMED BY COMPANY. COMPANY MAY OFFER TECHNICAL ADVICE OR ASSISTANCE WITH REGARD TO THE PRODUCTS AND SERVICES BASED ON LABORATORY AND/OR FIELD EXPERIENCE AND CUSTOMER UNDERSTANDS AND AGREES THAT SUCH ADVICE REPRESENTS ONLY GOOD FAITH OPINIONS AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE. THE SOLE AND EXPRESS WARRANTY PROVIDED BY COMPANY IS TO WARRANT THAT THE PRODUCTS SOLD AS LISTED ON THE REVERSE SIDE HEREOF COMPLIES WITH COMPANY'S SOLE SPECIFICATION AT THE DATE AND TIME OF MANUFACTURE. COMPANY MAKES NO WARRANTY THAT SUCH PRODUCTS SHALL MEET SUCH SPECIFICATION AT ANY TIME AFTER SHIPMENT OF PRODUCTS. USE OF SUCH PRODUCTS IS SPECIFICALLY NOT WARRANTED.

5. **Remedy.** The exclusive remedy for this warranty for products shall be limited to, in Company's sole discretion and judgment, the replacement of defective part(s), F.O.B. Company's plant (transportation, redesign, dismantling, disposal of material and installation are not included and shall be borne and paid for by Customer), or repair of defective part(s). The exclusive remedy for this warranty for service shall be limited to, in Company's sole discretion and judgment, the repeat of services performed. F.O.B. Company's plant (transportation, redesign, dismantling, disposal of material and installation are not included and shall be borne and paid for by Customer). Any such repeat of services or replacement or repair of goods shall not include any materials not sold by Company hereunder, and specifically excludes any obligation by Company related to other property of the Customer or any property of third parties. Provided, however, Company may in its sole discretion, decide to instead give Customer credit memorandum for the amounts already paid by Customer to Company for such product or service. **IN ANY EVENT AND NOTWITHSTANDING THE LANGUAGE TO THE CONTRARY HEREIN, CUSTOMER ACKNOWLEDGES THAT ANY CLAIM IT MAY HAVE ARISING OUT OF OR IN CONNECTION WITH ANY ORIGINAL PRODUCTS AND SERVICES, ANY REPLACEMENT PRODUCTS OR REPEAT OF SERVICES AND THESE TERMS AND CONDITIONS SHALL BE LIMITED TO AND NOT EXCEED THE AMOUNT CUSTOMER HAS ACTUALLY PAID TO COMPANY FOR SUCH PRODUCTS AND/OR SERVICES PURSUANT HERETO.** If Customer fails to make any such claim within thirty (30) days after completion of Service or delivery of Product, Customer hereby waives (to the extent permitted by applicable law) any and all claims it may or does have with respect to such Products and Services. **Unless Customer is an authorized reseller of Company, Company's liability in connection with Products and Services shall extend only to Customer. CUSTOMER HEREBY INDEMNIFIES AND HOLDS COMPANY (AND ITS AGENTS, REPRESENTATIVES, OFFICERS DIRECTORS AND EMPLOYEES) HARMLESS FOR ANY LOSS, EXPENSE OR DAMAGE (WHETHER OF CUSTOMER OR OF ANY THIRD PARTY) ARISING FROM OR IN CONNECTION WITH PRODUCTS AND SERVICES, INCLUDING WITHOUT LIMITATION ANY FAILURE OF SUCH PRODUCTS AND SERVICES TO CONFORM TO CUSTOMER'S ORDER OR SPECIFICATION OR ANY OTHER STANDARD, OR ANY NEGLIGENCE OR BREACH OF WARRANTY BY COMPANY WITH RESPECT TO ANYTHING DONE OR FAILED TO HAVE BEEN DONE BY COMPANY, IF AND TO THE EXTENT THAT SUCH LOSS, EXPENSE OR DAMAGE EXCEEDS THE AMOUNT CUSTOMER HAS ACTUALLY PAID COMPANY PURSUANT HERETO FOR SUCH PRODUCTS OR SERVICES.**

6. **Inspection.** The results of any inspection or testing reported by the Company to Customer represents only good faith opinions and are not to be construed as warranties or guarantees of the quality, classification, merchantability, fitness for purpose, condition, or liability of any equipment or material that has been inspected or tested by the Company.

7. **Insurance.** Each party agrees to maintain comprehensive general liability insurance in the amount of \$1,000,000 each occurrence, \$2,000,000 general aggregate, and Workers Compensation insurance per statutory requirements providing coverage for the indemnity obligations in this agreement. The Company (and such of its affiliates as it shall designate) including their officers, directors, members, shareholders, partners, joint ventures, employees, agents and representatives shall be named as additional insureds under the policies of Customer on a primary basis to the extent of its indemnification obligations set forth in these Terms and Conditions, and the policies shall also provide a waiver of subrogation rights in favor of the Company (and such of its affiliates as it shall designate) and their officers, directors, members, shareholders, employees, agents and representatives. The provisions of this Section 6 shall apply and the obligation to maintain insurance of each party in the coverages and amounts set forth herein shall remain in force regardless and independent of the validity or enforceability of the indemnity provisions of Section 7, below; the obligation to obtain insurance is a separate and independent obligation. If the insurance required herein is more or less than allowed by prevailing law, the indemnity obligations in Section 7 below shall be effective only to the maximum extent permitted under applicable law.

8. **Indemnification.** The following indemnifications and releases of liability will apply to any goods or Services provided under this contract. **COMPANY AND CUSTOMER EXPRESSLY AGREE THAT, TO THE EXTENT REQUIRED BY APPLICABLE LAW TO BE EFFECTIVE, THE INDEMNITIES AND DISCLAIMERS OF WARRANTIES CONTAINED HEREIN ARE "CONSPICUOUS."**

A. **Customer Indemnity Obligations.** Customer hereby releases Company from any liability for, and shall protect, defend, indemnify, and hold harmless Company, its parents, affiliates, subsidiaries, partners, joint owners, joint ventures, and its contractors and subcontractors of any tier, and the officers, directors, agents, representatives, employees, insurers, and consultants (specifically excluding any member of Customer Group) of all of the foregoing, and its and their respective successors, heirs and assigns ("Company Group") from and against all costs (including the payment of reasonable attorneys' fees), losses, liabilities, demands, causes of action, damages, or claims of every type and character ("Claims"), arising out of or resulting from or related, directly or indirectly, to (i) injury to, illness or death of Customer's parents, affiliates, subsidiaries, partners, joint owners, joint ventures, and its contractors and subcontractors of any tier, and the officers, directors, agents, representatives, employees, customers, insurers, invitees and consultants of all of the foregoing, and its and their respective successors, heirs and assigns ("Customer Group"), or (ii) loss of or damage to any property of any member of Customer Group, **REGARDLESS OF THE CAUSE OF SUCH CLAIMS, INCLUDING THE NEGLIGENCE (WHETHER SOLE, JOINT OR CONCURRENT, ACTIVE OR PASSIVE, ORDINARY OR GROSS) STRICT LIABILITY, OR ANY OTHER LEGAL FAULT OR RESPONSIBILITY OF ANY MEMBER OF COMPANY GROUP.**

B. **Company Indemnity Obligations.** Company hereby releases Customer from any liability for, and shall protect, defend, indemnify, and hold harmless Customer from and against all Claims arising out of or resulting from or related, directly or indirectly, to (i) injury to, illness or death of any member of Company Group, or (ii) loss of or damage to any property of any member of Company Group, **REGARDLESS OF THE CAUSE OF SUCH CLAIMS, INCLUDING THE NEGLIGENCE (WHETHER SOLE, JOINT OR CONCURRENT, ACTIVE OR PASSIVE, ORDINARY OR GROSS) STRICT LIABILITY, OR ANY OTHER LEGAL FAULT OR RESPONSIBILITY OF ANY MEMBER OF CUSTOMER GROUP.**

C. **Third Party Claims.** Notwithstanding the foregoing, to the extent of its negligence, Company and Customer shall each indemnify, defend and hold harmless Claims, of every type and character, which are asserted by third parties for bodily injury, death or loss or destruction of property or interests in property in any manner caused by, directly or indirectly resulting from, incident to, connected with or arising out of the work to be performed, Services to be rendered or materials to be furnished by Customer. When personal injury, death or loss of or damage to property is the result of joint or concurrent negligence of Customer or Company, the indemnitor's duty of indemnification shall be in proportion to its allocable share of such negligence.

D. **Pollution.** Company agrees that it shall be totally responsible for, and shall protect, defend and indemnify, Customer for all losses, damages, claims, demands, costs, charges, and other expenses, including attorneys' fees, for any and all waste and/or hazardous substances which are in Company Group's exclusive possession and control and directly associated with Company Group's equipment and facilities, **EVEN IF THE LOSSES, DAMAGES, CLAIMS, DEMANDS, COSTS, FEES, AND EXPENSES ARE CAUSED BY OR CONTRIBUTED TO BY THE NEGLIGENCE OF CUSTOMER GROUP.** Customer shall assume all responsibility for, including control and removal of, and shall protect, defend and indemnify Company Group from and against all Claims arising directly or indirectly from all other pollution or contamination which may occur during the conduct of operations hereunder, including, but not limited to, that which may result from fire, blowout, cratering, seepage or any other uncontrolled flow of oil, gas, water or other substance, **EVEN IF THE LOSSES, DAMAGES, CLAIMS, DEMANDS, COSTS, FEES, AND EXPENSES ARE CAUSED BY OR CONTRIBUTED TO BY THE NEGLIGENCE OF COMPANY GROUP.**

E. **Wild Well.** Customer shall release Company Group of any liability for, and shall protect, defend and indemnify Company Group for any damages, expenses, losses, fines, penalties, costs, expert fees and attorneys' fees arising out of a fire, blow out, cratering, seepage or wild well, including regaining control thereof, debris removal and property restoration and remediation. **THIS INDEMNITY APPLIES EVEN IF THE LOSSES, DAMAGES, CLAIMS, DEMANDS, COSTS, FEES, AND EXPENSES ARE CAUSED BY NEGLIGENCE (WHETHER SOLE, JOINT OR CONCURRENT, ACTIVE OR PASSIVE, ORDINARY OR GROSS) STRICT LIABILITY, OR ANY OTHER LEGAL FAULT OR RESPONSIBILITY OF ANY MEMBER OF COMPANY GROUP.**

F. **Underground Damage.** Customer shall release Company Group of any liability for, and shall protect, defend and indemnify Company Group from and against any and all claims, liability and expenses resulting from operations related to the work under this agreement on account of injury to, destruction of, or loss or impairment of any property right in or to oil, gas or other mineral substance or water, if at the time of the act or omission causing such injury, destruction, loss or impairment said substance and not been reduced to physical possession above the surface of the earth, and for any loss or damage to any formation, strata, or reservoir beneath the surface of the earth. **THIS INDEMNITY APPLIES EVEN IF THE LOSSES, DAMAGES, CLAIMS, DEMANDS, COSTS, FEES, AND EXPENSES ARE CAUSED BY NEGLIGENCE (WHETHER SOLE, JOINT OR CONCURRENT, ACTIVE OR PASSIVE, ORDINARY OR GROSS) STRICT LIABILITY, OR ANY OTHER LEGAL FAULT OR RESPONSIBILITY OF ANY MEMBER OF COMPANY GROUP.**

G. **Compliance With Laws, Rules And Regulations.** Customer expressly agrees to comply with and abide by all of the laws of the United States and of the state in which goods are delivered or services are performed, including, but not limited to, OSHA, EPA and all rules and regulations now existing or that may be hereafter promulgated under and in accordance with any such law or laws, and Customer hereby agrees to indemnify and hold Company Group harmless from any and all claims, demands, or damages incurred by Company Group arising from Customer Group's failure to comply with all laws and governmental regulations.

H. The foregoing indemnities set forth in these Terms and Conditions are intended to be enforceable against the parties hereto in accordance with the express terms and scope hereof notwithstanding Texas' Express Negligence Rule or any similar directive that would prohibit or otherwise limit indemnities because of the negligence (whether sole, concurrent, active or passive, ordinary or gross) or other fault or strict liability of Company or Customer.

I. If a claim is asserted against one of the parties to this agreement which may give rise to a claim for indemnity against the other party hereto, the party against whom the claim is first asserted must notify the potential indemnitor in writing and give the potential indemnitor the right to defend or assist in the defense of the claim.

7. **Risk Of Loss.** a. Title and risk of loss shall pass to Customer upon delivery as specified in Article 9. Customer's receipt of any material delivered hereunder shall be an unqualified acceptance of, and a waiver by Customer of any and all claims with respect to, such material unless Customer gives Company written notice of claim within thirty (30) days after such receipt. Notwithstanding the foregoing, installation or use of materials or equipment shall unequivocally constitute irrevocable acceptance of said materials. Customer assumes all risk and liability for the results obtained by the use of any material or products delivered



Quotation

Quote Number : ODE0001804

ODESSA WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Date: 10/19/2018

Valid For 30 Days

Page 8 of 8

hereunder in work performed by on behalf of Customer or in combination with other substances or products. No claim of any kind, whether as to material delivered or for non-delivery of material, and whether or not based on negligence, shall be greater in amount than the purchase price of the material in respect of which such claim is made. In no event shall Company be liable for special, indirect or consequential damages, whether or not caused by or resulting from the negligence of Company. b. For services, Company shall not be liable for loss or deterioration of any equipment and material of Customer under Company's control or stored on Company's premises after Company has completed its work if such loss or deterioration results from atmospheric condition, Act of God or other occurrence not within the reasonable control of Company.

8. **Termination.** Company reserves the right to terminate the order at issue, or any part hereof, solely for its convenience at any time without cause with notice to Customer. Company shall have the right to cancel any unfilled order without notice to Customer in the event that Customer becomes insolvent, adjudicated bankrupt, petitions for or consents to any relief under any bankruptcy reorganization statute, violates a term of these Terms and Conditions, or is unable to meet its financial obligations in the normal course of business. In the event of such termination, Company shall immediately stop all work hereunder. Prior to delivery, Customer may terminate this order without cause upon thirty (30) day notice in writing to Company. In the event of such termination, Company at its sole option shall cease work up to thirty (30) days after such notice. Upon the cessation of work, Customer agrees to pay Company a reasonable termination charge consisting of a percentage of the Invoice price, such percentage to reflect the value of the goods, services or work in progress completed upon the cessation of work. Customer shall also pay promptly to Company any costs incurred due to paying and settling claims of Company's vendors or subcontractors arising out of the termination of the order by Customer.

9. **Delivery.** Unless different terms are provided on the face of this order, all items are sold FOB Company's manufacturing facility in Bossier City, LA., and Customer shall bear the cost of transportation to any other named destination. Upon notification of Company of delivery, Customer shall become liable and shall bear all risk of loss associated with the goods at issues regardless of whether the goods are at a location controlled by Company and whether or not caused by the negligence of Company. In the case of Customer pick-up, the truck furnished by Customer is the destination and Company's obligations regarding shipments are fulfilled when the goods are loaded on the truck. Items to be shipped to any other destination outside of the United States are sold FOB port of shipment (Customer will deliver and bear the cost of transportation to the named port and will bear the cost of transportation thereafter to the final destination). The means of shipment and carrier to the point at which Company's liability for transportation costs ceases shall be chosen by Company. Excess packing, marking, shipping, and transportation charges resulting from compliance with Customer's request shall be for Customer's account. Unless otherwise agreed in writing, delivery time is not of the essence.

10. **Returns/Refund.** Within ninety (90) days of delivery, Customer has the option to return any non-defective goods (any goods found to be defective will be subject to the warranty and remedies expressed in paragraphs three (3) and four (4) above). Customer shall bear all costs of shipment and/or transportation for such return and risk of loss for the returned goods shall remain with Customer until re-delivered to Company's Yard. Customer shall receive a full refund for any returns, less a twenty percent (20%) restocking fee. Company at all times reserves the right to designate certain goods as non-refundable in Company's Sales Quote or Sales Order. In addition, any made-to-order, special order, and/or product manufactured to Customer specifications goods are NOT returnable.

11. **Delays.** If a specific shipping date is either not given or is estimated only, and is not promised on the face of this order or in a separate writing signed by Company, Company will not be responsible for delays in filling this order nor liable for any loss or damages resulting from such delays. If a specific shipping date is promised, Company will not be liable for delays resulting from causes beyond Company's control, including without limitation accidents to machinery, fire, flood, act of God or other casualty, vendor delays, labor disputes, labor shortages, lack of transportation facilities, priorities required by, requested by, or granted for the benefit of any governmental agency, or restrictions imposed by law or governmental regulation.

12. **Limitation Of Damages.** Notwithstanding any other provision contained herein, Company shall not be liable to Customer Group of any third party for consequential (whether direct or indirect damages), indirect, incidental, special or punitive damages, howsoever arising, including, but not limited to loss of profits (whether direct or indirect damages), revenues, production or business opportunities, WHETHER OR NOT SUCH LOSSES ARE THE RESULT IN WHOLE OR IN PART FROM THE NEGLIGENCE (WHETHER SOLE, JOINT, CONCURRENT OR COMPARATIVE, ACTIVE OR PASSIVE, ORDINARY OR GROSS) OF COMPANY GROUP, OR ANY DEFECT IN THE PREMISES, PRE-EXISTING CONDITIONS, PATENT OR LATENT, BREACH OF STATUTORY DUTY, STRICT LIABILITY OR ANY OTHER THEORY OF LEGAL LIABILITY OF COMPANY GROUP (EXCLUDING ONLY LOSSES CAUSED BY THE WILLFUL MISCONDUCT OF COMPANY GROUP).

13. **Security Interest.** Customer grants Company, and Company reserves, a security interest, covering all Customer's obligations under these terms (including any liability for breach of Customer's obligations), and applying to all of Customer's right, title, and interest in the Leased Equipment, together with all accessions thereto and any proceeds that may arise in connection with the sale or disposition thereof. Customer shall cooperate with Company in the filing of Financing Statements to perfect such security interest. Furthermore, Customer authorizes Company to execute and file Financing Statements without Customer's signature in any jurisdiction in which such procedure is authorized. Customer warrants, covenants and agrees that it will not, without prior written consent of Company, sell, contract to sell, lease, encumber, or dispose of the Leased Equipment or any interest in it until all obligations secured by this security interest have been fully satisfied.

14. **Patent And Intellectual Property.** Company Retains its Intellectual Property: The sale of any products hereunder does not convey any license by implication, estoppel or otherwise covering combinations of the products with other equipment data or programs. Company retains the copyright in all documents, catalogs and plans supplied to Customer pursuant to or ancillary to the contract. Unless otherwise agreed in writing, Customer shall obtain no interest in any tooling used in the production of any Company product.

15. **Taxes.** Unless otherwise specifically provided for herein, Customer shall be liable for all federal, state, or local taxes or import duties assessed by any governmental entity of any jurisdiction in connection with the goods or services furnished hereunder.

16. **Deceptive Trade Practices.** Customer acknowledges the application of Section 17.45(4) of the Texas Deceptive Trade Practices Act (Texas Business Commission Code §17.41 et. seq.) (the "Act") to any transaction contemplated hereby and represents that it is not a "consumer" for the purposes of the Act.

17. **No Waiver.** Failure to enforce any or all of the provisions in these Terms and Conditions in any particular instance shall not constitute or be deemed to constitute a waiver of or preclude subsequent enforcement of the same provision or any other provision of these Terms and Conditions. Should any provision of these Terms and Conditions be declared invalid or unenforceable all other provisions of these Terms and Conditions shall remain in full force and effect.

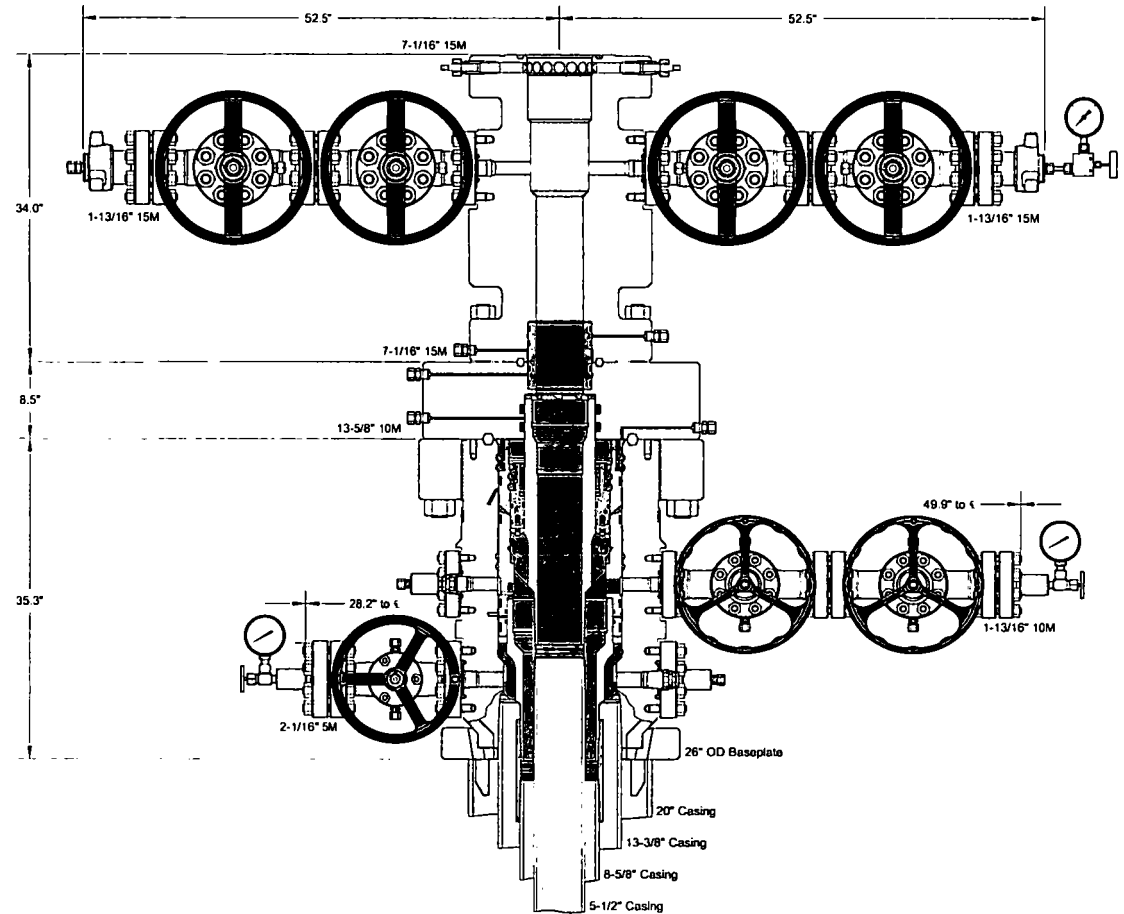
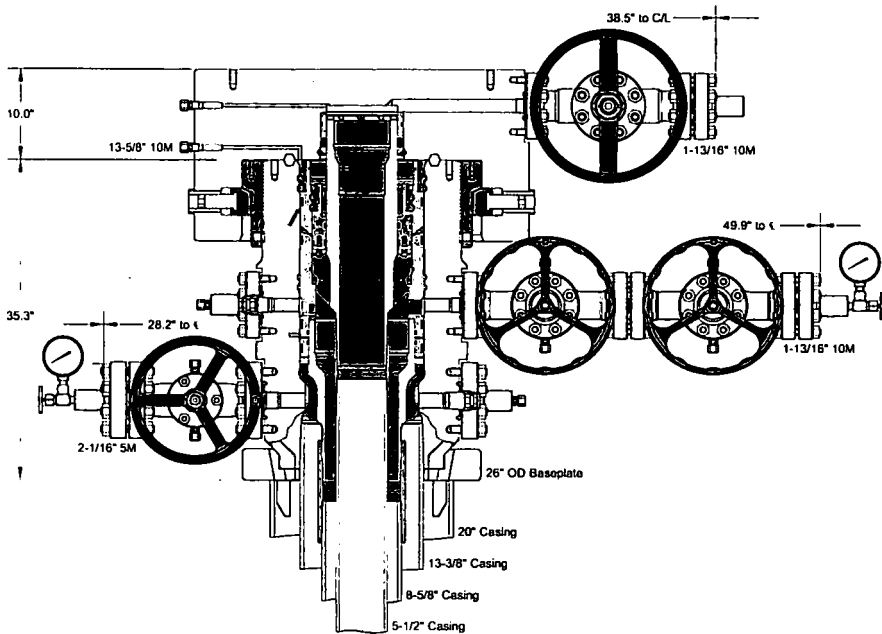
18. **Choice Of Law.** THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND SHALL BE PERFORMABLE IN HARRIS COUNTY, TEXAS. WITHOUT REGARD TO CONFLICTS OF LAW PRINCIPALS AND WAIVER OF SAME, EACH PARTY HERETO SUBMITS TO THE JURISDICTION OF THE COURTS OF THE STATE OF TEXAS IN HARRIS COUNTY, TEXAS AND THE FEDERAL COURTS IN AND FOR THE SOUTHERN DISTRICT OF TEXAS SITTING IN HOUSTON, TEXAS IN CONNECTION WITH ANY DISPUTE ARISING UNDER THIS AGREEMENT OR ANY DOCUMENT OR INSTRUMENT ENTERED INTO IN CONNECTION HEREWITH.

19. **Authority.** Customer warrants and represents that the individual receiving this order at issue on behalf of Customer has the authority to enter into these Terms and Conditions on behalf of Customer, and that upon receipt these Terms and Conditions shall be binding upon Customer.

20. **Force Majeure.** If Company is unable to carry out its obligations hereunder by reason of force majeure, then upon Company's giving of notice and reasonably full particulars of such force majeure in writing to Customer, Company's obligations that are affected by force majeure shall be suspended during the continuance of the force majeure and Company shall not be liable to Customer for any damages incurred by the Customer as a result thereof.

21. **Confidentiality.** Customer acknowledges the highly secret and valuable nature of all proprietary inventions, methods, processes, designs, know-how, and trade secrets embodied in the Company's equipment, products and services and its components (hereinafter referred to as "Confidential Data"). Accordingly, Customer agrees not to disclose or use any Confidential Data. Customer further agrees to take any and all necessary precautions to prevent disclosure of the Confidential Data associated with the Company's equipment, products and services and components thereof to persons other than those employees of Customer for whom such disclosure is necessary for performance of the work hereunder.

22. **Compliance.** Customer expressly agrees to comply with and abide by, all of the laws of the United States and of the State of Texas, including, but not limited to, OSHA, EPA and all rules and regulations now existing or that may be hereafter promulgated under and in accordance with any such law or laws, and hereby agrees to indemnify and hold Company harmless from any and all claims, demands, or damages incurred by Company arising from Customer's failure to comply with all laws and governmental regulations. The indemnities in this paragraph shall be in addition to any other indemnity obligations between Customer and Company, including any other indemnity obligations contained herein.



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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION
DELAWARE BASIN

13-3/8" x 8-5/8" x 5-1/2" 10M MBU-3T Wellhead System
With 8-5/8" And 5-1/2" Mandrel Casing Hangers
And 7-1/16" 15M x 7-1/16" 15M CTH-EN Tubing Head

DRAWN

DLE

01NOV18

APPRV

DRAWING NO.

HBE0000013

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. 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.

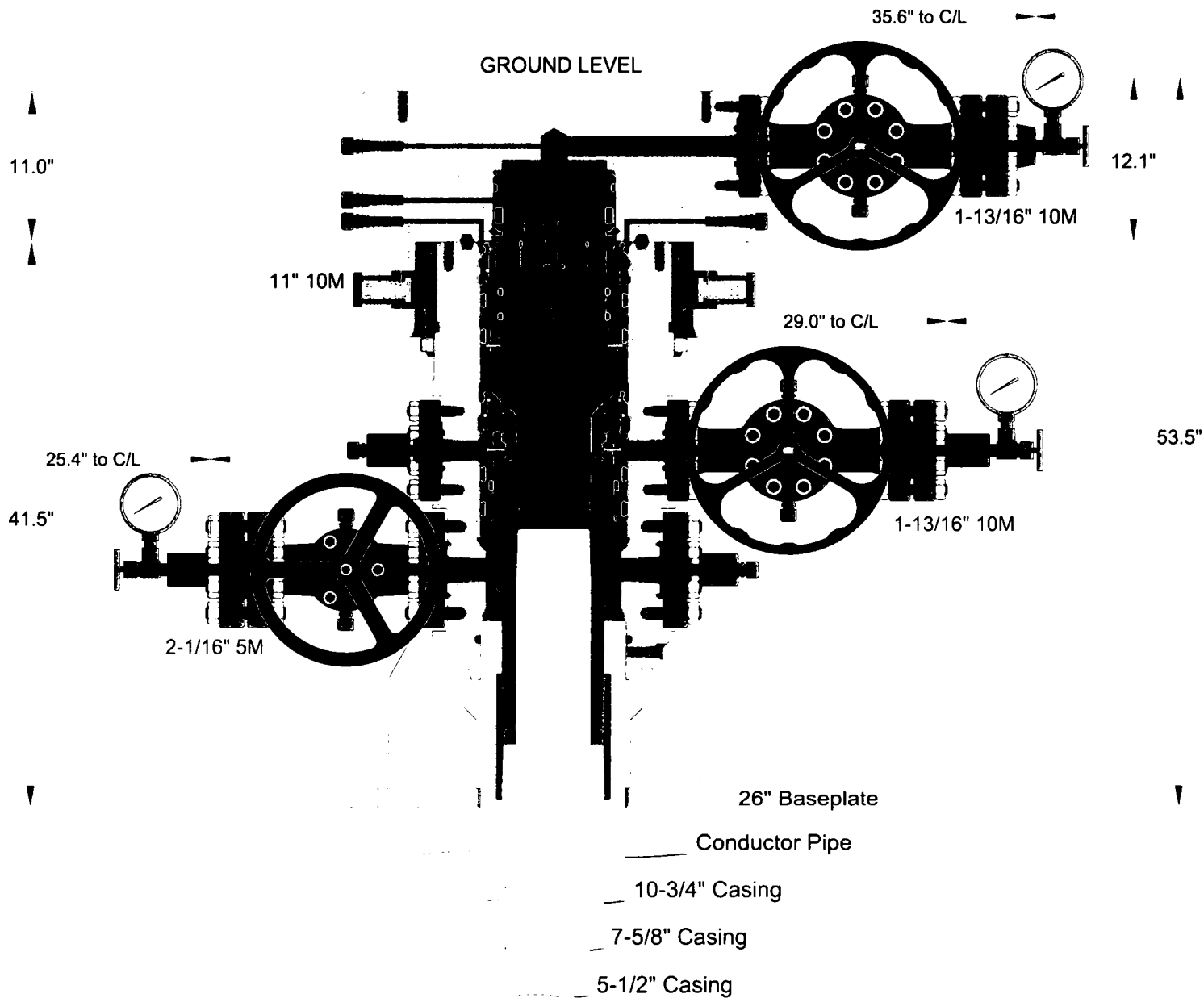
- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial 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 10-3/4" 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 7-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 10M will 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 10,000 psi WP.

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



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CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION

16" x 11-7/8" x 7-5/8" MBU-T Wellhead Assembly
With 7-5/8" & 5-1/2" Pin Bottom Mandrel Casing Hangers
And 11" 10M MBU-T-HPS-F TA Cap

DRAWN	DLE	29NOV17
APPRV		
DRAWING NO.		OKE0001764

A multi-bowl 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.

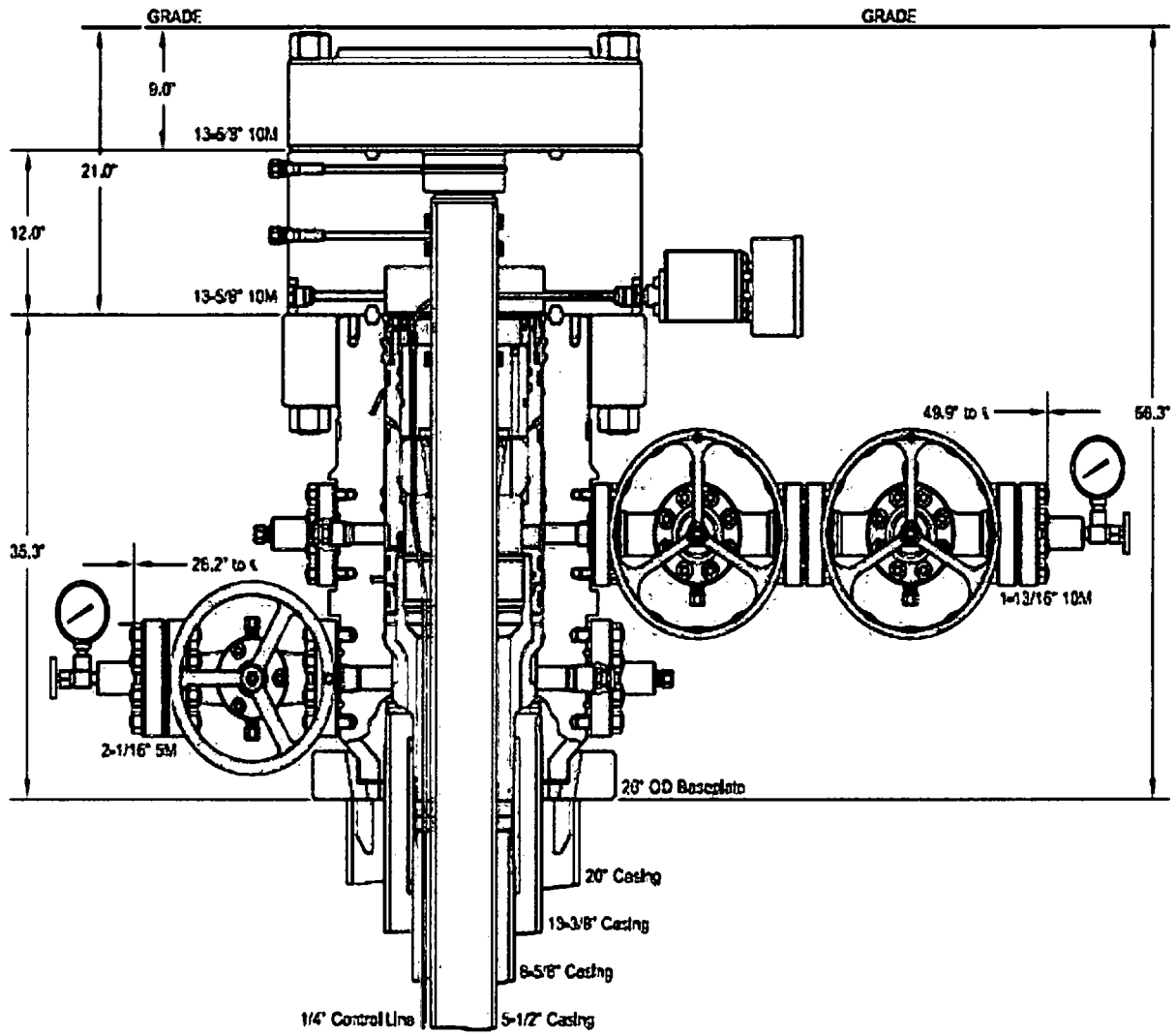
After running the surface casing, a BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, 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 a 10M system will be installed and tested, with 5M annular being tested to 100% of rated working pressure.

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.

MB Verb 5M WLFMP Alt Design



Lusitano 27-34 Fed Com 713H

1. Geologic Formations

TVD of target	11788	Pilot hole depth	N/A
MD at TD:	22079	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	840		
Base of Salt	4210		
Delaware	4265		
Bone Spring	8200		
Wolfcamp	11640		

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

2. Casing Program (Primary Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
14.75"	0	908	10.75"	40.5	J-55	STC	1.125	1.25	1.6
9.875"	0	11235	7.625"	29.7	P110	BTC	1.125	1.25	1.6
8.75"	11235	12135				Flushmax III			
6.75"	0	TD	5.5"	20	P110	Vam SG	1.125	1.25	1.6
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing
- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
- Int casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.
- A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.

Casing Program (Alternate Design)

Hole Size	Casing Interval		Csg. Size	Wt. (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17.5"	0	908	13.375"	48	H-40	STC	1.125	1.25	1.6
10.625"	0	5000	8.625"	32	P110EC	BTC	1.125	1.25	1.6
9.875"	5000	12135				VAM FJL			
7.875"	0	TD	5.5"	20	P110	BTC	1.125	1.25	1.6
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

Lusitano 27-34 Fed Com 713H

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd 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 2 nd 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 (Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft ³ /sack)	Slurry Description
Surface	586	Surf	13.2	1.33	Lead: Class C Cement + additives
Int 1	1200	Surf	9	3.31	Lead: Class C Cement + additives
	747	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	600	Surf	9	3.31	1 st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.33	1 st stage Tail: Class H / C + additives
	610	Surf	9	3.31	2 nd stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.33	2 nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	1200	Surf	9	3.31	Lead: Class C Cement + additives
	747	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	661	500' tieback	13.2	1.33	Lead: Class H / C + additives

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

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

Lusitano 27-34 Fed Com 713H

Cementing Program (Alternate Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft ³ /sack)	Slurry Description
Surface	752	Surf	13.2	1.33	Lead: Class C Cement + additives
Int 1	1293	Surf	9	3.31	Lead: Class C Cement + additives
	834	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	650	Surf	9	3.31	1 st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.33	1 st stage Tail: Class H / C + additives
	626	Surf	9	3.31	2 nd stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.33	2 nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	1293	Surf	9	3.31	Lead: Class C Cement + additives
	834	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	1237	500' tieback	13.2	1.33	Lead: Class H / C + additives

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

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

Lusitano 27-34 Fed Com 713H

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	10M	Annular (5M)	X	100% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

N | A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

5. Mud Program (3 String Design)

Depth		Type	Weight (ppg)	Vis	Water Loss
From	To				
0	908	FW Gel	8.5 - 9	28-34	N/C
908	12135	DBE / Cut Brine	9 - 10	28-34	N/C
12135	TD	OBM	10-10.5	28-34	N/C

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

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

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 submitted 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

Lusitano 27-34 Fed Com 713H

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

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	6436 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S 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	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? Potentially

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

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

Will be pre-setting casing? Potentially

1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.

7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped 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

☒ Directional Plan

☐ Other, describe



O.D.	PE LB/FT	T&C LB/FT	GRADE
8.625	31.13	32.00	P110EC

Grade - Material Properties

Minimum Yield Strength:	125	ksi
Maximum Yield Strength:	140	ksi
Minimum Tensile Strength:	135	ksi

Pipe Body Data (PE)

Geometry

Nominal ID:	7.921	inch
Wall:	0.352	inch
Min. Wall % (API = 87.5%):	87.5	%
API Drift:	7.796	inch
Special Drift*:	7.875	inch

Performance

Pipe Body Yield Strength:	1,144	kips
Collapse Resistance:	3,470	psi
Internal Yield Pressure (<i>API Historical</i>):	8,930	psi

API Connection Data

SC Internal Pressure:	8,930	psi
SC Joint Strength:	793	kips
LC Internal Pressure:	8,930	psi
LC Joint Strength:	887	kips
BC Internal Pressure:	8,930	psi
BC Joint Strength:	1,121	kips

SC Torque (ft-lbs)

minimum: 5,950	optimum: 7,933	maximum: 9,916
----------------	----------------	----------------

LC Torque (ft-lbs)

minimum: 6,651	optimum: 8,868	maximum: 11,085
----------------	----------------	-----------------

*Special drift must be ordered or API drift will be used for actual drifting of product.

**If above API connections do not suit your needs, VAM® premium connections are available up to 100% of pipe body ratings.

This data sheet is for informational purposes only. While every effort has been made to ensure the accuracy of all data and that the information contained herein is correct, this material is presented as a reference guide only. Vallourec assumes no responsibility for the results obtained through the use of this material.



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





QUALITY DOCUMENT

**PHOENIX RUBBER
INDUSTRIAL LTD. ■**

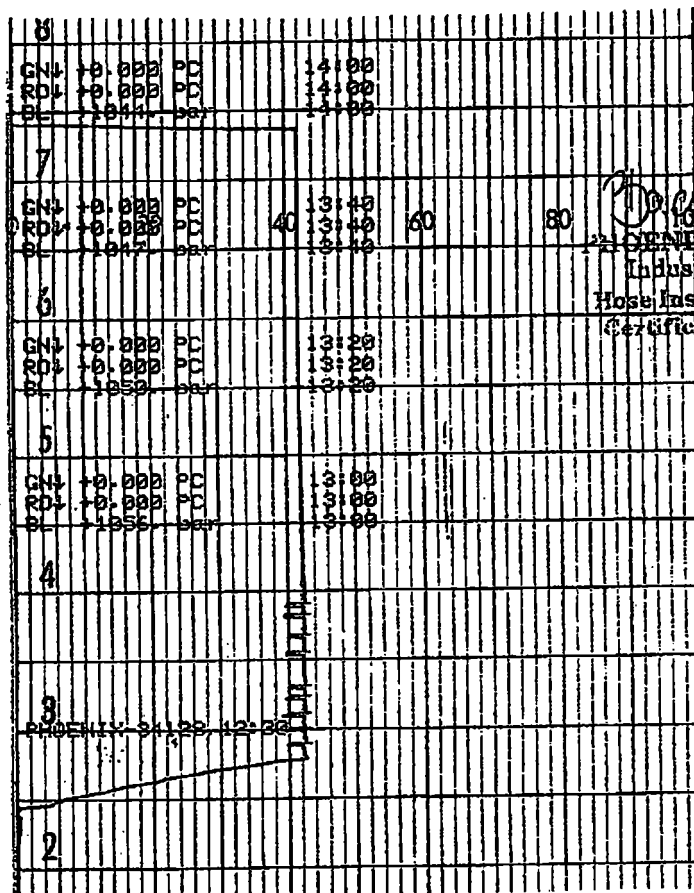
6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
 phone: (3662) 566-737 • Fax: (3662) 566-738

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

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.			P.O. N° 1519FA-871		
PHOENIX RUBBER order N° 170466		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N° 34128		NOMINAL / ACTUAL LENGTH: 11,43 m			
W.P. 68,96 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature <div style="text-align: center;">See attachment. (1 page)</div>					
↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
COUPLINGS					
Type	Serial N°	Quality	Heat N°		
3" coupling with 4 1/16" Flange end	720 719	AISI 4130	C7626		
		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: 29. April. 2002.	Inspector	Quality Control PHOENIX RUBBER Industrial Ltd. Hose Inspection and VERIFIED TRUE COPY [Signature]			

14094-65

40920-0-00015 N800C



[Signature]
PHOENIX RUBBER
 Industrial Ltd.
 Hose Inspection and
 Certification Dept.

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.



APD ID: 10400033370

Submission Date: 08/28/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Show Final Text

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Lusitano_27_34_Fed_Com_713H_Ex_Access_Rd_20180824090408.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Lusitano_27_34_Fed_Com_713H_Access_Rds_20180828130501.pdf

New road type: COLLECTOR,RESOURCE

Length: 9442

Feet

Width (ft.): 30

Max slope (%): 6

Max grade (%): 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: WATER DRAINAGE DITCH

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: GRAVEL

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: SEE INTERIM RECLAMATION DIAGRAM

Access other construction information:

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: N/A

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

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Lusitano_27_34_Fed_Com_713H_1mile_Map_20180822135014.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? DEFER

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

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Water source use type: STIMULATION

Water source type: RECYCLED

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: OTHER

Source land ownership: FEDERAL

Water source transport method: PIPELINE,TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 500000

Source volume (acre-feet): 64.44655

Source volume (gal): 21000000

Water source and transportation map:

Lusitano_27_34_Fed_Com_713H_H2S_Plans_20180822135056.pdf

Water source comments: The attached Water Transfer Map is a proposal only and the final route and documentation will be provided by a Devon contractor prior to installation. When available Devon will always follow existing disturbance.

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Casing length (ft.):

Casing top depth (ft.):

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Section 6 - Construction Materials

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

Construction Materials source location attachment:

Lusitano_27_34_Fed_Com_713H_Caliche_Pit_20180822135118.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: DRILL CUTTINGS

Amount of waste: 1238 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Waste type: COMPLETIONS/STIMULATION

Waste content description: Flow back water during completion operations.

Amount of waste: 3000 barrels

Waste disposal frequency : One Time Only

Safe containment description: N.A

Safe containmant attachment:

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

Disposal type description:

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

Waste type: PRODUCED WATER

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

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Disposal type description:

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

Waste type: FLOWBACK

Waste content description: Produced water during flowback operations. This amount is a daily average during flowback (BWPD).

Amount of waste: 1500 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.)

Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Lusitano_27_34_Fed_Com_713H_Rig_Layout_20180822135200.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: LUSITANO 27 WELLPAD

Multiple Well Pad Number: 3

Recontouring attachment:

Lusitano_27_34_Fed_Com_713H_Reclamation_20180828130808.pdf

Drainage/Erosion control construction: All areas disturbed shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable

Drainage/Erosion control reclamation: Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season.

Well pad proposed disturbance (acres): 5.62	Well pad interim reclamation (acres): 1.921	Well pad long term disturbance (acres): 3.699
Road proposed disturbance (acres): 6.502	Road interim reclamation (acres): 0	Road long term disturbance (acres): 6.502
Powerline proposed disturbance (acres): 0.621	Powerline interim reclamation (acres): 0	Powerline long term disturbance (acres): 0.621
Pipeline proposed disturbance (acres): 0.185	Pipeline interim reclamation (acres): 0	Pipeline long term disturbance (acres): 0.185
Other proposed disturbance (acres): 4.219	Other interim reclamation (acres): 0	Other long term disturbance (acres): 4.219
Total proposed disturbance: 17.147	Total interim reclamation: 1.921	Total long term disturbance: 15.226

Disturbance Comments:

Reconstruction method: Operator will use Best Management Practices"BMP" to mechanically recontour to obtain the desired outcome.

Topsoil redistribution: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

Soil treatment: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

Existing Vegetation at the well pad:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: JACOB

Last Name: OCHOA

Phone: (575)748-9934

Email: jacob.ochoa@dvn.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

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

Weed treatment plan attachment:

Monitoring plan description: MONITOR AS NEEDED.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? NO

Use APD as ROW?

ROW Type(s):

ROW Applications

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 713H

SUPO Additional Information: BATTERY CONNECT ELECTRIC CTB BATTERY CONNECT CTB ELECTRIC FLOWLINE

Use a previously conducted onsite? YES

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

Other SUPO Attachment

Lusitano_27_34_Fed_Com_713H_Battery_Connect_Electric_20180828131309.pdf

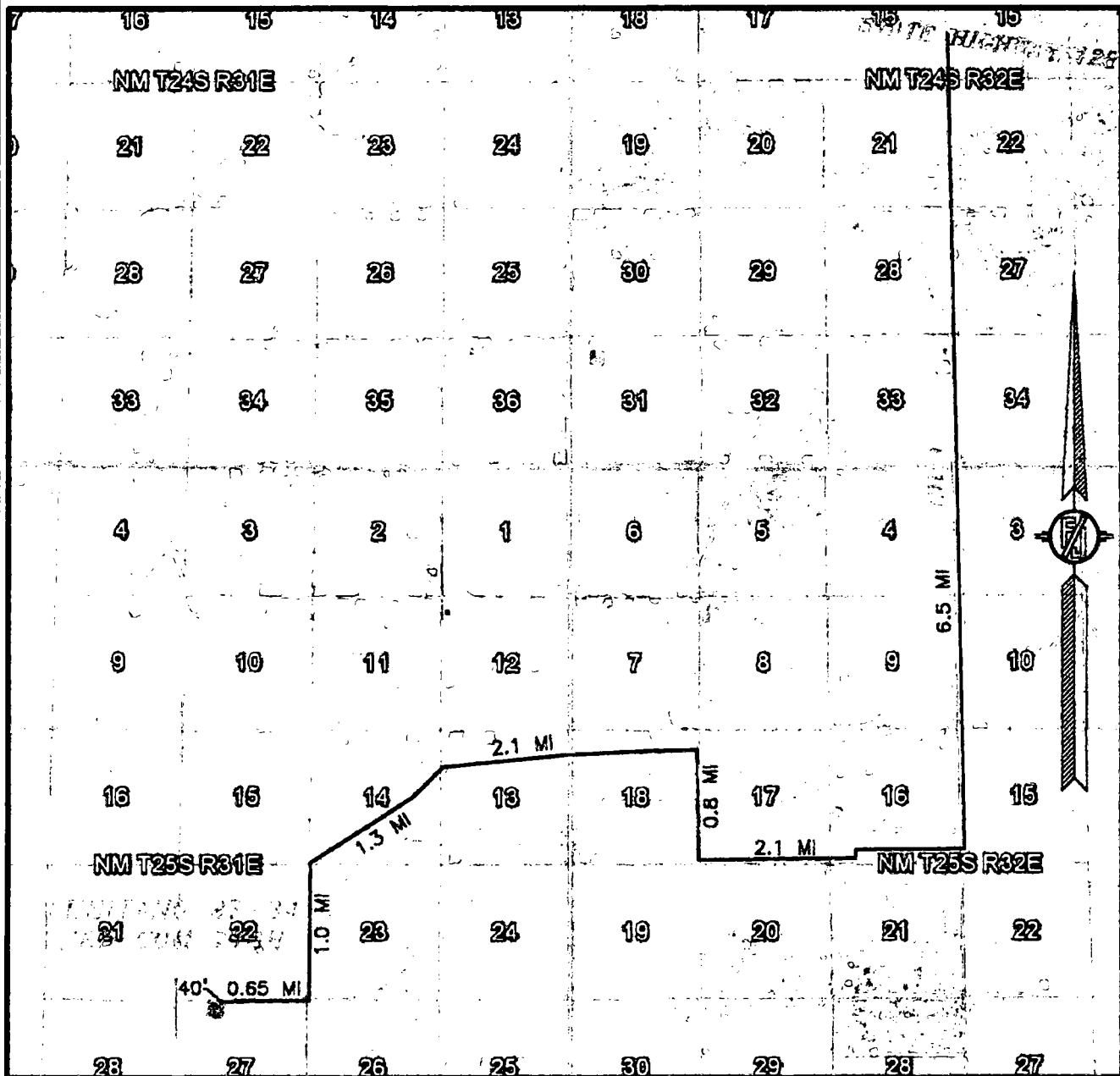
Lusitano_27_34_Fed_Com_713H_CTB_Battery_Connect_20180828131315.pdf

Lusitano_27_34_Fed_Com_713H_CTB_20180828131319.pdf

Lusitano_27_34_Fed_Com_713H_Electric_20180828131325.pdf

Lusitano_27_34_Fed_Com_713H_Flowline_20180828131328.pdf

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



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 NOVEMBER 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.
 LUSITANO 27-34 FED COM 713H
 LOCATED 235 FT. FROM THE NORTH LINE
 AND 1762 FT. FROM THE WEST LINE OF
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 LAND STATUS: BLM

AUGUST 1, 2018

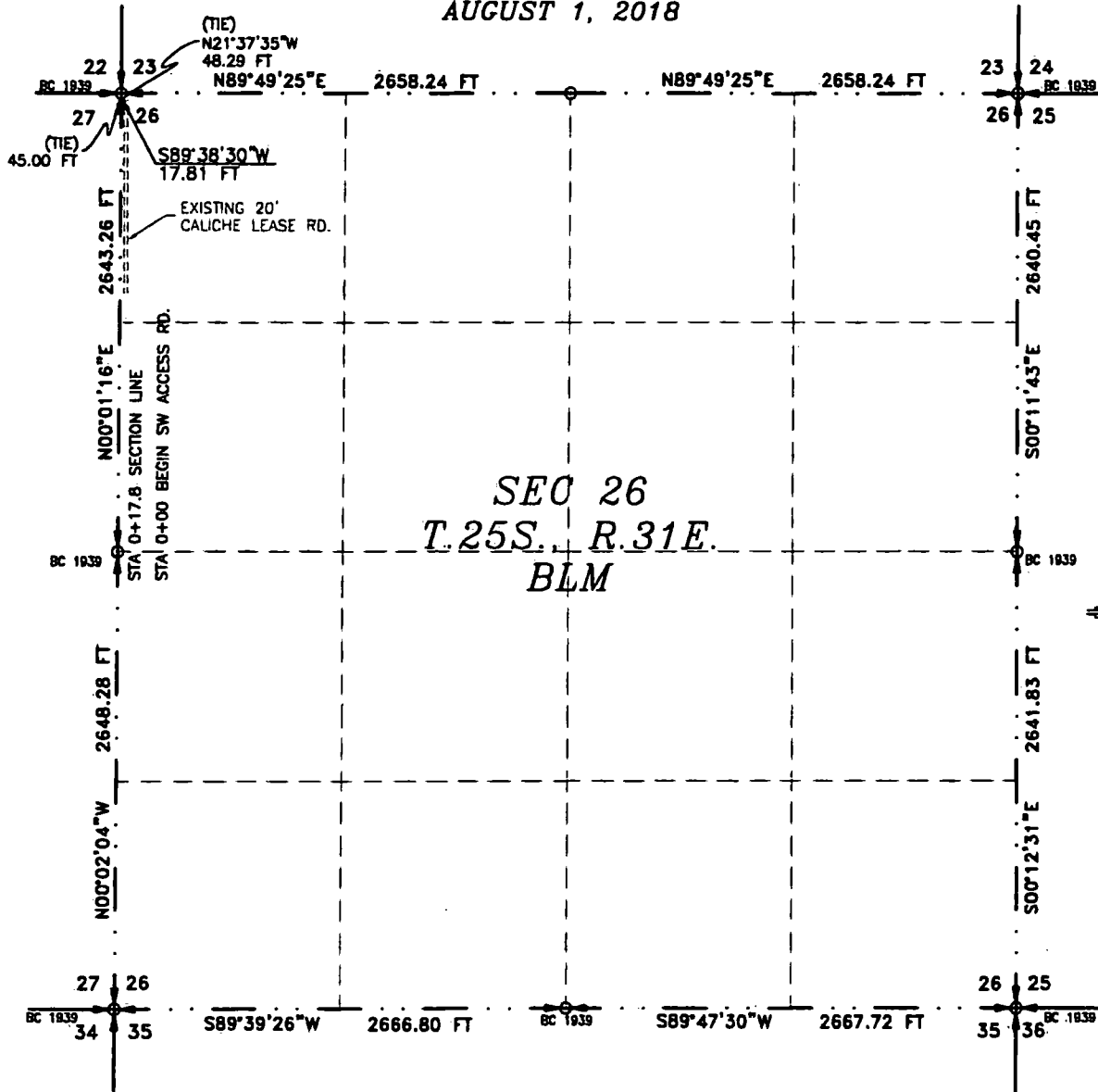
SURVEY NO. 6427

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

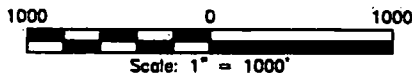
ACCESS ROAD PLAT

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

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



SEE NEXT SHEET (2-4) FOR DESCRIPTION



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.

SHEET: 1-4

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

SURVEYOR CERTIFICATE

I, FILMON 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 1st DAY OF AUGUST 2018

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

SURVEY NO. 6427

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 793H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

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

DESCRIPTION

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

SOUTHWEST ACCESS ROAD

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

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

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

NW/4 NW/4 17.81 LF. 1.08 RODS 0.012 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 22ND DAY OF AUGUST 2018

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

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.

SHEET: 2-4

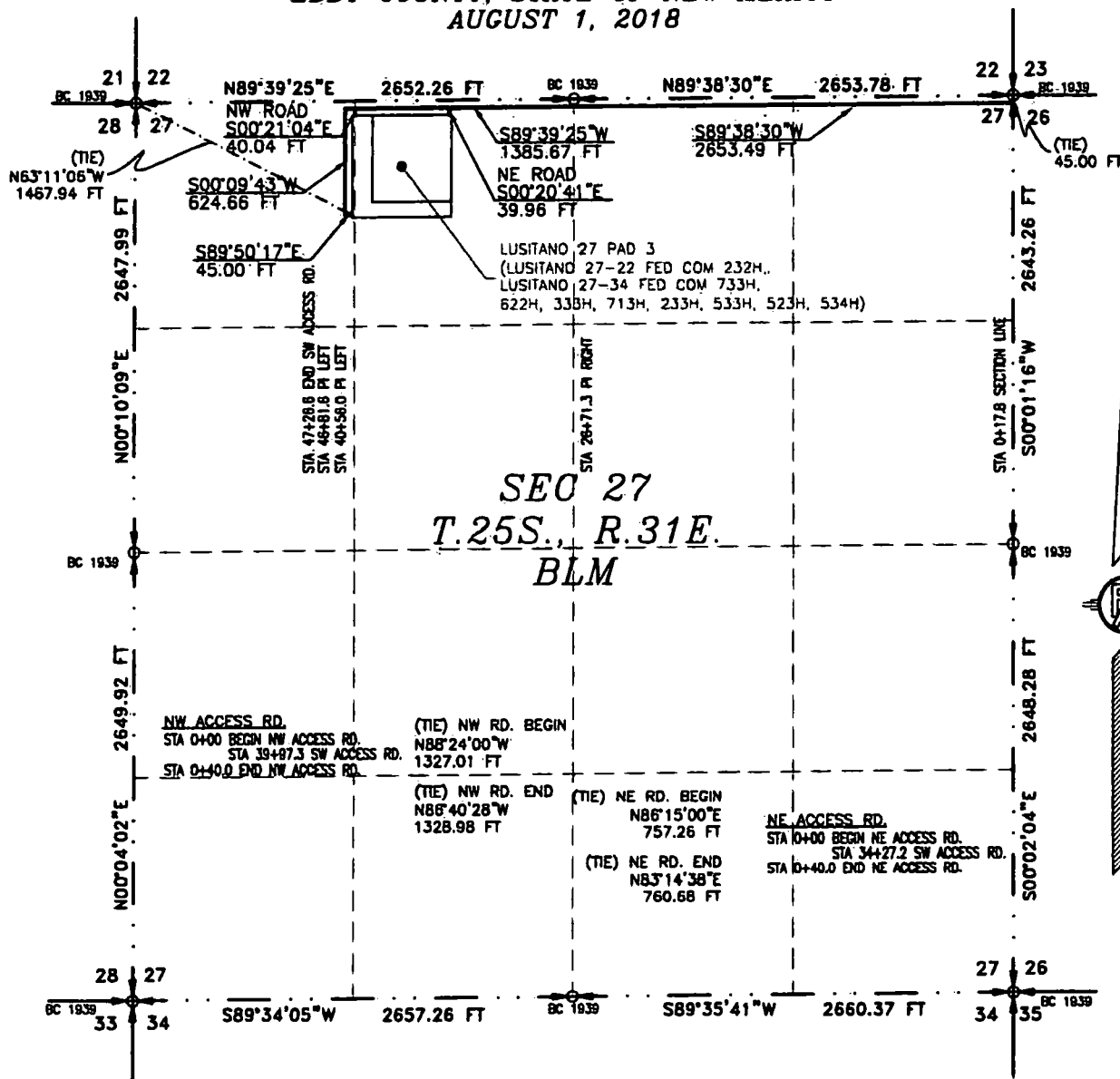
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 6427

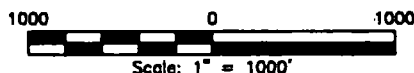
ACCESS ROAD PLAT

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

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



SEE NEXT SHEET (4-4) FOR DESCRIPTION



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.

SHEET: 3-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

I, FILMON 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 1 DAY OF AUGUST 2018

FILMON F. JARAMILLO
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

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

SURVEY NO. 6427

ACCESS ROAD PLAT

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

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

DESCRIPTION

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

SOUTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

THENCE S89°38'30"W A DISTANCE OF 2653.49 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°39'25"W A DISTANCE OF 1385.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S00°09'43"W A DISTANCE OF 624.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°50'17"E A DISTANCE OF 45.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°11'06"W, A DISTANCE OF 1467.94 FEET;

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

NE/4 NE/4 1326.91 L.F. 80.42 RODS 0.914 ACRES

NW/4 NE/4 1326.91 L.F. 80.42 RODS 0.914 ACRES

NE/4 NW/4 1326.17 L.F. 80.37 RODS 0.913 ACRES

NW/4 NW/4 728.83 L.F. 44.17 RODS 0.502 ACRES

NORTHEAST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°15'00"E, A DISTANCE OF 757.26 FEET;

THENCE S00°20'41"E A DISTANCE OF 39.96 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°14'38"E, A DISTANCE OF 760.68 FEET;

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

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

NORTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°24'00"W, A DISTANCE OF 1327.01 FEET;

THENCE S00°21'04"E A DISTANCE OF 40.04 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°40'28"W, A DISTANCE OF 1328.98 FEET;

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

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

SURVEYOR CERTIFICATE

I, FILMON 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 1 DAY OF AUGUST 2018

(Signature of Filmon F. Jaramillo)
FILMON F. JARAMILLO PLS. 12797

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

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.

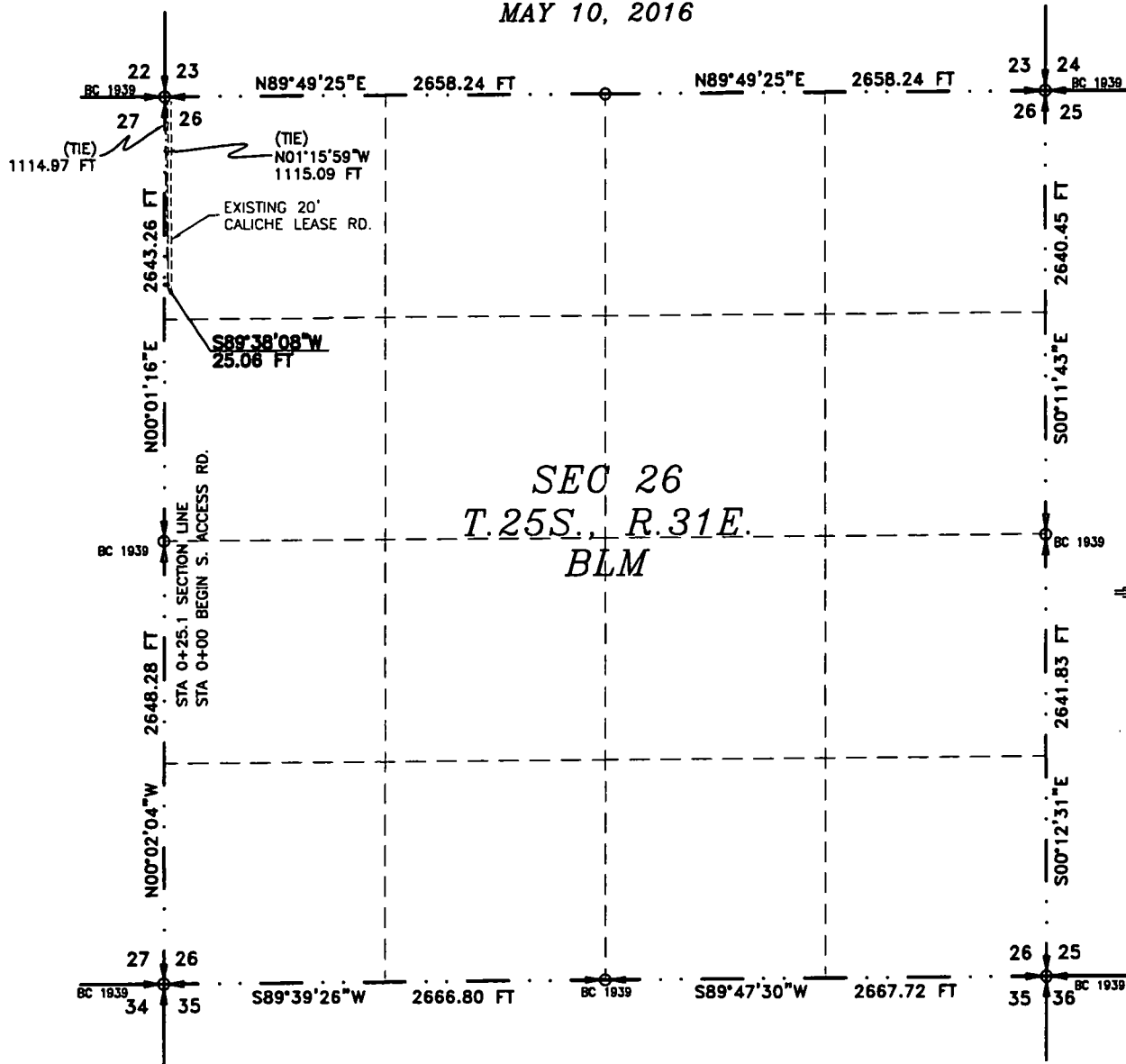
SHEET: 4-4

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

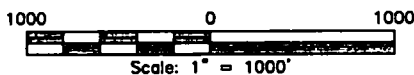
SURVEY NO. 6427

ACCESS ROAD PLAT (AA000055110)
SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE
COTTON DRAW UNIT 27-34 CTB 3

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



SEE NEXT SHEET (2-6) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 11 DAY OF MAY 2016

FILMON F. JARAMILLO, PLS. 12797
RECEIVED
MAY 11 2016

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

SHEET: 1-6

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

SURVEY NO. 4666

ACCESS ROAD PLAT (AA000055110)
SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE
COTTON DRAW UNIT 27-34 CTB 3

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

DESCRIPTION

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

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N01°15'59"W, A DISTANCE OF 1115.09 FEET;

THENCE S89°38'08"W A DISTANCE OF 25.06 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 1114.97 FEET;

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

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

GENERAL NOTES

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

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

SURVEYOR CERTIFICATE

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

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

Filimon F. Jaramillo
FILIMON F. JARAMILLO
REGISTERED PROFESSIONAL SURVEYOR
NEW MEXICO

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

SHEET: 2-6

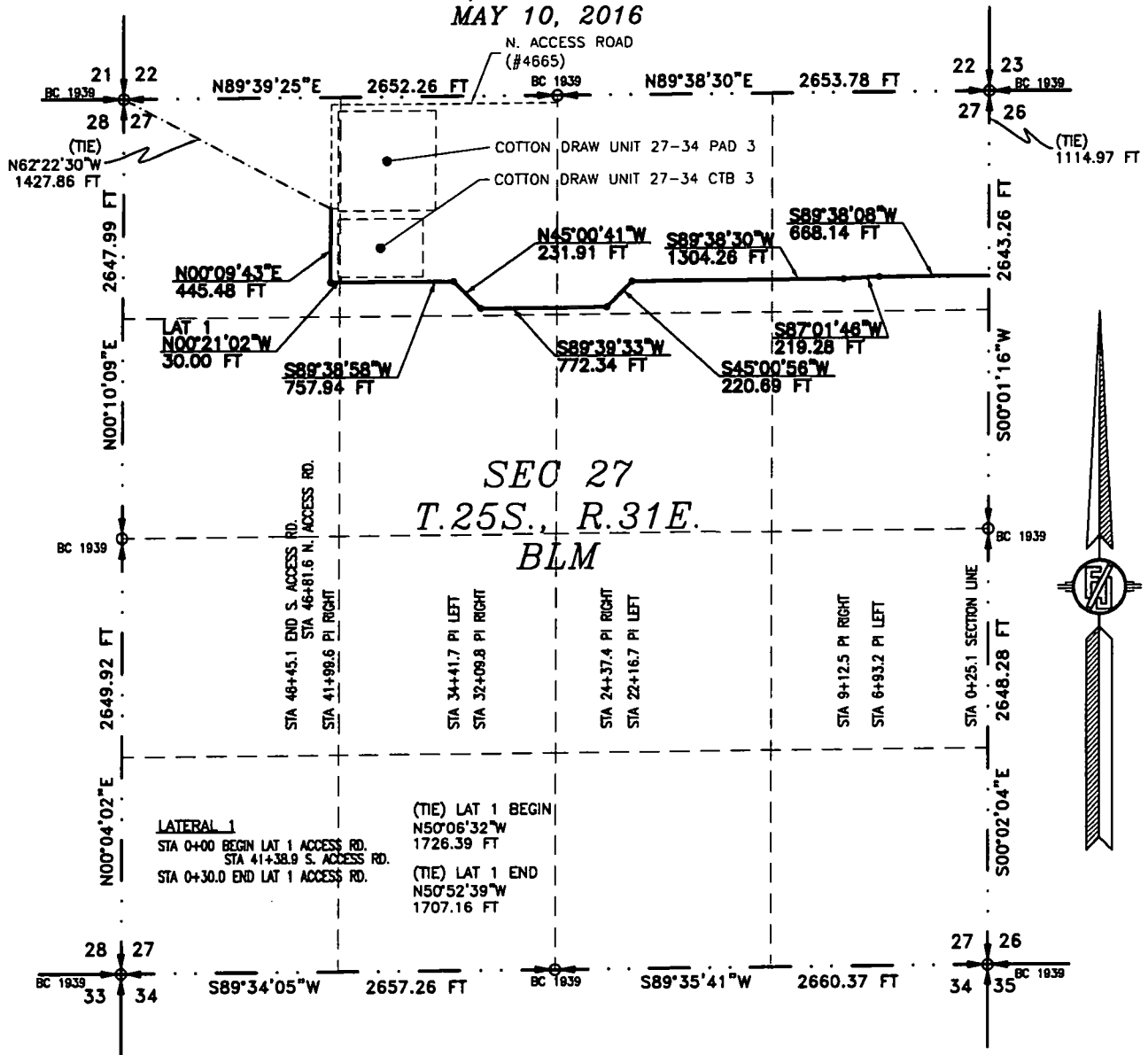
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 4666

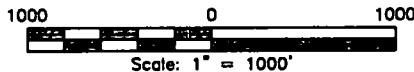
301 SOUTH CANAL
(575) 234-3341

ACCESS ROAD PLAT (AA000055110)
SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE
COTTON DRAW UNIT 27-34 CTB 3

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



SEE NEXT SHEET (4-6) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,
NEW MEXICO, THIS 10 DAY OF MAY, 2016

FILIMON F. JARAMILLO
 PROFESSIONAL SURVEYOR
 301 SOUTH CANAL
 (575) 234-3341

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

SURVEY NO. 4666

SHEET: 3-6

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)
SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE
COTTON DRAW UNIT 27-34 CTB 3

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

DESCRIPTION

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

SOUTH ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 1114.97 FEET;

THENCE S89°38'08"W A DISTANCE OF 668.14 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S87°01'46"W A DISTANCE OF 219.28 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°38'30"W A DISTANCE OF 1304.26 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S45°00'56"W A DISTANCE OF 220.69 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°39'33"W A DISTANCE OF 772.34 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N45°00'41"W A DISTANCE OF 231.91 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°38'58"W A DISTANCE OF 757.94 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°09'43"E A DISTANCE OF 445.48 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N62°22'30"W, A DISTANCE OF 1427.86 FEET;

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

NE/4 NE/4 1327.61 L.F. 80.46 RODS 0.914 ACRES

NW/4 NE/4 1392.08 L.F. 84.37 RODS 0.959 ACRES

NE/4 NW/4 1394.86 L.F. 84.54 RODS 0.961 ACRES

NW/4 NW/4 505.49 L.F. 30.64 RODS 0.348 ACRES

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N50°06'32"W, A DISTANCE OF 1726.39 FEET;

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

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

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

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 27 DAY OF MAY 2016

GENERAL NOTES

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

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

SHEET: 4-6

MADRON SURVEYING, INC.

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

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

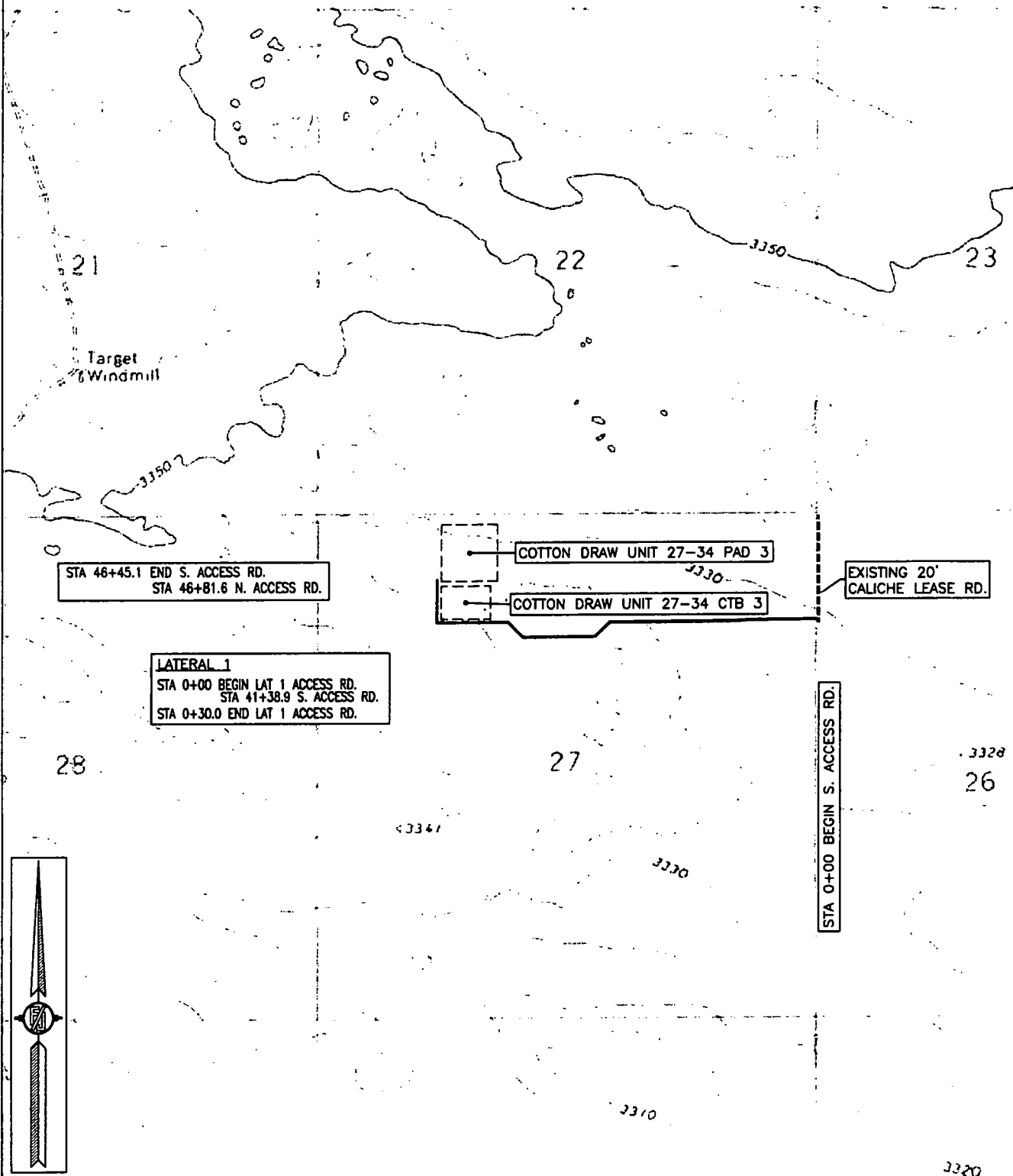
SURVEY NO. 4666

CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

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

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



ACCESS ROAD PLAT (AA000055110)
SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE
COTTON DRAW UNIT 27-34 CTB 3

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

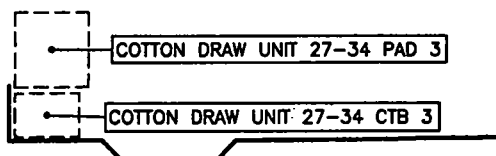
NM T25S R31E

21

22

2

STA 46+45.1 END S. ACCESS RD.
STA 46+81.6 N. ACCESS RD.



LATERAL 1
STA 0+00 BEGIN LAT 1 ACCESS RD.
STA 41+38.9 S. ACCESS RD.
STA 0+30.0 END LAT 1 ACCESS RD.

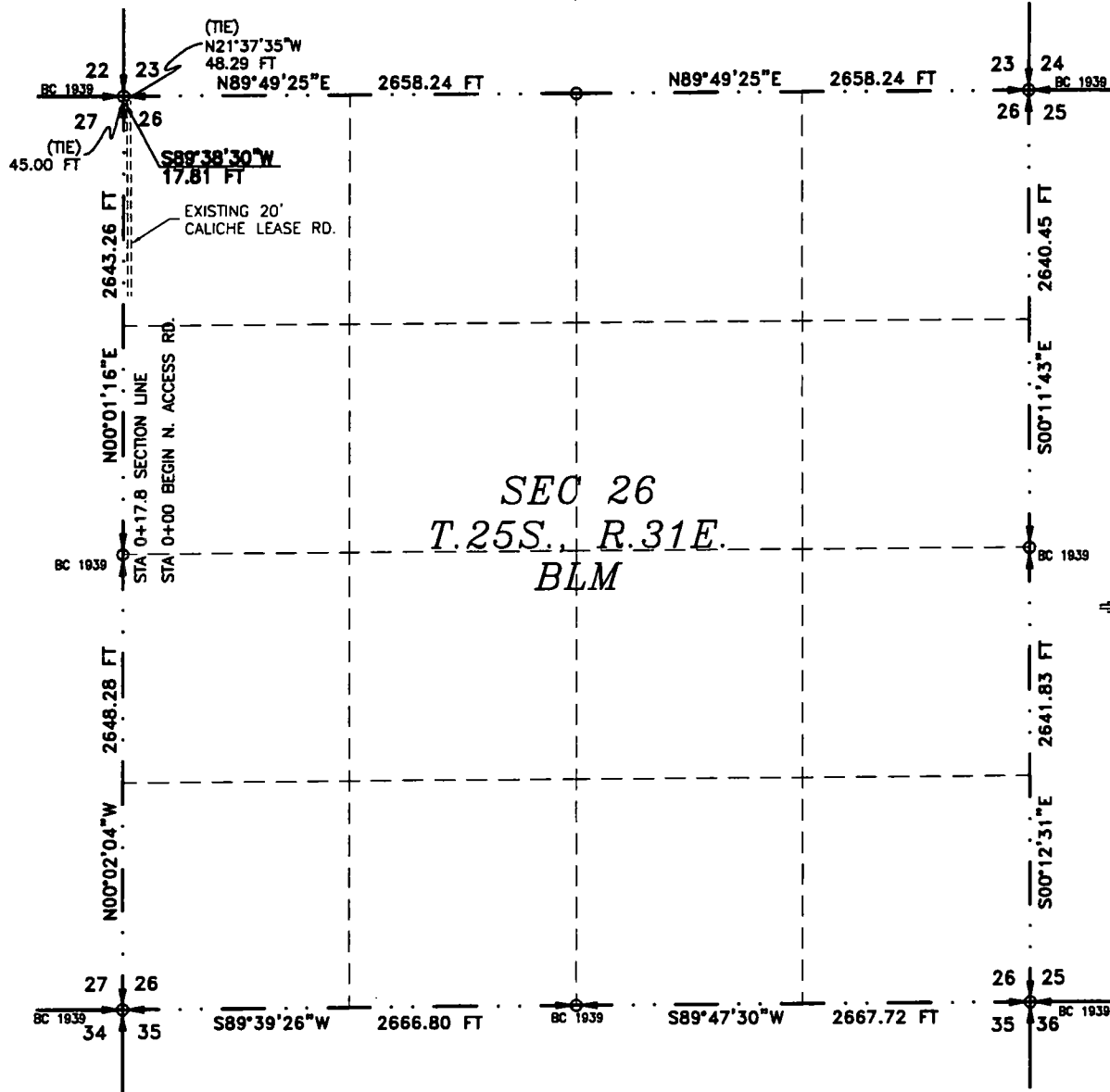
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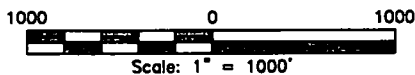


ACCESS ROAD PLAT (AA000055110)
 NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

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



SEE NEXT SHEET (2-6) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

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

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

(Signature)
 FILIMON F. JARAMILLO, PLS. 12797
 PROFESSIONAL SURVEYOR
 REG. NO. 12797

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

SHEET: 1-6

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 4665

ACCESS ROAD PLAT (AA000055110)
NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

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

DESCRIPTION

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

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

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

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

GENERAL NOTES

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

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

SURVEYOR CERTIFICATE

I, FILMON 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 MAY 2016

FILMON F. JARAMILLO
REGISTERED PROFESSIONAL SURVEYOR
NEW MEXICO
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

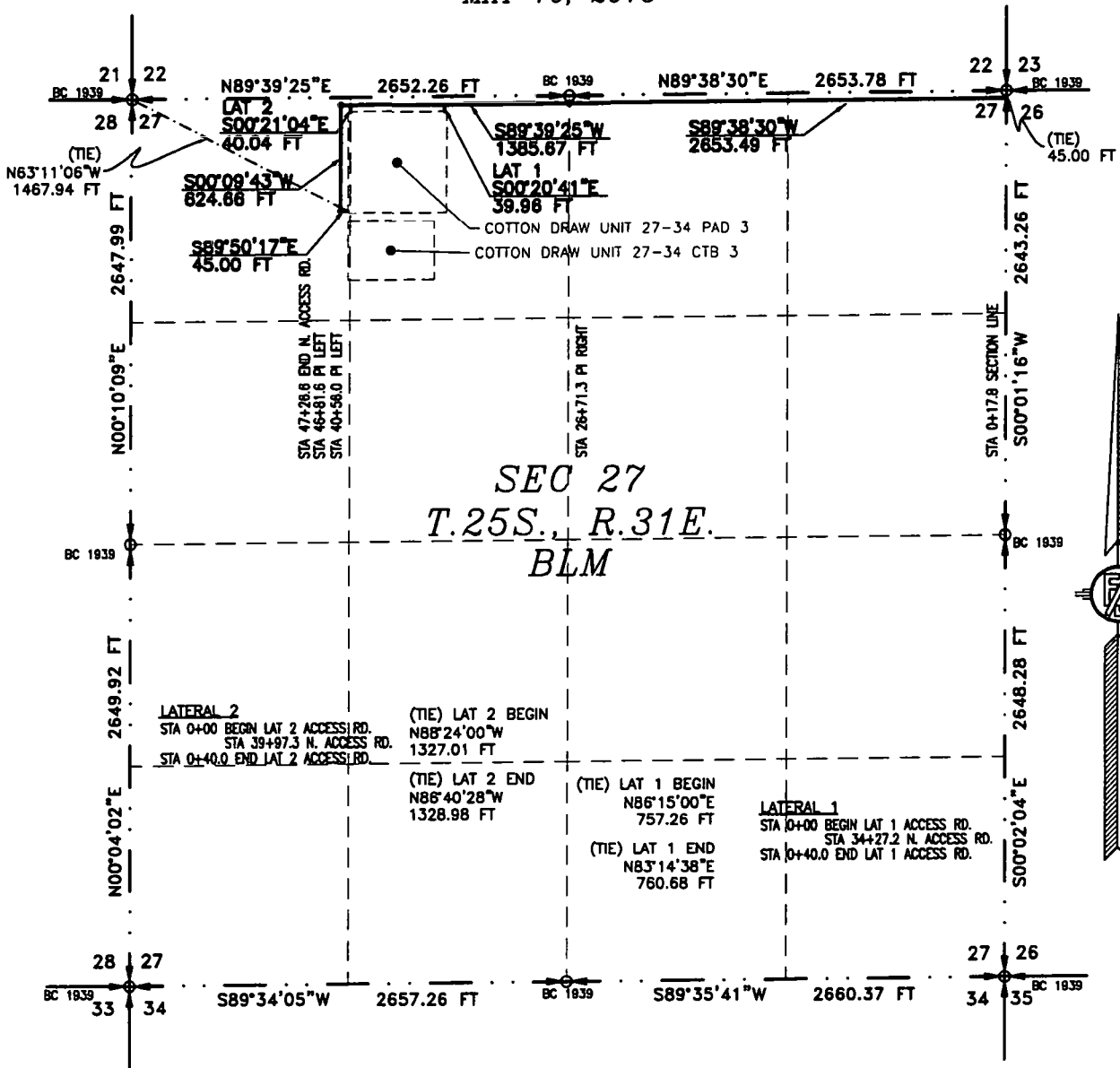
SHEET: 2-6

SURVEY NO. 4665

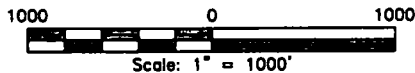
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)
NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

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



SEE NEXT SHEET (4-6) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILMON 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 17TH DAY OF MAY 2016

FILMON F. JARAMILLO, SURVEYOR
REGISTERED PROFESSIONAL
12797

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

SHEET: 3-6

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

SURVEY NO. 4665

ACCESS ROAD PLAT (AA000055110)
NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

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

DESCRIPTION

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

NORTH ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

THENCE S89°38'30"W A DISTANCE OF 2653.49 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°39'25"W A DISTANCE OF 1385.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S00°09'43"W A DISTANCE OF 624.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°50'17"E A DISTANCE OF 45.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°11'06"W, A DISTANCE OF 1467.94 FEET;

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

NE/4 NE/4 1326.91 L.F. 80.42 RODS 0.914 ACRES

NW/4 NE/4 1326.91 L.F. 80.42 RODS 0.914 ACRES

NE/4 NW/4 1326.17 L.F. 80.37 RODS 0.913 ACRES

NW/4 NW/4 728.83 L.F. 44.17 RODS 0.502 ACRES

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°15'00"E, A DISTANCE OF 757.26 FEET;

THENCE S00°20'41"E A DISTANCE OF 39.96 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°14'38"E, A DISTANCE OF 760.68 FEET;

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

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

LATERAL 2 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°24'00"W, A DISTANCE OF 1327.01 FEET;

THENCE S00°21'04"E A DISTANCE OF 40.04 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°40'28"W, A DISTANCE OF 1328.98 FEET;

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

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

SURVEYOR CERTIFICATE

I, FILMON 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 MAY 2016

GENERAL NOTES

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

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

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

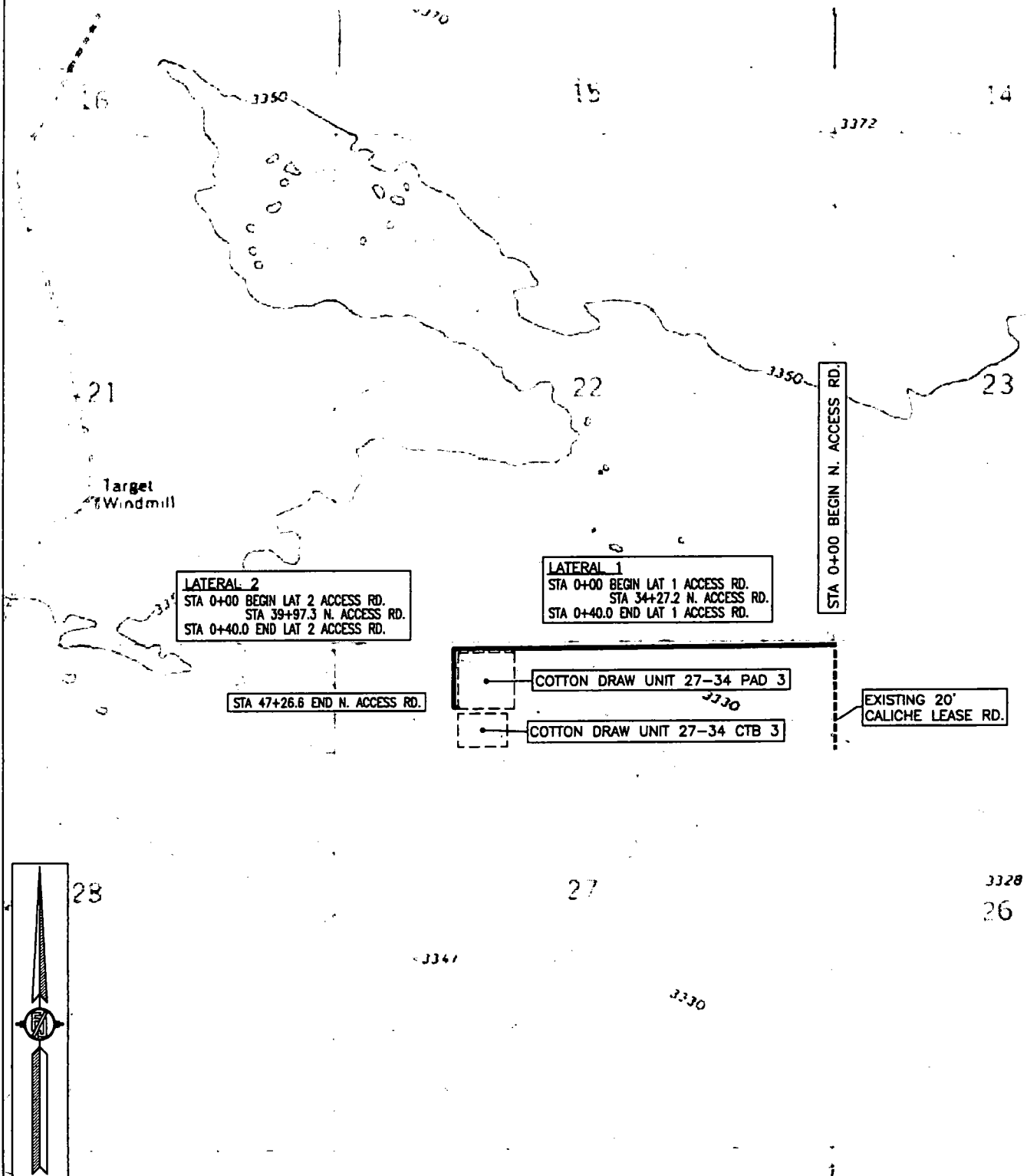
SURVEY NO. 4665

SHEET: 4-6

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)
NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

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



SHEET: 5-6

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

SURVEY NO. 4665

CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

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

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

NM T25S R31E

21

22

LATERAL 2

STA 0+00 BEGIN LAT 2 ACCESS RD.
STA 39+97.3 N. ACCESS RD.
STA 0+40.0 END LAT 2 ACCESS RD.

LATERAL 1

STA 0+00 BEGIN LAT 1 ACCESS RD.
STA 34+27.2 N. ACCESS RD.
STA 0+40.0 END LAT 1 ACCESS RD.

STA 47+26.6 END N. ACCESS RD.

COTTON DRAW UNIT 27-34 PAD 3

COTTON DRAW UNIT 27-34 CTB 3

STA 0+00 BEGIN N. ACCESS RD.

EXISTING 20'
CALICHE LEASE RD.

23

27



PLAT

One Mile Radius Map



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

USA Contiguous Equidistant Conic
Datum: North American 1983
Created by: FME Server
Map is current as of 8/15/2018



0 0.3 Miles
1 inch = 0.44 miles

LUSITANO 27-34 FED COM 713H
WA017161473

SHIRE 22 FED 5H

Nearest wellbore to SHL:

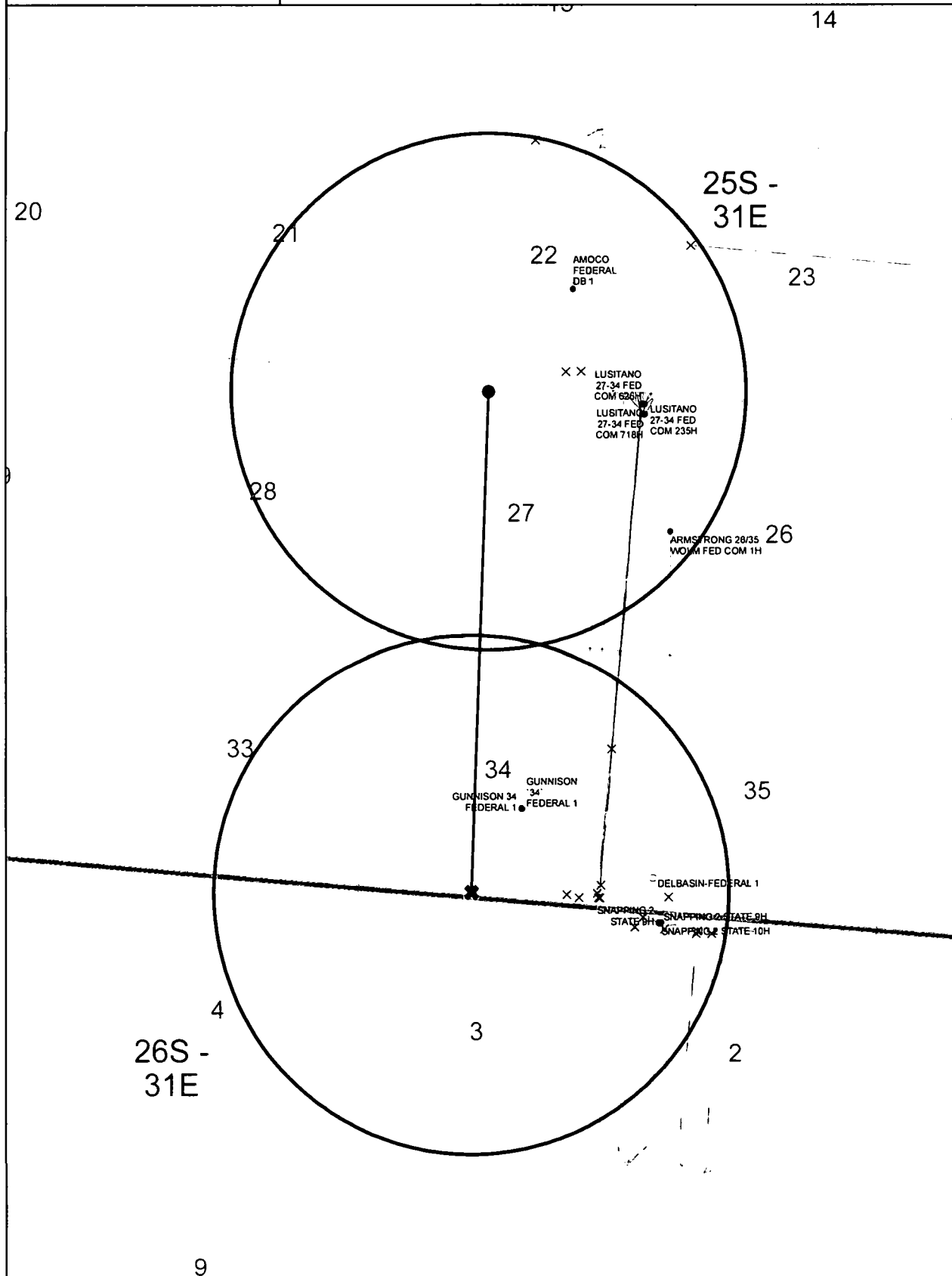
1099 ft.

LUSITANO 27-34 FED COM 626H

Nearest wellbore to BHL:

1955 ft.

- Unknown SHL
- Active SHL
- Inactive SHL
- × BHL





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

Hydrogen Sulfide (H₂S) Contingency Plan

For

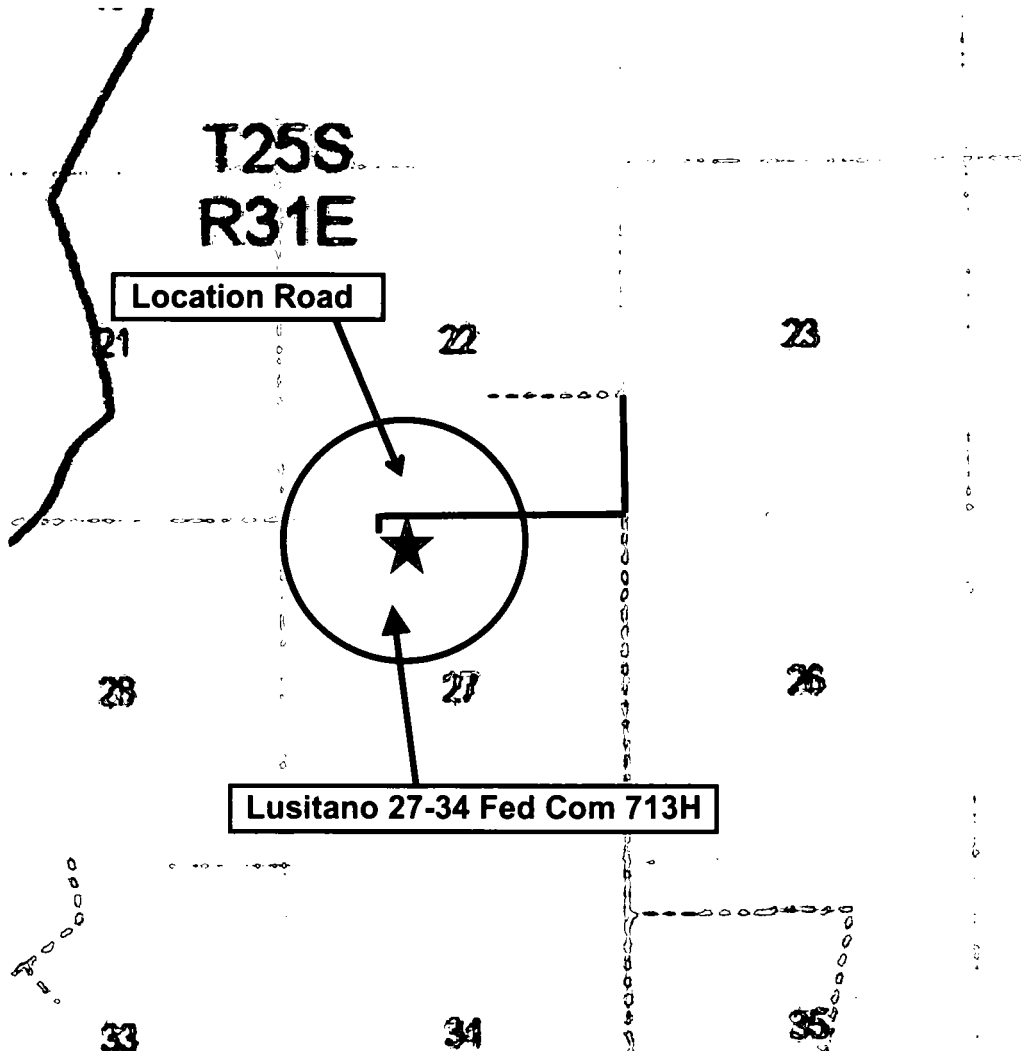
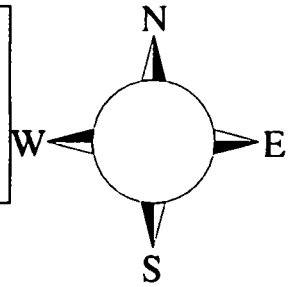
Lusitano 27-34 Fed Com 713H

**Sec-27 T-25S R-31E
235' FNL & 1762' FWL
LAT. = 32.1079052' N (NAD83)
LONG = 103.7687931' W**

Eddy County NM

Lusitano 27-34 Fed Com 713H

This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H₂S, including warning signs, wind indicators and H₂S monitor.



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

Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H₂S and SO₂

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

Contacting Authorities

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 (H₂S) 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 (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S 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 H₂S 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 H₂S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan.

II. HYDROGEN SULFIDE TRAINING

Note: All H₂S 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 H₂S.

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. H₂S detection and monitoring equipment:

Portable H₂S monitors positioned on location for best coverage and response. These units have warning lights which activate when H₂S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

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

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 H₂S circulated to surface. Proper mud weight, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

5. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H₂S trim.
- B. All elastomers used for packing and seals shall be H₂S 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 H₂S 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
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Agency Call List

<u>Lea County (575)</u>	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
<u>Eddy County (575)</u>	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
	Native Air – Emergency Helicopter – Hobbs	(575) 392-6429
	Flight For Life - Lubbock, TX	(806) 743-9911
<u>Give GPS position:</u>	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



- State pit 616 and 617 32- 23S- 32E



- Fed pit 25- 23S- 31E

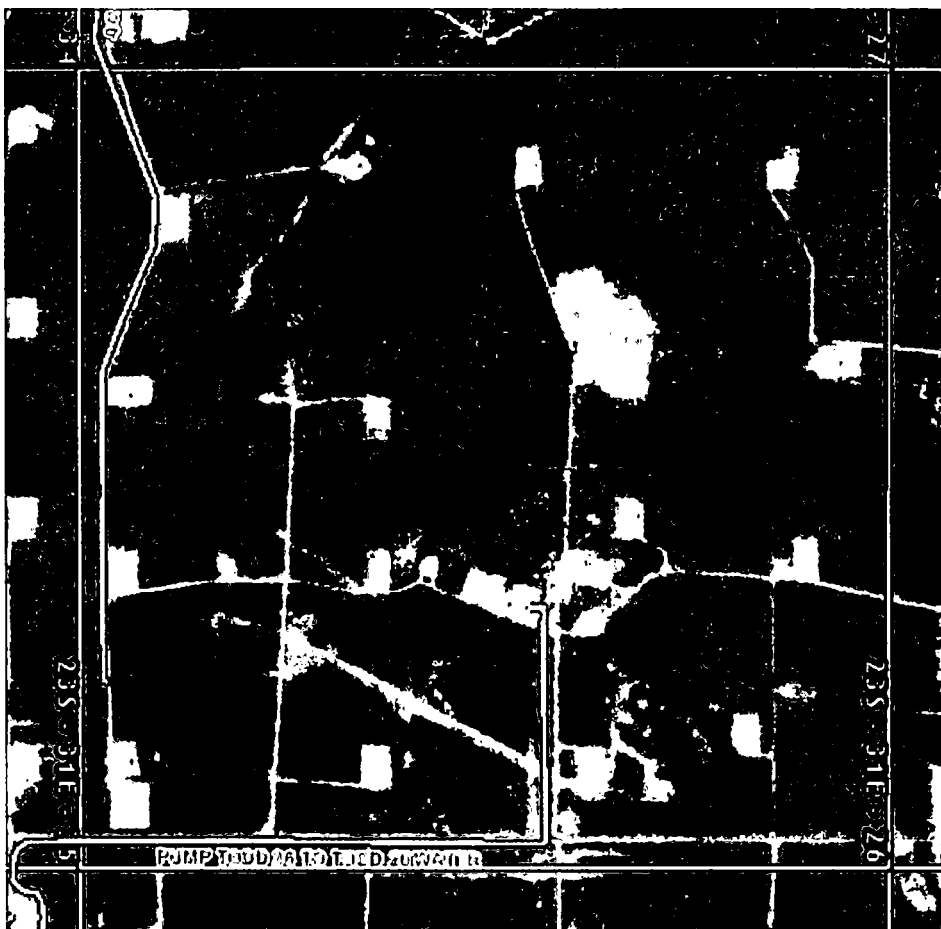
31E - 25
NENW

23S - 31E - 25
NWNE

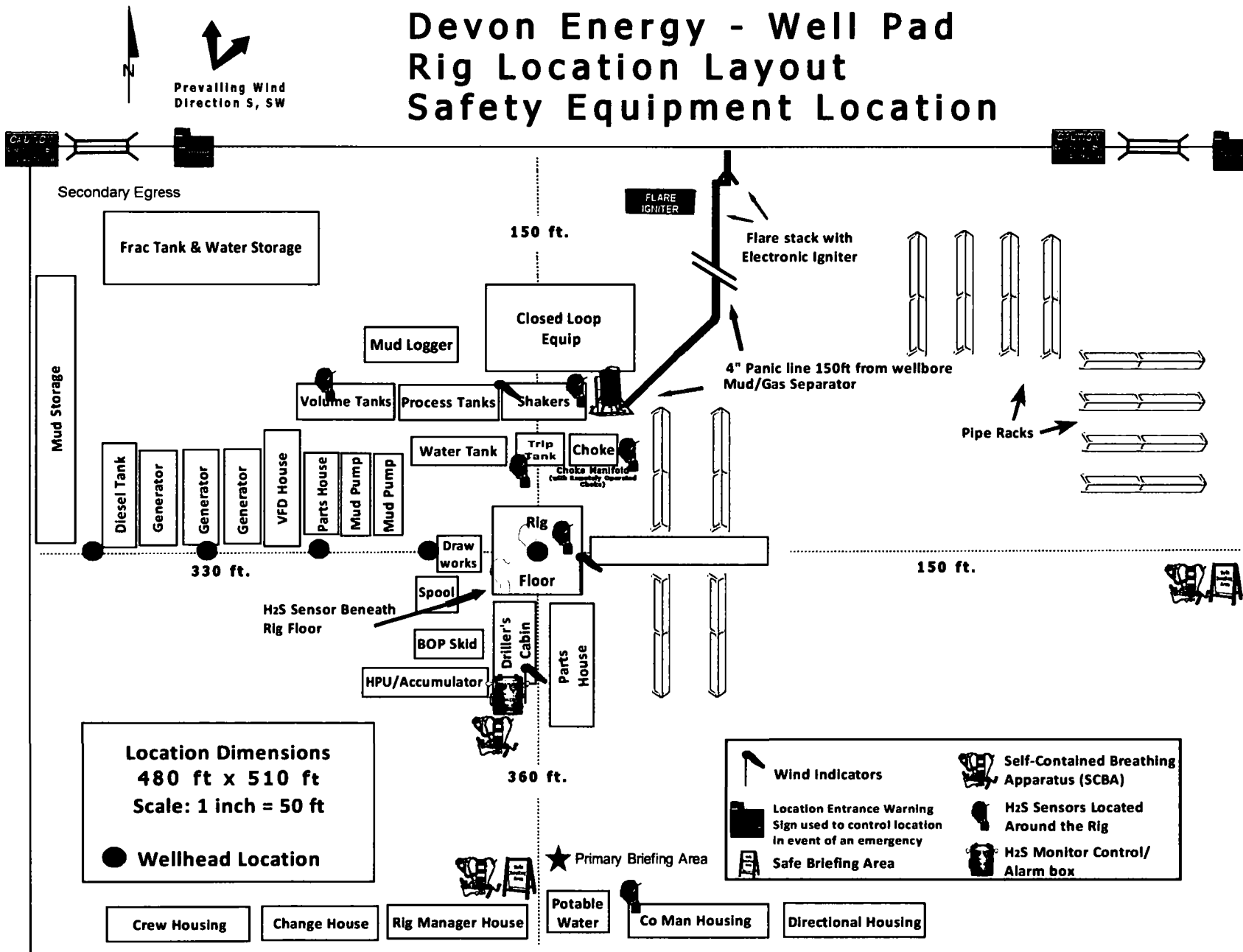
31E - 25
SENW

23S - 31E - 25
SWNE

- Private pit 26- 23S- 31E



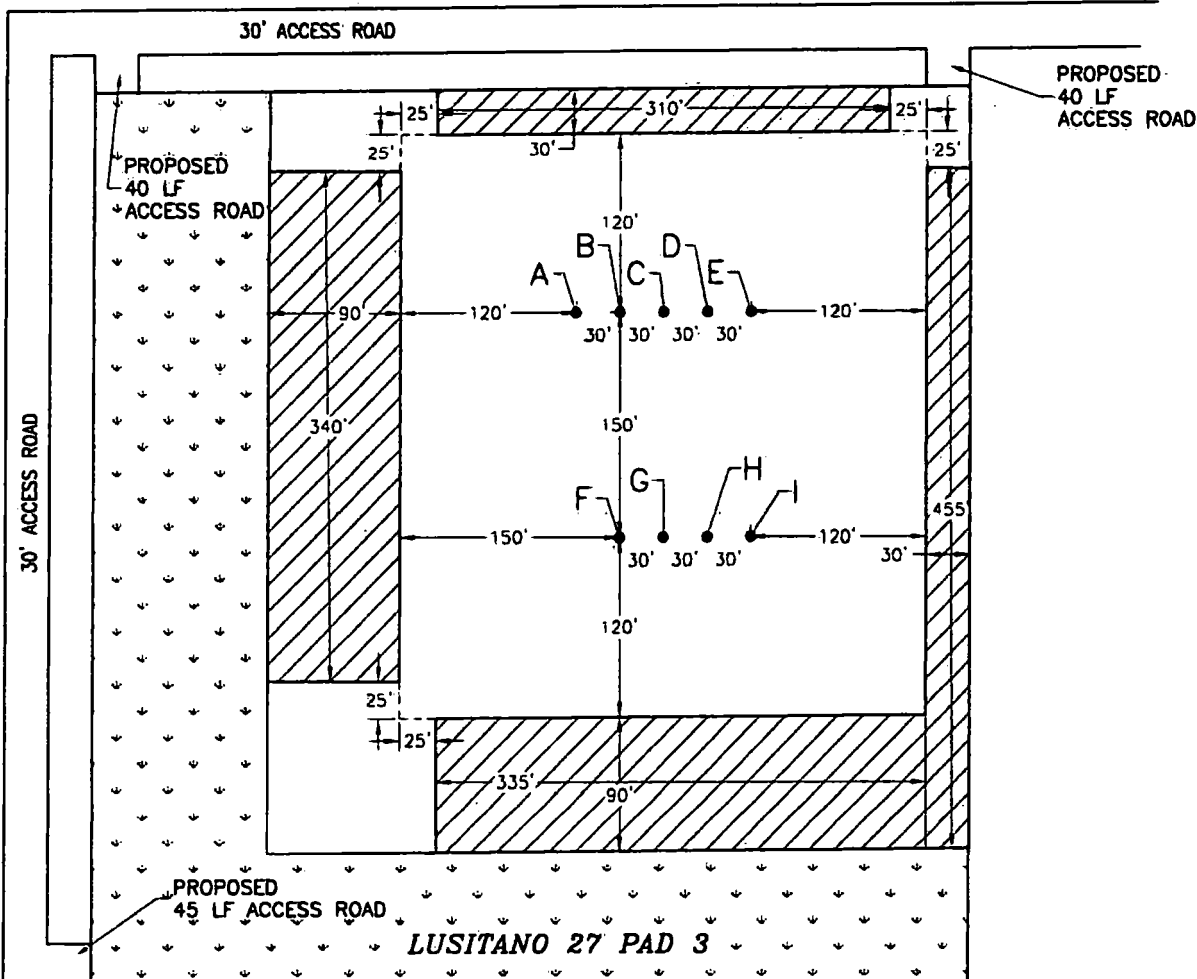
Devon Energy - Well Pad Rig Location Layout Safety Equipment Location



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

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

SEC. 22
SEC. 27



0 12 60 120 240
SCALE 1" = 120'

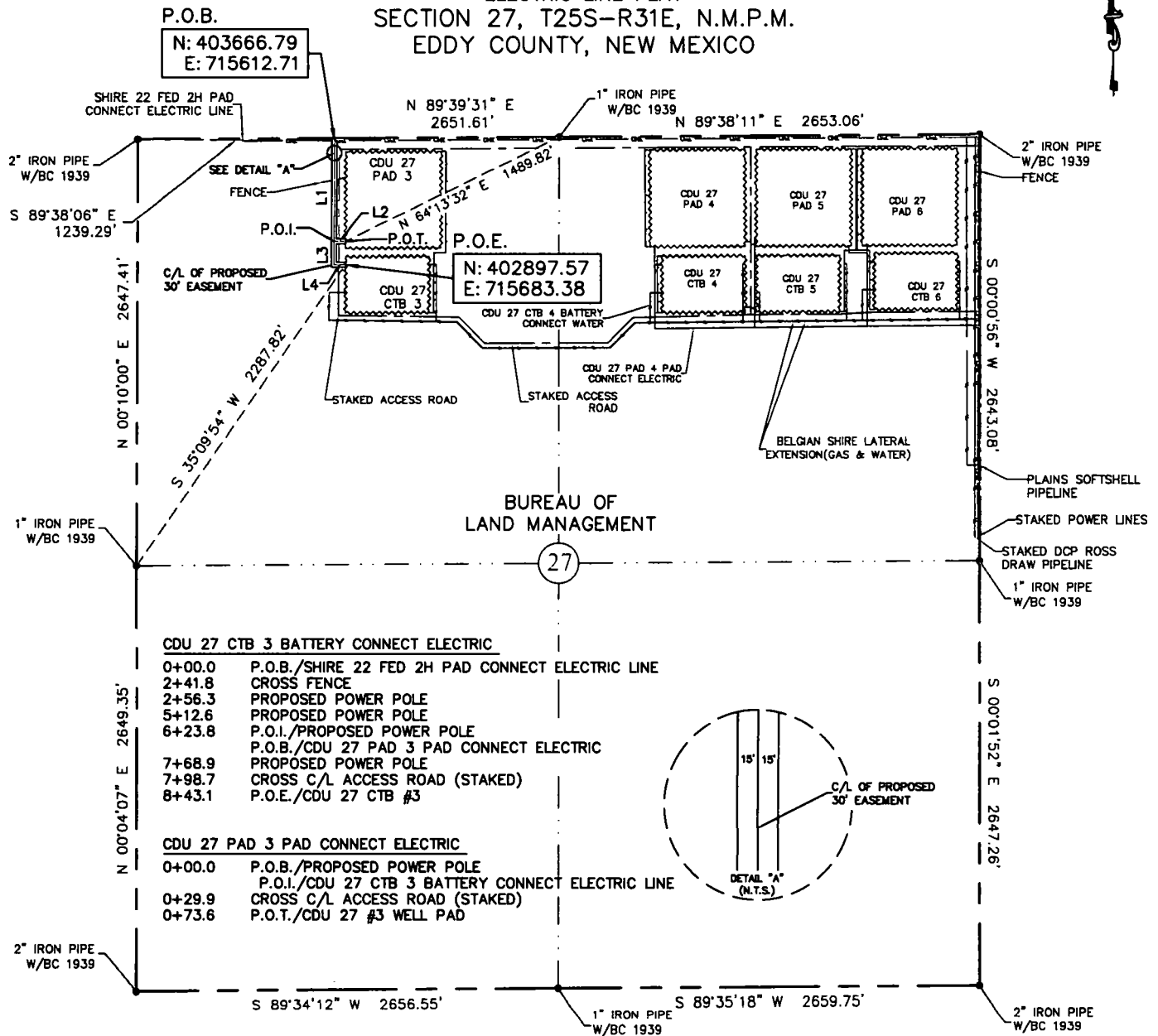
1.921± ACRES INTERIM PAD RECLAMATION AREA
2.646± ACRES GRADING SITE RECLAMATION AREA
3.699± ACRES NON-RECLAIMED AREA
8.266± ACRES LUSITANO 27 PAD 3

**DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 713H
LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM**

AUGUST 1, 2018
SURVEY NO. 6427

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

EXHIBIT "A"
PAGE 1 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 CTB 3 BATTERY CONNECT ELECTRIC
 0+00.0 P.O.B./SHIRE 22 FED 2H PAD CONNECT ELECTRIC LINE
 2+41.8 CROSS FENCE
 2+56.3 PROPOSED POWER POLE
 5+12.6 PROPOSED POWER POLE
 6+23.8 P.O.I./PROPOSED POWER POLE
 P.O.B./CDU 27 PAD 3 PAD CONNECT ELECTRIC
 7+68.9 PROPOSED POWER POLE
 7+98.7 CROSS C/L ACCESS ROAD (STAKED)
 8+43.1 P.O.E./CDU 27 CTB #3

CDU 27 PAD 3 PAD CONNECT ELECTRIC
 0+00.0 P.O.B./PROPOSED POWER POLE
 P.O.I./CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE
 0+29.9 CROSS C/L ACCESS ROAD (STAKED)
 0+73.6 P.O.T./CDU 27 #3 WELL PAD

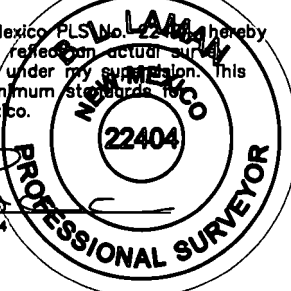
30' EASEMENT AREA = 0.621 ACRE(S)
916.72 FEET OR 55.56 RODS

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: 05-13-2018
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC



0 1000 2000



LINE	BEARING	DISTANCE
L1	S 00°16'02" W	623.83
L2	S 89°45'48" E	73.61
L3	S 00°16'02" W	145.03
L4	S 89°42'35" E	74.25

CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT ELECTRIC LINE		CC-112971.AL	EL7800
<i>HORIZON ROW LLC</i>		DEVON ENERGY PRODUCTION COMPANY, L.P.	
Drawn for:		CDU 27 CTB 3 BATTERY CONNECT AND CDU 27 PAD 3 PAD CONNECT ELECTRIC LINES	
 devon		SCALE: 1" = 1000'	
		REVISIONS:	
Drawn by: WAYNE BEETS		SHEET: 1 OF 17	
Date: 05/09/2018		PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.	

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 89°38'06" E a distance of 1239.29' to the **Point of Beginning** of this easement having coordinates of Northing=403666.79 feet, Easting=715612.71 feet, and continuing the following courses;

Thence S 00°16'02" W, a distance of 623.83' to the Point of Intersection;

Thence S 89°45'48" E, a distance of 73.61' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 64°13'32" E a distance of 1489.82';

Thence continuing from said point of intersection the following courses;

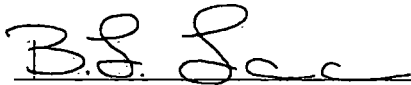
Thence S 00°16'02" W, a distance of 145.03' to an angle point;

Thence S 89°42'35" E, a distance of 74.25' to the **Point of Ending** having coordinates of Northing=402897.57 feet, Easting=715683.38 feet, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 35°09'54" W a distance of 2287.82', covering **916.72' or 55.56 rods** and having an area of **0.621 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

Horizon Row, LLC

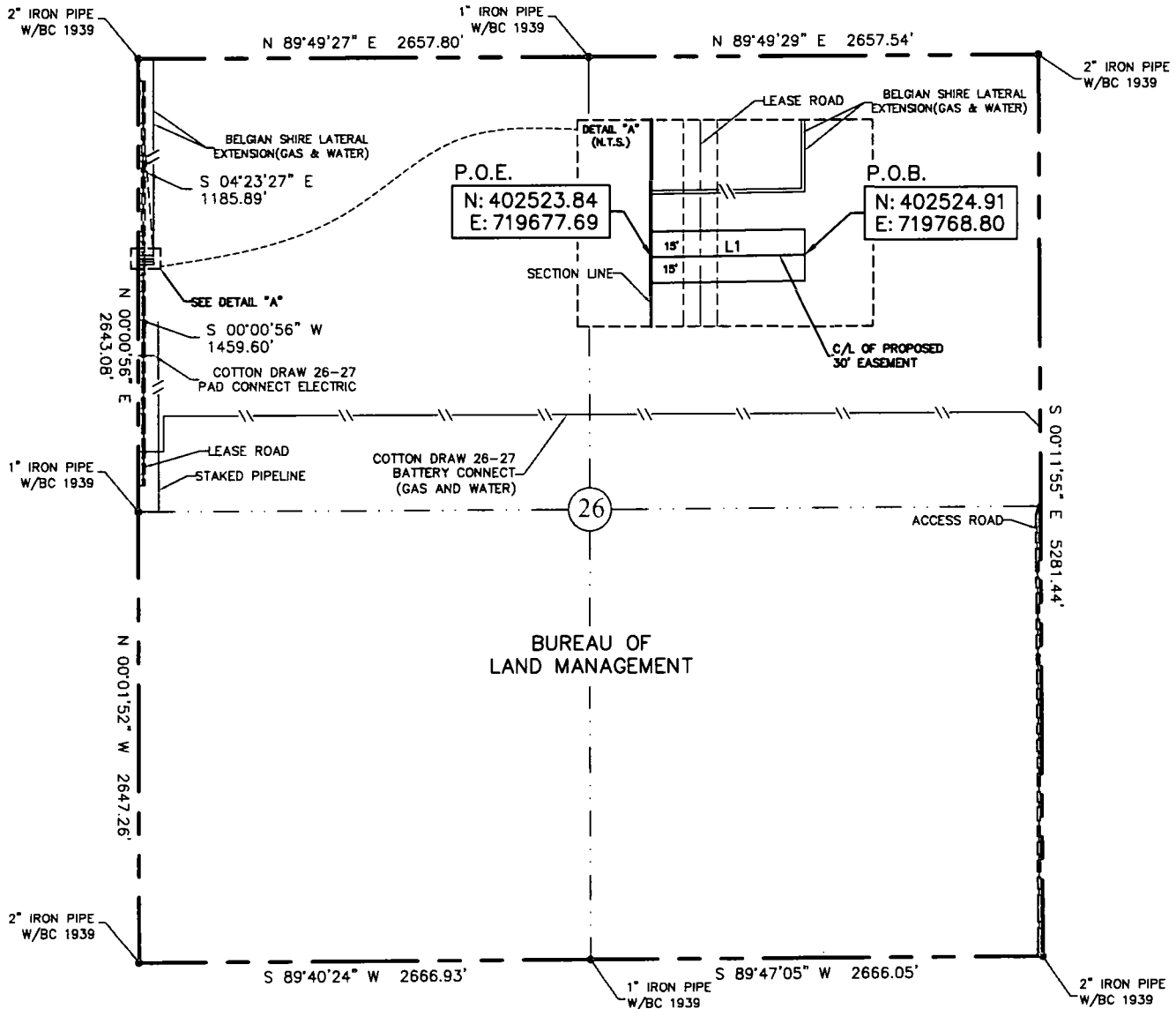
571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 4 of 17
ELECTRIC LINE PLAT
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.063 ACRE(S)
91.12 FEET OR 5.52 RODS

0+00.0 P.O.B.
0+35.0 PROPOSED POWER POLE
0+49.9 EDGE OF LEASE ROAD
0+61.3 C/L LEASE ROAD
0+72.6 EDGE OF LEASE ROAD
0+91.1 P.O.E. SECTION LINE

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

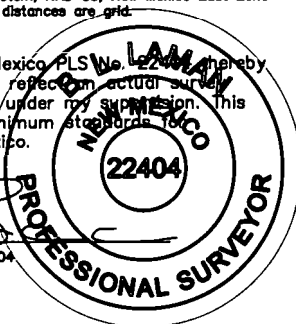
LINE	BEARING	DISTANCE
L1	S 89°19'37" W	91.12'

I, B.L. Laman, New Mexico, PLS #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.

0 1000 2000



B.L. Laman
Date Signed: 05-13-2018
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
WAYNE BEETS

Date: 05/05/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

CDU 27 PAD 4 PAD
CONNECT-ELECTRIC LINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 26, T25S-R31E, N.M.P.M.

LINE NUMBER:
EL7801

WBS NUMBER:
CC-112971.AL

SCALE:
1" = 1000'

REVISIONS:

SHEET:
4 OF 17

SECTION 26, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 26, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

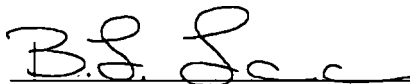
Thence S 04°23'27" E a distance of 1185.89' to the **Point of Beginning** of this easement having coordinates of Northing=402524.91 feet, Easting=719768.80 feet, and continuing the following course;

Thence S 89°19'37" W, a distance of 91.12' to the **Point of Ending** having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, being in the west line of Section 26, T25S-R31E, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 00°00'56" W a distance of 1459.60', covering **91.12' or 5.52 rods** and having an area of **0.063 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

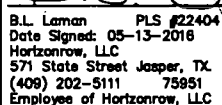
Horizon Row, LLC

571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC





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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 00°00'56" W a distance of 1183.48' to the **Point of Beginning** of this easement having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, and continuing the following courses;

Thence S 89°19'37" W, a distance of 2050.37' to an angle point;

Thence N 00°21'11" W, a distance of 399.93' to the Point of Intersection;

Thence N 89°39'00" E, a distance of 44.87' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 68°05'51" E a distance of 2164.37';

Thence continuing from said point of intersection the following courses;

Thence N 00°21'11" W, a distance of 109.74' to the **Point of Ending** having coordinates of Northing=403009.42 feet, Easting=717624.32 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 41°20'47" W a distance of 907.20', covering **2604.91' or 157.87 rods** and having an area of **1.784 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.


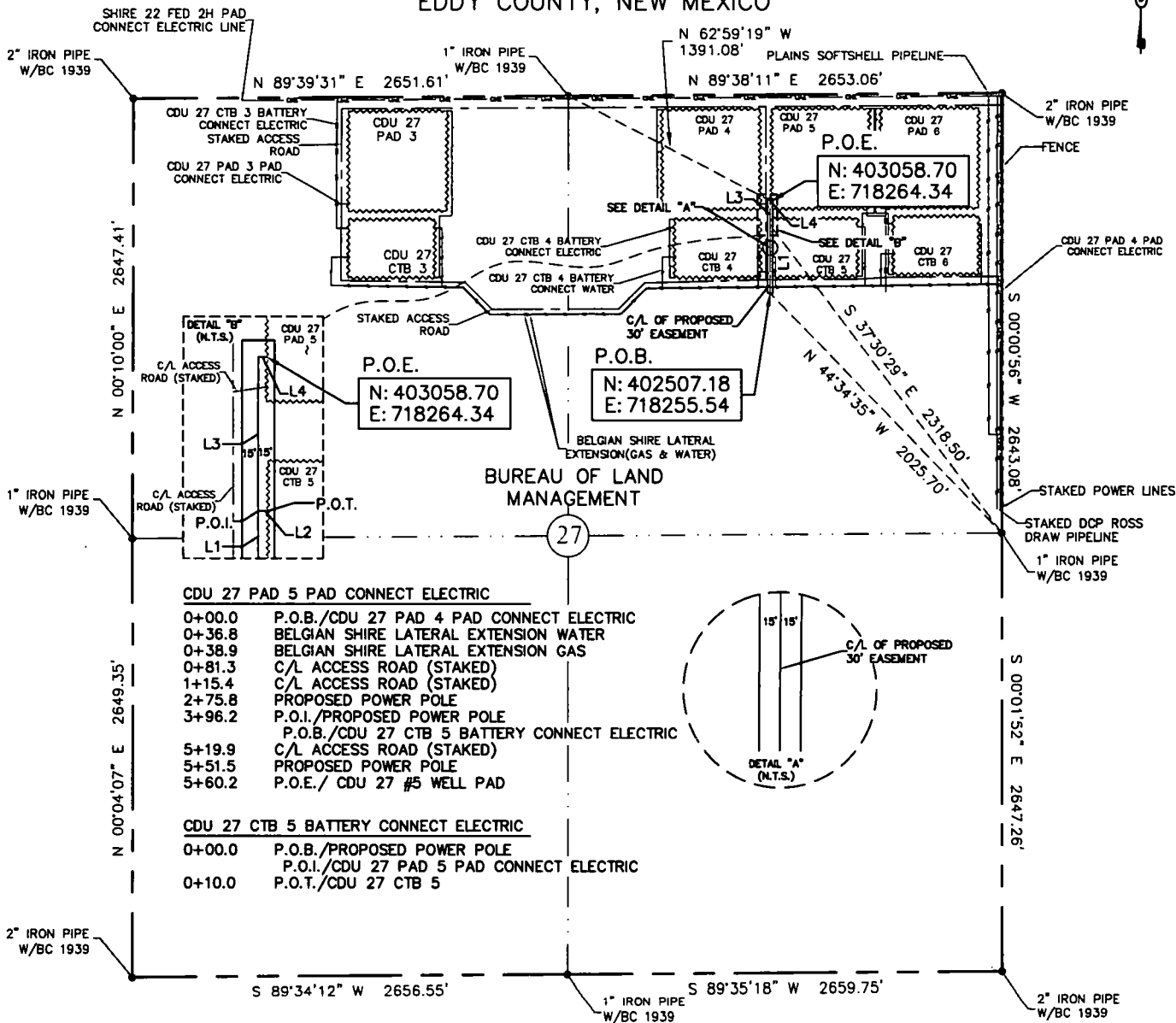

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 9 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

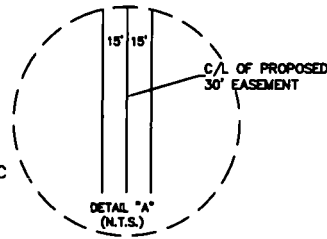


CDU 27 PAD 5 PAD CONNECT ELECTRIC

0+00.0	P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+36.8	BELGIAN SHIRE LATERAL EXTENSION WATER
0+38.9	BELGIAN SHIRE LATERAL EXTENSION GAS
0+81.3	C/L ACCESS ROAD (STAKED)
1+15.4	C/L ACCESS ROAD (STAKED)
2+75.8	PROPOSED POWER POLE
3+96.2	P.O.I./PROPOSED POWER POLE
	P.O.B./CDU 27 CTB 5 BATTERY CONNECT ELECTRIC
5+19.9	C/L ACCESS ROAD (STAKED)
5+51.5	PROPOSED POWER POLE
5+60.2	P.O.E./CDU 27 #5 WELL PAD

CDU 27 CTB 5 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE
	P.O.I./CDU 27 PAD 5 PAD CONNECT ELECTRIC
0+10.0	P.O.T./CDU 27 CTB 5



30' EASEMENT AREA = 0.390 ACRE(S)
 570.14 FEET OR 34.55 RODS

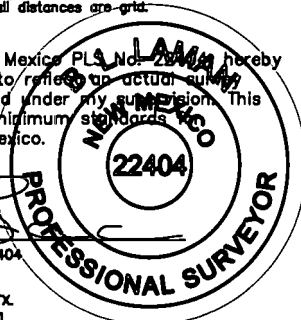
LINE	BEARING	DISTANCE
L1	N 00°00'59" E	396.22
L2	N 89°50'02" E	9.97
L3	N 00°00'59" E	155.30
L4	N 89°59'36" E	8.65

0 1000 2000

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



CDU 27 PAD 5 PAD CONNECT ELECTRIC LINE		WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7796
HORIZON ROW LLC		DEVON ENERGY PRODUCTION COMPANY, L.P.	
Drawn for:		CDU 27 PAD 5 PAD CONNECT AND	
devon		CDU 27 CTB 5 BATTERY CONNECT	
Drawn by:		ELECTRIC LINES	
WAYNE BEETS		SCALE:	
Date: 05/09/2016		1" = 1000'	
		REVISIONS:	
		SHEET: 9 OF 17	

PROPOSED 30' EASEMENT ON THE PROPERTY OF
 BUREAU OF LAND MANAGEMENT
 SECTION 27, T25S-R31E, N.M.P.M.

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 44°34'35" W a distance of 2025.70' to the **Point of Beginning** of this easement having coordinates of Northing=402507.18 feet, Easting=718255.54 feet, and continuing the following courses;

Thence N 00°00'59" E, a distance of 396.22' to the Point of Intersection;

Thence N 89°50'02" E, a distance of 9.97' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 37°30'29" E a distance of 2318.50';

Thence continuing from said point of intersection the following courses;

Thence N 00°00'59" E, a distance of 155.30' to an angle point;

Thence N 89°59'36" E, a distance of 8.65' to the **Point of Ending** having coordinates of Northing=403058.70 feet, Easting=718264.34 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 62°59'19" W a distance of 1391.08', covering **570.14' or 34.55 rods** and having an area of **0.390 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

Horizon Row, LLC

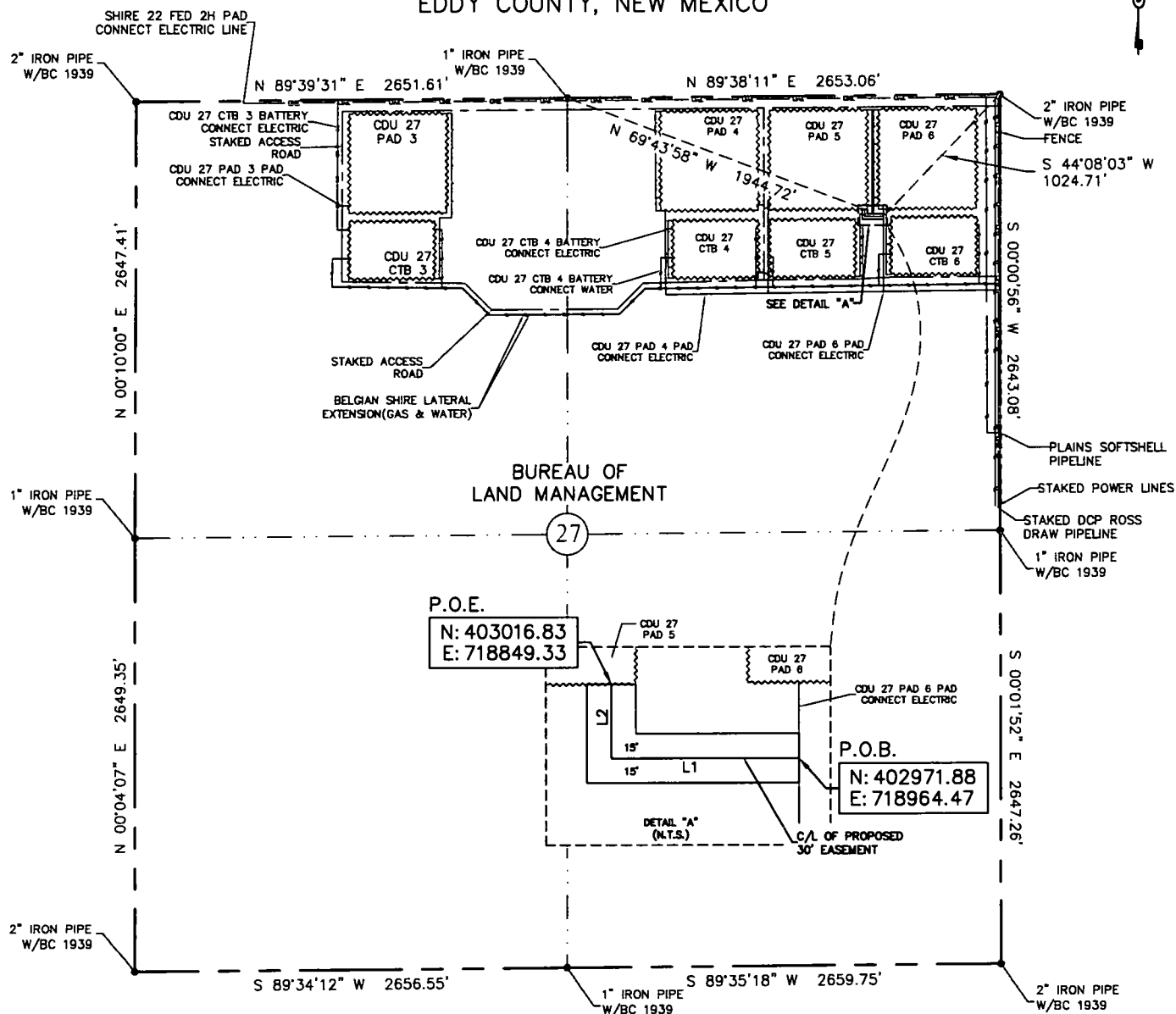
571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 12 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.110 ACRE(S)
160.17 FEET OR 9.71 RODS

0+00.0 P.O.B./CDU 27 PAD 6 PAD CONNECT ELECTRIC
1+15.2 PROPOSED POWER POLE
1+60.2 P.O.E./CDU 27 #5 WELL PAD

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 Professional Surveyor No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC

Drawn for:

devon

Drawn by:
WAYNE BEETS

Date: 05/10/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.

CDU 27 PAD 5 PAD
CONNECT EAST-ELECTRIC LINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER:
EL7814

WBS NUMBER:
CC-112971.AL

SCALE:
1" = 1000'

REVISIONS:

SHEET:
12 OF 17

LINE	BEARING	DISTANCE
L1	S 89°58'05" W	115.15'
L2	N 00°01'04" E	45.02'

0 1000 2000



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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 44°08'03" W a distance of 1024.71' to the **Point of Beginning** of this easement having coordinates of Northing=402971.88 feet, Easting=718964.47 feet, and continuing the following courses;

Thence S 89°58'05" W, a distance of 115.15' to an angle point;

Thence N 00°01'04" E, a distance of 45.02' to the **Point of Ending** having coordinates of Northing=403016.83 feet, Easting=718849.33 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 69°43'58" W a distance of 1944.72', covering **160.17' or 9.71 rods** and having an area of **0.110 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

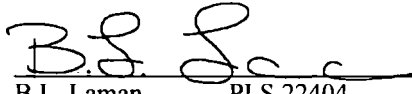
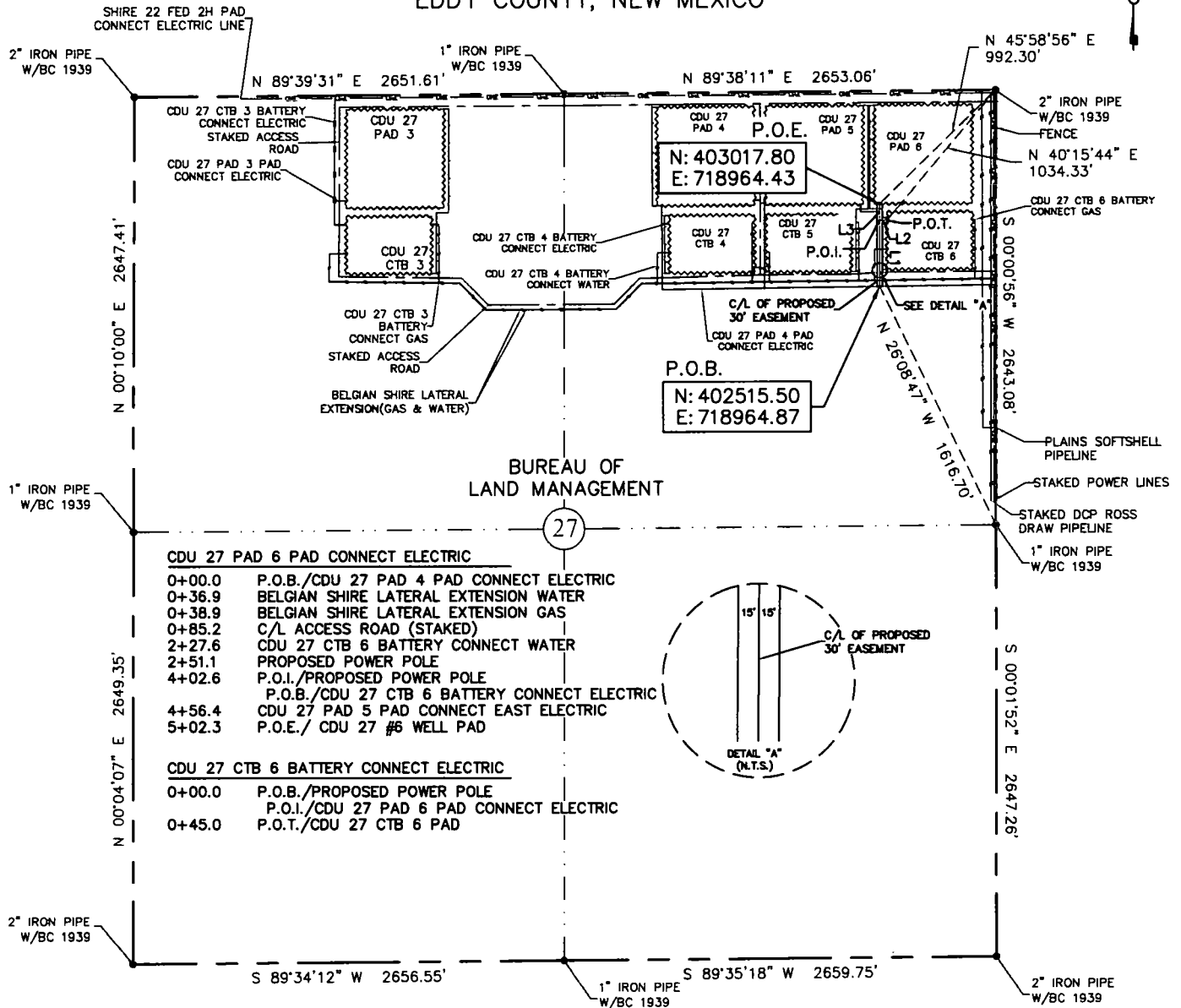

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

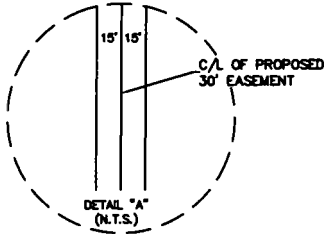


EXHIBIT "A"
PAGE 14 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



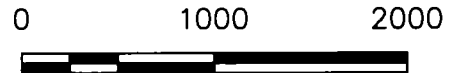
CDU 27 PAD 6 PAD CONNECT ELECTRIC
0+00.0 P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+36.9 BELGIAN SHIRE LATERAL EXTENSION WATER
0+38.9 BELGIAN SHIRE LATERAL EXTENSION GAS
0+85.2 C/L ACCESS ROAD (STAKED)
2+27.6 CDU 27 CTB 6 BATTERY CONNECT WATER
2+51.1 PROPOSED POWER POLE
4+02.6 P.O.I./PROPOSED POWER POLE
P.O.B./CDU 27 CTB 6 BATTERY CONNECT ELECTRIC
4+56.4 CDU 27 PAD 5 PAD CONNECT EAST ELECTRIC
5+02.3 P.O.E./CDU 27 #6 WELL PAD

CDU 27 CTB 6 BATTERY CONNECT ELECTRIC
0+00.0 P.O.B./PROPOSED POWER POLE
P.O.I./CDU 27 PAD 6 PAD CONNECT ELECTRIC
0+45.0 P.O.T./CDU 27 CTB 6 PAD



LINE	BEARING	DISTANCE
L1	N 00°03'00" W	402.56'
L2	S 89°58'05" E	45.02'
L3	N 00°03'00" W	99.74'

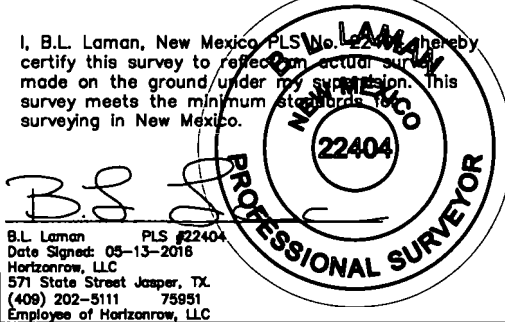
30' EASEMENT AREA = 0.367 ACRE(S)
547.32 FEET OR 33.17 RODS



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 Professional Surveyor No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS #22404
Date Signed: 05-13-2018
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

CDU 27 PAD 6 PAD CONNECT ELECTRIC LINE		WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7803
CDU 27 PAD 6 PAD CONNECT AND CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINES		CC-112971.AL	EL7797
HORIZON ROW LLC Drawn for: devon Drawn by: WAYNE BEETS Date: 05/09/2016		DEVON ENERGY PRODUCTION COMPANY, L.P. CDU 27 PAD 6 PAD CONNECT AND CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINES SCALE: 1" = 1000' REVISIONS: SHEET: 14 OF 17	
		PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.	

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 26°08'47" W a distance of 1616.70' to the **Point of Beginning** of this easement having coordinates of Northing=402515.50 feet, Easting=718964.87 feet, and continuing the following courses;

Thence N 00°03'00" W, a distance of 402.56' to the Point of Intersection;

Thence S 89°58'05" E, a distance of 45.02' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 40°15'44" E a distance of 1034.33';

Thence continuing from said point of intersection the following course;

Thence N 00°03'00" W, a distance of 99.74' to the **Point of Ending** having coordinates of Northing=403017.80 feet, Easting=718964.43 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 45°58'56" E a distance of 992.30', covering **547.32' or 33.17 rods** and having an area of **0.367 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

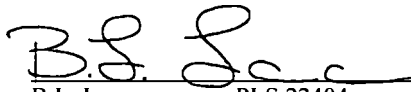
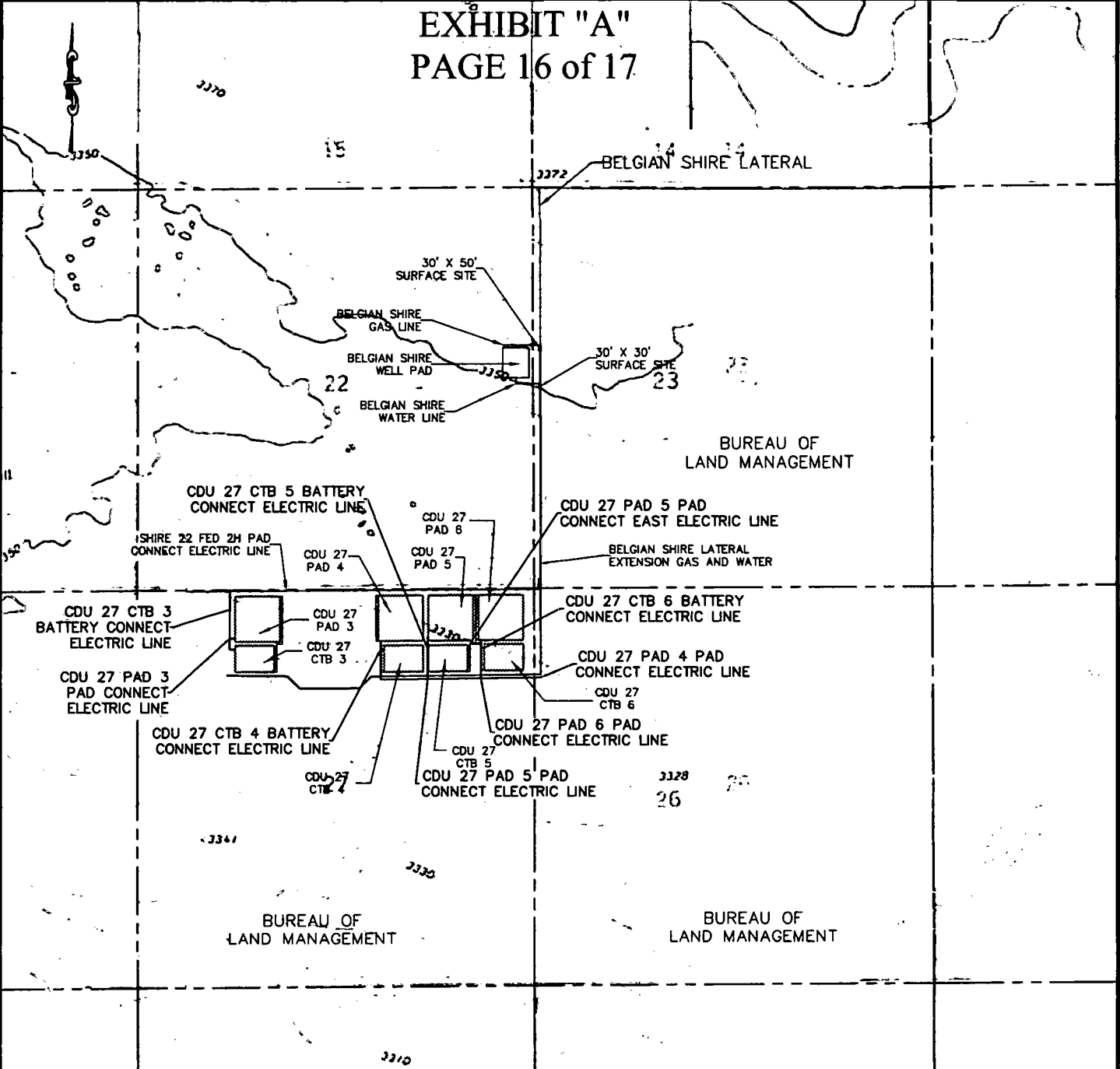

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"

PAGE 16 of 17



QUAD MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7796
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7797
Drawn for:		
DEVON ENERGY PRODUCTION COMPANY, L.P.		
PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT		SCALE: 1" = 2000'
REVISIONS:		SHEET: 16 OF 17
Drawn by: WAYNE BEETS	Date: 08/10/2016	

HORIZON ROW LLC

EXHIBIT "A"

PAGE 17 of 17

SEC. 15, T-25-S
R-31-E

SEC. 14, T-25-S
R-31-E

SEC. 13, T-25-S
R-31-E

SEC. 22, T-25-S
R-31-E

BELGIAN SHIRE LATERAL

30' X 50'
SURFACE SITE

BELGIAN SHIRE
GAS LINE

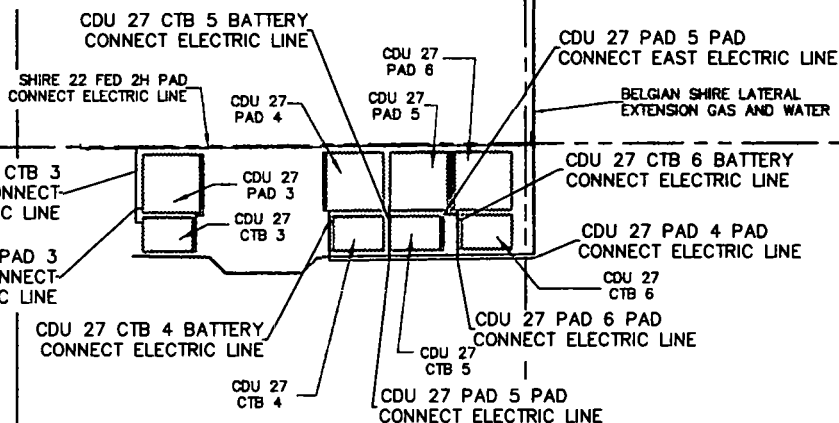
BELGIAN SHIRE
WELL PAD

BELGIAN SHIRE
WATER LINE

30' X 30'
SURFACE SITE

SEC. 23, T-25-S
R-31-E
BUREAU OF
LAND MANAGEMENT

SEC. 24, T-25-S
R-31-E



SEC. 27, T-25-S
R-31-E
BUREAU OF
LAND MANAGEMENT

SEC. 26, T-25-S
R-31-E
BUREAU OF
LAND MANAGEMENT

SEC. 25, T-25-S
R-31-E

SEC. 34, T-25-S
R-31-E

SEC. 35, T-25-S
R-31-E

SEC. 36, T-25-S
R-31-E

AERIAL MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	00-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	00-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	00-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	00-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	00-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	00-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	00-112971.AL	EL7798
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	00-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	00-112971.AL	EL7797

Drawn for:



DEVON ENERGY PRODUCTION COMPANY, L.P.

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

SCALE:
1" = 2000'

REVISIONS:

SHEET:
17 OF 17

HORIZON ROW LLC

Drawn by:
WAYNE BEETS

Date: 05/10/2016

B.L. Laman PLS #22404
Date Signed: 05-12-2018
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

**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 northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 38°28'55" E, a distance of 1947.05' to the **Point of Beginning** of this easement having coordinates of Northing=402551.44 feet, Easting=715577.34 feet, being in the northwest quarter (NW ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°49'16" E, a distance of 171.29' to an angle point;

Thence S 89°44'50" E, a distance of 103.09' to the **Point of Ending** having coordinates of Northing=402722.26 feet, Easting=715682.88 feet, from said point a 2" iron pipe w/ BC1939 found for the northwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 53°58'10" W a distance of 1619.18', covering **274.38' or 16.63 rods** and having an area of **0.189 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 **0.149 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.

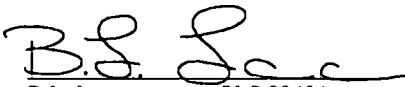
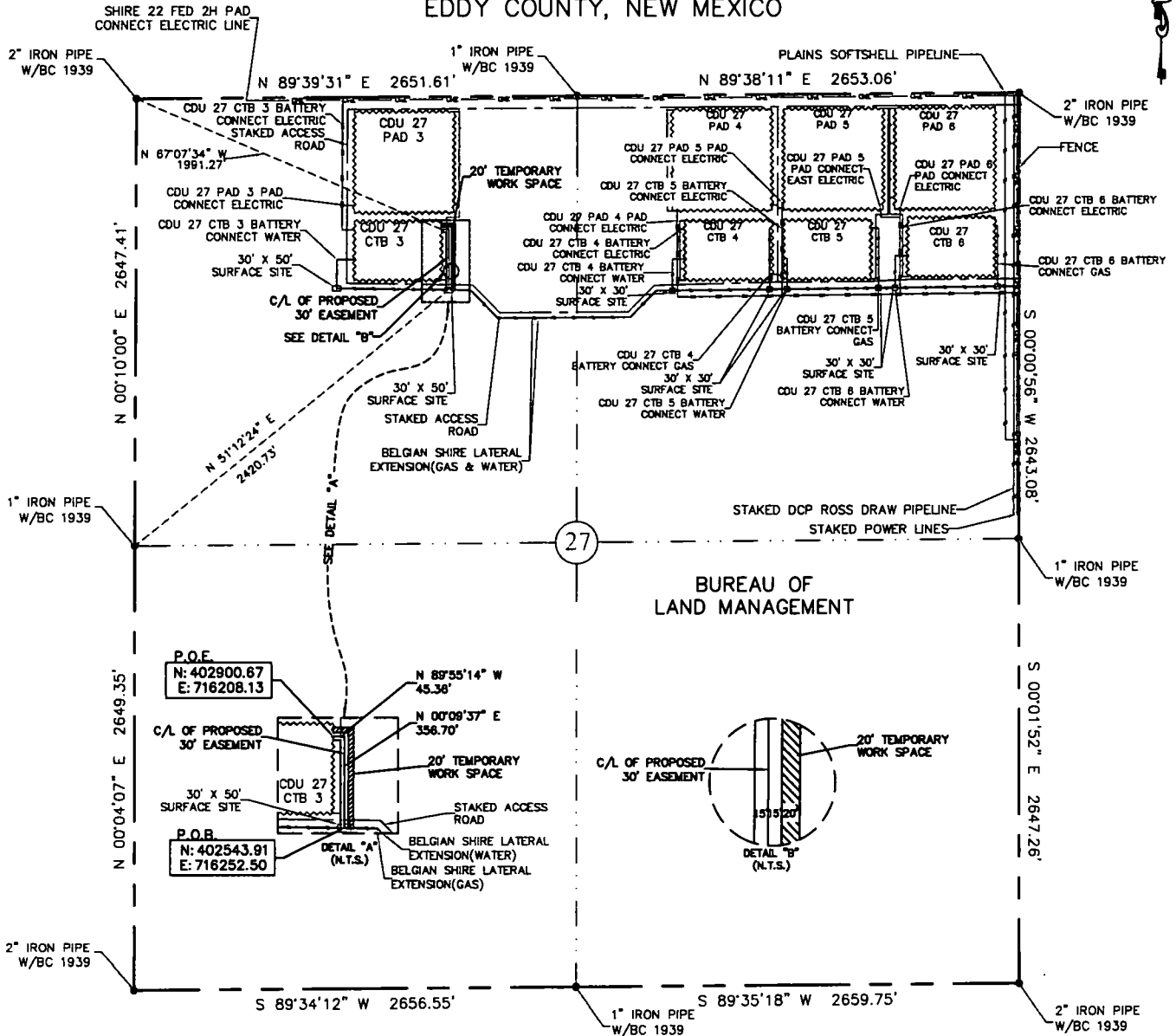

B.L. Laman PLS 22404
Date Signed: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 3 of 18
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.277 ACRE(S)
 20' TEMPORARY WORK SPACE AREA = 0.208 ACRE(S)
 402.06 FEET OR 24.37 RODS

0+00.0 P.O.B./BELGIAN SHIRE LATERAL EXTENSION (GAS)
 0+13.0 EXIT 30' X 50' SURFACE SITE
 0+30.0 C/L STAKED ACCESS ROAD
 4+02.1 P.O.E./CDU 27 CTB 3

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 #22404, hereby certify this survey to reflect 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



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
 CHRIS MAAS

Date: 05/03/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.

CDU 27 CTB 3 BATTERY
 CONNECT (GAS)

PROPOSED 30' EASEMENT
 ON THE PROPERTY OF
 BUREAU OF LAND MANAGEMENT
 SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER:
 760067X

WBS NUMBER:
 CC-110133.01

SCALE:
 1" = 1000'

REVISIONS:

SHEET:
 3 OF 18

0 1000 2000



**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 northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 51°12'24" E, a distance of 2420.73' to the **Point of Beginning** of this easement having coordinates of Northing=402543.91 feet, Easting=716252.50 feet, being in the northwest quarter (NW ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°09'37" E, a distance of 356.70' to an angle point;

Thence N 89°55'14" W, a distance of 45.36' to the **Point of Ending** having coordinates of Northing=402900.67 feet, Easting=716208.13 feet, from said point a 2" iron pipe w/ BC1939 found for the northwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 67°07'34" W a distance of 1991.27', covering **402.06' or 24.37 rods** and having an area of **0.277 acres**.

20' TEMPORARY WORK SPACE DESCRIPTION:

Being a temporary work space twenty (20) feet in width lying on the right side and adjoining the right side of the above described thirty (30) feet easement, having a total area of **0.208 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.

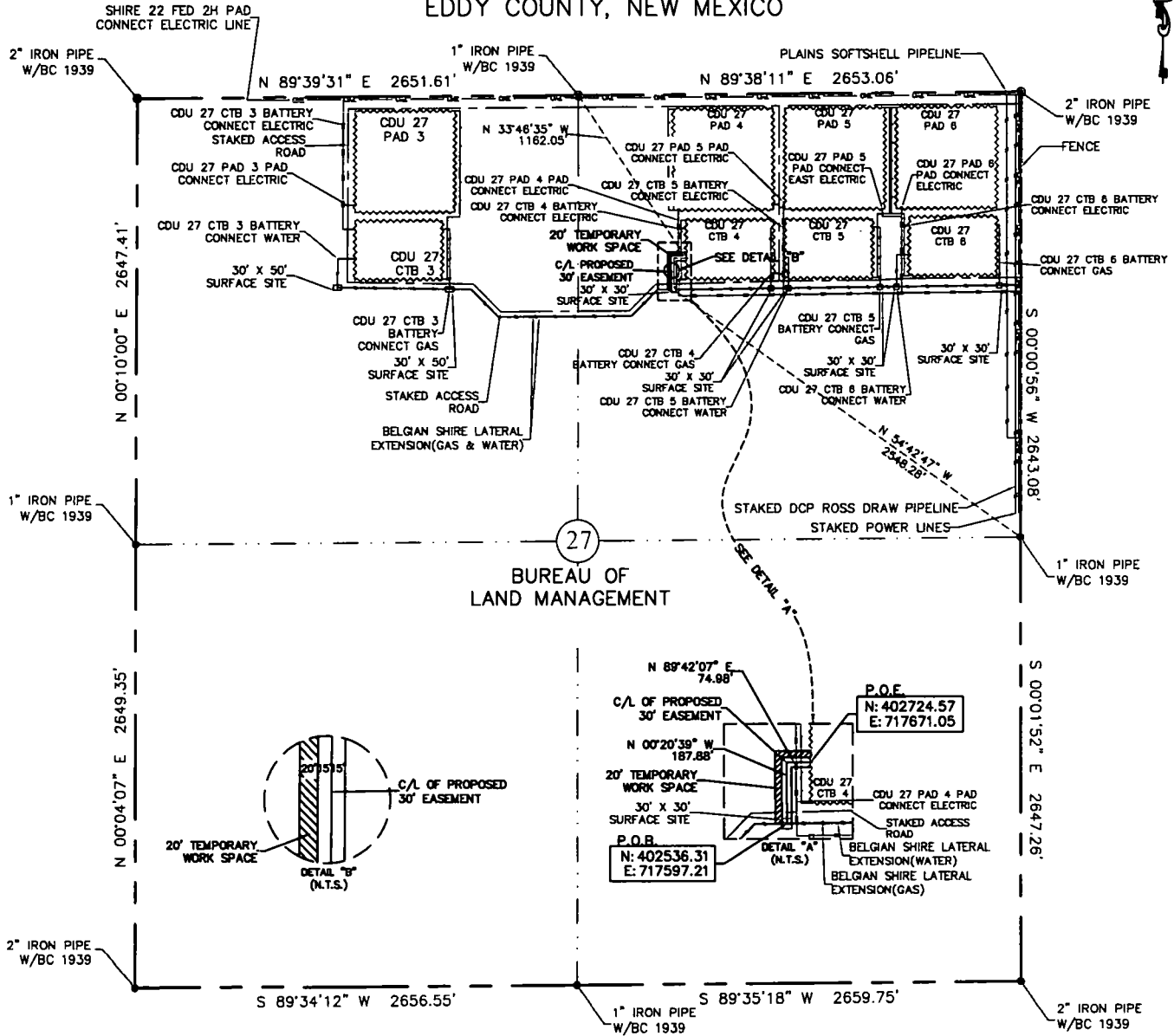
I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



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 5 of 18
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



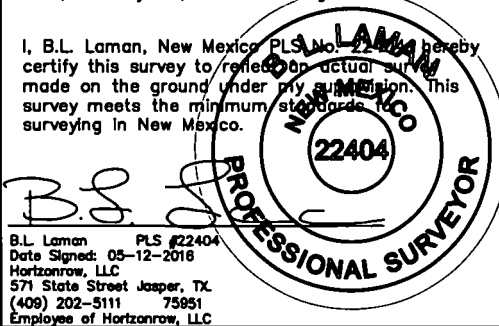
30' EASEMENT AREA = 0.181 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 0.144 ACRE(S)
262.86 FEET OR 15.93 RODS

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.



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 (WATER)

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER:
760068Z

WBS NUMBER:
CC-110133.03

SCALE:
1" = 1000'

REVISIONS:

SHEET:
5 OF 18

0 1000 2000



**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**.

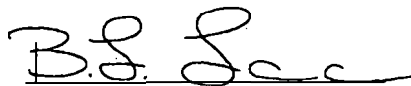
20' TEMPORARY WORK SPACE DESCRIPTION:

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

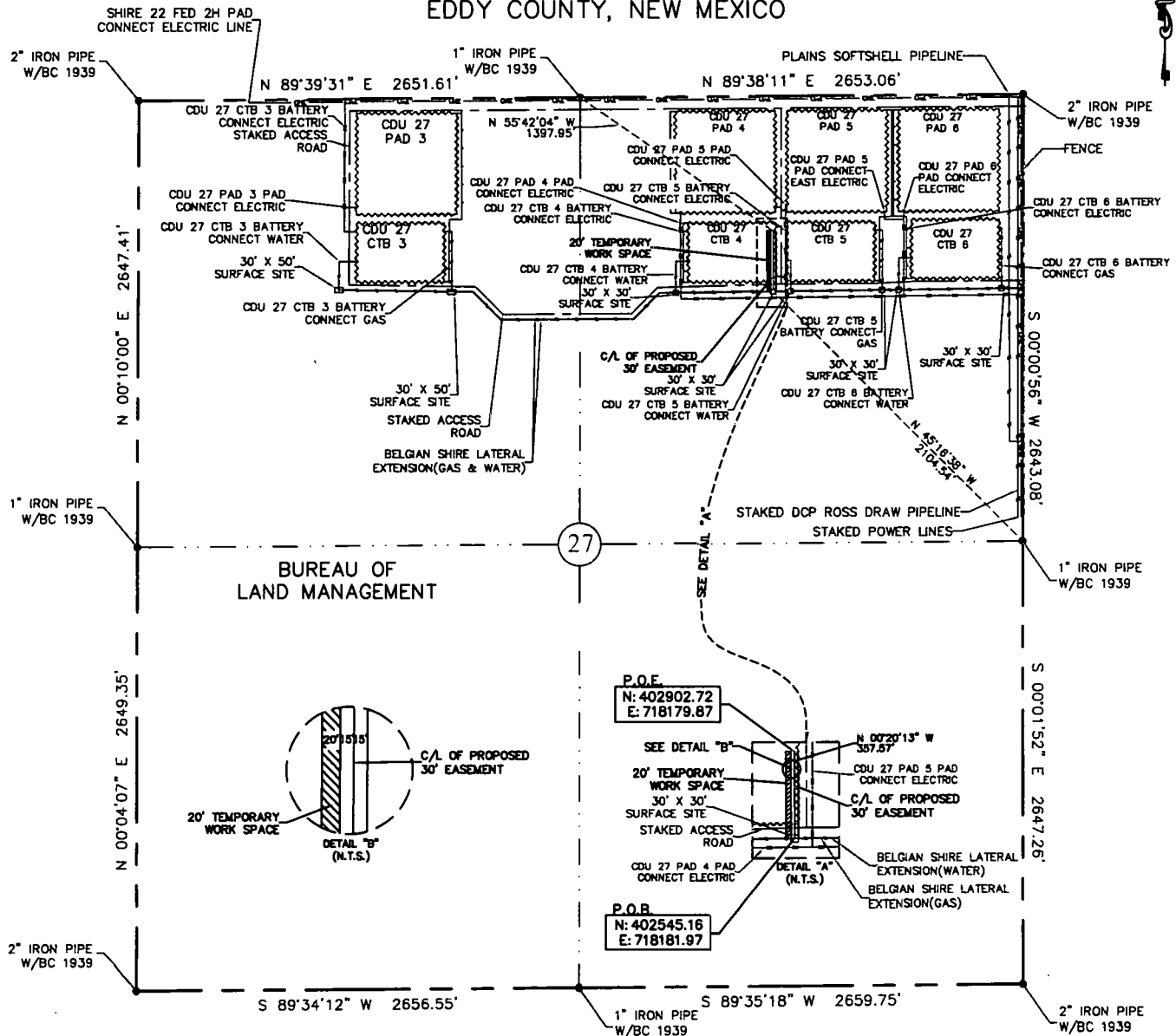
571 State Street, Jasper, TX

(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



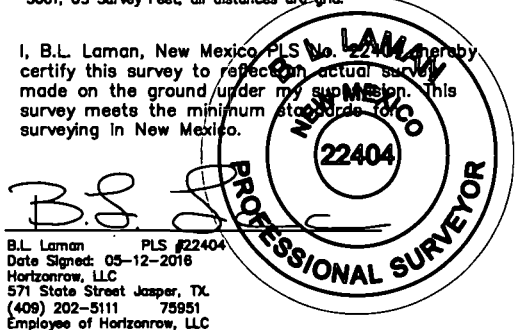
30' EASEMENT AREA = 0.246 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 0.164 ACRE(S)
357.57 FEET OR 21.67 RODS

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 reflect 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: 05-12-2018
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

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

0 1000 2000



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.

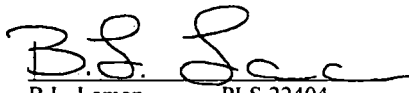
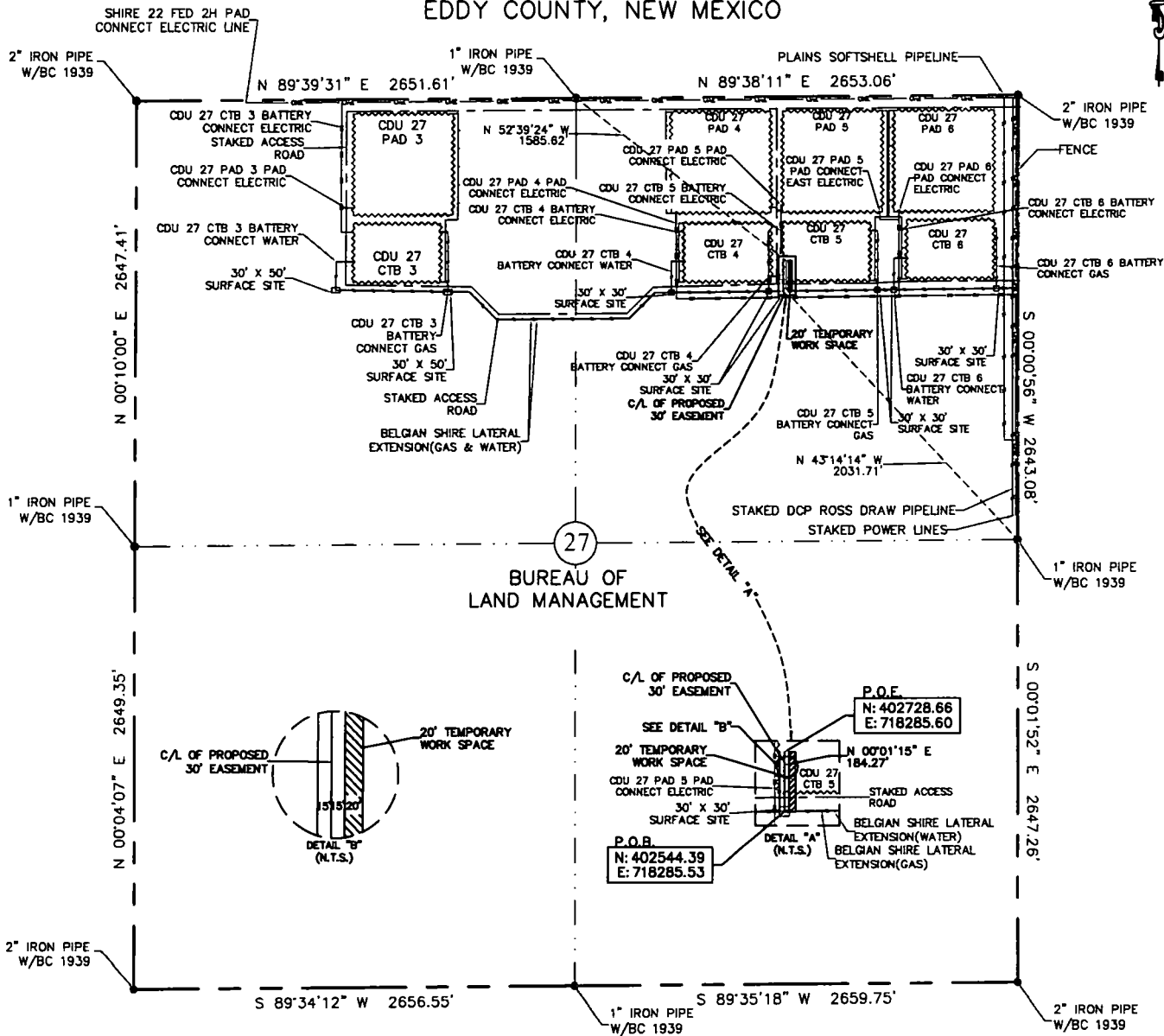

B.L. Laman PLS 22404
Date Signed: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 9 of 18
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



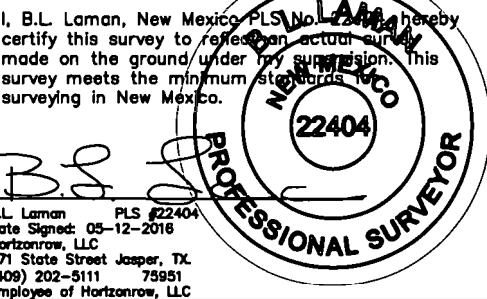
30' EASEMENT AREA = 0.127 ACRE(S)
 20' TEMPORARY WORK SPACE AREA = 0.085 ACRE(S)
 184.27 FEET OR 11.17 RODS

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+44.3 C/L STAKED ACCESS ROAD
 0+59.3 ENTER CDU 27 CTB 5
 1+84.3 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, do 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.



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 5 BATTERY
CONNECT (WATER)

PROPOSED 30' EASEMENT
ON THE PROPERTY OF

BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER:
780069Z

WBS NUMBER:
CC-110133.03

SCALE:
1" = 1000'

REVISIONS:

SHEET:
9 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 43°14'14" W, a distance of 2031.71' to the **Point of Beginning** of this easement having coordinates of Northing=402544.39 feet, Easting=718285.53 feet, being in the northeast quarter (NE ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°01'15" E, a distance of 184.27' to the **Point of Ending** having coordinates of Northing=402728.66 feet, Easting=718285.60 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 52°39'24" W a distance of 1585.62', covering **184.27' or 11.17 rods** and having an area of **0.127 acres**.

20' TEMPORARY WORK SPACE DESCRIPTION:

Being a temporary work space twenty (20) feet in width lying on the right side and adjoining the right side of the above described thirty (30) feet easement, having a total area of **0.085 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.

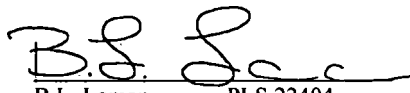
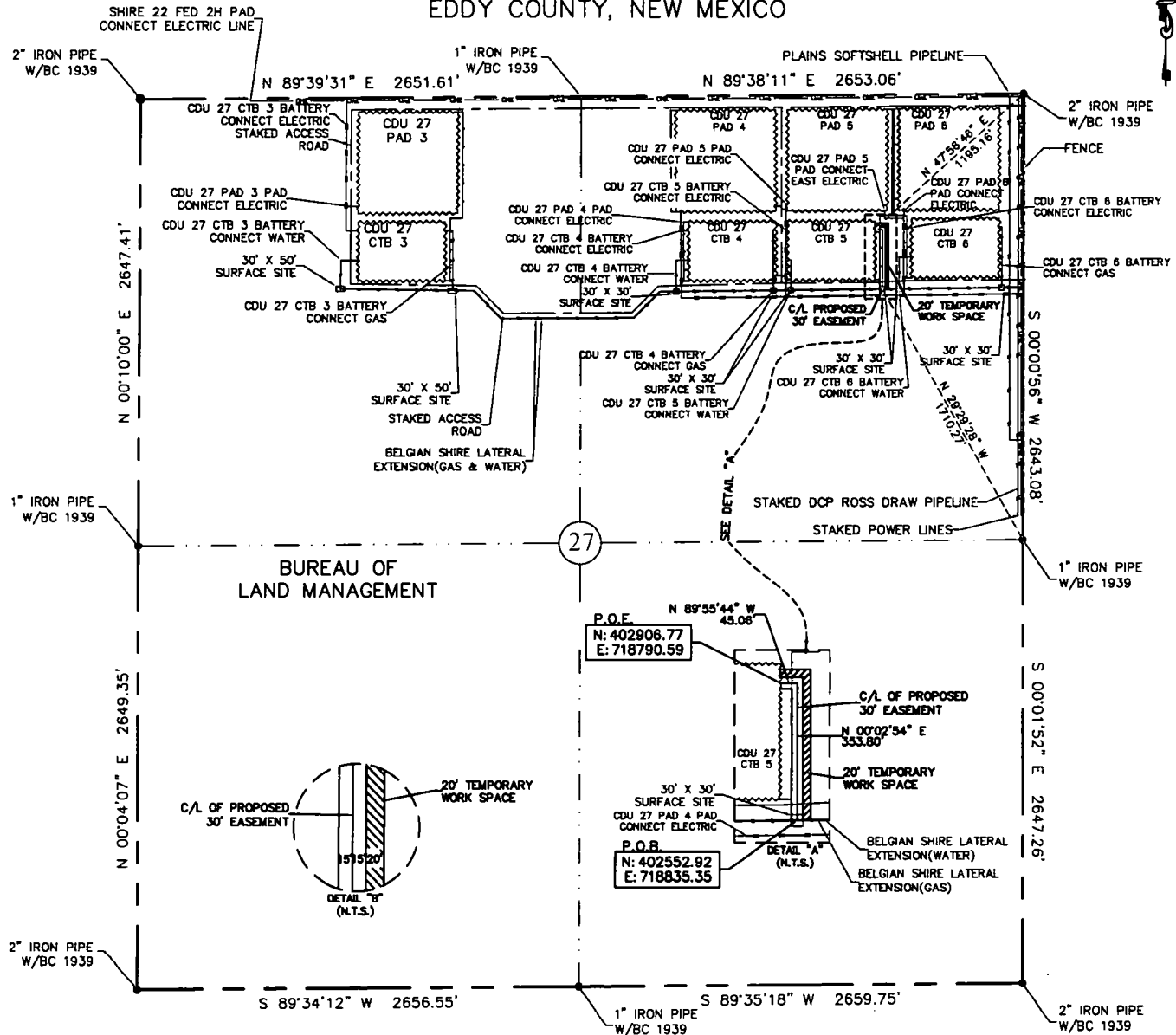

B.L. Laman PLS 22404
Date Signed: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 11 of 18
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.275 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 0.206 ACRE(S)
398.86 FEET OR 24.17 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
3+98.9 P.O.E./CDU 27 CTB 5

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 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: 05-12-2018
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC



HORIZONROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 05/03/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.

CDU 27 CTB 5 BATTERY
CONNECT (GAS)

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER:
760069X

WBS NUMBER:
CC-110133.01

SCALE:
1" = 1000'

REVISIONS:

SHEET:
11 OF 18

0 1000 2000



**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 29°29'28" W, a distance of 1710.27' to the **Point of Beginning** of this easement having coordinates of Northing=402552.92 feet, Easting=718835.35 feet, being in the northeast quarter (NE ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°02'54" E, a distance of 353.80' to an angle point;

Thence N 89°55'44" W, a distance of 45.06' to the **Point of Ending** having coordinates of Northing=402906.77 feet, Easting=718790.59 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 47°56'46" E a distance of 1195.16', covering **398.86' or 24.17 rods** and having an area of **0.275 acres**.

20' TEMPORARY WORK SPACE DESCRIPTION:

Being a temporary work space twenty (20) feet in width lying on the right side and adjoining the right side of the above described thirty (30) feet easement, having a total area of **0.206 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.


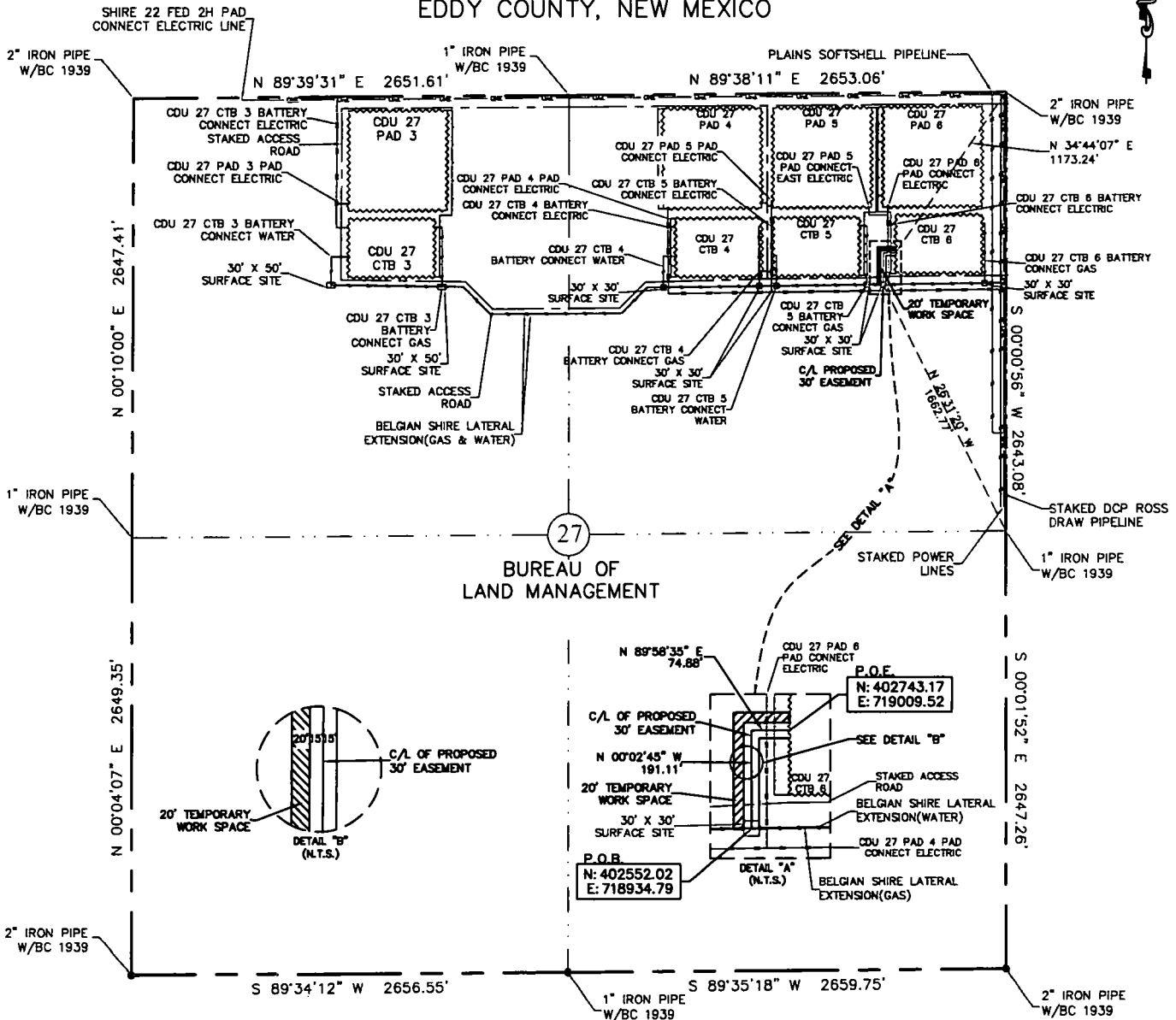

B.L. Laman PLS 22404
Date Signed: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 13 of 18
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



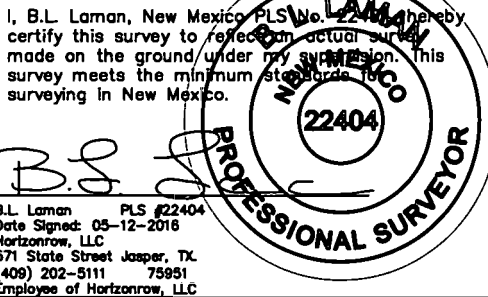
30' EASEMENT AREA = 0.183 ACRE(S)
 20' TEMPORARY WORK SPACE AREA = 0.145 ACRE(S)
 265.99 FEET OR 16.12 RODS

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+47.1 C/L STAKED ACCESS ROAD
 2+21.1 CDU 27 PAD 6 PAD CONNECT ELECTRIC LINE
 2+66.0 P.O.E./CDU 27 CTB 6

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.



HORIZON ROW LLC

Drawn for:

devon

Drawn by: CHRIS MAAS

Date: 05/04/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.	LINE NUMBER: 7600702
CDU 27 CTB 6 BATTERY CONNECT (WATER)	WBS NUMBER: CC-110133.03
PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.	SCALE: 1" = 1000'
	REVISIONS:
	SHEET: 13 OF 18

0 1000 2000



**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 26°31'20" W, a distance of 1662.77' to the **Point of Beginning** of this easement having coordinates of Northing=402552.02 feet, Easting=718934.79 feet, being in the northeast quarter (NE ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°02'45" W, a distance of 191.11' to an angle point;

Thence N 89°58'35" E, a distance of 74.88' to the **Point of Ending** having coordinates of Northing=402743.17 feet, Easting=719009.52 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 34°44'07" E a distance of 1173.24', covering **265.99' or 16.12 rods** and having an area of **0.183 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 **0.145 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





**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 04°52'59" W, a distance of 1502.49' to the **Point of Beginning** of this easement having coordinates of Northing=402561.28 feet, Easting=719549.40 feet, being in the northeast quarter (NE ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°00'27" E, a distance of 360.16' to an angle point;

Thence S 89°48'59" W, a distance of 14.99' to the **Point of Ending** having coordinates of Northing=402921.39 feet, Easting=719534.46 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 10°21'04" E a distance of 798.94', covering **375.15' or 22.74 rods** and having an area of **0.258 acres**.

20' TEMPORARY WORK SPACE DESCRIPTION:

Being a temporary work space twenty (20) feet in width lying on the right side and adjoining the right side of the above described thirty (30) feet easement, having a total area of **0.195 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.


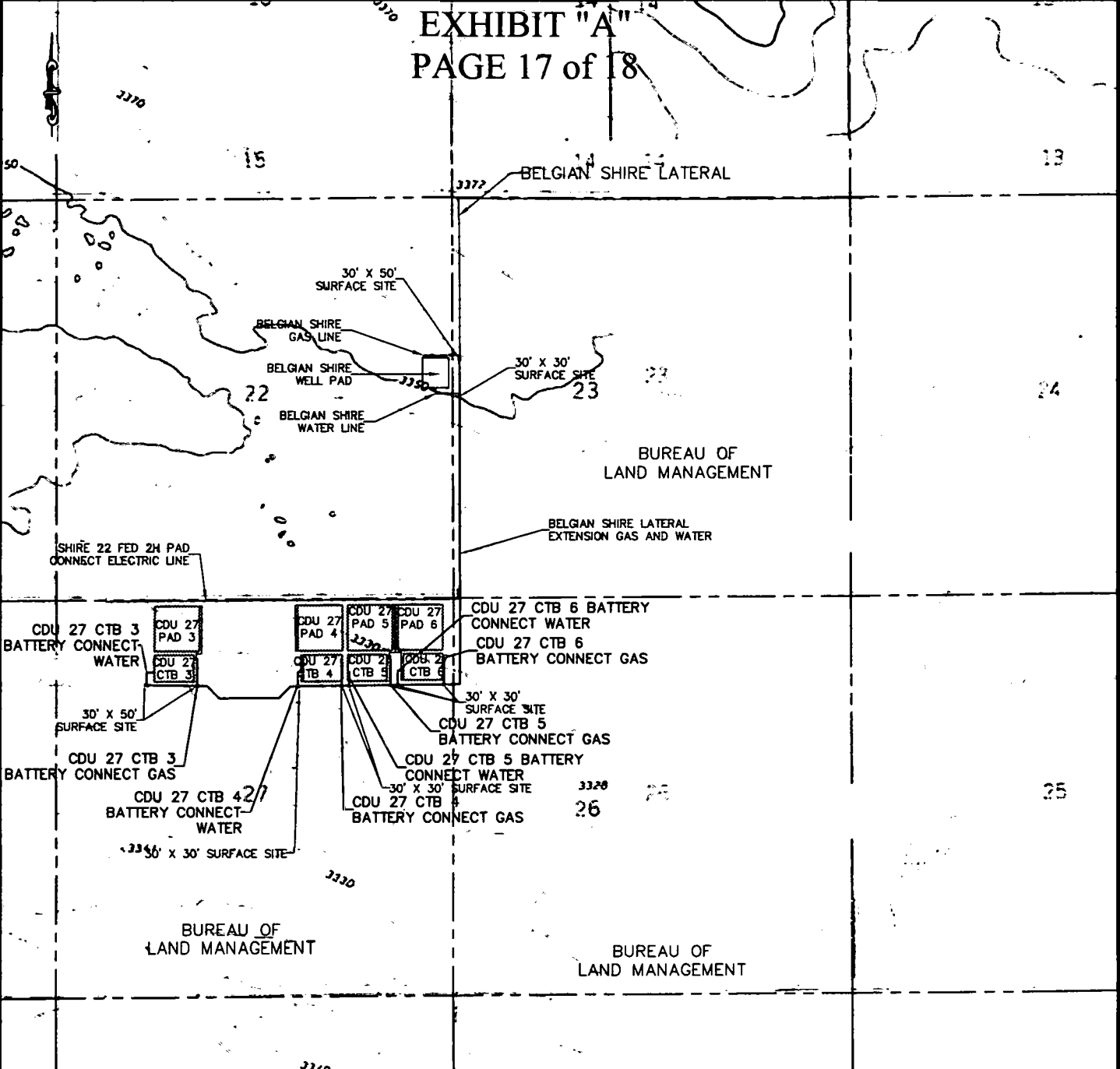

B.L. Laman PLS 22404
Date Signed: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC




EXHIBIT "A"

PAGE 17 of 18



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)		00-110133.01	760067X.2
CDU 27 CTB 4 BATTERY CONNECT (GAS & WATER)		00-110133.01	760068X.2
CDU 27 CTB 5 BATTERY CONNECT (GAS & WATER)		00-110133.01	760069X.2
CDU 27 CTB 6 BATTERY CONNECT (GAS & WATER)		00-110133.01	760070X.2
Drawn for:		DEVON ENERGY PRODUCTION COMPANY, L.P.	
 devon		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		

§

<i>HORIZON ROW LLC</i>		WES NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT (GAS & WATER)		CD-110133.01	76006774.01
CDU 27 CTB 4 BATTERY CONNECT (GAS & WATER)		CD-110133.01	76006882.01
CDU 27 CTB 5 BATTERY CONNECT (GAS & WATER)		CD-110133.01	76006939.01
CDU 27 CTB 6 BATTERY CONNECT (GAS & WATER)		CD-110133.01	76007012.01

Drawn for:



devon

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

DEVON ENERGY PRODUCTION COMPANY, L.P.

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

SCALE:
1" = 2000'

REVISIONS:

SHEET: 1 OF 18

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE NE/4 NW/4 & NW/4 NW/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

[illegible]

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN THE NE/4 NW/4 & NW/4 NW/4 OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHEAST CORNER OF THE PARCEL, WHENCE THE NORTH QUARTER CORNER OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N47°49'36"E, A DISTANCE OF 1102.14 FEET; THENCE S00°09'30"W A DISTANCE OF 350.00 FEET TO THE SOUTHEAST CORNER OF THE PARCEL; THENCE S89°39'01"W A DISTANCE OF 525.03 FEET TO THE SOUTHWEST CORNER OF THE PARCEL; THENCE N00°09'13"E A DISTANCE OF 350.09 FEET TO THE NORTHWEST CORNER OF THE PARCEL; THENCE N89°39'36"E A DISTANCE OF 525.06 FEET TO THE NORTHEAST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING; CONTAINING 4.104 ACRES IN THE NE/4 NW/4 & 0.115 ACRES IN THE NW/4 NW/4 FOR A TOTAL 4.219 ACRES MORE OR LESS.

- 1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL TANK BATTERY
- 2.) BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)

DRIVING DIRECTION: FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MOHANSADO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.2 MILES BEGIN ROAD SURVEY, GO WEST 178' TO THE SOUTHEAST CORNER FOR CDB "27-27 CTD B. FROM SOUTHWEST CORNER GO WEST 631' TO THE SOUTHEAST CORNER FOR CDB "27-27 CTD B. FROM SOUTHWEST CORNER GO WEST APPROX. 360' TO THE SOUTHEAST CORNER FOR CDB "27-27 CTD B. THEN GO WEST 0.38 MILE, GO NORTH 30' TO THE SOUTHWEST CORNER FOR THIS LOCATION.

MADRON SURVEYING, INC.

I, FILMON 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 PLAN MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

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

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

SURVEY NO. 4494B
NEW MEXICO

COTTON DRAW UNIT 27-34 CTB 3 (AA000056029)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE NE/4 NW/4 & NW/4 NW/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016

QUAD MAP

COTTON DRAW UNIT 27-34 PAD 3



COTTON DRAW UNIT 27-34 CTB 3

SECTION 27
T.26S., R.31E.
BLM



COTTON DRAW UNIT 27-34 CTB 3 (AA000056029)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE NE/4 NW/4 & NW/4 NW/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016

AERIAL PHOTO

22

COTTON DRAW UNIT 27-34 PAD 3

COTTON DRAW UNIT 27-34 CTB 3

SECTION 27
T.25S., R.31E.
BLM

27

SHEET: 3-3

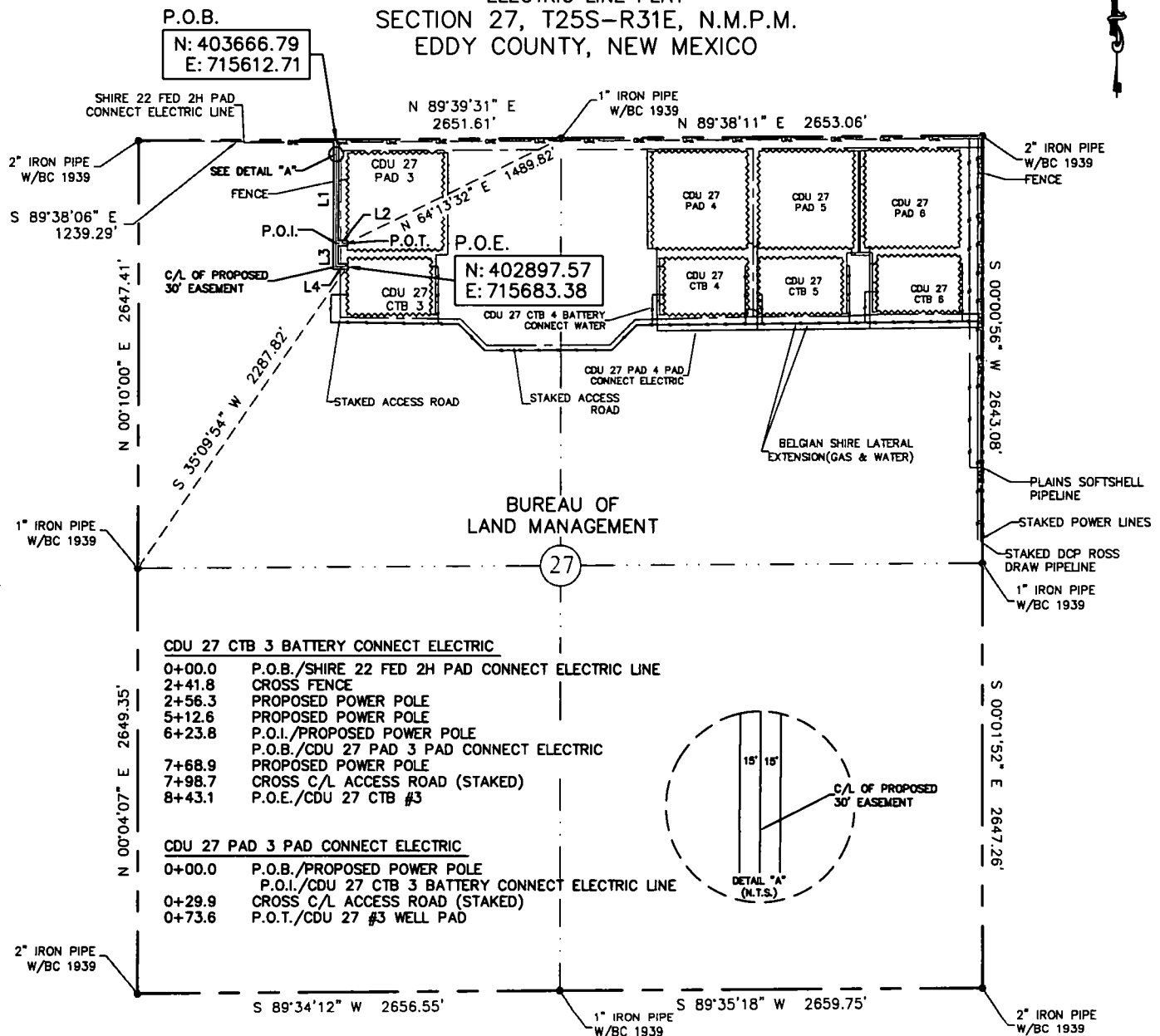
MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SURVEY NO. 4494B

EXHIBIT "A"
PAGE 1 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

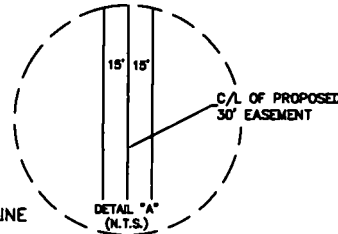


CDU 27 CTB 3 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./SHIRE 22 FED 2H PAD CONNECT ELECTRIC LINE
2+41.8	CROSS FENCE
2+56.3	PROPOSED POWER POLE
5+12.6	PROPOSED POWER POLE
6+23.8	P.O.I./PROPOSED POWER POLE
7+68.9	P.O.B./CDU 27 PAD 3 PAD CONNECT ELECTRIC
7+98.7	PROPOSED POWER POLE
8+43.1	CROSS C/L ACCESS ROAD (STAKED)
	P.O.E./CDU 27 CTB #3

CDU 27 PAD 3 PAD CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE
0+29.9	P.O.I./CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE
0+73.6	CROSS C/L ACCESS ROAD (STAKED)
	P.O.T./CDU 27 #3 WELL PAD



30' EASEMENT AREA = 0.621 ACRE(S)
916.72 FEET OR 55.56 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.

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
Date Signed: 05-13-2018
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC



0 1000 2000



LINE	BEARING	DISTANCE
L1	S 00°16'02" W	623.83'
L2	S 89°45'48" E	73.61'
L3	S 00°16'02" W	145.03'
L4	S 89°42'35" E	74.25'

WBS NUMBER:		LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL EL7794
CDU 27 PAD 3 PAD CONNECT ELECTRIC LINE		CC-112971.AL EL7800
HORIZON ROW LLC		DEVON ENERGY PRODUCTION COMPANY, L.P.
Drawn for:		CDU 27 CTB 3 BATTERY CONNECT AND CDU 27 PAD 3 PAD CONNECT ELECTRIC LINES
devon		SCALE: 1" = 1000'
Drawn by: WAYNE BEETS		REVISIONS:
Date: 05/09/2016		SHEET: 1 OF 17
PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.		

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 89°38'06" E a distance of 1239.29' to the **Point of Beginning** of this easement having coordinates of Northing=403666.79 feet, Easting=715612.71 feet, and continuing the following courses;

Thence S 00°16'02" W, a distance of 623.83' to the Point of Intersection;

Thence S 89°45'48" E, a distance of 73.61' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 64°13'32" E a distance of 1489.82';

Thence continuing from said point of intersection the following courses;

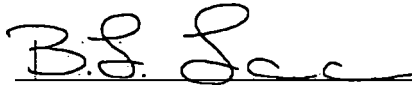
Thence S 00°16'02" W, a distance of 145.03' to an angle point;

Thence S 89°42'35" E, a distance of 74.25' to the **Point of Ending** having coordinates of Northing=402897.57 feet, Easting=715683.38 feet, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 35°09'54" W a distance of 2287.82', covering **916.72' or 55.56 rods** and having an area of **0.621 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

Horizon Row, LLC

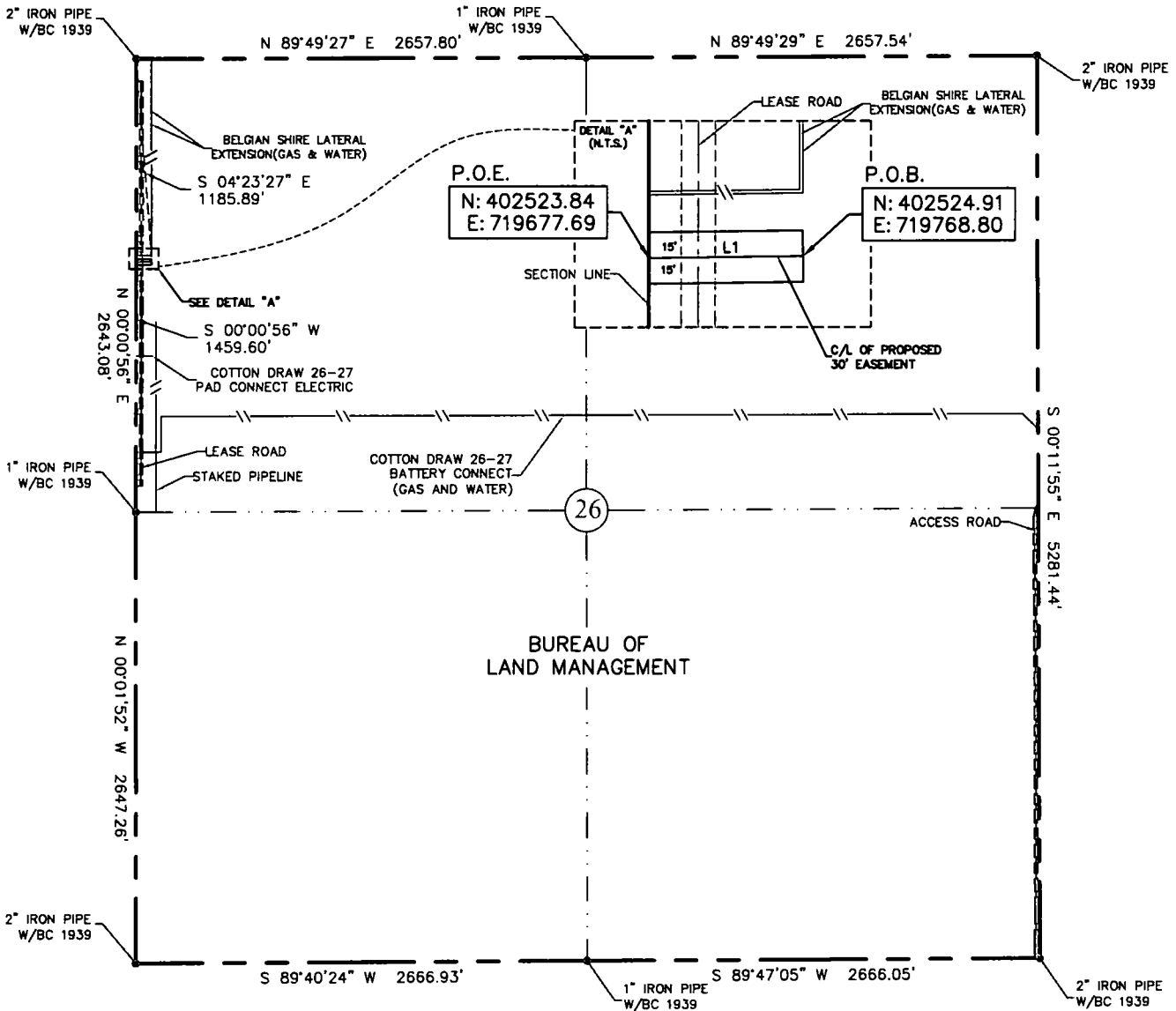
571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 4 of 17
ELECTRIC LINE PLAT
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.063 ACRE(S)
91.12 FEET OR 5.52 RODS

0+00.0 P.O.B.
0+35.0 PROPOSED POWER POLE
0+49.9 EDGE OF LEASE ROAD
0+61.3 C/L LEASE ROAD
0+72.6 EDGE OF LEASE ROAD
0+91.1 P.O.E. SECTION LINE

SEE THE ATTACHED LEGAL DESCRIPTION
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

LINE	BEARING	DISTANCE
L1	S 89°19'37\"	W 91.12'

I, B.L. Laman, New Mexico PLS #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.

0 1000 2000



B.L. Laman, New Mexico PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

NEW MEXICO
22404
PROFESSIONAL SURVEYOR

HORIZON ROW LLC

Drawn for:

devon

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

DEVON ENERGY PRODUCTION COMPANY, L.P.

CDU 27 PAD 4 PAD
CONNECT-ELECTRIC LINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 26, T25S-R31E, N.M.P.M.

LINE NUMBER: EL7801
WBS NUMBER: CC-112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 4 OF 17

SECTION 26, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 26, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 04°23'27" E a distance of 1185.89' to the **Point of Beginning** of this easement having coordinates of Northing=402524.91 feet, Easting=719768.80 feet, and continuing the following course;

Thence S 89°19'37" W, a distance of 91.12' to the **Point of Ending** having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, being in the west line of Section 26, T25S-R31E, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 00°00'56" W a distance of 1459.60', covering **91.12' or 5.52 rods** and having an area of **0.063 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

Horizon Row, LLC

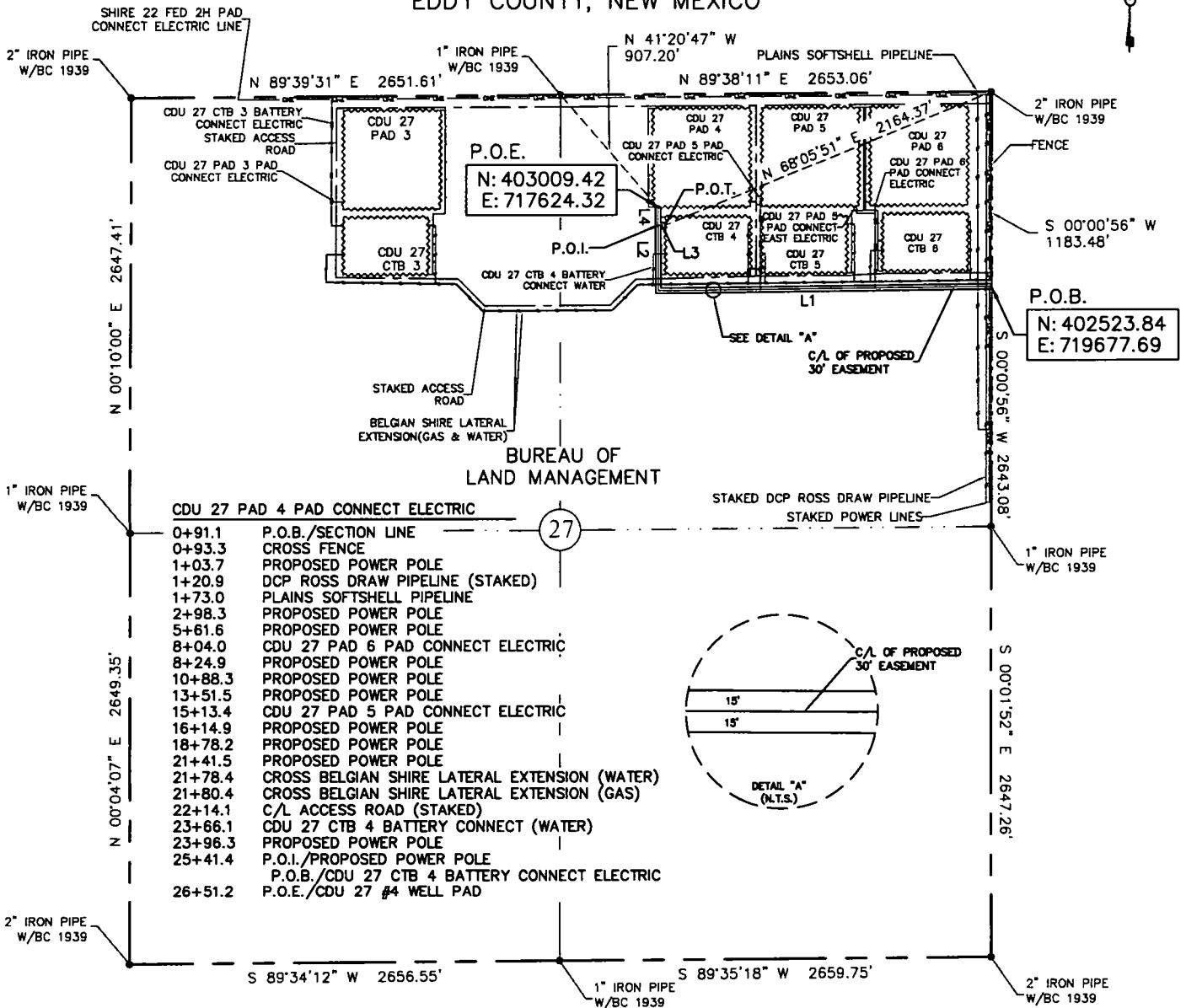
571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 6 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 CTB 4 BATTERY CONNECT ELECTRIC

0+00.0 P.O.B./PROPOSED POWER POLE
 P.O.I./CDU 27 PAD 4 PAD CONNECT ELECTRIC
 0+44.9 P.O.T./CDU 27 CTB 4 PAD

30' EASEMENT AREA = 1.784 ACRE(S)
2604.91 FEET OR 157.87 RODS

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.


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
 Date Signed: 05-13-2016
 Horizonrow, LLC
 571 State Street Jasper, TX
 (409) 202-5111 75951
 Employee of Horizonrow, LLC

0 1000 2000



LINE	BEARING	DISTANCE
L1	S 89°19'37" W	2050.37
L2	N 00°21'11" W	399.93
L3	N 89°39'00" E	44.87
L4	N 00°21'11" W	109.74

		WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 4 PAD CONNECT ELECTRIC LINE		CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7795
<i>HORIZON ROW LLC</i>		DEVON ENERGY PRODUCTION COMPANY, L.P.	
Drawn for:		CDU 27 PAD 4 PAD CONNECT AND CDU 27 CTB 4 BATTERY CONNECT ELECTRIC LINES	
 devon		SCALE: 1" = 1000' REVISIONS:	
Drawn by: WAYNE BEETS		SHEET: 6 OF 17	
Date: 05/09/2016		PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.	

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 00°00'56" W a distance of 1183.48' to the **Point of Beginning** of this easement having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, and continuing the following courses;

Thence S 89°19'37" W, a distance of 2050.37' to an angle point;

Thence N 00°21'11" W, a distance of 399.93' to the Point of Intersection;

Thence N 89°39'00" E, a distance of 44.87' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 68°05'51" E a distance of 2164.37';

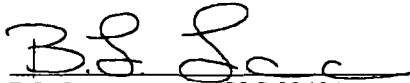
Thence continuing from said point of intersection the following courses;

Thence N 00°21'11" W, a distance of 109.74' to the **Point of Ending** having coordinates of Northing=403009.42 feet, Easting=717624.32 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 41°20'47" W a distance of 907.20', covering **2604.91' or 157.87 rods** and having an area of **1.784 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

Horizon Row, LLC

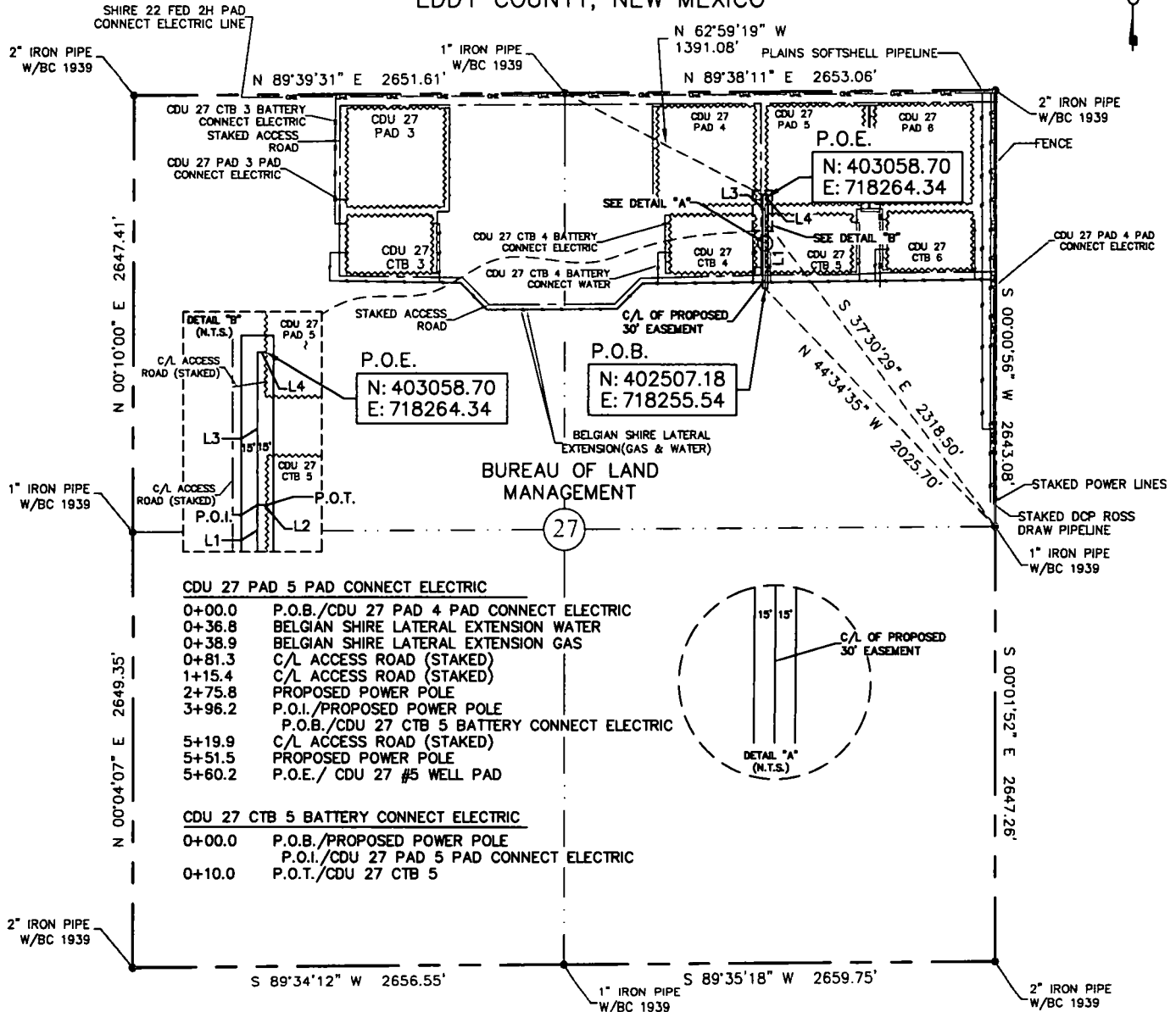
571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 9 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.390 ACRE(S)
 570.14 FEET OR 34.55 RODS

LINE	BEARING	DISTANCE
L1	N 00°00'59" E	396.22'
L2	N 89°50'02" E	9.97'
L3	N 00°00'59" E	155.30'
L4	N 89°59'36" E	8.65'

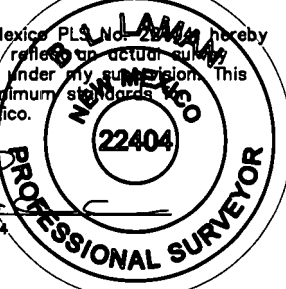
0 1000 2000


SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS #22404
 Date Signed: 05-13-2018
 Horizonrow, LLC
 571 State Street Jasper, TX.
 (409) 202-5111 75951
 Employee of Horizonrow, LLC



CDU 27 PAD 5 PAD CONNECT ELECTRIC LINE		WBS NUMBER: CC-112971.AL	LINE NUMBER: EL7802
CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7796
HORIZON ROW LLC Drawn for:  devon Drawn by: WAYNE BEETS Date: 05/09/2018		DEVON ENERGY PRODUCTION COMPANY, L.P. CDU 27 PAD 5 PAD CONNECT AND CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINES	SCALE: 1" = 1000' REVISIONS: SHEET: 9 OF 17
PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.			

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 44°34'35" W a distance of 2025.70' to the **Point of Beginning** of this easement having coordinates of Northing=402507.18 feet, Easting=718255.54 feet, and continuing the following courses;

Thence N 00°00'59" E, a distance of 396.22' to the Point of Intersection;

Thence N 89°50'02" E, a distance of 9.97' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 37°30'29" E a distance of 2318.50';

Thence continuing from said point of intersection the following courses;

Thence N 00°00'59" E, a distance of 155.30' to an angle point;

Thence N 89°59'36" E, a distance of 8.65' to the **Point of Ending** having coordinates of Northing=403058.70 feet, Easting=718264.34 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 62°59'19" W a distance of 1391.08', covering **570.14' or 34.55 rods** and having an area of **0.390 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/13/2016

Horizon Row, LLC

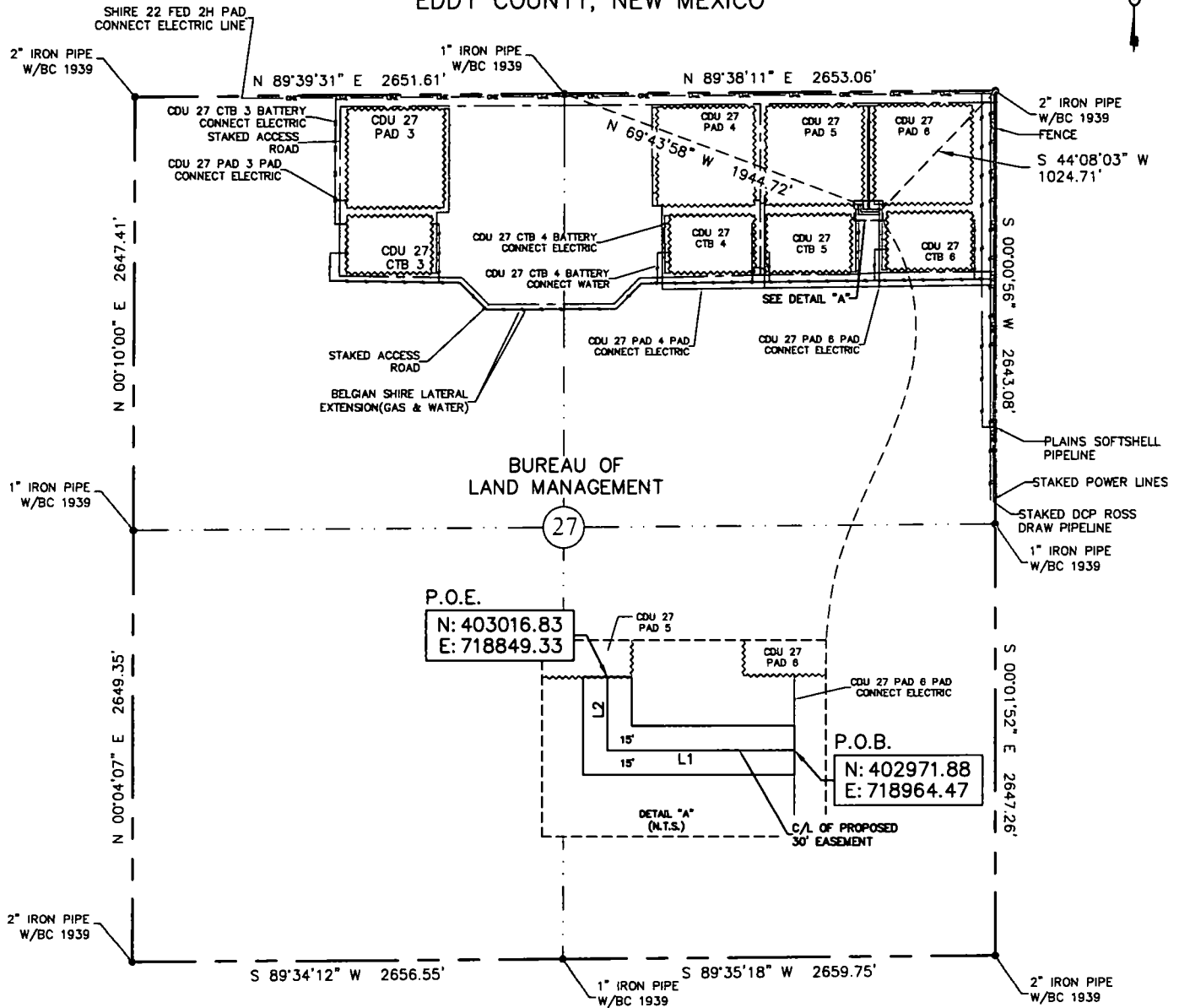
571 State Street, Jasper, TX

(402) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 12 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



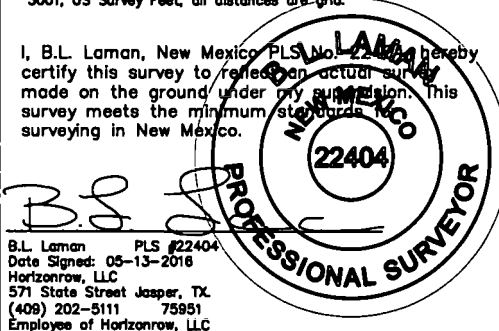
30' EASEMENT AREA = 0.110 ACRE(S)
160.17 FEET OR 9.71 RODS

0+00.0 P.O.B./CDU 27 PAD 6 PAD CONNECT ELECTRIC
1+15.2 PROPOSED POWER POLE
1+60.2 P.O.E./CDU 27 #5 WELL PAD

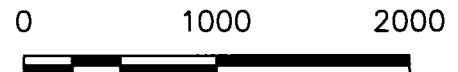
SEE THE ATTACHED LEGAL DESCRIPTION

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.



LINE	BEARING	DISTANCE
L1	S 89°58'05" W	115.15'
L2	N 00°01'04" E	45.02'



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
WAYNE BEETS

Date: 05/10/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.

CDU 27 PAD 5 PAD
CONNECT EAST-ELECTRIC LINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER:
EL7814

WBS NUMBER:
CC-112971.AL

SCALE:
1" = 1000'

REVISIONS:

SHEET:
12 OF 17

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 44°08'03" W a distance of 1024.71' to the **Point of Beginning** of this easement having coordinates of Northing=402971.88 feet, Easting=718964.47 feet, and continuing the following courses;

Thence S 89°58'05" W, a distance of 115.15' to an angle point;

Thence N 00°01'04" E, a distance of 45.02' to the **Point of Ending** having coordinates of Northing=403016.83 feet, Easting=718849.33 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 69°43'58" W a distance of 1944.72', covering **160.17' or 9.71 rods** and having an area of **0.110 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.


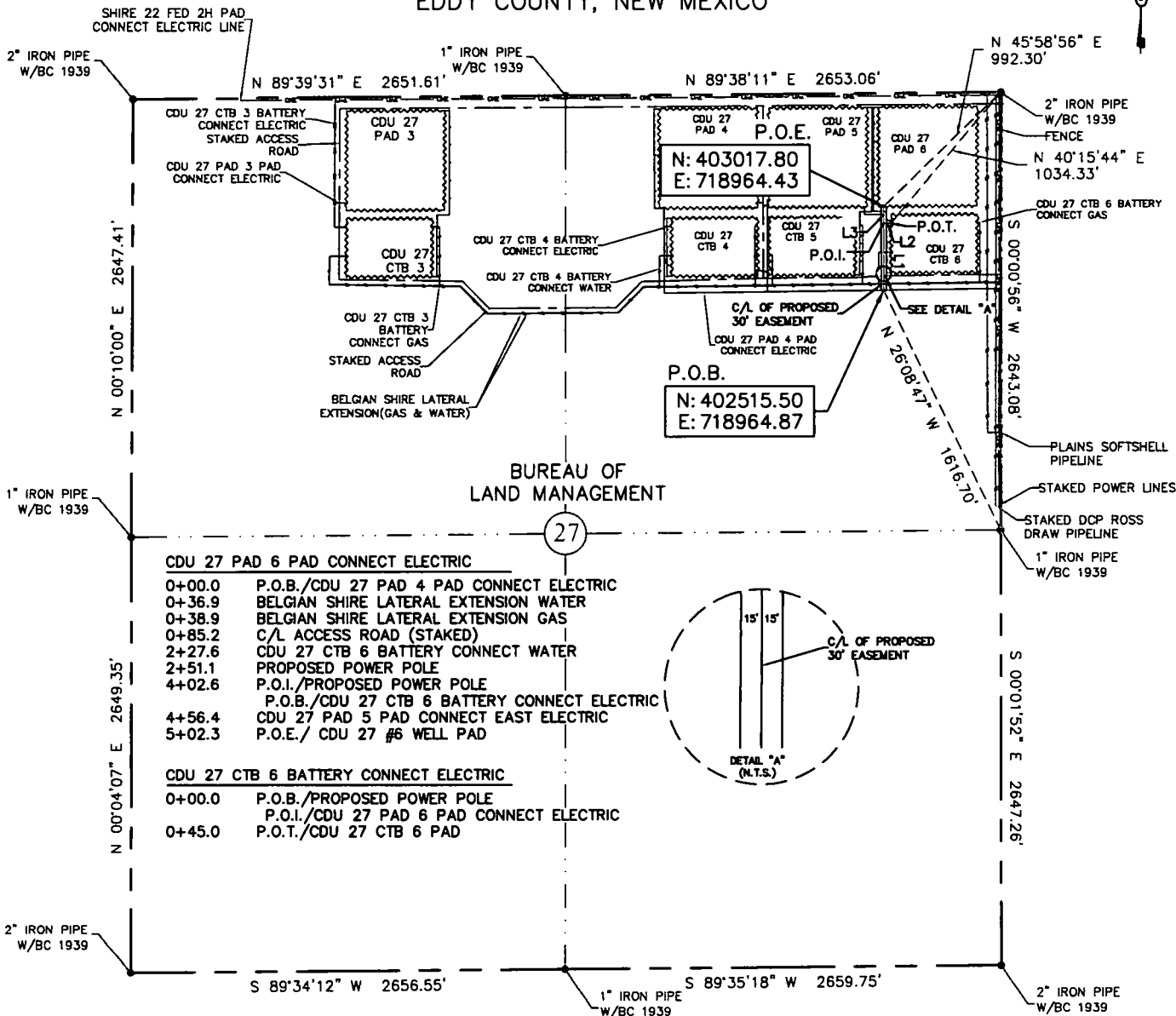
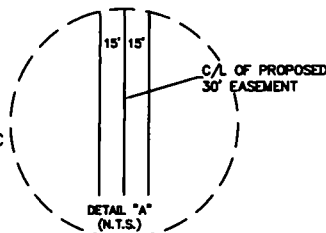

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 14 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



- BUREAU OF LAND MANAGEMENT**
27
- CDU 27 PAD 6 PAD CONNECT ELECTRIC**
- 0+00.0 P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
 - 0+36.9 BELGIAN SHIRE LATERAL EXTENSION WATER
 - 0+38.9 BELGIAN SHIRE LATERAL EXTENSION GAS
 - 0+85.2 C/L ACCESS ROAD (STAKED)
 - 2+27.6 CDU 27 CTB 6 BATTERY CONNECT WATER
 - 2+51.1 PROPOSED POWER POLE
 - 4+02.6 P.O.I./PROPOSED POWER POLE
 - P.O.B./CDU 27 CTB 6 BATTERY CONNECT ELECTRIC
 - 4+56.4 CDU 27 PAD 5 PAD CONNECT EAST ELECTRIC
 - 5+02.3 P.O.E./CDU 27 #6 WELL PAD
- CDU 27 CTB 6 BATTERY CONNECT ELECTRIC**
- 0+00.0 P.O.B./PROPOSED POWER POLE
 - P.O.I./CDU 27 PAD 6 PAD CONNECT ELECTRIC
 - 0+45.0 P.O.T./CDU 27 CTB 6 PAD



30' EASEMENT AREA = 0.367 ACRE(S)
547.32 FEET OR 33.17 RODS

LINE	BEARING	DISTANCE
L1	N 00°03'00" W	402.56'
L2	S 89°58'05" E	45.02'
L3	N 00°03'00" W	99.74'

0 1000 2000


SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico, PLS No. 22404, do 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
PROFESSIONAL SURVEYOR
22404

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

		WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 6 PAD CONNECT ELECTRIC LINE		CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL	EL7797
<i>HORIZON ROW LLC</i>		DEVON ENERGY PRODUCTION COMPANY, L.P. CDU 27 PAD 6 PAD CONNECT AND CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINES	SCALE: 1" = 1000'
Drawn for:			REVISIONS:
			SHEET: 14 OF 17
devon		PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.	
Drawn by: WAYNE BEETS	Date: 05/09/2016		

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

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 26°08'47" W a distance of 1616.70' to the **Point of Beginning** of this easement having coordinates of Northing=402515.50 feet, Easting=718964.87 feet, and continuing the following courses;

Thence N 00°03'00" W, a distance of 402.56' to the Point of Intersection;

Thence S 89°58'05" E, a distance of 45.02' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 40°15'44" E a distance of 1034.33';

Thence continuing from said point of intersection the following course;

Thence N 00°03'00" W, a distance of 99.74' to the **Point of Ending** having coordinates of Northing=403017.80 feet, Easting=718964.43 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 45°58'56" E a distance of 992.30', covering **547.32' or 33.17 rods** and having an area of **0.367 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

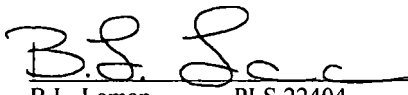
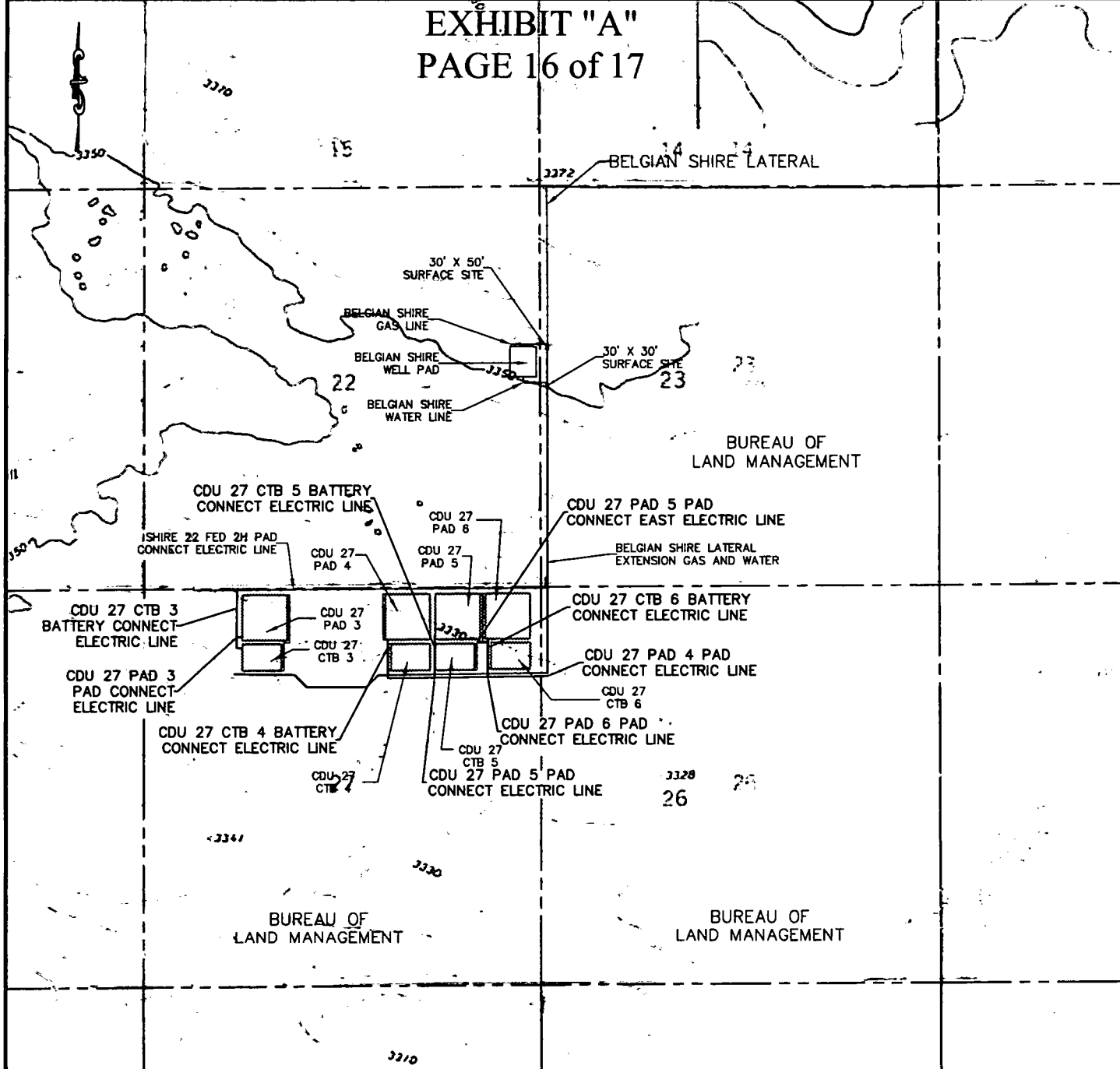

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC




EXHIBIT "A"

PAGE 16 of 17



QUAD MAP

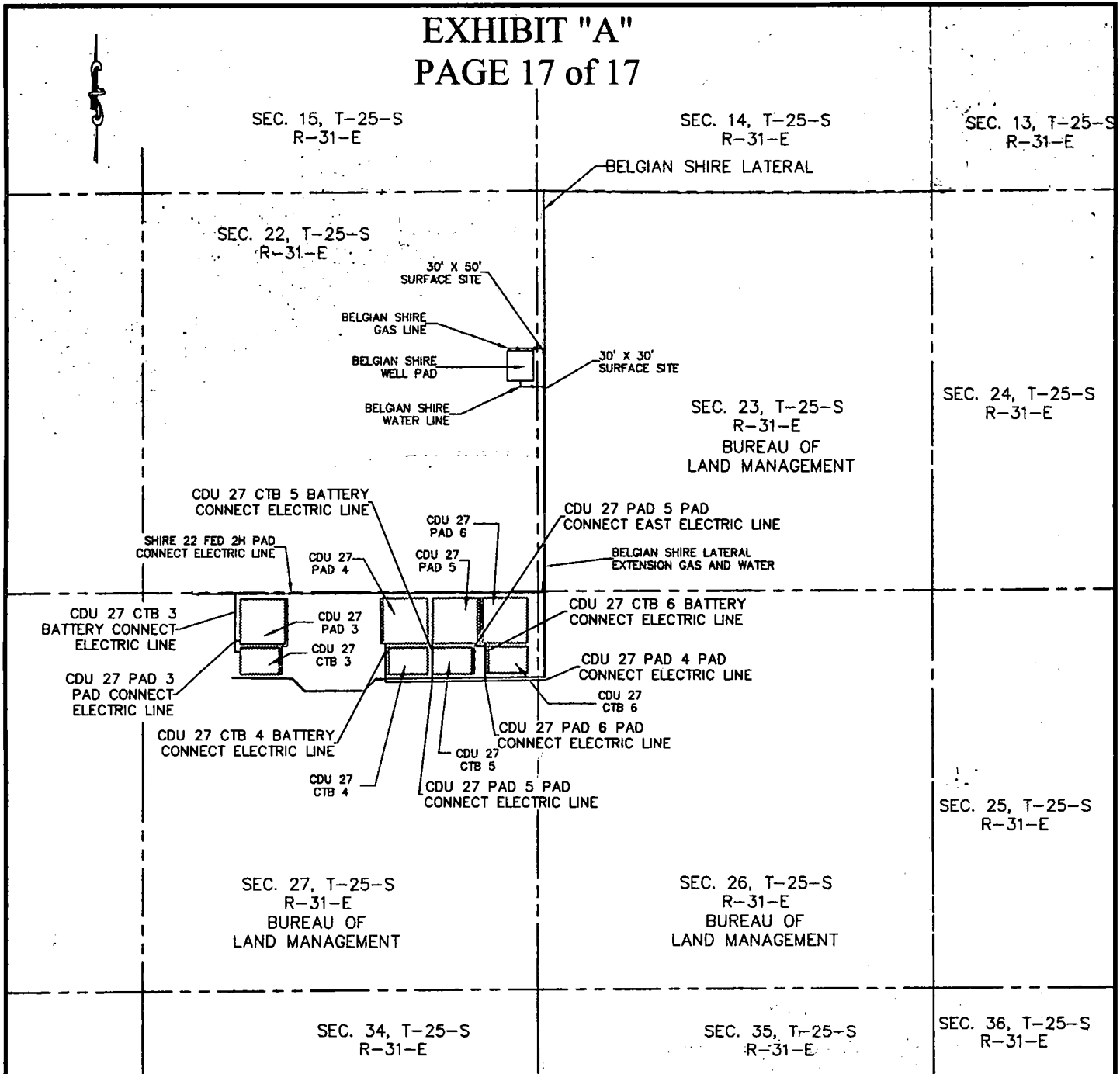
SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL.7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7796
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL.7797
Drawn for:		
		
DEVON ENERGY PRODUCTION COMPANY, L.P. PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT		
SCALE: 1" = 2000' REVISIONS: SHEET: 16 OF 17		
Drawn by: WAYNE BEETS	Date: 05/10/2016	

HORIZON ROW LLC

EXHIBIT "A"

PAGE 17 of 17



AERIAL MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7796
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7797
Drawn for:		
<div> </div>		
<div> <div> PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT </div> <div> SCALE: 1" = 2000' REVISIONS: SHEET: 17 OF 17 </div> </div>		
<div> <div> Drawn by: WAYNE BEETS </div> <div> Date: 05/10/2016 </div> </div>		
DEVON ENERGY PRODUCTION COMPANY, L.P.		

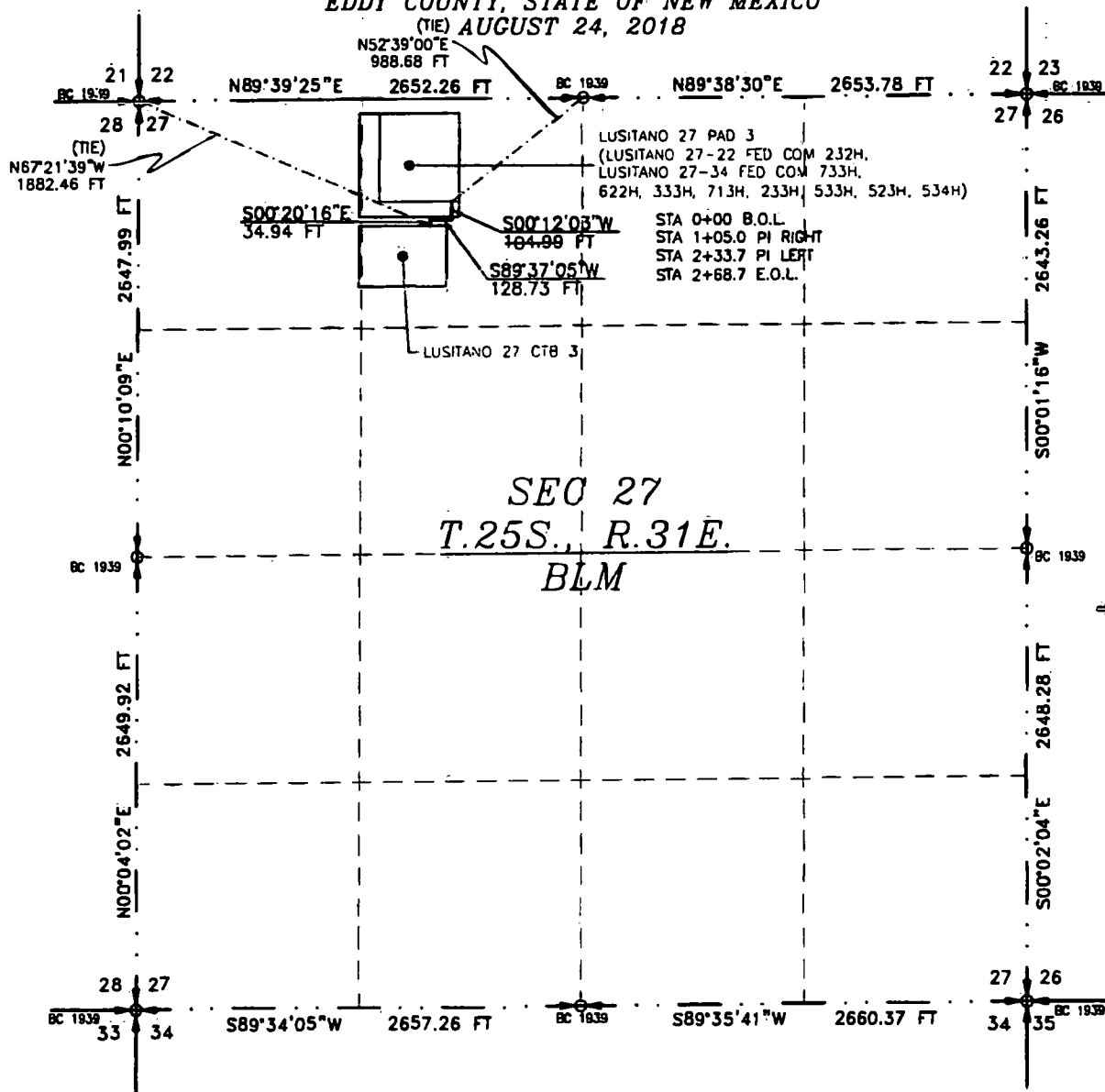
HORIZON ROW LLC

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27, PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H) TO THE LUSITANO 27 CTB 3

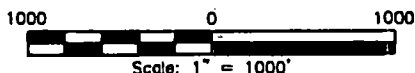
DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

(TIE) AUGUST 24, 2018



SEC 27
T.25S., R.31E.
BLM

SEE NEXT SHEET (2-4) FOR DESCRIPTION



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.

SHEET: 1-4

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

SURVEYOR CERTIFICATE

I, FILMON 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 24 DAY OF AUGUST 2018

FILMON 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

SURVEY NO. 6504

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 24, 2018

DESCRIPTION

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

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N52°39'00"E. A DISTANCE OF 988.68 FEET;

THENCE S00°12'03"W A DISTANCE OF 104.99 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°37'05"W A DISTANCE OF 128.73 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S00°20'16"E A DISTANCE OF 34.94 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N67°21'39"W, A DISTANCE OF 1882.46 FEET;

SAID STRIP OF LAND BEING 268.66 FEET OR 16.28 RODS IN LENGTH, CONTAINING 0.185 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

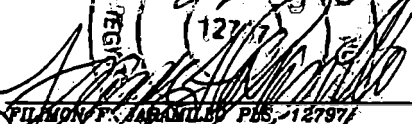
NE/4 NW/4 268.66 L.F. 16.28 RODS 0.185 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 22 DAY OF AUGUST 2018


FILMON F. JARAMILLO, PLS. 12797

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

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.

SHEET: 2-4

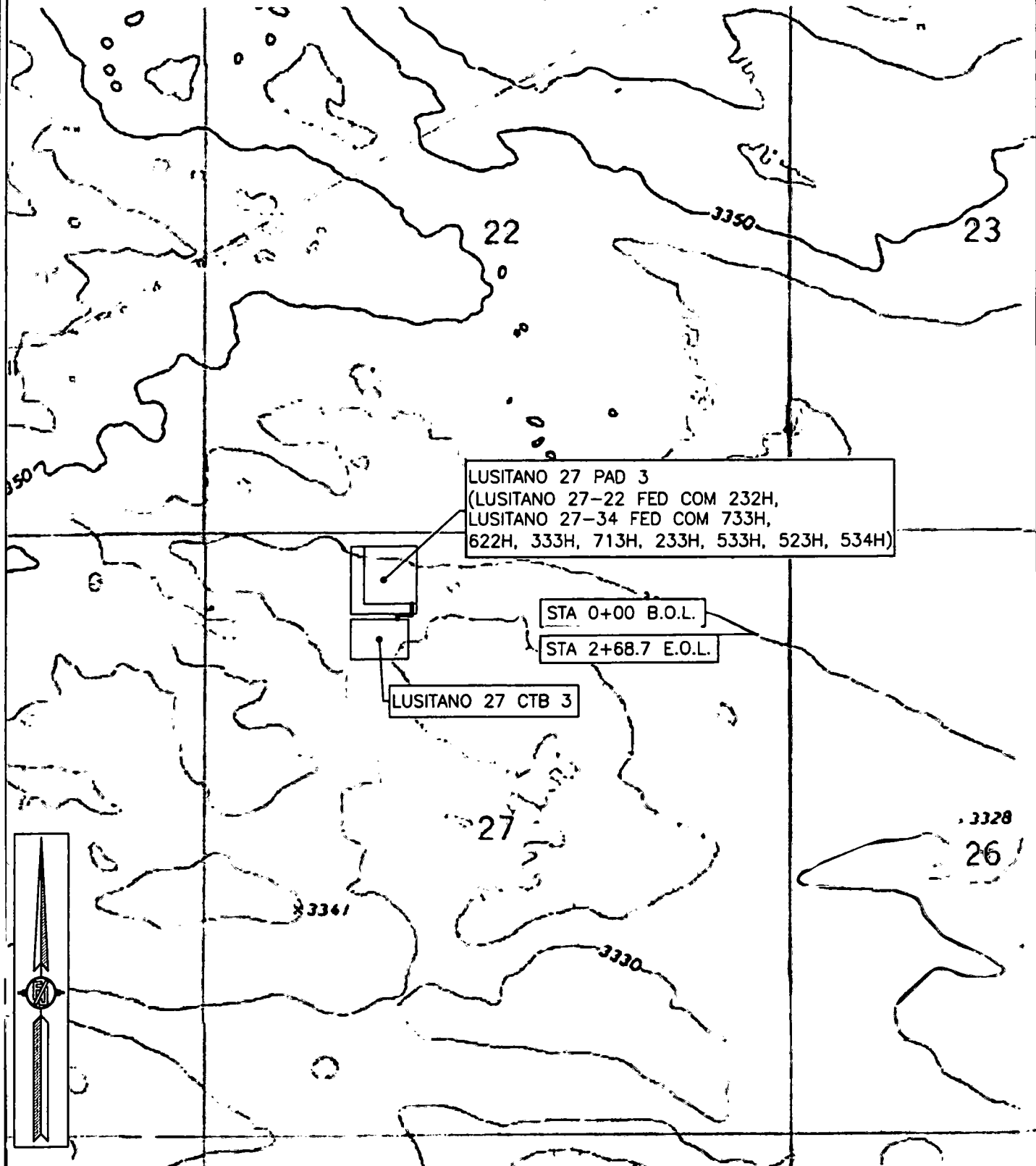
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SURVEY NO. 6504

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3
(LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H,
523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 24, 2018



SHEET: 3-4

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

SURVEY NO. 6504

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3
(LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H,
523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 24, 2018

22

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

STA 0+00 B.O.L.

STA 2+68.7 E.O.L.

LUSITANO 27 CTB 3

27



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:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

01/18/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: