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Form 3160-3
(June 2015)

APR 24 2019

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

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

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM0544986
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ 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. TODD 36-25 STATE FED COM 233H 325417
3a. Address 333 West Sheridan Avenue Oklahoma City OK 73102	3b. Phone No. (include area code) (800)583-3866	9. API Well No. 30-015-45909
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SWSE / 330 FSL / 1696 FEL / LAT 32.254575 / LONG -103.7284657 At proposed prod. zone NWNE / 20 FNL / 2160 FEL / LAT 32.2826314 / LONG -103.7299568		10. Field and Pool, or Exploratory wildcat Sand Dunes B5Pbr. 53805
11. Sec. T. R. M. or Blk. and Survey or Area SEC 36 / T23S / 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) 330 feet	16. No of acres in lease 600	17. Spacing Unit dedicated to this well 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 5950 feet	19. Proposed Depth 10550 feet / 20809 feet	20. BLM/BIA Bond No. in file FED: CO1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3508 feet	22. Approximate date work will start* 06/24/2019	23. Estimated duration 30 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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Jenny Harms / Ph: (405)552-6560	Date 10/10/2018
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 04/18/2019
Title Assistant Field Manager Lands & Minerals CARLSBAD		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS
Approval Date: 04/18/2019

(Continued on page 2)

*(Instructions on page 2)

RwP 4-24-19

INSTRUCTIONS

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

ITEM 1: 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 an 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: SWSE / 330 FSL / 1696 FEL / TWSP: 23S / RANGE: 31E / SECTION: 36 / LAT: 32.254575 / LONG: -103.7284657 (TVD: 0 feet, MD: 0 feet)
PPP: SWSE / 100 FSL / 2160 FEL / TWSP: 23S / RANGE: 31E / SECTION: 36 / LAT: 32.253943 / LONG: -103.7299667 (TVD: 10211 feet, MD: 10239 feet)
BHL: NWNE / 20 FNL / 2160 FEL / TWSP: 23S / RANGE: 31E / SECTION: 25 / LAT: 32.2826314 / LONG: -103.7299568 (TVD: 10550 feet, MD: 20809 feet)

BLM Point of Contact

Name: Candy Vigil

Title: Admin Support Assistant

Phone: 5752345982

Email: cvigil@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 CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
LEASE NO.:	Todd 36-25 State Fed Com 233H
WELL NAME & NO.:	330'S & 1696'E
SURFACE HOLE FOOTAGE:	20'/N & 2160'E
BOTTOM HOLE FOOTAGE:	Section 36, T.23 S., R.31 E., NMPM
LOCATION:	Eddy County, New Mexico
COUNTY:	Devon Energy Production Company LP

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **836 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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

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

- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing shall be set at approximately **4490 feet** is:

Option 1 (Single Stage):

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

Option 2:

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

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- b. Second stage above DV tool:
 - Cement to surface. If cement does not circulate, contact the appropriate BLM office.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

Operator has proposed to pump down 13-3/8" X 9-5/8" annulus. Operator must run a CBL from TD of the 9-5/8" casing to surface. Submit results to BLM.

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.
Cement excess is less than 25%, more cement might 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:

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

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees

of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

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

GENERAL REQUIREMENTS

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

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

☒ 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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and 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.
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.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

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

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production Company LP
WELL NAME & NO.:	Todd 36-25 State Fed Com 233H
SURFACE HOLE FOOTAGE:	330'/S & 1696'/E
BOTTOM HOLE FOOTAGE	20'/N & 2160'/E
LOCATION:	Section 36, T.23 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

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

V. SPECIAL REQUIREMENT(S)

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.

Livestock Watering Requirement

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

Fence 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 fence(s).

The operator must contact the allotment holder prior to construction to identify the location of the pipeline. The operator must take measures to protect the pipeline from compression or other damages. If the pipeline is 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 pipeline 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.

Lessees must comply with the 2012 Secretarial Potash Order. The Order is designed to manage the efficient development of oil, gas, and potash resources. Section 6 of the Order provides

general provisions which must be followed to minimize conflict between the industries and ensure the safety of operations.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Todd 36-25's Drill Island (See Potash Memo and Map in attached file for Drill Island description).

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

G. ON LEASE ACCESS ROADS**Road Width**

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

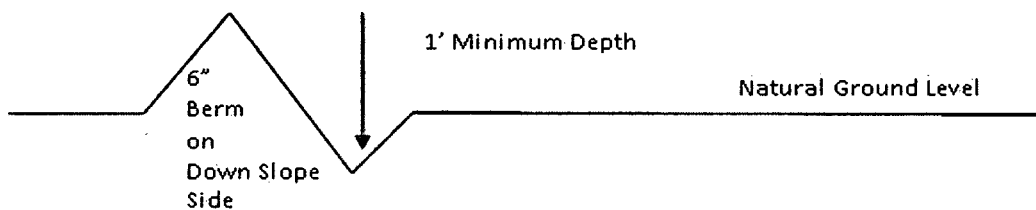
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

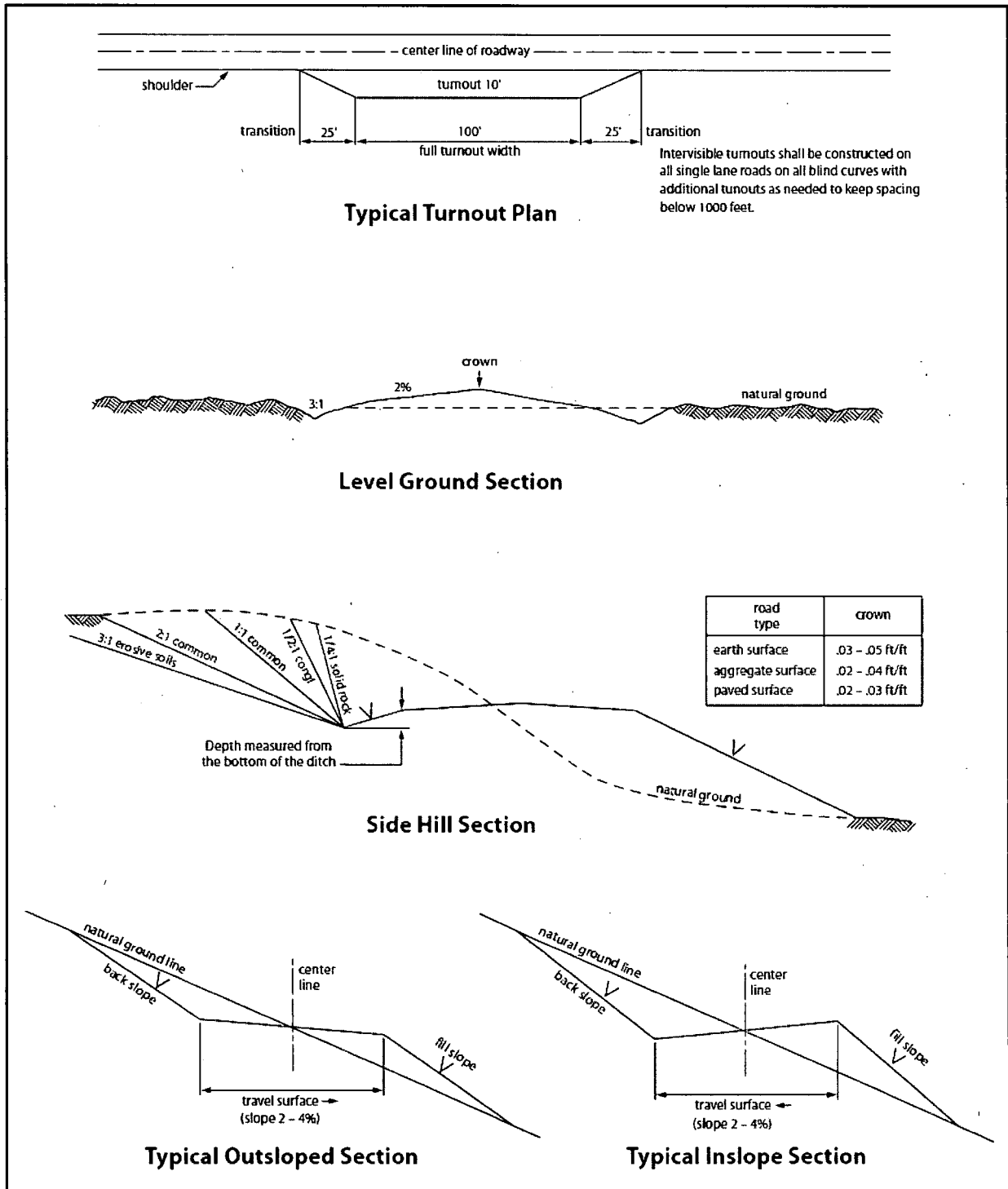


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus

freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

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

STANDARD STIPULATIONS FOR OIL AND GAS RELATED SITES

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

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

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant and for all response costs, penalties, damages, claims, and other costs arising from the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Chap. 82, Section 6901 et. seq., from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. Chap. 109, Section 9601 et. seq., and from other applicable environmental statutes.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et. seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et. seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et. seq.) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the site or related pipeline(s), any oil or other pollutant should be discharged from site facilities, the pipeline(s) or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.
5. Sites shall be maintained in an orderly, sanitary condition at all times. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, brines, chemicals, oil drums, ashes, and equipment.
6. The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)
7. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for this project is **Shale Green**, Munsell Soil Color Chart Number 5Y 4/2.
8. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.
9. A sales contract for removal of mineral material (caliche, sand, gravel, fill dirt) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. There are several options available for purchasing mineral material: contact the BLM office (575-234-5972).

10. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

11. Once the site is no longer in service or use, the site must undergo final abandonment. At final abandonment, the site and access roads must undergo "final" reclamation so that the character and productivity of the land are restored. Earthwork for final reclamation must be completed within six (6) months of the abandonment of the site. All pads and facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact. After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

12. The holder shall stockpile an adequate amount of topsoil where blading occurs. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles. The topsoil will be used for final reclamation.

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

- | | |
|--|--|
| ☐ seed mixture 1 | ☐ seed mixture 3 |
| ☐ seed mixture 2 | ☐ seed mixture 4 |
| ☒ seed mixture 2/LPC | ☐ Aplomado Falcon Mixture |

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

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

16. The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an

impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S.

Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock enclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

17. Open-Vent Exhaust Stack Enclosures – 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 enclosure structures on open-vent exhaust stacks are in the shape of a cone.) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

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

19. Special Stipulations:

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

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 permanent engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

B. PIPELINES

BURIED PIPELINE STIPULATIONS

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

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

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure

of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:
- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
 - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
 - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

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

- | | |
|--|--|
| ☐ seed mixture 1 | ☐ seed mixture 3 |
| ☐ seed mixture 2 | ☐ seed mixture 4 |
| ☒ seed mixture 2/LPC | ☐ Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

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

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

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

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

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

19. Special Stipulations:

Lesser Prairie-Chicken

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

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

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

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

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b.

A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

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

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

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

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

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

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply

with those abandonment procedures as prescribed by the Authorized Officer.

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

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

11. Special Stipulations:

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

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.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce

the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

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

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

04/18/2019

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: Jenny Harms

Signed on: 10/09/2018

Title: Regulatory Compliance Professional

Street Address: 333 W Sheridan Ave

City: Oklahoma City

State: OK

Zip: 73102

Phone: (405)552-6560

Email address: jenny.harms@dnv.com

Field Representative

Representative Name: RAY VAZ

Street Address: 333 WEST SHERIDAN AVENUE

City: OKLAHOMA CITY

State: OK

Zip: 73102-5015

Phone: (575)748-1871

Email address: RAY.VAZ@DVN.COM



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

Application Data Report

04/18/2019

APD ID: 10400034900

Submission Date: 10/10/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400034900

Tie to previous NOS?

Submission Date: 10/10/2018

BLM Office: CARLSBAD

User: Jenny Harms

Title: Regulatory Compliance
Professional

Federal/Indian APD: FED

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

Lease number: NMNM0544986

Lease Acres: 600

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? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Well API Number:

Field/Pool or Exploratory? Exploratory

Field Name: WILDCAT

Pool Name:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

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: TODD **Number:** 3

Well Class: HORIZONTAL

36 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: 5950 FT

Distance to lease line: 330 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: TODD_36_25_STATE_FED_COM_233H_C102_9_23_2018_signed_20181008071611.pdf

Well work start Date: 06/24/2019

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

	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	330	FSL	169 6	FEL	23S	31E	36	Aliquot SWSE	32.25457 5	- 103.7284 657	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	350 8	0	0
KOP Leg #1	50	FSL	216 0	FEL	23S	31E	36	Aliquot SWSE	32.25381 3	- 103.7299 72	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 649 1	999 9	999 9
PPP Leg #1	100	FSL	216 0	FEL	23S	31E	36	Aliquot SWSE	32.25394 3	- 103.7299 667	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 670 3	102 39	102 11

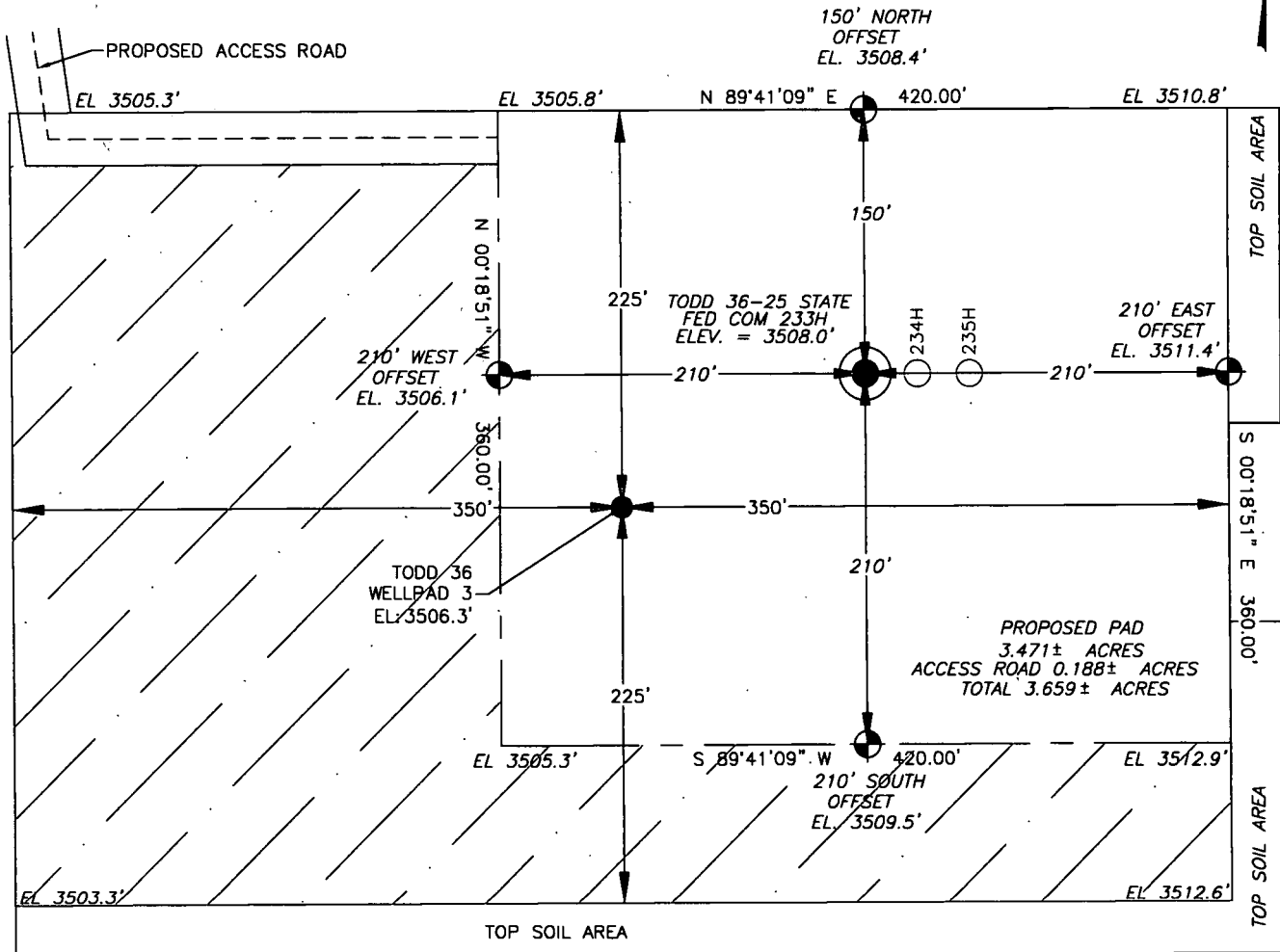
Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

	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	100	FNL	216 0	FEL	23S	31E	25	Aliquot NWNE	32.28241 15	- 103.7299 569	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 054498 6	- 704 2	207 29	105 50
BHL Leg #1	20	FNL	216 0	FEL	23S	31E	25	Aliquot NWNE	32.28263 14	- 103.7299 568	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 054498 6	- 704 2	208 09	105 50

SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP



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.

DEVON ENERGY PRODUCTION COMPANY, L.P.
TODD 36-25 STATE FED COM 233H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1696 FT. FROM THE EAST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO 0

100 200

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF NM-128 AND RED ROAD HEAD NORTH ON RED ROAD FOR 0.09 MILES. TURN RIGHT ONTO AN ACCESS ROAD AND HEAD NORTHEAST FOR 0.07 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 WELLPAD 1 ACCESS ROAD. LEAVE THE EXISTING ACCESS ROAD AND HEAD NORTH AND EAST ON THE PROPOSED TODD 36 WELLPAD 1 ACCESS ROAD FOR 0.19 MILES TO THE SAME EXISTING ACCESS ROAD AND THEN HEAD EAST FOR 0.50 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 WELLPAD 3 ACCESS ROAD. HEAD SOUTH ALONG THE PROPOSED TODD 36 WELLPAD 3 ACCESS ROAD FOR 46 FEET TO THE TO THE NORTHWEST CORNER OF THE TODD 36 WELLPAD 3.

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

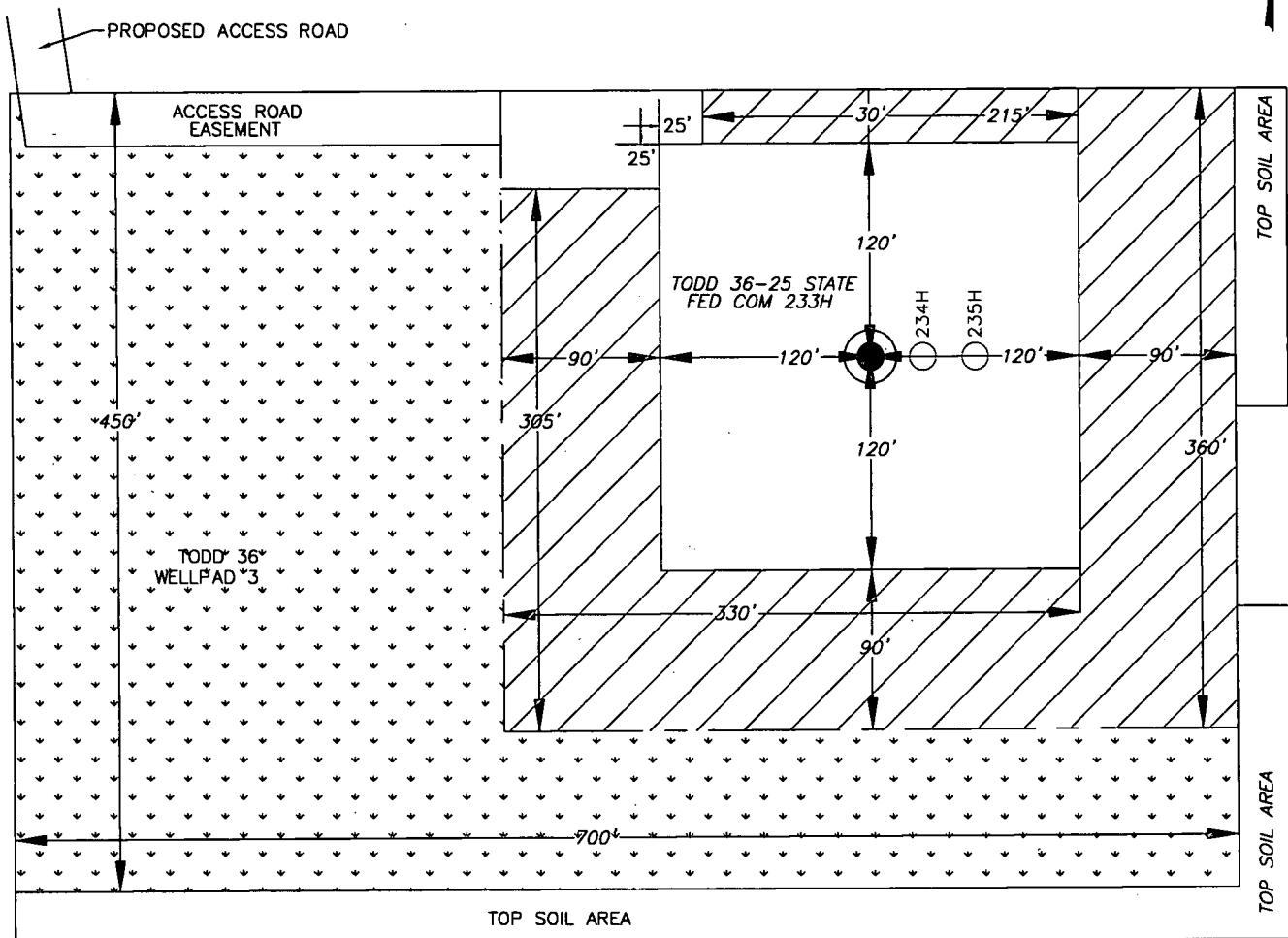
Drawn by:
CHRIS MAAS

Date: 09/19/2018

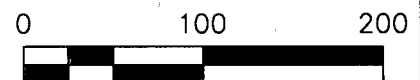
Drawn for:



SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



- DENOTES INTERIM PAD RECLAMATION AREA
 DENOTES GRADING SITE RECLAMATION AREA
 2.018± ACRES INTERIM PAD RECLAMATION AREA
 3.572± ACRES GRADING SITE RECLAMATION AREA
 1.641± ACRES NON-RECLAIMED AREA
 7.231± ACRES GRADING SITE RECLAMATION AREA



DEVON ENERGY PRODUCTION COMPANY, L.P.
 TODD 36-25 STATE FED COM 233H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1696 FT. FROM THE EAST LINE OF
 SECTION 36, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

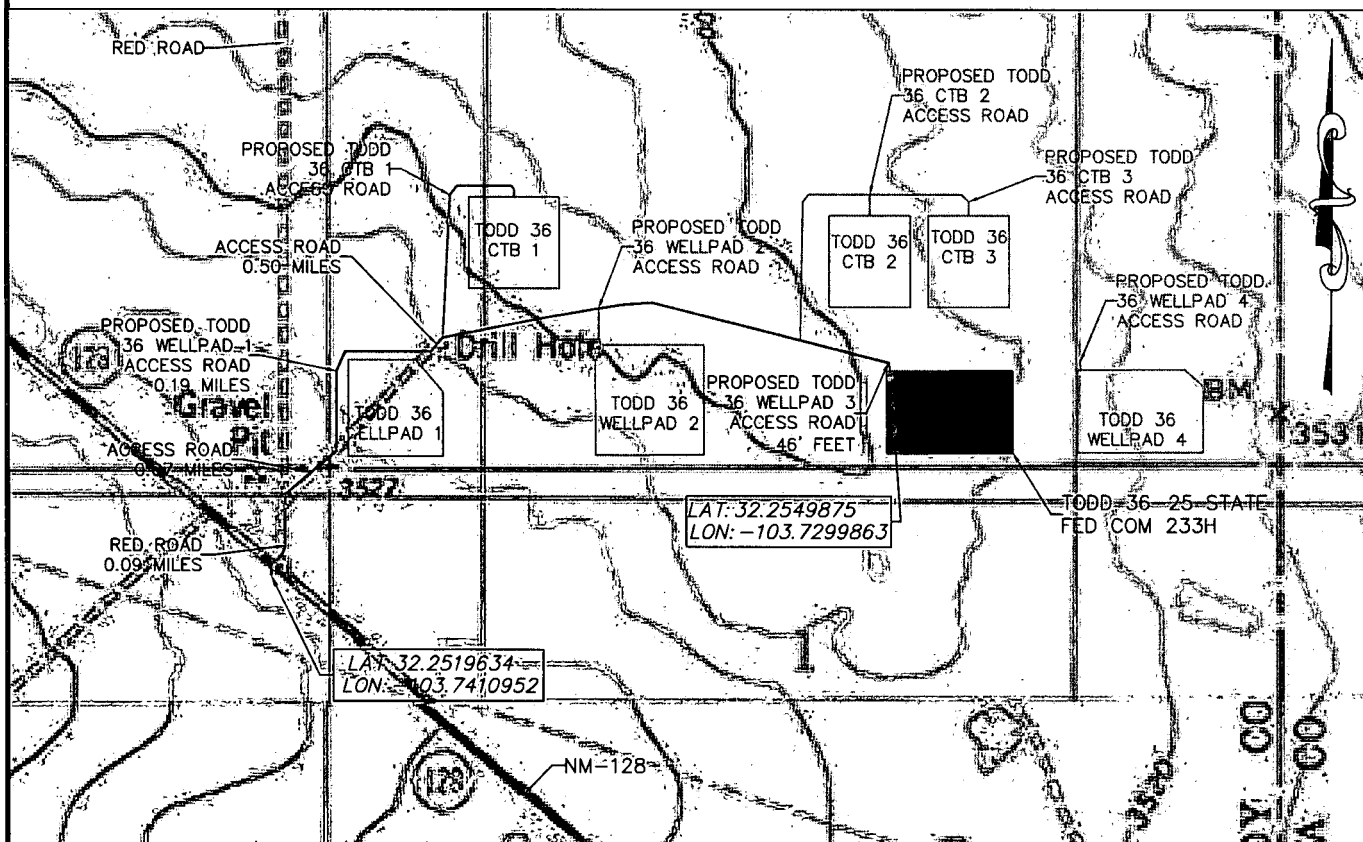
Drawn by:
CHRIS MAAS

Date: 09/19/2018

Drawn for:



SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
TODD 36-25 STATE FED COM 233H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1696 FT. FROM THE EAST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF NM-128 AND RED ROAD HEAD NORTH ON RED ROAD FOR 0.09 MILES. TURN RIGHT ONTO AN ACCESS ROAD AND HEAD NORTHEAST FOR 0.07 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 WELLPAD 1 ACCESS ROAD. LEAVE THE EXISTING ACCESS ROAD AND HEAD NORTH AND EAST ON THE PROPOSED TODD 36 WELLPAD 1 ACCESS ROAD FOR 0.19 MILES TO THE SAME EXISTING ACCESS ROAD AND THEN HEAD EAST FOR 0.50 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 WELLPAD 3 ACCESS ROAD. HEAD SOUTH ALONG THE PROPOSED TODD 36 WELLPAD 3 ACCESS ROAD FOR 46 FEET TO THE TO THE NORTHWEST CORNER OF THE TODD 36 WELLPAD 3.

0 1000 2000



HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

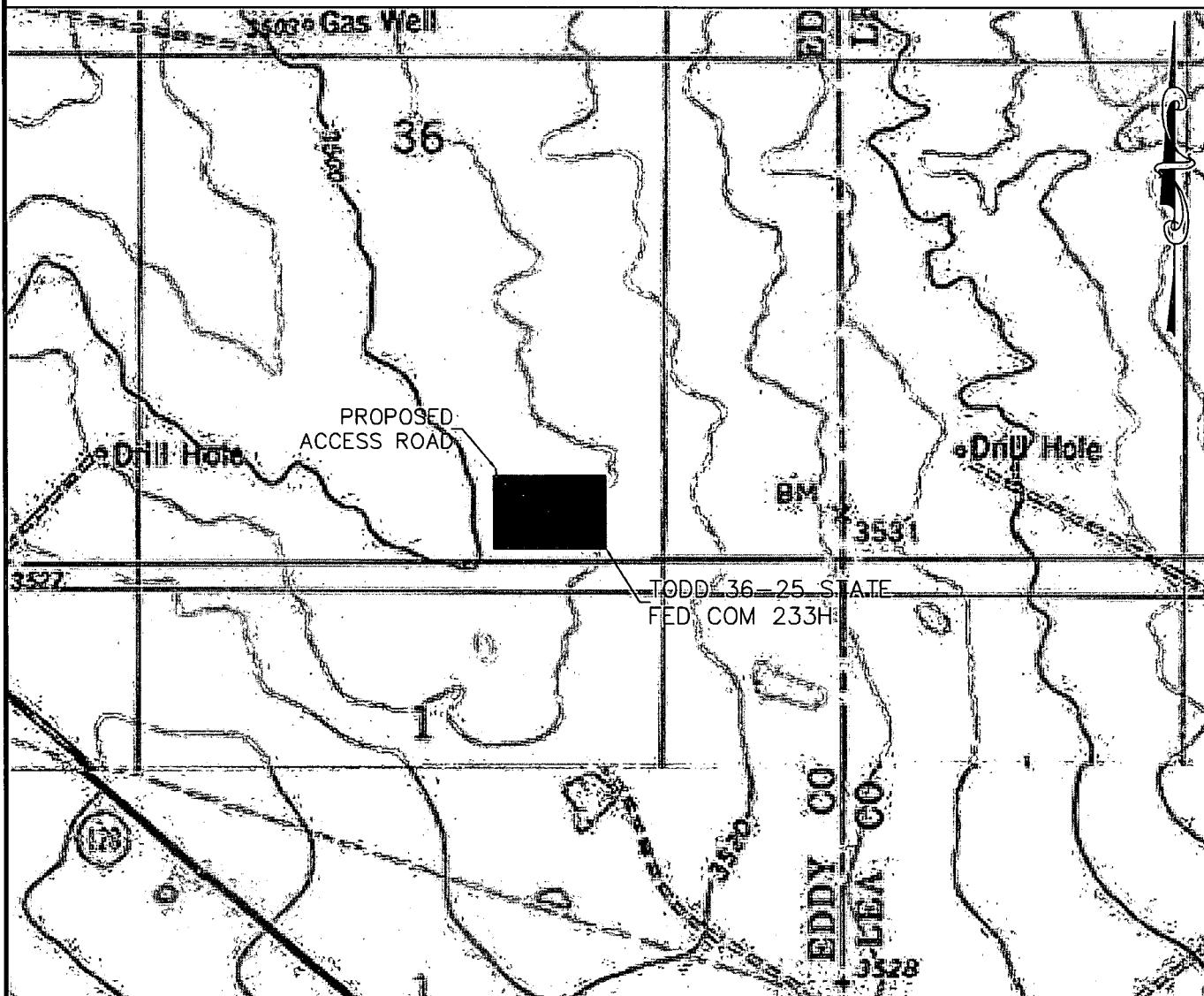
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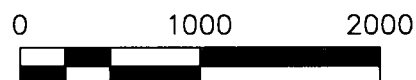
Drawn for:

devon

SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 LOCATION VERIFICATION MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
 TODD 36-25 STATE FED COM 233H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1696 FT. FROM THE EAST LINE OF
 SECTION 36, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO



HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

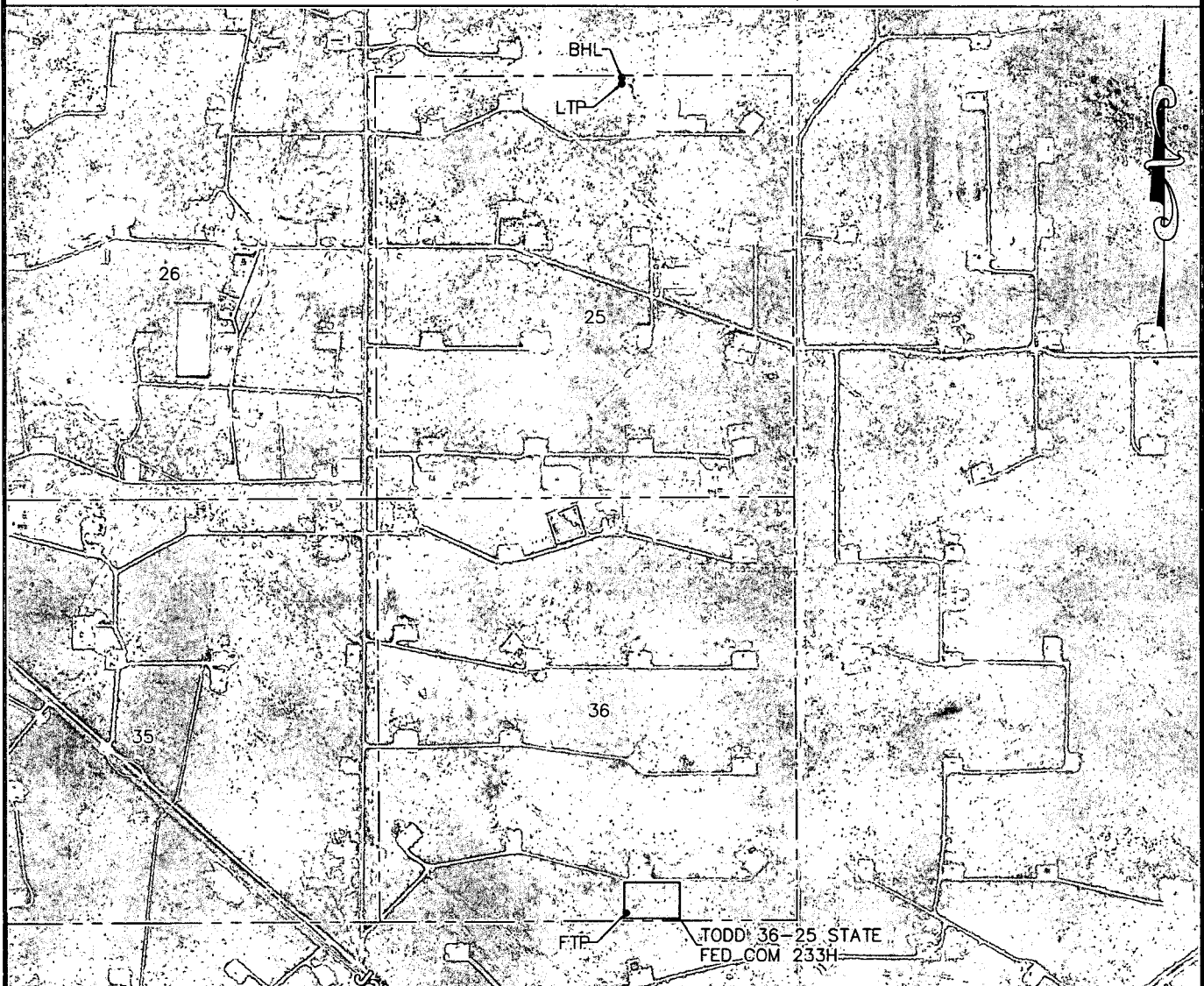
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Date: 09/19/2018

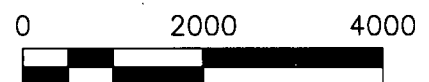
Drawn for:

devon

SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



DEVON ENERGY PRODUCTION COMPANY, L.P.
TODD 36-25 STATE FED COM 233H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1696 FT. FROM THE EAST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

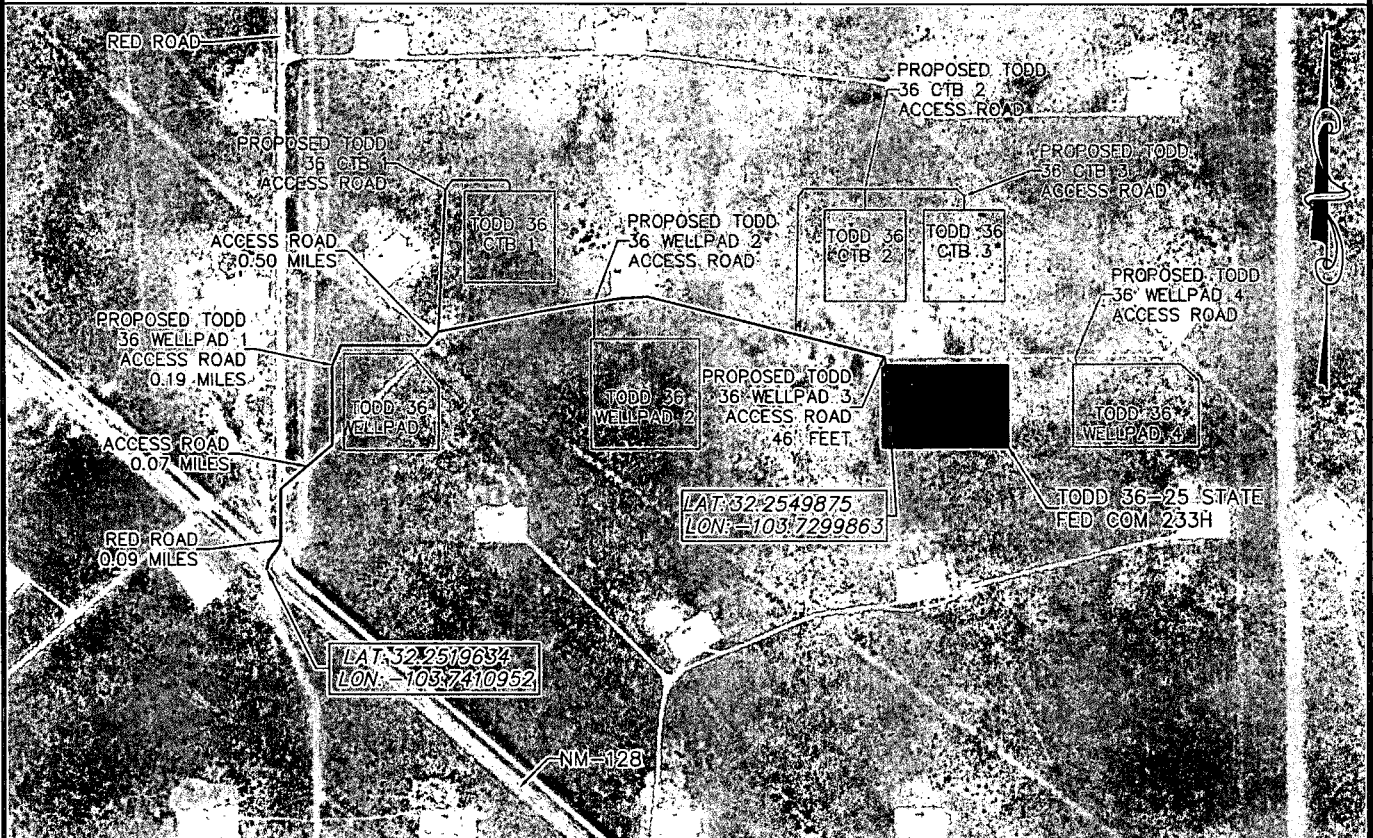
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CHRIS MAAS

Date: 09/19/2018

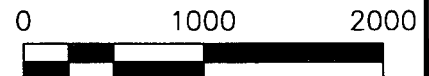
Drawn for:


devon

SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 AERIAL ACCESS ROUTE MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
 TODD 36-25 STATE FED COM 233H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1696 FT. FROM THE EAST LINE OF
 SECTION 36, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO



HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

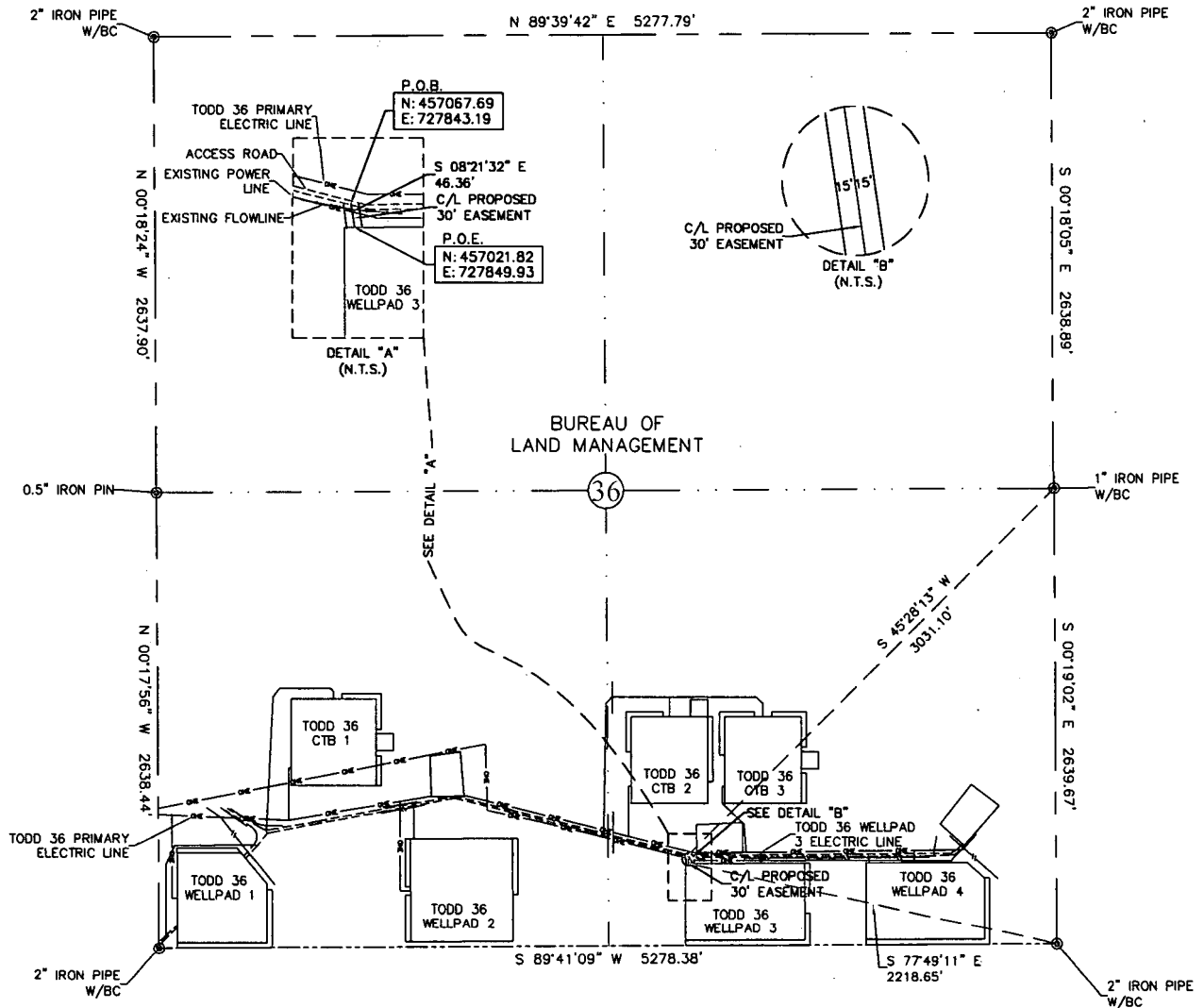
Drawn by:
CHRIS MAAS

Date: 09/19/2018

Drawn for:

devon

EXHIBIT "A"
ACCESS ROAD PLAT
SECTION 36, T23S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.032 ACRE(S)
46.36 FEET OR 2.81 RODS

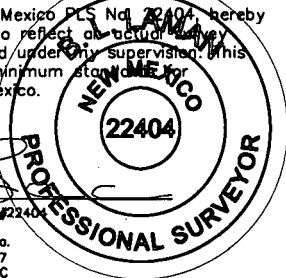
0+00.0 P.O.B./EXISTING ACCESS ROAD
0+03.9 EDGE OF ROAD
0+11.6 EXISTING FLOW LINE
0+16.3 POWER LINE
0+46.3 P.O.E./TODD 36 WELLPAD 3

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 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: 09-23-2018
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 07/07/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36
WELLPAD 3 ACCESS ROAD

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 36, T23S-R31E, N.M.P.M.

LINE NUMBER:

WBS NUMBER:

SCALE:
1" = 1000'

REVISIONS:

SURVEY DATE:
6/30/18

0 1000 2000



SECTION 36, T23S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ACCESS ROAD PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the southeast quarter (SE ¼) of Section 36, Township 23 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 for the east quarter corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

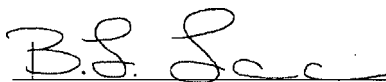
Thence S 45°28'13" W a distance of 3031.10' to the **Point of Beginning** of this easement having coordinates of Northing=457067.69, Easting=727843.19 feet and continuing the following course;

Thence S 08°21'32" E a distance of 46.36' to the **Point of Ending** having coordinates of Northing=457021.82, Easting=727849.93 feet from said point a 2" iron pipe w/BC for the southeast corner of Section 36, T23S-R31E bears S 77°49'11" E a distance of 2218.65', covering **46.36' or 2.81 rods** and having an area of **0.032 acres**.

NOTES:

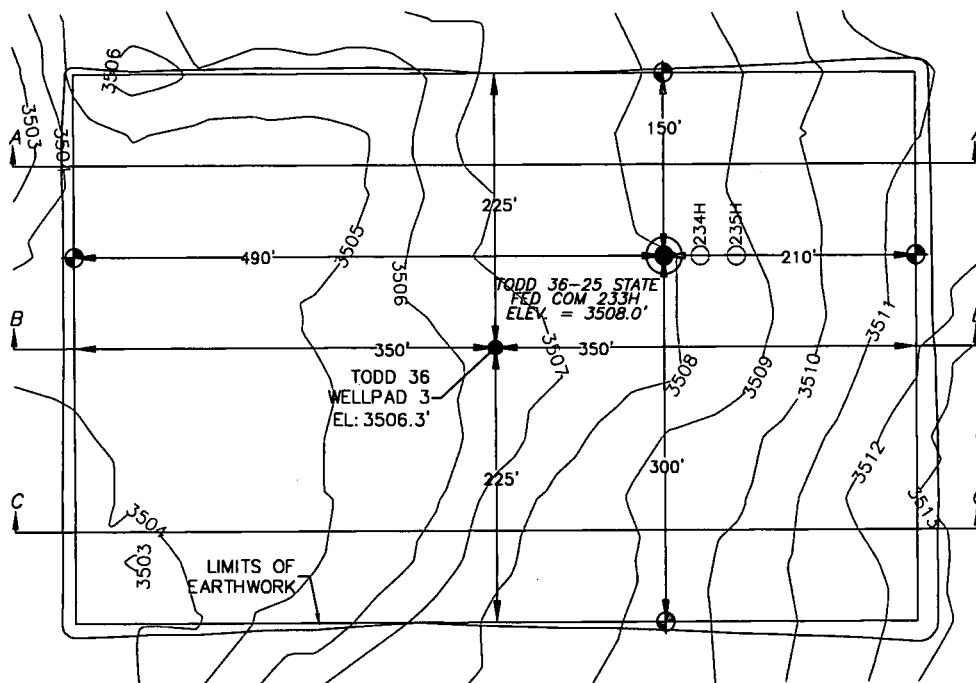
Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

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: 09/23/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC



SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
PLAN VIEW



DEVON ENERGY PRODUCTION COMPANY, L.P.
TODD 36-25 STATE FED COM 233H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1696 FT. FROM THE EAST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

0 150 300



EARTHWORK QUANTITIES FOR
TODD 36 WELLPAD 3

CUT	FILL	NET
12,929 CY	12,929 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

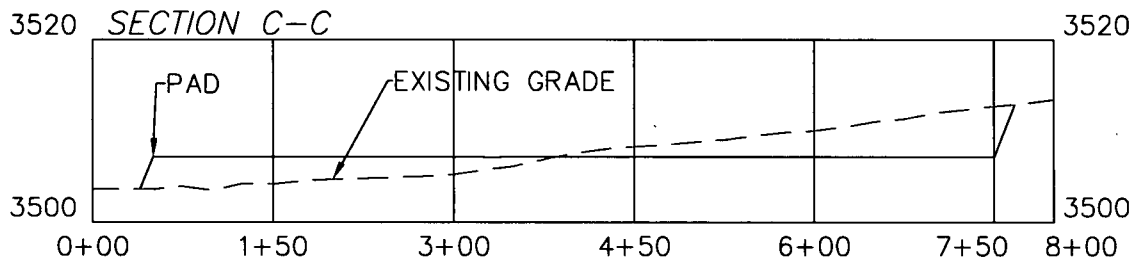
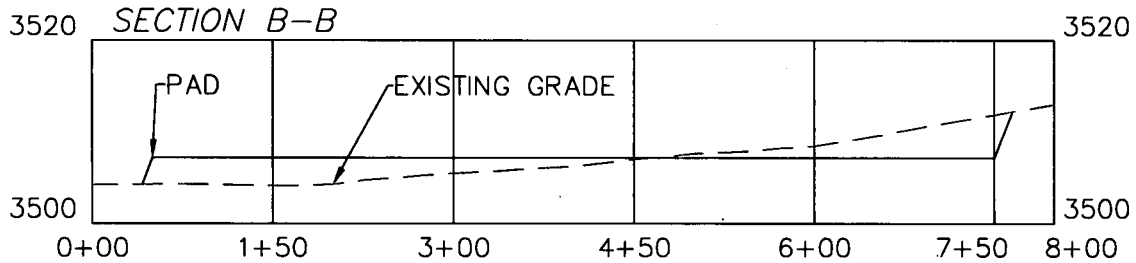
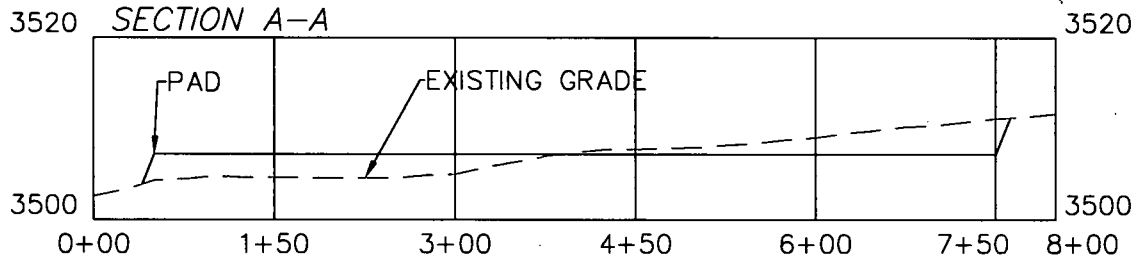
Drawn by:
CHRIS MAAS

Date: 09/19/2018

Drawn for:



SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
TODD 36-25 STATE FED COM 233H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1696 FT. FROM THE EAST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SCALE 1" = 150' HORIZONTAL
SCALE 1" = 20' VERTICAL

EARTHWORK QUANTITIES FOR
TODD 36 WELLPAD 3

CUT	FILL	NET
12,929 CY	12,929 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

Date: 09/20/2018

Drawn for:





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

Drilling Plan Data Report

04/18/2019

APD ID: 10400034900

Submission Date: 10/10/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

[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	3508	0	0	ALLUVIUM	NONE	No
2	RUSTLER	2711	797	797	SALT	NONE	No
3	SALADO	2375	1133	1133	SALT	NONE	No
4	BASE OF SALT	-924	4432	4432		NONE	No
5	DELAWARE	-984	4492	4492		NONE	No
6	BONE SPRING LIME	-4849	8357	8357	LIMESTONE	NATURAL GAS,OIL	No
7	BONE SPRING 1ST	-6141	9649	9649	SANDSTONE	NATURAL GAS,OIL	No
8	2ND BONE SPRING LIME	-6215	9723	9723	LIMESTONE	NATURAL GAS,OIL	No
9	BONE SPRING 2ND	-7047	10555	20555	SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10550

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

Requesting Variance? YES

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

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

Choke Diagram Attachment:

5M_BOPE__CK_20190319121706.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

5M_BOPE__CK_20190319121706.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190319121713.pdf

Pressure Rating (PSI): 5M

Rating Depth: 6000

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

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Choke Diagram Attachment:

5M_BOPE__CK_20190319121735.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190319121742.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	836	0	836			836	H-40	48	STC	1.125	1	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	6000	0	6000			6000	J-55	40	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6
3	PRODUCTION	8.75	5.5	NEW	API	N	0	20809	0	10550			20809	P-110	17	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20181009064915.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181009064938.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20181009064953.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	836	873	1.33	13.2	1161	100	c	Class C + adds

INTERMEDIATE	Lead		0	5500	1095	1.94	9	2124	50	C	Class C + Adds
INTERMEDIATE	Tail		5500	6000	196	1.33	13.2	261	50	C	Class C + Adds
PRODUCTION	Lead		4106	9998	351	3.57	9	1641	10	TUNED	Class C + adds
PRODUCTION	Tail		9998	20809	1881	1.46	13.2	2747	10	H	Class H / C + additives

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

Describe the mud monitoring system utilized: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

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
6000	10550	WATER-BASED MUD	8.5	9							
0	836	OTHER : FRESH WATER	8.5	9							
836	6000	OTHER : BRINE	10	10.5							

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Section 6 - Test, Logging, Coring

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

Will run GRMWD from TD to from KOP. Cement bond logs will be run in vertical to determine top of cement. Stated logs run will be in the Completion Report and submitted to the BLM.

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

CALIPER,CBL,DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4937

Anticipated Surface Pressure: 2616

Anticipated Bottom Hole Temperature(F): 174

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:

Todd_36_25_State_Fed_Com_233H_H2S_PLAN_20181009090243.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Todd_36_25_State_Fed_Com_233H_AC_Report_Permit_Plan_1_20181009090316.pdf

Devon_Todd_36_25_State_Fed_Com_233H_Permit_Plan_1_20181009090316.pdf

Devon_Todd_36_25_State_Fed_Com_233H_Plot_Permit_Plan_1_20181009090317.pdf

Other proposed operations facets description:

REVISED DRILLING PLAN- INTERMEDIATE TO 6000 WITH 5M 3/19/2019
FORMATIONS ADDED; GAS CAPTURE PLAN ADDED

Other proposed operations facets attachment:

Clsd_Loop_20181009090953.pdf

MB_Verb_5M_20190319122253.pdf

MB_Wellhd_5M_20190319122254.pdf

Todd_36_25_Fed_Com_233H_Drilling_Plan_Rev2_20190319122254.pdf

TODD_36_Fed_Com_GasCapturePlan_10_4_2018_20190319122359.pdf

Spudder_Rig_Info_20190319122445.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

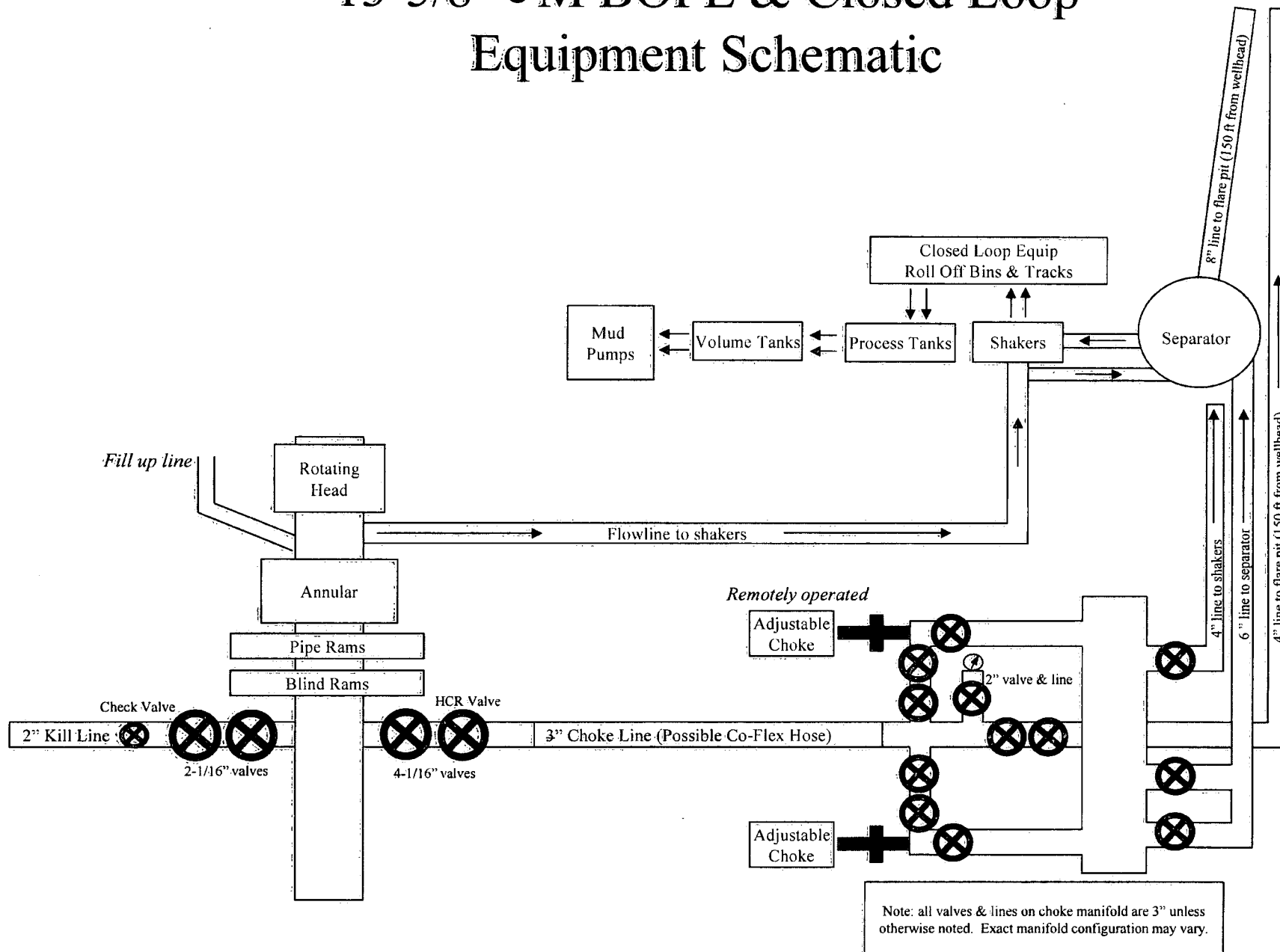
Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

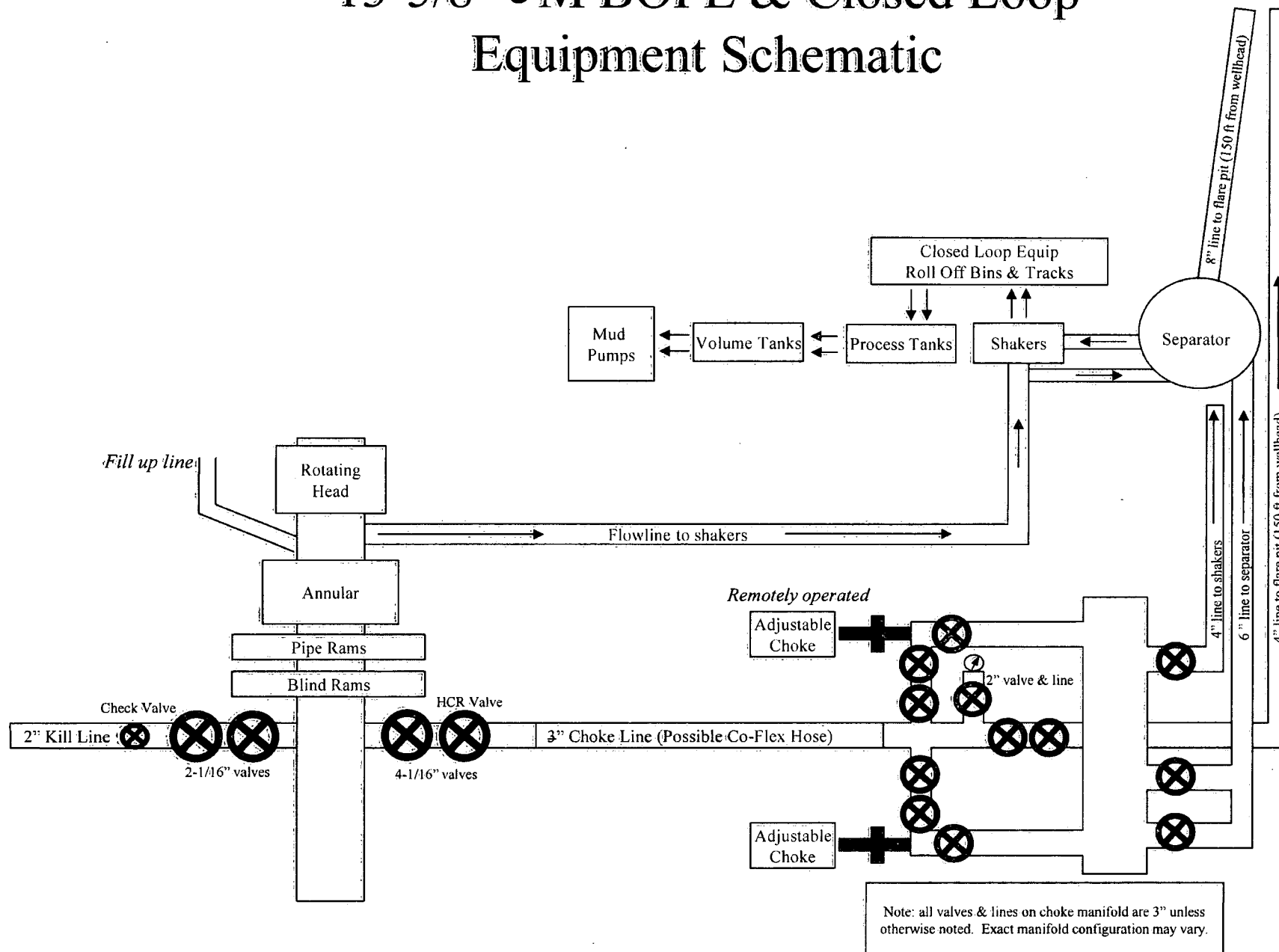
Other Variance attachment:

Co_flex_20181009090519.pdf

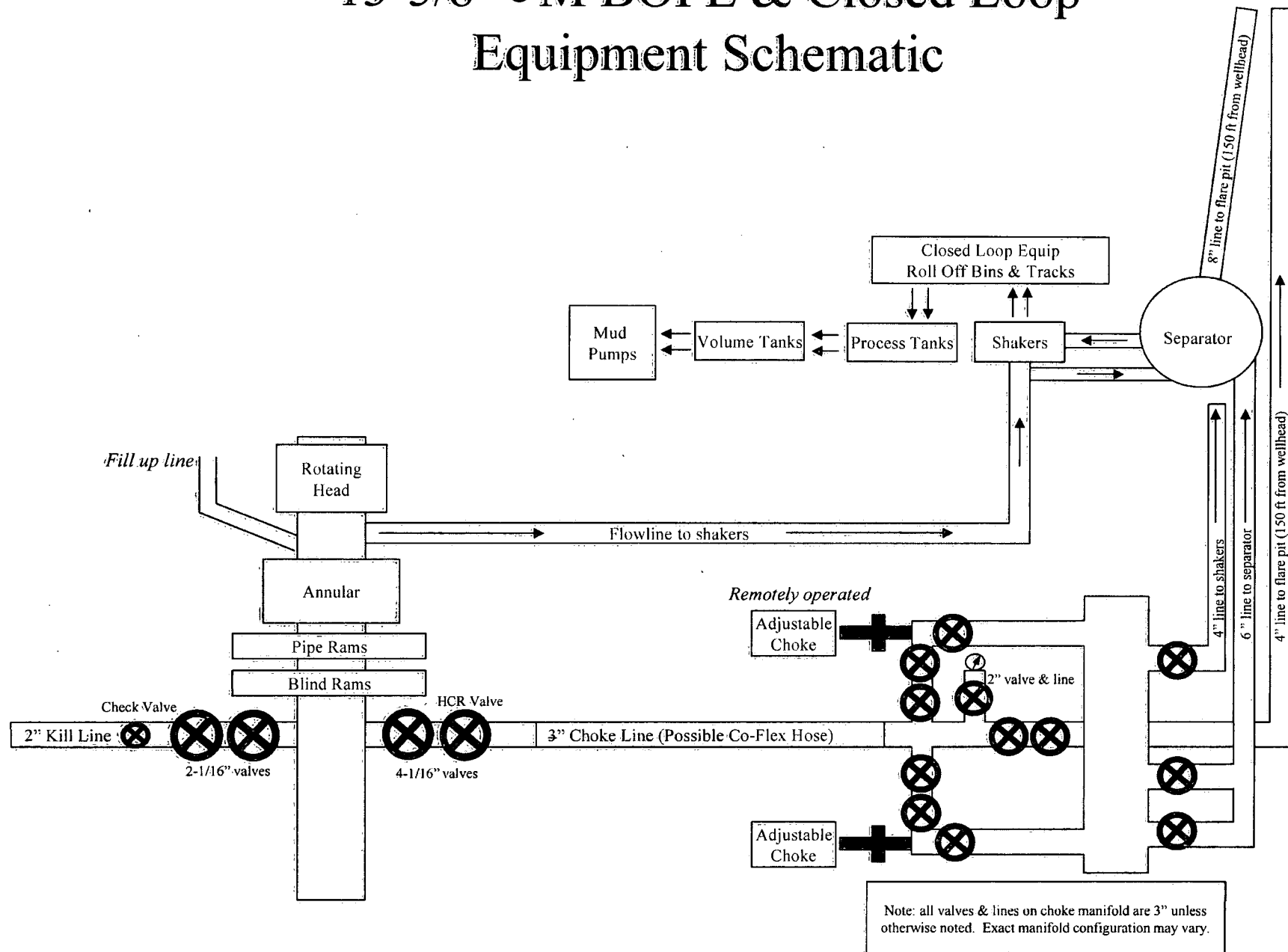
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



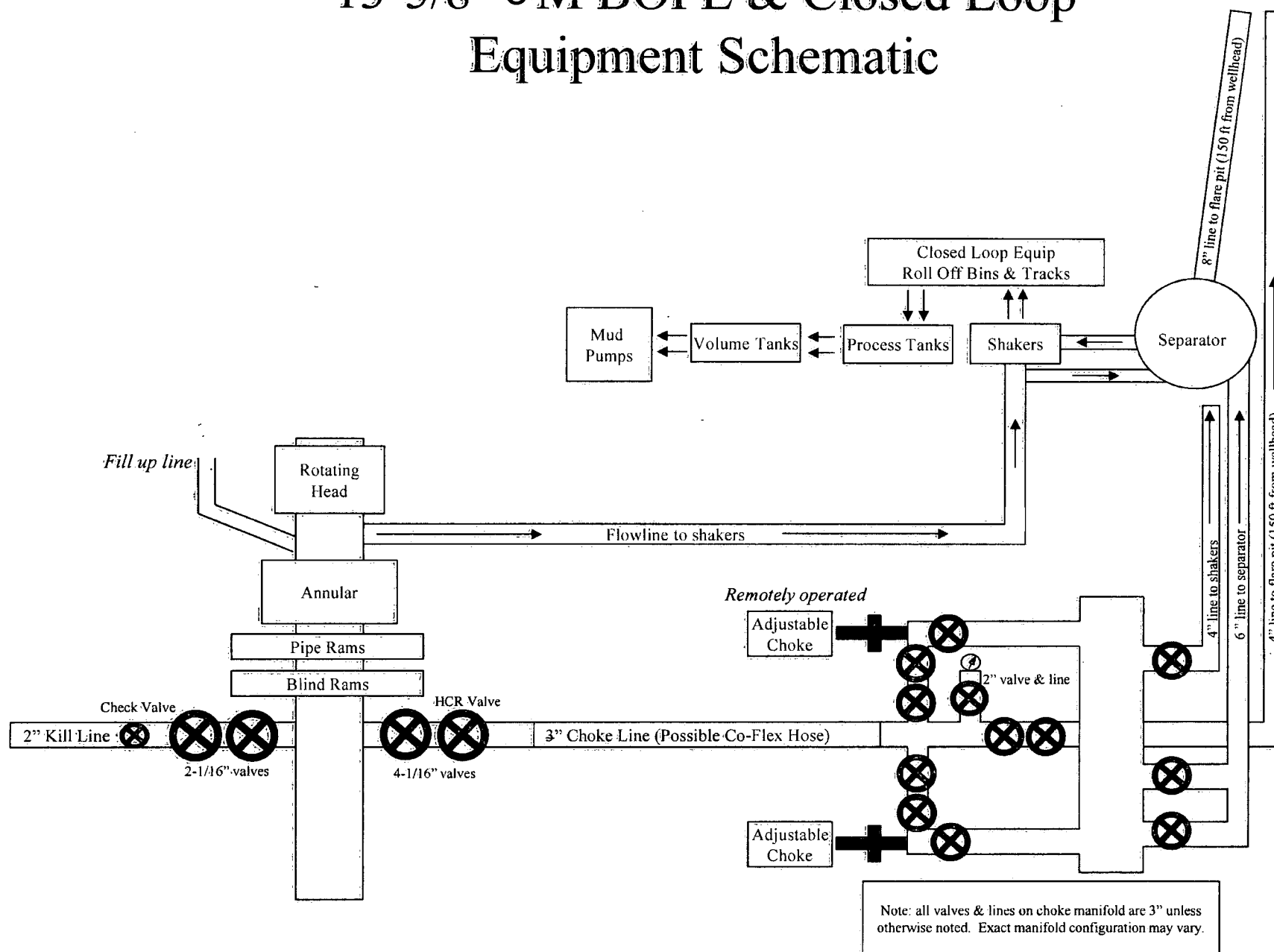
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



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



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



Casing Assumptions and Load Cases

Surface

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

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

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

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

Casing Assumptions and Load Cases

Intermediate

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

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

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

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

Casing Assumptions and Load Cases

Production

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

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

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

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



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

Hydrogen Sulfide (H₂S) Contingency Plan

For

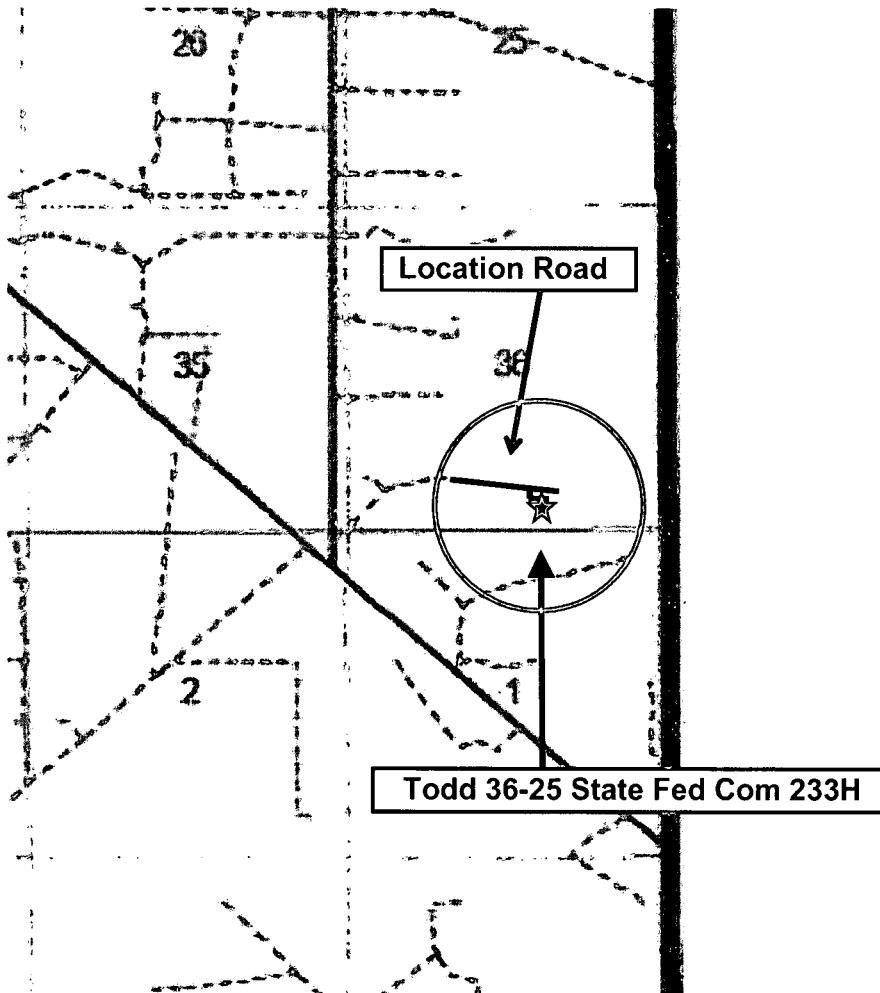
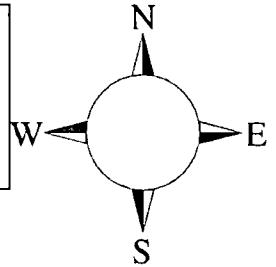
Todd 36-25 State Fed Com 233H

**Sec-36 T-23S R-31E
330' FSL & 1696' FEL
LAT. = 32.2545750' N (NAD83)
LONG = 103.7284657' W**

Eddy County NM

Todd 36-25 State Fed Com 233H

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.

<u>Devon Energy Corp. Company Call List</u>		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
EHS Professional – Laura Wright		405-439-8129
<u>Agency Call List</u>		
<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
<u>Give GPS position:</u>	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	

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec. 36-T23S-R31E

Todd 36_25 State Fed Com 233H

Wellbore #1

Permit Plan 1

Anticollision Report

04 October, 2018

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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	10/4/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	20,809.68	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. 25-T23S-R31E						
Aldabra 25 Fed 3H - Wellbore #1 - Wellbore #1	15,663.10	10,515.15	832.38	712.26	6.929	CC, ES
Aldabra 25 Fed 3H - Wellbore #1 - Wellbore #1	15,750.00	10,514.38	836.90	715.65	6.902	SF
Aldabra 25 Fed 6H - Wellbore #1 - Wellbore #1						Out of range
Aldabra 25 Fed 7H - Wellbore #1 - Wellbore #1						Out of range
Aldabra 25 Fed Com 1H - Wellbore #1 - Wellbore #1						Out of range
Aldabra 25 Fed Com 2H - Wellbore #1 - Wellbore #1						Out of range
Todd 25 Fed 001Z SWD (Offset) - Wellbore #1 - Wellbor	18,825.87	10,530.00	1,147.70	863.43	4.037	Alert, CC
Todd 25 Fed 001Z SWD (Offset) - Wellbore #1 - Wellbor	18,850.00	10,530.00	1,147.96	863.30	4.033	Alert, ES
Todd 25 Fed 001Z SWD (Offset) - Wellbore #1 - Wellbor	18,900.00	10,530.00	1,150.09	864.80	4.031	Alert, SF
Sec. 36-T23S-R31E						
Todd 36 State 01 SWD - Wellbore #1 - Wellbore #1	13,553.71	10,541.40	1,131.41	915.76	5.246	CC, ES
Todd 36 State 01 SWD - Wellbore #1 - Wellbore #1	13,600.00	10,541.40	1,132.36	916.11	5.236	SF
Todd 36 State 231H - Wellbore #1 - Permit Plan 1						Out of range
Todd 36_25 State Fed Com 232H - Wellbore #1 - Origina	9,650.00	9,663.28	879.13	810.89	12.883	CC
Todd 36_25 State Fed Com 232H - Wellbore #1 - Origina	20,809.68	20,432.47	943.25	693.46	3.776	Alert, ES, SF
Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit	18,561.55	18,609.58	762.82	553.28	3.640	Alert, CC
Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit	18,650.00	18,679.42	763.90	552.50	3.614	Alert, ES
Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit	20,809.68	20,814.55	876.02	614.96	3.356	Alert, SF
Todd 36_25 State Fed Com 235H - Wellbore #1 - Permit	2,500.00	2,500.80	60.00	42.50	3.427	Alert, CC, ES
Todd 36_25 State Fed Com 235H - Wellbore #1 - Permit	2,550.00	2,550.28	60.41	42.56	3.384	Alert, SF
Todd 36-25 State Fed Com 230H - Wellbore #1 - Permit	9,887.43	9,999.46	110.49	39.06	1.547	Minor Risk, CC, ES, SF
Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit	2,500.00	2,500.50	29.99	12.48	1.713	Minor Risk, CC
Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit	2,550.00	2,550.50	30.17	12.32	1.690	Minor Risk, ES
Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit	2,600.00	2,600.49	30.74	12.53	1.688	Minor Risk, SF
Todd 36B State 20H (Offset) - Wellbore #1 - Wellbore #1						Out of range

Offset Design		Sec. 25-T23S-R31E - Aldabra 25 Fed 3H - Wellbore #1 - Wellbore #1										Offset Site Error:		0.00 ft	
Survey Program:		122-GYRO-NS-CT, 10954-MWD+IGRF										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		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
14,450.00	10,550.00	10,523.53	10,519.73	68.30	36.70	-88.26	5,053.24	-1,323.70	1,471.19	1,386.89	84.30	17.452			
14,500.00	10,550.00	10,523.18	10,519.39	68.91	36.70	-88.24	5,053.24	-1,323.69	1,430.24	1,345.09	85.16	16.795			

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

Anticollision Report

Company:	WCDCS Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 25-T23S-R31E - Aldabra 25 Fed 3H - Wellbore #1 - Wellbore #1													0.00 ft
Survey Program: 122-GYRO-NS-CT, 10954-MWVD+IGRF													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
14,550.00	10,550.00	10,522.84	10,519.04	69.52	36.70	-88.21	5,053.25	-1,323.68	1,389.89	1,303.80	86.09	16.145	
14,600.00	10,550.00	10,522.49	10,518.69	70.14	36.70	-88.19	5,053.25	-1,323.66	1,350.18	1,263.09	87.09	15.504	
14,650.00	10,550.00	10,522.14	10,518.34	70.75	36.70	-88.16	5,053.25	-1,323.65	1,311.18	1,223.01	88.16	14.872	
14,700.00	10,550.00	10,521.79	10,517.99	71.37	36.70	-88.14	5,053.25	-1,323.63	1,272.94	1,183.63	89.32	14.252	
14,750.00	10,550.00	10,521.43	10,517.63	72.00	36.69	-88.12	5,053.26	-1,323.62	1,235.55	1,144.99	90.55	13.645	
14,800.00	10,550.00	10,521.07	10,517.27	72.62	36.69	-88.09	5,053.26	-1,323.60	1,199.07	1,107.20	91.87	13.052	
14,850.00	10,550.00	10,520.71	10,516.91	73.24	36.69	-88.07	5,053.26	-1,323.59	1,163.60	1,070.32	93.28	12.475	
14,900.00	10,550.00	10,520.34	10,516.55	73.87	36.69	-88.04	5,053.26	-1,323.57	1,129.23	1,034.46	94.77	11.916	
14,950.00	10,550.00	10,519.98	10,516.18	74.50	36.69	-88.02	5,053.27	-1,323.56	1,096.06	999.72	96.34	11.377	
15,000.00	10,550.00	10,519.61	10,515.81	75.13	36.69	-87.99	5,053.27	-1,323.54	1,064.21	966.21	98.00	10.859	
15,050.00	10,550.00	10,519.24	10,515.44	75.76	36.69	-87.96	5,053.27	-1,323.53	1,033.80	934.06	99.74	10.365	
15,100.00	10,550.00	10,518.86	10,515.06	76.40	36.69	-87.94	5,053.28	-1,323.51	1,004.95	903.42	101.54	9.897	
15,150.00	10,550.00	10,518.48	10,514.69	77.03	36.68	-87.91	5,053.28	-1,323.50	977.82	874.42	103.40	9.457	
15,200.00	10,550.00	10,518.10	10,514.31	77.67	36.68	-87.89	5,053.28	-1,323.48	952.53	847.24	105.29	9.046	
15,250.00	10,550.00	10,517.72	10,513.92	78.31	36.68	-87.86	5,053.29	-1,323.46	929.25	822.04	107.21	8.667	
15,300.00	10,550.00	10,517.33	10,513.53	78.95	36.68	-87.83	5,053.29	-1,323.45	908.13	799.00	109.13	8.322	
15,350.00	10,550.00	10,517.82	10,514.03	79.59	36.68	-87.87	5,053.29	-1,323.46	889.32	778.30	111.02	8.011	
15,400.00	10,550.00	10,517.41	10,513.61	80.24	36.68	-87.84	5,053.29	-1,323.44	872.97	760.13	112.84	7.736	
15,450.00	10,550.00	10,516.99	10,513.19	80.88	36.68	-87.81	5,053.29	-1,323.43	859.22	744.66	114.57	7.500	
15,500.00	10,550.00	10,516.56	10,512.77	81.53	36.68	-87.78	5,053.30	-1,323.41	848.21	732.04	116.16	7.302	
15,550.00	10,550.00	10,516.13	10,512.34	82.18	36.68	-87.75	5,053.30	-1,323.39	840.03	722.42	117.60	7.143	
15,600.00	10,550.00	10,515.70	10,511.91	82.83	36.67	-87.72	5,053.30	-1,323.38	834.77	715.92	118.85	7.024	
15,650.00	10,550.00	10,515.26	10,511.47	83.48	36.67	-87.69	5,053.31	-1,323.36	832.48	712.59	119.89	6.944	
15,663.10	10,550.00	10,515.15	10,511.35	83.65	36.67	-87.68	5,053.31	-1,323.35	832.38	712.26	120.12	6.929 CC, ES	
15,700.00	10,550.00	10,514.82	10,511.03	84.13	36.67	-87.66	5,053.31	-1,323.34	833.20	712.50	120.69	6.903	
15,750.00	10,550.00	10,514.38	10,510.58	84.78	36.67	-87.63	5,053.31	-1,323.32	836.90	715.65	121.26	6.902 SF	
15,800.00	10,550.00	10,513.93	10,510.14	85.44	36.67	-87.60	5,053.32	-1,323.30	843.56	721.98	121.58	6.938	
15,850.00	10,550.00	10,513.47	10,509.68	86.09	36.67	-87.57	5,053.32	-1,323.29	853.10	731.43	121.67	7.012	
15,900.00	10,550.00	10,513.01	10,509.22	86.75	36.67	-87.54	5,053.33	-1,323.27	865.43	743.89	121.54	7.120	
15,950.00	10,550.00	10,512.55	10,508.76	87.41	36.66	-87.50	5,053.33	-1,323.25	880.43	759.22	121.21	7.263	
16,000.00	10,550.00	10,512.08	10,508.30	88.07	36.66	-87.47	5,053.33	-1,323.23	897.97	777.26	120.71	7.439	
16,050.00	10,550.00	10,511.61	10,507.82	88.73	36.66	-87.44	5,053.34	-1,323.21	917.90	797.84	120.05	7.646	
16,100.00	10,550.00	10,511.14	10,507.35	89.39	36.66	-87.41	5,053.34	-1,323.19	940.06	820.79	119.27	7.882	
16,150.00	10,550.00	10,510.66	10,506.87	90.05	36.66	-87.37	5,053.35	-1,323.17	964.32	845.92	118.40	8.145	
16,200.00	10,550.00	10,510.17	10,506.38	90.71	36.65	-87.34	5,053.35	-1,323.15	990.50	873.06	117.44	8.434	
16,250.00	10,550.00	10,509.68	10,505.89	91.38	36.65	-87.31	5,053.35	-1,323.13	1,018.47	902.03	116.43	8.747	
16,300.00	10,550.00	10,509.18	10,505.40	92.04	36.65	-87.27	5,053.36	-1,323.11	1,048.08	932.68	115.39	9.083	
16,350.00	10,550.00	10,508.68	10,504.90	92.71	36.65	-87.24	5,053.36	-1,323.09	1,079.19	964.86	114.33	9.439	
16,400.00	10,550.00	10,508.18	10,504.39	93.37	36.65	-87.20	5,053.37	-1,323.07	1,111.68	998.42	113.26	9.815	
16,450.00	10,550.00	10,507.67	10,503.88	94.04	36.65	-87.17	5,053.37	-1,323.05	1,145.43	1,033.23	112.20	10.209	
16,500.00	10,550.00	10,507.15	10,503.37	94.71	36.64	-87.13	5,053.38	-1,323.03	1,180.34	1,069.19	111.15	10.619	
16,550.00	10,550.00	10,506.63	10,502.85	95.38	36.64	-87.10	5,053.38	-1,323.01	1,216.30	1,106.17	110.13	11.045	
16,600.00	10,550.00	10,506.11	10,502.32	96.05	36.64	-87.06	5,053.39	-1,322.99	1,253.22	1,144.10	109.12	11.484	
16,650.00	10,550.00	10,505.57	10,501.79	96.72	36.64	-87.02	5,053.39	-1,322.96	1,291.03	1,182.87	108.15	11.937	
16,700.00	10,550.00	10,505.04	10,501.25	97.39	36.64	-86.99	5,053.40	-1,322.94	1,329.63	1,222.42	107.21	12.402	
16,750.00	10,550.00	10,504.49	10,500.71	98.07	36.63	-86.95	5,053.40	-1,322.92	1,368.98	1,262.67	106.31	12.878	
16,800.00	10,550.00	10,503.95	10,500.16	98.74	36.63	-86.91	5,053.41	-1,322.90	1,409.00	1,303.57	105.43	13.364	
16,850.00	10,550.00	10,503.39	10,499.61	99.42	36.63	-86.87	5,053.41	-1,322.87	1,449.64	1,345.05	104.60	13.859	
16,900.00	10,550.00	10,502.83	10,499.05	100.09	36.63	-86.84	5,053.42	-1,322.85	1,490.85	1,387.06	103.80	14.363	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Sec. 25-T23S-R31E - Todd 25 Fed 001Z SWD (Offset) - Wellbore #1 - Wellbore #1													Offset Well Error:	10.00 ft
Survey Program: 10-INC-ONLY														
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)						
17,900.00	10,550.00	10,530.00	10,530.00	113.73	157.79	-90.00	8,214.39	-1,655.75	1,474.60	1,227.00	247.60	5.956		
17,950.00	10,550.00	10,530.00	10,530.00	114.42	157.79	-90.00	8,214.39	-1,655.75	1,443.73	1,193.94	249.80	5.780		
18,000.00	10,550.00	10,530.00	10,530.00	115.11	157.79	-90.00	8,214.39	-1,655.75	1,413.96	1,161.92	252.04	5.610		
18,050.00	10,550.00	10,530.00	10,530.00	115.80	157.79	-90.00	8,214.39	-1,655.75	1,385.35	1,131.03	254.32	5.447		
18,100.00	10,550.00	10,530.00	10,530.00	116.49	157.79	-90.00	8,214.39	-1,655.75	1,357.98	1,101.35	256.63	5.292		
18,150.00	10,550.00	10,530.00	10,530.00	117.18	157.79	-90.00	8,214.39	-1,655.75	1,331.92	1,072.96	258.97	5.143		
18,200.00	10,550.00	10,530.00	10,530.00	117.87	157.79	-90.00	8,214.39	-1,655.75	1,307.26	1,045.95	261.31	5.003		
18,250.00	10,550.00	10,530.00	10,530.00	118.56	157.79	-90.00	8,214.39	-1,655.75	1,284.07	1,020.43	263.65	4.870	Alert	
18,300.00	10,550.00	10,530.00	10,530.00	119.25	157.79	-90.00	8,214.39	-1,655.75	1,262.44	996.48	265.96	4.747	Alert	
18,350.00	10,550.00	10,530.00	10,530.00	119.94	157.79	-90.00	8,214.39	-1,655.75	1,242.45	974.20	268.24	4.632	Alert	
18,400.00	10,550.00	10,530.00	10,530.00	120.63	157.79	-90.00	8,214.39	-1,655.75	1,224.17	953.70	270.46	4.526	Alert	
18,450.00	10,550.00	10,530.00	10,530.00	121.33	157.79	-90.00	8,214.39	-1,655.75	1,207.68	935.08	272.61	4.430	Alert	
18,500.00	10,550.00	10,530.00	10,530.00	122.02	157.79	-90.00	8,214.39	-1,655.75	1,193.07	918.41	274.65	4.344	Alert	
18,550.00	10,550.00	10,530.00	10,530.00	122.71	157.79	-90.00	8,214.39	-1,655.75	1,180.39	903.81	276.58	4.268	Alert	
18,600.00	10,550.00	10,530.00	10,530.00	123.41	157.79	-90.00	8,214.39	-1,655.75	1,169.72	891.34	278.37	4.202	Alert	
18,650.00	10,550.00	10,530.00	10,530.00	124.10	157.79	-90.00	8,214.39	-1,655.75	1,161.10	881.09	280.01	4.147	Alert	
18,700.00	10,550.00	10,530.00	10,530.00	124.80	157.79	-90.00	8,214.39	-1,655.75	1,154.58	873.12	281.47	4.102	Alert	
18,750.00	10,550.00	10,530.00	10,530.00	125.49	157.79	-90.00	8,214.39	-1,655.75	1,150.21	867.47	282.73	4.068	Alert	
18,800.00	10,550.00	10,530.00	10,530.00	126.19	157.79	-90.00	8,214.39	-1,655.75	1,147.99	864.19	283.80	4.045	Alert	
18,825.87	10,550.00	10,530.00	10,530.00	126.55	157.79	-90.00	8,214.39	-1,655.75	1,147.70	863.43	284.27	4.037	Alert, CC	
18,850.00	10,550.00	10,530.00	10,530.00	126.88	157.79	-90.00	8,214.39	-1,655.75	1,147.96	863.30	284.66	4.033	Alert, ES	
18,900.00	10,550.00	10,530.00	10,530.00	127.58	157.79	-90.00	8,214.39	-1,655.75	1,150.09	864.80	285.29	4.031	Alert, SF	
18,950.00	10,550.00	10,530.00	10,530.00	128.27	157.79	-90.00	8,214.39	-1,655.75	1,154.40	868.68	285.71	4.040	Alert	
19,000.00	10,550.00	10,530.00	10,530.00	128.97	157.79	-90.00	8,214.39	-1,655.75	1,160.84	874.92	285.92	4.060	Alert	
19,050.00	10,550.00	10,530.00	10,530.00	129.67	157.79	-90.00	8,214.39	-1,655.75	1,169.38	883.47	285.91	4.090	Alert	
19,100.00	10,550.00	10,530.00	10,530.00	130.37	157.79	-90.00	8,214.39	-1,655.75	1,179.99	894.28	285.71	4.130	Alert	
19,150.00	10,550.00	10,530.00	10,530.00	131.06	157.79	-90.00	8,214.39	-1,655.75	1,192.59	907.28	285.32	4.180	Alert	
19,200.00	10,550.00	10,530.00	10,530.00	131.76	157.79	-90.00	8,214.39	-1,655.75	1,207.14	922.40	284.75	4.239	Alert	
19,250.00	10,550.00	10,530.00	10,530.00	132.46	157.79	-90.00	8,214.39	-1,655.75	1,223.56	939.54	284.02	4.308	Alert	
19,300.00	10,550.00	10,530.00	10,530.00	133.16	157.79	-90.00	8,214.39	-1,655.75	1,241.78	958.63	283.15	4.386	Alert	
19,350.00	10,550.00	10,530.00	10,530.00	133.86	157.79	-90.00	8,214.39	-1,655.75	1,261.72	979.56	282.16	4.472	Alert	
19,400.00	10,550.00	10,530.00	10,530.00	134.56	157.79	-90.00	8,214.39	-1,655.75	1,283.30	1,002.24	281.06	4.566	Alert	
19,450.00	10,550.00	10,530.00	10,530.00	135.26	157.79	-90.00	8,214.39	-1,655.75	1,306.43	1,026.57	279.86	4.668	Alert	
19,500.00	10,550.00	10,530.00	10,530.00	135.96	157.79	-90.00	8,214.39	-1,655.75	1,331.04	1,052.45	278.60	4.778	Alert	
19,550.00	10,550.00	10,530.00	10,530.00	136.66	157.79	-90.00	8,214.39	-1,655.75	1,357.05	1,079.78	277.27	4.894	Alert	
19,600.00	10,550.00	10,530.00	10,530.00	137.36	157.79	-90.00	8,214.39	-1,655.75	1,384.38	1,108.48	275.90	5.018		
19,650.00	10,550.00	10,530.00	10,530.00	138.06	157.79	-90.00	8,214.39	-1,655.75	1,412.94	1,138.46	274.49	5.148		
19,700.00	10,550.00	10,530.00	10,530.00	138.76	157.79	-90.00	8,214.39	-1,655.75	1,442.68	1,169.62	273.06	5.283		
19,750.00	10,550.00	10,530.00	10,530.00	139.46	157.79	-90.00	8,214.39	-1,655.75	1,473.51	1,201.89	271.62	5.425		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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: 10-INC-ONLY													Offset Well Error:	10.00 ft
Sec. 36-T23S-R31E - Todd 36 State 01 SWD - Wellbore #1 - Wellbore #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 +N/-S (ft)	Centre +E/-W (ft)						
12,600.00	10,550.00	10,541.40	10,541.40	48.04	157.95	-90.00	2,942.39	-1,612.13	1,479.74	1,279.02	200.72	7.372		
12,650.00	10,550.00	10,541.40	10,541.40	48.51	157.95	-90.00	2,942.39	-1,612.13	1,448.02	1,246.73	201.29	7.194		
12,700.00	10,550.00	10,541.40	10,541.40	48.98	157.95	-90.00	2,942.39	-1,612.13	1,417.36	1,215.46	201.90	7.020		
12,750.00	10,550.00	10,541.40	10,541.40	49.45	157.95	-90.00	2,942.39	-1,612.13	1,387.82	1,185.27	202.55	6.852		
12,800.00	10,550.00	10,541.40	10,541.40	49.93	157.95	-90.00	2,942.39	-1,612.13	1,359.47	1,156.24	203.23	6.689		
12,850.00	10,550.00	10,541.40	10,541.40	50.42	157.95	-90.00	2,942.39	-1,612.13	1,332.40	1,128.44	203.96	6.533		
12,900.00	10,550.00	10,541.40	10,541.40	50.91	157.95	-90.00	2,942.39	-1,612.13	1,306.68	1,101.96	204.72	6.383		
12,950.00	10,550.00	10,541.40	10,541.40	51.41	157.95	-90.00	2,942.39	-1,612.13	1,282.40	1,076.88	205.52	6.240		
13,000.00	10,550.00	10,541.40	10,541.40	51.91	157.95	-90.00	2,942.39	-1,612.13	1,259.63	1,053.29	206.35	6.104		
13,050.00	10,550.00	10,541.40	10,541.40	52.42	157.95	-90.00	2,942.39	-1,612.13	1,238.47	1,031.27	207.20	5.977		
13,100.00	10,550.00	10,541.40	10,541.40	52.94	157.95	-90.00	2,942.39	-1,612.13	1,218.99	1,010.92	208.07	5.858		
13,150.00	10,550.00	10,541.40	10,541.40	53.46	157.95	-90.00	2,942.39	-1,612.13	1,201.28	992.31	208.96	5.749		
13,200.00	10,550.00	10,541.40	10,541.40	53.98	157.95	-90.00	2,942.39	-1,612.13	1,185.41	975.55	209.86	5.649		
13,250.00	10,550.00	10,541.40	10,541.40	54.51	157.95	-90.00	2,942.39	-1,612.13	1,171.46	960.71	210.75	5.558		
13,300.00	10,550.00	10,541.40	10,541.40	55.04	157.95	-90.00	2,942.39	-1,612.13	1,159.51	947.87	211.63	5.479		
13,350.00	10,550.00	10,541.40	10,541.40	55.58	157.95	-90.00	2,942.39	-1,612.13	1,149.60	937.10	212.50	5.410		
13,400.00	10,550.00	10,541.40	10,541.40	56.12	157.95	-90.00	2,942.39	-1,612.13	1,141.80	928.47	213.34	5.352		
13,450.00	10,550.00	10,541.40	10,541.40	56.67	157.95	-90.00	2,942.39	-1,612.13	1,136.15	922.01	214.14	5.306		
13,500.00	10,550.00	10,541.40	10,541.40	57.21	157.95	-90.00	2,942.39	-1,612.13	1,132.68	917.79	214.90	5.271		
13,550.00	10,550.00	10,541.40	10,541.40	57.77	157.95	-90.00	2,942.39	-1,612.13	1,131.42	915.81	215.60	5.248		
13,553.71	10,550.00	10,541.40	10,541.40	57.81	157.95	-90.00	2,942.39	-1,612.13	1,131.41	915.76	215.65	5.246 CC, ES		
13,600.00	10,550.00	10,541.40	10,541.40	58.33	157.95	-90.00	2,942.39	-1,612.13	1,132.36	916.11	216.25	5.236 SF		
13,650.00	10,550.00	10,541.40	10,541.40	58.89	157.95	-90.00	2,942.39	-1,612.13	1,135.50	918.67	216.83	5.237		
13,700.00	10,550.00	10,541.40	10,541.40	59.45	157.95	-90.00	2,942.39	-1,612.13	1,140.83	923.48	217.35	5.249		
13,750.00	10,550.00	10,541.40	10,541.40	60.02	157.95	-90.00	2,942.39	-1,612.13	1,148.31	930.51	217.60	5.272		
13,800.00	10,550.00	10,541.40	10,541.40	60.59	157.95	-90.00	2,942.39	-1,612.13	1,157.91	939.73	218.17	5.307		
13,850.00	10,550.00	10,541.40	10,541.40	61.17	157.95	-90.00	2,942.39	-1,612.13	1,169.56	951.08	218.48	5.353		
13,900.00	10,550.00	10,541.40	10,541.40	61.75	157.95	-90.00	2,942.39	-1,612.13	1,183.22	964.50	218.72	5.410		
13,950.00	10,550.00	10,541.40	10,541.40	62.33	157.95	-90.00	2,942.39	-1,612.13	1,198.81	979.91	218.90	5.477		
14,000.00	10,550.00	10,541.40	10,541.40	62.91	157.95	-90.00	2,942.39	-1,612.13	1,218.25	997.24	219.01	5.553		
14,050.00	10,550.00	10,541.40	10,541.40	63.50	157.95	-90.00	2,942.39	-1,612.13	1,235.47	1,016.41	219.06	5.640		
14,100.00	10,550.00	10,541.40	10,541.40	64.09	157.95	-90.00	2,942.39	-1,612.13	1,256.39	1,037.33	219.07	5.735		
14,150.00	10,550.00	10,541.40	10,541.40	64.68	157.95	-90.00	2,942.39	-1,612.13	1,278.93	1,059.90	219.03	5.839		
14,200.00	10,550.00	10,541.40	10,541.40	65.28	157.95	-90.00	2,942.39	-1,612.13	1,302.99	1,084.05	218.94	5.951		
14,250.00	10,550.00	10,541.40	10,541.40	65.88	157.95	-90.00	2,942.39	-1,612.13	1,328.50	1,109.68	218.82	6.071		
14,300.00	10,550.00	10,541.40	10,541.40	66.48	157.95	-90.00	2,942.39	-1,612.13	1,355.38	1,136.71	218.67	6.198		
14,350.00	10,550.00	10,541.40	10,541.40	67.08	157.95	-90.00	2,942.39	-1,612.13	1,383.54	1,165.05	218.49	6.332		
14,400.00	10,550.00	10,541.40	10,541.40	67.69	157.95	-90.00	2,942.39	-1,612.13	1,412.91	1,194.62	218.28	6.473		
14,450.00	10,550.00	10,541.40	10,541.40	68.30	157.95	-90.00	2,942.39	-1,612.13	1,443.41	1,225.35	218.06	6.619		
14,500.00	10,550.00	10,541.40	10,541.40	68.91	157.95	-90.00	2,942.39	-1,612.13	1,474.98	1,257.16	217.82	6.771		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Original Planned Path														Offset Well Error:	0.50 ft
Survey Program: 0-MWD+IFR1															
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)							
5,850.00	5,840.22	6,026.95	6,012.42	20.66	21.16	32.61	-100.13	-1,697.33	1,493.96	1,452.69	41.27	36.197			
5,900.00	5,890.06	6,076.09	6,061.18	20.85	21.33	32.61	-102.39	-1,691.61	1,484.74	1,443.12	41.62	35.670			
5,950.00	5,939.90	6,125.23	6,109.94	21.03	21.51	32.60	-104.66	-1,685.89	1,475.52	1,433.55	41.98	35.151			
6,000.00	5,989.74	6,174.37	6,158.69	21.21	21.69	32.60	-106.92	-1,680.16	1,466.30	1,423.97	42.33	34.641			
6,050.00	6,039.58	6,223.52	6,207.45	21.40	21.86	32.60	-109.19	-1,674.44	1,457.08	1,414.40	42.68	34.139			
6,100.00	6,089.42	6,272.66	6,256.20	21.58	22.04	32.60	-111.46	-1,668.71	1,447.86	1,404.83	43.03	33.645			
6,150.00	6,139.26	6,321.80	6,304.96	21.77	22.22	32.60	-113.72	-1,662.99	1,438.64	1,395.26	43.39	33.159			
6,200.00	6,189.10	6,370.94	6,353.71	21.95	22.39	32.60	-115.99	-1,657.26	1,429.43	1,385.69	43.74	32.680			
6,250.00	6,238.93	6,420.09	6,402.47	22.13	22.57	32.60	-118.25	-1,651.54	1,420.21	1,376.11	44.09	32.209			
6,300.00	6,288.77	6,469.23	6,451.22	22.32	22.75	32.60	-120.52	-1,645.82	1,410.99	1,366.54	44.45	31.746			
6,350.00	6,338.61	6,518.37	6,499.98	22.50	22.92	32.60	-122.79	-1,640.09	1,401.77	1,356.97	44.80	31.289			
6,400.00	6,388.45	6,567.52	6,548.73	22.69	23.10	32.60	-125.05	-1,634.37	1,392.55	1,347.39	45.15	30.840			
6,450.00	6,438.29	6,616.66	6,597.49	22.87	23.28	32.60	-127.32	-1,628.64	1,383.33	1,337.82	45.51	30.397			
6,500.00	6,488.13	6,665.80	6,646.25	23.06	23.46	32.60	-129.58	-1,622.92	1,374.11	1,328.25	45.86	29.962			
6,550.00	6,537.97	6,714.94	6,695.00	23.24	23.63	32.60	-131.85	-1,617.19	1,364.89	1,318.67	46.22	29.532			
6,600.00	6,587.81	6,764.09	6,743.76	23.43	23.81	32.59	-134.12	-1,611.47	1,355.67	1,309.10	46.57	29.110			
6,650.00	6,637.65	6,813.23	6,792.51	23.61	23.99	32.59	-136.38	-1,605.75	1,346.45	1,299.52	46.93	28.693			
6,700.00	6,687.49	6,862.37	6,841.27	23.80	24.17	32.59	-138.65	-1,600.02	1,337.23	1,289.95	47.28	28.283			
6,750.00	6,737.33	6,911.51	6,890.02	23.98	24.35	32.59	-140.91	-1,594.30	1,328.01	1,280.38	47.64	27.879			
6,800.00	6,787.17	6,960.66	6,938.78	24.17	24.52	32.59	-143.18	-1,588.57	1,318.79	1,270.80	47.99	27.480			
6,850.00	6,837.01	7,009.80	6,987.53	24.35	24.70	32.59	-145.45	-1,582.85	1,309.57	1,261.23	48.35	27.068			
6,900.00	6,886.85	7,058.94	7,036.29	24.54	24.88	32.59	-147.71	-1,577.12	1,300.35	1,251.65	48.70	26.701			
6,950.00	6,936.69	7,108.08	7,085.05	24.72	25.06	32.59	-149.98	-1,571.40	1,291.13	1,242.08	49.06	26.319			
7,000.00	6,986.52	7,157.23	7,133.80	24.91	25.24	32.59	-152.25	-1,565.68	1,281.91	1,232.50	49.41	25.943			
7,050.00	7,036.36	7,206.37	7,182.56	25.09	25.42	32.59	-154.51	-1,559.95	1,272.70	1,222.93	49.77	25.572			
7,100.00	7,086.20	7,255.51	7,231.31	25.28	25.60	32.59	-156.78	-1,554.23	1,263.48	1,213.35	50.12	25.207			
7,150.00	7,136.04	7,304.66	7,280.07	25.46	25.77	32.58	-159.04	-1,548.50	1,254.26	1,203.78	50.48	24.846			
7,200.00	7,185.88	7,353.80	7,328.82	25.65	25.95	32.58	-161.31	-1,542.78	1,245.04	1,194.20	50.84	24.491			
7,250.00	7,235.72	7,402.94	7,377.58	25.83	26.13	32.58	-163.58	-1,537.05	1,235.82	1,184.62	51.19	24.140			
7,300.00	7,285.56	7,452.08	7,426.33	26.02	26.31	32.58	-165.84	-1,531.33	1,226.60	1,175.05	51.55	23.795			
7,350.00	7,335.40	7,501.23	7,475.09	26.20	26.49	32.58	-168.11	-1,525.61	1,217.38	1,165.47	51.91	23.454			
7,400.00	7,385.24	7,550.37	7,523.84	26.39	26.67	32.58	-170.37	-1,519.88	1,208.16	1,155.90	52.26	23.117			
7,450.00	7,435.08	7,600.49	7,572.60	26.58	26.85	32.58	-172.64	-1,514.16	1,198.94	1,146.32	52.62	22.784			
7,500.00	7,484.92	7,648.65	7,621.36	26.76	27.03	32.58	-174.91	-1,508.43	1,189.72	1,136.74	52.98	22.458			
7,550.00	7,534.76	7,702.20	7,670.11	26.95	27.22	32.58	-177.17	-1,502.71	1,180.50	1,127.15	53.35	22.128			
7,600.00	7,584.60	7,746.94	7,718.87	27.13	27.39	32.57	-179.44	-1,496.98	1,171.28	1,117.59	53.69	21.815			
7,650.00	7,634.44	7,803.92	7,767.62	27.32	27.60	32.57	-181.70	-1,491.26	1,162.06	1,107.99	54.08	21.489			
7,700.00	7,684.28	7,845.22	7,816.38	27.50	27.75	32.57	-183.97	-1,485.54	1,152.84	1,098.44	54.41	21.190			
7,750.00	7,734.11	7,905.63	7,865.13	27.69	27.97	32.57	-186.24	-1,479.81	1,143.62	1,088.82	54.80	20.868			
7,800.00	7,783.95	7,943.51	7,913.89	27.88	28.11	32.57	-188.50	-1,474.09	1,134.40	1,079.28	55.12	20.581			
7,850.00	7,833.79	8,007.35	7,962.64	28.06	28.34	32.57	-190.77	-1,468.36	1,125.18	1,069.65	55.53	20.262			
7,900.00	7,883.63	8,041.80	8,011.40	28.25	28.47	32.57	-193.03	-1,462.64	1,115.97	1,060.13	55.84	19.987			
7,950.00	7,933.47	8,109.06	8,060.16	28.43	28.71	32.57	-195.30	-1,456.91	1,106.75	1,050.49	56.26	19.672			
8,000.00	7,983.31	8,140.08	8,108.91	28.62	28.83	32.57	-197.57	-1,451.19	1,097.53	1,040.97	56.55	19.408			
8,050.00	8,033.15	8,189.22	8,157.67	28.81	29.01	32.56	-199.83	-1,445.47	1,088.31	1,031.40	56.91	19.123			
8,100.00	8,082.99	8,238.37	8,206.42	28.99	29.19	32.56	-202.10	-1,439.74	1,079.09	1,021.82	57.27	18.843			
8,150.00	8,132.83	8,287.51	8,255.18	29.18	29.37	32.56	-204.36	-1,434.02	1,069.87	1,012.24	57.63	18.566			
8,200.00	8,182.67	8,336.65	8,303.93	29.36	29.55	32.56	-206.63	-1,428.29	1,060.65	1,002.66	57.98	18.292			
8,250.00	8,232.51	8,385.79	8,352.69	29.55	29.73	32.56	-208.90	-1,422.57	1,051.43	993.09	58.34	18.022			
8,300.00	8,282.35	8,434.94	8,401.44	29.74	29.91	32.56	-211.16	-1,416.84	1,042.21	983.51	58.70	17.754			
8,350.00	8,332.19	8,484.08	8,450.20	29.92	30.09	32.56	-213.43	-1,411.12	1,032.99	973.93	59.06	17.490			
8,400.00	8,382.03	8,533.22	8,498.95	30.11	30.27	32.55	-215.70	-1,405.39	1,023.77	964.35	59.42	17.230			

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Original Planned Path		Offset Site Error:	0.00 ft
Survey Program: 0-MWD+IFR1															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			
8,450.00	8,431.87	8,582.36	8,547.71	30.29	30.45	32.55	-217.96	-1,399.67	1,014.55	954.77	59.78	16.972				
8,500.00	8,481.70	8,631.51	8,596.47	30.48	30.63	32.55	-220.23	-1,393.95	1,005.33	945.20	60.14	16.717				
8,550.00	8,531.54	8,680.65	8,645.22	30.67	30.81	32.55	-222.49	-1,388.22	996.11	935.62	60.50	16.466				
8,600.00	8,581.38	8,729.79	8,693.98	30.85	30.99	32.55	-224.76	-1,382.50	986.89	926.04	60.85	16.217				
8,650.00	8,631.22	8,778.94	8,742.73	31.04	31.17	32.55	-227.03	-1,376.77	977.67	916.46	61.21	15.971				
8,700.00	8,681.06	8,828.08	8,791.49	31.23	31.35	32.54	-229.29	-1,371.05	968.45	906.88	61.57	15.729				
8,750.00	8,730.90	8,869.20	8,832.30	31.41	31.51	32.55	-231.13	-1,366.40	959.41	897.47	61.94	15.488				
8,800.00	8,780.74	8,909.10	8,871.96	31.60	31.65	32.56	-232.77	-1,362.27	950.84	888.53	62.31	15.259				
8,850.00	8,830.58	8,949.14	8,911.79	31.78	31.80	32.58	-234.25	-1,358.52	942.76	880.08	62.68	15.041				
8,900.00	8,880.42	8,989.30	8,951.79	31.97	31.94	32.61	-235.59	-1,355.14	935.16	872.12	63.04	14.834				
8,950.00	8,930.26	9,029.57	8,991.93	32.16	32.09	32.65	-236.77	-1,352.15	928.06	864.66	63.40	14.638				
9,000.00	8,980.10	9,069.95	9,032.21	32.34	32.23	32.69	-237.80	-1,349.55	921.44	857.69	63.75	14.453				
9,050.00	9,029.94	9,110.43	9,072.62	32.53	32.38	32.75	-238.68	-1,347.34	915.32	851.21	64.10	14.279				
9,100.00	9,079.78	9,150.99	9,113.14	32.72	32.52	32.82	-239.40	-1,345.52	909.69	845.24	64.45	14.115				
9,150.00	9,129.62	9,191.64	9,153.75	32.90	32.67	32.90	-239.96	-1,344.10	904.56	839.77	64.79	13.962				
9,200.00	9,179.46	9,232.35	9,194.45	33.09	32.81	32.99	-240.36	-1,343.08	899.93	834.81	65.12	13.819				
9,250.00	9,229.29	9,273.12	9,235.22	33.28	32.95	33.09	-240.61	-1,342.46	895.81	830.35	65.45	13.686				
9,300.00	9,279.13	9,316.07	9,275.83	33.46	33.10	33.20	-240.69	-1,342.25	892.19	826.40	65.79	13.562				
9,350.00	9,328.97	9,363.58	9,325.67	33.65	33.27	33.34	-240.69	-1,342.25	888.84	822.71	66.13	13.440				
9,400.00	9,378.85	9,413.45	9,375.55	33.83	33.44	33.44	-240.69	-1,342.25	885.85	819.37	66.49	13.324				
9,450.00	9,428.76	9,463.37	9,425.46	34.02	33.61	33.52	-240.69	-1,342.25	883.42	816.58	66.84	13.217				
9,500.00	9,478.71	9,513.31	9,475.41	34.20	33.78	33.59	-240.69	-1,342.25	881.53	814.33	67.19	13.119				
9,550.00	9,528.68	9,563.29	9,525.38	34.38	33.96	33.63	-240.69	-1,342.25	880.18	812.64	67.54	13.031				
9,600.00	9,578.67	9,613.28	9,575.37	34.55	34.13	33.66	-240.69	-1,342.25	879.38	811.49	67.90	12.952				
9,650.00	9,628.67	9,663.28	9,625.37	34.73	34.30	-87.44	-240.69	-1,342.25	879.13	810.89	68.24	12.883 CC				
9,700.00	9,678.67	9,709.75	9,671.80	34.89	34.46	-87.32	-238.94	-1,342.26	879.22	810.66	68.57	12.823				
9,750.00	9,728.67	9,755.53	9,717.25	35.06	34.62	-86.97	-233.55	-1,342.29	879.55	810.66	68.89	12.767				
9,800.00	9,778.67	9,800.18	9,761.02	35.23	34.77	-86.40	-224.81	-1,342.33	880.18	810.97	69.21	12.718				
9,850.00	9,828.67	9,843.21	9,802.44	35.40	34.91	-85.65	-213.18	-1,342.39	881.22	811.72	69.51	12.678				
9,900.00	9,878.67	9,884.27	9,841.04	35.56	35.04	-84.75	-199.23	-1,342.46	882.83	813.05	69.79	12.651				
9,950.00	9,928.67	9,923.08	9,876.53	35.73	35.16	-83.73	-183.52	-1,342.54	885.17	815.13	70.04	12.639				
10,000.00	9,978.67	9,959.52	9,908.81	35.90	35.26	-82.34	-166.62	-1,342.63	888.41	818.16	70.25	12.647				
10,050.00	10,028.60	9,994.45	9,938.68	36.06	35.36	-80.88	-148.53	-1,342.72	892.36	821.95	70.41	12.673				
10,100.00	10,078.14	10,028.78	9,966.91	36.22	35.45	-79.46	-129.01	-1,342.82	896.69	826.16	70.53	12.713				
10,150.00	10,126.91	10,062.57	9,993.50	36.38	35.54	-78.10	-108.17	-1,342.93	901.29	830.69	70.60	12.766				
10,200.00	10,174.53	10,095.90	10,018.49	36.52	35.62	-76.80	-86.12	-1,343.04	906.05	835.42	70.63	12.828				
10,250.00	10,220.66	10,128.83	10,041.88	36.65	35.69	-75.57	-62.94	-1,343.16	910.87	840.25	70.61	12.899				
10,300.00	10,264.93	10,161.42	10,063.68	36.77	35.76	-74.41	-38.72	-1,343.28	915.65	845.09	70.56	12.977				
10,350.00	10,307.01	10,193.71	10,083.88	36.88	35.82	-73.34	-13.54	-1,343.41	920.30	849.82	70.48	13.058				
10,400.00	10,346.58	10,225.75	10,102.49	36.98	35.88	-72.37	12.53	-1,343.54	924.73	854.36	70.37	13.141				
10,450.00	10,383.33	10,257.56	10,119.50	37.06	35.94	-71.49	39.41	-1,343.68	928.87	858.62	70.25	13.221				
10,500.00	10,417.00	10,289.19	10,134.91	37.13	35.99	-70.71	67.03	-1,343.82	932.65	862.52	70.13	13.298				
10,550.00	10,447.31	10,320.66	10,148.71	37.19	36.04	-70.03	95.31	-1,343.96	936.01	865.99	70.02	13.367				
10,600.00	10,474.05	10,350.00	10,160.15	37.24	36.09	-69.48	122.32	-1,344.10	938.89	868.98	69.91	13.430				
10,650.00	10,497.00	10,383.24	10,171.43	37.28	36.13	-69.01	153.58	-1,344.26	941.25	871.40	69.86	13.474				
10,700.00	10,516.00	10,414.40	10,180.33	37.31	36.18	-68.66	183.44	-1,344.41	943.06	873.24	69.82	13.507				
10,750.00	10,530.90	10,450.00	10,188.51	37.35	36.22	-68.42	218.08	-1,344.59	944.30	874.45	69.85	13.519				
10,800.00	10,541.58	10,476.57	10,193.20	37.42	36.25	-68.31	244.23	-1,344.72	944.90	875.02	69.88	13.522				
10,850.00	10,547.96	10,507.63	10,197.13	37.51	36.28	-68.31	275.04	-1,344.88	944.92	874.93	69.98	13.502				
10,900.00	10,550.00	10,538.70	10,199.40	37.62	36.31	-68.42	306.02	-1,345.04	944.32	874.19	70.14	13.464				
10,950.00	10,550.00	10,572.79	10,200.00	37.74	36.34	-68.45	340.10	-1,345.21	943.96	873.65	70.31	13.425				
11,000.00	10,550.00	10,622.79	10,200.00	37.87	36.39	-68.45	390.10	-1,345.47	943.96	873.47	70.49	13.392				

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Original Planned Path		Offset Site Error:	0.00 ft
Survey Program: 0-MWD+IFR1															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 +N/-S	+E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)					
11,050.00	10,550.00	10,672.79	10,200.00	38.02	36.45	-68.45	440.10	-1,345.72	943.95	873.26	70.69	13.353				
11,100.00	10,550.00	10,722.79	10,200.00	38.18	36.52	-68.45	490.09	-1,345.98	943.95	873.05	70.90	13.313				
11,150.00	10,550.00	10,772.79	10,200.00	38.36	36.59	-68.45	540.09	-1,346.24	943.95	872.80	71.14	13.268				
11,200.00	10,550.00	10,822.79	10,200.00	38.54	36.67	-68.45	590.09	-1,346.49	943.94	872.55	71.39	13.222				
11,250.00	10,550.00	10,872.79	10,200.00	38.74	36.76	-68.45	640.09	-1,346.75	943.94	872.27	71.67	13.171				
11,300.00	10,550.00	10,922.79	10,200.00	38.95	36.85	-68.45	690.09	-1,347.00	943.94	871.98	71.95	13.118				
11,350.00	10,550.00	10,972.79	10,200.00	39.17	36.95	-68.45	740.09	-1,347.26	943.93	871.66	72.27	13.061				
11,400.00	10,550.00	11,022.79	10,200.00	39.40	37.06	-68.45	790.09	-1,347.51	943.93	871.34	72.59	13.004				
11,450.00	10,550.00	11,072.79	10,200.00	39.66	37.17	-68.45	840.09	-1,347.77	943.93	870.99	72.94	12.941				
11,500.00	10,550.00	11,122.79	10,200.00	39.91	37.29	-68.45	890.09	-1,348.02	943.92	870.63	73.29	12.879				
11,550.00	10,550.00	11,172.79	10,200.00	40.18	37.42	-68.45	940.09	-1,348.28	943.92	870.24	73.68	12.812				
11,600.00	10,550.00	11,222.79	10,200.00	40.46	37.56	-68.45	990.09	-1,348.53	943.92	869.85	74.06	12.745				
11,650.00	10,550.00	11,272.79	10,200.00	40.75	37.70	-68.45	1,040.09	-1,348.79	943.91	869.43	74.48	12.673				
11,700.00	10,550.00	11,322.79	10,200.00	41.05	37.84	-68.45	1,090.09	-1,349.04	943.91	869.01	74.90	12.602				
11,750.00	10,550.00	11,372.79	10,200.00	41.37	37.99	-68.45	1,140.09	-1,349.30	943.90	868.56	75.35	12.527				
11,800.00	10,550.00	11,422.79	10,200.00	41.68	38.15	-68.45	1,190.09	-1,349.55	943.90	868.10	75.80	12.453				
11,850.00	10,550.00	11,472.79	10,200.00	42.02	38.31	-68.45	1,240.08	-1,349.81	943.90	867.62	76.28	12.375				
11,900.00	10,550.00	11,522.79	10,200.00	42.36	38.48	-68.45	1,290.08	-1,350.06	943.89	867.13	76.76	12.297				
11,950.00	10,550.00	11,572.79	10,200.00	42.71	38.66	-68.45	1,340.08	-1,350.32	943.89	866.63	77.27	12.216				
12,000.00	10,550.00	11,622.79	10,200.00	43.07	38.84	-68.45	1,390.08	-1,350.58	943.89	866.11	77.78	12.136				
12,050.00	10,550.00	11,672.79	10,200.00	43.44	39.02	-68.45	1,440.08	-1,350.83	943.88	865.57	78.31	12.053				
12,100.00	10,550.00	11,722.79	10,200.00	43.82	39.21	-68.45	1,490.08	-1,351.09	943.88	865.03	78.85	11.971				
12,150.00	10,550.00	11,772.79	10,200.00	44.21	39.40	-68.45	1,540.08	-1,351.34	943.88	864.47	79.41	11.886				
12,200.00	10,550.00	11,822.79	10,200.00	44.60	39.60	-68.45	1,590.08	-1,351.60	943.87	863.90	79.98	11.802				
12,250.00	10,550.00	11,872.79	10,200.00	45.01	39.81	-68.45	1,640.08	-1,351.85	943.87	863.31	80.56	11.716				
12,300.00	10,550.00	11,922.79	10,200.00	45.42	40.02	-68.45	1,690.08	-1,352.11	943.87	862.71	81.15	11.631				
12,350.00	10,550.00	11,972.79	10,200.00	45.84	40.23	-68.45	1,740.08	-1,352.36	943.86	862.10	81.77	11.544				
12,400.00	10,550.00	12,022.79	10,200.00	46.26	40.45	-68.45	1,790.08	-1,352.62	943.86	861.48	82.38	11.457				
12,450.00	10,550.00	12,072.79	10,200.00	46.70	40.68	-68.45	1,840.08	-1,352.87	943.85	860.84	83.02	11.370				
12,500.00	10,550.00	12,122.79	10,200.00	47.14	40.91	-68.45	1,890.08	-1,353.13	943.85	860.20	83.65	11.283				
12,550.00	10,550.00	12,172.79	10,200.00	47.59	41.14	-68.45	1,940.08	-1,353.38	943.85	859.54	84.31	11.195				
12,600.00	10,550.00	12,222.79	10,200.00	48.04	41.38	-68.45	1,990.08	-1,353.64	943.84	858.87	84.97	11.108				
12,650.00	10,550.00	12,272.79	10,200.00	48.51	41.62	-68.45	2,040.07	-1,353.89	943.84	858.19	85.65	11.020				
12,700.00	10,550.00	12,322.79	10,200.00	48.98	41.86	-68.45	2,090.07	-1,354.15	943.84	857.50	86.33	10.933				
12,750.00	10,550.00	12,372.79	10,200.00	49.45	42.11	-68.45	2,140.07	-1,354.41	943.83	856.80	87.03	10.845				
12,800.00	10,550.00	12,422.79	10,200.00	49.93	42.37	-68.45	2,190.07	-1,354.66	943.83	856.10	87.73	10.758				
12,850.00	10,550.00	12,472.79	10,200.00	50.42	42.63	-68.45	2,240.07	-1,354.92	943.83	855.37	88.45	10.671				
12,900.00	10,550.00	12,522.79	10,200.00	50.91	42.89	-68.45	2,290.07	-1,355.17	943.82	854.65	89.17	10.584				
12,950.00	10,550.00	12,572.79	10,200.00	51.41	43.15	-68.45	2,340.07	-1,355.43	943.82	853.91	89.91	10.498				
13,000.00	10,550.00	12,622.79	10,200.00	51.91	43.42	-68.45	2,390.07	-1,355.68	943.82	853.17	90.65	10.412				
13,050.00	10,550.00	12,672.79	10,200.00	52.42	43.70	-68.45	2,440.07	-1,355.94	943.81	852.41	91.40	10.326				
13,100.00	10,550.00	12,722.79	10,200.00	52.94	43.98	-68.45	2,490.07	-1,356.19	943.81	851.65	92.16	10.241				
13,150.00	10,550.00	12,772.79	10,200.00	53.46	44.26	-68.45	2,540.07	-1,356.45	943.80	850.87	92.93	10.156				
13,200.00	10,550.00	12,822.79	10,200.00	53.98	44.54	-68.45	2,590.07	-1,356.70	943.80	850.10	93.70	10.072				
13,250.00	10,550.00	12,872.79	10,200.00	54.51	44.83	-68.45	2,640.07	-1,356.96	943.80	849.31	94.49	9.988				
13,300.00	10,550.00	12,922.79	10,200.00	55.04	45.12	-68.45	2,690.07	-1,357.21	943.79	848.51	95.28	9.906				
13,350.00	10,550.00	12,972.79	10,200.00	55.58	45.41	-68.45	2,740.07	-1,357.47	943.79	847.71	96.08	9.823				
13,400.00	10,550.00	13,022.79	10,200.00	56.12	45.71	-68.45	2,790.06	-1,357.72	943.79	846.90	96.88	9.741				
13,450.00	10,550.00	13,072.79	10,200.00	56.67	46.01	-68.45	2,840.06	-1,357.98	943.78	846.08	97.70	9.660				
13,500.00	10,550.00	13,122.79	10,200.00	57.21	46.32	-68.45	2,890.06	-1,358.23	943.78	845.26	98.52	9.580				
13,550.00	10,550.00	13,172.79	10,200.00	57.77	46.62	-68.45	2,940.06	-1,358.49	943.78	844.43	99.35	9.500				
13,600.00	10,550.00	13,222.79	10,200.00	58.33	46.93	-68.45	2,990.06	-1,358.75	943.77	843.59	100.18	9.421				

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

Anticollision Report

Company:	WCDCS Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Original Planned Path													0.00 ft
Survey Program: 0-MWD+IFR1													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	
13,650.00	10,550.00	13,272.79	10,200.00	58.89	47.25	-68.45	3,040.06	-1,359.00	943.77	842.75	101.02	9.342	
13,700.00	10,550.00	13,322.79	10,200.00	59.45	47.56	-68.45	3,090.06	-1,359.26	943.76	841.90	101.87	9.265	
13,750.00	10,550.00	13,372.79	10,200.00	60.02	47.88	-68.45	3,140.06	-1,359.51	943.76	841.04	102.72	9.187	
13,800.00	10,550.00	13,422.79	10,200.00	60.59	48.20	-68.45	3,190.06	-1,359.77	943.76	840.18	103.58	9.111	
13,850.00	10,550.00	13,472.79	10,200.00	61.17	48.53	-68.45	3,240.06	-1,360.02	943.75	839.31	104.45	9.036	
13,900.00	10,550.00	13,522.79	10,200.00	61.75	48.86	-68.45	3,290.06	-1,360.28	943.75	838.44	105.32	8.961	
13,950.00	10,550.00	13,572.79	10,200.00	62.33	49.19	-68.45	3,340.06	-1,360.53	943.75	837.55	106.19	8.887	
14,000.00	10,550.00	13,622.79	10,200.00	62.91	49.52	-68.45	3,390.06	-1,360.79	943.74	836.67	107.07	8.814	
14,050.00	10,550.00	13,672.79	10,200.00	63.50	49.85	-68.45	3,440.06	-1,361.04	943.74	835.78	107.96	8.741	
14,100.00	10,550.00	13,722.79	10,200.00	64.09	50.19	-68.45	3,490.06	-1,361.30	943.74	834.88	108.85	8.670	
14,150.00	10,550.00	13,772.79	10,200.00	64.68	50.53	-68.45	3,540.05	-1,361.55	943.73	833.98	109.75	8.599	
14,200.00	10,550.00	13,822.79	10,200.00	65.28	50.87	-68.45	3,590.05	-1,361.81	943.73	833.08	110.65	8.529	
14,250.00	10,550.00	13,872.79	10,200.00	65.88	51.22	-68.45	3,640.05	-1,362.06	943.73	832.17	111.56	8.459	
14,300.00	10,550.00	13,922.79	10,200.00	66.48	51.56	-68.45	3,690.05	-1,362.32	943.72	831.25	112.47	8.391	
14,350.00	10,550.00	13,972.79	10,200.00	67.08	51.91	-68.45	3,740.05	-1,362.57	943.72	830.33	113.39	8.323	
14,400.00	10,550.00	14,022.79	10,200.00	67.69	52.26	-68.45	3,790.05	-1,362.83	943.71	829.41	114.31	8.256	
14,450.00	10,550.00	14,072.79	10,200.00	68.30	52.61	-68.45	3,840.05	-1,363.09	943.71	828.48	115.23	8.190	
14,500.00	10,550.00	14,122.79	10,200.00	68.91	52.97	-68.45	3,890.05	-1,363.34	943.71	827.55	116.16	8.124	
14,550.00	10,550.00	14,172.79	10,200.00	69.52	53.33	-68.45	3,940.05	-1,363.60	943.70	826.61	117.10	8.059	
14,600.00	10,550.00	14,222.79	10,200.00	70.14	53.69	-68.45	3,990.05	-1,363.85	943.70	825.67	118.03	7.995	
14,650.00	10,550.00	14,272.79	10,200.00	70.75	54.05	-68.45	4,040.05	-1,364.11	943.70	824.72	118.97	7.932	
14,700.00	10,550.00	14,322.79	10,200.00	71.37	54.41	-68.45	4,090.05	-1,364.36	943.69	823.77	119.92	7.869	
14,750.00	10,550.00	14,372.79	10,200.00	72.00	54.78	-68.45	4,140.05	-1,364.62	943.69	822.82	120.87	7.808	
14,800.00	10,550.00	14,422.79	10,200.00	72.62	55.14	-68.45	4,190.05	-1,364.87	943.69	821.86	121.82	7.746	
14,850.00	10,550.00	14,472.79	10,200.00	73.24	55.51	-68.45	4,240.05	-1,365.13	943.68	820.90	122.78	7.686	
14,900.00	10,550.00	14,522.79	10,200.00	73.87	55.88	-68.45	4,290.05	-1,365.38	943.68	819.94	123.74	7.626	
14,950.00	10,550.00	14,572.79	10,200.00	74.50	56.25	-68.45	4,340.04	-1,365.64	943.68	818.97	124.70	7.567	
15,000.00	10,550.00	14,622.79	10,200.00	75.13	56.63	-68.44	4,390.04	-1,365.89	943.67	818.00	125.67	7.509	
15,050.00	10,550.00	14,672.79	10,200.00	75.76	57.00	-68.44	4,440.04	-1,366.15	943.67	817.03	126.64	7.452	
15,100.00	10,550.00	14,722.79	10,200.00	76.40	57.38	-68.44	4,490.04	-1,366.40	943.66	816.05	127.61	7.395	
15,150.00	10,550.00	14,772.79	10,200.00	77.03	57.76	-68.44	4,540.04	-1,366.66	943.66	815.07	128.59	7.339	
15,200.00	10,550.00	14,822.79	10,200.00	77.67	58.14	-68.44	4,590.04	-1,366.91	943.66	814.09	129.57	7.283	
15,250.00	10,550.00	14,872.79	10,200.00	78.31	58.52	-68.44	4,640.04	-1,367.17	943.65	813.10	130.55	7.228	
15,300.00	10,550.00	14,922.79	10,200.00	78.95	58.91	-68.44	4,690.04	-1,367.43	943.65	812.11	131.54	7.174	
15,350.00	10,550.00	14,972.79	10,200.00	79.59	59.29	-68.44	4,740.04	-1,367.68	943.65	811.12	132.53	7.120	
15,400.00	10,550.00	15,022.79	10,200.00	80.24	59.68	-68.44	4,790.04	-1,367.94	943.64	810.13	133.52	7.068	
15,450.00	10,550.00	15,072.79	10,200.00	80.88	60.07	-68.44	4,840.04	-1,368.19	943.64	809.13	134.51	7.015	
15,500.00	10,550.00	15,122.79	10,200.00	81.53	60.46	-68.44	4,890.04	-1,368.45	943.64	808.13	135.51	6.964	
15,550.00	10,550.00	15,172.79	10,200.00	82.18	60.85	-68.44	4,940.04	-1,368.70	943.63	807.12	136.51	6.913	
15,600.00	10,550.00	15,222.79	10,200.00	82.83	61.24	-68.44	4,990.04	-1,368.96	943.63	806.12	137.51	6.862	
15,650.00	10,550.00	15,272.79	10,200.00	83.48	61.63	-68.44	5,040.04	-1,369.21	943.62	805.11	138.52	6.812	
15,700.00	10,550.00	15,322.79	10,200.00	84.13	62.03	-68.44	5,090.03	-1,369.47	943.62	804.10	139.52	6.763	
15,750.00	10,550.00	15,372.79	10,200.00	84.78	62.42	-68.44	5,140.03	-1,369.72	943.62	803.09	140.53	6.715	
15,800.00	10,550.00	15,422.79	10,200.00	85.44	62.82	-68.44	5,190.03	-1,369.98	943.61	802.07	141.54	6.667	
15,850.00	10,550.00	15,472.79	10,200.00	86.09	63.22	-68.44	5,240.03	-1,370.23	943.61	801.05	142.56	6.619	
15,900.00	10,550.00	15,522.79	10,200.00	86.75	63.62	-68.44	5,290.03	-1,370.49	943.61	800.03	143.57	6.572	
15,950.00	10,550.00	15,572.79	10,200.00	87.41	64.02	-68.44	5,340.03	-1,370.74	943.60	799.01	144.59	6.526	
16,000.00	10,550.00	15,622.79	10,200.00	88.07	64.42	-68.44	5,390.03	-1,371.00	943.60	797.99	145.61	6.480	
16,050.00	10,550.00	15,672.79	10,200.00	88.73	64.82	-68.44	5,440.03	-1,371.25	943.60	796.96	146.64	6.435	
16,100.00	10,550.00	15,722.79	10,200.00	89.39	65.23	-68.44	5,490.03	-1,371.51	943.59	795.93	147.66	6.390	
16,150.00	10,550.00	15,772.79	10,200.00	90.05	65.63	-68.44	5,540.03	-1,371.77	943.59	794.90	148.69	6.346	
16,200.00	10,550.00	15,822.79	10,200.00	90.71	66.04	-68.44	5,590.03	-1,372.02	943.59	793.87	149.72	6.302	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Original Planned Path														0.00 ft
Survey Program: 0-MWD+IFR1														Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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		
16,250.00	10,550.00	15,872.79	10,200.00	91.38	66.45	-68.44	5,640.03	-1,372.28	943.58	792.83	150.75	6.259		
16,300.00	10,550.00	15,922.79	10,200.00	92.04	66.86	-68.44	5,690.03	-1,372.53	943.58	791.80	151.78	6.217		
16,350.00	10,550.00	15,972.79	10,200.00	92.71	67.27	-68.44	5,740.03	-1,372.79	943.57	790.76	152.82	6.174		
16,400.00	10,550.00	16,022.79	10,200.00	93.37	67.68	-68.44	5,790.03	-1,373.04	943.57	789.72	153.85	6.133		
16,450.00	10,550.00	16,072.79	10,200.00	94.04	68.09	-68.44	5,840.02	-1,373.30	943.57	788.67	154.89	6.092		
16,500.00	10,550.00	16,122.79	10,200.00	94.71	68.50	-68.44	5,890.02	-1,373.55	943.56	787.63	155.93	6.051		
16,550.00	10,550.00	16,172.79	10,200.00	95.38	68.91	-68.44	5,940.02	-1,373.81	943.56	786.58	156.98	6.011		
16,600.00	10,550.00	16,222.79	10,200.00	96.05	69.33	-68.44	5,990.02	-1,374.06	943.56	785.54	158.02	5.971		
16,650.00	10,550.00	16,272.79	10,200.00	96.72	69.74	-68.44	6,040.02	-1,374.32	943.55	784.49	159.07	5.932		
16,700.00	10,550.00	16,322.79	10,200.00	97.39	70.16	-68.44	6,090.02	-1,374.57	943.55	783.44	160.11	5.893		
16,750.00	10,550.00	16,372.79	10,200.00	98.07	70.58	-68.44	6,140.02	-1,374.83	943.55	782.38	161.16	5.855		
16,800.00	10,550.00	16,422.79	10,200.00	98.74	71.00	-68.44	6,190.02	-1,375.08	943.54	781.33	162.21	5.817		
16,850.00	10,550.00	16,472.79	10,200.00	99.42	71.42	-68.44	6,240.02	-1,375.34	943.54	780.27	163.26	5.779		
16,900.00	10,550.00	16,522.79	10,200.00	100.09	71.83	-68.44	6,290.02	-1,375.59	943.54	779.22	164.32	5.742		
16,950.00	10,550.00	16,572.79	10,200.00	100.77	72.26	-68.44	6,340.02	-1,375.85	943.53	778.16	165.37	5.705		
17,000.00	10,550.00	16,622.79	10,200.00	101.44	72.68	-68.44	6,390.02	-1,376.11	943.53	777.10	166.43	5.669		
17,050.00	10,550.00	16,672.79	10,200.00	102.12	73.10	-68.44	6,440.02	-1,376.36	943.52	776.04	167.49	5.633		
17,100.00	10,550.00	16,722.79	10,200.00	102.80	73.52	-68.44	6,490.02	-1,376.62	943.52	774.97	168.55	5.598		
17,150.00	10,550.00	16,772.79	10,200.00	103.48	73.95	-68.44	6,540.02	-1,376.87	943.52	773.91	169.61	5.563		
17,200.00	10,550.00	16,822.79	10,200.00	104.16	74.37	-68.44	6,590.02	-1,377.13	943.51	772.84	170.67	5.528		
17,250.00	10,550.00	16,872.79	10,200.00	104.84	74.80	-68.44	6,640.01	-1,377.38	943.51	771.78	171.73	5.494		
17,300.00	10,550.00	16,922.79	10,200.00	105.52	75.22	-68.44	6,690.01	-1,377.64	943.51	770.71	172.80	5.460		
17,350.00	10,550.00	16,972.79	10,200.00	106.20	75.65	-68.44	6,740.01	-1,377.89	943.50	769.64	173.86	5.427		
17,400.00	10,550.00	17,022.79	10,200.00	106.88	76.08	-68.44	6,790.01	-1,378.15	943.50	768.57	174.93	5.394		
17,450.00	10,550.00	17,072.79	10,200.00	107.56	76.50	-68.44	6,840.01	-1,378.40	943.50	767.50	176.00	5.361		
17,500.00	10,550.00	17,122.79	10,200.00	108.25	76.93	-68.44	6,890.01	-1,378.66	943.49	766.42	177.07	5.328		
17,550.00	10,550.00	17,172.79	10,200.00	108.93	77.36	-68.44	6,940.01	-1,378.91	943.49	765.35	178.14	5.296		
17,600.00	10,550.00	17,222.79	10,200.00	109.61	77.79	-68.44	6,990.01	-1,379.17	943.49	764.27	179.21	5.265		
17,650.00	10,550.00	17,272.79	10,200.00	110.30	78.22	-68.44	7,040.01	-1,379.42	943.48	763.20	180.29	5.233		
17,700.00	10,550.00	17,322.79	10,200.00	110.98	78.65	-68.44	7,090.01	-1,379.68	943.48	762.12	181.36	5.202		
17,750.00	10,550.00	17,372.79	10,200.00	111.67	79.09	-68.44	7,140.01	-1,379.94	943.47	761.04	182.44	5.172		
17,800.00	10,550.00	17,422.79	10,200.00	112.36	79.52	-68.44	7,190.01	-1,380.19	943.47	759.96	183.51	5.141		
17,850.00	10,550.00	17,472.79	10,200.00	113.04	79.95	-68.44	7,240.01	-1,380.45	943.47	758.88	184.59	5.111		
17,900.00	10,550.00	17,522.79	10,200.00	113.73	80.39	-68.44	7,290.01	-1,380.70	943.46	757.79	185.67	5.081		
17,950.00	10,550.00	17,572.79	10,200.00	114.42	80.82	-68.44	7,340.01	-1,380.96	943.46	756.71	186.75	5.052		
18,000.00	10,550.00	17,622.79	10,200.00	115.11	81.25	-68.44	7,390.00	-1,381.21	943.46	755.63	187.83	5.023		
18,050.00	10,550.00	17,672.79	10,200.00	115.80	81.69	-68.44	7,440.00	-1,381.47	943.45	754.54	188.91	4.994 Alert		
18,100.00	10,550.00	17,722.79	10,200.00	116.49	82.13	-68.44	7,490.00	-1,381.72	943.45	753.45	189.99	4.966 Alert		
18,150.00	10,550.00	17,772.79	10,200.00	117.18	82.56	-68.44	7,540.00	-1,381.98	943.45	752.37	191.08	4.937 Alert		
18,200.00	10,550.00	17,822.79	10,200.00	117.87	83.00	-68.44	7,590.00	-1,382.23	943.44	751.28	192.16	4.910 Alert		
18,250.00	10,550.00	17,872.79	10,200.00	118.56	83.44	-68.44	7,640.00	-1,382.49	943.44	750.19	193.25	4.882 Alert		
18,300.00	10,550.00	17,922.79	10,200.00	119.25	83.88	-68.44	7,690.00	-1,382.74	943.43	749.10	194.34	4.855 Alert		
18,350.00	10,550.00	17,972.79	10,200.00	119.94	84.31	-68.44	7,740.00	-1,383.00	943.43	748.01	195.42	4.828 Alert		
18,400.00	10,550.00	18,022.79	10,200.00	120.63	84.75	-68.44	7,790.00	-1,383.25	943.43	746.92	196.51	4.801 Alert		
18,450.00	10,550.00	18,072.79	10,200.00	121.33	85.19	-68.44	7,840.00	-1,383.51	943.42	745.82	197.60	4.774 Alert		
18,500.00	10,550.00	18,122.79	10,200.00	122.02	85.63	-68.44	7,890.00	-1,383.76	943.42	744.73	198.69	4.748 Alert		
18,550.00	10,550.00	18,172.79	10,200.00	122.71	86.07	-68.44	7,940.00	-1,384.02	943.42	743.63	199.78	4.722 Alert		
18,600.00	10,550.00	18,222.79	10,200.00	123.41	86.52	-68.44	7,990.00	-1,384.28	943.41	742.54	200.87	4.697 Alert		
18,650.00	10,550.00	18,272.79	10,200.00	124.10	86.96	-68.44	8,040.00	-1,384.53	943.41	741.44	201.97	4.671 Alert		
18,700.00	10,550.00	18,322.79	10,200.00	124.80	87.40	-68.44	8,090.00	-1,384.79	943.41	740.35	203.06	4.646 Alert		
18,750.00	10,550.00	18,372.79	10,200.00	125.49	87.84	-68.44	8,139.99	-1,385.04	943.40	739.25	204.15	4.621 Alert		
18,800.00	10,550.00	18,422.79	10,200.00	126.19	88.29	-68.44	8,189.99	-1,385.30	943.40	738.15	205.25	4.596 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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Original Planned Path													Offset Well Error:	0.50 ft
Survey Program: 0-MWD+IFR1														
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
18,850.00	10,550.00	18,472.79	10,200.00	126.88	88.73	-68.44	8,239.99	-1,385.55	943.40	737.05	206.35	4.572	Alert	
18,900.00	10,550.00	18,522.79	10,200.00	127.58	89.17	-68.44	8,289.99	-1,385.81	943.39	735.95	207.44	4.548	Alert	
18,950.00	10,550.00	18,572.79	10,200.00	128.27	89.62	-68.44	8,339.99	-1,386.06	943.39	734.85	208.54	4.524	Alert	
19,000.00	10,550.00	18,622.79	10,200.00	128.97	90.06	-68.44	8,389.99	-1,386.32	943.38	733.75	209.64	4.500	Alert	
19,050.00	10,550.00	18,672.79	10,200.00	129.67	90.51	-68.44	8,439.99	-1,386.57	943.38	732.64	210.74	4.477	Alert	
19,100.00	10,550.00	18,722.79	10,200.00	130.37	90.95	-68.44	8,489.99	-1,386.83	943.38	731.54	211.84	4.453	Alert	
19,150.00	10,550.00	18,772.79	10,200.00	131.06	91.40	-68.44	8,539.99	-1,387.08	943.37	730.44	212.94	4.430	Alert	
19,200.00	10,550.00	18,822.79	10,200.00	131.76	91.85	-68.44	8,589.99	-1,387.34	943.37	729.33	214.04	4.408	Alert	
19,250.00	10,550.00	18,872.79	10,200.00	132.46	92.29	-68.44	8,639.99	-1,387.59	943.37	728.23	215.14	4.385	Alert	
19,300.00	10,550.00	18,922.79	10,200.00	133.16	92.74	-68.44	8,689.99	-1,387.85	943.36	727.12	216.24	4.363	Alert	
19,350.00	10,550.00	18,972.79	10,200.00	133.86	93.19	-68.44	8,739.99	-1,388.10	943.36	726.02	217.34	4.340	Alert	
19,400.00	10,550.00	19,022.79	10,200.00	134.56	93.64	-68.44	8,789.99	-1,388.36	943.36	724.91	218.45	4.318	Alert	
19,450.00	10,550.00	19,072.79	10,200.00	135.26	94.08	-68.44	8,839.99	-1,388.62	943.35	723.80	219.55	4.297	Alert	
19,500.00	10,550.00	19,122.79	10,200.00	135.96	94.53	-68.44	8,889.99	-1,388.87	943.35	722.69	220.66	4.275	Alert	
19,550.00	10,550.00	19,172.79	10,200.00	136.66	94.98	-68.44	8,939.99	-1,389.13	943.35	721.58	221.76	4.254	Alert	
19,600.00	10,550.00	19,222.79	10,200.00	137.36	95.43	-68.44	8,989.99	-1,389.38	943.34	720.47	222.87	4.233	Alert	
19,650.00	10,550.00	19,272.79	10,200.00	138.06	95.88	-68.44	9,039.99	-1,389.64	943.34	719.36	223.97	4.212	Alert	
19,700.00	10,550.00	19,322.79	10,200.00	138.76	96.33	-68.44	9,089.99	-1,389.89	943.33	718.25	225.08	4.191	Alert	
19,750.00	10,550.00	19,372.79	10,200.00	139.46	96.78	-68.44	9,139.99	-1,390.15	943.33	717.14	226.19	4.171	Alert	
19,800.00	10,550.00	19,422.79	10,200.00	140.16	97.23	-68.44	9,189.99	-1,390.40	943.33	716.03	227.30	4.150	Alert	
19,850.00	10,550.00	19,472.79	10,200.00	140.87	97.68	-68.44	9,239.99	-1,390.66	943.32	714.92	228.41	4.130	Alert	
19,900.00	10,550.00	19,522.79	10,200.00	141.57	98.13	-68.44	9,289.99	-1,390.91	943.32	713.80	229.52	4.110	Alert	
19,950.00	10,550.00	19,572.79	10,200.00	142.27	98.59	-68.44	9,339.99	-1,391.17	943.32	712.69	230.63	4.090	Alert	
20,000.00	10,550.00	19,622.79	10,200.00	142.97	99.04	-68.44	9,389.99	-1,391.42	943.31	711.58	231.74	4.071	Alert	
20,050.00	10,550.00	19,672.79	10,200.00	143.68	99.49	-68.44	9,439.99	-1,391.68	943.31	710.46	232.85	4.051	Alert	
20,100.00	10,550.00	19,722.79	10,200.00	144.38	99.94	-68.44	9,489.99	-1,391.93	943.31	709.35	233.96	4.032	Alert	
20,150.00	10,550.00	19,772.79	10,200.00	145.08	100.40	-68.44	9,539.99	-1,392.19	943.30	708.23	235.07	4.013	Alert	
20,200.00	10,550.00	19,822.79	10,200.00	145.79	100.85	-68.44	9,589.99	-1,392.44	943.30	707.11	236.19	3.994	Alert	
20,250.00	10,550.00	19,872.79	10,200.00	146.49	101.30	-68.44	9,639.99	-1,392.70	943.29	706.00	237.30	3.975	Alert	
20,300.00	10,550.00	19,922.79	10,200.00	147.20	101.76	-68.44	9,689.99	-1,392.96	943.29	704.88	238.41	3.957	Alert	
20,350.00	10,550.00	19,972.79	10,200.00	147.90	102.21	-68.44	9,739.99	-1,393.21	943.29	703.76	239.53	3.938	Alert	
20,400.00	10,550.00	20,022.79	10,200.00	148.61	102.67	-68.44	9,789.99	-1,393.47	943.28	702.64	240.64	3.920	Alert	
20,450.00	10,550.00	20,072.79	10,200.00	149.31	103.12	-68.44	9,839.99	-1,393.72	943.28	701.52	241.76	3.902	Alert	
20,500.00	10,550.00	20,122.79	10,200.00	150.02	103.58	-68.44	9,889.99	-1,393.98	943.28	700.40	242.87	3.884	Alert	
20,550.00	10,550.00	20,172.79	10,200.00	150.72	104.03	-68.44	9,939.99	-1,394.23	943.27	699.28	243.99	3.866	Alert	
20,600.00	10,550.00	20,222.79	10,200.00	151.43	104.49	-68.44	9,989.99	-1,394.49	943.27	698.16	245.11	3.848	Alert	
20,650.00	10,550.00	20,272.79	10,200.00	152.13	104.94	-68.44	10,039.99	-1,394.74	943.27	697.04	246.22	3.831	Alert	
20,700.00	10,550.00	20,322.79	10,200.00	152.84	105.40	-68.44	10,089.99	-1,395.00	943.26	695.92	247.34	3.814	Alert	
20,750.00	10,550.00	20,372.79	10,200.00	153.54	105.86	-68.44	10,139.99	-1,395.25	943.26	694.80	248.46	3.796	Alert	
20,800.00	10,550.00	20,422.79	10,200.00	154.25	106.31	-68.43	10,189.99	-1,395.51	943.26	693.68	249.58	3.779	Alert	
20,809.68	10,550.00	20,432.47	10,200.00	154.39	106.40	-68.43	10,199.65	-1,395.56	943.25	693.46	249.79	3.776	Alert, ES, SF	

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

Anticollision Report

Company:	WCDC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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+IFRI													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		
5,850.00	5,840.22	6,028.35	6,013.14	20.66	21.15	32.13	-112.28	-1,696.49	1,493.02	1,451.76	41.27	36.180		
5,900.00	5,890.06	6,077.49	6,061.86	20.85	21.33	32.12	-114.86	-1,690.73	1,483.76	1,442.14	41.62	35.652		
5,950.00	5,939.90	6,126.62	6,110.59	21.03	21.51	32.10	-117.44	-1,684.97	1,474.49	1,432.52	41.97	35.132		
6,000.00	5,989.74	6,175.75	6,159.31	21.21	21.68	32.09	-120.02	-1,679.20	1,465.23	1,422.91	42.32	34.621		
6,050.00	6,039.58	6,224.88	6,208.04	21.40	21.86	32.07	-122.61	-1,673.44	1,455.97	1,413.29	42.67	34.118		
6,100.00	6,089.42	6,274.02	6,256.76	21.58	22.04	32.05	-125.19	-1,667.68	1,446.70	1,403.68	43.03	33.623		
6,150.00	6,139.26	6,323.15	6,305.49	21.77	22.21	32.03	-127.77	-1,661.92	1,437.44	1,394.06	43.38	33.136		
6,200.00	6,189.10	6,372.28	6,354.21	21.95	22.39	32.02	-130.35	-1,656.15	1,428.18	1,384.44	43.73	32.657		
6,250.00	6,238.93	6,421.41	6,402.94	22.13	22.57	32.00	-132.93	-1,650.39	1,418.91	1,374.83	44.09	32.185		
6,300.00	6,288.77	6,470.55	6,451.67	22.32	22.74	31.98	-135.51	-1,644.63	1,409.65	1,365.21	44.44	31.720		
6,350.00	6,338.61	6,519.68	6,500.39	22.50	22.92	31.96	-138.10	-1,638.87	1,400.39	1,355.59	44.79	31.263		
6,400.00	6,388.45	6,568.81	6,549.12	22.69	23.10	31.95	-140.68	-1,633.10	1,391.12	1,345.98	45.15	30.813		
6,450.00	6,438.29	6,617.94	6,597.84	22.87	23.28	31.93	-143.26	-1,627.34	1,381.86	1,336.36	45.50	30.370		
6,500.00	6,488.13	6,667.08	6,646.57	23.06	23.45	31.91	-145.84	-1,621.58	1,372.60	1,326.74	45.86	29.933		
6,550.00	6,537.97	6,716.21	6,695.29	23.24	23.63	31.89	-148.42	-1,615.82	1,363.34	1,317.13	46.21	29.503		
6,600.00	6,587.81	6,765.34	6,744.02	23.43	23.81	31.87	-151.00	-1,610.05	1,354.08	1,307.51	46.56	29.080		
6,650.00	6,637.65	6,814.47	6,792.74	23.61	23.99	31.85	-153.59	-1,604.29	1,344.81	1,297.89	46.92	28.662		
6,700.00	6,687.49	6,863.61	6,841.47	23.80	24.17	31.83	-156.17	-1,598.53	1,335.55	1,288.28	47.27	28.251		
6,750.00	6,737.33	6,912.74	6,890.19	23.98	24.35	31.81	-158.75	-1,592.77	1,326.29	1,278.66	47.63	27.846		
6,800.00	6,787.17	6,961.87	6,938.92	24.17	24.52	31.79	-161.33	-1,587.00	1,317.03	1,269.04	47.98	27.447		
6,850.00	6,837.01	7,011.00	6,987.64	24.35	24.70	31.77	-163.91	-1,581.24	1,307.77	1,259.43	48.34	27.054		
6,900.00	6,886.85	7,060.14	7,036.37	24.54	24.88	31.75	-166.49	-1,575.48	1,298.51	1,249.81	48.70	26.666		
6,950.00	6,936.69	7,109.27	7,085.09	24.72	25.06	31.73	-169.07	-1,569.72	1,289.24	1,240.19	49.05	26.284		
7,000.00	6,986.52	7,158.40	7,133.82	24.91	25.24	31.71	-171.66	-1,563.95	1,279.98	1,230.58	49.41	25.907		
7,050.00	7,036.36	7,207.53	7,182.54	25.09	25.42	31.68	-174.24	-1,558.19	1,270.72	1,220.96	49.76	25.536		
7,100.00	7,086.20	7,256.67	7,231.27	25.28	25.60	31.66	-176.82	-1,552.43	1,261.46	1,211.34	50.12	25.170		
7,150.00	7,136.04	7,305.80	7,279.99	25.46	25.78	31.64	-179.40	-1,546.67	1,252.20	1,201.73	50.47	24.809		
7,200.00	7,185.88	7,354.93	7,328.72	25.65	25.95	31.62	-181.98	-1,540.91	1,242.94	1,192.11	50.83	24.453		
7,250.00	7,235.72	7,404.07	7,377.44	25.83	26.13	31.59	-184.56	-1,535.14	1,233.68	1,182.50	51.19	24.101		
7,300.00	7,285.56	7,453.20	7,426.17	26.02	26.31	31.57	-187.15	-1,529.38	1,224.42	1,172.88	51.54	23.755		
7,350.00	7,335.40	7,502.33	7,474.89	26.20	26.49	31.55	-189.73	-1,523.62	1,215.16	1,163.26	51.90	23.413		
7,400.00	7,385.24	7,551.46	7,523.62	26.39	26.67	31.52	-192.31	-1,517.86	1,205.90	1,153.65	52.26	23.076		
7,450.00	7,435.08	7,600.60	7,572.34	26.58	26.85	31.50	-194.89	-1,512.09	1,196.64	1,144.03	52.61	22.744		
7,500.00	7,484.92	7,649.73	7,621.07	26.76	27.03	31.47	-197.47	-1,506.33	1,187.39	1,134.41	52.97	22.416		
7,550.00	7,534.76	7,698.86	7,669.79	26.95	27.21	31.45	-200.05	-1,500.57	1,178.13	1,124.80	53.33	22.092		
7,600.00	7,584.60	7,747.99	7,718.52	27.13	27.39	31.42	-202.64	-1,494.81	1,168.87	1,115.18	53.69	21.773		
7,650.00	7,634.44	7,797.12	7,767.24	27.32	27.59	31.39	-205.22	-1,489.04	1,159.61	1,105.55	54.06	21.449		
7,700.00	7,684.28	7,846.26	7,815.97	27.50	27.75	31.37	-207.80	-1,483.28	1,150.35	1,095.95	54.40	21.146		
7,750.00	7,734.11	7,895.39	7,864.70	27.69	27.96	31.34	-210.38	-1,477.52	1,141.10	1,086.30	54.79	20.826		
7,800.00	7,783.95	7,944.52	7,913.42	27.88	28.11	31.31	-212.96	-1,471.76	1,131.84	1,076.72	55.12	20.536		
7,850.00	7,833.79	7,993.65	7,962.15	28.06	28.34	31.29	-215.54	-1,465.99	1,122.58	1,067.06	55.52	20.220		
7,900.00	7,883.63	8,042.79	8,010.87	28.25	28.47	31.26	-218.12	-1,460.23	1,113.32	1,057.49	55.83	19.941		
7,950.00	7,933.47	8,091.92	8,059.60	28.43	28.71	31.23	-220.71	-1,454.47	1,104.07	1,047.82	56.25	19.629		
8,000.00	7,983.31	8,141.05	8,108.32	28.62	28.83	31.20	-223.29	-1,448.71	1,094.81	1,038.26	56.55	19.361		
8,050.00	8,033.15	8,190.18	8,157.05	28.81	29.08	31.17	-225.87	-1,442.94	1,085.55	1,028.58	56.98	19.053		
8,100.00	8,082.99	8,239.32	8,205.77	28.99	29.19	31.14	-228.45	-1,437.18	1,076.30	1,019.03	57.26	18.795		
8,150.00	8,132.83	8,288.45	8,254.50	29.18	29.37	31.11	-231.03	-1,431.42	1,067.04	1,009.42	57.62	18.518		
8,200.00	8,182.67	8,337.58	8,303.22	29.36	29.55	31.08	-233.61	-1,425.66	1,057.79	999.81	57.98	18.244		
8,250.00	8,232.51	8,386.72	8,351.95	29.55	29.73	31.04	-236.20	-1,419.89	1,048.53	990.19	58.34	17.973		
8,300.00	8,282.35	8,435.85	8,400.67	29.74	29.92	31.01	-238.78	-1,414.13	1,039.28	980.58	58.70	17.706		
8,350.00	8,332.19	8,484.98	8,449.40	29.92	30.10	30.98	-241.36	-1,408.37	1,030.02	970.97	59.06	17.441		
8,400.00	8,382.03	8,534.12	8,498.12	30.11	30.28	30.94	-243.94	-1,402.61	1,020.77	961.36	59.42	17.180		

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+IFR1													Offset Well Error: 0.50 ft
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
8,450.00	8,431.87	8,583.25	8,546.85	30.29	30.46	30.91	-246.52	-1,396.84	1,011.52	951.74	59.77	16.922	
8,500.00	8,481.70	8,632.38	8,595.57	30.48	30.64	30.87	-249.10	-1,391.08	1,002.26	942.13	60.13	16.667	
8,550.00	8,531.54	8,681.51	8,644.30	30.67	30.82	30.84	-251.69	-1,385.32	993.01	932.52	60.49	16.415	
8,600.00	8,581.38	8,730.65	8,693.02	30.85	31.00	30.80	-254.27	-1,379.56	983.76	922.91	60.85	16.167	
8,650.00	8,631.22	8,779.78	8,741.75	31.04	31.18	30.77	-256.85	-1,373.79	974.51	913.30	61.21	15.921	
8,700.00	8,681.06	8,828.91	8,790.47	31.23	31.36	30.73	-259.43	-1,368.03	965.25	903.68	61.57	15.677	
8,750.00	8,730.90	8,878.04	8,839.20	31.41	31.54	30.69	-262.01	-1,362.27	956.00	894.07	61.93	15.437	
8,800.00	8,780.74	8,927.18	8,887.92	31.60	31.73	30.65	-264.59	-1,356.51	946.75	884.46	62.29	15.199	
8,850.00	8,830.58	8,976.31	8,936.65	31.78	31.91	30.61	-267.17	-1,350.74	937.50	874.85	62.65	14.965	
8,900.00	8,880.42	9,025.44	8,985.37	31.97	32.09	30.57	-269.76	-1,344.98	928.25	865.24	63.01	14.732	
8,950.00	8,930.26	9,074.57	9,034.10	32.16	32.27	30.53	-272.34	-1,339.22	919.00	855.64	63.37	14.503	
9,000.00	8,980.10	9,123.71	9,082.82	32.34	32.45	30.49	-274.92	-1,333.46	909.75	846.03	63.73	14.276	
9,050.00	9,029.94	9,172.84	9,131.55	32.53	32.63	30.44	-277.50	-1,327.69	900.51	836.42	64.09	14.051	
9,100.00	9,079.78	9,214.20	9,172.59	32.72	32.78	30.41	-279.60	-1,323.00	891.45	826.99	64.46	13.829	
9,150.00	9,129.62	9,254.89	9,213.02	32.90	32.93	30.39	-281.49	-1,318.78	882.87	818.04	64.83	13.617	
9,200.00	9,179.46	9,295.72	9,253.63	33.09	33.08	30.38	-283.21	-1,314.94	874.77	809.56	65.20	13.416	
9,250.00	9,229.29	9,336.67	9,294.40	33.28	33.23	30.38	-284.76	-1,311.49	867.14	801.57	65.57	13.225	
9,300.00	9,279.13	9,377.74	9,335.34	33.46	33.38	30.40	-286.13	-1,308.43	860.00	794.07	65.93	13.044	
9,350.00	9,328.97	9,418.93	9,376.42	33.65	33.53	30.42	-287.33	-1,305.76	853.34	787.06	66.29	12.874	
9,400.00	9,378.85	9,460.25	9,417.66	33.83	33.68	30.41	-288.35	-1,303.49	847.54	780.90	66.64	12.719	
9,450.00	9,428.76	9,501.70	9,459.06	34.02	33.82	30.40	-289.18	-1,301.62	842.78	775.80	66.98	12.582	
9,500.00	9,478.71	9,543.26	9,500.60	34.20	33.97	30.39	-289.84	-1,300.16	839.08	771.75	67.32	12.463	
9,550.00	9,528.68	9,584.91	9,542.22	34.38	34.12	30.38	-290.31	-1,299.11	836.43	768.77	67.66	12.363	
9,600.00	9,578.67	9,626.60	9,583.92	34.55	34.26	30.38	-290.59	-1,298.47	834.85	766.86	67.99	12.280	
9,650.00	9,628.67	9,671.32	9,625.37	34.73	34.42	-90.73	-290.69	-1,298.25	834.32	766.00	68.31	12.213	
9,700.00	9,678.67	9,718.06	9,675.37	34.89	34.58	-90.73	-290.69	-1,298.25	834.32	765.67	68.64	12.155	
9,750.00	9,728.67	9,768.06	9,725.37	35.06	34.75	-90.73	-290.69	-1,298.25	834.32	765.33	68.98	12.095	
9,800.00	9,778.67	9,818.06	9,775.37	35.23	34.92	-90.73	-290.69	-1,298.25	834.32	764.99	69.32	12.035	
9,850.00	9,828.67	9,868.06	9,825.37	35.40	35.09	-90.73	-290.69	-1,298.25	834.32	764.65	69.66	11.976	
9,900.00	9,878.67	9,918.06	9,875.37	35.56	35.27	-90.73	-290.69	-1,298.25	834.32	764.31	70.01	11.918	
9,950.00	9,928.67	9,968.06	9,925.37	35.73	35.44	-90.73	-290.69	-1,298.25	834.32	763.97	70.35	11.860	
9,954.99	9,933.67	9,973.05	9,930.37	35.75	35.46	-90.44	-290.69	-1,298.25	834.32	763.94	70.38	11.854	
10,000.00	9,978.67	10,018.06	9,975.37	35.90	35.61	-90.44	-290.69	-1,298.25	834.32	763.63	70.69	11.803	
10,050.00	10,028.60	10,069.12	10,026.37	36.06	35.79	-90.46	-288.57	-1,298.24	834.30	763.27	71.03	11.746	
10,100.00	10,078.14	10,120.23	10,077.03	36.22	35.96	-90.47	-281.90	-1,298.23	834.28	762.90	71.36	11.690	
10,150.00	10,126.91	10,171.35	10,126.90	36.38	36.13	-90.48	-270.75	-1,298.21	834.19	762.50	71.69	11.636	
10,200.00	10,174.53	10,222.47	10,175.58	36.52	36.29	-90.49	-255.19	-1,298.19	834.08	762.08	72.00	11.584	
10,250.00	10,220.66	10,273.59	10,222.67	36.65	36.45	-90.49	-235.37	-1,298.15	833.94	761.64	72.30	11.534	
10,300.00	10,264.93	10,324.68	10,267.80	36.77	36.60	-90.49	-211.44	-1,298.11	833.78	761.19	72.59	11.487	
10,350.00	10,307.01	10,375.75	10,310.59	36.88	36.73	-90.49	-183.60	-1,298.06	833.59	760.73	72.86	11.441	
10,400.00	10,346.58	10,426.78	10,350.70	36.98	36.86	-90.48	-152.08	-1,298.01	833.37	760.25	73.12	11.397	
10,450.00	10,383.33	10,477.77	10,387.83	37.06	36.98	-90.47	-117.15	-1,297.95	833.13	759.76	73.37	11.355	
10,500.00	10,417.00	10,528.70	10,421.67	37.13	37.09	-90.45	-79.11	-1,297.88	832.87	759.26	73.61	11.315	
10,550.00	10,447.31	10,579.58	10,451.96	37.19	37.18	-90.43	-38.25	-1,297.81	832.58	758.75	73.83	11.277	
10,600.00	10,474.05	10,630.39	10,478.48	37.24	37.27	-90.41	5.07	-1,297.73	832.28	758.24	74.04	11.240	
10,650.00	10,497.00	10,681.13	10,501.03	37.28	37.35	-90.38	50.50	-1,297.65	831.97	757.72	74.25	11.205	
10,700.00	10,516.00	10,731.79	10,519.45	37.31	37.42	-90.36	97.68	-1,297.57	831.64	757.19	74.44	11.171	
10,750.00	10,530.90	10,782.37	10,533.61	37.35	37.48	-90.33	146.21	-1,297.49	831.30	756.67	74.63	11.139	
10,800.00	10,541.58	10,832.86	10,543.43	37.42	37.54	-90.29	195.73	-1,297.40	830.95	756.15	74.81	11.108	
10,850.00	10,547.96	10,883.26	10,548.84	37.51	37.59	-90.26	245.82	-1,297.31	830.60	755.63	74.98	11.078	
10,900.00	10,550.00	10,933.50	10,550.00	37.62	37.63	-90.23	296.03	-1,297.22	830.25	755.12	75.14	11.050	
10,950.00	10,550.00	10,983.49	10,550.00	37.74	37.68	-90.23	346.03	-1,297.14	829.91	754.59	75.32	11.019	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+IFRT1													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
11,000.00	10,550.00	11,033.49	10,550.00	37.87	37.73	-90.23	396.03	-1,297.05	829.56	754.06	75.50	10.987	
11,050.00	10,550.00	11,083.49	10,550.00	38.02	37.79	-90.23	446.03	-1,296.96	829.22	753.50	75.72	10.951	
11,100.00	10,550.00	11,133.49	10,550.00	38.18	37.86	-90.23	496.02	-1,296.88	828.87	752.93	75.94	10.914	
11,150.00	10,550.00	11,183.49	10,550.00	38.36	37.93	-90.23	546.02	-1,296.79	828.52	752.33	76.20	10.873	
11,200.00	10,550.00	11,233.49	10,550.00	38.54	38.01	-90.23	596.02	-1,296.70	828.18	751.72	76.46	10.832	
11,250.00	10,550.00	11,283.49	10,550.00	38.74	38.10	-90.23	646.02	-1,296.61	827.83	751.08	76.75	10.786	
11,300.00	10,550.00	11,333.49	10,550.00	38.95	38.20	-90.23	696.02	-1,296.53	827.48	750.43	77.05	10.739	
11,350.00	10,550.00	11,383.48	10,550.00	39.17	38.30	-90.23	746.02	-1,296.44	827.14	749.75	77.38	10.689	
11,400.00	10,550.00	11,433.48	10,550.00	39.40	38.41	-90.23	796.02	-1,296.35	826.79	749.07	77.72	10.638	
11,450.00	10,550.00	11,483.48	10,550.00	39.66	38.52	-90.23	846.02	-1,296.26	826.44	748.36	78.08	10.584	
11,500.00	10,550.00	11,533.48	10,550.00	39.91	38.65	-90.23	896.01	-1,296.18	826.10	747.64	78.46	10.529	
11,550.00	10,550.00	11,583.48	10,550.00	40.18	38.77	-90.23	946.01	-1,296.09	825.75	746.89	78.86	10.472	
11,600.00	10,550.00	11,633.48	10,550.00	40.46	38.91	-90.23	996.01	-1,296.00	825.40	746.14	79.26	10.413	
11,650.00	10,550.00	11,683.48	10,550.00	40.75	39.05	-90.23	1,046.01	-1,295.92	825.06	745.36	79.70	10.352	
11,700.00	10,550.00	11,733.48	10,550.00	41.05	39.19	-90.23	1,096.01	-1,295.83	824.71	744.57	80.14	10.291	
11,750.00	10,550.00	11,783.47	10,550.00	41.37	39.34	-90.23	1,146.01	-1,295.74	824.37	743.76	80.60	10.228	
11,800.00	10,550.00	11,833.47	10,550.00	41.68	39.50	-90.23	1,196.01	-1,295.65	824.02	742.94	81.08	10.164	
11,850.00	10,550.00	11,883.47	10,550.00	42.02	39.66	-90.23	1,246.01	-1,295.57	823.67	742.10	81.57	10.098	
11,900.00	10,550.00	11,933.47	10,550.00	42.36	39.83	-90.23	1,296.00	-1,295.48	823.33	741.25	82.08	10.031	
11,950.00	10,550.00	11,983.47	10,550.00	42.71	40.00	-90.23	1,346.00	-1,295.39	822.98	740.38	82.60	9.963	
12,000.00	10,550.00	12,033.47	10,550.00	43.07	40.18	-90.23	1,396.00	-1,295.30	822.63	739.50	83.14	9.895	
12,050.00	10,550.00	12,083.47	10,550.00	43.44	40.36	-90.23	1,446.00	-1,295.22	822.29	738.60	83.69	9.825	
12,100.00	10,550.00	12,133.47	10,550.00	43.82	40.55	-90.23	1,496.00	-1,295.13	821.94	737.69	84.25	9.756	
12,150.00	10,550.00	12,183.47	10,550.00	44.21	40.74	-90.23	1,546.00	-1,295.04	821.59	736.76	84.83	9.685	
12,200.00	10,550.00	12,233.46	10,550.00	44.60	40.94	-90.23	1,596.00	-1,294.96	821.25	735.82	85.42	9.614	
12,250.00	10,550.00	12,283.46	10,550.00	45.01	41.14	-90.23	1,645.99	-1,294.87	820.90	734.87	86.03	9.542	
12,300.00	10,550.00	12,333.46	10,550.00	45.42	41.35	-90.23	1,695.99	-1,294.78	820.55	733.91	86.65	9.470	
12,350.00	10,550.00	12,383.46	10,550.00	45.84	41.56	-90.23	1,745.99	-1,294.69	820.21	732.93	87.28	9.397	
12,400.00	10,550.00	12,433.46	10,550.00	46.26	41.78	-90.23	1,795.99	-1,294.61	819.86	731.94	87.92	9.325	
12,450.00	10,550.00	12,483.46	10,550.00	46.70	42.00	-90.23	1,845.99	-1,294.52	819.52	730.94	88.58	9.252	
12,500.00	10,550.00	12,533.46	10,550.00	47.14	42.22	-90.23	1,895.99	-1,294.43	819.17	729.93	89.24	9.179	
12,550.00	10,550.00	12,583.46	10,550.00	47.59	42.45	-90.23	1,945.99	-1,294.34	818.82	728.90	89.92	9.106	
12,600.00	10,550.00	12,633.45	10,550.00	48.04	42.69	-90.23	1,995.99	-1,294.26	818.48	727.87	90.61	9.033	
12,650.00	10,550.00	12,683.45	10,550.00	48.51	42.92	-90.23	2,045.98	-1,294.17	818.13	726.82	91.31	8.960	
12,700.00	10,550.00	12,733.45	10,550.00	48.98	43.17	-90.23	2,095.98	-1,294.08	817.78	725.76	92.02	8.887	
12,750.00	10,550.00	12,783.45	10,550.00	49.45	43.41	-90.23	2,145.98	-1,294.00	817.44	724.69	92.75	8.814	
12,800.00	10,550.00	12,833.45	10,550.00	49.93	43.66	-90.23	2,195.98	-1,293.91	817.09	723.62	93.47	8.741	
12,850.00	10,550.00	12,883.45	10,550.00	50.42	43.92	-90.23	2,245.98	-1,293.82	816.74	722.53	94.22	8.669	
12,900.00	10,550.00	12,933.45	10,550.00	50.91	44.18	-90.23	2,295.98	-1,293.73	816.40	721.43	94.97	8.597	
12,950.00	10,550.00	12,983.45	10,550.00	51.41	44.44	-90.23	2,345.98	-1,293.65	816.05	720.32	95.73	8.525	
13,000.00	10,550.00	13,033.44	10,550.00	51.91	44.70	-90.23	2,395.98	-1,293.56	815.70	719.21	96.49	8.453	
13,050.00	10,550.00	13,083.44	10,550.00	52.42	44.97	-90.23	2,445.97	-1,293.47	815.36	718.08	97.27	8.382	
13,100.00	10,550.00	13,133.44	10,550.00	52.94	45.25	-90.23	2,495.97	-1,293.39	815.01	716.95	98.06	8.311	
13,150.00	10,550.00	13,183.44	10,550.00	53.46	45.52	-90.23	2,545.97	-1,293.30	814.67	715.81	98.86	8.241	
13,200.00	10,550.00	13,233.44	10,550.00	53.98	45.80	-90.23	2,595.97	-1,293.21	814.32	714.66	99.66	8.171	
13,250.00	10,550.00	13,283.44	10,550.00	54.51	46.08	-90.23	2,645.97	-1,293.12	813.97	713.50	100.47	8.101	
13,300.00	10,550.00	13,333.44	10,550.00	55.04	46.37	-90.23	2,695.97	-1,293.04	813.63	712.34	101.29	8.033	
13,350.00	10,550.00	13,383.44	10,550.00	55.58	46.66	-90.23	2,745.97	-1,292.95	813.28	711.16	102.12	7.964	
13,400.00	10,550.00	13,433.44	10,550.00	56.12	46.95	-90.23	2,795.97	-1,292.86	812.93	709.98	102.95	7.896	
13,450.00	10,550.00	13,483.43	10,550.00	56.67	47.25	-90.23	2,845.96	-1,292.77	812.59	708.79	103.80	7.829	
13,500.00	10,550.00	13,533.43	10,550.00	57.21	47.55	-90.23	2,895.96	-1,292.69	812.24	707.60	104.64	7.762	
13,550.00	10,550.00	13,583.43	10,550.00	57.77	47.85	-90.23	2,945.96	-1,292.60	811.89	706.39	105.50	7.696	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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+IFR1													Offset Well Error:	0.50 ft
Reference													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		
13,600.00	10,550.00	13,633.43	10,550.00	58.33	48.16	-90.23	2,995.96	-1,292.51	811.55	705.18	106.36	7.630		
13,650.00	10,550.00	13,683.43	10,550.00	58.89	48.46	-90.23	3,045.96	-1,292.43	811.20	703.97	107.23	7.565		
13,700.00	10,550.00	13,733.43	10,550.00	59.45	48.78	-90.23	3,095.96	-1,292.34	810.85	702.75	108.11	7.500		
13,750.00	10,550.00	13,783.43	10,550.00	60.02	49.09	-90.23	3,145.96	-1,292.25	810.51	701.52	108.99	7.436		
13,800.00	10,550.00	13,833.43	10,550.00	60.59	49.41	-90.23	3,195.96	-1,292.16	810.16	700.28	109.88	7.373		
13,850.00	10,550.00	13,883.42	10,550.00	61.17	49.72	-90.23	3,245.95	-1,292.08	809.82	699.04	110.78	7.310		
13,900.00	10,550.00	13,930.41	10,550.00	61.75	50.03	-90.23	3,292.94	-1,292.01	809.49	697.83	111.67	7.249		
13,911.77	10,550.00	13,939.58	10,550.00	61.88	50.09	-90.23	3,302.11	-1,292.05	809.48	697.61	111.87	7.236		
13,950.00	10,550.00	13,989.39	10,550.00	62.33	50.28	-90.23	3,331.92	-1,292.36	809.87	697.14	112.53	7.195		
14,000.00	10,550.00	14,008.36	10,550.00	62.91	50.54	-90.23	3,370.88	-1,293.23	810.54	697.15	113.39	7.148		
14,050.00	10,550.00	14,047.31	10,550.00	63.50	50.80	-90.23	3,409.80	-1,294.63	812.08	697.83	114.25	7.108		
14,100.00	10,550.00	14,086.22	10,550.00	64.09	51.06	-90.23	3,448.66	-1,296.56	814.29	699.20	115.09	7.075		
14,150.00	10,550.00	14,125.07	10,550.00	64.68	51.32	-90.23	3,487.44	-1,299.01	817.19	701.26	115.93	7.049		
14,200.00	10,550.00	14,163.86	10,550.00	65.28	51.59	-90.23	3,526.11	-1,301.98	820.76	704.00	116.76	7.029		
14,250.00	10,550.00	14,202.56	10,550.00	65.88	51.86	-90.23	3,564.65	-1,305.47	825.01	707.43	117.58	7.016		
14,300.00	10,550.00	14,243.03	10,550.00	66.48	52.14	-90.23	3,604.90	-1,309.66	829.92	711.50	118.42	7.008		
14,350.00	10,550.00	14,307.24	10,550.00	67.08	52.60	-90.23	3,654.35	-1,315.03	835.06	715.59	119.48	6.989		
14,400.00	10,550.00	14,342.50	10,550.00	67.69	52.85	-90.23	3,703.79	-1,320.40	840.20	719.87	120.33	6.982		
14,450.00	10,550.00	14,407.77	10,550.00	68.30	53.32	-90.22	3,753.24	-1,325.77	845.35	723.94	121.41	6.963		
14,500.00	10,550.00	14,441.97	10,550.00	68.91	53.56	-90.22	3,802.68	-1,331.15	850.49	728.22	122.27	6.956		
14,550.00	10,550.00	14,491.70	10,550.00	69.52	53.93	-90.22	3,852.12	-1,336.52	855.63	732.39	123.24	6.943		
14,600.00	10,550.00	14,541.44	10,550.00	70.14	54.29	-90.22	3,901.57	-1,341.89	860.77	736.55	124.22	6.929		
14,650.00	10,550.00	14,591.17	10,550.00	70.75	54.66	-90.22	3,951.01	-1,347.26	865.92	740.71	125.20	6.916		
14,700.00	10,550.00	14,640.91	10,550.00	71.37	55.03	-90.22	4,000.46	-1,352.63	871.06	744.87	126.19	6.903		
14,750.00	10,550.00	14,690.64	10,550.00	72.00	55.40	-90.22	4,049.90	-1,358.00	876.20	749.02	127.18	6.889		
14,800.00	10,550.00	14,740.38	10,550.00	72.62	55.77	-90.22	4,099.34	-1,363.37	881.34	753.17	128.18	6.876		
14,850.00	10,550.00	14,809.89	10,550.00	73.24	56.30	-90.21	4,148.79	-1,368.75	886.48	757.16	129.33	6.855		
14,900.00	10,550.00	14,839.85	10,550.00	73.87	56.53	-90.21	4,198.23	-1,374.12	891.63	761.45	130.18	6.849		
14,950.00	10,550.00	14,889.58	10,550.00	74.50	56.90	-90.21	4,247.68	-1,379.49	896.77	765.58	131.19	6.836		
15,000.00	10,550.00	14,939.32	10,550.00	75.13	57.29	-90.21	4,297.12	-1,384.86	901.91	769.71	132.20	6.822		
15,050.00	10,550.00	14,989.05	10,550.00	75.76	57.67	-90.21	4,346.56	-1,390.23	907.05	773.84	133.22	6.809		
15,100.00	10,550.00	15,038.79	10,550.00	76.40	58.06	-90.21	4,396.01	-1,395.60	912.20	777.96	134.23	6.796		
15,150.00	10,550.00	15,088.52	10,550.00	77.03	58.45	-90.21	4,445.45	-1,400.97	917.34	782.08	135.26	6.782		
15,200.00	10,550.00	15,138.26	10,550.00	77.67	58.84	-90.21	4,494.90	-1,406.34	922.48	786.20	136.28	6.769		
15,250.00	10,550.00	15,187.99	10,550.00	78.31	59.23	-90.20	4,544.34	-1,411.72	927.62	790.31	137.31	6.756		
15,300.00	10,550.00	15,237.73	10,550.00	78.95	59.62	-90.20	4,593.78	-1,417.09	932.76	794.42	138.35	6.742		
15,350.00	10,550.00	15,287.46	10,550.00	79.59	60.02	-90.20	4,643.23	-1,422.46	937.91	798.53	139.38	6.729		
15,400.00	10,550.00	15,337.20	10,550.00	80.24	60.41	-90.20	4,692.67	-1,427.83	943.05	802.63	140.42	6.716		
15,450.00	10,550.00	15,386.93	10,550.00	80.88	60.81	-90.20	4,742.12	-1,433.20	948.19	806.73	141.46	6.703		
15,500.00	10,550.00	15,436.67	10,550.00	81.53	61.21	-90.20	4,791.56	-1,438.57	953.33	810.82	142.51	6.690		
15,550.00	10,550.00	15,486.40	10,550.00	82.18	61.62	-90.20	4,841.00	-1,443.94	958.48	814.92	143.56	6.677		
15,600.00	10,550.00	15,536.13	10,550.00	82.83	62.02	-90.20	4,890.45	-1,449.32	963.62	819.01	144.61	6.664		
15,650.00	10,550.00	15,585.87	10,550.00	83.48	62.42	-90.20	4,939.89	-1,454.69	968.76	823.10	145.66	6.651		
15,700.00	10,550.00	15,635.60	10,550.00	84.13	62.83	-90.20	4,989.34	-1,460.06	973.90	827.18	146.72	6.638		
15,750.00	10,550.00	15,685.34	10,550.00	84.78	63.24	-90.19	5,038.78	-1,465.43	979.04	831.26	147.78	6.625		
15,800.00	10,550.00	15,735.25	10,550.00	85.44	63.65	-90.19	5,088.40	-1,470.82	984.19	835.34	148.84	6.612		
15,850.00	10,550.00	15,811.21	10,550.00	86.09	64.28	-90.19	5,164.01	-1,478.01	988.66	838.38	150.28	6.579		
15,900.00	10,550.00	15,887.47	10,550.00	86.75	64.90	-90.19	5,240.10	-1,483.20	991.81	840.18	151.63	6.541		
15,950.00	10,550.00	15,963.94	10,550.00	87.41	65.52	-90.19	5,316.49	-1,486.38	993.63	840.72	152.91	6.498		
16,000.00	10,550.00	16,040.49	10,550.00	88.07	66.13	-90.19	5,393.04	-1,487.52	994.11	840.01	154.10	6.451		
16,050.00	10,550.00	16,117.04	10,550.00	88.73	66.74	-90.19	5,469.58	-1,486.61	993.26	838.05	155.21	6.399		
16,100.00	10,550.00	16,193.46	10,550.00	89.39	67.34	-90.19	5,545.94	-1,483.66	991.07	834.85	156.22	6.344		

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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+IFR1													Offset Well Error: 0.50 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
16,150.00	10,550.00	16,269.65	10,550.00	90.05	67.93	-90.19	5,621.96	-1,478.70	987.55	830.41	157.14	6.284	
16,200.00	10,550.00	16,336.66	10,550.00	90.71	68.44	-90.19	5,688.70	-1,472.71	982.79	824.74	158.05	6.218	
16,250.00	10,550.00	16,386.40	10,550.00	91.38	68.82	-90.19	5,738.22	-1,467.94	977.74	818.64	159.10	6.146	
16,300.00	10,550.00	16,436.15	10,550.00	92.04	69.20	-90.20	5,787.74	-1,463.17	972.69	812.55	160.14	6.074	
16,350.00	10,550.00	16,485.89	10,550.00	92.71	69.58	-90.20	5,837.25	-1,458.41	967.64	806.46	161.18	6.003	
16,400.00	10,550.00	16,535.64	10,550.00	93.37	69.96	-90.20	5,886.77	-1,453.64	962.59	800.36	162.23	5.933	
16,450.00	10,550.00	16,585.38	10,550.00	94.04	70.34	-90.20	5,936.28	-1,448.87	957.54	794.26	163.28	5.864	
16,500.00	10,550.00	16,635.12	10,550.00	94.71	70.73	-90.20	5,985.80	-1,444.10	952.49	788.16	164.33	5.796	
16,550.00	10,550.00	16,684.87	10,550.00	95.38	71.11	-90.20	6,035.31	-1,439.33	947.44	782.05	165.38	5.729	
16,600.00	10,550.00	16,734.61	10,550.00	96.05	71.50	-90.20	6,084.83	-1,434.57	942.39	775.95	166.44	5.662	
16,650.00	10,550.00	16,784.36	10,550.00	96.72	71.89	-90.20	6,134.34	-1,429.80	937.34	769.84	167.50	5.596	
16,700.00	10,550.00	16,834.10	10,550.00	97.39	72.27	-90.20	6,183.86	-1,425.03	932.29	763.73	168.55	5.531	
16,750.00	10,550.00	16,883.85	10,550.00	98.07	72.66	-90.20	6,233.37	-1,420.26	927.24	757.62	169.61	5.467	
16,800.00	10,550.00	16,933.59	10,550.00	98.74	73.05	-90.21	6,282.89	-1,415.50	922.19	751.51	170.68	5.403	
16,850.00	10,550.00	16,983.33	10,550.00	99.42	73.44	-90.21	6,332.40	-1,410.73	917.14	745.40	171.74	5.340	
16,900.00	10,550.00	17,033.08	10,550.00	100.09	73.84	-90.21	6,381.92	-1,405.96	912.09	739.28	172.81	5.278	
16,950.00	10,550.00	17,082.82	10,550.00	100.77	74.23	-90.21	6,431.43	-1,401.19	907.04	733.17	173.87	5.217	
17,000.00	10,550.00	17,132.57	10,550.00	101.44	74.62	-90.21	6,480.95	-1,396.42	901.99	727.05	174.94	5.156	
17,050.00	10,550.00	17,182.31	10,550.00	102.12	75.02	-90.21	6,530.46	-1,391.66	896.94	720.93	176.01	5.096	
17,100.00	10,550.00	17,232.06	10,550.00	102.80	75.41	-90.21	6,579.98	-1,386.89	891.89	714.80	177.08	5.037	
17,150.00	10,550.00	17,281.80	10,550.00	103.48	75.81	-90.21	6,629.50	-1,382.12	886.84	708.68	178.16	4.978	Alert
17,200.00	10,550.00	17,331.54	10,550.00	104.16	76.21	-90.22	6,679.01	-1,377.35	881.79	702.56	179.23	4.920	Alert
17,250.00	10,550.00	17,381.29	10,550.00	104.84	76.60	-90.22	6,728.53	-1,372.59	876.74	696.43	180.31	4.862	Alert
17,300.00	10,550.00	17,431.03	10,550.00	105.52	77.00	-90.22	6,778.04	-1,367.82	871.69	690.30	181.38	4.806	Alert
17,350.00	10,550.00	17,480.78	10,550.00	106.20	77.40	-90.22	6,827.56	-1,363.05	866.64	684.17	182.46	4.750	Alert
17,400.00	10,550.00	17,530.52	10,550.00	106.88	77.80	-90.22	6,877.07	-1,358.28	861.59	678.04	183.54	4.694	Alert
17,450.00	10,550.00	17,580.27	10,550.00	107.56	78.20	-90.22	6,926.59	-1,353.51	856.54	671.91	184.62	4.639	Alert
17,500.00	10,550.00	17,630.01	10,550.00	108.25	78.61	-90.22	6,976.10	-1,348.75	851.49	665.78	185.71	4.585	Alert
17,550.00	10,550.00	17,679.75	10,550.00	108.93	79.01	-90.22	7,025.62	-1,343.98	846.44	659.64	186.79	4.531	Alert
17,600.00	10,550.00	17,729.50	10,550.00	109.61	79.41	-90.23	7,075.13	-1,339.21	841.39	653.51	187.88	4.478	Alert
17,650.00	10,550.00	17,779.24	10,550.00	110.30	79.82	-90.23	7,124.65	-1,334.44	836.34	647.37	188.97	4.426	Alert
17,700.00	10,550.00	17,828.99	10,550.00	110.98	80.22	-90.23	7,174.16	-1,329.68	831.29	641.23	190.05	4.374	Alert
17,750.00	10,550.00	17,878.73	10,550.00	111.67	80.63	-90.23	7,223.68	-1,324.91	826.24	635.09	191.14	4.323	Alert
17,800.00	10,550.00	17,928.48	10,550.00	112.36	81.03	-90.23	7,273.19	-1,320.14	821.19	628.95	192.23	4.272	Alert
17,850.00	10,550.00	17,978.22	10,550.00	113.04	81.44	-90.23	7,322.71	-1,315.37	816.14	622.81	193.33	4.222	Alert
17,900.00	10,550.00	18,027.96	10,550.00	113.73	81.85	-90.23	7,372.22	-1,310.60	811.08	616.67	194.42	4.172	Alert
17,950.00	10,550.00	18,077.71	10,550.00	114.42	82.26	-90.24	7,421.74	-1,305.84	806.03	610.52	195.51	4.123	Alert
18,000.00	10,550.00	18,127.45	10,550.00	115.11	82.67	-90.24	7,471.26	-1,301.07	800.98	604.37	196.61	4.074	Alert
18,050.00	10,550.00	18,177.20	10,550.00	115.80	83.08	-90.24	7,520.77	-1,296.30	795.93	598.23	197.71	4.026	Alert
18,100.00	10,550.00	18,226.94	10,550.00	116.49	83.49	-90.24	7,570.29	-1,291.53	790.88	592.08	198.80	3.978	Alert
18,150.00	10,550.00	18,276.69	10,550.00	117.18	83.90	-90.24	7,619.80	-1,286.77	785.83	585.93	199.90	3.931	Alert
18,200.00	10,550.00	18,326.43	10,550.00	117.87	84.30	-90.24	7,669.31	-1,282.01	780.79	579.76	201.03	3.884	Alert
18,250.00	10,550.00	18,376.18	10,550.00	118.56	84.71	-90.24	7,718.82	-1,277.24	775.74	573.60	202.29	3.837	Alert
18,300.00	10,550.00	18,425.92	10,550.00	119.25	85.12	-90.25	7,768.33	-1,272.48	770.69	567.44	203.53	3.790	Alert
18,350.00	10,550.00	18,475.67	10,550.00	119.94	85.53	-90.25	7,817.84	-1,267.71	765.64	561.28	204.74	3.743	Alert
18,400.00	10,550.00	18,525.41	10,550.00	120.63	85.94	-90.25	7,867.35	-1,262.95	760.59	555.12	205.92	3.696	Alert
18,450.00	10,550.00	18,575.16	10,550.00	121.33	86.35	-90.25	7,916.86	-1,258.18	755.54	548.96	207.07	3.649	Alert
18,500.00	10,550.00	18,624.90	10,550.00	122.02	86.76	-90.25	7,966.37	-1,253.42	750.49	542.80	208.20	3.602	Alert
18,550.00	10,550.00	18,674.65	10,550.00	122.71	87.17	-90.25	8,015.88	-1,248.65	745.44	536.64	209.29	3.555	Alert
18,600.00	10,550.00	18,724.39	10,550.00	123.41	87.58	-90.25	8,065.39	-1,243.89	740.39	530.48	210.36	3.508	Alert
18,650.00	10,550.00	18,774.14	10,550.00	124.10	87.99	-90.25	8,114.90	-1,239.12	735.34	524.32	211.39	3.461	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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+IFR1													Offset Well Error:
													0.50 ft
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
18,700.00	10,550.00	18,718.86	10,550.00	124.80	87.69	-90.25	8,061.32	-1,272.14	765.46	553.07	212.39	3.604	Alert
18,750.00	10,550.00	18,762.89	10,550.00	125.49	88.09	-90.25	8,100.13	-1,274.08	767.71	554.31	213.39	3.598	Alert
18,800.00	10,550.00	18,807.65	10,550.00	126.19	88.49	-90.25	8,149.98	-1,276.97	770.34	555.85	214.49	3.591	Alert
18,850.00	10,550.00	18,857.59	10,550.00	126.88	88.94	-90.24	8,199.83	-1,279.85	772.97	557.33	215.64	3.585	Alert
18,900.00	10,550.00	18,907.52	10,550.00	127.58	89.39	-90.24	8,249.67	-1,282.74	775.60	558.82	216.78	3.578	Alert
18,950.00	10,550.00	18,957.45	10,550.00	128.27	89.84	-90.24	8,299.52	-1,285.62	778.23	560.30	217.93	3.571	Alert
19,000.00	10,550.00	19,007.38	10,550.00	128.97	90.29	-90.24	8,349.37	-1,288.51	780.85	561.78	219.07	3.564	Alert
19,050.00	10,550.00	19,057.31	10,550.00	129.67	90.74	-90.24	8,399.21	-1,291.39	783.48	563.26	220.22	3.558	Alert
19,100.00	10,550.00	19,107.24	10,550.00	130.37	91.19	-90.24	8,449.06	-1,294.27	786.11	564.74	221.37	3.551	Alert
19,150.00	10,550.00	19,157.17	10,550.00	131.06	91.64	-90.24	8,498.91	-1,297.16	788.74	566.22	222.52	3.545	Alert
19,200.00	10,550.00	19,207.10	10,550.00	131.76	92.09	-90.24	8,548.76	-1,300.04	791.37	567.70	223.67	3.538	Alert
19,250.00	10,550.00	19,257.03	10,550.00	132.46	92.54	-90.24	8,598.60	-1,302.93	794.00	569.18	224.82	3.532	Alert
19,300.00	10,550.00	19,306.96	10,550.00	133.16	93.00	-90.24	8,648.45	-1,305.81	796.63	570.66	225.97	3.525	Alert
19,350.00	10,550.00	19,356.89	10,550.00	133.86	93.45	-90.24	8,698.30	-1,308.69	799.26	572.13	227.13	3.519	Alert
19,400.00	10,550.00	19,406.82	10,550.00	134.56	93.90	-90.24	8,748.15	-1,311.58	801.89	573.61	228.28	3.513	Alert
19,450.00	10,550.00	19,456.75	10,550.00	135.26	94.36	-90.24	8,797.99	-1,314.46	804.52	575.09	229.43	3.507	Alert
19,500.00	10,550.00	19,506.69	10,550.00	135.96	94.81	-90.23	8,847.84	-1,317.35	807.15	576.56	230.59	3.500	Alert
19,550.00	10,550.00	19,556.62	10,550.00	136.66	95.27	-90.23	8,897.69	-1,320.23	809.78	578.03	231.74	3.494	Alert
19,600.00	10,550.00	19,606.55	10,550.00	137.36	95.72	-90.23	8,947.54	-1,323.12	812.41	579.51	232.90	3.488	Alert
19,650.00	10,550.00	19,656.48	10,550.00	138.06	96.18	-90.23	8,997.38	-1,326.00	815.04	580.98	234.06	3.482	Alert
19,700.00	10,550.00	19,706.41	10,550.00	138.76	96.63	-90.23	9,047.23	-1,328.88	817.67	582.45	235.21	3.476	Alert
19,750.00	10,550.00	19,756.34	10,550.00	139.46	97.09	-90.23	9,097.08	-1,331.77	820.30	583.92	236.37	3.470	Alert
19,800.00	10,550.00	19,806.27	10,550.00	140.16	97.55	-90.23	9,146.93	-1,334.65	822.92	585.39	237.53	3.464	Alert
19,850.00	10,550.00	19,856.20	10,550.00	140.87	98.01	-90.23	9,196.77	-1,337.54	825.55	586.86	238.69	3.459	Alert
19,900.00	10,550.00	19,906.13	10,550.00	141.57	98.46	-90.23	9,246.62	-1,340.42	828.18	588.33	239.85	3.453	Alert
19,950.00	10,550.00	19,956.06	10,550.00	142.27	98.92	-90.23	9,296.47	-1,343.30	830.81	589.80	241.01	3.447	Alert
20,000.00	10,550.00	20,005.99	10,550.00	142.97	99.38	-90.23	9,346.32	-1,346.19	833.44	591.27	242.17	3.442	Alert
20,050.00	10,550.00	20,055.92	10,550.00	143.68	99.84	-90.23	9,396.16	-1,349.07	836.07	592.74	243.34	3.436	Alert
20,100.00	10,550.00	20,105.86	10,550.00	144.38	100.30	-90.23	9,446.01	-1,351.96	838.70	594.20	244.50	3.430	Alert
20,150.00	10,550.00	20,155.79	10,550.00	145.08	100.76	-90.23	9,495.86	-1,354.84	841.33	595.67	245.66	3.425	Alert
20,200.00	10,550.00	20,205.72	10,550.00	145.79	101.22	-90.22	9,545.71	-1,357.73	843.96	597.13	246.83	3.419	Alert
20,250.00	10,550.00	20,255.65	10,550.00	146.49	101.68	-90.22	9,595.55	-1,360.61	846.59	598.60	247.99	3.414	Alert
20,300.00	10,550.00	20,305.58	10,550.00	147.20	102.14	-90.22	9,645.40	-1,363.49	849.22	600.06	249.16	3.408	Alert
20,350.00	10,550.00	20,355.51	10,550.00	147.90	102.60	-90.22	9,695.25	-1,366.38	851.85	601.53	250.32	3.403	Alert
20,400.00	10,550.00	20,405.44	10,550.00	148.61	103.06	-90.22	9,745.10	-1,369.26	854.48	602.99	251.49	3.398	Alert
20,450.00	10,550.00	20,455.37	10,550.00	149.31	103.53	-90.22	9,794.94	-1,372.15	857.11	604.45	252.65	3.392	Alert
20,500.00	10,550.00	20,505.30	10,550.00	150.02	103.99	-90.22	9,844.79	-1,375.03	859.74	605.91	253.82	3.387	Alert
20,550.00	10,550.00	20,555.23	10,550.00	150.72	104.45	-90.22	9,894.64	-1,377.91	862.37	607.37	254.99	3.382	Alert
20,600.00	10,550.00	20,605.16	10,550.00	151.43	104.91	-90.22	9,944.49	-1,380.80	864.99	608.84	256.16	3.377	Alert
20,650.00	10,550.00	20,655.09	10,550.00	152.13	105.38	-90.22	9,994.33	-1,383.68	867.62	610.30	257.33	3.372	Alert
20,700.00	10,550.00	20,705.03	10,550.00	152.84	105.84	-90.22	10,044.18	-1,386.57	870.25	611.76	258.50	3.367	Alert
20,750.00	10,550.00	20,754.96	10,550.00	153.54	106.31	-90.22	10,094.03	-1,389.45	872.88	613.21	259.67	3.362	Alert
20,800.00	10,550.00	20,804.89	10,550.00	154.25	106.77	-90.22	10,143.88	-1,392.33	875.51	614.67	260.84	3.357	Alert
20,809.68	10,550.00	20,814.55	10,550.00	154.39	106.86	-90.22	10,153.53	-1,392.89	876.02	614.96	261.06	3.356	Alert, SF

Anticollision Report

Company:	WCDSO Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	0.80	0.80	0.50	0.50	89.68	0.34	60.00	60.00				
50.00	50.00	50.80	50.80	0.50	0.50	89.68	0.34	60.00	60.00	59.00	1.01	59.608	
100.00	100.00	100.80	100.80	0.52	0.52	89.68	0.34	60.00	60.00	58.97	1.04	57.905	
150.00	150.00	150.80	150.80	0.59	0.59	89.68	0.34	60.00	60.00	58.82	1.18	50.765	
200.00	200.00	200.80	200.80	0.70	0.70	89.68	0.34	60.00	60.00	58.60	1.41	42.671	
250.00	250.00	250.80	250.80	0.84	0.84	89.68	0.34	60.00	60.00	58.33	1.68	35.765	
300.00	300.00	300.80	300.80	0.99	0.99	89.68	0.34	60.00	60.00	58.03	1.98	30.349	
350.00	350.00	350.80	350.80	1.15	1.15	89.68	0.34	60.00	60.00	57.71	2.29	26.162	
400.00	400.00	400.80	400.80	1.31	1.31	89.68	0.34	60.00	60.00	57.38	2.62	22.895	
450.00	450.00	450.80	450.80	1.48	1.48	89.68	0.34	60.00	60.00	57.05	2.96	20.304	
500.00	500.00	500.80	500.80	1.65	1.65	89.68	0.34	60.00	60.00	56.71	3.29	18.211	
550.00	550.00	550.80	550.80	1.82	1.82	89.68	0.34	60.00	60.00	56.37	3.64	16.493	
600.00	600.00	600.80	600.80	1.99	1.99	89.68	0.34	60.00	60.00	56.02	3.98	15.061	
650.00	650.00	650.80	650.80	2.16	2.17	89.68	0.34	60.00	60.00	55.67	4.33	13.852	
700.00	700.00	700.80	700.80	2.34	2.34	89.68	0.34	60.00	60.00	55.32	4.68	12.818	
750.00	750.00	750.80	750.80	2.51	2.52	89.68	0.34	60.00	60.00	54.97	5.03	11.924	
800.00	800.00	800.80	800.80	2.69	2.69	89.68	0.34	60.00	60.00	54.62	5.38	11.145	
850.00	850.00	850.80	850.80	2.87	2.87	89.68	0.34	60.00	60.00	54.27	5.74	10.460	
900.00	900.00	900.80	900.80	3.04	3.05	89.68	0.34	60.00	60.00	53.91	6.09	9.853	
950.00	950.00	950.80	950.80	3.22	3.22	89.68	0.34	60.00	60.00	53.56	6.44	9.312	
1,000.00	1,000.00	1,000.80	1,000.80	3.40	3.40	89.68	0.34	60.00	60.00	53.21	6.80	8.827	
1,050.00	1,050.00	1,050.80	1,050.80	3.58	3.58	89.68	0.34	60.00	60.00	52.85	7.15	8.389	
1,100.00	1,100.00	1,100.80	1,100.80	3.75	3.76	89.68	0.34	60.00	60.00	52.50	7.51	7.992	
1,150.00	1,150.00	1,150.80	1,150.80	3.93	3.93	89.68	0.34	60.00	60.00	52.14	7.86	7.631	
1,200.00	1,200.00	1,200.80	1,200.80	4.11	4.11	89.68	0.34	60.00	60.00	51.79	8.22	7.301	
1,250.00	1,250.00	1,250.80	1,250.80	4.29	4.29	89.68	0.34	60.00	60.00	51.43	8.58	6.998	
1,300.00	1,300.00	1,300.80	1,300.80	4.46	4.47	89.68	0.34	60.00	60.00	51.07	8.93	6.719	
1,350.00	1,350.00	1,350.80	1,350.80	4.64	4.65	89.68	0.34	60.00	60.00	50.72	9.29	6.461	
1,400.00	1,400.00	1,400.80	1,400.80	4.82	4.82	89.68	0.34	60.00	60.00	50.36	9.64	6.222	
1,450.00	1,450.00	1,450.80	1,450.80	5.00	5.00	89.68	0.34	60.00	60.00	50.00	10.00	6.000	
1,500.00	1,500.00	1,500.80	1,500.80	5.18	5.18	89.68	0.34	60.00	60.00	49.65	10.36	5.793	
1,550.00	1,550.00	1,550.80	1,550.80	5.36	5.36	89.68	0.34	60.00	60.00	49.29	10.71	5.600	
1,600.00	1,600.00	1,600.80	1,600.80	5.53	5.54	89.68	0.34	60.00	60.00	48.93	11.07	5.420	
1,650.00	1,650.00	1,650.80	1,650.80	5.71	5.72	89.68	0.34	60.00	60.00	48.58	11.43	5.251	
1,700.00	1,700.00	1,700.80	1,700.80	5.89	5.89	89.68	0.34	60.00	60.00	48.22	11.79	5.091	
1,750.00	1,750.00	1,750.80	1,750.80	6.07	6.07	89.68	0.34	60.00	60.00	47.86	12.14	4.942 Alert	
1,800.00	1,800.00	1,800.80	1,800.80	6.25	6.25	89.68	0.34	60.00	60.00	47.50	12.50	4.800 Alert	
1,850.00	1,850.00	1,850.80	1,850.80	6.43	6.43	89.68	0.34	60.00	60.00	47.15	12.86	4.667 Alert	
1,900.00	1,900.00	1,900.80	1,900.80	6.61	6.61	89.68	0.34	60.00	60.00	46.79	13.21	4.541 Alert	
1,950.00	1,950.00	1,950.80	1,950.80	6.78	6.79	89.68	0.34	60.00	60.00	46.43	13.57	4.421 Alert	
2,000.00	2,000.00	2,000.80	2,000.80	6.96	6.97	89.68	0.34	60.00	60.00	46.07	13.93	4.308 Alert	
2,050.00	2,050.00	2,050.80	2,050.80	7.14	7.15	89.68	0.34	60.00	60.00	45.72	14.29	4.200 Alert	
2,100.00	2,100.00	2,100.80	2,100.80	7.32	7.32	89.68	0.34	60.00	60.00	45.36	14.64	4.097 Alert	
2,150.00	2,150.00	2,150.80	2,150.80	7.50	7.50	89.68	0.34	60.00	60.00	45.00	15.00	4.000 Alert	
2,200.00	2,200.00	2,200.80	2,200.80	7.68	7.68	89.68	0.34	60.00	60.00	44.64	15.36	3.907 Alert	
2,250.00	2,250.00	2,250.80	2,250.80	7.86	7.86	89.68	0.34	60.00	60.00	44.29	15.72	3.818 Alert	
2,300.00	2,300.00	2,300.80	2,300.80	8.04	8.04	89.68	0.34	60.00	60.00	43.93	16.08	3.733 Alert	
2,350.00	2,350.00	2,350.80	2,350.80	8.22	8.22	89.68	0.34	60.00	60.00	43.57	16.43	3.651 Alert	
2,400.00	2,400.00	2,400.80	2,400.80	8.39	8.40	89.68	0.34	60.00	60.00	43.21	16.79	3.574 Alert	
2,450.00	2,450.00	2,450.80	2,450.80	8.57	8.58	89.68	0.34	60.00	60.00	42.86	17.15	3.499 Alert	
2,500.00	2,500.00	2,500.80	2,500.80	8.75	8.75	89.68	0.34	60.00	60.00	42.50	17.51	3.427 Alert, CC, ES	
2,550.00	2,550.00	2,550.28	2,550.28	8.92	8.93	-149.27	0.29	60.22	60.41	42.56	17.85	3.384 Alert, SF	

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

Anticollision Report

Company:	WCDCS Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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. 36-T23S-R31E - Todd 36_25 State Fed Com 235H - 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	2,599.76	2,599.75	9.10	9.10	-149.43	0.14	60.85	61.61	43.42	18.19	3.387	Alert			
2,650.00	2,649.98	2,649.19	2,649.18	9.26	9.27	-149.68	-0.11	61.89	63.60	45.08	18.52	3.434	Alert			
2,700.00	2,699.96	2,698.57	2,698.53	9.43	9.43	-150.01	-0.45	63.35	66.39	47.54	18.85	3.522	Alert			
2,750.00	2,749.92	2,747.87	2,747.79	9.60	9.60	-150.40	-0.89	65.22	69.98	50.80	19.18	3.649	Alert			
2,800.00	2,799.86	2,797.08	2,796.95	9.76	9.77	-150.81	-1.43	67.50	74.36	54.86	19.51	3.812	Alert			
2,850.00	2,849.78	2,846.17	2,845.96	9.93	9.93	-151.25	-2.06	70.18	79.54	59.71	19.83	4.011	Alert			
2,900.00	2,899.68	2,895.13	2,894.82	10.10	10.10	-151.68	-2.78	73.26	85.51	65.36	20.16	4.242	Alert			
2,950.00	2,949.54	2,943.94	2,943.49	10.27	10.27	-152.10	-3.60	76.74	92.28	71.80	20.48	4.506	Alert			
3,000.00	2,999.38	2,992.60	2,991.99	10.44	10.44	-152.49	-4.51	80.60	99.71	78.90	20.80	4.793	Alert			
3,050.00	3,049.22	3,041.14	3,040.33	10.61	10.61	-152.77	-5.52	84.86	107.55	86.42	21.12	5.091				
3,100.00	3,099.06	3,089.55	3,088.51	10.78	10.77	-152.95	-6.61	89.50	115.79	94.35	21.44	5.400				
3,150.00	3,148.90	3,137.84	3,136.52	10.95	10.94	-153.05	-7.79	94.53	124.43	102.67	21.76	5.717				
3,200.00	3,198.73	3,185.98	3,184.34	11.13	11.11	-153.08	-9.06	99.93	133.46	111.38	22.08	6.044				
3,250.00	3,248.57	3,233.98	3,231.97	11.30	11.28	-153.06	-10.42	105.70	142.89	120.49	22.40	6.380				
3,300.00	3,298.41	3,281.83	3,279.41	11.47	11.45	-152.99	-11.87	111.84	152.71	130.00	22.71	6.724				
3,350.00	3,348.25	3,329.52	3,326.63	11.65	11.62	-152.89	-13.40	118.35	162.92	139.89	23.02	7.076				
3,400.00	3,398.09	3,377.05	3,373.63	11.82	11.79	-152.76	-15.02	125.22	173.51	150.18	23.34	7.436				
3,450.00	3,447.93	3,424.42	3,420.41	12.00	11.97	-152.61	-16.72	132.43	184.50	160.85	23.65	7.803				
3,500.00	3,497.77	3,471.61	3,466.96	12.17	12.14	-152.44	-18.50	140.00	195.87	171.91	23.95	8.177				
3,550.00	3,547.61	3,519.16	3,513.80	12.35	12.31	-152.26	-20.38	147.98	207.60	183.33	24.27	8.554				
3,600.00	3,597.45	3,567.74	3,561.63	12.52	12.49	-152.08	-22.32	156.21	219.42	194.81	24.61	8.916				
3,650.00	3,647.29	3,616.32	3,609.47	12.70	12.67	-151.93	-24.26	164.45	231.24	206.29	24.95	9.269				
3,700.00	3,697.13	3,664.89	3,657.31	12.87	12.86	-151.79	-26.20	172.69	243.06	217.77	25.29	9.611				
3,750.00	3,746.97	3,713.47	3,705.14	13.05	13.04	-151.66	-28.14	180.92	254.89	229.26	25.63	9.945				
3,800.00	3,796.81	3,762.05	3,752.98	13.23	13.22	-151.54	-30.08	189.16	266.71	240.74	25.97	10.269				
3,850.00	3,846.65	3,810.63	3,800.81	13.41	13.41	-151.44	-32.02	197.39	278.54	252.22	26.31	10.585				
3,900.00	3,896.49	3,859.21	3,848.65	13.58	13.59	-151.34	-33.96	205.63	290.37	263.71	26.66	10.892				
3,950.00	3,946.32	3,907.79	3,896.49	13.76	13.78	-151.25	-35.90	213.86	302.19	275.19	27.00	11.192				
4,000.00	3,996.16	3,956.37	3,944.32	13.94	13.97	-151.17	-37.84	222.10	314.02	286.68	27.35	11.483				
4,050.00	4,046.00	4,004.95	3,992.16	14.12	14.15	-151.09	-39.78	230.34	325.85	298.16	27.69	11.768				
4,100.00	4,095.84	4,053.53	4,040.00	14.30	14.34	-151.02	-41.72	238.57	337.68	309.64	28.04	12.045				
4,150.00	4,145.68	4,102.10	4,087.83	14.48	14.53	-150.95	-43.66	246.81	349.51	321.13	28.38	12.314				
4,200.00	4,195.52	4,150.88	4,135.67	14.66	14.72	-150.89	-45.60	255.04	361.34	332.61	28.73	12.578				
4,250.00	4,245.36	4,199.26	4,183.50	14.84	14.91	-150.83	-47.54	263.28	373.17	344.10	29.08	12.835				
4,300.00	4,295.20	4,247.84	4,231.34	15.02	15.10	-150.77	-49.48	271.52	385.00	355.58	29.42	13.085				
4,350.00	4,345.04	4,303.58	4,279.18	15.20	15.32	-150.72	-51.42	279.75	396.83	367.04	29.80	13.318				
4,400.00	4,394.88	4,345.00	4,327.01	15.38	15.48	-150.67	-53.36	287.99	408.67	378.55	30.12	13.568				
4,450.00	4,444.72	4,393.58	4,374.85	15.56	15.68	-150.63	-55.30	296.22	420.50	390.03	30.47	13.801				
4,500.00	4,494.56	4,442.16	4,422.69	15.74	15.87	-150.58	-57.24	304.46	432.33	401.51	30.82	14.029				
4,550.00	4,544.40	4,490.73	4,470.52	15.92	16.06	-150.54	-59.17	312.70	444.16	412.99	31.17	14.251				
4,600.00	4,594.24	4,539.31	4,518.36	16.10	16.26	-150.50	-61.11	320.93	455.99	424.48	31.52	14.468				
4,650.00	4,644.08	4,587.89	4,566.19	16.28	16.45	-150.47	-63.05	329.17	467.83	435.96	31.87	14.680				
4,700.00	4,693.92	4,636.47	4,614.03	16.46	16.65	-150.43	-64.99	337.40	479.66	447.44	32.22	14.888				
4,750.00	4,743.75	4,685.05	4,661.87	16.64	16.84	-150.40	-66.93	345.64	491.49	458.92	32.57	15.090				
4,800.00	4,793.59	4,733.63	4,709.70	16.82	17.04	-150.37	-68.87	353.87	503.33	470.41	32.92	15.289				
4,850.00	4,843.43	4,782.21	4,757.54	17.00	17.23	-150.34	-70.81	362.11	515.16	481.89	33.27	15.483				
4,900.00	4,893.27	4,830.79	4,805.38	17.19	17.43	-150.31	-72.75	370.35	526.99	493.37	33.63	15.673				
4,950.00	4,943.11	4,879.36	4,853.21	17.37	17.63	-150.28	-74.69	378.58	538.83	504.85	33.98	15.858				
5,000.00	4,992.95	4,927.94	4,901.05	17.55	17.83	-150.25	-76.63	386.82	550.66	516.33	34.33	16.040				
5,050.00	5,042.79	4,976.52	4,948.88	17.73	18.02	-150.23	-78.57	395.05	562.50	527.81	34.68	16.218				
5,100.00	5,092.63	5,025.10	4,996.72	17.91	18.22	-150.20	-80.51	403.29	574.33	539.29	35.04	16.392				
5,150.00	5,142.47	5,073.68	5,044.56	18.10	18.42	-150.18	-82.45	411.53	586.16	550.77	35.39	16.563				

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

Anticollision Report

Company:	WCDCS Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36_25 State Fed Com 235H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	5,192.31	5,122.26	5,092.39	18.28	18.62	-150.16	-84.39	419.76	598.00	562.25	35.74	16.730	
5,250.00	5,242.15	5,170.84	5,140.23	18.46	18.82	-150.13	-86.33	428.00	609.83	573.73	36.10	16.894	
5,300.00	5,291.99	5,219.42	5,188.07	18.64	19.02	-150.11	-88.27	436.23	621.67	585.21	36.45	17.054	
5,350.00	5,341.83	5,268.00	5,235.90	18.83	19.22	-150.09	-90.21	444.47	633.50	596.69	36.81	17.211	
5,400.00	5,391.67	5,316.57	5,283.74	19.01	19.41	-150.07	-92.15	452.71	645.34	608.17	37.16	17.365	
5,450.00	5,441.51	5,365.15	5,331.57	19.19	19.61	-150.06	-94.09	460.94	657.17	619.85	37.52	17.516	
5,500.00	5,491.34	5,413.73	5,379.41	19.38	19.81	-150.04	-96.03	469.18	669.01	631.13	37.87	17.664	
5,550.00	5,541.18	5,462.31	5,427.25	19.56	20.02	-150.02	-97.97	477.41	680.84	642.61	38.23	17.810	
5,600.00	5,591.02	5,510.89	5,475.08	19.74	20.22	-150.00	-99.91	485.65	692.67	654.09	38.58	17.952	
5,650.00	5,640.86	5,559.47	5,522.92	19.93	20.42	-149.99	-101.85	493.88	704.51	665.57	38.94	18.092	
5,700.00	5,690.70	5,608.05	5,570.76	20.11	20.62	-149.97	-103.79	502.12	716.34	677.05	39.30	18.229	
5,750.00	5,740.54	5,656.63	5,618.59	20.29	20.82	-149.96	-105.73	510.36	728.18	688.53	39.65	18.364	
5,800.00	5,790.38	5,705.20	5,666.43	20.48	21.02	-149.94	-107.67	518.59	740.01	700.00	40.01	18.496	
5,850.00	5,840.22	5,753.78	5,714.26	20.66	21.22	-149.93	-109.61	526.83	751.85	711.48	40.37	18.626	
5,900.00	5,890.06	5,802.36	5,762.10	20.85	21.43	-149.91	-111.55	535.06	763.88	722.96	40.72	18.753	
5,950.00	5,939.90	5,850.94	5,809.94	21.03	21.63	-149.90	-113.49	543.30	775.52	734.44	41.08	18.878	
6,000.00	5,989.74	5,900.48	5,857.77	21.21	21.83	-149.89	-115.43	551.54	787.35	745.91	41.44	18.999	
6,050.00	6,039.58	5,948.10	5,905.61	21.40	22.03	-149.88	-117.37	559.77	799.19	757.39	41.80	19.121	
6,100.00	6,089.42	6,003.32	5,953.45	21.58	22.26	-149.86	-119.30	568.01	811.03	768.85	42.18	19.229	
6,150.00	6,139.26	6,045.26	6,001.28	21.77	22.44	-149.85	-121.24	576.24	822.86	780.35	42.51	19.356	
6,200.00	6,189.10	6,106.17	6,049.12	21.95	22.69	-149.84	-123.18	584.48	834.70	791.78	42.92	19.450	
6,250.00	6,238.93	6,142.41	6,096.95	22.13	22.85	-149.83	-125.12	592.71	846.53	803.30	43.23	19.583	
6,300.00	6,288.77	6,209.01	6,144.79	22.32	23.12	-149.82	-127.06	600.95	858.37	814.71	43.65	19.663	
6,350.00	6,338.61	6,239.57	6,192.63	22.50	23.25	-149.81	-129.00	609.19	870.20	826.26	43.94	19.802	
6,400.00	6,388.45	6,288.15	6,240.46	22.69	23.46	-149.80	-130.94	617.42	882.04	837.73	44.30	19.909	
6,450.00	6,438.29	6,336.73	6,288.30	22.87	23.66	-149.79	-132.88	625.66	893.87	849.21	44.66	20.014	
6,500.00	6,488.13	6,385.31	6,336.14	23.06	23.86	-149.78	-134.82	633.89	905.71	860.69	45.02	20.118	
6,550.00	6,537.97	6,433.89	6,383.97	23.24	24.07	-149.77	-136.76	642.13	917.54	872.16	45.38	20.219	
6,600.00	6,587.81	6,482.47	6,431.81	23.43	24.27	-149.76	-138.70	650.37	929.38	883.64	45.74	20.319	
6,650.00	6,637.65	6,531.04	6,479.64	23.61	24.48	-149.75	-140.64	658.60	941.21	895.12	46.10	20.417	
6,700.00	6,687.49	6,579.62	6,527.48	23.80	24.68	-149.74	-142.58	666.84	953.05	906.59	46.46	20.514	
6,750.00	6,737.33	6,628.20	6,575.32	23.98	24.89	-149.73	-144.52	675.07	964.89	918.07	46.82	20.609	
6,800.00	6,787.17	6,676.78	6,623.15	24.17	25.09	-149.72	-146.46	683.31	976.72	929.54	47.18	20.703	
6,850.00	6,837.01	6,725.36	6,670.99	24.35	25.30	-149.72	-148.40	691.55	988.56	941.02	47.54	20.795	
6,900.00	6,886.85	6,773.94	6,718.83	24.54	25.50	-149.71	-150.34	699.78	1,000.39	952.50	47.90	20.886	
6,950.00	6,936.69	6,822.52	6,766.66	24.72	25.71	-149.70	-152.28	708.02	1,012.23	963.97	48.26	20.976	
7,000.00	6,986.52	6,871.10	6,814.50	24.91	25.91	-149.69	-154.22	716.25	1,024.06	975.45	48.62	21.064	
7,050.00	7,036.36	6,919.67	6,862.33	25.09	26.12	-149.68	-156.16	724.49	1,035.90	986.92	48.98	21.150	
7,100.00	7,086.20	6,968.25	6,910.17	25.28	26.32	-149.68	-158.10	732.72	1,047.74	998.40	49.34	21.236	
7,150.00	7,136.04	7,016.83	6,958.01	25.46	26.53	-149.67	-160.04	740.96	1,059.57	1,009.87	49.70	21.320	
7,200.00	7,185.88	7,065.41	7,005.84	25.65	26.74	-149.66	-161.98	749.20	1,071.41	1,021.35	50.06	21.402	
7,250.00	7,235.72	7,113.99	7,053.68	25.83	26.94	-149.66	-163.92	757.43	1,083.24	1,032.82	50.42	21.484	
7,300.00	7,285.56	7,162.57	7,101.52	26.02	27.15	-149.65	-165.86	765.67	1,095.08	1,044.30	50.78	21.564	
7,350.00	7,335.40	7,211.15	7,149.35	26.20	27.35	-149.64	-167.80	773.90	1,106.91	1,055.77	51.14	21.644	
7,400.00	7,385.24	7,259.73	7,197.19	26.39	27.56	-149.64	-169.74	782.14	1,118.75	1,067.25	51.50	21.722	
7,450.00	7,435.08	7,308.30	7,245.02	26.58	27.77	-149.63	-171.68	790.38	1,130.59	1,078.72	51.87	21.799	
7,500.00	7,484.92	7,356.88	7,292.86	26.76	27.97	-149.62	-173.62	798.61	1,142.42	1,090.19	52.23	21.874	
7,550.00	7,534.76	7,405.46	7,340.70	26.95	28.18	-149.62	-175.56	806.85	1,154.26	1,101.67	52.59	21.949	
7,600.00	7,584.60	7,454.04	7,388.53	27.13	28.39	-149.61	-177.50	815.08	1,166.09	1,113.14	52.95	22.023	
7,650.00	7,634.44	7,502.62	7,436.37	27.32	28.59	-149.61	-179.44	823.32	1,177.93	1,124.62	53.31	22.095	
7,700.00	7,684.28	7,551.20	7,484.21	27.50	28.80	-149.60	-181.37	831.56	1,189.76	1,136.09	53.67	22.167	
7,750.00	7,734.11	7,599.78	7,532.04	27.69	29.01	-149.60	-183.31	839.79	1,201.60	1,147.57	54.03	22.238	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
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)						
7,800.00	7,783.95	7,848.36	7,579.88	27.88	29.21	-149.59	-185.25	848.03	1,213.44	1,159.04	54.40	22.307		
7,850.00	7,833.79	7,703.07	7,627.71	28.06	29.45	-149.59	-187.19	856.26	1,225.27	1,170.49	54.78	22.366		
7,900.00	7,883.63	7,745.51	7,675.55	28.25	29.63	-149.58	-189.13	864.50	1,237.11	1,181.99	55.12	22.444		
7,950.00	7,933.47	7,805.91	7,723.39	28.43	29.89	-149.57	-191.07	872.73	1,248.94	1,193.42	55.53	22.492		
8,000.00	7,983.31	7,842.67	7,771.22	28.62	30.04	-149.57	-193.01	880.97	1,260.78	1,204.93	55.85	22.576		
8,050.00	8,033.15	7,891.25	7,819.06	28.81	30.25	-149.56	-194.95	889.21	1,272.62	1,216.41	56.21	22.641		
8,100.00	8,082.99	7,939.83	7,866.90	28.99	30.46	-149.56	-196.89	897.44	1,284.45	1,227.88	56.57	22.706		
8,150.00	8,132.83	7,988.41	7,914.73	29.18	30.66	-149.56	-198.83	905.68	1,296.29	1,239.36	56.93	22.769		
8,200.00	8,182.67	8,036.99	7,962.57	29.36	30.87	-149.55	-200.77	913.91	1,308.12	1,250.83	57.30	22.831		
8,250.00	8,232.51	8,085.57	8,010.41	29.55	31.08	-149.55	-202.71	922.15	1,319.96	1,262.30	57.66	22.893		
8,300.00	8,282.35	8,134.14	8,058.24	29.74	31.29	-149.54	-204.65	930.39	1,331.80	1,273.78	58.02	22.954		
8,350.00	8,332.19	8,182.72	8,106.08	29.92	31.50	-149.54	-206.59	938.62	1,343.63	1,285.25	58.38	23.014		
8,400.00	8,382.03	8,231.30	8,153.91	30.11	31.70	-149.53	-208.53	946.86	1,355.47	1,296.72	58.75	23.073		
8,450.00	8,431.87	8,279.88	8,201.75	30.29	31.91	-149.53	-210.47	955.09	1,367.30	1,308.19	59.11	23.132		
8,500.00	8,481.70	8,328.46	8,249.59	30.48	32.12	-149.52	-212.41	963.33	1,379.14	1,319.67	59.47	23.189		
8,550.00	8,531.54	8,377.04	8,297.42	30.67	32.33	-149.52	-214.35	971.57	1,390.98	1,331.14	59.84	23.247		
8,600.00	8,581.38	8,425.62	8,345.26	30.85	32.53	-149.52	-216.29	979.80	1,402.81	1,342.61	60.20	23.303		
8,650.00	8,631.22	8,474.20	8,393.10	31.04	32.74	-149.51	-218.23	988.04	1,414.65	1,354.09	60.56	23.359		
8,700.00	8,681.06	8,522.77	8,440.93	31.23	32.95	-149.51	-220.17	996.27	1,426.48	1,365.56	60.93	23.413		
8,750.00	8,730.90	8,571.35	8,488.77	31.41	33.16	-149.50	-222.11	1,004.51	1,438.32	1,377.03	61.29	23.468		
8,800.00	8,780.74	8,619.93	8,536.60	31.60	33.37	-149.50	-224.05	1,012.74	1,450.16	1,388.50	61.65	23.521		
8,850.00	8,830.58	8,668.51	8,584.44	31.78	33.58	-149.50	-225.99	1,020.98	1,461.99	1,399.98	62.02	23.574		
8,900.00	8,880.42	8,717.09	8,632.28	31.97	33.78	-149.49	-227.93	1,029.22	1,473.83	1,411.45	62.38	23.627		
8,950.00	8,930.26	8,765.67	8,680.11	32.16	33.99	-149.49	-229.87	1,037.45	1,485.66	1,422.92	62.74	23.678		
9,000.00	8,980.10	8,814.25	8,727.95	32.34	34.20	-149.49	-231.81	1,045.69	1,497.50	1,434.39	63.11	23.729		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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	
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 230H - Wellbore #1 - Permit Plan 1													Offset Well Error: 0.50 ft	
Survey Program: 0-MWD+HDGM														
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 +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,400.00	4,394.88	4,705.11	4,676.95	15.38	17.02	31.32	-77.67	-1,578.55	1,491.65	1,460.31	31.34	47.591		
4,450.00	4,444.72	4,753.41	4,724.32	15.56	17.23	31.32	-79.65	-1,569.30	1,478.72	1,447.03	31.69	46.657		
4,500.00	4,494.56	4,801.71	4,771.68	15.74	17.43	31.32	-81.62	-1,560.04	1,465.80	1,433.76	32.04	45.744		
4,550.00	4,544.40	4,850.01	4,819.05	15.92	17.63	31.32	-83.60	-1,550.78	1,452.87	1,420.48	32.39	44.850		
4,600.00	4,594.24	4,901.69	4,866.41	16.10	17.84	31.33	-85.57	-1,541.53	1,439.95	1,407.19	32.76	43.958		
4,650.00	4,644.08	4,946.61	4,913.77	16.28	18.03	31.33	-87.55	-1,532.27	1,427.02	1,393.92	33.10	43.117		
4,700.00	4,693.92	5,005.09	4,961.14	16.46	18.28	31.33	-89.52	-1,523.01	1,414.10	1,380.61	33.49	42.230		
4,750.00	4,743.75	5,043.21	5,008.50	16.64	18.44	31.33	-91.50	-1,513.75	1,401.17	1,367.37	33.80	41.454		
4,800.00	4,793.59	5,108.49	5,055.86	16.82	18.72	31.33	-93.47	-1,504.50	1,388.24	1,354.03	34.22	40.573		
4,850.00	4,843.43	5,139.81	5,103.23	17.00	18.85	31.33	-95.45	-1,495.24	1,375.32	1,340.81	34.51	39.858		
4,900.00	4,893.27	5,188.12	5,150.59	17.19	19.05	31.33	-97.42	-1,485.98	1,362.39	1,327.53	34.86	39.084		
4,950.00	4,943.11	5,236.42	5,197.96	17.37	19.26	31.33	-99.40	-1,476.73	1,349.47	1,314.26	35.21	38.324		
5,000.00	4,992.95	5,284.72	5,245.32	17.55	19.46	31.33	-101.37	-1,467.47	1,336.54	1,300.98	35.57	37.580		
5,050.00	5,042.79	5,333.02	5,292.68	17.73	19.67	31.33	-103.35	-1,458.21	1,323.62	1,287.70	35.92	36.850		
5,100.00	5,092.63	5,381.32	5,340.05	17.91	19.88	31.34	-105.33	-1,448.95	1,310.69	1,274.42	36.27	36.134		
5,150.00	5,142.47	5,429.62	5,387.41	18.10	20.08	31.34	-107.30	-1,439.70	1,297.76	1,261.14	36.63	35.431		
5,200.00	5,192.31	5,477.92	5,434.77	18.28	20.29	31.34	-109.28	-1,430.44	1,284.84	1,247.86	36.98	34.742		
5,250.00	5,242.15	5,526.22	5,482.14	18.46	20.50	31.34	-111.25	-1,421.18	1,271.91	1,234.58	37.34	34.065		
5,300.00	5,291.99	5,574.52	5,529.50	18.64	20.70	31.34	-113.23	-1,411.93	1,258.99	1,221.29	37.69	33.401		
5,350.00	5,341.83	5,622.82	5,576.87	18.83	20.91	31.34	-115.20	-1,402.67	1,246.06	1,208.01	38.05	32.750		
5,400.00	5,391.67	5,671.12	5,624.23	19.01	21.12	31.34	-117.18	-1,393.41	1,233.14	1,194.73	38.40	32.110		
5,450.00	5,441.51	5,719.42	5,671.59	19.19	21.33	31.34	-119.15	-1,384.16	1,220.21	1,181.45	38.76	31.481		
5,500.00	5,491.34	5,767.72	5,718.96	19.38	21.54	31.34	-121.13	-1,374.90	1,207.28	1,168.17	39.12	30.864		
5,550.00	5,541.18	5,816.02	5,766.32	19.56	21.74	31.35	-123.10	-1,365.64	1,194.36	1,154.89	39.47	30.258		
5,600.00	5,591.02	5,864.32	5,813.69	19.74	21.95	31.35	-125.08	-1,356.38	1,181.43	1,141.60	39.83	29.663		
5,650.00	5,640.86	5,912.62	5,861.05	19.93	22.16	31.35	-127.05	-1,347.13	1,168.51	1,128.32	40.19	29.078		
5,700.00	5,690.70	5,960.92	5,908.41	20.11	22.37	31.35	-129.03	-1,337.87	1,155.58	1,115.04	40.54	28.503		
5,750.00	5,740.54	6,009.22	5,955.78	20.29	22.58	31.35	-131.00	-1,328.61	1,142.66	1,101.76	40.90	27.938		
5,800.00	5,790.38	6,057.52	6,003.14	20.48	22.79	31.35	-132.98	-1,319.36	1,129.73	1,088.47	41.26	27.383		
5,850.00	5,840.22	6,105.82	6,050.50	20.66	23.00	31.35	-134.95	-1,310.10	1,116.80	1,075.19	41.61	26.837		
5,900.00	5,890.06	6,154.12	6,097.87	20.85	23.21	31.35	-136.93	-1,300.84	1,103.88	1,061.91	41.97	26.300		
5,950.00	5,939.90	6,202.42	6,145.23	21.03	23.42	31.36	-138.91	-1,291.59	1,090.95	1,048.62	42.33	25.773		
6,000.00	5,989.74	6,250.72	6,192.60	21.21	23.63	31.36	-140.88	-1,282.33	1,078.03	1,035.34	42.69	25.254		
6,050.00	6,039.58	6,300.98	6,239.96	21.40	23.85	31.36	-142.86	-1,273.07	1,065.10	1,022.05	43.05	24.739		
6,100.00	6,089.42	6,347.32	6,287.32	21.58	24.06	31.36	-144.83	-1,263.81	1,052.18	1,008.77	43.40	24.241		
6,150.00	6,139.26	6,404.38	6,334.69	21.77	24.31	31.36	-146.81	-1,254.56	1,039.25	995.45	43.80	23.729		
6,200.00	6,189.10	6,443.92	6,382.05	21.95	24.48	31.36	-148.78	-1,245.30	1,026.32	982.20	44.12	23.261		
6,250.00	6,238.93	6,507.78	6,429.41	22.13	24.76	31.37	-150.76	-1,236.04	1,013.40	968.86	44.54	22.753		
6,300.00	6,288.77	6,540.53	6,476.78	22.32	24.90	31.37	-152.73	-1,226.79	1,000.47	955.63	44.84	22.312		
6,350.00	6,338.61	6,588.83	6,524.14	22.50	25.11	31.37	-154.71	-1,217.53	987.55	942.35	45.20	21.849		
6,400.00	6,388.45	6,637.13	6,571.51	22.69	25.33	31.37	-156.68	-1,208.27	974.62	929.06	45.56	21.393		
6,450.00	6,438.29	6,685.43	6,618.87	22.87	25.54	31.37	-158.66	-1,199.02	961.70	915.78	45.92	20.944		
6,500.00	6,488.13	6,733.73	6,666.23	23.06	25.75	31.37	-160.63	-1,189.76	948.77	902.49	46.28	20.502		
6,550.00	6,537.97	6,782.03	6,713.60	23.24	25.96	31.38	-162.61	-1,180.50	935.84	889.21	46.64	20.066		
6,600.00	6,587.81	6,830.33	6,760.96	23.43	26.18	31.38	-164.58	-1,171.24	922.92	875.92	47.00	19.637		
6,650.00	6,637.65	6,878.63	6,808.33	23.61	26.39	31.38	-166.56	-1,161.99	909.99	862.64	47.36	19.215		
6,700.00	6,687.49	6,926.93	6,855.69	23.80	26.60	31.38	-168.53	-1,152.73	897.07	849.35	47.72	18.799		
6,750.00	6,737.33	6,975.23	6,903.05	23.98	26.82	31.39	-170.51	-1,143.47	884.14	836.06	48.08	18.390		
6,800.00	6,787.17	7,023.53	6,950.42	24.17	27.03	31.39	-172.49	-1,134.22	871.22	822.78	48.44	17.986		
6,850.00	6,837.01	7,071.83	6,997.78	24.35	27.24	31.39	-174.46	-1,124.96	858.29	809.49	48.80	17.588		
6,900.00	6,886.85	7,120.13	7,045.14	24.54	27.46	31.39	-176.44	-1,115.70	845.37	796.20	49.16	17.196		
6,950.00	6,936.69	7,168.43	7,092.51	24.72	27.67	31.40	-178.41	-1,106.44	832.44	782.92	49.52	16.810		

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 230H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	
7,000.00	6,986.52	7,216.73	7,139.87	24.91	27.88	31.40	-180.39	-1,097.19	819.51	769.63	49.88	16.429	
7,050.00	7,036.36	7,265.03	7,187.24	25.09	28.10	31.40	-182.38	-1,087.93	806.59	756.34	50.24	16.054	
7,100.00	7,086.20	7,313.33	7,234.60	25.28	28.31	31.40	-184.34	-1,078.67	793.66	743.06	50.60	15.684	
7,150.00	7,136.04	7,361.63	7,281.96	25.46	28.52	31.41	-186.31	-1,069.42	780.74	729.77	50.97	15.319	
7,200.00	7,185.88	7,409.93	7,329.33	25.65	28.74	31.41	-188.29	-1,060.16	767.81	716.48	51.33	14.959	
7,250.00	7,235.72	7,458.23	7,376.69	25.83	28.95	31.41	-190.26	-1,050.90	754.89	703.20	51.69	14.604	
7,300.00	7,285.56	7,506.53	7,424.06	26.02	29.17	31.42	-192.24	-1,041.65	741.96	689.91	52.05	14.255	
7,350.00	7,335.40	7,554.83	7,471.42	26.20	29.38	31.42	-194.21	-1,032.39	729.03	676.62	52.41	13.910	
7,400.00	7,385.24	7,603.13	7,518.78	26.39	29.60	31.42	-196.19	-1,023.13	716.11	663.33	52.77	13.569	
7,450.00	7,435.08	7,651.43	7,566.15	26.58	29.81	31.43	-198.16	-1,013.87	703.18	650.05	53.14	13.234	
7,500.00	7,484.92	7,700.27	7,613.51	26.76	30.03	31.43	-200.14	-1,004.62	690.26	636.76	53.50	12.902	
7,550.00	7,534.76	7,748.03	7,660.87	26.95	30.24	31.43	-202.11	-995.36	677.33	623.47	53.86	12.576	
7,600.00	7,584.60	7,796.34	7,708.24	27.13	30.46	31.44	-204.09	-986.10	664.41	610.18	54.22	12.253	
7,650.00	7,634.44	7,844.64	7,755.60	27.32	30.67	31.44	-206.06	-976.85	651.48	596.89	54.59	11.935	
7,700.00	7,684.28	7,907.06	7,802.97	27.50	30.95	31.45	-208.04	-967.59	638.55	583.55	55.00	11.610	
7,750.00	7,734.11	7,941.24	7,850.33	27.69	31.10	31.45	-210.02	-958.33	625.63	570.32	55.31	11.311	
7,800.00	7,783.95	7,989.54	7,897.69	27.88	31.32	31.45	-211.99	-949.08	612.70	557.03	55.67	11.005	
7,850.00	7,833.79	8,037.84	7,945.06	28.06	31.53	31.46	-213.97	-939.82	599.78	543.74	56.04	10.703	
7,900.00	7,883.63	8,086.14	7,992.42	28.25	31.75	31.46	-215.94	-930.56	586.85	530.45	56.40	10.405	
7,950.00	7,933.47	8,134.44	8,039.78	28.43	31.96	31.47	-217.92	-921.30	573.93	517.16	56.76	10.111	
8,000.00	7,983.31	8,182.74	8,087.15	28.62	32.18	31.47	-219.89	-912.05	561.00	503.88	57.12	9.821	
8,050.00	8,033.15	8,231.04	8,134.51	28.81	32.40	31.48	-221.87	-902.79	548.08	490.59	57.49	9.534	
8,100.00	8,082.99	8,279.34	8,181.88	28.99	32.61	31.49	-223.84	-893.53	535.15	477.30	57.85	9.251	
8,150.00	8,132.83	8,327.64	8,229.24	29.18	32.83	31.49	-225.82	-884.28	522.22	464.01	58.21	8.971	
8,200.00	8,182.67	8,375.94	8,276.60	29.36	33.04	31.50	-227.79	-875.02	509.30	450.72	58.58	8.694	
8,250.00	8,232.51	8,424.24	8,323.97	29.55	33.26	31.51	-229.77	-865.76	496.37	437.43	58.94	8.422	
8,300.00	8,282.35	8,472.54	8,371.33	29.74	33.48	31.51	-231.74	-856.50	483.45	424.14	59.30	8.152	
8,350.00	8,332.19	8,520.84	8,418.70	29.92	33.69	31.52	-233.72	-847.25	470.52	410.85	59.67	7.886	
8,400.00	8,382.03	8,569.14	8,466.06	30.11	33.91	31.53	-235.69	-837.99	457.60	397.56	60.03	7.623	
8,450.00	8,431.87	8,617.44	8,513.42	30.29	34.12	31.54	-237.67	-828.73	444.67	384.28	60.40	7.363	
8,500.00	8,481.70	8,665.74	8,560.79	30.48	34.34	31.55	-239.64	-819.48	431.74	370.99	60.76	7.106	
8,550.00	8,531.54	8,714.04	8,608.15	30.67	34.56	31.56	-241.62	-810.22	418.82	357.70	61.12	6.852	
8,600.00	8,581.38	8,762.34	8,655.51	30.85	34.77	31.57	-243.60	-800.96	405.89	344.41	61.49	6.601	
8,650.00	8,631.22	8,810.64	8,702.88	31.04	34.99	31.58	-245.57	-791.71	392.97	331.12	61.85	6.353	
8,700.00	8,681.06	8,858.94	8,750.24	31.23	35.21	31.59	-247.55	-782.45	380.04	317.83	62.21	6.109	
8,750.00	8,730.90	8,907.24	8,797.61	31.41	35.42	31.60	-249.52	-773.19	367.12	304.54	62.58	5.866	
8,800.00	8,780.74	8,955.54	8,844.97	31.60	35.64	31.62	-251.50	-763.93	354.19	291.25	62.94	5.627	
8,850.00	8,830.58	9,003.84	8,892.33	31.78	35.86	31.63	-253.47	-754.68	341.27	277.96	63.31	5.391	
8,900.00	8,880.42	9,052.14	8,939.70	31.97	36.07	31.65	-255.45	-745.42	328.34	264.67	63.67	5.157	
8,950.00	8,930.26	9,100.45	8,987.06	32.16	36.29	31.66	-257.42	-736.16	315.42	251.38	64.04	4.926 Alert	
9,000.00	8,980.10	9,148.75	9,034.42	32.34	36.51	31.68	-259.40	-726.91	302.49	238.09	64.40	4.697 Alert	
9,050.00	9,029.94	9,202.95	9,081.79	32.53	36.75	31.70	-261.37	-717.65	289.56	224.78	64.79	4.469 Alert	
9,100.00	9,079.78	9,245.35	9,129.15	32.72	36.94	31.73	-263.35	-708.39	276.64	211.51	65.13	4.248 Alert	
9,150.00	9,129.62	9,306.35	9,176.52	32.90	37.22	31.75	-265.32	-699.14	263.71	198.17	65.54	4.024 Alert	
9,200.00	9,179.46	9,341.95	9,223.88	33.09	37.38	31.78	-267.30	-689.88	250.79	184.93	65.86	3.808 Alert	
9,250.00	9,229.29	9,409.75	9,271.24	33.28	37.68	31.81	-269.27	-680.62	237.86	171.57	66.30	3.588 Alert	
9,300.00	9,279.13	9,438.55	9,318.61	33.46	37.81	31.84	-271.25	-671.36	224.94	158.35	66.59	3.378 Alert	
9,350.00	9,328.97	9,486.85	9,365.97	33.65	38.03	31.86	-273.22	-662.11	212.02	145.07	66.95	3.167 Alert	
9,400.00	9,378.85	9,535.24	9,413.43	33.83	38.25	31.73	-275.20	-652.83	199.45	132.13	67.32	2.963 Alert	
9,450.00	9,428.76	9,583.77	9,461.02	34.02	38.46	31.49	-277.19	-643.53	187.42	119.74	67.68	2.769 Alert	
9,500.00	9,478.71	9,632.43	9,508.73	34.20	38.68	31.13	-279.18	-634.21	175.93	107.88	68.06	2.585 Alert	
9,550.00	9,528.68	9,681.20	9,556.56	34.38	38.90	30.62	-281.17	-624.86	165.00	96.57	68.43	2.411 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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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		
9,600.00	9,578.67	9,730.09	9,604.49	34.55	39.12	29.92	-283.17	-615.49	154.63	85.82	68.81	2.247	Minor Risk	
9,650.00	9,628.67	9,779.31	9,652.79	34.73	39.34	-91.54	-283.83	-606.06	144.81	75.64	69.16	2.094	Minor Risk	
9,700.00	9,678.67	9,828.40	9,700.84	34.89	39.55	-90.16	-280.36	-596.69	135.19	65.70	69.49	1.946	Minor Risk	
9,750.00	9,728.67	9,876.56	9,747.52	35.08	39.74	-86.71	-272.90	-587.62	125.86	56.00	69.86	1.802	Minor Risk	
9,800.00	9,778.67	9,923.16	9,791.97	35.23	39.91	-81.06	-261.90	-579.00	117.65	47.27	70.38	1.672	Minor Risk	
9,850.00	9,828.67	9,967.69	9,833.49	35.40	40.07	-73.34	-247.99	-570.97	111.98	40.96	71.02	1.577	Minor Risk	
9,887.43	9,866.10	9,999.46	9,862.40	35.52	40.17	-66.58	-236.08	-565.39	110.49	39.06	71.43	1.547	Minor Risk, CC, ES, SF	
9,900.00	9,878.67	10,009.80	9,871.67	35.56	40.20	-64.20	-231.85	-563.60	110.88	39.16	71.51	1.548	Minor Risk	
9,950.00	9,928.67	10,049.26	9,906.30	35.73	40.32	-54.69	-214.17	-556.93	115.40	44.04	71.36	1.617	Minor Risk	
10,000.00	9,978.67	10,085.98	9,937.39	35.90	40.42	-45.52	-195.58	-550.96	126.89	56.59	70.30	1.805	Minor Risk	
10,050.00	10,028.60	10,121.01	9,965.90	36.06	40.51	-37.11	-175.98	-545.49	143.05	74.49	68.56	2.087	Minor Risk	
10,100.00	10,078.14	10,155.40	9,992.70	36.22	40.59	-30.42	-155.05	-540.37	161.10	94.63	66.47	2.424	Minor Risk	
10,150.00	10,126.91	10,189.24	10,017.82	36.38	40.65	-25.18	-132.90	-535.58	179.95	115.73	64.23	2.802	Alert	
10,200.00	10,174.53	10,222.62	10,041.30	36.52	40.72	-21.07	-109.61	-531.12	198.90	136.96	61.94	3.211	Alert	
10,250.00	10,220.66	10,255.60	10,063.16	36.65	40.77	-17.82	-85.26	-526.98	217.46	157.80	59.65	3.645	Alert	
10,300.00	10,264.93	10,288.25	10,083.41	36.77	40.82	-15.25	-59.95	-523.16	235.31	177.91	57.40	4.100	Alert	
10,350.00	10,307.01	10,320.61	10,102.05	36.88	40.86	-13.19	-33.73	-519.66	252.24	197.04	55.20	4.570	Alert	
10,400.00	10,346.58	10,350.00	10,117.70	36.98	40.89	-11.64	-9.03	-516.73	268.09	215.39	52.70	5.087		
10,450.00	10,383.33	10,384.65	10,134.53	37.06	40.93	-10.20	21.09	-513.61	282.68	231.64	51.04	5.538		
10,500.00	10,417.00	10,416.40	10,148.35	37.13	40.95	-9.11	49.56	-511.06	295.97	246.84	49.13	6.024		
10,550.00	10,447.31	10,450.00	10,161.27	37.19	40.98	-8.19	80.48	-508.70	307.88	260.30	47.57	6.472		
10,600.00	10,474.05	10,479.49	10,171.13	37.24	40.99	-7.53	108.21	-506.92	318.30	272.52	45.78	6.953		
10,650.00	10,497.00	10,510.88	10,180.06	37.28	41.01	-6.97	138.25	-505.33	327.23	282.83	44.40	7.370		
10,700.00	10,516.00	10,542.18	10,187.36	37.31	41.02	-6.53	168.67	-504.08	334.60	291.34	43.26	7.735		
10,750.00	10,530.90	10,573.43	10,193.01	37.35	41.04	-6.21	199.38	-503.12	340.40	298.01	42.39	8.031		
10,800.00	10,541.58	10,600.00	10,196.51	37.42	41.05	-6.01	225.71	-502.58	344.64	302.96	41.68	8.269		
10,850.00	10,547.96	10,635.80	10,199.32	37.51	41.06	-5.86	261.40	-502.21	347.16	305.61	41.55	8.356		
10,900.00	10,550.00	10,668.81	10,200.00	37.62	41.08	-5.82	294.40	-502.25	348.09	306.48	41.61	8.366		
10,950.00	10,550.00	10,718.81	10,200.00	37.74	41.10	-5.82	344.39	-502.52	348.09	306.30	41.79	8.329		
11,000.00	10,550.00	10,768.81	10,200.00	37.87	41.14	-5.82	394.39	-502.78	348.09	306.11	41.98	8.292		
11,050.00	10,550.00	10,818.81	10,200.00	38.02	41.19	-5.82	444.39	-503.04	348.09	305.91	42.19	8.251		
11,100.00	10,550.00	10,868.81	10,200.00	38.18	41.25	-5.82	494.39	-503.30	348.09	305.69	42.40	8.209		
11,150.00	10,550.00	10,918.81	10,200.00	38.36	41.32	-5.82	544.39	-503.56	348.09	305.46	42.64	8.164		
11,200.00	10,550.00	10,968.81	10,200.00	38.54	41.40	-5.82	594.39	-503.83	348.09	305.21	42.88	8.118		
11,250.00	10,550.00	11,018.81	10,200.00	38.74	41.50	-5.82	644.39	-504.09	348.09	304.95	43.14	8.069		
11,300.00	10,550.00	11,068.81	10,200.00	38.95	41.61	-5.82	694.39	-504.35	348.09	304.68	43.41	8.019		
11,350.00	10,550.00	11,118.81	10,200.00	39.17	41.73	-5.82	744.39	-504.61	348.09	304.40	43.70	7.966		
11,400.00	10,550.00	11,168.81	10,200.00	39.40	41.87	-5.82	794.39	-504.87	348.09	304.10	43.99	7.913		
11,450.00	10,550.00	11,218.81	10,200.00	39.66	42.03	-5.82	844.39	-505.13	348.09	303.79	44.30	7.857		
11,500.00	10,550.00	11,268.81	10,200.00	39.91	42.21	-5.82	894.39	-505.40	348.09	303.47	44.62	7.801		
11,550.00	10,550.00	11,318.81	10,200.00	40.18	42.40	-5.82	944.39	-505.66	348.09	303.14	44.96	7.743		
11,600.00	10,550.00	11,368.81	10,200.00	40.46	42.60	-5.82	994.39	-505.92	348.09	302.79	45.30	7.684		
11,650.00	10,550.00	11,418.81	10,200.00	40.75	42.82	-5.82	1,044.39	-506.18	348.10	302.44	45.66	7.624		
11,700.00	10,550.00	11,468.81	10,200.00	41.05	43.06	-5.82	1,094.38	-506.44	348.10	302.07	46.02	7.563		
11,750.00	10,550.00	11,518.81	10,200.00	41.37	43.31	-5.82	1,144.38	-506.70	348.10	301.69	46.40	7.502		
11,800.00	10,550.00	11,568.81	10,200.00	41.68	43.57	-5.82	1,194.38	-506.97	348.10	301.31	46.79	7.440		
11,850.00	10,550.00	11,618.81	10,200.00	42.02	43.85	-5.82	1,244.38	-507.23	348.10	300.91	47.19	7.377		
11,900.00	10,550.00	11,668.81	10,200.00	42.36	44.15	-5.83	1,294.38	-507.49	348.10	300.50	47.60	7.314		
11,950.00	10,550.00	11,718.81	10,200.00	42.71	44.45	-5.83	1,344.38	-507.75	348.10	300.08	48.01	7.250		
12,000.00	10,550.00	11,768.81	10,200.00	43.07	44.77	-5.83	1,394.38	-508.01	348.10	299.66	48.44	7.186		
12,050.00	10,550.00	11,818.81	10,200.00	43.44	45.10	-5.83	1,444.38	-508.28	348.10	299.22	48.88	7.122		
12,100.00	10,550.00	11,868.81	10,200.00	43.82	45.44	-5.83	1,494.38	-508.54	348.10	298.78	49.32	7.058		

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	10,550.00	11,918.81	10,200.00	44.21	45.79	-5.83	1,544.38	-508.80	348.10	298.32	49.78	8.993		
12,200.00	10,550.00	11,968.81	10,200.00	44.60	46.15	-5.83	1,594.38	-509.06	348.10	297.86	50.24	8.929		
12,250.00	10,550.00	12,018.81	10,200.00	45.01	46.52	-5.83	1,644.38	-509.32	348.10	297.39	50.71	8.864		
12,300.00	10,550.00	12,068.81	10,200.00	45.42	46.90	-5.83	1,694.38	-509.58	348.10	296.91	51.19	8.800		
12,350.00	10,550.00	12,118.81	10,200.00	45.84	47.29	-5.83	1,744.38	-509.85	348.10	296.42	51.68	8.736		
12,400.00	10,550.00	12,168.81	10,200.00	46.26	47.69	-5.83	1,794.37	-510.11	348.10	295.93	52.17	8.673		
12,450.00	10,550.00	12,218.81	10,200.00	46.70	48.10	-5.83	1,844.37	-510.37	348.10	295.43	52.67	8.609		
12,500.00	10,550.00	12,268.81	10,200.00	47.14	48.51	-5.83	1,894.37	-510.63	348.10	294.92	53.18	8.546		
12,550.00	10,550.00	12,318.81	10,200.00	47.59	48.94	-5.83	1,944.37	-510.89	348.10	294.41	53.69	8.483		
12,600.00	10,550.00	12,368.81	10,200.00	48.04	49.37	-5.83	1,994.37	-511.16	348.10	293.88	54.22	8.421		
12,650.00	10,550.00	12,418.81	10,200.00	48.51	49.81	-5.83	2,044.37	-511.42	348.10	293.36	54.75	8.359		
12,700.00	10,550.00	12,468.81	10,200.00	48.98	50.25	-5.83	2,094.37	-511.68	348.10	292.82	55.28	8.297		
12,750.00	10,550.00	12,518.81	10,200.00	49.45	50.71	-5.83	2,144.37	-511.94	348.10	292.28	55.82	8.236		
12,800.00	10,550.00	12,568.81	10,200.00	49.93	51.17	-5.83	2,194.37	-512.20	348.10	291.73	56.37	8.176		
12,850.00	10,550.00	12,618.81	10,200.00	50.42	51.63	-5.83	2,244.37	-512.46	348.10	291.18	56.92	8.115		
12,900.00	10,550.00	12,668.81	10,200.00	50.91	52.10	-5.83	2,294.37	-512.73	348.10	290.62	57.48	8.056		
12,950.00	10,550.00	12,718.81	10,200.00	51.41	52.58	-5.83	2,344.37	-512.99	348.10	290.06	58.04	7.997		
13,000.00	10,550.00	12,768.81	10,200.00	51.91	53.07	-5.83	2,394.37	-513.25	348.10	289.49	58.61	7.939		
13,050.00	10,550.00	12,818.81	10,200.00	52.42	53.56	-5.84	2,444.37	-513.51	348.10	288.91	59.19	7.881		
13,100.00	10,550.00	12,868.81	10,200.00	52.94	54.05	-5.84	2,494.37	-513.77	348.10	288.34	59.77	7.824		
13,150.00	10,550.00	12,918.81	10,200.00	53.46	54.55	-5.84	2,544.36	-514.04	348.10	287.75	60.35	7.768		
13,200.00	10,550.00	12,968.81	10,200.00	53.98	55.06	-5.84	2,594.36	-514.30	348.10	287.16	60.94	7.712		
13,250.00	10,550.00	13,018.81	10,200.00	54.51	55.57	-5.84	2,644.36	-514.56	348.10	286.57	61.54	7.657		
13,300.00	10,550.00	13,068.81	10,200.00	55.04	56.09	-5.84	2,694.36	-514.82	348.10	285.97	62.13	7.602		
13,350.00	10,550.00	13,118.81	10,200.00	55.58	56.61	-5.84	2,744.36	-515.08	348.10	285.37	62.74	7.549		
13,400.00	10,550.00	13,168.81	10,200.00	56.12	57.13	-5.84	2,794.36	-515.34	348.10	284.76	63.34	7.495		
13,450.00	10,550.00	13,218.81	10,200.00	56.67	57.66	-5.84	2,844.36	-515.61	348.10	284.15	63.96	7.443		
13,500.00	10,550.00	13,268.81	10,200.00	57.21	58.20	-5.84	2,894.36	-515.87	348.11	283.53	64.57	7.391		
13,550.00	10,550.00	13,318.81	10,200.00	57.77	58.74	-5.84	2,944.36	-516.13	348.11	282.91	65.19	7.340		
13,600.00	10,550.00	13,368.81	10,200.00	58.33	59.28	-5.84	2,994.36	-516.39	348.11	282.29	65.81	7.289		
13,650.00	10,550.00	13,418.81	10,200.00	58.89	59.83	-5.84	3,044.36	-516.65	348.11	281.67	66.44	7.239		
13,700.00	10,550.00	13,468.81	10,200.00	59.45	60.38	-5.84	3,094.36	-516.92	348.11	281.04	67.07	7.190		
13,750.00	10,550.00	13,518.81	10,200.00	60.02	60.93	-5.84	3,144.36	-517.18	348.11	280.40	67.70	7.142		
13,800.00	10,550.00	13,568.81	10,200.00	60.59	61.49	-5.84	3,194.36	-517.44	348.11	279.77	68.34	7.094		
13,850.00	10,550.00	13,618.81	10,200.00	61.17	62.05	-5.84	3,244.36	-517.70	348.11	279.13	68.98	7.046		
13,900.00	10,550.00	13,668.81	10,200.00	61.75	62.62	-5.84	3,294.35	-517.96	348.11	278.48	69.62	7.000 Alert		
13,950.00	10,550.00	13,718.81	10,200.00	62.33	63.18	-5.84	3,344.35	-518.22	348.11	277.84	70.27	6.954 Alert		
14,000.00	10,550.00	13,768.81	10,200.00	62.91	63.76	-5.84	3,394.35	-518.49	348.11	277.19	70.92	6.909 Alert		
14,050.00	10,550.00	13,818.81	10,200.00	63.50	64.33	-5.84	3,444.35	-518.75	348.11	276.54	71.57	6.864 Alert		
14,100.00	10,550.00	13,868.81	10,200.00	64.09	64.91	-5.84	3,494.35	-519.01	348.11	275.88	72.23	6.820 Alert		
14,150.00	10,550.00	13,918.81	10,200.00	64.68	65.49	-5.84	3,544.35	-519.27	348.11	275.22	72.88	6.776 Alert		
14,200.00	10,550.00	13,968.81	10,200.00	65.28	66.07	-5.85	3,594.35	-519.53	348.11	274.56	73.54	6.733 Alert		
14,250.00	10,550.00	14,018.81	10,200.00	65.88	66.66	-5.85	3,644.35	-519.79	348.11	273.90	74.21	6.691 Alert		
14,300.00	10,550.00	14,068.81	10,200.00	66.48	67.25	-5.85	3,694.35	-520.06	348.11	273.24	74.87	6.649 Alert		
14,350.00	10,550.00	14,118.81	10,200.00	67.08	67.84	-5.85	3,744.35	-520.32	348.11	272.57	75.54	6.608 Alert		
14,400.00	10,550.00	14,168.81	10,200.00	67.69	68.44	-5.85	3,794.35	-520.58	348.11	271.90	76.21	6.568 Alert		
14,450.00	10,550.00	14,218.81	10,200.00	68.30	69.03	-5.85	3,844.35	-520.84	348.11	271.22	76.89	6.528 Alert		
14,500.00	10,550.00	14,268.81	10,200.00	68.91	69.63	-5.85	3,894.35	-521.10	348.11	270.55	77.56	6.488 Alert		
14,550.00	10,550.00	14,318.81	10,200.00	69.52	70.24	-5.85	3,944.35	-521.37	348.11	269.87	78.24	6.449 Alert		
14,600.00	10,550.00	14,368.81	10,200.00	70.14	70.84	-5.85	3,994.34	-521.63	348.11	269.19	78.92	6.411 Alert		
14,650.00	10,550.00	14,418.81	10,200.00	70.75	71.45	-5.85	4,044.34	-521.89	348.11	268.51	79.60	6.373 Alert		
14,700.00	10,550.00	14,468.81	10,200.00	71.37	72.06	-5.85	4,094.34	-522.15	348.11	267.83	80.29	6.336 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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 230H - Wellbore #1 - Permit Plan 1													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
14,750.00	10,550.00	14,518.81	10,200.00	72.00	72.67	-5.85	4,144.34	-522.41	348.11	267.14	80.97	4.299	Alert
14,800.00	10,550.00	14,568.81	10,200.00	72.62	73.28	-5.85	4,194.34	-522.67	348.11	266.45	81.66	4.263	Alert
14,850.00	10,550.00	14,618.81	10,200.00	73.24	73.90	-5.85	4,244.34	-522.94	348.11	265.76	82.35	4.227	Alert
14,900.00	10,550.00	14,668.81	10,200.00	73.87	74.52	-5.85	4,294.34	-523.20	348.11	265.07	83.04	4.192	Alert
14,950.00	10,550.00	14,718.81	10,200.00	74.50	75.14	-5.85	4,344.34	-523.46	348.11	264.38	83.73	4.157	Alert
15,000.00	10,550.00	14,768.81	10,200.00	75.13	75.76	-5.85	4,394.34	-523.72	348.11	263.68	84.43	4.123	Alert
15,050.00	10,550.00	14,818.81	10,200.00	75.76	76.38	-5.85	4,444.34	-523.98	348.11	262.99	85.13	4.089	Alert
15,100.00	10,550.00	14,868.81	10,200.00	76.40	77.01	-5.85	4,494.34	-524.25	348.11	262.29	85.83	4.056	Alert
15,150.00	10,550.00	14,918.81	10,200.00	77.03	77.63	-5.85	4,544.34	-524.51	348.11	261.59	86.53	4.023	Alert
15,200.00	10,550.00	14,968.81	10,200.00	77.67	78.26	-5.85	4,594.34	-524.77	348.11	260.89	87.23	3.991	Alert
15,250.00	10,550.00	15,018.81	10,200.00	78.31	78.89	-5.85	4,644.34	-525.03	348.11	260.18	87.93	3.959	Alert
15,300.00	10,550.00	15,068.81	10,200.00	78.95	79.53	-5.85	4,694.34	-525.29	348.11	259.48	88.64	3.927	Alert
15,350.00	10,550.00	15,118.81	10,200.00	79.59	80.16	-5.86	4,744.33	-525.55	348.11	258.77	89.34	3.896	Alert
15,400.00	10,550.00	15,168.81	10,200.00	80.24	80.80	-5.86	4,794.33	-525.82	348.12	258.06	90.05	3.866	Alert
15,450.00	10,550.00	15,218.81	10,200.00	80.88	81.43	-5.86	4,844.33	-526.08	348.12	257.35	90.76	3.835	Alert
15,500.00	10,550.00	15,268.81	10,200.00	81.53	82.07	-5.86	4,894.33	-526.34	348.12	256.64	91.47	3.806	Alert
15,550.00	10,550.00	15,318.81	10,200.00	82.18	82.71	-5.86	4,944.33	-526.60	348.12	255.93	92.19	3.776	Alert
15,600.00	10,550.00	15,368.81	10,200.00	82.83	83.35	-5.86	4,994.33	-526.86	348.12	255.22	92.90	3.747	Alert
15,650.00	10,550.00	15,418.81	10,200.00	83.48	84.00	-5.86	5,044.33	-527.13	348.12	254.50	93.61	3.719	Alert
15,700.00	10,550.00	15,468.81	10,200.00	84.13	84.64	-5.86	5,094.33	-527.39	348.12	253.79	94.33	3.690	Alert
15,750.00	10,550.00	15,518.81	10,200.00	84.78	85.29	-5.86	5,144.33	-527.65	348.12	253.07	95.05	3.663	Alert
15,800.00	10,550.00	15,568.81	10,200.00	85.44	85.93	-5.86	5,194.33	-527.91	348.12	252.35	95.77	3.635	Alert
15,850.00	10,550.00	15,618.81	10,200.00	86.09	86.58	-5.86	5,244.33	-528.17	348.12	251.63	96.49	3.608	Alert
15,900.00	10,550.00	15,668.81	10,200.00	86.75	87.23	-5.86	5,294.33	-528.43	348.12	250.91	97.21	3.581	Alert
15,950.00	10,550.00	15,718.81	10,200.00	87.41	87.88	-5.86	5,344.33	-528.70	348.12	250.19	97.93	3.555	Alert
16,000.00	10,550.00	15,768.81	10,200.00	88.07	88.54	-5.86	5,394.33	-528.96	348.12	249.46	98.65	3.529	Alert
16,050.00	10,550.00	15,818.81	10,200.00	88.73	89.19	-5.86	5,444.32	-529.22	348.12	248.74	99.38	3.503	Alert
16,100.00	10,550.00	15,868.81	10,200.00	89.39	89.84	-5.86	5,494.32	-529.48	348.12	248.01	100.10	3.478	Alert
16,150.00	10,550.00	15,918.81	10,200.00	90.05	90.50	-5.86	5,544.32	-529.74	348.12	247.29	100.83	3.453	Alert
16,200.00	10,550.00	15,968.81	10,200.00	90.71	91.15	-5.86	5,594.32	-530.00	348.12	246.56	101.56	3.428	Alert
16,250.00	10,550.00	16,018.81	10,200.00	91.38	91.81	-5.86	5,644.32	-530.27	348.12	245.83	102.29	3.403	Alert
16,300.00	10,550.00	16,068.81	10,200.00	92.04	92.47	-5.86	5,694.32	-530.53	348.12	245.10	103.02	3.379	Alert
16,350.00	10,550.00	16,118.81	10,200.00	92.71	93.13	-5.86	5,744.32	-530.79	348.12	244.37	103.75	3.355	Alert
16,400.00	10,550.00	16,168.81	10,200.00	93.37	93.79	-5.86	5,794.32	-531.05	348.12	243.64	104.48	3.332	Alert
16,450.00	10,550.00	16,218.81	10,200.00	94.04	94.45	-5.86	5,844.32	-531.31	348.12	242.91	105.21	3.309	Alert
16,500.00	10,550.00	16,268.81	10,200.00	94.71	95.12	-5.86	5,894.32	-531.58	348.12	242.18	105.94	3.286	Alert
16,550.00	10,550.00	16,318.81	10,200.00	95.38	95.78	-5.87	5,944.32	-531.84	348.12	241.44	106.68	3.263	Alert
16,600.00	10,550.00	16,368.81	10,200.00	96.05	96.44	-5.87	5,994.32	-532.10	348.12	240.71	107.41	3.241	Alert
16,650.00	10,550.00	16,418.81	10,200.00	96.72	97.11	-5.87	6,044.32	-532.36	348.12	239.97	108.15	3.219	Alert
16,700.00	10,550.00	16,468.81	10,200.00	97.39	97.78	-5.87	6,094.32	-532.62	348.12	239.24	108.89	3.197	Alert
16,750.00	10,550.00	16,518.81	10,200.00	98.07	98.44	-5.87	6,144.32	-532.88	348.12	238.50	109.62	3.176	Alert
16,800.00	10,550.00	16,568.81	10,200.00	98.74	99.11	-5.87	6,194.31	-533.15	348.12	237.76	110.36	3.154	Alert
16,850.00	10,550.00	16,618.81	10,200.00	99.42	99.78	-5.87	6,244.31	-533.41	348.12	237.02	111.10	3.133	Alert
16,900.00	10,550.00	16,668.81	10,200.00	100.09	100.45	-5.87	6,294.31	-533.67	348.12	236.28	111.84	3.113	Alert
16,950.00	10,550.00	16,718.81	10,200.00	100.77	101.12	-5.87	6,344.31	-533.93	348.12	235.54	112.58	3.092	Alert
17,000.00	10,550.00	16,768.81	10,200.00	101.44	101.79	-5.87	6,394.31	-534.19	348.12	234.80	113.32	3.072	Alert
17,050.00	10,550.00	16,818.81	10,200.00	102.12	102.47	-5.87	6,444.31	-534.46	348.12	234.06	114.07	3.052	Alert
17,100.00	10,550.00	16,868.81	10,200.00	102.80	103.14	-5.87	6,494.31	-534.72	348.12	233.32	114.81	3.032	Alert
17,150.00	10,550.00	16,918.81	10,200.00	103.48	103.81	-5.87	6,544.31	-534.98	348.12	232.57	115.55	3.013	Alert
17,200.00	10,550.00	16,968.81	10,200.00	104.16	104.49	-5.87	6,594.31	-535.24	348.12	231.83	116.30	2.993	Alert
17,250.00	10,550.00	17,018.81	10,200.00	104.84	105.16	-5.87	6,644.31	-535.50	348.13	231.08	117.04	2.974	Alert
17,300.00	10,550.00	17,068.81	10,200.00	105.52	105.84	-5.87	6,694.31	-535.76	348.13	230.34	117.79	2.956	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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 230H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	
17,350.00	10,550.00	17,118.81	10,200.00	106.20	108.51	-5.87	6,744.31	-536.03	348.13	229.59	118.53	2.937	Alert
17,400.00	10,550.00	17,168.81	10,200.00	106.88	107.19	-5.87	6,794.31	-536.29	348.13	228.85	119.28	2.919	Alert
17,450.00	10,550.00	17,218.81	10,200.00	107.56	107.87	-5.87	6,844.31	-536.55	348.13	228.10	120.03	2.900	Alert
17,500.00	10,550.00	17,268.81	10,200.00	108.25	108.55	-5.87	6,894.31	-536.81	348.13	227.35	120.77	2.882	Alert
17,550.00	10,550.00	17,318.81	10,200.00	108.93	109.23	-5.87	6,944.30	-537.07	348.13	226.60	121.52	2.865	Alert
17,600.00	10,550.00	17,368.81	10,200.00	109.61	109.91	-5.87	6,994.30	-537.34	348.13	225.85	122.27	2.847	Alert
17,650.00	10,550.00	17,418.81	10,200.00	110.30	110.59	-5.87	7,044.30	-537.60	348.13	225.11	123.02	2.830	Alert
17,700.00	10,550.00	17,468.81	10,200.00	110.98	111.27	-5.88	7,094.30	-537.86	348.13	224.36	123.77	2.813	Alert
17,750.00	10,550.00	17,518.81	10,200.00	111.67	111.95	-5.88	7,144.30	-538.12	348.13	223.60	124.52	2.796	Alert
17,800.00	10,550.00	17,568.81	10,200.00	112.36	112.63	-5.88	7,194.30	-538.38	348.13	222.85	125.27	2.779	Alert
17,850.00	10,550.00	17,618.81	10,200.00	113.04	113.31	-5.88	7,244.30	-538.64	348.13	222.10	126.03	2.762	Alert
17,900.00	10,550.00	17,668.81	10,200.00	113.73	114.00	-5.88	7,294.30	-538.91	348.13	221.35	126.78	2.746	Alert
17,950.00	10,550.00	17,718.81	10,200.00	114.42	114.68	-5.88	7,344.30	-539.17	348.13	220.60	127.53	2.730	Alert
18,000.00	10,550.00	17,768.81	10,200.00	115.11	115.37	-5.88	7,394.30	-539.43	348.13	219.84	128.29	2.714	Alert
18,050.00	10,550.00	17,818.81	10,200.00	115.80	116.05	-5.88	7,444.30	-539.69	348.13	219.09	129.04	2.698	Alert
18,100.00	10,550.00	17,868.81	10,200.00	116.49	116.74	-5.88	7,494.30	-539.95	348.13	218.34	129.79	2.682	Alert
18,150.00	10,550.00	17,918.81	10,200.00	117.18	117.42	-5.88	7,544.30	-540.22	348.13	217.58	130.55	2.667	Alert
18,200.00	10,550.00	17,968.81	10,200.00	117.87	118.11	-5.88	7,594.30	-540.48	348.13	216.83	131.30	2.651	Alert
18,250.00	10,550.00	18,018.81	10,200.00	118.56	118.80	-5.88	7,644.29	-540.74	348.13	216.07	132.06	2.636	Alert
18,300.00	10,550.00	18,068.81	10,200.00	119.25	119.48	-5.88	7,694.29	-541.00	348.13	215.31	132.82	2.621	Alert
18,350.00	10,550.00	18,118.81	10,200.00	119.94	120.17	-5.88	7,744.29	-541.26	348.13	214.56	133.57	2.606	Alert
18,400.00	10,550.00	18,168.81	10,200.00	120.63	120.86	-5.88	7,794.29	-541.52	348.13	213.80	134.33	2.592	Alert
18,450.00	10,550.00	18,218.81	10,200.00	121.33	121.55	-5.88	7,844.29	-541.79	348.13	213.04	135.09	2.577	Alert
18,500.00	10,550.00	18,268.81	10,200.00	122.02	122.24	-5.88	7,894.29	-542.05	348.13	212.29	135.85	2.563	Alert
18,550.00	10,550.00	18,318.81	10,200.00	122.71	122.93	-5.88	7,944.29	-542.31	348.13	211.53	136.61	2.548	Alert
18,600.00	10,550.00	18,368.81	10,200.00	123.41	123.62	-5.88	7,994.29	-542.57	348.13	210.77	137.36	2.534	Alert
18,650.00	10,550.00	18,418.81	10,200.00	124.10	124.31	-5.88	8,044.29	-542.83	348.13	210.01	138.12	2.520	Alert
18,700.00	10,550.00	18,468.81	10,200.00	124.80	125.00	-5.88	8,094.29	-543.09	348.13	209.25	138.88	2.507	Alert
18,750.00	10,550.00	18,518.81	10,200.00	125.49	125.69	-5.88	8,144.29	-543.36	348.13	208.49	139.64	2.493	Minor Risk
18,800.00	10,550.00	18,568.81	10,200.00	126.19	126.38	-5.88	8,194.29	-543.62	348.13	207.73	140.40	2.480	Minor Risk
18,850.00	10,550.00	18,618.81	10,200.00	126.88	127.08	-5.89	8,244.29	-543.88	348.13	206.97	141.16	2.468	Minor Risk
18,900.00	10,550.00	18,668.81	10,200.00	127.58	127.77	-5.89	8,294.29	-544.14	348.13	206.21	141.93	2.453	Minor Risk
18,950.00	10,550.00	18,718.81	10,200.00	128.27	128.46	-5.89	8,344.29	-544.40	348.13	205.45	142.69	2.440	Minor Risk
19,000.00	10,550.00	18,768.81	10,200.00	128.97	129.16	-5.89	8,394.28	-544.67	348.13	204.69	143.45	2.427	Minor Risk
19,050.00	10,550.00	18,818.81	10,200.00	129.67	129.85	-5.89	8,444.28	-544.93	348.13	203.92	144.21	2.414	Minor Risk
19,100.00	10,550.00	18,868.81	10,200.00	130.37	130.54	-5.89	8,494.28	-545.19	348.14	203.16	144.97	2.401	Minor Risk
19,150.00	10,550.00	18,918.81	10,200.00	131.06	131.24	-5.89	8,544.28	-545.45	348.14	202.40	145.74	2.389	Minor Risk
19,200.00	10,550.00	18,968.81	10,200.00	131.76	131.93	-5.89	8,594.28	-545.71	348.14	201.63	146.50	2.376	Minor Risk
19,250.00	10,550.00	19,018.81	10,200.00	132.46	132.63	-5.89	8,644.28	-545.97	348.14	200.87	147.26	2.364	Minor Risk
19,300.00	10,550.00	19,068.81	10,200.00	133.16	133.32	-5.89	8,694.28	-546.24	348.14	200.11	148.03	2.352	Minor Risk
19,350.00	10,550.00	19,118.81	10,200.00	133.86	134.02	-5.89	8,744.28	-546.50	348.14	199.34	148.79	2.340	Minor Risk
19,400.00	10,550.00	19,168.81	10,200.00	134.56	134.72	-5.89	8,794.28	-546.76	348.14	198.58	149.56	2.328	Minor Risk
19,450.00	10,550.00	19,218.81	10,200.00	135.26	135.41	-5.89	8,844.28	-547.02	348.14	197.81	150.32	2.316	Minor Risk
19,500.00	10,550.00	19,268.81	10,200.00	135.96	136.11	-5.89	8,894.28	-547.28	348.14	197.05	151.09	2.304	Minor Risk
19,550.00	10,550.00	19,318.81	10,200.00	136.66	136.81	-5.89	8,944.28	-547.55	348.14	196.28	151.85	2.293	Minor Risk
19,600.00	10,550.00	19,368.81	10,200.00	137.36	137.51	-5.89	8,994.28	-547.81	348.14	195.52	152.62	2.281	Minor Risk
19,650.00	10,550.00	19,418.81	10,200.00	138.06	138.20	-5.89	9,044.28	-548.07	348.14	194.75	153.39	2.270	Minor Risk
19,700.00	10,550.00	19,468.81	10,200.00	138.76	138.90	-5.89	9,094.28	-548.33	348.14	193.99	154.15	2.258	Minor Risk
19,750.00	10,550.00	19,518.81	10,200.00	139.46	139.60	-5.89	9,144.27	-548.59	348.14	193.22	154.92	2.247	Minor Risk
19,800.00	10,550.00	19,568.81	10,200.00	140.16	140.30	-5.89	9,194.27	-548.85	348.14	192.45	155.69	2.236	Minor Risk
19,850.00	10,550.00	19,618.81	10,200.00	140.87	141.00	-5.89	9,244.27	-549.12	348.14	191.69	156.45	2.225	Minor Risk
19,900.00	10,550.00	19,668.81	10,200.00	141.57	141.70	-5.89	9,294.27	-549.38	348.14	190.92	157.22	2.214	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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
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		
19,950.00	10,550.00	19,718.81	10,200.00	142.27	142.40	-5.89	9,344.27	-549.64	348.14	190.15	157.99	2.204	Minor Risk	
20,000.00	10,550.00	19,768.81	10,200.00	142.97	143.10	-5.90	9,394.27	-549.90	348.14	189.38	158.76	2.193	Minor Risk	
20,050.00	10,550.00	19,818.81	10,200.00	143.68	143.80	-5.90	9,444.27	-550.16	348.14	188.61	159.53	2.182	Minor Risk	
20,100.00	10,550.00	19,868.81	10,200.00	144.38	144.50	-5.90	9,494.27	-550.43	348.14	187.85	160.30	2.172	Minor Risk	
20,150.00	10,550.00	19,918.81	10,200.00	145.08	145.20	-5.90	9,544.27	-550.69	348.14	187.08	161.06	2.162	Minor Risk	
20,200.00	10,550.00	19,968.81	10,200.00	145.79	145.90	-5.90	9,594.27	-550.95	348.14	186.31	161.83	2.151	Minor Risk	
20,250.00	10,550.00	20,018.81	10,200.00	146.49	146.60	-5.90	9,644.27	-551.21	348.14	185.54	162.60	2.141	Minor Risk	
20,300.00	10,550.00	20,068.81	10,200.00	147.20	147.30	-5.90	9,694.27	-551.47	348.14	184.77	163.37	2.131	Minor Risk	
20,350.00	10,550.00	20,118.81	10,200.00	147.90	148.01	-5.90	9,744.27	-551.73	348.14	184.00	164.14	2.121	Minor Risk	
20,400.00	10,550.00	20,168.81	10,200.00	148.61	148.71	-5.90	9,794.27	-552.00	348.14	183.23	164.91	2.111	Minor Risk	
20,450.00	10,550.00	20,218.81	10,200.00	149.31	149.41	-5.90	9,844.26	-552.26	348.14	182.46	165.68	2.101	Minor Risk	
20,500.00	10,550.00	20,268.81	10,200.00	150.02	150.11	-5.90	9,894.26	-552.52	348.14	181.69	166.45	2.092	Minor Risk	
20,550.00	10,550.00	20,318.81	10,200.00	150.72	150.82	-5.90	9,944.26	-552.78	348.14	180.92	167.22	2.082	Minor Risk	
20,600.00	10,550.00	20,368.81	10,200.00	151.43	151.52	-5.90	9,994.26	-553.04	348.14	180.15	168.00	2.072	Minor Risk	
20,650.00	10,550.00	20,418.81	10,200.00	152.13	152.22	-5.90	10,044.26	-553.31	348.14	179.38	168.77	2.063	Minor Risk	
20,700.00	10,550.00	20,468.81	10,200.00	152.84	152.93	-5.90	10,094.26	-553.57	348.14	178.61	169.54	2.053	Minor Risk	
20,750.00	10,550.00	20,518.81	10,200.00	153.54	153.63	-5.90	10,144.26	-553.83	348.14	177.83	170.31	2.044	Minor Risk	
20,800.00	10,550.00	20,568.81	10,200.00	154.25	154.34	-5.90	10,194.26	-554.09	348.14	177.06	171.08	2.035	Minor Risk	
20,809.68	10,550.00	20,578.50	10,200.00	154.39	154.47	-5.90	10,203.94	-554.14	348.14	176.91	171.23	2.033	Minor Risk	

Anticollision Report

Company:	WCDSO Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)					
0.00	0.00	0.50	0.50	0.50	0.50	89.68	0.17	29.99	29.99				
50.00	50.00	50.50	50.50	0.50	0.50	89.68	0.17	29.99	29.99	28.98	1.01	29.790	
100.00	100.00	100.50	100.50	0.52	0.52	89.68	0.17	29.99	29.99	28.95	1.04	28.945	
150.00	150.00	150.50	150.50	0.59	0.59	89.68	0.17	29.99	29.99	28.81	1.18	25.382	
200.00	200.00	200.50	200.50	0.70	0.70	89.68	0.17	29.99	29.99	28.58	1.41	21.336	
250.00	250.00	250.50	250.50	0.84	0.84	89.68	0.17	29.99	29.99	28.31	1.68	17.883	
300.00	300.00	300.50	300.50	0.99	0.99	89.68	0.17	29.99	29.99	28.01	1.98	15.174	
350.00	350.00	350.50	350.50	1.15	1.15	89.68	0.17	29.99	29.99	27.69	2.29	13.080	
400.00	400.00	400.50	400.50	1.31	1.31	89.68	0.17	29.99	29.99	27.37	2.62	11.446	
450.00	450.00	450.50	450.50	1.48	1.48	89.68	0.17	29.99	29.99	27.03	2.95	10.150	
500.00	500.00	500.50	500.50	1.65	1.65	89.68	0.17	29.99	29.99	26.69	3.29	9.104	
550.00	550.00	550.50	550.50	1.82	1.82	89.68	0.17	29.99	29.99	26.35	3.64	8.245	
600.00	600.00	600.50	600.50	1.99	1.99	89.68	0.17	29.99	29.99	26.00	3.98	7.529	
650.00	650.00	650.50	650.50	2.16	2.17	89.68	0.17	29.99	29.99	25.66	4.33	6.924	
700.00	700.00	700.50	700.50	2.34	2.34	89.68	0.17	29.99	29.99	25.31	4.68	6.407	
750.00	750.00	750.50	750.50	2.51	2.52	89.68	0.17	29.99	29.99	24.96	5.03	5.960	
800.00	800.00	800.50	800.50	2.69	2.69	89.68	0.17	29.99	29.99	24.60	5.38	5.571	
850.00	850.00	850.50	850.50	2.87	2.87	89.68	0.17	29.99	29.99	24.25	5.74	5.228	
900.00	900.00	900.50	900.50	3.04	3.05	89.68	0.17	29.99	29.99	23.90	6.09	4.925 Alert	
950.00	950.00	950.50	950.50	3.22	3.22	89.68	0.17	29.99	29.99	23.54	6.44	4.654 Alert	
1,000.00	1,000.00	1,000.50	1,000.50	3.40	3.40	89.68	0.17	29.99	29.99	23.19	6.80	4.412 Alert	
1,050.00	1,050.00	1,050.50	1,050.50	3.58	3.58	89.68	0.17	29.99	29.99	22.83	7.15	4.193 Alert	
1,100.00	1,100.00	1,100.50	1,100.50	3.75	3.75	89.68	0.17	29.99	29.99	22.48	7.51	3.995 Alert	
1,150.00	1,150.00	1,150.50	1,150.50	3.93	3.93	89.68	0.17	29.99	29.99	22.12	7.86	3.814 Alert	
1,200.00	1,200.00	1,200.50	1,200.50	4.11	4.11	89.68	0.17	29.99	29.99	21.77	8.22	3.649 Alert	
1,250.00	1,250.00	1,250.50	1,250.50	4.29	4.29	89.68	0.17	29.99	29.99	21.41	8.57	3.497 Alert	
1,300.00	1,300.00	1,300.50	1,300.50	4.46	4.47	89.68	0.17	29.99	29.99	21.06	8.93	3.358 Alert	
1,350.00	1,350.00	1,350.50	1,350.50	4.64	4.64	89.68	0.17	29.99	29.99	20.70	9.29	3.229 Alert	
1,400.00	1,400.00	1,400.50	1,400.50	4.82	4.82	89.68	0.17	29.99	29.99	20.34	9.64	3.110 Alert	
1,450.00	1,450.00	1,450.50	1,450.50	5.00	5.00	89.68	0.17	29.99	29.99	19.99	10.00	2.999 Alert	
1,500.00	1,500.00	1,500.50	1,500.50	5.18	5.18	89.68	0.17	29.99	29.99	19.63	10.36	2.896 Alert	
1,550.00	1,550.00	1,550.50	1,550.50	5.36	5.36	89.68	0.17	29.99	29.99	19.27	10.71	2.799 Alert	
1,600.00	1,600.00	1,600.50	1,600.50	5.53	5.54	89.68	0.17	29.99	29.99	18.92	11.07	2.709 Alert	
1,650.00	1,650.00	1,650.50	1,650.50	5.71	5.71	89.68	0.17	29.99	29.99	18.56	11.43	2.624 Alert	
1,700.00	1,700.00	1,700.50	1,700.50	5.89	5.89	89.68	0.17	29.99	29.99	18.20	11.78	2.545 Alert	
1,750.00	1,750.00	1,750.50	1,750.50	6.07	6.07	89.68	0.17	29.99	29.99	17.85	12.14	2.470 Minor Risk	
1,800.00	1,800.00	1,800.50	1,800.50	6.25	6.25	89.68	0.17	29.99	29.99	17.49	12.50	2.399 Minor Risk	
1,850.00	1,850.00	1,850.50	1,850.50	6.43	6.43	89.68	0.17	29.99	29.99	17.13	12.86	2.332 Minor Risk	
1,900.00	1,900.00	1,900.50	1,900.50	6.61	6.61	89.68	0.17	29.99	29.99	16.77	13.21	2.269 Minor Risk	
1,950.00	1,950.00	1,950.50	1,950.50	6.78	6.79	89.68	0.17	29.99	29.99	16.42	13.57	2.210 Minor Risk	
2,000.00	2,000.00	2,000.50	2,000.50	6.96	6.97	89.68	0.17	29.99	29.99	16.06	13.93	2.153 Minor Risk	
2,050.00	2,050.00	2,050.50	2,050.50	7.14	7.14	89.68	0.17	29.99	29.99	15.70	14.29	2.099 Minor Risk	
2,100.00	2,100.00	2,100.50	2,100.50	7.32	7.32	89.68	0.17	29.99	29.99	15.34	14.64	2.048 Minor Risk	
2,150.00	2,150.00	2,150.50	2,150.50	7.50	7.50	89.68	0.17	29.99	29.99	14.99	15.00	1.999 Minor Risk	
2,200.00	2,200.00	2,200.50	2,200.50	7.68	7.68	89.68	0.17	29.99	29.99	14.63	15.36	1.952 Minor Risk	
2,250.00	2,250.00	2,250.50	2,250.50	7.86	7.86	89.68	0.17	29.99	29.99	14.27	15.72	1.908 Minor Risk	
2,300.00	2,300.00	2,300.50	2,300.50	8.04	8.04	89.68	0.17	29.99	29.99	13.91	16.07	1.865 Minor Risk	
2,350.00	2,350.00	2,350.50	2,350.50	8.22	8.22	89.68	0.17	29.99	29.99	13.55	16.43	1.825 Minor Risk	
2,400.00	2,400.00	2,400.50	2,400.50	8.39	8.40	89.68	0.17	29.99	29.99	13.20	16.79	1.786 Minor Risk	
2,450.00	2,450.00	2,450.50	2,450.50	8.57	8.57	89.68	0.17	29.99	29.99	12.84	17.15	1.749 Minor Risk	
2,500.00	2,500.00	2,500.50	2,500.50	8.75	8.75	89.68	0.17	29.99	29.99	12.48	17.51	1.713 Minor Risk, CC	
2,550.00	2,550.00	2,550.50	2,550.50	8.92	8.93	-149.43	0.17	29.99	30.17	12.32	17.86	1.690 Minor Risk, ES	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:
													0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	2,600.49	2,600.49	9.10	9.11	-150.04	0.17	29.99	30.74	12.53	18.21	1.688	Minor Risk, SF
2,650.00	2,649.98	2,650.48	2,650.48	9.26	9.29	-151.02	0.17	29.99	31.69	13.14	18.55	1.708	Minor Risk
2,700.00	2,699.96	2,700.46	2,700.46	9.43	9.47	-152.30	0.17	29.99	33.03	14.14	18.90	1.748	Minor Risk
2,750.00	2,749.92	2,750.42	2,750.42	9.60	9.65	-153.79	0.17	29.99	34.78	15.54	19.24	1.808	Minor Risk
2,800.00	2,799.86	2,800.36	2,800.36	9.76	9.83	-155.43	0.17	29.99	36.95	17.36	19.59	1.886	Minor Risk
2,850.00	2,849.78	2,850.28	2,850.28	9.93	10.01	-157.13	0.17	29.99	39.55	19.61	19.93	1.984	Minor Risk
2,900.00	2,899.68	2,900.18	2,900.18	10.10	10.18	-158.83	0.17	29.99	42.58	22.30	20.28	2.100	Minor Risk
2,950.00	2,949.54	2,950.04	2,950.04	10.27	10.36	-160.48	0.17	29.99	46.06	25.43	20.63	2.233	Minor Risk
3,000.00	2,999.38	3,000.12	2,999.88	10.44	10.54	-162.01	0.17	29.99	49.84	28.87	20.97	2.376	Minor Risk
3,050.00	3,049.22	3,049.72	3,049.72	10.61	10.72	-163.33	0.17	29.99	53.87	32.35	21.32	2.517	Alert
3,100.00	3,099.06	3,100.44	3,099.56	10.78	10.90	-164.48	0.17	29.99	57.52	35.85	21.67	2.654	Alert
3,150.00	3,148.90	3,149.40	3,149.40	10.95	11.08	-165.48	0.17	29.99	61.39	39.37	22.02	2.788	Alert
3,200.00	3,198.73	3,200.77	3,199.23	11.13	11.26	-166.36	0.17	29.99	65.27	42.90	22.37	2.918	Alert
3,250.00	3,248.57	3,249.07	3,249.07	11.30	11.43	-167.14	0.17	29.99	69.17	46.46	22.71	3.045	Alert
3,300.00	3,298.41	3,301.09	3,298.91	11.47	11.62	-167.84	0.17	29.99	73.08	50.01	23.07	3.168	Alert
3,350.00	3,348.25	3,348.75	3,348.75	11.65	11.79	-168.47	0.17	29.99	77.00	53.59	23.41	3.289	Alert
3,400.00	3,398.09	3,401.41	3,398.59	11.82	11.98	-169.03	0.17	29.99	80.93	57.16	23.77	3.405	Alert
3,450.00	3,447.93	3,448.43	3,448.43	12.00	12.15	-169.55	0.17	29.99	84.87	60.76	24.11	3.520	Alert
3,500.00	3,497.77	3,501.73	3,498.27	12.17	12.34	-170.02	0.17	29.99	88.81	64.34	24.47	3.629	Alert
3,550.00	3,547.61	3,548.11	3,548.11	12.35	12.50	-170.45	0.17	29.99	92.76	67.94	24.81	3.739	Alert
3,600.00	3,597.45	3,602.05	3,597.95	12.52	12.70	-170.84	0.17	29.99	96.71	71.53	25.18	3.841	Alert
3,650.00	3,647.29	3,647.79	3,647.79	12.70	12.86	-171.20	0.17	29.99	100.66	75.15	25.51	3.946	Alert
3,700.00	3,697.13	3,702.37	3,697.63	12.87	13.06	-171.54	0.17	29.99	104.62	78.74	25.88	4.043	Alert
3,750.00	3,746.97	3,747.47	3,747.47	13.05	13.22	-171.85	0.17	29.99	108.59	82.37	26.21	4.142	Alert
3,800.00	3,796.81	3,802.69	3,797.31	13.23	13.42	-172.14	0.17	29.99	112.55	85.97	26.59	4.234	Alert
3,850.00	3,846.65	3,847.15	3,847.15	13.41	13.58	-172.41	0.17	29.99	116.52	89.60	26.92	4.329	Alert
3,900.00	3,896.49	3,903.01	3,896.99	13.58	13.78	-172.66	0.17	29.99	120.49	93.20	27.29	4.415	Alert
3,950.00	3,946.32	3,946.82	3,946.82	13.76	13.93	-172.89	0.17	29.99	124.47	96.84	27.62	4.506	Alert
4,000.00	3,996.16	3,996.66	3,996.66	13.94	14.11	-173.12	0.17	29.99	128.44	100.47	27.97	4.591	Alert
4,050.00	4,046.00	4,046.85	4,045.85	14.12	14.28	-173.23	0.03	30.17	132.53	104.22	28.32	4.680	Alert
4,100.00	4,095.84	4,094.94	4,094.94	14.30	14.45	-173.15	-0.41	30.78	136.89	108.23	28.66	4.777	Alert
4,150.00	4,145.68	4,143.98	4,143.98	14.48	14.61	-172.89	-1.16	31.82	141.51	112.52	28.99	4.881	Alert
4,200.00	4,195.52	4,192.96	4,192.90	14.66	14.78	-172.47	-2.22	33.27	146.41	117.09	29.32	4.993	Alert
4,250.00	4,245.36	4,241.85	4,241.74	14.84	14.94	-171.91	-3.58	35.15	151.58	121.93	29.65	5.112	
4,300.00	4,295.20	4,290.66	4,290.47	15.02	15.10	-171.22	-5.24	37.44	157.05	127.07	29.98	5.238	
4,350.00	4,345.04	4,339.37	4,339.06	15.20	15.26	-170.42	-7.20	40.15	162.82	132.51	30.31	5.372	
4,400.00	4,394.88	4,387.97	4,387.51	15.38	15.43	-169.53	-9.47	43.27	168.91	138.27	30.64	5.513	
4,450.00	4,444.72	4,438.46	4,435.80	15.56	15.59	-168.56	-12.02	46.79	175.34	144.38	30.96	5.663	
4,500.00	4,494.56	4,485.66	4,484.77	15.74	15.75	-167.55	-14.83	50.67	182.03	150.73	31.30	5.816	
4,550.00	4,544.40	4,535.11	4,533.98	15.92	15.92	-166.61	-17.66	54.57	188.77	157.14	31.64	5.967	
4,600.00	4,594.24	4,584.56	4,583.20	16.10	16.09	-165.73	-20.50	58.47	195.57	163.59	31.98	6.116	
4,650.00	4,644.08	4,634.01	4,632.41	16.28	16.26	-164.91	-23.33	62.38	202.41	170.09	32.32	6.263	
4,700.00	4,693.92	4,683.46	4,681.63	16.46	16.42	-164.14	-26.16	66.28	209.28	176.62	32.66	6.408	
4,750.00	4,743.75	4,732.91	4,730.84	16.64	16.59	-163.42	-28.99	70.19	216.19	183.19	33.00	6.551	
4,800.00	4,793.59	4,782.36	4,780.05	16.82	16.76	-162.75	-31.82	74.09	223.14	189.79	33.34	6.692	
4,850.00	4,843.43	4,831.81	4,829.27	17.00	16.93	-162.12	-34.65	77.99	230.11	196.42	33.69	6.831	
4,900.00	4,893.27	4,881.26	4,878.48	17.19	17.10	-161.52	-37.49	81.90	237.10	203.07	34.03	6.967	
4,950.00	4,943.11	4,930.71	4,927.69	17.37	17.27	-160.96	-40.32	85.80	244.12	209.75	34.37	7.102	
5,000.00	4,992.95	4,980.16	4,976.91	17.55	17.44	-160.43	-43.15	89.70	251.16	216.44	34.72	7.234	
5,050.00	5,042.79	5,029.61	5,026.12	17.73	17.62	-159.93	-45.98	93.61	258.22	223.16	35.06	7.364	
5,100.00	5,092.63	5,079.06	5,075.34	17.91	17.79	-159.45	-48.81	97.51	265.30	229.89	35.41	7.492	
5,150.00	5,142.47	5,128.51	5,124.55	18.10	17.96	-159.00	-51.65	101.42	272.40	236.64	35.76	7.618	

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,200.00	5,192.31	5,177.96	5,173.76	18.28	18.13	-158.58		-54.48	105.32	279.51	243.41	36.10	7.742		
5,250.00	5,242.15	5,227.41	5,222.98	18.46	18.30	-158.17		-57.31	109.22	286.64	250.19	36.45	7.864		
5,300.00	5,291.99	5,276.86	5,272.19	18.64	18.48	-157.78		-60.14	113.13	293.78	256.98	36.80	7.984		
5,350.00	5,341.83	5,326.30	5,321.40	18.83	18.65	-157.42		-62.97	117.03	300.93	263.79	37.15	8.102		
5,400.00	5,391.67	5,375.75	5,370.62	19.01	18.82	-157.06		-65.80	120.93	308.10	270.61	37.49	8.217		
5,450.00	5,441.51	5,425.20	5,419.83	19.19	19.00	-156.73		-68.64	124.84	315.27	277.43	37.84	8.331		
5,500.00	5,491.34	5,474.65	5,469.05	19.38	19.17	-156.41		-71.47	128.74	322.46	284.27	38.19	8.443		
5,550.00	5,541.18	5,524.10	5,518.26	19.56	19.35	-156.10		-74.30	132.65	329.65	291.11	38.54	8.553		
5,600.00	5,591.02	5,573.55	5,567.47	19.74	19.52	-155.81		-77.13	136.55	336.86	297.97	38.89	8.662		
5,650.00	5,640.86	5,623.00	5,616.69	19.93	19.70	-155.53		-79.96	140.45	344.07	304.83	39.24	8.768		
5,700.00	5,690.70	5,672.45	5,665.90	20.11	19.87	-155.26		-82.79	144.36	351.29	311.70	39.59	8.873		
5,750.00	5,740.54	5,721.90	5,715.12	20.29	20.05	-155.00		-85.63	148.26	358.52	318.58	39.94	8.976		
5,800.00	5,790.38	5,771.35	5,764.33	20.48	20.23	-154.75		-88.46	152.16	365.75	325.46	40.29	9.077		
5,850.00	5,840.22	5,820.80	5,813.54	20.66	20.40	-154.52		-91.29	156.07	372.99	332.35	40.64	9.177		
5,900.00	5,890.06	5,870.25	5,862.76	20.85	20.58	-154.29		-94.12	159.97	380.24	339.24	41.00	9.275		
5,950.00	5,939.90	5,919.70	5,911.97	21.03	20.76	-154.06		-96.95	163.88	387.49	346.14	41.35	9.371		
6,000.00	5,989.74	5,969.15	5,961.18	21.21	20.93	-153.85		-99.78	167.78	394.75	353.05	41.70	9.466		
6,050.00	6,039.58	6,018.60	6,010.40	21.40	21.11	-153.65		-102.62	171.68	402.01	359.96	42.05	9.560		
6,100.00	6,089.42	6,068.05	6,059.61	21.58	21.29	-153.45		-105.45	175.59	409.28	366.87	42.41	9.652		
6,150.00	6,139.26	6,117.50	6,108.83	21.77	21.47	-153.26		-108.28	179.49	416.55	373.79	42.76	9.742		
6,200.00	6,189.10	6,166.95	6,158.04	21.95	21.64	-153.07		-111.11	183.39	423.83	380.72	43.11	9.831		
6,250.00	6,238.93	6,216.40	6,207.25	22.13	21.82	-152.90		-113.94	187.30	431.11	387.64	43.46	9.919		
6,300.00	6,288.77	6,265.85	6,256.47	22.32	22.00	-152.72		-116.77	191.20	438.39	394.58	43.82	10.005		
6,350.00	6,338.61	6,315.30	6,305.68	22.50	22.18	-152.56		-119.61	195.11	445.68	401.51	44.17	10.090		
6,400.00	6,388.45	6,364.75	6,354.89	22.69	22.36	-152.40		-122.44	199.01	452.98	408.45	44.53	10.173		
6,450.00	6,438.29	6,414.19	6,404.11	22.87	22.54	-152.24		-125.27	202.91	460.27	415.39	44.88	10.255		
6,500.00	6,488.13	6,463.64	6,453.32	23.06	22.71	-152.09		-128.10	206.82	467.57	422.33	45.24	10.336		
6,550.00	6,537.97	6,513.09	6,502.54	23.24	22.89	-151.94		-130.93	210.72	474.87	429.28	45.59	10.416		
6,600.00	6,587.81	6,562.54	6,551.75	23.43	23.07	-151.80		-133.77	214.62	482.18	436.23	45.94	10.495		
6,650.00	6,637.65	6,611.99	6,600.96	23.61	23.25	-151.66		-136.60	218.53	489.48	443.18	46.30	10.572		
6,700.00	6,687.49	6,661.44	6,650.18	23.80	23.43	-151.53		-139.43	222.43	496.79	450.14	46.66	10.648		
6,750.00	6,737.33	6,710.89	6,699.39	23.98	23.61	-151.40		-142.26	226.34	504.11	457.10	47.01	10.723		
6,800.00	6,787.17	6,760.34	6,748.61	24.17	23.79	-151.27		-145.09	230.24	511.42	464.06	47.37	10.797		
6,850.00	6,837.01	6,809.79	6,797.82	24.35	23.97	-151.15		-147.92	234.14	518.74	471.02	47.72	10.870		
6,900.00	6,886.85	6,859.24	6,847.03	24.54	24.15	-151.03		-150.76	238.05	526.06	477.98	48.08	10.942		
6,950.00	6,936.69	6,908.69	6,896.25	24.72	24.33	-150.91		-153.59	241.95	533.38	484.95	48.43	11.012		
7,000.00	6,986.52	6,958.14	6,945.46	24.91	24.51	-150.80		-156.42	245.85	540.71	491.92	48.79	11.082		
7,050.00	7,036.36	7,007.59	6,994.67	25.09	24.69	-150.69		-159.25	249.76	548.03	498.89	49.15	11.151		
7,100.00	7,086.20	7,057.04	7,043.89	25.28	24.88	-150.58		-162.08	253.66	555.36	505.86	49.50	11.218		
7,150.00	7,136.04	7,106.49	7,093.10	25.46	25.06	-150.48		-164.91	257.57	562.69	512.83	49.86	11.285		
7,200.00	7,185.88	7,155.94	7,142.32	25.65	25.24	-150.38		-167.75	261.47	570.02	519.81	50.22	11.351		
7,250.00	7,235.72	7,205.39	7,191.53	25.83	25.42	-150.28		-170.58	265.37	577.36	526.78	50.58	11.416		
7,300.00	7,285.56	7,254.84	7,240.74	26.02	25.60	-150.18		-173.41	269.28	584.69	533.76	50.93	11.480		
7,350.00	7,335.40	7,304.29	7,289.96	26.20	25.78	-150.09		-176.24	273.18	592.03	540.74	51.29	11.543		
7,400.00	7,385.24	7,353.74	7,339.17	26.39	25.96	-150.00		-179.07	277.08	599.37	547.72	51.65	11.605		
7,450.00	7,435.08	7,403.19	7,388.39	26.58	26.15	-149.91		-181.90	280.99	606.71	554.70	52.01	11.666		
7,500.00	7,484.92	7,452.64	7,437.60	26.76	26.33	-149.82		-184.74	284.89	614.05	561.69	52.36	11.727		
7,550.00	7,534.76	7,502.08	7,486.81	26.95	26.51	-149.73		-187.57	288.80	621.39	568.67	52.72	11.786		
7,600.00	7,584.60	7,551.53	7,536.03	27.13	26.69	-149.65		-190.40	292.70	628.74	575.66	53.08	11.845		
7,650.00	7,634.44	7,600.98	7,585.24	27.32	26.87	-149.57		-193.23	296.60	636.08	582.64	53.44	11.903		
7,700.00	7,684.28	7,650.43	7,634.45	27.50	27.06	-149.49		-196.06	300.51	643.43	589.63	53.80	11.960		
7,750.00	7,734.11	7,700.12	7,683.67	27.69	27.24	-149.41		-198.89	304.41	650.78	596.62	54.16	12.017		

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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	
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		
7,800.00	7,783.95	7,749.33	7,732.88	27.88	27.42	-149.33	-201.73	308.31	658.12	603.61	54.51	12.073		
7,850.00	7,833.79	7,798.78	7,782.10	28.06	27.60	-149.26	-204.56	312.22	665.47	610.60	54.87	12.128		
7,900.00	7,883.63	7,848.23	7,831.31	28.25	27.79	-149.19	-207.39	316.12	672.82	617.59	55.23	12.182		
7,950.00	7,933.47	7,902.32	7,880.52	28.43	27.99	-149.12	-210.22	320.02	680.18	624.57	55.61	12.232		
8,000.00	7,983.31	7,947.13	7,929.74	28.62	28.15	-149.05	-213.05	323.93	687.53	631.58	55.95	12.288		
8,050.00	8,033.15	8,003.42	7,978.95	28.81	28.36	-148.98	-215.89	327.83	694.88	638.55	56.33	12.335		
8,100.00	8,082.99	8,046.03	8,028.16	28.99	28.52	-148.91	-218.72	331.74	702.24	645.57	56.67	12.392		
8,150.00	8,132.83	8,104.52	8,077.38	29.18	28.74	-148.85	-221.55	335.64	709.59	652.53	57.06	12.436		
8,200.00	8,182.67	8,144.93	8,126.59	29.36	28.89	-148.78	-224.38	339.54	716.95	659.56	57.39	12.493		
8,250.00	8,232.51	8,205.62	8,175.81	29.55	29.11	-148.72	-227.21	343.45	724.31	666.52	57.79	12.534		
8,300.00	8,282.35	8,243.83	8,225.02	29.74	29.25	-148.66	-230.04	347.35	731.67	673.56	58.11	12.592		
8,350.00	8,332.19	8,306.72	8,274.23	29.92	29.49	-148.60	-232.88	351.25	739.03	680.51	58.51	12.630		
8,400.00	8,382.03	8,342.73	8,323.45	30.11	29.62	-148.54	-235.71	355.16	746.39	687.56	58.83	12.688		
8,450.00	8,431.87	8,407.82	8,372.66	30.29	29.86	-148.48	-238.54	359.06	753.75	694.50	59.24	12.723		
8,500.00	8,481.70	8,441.63	8,421.88	30.48	29.99	-148.42	-241.37	362.97	761.11	701.56	59.55	12.782		
8,550.00	8,531.54	8,508.92	8,471.09	30.67	30.24	-148.37	-244.20	366.87	768.47	708.50	59.97	12.814		
8,600.00	8,581.38	8,540.53	8,520.30	30.85	30.36	-148.31	-247.03	370.77	775.83	715.57	60.27	12.873		
8,650.00	8,631.22	8,589.97	8,569.52	31.04	30.54	-148.26	-249.87	374.68	783.20	722.57	60.63	12.918		
8,700.00	8,681.06	8,639.42	8,618.73	31.23	30.72	-148.21	-252.70	378.58	790.56	729.57	60.99	12.963		
8,750.00	8,730.90	8,688.87	8,667.94	31.41	30.91	-148.16	-255.53	382.48	797.93	736.58	61.35	13.007		
8,800.00	8,780.74	8,738.32	8,717.16	31.60	31.09	-148.11	-258.36	386.39	805.29	743.58	61.71	13.050		
8,850.00	8,830.58	8,787.77	8,766.37	31.78	31.28	-148.06	-261.19	390.29	812.66	750.59	62.07	13.093		
8,900.00	8,880.42	8,837.22	8,815.59	31.97	31.46	-148.01	-264.02	394.20	820.02	757.59	62.43	13.135		
8,950.00	8,930.26	8,886.67	8,864.80	32.16	31.65	-147.96	-266.86	398.10	827.39	764.60	62.79	13.177		
9,000.00	8,980.10	8,938.21	8,916.09	32.34	31.84	-147.91	-269.69	402.15	834.75	771.58	63.17	13.215		
9,050.00	9,029.94	8,988.56	8,976.21	32.53	32.06	-147.88	-272.87	406.39	841.67	778.06	63.61	13.231		
9,100.00	9,079.78	9,059.12	9,036.62	32.72	32.28	-147.89	-275.39	409.86	847.96	783.90	64.05	13.239		
9,150.00	9,129.62	9,119.86	9,097.27	32.90	32.50	-147.93	-277.35	412.56	853.59	789.11	64.48	13.238		
9,200.00	9,179.46	9,180.76	9,158.12	33.09	32.72	-148.01	-278.74	414.49	858.59	793.69	64.90	13.229		
9,250.00	9,229.29	9,241.78	9,219.13	33.28	32.93	-148.13	-279.57	415.63	862.93	797.62	65.31	13.213		
9,300.00	9,279.13	9,302.89	9,280.23	33.46	33.14	-148.29	-279.83	415.99	866.63	800.92	65.71	13.188		
9,350.00	9,328.97	9,352.13	9,329.47	33.65	33.31	-148.43	-279.83	415.99	870.04	803.97	66.06	13.170		
9,400.00	9,378.85	9,402.00	9,379.35	33.83	33.48	-148.57	-279.83	415.99	873.09	806.67	66.42	13.146		
9,450.00	9,428.76	9,451.92	9,429.26	34.02	33.65	-148.69	-279.83	415.99	875.58	808.82	66.77	13.114		
9,500.00	9,478.71	9,501.86	9,479.21	34.20	33.83	-148.79	-279.83	415.99	877.52	810.40	67.12	13.074		
9,550.00	9,528.68	9,551.84	9,529.18	34.38	34.00	-148.85	-279.83	415.99	878.90	811.43	67.47	13.027		
9,600.00	9,578.67	9,601.83	9,579.17	34.55	34.17	-148.89	-279.83	415.99	879.72	811.90	67.82	12.971		
9,650.00	9,628.67	9,651.84	9,629.19	34.73	34.34	89.99	-279.83	415.99	879.99	811.82	68.17	12.910		
9,700.00	9,678.67	9,702.08	9,679.35	34.89	34.51	89.83	-277.44	415.97	879.98	811.47	68.50	12.846		
9,718.65	9,697.32	9,720.66	9,697.82	34.96	34.57	89.70	-275.44	415.96	879.98	811.35	68.63	12.823		
9,750.00	9,728.67	9,751.53	9,728.34	35.06	34.67	89.40	-270.81	415.94	879.99	811.15	68.83	12.784		
9,800.00	9,778.67	9,799.49	9,775.14	35.23	34.82	88.72	-260.36	415.89	880.11	810.96	69.15	12.728		
9,850.00	9,828.67	9,845.40	9,818.96	35.40	34.95	87.83	-246.73	415.81	880.50	811.05	69.45	12.678		
9,900.00	9,878.67	9,888.84	9,859.30	35.56	35.07	86.79	-230.64	415.73	881.34	811.61	69.73	12.639		
9,950.00	9,928.67	9,929.55	9,895.90	35.73	35.18	85.63	-212.83	415.64	882.83	812.85	69.98	12.615		
10,000.00	9,978.67	9,967.41	9,928.72	35.90	35.27	84.70	-193.98	415.54	885.18	814.98	70.20	12.610		
10,050.00	10,028.60	10,003.46	9,958.75	36.06	35.35	83.20	-174.04	415.44	888.32	817.95	70.37	12.624		
10,100.00	10,078.14	10,038.74	9,986.87	36.22	35.42	81.72	-152.75	415.33	892.02	821.52	70.50	12.653		
10,150.00	10,126.91	10,073.36	10,013.14	36.38	35.49	80.27	-130.21	415.21	896.16	825.58	70.58	12.696		
10,200.00	10,174.53	10,107.40	10,037.59	36.52	35.55	78.88	-106.53	415.09	900.64	830.01	70.62	12.753		
10,250.00	10,220.66	10,140.94	10,060.27	36.65	35.60	77.54	-81.83	414.96	905.33	834.71	70.62	12.819		
10,300.00	10,264.93	10,174.06	10,081.21	36.77	35.65	76.27	-56.18	414.83	910.15	839.57	70.58	12.895		

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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. 36-T23S-R31E - Todd 36-25 State Fed Com 234H - 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		
10,350.00	10,307.01	10,206.79	10,100.42	36.88	35.69	75.07	-29.67	414.69	914.98	844.47	70.51	12.976			
10,400.00	10,346.58	10,239.21	10,117.91	36.98	35.73	73.95	-2.39	414.55	919.73	849.31	70.42	13.061			
10,450.00	10,383.33	10,271.35	10,133.71	37.06	35.76	72.91	25.60	414.40	924.32	854.01	70.31	13.146			
10,500.00	10,417.00	10,300.00	10,146.45	37.13	35.80	72.02	51.26	414.27	928.66	858.50	70.17	13.235			
10,550.00	10,447.31	10,334.94	10,160.22	37.19	35.84	71.13	83.36	414.10	932.67	862.58	70.09	13.307			
10,600.00	10,474.05	10,366.46	10,170.95	37.24	35.88	70.40	112.99	413.95	936.29	866.30	69.99	13.377			
10,650.00	10,497.00	10,400.00	10,180.55	37.28	35.93	69.75	145.12	413.79	939.47	869.54	69.93	13.434			
10,700.00	10,516.00	10,429.09	10,187.35	37.31	35.98	69.25	173.41	413.64	942.15	872.27	69.88	13.483			
10,750.00	10,530.90	10,460.26	10,193.03	37.35	36.04	68.83	204.04	413.48	944.29	874.42	69.87	13.514			
10,800.00	10,541.58	10,491.35	10,197.03	37.42	36.10	68.54	234.88	413.32	945.86	875.95	69.91	13.529			
10,850.00	10,547.96	10,522.41	10,199.35	37.51	36.16	68.35	265.84	413.16	946.84	876.84	70.00	13.526			
10,900.00	10,550.00	10,555.72	10,200.00	37.62	36.23	68.28	299.14	412.99	947.21	877.07	70.15	13.504			
10,950.00	10,550.00	10,605.72	10,200.00	37.74	36.35	68.28	349.14	412.73	947.21	876.84	70.37	13.460			
11,000.00	10,550.00	10,655.72	10,200.00	37.87	36.49	68.28	399.14	412.47	947.21	876.60	70.61	13.414			
11,050.00	10,550.00	10,705.72	10,200.00	38.02	36.63	68.28	449.14	412.21	947.21	876.33	70.89	13.363			
11,100.00	10,550.00	10,755.72	10,200.00	38.18	36.80	68.28	499.14	411.95	947.21	876.03	71.18	13.307			
11,150.00	10,550.00	10,805.72	10,200.00	38.36	36.97	68.28	549.13	411.69	947.21	875.71	71.50	13.247			
11,200.00	10,550.00	10,855.72	10,200.00	38.54	37.17	68.28	599.13	411.43	947.21	875.36	71.85	13.183			
11,250.00	10,550.00	10,905.72	10,200.00	38.74	37.36	68.28	649.13	411.17	947.21	874.99	72.22	13.115			
11,300.00	10,550.00	10,955.72	10,200.00	38.95	37.59	68.28	699.13	410.92	947.21	874.60	72.62	13.044			
11,350.00	10,550.00	11,005.72	10,200.00	39.17	37.81	68.28	749.13	410.66	947.21	874.17	73.04	12.969			
11,400.00	10,550.00	11,055.72	10,200.00	39.40	38.05	68.28	799.13	410.40	947.21	873.73	73.48	12.890			
11,450.00	10,550.00	11,105.72	10,200.00	39.66	38.30	68.28	849.13	410.14	947.21	873.26	73.95	12.809			
11,500.00	10,550.00	11,155.72	10,200.00	39.91	38.57	68.28	899.13	409.88	947.21	872.77	74.44	12.725			
11,550.00	10,550.00	11,205.72	10,200.00	40.18	38.84	68.28	949.13	409.62	947.21	872.26	74.95	12.637			
11,600.00	10,550.00	11,255.72	10,200.00	40.46	39.14	68.28	999.13	409.36	947.21	871.73	75.49	12.548			
11,650.00	10,550.00	11,305.72	10,200.00	40.75	39.43	68.28	1,049.13	409.10	947.21	871.17	76.04	12.456			
11,700.00	10,550.00	11,355.72	10,200.00	41.05	39.74	68.28	1,099.13	408.84	947.21	870.59	76.62	12.363			
11,750.00	10,550.00	11,405.72	10,200.00	41.37	40.06	68.28	1,149.13	408.58	947.21	870.00	77.22	12.267			
11,800.00	10,550.00	11,455.72	10,200.00	41.68	40.40	68.28	1,199.13	408.33	947.21	869.38	77.83	12.170			
11,850.00	10,550.00	11,505.72	10,200.00	42.02	40.73	68.28	1,249.13	408.07	947.21	868.74	78.47	12.071			
11,900.00	10,550.00	11,555.72	10,200.00	42.36	41.09	68.28	1,299.12	407.81	947.21	868.09	79.13	11.971			
11,950.00	10,550.00	11,605.72	10,200.00	42.71	41.45	68.28	1,349.12	407.55	947.21	867.41	79.80	11.869			
12,000.00	10,550.00	11,655.72	10,200.00	43.07	41.82	68.28	1,399.12	407.29	947.22	866.72	80.49	11.767			
12,050.00	10,550.00	11,705.72	10,200.00	43.44	42.20	68.28	1,449.12	407.03	947.22	866.01	81.21	11.664			
12,100.00	10,550.00	11,755.72	10,200.00	43.82	42.59	68.28	1,499.12	406.77	947.22	865.28	81.93	11.561			
12,150.00	10,550.00	11,805.72	10,200.00	44.21	42.98	68.28	1,549.12	406.51	947.22	864.54	82.68	11.457			
12,200.00	10,550.00	11,855.72	10,200.00	44.60	43.39	68.28	1,599.12	406.25	947.22	863.78	83.44	11.352			
12,250.00	10,550.00	11,905.72	10,200.00	45.01	43.80	68.28	1,649.12	405.99	947.22	863.00	84.22	11.247			
12,300.00	10,550.00	11,955.72	10,200.00	45.42	44.23	68.28	1,699.12	405.74	947.22	862.21	85.01	11.143			
12,350.00	10,550.00	12,005.72	10,200.00	45.84	44.65	68.28	1,749.12	405.48	947.22	861.40	85.82	11.038			
12,400.00	10,550.00	12,055.72	10,200.00	46.26	45.10	68.28	1,799.12	405.22	947.22	860.58	86.64	10.933			
12,450.00	10,550.00	12,105.72	10,200.00	46.70	45.54	68.28	1,849.12	404.96	947.22	859.74	87.47	10.829			
12,500.00	10,550.00	12,155.72	10,200.00	47.14	45.99	68.28	1,899.12	404.70	947.22	858.89	88.32	10.725			
12,550.00	10,550.00	12,205.72	10,200.00	47.59	46.45	68.28	1,949.12	404.44	947.22	858.03	89.19	10.621			
12,600.00	10,550.00	12,255.72	10,200.00	48.04	46.92	68.28	1,999.12	404.18	947.22	857.16	90.06	10.518			
12,650.00	10,550.00	12,305.72	10,200.00	48.51	47.39	68.28	2,049.11	403.92	947.22	856.27	90.95	10.415			
12,700.00	10,550.00	12,355.72	10,200.00	48.98	47.87	68.28	2,099.11	403.66	947.22	855.37	91.85	10.313			
12,750.00	10,550.00	12,405.72	10,200.00	49.45	48.35	68.28	2,149.11	403.40	947.22	854.45	92.76	10.211			
12,800.00	10,550.00	12,455.72	10,200.00	49.93	48.85	68.28	2,199.11	403.15	947.22	853.53	93.69	10.110			
12,850.00	10,550.00	12,505.72	10,200.00	50.42	49.34	68.28	2,249.11	402.89	947.22	852.59	94.62	10.010			
12,900.00	10,550.00	12,555.72	10,200.00	50.91	49.84	68.28	2,299.11	402.63	947.22	851.65	95.57	9.911			

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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	
12,950.00	10,550.00	12,605.72	10,200.00	51.41	50.35	68.28	2,349.11	402.37	947.22	850.69	96.53	9.813	
13,000.00	10,550.00	12,655.72	10,200.00	51.91	50.87	68.28	2,399.11	402.11	947.22	849.72	97.50	9.716	
13,050.00	10,550.00	12,705.72	10,200.00	52.42	51.38	68.28	2,449.11	401.85	947.22	848.74	98.47	9.619	
13,100.00	10,550.00	12,755.72	10,200.00	52.94	51.91	68.28	2,499.11	401.59	947.22	847.76	99.46	9.524	
13,150.00	10,550.00	12,805.72	10,200.00	53.46	52.44	68.28	2,549.11	401.33	947.22	846.76	100.46	9.429	
13,200.00	10,550.00	12,855.72	10,200.00	53.98	52.97	68.28	2,599.11	401.07	947.22	845.76	101.46	9.336	
13,250.00	10,550.00	12,905.72	10,200.00	54.51	53.51	68.28	2,649.11	400.81	947.22	844.74	102.48	9.243	
13,300.00	10,550.00	12,955.72	10,200.00	55.04	54.05	68.28	2,699.11	400.56	947.22	843.72	103.50	9.152	
13,350.00	10,550.00	13,005.72	10,200.00	55.58	54.60	68.28	2,749.11	400.30	947.22	842.69	104.53	9.062	
13,400.00	10,550.00	13,055.72	10,200.00	56.12	55.15	68.28	2,799.10	400.04	947.22	841.65	105.57	8.972	
13,450.00	10,550.00	13,105.72	10,200.00	56.67	55.70	68.28	2,849.10	399.78	947.22	840.60	106.62	8.884	
13,500.00	10,550.00	13,155.72	10,200.00	57.21	56.26	68.28	2,899.10	399.52	947.22	839.55	107.67	8.797	
13,550.00	10,550.00	13,205.72	10,200.00	57.77	56.82	68.28	2,949.10	399.26	947.22	838.49	108.73	8.711	
13,600.00	10,550.00	13,255.72	10,200.00	58.33	57.39	68.28	2,999.10	399.00	947.22	837.42	109.80	8.626	
13,650.00	10,550.00	13,305.72	10,200.00	58.89	57.96	68.28	3,049.10	398.74	947.22	836.34	110.88	8.543	
13,700.00	10,550.00	13,355.72	10,200.00	59.45	58.53	68.28	3,099.10	398.48	947.22	835.26	111.96	8.460	
13,750.00	10,550.00	13,405.72	10,200.00	60.02	59.11	68.28	3,149.10	398.22	947.22	834.17	113.05	8.379	
13,800.00	10,550.00	13,455.72	10,200.00	60.59	59.69	68.28	3,199.10	397.97	947.22	833.07	114.15	8.298	
13,850.00	10,550.00	13,505.72	10,200.00	61.17	60.27	68.28	3,249.10	397.71	947.22	831.97	115.25	8.219	
13,900.00	10,550.00	13,555.72	10,200.00	61.75	60.86	68.28	3,299.10	397.45	947.22	830.86	116.36	8.140	
13,950.00	10,550.00	13,605.72	10,200.00	62.33	61.45	68.28	3,349.10	397.19	947.22	829.75	117.47	8.063	
14,000.00	10,550.00	13,655.72	10,200.00	62.91	62.04	68.28	3,399.10	396.93	947.22	828.63	118.59	7.987	
14,050.00	10,550.00	13,705.72	10,200.00	63.50	62.64	68.28	3,449.10	396.67	947.22	827.50	119.72	7.912	
14,100.00	10,550.00	13,755.72	10,200.00	64.09	63.24	68.28	3,499.10	396.41	947.22	826.37	120.85	7.838	
14,150.00	10,550.00	13,805.72	10,200.00	64.68	63.84	68.28	3,549.09	396.15	947.22	825.24	121.99	7.765	
14,200.00	10,550.00	13,855.72	10,200.00	65.28	64.44	68.28	3,599.09	395.89	947.22	824.09	123.13	7.693	
14,250.00	10,550.00	13,905.72	10,200.00	65.88	65.05	68.28	3,649.09	395.63	947.22	822.95	124.27	7.622	
14,300.00	10,550.00	13,955.72	10,200.00	66.48	65.65	68.28	3,699.09	395.38	947.22	821.80	125.42	7.552	
14,350.00	10,550.00	14,005.72	10,200.00	67.08	66.26	68.28	3,749.09	395.12	947.22	820.64	126.58	7.483	
14,400.00	10,550.00	14,055.72	10,200.00	67.69	66.88	68.28	3,799.09	394.86	947.22	819.48	127.74	7.415	
14,450.00	10,550.00	14,105.72	10,200.00	68.30	67.49	68.28	3,849.09	394.60	947.22	818.32	128.90	7.348	
14,500.00	10,550.00	14,155.72	10,200.00	68.91	68.11	68.28	3,899.09	394.34	947.22	817.15	130.07	7.282	
14,550.00	10,550.00	14,205.72	10,200.00	69.52	68.73	68.28	3,949.09	394.08	947.22	815.98	131.25	7.217	
14,600.00	10,550.00	14,255.72	10,200.00	70.14	69.35	68.28	3,999.09	393.82	947.22	814.80	132.42	7.153	
14,650.00	10,550.00	14,305.72	10,200.00	70.75	69.98	68.28	4,049.09	393.56	947.22	813.62	133.60	7.090	
14,700.00	10,550.00	14,355.72	10,200.00	71.37	70.60	68.28	4,099.09	393.30	947.22	812.43	134.79	7.027	
14,750.00	10,550.00	14,405.72	10,200.00	72.00	71.23	68.28	4,149.09	393.04	947.22	811.25	135.98	6.966	
14,800.00	10,550.00	14,455.72	10,200.00	72.62	71.86	68.28	4,199.09	392.79	947.22	810.05	137.17	6.905	
14,850.00	10,550.00	14,505.72	10,200.00	73.24	72.49	68.28	4,249.09	392.53	947.22	808.86	138.37	6.846	
14,900.00	10,550.00	14,555.72	10,200.00	73.87	73.13	68.28	4,299.08	392.27	947.22	807.66	139.57	6.787	
14,950.00	10,550.00	14,605.72	10,200.00	74.50	73.76	68.28	4,349.08	392.01	947.22	806.45	140.77	6.729	
15,000.00	10,550.00	14,655.72	10,200.00	75.13	74.40	68.28	4,399.08	391.75	947.22	805.25	141.97	6.672	
15,050.00	10,550.00	14,705.72	10,200.00	75.76	75.04	68.28	4,449.08	391.49	947.22	804.04	143.18	6.615	
15,100.00	10,550.00	14,755.72	10,200.00	76.40	75.68	68.28	4,499.08	391.23	947.22	802.83	144.40	6.560	
15,150.00	10,550.00	14,805.72	10,200.00	77.03	76.32	68.28	4,549.08	390.97	947.22	801.61	145.61	6.505	
15,200.00	10,550.00	14,855.72	10,200.00	77.67	76.96	68.28	4,599.08	390.71	947.22	800.39	146.83	6.451	
15,250.00	10,550.00	14,905.72	10,200.00	78.31	77.61	68.28	4,649.08	390.45	947.22	799.17	148.05	6.398	
15,300.00	10,550.00	14,955.72	10,200.00	78.95	78.25	68.28	4,699.08	390.20	947.23	797.95	149.28	6.345	
15,350.00	10,550.00	15,005.72	10,200.00	79.59	78.90	68.28	4,749.08	389.94	947.23	796.72	150.50	6.294	
15,400.00	10,550.00	15,055.72	10,200.00	80.24	79.55	68.28	4,799.08	389.68	947.23	795.49	151.73	6.243	
15,450.00	10,550.00	15,105.72	10,200.00	80.88	80.20	68.28	4,849.08	389.42	947.23	794.26	152.97	6.192	
15,500.00	10,550.00	15,155.72	10,200.00	81.53	80.85	68.28	4,899.08	389.16	947.23	793.02	154.20	6.143	

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

Anticollision Report

Company:	WCDCS Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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:
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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	
15,550.00	10,550.00	15,205.72	10,200.00	82.18	81.51	68.28	4,949.08	388.90	947.23	791.79	155.44	6.094	
15,600.00	10,550.00	15,255.72	10,200.00	82.83	82.16	68.28	4,999.08	388.64	947.23	790.55	156.68	6.046	
15,650.00	10,550.00	15,305.72	10,200.00	83.48	82.82	68.28	5,049.07	388.38	947.23	789.30	157.92	5.998	
15,700.00	10,550.00	15,355.72	10,200.00	84.13	83.47	68.28	5,099.07	388.12	947.23	788.06	159.17	5.951	
15,750.00	10,550.00	15,405.72	10,200.00	84.78	84.13	68.28	5,149.07	387.86	947.23	786.81	160.41	5.905	
15,800.00	10,550.00	15,455.72	10,200.00	85.44	84.79	68.28	5,199.07	387.61	947.23	785.56	161.66	5.859	
15,850.00	10,550.00	15,505.72	10,200.00	86.09	85.45	68.28	5,249.07	387.35	947.23	784.31	162.91	5.814	
15,900.00	10,550.00	15,555.72	10,200.00	86.75	86.11	68.28	5,299.07	387.09	947.23	783.06	164.17	5.770	
15,950.00	10,550.00	15,605.72	10,200.00	87.41	86.77	68.28	5,349.07	386.83	947.23	781.80	165.42	5.726	
16,000.00	10,550.00	15,655.72	10,200.00	88.07	87.44	68.28	5,399.07	386.57	947.23	780.55	166.68	5.683	
16,050.00	10,550.00	15,705.72	10,200.00	88.73	88.10	68.28	5,449.07	386.31	947.23	779.29	167.94	5.640	
16,100.00	10,550.00	15,755.72	10,200.00	89.39	88.77	68.28	5,499.07	386.05	947.23	778.03	169.20	5.598	
16,150.00	10,550.00	15,805.72	10,200.00	90.05	89.43	68.28	5,549.07	385.79	947.23	776.78	170.47	5.557	
16,200.00	10,550.00	15,855.72	10,200.00	90.71	90.10	68.28	5,599.07	385.53	947.23	775.50	171.73	5.516	
16,250.00	10,550.00	15,905.72	10,200.00	91.38	90.77	68.28	5,649.07	385.27	947.23	774.23	173.00	5.475	
16,300.00	10,550.00	15,955.72	10,200.00	92.04	91.44	68.28	5,699.07	385.02	947.23	772.96	174.27	5.435	
16,350.00	10,550.00	16,005.72	10,200.00	92.71	92.11	68.28	5,749.07	384.76	947.23	771.69	175.54	5.396	
16,400.00	10,550.00	16,055.72	10,200.00	93.37	92.78	68.28	5,799.06	384.50	947.23	770.42	176.81	5.357	
16,450.00	10,550.00	16,105.72	10,200.00	94.04	93.45	68.28	5,849.06	384.24	947.23	769.14	178.09	5.319	
16,500.00	10,550.00	16,155.72	10,200.00	94.71	94.13	68.28	5,899.06	383.98	947.23	767.87	179.36	5.281	
16,550.00	10,550.00	16,205.72	10,200.00	95.38	94.80	68.28	5,949.06	383.72	947.23	766.59	180.64	5.244	
16,600.00	10,550.00	16,255.72	10,200.00	96.05	95.47	68.28	5,999.06	383.46	947.23	765.31	181.92	5.207	
16,650.00	10,550.00	16,305.72	10,200.00	96.72	96.15	68.28	6,049.06	383.20	947.23	764.03	183.20	5.171	
16,700.00	10,550.00	16,355.72	10,200.00	97.39	96.82	68.28	6,099.06	382.94	947.23	762.75	184.48	5.135	
16,750.00	10,550.00	16,405.72	10,200.00	98.07	97.50	68.28	6,149.06	382.69	947.23	761.47	185.76	5.099	
16,800.00	10,550.00	16,455.72	10,200.00	98.74	98.18	68.28	6,199.06	382.43	947.23	760.18	187.05	5.064	
16,850.00	10,550.00	16,505.72	10,200.00	99.42	98.86	68.28	6,249.06	382.17	947.23	758.90	188.33	5.030	
16,900.00	10,550.00	16,555.72	10,200.00	100.09	99.54	68.28	6,299.06	381.91	947.23	757.61	189.62	4.995	Alert
16,950.00	10,550.00	16,605.72	10,200.00	100.77	100.21	68.28	6,349.06	381.65	947.23	756.32	190.91	4.962	Alert
17,000.00	10,550.00	16,655.72	10,200.00	101.44	100.89	68.28	6,399.06	381.39	947.23	755.03	192.20	4.928	Alert
17,050.00	10,550.00	16,705.72	10,200.00	102.12	101.58	68.28	6,449.06	381.13	947.23	753.74	193.49	4.895	Alert
17,100.00	10,550.00	16,755.72	10,200.00	102.80	102.26	68.28	6,499.06	380.87	947.23	752.44	194.79	4.863	Alert
17,150.00	10,550.00	16,805.72	10,200.00	103.48	102.94	68.28	6,549.05	380.61	947.23	751.15	196.08	4.831	Alert
17,200.00	10,550.00	16,855.72	10,200.00	104.16	103.62	68.28	6,599.05	380.35	947.23	749.86	197.38	4.799	Alert
17,250.00	10,550.00	16,905.72	10,200.00	104.84	104.31	68.28	6,649.05	380.10	947.23	748.56	198.67	4.768	Alert
17,300.00	10,550.00	16,955.72	10,200.00	105.52	104.99	68.28	6,699.05	379.84	947.23	747.26	199.97	4.737	Alert
17,350.00	10,550.00	17,005.72	10,200.00	106.20	105.67	68.28	6,749.05	379.58	947.23	745.96	201.27	4.706	Alert
17,400.00	10,550.00	17,055.72	10,200.00	106.88	106.36	68.28	6,799.05	379.32	947.23	744.66	202.57	4.676	Alert
17,450.00	10,550.00	17,105.72	10,200.00	107.56	107.04	68.28	6,849.05	379.06	947.23	743.36	203.87	4.646	Alert
17,500.00	10,550.00	17,155.72	10,200.00	108.25	107.73	68.28	6,899.05	378.80	947.23	742.06	205.17	4.617	Alert
17,550.00	10,550.00	17,205.72	10,200.00	108.93	108.42	68.28	6,949.05	378.54	947.23	740.76	206.48	4.588	Alert
17,600.00	10,550.00	17,255.72	10,200.00	109.61	109.11	68.28	6,999.05	378.28	947.23	739.45	207.78	4.559	Alert
17,650.00	10,550.00	17,305.72	10,200.00	110.30	109.79	68.28	7,049.05	378.02	947.23	738.15	209.09	4.530	Alert
17,700.00	10,550.00	17,355.72	10,200.00	110.98	110.48	68.28	7,099.05	377.76	947.23	736.84	210.39	4.502	Alert
17,750.00	10,550.00	17,405.72	10,200.00	111.67	111.17	68.28	7,149.05	377.51	947.23	735.53	211.70	4.474	Alert
17,800.00	10,550.00	17,455.72	10,200.00	112.36	111.86	68.28	7,199.05	377.25	947.23	734.22	213.01	4.447	Alert
17,850.00	10,550.00	17,505.72	10,200.00	113.04	112.55	68.28	7,249.05	376.99	947.23	732.92	214.32	4.420	Alert
17,900.00	10,550.00	17,555.72	10,200.00	113.73	113.24	68.28	7,299.04	376.73	947.23	731.61	215.63	4.393	Alert
17,950.00	10,550.00	17,605.72	10,200.00	114.42	113.93	68.28	7,349.04	376.47	947.23	730.29	216.94	4.366	Alert
18,000.00	10,550.00	17,655.72	10,200.00	115.11	114.62	68.28	7,399.04	376.21	947.23	728.98	218.25	4.340	Alert
18,050.00	10,550.00	17,705.72	10,200.00	115.80	115.31	68.28	7,449.04	375.95	947.23	727.67	219.56	4.314	Alert
18,100.00	10,550.00	17,755.72	10,200.00	116.49	116.01	68.28	7,499.04	375.69	947.23	726.36	220.88	4.288	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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		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		
18,150.00	10,550.00	17,805.72	10,200.00	117.18	116.70	68.28	7,549.04	375.43	947.23	725.04	222.19	4.283	Alert	
18,200.00	10,550.00	17,855.72	10,200.00	117.87	117.39	68.28	7,599.04	375.17	947.23	723.73	223.51	4.238	Alert	
18,250.00	10,550.00	17,905.72	10,200.00	118.56	118.09	68.28	7,649.04	374.92	947.23	722.41	224.82	4.213	Alert	
18,300.00	10,550.00	17,955.72	10,200.00	119.25	118.78	68.28	7,699.04	374.66	947.23	721.09	226.14	4.189	Alert	
18,350.00	10,550.00	18,005.72	10,200.00	119.94	119.47	68.28	7,749.04	374.40	947.23	719.77	227.46	4.164	Alert	
18,400.00	10,550.00	18,055.72	10,200.00	120.63	120.17	68.28	7,799.04	374.14	947.23	718.46	228.78	4.140	Alert	
18,450.00	10,550.00	18,105.72	10,200.00	121.33	120.86	68.28	7,849.04	373.88	947.23	717.14	230.10	4.117	Alert	
18,500.00	10,550.00	18,155.72	10,200.00	122.02	121.56	68.28	7,899.04	373.62	947.23	715.82	231.42	4.093	Alert	
18,550.00	10,550.00	18,205.72	10,200.00	122.71	122.26	68.28	7,949.04	373.36	947.24	714.50	232.74	4.070	Alert	
18,600.00	10,550.00	18,255.72	10,200.00	123.41	122.95	68.28	7,999.04	373.10	947.24	713.17	234.06	4.047	Alert	
18,650.00	10,550.00	18,305.72	10,200.00	124.10	123.65	68.28	8,049.03	372.84	947.24	711.85	235.38	4.024	Alert	
18,700.00	10,550.00	18,355.72	10,200.00	124.80	124.35	68.28	8,099.03	372.58	947.24	710.53	236.71	4.002	Alert	
18,750.00	10,550.00	18,405.72	10,200.00	125.49	125.04	68.28	8,149.03	372.33	947.24	709.20	238.03	3.979	Alert	
18,800.00	10,550.00	18,455.72	10,200.00	126.19	125.74	68.28	8,199.03	372.07	947.24	707.88	239.36	3.957	Alert	
18,850.00	10,550.00	18,505.72	10,200.00	126.88	126.44	68.28	8,249.03	371.81	947.24	706.56	240.68	3.936	Alert	
18,900.00	10,550.00	18,555.72	10,200.00	127.58	127.14	68.28	8,299.03	371.55	947.24	705.23	242.01	3.914	Alert	
18,950.00	10,550.00	18,605.72	10,200.00	128.27	127.84	68.28	8,349.03	371.29	947.24	703.90	243.33	3.893	Alert	
19,000.00	10,550.00	18,655.72	10,200.00	128.97	128.54	68.28	8,399.03	371.03	947.24	702.58	244.66	3.872	Alert	
19,050.00	10,550.00	18,705.72	10,200.00	129.67	129.23	68.28	8,449.03	370.77	947.24	701.25	245.99	3.851	Alert	
19,100.00	10,550.00	18,755.72	10,200.00	130.37	129.93	68.28	8,499.03	370.51	947.24	699.92	247.32	3.830	Alert	
19,150.00	10,550.00	18,805.72	10,200.00	131.06	130.63	68.28	8,549.03	370.25	947.24	698.59	248.65	3.810	Alert	
19,200.00	10,550.00	18,855.72	10,200.00	131.76	131.33	68.28	8,599.03	369.99	947.24	697.26	249.98	3.789	Alert	
19,250.00	10,550.00	18,905.72	10,200.00	132.46	132.04	68.28	8,649.03	369.74	947.24	695.93	251.31	3.769	Alert	
19,300.00	10,550.00	18,955.72	10,200.00	133.16	132.74	68.28	8,699.03	369.48	947.24	694.60	252.64	3.749	Alert	
19,350.00	10,550.00	19,005.72	10,200.00	133.86	133.44	68.28	8,749.03	369.22	947.24	693.27	253.97	3.730	Alert	
19,400.00	10,550.00	19,055.72	10,200.00	134.56	134.14	68.28	8,799.02	368.96	947.24	691.94	255.30	3.710	Alert	
19,450.00	10,550.00	19,105.72	10,200.00	135.26	134.84	68.28	8,849.02	368.70	947.24	690.61	256.63	3.691	Alert	
19,500.00	10,550.00	19,155.72	10,200.00	135.96	135.54	68.28	8,899.02	368.44	947.24	689.27	257.97	3.672	Alert	
19,550.00	10,550.00	19,205.72	10,200.00	136.66	136.25	68.28	8,949.02	368.18	947.24	687.94	259.30	3.653	Alert	
19,600.00	10,550.00	19,255.72	10,200.00	137.36	136.95	68.28	8,999.02	367.92	947.24	686.60	260.63	3.634	Alert	
19,650.00	10,550.00	19,305.72	10,200.00	138.06	137.65	68.28	9,049.02	367.66	947.24	685.27	261.97	3.616	Alert	
19,700.00	10,550.00	19,355.72	10,200.00	138.76	138.35	68.28	9,099.02	367.40	947.24	683.94	263.30	3.598	Alert	
19,750.00	10,550.00	19,405.72	10,200.00	139.46	139.06	68.28	9,149.02	367.15	947.24	682.60	264.64	3.579	Alert	
19,800.00	10,550.00	19,455.72	10,200.00	140.16	139.76	68.28	9,199.02	366.89	947.24	681.26	265.98	3.561	Alert	
19,850.00	10,550.00	19,505.72	10,200.00	140.87	140.47	68.28	9,249.02	366.63	947.24	679.93	267.31	3.544	Alert	
19,900.00	10,550.00	19,555.72	10,200.00	141.57	141.17	68.28	9,299.02	366.37	947.24	678.59	268.65	3.526	Alert	
19,950.00	10,550.00	19,605.72	10,200.00	142.27	141.87	68.28	9,349.02	366.11	947.24	677.25	269.99	3.508	Alert	
20,000.00	10,550.00	19,655.72	10,200.00	142.97	142.58	68.28	9,399.02	365.85	947.24	675.91	271.32	3.491	Alert	
20,050.00	10,550.00	19,705.72	10,200.00	143.68	143.28	68.28	9,449.02	365.59	947.24	674.58	272.66	3.474	Alert	
20,100.00	10,550.00	19,755.72	10,200.00	144.38	143.99	68.28	9,499.02	365.33	947.24	673.24	274.00	3.457	Alert	
20,150.00	10,550.00	19,805.72	10,200.00	145.08	144.69	68.28	9,549.01	365.07	947.24	671.90	275.34	3.440	Alert	
20,200.00	10,550.00	19,855.72	10,200.00	145.79	145.40	68.28	9,599.01	364.81	947.24	670.56	276.68	3.424	Alert	
20,250.00	10,550.00	19,905.72	10,200.00	146.49	146.11	68.28	9,649.01	364.56	947.24	669.22	278.02	3.407	Alert	
20,300.00	10,550.00	19,955.72	10,200.00	147.20	146.81	68.28	9,699.01	364.30	947.24	667.88	279.36	3.391	Alert	
20,350.00	10,550.00	20,005.72	10,200.00	147.90	147.52	68.28	9,749.01	364.04	947.24	666.54	280.70	3.375	Alert	
20,400.00	10,550.00	20,055.72	10,200.00	148.61	148.22	68.28	9,799.01	363.78	947.24	665.20	282.05	3.358	Alert	
20,450.00	10,550.00	20,105.72	10,200.00	149.31	148.93	68.28	9,849.01	363.52	947.24	663.85	283.39	3.343	Alert	
20,500.00	10,550.00	20,155.72	10,200.00	150.02	149.64	68.28	9,899.01	363.26	947.24	662.51	284.73	3.327	Alert	
20,550.00	10,550.00	20,205.72	10,200.00	150.72	150.34	68.28	9,949.01	363.00	947.24	661.17	286.07	3.311	Alert	
20,600.00	10,550.00	20,255.72	10,200.00	151.43	151.05	68.28	9,999.01	362.74	947.24	659.83	287.42	3.296	Alert	
20,650.00	10,550.00	20,305.72	10,200.00	152.13	151.76	68.28	10,049.01	362.48	947.24	658.48	288.76	3.280	Alert	
20,700.00	10,550.00	20,355.72	10,200.00	152.84	152.47	68.28	10,099.01	362.22	947.24	657.14	290.10	3.265	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 Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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. 36-T23S-R31E - Todd 36-25 State Fed Com 234H - 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			
20,750.00	10,550.00	20,405.72	10,200.00	153.54	153.17	68.28	10,149.01	361.97	947.24	655.79	291.45	3.250	Alert			
20,800.00	10,550.00	20,455.72	10,200.00	154.25	153.88	68.28	10,199.01	361.71	947.24	654.45	292.79	3.235	Alert			
20,809.68	10,550.00	20,465.40	10,200.00	154.39	154.02	68.28	10,208.69	361.66	947.24	654.19	293.05	3.232	Alert			

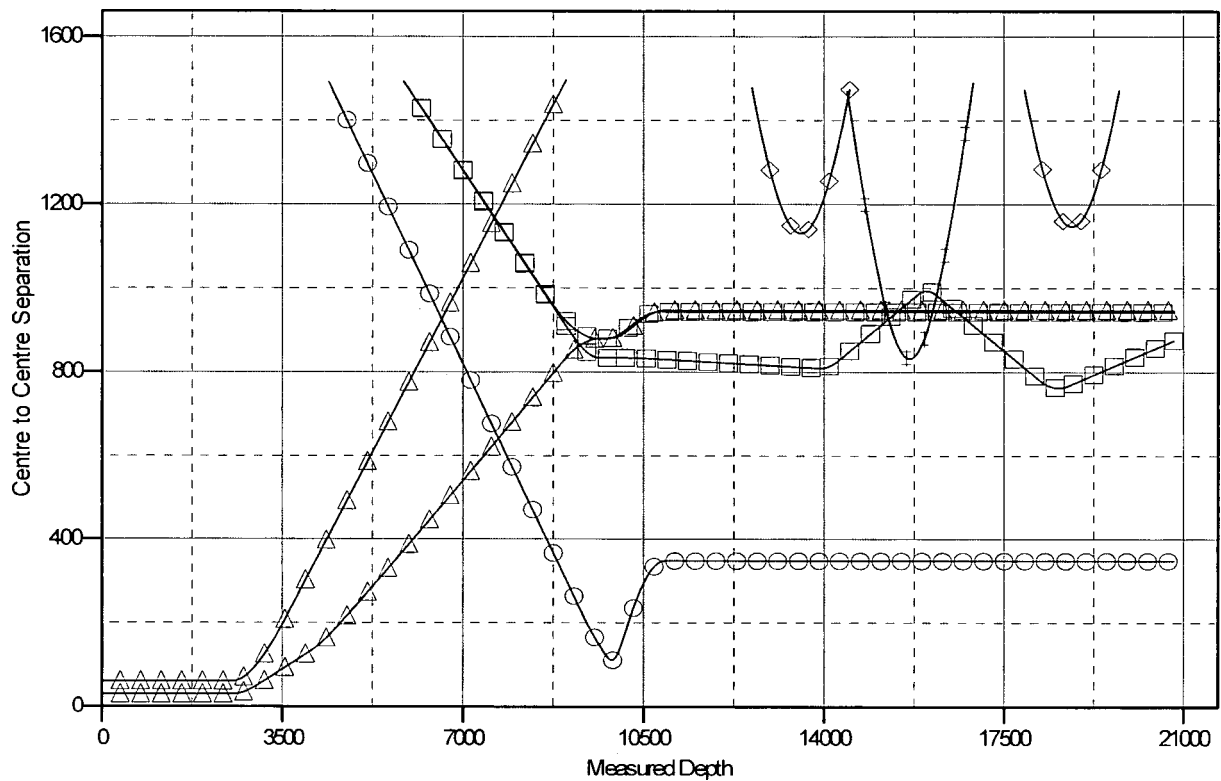
Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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 @ 3533.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Todd 36_25 State Fed Com 233H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.32°

Ladder Plot



LEGEND

Todd 36-25 State Fed Com 233H, Well bore #1, Permit Plan 1 V.O.	Todd 36_25 State Fed Com 233H, Well bore #1, Permit Plan 1 V.O.	Todd 25 Fed 601Z SWD (Offset), Well bore #1, Well bore #1 V.O.
Todd 36_25 State Fed Com 232H, Well bore #1, Permit Plan 1 V.O.	Todd 36-25 State Fed Com 230H, Well bore #1, Permit Plan 1 V.O.	Alabara 25 Fed 3H, Well bore #1, Well bore #1 V.O.
Todd 36_25 State Fed Com 232H, Well bore #1, Original Planned Path V.O.	Todd 36 State 01 SWD, Well bore #1, Well bore #1 V.O.	

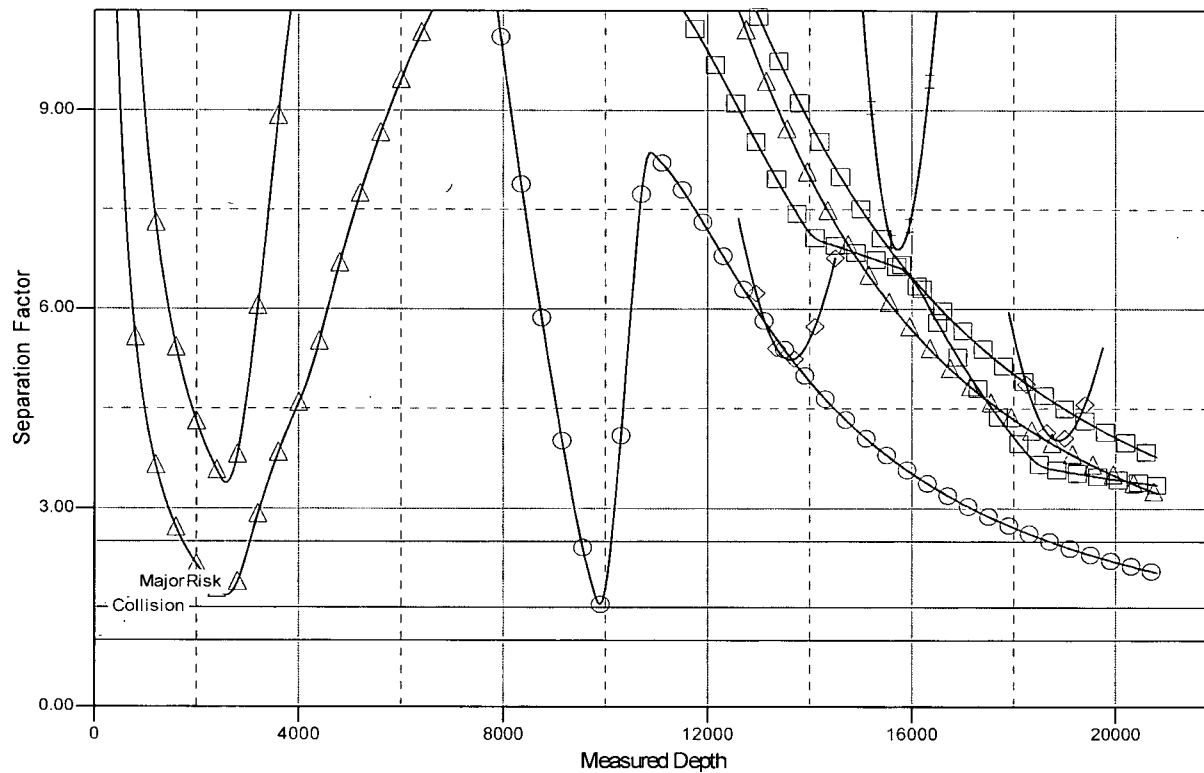
Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3533.00ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3533.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36_25 State Fed Com 233H	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 @ 3533.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Todd 36_25 State Fed Com 233H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.32°

Separation Factor Plot



LEGEND

- Todd 36-25 State Fed Com 234H, Wellbore #1, Permit Plan 1 V.O.
- Todd 36_25 State Fed Com 233H, Wellbore #1, Permit Plan 1 V.O.
- Todd 36_25 State Fed Com 233H, Wellbore #1, Original Planned Path V.O.
- Todd 36_25 State Fed Com 235H, Wellbore #1, Permit Plan 1 V.O.
- Todd 36-25 State Fed Com 230H, Wellbore #1, Permit Plan 1 V.O.
- Todd 36 State 01 SWD, Wellbore #1, V.O.
- Todd 25 Fed 0012 SWD (Offset), Wellbore #1, Wellbore #1 V.O.
- Alcora 25 Fed 3H, Wellbore #1, Wellbore #1 V.O.

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec. 36-T23S-R31E

Todd 36_25 State Fed Com 233H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

04 October, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3533.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3533.00ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36_25 State Fed Com 233H	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. 36-T23S-R31E		
Site Position:	From: Map	Northing:	461,801.03 usft
		Easting:	724,712.45 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.268172
		Longitude:	-103.740050
		Grid Convergence:	0.32 °

Well	Todd 36_25 State Fed Com 233H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.50 ft	Wellhead Elevation:	
		Latitude:	32.254575
		Longitude:	-103.728466
		Ground Level:	3,508.00 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	10/1/2018	6.89
			Dip Angle
			(°)
			60.05
			Field Strength
			(nT)
			47,806.44877221

Design	Permit Plan 1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			357.09

Plan Survey Tool Program	Date	10/4/2018		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(ft)	(ft)			
1	0.00	20,809.68 Permit Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
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	
2,959.44	4.59	238.89	2,958.95	-9.51	-15.76	1.00	1.00	0.00	238.89	
9,342.04	4.59	238.89	9,321.04	-273.66	-453.49	0.00	0.00	0.00	0.00	
9,648.33	0.00	0.00	9,627.00	-280.00	-464.00	1.50	-1.50	0.00	180.00	
9,998.37	0.00	0.00	9,977.04	-280.00	-464.00	0.00	0.00	0.00	0.00	
10,898.37	90.00	359.70	10,550.00	292.95	-466.97	10.00	10.00	0.00	359.70	PBHL - Todd 36_25 S
20,809.68	90.00	359.70	10,550.00	10,204.13	-518.34	0.00	0.00	0.00	0.00	PBHL - Todd 36_25 S

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3533.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3533.00ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36_25 State Fed Com 233H	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	456,874.40	728,320.83	32.254575	-103.728466
100.00	0.00	0.00	100.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
200.00	0.00	0.00	200.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
300.00	0.00	0.00	300.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
400.00	0.00	0.00	400.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
500.00	0.00	0.00	500.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
600.00	0.00	0.00	600.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
700.00	0.00	0.00	700.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
800.00	0.00	0.00	800.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
900.00	0.00	0.00	900.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,000.00	0.00	0.00	1,000.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,100.00	0.00	0.00	1,100.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,200.00	0.00	0.00	1,200.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,300.00	0.00	0.00	1,300.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,400.00	0.00	0.00	1,400.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,500.00	0.00	0.00	1,500.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,600.00	0.00	0.00	1,600.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,700.00	0.00	0.00	1,700.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,800.00	0.00	0.00	1,800.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
1,900.00	0.00	0.00	1,900.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,000.00	0.00	0.00	2,000.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,100.00	0.00	0.00	2,100.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,200.00	0.00	0.00	2,200.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,300.00	0.00	0.00	2,300.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,400.00	0.00	0.00	2,400.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,500.00	0.00	0.00	2,500.00	0.00	0.00	456,874.40	728,320.83	32.254575	-103.728466
2,600.00	1.00	238.89	2,599.99	-0.45	-0.75	456,873.95	728,320.08	32.254574	-103.728468
2,700.00	2.00	238.89	2,699.96	-1.80	-2.99	456,872.60	728,317.84	32.254570	-103.728476
2,800.00	3.00	238.89	2,799.86	-4.06	-6.72	456,870.34	728,314.11	32.254564	-103.728488
2,900.00	4.00	238.89	2,899.68	-7.21	-11.95	456,867.19	728,308.88	32.254555	-103.728505
2,959.44	4.59	238.89	2,958.95	-9.51	-15.76	456,864.89	728,305.07	32.254549	-103.728517
3,000.00	4.59	238.89	2,999.38	-11.19	-18.54	456,863.21	728,302.29	32.254545	-103.728526
3,100.00	4.59	238.89	3,099.06	-15.33	-25.40	456,859.07	728,295.43	32.254533	-103.728548
3,200.00	4.59	238.89	3,198.73	-19.47	-32.26	456,854.93	728,288.57	32.254522	-103.728571
3,300.00	4.59	238.89	3,298.41	-23.61	-39.12	456,850.79	728,281.71	32.254511	-103.728593
3,400.00	4.59	238.89	3,398.09	-27.74	-45.98	456,846.65	728,274.85	32.254500	-103.728615
3,500.00	4.59	238.89	3,497.77	-31.88	-52.84	456,842.52	728,268.00	32.254488	-103.728637
3,600.00	4.59	238.89	3,597.45	-36.02	-59.69	456,838.38	728,261.14	32.254477	-103.728660
3,700.00	4.59	238.89	3,697.13	-40.16	-66.55	456,834.24	728,254.28	32.254466	-103.728682
3,800.00	4.59	238.89	3,796.81	-44.30	-73.41	456,830.10	728,247.42	32.254454	-103.728704
3,900.00	4.59	238.89	3,896.49	-48.44	-80.27	456,825.96	728,240.56	32.254443	-103.728726
4,000.00	4.59	238.89	3,996.16	-52.58	-87.13	456,821.82	728,233.70	32.254432	-103.728749
4,100.00	4.59	238.89	4,095.84	-56.71	-93.98	456,817.68	728,226.85	32.254421	-103.728771
4,200.00	4.59	238.89	4,195.52	-60.85	-100.84	456,813.55	728,219.99	32.254409	-103.728793
4,300.00	4.59	238.89	4,295.20	-64.99	-107.70	456,809.41	728,213.13	32.254398	-103.728816
4,400.00	4.59	238.89	4,394.88	-69.13	-114.56	456,805.27	728,206.27	32.254387	-103.728838
4,500.00	4.59	238.89	4,494.56	-73.27	-121.42	456,801.13	728,199.41	32.254376	-103.728860
4,600.00	4.59	238.89	4,594.24	-77.41	-128.28	456,796.99	728,192.56	32.254364	-103.728882
4,700.00	4.59	238.89	4,693.92	-81.55	-135.13	456,792.85	728,185.70	32.254353	-103.728905
4,800.00	4.59	238.89	4,793.59	-85.68	-141.99	456,788.71	728,178.84	32.254342	-103.728927
4,900.00	4.59	238.89	4,893.27	-89.82	-148.85	456,784.58	728,171.98	32.254330	-103.728949
5,000.00	4.59	238.89	4,992.95	-93.96	-155.71	456,780.44	728,165.12	32.254319	-103.728971
5,100.00	4.59	238.89	5,092.63	-98.10	-162.57	456,776.30	728,158.27	32.254308	-103.728994
5,200.00	4.59	238.89	5,192.31	-102.24	-169.42	456,772.16	728,151.41	32.254297	-103.729016
5,300.00	4.59	238.89	5,291.99	-106.38	-176.28	456,768.02	728,144.55	32.254285	-103.729038

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3533.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3533.00ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36_25 State Fed Com 233H	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	4.59	238.89	5,391.67	-110.52	-183.14	456,763.88	728,137.69	32.254274	-103.729060
5,500.00	4.59	238.89	5,491.34	-114.65	-190.00	456,759.74	728,130.83	32.254263	-103.729083
5,600.00	4.59	238.89	5,591.02	-118.79	-196.86	456,755.61	728,123.97	32.254252	-103.729105
5,700.00	4.59	238.89	5,690.70	-122.93	-203.71	456,751.47	728,117.12	32.254240	-103.729127
5,800.00	4.59	238.89	5,790.38	-127.07	-210.57	456,747.33	728,110.26	32.254229	-103.729149
5,900.00	4.59	238.89	5,890.06	-131.21	-217.43	456,743.19	728,103.40	32.254218	-103.729172
6,000.00	4.59	238.89	5,989.74	-135.35	-224.29	456,739.05	728,096.54	32.254207	-103.729194
6,100.00	4.59	238.89	6,089.42	-139.49	-231.15	456,734.91	728,089.68	32.254195	-103.729216
6,200.00	4.59	238.89	6,189.10	-143.62	-238.01	456,730.77	728,082.83	32.254184	-103.729238
6,300.00	4.59	238.89	6,288.77	-147.76	-244.86	456,726.64	728,075.97	32.254173	-103.729261
6,400.00	4.59	238.89	6,388.45	-151.90	-251.72	456,722.50	728,069.11	32.254161	-103.729283
6,500.00	4.59	238.89	6,488.13	-156.04	-258.58	456,718.36	728,062.25	32.254150	-103.729305
6,600.00	4.59	238.89	6,587.81	-160.18	-265.44	456,714.22	728,055.39	32.254139	-103.729327
6,700.00	4.59	238.89	6,687.49	-164.32	-272.30	456,710.08	728,048.54	32.254128	-103.729350
6,800.00	4.59	238.89	6,787.17	-168.46	-279.15	456,705.94	728,041.68	32.254116	-103.729372
6,900.00	4.59	238.89	6,886.85	-172.59	-286.01	456,701.81	728,034.82	32.254105	-103.729394
7,000.00	4.59	238.89	6,986.52	-176.73	-292.87	456,697.67	728,027.96	32.254094	-103.729417
7,100.00	4.59	238.89	7,086.20	-180.87	-299.73	456,693.53	728,021.10	32.254083	-103.729439
7,200.00	4.59	238.89	7,185.88	-185.01	-306.59	456,689.39	728,014.24	32.254071	-103.729461
7,300.00	4.59	238.89	7,285.56	-189.15	-313.45	456,685.25	728,007.39	32.254060	-103.729483
7,400.00	4.59	238.89	7,385.24	-193.29	-320.30	456,681.11	728,000.53	32.254049	-103.729506
7,500.00	4.59	238.89	7,484.92	-197.43	-327.16	456,676.97	727,993.67	32.254037	-103.729528
7,600.00	4.59	238.89	7,584.60	-201.56	-334.02	456,672.84	727,986.81	32.254026	-103.729550
7,700.00	4.59	238.89	7,684.28	-205.70	-340.88	456,668.70	727,979.95	32.254015	-103.729572
7,800.00	4.59	238.89	7,783.95	-209.84	-347.74	456,664.56	727,973.10	32.254004	-103.729595
7,900.00	4.59	238.89	7,883.63	-213.98	-354.59	456,660.42	727,966.24	32.253992	-103.729617
8,000.00	4.59	238.89	7,983.31	-218.12	-361.45	456,656.28	727,959.38	32.253981	-103.729639
8,100.00	4.59	238.89	8,082.99	-222.26	-368.31	456,652.14	727,952.52	32.253970	-103.729661
8,200.00	4.59	238.89	8,182.67	-226.39	-375.17	456,648.00	727,945.66	32.253959	-103.729684
8,300.00	4.59	238.89	8,282.35	-230.53	-382.03	456,643.87	727,938.80	32.253947	-103.729706
8,400.00	4.59	238.89	8,382.03	-234.67	-388.89	456,639.73	727,931.95	32.253936	-103.729728
8,500.00	4.59	238.89	8,481.70	-238.81	-395.74	456,635.59	727,925.09	32.253925	-103.729750
8,600.00	4.59	238.89	8,581.38	-242.95	-402.60	456,631.45	727,918.23	32.253914	-103.729773
8,700.00	4.59	238.89	8,681.06	-247.09	-409.46	456,627.31	727,911.37	32.253902	-103.729795
8,800.00	4.59	238.89	8,780.74	-251.23	-416.32	456,623.17	727,904.51	32.253891	-103.729817
8,900.00	4.59	238.89	8,880.42	-255.36	-423.18	456,619.03	727,897.66	32.253880	-103.729839
9,000.00	4.59	238.89	8,980.10	-259.50	-430.03	456,614.90	727,890.80	32.253868	-103.729862
9,100.00	4.59	238.89	9,079.78	-263.64	-436.89	456,610.76	727,883.94	32.253857	-103.729884
9,200.00	4.59	238.89	9,179.46	-267.78	-443.75	456,606.62	727,877.08	32.253846	-103.729906
9,300.00	4.59	238.89	9,279.13	-271.92	-450.61	456,602.48	727,870.22	32.253835	-103.729928
9,342.04	4.59	238.89	9,321.04	-273.66	-453.49	456,600.74	727,867.34	32.253830	-103.729938
9,400.00	3.72	238.89	9,378.85	-275.83	-457.09	456,598.57	727,863.74	32.253824	-103.729950
9,500.00	2.22	238.89	9,478.71	-278.51	-461.53	456,595.89	727,859.30	32.253817	-103.729964
9,600.00	0.72	238.89	9,578.67	-279.84	-463.74	456,594.56	727,857.09	32.253813	-103.729971
9,648.33	0.00	0.00	9,627.00	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
9,700.00	0.00	0.00	9,678.67	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
9,800.00	0.00	0.00	9,778.67	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
9,900.00	0.00	0.00	9,878.67	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
9,998.37	0.00	0.00	9,977.04	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
9,998.53	0.00	359.70	9,977.20	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
KOP @ 9999' MD, 50' FSL, 2160' FEL									
10,000.00	0.16	359.70	9,978.67	-280.00	-464.00	456,594.40	727,856.83	32.253813	-103.729972
10,100.00	10.16	359.70	10,078.14	-271.01	-464.05	456,603.39	727,856.79	32.253837	-103.729972
10,200.00	20.16	359.70	10,174.53	-244.89	-464.18	456,629.51	727,856.65	32.253909	-103.729972

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3533.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3533.00ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36_25 State Fed Com 233H	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
10,239.67	24.13	359.70	10,211.27	-229.94	-464.26	456,644.46	727,856.57	32.253950	-103.729972
FTP @ 10240' MD, 100' FSL, 2160' FEL									
10,300.00	30.16	359.70	10,264.93	-202.42	-464.40	456,671.98	727,856.43	32.254026	-103.729972
10,400.00	40.16	359.70	10,346.58	-144.91	-464.70	456,729.49	727,856.13	32.254184	-103.729972
10,500.00	50.16	359.70	10,417.00	-74.08	-465.07	456,800.31	727,855.76	32.254379	-103.729972
10,600.00	60.16	359.70	10,474.05	7.89	-465.49	456,882.29	727,855.34	32.254604	-103.729972
10,700.00	70.16	359.70	10,516.00	98.52	-465.96	456,972.92	727,854.87	32.254853	-103.729971
10,800.00	80.16	359.70	10,541.58	195.06	-466.46	457,069.46	727,854.37	32.255118	-103.729971
10,898.37	90.00	359.70	10,550.00	292.95	-466.97	457,167.35	727,853.86	32.255388	-103.729971
10,900.00	90.00	359.70	10,550.00	294.58	-466.98	457,168.98	727,853.85	32.255392	-103.729971
11,000.00	90.00	359.70	10,550.00	394.58	-467.50	457,268.98	727,853.34	32.255667	-103.729971
11,100.00	90.00	359.70	10,550.00	494.58	-468.01	457,368.98	727,852.82	32.255942	-103.729971
11,200.00	90.00	359.70	10,550.00	594.58	-468.53	457,468.97	727,852.30	32.256217	-103.729971
11,300.00	90.00	359.70	10,550.00	694.57	-469.05	457,568.97	727,851.78	32.256492	-103.729971
11,400.00	90.00	359.70	10,550.00	794.57	-469.57	457,668.97	727,851.26	32.256766	-103.729970
11,500.00	90.00	359.70	10,550.00	894.57	-470.09	457,768.97	727,850.74	32.257041	-103.729970
11,600.00	90.00	359.70	10,550.00	994.57	-470.61	457,868.97	727,850.23	32.257316	-103.729970
11,700.00	90.00	359.70	10,550.00	1,094.57	-471.12	457,968.97	727,849.71	32.257591	-103.729970
11,800.00	90.00	359.70	10,550.00	1,194.57	-471.64	458,068.96	727,849.19	32.257866	-103.729970
11,900.00	90.00	359.70	10,550.00	1,294.57	-472.16	458,168.96	727,848.67	32.258141	-103.729970
12,000.00	90.00	359.70	10,550.00	1,394.57	-472.68	458,268.96	727,848.15	32.258416	-103.729970
12,100.00	90.00	359.70	10,550.00	1,494.56	-473.20	458,368.96	727,847.63	32.258691	-103.729969
12,200.00	90.00	359.70	10,550.00	1,594.56	-473.72	458,468.96	727,847.12	32.258965	-103.729969
12,300.00	90.00	359.70	10,550.00	1,694.56	-474.23	458,568.96	727,846.60	32.259240	-103.729969
12,400.00	90.00	359.70	10,550.00	1,794.56	-474.75	458,668.96	727,846.08	32.259515	-103.729969
12,500.00	90.00	359.70	10,550.00	1,894.56	-475.27	458,768.95	727,845.56	32.259790	-103.729969
12,600.00	90.00	359.70	10,550.00	1,994.56	-475.79	458,868.95	727,845.04	32.260065	-103.729969
12,700.00	90.00	359.70	10,550.00	2,094.56	-476.31	458,968.95	727,844.52	32.260340	-103.729969
12,800.00	90.00	359.70	10,550.00	2,194.55	-476.83	459,068.95	727,844.01	32.260615	-103.729968
12,900.00	90.00	359.70	10,550.00	2,294.55	-477.34	459,168.95	727,843.49	32.260890	-103.729968
13,000.00	90.00	359.70	10,550.00	2,394.55	-477.86	459,268.95	727,842.97	32.261164	-103.729968
13,100.00	90.00	359.70	10,550.00	2,494.55	-478.38	459,368.94	727,842.45	32.261439	-103.729968
13,200.00	90.00	359.70	10,550.00	2,594.55	-478.90	459,468.94	727,841.93	32.261714	-103.729968
13,300.00	90.00	359.70	10,550.00	2,694.55	-479.42	459,568.94	727,841.41	32.261989	-103.729968
13,400.00	90.00	359.70	10,550.00	2,794.55	-479.94	459,668.94	727,840.90	32.262264	-103.729968
13,500.00	90.00	359.70	10,550.00	2,894.55	-480.45	459,768.94	727,840.38	32.262539	-103.729967
13,600.00	90.00	359.70	10,550.00	2,994.54	-480.97	459,868.94	727,839.86	32.262814	-103.729967
13,700.00	90.00	359.70	10,550.00	3,094.54	-481.49	459,968.94	727,839.34	32.263089	-103.729967
13,800.00	90.00	359.70	10,550.00	3,194.54	-482.01	460,068.93	727,838.82	32.263363	-103.729967
13,900.00	90.00	359.70	10,550.00	3,294.54	-482.53	460,168.93	727,838.30	32.263638	-103.729967
14,000.00	90.00	359.70	10,550.00	3,394.54	-483.05	460,268.93	727,837.79	32.263913	-103.729967
14,100.00	90.00	359.70	10,550.00	3,494.54	-483.56	460,368.93	727,837.27	32.264188	-103.729967
14,200.00	90.00	359.70	10,550.00	3,594.54	-484.08	460,468.93	727,836.75	32.264463	-103.729966
14,300.00	90.00	359.70	10,550.00	3,694.53	-484.60	460,568.93	727,836.23	32.264738	-103.729966
14,400.00	90.00	359.70	10,550.00	3,794.53	-485.12	460,668.92	727,835.71	32.265013	-103.729966
14,500.00	90.00	359.70	10,550.00	3,894.53	-485.64	460,768.92	727,835.19	32.265288	-103.729966
14,600.00	90.00	359.70	10,550.00	3,994.53	-486.16	460,868.92	727,834.68	32.265562	-103.729966
14,700.00	90.00	359.70	10,550.00	4,094.53	-486.67	460,968.92	727,834.16	32.265837	-103.729966
14,800.00	90.00	359.70	10,550.00	4,194.53	-487.19	461,068.92	727,833.64	32.266112	-103.729966
14,900.00	90.00	359.70	10,550.00	4,294.53	-487.71	461,168.92	727,833.12	32.266387	-103.729965
15,000.00	90.00	359.70	10,550.00	4,394.53	-488.23	461,268.92	727,832.60	32.266662	-103.729965
15,100.00	90.00	359.70	10,550.00	4,494.52	-488.75	461,368.91	727,832.08	32.266937	-103.729965
15,200.00	90.00	359.70	10,550.00	4,594.52	-489.27	461,468.91	727,831.57	32.267212	-103.729965
15,300.00	90.00	359.70	10,550.00	4,694.52	-489.78	461,568.91	727,831.05	32.267487	-103.729965

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Company:	WCDCS Permian NM	TVD Reference:	RKB @ 3533.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3533.00ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36_25 State Fed Com 233H	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
15,400.00	90.00	359.70	10,550.00	4,794.52	-490.30	461,668.91	727,830.53	32.267762	-103.729965
15,500.00	90.00	359.70	10,550.00	4,894.52	-490.82	461,768.91	727,830.01	32.268036	-103.729965
15,555.64	90.00	359.70	10,550.00	4,950.16	-491.11	461,824.55	727,829.72	32.268189	-103.729965
Cross Section @ 15556' MD, 0' FSL, 2160' FEL									
15,600.00	90.00	359.70	10,550.00	4,994.52	-491.34	461,868.91	727,829.49	32.268311	-103.729964
15,700.00	90.00	359.70	10,550.00	5,094.52	-491.86	461,968.90	727,828.97	32.268586	-103.729964
15,800.00	90.00	359.70	10,550.00	5,194.51	-492.38	462,068.90	727,828.46	32.268861	-103.729964
15,900.00	90.00	359.70	10,550.00	5,294.51	-492.89	462,168.90	727,827.94	32.269136	-103.729964
16,000.00	90.00	359.70	10,550.00	5,394.51	-493.41	462,268.90	727,827.42	32.269411	-103.729964
16,100.00	90.00	359.70	10,550.00	5,494.51	-493.93	462,368.90	727,826.90	32.269686	-103.729964
16,200.00	90.00	359.70	10,550.00	5,594.51	-494.45	462,468.90	727,826.38	32.269961	-103.729964
16,300.00	90.00	359.70	10,550.00	5,694.51	-494.97	462,568.90	727,825.87	32.270235	-103.729963
16,400.00	90.00	359.70	10,550.00	5,794.51	-495.49	462,668.89	727,825.35	32.270510	-103.729963
16,500.00	90.00	359.70	10,550.00	5,894.51	-496.00	462,768.89	727,824.83	32.270785	-103.729963
16,600.00	90.00	359.70	10,550.00	5,994.50	-496.52	462,868.89	727,824.31	32.271060	-103.729963
16,700.00	90.00	359.70	10,550.00	6,094.50	-497.04	462,968.89	727,823.79	32.271335	-103.729963
16,800.00	90.00	359.70	10,550.00	6,194.50	-497.56	463,068.89	727,823.27	32.271610	-103.729963
16,900.00	90.00	359.70	10,550.00	6,294.50	-498.08	463,168.89	727,822.76	32.271885	-103.729963
17,000.00	90.00	359.70	10,550.00	6,394.50	-498.60	463,268.88	727,822.24	32.272160	-103.729962
17,100.00	90.00	359.70	10,550.00	6,494.50	-499.11	463,368.88	727,821.72	32.272434	-103.729962
17,200.00	90.00	359.70	10,550.00	6,594.50	-499.63	463,468.88	727,821.20	32.272709	-103.729962
17,300.00	90.00	359.70	10,550.00	6,694.49	-500.15	463,568.88	727,820.68	32.272984	-103.729962
17,400.00	90.00	359.70	10,550.00	6,794.49	-500.67	463,668.88	727,820.16	32.273259	-103.729962
17,500.00	90.00	359.70	10,550.00	6,894.49	-501.19	463,768.88	727,819.65	32.273534	-103.729962
17,600.00	90.00	359.70	10,550.00	6,994.49	-501.71	463,868.88	727,819.13	32.273809	-103.729962
17,700.00	90.00	359.70	10,550.00	7,094.49	-502.22	463,968.87	727,818.61	32.274084	-103.729961
17,800.00	90.00	359.70	10,550.00	7,194.49	-502.74	464,068.87	727,818.09	32.274359	-103.729961
17,900.00	90.00	359.70	10,550.00	7,294.49	-503.26	464,168.87	727,817.57	32.274633	-103.729961
18,000.00	90.00	359.70	10,550.00	7,394.48	-503.78	464,268.87	727,817.05	32.274908	-103.729961
18,100.00	90.00	359.70	10,550.00	7,494.48	-504.30	464,368.87	727,816.54	32.275183	-103.729961
18,200.00	90.00	359.70	10,550.00	7,594.48	-504.82	464,468.87	727,816.02	32.275458	-103.729961
18,300.00	90.00	359.70	10,550.00	7,694.48	-505.33	464,568.86	727,815.50	32.275733	-103.729961
18,400.00	90.00	359.70	10,550.00	7,794.48	-505.85	464,668.86	727,814.98	32.276008	-103.729961
18,500.00	90.00	359.70	10,550.00	7,894.48	-506.37	464,768.86	727,814.46	32.276283	-103.729960
18,600.00	90.00	359.70	10,550.00	7,994.48	-506.89	464,868.86	727,813.94	32.276558	-103.729960
18,700.00	90.00	359.70	10,550.00	8,094.48	-507.41	464,968.86	727,813.43	32.276832	-103.729960
18,800.00	90.00	359.70	10,550.00	8,194.47	-507.92	465,068.86	727,812.91	32.277107	-103.729960
18,900.00	90.00	359.70	10,550.00	8,294.47	-508.44	465,168.86	727,812.39	32.277382	-103.729960
19,000.00	90.00	359.70	10,550.00	8,394.47	-508.96	465,268.85	727,811.87	32.277657	-103.729960
19,100.00	90.00	359.70	10,550.00	8,494.47	-509.48	465,368.85	727,811.35	32.277932	-103.729960
19,200.00	90.00	359.70	10,550.00	8,594.47	-510.00	465,468.85	727,810.83	32.278207	-103.729959
19,300.00	90.00	359.70	10,550.00	8,694.47	-510.52	465,568.85	727,810.32	32.278482	-103.729959
19,400.00	90.00	359.70	10,550.00	8,794.47	-511.03	465,668.85	727,809.80	32.278757	-103.729959
19,500.00	90.00	359.70	10,550.00	8,894.46	-511.55	465,768.85	727,809.28	32.279031	-103.729959
19,600.00	90.00	359.70	10,550.00	8,994.46	-512.07	465,868.84	727,808.76	32.279306	-103.729959
19,700.00	90.00	359.70	10,550.00	9,094.46	-512.59	465,968.84	727,808.24	32.279581	-103.729959
19,800.00	90.00	359.70	10,550.00	9,194.46	-513.11	466,068.84	727,807.72	32.279856	-103.729959
19,900.00	90.00	359.70	10,550.00	9,294.46	-513.63	466,168.84	727,807.21	32.280131	-103.729958
20,000.00	90.00	359.70	10,550.00	9,394.46	-514.14	466,268.84	727,806.69	32.280406	-103.729958
20,100.00	90.00	359.70	10,550.00	9,494.46	-514.66	466,368.84	727,806.17	32.280681	-103.729958
20,200.00	90.00	359.70	10,550.00	9,594.46	-515.18	466,468.84	727,805.65	32.280956	-103.729958
20,300.00	90.00	359.70	10,550.00	9,694.45	-515.70	466,568.83	727,805.13	32.281230	-103.729958
20,400.00	90.00	359.70	10,550.00	9,794.45	-516.22	466,668.83	727,804.61	32.281505	-103.729958
20,500.00	90.00	359.70	10,550.00	9,894.45	-516.74	466,768.83	727,804.10	32.281780	-103.729958

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36_25 State Fed Com 233H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3533.00ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3533.00ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36_25 State Fed Com 233H	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	
20,600.00	90.00	359.70	10,550.00	9,994.45	-517.25	466,868.83	727,803.58	32.282055	-103.729957	
20,700.00	90.00	359.70	10,550.00	10,094.45	-517.77	466,968.83	727,803.06	32.282330	-103.729957	
20,729.84	90.00	359.70	10,550.00	10,124.29	-517.93	466,998.67	727,802.90	32.282412	-103.729957	
LTP @ 20730' MD, 100' FNL, 2160' FEL										
20,800.00	90.00	359.70	10,550.00	10,194.45	-518.29	467,068.83	727,802.54	32.282605	-103.729957	
20,809.67	90.00	359.70	10,550.00	10,204.12	-518.34	467,078.50	727,802.49	32.282631	-103.729957	
PBHL; 20' FNL, 2160' FEL										
20,809.68	90.00	359.70	10,550.00	10,204.13	-518.34	467,078.51	727,802.49	32.282631	-103.729957	

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 - Todd 36_25 Stat	0.00	0.00	0.00	10,204.13	-518.34	467,078.51	727,802.49	32.282631	-103.729957	
- plan misses target center by 10217.28ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Point										

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
9,998.53	9,977.20	-280.00	-464.00	KOP @ 9999' MD, 50' FSL, 2160' FEL	
10,239.67	10,211.27	-229.94	-464.26	FTP @ 10240' MD, 100' FSL, 2160' FEL	
15,555.64	10,550.00	4,950.16	-491.11	Cross Section @ 15556' MD, 0' FSL, 2160' FEL	
20,729.84	10,550.00	10,124.29	-517.93	LTP @ 20730' MD, 100' FNL, 2160' FEL	
20,809.67	10,550.00	10,204.12	-518.34	PBHL; 20' FNL, 2160' FEL	

Devon Energy

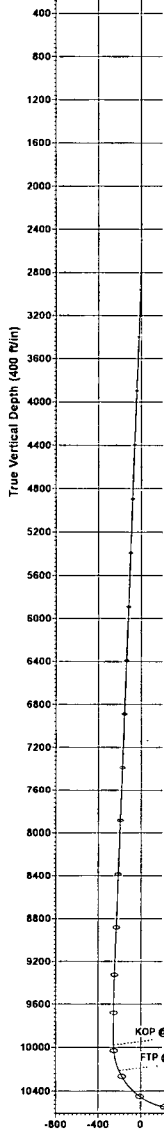
WELL DETAILS: Todd 36_25 State Fed Com 233H

RKB @ 3533.00ft
3508.00

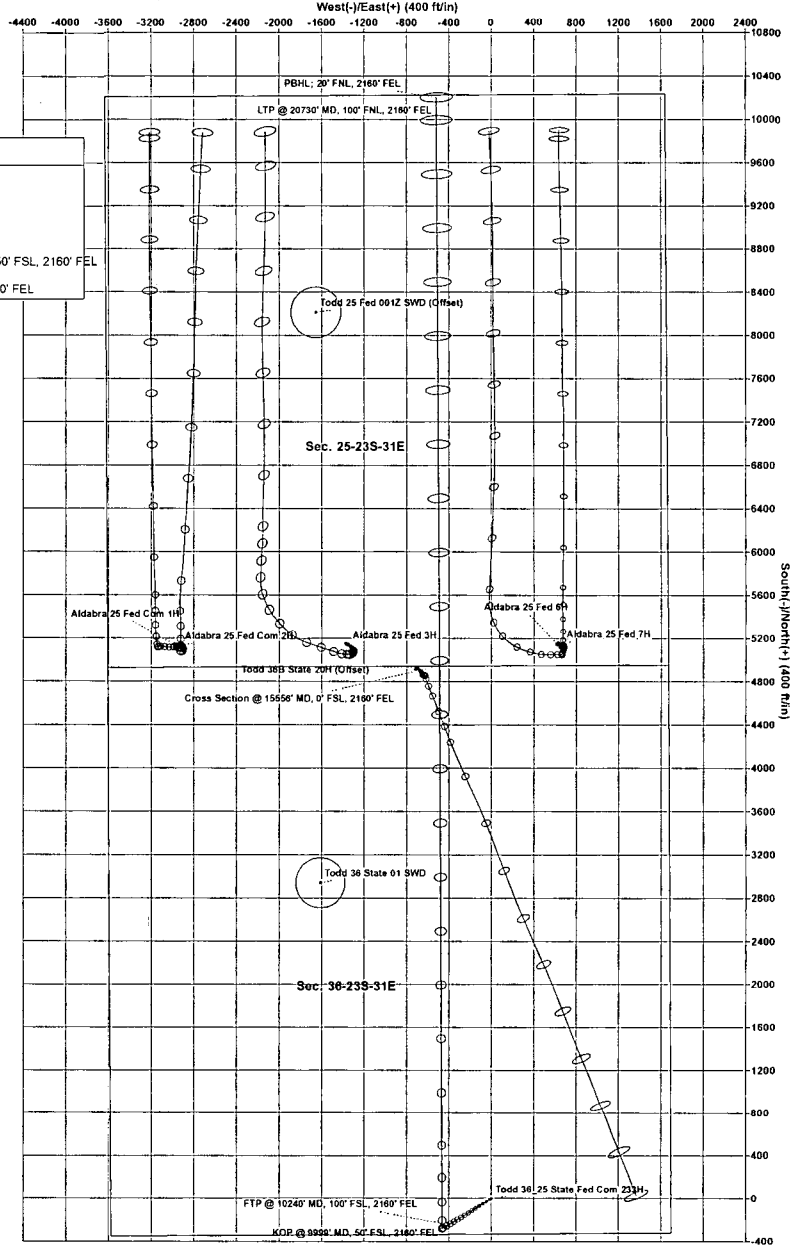
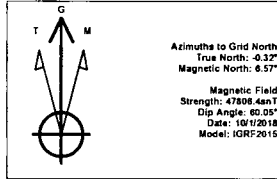
Northing 456874.40 Easting 728320.83 Latitude 32.254575 Longitude -103.728466

SECTION DETAILS Permit Plan 1

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	V/Sect	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	
	2959.44	4.59	238.89	2958.95	-9.51	-15.76	1.00	-8.70	
	9342.04	4.59	238.89	9321.04	-273.66	-453.49	0.00	-250.30	
5	9648.33	0.00	0.00	9627.00	-280.00	-464.00	1.50	-256.10	
6	9998.37	0.00	0.00	9977.04	-280.00	-464.00	0.00	-256.10	KOP @ 9999' MD, 50' FSL, 2160' FEL
7	10898.37	90.00	359.70	10550.00	292.95	-466.97	10.00	316.26	
8	20809.68	90.00	359.70	10550.00	10204.13	-518.34	0.00	10217.28	PBHL: 20' FNL, 2160' FEL



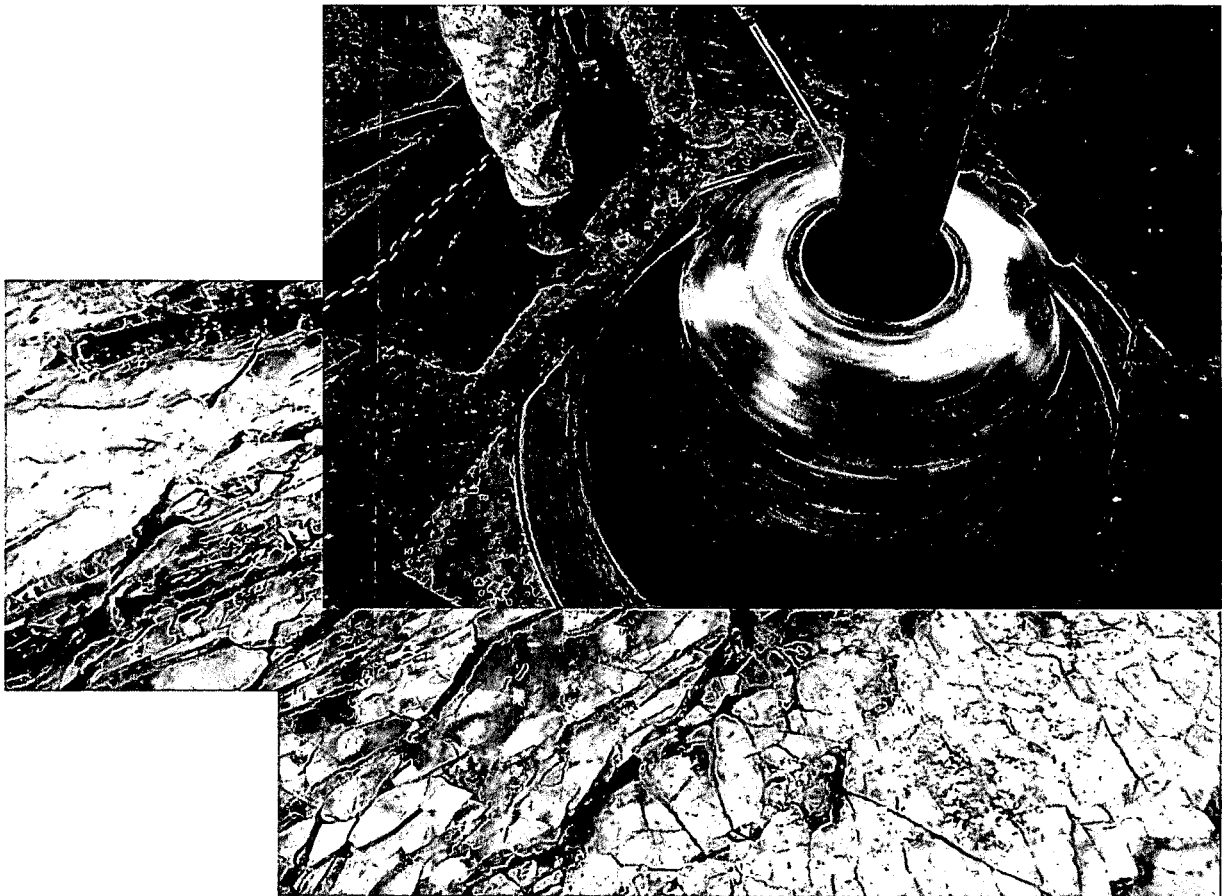
devon



Vertical Section at 357.09° (400 ft/in)



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.

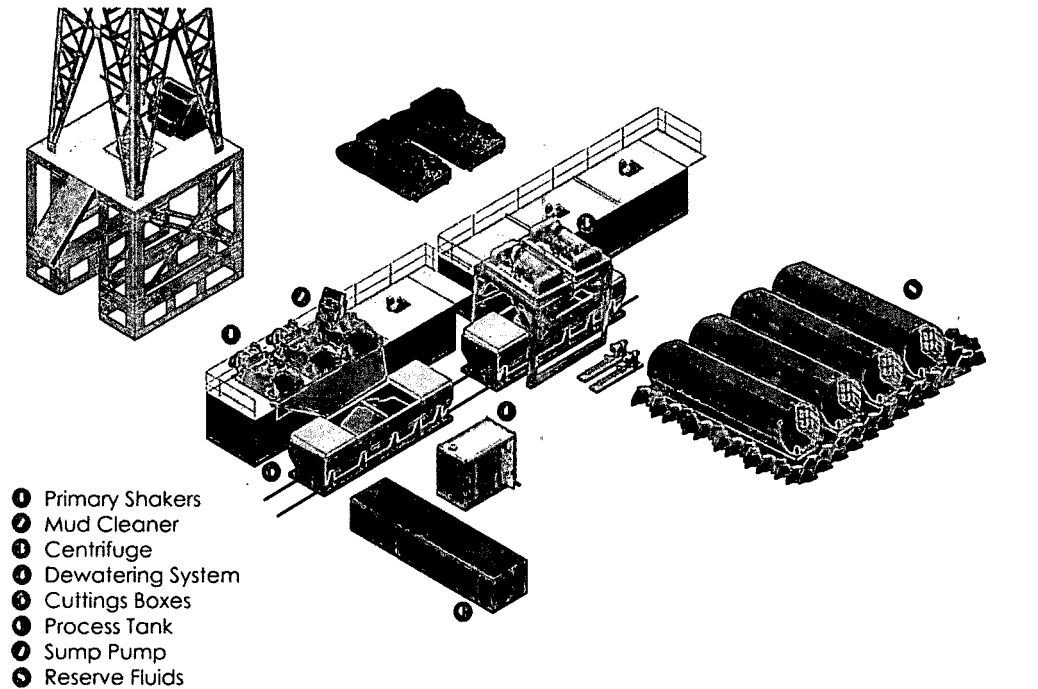
II. Operations and Maintenance Plan

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.

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

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

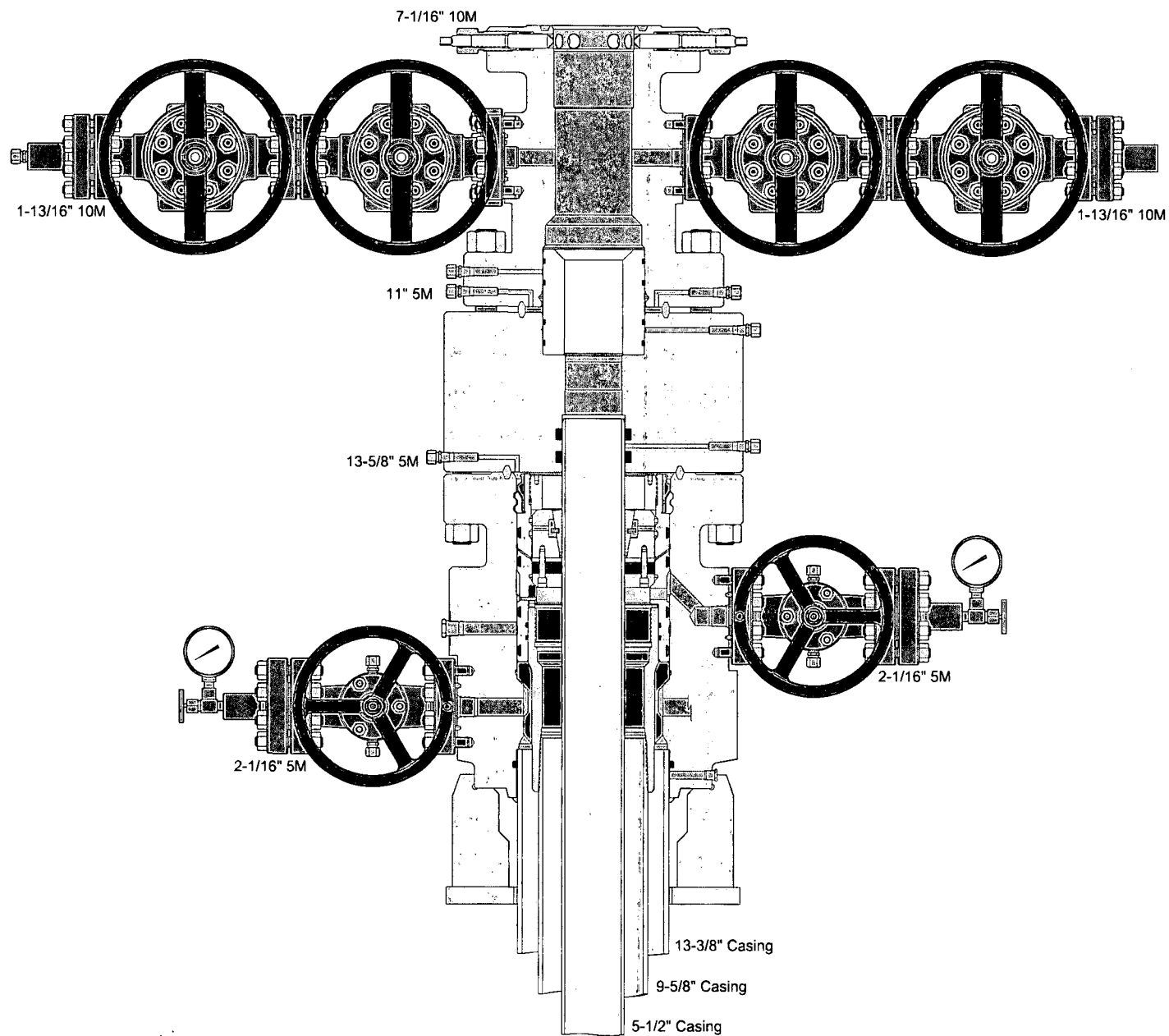
- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial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

After running the 13-3/8" surface casing, a 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 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.

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

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



Devon Energy, Todd 36-25 State Fed Com 233H

1. Geologic Formations

TVD of target	10550	Pilot hole depth	N/A
MD at TD:	20809	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	811		
Salado	1146		
Base of Salt	4445		
Delaware	4506		
L Brushy Canyon	8056		
Bone Spring	8386		
Leonard 'A'	8486		
Leonard 'B'	8971		
Leonard 'C'	9136		
2nd BSPG Lime	9871		
2nd BSPG Sand	10036		
L 2nd BSPG Sand	10536		
Landing Point	10550		

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

Devon Energy, Todd 36-25 State Fed Com 233H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (PPF)	Grade	Conn.
	From	To				
17.5"	0	836	13.375"	48	H-40	STC
12.25"	0	6000	9.625"	40	J-55	BTC
8.75"	0	TD	5.5"	17	P-110	BTC
BLM Minimum Safety Factor				Collapse: 1.125	Burst: 1.00	Tension: 1.6 Dry 1.8 Wet

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

Devon Energy, Todd 36-25 State Fed Com 233H

	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?	

Devon Energy, Todd 36-25 State Fed Com 233H

3. Cementing Program (3-String Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft ³ /sack)	Slurry Description
Surface	873	Surf	13.2	1.33	Lead: Class C Cement + additives
Int	1095	Surf	9	1.94	Lead: Class C Cement + additives
	196	500' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1 Two Stage (optional) w/ DV @ ~4500	560	Surf	9	1.94	Stage 1 Lead: Class C Cement + additives
	196	500' above shoe	13.2	1.33	Stage 1 Tail: Class H / C + additives
	570	Surf	9	1.94	Stage 2 Lead: Class C Cement + additives
	196	500' above DV	13.2	1.33	Stage 2 Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	1095	Surf	9	1.94	Lead: Class C Cement + additives
	196	500' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	351	500' tieback	9	3.569	Lead: Class H / C + additives
	1881	KOP	13.2	1.46	Tail: Class H / C + additives

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

Casing String	% Excess
Surface	100%
Intermediate	50%
Production	10%

Devon Energy, Todd 36-25 State Fed Com 233H

4. Pressure Control Equipment

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

Devon Energy, Todd 36-25 State Fed Com 233H

5. Mud Program

Interval	Type	Weight (ppg)	Vis	Water Loss
Surface	FW	8.5 – 9.0	28-34	N/C
Intermediate	Brine	10 – 10.5	28-34	N/C
Production	WBM	8.5 – 9.0	28-34	N/C

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

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

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

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

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4937 psi
Abnormal Temperature	No

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

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

Devon Energy, Todd 36-25 State Fed Com 233H

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

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. SUMMARY OF Variance:

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

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

2. Description of Operations

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



Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

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

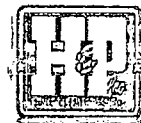
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

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

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

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



RIG 212



QUALITY DOCUMENT

PHOENIX RUBBER
INDUSTRIAL LTD.

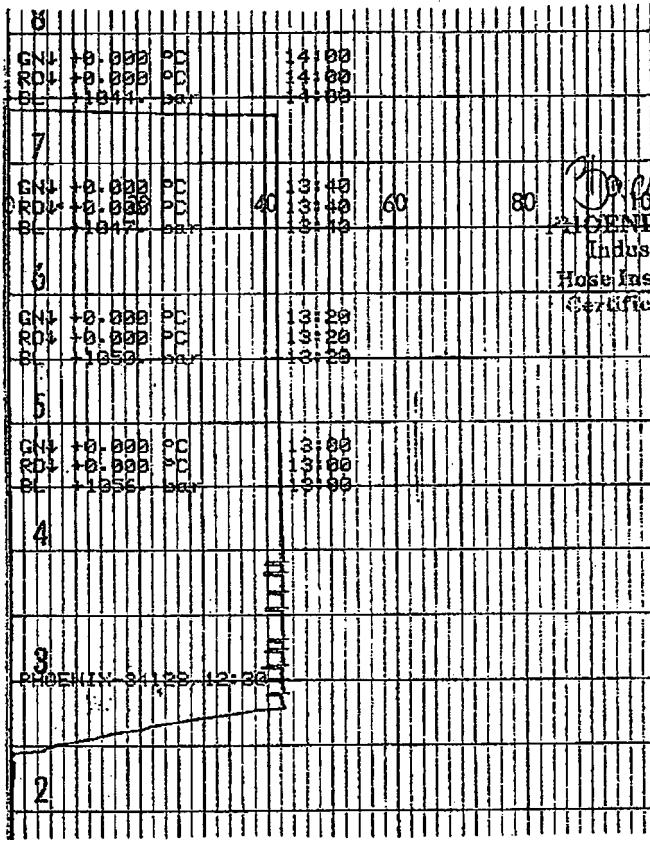
6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax: (3662) 566-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 • Fax: (361) 217-2972, 456-4273 • www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.			P.O. N°: 1519FA-871		
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH: 11,43 m			
W.P. 68,96 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature See attachment. (1 page)					
↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
COUPLINGS					
Type	Serial N°		Quality	Heat N°	
3" coupling with 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:	Inspector		Quality Control		
29. April. 2002.			PHOENIX RUBBER Industrial Ltd. Hose Inspection and Test Dept. PHOENIX RUBBER G.C.		

14094-65

40920-0-00015 NR006



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

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.



APD ID: 10400034900

Submission Date: 10/10/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

TODD_36_25_STATE_FED_COM_233H_EXISTING_RD_20181009091415.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

TODD_36_25_STATE_FED_COM_233H_ACCESS_RD1_20181009091502.pdf

New road type: COLLECTOR,RESOURCE

Length: 46

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: n/a

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Access surfacing type: GRAVEL

Access topsoil source: BOTH

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description: n/a

Onsite topsoil removal process: See attached Interim reclamation diagram.

Access other construction information:

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CULVERT

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:

Todd_36_25_State_Fed_Com_233H_OneMileBuffer_WA017432162_20181009092233.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: Wells will go to Todd 36 CTB 2 . Please refer to CTB plat.

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Water source use type: OTHER

Water source type: OTHER

Describe type: STIMULATION

Source latitude:

Source longitude:

Source datum:

Water source permit type: OTHER

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: STATE

Water source volume (barrels): 230000

Source volume (acre-feet): 29.645412

Source volume (gal): 9660000

Water source and transportation map:

TODD_36_25_STATE_FED_COM_233H_234H_235H_water_x_map_20181009092522.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: TODD 36-25 STATE FED COM

Well Number: 233H

Section 6 - Construction Materials

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

Construction Materials source location attachment:

Todd_36_Wellpad_3_Caliche_Map_20181010094254.pdf

Section 7 - Methods for Handling Waste

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: n/a

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: n/a

Safe containmant attachment:

Waste disposal type: ON-LEASE INJECTION **Disposal location ownership:** COMMERCIAL

Disposal type description:

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

Waste type: FLOWBACK

Waste content description: n/a

Amount of waste: 1500 barrels

Waste disposal frequency : Daily

Safe containment description: n/a

Safe containmant attachment:

Waste disposal type: ON-LEASE INJECTION **Disposal location ownership:** COMMERCIAL

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Disposal type description:

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

Waste type: DRILLING

Waste content description: Water Based Cuttings

Amount of waste: 2004 barrels

Waste disposal frequency : Daily

Safe containment description: n/a

Safe containmant attachment:

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

Disposal type description:

Disposal location description: All cuttings will disposed of at R360, Sundance, or equivalent.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

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

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

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

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

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

WCuttings area liner

Cuttings area liner specifications and installation description

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

TODD_36_25_STATE_FED_COM_233H_RIGLAYOUT_20181009093052.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: TODD 36 WELLPAD

Multiple Well Pad Number: 3

Recontouring attachment:

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

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

Well pad proposed disturbance (acres): 3.471

Road proposed disturbance (acres): 0.22

Powerline proposed disturbance (acres): 0.044

Pipeline proposed disturbance (acres): 0.637

Other proposed disturbance (acres): 5.165

Total proposed disturbance: 9.537

Well pad interim reclamation (acres): 2.018

Road interim reclamation (acres): 0

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres): 0

Other interim reclamation (acres): 0

Total interim reclamation: 2.018

Well pad long term disturbance (acres): 1.641

Road long term disturbance (acres): 0.22

Powerline long term disturbance (acres): 0.044

Pipeline long term disturbance (acres): 0.637

Other long term disturbance (acres): 5.165

Total long term disturbance: 7.707

Disturbance Comments:

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

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

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

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

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?

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project?

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation?

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary	
Seed Type	Pounds/Acre

Total pounds/Acre:

Seed reclamation attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

Operator Contact/Responsible Official Contact Info

First Name: JACOB

Last Name: OCHOA

Phone: (575)748-9934

Email: JACOB.OCHOA@DVN.COM

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Maintain weeds on an as need basis.

Weed treatment plan attachment:

Monitoring plan description: Monitor as needed.

Monitoring plan attachment:

Success standards: n/a

Pit closure description: n/a

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

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:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 233H

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

SUPO Additional Information: FLOWLINES buried added 3/19/2019 ELECTRIC LINES ADDED 2/12/2019

Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

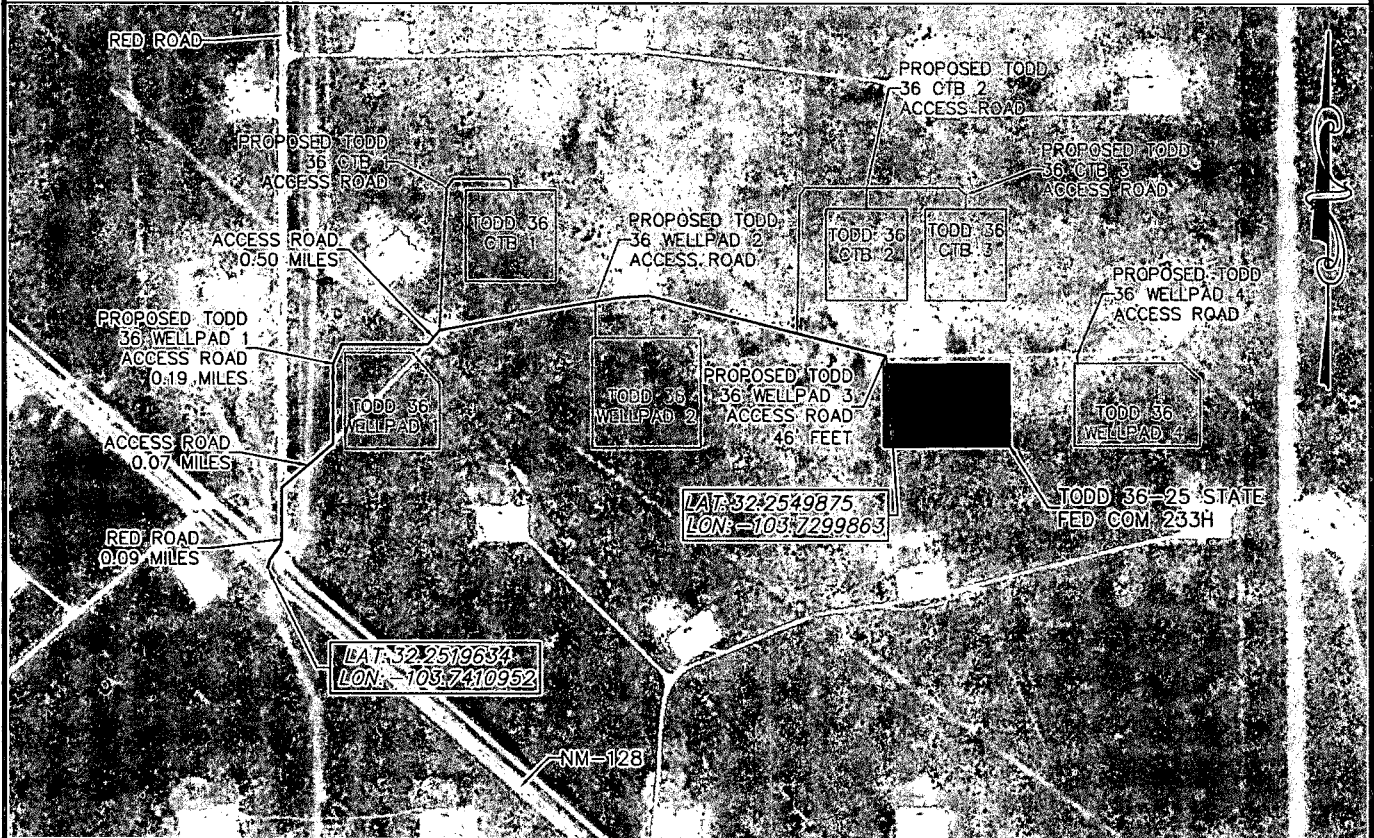
Pay.gov__Receipt_20181010094228.pdf

EL8245_TODD_36_CTB_2_EL_P_20190212141611.PDF

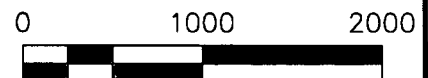
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7660144F_TODD_36_WP_3_TO_CTB_2_FL_P_buried_lines_20190319121040.pdf

SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 AERIAL ACCESS ROUTE MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
 TODD 36-25 STATE FED COM 233H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1696 FT. FROM THE EAST LINE OF
 SECTION 36, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO



HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

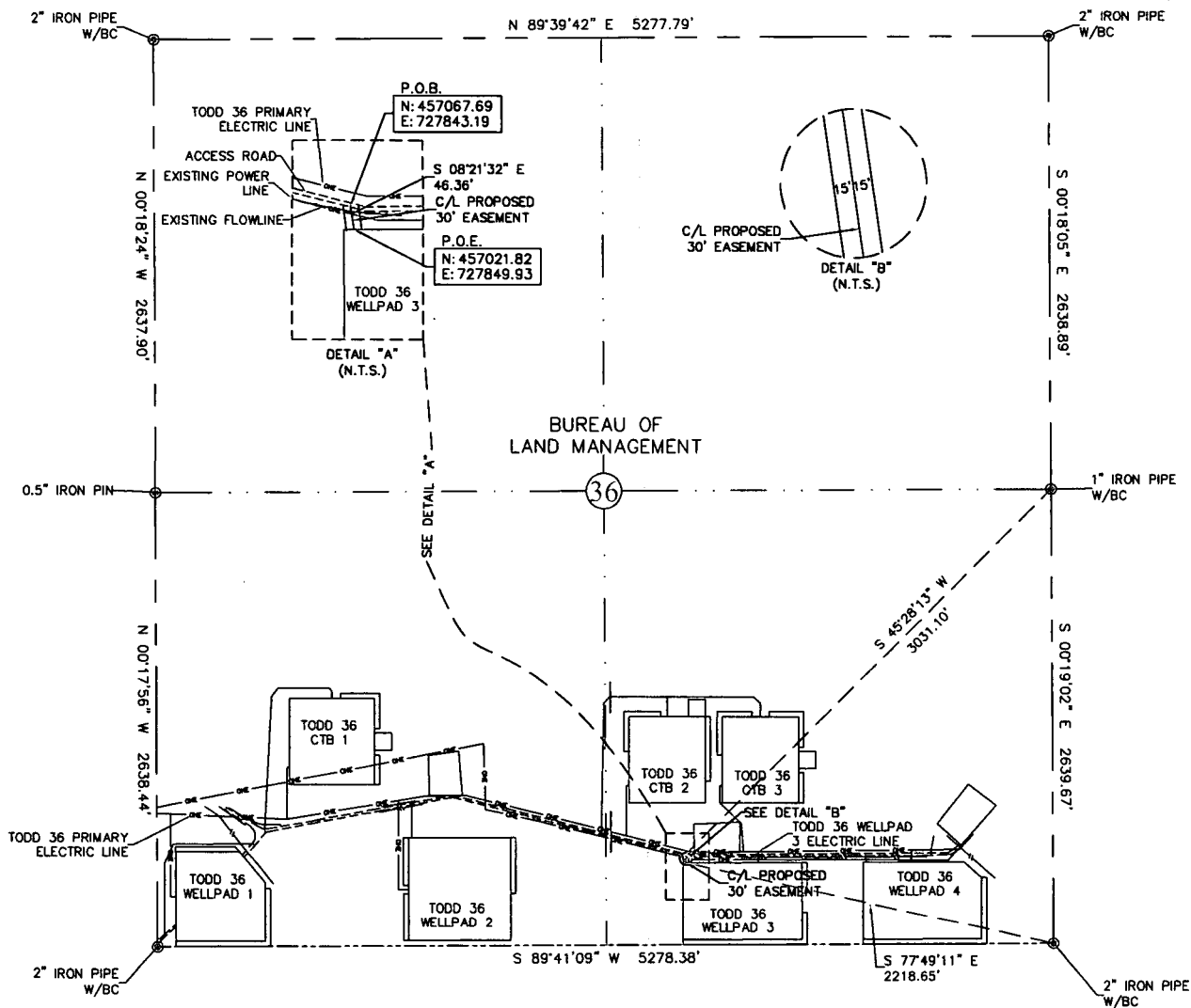
Drawn by:
 CHRIS MAAS

Date: 09/19/2018

Drawn for:

devon

EXHIBIT "A"
ACCESS ROAD, PLAT
SECTION 36, T23S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.032 ACRE(S)
46.36 FEET OR 2.81 RODS

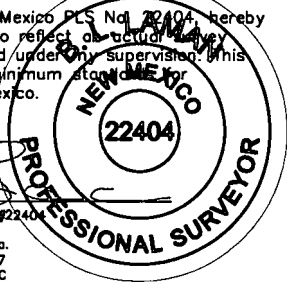
0+00.0 P.O.B./EXISTING ACCESS ROAD
0+03.9 EDGE OF ROAD
0+11.6 EXISTING FLOW LINE
0+16.3 POWER LINE
0+46.3 P.O.E./TODD 36 WELLPAD 3

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 No. 22404, hereby certify this survey to reflect a true and correct 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: 09-23-2018
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 07/07/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36
WELLPAD 3 ACCESS ROAD

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 36, T23S-R31E, N.M.P.M.

LINE NUMBER:

WBS NUMBER:

SCALE:
1" = 1000'

REVISIONS:

SURVEY DATE:
6/30/18

0 1000 2000



**SECTION 36, T23S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

ACCESS ROAD PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the southeast quarter (SE $\frac{1}{4}$) of Section 36, Township 23 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 for the east quarter corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

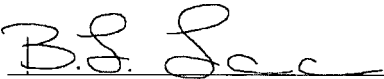
Thence S 45°28'13" W a distance of 3031.10' to the **Point of Beginning** of this easement having coordinates of Northing=457067.69, Easting=727843.19 feet and continuing the following course;

Thence S 08°21'32" E a distance of 46.36' to the **Point of Ending** having coordinates of Northing=457021.82, Easting=727849.93 feet from said point a 2" iron pipe w/BC for the southeast corner of Section 36, T23S-R31E bears S 77°49'11" E a distance of 2218.65', covering **46.36' or 2.81 rods** and having an area of **0.032 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: 09/23/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC



devon

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

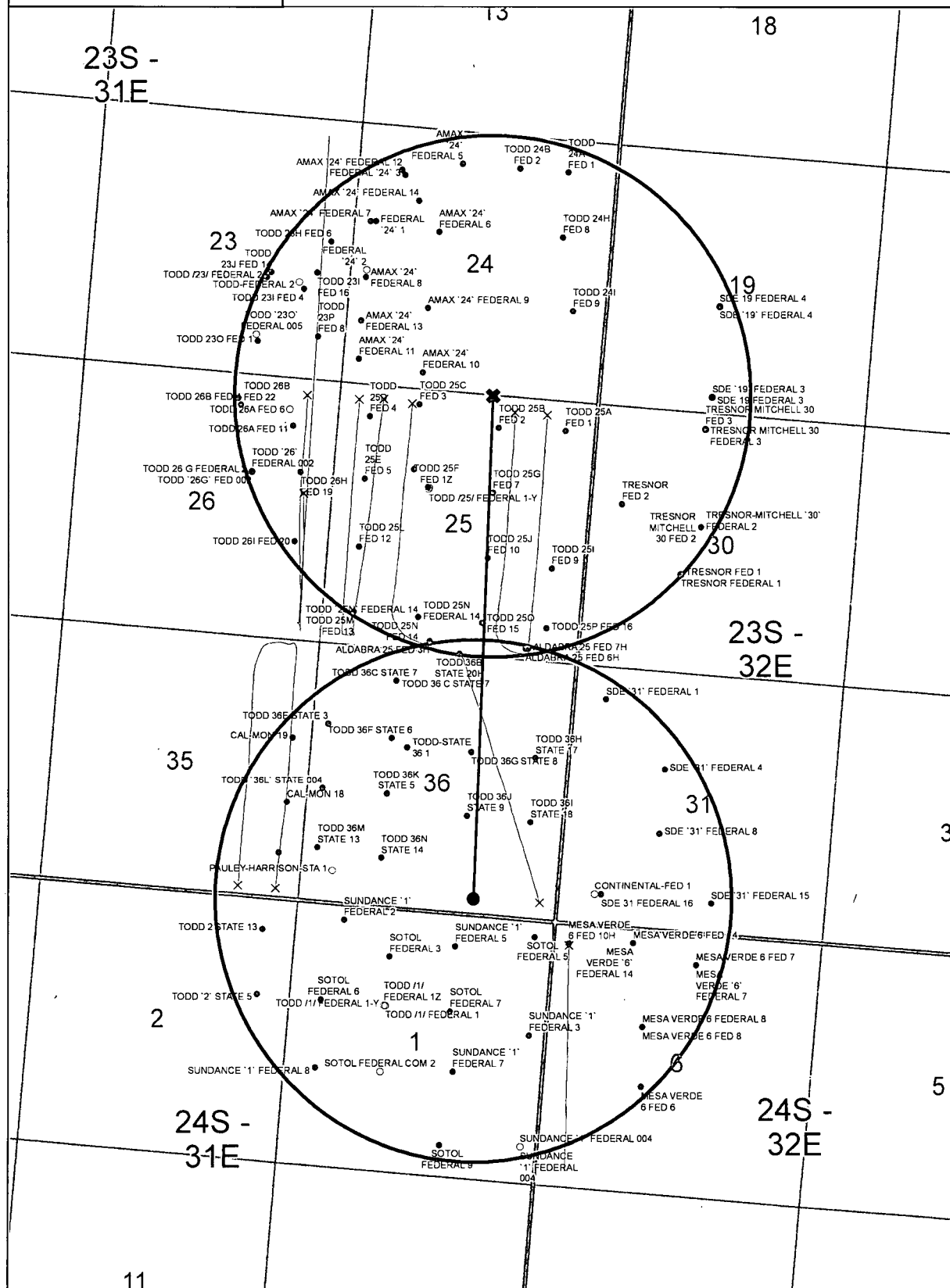
USA Contiguous Equidistant Conic
Datum: North American 1983
Created by: FME Server
Map is current as of 10/4/2018



 Miles 1 inch = 0.44 miles

567 ft.

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



TODD 36-25 STATE FED COM

233H/234H/235H

devon

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

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: _User
Map is current as of: 08-Oct-2018



Miles

0 0.28 0.56 1.12 1:56,913

TODD 2 TW POND

DEVON 30 DAY INSTALL DAYS PRIOR TO COMPLETION
DEVON WILL CONTACT BLM IF ADDITIONAL TIME IS NEEDED
DISTURBANCE: EXISTING
CONTENTS: FRESH WATER
TYPE OF PIPE: LAY FLAT
SIZE OF PIPE: 12"
LENGTH OF PIPE: 32,543' FOR TW WATER

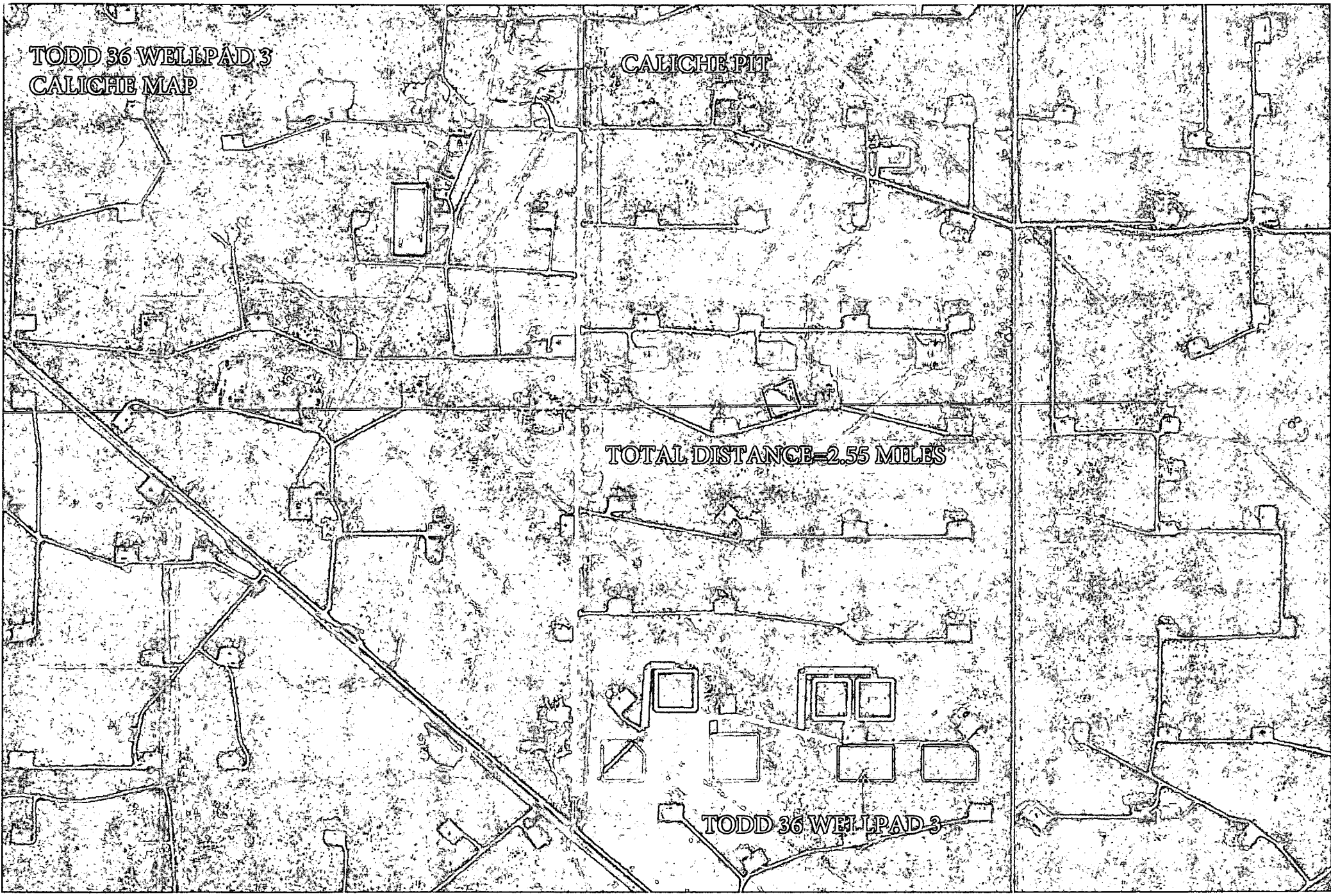
TODD 36-25 STATE FED COM
233H/234H/235H

TODD 36 WELLPAD 3
CALICHE MAP

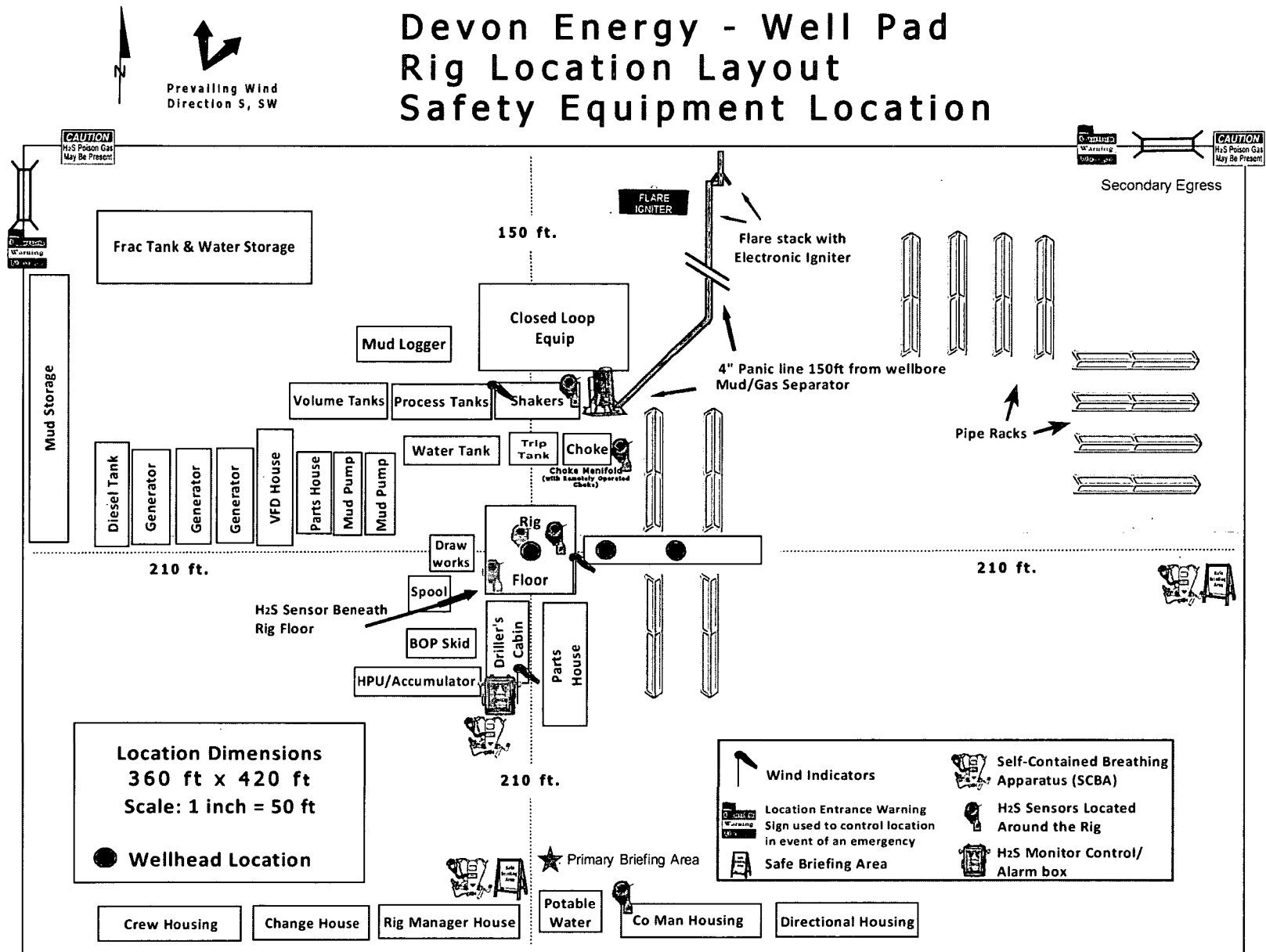
CALICHE PIT

TOTAL DISTANCE=2.55 MILES

TODD 36 WELLPAD 3



Devon Energy - Well Pad Rig Location Layout Safety Equipment Location





Receipt

Your payment is submitted

Pay.gov Tracking ID: 26CPORR8

Agency Tracking ID: 75591612551

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

Application Name: BLM Oil and Gas Online Payment

Payment Information

Payment Type: Bank account (ACH)

Payment Amount: \$30,150.00

Transaction Date: 10/10/2018 11:31:45 AM EDT

Payment Date: 10/11/2018

Company: DEVON ENERGY PRODUCTION CO., L.P.

APD IDs: 10400034900, 10400035010, 10400035068

Lease Numbers: NMNM0544986, NMNM0544986, NMNM0544986

Well Numbers: 233H, 234H, 235H

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

Account Information

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

Routing Number: 061000052

Account Number: *****9892

Email Confirmation Receipt

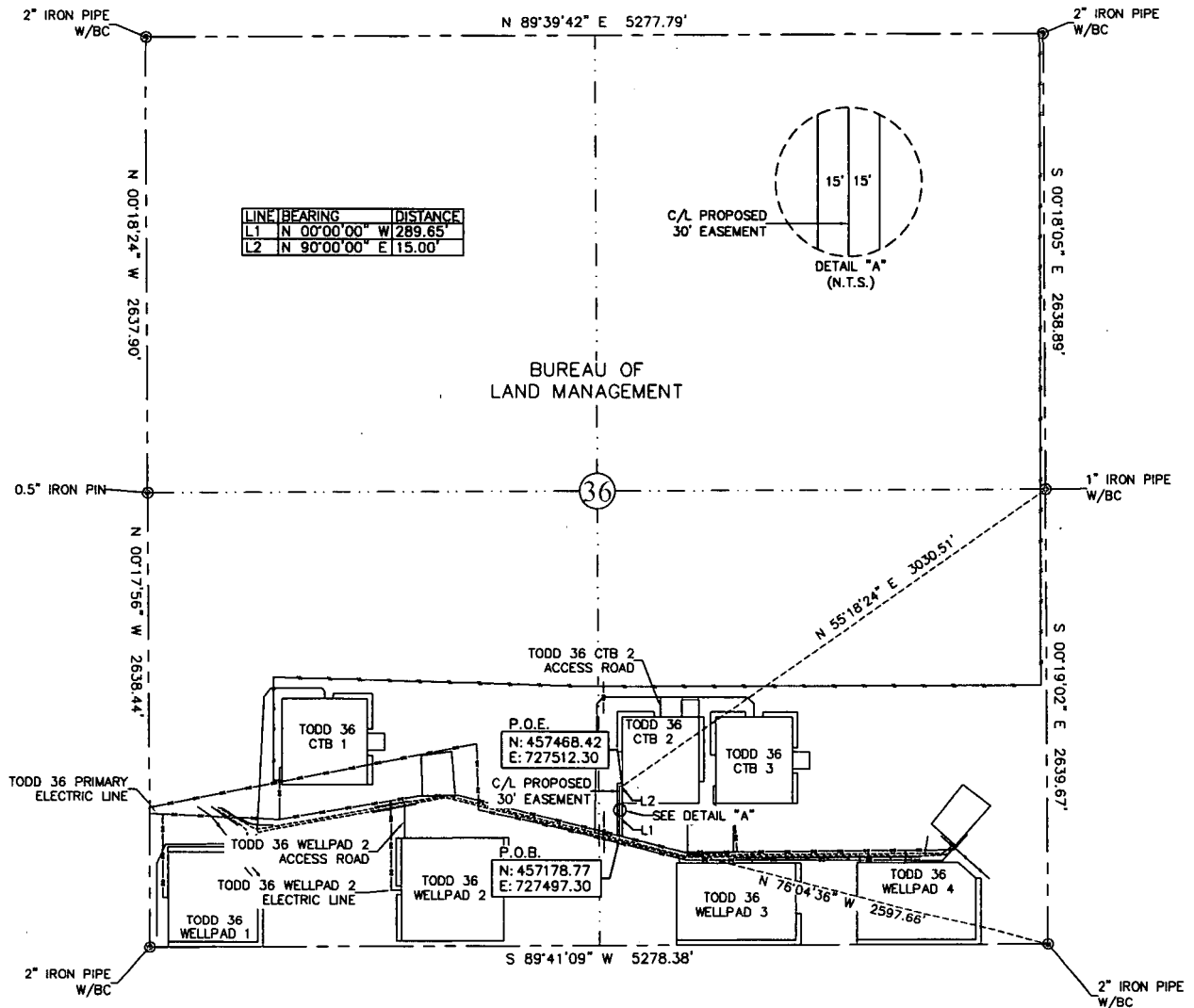
Confirmation Receipts have been emailed to:

JENNY.HARMS@DVN.COM

jeff.walla@dvn.com

lisa.othon@dvn.com

EXHIBIT "A"
PAGE 1 of 4
ELECTRIC LINE PLAT
SECTION 36, T23S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



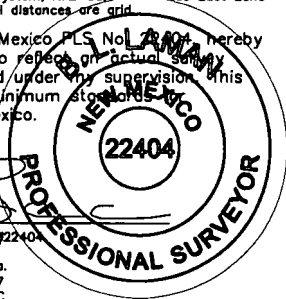
30' EASEMENT AREA = 0.210 ACRE(S)
304.65 FEET OR 18.46 RODS

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: 09-07-2018
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
Jesus Rivero

Date: 07/03/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36 CTB 2
ELECTRIC LINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 36, T23S-R31E, N.M.P.M.

LINE NUMBER:
EL8245

WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

SHEET:
1 OF 4

0 1000 2000



**SECTION 36, T23S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the southeast quarter (SE $\frac{1}{4}$) of Section 36, Township 23 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 for the southeast corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 76°04'36" W a distance of 2597.66' to the **Point of Beginning** of this easement having coordinates of Northing=457178.77, Easting=727497.30 feet and continuing the following courses;

Thence N 00°00'00" W a distance of 289.65' to an angle point;

Thence N 90°00'00" E a distance of 15.00' to the **Point of Ending** having coordinates of Northing=457468.42, Easting=727512.30 feet from said point a 1" iron pipe w/BC for the east quarter corner of Section 36, T23S-R31E bears N 55°18'24" E a distance of 3030.51', covering **304.65' or 18.46 rods** and having an area of **0.210 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.

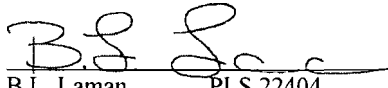
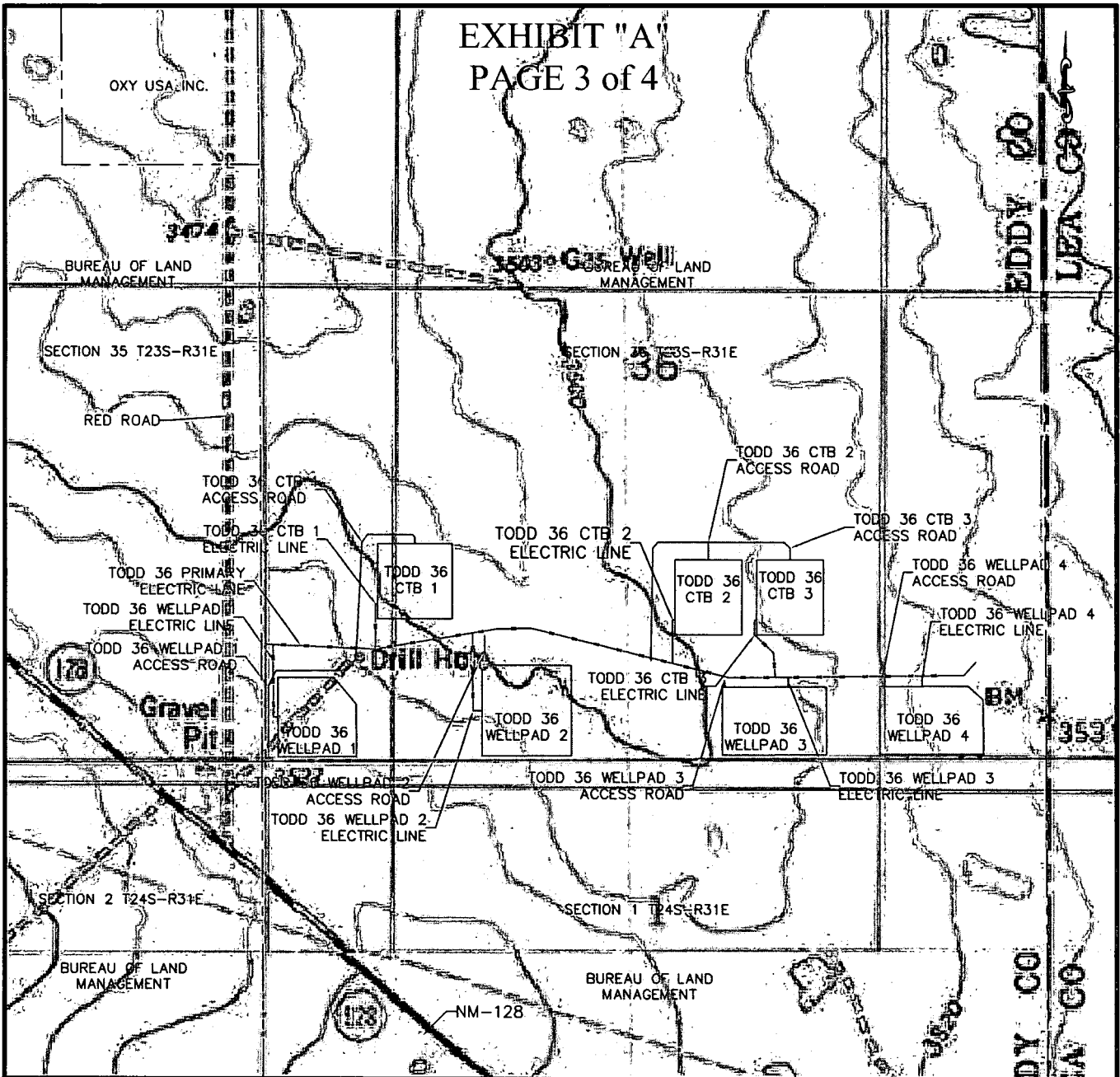

B.L. Laman PLS 22404
Date Signed: 09/07/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC



EXHIBIT "A"

PAGE 3 of 4



QUAD MAP

SECTION 36, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:
Jesus Rivero

Date: 07/03/2018

Drawn for:



LINE NUMBER:
EL8245

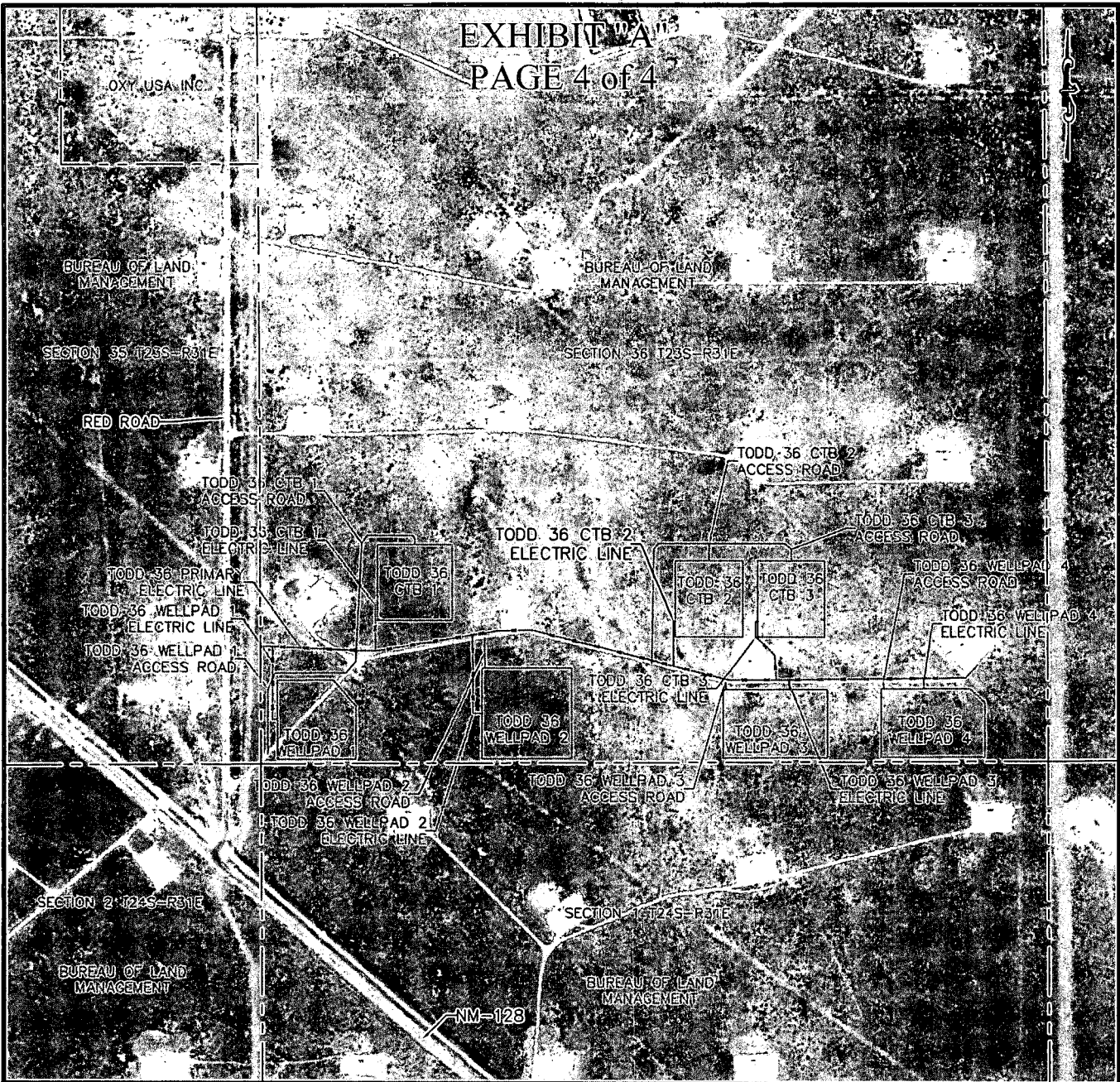
WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

SHEET:
3 OF 4

EXHIBIT A PAGE 4 of 4



AERIAL MAP

SECTION 36, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:
Jesus Rivero

Date: 07/03/2018

Drawn for:



LINE NUMBER:
EL8245

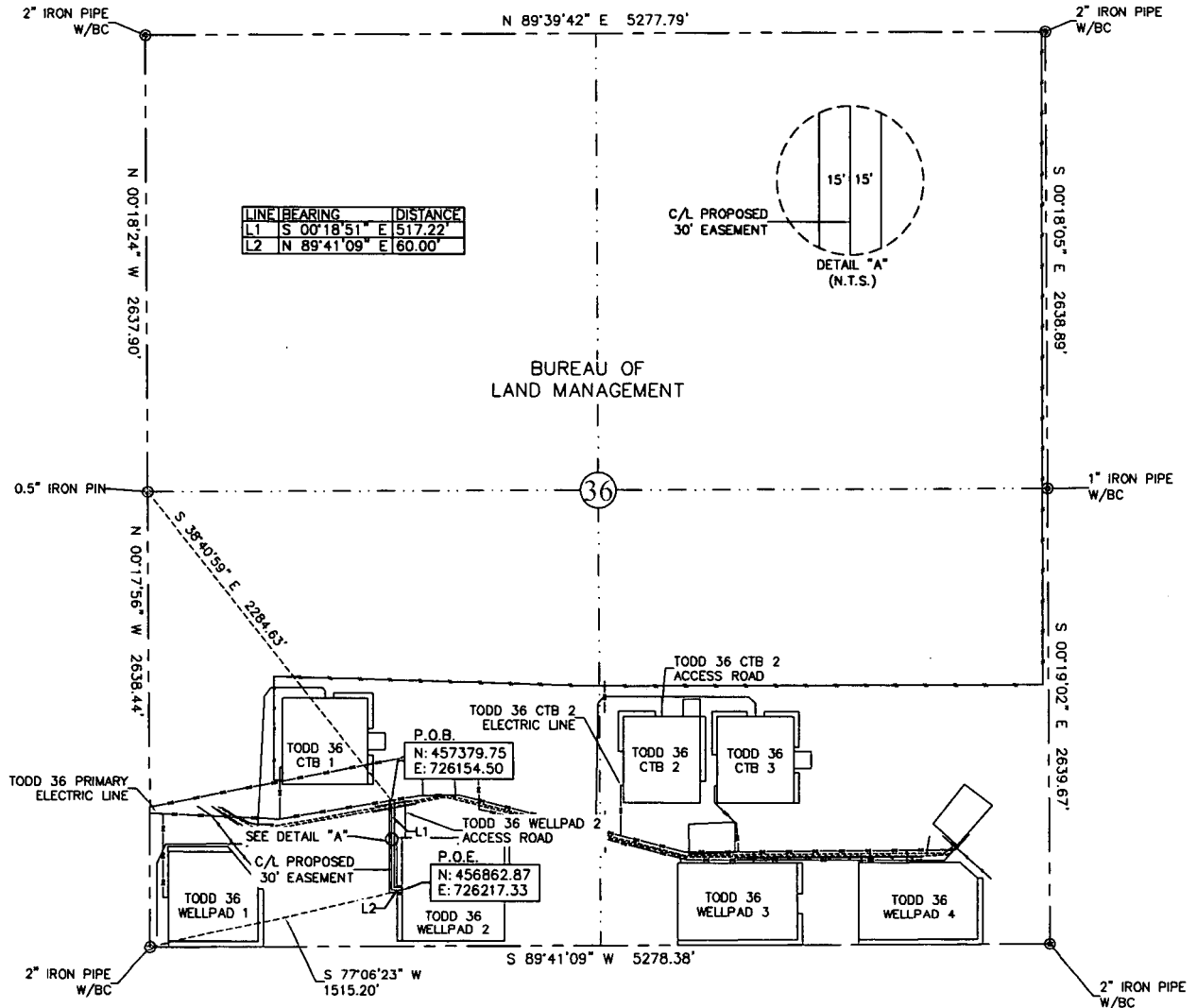
WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

SHEET:
4 OF 4

EXHIBIT "A"
PAGE 1 of 4
ELECTRIC LINE PLAT
SECTION 36, T23S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.398 ACRE(S)
577.22 FEET OR 34.98 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.

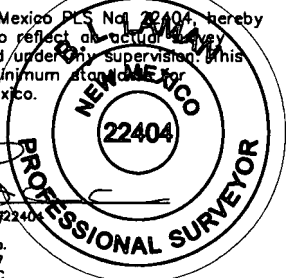
STATION TABLE

0+00.0 P.O.B./TODD 36 PRIMARY ELECTRIC LINE
0+19.4 EXISTING FLOWLINE
0+24.8 EDGE OF LEASE ROAD
0+32.6 CENTERLINE LEASE ROAD
0+40.5 EDGE OF LEASE ROAD
0+44.8 EXISTING FLOWLINE
5+77.2 P.O.E./TODD 36 WELLPAD 2

0 1000 2000



B.L. Laman PLS #22404
Date Signed: 09-07-2018
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
Jesus Rivero

Date: 07/03/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36 WELLPAD 2
ELECTRIC LINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 36, T23S-R31E, N.M.P.M.

LINE NUMBER:
EL8248

WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

SHEET:
1 OF 4

**SECTION 36, T23S-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 southwest quarter (SW $\frac{1}{4}$) of Section 36, Township 23 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 0.5" iron pipe w/BC for the west quarter corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S $38^{\circ}40'59''$ E a distance of 2284.63' to the **Point of Beginning** of this easement having coordinates of Northing=457379.75, Easting=726154.50 feet and continuing the following courses;

Thence S $00^{\circ}18'51''$ E a distance of 517.22' to an angle point;

Thence N $89^{\circ}41'09''$ E a distance of 60.00' to the **Point of Ending** having coordinates of Northing=456862.87, Easting=726217.33 feet from said point a 2" iron pipe w/BC for the southwest corner of Section 36, T23S-R31E bears S $77^{\circ}06'23''$ W a distance of 1515.20', covering **577.22' or 34.98 rods** and having an area of **0.398 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.

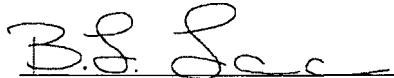

B.L. Laman PLS 22404
Date Signed: 09/07/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 3 of 4

OXY USA, INC.

BUREAU OF LAND MANAGEMENT

SECTION 35 T23S-R31E

RED ROAD

TODD 36 CTB 1 ACCESS ROAD

TODD 36 CTB 1 ELECTRIC LINE

TODD 36 PRIMARY ELECTRIC LINE

TODD 36 WELLPAD 1 ELECTRIC LINE

TODD 36 WELLPAD 1 ACCESS ROAD

178

Gravel Pit

Drill Hole

TODD 36 WELLPAD 1

TODD 36 CTB 1

TODD 36 CTB 2 ELECTRIC LINE

TODD 36 CTB 2 ACCESS ROAD

TODD 36 CTB 2

TODD 36 CTB 3

TODD 36 CTB 3 ACCESS ROAD

TODD 36 WELLPAD 4 ACCESS ROAD

TODD 36 WELLPAD 4 ELECTRIC LINE

BM

353

TODD 36 WELLPAD 2

TODD 36 WELLPAD 3

TODD 36 WELLPAD 3 ACCESS ROAD

TODD 36 WELLPAD 3 ELECTRIC LINE

SECTION 2 T24S-R31E

BUREAU OF LAND MANAGEMENT

SECTION 1 T24S-R31E

BUREAU OF LAND MANAGEMENT

NM-128

EDDY CO

LEA CO

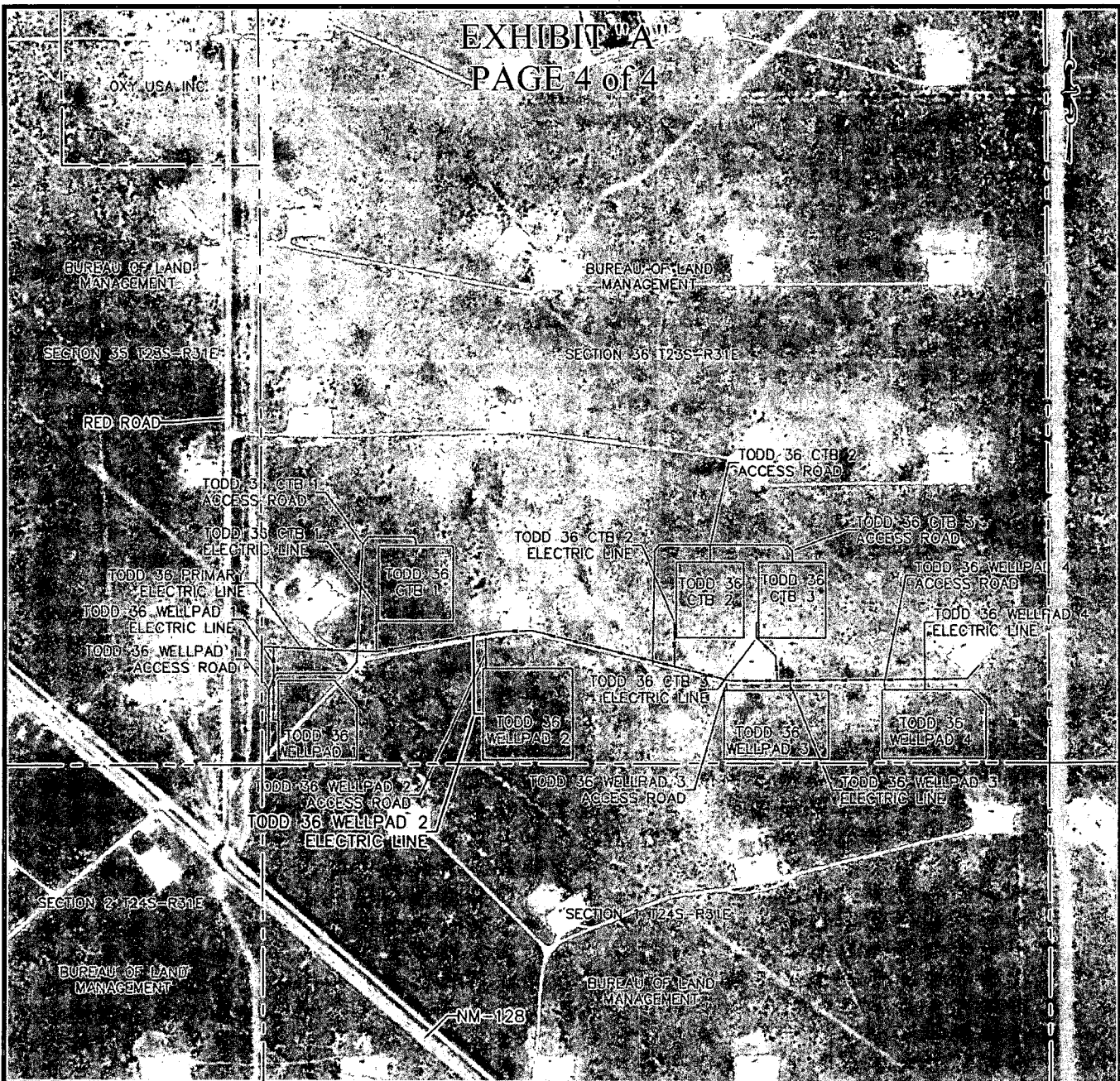
QUAD MAP

SECTION 36, T23S-R31E, N.M.P.M.; EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC DEVON ENERGY PRODUCTION CO., L.P. PROPOSED 30' EASEMENT	Drawn by: Jesus Rivero Date: 07/03/2018	Drawn for:  devon	LINE NUMBER: EL8248 WBS NUMBER: XX-129865.01.SLC SCALE: 1" = 1000' REVISIONS: SHEET: 3 OF 4
---	--	--	---

SHEET:
3 OF 4

EXHIBIT A
PAGE 4 of 4



AERIAL MAP

SECTION 36, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:
Jesus Rivero

Date: 07/03/2018

Drawn for:



LINE NUMBER:
EL8248

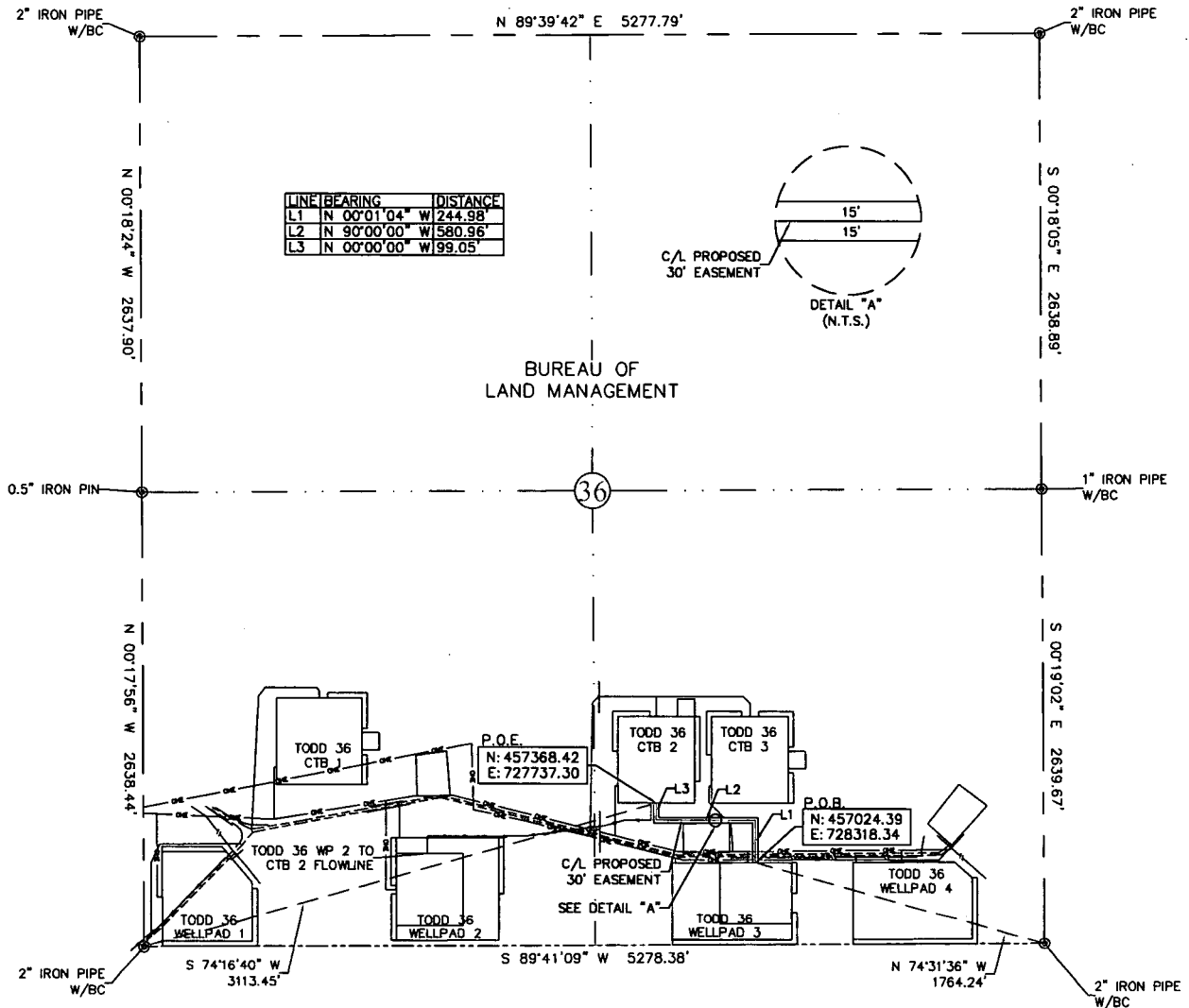
WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

SHEET:
4 OF 4

EXHIBIT "A"
PAGE 1 of 4
8" COMPOSITE PIPE
SECTION 36, T23S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO
Flowlines are buried



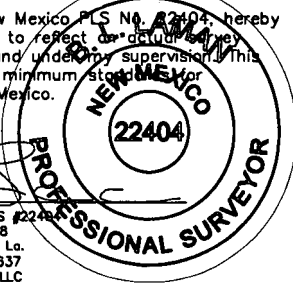
30' EASEMENT AREA = 0.637 ACRE(S)
924.99 FEET OR 56.06 RODS

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: 09-27-2018
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 09/27/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36 WELLPAD 3 TO
CTB 2 FLOWLINE

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 36, T23S-R31E, N.M.P.M.

LINE NUMBER:
7660144F

WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

DATE OF SURVEY:
9/26/18

0 1000 2000



**SECTION 36, T23S-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 southeast quarter (SE ¼) of Section 36, Township 23 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 for the southeast corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 74°31'36" W a distance of 1764.24' to the **Point of Beginning** of this easement having coordinates of Northing=457024.39, Easting=728318.34 feet and continuing the following courses;

Thence N 00°01'04" W a distance of 244.98' to an angle point;

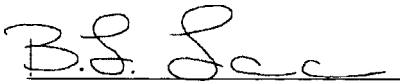
Thence N 90°00'00" W a distance of 580.96' to an angle point;

Thence N 00°00'00" W a distance of 99.05' to the **Point of Ending** having coordinates of Northing=457368.42, Easting=727737.30 feet from said point a 2" iron pipe w/BC for the southwest corner of Section 36, T23S-R31E bears S 74°16'40" W a distance of 3113.45', covering **924.99' or 56.06 rods** and having an area of **0.637 acres**.

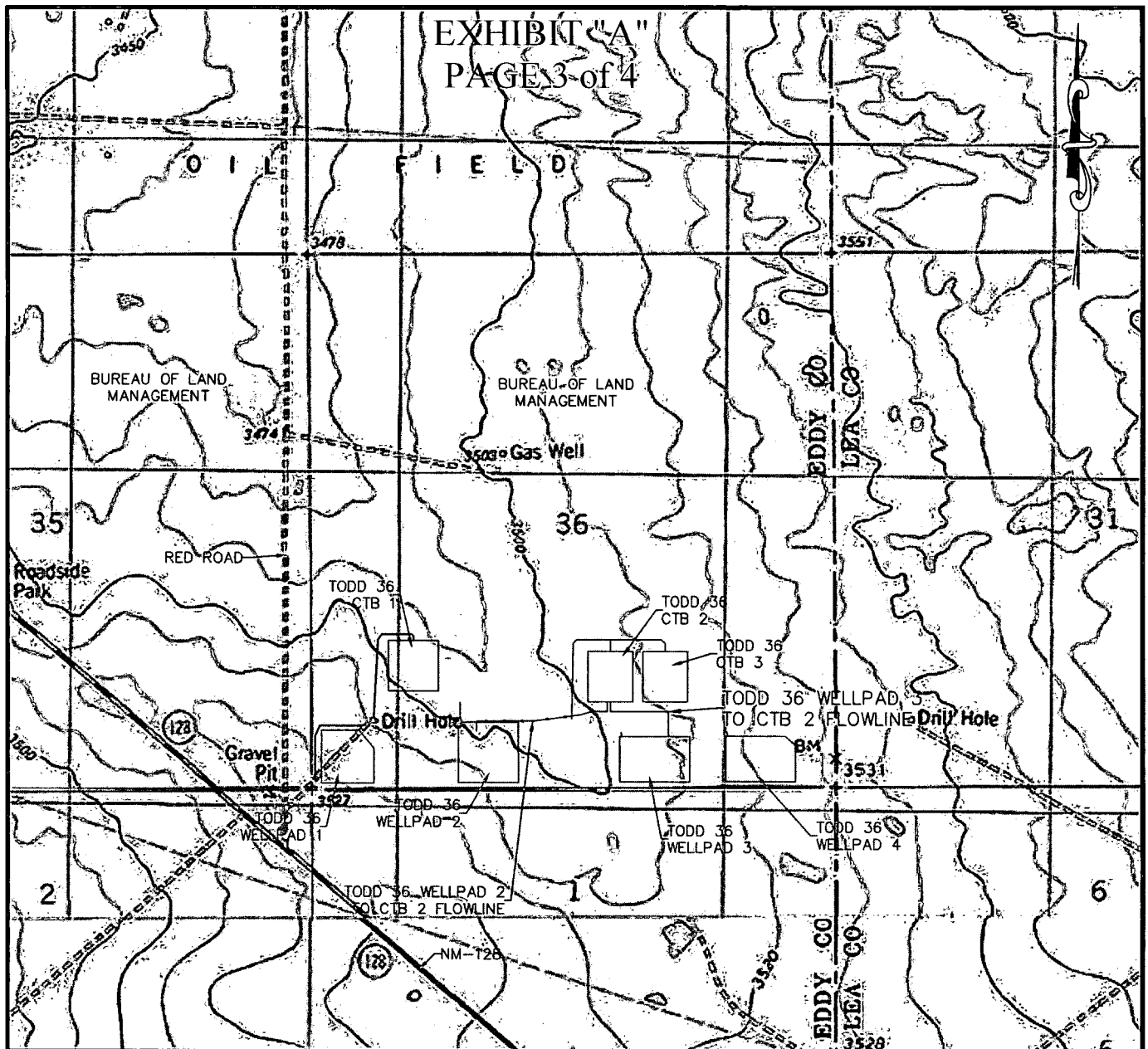
NOTES:

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: 09/27/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC





QUAD MAP

SECTION 36, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO
Flowlines are buried

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.
PROPOSED 30' EASEMENT

Drawn by:
CHRIS MAAS

Date: 09/27/2018

Drawn for:



LINE NUMBER:
7660144F

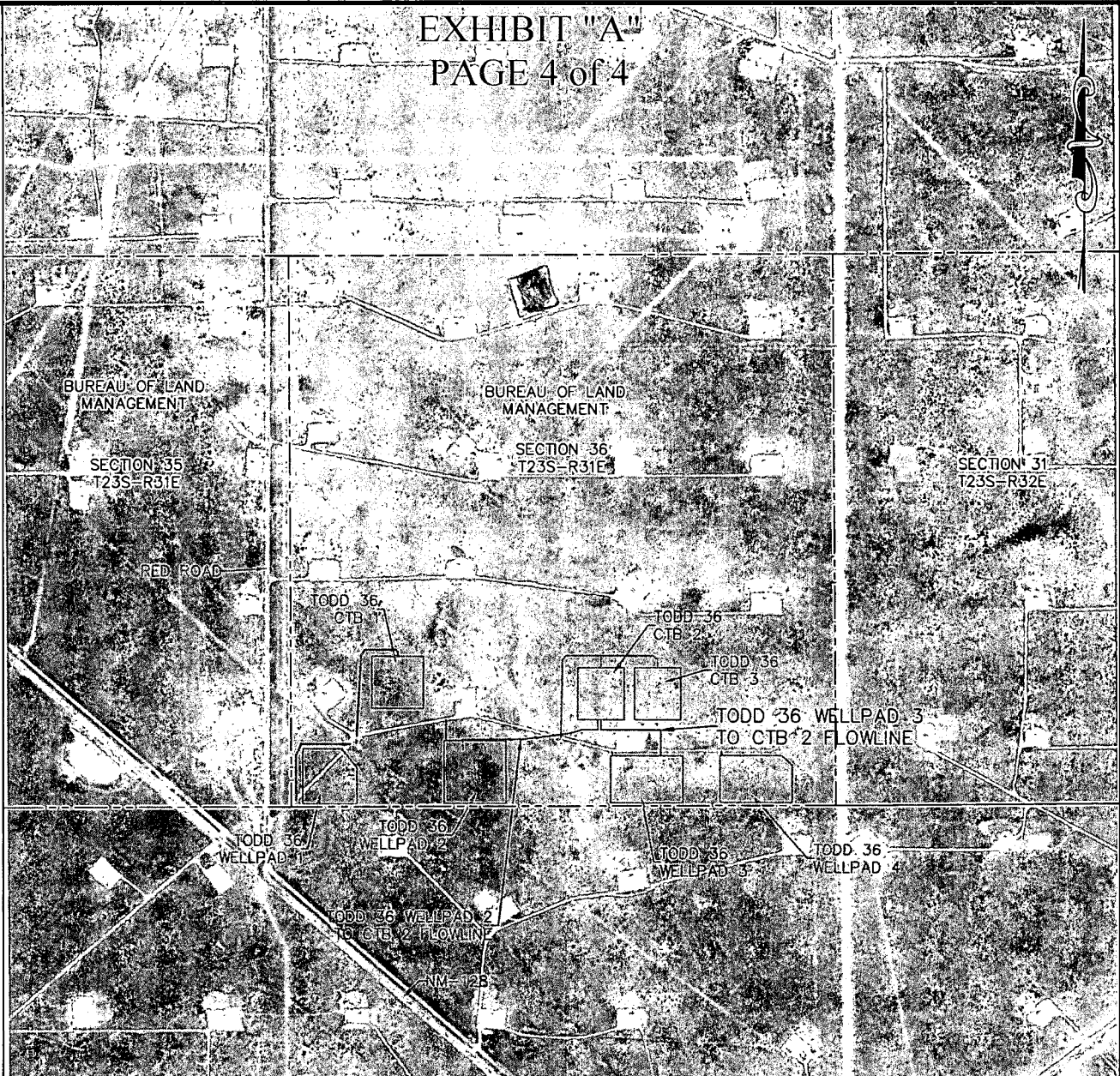
WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1500'

REVISIONS:

DATE OF SURVEY:
9/27/18

EXHIBIT "A"
PAGE 4 of 4



AERIAL MAP

SECTION 36, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO
Flowlines are buried

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.
PROPOSED 30' EASEMENT

Drawn by:
CHRIS MAAS

Date: 09/27/2018

Drawn for:



LINE NUMBER:
7660144F

WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1500'

REVISIONS:

DATE OF SURVEY:
9/27/18



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

04/18/2019

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: