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Form 3160-3
(June 2015)

APR 24 2019

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018UNITED 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 230H 325417
3a. Address 333 West Sheridan Avenue Oklahoma City OK 73102	3b. Phone No. (include area code) (800)583-3866	9. API Well No. 30-015-45908
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SESW / 330 FSL / 1689 FWL / LAT 32.2545756 / LONG -103.73459 At proposed prod. zone NWNE / 20 FNL / 2200 FEL / LAT 32.2826315 / LONG -103.7300863		10. Field and Pool, or Exploratory Wildcat 53805 SAND Dunes BSPG South.
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. 5190 feet	19. Proposed Depth 10200 feet / 20577 feet	20. BLM/BIA Bond No. in file FED: CO1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3504 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 10/29/2018
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Christopher Walls / Ph: (575)234-2234	Date 04/23/2019
Title Petroleum Engineer		
Office CARLSBAD		

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

Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS
Approval Date: 04/23/2019
Rur 4-24-19

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

ITEM 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 a new 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: SESW / 330 FSL / 1689 FWL / TWSP: 23S / RANGE: 31E / SECTION: 36 / LAT: 32.2545756 / LONG: -103.73459 (TVD: 0 feet, MD: 0 feet)
PPP: SWSE / 100 FSL / 2200 FEL / TWSP: 23S / RANGE: 31E / SECTION: 36 / LAT: 32.253943 / LONG: -103.7300961 (TVD: 9913 feet, MD: 10057 feet)
BHL: NWNE / 20 FNL / 2200 FEL / TWSP: 23S / RANGE: 31E / SECTION: 25 / LAT: 32.2826315 / LONG: -103.7300863 (TVD: 10200 feet, MD: 20577 feet)

BLM Point of Contact

Name: Linda (Cathleen) Queen
Title: Project Manager-Carlsbad Field Office
Phone: 5752345962
Email: cqueen@blm.gov

CONFIDENTIAL

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, L.P.
LEASE NO.:	NMNM0544986
WELL NAME & NO.:	230H- TODD 36-25 STATE FED COM
SURFACE HOLE FOOTAGE:	330'/S & 1689'/W
BOTTOM HOLE FOOTAGE:	20'/N & 2200'/E
LOCATION:	SECTION 36, T23S, R31E, NMPM
COUNTY:	EDDY

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 **822 feet** (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **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 6000 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 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, L.P.
LEASE NO.:	NMNM
WELL NAME & NO.:	230H- TODD 36-25 STATE FED COM
SURFACE HOLE FOOTAGE:	330'S & 1689'/W
BOTTOM HOLE FOOTAGE	20'/N & 2200'/E
LOCATION:	SECTION 36, T23S, R31E, NMPM
COUNTY:	EDDY

TABLE OF CONTENTS

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

- ☐ **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
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

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

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

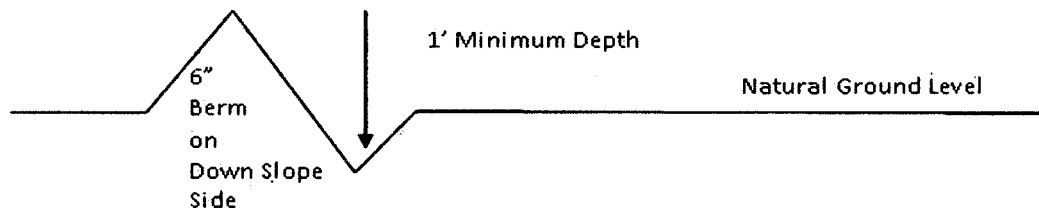
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out sloping 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

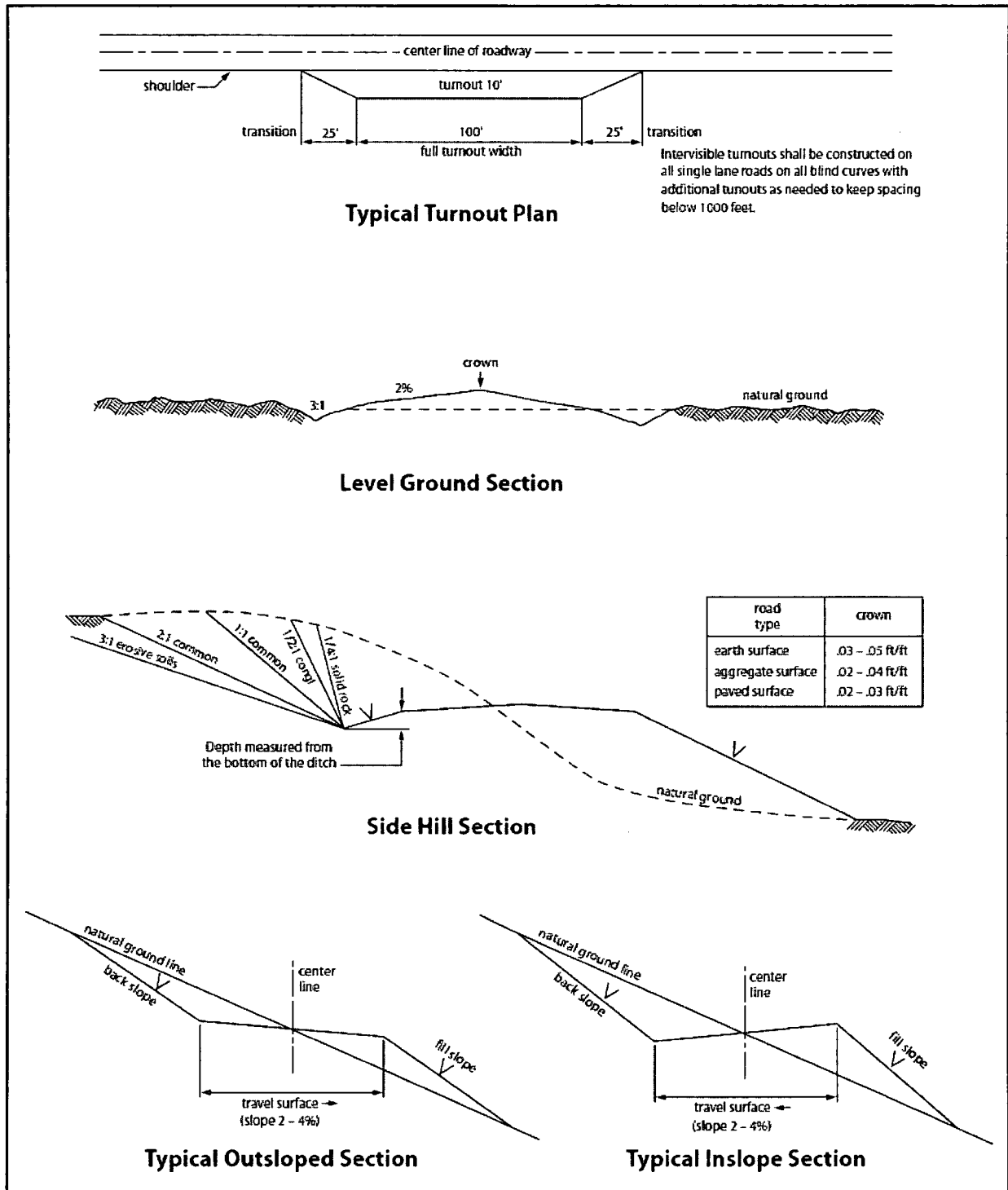


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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

04/23/2019

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: 10/29/2018

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@dvn.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

04/23/2019

APD ID: 10400035681

Submission Date: 10/29/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400035681

Tie to previous NOS?

Submission Date: 10/29/2018

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: 230H

Well API Number:

Field/Pool or Exploratory? Exploratory

Field Name: WILDCAT

Pool Name:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

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:** 2

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: 5190 FT

Distance to lease line: 330 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: TODD_36_25_ST_FED_COM_C102_signed_20181029092240.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: 22404

	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	168 9	FWL	23S	31E	36	Aliquot SESW	32.25457 56	- 103.7345 9	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	350 4	0	0
KOP Leg #1	56	FSL	208 8	FEL	23S	31E	36	Aliquot SWSE	32.25380 5	- 103.7304 56	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 611 0	974 0	961 4
PPP Leg #1	100	FSL	220 0	FEL	23S	31E	36	Aliquot SWSE	32.25394 3	- 103.7300 961	EDD Y	NEW MEXI CO	NEW MEXI CO	S	STATE	- 640 9	100 57	991 3

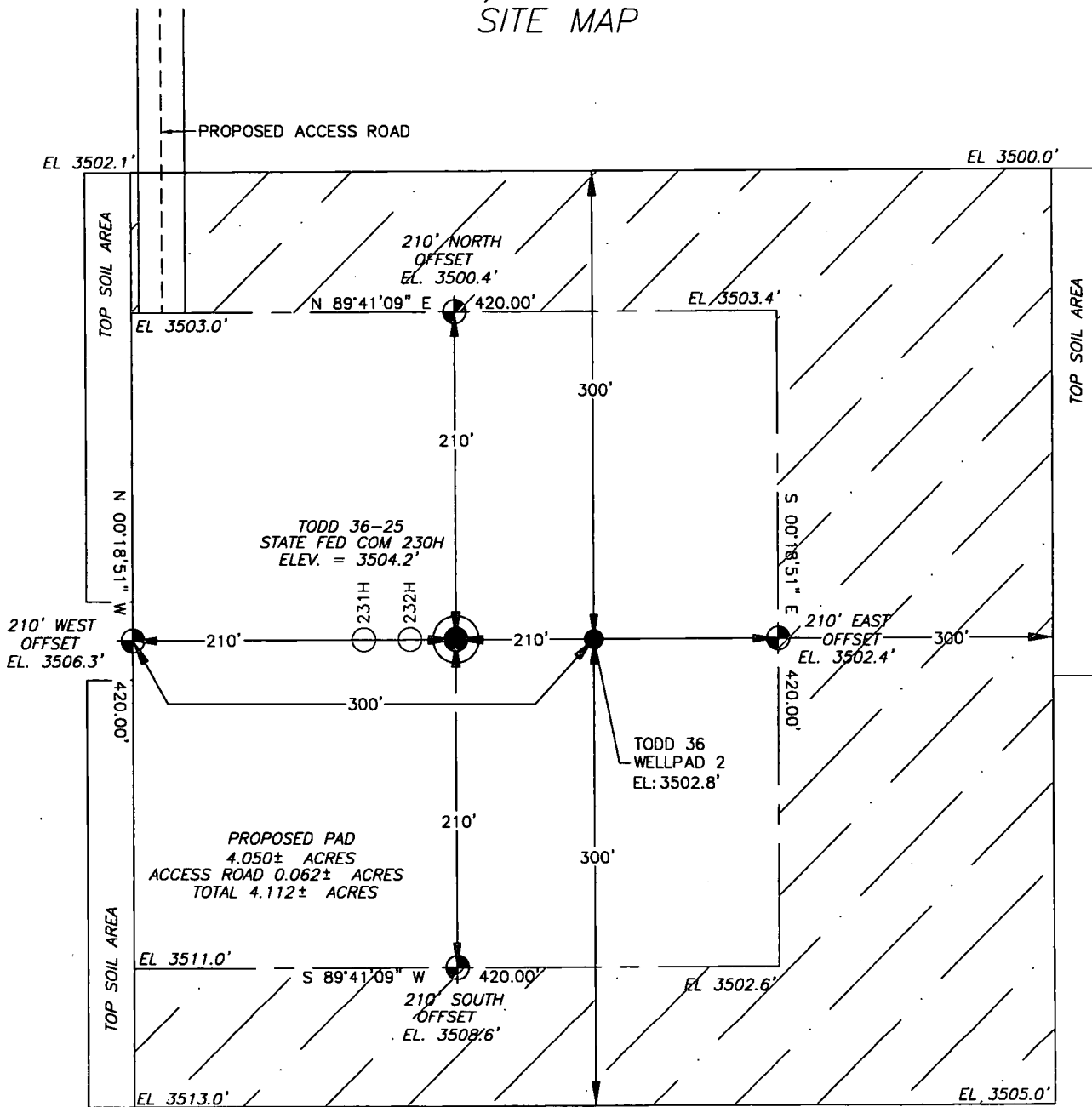
Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

	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	220 0	FEL	23S	31E	25	Aliquot NWNE	32.28241	- 103.7300 73	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 054498 6	- 669 6	204 97	102 00
BHL Leg #1	20	FNL	220 0	FEL	23S	31E	25	Aliquot NWNE	32.28263 15	- 103.7300 863	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 054498 6	- 669 6	205 77	102 00

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 230H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1689 FT. FROM THE WEST 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 0.18 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 WELLPAD 2 ACCESS ROAD. HEAD SOUTH ALONG THE PROPOSED TODD 36 WELLPAD 2 ACCESS ROAD FOR 200 FEET TO THE TO THE NORTHWEST CORNER OF THE TODD 36 WELLPAD 2.

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

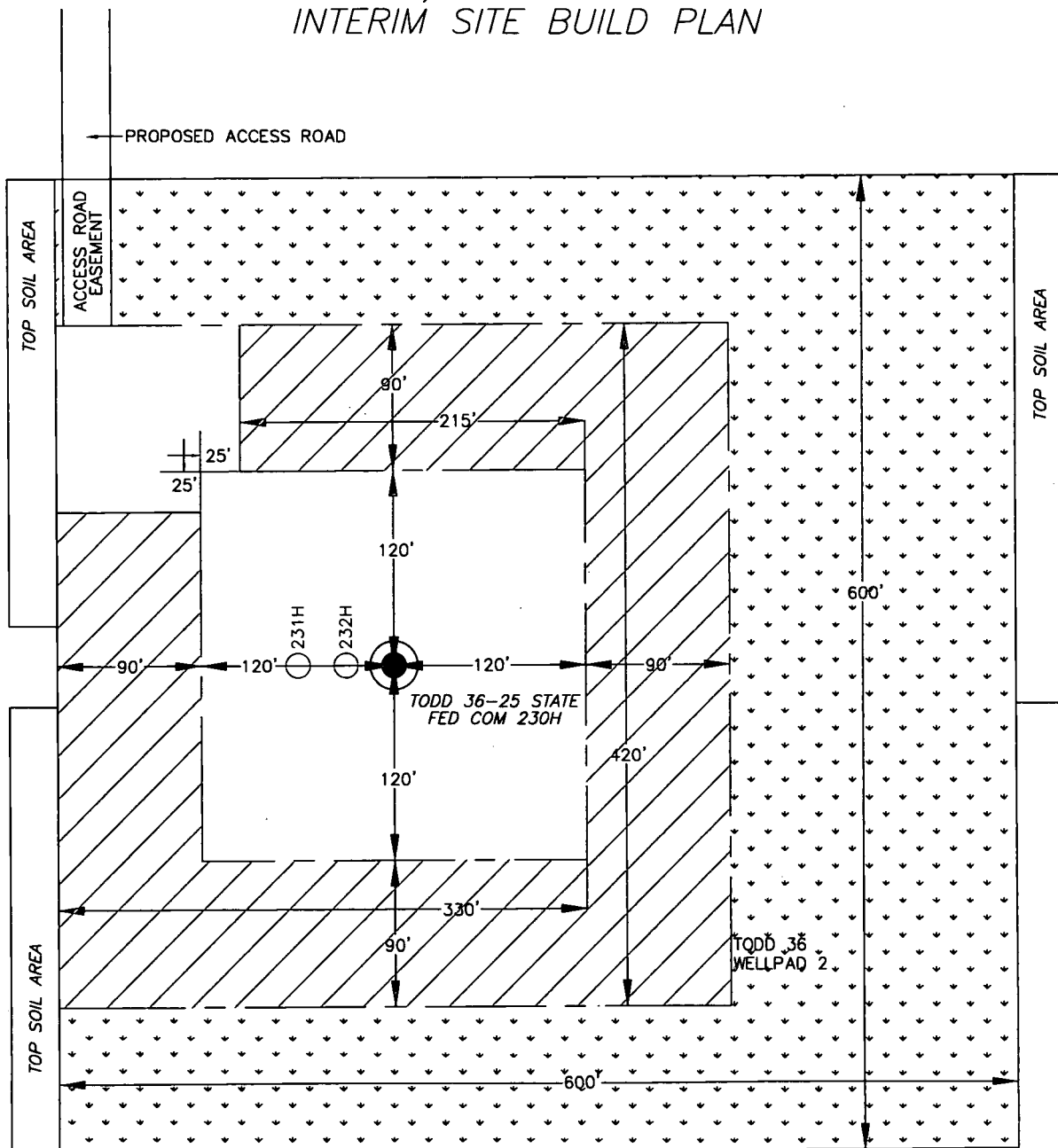
Drawn by:
CHRIS MAAS

Date: 09/22/2018
Rev. Date: 10/08/2018

Drawn for:

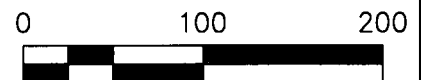
devon

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

2.228± ACRES INTERIM PAD RECLAMATION AREA
 4.442± ACRES GRADING SITE RECLAMATION AREA
 1.594± ACRES NON-RECLAIMED AREA
 8.264± ACRES GRADING SITE RECLAMATION AREA



DEVON ENERGY PRODUCTION COMPANY, L.P.
 TODD 36-25 STATE FED COM 230H
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 AND 1689 FT. FROM THE WEST 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.

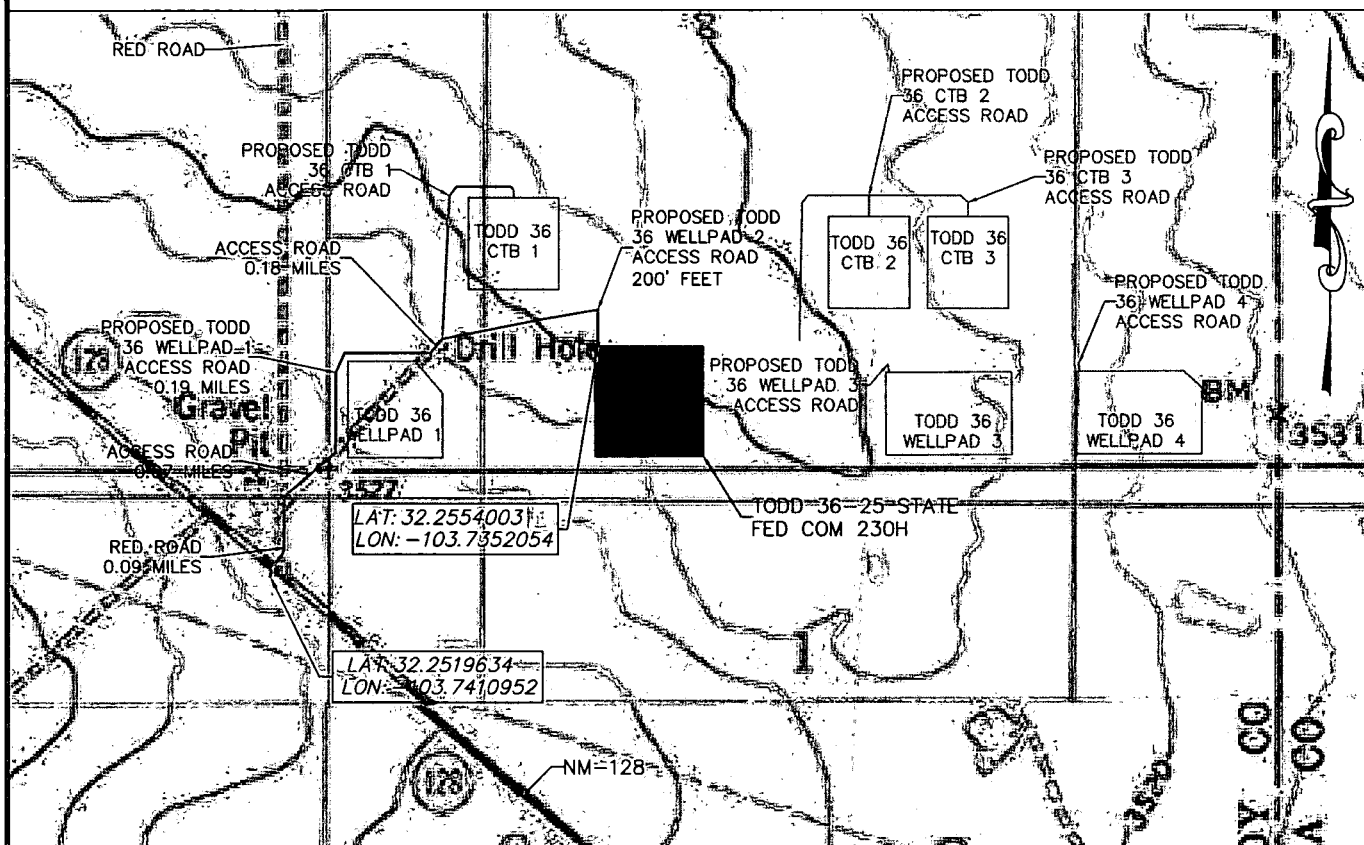
Drawn by:
CHRIS MAAS

Date: 09/22/2018
Rev. Date: 10/08/18

Drawn for:


devon

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 230H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1689 FT. FROM THE WEST 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 0.18 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 WELLPAD 2 ACCESS ROAD. HEAD SOUTH ALONG THE PROPOSED TODD 36 WELLPAD 2 ACCESS ROAD FOR 200 FEET TO THE TO THE NORTHWEST CORNER OF THE TODD 36 WELLPAD 2.

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

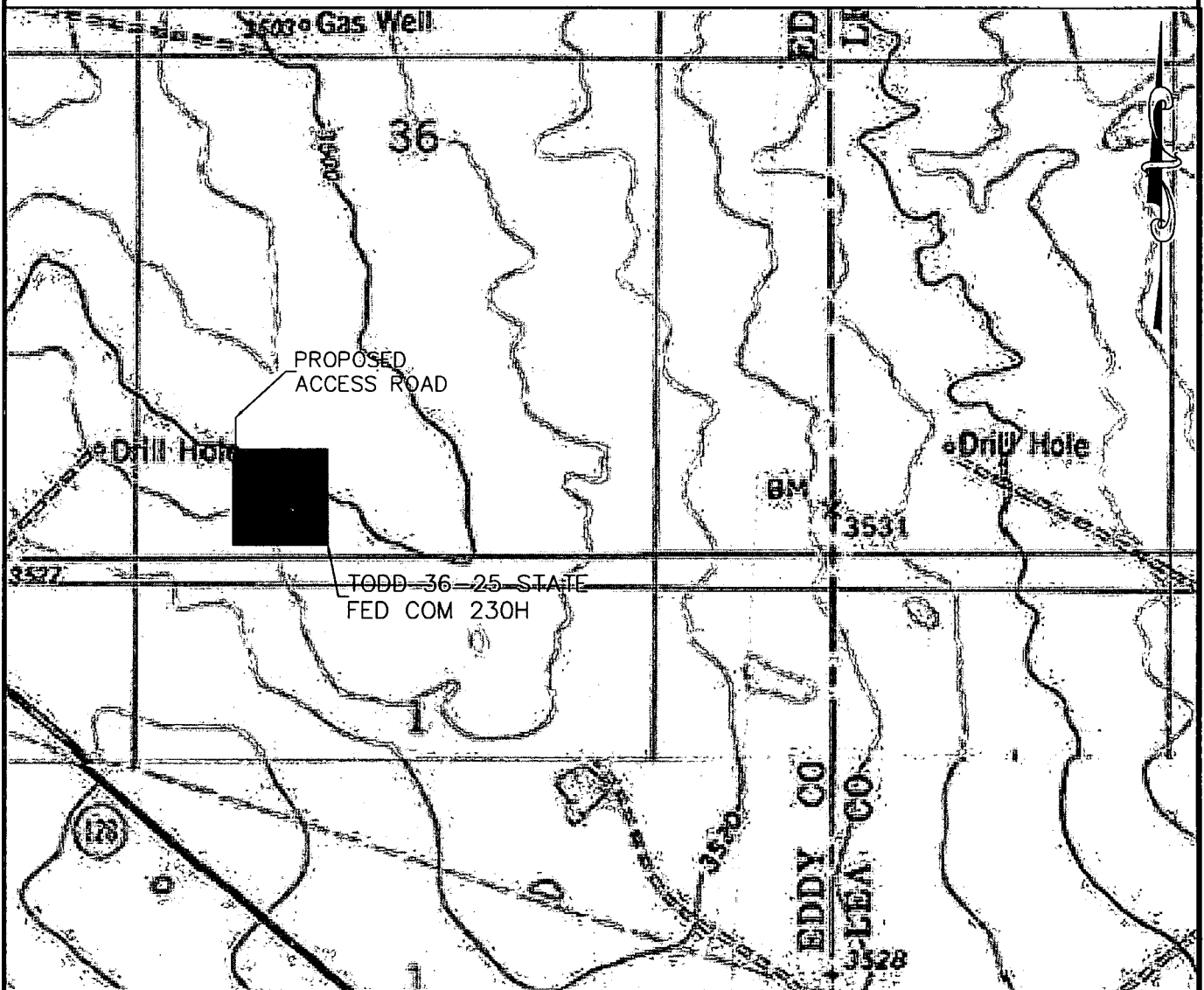
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CHRIS MAAS

Date: 09/22/2018
Rev. Date: 10/08/18

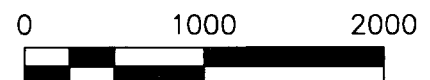
Drawn for:

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 230H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1689 FT. FROM THE WEST 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.

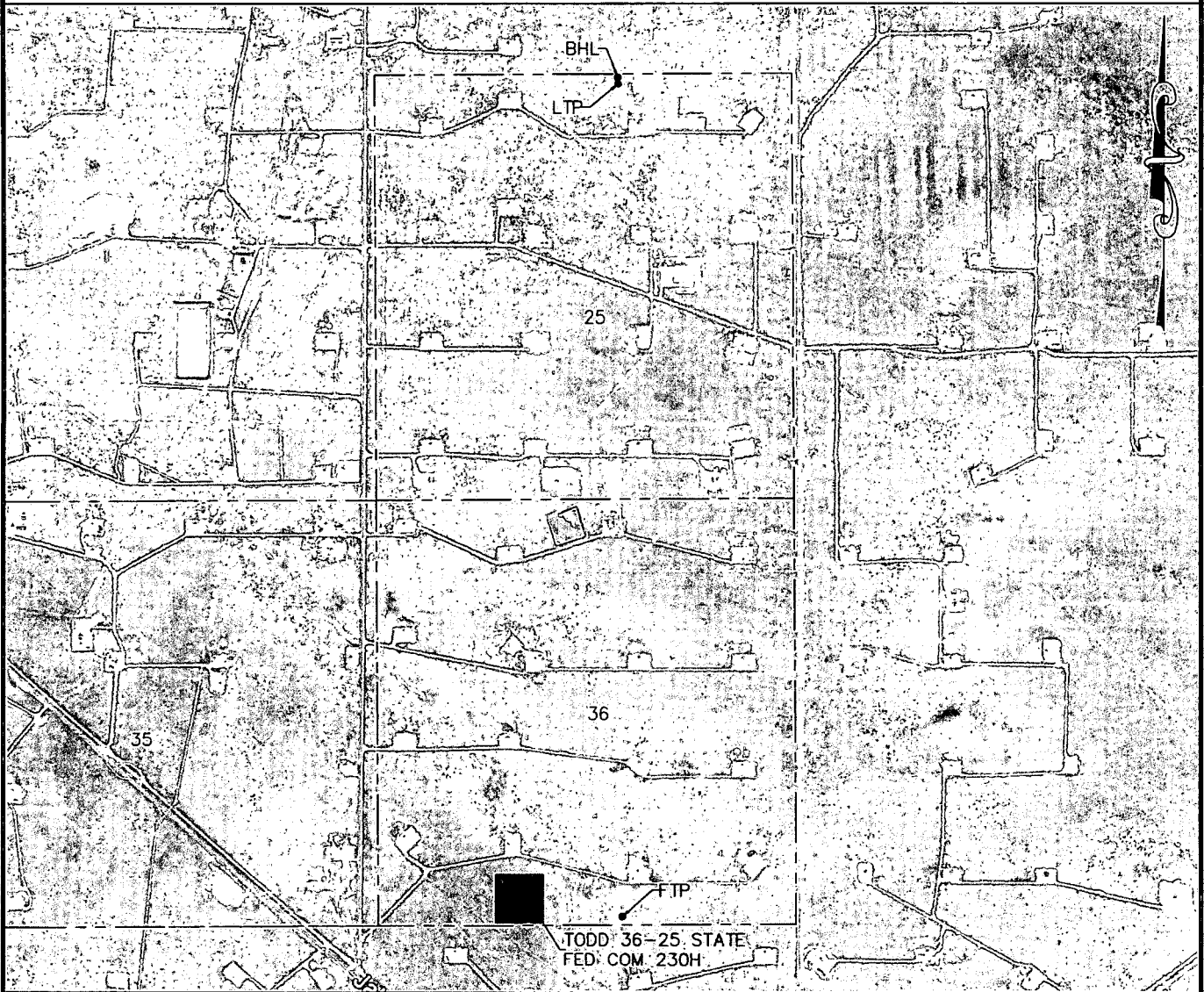
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 CHRIS MAAS

Date: 09/22/2018
 Rev. Date: 10/08/18

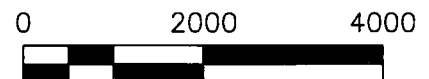
Drawn for:

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 230H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1689 FT. FROM THE WEST 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.

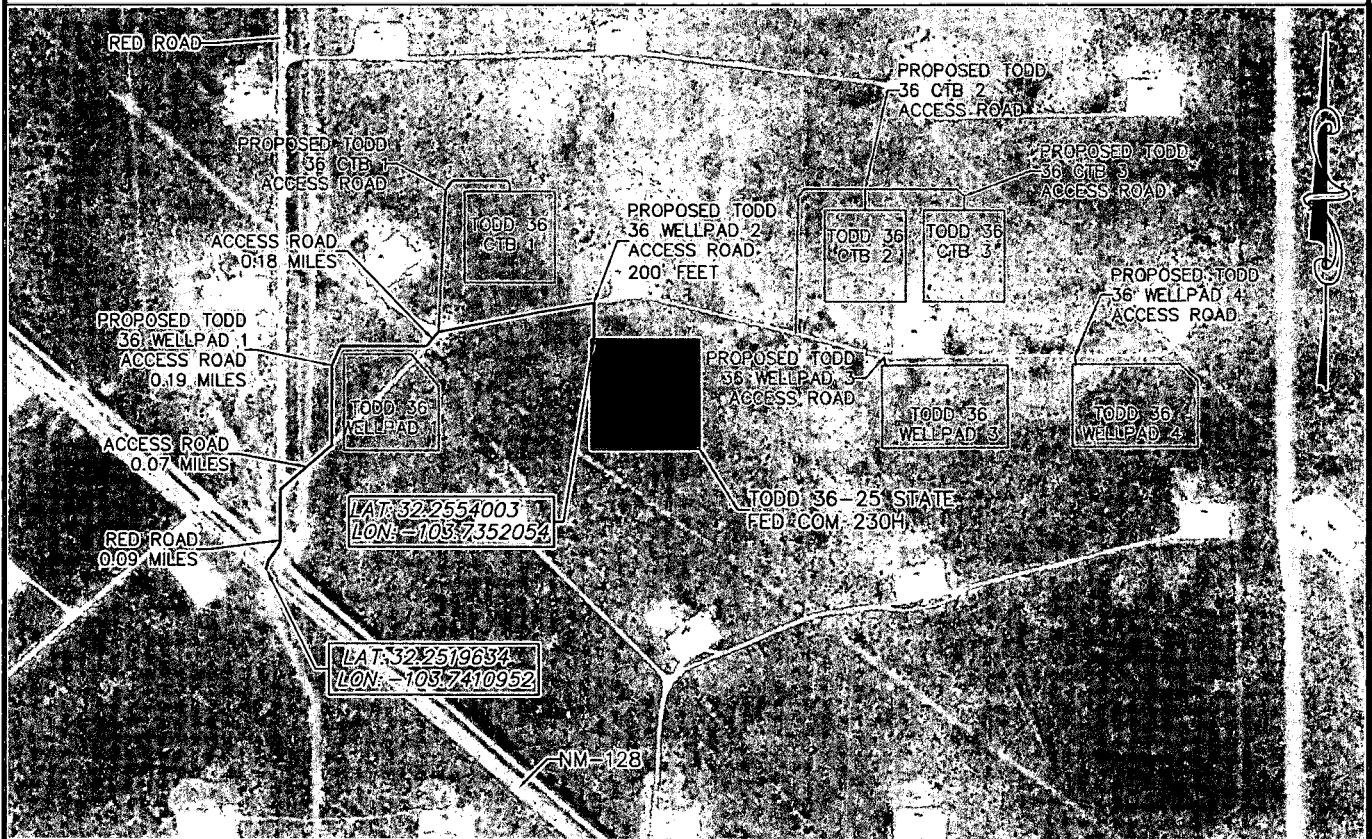
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 CHRIS MAAS

Date: 09/22/2018
 Rev. Date: 10/08/18

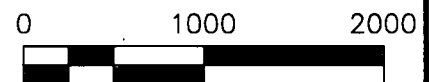
Drawn for:

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 230H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1689 FT. FROM THE WEST 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.

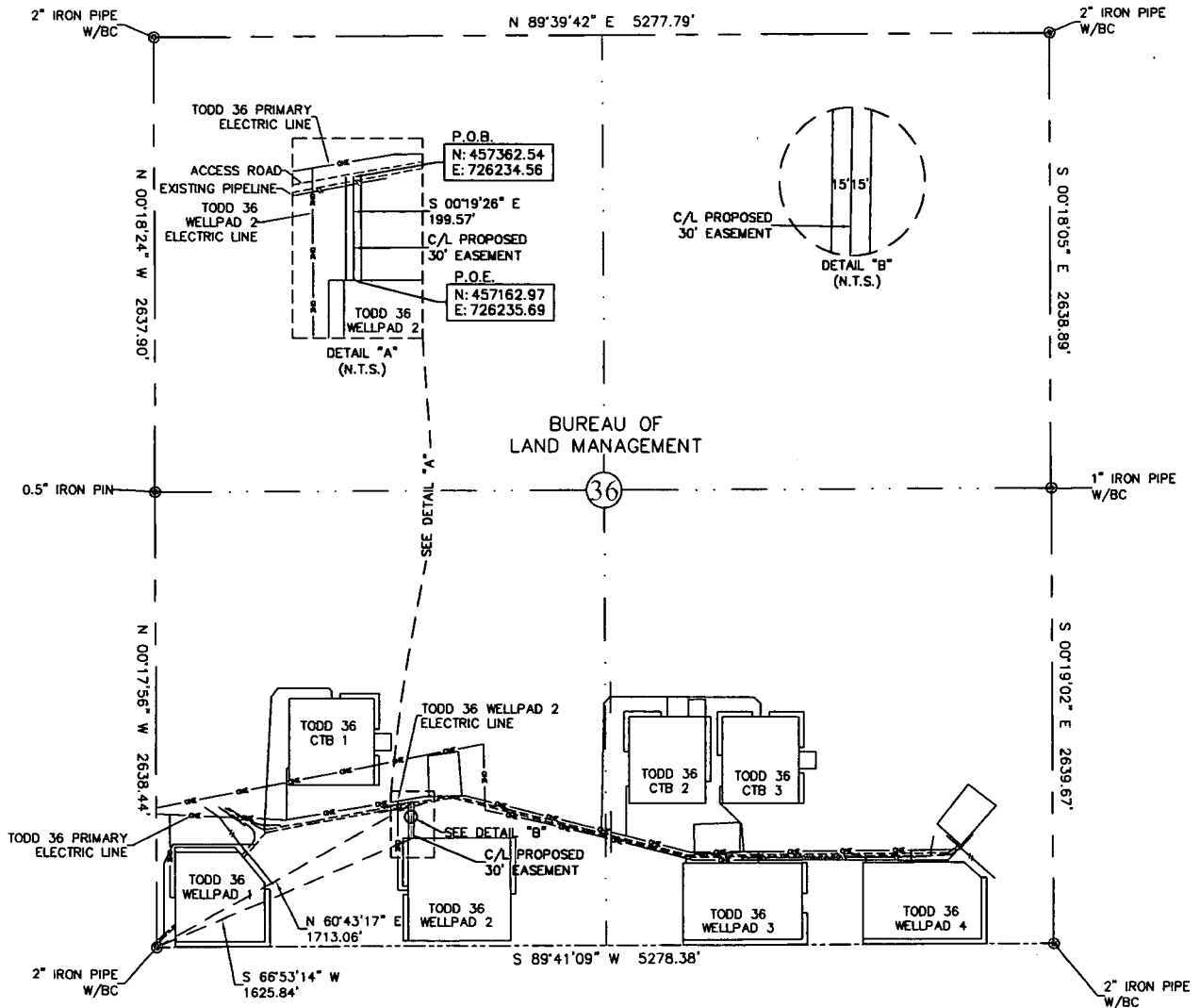
Drawn by:
 CHRIS MAAS

Date: 09/22/2018
 Rev. Date: 10/08/18

Drawn for:



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



30' EASEMENT AREA = 0.137 ACRE(S)
199.57 FEET OR 12.10 RODS

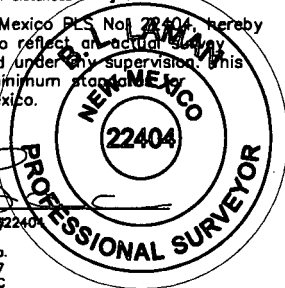
0+00.0 P.O.B./EXISTING ACCESS ROAD
0+08.0 EDGE OF ROAD
0+13.3 EXISTING FLOW LINE
1+99.6 P.O.E./TODD 36 WELLPAD 2

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: 09-25-2018
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: 07/06/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36
WELLPAD 2 ACCESS ROAD

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

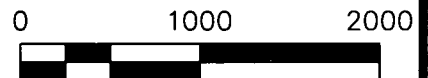
LINE NUMBER:

WBS NUMBER:

SCALE:
1" = 1000'

REVISIONS:

SHEET:
6/13/2018



**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 southwest quarter (SW 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 southwest corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 60°43'17" E a distance of 1713.06' to the **Point of Beginning** of this easement having coordinates of Northing=457362.54, Easting=726234.56 feet and continuing the following course;

Thence S 00°19'26" E a distance of 199.57' to the **Point of Ending** having coordinates of Northing=457162.97, Easting=726235.69 feet from said point a 2" iron pipe w/BC for the southwest corner of Section 36, T23S-R31E bears S 66°53'14" W a distance of 1625.84', covering **199.57' or 12.10 rods** and having an area of **0.137 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: 09/25/2018

Horizon Row, LLC

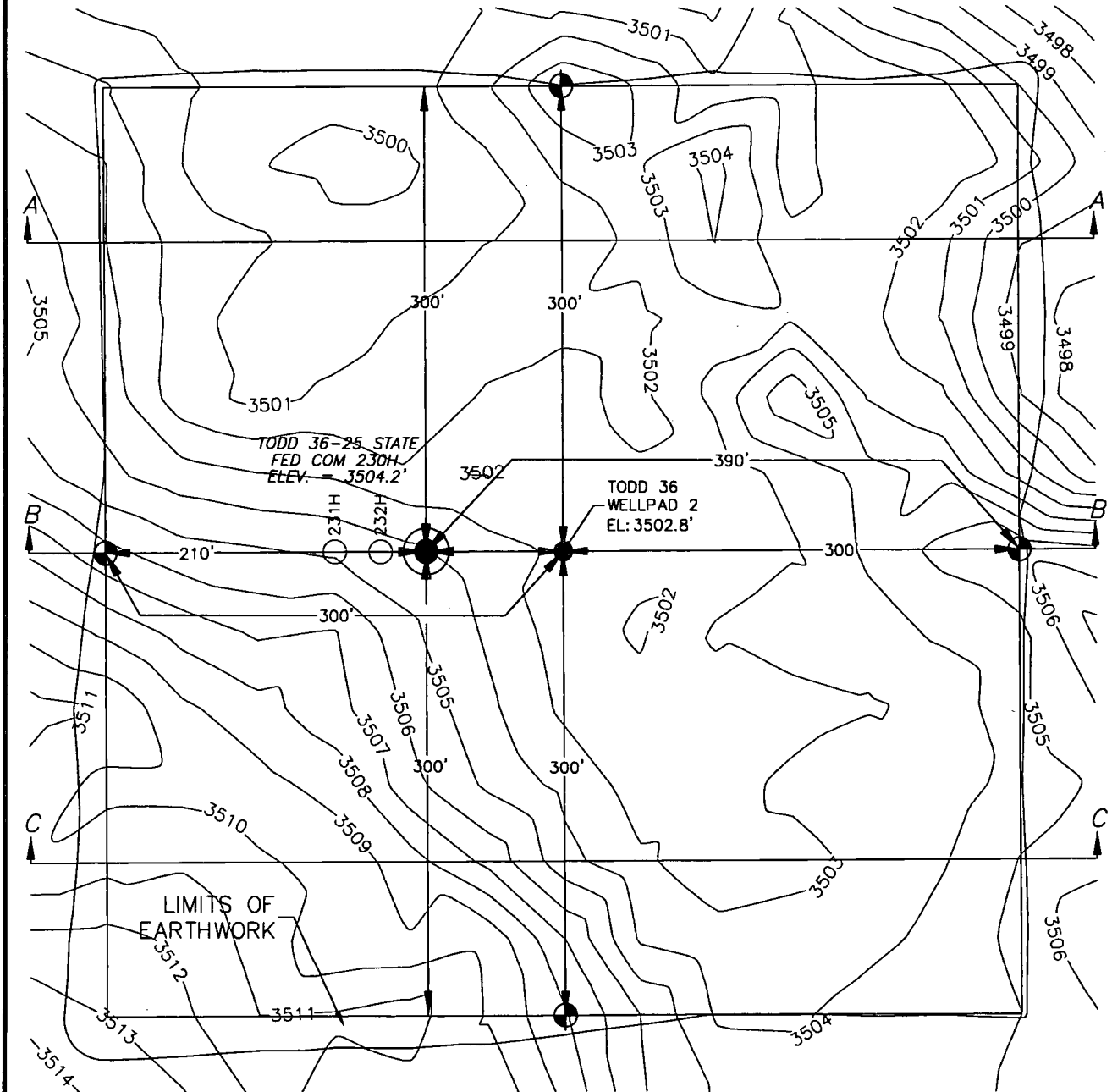
P.O. Box 548, Dry Creek, La.

(903) 388-3045 70637

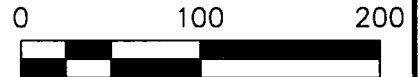
Employee of Horizon Row, LLC



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 230H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1689 FT. FROM THE WEST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



EARTHWORK QUANTITIES FOR
TODD 36 WELLPAD 2

CUT	FILL	NET
15,793 CY	15,793 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

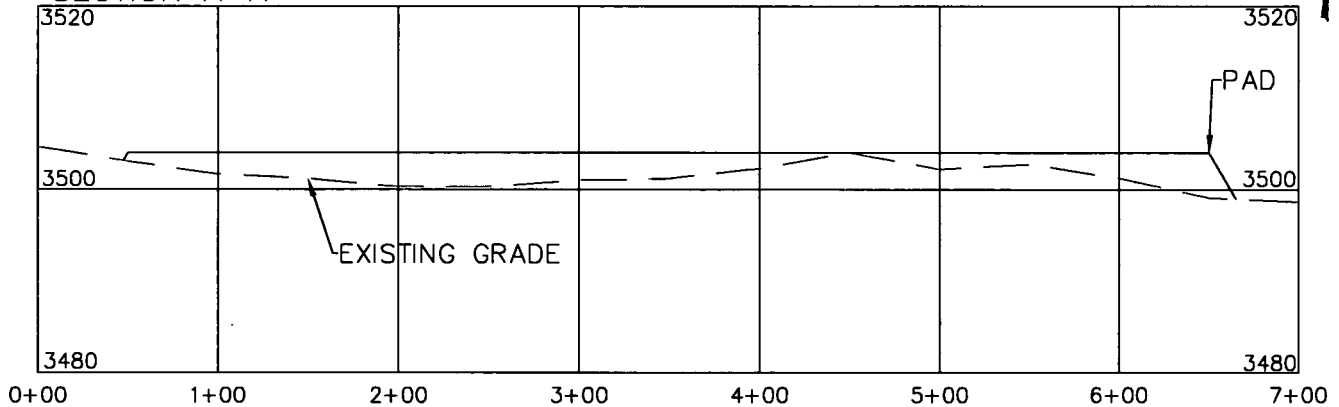
Date: 09/22/2018
Rev. Date: 10/08/18

Drawn for:

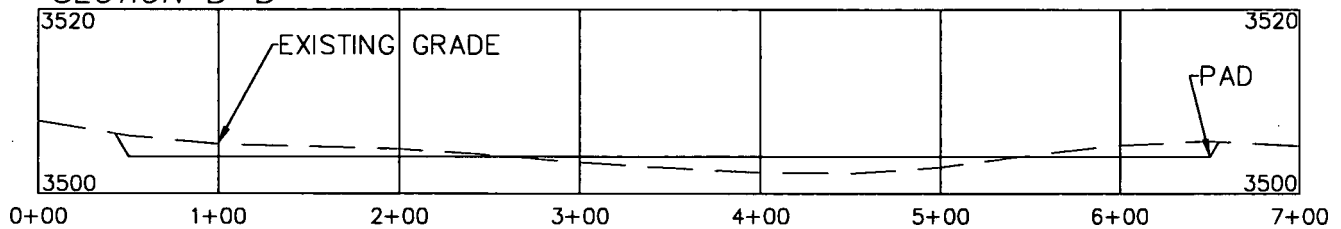


SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
CROSS SECTIONS

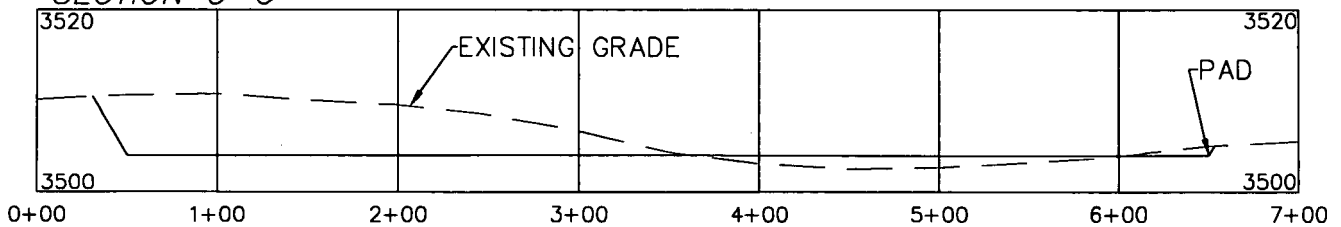
SECTION A-A



SECTION B-B



SECTION C-C



DEVON ENERGY PRODUCTION COMPANY, L.P.
TODD 36-25 STATE FED COM 230H
LOCATED 330 FT. FROM THE SOUTH LINE
AND 1689 FT. FROM THE WEST LINE OF
SECTION 36, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SCALE 1" = 100' HORIZONTAL
SCALE 1" = 20' VERTICAL

EARTHWORK QUANTITIES FOR
TODD 36 WELLPAD 2

CUT	FILL	NET
15,793 CY	15,793 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

Date: 09/22/2018
Rev. Date: 10/08/18

Drawn for:





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

Drilling Plan Data Report

04/23/2019

APD ID: 10400035681

Submission Date: 10/29/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

[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	3504	0	0	ALLUVIUM	NONE	No
2	RUSTLER	2693	811	811	SANDSTONE	NONE	No
3	SALADO	2358	1146	1146	SALT	NONE	No
4	BASE OF SALT	-941	4445	4445	SALT	NONE	No
5	DELAWARE	-1002	4506	4506	SANDSTONE	NONE	No
6	BONE SPRING 1ST	-4882	8386	8386	SANDSTONE	NATURAL GAS,OIL	No
7	BONE SPRING 2ND	-6367	9871	9871	SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10200

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_20190319092656.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190319092704.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

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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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_20190319092719.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190319092728.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	20577	0	10200			20577	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: 230H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20181009120933.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181009121011.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20181009121046.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

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	643.5	1.44	13.2	926.6	50	c	Class C + adds

INTERMEDIATE	Lead		0	5500	677	3.27	9	2213.7	30	C	Class C + Adds
INTERMEDIATE	Tail		5500	6000	153.8	1.44	13.2	221.5	30	C	Class C + Adds
PRODUCTION	Lead		5500	9740	361.6	3.27	9	1182.6	10	TUNED	Class C + adds
PRODUCTION	Tail		9740	20578	2091.3	1.44	13.2	3011.5	10	H	(50:50) Clas H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	836	OTHER : FRESH WATER	8.5	9							

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

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	10200	WATER-BASED MUD	8.5	9							
836	10200	OTHER : BRINE	10	10.5							

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: 4774

Anticipated Surface Pressure: 2530

Anticipated Bottom Hole Temperature(F): 163

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_230H_H2S_PLAN_20181029111758.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Todd_36_25_State_Fed_Com_230H_AC_Report_Permit_Plan_1_20190409100300.pdf

Devon_Todd_36_25_State_Fed_Com_230H_Permit_Plan_1_20190409100301.pdf

Devon_Todd_36_25_State_Fed_Com_230H_Plot_Permit_Plan_1_20190409100301.pdf

Todd_36_25_State_Fed_Com_230H_Permit_Plan_1_20190409100302.pdf

Other proposed operations facets description:

MB_VERB-revised to 5M

MB_WELLHEAD-revised to 5M

CLOSED LOOP

DRILLING PLAN-revised 4/9/2019(Todd 36-25 State Fed Com 230H Permit Plan 1), CEMENT COVERAGE

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.

GAS CAPTURE

Other proposed operations facets attachment:

Clsd_Loop_20181009090953.pdf

TODD_36_Fed_Com_GasCapturePlan_WP2_10_4_2018_20181029074755.pdf

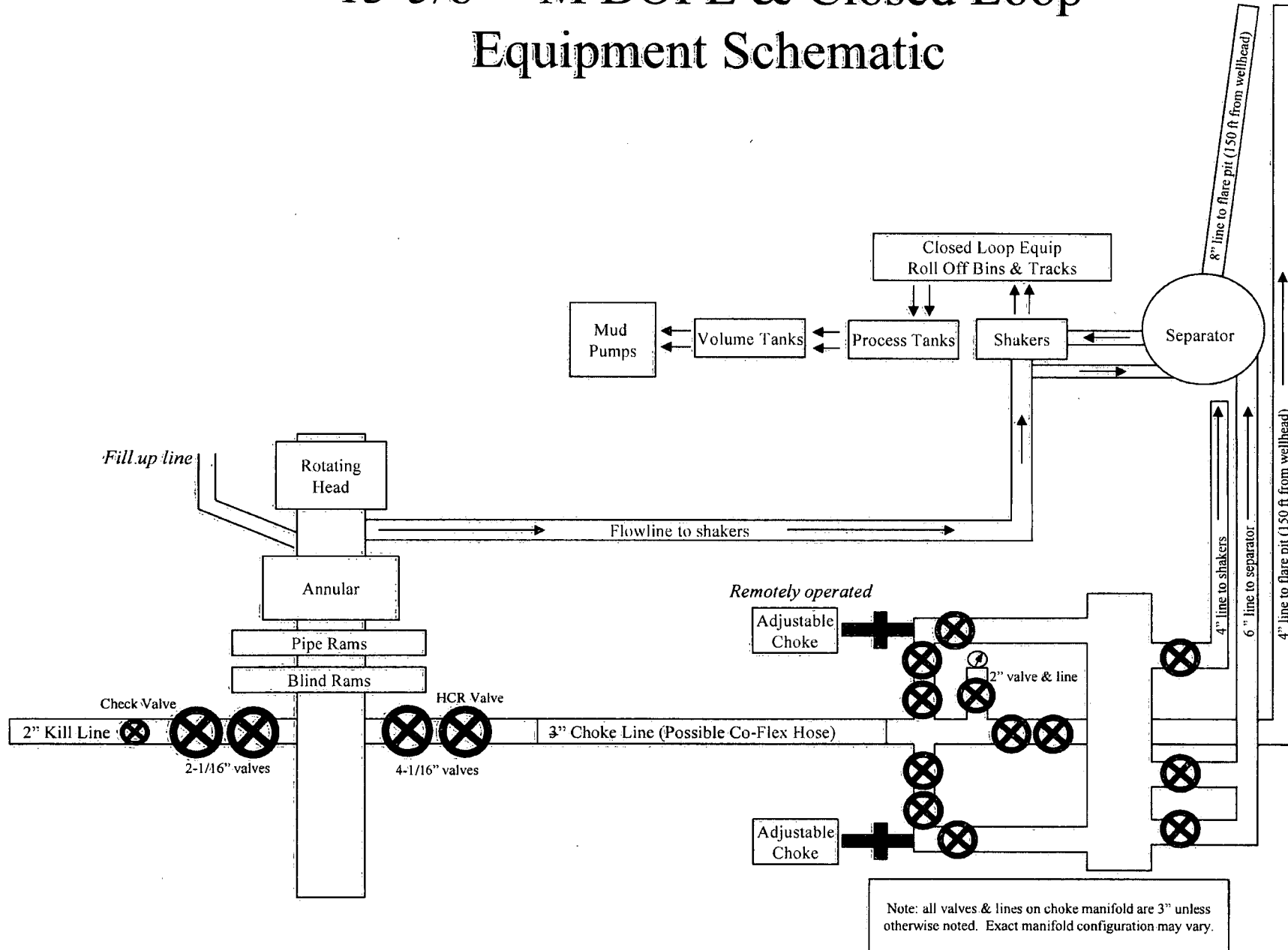
MB_Verb_5M_20190319093339.pdf

MB_Wellhd_5M_20190319093348.pdf

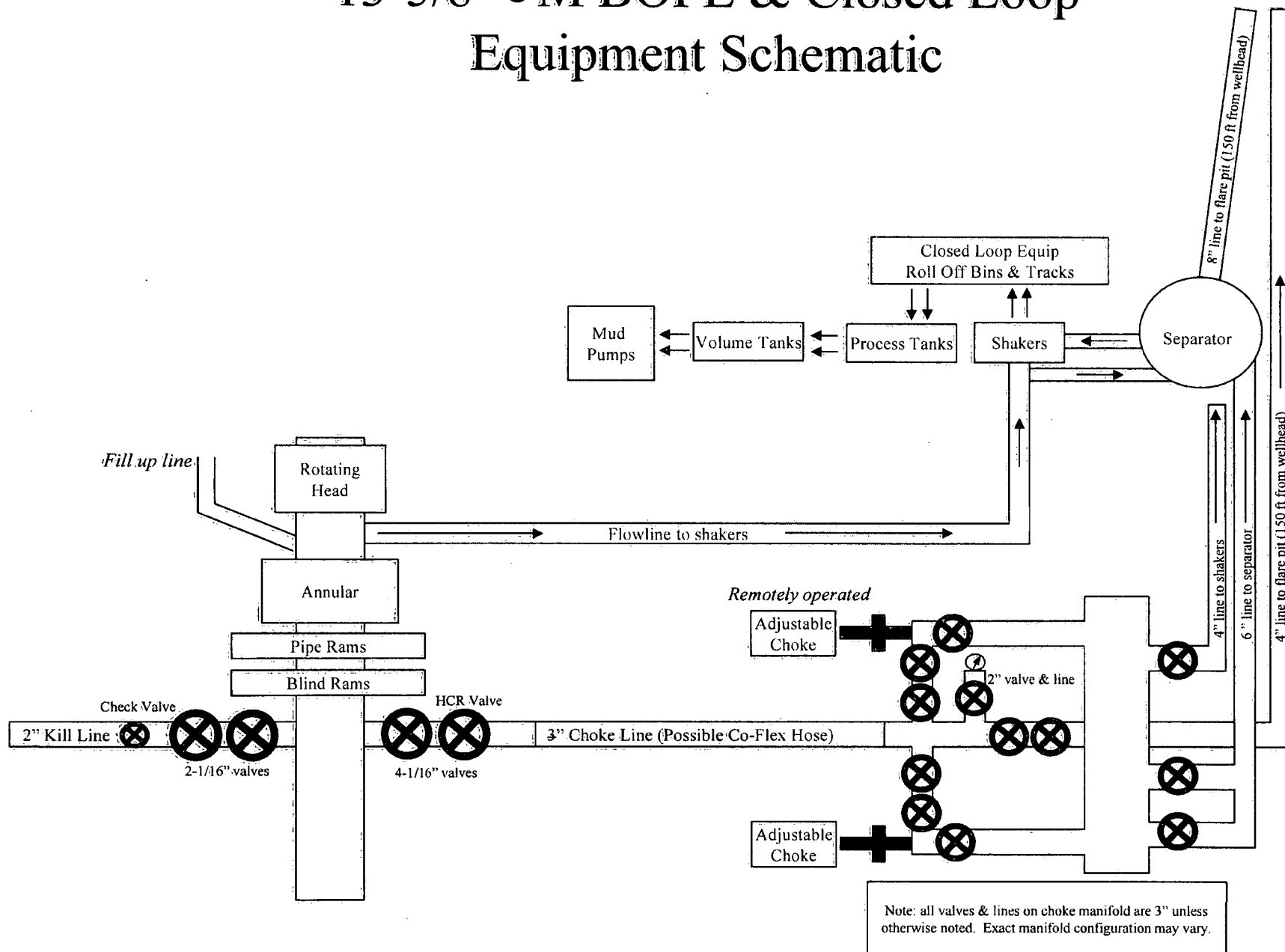
Other Variance attachment:

Co_flex_20181009090519.pdf

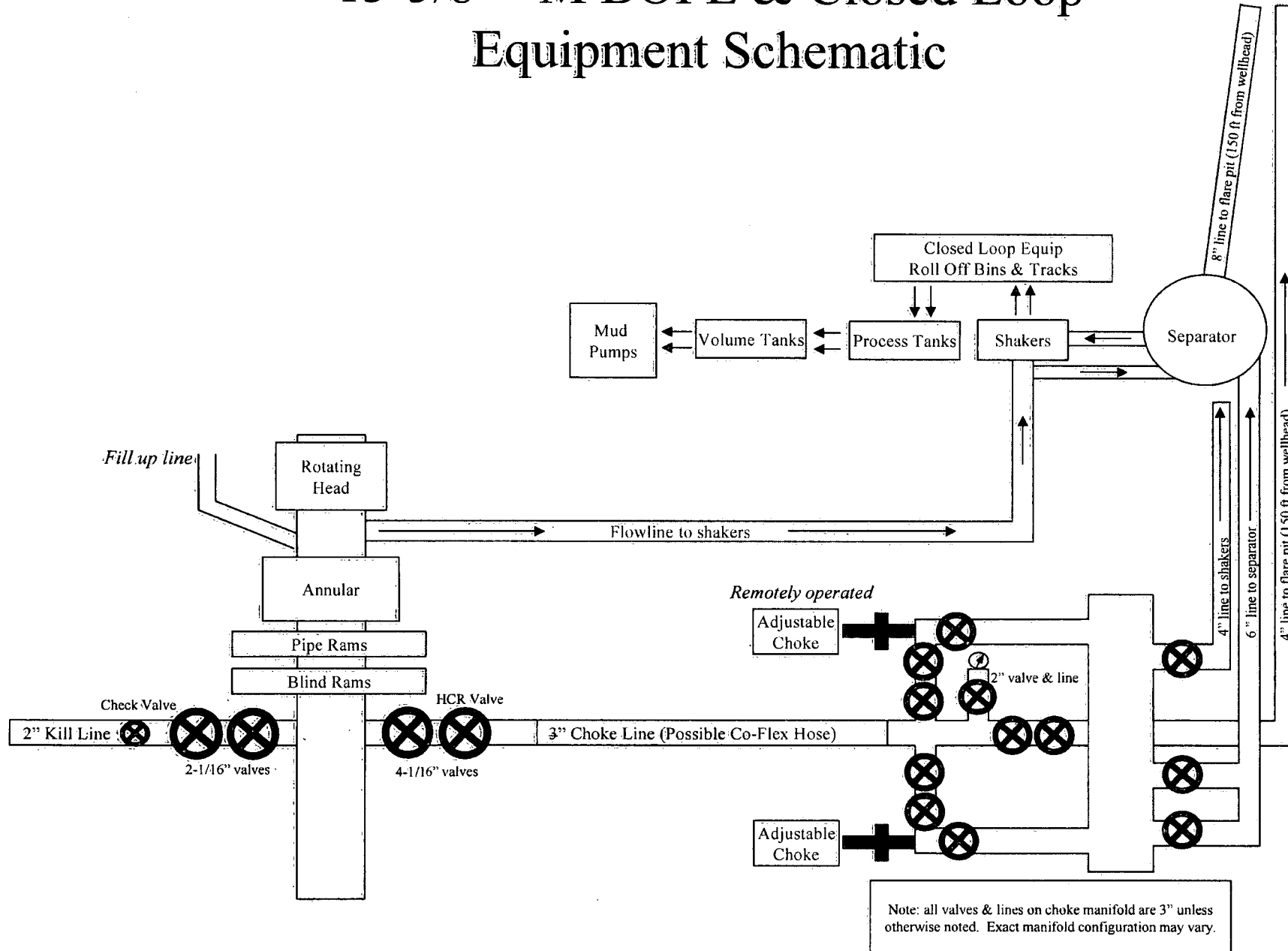
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



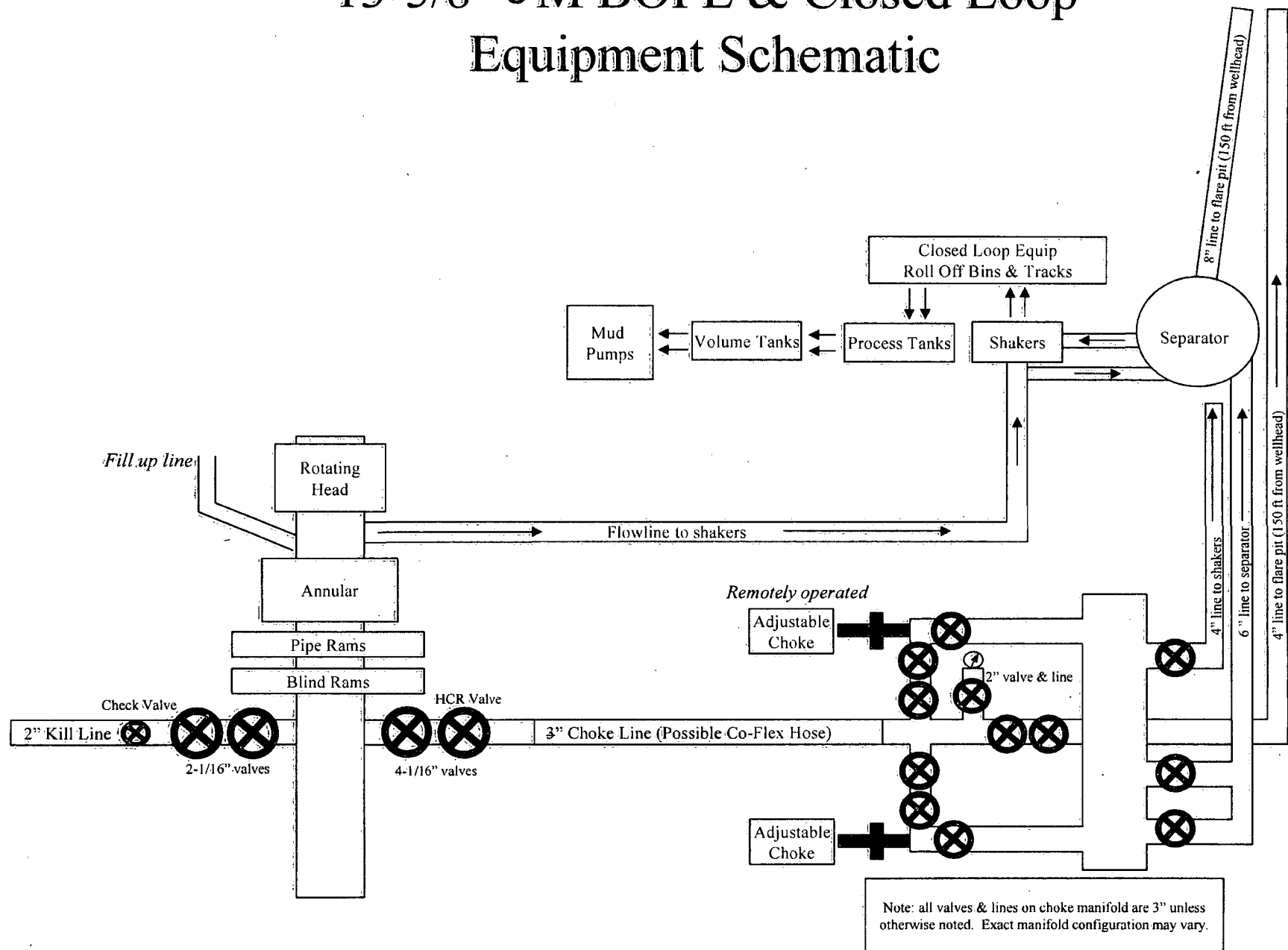
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



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



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



Casing Assumptions and Load Cases

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

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



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

Hydrogen Sulfide (H₂S) Contingency Plan

For

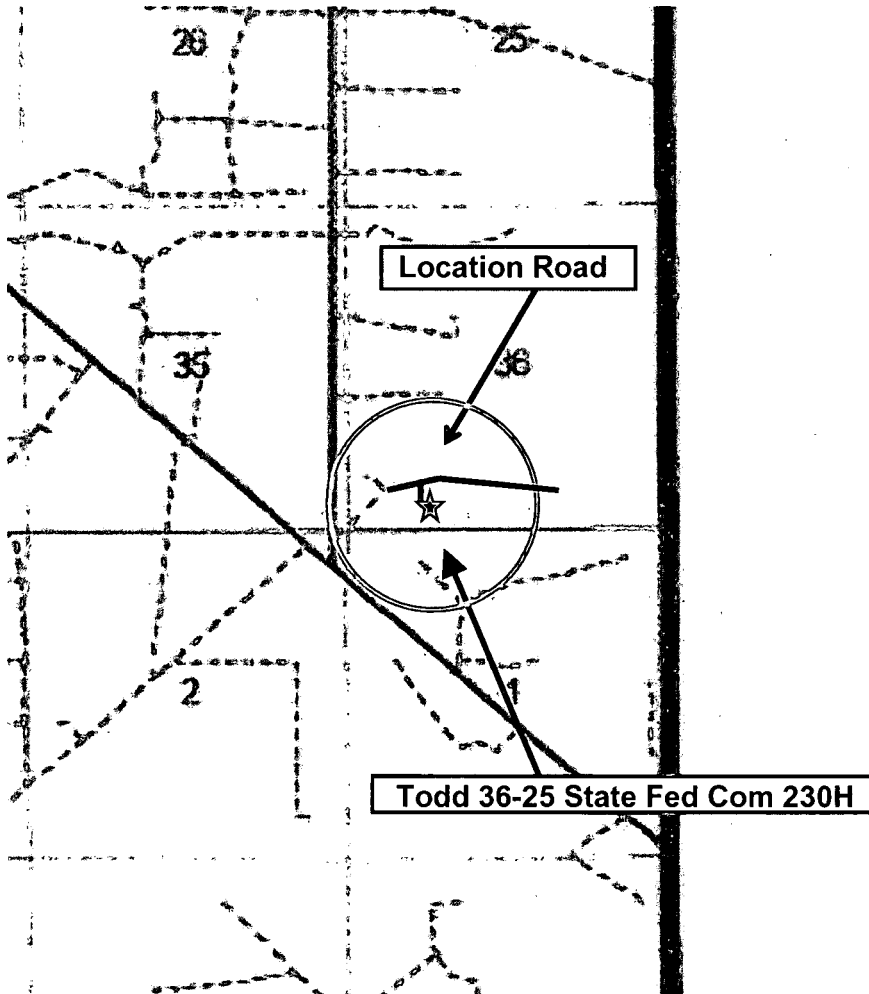
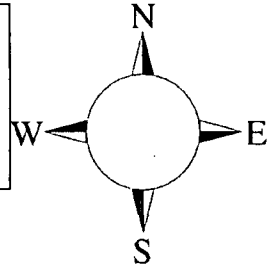
Todd 36-25 State Fed Com 230H

**Sec-36 T-23S R-31E
330' FSL & 1689' FWL
LAT. = 32.2545756' N (NAD83)
LONG = 103.7345900' W**

Eddy County NM

Todd 36-25 State Fed Com 230H

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



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

Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H₂S and SO₂

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

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

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

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

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

1. The effects of H₂S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan and Public Protection Plan.

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

II. HYDROGEN SULFIDE TRAINING

Note: All H₂S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H₂S.

1. Well Control Equipment

- A. Flare line
- B. Choke manifold – Remotely Operated
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
- D. Auxiliary equipment may include if applicable: annular preventer and rotating head.
- E. Mud/Gas Separator

2. Protective equipment for essential personnel:

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

3. H₂S detection and monitoring equipment:

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

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

Visual warning systems:

- A. Wind direction indicators as shown on well site diagram
- B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. Mud program:

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

5. Metallurgy:

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

6. Communication:

- A. Company personnel have/use cellular telephones in the field.
- B. Land line (telephone) communications at Office

7. Well testing:

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H₂S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

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

Prepared in conjunction with

Dave Small



WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec. 36-T23S-R31E

Todd 36-25 State Fed Com 230H

Wellbore #1

Permit Plan 1

Anticollision Report

02 October, 2018

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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	10/2/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	20,577.93	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	15,437.66	10,186.98	784.01	665.49	6.615	CC, ES, SF
Aldabra 25 Fed 6H - Wellbore #1 - Wellbore #1	16,020.08	9,803.51	1,206.56	1,120.97	14.097	CC
Aldabra 25 Fed 6H - Wellbore #1 - Wellbore #1	17,900.00	17,900.00	1,232.19	1,056.94	7.031	SF
Aldabra 25 Fed 6H - Wellbore #1 - Wellbore #1	20,266.12	14,052.00	1,206.87	1,045.90	7.497	ES
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	18,594.75	10,183.70	1,112.01	833.31	3.990	Alert, CC
Todd 25 Fed 001Z SWD (Offset) - Wellbore #1 - Wellbor	18,600.00	10,183.70	1,112.02	833.30	3.990	Alert, ES, SF
Sec. 36-T23S-R31E						
Todd 36 State 01 SWD - Wellbore #1 - Wellbore #1	13,322.58	10,195.10	1,095.99	885.81	5.215	CC, ES, SF
Todd 36 State 231H - Wellbore #1 - Permit Plan 1	2,500.00	2,500.80	60.01	42.50	3.428	Alert, CC
Todd 36 State 231H - Wellbore #1 - Permit Plan 1	2,550.00	2,550.80	60.22	42.36	3.372	Alert, ES
Todd 36 State 231H - Wellbore #1 - Permit Plan 1	2,650.00	2,650.78	61.93	43.37	3.337	Alert, SF
Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit	2,500.00	2,500.40	30.02	12.52	1.715	Minor Risk, CC
Todd 36_25 State Fed Com 232H - Wellbore #1 - Permit	2,550.00	2,550.40	30.23	12.38	1.693	Minor Risk, ES, SF
Todd 36_25 State Fed Com 233H - Wellbore #1 - Permit	9,999.46	9,887.59	110.49	39.07	1.547	Minor Risk, CC
Todd 36_25 State Fed Com 233H - Wellbore #1 - Permit	10,000.00	9,888.08	110.49	39.06	1.547	Minor Risk, ES, SF
Todd 36_25 State Fed Com 235H - Wellbore #1 - Permit						Out of range
Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit	10,697.81	10,584.70	915.18	841.20	12.370	CC
Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit	20,577.94	20,464.84	915.82	607.87	2.974	Alert, ES, SF
Todd 36B State 20H (Offset) - Wellbore #1 - Wellbore #1	13,000.00	10,891.00	1,408.98	1,332.74	18.482	SF
Todd 36B State 20H (Offset) - Wellbore #1 - Wellbore #1	14,650.00	9,378.00	1,198.51	1,138.20	19.873	ES
Todd 36B State 20H (Offset) - Wellbore #1 - Wellbore #1	14,653.61	9,370.17	1,198.47	1,138.23	19.894	CC

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+HGRF										Offset Well Error:		0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning	
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
14,200.00	10,200.00	10,213.54	10,210.04	68.81	35.61	-90.83	5,069.00	581.61	1,464.84	1,372.94	91.90	15.940		
14,250.00	10,200.00	10,212.44	10,208.93	69.41	35.61	-90.75	5,069.02	581.64	1,422.86	1,330.15	92.71	15.347		
14,300.00	10,200.00	10,211.33	10,207.83	70.01	35.61	-90.67	5,069.05	581.66	1,381.42	1,287.84	93.58	14.762		
14,350.00	10,200.00	10,210.23	10,206.73	70.61	35.60	-90.59	5,069.07	581.68	1,340.57	1,246.06	94.50	14.186		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 - Aldabra 25 Fed 3H - Wellbore #1 - Wellbore #1														Offset Well Error:	0.50 ft
Survey Program: 122-GYRO-NS-CT, 10954-MWD+IGRF															
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	Warning		
14,400.00	10,200.00	10,209.14	10,205.63	71.22	35.60	-90.51	5,069.10	581.71	1,300.35	1,204.87	95.47	13.620			
14,450.00	10,200.00	10,208.04	10,204.54	71.83	35.60	-90.43	5,069.12	581.73	1,260.83	1,164.33	96.50	13.065			
14,500.00	10,200.00	10,206.95	10,203.45	72.44	35.59	-90.35	5,069.15	581.75	1,222.07	1,124.49	97.58	12.523			
14,550.00	10,200.00	10,205.86	10,202.36	73.05	35.59	-90.27	5,069.17	581.77	1,184.16	1,085.44	98.73	11.994			
14,600.00	10,200.00	10,204.78	10,201.27	73.67	35.58	-90.19	5,069.20	581.80	1,147.18	1,047.25	99.93	11.480			
14,650.00	10,200.00	10,203.69	10,200.19	74.28	35.58	-90.11	5,069.22	581.82	1,111.21	1,010.03	101.18	10.982			
14,700.00	10,200.00	10,202.61	10,199.11	74.90	35.58	-90.03	5,069.25	581.84	1,076.36	973.87	102.49	10.502			
14,750.00	10,200.00	10,201.54	10,198.03	75.52	35.57	-89.95	5,069.27	581.86	1,042.75	938.90	103.85	10.041			
14,800.00	10,200.00	10,200.46	10,196.96	76.15	35.57	-89.87	5,069.29	581.89	1,010.49	905.24	105.25	9.601			
14,850.00	10,200.00	10,199.39	10,195.89	76.77	35.57	-89.79	5,069.32	581.91	979.72	873.04	106.68	9.184			
14,900.00	10,200.00	10,198.32	10,194.82	77.40	35.56	-89.72	5,069.34	581.93	950.59	842.45	108.13	8.791			
14,950.00	10,200.00	10,197.25	10,193.75	78.03	35.56	-89.64	5,069.37	581.95	923.24	813.65	109.59	8.425			
15,000.00	10,200.00	10,196.19	10,192.69	78.66	35.55	-89.56	5,069.39	581.97	897.85	786.82	111.03	8.087			
15,050.00	10,200.00	10,195.13	10,191.63	79.29	35.55	-89.48	5,069.42	581.99	874.57	762.15	112.42	7.779			
15,100.00	10,200.00	10,194.07	10,190.57	79.92	35.55	-89.41	5,069.44	582.02	853.60	739.85	113.75	7.504			
15,150.00	10,200.00	10,193.01	10,189.51	80.56	35.54	-89.33	5,069.46	582.04	835.09	720.12	114.97	7.263			
15,200.00	10,200.00	10,191.96	10,188.46	81.19	35.54	-89.25	5,069.49	582.06	819.22	703.16	116.07	7.058			
15,250.00	10,200.00	10,190.90	10,187.41	81.83	35.54	-89.17	5,069.51	582.08	806.15	689.15	116.99	6.890			
15,300.00	10,200.00	10,189.86	10,186.36	82.47	35.53	-89.10	5,069.53	582.10	796.00	678.28	117.72	6.762			
15,350.00	10,200.00	10,188.81	10,185.31	83.11	35.53	-89.02	5,069.56	582.12	788.89	670.66	118.23	6.673			
15,400.00	10,200.00	10,187.77	10,184.27	83.75	35.53	-88.95	5,069.58	582.14	784.91	666.42	118.49	6.624			
15,437.86	10,200.00	10,186.98	10,183.49	84.24	35.52	-88.89	5,069.60	582.15	784.01	665.49	118.52	6.615 CC, ES, SF			
15,450.00	10,200.00	10,186.73	10,183.23	84.40	35.52	-88.87	5,069.60	582.16	784.11	665.61	118.50	6.617			
15,500.00	10,200.00	10,185.69	10,182.19	85.04	35.52	-88.79	5,069.63	582.18	786.48	668.24	118.25	6.651			
15,550.00	10,200.00	10,184.65	10,181.16	85.69	35.51	-88.72	5,069.65	582.20	792.01	674.27	117.75	6.726			
15,600.00	10,200.00	10,183.62	10,180.13	86.34	35.51	-88.64	5,069.67	582.22	800.63	683.61	117.02	6.842			
15,650.00	10,200.00	10,182.59	10,179.10	86.99	35.51	-88.57	5,069.70	582.24	812.24	696.16	116.08	6.997			
15,700.00	10,200.00	10,181.56	10,178.07	87.64	35.50	-88.49	5,069.72	582.26	826.72	711.74	114.97	7.190			
15,750.00	10,200.00	10,180.53	10,177.04	88.29	35.50	-88.42	5,069.74	582.28	843.91	730.18	113.72	7.421			
15,800.00	10,200.00	10,179.51	10,176.02	88.94	35.50	-88.34	5,069.76	582.30	863.65	751.29	112.37	7.686			
15,850.00	10,200.00	10,178.49	10,175.00	89.60	35.49	-88.27	5,069.79	582.31	885.79	774.85	110.93	7.985			
15,900.00	10,200.00	10,177.47	10,173.98	90.25	35.49	-88.19	5,069.81	582.33	910.13	800.67	109.45	8.315			
15,950.00	10,200.00	10,176.46	10,172.97	90.91	35.49	-88.12	5,069.83	582.35	936.50	828.55	107.95	8.675			
16,000.00	10,200.00	10,175.44	10,171.95	91.56	35.48	-88.05	5,069.85	582.37	964.75	858.30	106.46	9.062			
16,050.00	10,200.00	10,174.43	10,170.94	92.22	35.48	-87.97	5,069.88	582.39	994.72	889.73	104.98	9.475			
16,100.00	10,200.00	10,173.43	10,169.94	92.88	35.48	-87.90	5,069.90	582.41	1,026.24	922.69	103.55	9.911			
16,150.00	10,200.00	10,172.42	10,168.93	93.54	35.47	-87.82	5,069.92	582.43	1,059.18	957.03	102.15	10.369			
16,200.00	10,200.00	10,171.42	10,167.93	94.20	35.47	-87.75	5,069.94	582.44	1,093.42	992.61	100.81	10.846			
16,250.00	10,200.00	10,170.42	10,166.93	94.87	35.46	-87.68	5,069.96	582.46	1,128.83	1,029.30	99.53	11.341			
16,300.00	10,200.00	10,169.42	10,165.93	95.53	35.46	-87.61	5,069.99	582.48	1,165.32	1,067.00	98.31	11.853			
16,350.00	10,200.00	10,168.42	10,164.93	96.19	35.46	-87.53	5,070.01	582.50	1,202.77	1,105.61	97.16	12.380			
16,400.00	10,200.00	10,167.43	10,163.94	96.86	35.45	-87.46	5,070.03	582.51	1,241.11	1,145.04	96.06	12.920			
16,450.00	10,200.00	10,166.44	10,162.95	97.53	35.45	-87.39	5,070.05	582.53	1,280.25	1,185.21	95.03	13.471			
16,500.00	10,200.00	10,165.45	10,161.96	98.19	35.45	-87.32	5,070.07	582.55	1,320.12	1,226.06	94.06	14.034			
16,550.00	10,200.00	10,164.46	10,160.98	98.86	35.44	-87.24	5,070.09	582.57	1,360.67	1,267.51	93.15	14.607			
16,600.00	10,200.00	10,163.48	10,159.99	99.53	35.44	-87.17	5,070.12	582.58	1,401.82	1,309.52	92.30	15.188			
16,650.00	10,200.00	10,162.50	10,159.01	100.20	35.44	-87.10	5,070.14	582.60	1,443.53	1,352.03	91.49	15.777			
16,700.00	10,200.00	10,161.52	10,158.03	100.87	35.43	-87.03	5,070.16	582.62	1,485.75	1,395.01	90.74	16.373			

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 6H - Wellbore #1 - Wellbore #1													0.00 ft
Survey Program: 100-GYRO-NS-CT, 8328-MWD+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
14,900.00	10,200.00	9,431.00	9,092.95	77.40	33.52	26.94	5,303.39	1,943.32	1,488.27	1,415.22	73.05	20.373	
14,950.00	10,200.00	9,431.00	9,092.95	78.03	33.52	26.94	5,303.39	1,943.32	1,463.22	1,389.69	73.53	19.899	
15,000.00	10,200.00	9,445.63	9,096.82	78.66	33.65	26.73	5,315.49	1,936.06	1,439.19	1,365.24	73.95	19.463	
15,050.00	10,200.00	9,463.00	9,101.16	79.29	33.82	26.49	5,330.19	1,927.88	1,416.26	1,341.91	74.36	19.047	
15,100.00	10,200.00	9,463.00	9,101.16	79.92	33.82	26.49	5,330.19	1,927.88	1,394.34	1,319.44	74.90	18.617	
15,150.00	10,200.00	9,481.24	9,105.44	80.56	33.98	26.25	5,345.99	1,919.86	1,373.47	1,298.15	75.32	18.234	
15,200.00	10,200.00	9,495.00	9,108.51	81.19	34.11	26.08	5,358.16	1,914.21	1,353.75	1,277.95	75.80	17.860	
15,250.00	10,200.00	9,507.96	9,111.28	81.83	34.22	25.93	5,369.78	1,909.21	1,335.17	1,258.87	76.29	17.500	
15,300.00	10,200.00	9,526.00	9,114.94	82.47	34.37	25.74	5,386.24	1,902.76	1,317.76	1,241.00	76.77	17.165	
15,350.00	10,200.00	9,526.00	9,114.94	83.11	34.37	25.74	5,386.24	1,902.76	1,301.64	1,224.25	77.39	16.819	
15,400.00	10,200.00	9,558.00	9,120.68	83.75	34.63	25.45	5,416.11	1,892.86	1,286.67	1,208.88	77.79	16.540	
15,450.00	10,200.00	9,558.00	9,120.68	84.40	34.63	25.45	5,416.11	1,892.86	1,272.91	1,194.48	78.43	16.229	
15,500.00	10,200.00	9,575.76	9,123.36	85.04	34.76	25.31	5,433.03	1,888.19	1,260.54	1,181.58	78.96	15.963	
15,550.00	10,200.00	9,589.00	9,125.11	85.69	34.86	25.22	5,445.78	1,885.06	1,249.55	1,170.01	79.54	15.710	
15,600.00	10,200.00	9,604.69	9,126.93	86.34	34.97	25.12	5,461.01	1,881.79	1,239.91	1,159.80	80.11	15.477	
15,650.00	10,200.00	9,621.00	9,128.57	86.99	35.09	25.03	5,476.98	1,878.91	1,231.63	1,150.93	80.70	15.262	
15,700.00	10,200.00	9,636.86	9,129.95	87.64	35.19	24.97	5,492.62	1,876.65	1,224.69	1,143.39	81.30	15.064	
15,750.00	10,200.00	9,658.00	9,131.54	88.29	35.32	24.91	5,513.59	1,874.49	1,219.09	1,137.18	81.91	14.884	
15,800.00	10,200.00	9,673.46	9,132.54	88.94	35.41	24.89	5,528.98	1,873.47	1,214.74	1,132.19	82.55	14.715	
15,850.00	10,200.00	9,697.74	9,133.90	89.60	35.54	24.89	5,553.21	1,872.70	1,211.59	1,128.40	83.20	14.563	
15,900.00	10,200.00	9,730.96	9,135.79	90.25	35.72	24.95	5,586.37	1,873.08	1,209.33	1,125.45	83.88	14.417	
15,950.00	10,200.00	9,766.90	9,137.73	90.91	35.90	25.04	5,622.24	1,874.13	1,207.62	1,123.03	84.59	14.276	
16,000.00	10,200.00	9,794.30	9,138.89	91.56	36.04	25.12	5,649.60	1,875.15	1,206.65	1,121.34	85.30	14.145	
16,020.08	10,200.00	9,803.51	9,139.15	91.83	36.09	25.14	5,656.80	1,875.57	1,206.56	1,120.97	85.59	14.097 CC	
16,050.00	10,200.00	9,823.02	9,139.53	92.22	36.20	25.20	5,678.28	1,876.56	1,206.73	1,120.71	86.02	14.028	
16,100.00	10,200.00	9,871.29	9,140.32	92.88	36.47	25.33	5,726.47	1,879.06	1,207.20	1,120.43	86.77	13.913	
16,150.00	10,200.00	9,919.33	9,141.05	93.54	36.75	25.46	5,774.45	1,881.55	1,207.75	1,120.22	87.53	13.799	
16,200.00	10,200.00	9,966.74	9,141.68	94.20	37.05	25.59	5,821.78	1,884.05	1,208.40	1,120.10	88.30	13.685	
16,250.00	10,200.00	10,011.49	9,142.20	94.87	37.34	25.72	5,866.46	1,886.49	1,209.17	1,120.10	89.07	13.575	
16,300.00	10,200.00	10,049.35	9,142.28	95.53	37.61	25.81	5,904.27	1,888.49	1,210.34	1,120.52	89.82	13.475	
16,350.00	10,200.00	10,087.22	9,141.89	96.19	37.88	25.90	5,942.09	1,890.40	1,212.02	1,121.45	90.57	13.382	
16,400.00	10,200.00	10,134.34	9,140.96	96.86	38.24	25.98	5,989.15	1,892.63	1,214.05	1,122.70	91.35	13.290	
16,450.00	10,200.00	10,184.27	9,139.85	97.53	38.64	26.06	6,039.02	1,894.75	1,216.10	1,123.99	92.11	13.203	
16,500.00	10,200.00	10,235.41	9,138.70	98.19	39.08	26.14	6,090.10	1,896.85	1,218.12	1,125.23	92.90	13.113	
16,550.00	10,200.00	10,286.72	9,137.72	98.86	39.53	26.22	6,141.35	1,899.17	1,220.10	1,126.40	93.70	13.022	
16,600.00	10,200.00	10,337.45	9,136.87	99.53	40.00	26.32	6,192.01	1,901.60	1,222.03	1,127.50	94.53	12.927	
16,650.00	10,200.00	10,399.24	9,136.01	100.20	40.59	26.44	6,253.73	1,904.64	1,223.89	1,128.47	95.43	12.825	
16,700.00	10,200.00	10,468.65	9,137.06	100.87	41.51	26.62	6,343.06	1,907.95	1,224.15	1,127.86	96.48	12.688	
16,719.28	10,200.00	10,503.77	9,137.37	101.13	41.67	26.65	6,358.18	1,908.42	1,224.11	1,127.31	96.80	12.645	
16,750.00	10,200.00	10,527.88	9,137.75	101.54	41.93	26.70	6,382.27	1,909.20	1,224.20	1,126.88	97.31	12.580	
16,800.00	10,200.00	10,569.00	9,138.10	102.21	42.38	26.77	6,423.36	1,910.60	1,224.69	1,126.55	98.14	12.479	
16,850.00	10,200.00	10,610.97	9,138.19	102.88	42.85	26.85	6,465.30	1,912.13	1,225.53	1,126.54	98.99	12.381	
16,900.00	10,200.00	10,655.04	9,138.13	103.56	43.35	26.93	6,509.34	1,913.90	1,226.61	1,126.77	99.85	12.285	
16,950.00	10,200.00	10,712.25	9,138.07	104.23	44.03	27.04	6,566.50	1,916.26	1,227.73	1,126.93	100.80	12.180	
17,000.00	10,200.00	10,772.82	9,138.45	104.91	44.75	27.16	6,627.03	1,918.56	1,228.43	1,126.84	101.78	12.069	
17,050.00	10,200.00	10,826.67	9,139.01	105.58	45.42	27.26	6,680.84	1,920.39	1,228.87	1,126.13	102.74	11.961	
17,100.00	10,200.00	10,882.10	9,139.74	106.26	46.13	27.35	6,736.24	1,922.06	1,229.09	1,125.38	103.71	11.851	
17,150.00	10,200.00	10,937.77	9,140.68	106.94	46.85	27.45	6,791.88	1,923.57	1,229.09	1,124.40	104.69	11.741	
17,200.00	10,200.00	10,987.26	9,141.59	107.61	47.51	27.53	6,841.34	1,924.78	1,228.96	1,123.33	105.63	11.634	
17,250.00	10,200.00	11,035.52	9,142.36	108.29	48.16	27.60	6,889.59	1,925.89	1,228.80	1,122.34	106.57	11.532	
17,300.00	10,200.00	11,088.27	9,143.12	108.97	48.89	27.67	6,942.32	1,926.91	1,228.84	1,121.31	107.53	11.428	
17,350.00	10,200.00	11,141.73	9,143.84	109.65	49.63	27.72	6,995.77	1,927.53	1,228.63	1,120.15	108.48	11.326	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 6H - Wellbore #1 - Wellbore #1													0.00 ft
Survey Program: 100-GYRO-NS-CT, 8328-MWD+IGRF													Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	Warning
17,400.00	10,200.00	11,193.91	9,144.57	110.33	50.38	27.77	7,047.95	1,927.94	1,228.31	1,118.89	109.42	11.225	
17,450.00	10,200.00	11,242.80	9,145.31	111.01	51.08	27.81	7,096.83	1,928.27	1,227.92	1,117.57	110.35	11.127	
17,491.60	10,200.00	11,276.59	9,145.54	111.58	51.58	27.82	7,130.62	1,928.29	1,227.79	1,116.72	111.07	11.055	
17,500.00	10,200.00	11,283.41	9,145.55	111.69	51.68	27.82	7,137.44	1,928.27	1,227.80	1,116.59	111.21	11.041	
17,550.00	10,200.00	11,324.02	9,145.24	112.37	52.28	27.81	7,178.05	1,927.93	1,228.05	1,116.02	112.03	10.982	
17,600.00	10,200.00	11,368.35	9,144.52	113.06	52.95	27.78	7,222.37	1,927.40	1,228.62	1,115.76	112.86	10.887	
17,650.00	10,200.00	11,412.87	9,143.83	113.74	53.63	27.76	7,266.88	1,926.99	1,229.41	1,115.72	113.68	10.814	
17,700.00	10,200.00	11,468.59	9,142.45	114.42	54.48	27.72	7,322.58	1,926.40	1,230.23	1,115.65	114.57	10.737	
17,750.00	10,200.00	11,526.44	9,141.38	115.11	55.38	27.66	7,380.41	1,925.32	1,230.73	1,115.28	115.46	10.660	
17,800.00	10,200.00	11,584.44	9,140.51	115.79	55.98	27.62	7,418.39	1,924.60	1,231.41	1,115.17	116.23	10.594	
17,850.00	10,200.00	11,605.70	9,139.31	116.48	56.62	27.58	7,459.63	1,923.90	1,232.42	1,115.40	117.02	10.532	
17,900.00	10,200.00	11,650.00	9,138.56	117.16	57.60	27.51	7,538.28	1,922.32	1,232.19	1,056.94	175.26	7.031 SF	
17,924.88	10,200.00	11,736.73	9,138.89	117.51	58.72	27.48	7,590.61	1,921.12	1,231.76	1,113.14	118.62	10.384	
17,950.00	10,200.00	11,760.47	9,139.22	117.85	59.10	27.47	7,614.35	1,920.54	1,231.23	1,112.17	119.06	10.341	
18,000.00	10,200.00	11,806.06	9,139.78	118.54	59.84	27.45	7,659.92	1,919.44	1,230.26	1,110.33	119.93	10.258	
18,050.00	10,200.00	11,845.23	9,139.96	119.22	60.48	27.42	7,699.08	1,918.53	1,229.63	1,108.87	120.76	10.183	
18,096.65	10,200.00	11,881.78	9,139.80	119.87	61.08	27.39	7,735.62	1,917.70	1,229.44	1,107.92	121.52	10.117	
18,100.00	10,200.00	11,884.41	9,139.78	119.91	61.12	27.39	7,738.24	1,917.64	1,229.44	1,107.87	121.57	10.113	
18,150.00	10,200.00	11,932.37	9,139.25	120.60	61.91	27.35	7,786.19	1,916.60	1,229.55	1,107.12	122.43	10.043	
18,200.00	10,200.00	11,982.80	9,138.72	121.29	62.74	27.30	7,836.60	1,915.55	1,229.65	1,106.35	123.30	9.973	
18,250.00	10,200.00	12,030.63	9,138.20	121.98	63.53	27.26	7,884.43	1,914.56	1,229.79	1,105.63	124.16	9.905	
18,300.00	10,200.00	12,078.16	9,137.57	122.67	64.32	27.22	7,931.94	1,913.58	1,230.02	1,105.01	125.01	9.839	
18,350.00	10,200.00	12,127.44	9,136.85	123.36	65.15	27.17	7,981.20	1,912.57	1,230.32	1,104.45	125.88	9.774	
18,400.00	10,200.00	12,176.87	9,136.12	124.05	65.98	27.12	8,030.62	1,911.60	1,230.65	1,103.91	126.75	9.710	
18,450.00	10,200.00	12,214.13	9,135.44	124.74	66.60	27.10	8,067.87	1,911.05	1,231.25	1,103.70	127.54	9.653	
18,500.00	10,200.00	12,251.35	9,134.49	125.43	67.23	27.07	8,105.08	1,910.82	1,232.36	1,104.02	128.35	9.602	
18,550.00	10,200.00	12,310.35	9,132.83	126.12	68.22	27.05	8,164.05	1,910.87	1,233.79	1,104.45	129.33	9.540	
18,600.00	10,200.00	12,362.20	9,132.17	126.82	69.43	27.05	8,235.89	1,910.63	1,234.20	1,103.76	130.44	9.462	
18,650.00	10,200.00	12,430.85	9,132.03	127.51	70.26	27.04	8,284.54	1,910.42	1,234.35	1,102.97	131.37	9.396	
18,700.00	10,200.00	12,482.66	9,131.85	128.20	71.14	27.04	8,336.36	1,910.22	1,234.53	1,102.19	132.34	9.329	
18,750.00	10,200.00	12,539.20	9,131.87	128.89	72.11	27.04	8,392.90	1,909.88	1,234.50	1,101.16	133.33	9.259	
18,800.00	10,200.00	12,591.36	9,132.07	129.59	73.00	27.04	8,445.05	1,909.48	1,234.27	1,099.96	134.30	9.190	
18,850.00	10,200.00	12,641.81	9,132.32	130.28	73.87	27.04	8,495.50	1,909.13	1,234.01	1,098.75	135.27	9.123	
18,900.00	10,200.00	12,693.40	9,132.63	130.98	74.76	27.05	8,547.08	1,908.79	1,233.72	1,097.47	136.24	9.055	
18,950.00	10,200.00	12,745.17	9,133.02	131.67	75.66	27.05	8,598.86	1,908.46	1,233.35	1,096.12	137.23	8.988	
19,000.00	10,200.00	12,793.91	9,133.41	132.37	76.50	27.06	8,647.60	1,908.16	1,232.97	1,094.78	138.19	8.922	
19,050.00	10,200.00	12,843.22	9,133.77	133.06	77.36	27.07	8,696.90	1,907.90	1,232.85	1,093.48	139.16	8.858	
19,100.00	10,200.00	12,898.61	9,134.27	133.76	78.33	27.07	8,752.29	1,907.53	1,232.21	1,092.04	140.18	8.790	
19,150.00	10,200.00	12,951.67	9,134.92	134.45	79.26	27.08	8,805.34	1,907.05	1,231.58	1,090.40	141.18	8.724	
19,200.00	10,200.00	13,000.60	9,135.47	135.15	80.12	27.08	8,854.26	1,906.49	1,230.93	1,088.80	142.14	8.660	
19,250.00	10,200.00	13,049.53	9,135.93	135.85	80.99	27.07	8,903.19	1,905.84	1,230.33	1,087.24	143.09	8.598	
19,300.00	10,200.00	13,098.46	9,136.30	136.55	81.85	27.06	8,952.11	1,905.10	1,229.77	1,085.74	144.03	8.538	
19,350.00	10,200.00	13,148.81	9,136.59	137.24	82.74	27.04	9,002.45	1,904.24	1,229.25	1,084.27	144.98	8.479	
19,400.00	10,200.00	13,200.57	9,136.95	137.94	83.66	27.02	9,054.21	1,903.34	1,228.66	1,082.73	145.93	8.420	
19,450.00	10,200.00	13,254.48	9,137.44	138.64	84.62	27.00	9,108.11	1,902.37	1,227.97	1,081.07	146.90	8.359	
19,500.00	10,200.00	13,309.48	9,138.07	139.34	85.61	26.98	9,163.09	1,901.19	1,227.09	1,079.23	147.86	8.299	
19,550.00	10,200.00	13,352.86	9,138.50	140.04	86.38	26.96	9,206.45	1,900.16	1,226.23	1,077.47	148.75	8.243	
19,600.00	10,200.00	13,395.67	9,138.63	140.74	87.15	26.92	9,249.25	1,899.12	1,225.66	1,076.03	149.63	8.191	
19,650.00	10,200.00	13,447.31	9,138.57	141.43	88.08	26.88	9,300.87	1,897.78	1,225.25	1,074.72	150.53	8.140	
19,700.00	10,200.00	13,502.12	9,138.62	142.13	89.07	26.82	9,355.65	1,896.17	1,224.66	1,073.22	151.44	8.087	
19,750.00	10,200.00	13,563.59	9,139.04	142.83	90.19	26.76	9,417.09	1,894.17	1,223.74	1,071.36	152.38	8.031	
19,800.00	10,200.00	13,617.56	9,139.80	143.53	91.17	26.71	9,471.03	1,892.26	1,222.43	1,069.15	153.28	7.975	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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

Sec. 25-T23S-R31E - Aldabra 25 Fed 6H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 ft	
Survey Program: 100-GYRO-NS-CT, 8328-MWD+IGRF													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		
19,850.00	10,200.00	13,663.20	9,140.31	144.24	92.00	26.66	9,516.63	1,890.54	1,221.20	1,067.06	154.14	7.923		
19,900.00	10,200.00	13,714.47	9,140.66	144.94	92.93	26.59	9,567.85	1,888.48	1,220.11	1,065.11	155.00	7.872		
19,950.00	10,200.00	13,774.52	9,141.41	145.64	94.03	26.51	9,627.85	1,885.90	1,218.71	1,062.83	155.88	7.818		
20,000.00	10,200.00	13,828.54	9,142.37	146.34	95.02	26.44	9,681.80	1,883.42	1,217.01	1,060.27	156.74	7.765		
20,050.00	10,200.00	13,881.34	9,143.36	147.04	95.99	26.36	9,734.53	1,880.82	1,215.18	1,057.61	157.58	7.712		
20,100.00	10,200.00	13,937.11	9,144.53	147.74	97.02	26.27	9,790.21	1,877.87	1,213.18	1,054.77	158.41	7.658		
20,150.00	10,200.00	13,991.82	9,145.87	148.44	98.03	26.18	9,844.81	1,874.79	1,210.95	1,051.72	159.23	7.605		
20,200.00	10,200.00	14,041.74	9,147.13	149.15	98.95	26.10	9,894.63	1,871.86	1,208.64	1,048.61	160.03	7.552		
20,250.00	10,200.00	14,052.00	9,147.39	149.85	99.14	26.08	9,904.87	1,871.26	1,206.98	1,046.21	160.77	7.507		
20,266.12	10,200.00	14,052.00	9,147.39	150.08	99.14	26.08	9,904.87	1,871.26	1,206.87	1,045.90	160.97	7.497 ES		
20,300.00	10,200.00	14,052.00	9,147.39	150.55	99.14	26.08	9,904.87	1,871.26	1,207.35	1,046.04	161.31	7.485		
20,350.00	10,200.00	14,052.00	9,147.39	151.26	99.14	26.08	9,904.87	1,871.26	1,209.79	1,048.15	161.64	7.485		
20,400.00	10,200.00	14,052.00	9,147.39	151.96	99.14	26.08	9,904.87	1,871.26	1,214.28	1,052.52	161.75	7.507		
20,450.00	10,200.00	14,052.00	9,147.39	152.66	99.14	26.08	9,904.87	1,871.26	1,220.80	1,059.14	161.66	7.551		
20,500.00	10,200.00	14,052.00	9,147.39	153.37	99.14	26.08	9,904.87	1,871.26	1,229.33	1,067.95	161.38	7.818		
20,550.00	10,200.00	14,052.00	9,147.39	154.07	99.14	26.08	9,904.87	1,871.26	1,239.81	1,078.91	160.90	7.705		
20,577.94	10,200.00	14,052.00	9,147.39	154.46	99.14	26.08	9,904.87	1,871.26	1,246.51	1,085.94	160.56	7.763		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 - Todd 25 Fed 001Z SWD (Offset) - Wellbore #1 - Wellbore #1													0.00 ft
Survey Program: 10-INC-ONLY													Offset Well Error: 10.00 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	
17,600.00	10,200.00	10,183.70	10,183.70	113.06	152.61	-90.00	8,224.92	237.48	1,492.00	1,243.62	248.39	6.007	
17,650.00	10,200.00	10,183.70	10,183.70	113.74	152.61	-90.00	8,224.92	237.48	1,459.14	1,208.88	250.26	5.830	
17,700.00	10,200.00	10,183.70	10,183.70	114.42	152.61	-90.00	8,224.92	237.48	1,427.28	1,175.11	252.17	5.660	
17,750.00	10,200.00	10,183.70	10,183.70	115.11	152.61	-90.00	8,224.92	237.48	1,396.48	1,142.36	254.11	5.495	
17,800.00	10,200.00	10,183.70	10,183.70	115.79	152.61	-90.00	8,224.92	237.48	1,366.81	1,110.74	256.08	5.337	
17,850.00	10,200.00	10,183.70	10,183.70	116.48	152.61	-90.00	8,224.92	237.48	1,338.36	1,080.30	258.05	5.186	
17,900.00	10,200.00	10,183.70	10,183.70	117.16	152.61	-90.00	8,224.92	237.48	1,311.19	1,051.16	260.03	5.042	
17,950.00	10,200.00	10,183.70	10,183.70	117.85	152.61	-90.00	8,224.92	237.48	1,285.40	1,023.40	262.00	4.906	Alert
18,000.00	10,200.00	10,183.70	10,183.70	118.54	152.61	-90.00	8,224.92	237.48	1,261.06	997.12	263.94	4.778	Alert
18,050.00	10,200.00	10,183.70	10,183.70	119.22	152.61	-90.00	8,224.92	237.48	1,238.27	972.42	265.85	4.658	Alert
18,100.00	10,200.00	10,183.70	10,183.70	119.91	152.61	-90.00	8,224.92	237.48	1,217.10	949.41	267.69	4.547	Alert
18,150.00	10,200.00	10,183.70	10,183.70	120.60	152.61	-90.00	8,224.92	237.48	1,197.65	928.19	269.46	4.445	Alert
18,200.00	10,200.00	10,183.70	10,183.70	121.29	152.61	-90.00	8,224.92	237.48	1,179.99	908.86	271.13	4.352	Alert
18,250.00	10,200.00	10,183.70	10,183.70	121.98	152.61	-90.00	8,224.92	237.48	1,164.22	891.54	272.68	4.270	Alert
18,300.00	10,200.00	10,183.70	10,183.70	122.67	152.61	-90.00	8,224.92	237.48	1,150.41	876.31	274.10	4.197	Alert
18,350.00	10,200.00	10,183.70	10,183.70	123.36	152.61	-90.00	8,224.92	237.48	1,138.62	863.27	275.35	4.135	Alert
18,400.00	10,200.00	10,183.70	10,183.70	124.05	152.61	-90.00	8,224.92	237.48	1,128.93	852.50	276.44	4.084	Alert
18,450.00	10,200.00	10,183.70	10,183.70	124.74	152.61	-90.00	8,224.92	237.48	1,121.39	844.06	277.33	4.044	Alert
18,500.00	10,200.00	10,183.70	10,183.70	125.43	152.61	-90.00	8,224.92	237.48	1,116.04	838.03	278.01	4.014	Alert
18,550.00	10,200.00	10,183.70	10,183.70	126.12	152.61	-90.00	8,224.92	237.48	1,112.91	834.43	278.47	3.996	Alert
18,594.75	10,200.00	10,183.70	10,183.70	126.74	152.61	-90.00	8,224.92	237.48	1,112.01	833.31	278.70	3.990	Alert, CC
18,600.00	10,200.00	10,183.70	10,183.70	126.82	152.61	-90.00	8,224.92	237.48	1,112.02	833.30	278.72	3.990	Alert, ES, SF
18,650.00	10,200.00	10,183.70	10,183.70	127.51	152.61	-90.00	8,224.92	237.48	1,113.38	834.65	278.73	3.994	Alert
18,700.00	10,200.00	10,183.70	10,183.70	128.20	152.61	-90.00	8,224.92	237.48	1,116.98	838.46	278.52	4.010	Alert
18,750.00	10,200.00	10,183.70	10,183.70	128.89	152.61	-90.00	8,224.92	237.48	1,122.79	844.70	278.09	4.037	Alert
18,800.00	10,200.00	10,183.70	10,183.70	129.59	152.61	-90.00	8,224.92	237.48	1,130.79	853.33	277.46	4.076	Alert
18,850.00	10,200.00	10,183.70	10,183.70	130.28	152.61	-90.00	8,224.92	237.48	1,140.93	864.30	276.63	4.124	Alert
18,900.00	10,200.00	10,183.70	10,183.70	130.98	152.61	-90.00	8,224.92	237.48	1,153.14	877.53	275.61	4.184	Alert
18,950.00	10,200.00	10,183.70	10,183.70	131.67	152.61	-90.00	8,224.92	237.48	1,167.38	892.94	274.44	4.254	Alert
19,000.00	10,200.00	10,183.70	10,183.70	132.37	152.61	-90.00	8,224.92	237.48	1,183.55	910.43	273.12	4.333	Alert
19,050.00	10,200.00	10,183.70	10,183.70	133.06	152.61	-90.00	8,224.92	237.48	1,201.59	929.91	271.68	4.423	Alert
19,100.00	10,200.00	10,183.70	10,183.70	133.76	152.61	-90.00	8,224.92	237.48	1,221.41	951.28	270.13	4.522	Alert
19,150.00	10,200.00	10,183.70	10,183.70	134.45	152.61	-90.00	8,224.92	237.48	1,242.93	974.42	268.50	4.629	Alert
19,200.00	10,200.00	10,183.70	10,183.70	135.15	152.61	-90.00	8,224.92	237.48	1,266.05	999.25	266.81	4.745	Alert
19,250.00	10,200.00	10,183.70	10,183.70	135.85	152.61	-90.00	8,224.92	237.48	1,290.70	1,025.64	265.07	4.869	Alert
19,300.00	10,200.00	10,183.70	10,183.70	136.55	152.61	-90.00	8,224.92	237.48	1,316.79	1,053.50	263.29	5.001	
19,350.00	10,200.00	10,183.70	10,183.70	137.24	152.61	-90.00	8,224.92	237.48	1,344.24	1,082.74	261.50	5.141	
19,400.00	10,200.00	10,183.70	10,183.70	137.94	152.61	-90.00	8,224.92	237.48	1,372.95	1,113.25	259.70	5.287	
19,450.00	10,200.00	10,183.70	10,183.70	138.64	152.61	-90.00	8,224.92	237.48	1,402.86	1,144.96	257.91	5.439	
19,500.00	10,200.00	10,183.70	10,183.70	139.34	152.61	-90.00	8,224.92	237.48	1,433.89	1,177.77	256.13	5.598	
19,550.00	10,200.00	10,183.70	10,183.70	140.04	152.61	-90.00	8,224.92	237.48	1,465.97	1,211.60	254.37	5.763	
19,600.00	10,200.00	10,183.70	10,183.70	140.74	152.61	-90.00	8,224.92	237.48	1,499.03	1,246.39	252.64	5.933	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,300.00	10,200.00	10,195.10	10,195.10	48.78	152.78	-90.00	2,952.91	281.10	1,498.96	1,298.14	200.82	7.464		
12,350.00	10,200.00	10,195.10	10,195.10	49.21	152.78	-90.00	2,952.91	281.10	1,465.30	1,264.02	201.28	7.280		
12,400.00	10,200.00	10,195.10	10,195.10	49.64	152.78	-90.00	2,952.91	281.10	1,432.60	1,230.84	201.76	7.100		
12,450.00	10,200.00	10,195.10	10,195.10	50.09	152.78	-90.00	2,952.91	281.10	1,400.93	1,198.67	202.26	6.926		
12,500.00	10,200.00	10,195.10	10,195.10	50.53	152.78	-90.00	2,952.91	281.10	1,370.34	1,167.57	202.77	6.758		
12,550.00	10,200.00	10,195.10	10,195.10	50.99	152.78	-90.00	2,952.91	281.10	1,340.93	1,137.62	203.30	6.596		
12,600.00	10,200.00	10,195.10	10,195.10	51.45	152.78	-90.00	2,952.91	281.10	1,312.75	1,108.91	203.84	6.440		
12,650.00	10,200.00	10,195.10	10,195.10	51.93	152.78	-90.00	2,952.91	281.10	1,285.91	1,081.52	204.39	6.291		
12,700.00	10,200.00	10,195.10	10,195.10	52.40	152.78	-90.00	2,952.91	281.10	1,260.48	1,055.53	204.95	6.150		
12,750.00	10,200.00	10,195.10	10,195.10	52.88	152.78	-90.00	2,952.91	281.10	1,236.55	1,031.04	205.50	6.017		
12,800.00	10,200.00	10,195.10	10,195.10	53.37	152.78	-90.00	2,952.91	281.10	1,214.20	1,008.15	206.06	5.893		
12,850.00	10,200.00	10,195.10	10,195.10	53.87	152.78	-90.00	2,952.91	281.10	1,193.54	986.94	206.60	5.777		
12,900.00	10,200.00	10,195.10	10,195.10	54.36	152.78	-90.00	2,952.91	281.10	1,174.64	967.51	207.13	5.671		
12,950.00	10,200.00	10,195.10	10,195.10	54.87	152.78	-90.00	2,952.91	281.10	1,157.59	949.95	207.64	5.575		
13,000.00	10,200.00	10,195.10	10,195.10	55.38	152.78	-90.00	2,952.91	281.10	1,142.48	934.35	208.12	5.489		
13,050.00	10,200.00	10,195.10	10,195.10	55.89	152.78	-90.00	2,952.91	281.10	1,129.38	920.80	208.58	5.415		
13,100.00	10,200.00	10,195.10	10,195.10	56.41	152.78	-90.00	2,952.91	281.10	1,118.37	909.38	208.98	5.351		
13,150.00	10,200.00	10,195.10	10,195.10	56.94	152.78	-90.00	2,952.91	281.10	1,109.50	900.15	209.35	5.300		
13,200.00	10,200.00	10,195.10	10,195.10	57.46	152.78	-90.00	2,952.91	281.10	1,102.83	893.17	209.66	5.260		
13,250.00	10,200.00	10,195.10	10,195.10	58.00	152.78	-90.00	2,952.91	281.10	1,098.39	888.48	209.92	5.233		
13,300.00	10,200.00	10,195.10	10,195.10	58.53	152.78	-90.00	2,952.91	281.10	1,096.23	886.12	210.11	5.217		
13,322.58	10,200.00	10,195.10	10,195.10	58.78	152.78	-90.00	2,952.91	281.10	1,095.99	885.81	210.18	5.215 CC, ES, SF		
13,350.00	10,200.00	10,195.10	10,195.10	59.07	152.78	-90.00	2,952.91	281.10	1,096.34	886.09	210.25	5.215		
13,400.00	10,200.00	10,195.10	10,195.10	59.62	152.78	-90.00	2,952.91	281.10	1,098.72	888.41	210.31	5.224		
13,450.00	10,200.00	10,195.10	10,195.10	60.17	152.78	-90.00	2,952.91	281.10	1,103.38	893.05	210.32	5.246		
13,500.00	10,200.00	10,195.10	10,195.10	60.72	152.78	-90.00	2,952.91	281.10	1,110.26	900.00	210.26	5.280		
13,550.00	10,200.00	10,195.10	10,195.10	61.28	152.78	-90.00	2,952.91	281.10	1,119.34	909.19	210.15	5.326		
13,600.00	10,200.00	10,195.10	10,195.10	61.84	152.78	-90.00	2,952.91	281.10	1,130.56	920.58	209.98	5.384		
13,650.00	10,200.00	10,195.10	10,195.10	62.40	152.78	-90.00	2,952.91	281.10	1,143.86	934.09	209.76	5.453		
13,700.00	10,200.00	10,195.10	10,195.10	62.97	152.78	-90.00	2,952.91	281.10	1,159.16	949.66	209.50	5.533		
13,750.00	10,200.00	10,195.10	10,195.10	63.54	152.78	-90.00	2,952.91	281.10	1,176.39	967.19	209.20	5.623		
13,800.00	10,200.00	10,195.10	10,195.10	64.11	152.78	-90.00	2,952.91	281.10	1,195.46	986.60	208.86	5.724		
13,850.00	10,200.00	10,195.10	10,195.10	64.69	152.78	-90.00	2,952.91	281.10	1,216.29	1,007.79	208.50	5.834		
13,900.00	10,200.00	10,195.10	10,195.10	65.27	152.78	-90.00	2,952.91	281.10	1,238.80	1,030.68	208.12	5.952		
13,950.00	10,200.00	10,195.10	10,195.10	65.85	152.78	-90.00	2,952.91	281.10	1,262.88	1,055.16	207.72	6.080		
14,000.00	10,200.00	10,195.10	10,195.10	66.44	152.78	-90.00	2,952.91	281.10	1,288.45	1,081.14	207.31	6.215		
14,050.00	10,200.00	10,195.10	10,195.10	67.03	152.78	-90.00	2,952.91	281.10	1,315.42	1,108.54	206.89	6.358		
14,100.00	10,200.00	10,195.10	10,195.10	67.62	152.78	-90.00	2,952.91	281.10	1,343.72	1,137.25	206.47	6.508		
14,150.00	10,200.00	10,195.10	10,195.10	68.21	152.78	-90.00	2,952.91	281.10	1,373.25	1,167.21	206.05	6.665		
14,200.00	10,200.00	10,195.10	10,195.10	68.81	152.78	-90.00	2,952.91	281.10	1,403.95	1,198.32	205.63	6.828		
14,250.00	10,200.00	10,195.10	10,195.10	69.41	152.78	-90.00	2,952.91	281.10	1,435.73	1,230.51	205.22	6.996		
14,300.00	10,200.00	10,195.10	10,195.10	70.01	152.78	-90.00	2,952.91	281.10	1,468.52	1,263.70	204.82	7.170		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.00	0.00	0.80	0.80	0.50	0.50	-90.32	-0.33	-60.01	60.01	59.00	1.01	59.615			
50.00	50.00	50.80	50.80	0.50	0.50	-90.32	-0.33	-60.01	60.01	58.97	1.04	57.911			
100.00	100.00	100.80	100.80	0.52	0.52	-90.32	-0.33	-60.01	60.01	58.83	1.18	50.770			
150.00	150.00	150.80	150.80	0.59	0.59	-90.32	-0.33	-60.01	60.01	58.60	1.41	42.675			
200.00	200.00	200.80	200.80	0.70	0.70	-90.32	-0.33	-60.01	60.01	58.33	1.68	35.769			
250.00	250.00	250.80	250.80	0.84	0.84	-90.32	-0.33	-60.01	60.01	58.03	1.98	30.352			
300.00	300.00	300.80	300.80	0.99	0.99	-90.32	-0.33	-60.01	60.01	57.72	2.29	26.165			
350.00	350.00	350.80	350.80	1.15	1.15	-90.32	-0.33	-60.01	60.01	57.39	2.62	22.898			
400.00	400.00	400.80	400.80	1.31	1.31	-90.32	-0.33	-60.01	60.01	57.06	2.96	20.306			
450.00	450.00	450.80	450.80	1.48	1.48	-90.32	-0.33	-60.01	60.01	56.72	3.29	18.213			
500.00	500.00	500.80	500.80	1.65	1.65	-90.32	-0.33	-60.01	60.01	56.37	3.64	16.495			
550.00	550.00	550.80	550.80	1.82	1.82	-90.32	-0.33	-60.01	60.01	56.03	3.98	15.063			
600.00	600.00	600.80	600.80	1.99	1.99	-90.32	-0.33	-60.01	60.01	55.68	4.33	13.853			
650.00	650.00	650.80	650.80	2.16	2.17	-90.32	-0.33	-60.01	60.01	55.33	4.68	12.819			
700.00	700.00	700.80	700.80	2.34	2.34	-90.32	-0.33	-60.01	60.01	54.98	5.03	11.925			
750.00	750.00	750.80	750.80	2.51	2.52	-90.32	-0.33	-60.01	60.01	54.63	5.38	11.146			
800.00	800.00	800.80	800.80	2.69	2.69	-90.32	-0.33	-60.01	60.01	54.27	5.74	10.461			
850.00	850.00	850.80	850.80	2.87	2.87	-90.32	-0.33	-60.01	60.01	53.92	6.09	9.854			
900.00	900.00	900.80	900.80	3.04	3.05	-90.32	-0.33	-60.01	60.01	53.57	6.44	9.313			
950.00	950.00	950.80	950.80	3.22	3.22	-90.32	-0.33	-60.01	60.01	53.21	6.80	8.828			
1,000.00	1,000.00	1,000.80	1,000.80	3.40	3.40	-90.32	-0.33	-60.01	60.01	52.86	7.15	8.390			
1,050.00	1,050.00	1,050.80	1,050.80	3.58	3.58	-90.32	-0.33	-60.01	60.01	52.50	7.51	7.993			
1,100.00	1,100.00	1,100.80	1,100.80	3.75	3.76	-90.32	-0.33	-60.01	60.01	52.15	7.86	7.632			
1,150.00	1,150.00	1,150.80	1,150.80	3.93	3.93	-90.32	-0.33	-60.01	60.01	51.79	8.22	7.301			
1,200.00	1,200.00	1,200.80	1,200.80	4.11	4.11	-90.32	-0.33	-60.01	60.01	51.44	8.58	6.998			
1,250.00	1,250.00	1,250.80	1,250.80	4.29	4.29	-90.32	-0.33	-60.01	60.01	51.08	8.93	6.719			
1,300.00	1,300.00	1,300.80	1,300.80	4.46	4.47	-90.32	-0.33	-60.01	60.01	50.72	9.29	6.461			
1,350.00	1,350.00	1,350.80	1,350.80	4.64	4.65	-90.32	-0.33	-60.01	60.01	50.37	9.64	6.223			
1,400.00	1,400.00	1,400.80	1,400.80	4.82	4.82	-90.32	-0.33	-60.01	60.01	50.01	10.00	6.001			
1,450.00	1,450.00	1,450.80	1,450.80	5.00	5.00	-90.32	-0.33	-60.01	60.01	49.65	10.36	5.794			
1,500.00	1,500.00	1,500.80	1,500.80	5.18	5.18	-90.32	-0.33	-60.01	60.01	49.30	10.71	5.601			
1,550.00	1,550.00	1,550.80	1,550.80	5.36	5.36	-90.32	-0.33	-60.01	60.01	48.94	11.07	5.421			
1,600.00	1,600.00	1,600.80	1,600.80	5.53	5.54	-90.32	-0.33	-60.01	60.01	48.58	11.43	5.251			
1,650.00	1,650.00	1,650.80	1,650.80	5.71	5.72	-90.32	-0.33	-60.01	60.01	48.23	11.79	5.092			
1,700.00	1,700.00	1,700.80	1,700.80	5.89	5.89	-90.32	-0.33	-60.01	60.01	47.87	12.14	4.942 Alert			
1,750.00	1,750.00	1,750.80	1,750.80	6.07	6.07	-90.32	-0.33	-60.01	60.01	47.51	12.50	4.801 Alert			
1,800.00	1,800.00	1,800.80	1,800.80	6.25	6.25	-90.32	-0.33	-60.01	60.01	47.15	12.86	4.668 Alert			
1,850.00	1,850.00	1,850.80	1,850.80	6.43	6.43	-90.32	-0.33	-60.01	60.01	46.80	13.21	4.541 Alert			
1,900.00	1,900.00	1,900.80	1,900.80	6.61	6.61	-90.32	-0.33	-60.01	60.01	46.44	13.57	4.422 Alert			
1,950.00	1,950.00	1,950.80	1,950.80	6.78	6.79	-90.32	-0.33	-60.01	60.01	46.08	13.93	4.308 Alert			
2,000.00	2,000.00	2,000.80	2,000.80	6.96	6.97	-90.32	-0.33	-60.01	60.01	45.72	14.29	4.200 Alert			
2,050.00	2,050.00	2,050.80	2,050.80	7.14	7.15	-90.32	-0.33	-60.01	60.01	45.37	14.64	4.098 Alert			
2,100.00	2,100.00	2,100.80	2,100.80	7.32	7.32	-90.32	-0.33	-60.01	60.01	45.01	15.00	4.000 Alert			
2,150.00	2,150.00	2,150.80	2,150.80	7.50	7.50	-90.32	-0.33	-60.01	60.01	44.65	15.36	3.907 Alert			
2,200.00	2,200.00	2,200.80	2,200.80	7.68	7.68	-90.32	-0.33	-60.01	60.01	44.29	15.72	3.818 Alert			
2,250.00	2,250.00	2,250.80	2,250.80	7.86	7.86	-90.32	-0.33	-60.01	60.01	43.94	16.08	3.733 Alert			
2,300.00	2,300.00	2,300.80	2,300.80	8.04	8.04	-90.32	-0.33	-60.01	60.01	43.58	16.43	3.652 Alert			
2,350.00	2,350.00	2,350.80	2,350.80	8.22	8.22	-90.32	-0.33	-60.01	60.01	43.22	16.79	3.574 Alert			
2,400.00	2,400.00	2,400.80	2,400.80	8.39	8.40	-90.32	-0.33	-60.01	60.01	42.86	17.15	3.499 Alert			
2,450.00	2,450.00	2,450.80	2,450.80	8.57	8.58	-90.32	-0.33	-60.01	60.01	42.50	17.51	3.428 Alert, CC			
2,500.00	2,500.00	2,500.80	2,500.80	8.75	8.75	-90.32	-0.33	-60.01	60.01	42.14	17.86	3.372 Alert, ES			
2,550.00	2,550.00	2,550.80	2,550.80	8.93	8.93	187.68	-0.33	-60.01	60.22	42.36	17.86	3.372 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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 State 231H - Wellbore #1 - Permit Plan 1													0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error:	
Reference													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)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,599.99	2,600.79	2,600.79	9.10	9.11	167.81		-0.33	-60.01	60.86	42.65	18.21	3.342	Alert
2,650.00	2,649.98	2,650.78	2,650.78	9.27	9.29	168.02		-0.33	-60.01	61.93	43.37	18.56	3.337	Alert, SF
2,700.00	2,699.96	2,700.31	2,700.31	9.44	9.46	168.18		-0.46	-60.19	63.61	44.71	18.90	3.366	Alert
2,750.00	2,749.92	2,749.79	2,749.79	9.61	9.63	168.19		-0.84	-60.72	66.06	46.83	19.23	3.435	Alert
2,800.00	2,799.86	2,799.22	2,799.20	9.78	9.79	168.07		-1.47	-61.59	69.28	49.73	19.56	3.542	Alert
2,850.00	2,849.78	2,848.56	2,848.52	9.95	9.95	167.83		-2.34	-62.81	73.29	53.40	19.89	3.685	Alert
2,900.00	2,899.68	2,897.79	2,897.72	10.12	10.12	167.50		-3.45	-64.37	78.07	57.85	20.22	3.861	Alert
2,950.00	2,949.54	2,946.91	2,946.78	10.29	10.28	167.10		-4.81	-66.26	83.62	63.07	20.55	4.070	Alert
3,000.00	2,999.37	2,995.90	2,995.69	10.46	10.45	166.66		-6.41	-68.50	89.95	69.08	20.87	4.309	Alert
3,050.00	3,049.16	3,044.72	3,044.41	10.64	10.61	166.20		-8.25	-71.06	97.05	75.85	21.20	4.578	Alert
3,100.00	3,098.90	3,093.44	3,093.00	10.81	10.77	165.72		-10.32	-73.95	104.93	83.40	21.53	4.874	Alert
3,150.00	3,148.61	3,142.72	3,142.13	10.99	10.94	165.31		-12.52	-77.02	113.38	91.52	21.86	5.186	
3,200.00	3,198.26	3,208.08	3,191.19	11.16	11.16	165.01		-14.71	-80.09	122.24	99.99	22.25	5.493	
3,250.00	3,247.86	3,241.05	3,240.18	11.34	11.28	164.79		-16.90	-83.15	131.53	108.99	22.54	5.836	
3,300.00	3,297.40	3,309.90	3,289.08	11.52	11.51	164.64		-19.09	-86.20	141.22	118.28	22.94	6.156	
3,350.00	3,346.89	3,339.07	3,337.90	11.70	11.61	164.56		-21.27	-89.25	151.33	128.12	23.21	6.520	
3,400.00	3,396.30	3,387.95	3,386.64	11.88	11.78	164.52		-23.45	-92.29	161.85	138.31	23.55	6.874	
3,450.00	3,445.65	3,436.74	3,435.29	12.06	11.95	164.52		-25.63	-95.33	172.79	148.90	23.88	7.234	
3,500.00	3,494.93	3,485.43	3,483.84	12.24	12.12	164.55		-27.80	-98.36	184.13	159.91	24.22	7.602	
3,550.00	3,544.13	3,534.03	3,532.30	12.43	12.28	164.61		-29.97	-101.39	195.88	171.32	24.56	7.975	
3,600.00	3,593.26	3,582.53	3,580.65	12.62	12.45	164.69		-32.13	-104.41	208.04	183.14	24.90	8.356	
3,650.00	3,642.30	3,630.93	3,628.91	12.81	12.62	164.80		-34.29	-107.42	220.58	195.34	25.24	8.740	
3,700.00	3,691.33	3,679.31	3,677.15	13.00	12.79	164.92		-36.44	-110.44	233.19	207.61	25.58	9.118	
3,750.00	3,740.36	3,727.69	3,725.39	13.19	12.96	165.03		-38.60	-113.45	245.80	219.89	25.91	9.485	
3,800.00	3,789.39	3,776.07	3,773.63	13.38	13.13	165.13		-40.76	-116.46	258.42	232.16	26.25	9.843	
3,850.00	3,838.42	3,824.45	3,821.86	13.57	13.30	165.22		-42.92	-119.47	271.03	244.44	26.60	10.191	
3,900.00	3,887.45	3,872.83	3,870.10	13.77	13.47	165.30		-45.07	-122.49	283.65	256.71	26.94	10.530	
3,950.00	3,936.48	3,921.22	3,918.34	13.96	13.64	165.38		-47.23	-125.50	296.26	268.98	27.28	10.861	
4,000.00	3,985.51	3,969.60	3,966.58	14.16	13.81	165.44		-49.39	-128.51	308.88	281.26	27.62	11.183	
4,050.00	4,034.54	4,017.98	4,014.82	14.36	13.98	165.51		-51.55	-131.52	321.49	293.53	27.96	11.497	
4,100.00	4,083.58	4,066.36	4,063.06	14.56	14.15	165.56		-53.70	-134.54	334.11	305.80	28.31	11.803	
4,150.00	4,132.61	4,114.74	4,111.30	14.76	14.32	165.62		-55.86	-137.55	346.73	318.07	28.65	12.101	
4,200.00	4,181.64	4,163.12	4,159.54	14.96	14.50	165.67		-58.02	-140.56	359.34	330.35	29.00	12.392	
4,250.00	4,230.67	4,211.50	4,207.77	15.16	14.67	165.71		-60.18	-143.57	371.96	342.62	29.34	12.676	
4,300.00	4,279.70	4,259.88	4,256.01	15.36	14.84	165.76		-62.33	-146.59	384.58	354.89	29.69	12.953	
4,350.00	4,328.73	4,308.26	4,304.25	15.56	15.01	165.80		-64.48	-149.60	397.20	367.16	30.04	13.224	
4,400.00	4,377.76	4,356.64	4,352.49	15.77	15.18	165.84		-66.65	-152.61	409.82	379.43	30.38	13.488	
4,450.00	4,426.79	4,405.03	4,400.73	15.97	15.36	165.87		-68.81	-155.62	422.43	391.70	30.73	13.746	
4,500.00	4,475.82	4,453.41	4,448.97	16.18	15.53	165.91		-70.96	-158.64	435.05	403.97	31.08	13.998	
4,550.00	4,524.85	4,501.79	4,497.21	16.38	15.70	165.94		-73.12	-161.65	447.67	416.24	31.43	14.244	
4,600.00	4,573.88	4,550.17	4,545.45	16.59	15.88	165.97		-75.28	-164.66	460.29	428.51	31.78	14.485	
4,650.00	4,622.91	4,601.45	4,593.69	16.80	16.06	166.00		-77.43	-167.67	472.91	440.77	32.14	14.716	
4,700.00	4,671.94	4,646.93	4,641.92	17.00	16.22	166.02		-79.59	-170.69	485.53	453.05	32.48	14.950	
4,750.00	4,720.97	4,704.69	4,690.16	17.21	16.43	166.05		-81.75	-173.70	498.15	465.29	32.86	15.160	
4,800.00	4,770.00	4,743.69	4,738.40	17.42	16.57	166.08		-83.91	-176.71	510.77	477.59	33.18	15.395	
4,850.00	4,819.03	4,807.93	4,786.64	17.63	16.80	166.10		-86.06	-179.73	523.38	489.80	33.58	15.584	
4,900.00	4,868.06	4,840.45	4,834.88	17.84	16.92	166.12		-88.22	-182.74	536.00	502.12	33.88	15.821	
4,950.00	4,917.09	4,888.83	4,883.12	18.05	17.09	166.14		-90.38	-185.75	548.62	514.39	34.23	16.027	
5,000.00	4,966.12	4,937.22	4,931.36	18.26	17.27	166.16		-92.54	-188.76	561.24	526.66	34.58	16.229	
5,050.00	5,015.15	4,985.60	4,979.60	18.47	17.44	166.18		-94.69	-191.78	573.86	538.93	34.94	16.426	
5,100.00	5,064.19	5,033.98	5,027.84	18.68	17.62	166.20		-96.85	-194.79	586.48	551.19	35.29	16.620	
5,150.00	5,113.22	5,082.36	5,076.07	18.89	17.79	166.22		-99.01	-197.80	599.10	563.46	35.64	16.809	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,200.00	5,162.25	5,130.74	5,124.31	19.10	17.97	166.23	-101.17	-200.81	611.72	575.73	35.99	16.995			
5,250.00	5,211.28	5,179.12	5,172.55	19.32	18.14	166.25	-103.32	-203.83	624.34	587.99	36.35	17.176			
5,300.00	5,260.31	5,227.50	5,220.79	19.53	18.32	166.27	-105.48	-206.84	636.96	600.26	36.70	17.355			
5,350.00	5,309.34	5,275.88	5,269.03	19.74	18.50	166.28	-107.64	-209.85	649.58	612.52	37.06	17.529			
5,400.00	5,358.37	5,324.26	5,317.27	19.96	18.67	166.30	-109.80	-212.86	662.20	624.79	37.41	17.700			
5,450.00	5,407.40	5,372.64	5,365.51	20.17	18.85	166.31	-111.95	-215.88	674.82	637.05	37.77	17.868			
5,500.00	5,456.43	5,421.03	5,413.75	20.38	19.02	166.32	-114.11	-218.89	687.44	649.32	38.12	18.033			
5,550.00	5,505.46	5,469.41	5,461.98	20.60	19.20	166.34	-116.27	-221.90	700.06	661.58	38.48	18.194			
5,600.00	5,554.49	5,517.79	5,510.22	20.81	19.37	166.35	-118.42	-224.91	712.68	673.85	38.83	18.353			
5,650.00	5,603.52	5,566.17	5,558.46	21.03	19.55	166.36	-120.58	-227.93	725.30	686.11	39.19	18.508			
5,700.00	5,652.55	5,614.55	5,606.70	21.24	19.73	166.37	-122.74	-230.94	737.92	698.37	39.54	18.661			
5,750.00	5,701.58	5,662.93	5,654.94	21.46	19.90	166.38	-124.90	-233.95	750.54	710.64	39.90	18.810			
5,800.00	5,750.61	5,711.31	5,703.18	21.68	20.08	166.39	-127.05	-236.97	763.16	722.90	40.26	18.957			
5,850.00	5,799.64	5,759.69	5,751.42	21.89	20.26	166.41	-129.21	-239.98	775.78	735.16	40.61	19.101			
5,900.00	5,848.67	5,808.07	5,799.66	22.11	20.43	166.42	-131.37	-242.99	788.40	747.43	40.97	19.243			
5,950.00	5,897.70	5,856.45	5,847.90	22.32	20.61	166.43	-133.53	-246.00	801.02	759.69	41.33	19.382			
6,000.00	5,946.73	5,904.83	5,896.13	22.54	20.79	166.43	-135.68	-249.02	813.64	771.95	41.69	19.519			
6,050.00	5,995.76	5,953.22	5,944.37	22.76	20.96	166.44	-137.84	-252.03	826.26	784.22	42.04	19.653			
6,100.00	6,044.80	6,001.60	5,992.61	22.98	21.14	166.45	-140.00	-255.04	838.88	796.48	42.40	19.785			
6,150.00	6,093.83	6,049.98	6,040.85	23.19	21.32	166.46	-142.16	-258.05	851.50	808.74	42.76	19.914			
6,200.00	6,142.86	6,101.64	6,089.09	23.41	21.51	166.47	-144.31	-261.07	864.12	820.99	43.13	20.036			
6,250.00	6,191.89	6,146.74	6,137.33	23.63	21.67	166.48	-146.47	-264.08	876.74	833.26	43.48	20.167			
6,300.00	6,240.92	6,204.88	6,185.57	23.85	21.89	166.49	-148.63	-267.09	889.36	845.49	43.87	20.273			
6,350.00	6,289.95	6,243.50	6,233.81	24.07	22.03	166.49	-150.79	-270.10	901.98	857.79	44.19	20.410			
6,400.00	6,338.98	6,308.12	6,282.05	24.29	22.26	166.50	-152.94	-273.12	914.60	869.99	44.61	20.502			
6,450.00	6,388.01	6,340.26	6,330.28	24.51	22.38	166.51	-155.10	-276.13	927.22	882.31	44.91	20.646			
6,500.00	6,437.04	6,388.64	6,378.52	24.72	22.56	166.52	-157.26	-279.14	939.84	894.57	45.27	20.761			
6,550.00	6,486.07	6,437.03	6,426.76	24.94	22.74	166.52	-159.42	-282.15	952.46	906.83	45.63	20.874			
6,600.00	6,535.10	6,485.41	6,475.00	25.16	22.91	166.53	-161.57	-285.17	965.08	919.09	45.99	20.985			
6,650.00	6,584.13	6,533.79	6,523.24	25.38	23.09	166.54	-163.73	-288.18	977.70	931.35	46.35	21.095			
6,700.00	6,633.16	6,582.17	6,571.48	25.60	23.27	166.54	-165.89	-291.19	990.32	943.61	46.71	21.203			
6,750.00	6,682.19	6,630.55	6,619.72	25.82	23.45	166.55	-168.04	-294.21	1,002.94	955.87	47.07	21.309			
6,800.00	6,731.22	6,678.93	6,667.96	26.04	23.63	166.56	-170.20	-297.22	1,015.56	968.13	47.43	21.413			
6,850.00	6,780.25	6,727.31	6,716.19	26.26	23.80	166.56	-172.36	-300.23	1,028.18	980.39	47.79	21.515			
6,900.00	6,829.28	6,775.69	6,764.43	26.48	23.98	166.57	-174.52	-303.24	1,040.80	992.65	48.15	21.617			
6,950.00	6,878.31	6,824.07	6,812.67	26.70	24.16	166.57	-176.67	-306.26	1,053.42	1,004.91	48.51	21.716			
7,000.00	6,927.34	6,872.45	6,860.91	26.92	24.34	166.58	-178.83	-309.27	1,066.04	1,017.17	48.87	21.814			
7,050.00	6,976.37	6,920.83	6,909.15	27.15	24.52	166.58	-180.99	-312.28	1,078.66	1,029.43	49.23	21.910			
7,100.00	7,025.41	6,969.22	6,957.39	27.37	24.69	166.59	-183.15	-315.29	1,091.28	1,041.69	49.59	22.006			
7,150.00	7,074.44	7,017.60	7,005.63	27.59	24.87	166.59	-185.30	-318.31	1,103.90	1,053.95	49.95	22.099			
7,200.00	7,123.47	7,065.98	7,053.87	27.81	25.05	166.60	-187.46	-321.32	1,116.53	1,066.21	50.31	22.191			
7,250.00	7,172.50	7,114.36	7,102.11	28.03	25.23	166.60	-189.62	-324.33	1,129.15	1,078.47	50.68	22.282			
7,300.00	7,221.53	7,162.74	7,150.34	28.25	25.41	166.61	-191.78	-327.34	1,141.77	1,090.73	51.04	22.372			
7,350.00	7,270.56	7,211.12	7,198.58	28.47	25.59	166.61	-193.93	-330.36	1,154.39	1,102.99	51.40	22.460			
7,400.00	7,319.59	7,259.50	7,246.82	28.69	25.76	166.62	-196.09	-333.37	1,167.01	1,115.25	51.76	22.547			
7,450.00	7,368.62	7,307.88	7,295.06	28.92	25.94	166.62	-198.25	-336.38	1,179.63	1,127.51	52.12	22.632			
7,500.00	7,417.65	7,356.26	7,343.30	29.14	26.12	166.63	-200.41	-339.39	1,192.25	1,139.76	52.48	22.717			
7,550.00	7,466.68	7,404.64	7,391.54	29.36	26.30	166.63	-202.56	-342.41	1,204.87	1,152.02	52.85	22.800			
7,600.00	7,515.71	7,453.03	7,439.78	29.58	26.48	166.64	-204.72	-345.42	1,217.49	1,164.28	53.21	22.882			
7,650.00	7,564.74	7,501.41	7,488.02	29.81	26.66	166.64	-206.88	-348.43	1,230.11	1,176.54	53.57	22.963			
7,700.00	7,613.77	7,549.79	7,536.26	30.03	26.84	166.64	-209.03	-351.45	1,242.73	1,188.80	53.93	23.042			
7,750.00	7,662.80	7,601.83	7,584.49	30.25	27.03	166.65	-211.19	-354.46	1,255.35	1,201.04	54.31	23.115			

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 State 231H - Wellbore #1 - Permit Plan 1		Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM																Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis				Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning				
7,800.00	7,711.83	7,846.55	7,832.73	30.47	27.19	166.65	-213.35	-357.47	1,267.97	1,213.31	54.66	23.199					
7,850.00	7,760.86	7,705.07	7,680.97	30.70	27.41	166.66	-215.51	-360.48	1,280.59	1,225.53	55.06	23.259					
7,900.00	7,809.89	7,743.31	7,729.21	30.92	27.55	166.66	-217.66	-363.50	1,293.21	1,237.83	55.38	23.350					
7,950.00	7,858.92	7,808.31	7,777.45	31.14	27.79	166.66	-219.82	-366.51	1,305.83	1,250.03	55.81	23.399					
8,000.00	7,907.95	7,840.07	7,825.69	31.36	27.91	166.67	-221.98	-369.52	1,318.45	1,262.34	56.11	23.498					
8,050.00	7,956.98	7,888.45	7,873.93	31.59	28.09	166.67	-224.14	-372.53	1,331.07	1,274.60	56.47	23.571					
8,100.00	8,006.01	7,936.83	7,922.17	31.81	28.27	166.67	-226.29	-375.55	1,343.69	1,286.86	56.84	23.642					
8,150.00	8,055.05	7,985.22	7,970.40	32.03	28.45	166.68	-228.45	-378.56	1,356.31	1,299.12	57.20	23.712					
8,200.00	8,104.08	8,033.60	8,018.64	32.26	28.62	166.68	-230.61	-381.57	1,368.93	1,311.37	57.56	23.782					
8,250.00	8,153.11	8,081.98	8,066.88	32.48	28.80	166.68	-232.77	-384.58	1,381.56	1,323.63	57.93	23.851					
8,300.00	8,202.14	8,130.36	8,115.12	32.70	28.98	166.69	-234.92	-387.60	1,394.18	1,335.89	58.29	23.918					
8,350.00	8,251.17	8,178.74	8,163.36	32.93	29.16	166.69	-237.08	-390.61	1,406.80	1,348.14	58.65	23.985					
8,400.00	8,300.20	8,227.12	8,211.60	33.15	29.34	166.69	-239.24	-393.62	1,419.42	1,360.40	59.02	24.051					
8,450.00	8,349.23	8,275.50	8,259.84	33.37	29.52	166.70	-241.40	-396.63	1,432.04	1,372.66	59.38	24.116					
8,500.00	8,398.26	8,323.88	8,308.08	33.60	29.70	166.70	-243.55	-399.65	1,444.66	1,384.91	59.74	24.181					
8,550.00	8,447.29	8,372.26	8,356.32	33.82	29.88	166.70	-245.71	-402.66	1,457.28	1,397.17	60.11	24.244					
8,600.00	8,496.32	8,420.64	8,404.55	34.05	30.06	166.71	-247.87	-405.67	1,469.90	1,409.43	60.47	24.307					
8,650.00	8,545.35	8,469.03	8,452.79	34.27	30.24	166.71	-250.03	-408.69	1,482.52	1,421.68	60.84	24.369					
8,700.00	8,594.38	8,517.41	8,501.03	34.49	30.42	166.71	-252.18	-411.70	1,495.14	1,433.94	61.20	24.430					

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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:	
Survey Program: 0-MWD+IFR1													Offset Well Error:	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.40	0.40	0.50	0.50	-90.32	-0.17	-30.02	30.02					
50.00	50.00	50.40	50.40	0.50	0.50	-90.32	-0.17	-30.02	30.02	29.01	1.01	29.824		
100.00	100.00	100.40	100.40	0.52	0.52	-90.32	-0.17	-30.02	30.02	28.98	1.04	28.981		
150.00	150.00	150.40	150.40	0.59	0.59	-90.32	-0.17	-30.02	30.02	28.84	1.18	25.414		
200.00	200.00	200.40	200.40	0.70	0.70	-90.32	-0.17	-30.02	30.02	28.82	1.41	21.364		
250.00	250.00	250.40	250.40	0.84	0.84	-90.32	-0.17	-30.02	30.02	28.34	1.68	17.906		
300.00	300.00	300.40	300.40	0.99	0.99	-90.32	-0.17	-30.02	30.02	28.04	1.98	15.193		
350.00	350.00	350.40	350.40	1.15	1.15	-90.32	-0.17	-30.02	30.02	27.73	2.29	13.096		
400.00	400.00	400.40	400.40	1.31	1.31	-90.32	-0.17	-30.02	30.02	27.40	2.62	11.460		
450.00	450.00	450.40	450.40	1.48	1.48	-90.32	-0.17	-30.02	30.02	27.07	2.95	10.163		
500.00	500.00	500.40	500.40	1.65	1.65	-90.32	-0.17	-30.02	30.02	26.73	3.29	9.115		
550.00	550.00	550.40	550.40	1.82	1.82	-90.32	-0.17	-30.02	30.02	26.38	3.64	8.255		
600.00	600.00	600.40	600.40	1.99	1.99	-90.32	-0.17	-30.02	30.02	26.04	3.98	7.538		
650.00	650.00	650.40	650.40	2.16	2.17	-90.32	-0.17	-30.02	30.02	25.69	4.33	6.932		
700.00	700.00	700.40	700.40	2.34	2.34	-90.32	-0.17	-30.02	30.02	25.34	4.68	6.415		
750.00	750.00	750.40	750.40	2.51	2.52	-90.32	-0.17	-30.02	30.02	24.99	5.03	5.967		
800.00	800.00	800.40	800.40	2.69	2.69	-90.32	-0.17	-30.02	30.02	24.64	5.38	5.577		
850.00	850.00	850.40	850.40	2.87	2.87	-90.32	-0.17	-30.02	30.02	24.29	5.74	5.234		
900.00	900.00	900.40	900.40	3.04	3.04	-90.32	-0.17	-30.02	30.02	23.93	6.09	4.931 Alert		
950.00	950.00	950.40	950.40	3.22	3.22	-90.32	-0.17	-30.02	30.02	23.58	6.44	4.660 Alert		
1,000.00	1,000.00	1,000.40	1,000.40	3.40	3.40	-90.32	-0.17	-30.02	30.02	23.22	6.80	4.417 Alert		
1,050.00	1,050.00	1,050.40	1,050.40	3.58	3.58	-90.32	-0.17	-30.02	30.02	22.87	7.15	4.198 Alert		
1,100.00	1,100.00	1,100.40	1,100.40	3.75	3.75	-90.32	-0.17	-30.02	30.02	22.51	7.51	3.999 Alert		
1,150.00	1,150.00	1,150.40	1,150.40	3.93	3.93	-90.32	-0.17	-30.02	30.02	22.16	7.86	3.818 Alert		
1,200.00	1,200.00	1,200.40	1,200.40	4.11	4.11	-90.32	-0.17	-30.02	30.02	21.80	8.22	3.653 Alert		
1,250.00	1,250.00	1,250.40	1,250.40	4.29	4.29	-90.32	-0.17	-30.02	30.02	21.45	8.57	3.501 Alert		
1,300.00	1,300.00	1,300.40	1,300.40	4.46	4.47	-90.32	-0.17	-30.02	30.02	21.09	8.93	3.382 Alert		
1,350.00	1,350.00	1,350.40	1,350.40	4.64	4.64	-90.32	-0.17	-30.02	30.02	20.73	9.29	3.233 Alert		
1,400.00	1,400.00	1,400.40	1,400.40	4.82	4.82	-90.32	-0.17	-30.02	30.02	20.38	9.64	3.113 Alert		
1,450.00	1,450.00	1,450.40	1,450.40	5.00	5.00	-90.32	-0.17	-30.02	30.02	20.02	10.00	3.002 Alert		
1,500.00	1,500.00	1,500.40	1,500.40	5.18	5.18	-90.32	-0.17	-30.02	30.02	19.66	10.36	2.899 Alert		
1,550.00	1,550.00	1,550.40	1,550.40	5.36	5.36	-90.32	-0.17	-30.02	30.02	19.31	10.71	2.802 Alert		
1,600.00	1,600.00	1,600.40	1,600.40	5.53	5.54	-90.32	-0.17	-30.02	30.02	18.95	11.07	2.712 Alert		
1,650.00	1,650.00	1,650.40	1,650.40	5.71	5.71	-90.32	-0.17	-30.02	30.02	18.59	11.43	2.627 Alert		
1,700.00	1,700.00	1,700.40	1,700.40	5.89	5.89	-90.32	-0.17	-30.02	30.02	18.24	11.78	2.548 Alert		
1,750.00	1,750.00	1,750.40	1,750.40	6.07	6.07	-90.32	-0.17	-30.02	30.02	17.88	12.14	2.473 Minor Risk		
1,800.00	1,800.00	1,800.40	1,800.40	6.25	6.25	-90.32	-0.17	-30.02	30.02	17.52	12.50	2.402 Minor Risk		
1,850.00	1,850.00	1,850.40	1,850.40	6.43	6.43	-90.32	-0.17	-30.02	30.02	17.16	12.86	2.335 Minor Risk		
1,900.00	1,900.00	1,900.40	1,900.40	6.61	6.61	-90.32	-0.17	-30.02	30.02	16.81	13.21	2.272 Minor Risk		
1,950.00	1,950.00	1,950.40	1,950.40	6.78	6.79	-90.32	-0.17	-30.02	30.02	16.45	13.57	2.212 Minor Risk		
2,000.00	2,000.00	2,000.40	2,000.40	6.96	6.96	-90.32	-0.17	-30.02	30.02	16.09	13.93	2.155 Minor Risk		
2,050.00	2,050.00	2,050.40	2,050.40	7.14	7.14	-90.32	-0.17	-30.02	30.02	15.73	14.29	2.101 Minor Risk		
2,100.00	2,100.00	2,100.40	2,100.40	7.32	7.32	-90.32	-0.17	-30.02	30.02	15.38	14.64	2.050 Minor Risk		
2,150.00	2,150.00	2,150.40	2,150.40	7.50	7.50	-90.32	-0.17	-30.02	30.02	15.02	15.00	2.001 Minor Risk		
2,200.00	2,200.00	2,200.40	2,200.40	7.68	7.68	-90.32	-0.17	-30.02	30.02	14.66	15.36	1.955 Minor Risk		
2,250.00	2,250.00	2,250.40	2,250.40	7.86	7.86	-90.32	-0.17	-30.02	30.02	14.30	15.72	1.910 Minor Risk		
2,300.00	2,300.00	2,300.40	2,300.40	8.04	8.04	-90.32	-0.17	-30.02	30.02	13.95	16.07	1.868 Minor Risk		
2,350.00	2,350.00	2,350.40	2,350.40	8.22	8.22	-90.32	-0.17	-30.02	30.02	13.59	16.43	1.827 Minor Risk		
2,400.00	2,400.00	2,400.40	2,400.40	8.39	8.40	-90.32	-0.17	-30.02	30.02	13.23	16.79	1.788 Minor Risk		
2,450.00	2,450.00	2,450.40	2,450.40	8.57	8.57	-90.32	-0.17	-30.02	30.02	12.87	17.15	1.751 Minor Risk		
2,500.00	2,500.00	2,500.40	2,500.40	8.75	8.75	-90.32	-0.17	-30.02	30.02	12.52	17.51	1.715 Minor Risk, CC		
2,550.00	2,550.00	2,550.40	2,550.40	8.93	8.93	167.72	-0.17	-30.02	30.23	12.38	17.86	1.693 Minor Risk, ES, SF		

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

Anticollision Report

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Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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		Offset		Semi Major Axis		Highside Toothface (°)	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)					
2,600.00	2,599.99	2,600.39	2,600.39	9.10	9.11	167.98	-0.17	-30.02	30.87	12.66	18.21	1.695	Minor Risk		
2,650.00	2,649.98	2,650.38	2,650.38	9.27	9.29	168.39	-0.17	-30.02	31.94	13.38	18.56	1.721	Minor Risk		
2,700.00	2,699.96	2,700.36	2,700.36	9.44	9.47	168.91	-0.17	-30.02	33.44	14.53	18.91	1.769	Minor Risk		
2,750.00	2,749.92	2,750.32	2,750.32	9.61	9.65	169.52	-0.17	-30.02	35.37	16.11	19.25	1.837	Minor Risk		
2,800.00	2,799.86	2,800.26	2,800.26	9.78	9.83	170.18	-0.17	-30.02	37.73	18.13	19.60	1.925	Minor Risk		
2,850.00	2,849.78	2,850.18	2,850.18	9.95	10.01	170.86	-0.17	-30.02	40.52	20.57	19.95	2.031	Minor Risk		
2,900.00	2,899.68	2,900.08	2,900.08	10.12	10.18	171.53	-0.17	-30.02	43.76	23.46	20.30	2.156	Minor Risk		
2,950.00	2,949.54	2,949.94	2,949.94	10.29	10.36	172.19	-0.17	-30.02	47.42	26.78	20.65	2.297	Minor Risk		
3,000.00	2,999.37	3,000.23	2,999.77	10.46	10.54	172.81	-0.17	-30.02	51.53	30.53	21.00	2.454	Minor Risk		
3,050.00	3,049.16	3,049.56	3,049.56	10.64	10.72	173.39	-0.17	-30.02	56.07	34.73	21.35	2.627	Alert		
3,100.00	3,098.90	3,100.70	3,099.30	10.81	10.90	173.92	-0.17	-30.02	61.05	39.35	21.70	2.813	Alert		
3,150.00	3,148.61	3,149.01	3,149.01	10.99	11.08	174.41	-0.17	-30.02	66.47	44.42	22.04	3.015	Alert		
3,200.00	3,198.26	3,201.34	3,198.66	11.16	11.26	174.86	-0.17	-30.02	72.32	49.92	22.40	3.228	Alert		
3,250.00	3,247.86	3,248.26	3,248.26	11.34	11.43	175.27	-0.17	-30.02	78.60	55.86	22.74	3.456	Alert		
3,300.00	3,297.40	3,302.20	3,297.80	11.52	11.62	175.64	-0.17	-30.02	85.33	62.22	23.11	3.693	Alert		
3,350.00	3,346.89	3,347.29	3,347.29	11.70	11.79	175.97	-0.17	-30.02	92.48	69.04	23.44	3.946	Alert		
3,400.00	3,396.30	3,403.30	3,396.70	11.88	11.99	176.27	-0.17	-30.02	100.07	76.26	23.81	4.203	Alert		
3,450.00	3,445.65	3,446.05	3,446.05	12.06	12.14	176.54	-0.17	-30.02	108.09	83.96	24.14	4.478	Alert		
3,500.00	3,494.93	3,504.67	3,495.33	12.24	12.35	176.79	-0.17	-30.02	116.55	92.03	24.52	4.753	Alert		
3,550.00	3,544.13	3,544.53	3,544.53	12.43	12.49	177.01	-0.17	-30.02	125.43	100.60	24.83	5.051			
3,600.00	3,593.26	3,606.35	3,593.66	12.62	12.71	177.21	-0.17	-30.02	134.75	109.52	25.23	5.341			
3,650.00	3,642.30	3,642.70	3,642.70	12.81	12.84	177.40	-0.17	-30.02	144.46	118.93	25.53	5.658			
3,700.00	3,691.33	3,708.27	3,691.73	13.00	13.08	177.56	-0.17	-30.02	154.25	128.31	25.94	5.947			
3,750.00	3,740.36	3,740.76	3,740.76	13.19	13.19	177.71	-0.17	-30.02	164.04	137.81	26.23	6.254			
3,800.00	3,789.39	3,789.79	3,789.79	13.38	13.37	177.84	-0.17	-30.02	173.83	147.25	26.58	6.541			
3,850.00	3,838.42	3,840.41	3,840.41	13.57	13.55	177.95	-0.23	-29.85	183.45	156.52	26.93	6.813			
3,900.00	3,887.45	3,891.63	3,891.63	13.77	13.72	178.01	-0.50	-29.17	192.55	165.27	27.28	7.058			
3,950.00	3,936.48	3,943.06	3,943.03	13.96	13.90	178.04	-0.99	-27.94	201.11	173.48	27.63	7.279			
4,000.00	3,985.51	3,994.67	3,994.62	14.16	14.07	178.03	-1.69	-26.18	209.13	181.16	27.97	7.477			
4,050.00	4,034.54	4,046.47	4,046.35	14.36	14.24	177.99	-2.61	-23.86	216.60	188.29	28.31	7.650			
4,100.00	4,083.58	4,098.43	4,098.22	14.56	14.42	177.92	-3.74	-20.99	223.52	194.87	28.66	7.800			
4,150.00	4,132.61	4,150.55	4,150.21	14.76	14.60	177.83	-5.10	-17.56	229.89	200.90	29.00	7.928			
4,200.00	4,181.64	4,202.81	4,202.29	14.96	14.77	177.71	-6.68	-13.57	235.71	206.38	29.33	8.035			
4,250.00	4,230.67	4,255.19	4,254.44	15.16	14.95	177.57	-8.48	-9.02	240.98	211.31	29.67	8.121			
4,300.00	4,279.70	4,307.69	4,306.65	15.36	15.13	177.40	-10.51	-3.90	245.69	215.68	30.01	8.188			
4,350.00	4,328.73	4,360.29	4,358.90	15.56	15.31	177.21	-12.76	1.78	249.84	219.50	30.34	8.235			
4,400.00	4,377.76	4,410.97	4,409.18	15.77	15.48	177.02	-15.08	7.66	253.58	222.89	30.68	8.264			
4,450.00	4,426.79	4,460.82	4,458.64	15.97	15.65	176.83	-17.38	13.47	257.29	226.26	31.03	8.291			
4,500.00	4,475.82	4,510.68	4,508.10	16.18	15.82	176.65	-19.68	19.27	261.01	229.62	31.38	8.316			
4,550.00	4,524.85	4,560.53	4,557.56	16.38	15.99	176.47	-21.98	25.08	264.73	232.99	31.74	8.342			
4,600.00	4,573.88	4,610.39	4,607.03	16.59	16.17	176.30	-24.28	30.89	268.45	236.37	32.09	8.366			
4,650.00	4,622.91	4,660.24	4,656.49	16.80	16.34	176.13	-26.58	36.70	272.18	239.74	32.44	8.390			
4,700.00	4,671.94	4,710.10	4,705.95	17.00	16.51	175.96	-28.88	42.50	275.91	243.11	32.79	8.414			
4,750.00	4,720.97	4,759.95	4,755.41	17.21	16.68	175.80	-31.18	48.31	279.63	246.49	33.15	8.436			
4,800.00	4,770.00	4,809.81	4,804.87	17.42	16.88	175.65	-33.47	54.12	283.37	249.87	33.50	8.459			
4,850.00	4,819.03	4,859.66	4,854.34	17.63	17.03	175.50	-35.77	59.92	287.10	253.25	33.85	8.480			
4,900.00	4,868.06	4,909.52	4,903.80	17.84	17.20	175.35	-38.07	65.73	290.84	256.63	34.21	8.502			
4,950.00	4,917.09	4,959.37	4,953.26	18.05	17.38	175.21	-40.37	71.54	294.57	260.01	34.57	8.522			
5,000.00	4,966.12	5,009.23	5,002.72	18.26	17.55	175.07	-42.67	77.35	298.31	263.39	34.92	8.543			
5,050.00	5,015.15	5,059.08	5,052.18	18.47	17.73	174.93	-44.97	83.15	302.05	266.78	35.28	8.562			
5,100.00	5,064.19	5,108.94	5,101.65	18.68	17.90	174.80	-47.27	88.96	305.80	270.16	35.63	8.581			
5,150.00	5,113.22	5,158.79	5,151.11	18.89	18.08	174.67	-49.57	94.77	309.54	273.55	35.99	8.600			

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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	Offset	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	5,162.25	5,208.64	5,200.57	19.10	18.25	174.54	-51.87	100.58	313.29	276.94	36.35	8.619	
5,250.00	5,211.28	5,258.50	5,250.03	19.32	18.43	174.41	-54.16	106.38	317.03	280.33	36.71	8.637	
5,300.00	5,260.31	5,308.35	5,299.49	19.53	18.60	174.29	-56.46	112.19	320.78	283.72	37.07	8.654	
5,350.00	5,309.34	5,358.21	5,348.96	19.74	18.78	174.17	-58.76	118.00	324.53	287.11	37.43	8.671	
5,400.00	5,358.37	5,408.06	5,398.42	19.96	18.95	174.06	-61.06	123.80	328.28	290.50	37.79	8.688	
5,450.00	5,407.40	5,457.92	5,447.88	20.17	19.13	173.95	-63.36	129.61	332.04	293.89	38.15	8.704	
5,500.00	5,456.43	5,507.77	5,497.34	20.38	19.31	173.84	-65.66	135.42	335.79	297.29	38.51	8.721	
5,550.00	5,505.46	5,557.63	5,546.80	20.60	19.48	173.73	-67.96	141.23	339.55	300.68	38.87	8.736	
5,600.00	5,554.49	5,607.48	5,596.27	20.81	19.66	173.62	-70.26	147.03	343.30	304.08	39.23	8.752	
5,650.00	5,603.52	5,657.34	5,645.73	21.03	19.84	173.52	-72.56	152.84	347.06	307.47	39.59	8.767	
5,700.00	5,652.55	5,707.19	5,695.19	21.24	20.02	173.42	-74.86	158.65	350.82	310.87	39.95	8.781	
5,750.00	5,701.58	5,757.05	5,744.65	21.46	20.19	173.32	-77.15	164.46	354.58	314.27	40.31	8.796	
5,800.00	5,750.61	5,806.90	5,794.11	21.68	20.37	173.22	-79.45	170.26	358.34	317.67	40.68	8.810	
5,850.00	5,799.64	5,856.76	5,843.58	21.89	20.55	173.13	-81.75	176.07	362.10	321.06	41.04	8.824	
5,900.00	5,848.67	5,906.61	5,893.04	22.11	20.73	173.03	-84.05	181.88	365.87	324.46	41.40	8.837	
5,950.00	5,897.70	5,956.47	5,942.50	22.32	20.90	172.94	-86.35	187.68	369.63	327.86	41.76	8.850	
6,000.00	5,946.73	6,006.32	5,991.96	22.54	21.08	172.85	-88.65	193.49	373.39	331.27	42.13	8.863	
6,050.00	5,995.76	6,056.18	6,041.42	22.76	21.26	172.77	-90.95	199.30	377.16	334.67	42.49	8.876	
6,100.00	6,044.80	6,106.03	6,090.89	22.98	21.44	172.68	-93.25	205.11	380.93	338.07	42.86	8.888	
6,150.00	6,093.83	6,155.88	6,140.35	23.19	21.62	172.60	-95.55	210.91	384.69	341.47	43.22	8.901	
6,200.00	6,142.86	6,205.74	6,189.81	23.41	21.80	172.51	-97.84	216.72	388.46	344.88	43.59	8.913	
6,250.00	6,191.89	6,255.59	6,239.27	23.63	21.98	172.43	-100.14	222.53	392.23	348.28	43.95	8.924	
6,300.00	6,240.92	6,305.45	6,288.73	23.85	22.16	172.35	-102.44	228.33	396.00	351.68	44.32	8.936	
6,350.00	6,289.95	6,355.30	6,338.20	24.07	22.34	172.28	-104.74	234.14	399.77	355.09	44.68	8.947	
6,400.00	6,338.98	6,405.16	6,387.66	24.29	22.52	172.20	-107.04	239.95	403.54	358.49	45.05	8.958	
6,450.00	6,388.01	6,455.01	6,437.12	24.51	22.70	172.13	-109.34	245.76	407.31	361.90	45.41	8.969	
6,500.00	6,437.04	6,504.87	6,486.58	24.72	22.87	172.05	-111.64	251.56	411.08	365.31	45.78	8.980	
6,550.00	6,486.07	6,554.72	6,536.04	24.94	23.05	171.98	-113.94	257.37	414.86	368.71	46.15	8.990	
6,600.00	6,535.10	6,604.58	6,585.51	25.16	23.23	171.91	-116.24	263.18	418.63	372.12	46.51	9.000	
6,650.00	6,584.13	6,654.43	6,634.97	25.38	23.42	171.84	-118.53	268.99	422.41	375.53	46.88	9.010	
6,700.00	6,633.16	6,704.29	6,684.43	25.60	23.60	171.77	-120.83	274.79	426.18	378.93	47.25	9.020	
6,750.00	6,682.19	6,754.14	6,733.89	25.82	23.78	171.70	-123.13	280.60	429.96	382.34	47.61	9.030	
6,800.00	6,731.22	6,804.00	6,783.35	26.04	23.96	171.64	-125.43	286.41	433.73	385.75	47.98	9.039	
6,850.00	6,780.25	6,853.85	6,832.82	26.26	24.14	171.57	-127.73	292.21	437.51	389.16	48.35	9.049	
6,900.00	6,829.28	6,903.71	6,882.28	26.48	24.32	171.51	-130.03	298.02	441.29	392.57	48.72	9.058	
6,950.00	6,878.31	6,953.56	6,931.74	26.70	24.50	171.45	-132.33	303.83	445.06	395.98	49.09	9.067	
7,000.00	6,927.34	7,003.42	6,981.20	26.92	24.68	171.38	-134.63	309.64	448.84	399.39	49.45	9.076	
7,050.00	6,976.37	7,053.27	7,030.66	27.15	24.86	171.32	-136.93	315.44	452.62	402.80	49.82	9.085	
7,100.00	7,025.41	7,103.12	7,080.12	27.37	25.04	171.26	-139.22	321.25	456.40	406.21	50.19	9.093	
7,150.00	7,074.44	7,152.98	7,129.59	27.59	25.22	171.21	-141.52	327.06	460.18	409.62	50.56	9.102	
7,200.00	7,123.47	7,202.83	7,179.05	27.81	25.40	171.15	-143.82	332.87	463.96	413.03	50.93	9.110	
7,250.00	7,172.50	7,252.69	7,228.51	28.03	25.59	171.09	-146.12	338.67	467.74	416.44	51.30	9.118	
7,300.00	7,221.53	7,302.54	7,277.97	28.25	25.77	171.04	-148.42	344.48	471.52	419.85	51.67	9.126	
7,350.00	7,270.56	7,352.40	7,327.43	28.47	25.95	170.98	-150.72	350.29	475.30	423.27	52.04	9.134	
7,400.00	7,319.59	7,402.25	7,376.90	28.69	26.13	170.93	-153.02	356.09	479.09	426.68	52.41	9.142	
7,450.00	7,368.62	7,452.11	7,426.36	28.92	26.31	170.87	-155.32	361.90	482.87	430.09	52.78	9.149	
7,500.00	7,417.65	7,501.96	7,475.82	29.14	26.49	170.82	-157.62	367.71	486.65	433.50	53.15	9.157	
7,550.00	7,466.68	7,551.82	7,525.28	29.36	26.68	170.77	-159.91	373.52	490.43	436.92	53.52	9.164	
7,600.00	7,515.71	7,601.67	7,574.74	29.58	26.86	170.72	-162.21	379.32	494.22	440.33	53.89	9.171	
7,650.00	7,564.74	7,651.53	7,624.21	29.81	27.04	170.67	-164.51	385.13	498.00	443.74	54.26	9.178	
7,700.00	7,613.77	7,701.38	7,673.87	30.03	27.22	170.62	-166.81	390.94	501.79	447.16	54.63	9.185	
7,750.00	7,662.80	7,751.24	7,723.13	30.25	27.40	170.57	-169.11	396.75	505.57	450.57	55.00	9.192	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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														
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)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,711.83	7,801.09	7,772.59	30.47	27.59	170.52	-171.41	402.55	509.36	453.99	55.37	9.199		
7,850.00	7,760.86	7,850.95	7,822.05	30.70	27.77	170.48	-173.71	408.36	513.14	457.40	55.74	9.206		
7,900.00	7,809.89	7,900.80	7,871.52	30.92	27.95	170.43	-176.01	414.17	516.93	460.81	56.11	9.212		
7,950.00	7,858.92	7,950.66	7,920.98	31.14	28.13	170.38	-178.31	419.97	520.71	464.23	56.48	9.219		
8,000.00	7,907.95	8,000.51	7,970.44	31.36	28.32	170.34	-180.61	425.78	524.50	467.64	56.86	9.225		
8,050.00	7,956.98	8,050.36	8,019.90	31.59	28.50	170.29	-182.90	431.59	528.29	471.06	57.23	9.231		
8,100.00	8,006.01	8,100.22	8,069.36	31.81	28.68	170.25	-185.20	437.40	532.07	474.48	57.60	9.238		
8,150.00	8,055.05	8,150.07	8,118.83	32.03	28.86	170.21	-187.50	443.20	535.86	477.89	57.97	9.244		
8,200.00	8,104.08	8,199.93	8,168.29	32.26	29.05	170.16	-189.80	449.01	539.65	481.31	58.34	9.250		
8,250.00	8,153.11	8,249.78	8,217.75	32.48	29.23	170.12	-192.10	454.82	543.44	484.72	58.71	9.256		
8,300.00	8,202.14	8,300.36	8,267.21	32.70	29.41	170.08	-194.40	460.63	547.23	488.14	59.09	9.261		
8,350.00	8,251.17	8,349.49	8,316.67	32.93	29.60	170.04	-196.70	466.43	551.01	491.56	59.46	9.267		
8,400.00	8,300.20	8,399.35	8,366.14	33.15	29.78	170.00	-199.00	472.24	554.80	494.97	59.83	9.273		
8,450.00	8,349.23	8,449.20	8,415.60	33.37	29.96	169.96	-201.30	478.05	558.59	498.39	60.20	9.278		
8,500.00	8,398.26	8,500.94	8,465.06	33.60	30.15	169.92	-203.59	483.85	562.38	501.80	60.58	9.283		
8,550.00	8,447.29	8,548.91	8,514.52	33.82	30.33	169.88	-205.89	489.66	566.17	505.22	60.95	9.289		
8,600.00	8,496.32	8,601.23	8,563.98	34.05	30.52	169.84	-208.19	495.47	569.96	508.63	61.33	9.293		
8,650.00	8,545.35	8,648.62	8,613.45	34.27	30.69	169.81	-210.49	501.28	573.75	512.06	61.69	9.300		
8,700.00	8,594.38	8,701.52	8,662.91	34.49	30.89	169.77	-212.79	507.08	577.54	515.46	62.08	9.303		
8,750.00	8,643.41	8,748.33	8,712.37	34.72	31.06	169.73	-215.09	512.89	581.33	518.89	62.44	9.310		
8,800.00	8,692.44	8,801.81	8,761.83	34.94	31.26	169.70	-217.39	518.70	585.12	522.30	62.83	9.313		
8,850.00	8,741.47	8,846.40	8,809.67	35.17	31.42	169.66	-219.61	524.30	588.93	525.75	63.18	9.321		
8,900.00	8,790.50	8,889.89	8,852.87	35.39	31.58	169.64	-221.47	529.02	593.13	529.59	63.54	9.335		
8,950.00	8,839.53	8,933.30	8,896.03	35.61	31.74	169.64	-223.16	533.27	597.86	533.97	63.89	9.358		
9,000.00	8,888.56	8,976.62	8,939.16	35.84	31.90	169.66	-224.66	537.06	603.12	538.89	64.23	9.389		
9,050.00	8,937.59	9,019.83	8,982.22	36.06	32.05	169.69	-225.97	540.39	608.91	544.34	64.57	9.430		
9,100.00	8,986.62	9,062.93	9,025.20	36.29	32.21	169.73	-227.11	543.25	615.23	550.33	64.90	9.480		
9,150.00	9,035.66	9,105.90	9,068.10	36.51	32.36	169.79	-228.06	545.66	622.07	556.85	65.22	9.538		
9,200.00	9,084.69	9,148.73	9,110.88	36.74	32.51	169.86	-228.84	547.62	629.44	563.91	65.53	9.605		
9,250.00	9,133.72	9,191.42	9,153.54	36.96	32.67	169.94	-229.43	549.12	637.34	571.49	65.84	9.680		
9,300.00	9,182.75	9,233.96	9,196.06	37.19	32.82	170.04	-229.85	550.18	645.75	579.61	66.14	9.763		
9,350.00	9,231.78	9,276.33	9,238.42	37.41	32.96	170.15	-230.10	550.80	654.68	588.25	66.44	9.854		
9,400.00	9,280.81	9,319.11	9,281.21	37.64	33.11	170.27	-230.17	550.98	664.13	597.40	66.73	9.953		
9,450.00	9,329.84	9,368.14	9,330.24	37.86	33.26	170.41	-230.17	550.98	673.79	606.71	67.08	10.044		
9,500.00	9,378.87	9,417.18	9,379.27	38.09	33.45	170.55	-230.17	550.98	683.46	616.03	67.44	10.135		
9,550.00	9,427.90	9,466.21	9,428.30	38.31	33.62	170.68	-230.17	550.98	693.14	625.35	67.79	10.225		
9,600.00	9,476.93	9,515.24	9,477.33	38.54	33.79	170.81	-230.17	550.98	702.81	634.67	68.14	10.314		
9,650.00	9,525.96	9,564.27	9,526.36	38.76	33.96	170.94	-230.17	550.98	712.49	643.99	68.50	10.401		
9,700.00	9,574.99	9,613.30	9,575.39	38.99	34.13	171.06	-230.17	550.98	722.17	653.32	68.85	10.488		
9,750.00	9,624.02	9,662.33	9,624.42	39.21	34.30	171.40	-230.17	550.98	731.85	662.64	69.21	10.574		
9,800.00	9,673.07	9,707.85	9,669.90	39.43	34.45	-157.65	-228.56	550.97	741.46	671.93	69.53	10.664		
9,850.00	9,721.85	9,753.15	9,714.89	39.64	34.61	-137.10	-223.39	550.95	750.98	681.14	69.83	10.754		
9,900.00	9,769.99	9,798.47	9,759.36	39.83	34.76	-123.37	-214.68	550.90	760.34	690.21	70.13	10.842		
9,950.00	9,817.12	9,843.85	9,803.05	40.01	34.91	-114.31	-202.46	550.84	769.48	699.07	70.42	10.927		
10,000.00	9,862.89	9,889.33	9,845.73	40.18	35.05	-108.07	-186.79	550.76	778.33	707.63	70.70	11.009		
10,050.00	9,906.94	9,934.96	9,887.17	40.32	35.19	-103.55	-167.71	550.66	786.82	715.86	70.97	11.087		
10,100.00	9,948.94	9,980.77	9,927.11	40.46	35.32	-100.16	-145.31	550.55	794.90	723.67	71.23	11.160		
10,150.00	9,988.57	10,026.79	9,965.31	40.58	35.44	-97.53	-119.66	550.42	802.50	731.01	71.49	11.226		
10,200.00	10,025.54	10,073.06	10,001.51	40.68	35.56	-95.46	-90.86	550.27	809.57	737.84	71.73	11.286		
10,250.00	10,059.55	10,119.61	10,035.47	40.76	35.67	-93.82	-59.04	550.11	816.07	744.09	71.98	11.338		
10,300.00	10,090.35	10,166.46	10,066.93	40.84	35.77	-92.52	-24.34	549.93	821.94	749.73	72.21	11.382		
10,350.00	10,117.70	10,213.64	10,095.63	40.89	35.86	-91.51	13.08	549.74	827.14	754.70	72.44	11.418		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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+IFRI													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	
10,400.00	10,141.40	10,261.16	10,121.33	40.94	35.95	-90.74	53.04	549.53	831.65	758.98	72.67	11.445	
10,450.00	10,161.27	10,309.04	10,143.79	40.98	36.03	-90.18	95.30	549.32	835.42	762.53	72.89	11.462	
10,500.00	10,177.15	10,357.28	10,162.77	41.01	36.10	-89.81	139.63	549.09	838.43	765.32	73.10	11.469	
10,550.00	10,188.93	10,405.89	10,178.06	41.03	36.17	-89.63	185.76	548.86	840.65	767.34	73.31	11.467	
10,600.00	10,196.51	10,454.87	10,189.46	41.05	36.23	-89.62	233.39	548.61	842.08	768.56	73.51	11.455	
10,650.00	10,199.83	10,504.22	10,196.78	41.07	36.28	-89.77	282.17	548.36	842.69	768.98	73.71	11.433	
10,700.00	10,200.00	10,553.98	10,199.89	41.09	36.33	-89.97	331.81	548.11	842.71	768.82	73.89	11.405	
10,750.00	10,200.00	10,603.97	10,200.00	41.13	36.37	-89.97	381.80	547.86	842.71	768.63	74.07	11.377	
10,800.00	10,200.00	10,653.97	10,200.00	41.17	36.43	-89.97	431.80	547.60	842.70	768.44	74.26	11.348	
10,850.00	10,200.00	10,703.97	10,200.00	41.22	36.49	-89.97	481.80	547.34	842.69	768.22	74.47	11.315	
10,900.00	10,200.00	10,753.97	10,200.00	41.29	36.56	-89.97	531.80	547.09	842.69	767.98	74.70	11.280	
10,950.00	10,200.00	10,803.97	10,200.00	41.37	36.64	-89.97	581.80	546.83	842.68	767.72	74.96	11.242	
11,000.00	10,200.00	10,853.97	10,200.00	41.46	36.72	-89.97	631.80	546.58	842.67	767.45	75.23	11.202	
11,050.00	10,200.00	10,903.97	10,200.00	41.56	36.81	-89.97	681.80	546.32	842.67	767.15	75.52	11.158	
11,100.00	10,200.00	10,953.97	10,200.00	41.68	36.91	-89.97	731.80	546.07	842.66	766.84	75.82	11.113	
11,150.00	10,200.00	11,003.97	10,200.00	41.82	37.02	-89.97	781.80	545.81	842.65	766.50	76.15	11.065	
11,200.00	10,200.00	11,053.97	10,200.00	41.97	37.13	-89.97	831.80	545.56	842.65	766.15	76.50	11.016	
11,250.00	10,200.00	11,103.97	10,200.00	42.14	37.25	-89.97	881.80	545.30	842.64	765.78	76.86	10.963	
11,300.00	10,200.00	11,153.97	10,200.00	42.32	37.37	-89.97	931.80	545.05	842.63	765.39	77.24	10.909	
11,350.00	10,200.00	11,203.97	10,200.00	42.52	37.50	-89.97	981.79	544.79	842.63	764.99	77.64	10.853	
11,400.00	10,200.00	11,253.97	10,200.00	42.74	37.64	-89.97	1,031.79	544.54	842.62	764.57	78.05	10.795	
11,450.00	10,200.00	11,303.97	10,200.00	42.97	37.78	-89.97	1,081.79	544.28	842.61	764.13	78.49	10.735	
11,500.00	10,200.00	11,353.97	10,200.00	43.21	37.94	-89.97	1,131.79	544.03	842.61	763.67	78.94	10.675	
11,550.00	10,200.00	11,403.97	10,200.00	43.47	38.09	-89.97	1,181.79	543.77	842.60	763.20	79.40	10.612	
11,600.00	10,200.00	11,453.97	10,200.00	43.75	38.25	-89.97	1,231.79	543.52	842.59	762.71	79.88	10.548	
11,650.00	10,200.00	11,503.97	10,200.00	44.04	38.42	-89.97	1,281.79	543.26	842.59	762.21	80.38	10.482	
11,700.00	10,200.00	11,553.97	10,200.00	44.33	38.59	-89.97	1,331.79	543.00	842.58	761.69	80.89	10.416	
11,750.00	10,200.00	11,603.97	10,200.00	44.65	38.77	-89.97	1,381.79	542.75	842.58	761.15	81.42	10.348	
11,800.00	10,200.00	11,653.97	10,200.00	44.97	38.95	-89.97	1,431.79	542.49	842.57	760.61	81.96	10.280	
11,850.00	10,200.00	11,703.97	10,200.00	45.31	39.14	-89.97	1,481.79	542.24	842.56	760.04	82.52	10.210	
11,900.00	10,200.00	11,753.97	10,200.00	45.65	39.33	-89.97	1,531.79	541.98	842.56	759.47	83.09	10.141	
11,950.00	10,200.00	11,803.97	10,200.00	46.01	39.53	-89.97	1,581.79	541.73	842.55	758.88	83.67	10.069	
12,000.00	10,200.00	11,853.97	10,200.00	46.38	39.73	-89.97	1,631.79	541.47	842.54	758.27	84.27	9.998	
12,050.00	10,200.00	11,903.97	10,200.00	46.76	39.94	-89.97	1,681.79	541.22	842.54	757.65	84.88	9.926	
12,100.00	10,200.00	11,953.97	10,200.00	47.14	40.15	-89.97	1,731.78	540.96	842.53	757.02	85.51	9.854	
12,150.00	10,200.00	12,003.97	10,200.00	47.54	40.37	-89.97	1,781.78	540.71	842.52	756.38	86.14	9.780	
12,200.00	10,200.00	12,053.97	10,200.00	47.94	40.59	-89.97	1,831.78	540.45	842.52	755.73	86.79	9.707	
12,250.00	10,200.00	12,103.97	10,200.00	48.36	40.82	-89.97	1,881.78	540.20	842.51	755.06	87.45	9.634	
12,300.00	10,200.00	12,153.97	10,200.00	48.78	41.05	-89.97	1,931.78	539.94	842.50	754.38	88.12	9.560	
12,350.00	10,200.00	12,203.97	10,200.00	49.21	41.29	-89.97	1,981.78	539.69	842.50	753.69	88.81	9.486	
12,400.00	10,200.00	12,253.97	10,200.00	49.64	41.53	-89.97	2,031.78	539.43	842.49	752.99	89.50	9.413	
12,450.00	10,200.00	12,303.97	10,200.00	50.09	41.77	-89.97	2,081.78	539.17	842.48	752.27	90.21	9.339	
12,500.00	10,200.00	12,353.97	10,200.00	50.53	42.02	-89.97	2,131.78	538.92	842.48	751.55	90.93	9.265	
12,550.00	10,200.00	12,403.97	10,200.00	50.99	42.27	-89.97	2,181.78	538.66	842.47	750.81	91.66	9.192	
12,600.00	10,200.00	12,453.97	10,200.00	51.45	42.53	-89.97	2,231.78	538.41	842.46	750.07	92.39	9.118	
12,650.00	10,200.00	12,503.97	10,200.00	51.93	42.79	-89.97	2,281.78	538.15	842.46	749.32	93.14	9.045	
12,700.00	10,200.00	12,553.97	10,200.00	52.40	43.05	-89.97	2,331.78	537.90	842.45	748.55	93.90	8.972	
12,750.00	10,200.00	12,603.97	10,200.00	52.88	43.32	-89.97	2,381.78	537.64	842.45	747.78	94.67	8.899	
12,800.00	10,200.00	12,653.97	10,200.00	53.37	43.60	-89.97	2,431.78	537.39	842.44	747.00	95.44	8.827	
12,850.00	10,200.00	12,703.97	10,200.00	53.87	43.87	-89.97	2,481.78	537.13	842.43	746.21	96.23	8.755	
12,900.00	10,200.00	12,753.97	10,200.00	54.36	44.15	-89.97	2,531.77	536.88	842.43	745.41	97.02	8.683	
12,950.00	10,200.00	12,803.97	10,200.00	54.87	44.43	-89.97	2,581.77	536.62	842.42	744.60	97.82	8.612	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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
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)			
13,000.00	10,200.00	12,853.97	10,200.00	55.38	44.72	-89.97	2,631.77	536.37	842.41	743.78	98.63	8.541	
13,050.00	10,200.00	12,903.97	10,200.00	55.89	45.01	-89.97	2,681.77	536.11	842.41	742.96	99.45	8.471	
13,100.00	10,200.00	12,953.97	10,200.00	56.41	45.30	-89.97	2,731.77	535.86	842.40	742.12	100.28	8.401	
13,150.00	10,200.00	13,003.97	10,200.00	56.94	45.60	-89.97	2,781.77	535.60	842.39	741.28	101.11	8.331	
13,200.00	10,200.00	13,053.97	10,200.00	57.46	45.90	-89.97	2,831.77	535.35	842.39	740.43	101.95	8.263	
13,250.00	10,200.00	13,103.97	10,200.00	58.00	46.20	-89.97	2,881.77	535.09	842.38	739.58	102.80	8.194	
13,300.00	10,200.00	13,153.97	10,200.00	58.53	46.51	-89.97	2,931.77	534.83	842.37	738.72	103.66	8.127	
13,350.00	10,200.00	13,203.97	10,200.00	59.07	46.82	-89.97	2,981.77	534.58	842.37	737.85	104.52	8.059	
13,400.00	10,200.00	13,253.97	10,200.00	59.62	47.13	-89.97	3,031.77	534.32	842.36	736.97	105.39	7.993	
13,450.00	10,200.00	13,303.97	10,200.00	60.17	47.44	-89.97	3,081.77	534.07	842.35	736.09	106.27	7.927	
13,500.00	10,200.00	13,353.97	10,200.00	60.72	47.76	-89.97	3,131.77	533.81	842.35	735.20	107.15	7.861	
13,550.00	10,200.00	13,403.97	10,200.00	61.28	48.08	-89.97	3,181.77	533.56	842.34	734.30	108.04	7.797	
13,600.00	10,200.00	13,453.97	10,200.00	61.84	48.41	-89.97	3,231.77	533.30	842.33	733.40	108.93	7.732	
13,650.00	10,200.00	13,503.97	10,200.00	62.40	48.73	-89.97	3,281.76	533.05	842.33	732.49	109.84	7.669	
13,700.00	10,200.00	13,553.97	10,200.00	62.97	49.06	-89.97	3,331.76	532.79	842.32	731.58	110.74	7.606	
13,750.00	10,200.00	13,603.97	10,200.00	63.54	49.39	-89.97	3,381.76	532.54	842.32	730.66	111.66	7.544	
13,800.00	10,200.00	13,653.97	10,200.00	64.11	49.73	-89.97	3,431.76	532.28	842.31	729.73	112.58	7.482	
13,850.00	10,200.00	13,703.97	10,200.00	64.69	50.06	-89.97	3,481.76	532.03	842.30	728.80	113.50	7.421	
13,900.00	10,200.00	13,753.97	10,200.00	65.27	50.40	-89.97	3,531.76	531.77	842.30	727.87	114.43	7.361	
13,950.00	10,200.00	13,803.97	10,200.00	65.85	50.74	-89.97	3,581.76	531.52	842.29	726.92	115.36	7.301	
14,000.00	10,200.00	13,853.97	10,200.00	66.44	51.09	-89.97	3,631.76	531.26	842.28	725.98	116.30	7.242	
14,050.00	10,200.00	13,903.97	10,200.00	67.03	51.43	-89.97	3,681.76	531.01	842.28	725.03	117.25	7.184	
14,100.00	10,200.00	13,953.97	10,200.00	67.62	51.78	-89.97	3,731.76	530.75	842.27	724.07	118.20	7.126	
14,150.00	10,200.00	14,003.97	10,200.00	68.21	52.13	-89.97	3,781.76	530.49	842.26	723.11	119.15	7.069	
14,200.00	10,200.00	14,053.97	10,200.00	68.81	52.48	-89.97	3,831.76	530.24	842.26	722.15	120.11	7.012	
14,250.00	10,200.00	14,103.97	10,200.00	69.41	52.84	-89.97	3,881.76	529.98	842.25	721.18	121.07	6.956	
14,300.00	10,200.00	14,153.97	10,200.00	70.01	53.19	-89.97	3,931.76	529.73	842.24	720.20	122.04	6.901	
14,350.00	10,200.00	14,203.97	10,200.00	70.61	53.55	-89.97	3,981.76	529.47	842.24	719.22	123.01	6.847	
14,400.00	10,200.00	14,253.97	10,200.00	71.22	53.91	-89.97	4,031.76	529.22	842.23	718.24	123.99	6.793	
14,450.00	10,200.00	14,303.97	10,200.00	71.83	54.27	-89.97	4,081.75	528.96	842.22	717.25	124.97	6.739	
14,500.00	10,200.00	14,353.97	10,200.00	72.44	54.64	-89.97	4,131.75	528.71	842.22	716.26	125.96	6.687	
14,550.00	10,200.00	14,403.97	10,200.00	73.05	55.00	-89.97	4,181.75	528.45	842.21	715.27	126.94	6.635	
14,600.00	10,200.00	14,453.97	10,200.00	73.67	55.37	-89.97	4,231.75	528.20	842.20	714.27	127.94	6.583	
14,650.00	10,200.00	14,503.97	10,200.00	74.28	55.74	-89.97	4,281.75	527.94	842.20	713.27	128.93	6.532	
14,700.00	10,200.00	14,553.97	10,200.00	74.90	56.11	-89.97	4,331.75	527.69	842.19	712.26	129.93	6.482	
14,750.00	10,200.00	14,603.97	10,200.00	75.52	56.49	-89.97	4,381.75	527.43	842.19	711.25	130.93	6.432	
14,800.00	10,200.00	14,653.97	10,200.00	76.15	56.86	-89.97	4,431.75	527.18	842.18	710.24	131.94	6.383	
14,850.00	10,200.00	14,703.97	10,200.00	76.77	57.24	-89.97	4,481.75	526.92	842.17	709.22	132.95	6.335	
14,900.00	10,200.00	14,753.97	10,200.00	77.40	57.62	-89.97	4,531.75	526.67	842.17	708.20	133.96	6.287	
14,950.00	10,200.00	14,803.97	10,200.00	78.03	58.00	-89.97	4,581.75	526.41	842.16	707.18	134.98	6.239	
15,000.00	10,200.00	14,853.97	10,200.00	78.66	58.38	-89.97	4,631.75	526.15	842.15	706.15	136.00	6.192	
15,050.00	10,200.00	14,903.97	10,200.00	79.29	58.76	-89.97	4,681.75	525.90	842.15	705.12	137.02	6.146	
15,100.00	10,200.00	14,953.97	10,200.00	79.92	59.15	-89.97	4,731.75	525.64	842.14	704.09	138.05	6.100	
15,150.00	10,200.00	15,003.97	10,200.00	80.56	59.53	-89.97	4,781.75	525.39	842.13	703.06	139.08	6.055	
15,200.00	10,200.00	15,053.97	10,200.00	81.19	59.92	-89.97	4,831.74	525.13	842.13	702.02	140.11	6.011	
15,250.00	10,200.00	15,103.97	10,200.00	81.83	60.31	-89.97	4,881.74	524.88	842.12	700.98	141.14	5.966	
15,300.00	10,200.00	15,153.97	10,200.00	82.47	60.70	-89.97	4,931.74	524.62	842.11	699.93	142.18	5.923	
15,350.00	10,200.00	15,203.97	10,200.00	83.11	61.09	-89.97	4,981.74	524.37	842.11	698.89	143.22	5.880	
15,400.00	10,200.00	15,253.97	10,200.00	83.75	61.48	-89.97	5,031.74	524.11	842.10	697.84	144.26	5.837	
15,450.00	10,200.00	15,303.97	10,200.00	84.40	61.88	-89.97	5,081.74	523.86	842.09	696.79	145.31	5.795	
15,500.00	10,200.00	15,353.97	10,200.00	85.04	62.27	-89.97	5,131.74	523.60	842.09	695.73	146.36	5.754	
15,550.00	10,200.00	15,403.97	10,200.00	85.69	62.67	-89.97	5,181.74	523.35	842.08	694.68	147.41	5.713	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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		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)					
15,600.00	10,200.00	15,453.97	10,200.00	86.34	63.07	-89.97	5,231.74	523.09	842.07	693.62	148.46	5.672			
15,650.00	10,200.00	15,503.97	10,200.00	86.99	63.47	-89.97	5,281.74	522.84	842.07	692.55	149.51	5.632			
15,700.00	10,200.00	15,553.97	10,200.00	87.64	63.87	-89.97	5,331.74	522.58	842.06	691.49	150.57	5.592			
15,750.00	10,200.00	15,603.97	10,200.00	88.29	64.27	-89.97	5,381.74	522.33	842.06	690.42	151.63	5.553			
15,800.00	10,200.00	15,653.97	10,200.00	88.94	64.67	-89.97	5,431.74	522.07	842.05	689.36	152.69	5.515			
15,850.00	10,200.00	15,703.97	10,200.00	89.60	65.08	-89.97	5,481.74	521.81	842.04	688.29	153.76	5.476			
15,900.00	10,200.00	15,753.97	10,200.00	90.25	65.48	-89.97	5,531.74	521.56	842.04	687.21	154.82	5.439			
15,950.00	10,200.00	15,803.97	10,200.00	90.91	65.89	-89.97	5,581.73	521.30	842.03	686.14	155.89	5.401			
16,000.00	10,200.00	15,853.97	10,200.00	91.56	66.29	-89.97	5,631.73	521.05	842.02	685.06	156.96	5.364			
16,050.00	10,200.00	15,903.97	10,200.00	92.22	66.70	-89.97	5,681.73	520.79	842.02	683.98	158.04	5.328			
16,100.00	10,200.00	15,953.97	10,200.00	92.88	67.11	-89.97	5,731.73	520.54	842.01	682.90	159.11	5.292			
16,150.00	10,200.00	16,003.97	10,200.00	93.54	67.52	-89.97	5,781.73	520.28	842.00	681.82	160.19	5.256			
16,200.00	10,200.00	16,053.97	10,200.00	94.20	67.93	-89.97	5,831.73	520.03	842.00	680.73	161.27	5.221			
16,250.00	10,200.00	16,103.97	10,200.00	94.87	68.35	-89.97	5,881.73	519.77	841.99	679.64	162.35	5.186			
16,300.00	10,200.00	16,153.97	10,200.00	95.53	68.76	-89.97	5,931.73	519.52	841.98	678.56	163.43	5.152			
16,350.00	10,200.00	16,203.97	10,200.00	96.19	69.17	-89.97	5,981.73	519.26	841.98	677.47	164.51	5.118			
16,400.00	10,200.00	16,253.97	10,200.00	96.86	69.59	-89.97	6,031.73	519.01	841.97	676.37	165.60	5.084			
16,450.00	10,200.00	16,303.97	10,200.00	97.53	70.00	-89.97	6,081.73	518.75	841.96	675.28	166.69	5.051			
16,500.00	10,200.00	16,353.97	10,200.00	98.19	70.42	-89.97	6,131.73	518.50	841.96	674.18	167.77	5.018			
16,550.00	10,200.00	16,403.97	10,200.00	98.86	70.84	-89.97	6,181.73	518.24	841.95	673.09	168.87	4.986 Alert			
16,600.00	10,200.00	16,453.97	10,200.00	99.53	71.26	-89.97	6,231.73	517.99	841.94	671.99	169.96	4.954 Alert			
16,650.00	10,200.00	16,503.97	10,200.00	100.20	71.68	-89.97	6,281.73	517.73	841.94	670.89	171.05	4.922 Alert			
16,700.00	10,200.00	16,553.97	10,200.00	100.87	72.10	-89.97	6,331.73	517.47	841.93	669.78	172.15	4.891 Alert			
16,750.00	10,200.00	16,603.97	10,200.00	101.54	72.52	-89.97	6,381.72	517.22	841.93	668.68	173.25	4.860 Alert			
16,800.00	10,200.00	16,653.97	10,200.00	102.21	72.94	-89.97	6,431.72	516.96	841.92	667.57	174.34	4.829 Alert			
16,850.00	10,200.00	16,703.97	10,200.00	102.88	73.36	-89.97	6,481.72	516.71	841.91	666.47	175.44	4.799 Alert			
16,900.00	10,200.00	16,753.97	10,200.00	103.56	73.79	-89.97	6,531.72	516.45	841.91	665.36	176.55	4.769 Alert			
16,950.00	10,200.00	16,803.97	10,200.00	104.23	74.21	-89.97	6,581.72	516.20	841.90	664.25	177.65	4.739 Alert			
17,000.00	10,200.00	16,853.97	10,200.00	104.91	74.64	-89.97	6,631.72	515.94	841.89	663.14	178.75	4.710 Alert			
17,050.00	10,200.00	16,903.97	10,200.00	105.58	75.06	-89.97	6,681.72	515.69	841.89	662.03	179.86	4.681 Alert			
17,100.00	10,200.00	16,953.97	10,200.00	106.26	75.49	-89.97	6,731.72	515.43	841.88	660.91	180.97	4.652 Alert			
17,150.00	10,200.00	17,003.97	10,200.00	106.94	75.91	-89.97	6,781.72	515.18	841.87	659.80	182.08	4.624 Alert			
17,200.00	10,200.00	17,053.97	10,200.00	107.61	76.34	-89.97	6,831.72	514.92	841.87	658.68	183.19	4.596 Alert			
17,250.00	10,200.00	17,103.97	10,200.00	108.29	76.77	-89.97	6,881.72	514.67	841.86	657.56	184.30	4.568 Alert			
17,300.00	10,200.00	17,153.97	10,200.00	108.97	77.20	-89.97	6,931.72	514.41	841.85	656.44	185.41	4.540 Alert			
17,350.00	10,200.00	17,203.97	10,200.00	109.65	77.63	-89.97	6,981.72	514.16	841.85	655.32	186.52	4.513 Alert			
17,400.00	10,200.00	17,253.97	10,200.00	110.33	78.06	-89.97	7,031.72	513.90	841.84	654.20	187.64	4.486 Alert			
17,450.00	10,200.00	17,303.97	10,200.00	111.01	78.49	-89.97	7,081.72	513.64	841.83	653.08	188.76	4.460 Alert			
17,500.00	10,200.00	17,353.97	10,200.00	111.69	78.92	-89.97	7,131.71	513.39	841.83	651.95	189.87	4.434 Alert			
17,550.00	10,200.00	17,403.97	10,200.00	112.37	79.35	-89.97	7,181.71	513.13	841.82	650.83	190.99	4.408 Alert			
17,600.00	10,200.00	17,453.97	10,200.00	113.06	79.79	-89.97	7,231.71	512.88	841.81	649.70	192.11	4.382 Alert			
17,650.00	10,200.00	17,503.97	10,200.00	113.74	80.22	-89.97	7,281.71	512.62	841.81	648.58	193.23	4.356 Alert			
17,700.00	10,200.00	17,553.97	10,200.00	114.42	80.66	-89.97	7,331.71	512.37	841.80	647.45	194.36	4.331 Alert			
17,750.00	10,200.00	17,603.97	10,200.00	115.11	81.09	-89.97	7,381.71	512.11	841.80	646.32	195.48	4.306 Alert			
17,800.00	10,200.00	17,653.97	10,200.00	115.79	81.53	-89.97	7,431.71	511.86	841.79	645.19	196.60	4.282 Alert			
17,850.00	10,200.00	17,703.97	10,200.00	116.48	81.96	-89.97	7,481.71	511.60	841.78	644.05	197.73	4.257 Alert			
17,900.00	10,200.00	17,753.97	10,200.00	117.16	82.40	-89.97	7,531.71	511.35	841.78	642.92	198.85	4.233 Alert			
17,950.00	10,200.00	17,803.97	10,200.00	117.85	82.84	-89.97	7,581.71	511.09	841.77	641.79	199.98	4.209 Alert			
18,000.00	10,200.00	17,853.97	10,200.00	118.54	83.27	-89.97	7,631.71	510.84	841.76	640.65	201.11	4.186 Alert			
18,050.00	10,200.00	17,903.97	10,200.00	119.22	83.71	-89.97	7,681.71	510.58	841.76	639.52	202.24	4.162 Alert			
18,100.00	10,200.00	17,953.97	10,200.00	119.91	84.15	-89.97	7,731.71	510.33	841.75	638.38	203.37	4.139 Alert			
18,150.00	10,200.00	18,003.97	10,200.00	120.60	84.59	-89.97	7,781.71	510.07	841.74	637.24	204.50	4.116 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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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
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)					
18,200.00	10,200.00	18,053.97	10,200.00	121.29	85.03	-89.97	7,831.71	509.82	841.74	636.10	205.63	4.093 Alert	
18,250.00	10,200.00	18,103.97	10,200.00	121.98	85.47	-89.97	7,881.70	509.56	841.73	634.97	206.77	4.071 Alert	
18,300.00	10,200.00	18,153.97	10,200.00	122.67	85.91	-89.97	7,931.70	509.30	841.72	633.82	207.90	4.049 Alert	
18,350.00	10,200.00	18,203.97	10,200.00	123.36	86.35	-89.97	7,981.70	509.05	841.72	632.68	209.03	4.027 Alert	
18,400.00	10,200.00	18,253.97	10,200.00	124.05	86.79	-89.97	8,031.70	508.79	841.71	631.54	210.17	4.005 Alert	
18,450.00	10,200.00	18,303.97	10,200.00	124.74	87.23	-89.97	8,081.70	508.54	841.70	630.40	211.31	3.983 Alert	
18,500.00	10,200.00	18,353.97	10,200.00	125.43	87.68	-89.97	8,131.70	508.28	841.70	629.25	212.44	3.962 Alert	
18,550.00	10,200.00	18,403.97	10,200.00	126.12	88.12	-89.97	8,181.70	508.03	841.69	628.11	213.58	3.941 Alert	
18,600.00	10,200.00	18,453.97	10,200.00	126.82	88.56	-89.97	8,231.70	507.77	841.68	626.96	214.72	3.920 Alert	
18,650.00	10,200.00	18,503.97	10,200.00	127.51	89.01	-89.97	8,281.70	507.52	841.68	625.82	215.86	3.899 Alert	
18,700.00	10,200.00	18,553.97	10,200.00	128.20	89.45	-89.97	8,331.70	507.26	841.67	624.67	217.00	3.879 Alert	
18,750.00	10,200.00	18,603.97	10,200.00	128.89	89.89	-89.97	8,381.70	507.01	841.67	623.52	218.14	3.858 Alert	
18,800.00	10,200.00	18,653.97	10,200.00	129.59	90.34	-89.97	8,431.70	506.75	841.66	622.37	219.28	3.838 Alert	
18,850.00	10,200.00	18,703.97	10,200.00	130.28	90.79	-89.97	8,481.70	506.50	841.65	621.23	220.43	3.818 Alert	
18,900.00	10,200.00	18,753.97	10,200.00	130.98	91.23	-89.97	8,531.70	506.24	841.65	620.08	221.57	3.799 Alert	
18,950.00	10,200.00	18,803.97	10,200.00	131.67	91.68	-89.97	8,581.70	505.99	841.64	618.92	222.72	3.779 Alert	
19,000.00	10,200.00	18,853.97	10,200.00	132.37	92.12	-89.97	8,631.70	505.73	841.63	617.77	223.86	3.760 Alert	
19,050.00	10,200.00	18,903.97	10,200.00	133.06	92.57	-89.97	8,681.69	505.48	841.63	616.62	225.01	3.740 Alert	
19,100.00	10,200.00	18,953.97	10,200.00	133.76	93.02	-89.97	8,731.69	505.22	841.62	615.47	226.15	3.721 Alert	
19,150.00	10,200.00	19,003.97	10,200.00	134.45	93.47	-89.97	8,781.69	504.96	841.61	614.31	227.30	3.703 Alert	
19,200.00	10,200.00	19,053.97	10,200.00	135.15	93.91	-89.97	8,831.69	504.71	841.61	613.16	228.45	3.684 Alert	
19,250.00	10,200.00	19,103.97	10,200.00	135.85	94.36	-89.97	8,881.69	504.45	841.60	612.00	229.60	3.666 Alert	
19,300.00	10,200.00	19,153.97	10,200.00	136.55	94.81	-89.97	8,931.69	504.20	841.59	610.85	230.75	3.647 Alert	
19,350.00	10,200.00	19,203.97	10,200.00	137.24	95.26	-89.97	8,981.69	503.94	841.59	609.69	231.90	3.629 Alert	
19,400.00	10,200.00	19,253.97	10,200.00	137.94	95.71	-89.97	9,031.69	503.69	841.58	608.53	233.05	3.611 Alert	
19,450.00	10,200.00	19,303.97	10,200.00	138.64	96.16	-89.97	9,081.69	503.43	841.57	607.38	234.20	3.593 Alert	
19,500.00	10,200.00	19,353.97	10,200.00	139.34	96.61	-89.97	9,131.69	503.18	841.57	606.22	235.35	3.576 Alert	
19,550.00	10,200.00	19,403.97	10,200.00	140.04	97.06	-89.97	9,181.69	502.92	841.56	605.06	236.50	3.558 Alert	
19,600.00	10,200.00	19,453.97	10,200.00	140.74	97.51	-89.97	9,231.69	502.67	841.55	603.90	237.65	3.541 Alert	
19,650.00	10,200.00	19,503.97	10,200.00	141.43	97.96	-89.97	9,281.69	502.41	841.55	602.74	238.81	3.524 Alert	
19,700.00	10,200.00	19,553.97	10,200.00	142.13	98.42	-89.97	9,331.69	502.16	841.54	601.58	239.96	3.507 Alert	
19,750.00	10,200.00	19,603.97	10,200.00	142.83	98.87	-89.97	9,381.69	501.90	841.54	600.42	241.12	3.490 Alert	
19,800.00	10,200.00	19,653.97	10,200.00	143.53	99.32	-89.97	9,431.68	501.65	841.53	599.26	242.27	3.473 Alert	
19,850.00	10,200.00	19,703.97	10,200.00	144.24	99.77	-89.97	9,481.68	501.39	841.52	598.09	243.43	3.457 Alert	
19,900.00	10,200.00	19,753.97	10,200.00	144.94	100.23	-89.97	9,531.68	501.14	841.52	596.93	244.58	3.441 Alert	
19,950.00	10,200.00	19,803.97	10,200.00	145.64	100.68	-89.97	9,581.68	500.88	841.51	595.77	245.74	3.424 Alert	
20,000.00	10,200.00	19,853.97	10,200.00	146.34	101.13	-89.97	9,631.68	500.62	841.50	594.60	246.90	3.408 Alert	
20,050.00	10,200.00	19,903.97	10,200.00	147.04	101.59	-89.97	9,681.68	500.37	841.50	593.44	248.06	3.392 Alert	
20,100.00	10,200.00	19,953.97	10,200.00	147.74	102.04	-89.97	9,731.68	500.11	841.49	592.27	249.22	3.377 Alert	
20,150.00	10,200.00	20,003.97	10,200.00	148.44	102.50	-89.97	9,781.68	499.86	841.48	591.11	250.37	3.361 Alert	
20,200.00	10,200.00	20,053.97	10,200.00	149.15	102.95	-89.97	9,831.68	499.60	841.48	589.94	251.53	3.345 Alert	
20,250.00	10,200.00	20,103.97	10,200.00	149.85	103.41	-89.97	9,881.68	499.35	841.47	588.78	252.69	3.330 Alert	
20,300.00	10,200.00	20,153.97	10,200.00	150.55	103.86	-89.97	9,931.68	499.09	841.46	587.61	253.86	3.315 Alert	
20,350.00	10,200.00	20,203.97	10,200.00	151.26	104.32	-89.97	9,981.68	498.84	841.46	586.44	255.02	3.300 Alert	
20,400.00	10,200.00	20,253.97	10,200.00	151.96	104.77	-89.97	10,031.68	498.58	841.45	585.27	256.18	3.285 Alert	
20,450.00	10,200.00	20,303.97	10,200.00	152.66	105.23	-89.97	10,081.68	498.33	841.44	584.10	257.34	3.270 Alert	
20,500.00	10,200.00	20,353.97	10,200.00	153.37	105.68	-89.97	10,131.68	498.07	841.44	582.94	258.50	3.255 Alert	
20,550.00	10,200.00	20,403.97	10,200.00	154.07	106.14	-89.97	10,181.67	497.82	841.43	581.77	259.67	3.240 Alert	
20,577.94	10,200.00	20,431.91	10,200.00	154.46	106.40	-89.97	10,209.62	497.67	841.43	581.11	260.32	3.232 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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 233H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:
Reference													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
4,500.00	4,475.82	4,588.28	4,582.47	16.18	16.06	-12.12	-66.93	1,764.88	1,493.09	1,461.53	31.56	47.314	
4,550.00	4,524.85	4,636.57	4,630.61	16.38	16.23	-12.12	-68.94	1,761.54	1,480.14	1,448.23	31.91	46.391	
4,600.00	4,573.88	4,684.87	4,678.74	16.59	16.41	-12.12	-70.96	1,758.20	1,467.19	1,434.93	32.26	45.487	
4,650.00	4,622.91	4,733.16	4,726.88	16.80	16.58	-12.12	-72.97	1,754.86	1,454.23	1,421.63	32.61	44.601	
4,700.00	4,671.94	4,781.45	4,775.02	17.00	16.76	-12.12	-74.98	1,751.53	1,441.28	1,408.33	32.96	43.734	
4,750.00	4,720.97	4,829.75	4,823.15	17.21	16.93	-12.11	-77.00	1,748.19	1,428.33	1,395.03	33.31	42.885	
4,800.00	4,770.00	4,878.04	4,871.29	17.42	17.11	-12.11	-79.01	1,744.85	1,415.38	1,381.72	33.66	42.053	
4,850.00	4,819.03	4,926.33	4,919.42	17.63	17.28	-12.11	-81.03	1,741.51	1,402.43	1,368.42	34.01	41.238	
4,900.00	4,868.06	4,974.63	4,967.56	17.84	17.46	-12.11	-83.04	1,738.17	1,389.48	1,355.12	34.36	40.439	
4,950.00	4,917.09	5,022.92	5,015.69	18.05	17.64	-12.11	-85.06	1,734.84	1,376.52	1,341.81	34.71	39.656	
5,000.00	4,966.12	5,071.21	5,063.83	18.26	17.81	-12.10	-87.07	1,731.50	1,363.57	1,328.51	35.06	38.888	
5,050.00	5,015.15	5,119.51	5,111.97	18.47	17.99	-12.10	-89.09	1,728.16	1,350.62	1,315.20	35.42	38.135	
5,100.00	5,064.19	5,167.80	5,160.10	18.68	18.16	-12.10	-91.10	1,724.82	1,337.67	1,301.90	35.77	37.397	
5,150.00	5,113.22	5,216.09	5,208.24	18.89	18.34	-12.10	-93.11	1,721.48	1,324.72	1,288.59	36.12	36.673	
5,200.00	5,162.25	5,264.39	5,256.37	19.10	18.52	-12.10	-95.13	1,718.15	1,311.76	1,275.29	36.48	35.962	
5,250.00	5,211.28	5,312.68	5,304.51	19.32	18.69	-12.09	-97.14	1,714.81	1,298.81	1,261.98	36.83	35.265	
5,300.00	5,260.31	5,360.97	5,352.64	19.53	18.87	-12.09	-99.16	1,711.47	1,285.86	1,248.68	37.18	34.581	
5,350.00	5,309.34	5,409.27	5,400.78	19.74	19.05	-12.09	-101.17	1,708.13	1,272.91	1,235.37	37.54	33.910	
5,400.00	5,358.37	5,457.56	5,448.92	19.96	19.22	-12.09	-103.19	1,704.79	1,259.96	1,222.07	37.89	33.251	
5,450.00	5,407.40	5,505.86	5,497.05	20.17	19.40	-12.09	-105.20	1,701.45	1,247.01	1,208.76	38.25	32.603	
5,500.00	5,456.43	5,554.15	5,545.19	20.38	19.58	-12.08	-107.21	1,698.12	1,234.05	1,195.45	38.60	31.968	
5,550.00	5,505.46	5,602.44	5,593.32	20.60	19.76	-12.08	-109.23	1,694.78	1,221.10	1,182.14	38.96	31.344	
5,600.00	5,554.49	5,650.74	5,641.46	20.81	19.93	-12.08	-111.24	1,691.44	1,208.15	1,168.84	39.31	30.731	
5,650.00	5,603.52	5,699.03	5,689.59	21.03	20.11	-12.08	-113.26	1,688.10	1,195.20	1,155.53	39.67	30.129	
5,700.00	5,652.55	5,747.32	5,737.73	21.24	20.29	-12.07	-115.27	1,684.76	1,182.25	1,142.22	40.03	29.538	
5,750.00	5,701.58	5,804.39	5,795.87	21.46	20.50	-12.07	-117.29	1,681.43	1,169.30	1,128.88	40.41	28.934	
5,800.00	5,750.61	5,843.91	5,834.00	21.68	20.64	-12.07	-119.30	1,678.09	1,156.34	1,115.61	40.74	28.385	
5,850.00	5,799.64	5,892.20	5,882.14	21.89	20.82	-12.07	-121.32	1,674.75	1,143.39	1,102.30	41.09	27.823	
5,900.00	5,848.67	5,940.50	5,930.27	22.11	21.00	-12.06	-123.33	1,671.41	1,130.44	1,088.99	41.45	27.272	
5,950.00	5,897.70	5,988.79	5,978.41	22.32	21.18	-12.06	-125.34	1,668.07	1,117.49	1,075.68	41.81	26.729	
6,000.00	5,946.73	6,037.08	6,026.54	22.54	21.35	-12.06	-127.36	1,664.74	1,104.54	1,062.37	42.17	26.195	
6,050.00	5,995.76	6,085.38	6,074.68	22.76	21.53	-12.05	-129.37	1,661.40	1,091.58	1,049.06	42.52	25.671	
6,100.00	6,044.80	6,133.67	6,122.82	22.98	21.71	-12.05	-131.39	1,658.06	1,078.63	1,035.75	42.88	25.154	
6,150.00	6,093.83	6,181.96	6,170.95	23.19	21.89	-12.05	-133.40	1,654.72	1,065.68	1,022.44	43.24	24.647	
6,200.00	6,142.86	6,230.26	6,219.09	23.41	22.07	-12.04	-135.42	1,651.38	1,052.73	1,009.13	43.60	24.147	
6,250.00	6,191.89	6,278.55	6,267.22	23.63	22.24	-12.04	-137.43	1,648.04	1,039.78	995.82	43.95	23.656	
6,300.00	6,240.92	6,326.84	6,315.36	23.85	22.42	-12.04	-139.44	1,644.71	1,026.83	982.51	44.31	23.172	
6,350.00	6,289.95	6,375.14	6,363.49	24.07	22.60	-12.03	-141.46	1,641.37	1,013.87	969.20	44.67	22.697	
6,400.00	6,338.98	6,423.43	6,411.63	24.29	22.78	-12.03	-143.47	1,638.03	1,000.92	955.89	45.03	22.228	
6,450.00	6,388.01	6,471.72	6,459.77	24.51	22.96	-12.03	-145.49	1,634.69	987.97	942.58	45.39	21.767	
6,500.00	6,437.04	6,520.02	6,507.90	24.72	23.14	-12.02	-147.50	1,631.35	975.02	929.27	45.75	21.313	
6,550.00	6,486.07	6,568.31	6,556.04	24.94	23.32	-12.02	-149.52	1,628.02	962.07	915.96	46.11	20.866	
6,600.00	6,535.10	6,616.60	6,604.17	25.16	23.49	-12.02	-151.53	1,624.68	949.12	902.65	46.47	20.426	
6,650.00	6,584.13	6,664.90	6,652.31	25.38	23.67	-12.01	-153.55	1,621.34	936.16	889.34	46.82	19.993	
6,700.00	6,633.16	6,713.19	6,700.44	25.60	23.85	-12.01	-155.56	1,618.00	923.21	876.03	47.18	19.566	
6,750.00	6,682.19	6,761.48	6,748.58	25.82	24.03	-12.00	-157.57	1,614.66	910.26	862.72	47.54	19.146	
6,800.00	6,731.22	6,809.78	6,796.72	26.04	24.21	-12.00	-159.59	1,611.33	897.31	849.41	47.90	18.732	
6,850.00	6,780.25	6,858.07	6,844.85	26.26	24.39	-11.99	-161.60	1,607.99	884.36	836.09	48.26	18.323	
6,900.00	6,829.28	6,906.36	6,892.99	26.48	24.57	-11.99	-163.62	1,604.65	871.41	822.78	48.62	17.921	
6,950.00	6,878.31	6,954.66	6,941.12	26.70	24.75	-11.99	-165.63	1,601.31	858.45	809.47	48.98	17.525	
7,000.00	6,927.34	7,002.95	6,989.26	26.92	24.92	-11.98	-167.65	1,597.97	845.50	796.16	49.34	17.135	
7,050.00	6,976.37	7,051.24	7,037.39	27.15	25.10	-11.98	-169.66	1,594.63	832.55	782.85	49.70	16.750	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 233H - Wellbore #1 - Permit Plan 1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
7,100.00	7,025.41	7,100.46	7,085.53	27.37	25.29	-11.97	-171.67	1,591.30	819.60	769.53	50.07	16.370			
7,150.00	7,074.44	7,147.83	7,133.87	27.59	25.46	-11.96	-173.69	1,587.96	806.65	756.22	50.43	15.997			
7,200.00	7,123.47	7,196.12	7,181.80	27.81	25.64	-11.96	-175.70	1,584.62	793.70	742.91	50.79	15.628			
7,250.00	7,172.50	7,244.42	7,229.94	28.03	25.82	-11.95	-177.72	1,581.28	780.74	729.60	51.15	15.265			
7,300.00	7,221.53	7,307.29	7,278.07	28.25	26.05	-11.95	-179.73	1,577.94	767.79	716.23	51.56	14.891			
7,350.00	7,270.56	7,341.00	7,326.21	28.47	26.18	-11.94	-181.75	1,574.61	754.84	702.97	51.87	14.553			
7,400.00	7,319.59	7,389.30	7,374.34	28.69	26.36	-11.93	-183.76	1,571.27	741.89	689.66	52.23	14.204			
7,450.00	7,368.62	7,437.59	7,422.48	28.92	26.54	-11.93	-185.78	1,567.93	728.94	676.35	52.59	13.880			
7,500.00	7,417.65	7,485.88	7,470.62	29.14	26.72	-11.92	-187.79	1,564.59	715.99	663.03	52.95	13.521			
7,550.00	7,466.68	7,534.18	7,518.75	29.36	26.90	-11.91	-189.80	1,561.25	703.03	649.72	53.32	13.186			
7,600.00	7,515.71	7,582.47	7,566.89	29.58	27.08	-11.91	-191.82	1,557.92	690.08	636.41	53.68	12.856			
7,650.00	7,564.74	7,630.76	7,615.02	29.81	27.26	-11.90	-193.83	1,554.58	677.13	623.09	54.04	12.531			
7,700.00	7,613.77	7,679.06	7,663.16	30.03	27.43	-11.89	-195.85	1,551.24	664.18	609.78	54.40	12.209			
7,750.00	7,662.80	7,727.35	7,711.29	30.25	27.61	-11.88	-197.86	1,547.90	651.23	596.47	54.76	11.892			
7,800.00	7,711.83	7,775.64	7,759.43	30.47	27.79	-11.87	-199.88	1,544.56	638.28	583.15	55.12	11.579			
7,850.00	7,760.86	7,823.94	7,807.57	30.70	27.97	-11.87	-201.89	1,541.23	625.33	569.84	55.49	11.270			
7,900.00	7,809.89	7,872.23	7,855.70	30.92	28.15	-11.86	-203.90	1,537.89	612.37	556.53	55.85	10.965			
7,950.00	7,858.92	7,920.52	7,903.84	31.14	28.33	-11.85	-205.92	1,534.55	599.42	543.21	56.21	10.664			
8,000.00	7,907.95	7,968.82	7,951.97	31.36	28.51	-11.84	-207.93	1,531.21	586.47	529.90	56.57	10.367			
8,050.00	7,956.98	8,017.11	8,000.11	31.59	28.69	-11.83	-209.95	1,527.87	573.52	516.58	56.94	10.073			
8,100.00	8,006.01	8,065.40	8,048.24	31.81	28.87	-11.81	-211.96	1,524.53	560.57	503.27	57.30	9.783			
8,150.00	8,055.05	8,113.70	8,096.38	32.03	29.05	-11.80	-213.98	1,521.20	547.62	489.96	57.66	9.497			
8,200.00	8,104.08	8,161.99	8,144.52	32.26	29.23	-11.79	-215.99	1,517.86	534.67	476.64	58.02	9.215			
8,250.00	8,153.11	8,210.28	8,192.65	32.48	29.41	-11.78	-218.01	1,514.52	521.71	463.33	58.39	8.936			
8,300.00	8,202.14	8,258.58	8,240.79	32.70	29.59	-11.76	-220.02	1,511.18	508.76	450.01	58.75	8.660			
8,350.00	8,251.17	8,306.87	8,288.92	32.93	29.77	-11.75	-222.03	1,507.84	495.81	436.70	59.11	8.388			
8,400.00	8,300.20	8,355.16	8,337.06	33.15	29.95	-11.73	-224.05	1,504.51	482.86	423.38	59.48	8.119			
8,450.00	8,349.23	8,403.46	8,385.19	33.37	30.13	-11.72	-226.06	1,501.17	469.91	410.07	59.84	7.853			
8,500.00	8,398.26	8,451.75	8,433.33	33.60	30.31	-11.70	-228.08	1,497.83	456.96	396.76	60.20	7.590			
8,550.00	8,447.29	8,500.04	8,481.47	33.82	30.49	-11.68	-230.09	1,494.49	444.01	383.44	60.56	7.331			
8,600.00	8,496.32	8,548.34	8,529.60	34.05	30.67	-11.67	-232.11	1,491.15	431.05	370.13	60.93	7.075			
8,650.00	8,545.35	8,596.63	8,577.74	34.27	30.85	-11.65	-234.12	1,487.82	418.10	356.81	61.29	6.822			
8,700.00	8,594.38	8,644.92	8,625.87	34.49	31.03	-11.62	-236.13	1,484.48	405.15	343.50	61.65	6.571			
8,750.00	8,643.41	8,706.78	8,674.01	34.72	31.26	-11.60	-238.15	1,481.14	392.20	330.13	62.07	6.319			
8,800.00	8,692.44	8,741.51	8,722.15	34.94	31.39	-11.58	-240.16	1,477.80	379.25	316.87	62.38	6.080			
8,850.00	8,741.47	8,789.80	8,770.28	35.17	31.57	-11.55	-242.18	1,474.46	366.30	303.55	62.75	5.838			
8,900.00	8,790.50	8,838.10	8,818.42	35.39	31.75	-11.52	-244.19	1,471.12	353.35	290.24	63.11	5.599			
8,950.00	8,839.53	8,886.39	8,866.55	35.61	31.93	-11.49	-246.21	1,467.79	340.40	276.93	63.47	5.363			
9,000.00	8,888.56	8,934.68	8,914.69	35.84	32.11	-11.46	-248.22	1,464.45	327.45	263.61	63.84	5.129			
9,050.00	8,937.59	8,982.98	8,962.82	36.06	32.29	-11.43	-250.24	1,461.11	314.50	250.30	64.20	4.899 Alert			
9,100.00	8,986.62	9,031.27	9,010.96	36.29	32.47	-11.39	-252.25	1,457.77	301.55	236.98	64.56	4.671 Alert			
9,150.00	9,035.66	9,079.56	9,059.10	36.51	32.65	-11.35	-254.26	1,454.43	288.60	223.67	64.93	4.445 Alert			
9,200.00	9,084.69	9,127.86	9,107.23	36.74	32.83	-11.30	-256.28	1,451.10	275.65	210.36	65.29	4.222 Alert			
9,250.00	9,133.72	9,176.15	9,155.37	36.96	33.01	-11.25	-258.29	1,447.76	262.70	197.04	65.66	4.001 Alert			
9,300.00	9,182.75	9,224.44	9,203.50	37.19	33.19	-11.20	-260.31	1,444.42	249.75	183.73	66.02	3.783 Alert			
9,350.00	9,231.78	9,272.74	9,251.64	37.41	33.37	-11.14	-262.32	1,441.08	236.80	170.42	66.38	3.567 Alert			
9,400.00	9,280.81	9,319.56	9,298.31	37.64	33.55	-11.09	-264.21	1,437.94	223.95	157.18	66.78	3.354 Alert			
9,450.00	9,329.84	9,365.77	9,344.43	37.86	33.72	-11.11	-265.81	1,435.30	211.57	144.38	67.18	3.149 Alert			
9,500.00	9,378.87	9,412.22	9,390.81	38.09	33.89	-11.23	-267.13	1,433.12	199.68	132.09	67.59	2.954 Alert			
9,550.00	9,427.90	9,458.90	9,437.44	38.31	34.06	-11.46	-268.16	1,431.41	188.30	120.31	67.99	2.769 Alert			
9,600.00	9,476.93	9,505.78	9,484.30	38.54	34.22	-11.81	-268.89	1,430.19	177.43	109.04	68.39	2.594 Alert			
9,650.00	9,525.96	9,552.86	9,531.37	38.76	34.39	-12.31	-269.33	1,429.46	167.08	98.29	68.79	2.429 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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 233H - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toeface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(')	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
9,700.00	9,574.99	9,600.18	9,578.69	38.99	34.55	-13.00	-269.47	1,429.23	157.27	88.08	69.19	2.273	Minor Risk	
9,750.00	9,624.02	9,649.22	9,627.72	39.21	34.71	-8.58	-269.47	1,429.23	147.72	78.16	69.56	2.124	Minor Risk	
9,800.00	9,673.07	9,701.74	9,676.77	39.43	34.89	17.68	-269.47	1,429.23	138.13	68.22	69.92	1.976	Minor Risk	
9,850.00	9,721.85	9,747.04	9,725.55	39.64	35.04	40.58	-269.47	1,429.23	128.63	58.44	70.19	1.833	Minor Risk	
9,900.00	9,769.99	9,804.82	9,773.69	39.83	35.23	58.98	-269.47	1,429.23	119.88	49.39	70.49	1.701	Minor Risk	
9,950.00	9,817.12	9,842.31	9,820.82	40.01	35.36	75.06	-269.47	1,429.23	113.18	42.37	70.81	1.598	Minor Risk	
9,999.46	9,862.40	9,887.59	9,866.10	40.17	35.51	90.00	-269.47	1,429.23	110.49	39.07	71.42	1.547	Minor Risk, CC	
10,000.00	9,862.89	9,888.08	9,866.59	40.18	35.51	90.16	-269.47	1,429.23	110.49	39.06	71.43	1.547	Minor Risk, ES, SF	
10,050.00	9,906.94	9,932.13	9,910.64	40.32	35.66	104.26	-269.47	1,429.23	113.99	41.57	72.42	1.574	Minor Risk	
10,100.00	9,948.94	9,979.03	9,957.53	40.46	35.82	117.66	-268.66	1,429.22	124.62	51.16	73.46	1.696	Minor Risk	
10,150.00	9,988.57	10,030.83	10,009.06	40.58	35.98	129.49	-263.57	1,429.20	140.02	66.03	73.99	1.892	Minor Risk	
10,200.00	10,025.54	10,085.87	10,063.07	40.68	36.16	139.25	-253.09	1,429.14	158.47	84.69	73.78	2.148	Minor Risk	
10,250.00	10,059.55	10,144.72	10,119.42	40.76	36.33	147.24	-236.21	1,429.06	178.65	105.91	72.74	2.456	Minor Risk	
10,300.00	10,090.35	10,208.01	10,177.74	40.84	36.49	153.76	-211.72	1,428.93	199.49	128.66	70.83	2.817	Alert	
10,350.00	10,117.70	10,276.42	10,237.32	40.89	36.65	159.07	-178.19	1,428.76	220.12	152.13	67.99	3.238	Alert	
10,400.00	10,141.40	10,350.62	10,296.93	40.94	36.80	163.38	-134.08	1,428.53	239.78	175.57	64.21	3.734	Alert	
10,450.00	10,161.27	10,431.17	10,354.59	40.98	36.93	166.81	-77.94	1,428.24	257.70	198.19	59.51	4.330	Alert	
10,500.00	10,177.15	10,518.32	10,407.45	41.01	37.03	169.47	-8.76	1,427.88	273.16	219.04	54.12	5.048		
10,550.00	10,188.93	10,611.80	10,451.78	41.03	37.10	171.39	73.42	1,427.45	285.43	236.86	48.57	5.876		
10,600.00	10,196.51	10,600.00	10,478.61	41.05	37.11	172.47	149.43	1,427.06	293.89	248.59	45.29	6.488		
10,650.00	10,199.83	10,612.97	10,498.90	41.07	37.36	173.18	267.93	1,426.44	298.03	256.46	41.57	7.169		
10,700.00	10,200.00	10,681.35	10,500.00	41.09	37.51	173.21	336.29	1,426.09	298.39	256.76	41.64	7.167		
10,750.00	10,200.00	10,691.35	10,500.00	41.13	37.64	173.21	386.29	1,425.83	298.39	256.57	41.83	7.134		
10,800.00	10,200.00	10,681.35	10,500.00	41.17	37.78	173.21	436.29	1,425.57	298.39	256.37	42.02	7.101		
10,850.00	10,200.00	11,031.35	10,500.00	41.22	37.94	173.21	486.29	1,425.31	298.39	256.16	42.24	7.065		
10,900.00	10,200.00	11,081.35	10,500.00	41.29	38.11	173.21	536.29	1,425.05	298.39	255.93	42.46	7.028		
10,950.00	10,200.00	11,131.35	10,500.00	41.37	38.29	173.21	586.29	1,424.79	298.39	255.69	42.70	6.987		
11,000.00	10,200.00	11,181.35	10,500.00	41.46	38.49	173.21	636.28	1,424.53	298.39	255.44	42.95	6.947		
11,050.00	10,200.00	11,231.35	10,500.00	41.56	38.70	173.21	686.28	1,424.27	298.39	255.17	43.23	6.903		
11,100.00	10,200.00	11,281.35	10,500.00	41.68	38.91	173.21	736.28	1,424.02	298.39	254.89	43.50	6.859		
11,150.00	10,200.00	11,331.35	10,500.00	41.82	39.15	173.21	786.28	1,423.76	298.39	254.60	43.80	6.813		
11,200.00	10,200.00	11,381.35	10,500.00	41.97	39.39	173.21	836.28	1,423.50	298.39	254.30	44.10	6.766		
11,250.00	10,200.00	11,431.35	10,500.00	42.14	39.64	173.20	886.28	1,423.24	298.40	253.97	44.42	6.717		
11,300.00	10,200.00	11,481.35	10,500.00	42.32	39.91	173.20	936.28	1,422.98	298.40	253.65	44.75	6.669		
11,350.00	10,200.00	11,531.35	10,500.00	42.52	40.19	173.20	986.28	1,422.72	298.40	253.30	45.09	6.618		
11,400.00	10,200.00	11,581.35	10,500.00	42.74	40.47	173.20	1,036.28	1,422.46	298.40	252.96	45.44	6.567		
11,450.00	10,200.00	11,631.35	10,500.00	42.97	40.77	173.20	1,086.28	1,422.20	298.40	252.59	45.81	6.514		
11,500.00	10,200.00	11,681.35	10,500.00	43.21	41.08	173.20	1,136.28	1,421.94	298.40	252.22	46.18	6.462		
11,550.00	10,200.00	11,731.35	10,500.00	43.47	41.40	173.20	1,186.28	1,421.68	298.40	251.83	46.57	6.408		
11,600.00	10,200.00	11,781.35	10,500.00	43.75	41.73	173.20	1,236.28	1,421.42	298.40	251.44	46.96	6.354		
11,650.00	10,200.00	11,831.35	10,500.00	44.04	42.07	173.20	1,286.28	1,421.16	298.40	251.03	47.37	6.299		
11,700.00	10,200.00	11,881.35	10,500.00	44.33	42.42	173.20	1,336.28	1,420.91	298.40	250.62	47.78	6.245		
11,750.00	10,200.00	11,931.35	10,500.00	44.65	42.78	173.20	1,386.27	1,420.65	298.40	250.19	48.21	6.189		
11,800.00	10,200.00	11,981.35	10,500.00	44.97	43.14	173.20	1,436.27	1,420.39	298.40	249.76	48.64	6.135		
11,850.00	10,200.00	12,031.35	10,500.00	45.31	43.52	173.20	1,486.27	1,420.13	298.40	249.31	49.09	6.079		
11,900.00	10,200.00	12,081.35	10,500.00	45.65	43.91	173.20	1,536.27	1,419.87	298.40	248.86	49.54	6.023		
11,950.00	10,200.00	12,131.35	10,500.00	46.01	44.30	173.20	1,586.27	1,419.61	298.40	248.40	50.00	5.968		
12,000.00	10,200.00	12,181.35	10,500.00	46.38	44.70	173.20	1,636.27	1,419.35	298.40	247.93	50.47	5.912		
12,050.00	10,200.00	12,231.35	10,500.00	46.76	45.11	173.20	1,686.27	1,419.09	298.40	247.45	50.95	5.857		
12,100.00	10,200.00	12,281.35	10,500.00	47.14	45.53	173.20	1,736.27	1,418.83	298.40	246.97	51.43	5.802		
12,150.00	10,200.00	12,331.35	10,500.00	47.54	45.96	173.20	1,786.27	1,418.57	298.40	246.47	51.93	5.746		
12,200.00	10,200.00	12,381.35	10,500.00	47.94	46.39	173.20	1,836.27	1,418.31	298.40	245.97	52.43	5.691		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 233H - 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 Tooface (")	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,250.00	10,200.00	12,431.35	10,500.00	48.36	46.83	173.19	1,886.27	1,418.05	298.40	245.46	52.94	5.637	
12,300.00	10,200.00	12,481.35	10,500.00	48.78	47.28	173.19	1,936.27	1,417.80	298.40	244.95	53.45	5.582	
12,350.00	10,200.00	12,531.35	10,500.00	49.21	47.73	173.19	1,986.27	1,417.54	298.40	244.42	53.98	5.528	
12,400.00	10,200.00	12,581.35	10,500.00	49.64	48.19	173.19	2,036.27	1,417.28	298.40	243.90	54.51	5.475	
12,450.00	10,200.00	12,631.35	10,500.00	50.09	48.66	173.19	2,086.27	1,417.02	298.40	243.36	55.04	5.421	
12,500.00	10,200.00	12,681.35	10,500.00	50.53	49.13	173.19	2,136.26	1,416.76	298.40	242.82	55.58	5.369	
12,550.00	10,200.00	12,731.35	10,500.00	50.99	49.61	173.19	2,186.26	1,416.50	298.40	242.27	56.13	5.316	
12,600.00	10,200.00	12,781.35	10,500.00	51.45	50.10	173.19	2,236.26	1,416.24	298.40	241.72	56.68	5.264	
12,650.00	10,200.00	12,831.35	10,500.00	51.93	50.59	173.19	2,286.26	1,415.98	298.40	241.16	57.25	5.213	
12,700.00	10,200.00	12,881.35	10,500.00	52.40	51.09	173.19	2,336.26	1,415.72	298.40	240.59	57.81	5.162	
12,750.00	10,200.00	12,931.35	10,500.00	52.88	51.59	173.19	2,386.26	1,415.46	298.40	240.02	58.38	5.111	
12,800.00	10,200.00	12,981.35	10,500.00	53.37	52.10	173.19	2,436.26	1,415.20	298.40	239.45	58.96	5.061	
12,850.00	10,200.00	13,031.35	10,500.00	53.87	52.61	173.19	2,486.26	1,414.95	298.41	238.87	59.54	5.012	
12,900.00	10,200.00	13,081.35	10,500.00	54.36	53.13	173.19	2,536.26	1,414.69	298.41	238.28	60.12	4.963 Alert	
12,950.00	10,200.00	13,131.35	10,500.00	54.87	53.65	173.19	2,586.26	1,414.43	298.41	237.69	60.72	4.915 Alert	
13,000.00	10,200.00	13,181.35	10,500.00	55.38	54.18	173.19	2,636.26	1,414.17	298.41	237.10	61.31	4.867 Alert	
13,050.00	10,200.00	13,231.35	10,500.00	55.89	54.71	173.19	2,686.26	1,413.91	298.41	236.50	61.91	4.820 Alert	
13,100.00	10,200.00	13,281.35	10,500.00	56.41	55.25	173.19	2,736.26	1,413.65	298.41	235.89	62.51	4.773 Alert	
13,150.00	10,200.00	13,331.35	10,500.00	56.94	55.79	173.19	2,786.26	1,413.39	298.41	235.28	63.12	4.727 Alert	
13,200.00	10,200.00	13,381.35	10,500.00	57.46	56.34	173.18	2,836.26	1,413.13	298.41	234.67	63.74	4.682 Alert	
13,250.00	10,200.00	13,431.35	10,500.00	58.00	56.89	173.18	2,886.25	1,412.87	298.41	234.05	64.35	4.637 Alert	
13,300.00	10,200.00	13,481.35	10,500.00	58.53	57.44	173.18	2,936.25	1,412.61	298.41	233.43	64.97	4.593 Alert	
13,350.00	10,200.00	13,531.35	10,500.00	59.07	58.00	173.18	2,986.25	1,412.35	298.41	232.81	65.60	4.549 Alert	
13,400.00	10,200.00	13,581.35	10,500.00	59.62	58.56	173.18	3,036.25	1,412.09	298.41	232.18	66.23	4.506 Alert	
13,450.00	10,200.00	13,631.35	10,500.00	60.17	59.12	173.18	3,086.25	1,411.84	298.41	231.55	66.86	4.463 Alert	
13,500.00	10,200.00	13,681.35	10,500.00	60.72	59.69	173.18	3,136.25	1,411.58	298.41	230.91	67.50	4.421 Alert	
13,550.00	10,200.00	13,731.35	10,500.00	61.28	60.26	173.18	3,186.25	1,411.32	298.41	230.27	68.14	4.380 Alert	
13,600.00	10,200.00	13,781.35	10,500.00	61.84	60.84	173.18	3,236.25	1,411.06	298.41	229.63	68.78	4.339 Alert	
13,650.00	10,200.00	13,831.35	10,500.00	62.40	61.42	173.18	3,286.25	1,410.80	298.41	228.99	69.42	4.298 Alert	
13,700.00	10,200.00	13,881.35	10,500.00	62.97	62.00	173.18	3,336.25	1,410.54	298.41	228.34	70.07	4.259 Alert	
13,750.00	10,200.00	13,931.35	10,500.00	63.54	62.58	173.18	3,386.25	1,410.28	298.41	227.69	70.72	4.219 Alert	
13,800.00	10,200.00	13,981.35	10,500.00	64.11	63.17	173.18	3,436.25	1,410.02	298.41	227.03	71.38	4.181 Alert	
13,850.00	10,200.00	14,031.35	10,500.00	64.69	63.76	173.18	3,486.25	1,409.76	298.41	226.37	72.04	4.142 Alert	
13,900.00	10,200.00	14,081.35	10,500.00	65.27	64.35	173.18	3,536.25	1,409.50	298.41	225.71	72.70	4.105 Alert	
13,950.00	10,200.00	14,131.35	10,500.00	65.85	64.95	173.18	3,586.25	1,409.24	298.41	225.05	73.36	4.068 Alert	
14,000.00	10,200.00	14,181.35	10,500.00	66.44	65.55	173.18	3,636.24	1,408.98	298.41	224.39	74.03	4.031 Alert	
14,050.00	10,200.00	14,231.35	10,500.00	67.03	66.15	173.18	3,686.24	1,408.73	298.41	223.72	74.70	3.995 Alert	
14,100.00	10,200.00	14,281.35	10,500.00	67.62	66.75	173.18	3,736.24	1,408.47	298.41	223.05	75.37	3.960 Alert	
14,150.00	10,200.00	14,331.35	10,500.00	68.21	67.36	173.18	3,786.24	1,408.21	298.41	222.37	76.04	3.924 Alert	
14,200.00	10,200.00	14,381.35	10,500.00	68.81	67.97	173.17	3,836.24	1,407.95	298.41	221.70	76.72	3.890 Alert	
14,250.00	10,200.00	14,431.35	10,500.00	69.41	68.58	173.17	3,886.24	1,407.69	298.41	221.02	77.39	3.856 Alert	
14,300.00	10,200.00	14,481.35	10,500.00	70.01	69.19	173.17	3,936.24	1,407.43	298.41	220.34	78.07	3.822 Alert	
14,350.00	10,200.00	14,531.35	10,500.00	70.61	69.80	173.17	3,986.24	1,407.17	298.41	219.66	78.76	3.789 Alert	
14,400.00	10,200.00	14,581.35	10,500.00	71.22	70.42	173.17	4,036.24	1,406.91	298.41	218.97	79.44	3.756 Alert	
14,450.00	10,200.00	14,631.35	10,500.00	71.83	71.04	173.17	4,086.24	1,406.65	298.42	218.29	80.13	3.724 Alert	
14,500.00	10,200.00	14,681.35	10,500.00	72.44	71.66	173.17	4,136.24	1,406.39	298.42	217.60	80.82	3.692 Alert	
14,550.00	10,200.00	14,731.35	10,500.00	73.05	72.29	173.17	4,186.24	1,406.13	298.42	216.91	81.51	3.661 Alert	
14,600.00	10,200.00	14,781.35	10,500.00	73.67	72.91	173.17	4,236.24	1,405.87	298.42	216.21	82.20	3.630 Alert	
14,650.00	10,200.00	14,831.35	10,500.00	74.28	73.54	173.17	4,286.24	1,405.62	298.42	215.52	82.90	3.600 Alert	
14,700.00	10,200.00	14,881.35	10,500.00	74.90	74.17	173.17	4,336.24	1,405.36	298.42	214.82	83.59	3.570 Alert	
14,750.00	10,200.00	14,931.35	10,500.00	75.52	74.80	173.17	4,386.23	1,405.10	298.42	214.12	84.29	3.540 Alert	
14,800.00	10,200.00	14,981.35	10,500.00	76.15	75.43	173.17	4,436.23	1,404.84	298.42	213.43	84.99	3.511 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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 233H - Wellbore #1 - Permit Plan 1													0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
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)			
14,850.00	10,200.00	15,031.35	10,500.00	76.77	76.07	173.17	4,486.23	1,404.58	298.42	212.72	85.69	3.482 Alert	
14,900.00	10,200.00	15,081.35	10,500.00	77.40	76.70	173.17	4,536.23	1,404.32	298.42	212.02	86.40	3.454 Alert	
14,950.00	10,200.00	15,131.35	10,500.00	78.03	77.34	173.17	4,586.23	1,404.06	298.42	211.31	87.10	3.426 Alert	
15,000.00	10,200.00	15,181.35	10,500.00	78.66	77.98	173.17	4,636.23	1,403.80	298.42	210.61	87.81	3.398 Alert	
15,050.00	10,200.00	15,231.35	10,500.00	79.29	78.62	173.17	4,686.23	1,403.54	298.42	209.90	88.52	3.371 Alert	
15,100.00	10,200.00	15,281.35	10,500.00	79.92	79.26	173.17	4,736.23	1,403.28	298.42	209.19	89.23	3.344 Alert	
15,150.00	10,200.00	15,331.35	10,500.00	80.56	79.91	173.17	4,786.23	1,403.02	298.42	208.48	89.94	3.318 Alert	
15,200.00	10,200.00	15,381.35	10,500.00	81.19	80.55	173.16	4,836.23	1,402.76	298.42	207.77	90.65	3.292 Alert	
15,250.00	10,200.00	15,431.35	10,500.00	81.83	81.20	173.16	4,886.23	1,402.51	298.42	207.05	91.37	3.266 Alert	
15,300.00	10,200.00	15,481.35	10,500.00	82.47	81.85	173.16	4,936.23	1,402.25	298.42	206.34	92.08	3.241 Alert	
15,350.00	10,200.00	15,531.35	10,500.00	83.11	82.50	173.16	4,986.23	1,401.99	298.42	205.62	92.80	3.216 Alert	
15,400.00	10,200.00	15,581.35	10,500.00	83.75	83.15	173.16	5,036.23	1,401.73	298.42	204.90	93.52	3.191 Alert	
15,450.00	10,200.00	15,631.35	10,500.00	84.40	83.80	173.16	5,086.23	1,401.47	298.42	204.18	94.24	3.167 Alert	
15,500.00	10,200.00	15,681.35	10,500.00	85.04	84.45	173.16	5,136.22	1,401.21	298.42	203.46	94.96	3.143 Alert	
15,550.00	10,200.00	15,731.35	10,500.00	85.69	85.11	173.16	5,186.22	1,400.95	298.42	202.74	95.68	3.119 Alert	
15,600.00	10,200.00	15,781.35	10,500.00	86.34	85.76	173.16	5,236.22	1,400.69	298.42	202.02	96.40	3.096 Alert	
15,650.00	10,200.00	15,831.35	10,500.00	86.99	86.42	173.16	5,286.22	1,400.43	298.42	201.29	97.13	3.072 Alert	
15,700.00	10,200.00	15,881.35	10,500.00	87.64	87.08	173.16	5,336.22	1,400.17	298.42	200.57	97.85	3.050 Alert	
15,750.00	10,200.00	15,931.35	10,500.00	88.29	87.74	173.16	5,386.22	1,399.91	298.42	199.84	98.58	3.027 Alert	
15,800.00	10,200.00	15,981.35	10,500.00	88.94	88.40	173.16	5,436.22	1,399.65	298.42	199.12	99.31	3.005 Alert	
15,850.00	10,200.00	16,031.35	10,500.00	89.60	89.06	173.16	5,486.22	1,399.40	298.42	198.39	100.04	2.983 Alert	
15,900.00	10,200.00	16,081.35	10,500.00	90.25	89.72	173.16	5,536.22	1,399.14	298.42	197.66	100.77	2.962 Alert	
15,950.00	10,200.00	16,131.35	10,500.00	90.91	90.38	173.16	5,586.22	1,398.88	298.42	196.93	101.50	2.940 Alert	
16,000.00	10,200.00	16,181.35	10,500.00	91.56	91.05	173.16	5,636.22	1,398.62	298.42	196.19	102.23	2.919 Alert	
16,050.00	10,200.00	16,231.35	10,500.00	92.22	91.71	173.16	5,686.22	1,398.36	298.43	195.46	102.96	2.898 Alert	
16,100.00	10,200.00	16,281.35	10,500.00	92.88	92.38	173.16	5,736.22	1,398.10	298.43	194.73	103.70	2.878 Alert	
16,150.00	10,200.00	16,331.35	10,500.00	93.54	93.05	173.16	5,786.22	1,397.84	298.43	193.99	104.43	2.858 Alert	
16,200.00	10,200.00	16,381.35	10,500.00	94.20	93.71	173.15	5,836.22	1,397.58	298.43	193.26	105.17	2.838 Alert	
16,250.00	10,200.00	16,431.35	10,500.00	94.87	94.38	173.15	5,886.21	1,397.32	298.43	192.52	105.91	2.818 Alert	
16,300.00	10,200.00	16,481.35	10,500.00	95.53	95.05	173.15	5,936.21	1,397.06	298.43	191.78	106.64	2.798 Alert	
16,350.00	10,200.00	16,531.35	10,500.00	96.19	95.72	173.15	5,986.21	1,396.80	298.43	191.05	107.38	2.779 Alert	
16,400.00	10,200.00	16,581.35	10,500.00	96.86	96.39	173.15	6,036.21	1,396.54	298.43	190.31	108.12	2.760 Alert	
16,450.00	10,200.00	16,631.35	10,500.00	97.53	97.07	173.15	6,086.21	1,396.29	298.43	189.57	108.86	2.741 Alert	
16,500.00	10,200.00	16,681.35	10,500.00	98.19	97.74	173.15	6,136.21	1,396.03	298.43	188.83	109.60	2.723 Alert	
16,550.00	10,200.00	16,731.35	10,500.00	98.86	98.41	173.15	6,186.21	1,395.77	298.43	188.08	110.34	2.705 Alert	
16,600.00	10,200.00	16,781.35	10,500.00	99.53	99.09	173.15	6,236.21	1,395.51	298.43	187.34	111.09	2.686 Alert	
16,650.00	10,200.00	16,831.35	10,500.00	100.20	99.76	173.15	6,286.21	1,395.25	298.43	186.60	111.83	2.669 Alert	
16,700.00	10,200.00	16,881.35	10,500.00	100.87	100.44	173.15	6,336.21	1,394.99	298.43	185.86	112.57	2.651 Alert	
16,750.00	10,200.00	16,931.35	10,500.00	101.54	101.12	173.15	6,386.21	1,394.73	298.43	185.11	113.32	2.634 Alert	
16,800.00	10,200.00	16,981.35	10,500.00	102.21	101.79	173.15	6,436.21	1,394.47	298.43	184.37	114.06	2.616 Alert	
16,850.00	10,200.00	17,031.35	10,500.00	102.88	102.47	173.15	6,486.21	1,394.21	298.43	183.62	114.81	2.599 Alert	
16,900.00	10,200.00	17,081.35	10,500.00	103.56	103.15	173.15	6,536.21	1,393.95	298.43	182.87	115.56	2.583 Alert	
16,950.00	10,200.00	17,131.35	10,500.00	104.23	103.83	173.15	6,586.21	1,393.69	298.43	182.13	116.31	2.566 Alert	
17,000.00	10,200.00	17,181.35	10,500.00	104.91	104.51	173.15	6,636.20	1,393.44	298.43	181.38	117.05	2.550 Alert	
17,050.00	10,200.00	17,231.35	10,500.00	105.58	105.19	173.15	6,686.20	1,393.18	298.43	180.63	117.80	2.533 Alert	
17,100.00	10,200.00	17,281.35	10,500.00	106.26	105.87	173.15	6,736.20	1,392.92	298.43	179.88	118.55	2.517 Alert	
17,150.00	10,200.00	17,331.35	10,500.00	106.94	106.56	173.15	6,786.20	1,392.66	298.43	179.13	119.30	2.501 Alert	
17,200.00	10,200.00	17,381.35	10,500.00	107.61	107.24	173.14	6,836.20	1,392.40	298.43	178.38	120.05	2.486 Minor Risk	
17,250.00	10,200.00	17,431.35	10,500.00	108.29	107.92	173.14	6,886.20	1,392.14	298.43	177.63	120.81	2.470 Minor Risk	
17,300.00	10,200.00	17,481.35	10,500.00	108.97	108.61	173.14	6,936.20	1,391.88	298.43	176.88	121.56	2.455 Minor Risk	
17,350.00	10,200.00	17,531.35	10,500.00	109.65	109.29	173.14	6,986.20	1,391.62	298.43	176.12	122.31	2.440 Minor Risk	
17,400.00	10,200.00	17,581.35	10,500.00	110.33	109.98	173.14	7,036.20	1,391.36	298.43	175.37	123.06	2.425 Minor Risk	

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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															
Semi Major Axis															
Distance															
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre			Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N-S (ft)	+E-W (ft)		(ft)	(ft)	(ft)			
17,450.00	10,200.00	17,631.35	10,500.00	111.01	110.66	173.14	7,086.20	1,391.10		298.43	174.62	123.82	2.410	Minor Risk	
17,500.00	10,200.00	17,681.35	10,500.00	111.69	111.35	173.14	7,136.20	1,390.84		298.43	173.86	124.57	2.396	Minor Risk	
17,550.00	10,200.00	17,731.35	10,500.00	112.37	112.03	173.14	7,186.20	1,390.58		298.43	173.11	125.33	2.381	Minor Risk	
17,600.00	10,200.00	17,781.35	10,500.00	113.06	112.72	173.14	7,236.20	1,390.33		298.44	172.35	126.08	2.367	Minor Risk	
17,650.00	10,200.00	17,831.35	10,500.00	113.74	113.41	173.14	7,286.20	1,390.07		298.44	171.60	126.84	2.353	Minor Risk	
17,700.00	10,200.00	17,881.35	10,500.00	114.42	114.10	173.14	7,336.20	1,389.81		298.44	170.84	127.60	2.339	Minor Risk	
17,750.00	10,200.00	17,931.35	10,500.00	115.11	114.79	173.14	7,386.19	1,389.55		298.44	170.08	128.35	2.325	Minor Risk	
17,800.00	10,200.00	17,981.35	10,500.00	115.79	115.48	173.14	7,436.19	1,389.29		298.44	169.33	129.11	2.311	Minor Risk	
17,850.00	10,200.00	18,031.35	10,500.00	116.48	116.16	173.14	7,486.19	1,389.03		298.44	168.57	129.87	2.298	Minor Risk	
17,900.00	10,200.00	18,081.35	10,500.00	117.16	116.86	173.14	7,536.19	1,388.77		298.44	167.81	130.63	2.285	Minor Risk	
17,950.00	10,200.00	18,131.35	10,500.00	117.85	117.55	173.14	7,586.19	1,388.51		298.44	167.05	131.39	2.271	Minor Risk	
18,000.00	10,200.00	18,181.35	10,500.00	118.54	118.24	173.14	7,636.19	1,388.25		298.44	166.29	132.15	2.258	Minor Risk	
18,050.00	10,200.00	18,231.35	10,500.00	119.22	118.93	173.14	7,686.19	1,387.99		298.44	165.53	132.91	2.245	Minor Risk	
18,100.00	10,200.00	18,281.35	10,500.00	119.91	119.62	173.14	7,736.19	1,387.73		298.44	164.77	133.67	2.233	Minor Risk	
18,150.00	10,200.00	18,331.35	10,500.00	120.60	120.31	173.14	7,786.19	1,387.47		298.44	164.01	134.43	2.220	Minor Risk	
18,200.00	10,200.00	18,381.35	10,500.00	121.29	121.01	173.13	7,836.19	1,387.22		298.44	163.25	135.19	2.208	Minor Risk	
18,250.00	10,200.00	18,431.35	10,500.00	121.98	121.70	173.13	7,886.19	1,386.96		298.44	162.49	135.95	2.195	Minor Risk	
18,300.00	10,200.00	18,481.35	10,500.00	122.67	122.39	173.13	7,936.19	1,386.70		298.44	161.73	136.71	2.183	Minor Risk	
18,350.00	10,200.00	18,531.35	10,500.00	123.36	123.09	173.13	7,986.19	1,386.44		298.44	160.97	137.47	2.171	Minor Risk	
18,400.00	10,200.00	18,581.35	10,500.00	124.05	123.78	173.13	8,036.19	1,386.18		298.44	160.20	138.24	2.159	Minor Risk	
18,450.00	10,200.00	18,631.35	10,500.00	124.74	124.48	173.13	8,086.19	1,385.92		298.44	159.44	139.00	2.147	Minor Risk	
18,500.00	10,200.00	18,681.35	10,500.00	125.43	125.17	173.13	8,136.18	1,385.66		298.44	158.68	139.76	2.135	Minor Risk	
18,550.00	10,200.00	18,731.35	10,500.00	126.12	125.87	173.13	8,186.18	1,385.40		298.44	157.91	140.53	2.124	Minor Risk	
18,600.00	10,200.00	18,781.35	10,500.00	126.82	126.56	173.13	8,236.18	1,385.14		298.44	157.15	141.29	2.112	Minor Risk	
18,650.00	10,200.00	18,831.35	10,500.00	127.51	127.26	173.13	8,286.18	1,384.88		298.44	156.38	142.06	2.101	Minor Risk	
18,700.00	10,200.00	18,881.35	10,500.00	128.20	127.95	173.13	8,336.18	1,384.62		298.44	155.62	142.82	2.090	Minor Risk	
18,750.00	10,200.00	18,931.35	10,500.00	128.89	128.65	173.13	8,386.18	1,384.36		298.44	154.85	143.59	2.078	Minor Risk	
18,800.00	10,200.00	18,981.35	10,500.00	129.59	129.35	173.13	8,436.18	1,384.11		298.44	154.09	144.35	2.067	Minor Risk	
18,850.00	10,200.00	19,031.35	10,500.00	130.28	130.05	173.13	8,486.18	1,383.85		298.44	153.32	145.12	2.057	Minor Risk	
18,900.00	10,200.00	19,081.35	10,500.00	130.98	130.74	173.13	8,536.18	1,383.59		298.44	152.56	145.89	2.048	Minor Risk	
18,950.00	10,200.00	19,131.35	10,500.00	131.67	131.44	173.13	8,586.18	1,383.33		298.44	151.79	146.66	2.035	Minor Risk	
19,000.00	10,200.00	19,181.35	10,500.00	132.37	132.14	173.13	8,636.18	1,383.07		298.44	151.02	147.42	2.024	Minor Risk	
19,050.00	10,200.00	19,231.35	10,500.00	133.06	132.84	173.13	8,686.18	1,382.81		298.44	150.25	148.19	2.014	Minor Risk	
19,100.00	10,200.00	19,281.35	10,500.00	133.76	133.54	173.13	8,736.18	1,382.55		298.44	149.49	148.96	2.004	Minor Risk	
19,150.00	10,200.00	19,331.35	10,500.00	134.45	134.24	173.13	8,786.18	1,382.29		298.44	148.72	149.73	1.993	Minor Risk	
19,200.00	10,200.00	19,381.35	10,500.00	135.15	134.94	173.12	8,836.17	1,382.03		298.45	147.95	150.50	1.983	Minor Risk	
19,250.00	10,200.00	19,431.35	10,500.00	135.85	135.64	173.12	8,886.17	1,381.77		298.45	147.18	151.26	1.973	Minor Risk	
19,300.00	10,200.00	19,481.35	10,500.00	136.55	136.34	173.12	8,936.17	1,381.51		298.45	146.41	152.03	1.963	Minor Risk	
19,350.00	10,200.00	19,531.35	10,500.00	137.24	137.04	173.12	8,986.17	1,381.25		298.45	145.64	152.80	1.953	Minor Risk	
19,400.00	10,200.00	19,581.35	10,500.00	137.94	137.74	173.12	9,036.17	1,381.00		298.45	144.87	153.57	1.943	Minor Risk	
19,450.00	10,200.00	19,631.35	10,500.00	138.64	138.44	173.12	9,086.17	1,380.74		298.45	144.10	154.34	1.934	Minor Risk	
19,500.00	10,200.00	19,681.35	10,500.00	139.34	139.14	173.12	9,136.17	1,380.48		298.45	143.33	155.11	1.924	Minor Risk	
19,550.00	10,200.00	19,731.35	10,500.00	140.04	139.85	173.12	9,186.17	1,380.22		298.45	142.56	155.88	1.915	Minor Risk	
19,600.00	10,200.00	19,781.35	10,500.00	140.74	140.55	173.12	9,236.17	1,379.96		298.45	141.79	156.66	1.905	Minor Risk	
19,650.00	10,200.00	19,831.35	10,500.00	141.43	141.25	173.12	9,286.17	1,379.70		298.45	141.02	157.43	1.896	Minor Risk	
19,700.00	10,200.00	19,881.35	10,500.00	142.13	141.95	173.12	9,336.17	1,379.44		298.45	140.25	158.20	1.887	Minor Risk	
19,750.00	10,200.00	19,931.35	10,500.00	142.83	142.66	173.12	9,386.17	1,379.18		298.45	139.48	158.97	1.877	Minor Risk	
19,800.00	10,200.00	19,981.35	10,500.00	143.53	143.36	173.12	9,436.17	1,378.92		298.45	138.71	159.74	1.868	Minor Risk	
19,850.00	10,200.00	20,031.35	10,500.00	144.24	144.06	173.12	9,486.17	1,378.66		298.45	137.93	160.52	1.859	Minor Risk	
19,900.00	10,200.00	20,081.35	10,500.00	144.94	144.77	173.12	9,536.17	1,378.40		298.45	137.16	161.29	1.850	Minor Risk	
19,950.00	10,200.00	20,131.35	10,500.00	145.64	145.47	173.12	9,586.16	1,378.14		298.45	136.39	162.06	1.842	Minor Risk	
20,000.00	10,200.00	20,181.35	10,500.00	146.34	146.18	173.12	9,636.16	1,377.89		298.45	135.62	162.83	1.833	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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 233H - 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	
20,050.00	10,200.00	20,231.35	10,500.00	147.04	146.88	173.12	9,686.16	1,377.63	298.45	134.84	163.61	1.824	Minor Risk	
20,100.00	10,200.00	20,281.35	10,500.00	147.74	147.58	173.12	9,736.16	1,377.37	298.45	134.07	164.38	1.816	Minor Risk	
20,150.00	10,200.00	20,331.35	10,500.00	148.44	148.29	173.11	9,786.16	1,377.11	298.45	133.30	165.15	1.807	Minor Risk	
20,200.00	10,200.00	20,381.35	10,500.00	149.15	148.99	173.11	9,836.16	1,376.85	298.45	132.52	165.93	1.799	Minor Risk	
20,250.00	10,200.00	20,431.35	10,500.00	149.85	149.70	173.11	9,886.16	1,376.59	298.45	131.75	166.70	1.790	Minor Risk	
20,300.00	10,200.00	20,481.35	10,500.00	150.55	150.41	173.11	9,936.16	1,376.33	298.45	130.97	167.48	1.782	Minor Risk	
20,350.00	10,200.00	20,531.35	10,500.00	151.26	151.11	173.11	9,986.16	1,376.07	298.45	130.20	168.25	1.774	Minor Risk	
20,400.00	10,200.00	20,581.35	10,500.00	151.96	151.82	173.11	10,036.16	1,375.81	298.45	129.42	169.03	1.766	Minor Risk	
20,450.00	10,200.00	20,631.35	10,500.00	152.66	152.52	173.11	10,086.16	1,375.55	298.45	128.65	169.80	1.758	Minor Risk	
20,500.00	10,200.00	20,681.35	10,500.00	153.37	153.23	173.11	10,136.16	1,375.29	298.45	127.87	170.58	1.750	Minor Risk	
20,550.00	10,200.00	20,731.35	10,500.00	154.07	153.94	173.11	10,186.16	1,375.04	298.45	127.10	171.35	1.742	Minor Risk	
20,577.94	10,200.00	20,759.29	10,500.00	154.46	154.33	173.11	10,214.10	1,374.89	298.45	126.67	171.79	1.737	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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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:	
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)				
5,950.00	5,897.70	5,807.23	5,785.65	22.32	20.35	-13.59	-79.16	2,047.08	1,498.84	1,457.51	41.33	36.263		
6,000.00	5,946.73	5,842.44	5,835.08	22.54	20.48	-13.56	-82.00	2,051.01	1,493.15	1,451.50	41.64	35.855		
6,050.00	5,995.76	5,907.89	5,884.52	22.76	20.71	-13.53	-84.85	2,054.93	1,487.45	1,445.39	42.06	35.365		
6,100.00	6,044.80	5,941.78	5,933.95	22.98	20.83	-13.51	-87.69	2,058.85	1,481.76	1,439.39	42.37	34.975		
6,150.00	6,093.83	5,991.45	5,983.38	23.19	21.01	-13.48	-90.54	2,062.77	1,476.06	1,433.34	42.73	34.545		
6,200.00	6,142.86	6,041.12	6,032.82	23.41	21.19	-13.46	-93.38	2,066.69	1,470.37	1,427.28	43.09	34.122		
6,250.00	6,191.89	6,109.21	6,082.25	23.63	21.44	-13.43	-96.22	2,070.61	1,464.68	1,421.16	43.52	33.656		
6,300.00	6,240.92	6,140.47	6,131.68	23.85	21.55	-13.40	-99.07	2,074.53	1,458.99	1,415.17	43.82	33.298		
6,350.00	6,289.95	6,209.86	6,181.12	24.07	21.80	-13.38	-101.91	2,078.45	1,453.29	1,409.04	44.25	32.843		
6,400.00	6,338.98	6,239.81	6,230.55	24.29	21.91	-13.35	-104.76	2,082.37	1,447.60	1,403.06	44.54	32.499		
6,450.00	6,388.01	6,289.48	6,279.99	24.51	22.08	-13.32	-107.60	2,086.30	1,441.91	1,397.00	44.91	32.109		
6,500.00	6,437.04	6,339.15	6,329.42	24.72	22.26	-13.30	-110.45	2,090.22	1,436.22	1,390.95	45.27	31.725		
6,550.00	6,486.07	6,388.82	6,378.85	24.94	22.44	-13.27	-113.29	2,094.14	1,430.53	1,384.89	45.63	31.347		
6,600.00	6,535.10	6,438.49	6,428.29	25.16	22.62	-13.24	-116.14	2,098.06	1,424.84	1,378.84	46.00	30.975		
6,650.00	6,584.13	6,488.16	6,477.72	25.38	22.80	-13.21	-118.98	2,101.98	1,419.14	1,372.78	46.36	30.609		
6,700.00	6,633.16	6,537.83	6,527.15	25.60	22.98	-13.19	-121.82	2,105.90	1,413.45	1,366.73	46.73	30.248		
6,750.00	6,682.19	6,587.50	6,576.59	25.82	23.16	-13.16	-124.67	2,109.82	1,407.76	1,360.67	47.09	29.893		
6,800.00	6,731.22	6,637.17	6,626.02	26.04	23.34	-13.13	-127.51	2,113.74	1,402.08	1,354.62	47.46	29.543		
6,850.00	6,780.25	6,686.84	6,675.45	26.26	23.52	-13.10	-130.36	2,117.67	1,396.39	1,348.56	47.82	29.199		
6,900.00	6,829.28	6,736.51	6,724.89	26.48	23.71	-13.07	-133.20	2,121.59	1,390.70	1,342.51	48.19	28.859		
6,950.00	6,878.31	6,786.18	6,774.32	26.70	23.89	-13.04	-136.05	2,125.51	1,385.01	1,336.45	48.55	28.525		
7,000.00	6,927.34	6,835.85	6,823.75	26.92	24.07	-13.01	-138.89	2,129.43	1,379.32	1,330.40	48.92	28.195		
7,050.00	6,976.37	6,885.52	6,873.19	27.15	24.25	-12.98	-141.73	2,133.35	1,373.63	1,324.35	49.29	27.870		
7,100.00	7,025.41	6,935.19	6,922.62	27.37	24.43	-12.95	-144.58	2,137.27	1,367.95	1,318.29	49.65	27.550		
7,150.00	7,074.44	6,984.86	6,972.06	27.59	24.61	-12.92	-147.42	2,141.19	1,362.26	1,312.24	50.02	27.235		
7,200.00	7,123.47	7,034.53	7,021.49	27.81	24.79	-12.89	-150.27	2,145.11	1,356.57	1,306.19	50.39	26.924		
7,250.00	7,172.50	7,084.20	7,070.92	28.03	24.98	-12.86	-153.11	2,149.03	1,350.89	1,300.13	50.75	26.617		
7,300.00	7,221.53	7,133.87	7,120.36	28.25	25.16	-12.83	-155.96	2,152.96	1,345.20	1,294.08	51.12	26.315		
7,350.00	7,270.56	7,183.54	7,169.79	28.47	25.34	-12.80	-158.80	2,156.88	1,339.52	1,288.03	51.49	26.017		
7,400.00	7,319.59	7,233.21	7,219.22	28.69	25.52	-12.77	-161.65	2,160.80	1,333.83	1,281.98	51.85	25.723		
7,450.00	7,368.62	7,282.88	7,268.66	28.92	25.70	-12.73	-164.49	2,164.72	1,328.15	1,275.92	52.22	25.433		
7,500.00	7,417.65	7,332.55	7,318.09	29.14	25.89	-12.70	-167.33	2,168.64	1,322.46	1,269.87	52.59	25.147		
7,550.00	7,466.68	7,382.22	7,367.52	29.36	26.07	-12.67	-170.18	2,172.56	1,316.78	1,263.82	52.96	24.866		
7,600.00	7,515.71	7,431.89	7,416.96	29.58	26.25	-12.64	-173.02	2,176.48	1,311.09	1,257.77	53.32	24.588		
7,650.00	7,564.74	7,481.56	7,466.39	29.81	26.43	-12.60	-175.87	2,180.40	1,305.41	1,251.72	53.69	24.313		
7,700.00	7,613.77	7,531.24	7,515.82	30.03	26.62	-12.57	-178.71	2,184.32	1,299.73	1,245.67	54.06	24.043		
7,750.00	7,662.80	7,580.91	7,565.26	30.25	26.80	-12.54	-181.56	2,188.25	1,294.05	1,239.62	54.43	23.776		
7,800.00	7,711.83	7,630.58	7,614.69	30.47	26.98	-12.50	-184.40	2,192.17	1,288.37	1,233.57	54.80	23.512		
7,850.00	7,760.86	7,680.25	7,664.13	30.70	27.17	-12.47	-187.24	2,196.09	1,282.68	1,227.52	55.16	23.252		
7,900.00	7,809.89	7,729.92	7,713.56	30.92	27.35	-12.44	-190.09	2,200.01	1,277.00	1,221.47	55.53	22.996		
7,950.00	7,858.92	7,779.59	7,762.99	31.14	27.53	-12.40	-192.93	2,203.93	1,271.32	1,215.42	55.90	22.743		
8,000.00	7,907.95	7,829.26	7,812.43	31.36	27.72	-12.37	-195.78	2,207.85	1,265.64	1,209.37	56.27	22.493		
8,050.00	7,956.98	7,878.93	7,861.86	31.59	27.90	-12.33	-198.62	2,211.77	1,259.96	1,203.33	56.64	22.246		
8,100.00	8,006.01	7,928.60	7,911.29	31.81	28.08	-12.29	-201.47	2,215.69	1,254.28	1,197.28	57.01	22.003		
8,150.00	8,055.05	7,978.27	7,960.73	32.03	28.27	-12.26	-204.31	2,219.62	1,248.61	1,191.23	57.37	21.762		
8,200.00	8,104.08	8,027.94	8,010.16	32.26	28.45	-12.22	-207.16	2,223.54	1,242.93	1,185.19	57.74	21.525		
8,250.00	8,153.11	8,077.61	8,059.59	32.48	28.64	-12.19	-210.00	2,227.46	1,237.25	1,179.14	58.11	21.291		
8,300.00	8,202.14	8,127.28	8,109.03	32.70	28.82	-12.15	-212.84	2,231.38	1,231.57	1,173.09	58.48	21.059		
8,350.00	8,251.17	8,176.95	8,158.46	32.93	29.00	-12.11	-215.69	2,235.30	1,225.90	1,167.05	58.85	20.831		
8,400.00	8,300.20	8,226.62	8,207.89	33.15	29.19	-12.07	-218.53	2,239.22	1,220.22	1,161.00	59.22	20.605		
8,450.00	8,349.23	8,276.29	8,257.33	33.37	29.37	-12.03	-221.38	2,243.14	1,214.55	1,154.96	59.59	20.382		
8,500.00	8,398.26	8,325.96	8,306.76	33.60	29.56	-12.00	-224.22	2,247.06	1,208.87	1,148.91	59.96	20.162		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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															
Semi Major Axis															
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		
8,550.00	8,447.29	8,375.63	8,356.20	33.82	29.74	-11.96	-227.07	2,250.98	1,203.20	1,142.87	60.33	19.944			
8,600.00	8,496.32	8,425.30	8,405.63	34.05	29.93	-11.92	-229.91	2,254.91	1,197.52	1,136.83	60.70	19.729			
8,650.00	8,545.35	8,474.97	8,455.06	34.27	30.11	-11.88	-232.75	2,258.83	1,191.85	1,130.78	61.07	19.517			
8,700.00	8,594.38	8,524.64	8,504.50	34.49	30.30	-11.84	-235.60	2,262.75	1,186.18	1,124.74	61.44	19.307			
8,750.00	8,643.41	8,574.31	8,553.93	34.72	30.48	-11.80	-238.44	2,266.67	1,180.51	1,118.70	61.81	19.100			
8,800.00	8,692.44	8,623.98	8,603.36	34.94	30.67	-11.76	-241.29	2,270.59	1,174.84	1,112.66	62.18	18.895			
8,850.00	8,741.47	8,673.65	8,652.80	35.17	30.85	-11.72	-244.13	2,274.51	1,169.16	1,106.62	62.55	18.693			
8,900.00	8,790.50	8,723.32	8,702.23	35.39	31.04	-11.68	-246.98	2,278.43	1,163.49	1,100.58	62.92	18.493			
8,950.00	8,839.53	8,772.99	8,751.66	35.61	31.22	-11.63	-249.82	2,282.35	1,157.82	1,094.54	63.29	18.295			
9,000.00	8,888.56	8,822.66	8,801.10	35.84	31.41	-11.59	-252.67	2,286.28	1,152.16	1,088.50	63.66	18.100			
9,050.00	8,937.59	8,872.34	8,850.53	36.06	31.59	-11.55	-255.51	2,290.20	1,146.49	1,082.46	64.03	17.907			
9,100.00	8,986.62	8,922.01	8,899.96	36.29	31.78	-11.51	-258.35	2,294.12	1,140.82	1,076.42	64.40	17.716			
9,150.00	9,035.66	8,966.15	8,963.84	36.51	32.02	-11.46	-261.76	2,298.81	1,134.86	1,070.06	64.81	17.511			
9,200.00	9,084.69	9,051.53	9,029.05	36.74	32.25	-11.45	-264.57	2,302.69	1,128.22	1,063.00	65.22	17.299			
9,250.00	9,133.72	9,116.65	9,094.06	36.96	32.49	-11.47	-266.73	2,305.67	1,120.88	1,055.27	65.61	17.083			
9,300.00	9,182.75	9,181.48	9,158.84	37.19	32.72	-11.53	-268.23	2,307.74	1,112.86	1,046.86	66.00	16.861			
9,350.00	9,231.78	9,245.97	9,223.32	37.41	32.95	-11.62	-269.08	2,308.91	1,104.15	1,037.78	66.37	16.635			
9,400.00	9,280.81	9,310.10	9,287.45	37.64	33.17	-11.74	-269.30	2,309.20	1,094.78	1,028.04	66.74	16.404			
9,450.00	9,329.84	9,356.69	9,334.04	37.86	33.33	-11.84	-269.31	2,309.21	1,085.19	1,018.08	67.10	16.172			
9,500.00	9,378.87	9,405.72	9,383.07	38.09	33.50	-11.95	-269.31	2,309.21	1,075.59	1,008.13	67.46	15.943			
9,550.00	9,427.90	9,454.75	9,432.10	38.31	33.66	-12.06	-269.31	2,309.21	1,066.00	998.17	67.83	15.716			
9,600.00	9,476.93	9,503.79	9,481.13	38.54	33.83	-12.17	-269.31	2,309.21	1,056.41	988.22	68.19	15.492			
9,650.00	9,525.96	9,552.82	9,530.16	38.76	34.00	-12.28	-269.31	2,309.21	1,046.82	978.27	68.56	15.269			
9,700.00	9,574.99	9,601.85	9,579.19	38.99	34.17	-12.39	-269.31	2,309.21	1,037.24	968.32	68.92	15.050			
9,750.00	9,624.02	9,650.88	9,628.23	39.21	34.34	-7.28	-269.30	2,309.21	1,027.67	958.38	69.29	14.832			
9,800.00	9,673.07	9,700.00	9,677.27	39.43	34.50	18.59	-267.10	2,309.20	1,018.09	948.45	69.64	14.619			
9,850.00	9,721.85	9,749.02	9,725.87	39.64	34.66	39.10	-260.72	2,309.17	1,008.57	938.59	69.98	14.412			
9,900.00	9,769.99	9,797.99	9,773.69	39.83	34.81	52.84	-250.22	2,309.12	999.17	928.87	70.30	14.212			
9,950.00	9,817.12	9,846.93	9,820.40	40.01	34.96	61.95	-235.69	2,309.04	989.97	919.36	70.61	14.020			
10,000.00	9,862.89	9,895.86	9,865.70	40.18	35.09	68.29	-217.23	2,308.95	981.04	910.14	70.90	13.837			
10,050.00	9,906.94	9,944.81	9,909.28	40.32	35.22	72.94	-194.97	2,308.83	972.45	901.27	71.17	13.663			
10,100.00	9,948.94	9,993.80	9,950.83	40.46	35.33	76.50	-169.05	2,308.70	964.25	892.81	71.43	13.498			
10,150.00	9,988.57	10,042.83	9,990.05	40.58	35.43	79.32	-139.64	2,308.54	956.51	884.83	71.68	13.344			
10,200.00	10,025.54	10,091.94	10,026.66	40.68	35.52	81.60	-106.94	2,308.37	949.30	877.39	71.91	13.201			
10,250.00	10,059.55	10,141.11	10,060.39	40.76	35.60	83.48	-71.17	2,308.19	942.66	870.53	72.14	13.068			
10,300.00	10,090.35	10,180.37	10,090.97	40.84	35.67	85.03	-32.58	2,307.99	936.65	864.30	72.35	12.946			
10,350.00	10,117.70	10,239.71	10,118.17	40.89	35.73	86.31	8.56	2,307.78	931.31	858.75	72.56	12.835			
10,400.00	10,141.40	10,289.12	10,141.76	40.94	35.79	87.36	51.96	2,307.55	926.69	853.92	72.77	12.735			
10,450.00	10,161.27	10,338.60	10,161.55	40.98	35.85	88.20	97.30	2,307.32	922.81	849.84	72.97	12.646			
10,500.00	10,177.15	10,388.14	10,177.37	41.01	35.91	88.85	144.23	2,307.07	919.71	846.54	73.17	12.569			
10,550.00	10,188.93	10,437.73	10,189.09	41.03	36.00	89.32	192.40	2,306.82	917.42	844.04	73.37	12.503			
10,600.00	10,196.51	10,487.36	10,196.61	41.05	36.09	89.61	241.43	2,306.57	915.94	842.36	73.58	12.449			
10,650.00	10,199.83	10,536.99	10,199.86	41.07	36.19	89.73	290.94	2,306.31	915.29	841.51	73.78	12.406			
10,697.81	10,200.43	10,584.70	10,200.00	41.09	36.30	89.71	338.65	2,306.07	915.18	841.20	73.99	12.370 CC			
10,700.00	10,200.00	10,586.90	10,200.00	41.09	36.30	89.74	340.85	2,306.05	915.27	841.27	73.99	12.370			
10,750.00	10,200.00	10,636.90	10,200.00	41.13	36.44	89.74	390.85	2,305.80	915.27	841.02	74.24	12.328			
10,800.00	10,200.00	10,686.90	10,200.00	41.17	36.58	89.74	440.85	2,305.54	915.27	840.77	74.50	12.286			
10,850.00	10,200.00	10,736.90	10,200.00	41.22	36.74	89.74	490.84	2,305.28	915.27	840.47	74.80	12.236			
10,900.00	10,200.00	10,786.90	10,200.00	41.29	36.91	89.74	540.84	2,305.02	915.28	840.16	75.11	12.185			
10,950.00	10,200.00	10,836.90	10,200.00	41.37	37.09	89.74	590.84	2,304.76	915.28	839.81	75.47	12.128			
11,000.00	10,200.00	10,886.90	10,200.00	41.46	37.29	89.74	640.84	2,304.50	915.28	839.45	75.83	12.070			
11,050.00	10,200.00	10,936.90	10,200.00	41.56	37.50	89.74	690.84	2,304.24	915.28	839.04	76.24	12.005			

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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
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		
11,100.00	10,200.00	10,986.90	10,200.00	41.68	37.72	89.74	740.84	2,303.98	915.29	838.63	76.66	11.940			
11,150.00	10,200.00	11,036.90	10,200.00	41.82	37.96	89.74	790.84	2,303.72	915.29	838.17	77.12	11.869			
11,200.00	10,200.00	11,086.90	10,200.00	41.97	38.21	89.74	840.84	2,303.46	915.29	837.71	77.58	11.798			
11,250.00	10,200.00	11,136.90	10,200.00	42.14	38.47	89.74	890.84	2,303.21	915.30	837.21	78.09	11.721			
11,300.00	10,200.00	11,186.90	10,200.00	42.32	38.74	89.74	940.84	2,302.95	915.30	836.69	78.61	11.644			
11,350.00	10,200.00	11,236.90	10,200.00	42.52	39.03	89.74	990.84	2,302.69	915.30	836.14	79.16	11.563			
11,400.00	10,200.00	11,286.90	10,200.00	42.74	39.32	89.74	1,040.84	2,302.43	915.30	835.58	79.72	11.481			
11,450.00	10,200.00	11,336.90	10,200.00	42.97	39.63	89.74	1,090.84	2,302.17	915.31	834.99	80.32	11.396			
11,500.00	10,200.00	11,386.90	10,200.00	43.21	39.94	89.74	1,140.84	2,301.91	915.31	834.38	80.93	11.310			
11,550.00	10,200.00	11,436.90	10,200.00	43.47	40.27	89.74	1,190.84	2,301.65	915.31	833.74	81.57	11.221			
11,600.00	10,200.00	11,486.90	10,200.00	43.75	40.61	89.74	1,240.83	2,301.39	915.32	833.10	82.22	11.133			
11,650.00	10,200.00	11,536.90	10,200.00	44.04	40.96	89.74	1,290.83	2,301.13	915.32	832.42	82.90	11.041			
11,700.00	10,200.00	11,586.90	10,200.00	44.33	41.31	89.74	1,340.83	2,300.87	915.32	831.73	83.59	10.950			
11,750.00	10,200.00	11,636.90	10,200.00	44.65	41.68	89.74	1,390.83	2,300.62	915.32	831.01	84.31	10.856			
11,800.00	10,200.00	11,686.90	10,200.00	44.97	42.05	89.74	1,440.83	2,300.36	915.33	830.29	85.04	10.764			
11,850.00	10,200.00	11,736.90	10,200.00	45.31	42.44	89.74	1,490.83	2,300.10	915.33	829.53	85.80	10.668			
11,900.00	10,200.00	11,786.90	10,200.00	45.65	42.83	89.74	1,540.83	2,299.84	915.33	828.77	86.56	10.574			
11,950.00	10,200.00	11,836.90	10,200.00	46.01	43.24	89.74	1,590.83	2,299.58	915.34	827.98	87.36	10.478			
12,000.00	10,200.00	11,886.90	10,200.00	46.38	43.65	89.74	1,640.83	2,299.32	915.34	827.18	88.16	10.383			
12,050.00	10,200.00	11,936.90	10,200.00	46.76	44.07	89.74	1,690.83	2,299.06	915.34	826.36	88.99	10.286			
12,100.00	10,200.00	11,986.90	10,200.00	47.14	44.49	89.74	1,740.83	2,298.80	915.34	825.53	89.82	10.191			
12,150.00	10,200.00	12,036.90	10,200.00	47.54	44.93	89.74	1,790.83	2,298.54	915.35	824.67	90.68	10.095			
12,200.00	10,200.00	12,086.90	10,200.00	47.94	45.37	89.74	1,840.83	2,298.28	915.35	823.81	91.54	9.999			
12,250.00	10,200.00	12,136.90	10,200.00	48.36	45.82	89.74	1,890.83	2,298.03	915.35	822.92	92.43	9.903			
12,300.00	10,200.00	12,186.90	10,200.00	48.78	46.28	89.74	1,940.83	2,297.77	915.36	822.03	93.32	9.809			
12,350.00	10,200.00	12,236.90	10,200.00	49.21	46.74	89.74	1,990.82	2,297.51	915.36	821.12	94.24	9.713			
12,400.00	10,200.00	12,286.90	10,200.00	49.64	47.21	89.74	2,040.82	2,297.25	915.36	820.20	95.16	9.619			
12,450.00	10,200.00	12,336.90	10,200.00	50.09	47.69	89.74	2,090.82	2,296.99	915.36	819.26	96.10	9.525			
12,500.00	10,200.00	12,386.90	10,200.00	50.53	48.17	89.74	2,140.82	2,296.73	915.37	818.32	97.05	9.432			
12,550.00	10,200.00	12,436.90	10,200.00	50.99	48.66	89.74	2,190.82	2,296.47	915.37	817.35	98.02	9.339			
12,600.00	10,200.00	12,486.90	10,200.00	51.45	49.15	89.74	2,240.82	2,296.21	915.37	816.38	98.99	9.247			
12,650.00	10,200.00	12,536.90	10,200.00	51.93	49.65	89.74	2,290.82	2,295.95	915.37	815.39	99.98	9.155			
12,700.00	10,200.00	12,586.90	10,200.00	52.40	50.16	89.74	2,340.82	2,295.69	915.38	814.40	100.98	9.065			
12,750.00	10,200.00	12,636.90	10,200.00	52.88	50.67	89.74	2,390.82	2,295.44	915.38	813.39	101.99	8.975			
12,800.00	10,200.00	12,686.90	10,200.00	53.37	51.19	89.74	2,440.82	2,295.18	915.38	812.38	103.01	8.887			
12,850.00	10,200.00	12,736.90	10,200.00	53.87	51.71	89.74	2,490.82	2,294.92	915.39	811.34	104.04	8.798			
12,900.00	10,200.00	12,786.90	10,200.00	54.36	52.24	89.74	2,540.82	2,294.66	915.39	810.31	105.08	8.711			
12,950.00	10,200.00	12,836.90	10,200.00	54.87	52.77	89.74	2,590.82	2,294.40	915.39	809.26	106.13	8.625			
13,000.00	10,200.00	12,886.90	10,200.00	55.38	53.30	89.74	2,640.82	2,294.14	915.39	808.20	107.19	8.540			
13,050.00	10,200.00	12,936.90	10,200.00	55.89	53.85	89.74	2,690.82	2,293.88	915.40	807.13	108.26	8.455			
13,100.00	10,200.00	12,986.90	10,200.00	56.41	54.39	89.74	2,740.81	2,293.62	915.40	806.06	109.34	8.372			
13,150.00	10,200.00	13,036.90	10,200.00	56.94	54.94	89.74	2,790.81	2,293.36	915.40	804.97	110.43	8.289			
13,200.00	10,200.00	13,086.90	10,200.00	57.46	55.49	89.74	2,840.81	2,293.10	915.41	803.88	111.52	8.208			
13,250.00	10,200.00	13,136.90	10,200.00	58.00	56.05	89.74	2,890.81	2,292.85	915.41	802.78	112.63	8.128			
13,300.00	10,200.00	13,186.90	10,200.00	58.53	56.61	89.74	2,940.81	2,292.59	915.41	801.67	113.74	8.048			
13,350.00	10,200.00	13,236.90	10,200.00	59.07	57.18	89.74	2,990.81	2,292.33	915.41	800.55	114.86	7.970			
13,400.00	10,200.00	13,286.90	10,200.00	59.62	57.74	89.74	3,040.81	2,292.07	915.42	799.43	115.99	7.893			
13,450.00	10,200.00	13,336.90	10,200.00	60.17	58.32	89.74	3,090.81	2,291.81	915.42	798.30	117.12	7.816			
13,500.00	10,200.00	13,386.90	10,200.00	60.72	58.89	89.74	3,140.81	2,291.55	915.42	797.16	118.26	7.741			
13,550.00	10,200.00	13,436.90	10,200.00	61.28	59.47	89.74	3,190.81	2,291.29	915.43	796.01	119.41	7.666			
13,600.00	10,200.00	13,486.90	10,200.00	61.84	60.05	89.74	3,240.81	2,291.03	915.43	794.86	120.56	7.593			
13,650.00	10,200.00	13,536.90	10,200.00	62.40	60.64	89.74	3,290.81	2,290.77	915.43	793.70	121.73	7.520			

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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		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)			
13,700.00	10,200.00	13,586.90	10,200.00	62.97	61.23	89.74	3,340.81	2,290.51	915.43	792.54	122.89	7.449	
13,750.00	10,200.00	13,636.90	10,200.00	63.54	61.82	89.74	3,390.81	2,290.26	915.44	791.37	124.07	7.378	
13,800.00	10,200.00	13,686.90	10,200.00	64.11	62.41	89.74	3,440.81	2,290.00	915.44	790.19	125.25	7.309	
13,850.00	10,200.00	13,736.90	10,200.00	64.69	63.01	89.74	3,490.80	2,289.74	915.44	789.01	126.43	7.240	
13,900.00	10,200.00	13,786.90	10,200.00	65.27	63.61	89.74	3,540.80	2,289.48	915.44	787.82	127.62	7.173	
13,950.00	10,200.00	13,836.90	10,200.00	65.85	64.21	89.74	3,590.80	2,289.22	915.45	786.63	128.82	7.106	
14,000.00	10,200.00	13,886.90	10,200.00	66.44	64.82	89.74	3,640.80	2,288.96	915.45	785.43	130.02	7.041	
14,050.00	10,200.00	13,936.90	10,200.00	67.03	65.43	89.74	3,690.80	2,288.70	915.45	784.22	131.23	6.976	
14,100.00	10,200.00	13,986.90	10,200.00	67.62	66.04	89.74	3,740.80	2,288.44	915.46	783.02	132.44	6.912	
14,150.00	10,200.00	14,036.90	10,200.00	68.21	66.65	89.74	3,790.80	2,288.18	915.46	781.80	133.66	6.849	
14,200.00	10,200.00	14,086.90	10,200.00	68.81	67.26	89.74	3,840.80	2,287.92	915.46	780.58	134.88	6.787	
14,250.00	10,200.00	14,136.90	10,200.00	69.41	67.88	89.74	3,890.80	2,287.67	915.46	779.36	136.11	6.726	
14,300.00	10,200.00	14,186.90	10,200.00	70.01	68.50	89.74	3,940.80	2,287.41	915.47	778.13	137.34	6.666	
14,350.00	10,200.00	14,236.90	10,200.00	70.61	69.12	89.74	3,990.80	2,287.15	915.47	776.90	138.57	6.606	
14,400.00	10,200.00	14,286.90	10,200.00	71.22	69.74	89.74	4,040.80	2,286.89	915.47	775.66	139.81	6.548	
14,450.00	10,200.00	14,336.90	10,200.00	71.83	70.37	89.74	4,090.80	2,286.63	915.48	774.42	141.06	6.490	
14,500.00	10,200.00	14,386.90	10,200.00	72.44	71.00	89.74	4,140.80	2,286.37	915.48	773.18	142.30	6.433	
14,550.00	10,200.00	14,436.90	10,200.00	73.05	71.62	89.74	4,190.80	2,286.11	915.48	771.93	143.55	6.377	
14,600.00	10,200.00	14,486.90	10,200.00	73.67	72.26	89.74	4,240.79	2,285.85	915.48	770.68	144.81	6.322	
14,650.00	10,200.00	14,536.90	10,200.00	74.28	72.89	89.74	4,290.79	2,285.59	915.49	769.42	146.07	6.267	
14,700.00	10,200.00	14,586.90	10,200.00	74.90	73.52	89.74	4,340.79	2,285.33	915.49	768.16	147.33	6.214	
14,750.00	10,200.00	14,636.90	10,200.00	75.52	74.16	89.74	4,390.79	2,285.08	915.49	766.89	148.60	6.161	
14,800.00	10,200.00	14,686.90	10,200.00	76.15	74.80	89.74	4,440.79	2,284.82	915.50	765.63	149.87	6.109	
14,850.00	10,200.00	14,736.90	10,200.00	76.77	75.44	89.74	4,490.79	2,284.56	915.50	764.36	151.14	6.057	
14,900.00	10,200.00	14,786.90	10,200.00	77.40	76.08	89.74	4,540.79	2,284.30	915.50	763.09	152.42	6.007	
14,950.00	10,200.00	14,836.90	10,200.00	78.03	76.72	89.74	4,590.79	2,284.04	915.50	761.81	153.70	5.957	
15,000.00	10,200.00	14,886.90	10,200.00	78.66	77.36	89.74	4,640.79	2,283.78	915.51	760.53	154.98	5.907	
15,050.00	10,200.00	14,936.90	10,200.00	79.29	78.01	89.74	4,690.79	2,283.52	915.51	759.24	156.27	5.859	
15,100.00	10,200.00	14,986.90	10,200.00	79.92	78.66	89.74	4,740.79	2,283.26	915.51	757.96	157.55	5.811	
15,150.00	10,200.00	15,036.90	10,200.00	80.56	79.31	89.74	4,790.79	2,283.00	915.51	756.67	158.85	5.764	
15,200.00	10,200.00	15,086.90	10,200.00	81.19	79.96	89.74	4,840.79	2,282.74	915.52	755.38	160.14	5.717	
15,250.00	10,200.00	15,136.90	10,200.00	81.83	80.61	89.74	4,890.79	2,282.49	915.52	754.08	161.44	5.671	
15,300.00	10,200.00	15,186.90	10,200.00	82.47	81.26	89.74	4,940.79	2,282.23	915.52	752.79	162.74	5.626	
15,350.00	10,200.00	15,236.90	10,200.00	83.11	81.91	89.74	4,990.78	2,281.97	915.53	751.49	164.04	5.581	
15,400.00	10,200.00	15,286.90	10,200.00	83.75	82.57	89.74	5,040.78	2,281.71	915.53	750.19	165.34	5.537	
15,450.00	10,200.00	15,336.90	10,200.00	84.40	83.23	89.74	5,090.78	2,281.45	915.53	748.88	166.65	5.494	
15,500.00	10,200.00	15,386.90	10,200.00	85.04	83.88	89.74	5,140.78	2,281.19	915.53	747.57	167.96	5.451	
15,550.00	10,200.00	15,436.90	10,200.00	85.69	84.54	89.74	5,190.78	2,280.93	915.54	746.26	169.27	5.409	
15,600.00	10,200.00	15,486.90	10,200.00	86.34	85.20	89.74	5,240.78	2,280.67	915.54	744.95	170.59	5.367	
15,650.00	10,200.00	15,536.90	10,200.00	86.99	85.86	89.74	5,290.78	2,280.41	915.54	743.64	171.91	5.326	
15,700.00	10,200.00	15,586.90	10,200.00	87.64	86.52	89.74	5,340.78	2,280.16	915.55	742.32	173.23	5.285	
15,750.00	10,200.00	15,636.90	10,200.00	88.29	87.19	89.74	5,390.78	2,279.90	915.55	741.00	174.55	5.245	
15,800.00	10,200.00	15,686.90	10,200.00	88.94	87.85	89.74	5,440.78	2,279.64	915.55	739.68	175.87	5.206	
15,850.00	10,200.00	15,736.90	10,200.00	89.60	88.52	89.74	5,490.78	2,279.38	915.55	738.36	177.20	5.167	
15,900.00	10,200.00	15,786.90	10,200.00	90.25	89.18	89.74	5,540.78	2,279.12	915.56	737.03	178.52	5.128	
15,950.00	10,200.00	15,836.90	10,200.00	90.91	89.85	89.74	5,590.78	2,278.86	915.56	735.71	179.85	5.091	
16,000.00	10,200.00	15,886.90	10,200.00	91.56	90.52	89.74	5,640.78	2,278.60	915.56	734.38	181.19	5.053	
16,050.00	10,200.00	15,936.90	10,200.00	92.22	91.19	89.74	5,690.78	2,278.34	915.57	733.05	182.52	5.016	
16,100.00	10,200.00	15,986.90	10,200.00	92.88	91.86	89.74	5,740.77	2,278.08	915.57	731.71	183.85	4.980 Alert	
16,150.00	10,200.00	16,036.90	10,200.00	93.54	92.53	89.74	5,790.77	2,277.82	915.57	730.38	185.19	4.944 Alert	
16,200.00	10,200.00	16,086.90	10,200.00	94.20	93.20	89.74	5,840.77	2,277.57	915.57	729.04	186.53	4.908 Alert	
16,250.00	10,200.00	16,136.90	10,200.00	94.87	93.87	89.74	5,890.77	2,277.31	915.58	727.70	187.87	4.873 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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Sec. 36-T23S-R31E - Todd 36-25 State Fed Com 234H - Wellbore #1 - Permit Plan 1															
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)							
16,300.00	10,200.00	16,186.90	10,200.00	95.53	94.54	89.74	5,940.77	2,277.05	915.58	726.36	189.21	4.839	Alert		
16,350.00	10,200.00	16,236.90	10,200.00	96.19	95.22	89.74	5,990.77	2,276.79	915.58	725.02	190.56	4.805	Alert		
16,400.00	10,200.00	16,286.90	10,200.00	96.86	95.89	89.74	6,040.77	2,276.53	915.59	723.68	191.90	4.771	Alert		
16,450.00	10,200.00	16,336.90	10,200.00	97.53	96.57	89.74	6,090.77	2,276.27	915.59	722.33	193.25	4.738	Alert		
16,500.00	10,200.00	16,386.90	10,200.00	98.19	97.25	89.74	6,140.77	2,276.01	915.59	720.99	194.60	4.705	Alert		
16,550.00	10,200.00	16,436.90	10,200.00	98.86	97.92	89.74	6,190.77	2,275.75	915.59	719.64	195.95	4.673	Alert		
16,600.00	10,200.00	16,486.90	10,200.00	99.53	98.60	89.74	6,240.77	2,275.49	915.60	718.29	197.30	4.641	Alert		
16,650.00	10,200.00	16,536.90	10,200.00	100.20	99.28	89.74	6,290.77	2,275.23	915.60	716.94	198.68	4.609	Alert		
16,700.00	10,200.00	16,586.90	10,200.00	100.87	99.96	89.74	6,340.77	2,274.98	915.60	715.59	200.01	4.578	Alert		
16,750.00	10,200.00	16,636.90	10,200.00	101.54	100.64	89.74	6,390.77	2,274.72	915.60	714.23	201.37	4.547	Alert		
16,800.00	10,200.00	16,686.90	10,200.00	102.21	101.32	89.74	6,440.77	2,274.46	915.61	712.88	202.73	4.516	Alert		
16,850.00	10,200.00	16,736.90	10,200.00	102.88	102.00	89.74	6,490.76	2,274.20	915.61	711.52	204.09	4.486	Alert		
16,900.00	10,200.00	16,786.90	10,200.00	103.56	102.68	89.74	6,540.76	2,273.94	915.61	710.17	205.45	4.457	Alert		
16,950.00	10,200.00	16,836.90	10,200.00	104.23	103.37	89.74	6,590.76	2,273.68	915.62	708.81	206.81	4.427	Alert		
17,000.00	10,200.00	16,886.90	10,200.00	104.91	104.05	89.74	6,640.76	2,273.42	915.62	707.45	208.17	4.398	Alert		
17,050.00	10,200.00	16,936.90	10,200.00	105.58	104.73	89.74	6,690.76	2,273.16	915.62	706.08	209.54	4.370	Alert		
17,100.00	10,200.00	16,986.90	10,200.00	106.26	105.42	89.74	6,740.76	2,272.90	915.62	704.72	210.90	4.341	Alert		
17,150.00	10,200.00	17,036.90	10,200.00	106.94	106.10	89.74	6,790.76	2,272.64	915.63	703.36	212.27	4.314	Alert		
17,200.00	10,200.00	17,086.90	10,200.00	107.61	106.79	89.74	6,840.76	2,272.39	915.63	701.99	213.64	4.286	Alert		
17,250.00	10,200.00	17,136.90	10,200.00	108.29	107.47	89.74	6,890.76	2,272.13	915.63	700.63	215.01	4.259	Alert		
17,300.00	10,200.00	17,186.90	10,200.00	108.97	108.16	89.74	6,940.76	2,271.87	915.64	699.26	216.38	4.232	Alert		
17,350.00	10,200.00	17,236.90	10,200.00	109.65	108.85	89.74	6,990.76	2,271.61	915.64	697.89	217.75	4.205	Alert		
17,400.00	10,200.00	17,286.90	10,200.00	110.33	109.53	89.74	7,040.76	2,271.35	915.64	696.52	219.12	4.179	Alert		
17,450.00	10,200.00	17,336.90	10,200.00	111.01	110.22	89.74	7,090.76	2,271.09	915.64	695.15	220.49	4.153	Alert		
17,500.00	10,200.00	17,386.90	10,200.00	111.69	110.91	89.74	7,140.76	2,270.83	915.65	693.78	221.87	4.127	Alert		
17,550.00	10,200.00	17,436.90	10,200.00	112.37	111.60	89.74	7,190.76	2,270.57	915.65	692.40	223.24	4.102	Alert		
17,600.00	10,200.00	17,486.90	10,200.00	113.06	112.29	89.74	7,240.75	2,270.31	915.65	691.03	224.62	4.076	Alert		
17,650.00	10,200.00	17,536.90	10,200.00	113.74	112.98	89.74	7,290.75	2,270.05	915.66	689.66	226.00	4.052	Alert		
17,700.00	10,200.00	17,586.90	10,200.00	114.42	113.67	89.74	7,340.75	2,269.80	915.66	688.28	227.38	4.027	Alert		
17,750.00	10,200.00	17,636.90	10,200.00	115.11	114.36	89.74	7,390.75	2,269.54	915.66	686.90	228.76	4.003	Alert		
17,800.00	10,200.00	17,686.90	10,200.00	115.79	115.05	89.74	7,440.75	2,269.28	915.66	685.53	230.14	3.979	Alert		
17,850.00	10,200.00	17,736.90	10,200.00	116.48	115.75	89.74	7,490.75	2,269.02	915.67	684.15	231.52	3.955	Alert		
17,900.00	10,200.00	17,786.90	10,200.00	117.16	116.44	89.74	7,540.75	2,268.76	915.67	682.77	232.90	3.932	Alert		
17,950.00	10,200.00	17,836.90	10,200.00	117.85	117.13	89.74	7,590.75	2,268.50	915.67	681.39	234.29	3.908	Alert		
18,000.00	10,200.00	17,886.90	10,200.00	118.54	117.83	89.74	7,640.75	2,268.24	915.67	680.00	235.67	3.885	Alert		
18,050.00	10,200.00	17,936.90	10,200.00	119.22	118.52	89.74	7,690.75	2,267.98	915.68	678.62	237.06	3.863	Alert		
18,100.00	10,200.00	17,986.90	10,200.00	119.91	119.21	89.74	7,740.75	2,267.72	915.68	677.24	238.44	3.840	Alert		
18,150.00	10,200.00	18,036.90	10,200.00	120.60	119.91	89.74	7,790.75	2,267.46	915.68	675.86	239.83	3.818	Alert		
18,200.00	10,200.00	18,086.90	10,200.00	121.29	120.60	89.74	7,840.75	2,267.21	915.69	674.47	241.22	3.796	Alert		
18,250.00	10,200.00	18,136.90	10,200.00	121.98	121.30	89.74	7,890.75	2,266.95	915.69	673.08	242.60	3.774	Alert		
18,300.00	10,200.00	18,186.90	10,200.00	122.67	121.99	89.74	7,940.75	2,266.69	915.69	671.70	243.99	3.753	Alert		
18,350.00	10,200.00	18,236.90	10,200.00	123.36	122.69	89.74	7,990.74	2,266.43	915.69	670.31	245.38	3.732	Alert		
18,400.00	10,200.00	18,286.90	10,200.00	124.05	123.39	89.74	8,040.74	2,266.17	915.70	668.92	246.77	3.711	Alert		
18,450.00	10,200.00	18,336.90	10,200.00	124.74	124.08	89.74	8,090.74	2,265.91	915.70	667.53	248.17	3.690	Alert		
18,500.00	10,200.00	18,386.90	10,200.00	125.43	124.78	89.74	8,140.74	2,265.65	915.70	666.15	249.56	3.669	Alert		
18,550.00	10,200.00	18,436.90	10,200.00	126.12	125.48	89.74	8,190.74	2,265.39	915.71	664.75	250.95	3.649	Alert		
18,600.00	10,200.00	18,486.90	10,200.00	126.82	126.18	89.74	8,240.74	2,265.13	915.71	663.36	252.34	3.629	Alert		
18,650.00	10,200.00	18,536.90	10,200.00	127.51	126.87	89.74	8,290.74	2,264.87	915.71	661.97	253.74	3.609	Alert		
18,700.00	10,200.00	18,586.90	10,200.00	128.20	127.57	89.74	8,340.74	2,264.62	915.71	660.58	255.13	3.589	Alert		
18,750.00	10,200.00	18,636.90	10,200.00	128.89	128.27	89.74	8,390.74	2,264.36	915.72	659.19	256.53	3.570	Alert		
18,800.00	10,200.00	18,686.90	10,200.00	129.59	128.97	89.74	8,440.74	2,264.10	915.72	657.79	257.93	3.550	Alert		
18,850.00	10,200.00	18,736.90	10,200.00	130.28	129.67	89.74	8,490.74	2,263.84	915.72	656.40	259.32	3.531	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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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	
18,900.00	10,200.00	18,786.90	10,200.00	130.98	130.37	89.74	8,540.74	2,263.58	915.73	655.00	260.72	3.512	Alert
18,950.00	10,200.00	18,836.90	10,200.00	131.67	131.07	89.74	8,590.74	2,263.32	915.73	653.61	262.12	3.494	Alert
19,000.00	10,200.00	18,886.90	10,200.00	132.37	131.77	89.74	8,540.74	2,263.06	915.73	652.21	263.52	3.475	Alert
19,050.00	10,200.00	18,936.90	10,200.00	133.06	132.47	89.74	8,690.74	2,262.80	915.73	650.81	264.92	3.457	Alert
19,100.00	10,200.00	18,986.90	10,200.00	133.76	133.17	89.74	8,740.73	2,262.54	915.74	649.42	266.32	3.438	Alert
19,150.00	10,200.00	19,036.90	10,200.00	134.45	133.88	89.74	8,790.73	2,262.28	915.74	648.02	267.72	3.421	Alert
19,200.00	10,200.00	19,086.90	10,200.00	135.15	134.58	89.74	8,840.73	2,262.03	915.74	646.62	269.12	3.403	Alert
19,250.00	10,200.00	19,136.90	10,200.00	135.85	135.28	89.74	8,890.73	2,261.77	915.74	645.22	270.52	3.385	Alert
19,300.00	10,200.00	19,186.90	10,200.00	136.55	135.98	89.74	8,940.73	2,261.51	915.75	643.82	271.93	3.368	Alert
19,350.00	10,200.00	19,236.90	10,200.00	137.24	136.68	89.74	8,990.73	2,261.25	915.75	642.42	273.33	3.350	Alert
19,400.00	10,200.00	19,286.90	10,200.00	137.94	137.39	89.74	9,040.73	2,260.99	915.75	641.02	274.73	3.333	Alert
19,450.00	10,200.00	19,336.90	10,200.00	138.64	138.09	89.74	9,090.73	2,260.73	915.76	639.62	276.14	3.316	Alert
19,500.00	10,200.00	19,386.90	10,200.00	139.34	138.79	89.74	9,140.73	2,260.47	915.76	638.22	277.54	3.300	Alert
19,550.00	10,200.00	19,436.90	10,200.00	140.04	139.50	89.74	9,190.73	2,260.21	915.76	636.81	278.95	3.283	Alert
19,600.00	10,200.00	19,486.90	10,200.00	140.74	140.20	89.74	9,240.73	2,259.95	915.76	635.41	280.35	3.266	Alert
19,650.00	10,200.00	19,536.90	10,200.00	141.43	140.90	89.74	9,290.73	2,259.69	915.77	634.01	281.76	3.250	Alert
19,700.00	10,200.00	19,586.90	10,200.00	142.13	141.61	89.74	9,340.73	2,259.44	915.77	632.60	283.17	3.234	Alert
19,750.00	10,200.00	19,636.90	10,200.00	142.83	142.31	89.74	9,390.73	2,259.18	915.77	631.20	284.57	3.218	Alert
19,800.00	10,200.00	19,686.90	10,200.00	143.53	143.02	89.74	9,440.73	2,258.92	915.78	629.79	285.98	3.202	Alert
19,850.00	10,200.00	19,736.90	10,200.00	144.24	143.72	89.74	9,490.72	2,258.66	915.78	628.39	287.39	3.187	Alert
19,900.00	10,200.00	19,786.90	10,200.00	144.94	144.43	89.74	9,540.72	2,258.40	915.78	626.98	288.80	3.171	Alert
19,950.00	10,200.00	19,836.90	10,200.00	145.64	145.13	89.74	9,590.72	2,258.14	915.78	625.57	290.21	3.156	Alert
20,000.00	10,200.00	19,886.90	10,200.00	146.34	145.84	89.74	9,640.72	2,257.88	915.79	624.17	291.62	3.140	Alert
20,050.00	10,200.00	19,936.90	10,200.00	147.04	146.55	89.74	9,690.72	2,257.62	915.79	622.76	293.03	3.125	Alert
20,100.00	10,200.00	19,986.90	10,200.00	147.74	147.25	89.74	9,740.72	2,257.36	915.79	621.35	294.44	3.110	Alert
20,150.00	10,200.00	20,036.90	10,200.00	148.44	147.96	89.74	9,790.72	2,257.10	915.80	619.94	295.85	3.095	Alert
20,200.00	10,200.00	20,086.90	10,200.00	149.15	148.66	89.74	9,840.72	2,256.85	915.80	618.54	297.26	3.081	Alert
20,250.00	10,200.00	20,136.90	10,200.00	149.85	149.37	89.74	9,890.72	2,256.59	915.80	617.13	298.66	3.066	Alert
20,300.00	10,200.00	20,186.90	10,200.00	150.55	150.08	89.74	9,940.72	2,256.33	915.80	615.72	300.09	3.052	Alert
20,350.00	10,200.00	20,236.90	10,200.00	151.26	150.79	89.74	9,990.72	2,256.07	915.81	614.31	301.50	3.037	Alert
20,400.00	10,200.00	20,286.90	10,200.00	151.96	151.49	89.74	10,040.72	2,255.81	915.81	612.90	302.91	3.023	Alert
20,450.00	10,200.00	20,336.90	10,200.00	152.66	152.20	89.74	10,090.72	2,255.55	915.81	611.48	304.33	3.009	Alert
20,500.00	10,200.00	20,386.90	10,200.00	153.37	152.91	89.74	10,140.72	2,255.29	915.82	610.07	305.74	2.995	Alert
20,550.00	10,200.00	20,436.90	10,200.00	154.07	153.62	89.74	10,190.72	2,255.03	915.82	608.66	307.16	2.982	Alert
20,577.94	10,200.00	20,464.84	10,200.00	154.46	154.01	89.74	10,218.66	2,254.89	915.82	607.87	307.95	2.974	Alert, ES, SF

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 36B State 20H (Offset) - Wellbore #1 - Wellbore #1													Offset Well Error: 0.50 ft	
Survey Program: 100-GYRO-NS-CT. 8402-MWD+IGRF														
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,650.00	10,200.00	11,120.27	9,014.90	51.93	60.30	33.60	2,877.33	2,173.36	1,487.43	1,407.66	79.76	18.648		
12,700.00	10,200.00	11,084.01	9,015.97	52.40	59.57	33.14	2,710.52	2,158.81	1,474.64	1,395.48	79.16	18.628		
12,750.00	10,200.00	11,049.33	9,016.77	52.88	58.89	32.70	2,742.33	2,144.98	1,462.34	1,383.73	78.60	18.604		
12,800.00	10,200.00	11,014.70	9,017.34	53.37	58.21	32.25	2,774.14	2,131.33	1,450.56	1,372.50	78.05	18.585		
12,850.00	10,200.00	10,980.01	9,017.70	53.87	57.53	31.80	2,806.08	2,117.79	1,439.31	1,361.80	77.51	18.570		
12,900.00	10,200.00	10,945.62	9,017.80	54.36	56.86	31.34	2,837.79	2,104.48	1,428.60	1,351.62	76.98	18.558		
12,950.00	10,200.00	10,911.16	9,017.60	54.87	56.19	30.88	2,869.59	2,091.21	1,418.45	1,342.00	76.45	18.553		
13,000.00	10,200.00	10,891.00	9,017.36	55.38	55.80	30.60	2,888.21	2,083.48	1,408.98	1,332.74	76.24	18.482 SF		
13,050.00	10,200.00	10,850.30	9,016.51	55.89	55.03	30.04	2,925.90	2,068.17	1,400.07	1,324.47	75.60	18.520		
13,100.00	10,200.00	10,821.31	9,015.58	56.41	54.48	29.65	2,952.87	2,057.56	1,392.03	1,316.81	75.22	18.506		
13,150.00	10,200.00	10,788.12	9,014.23	56.94	53.86	29.20	2,983.85	2,045.73	1,384.74	1,309.97	74.77	18.520		
13,200.00	10,200.00	10,734.90	9,012.05	57.46	52.87	28.47	3,033.56	2,026.85	1,377.71	1,303.80	73.92	18.639		
13,250.00	10,200.00	10,682.19	9,010.12	58.00	51.90	27.74	3,082.76	2,008.06	1,370.66	1,297.57	73.09	18.753		
13,300.00	10,200.00	10,630.26	9,008.43	58.53	50.95	27.02	3,131.25	1,989.52	1,363.61	1,291.32	72.29	18.863		
13,350.00	10,200.00	10,586.41	9,007.12	59.07	50.15	26.41	3,172.19	1,973.87	1,356.66	1,284.99	71.68	18.928		
13,400.00	10,200.00	10,548.64	9,005.75	59.62	49.47	25.87	3,207.45	1,960.40	1,350.17	1,278.98	71.19	18.965		
13,450.00	10,200.00	10,509.03	9,004.02	60.17	48.76	25.30	3,244.41	1,946.29	1,344.20	1,273.52	70.68	19.018		
13,500.00	10,200.00	10,438.65	9,001.36	60.72	47.52	24.28	3,310.02	1,920.95	1,338.11	1,268.55	69.56	19.238		
13,550.00	10,200.00	10,386.67	8,999.99	61.28	46.61	23.52	3,358.40	1,902.00	1,331.64	1,262.81	68.83	19.348		
13,600.00	10,200.00	10,341.73	8,998.82	61.84	45.84	22.85	3,400.25	1,885.65	1,325.41	1,257.16	68.25	19.419		
13,650.00	10,200.00	10,242.93	8,997.60	62.40	44.15	21.37	3,492.03	1,849.11	1,318.88	1,252.22	66.65	19.787		
13,700.00	10,200.00	10,194.51	8,998.15	62.97	43.34	20.62	3,536.74	1,830.54	1,311.08	1,245.03	66.05	19.849		
13,750.00	10,200.00	10,156.05	8,998.31	63.54	42.71	20.02	3,572.20	1,815.66	1,303.78	1,238.13	65.65	19.859		
13,800.00	10,200.00	10,077.98	8,998.68	64.11	41.43	18.74	3,643.88	1,784.71	1,296.67	1,232.17	64.50	20.103		
13,850.00	10,200.00	10,011.30	9,000.57	64.69	40.37	17.59	3,704.45	1,756.89	1,288.19	1,224.60	63.59	20.258		
13,900.00	10,200.00	9,969.97	9,001.76	65.27	39.72	16.86	3,741.92	1,739.51	1,280.01	1,216.84	63.17	20.264		
13,950.00	10,200.00	9,918.97	9,003.16	65.85	38.94	15.95	3,788.16	1,718.04	1,272.19	1,209.60	62.59	20.324		
14,000.00	10,200.00	9,854.81	9,005.64	66.44	37.98	14.80	3,846.24	1,690.89	1,264.13	1,202.30	61.83	20.446		
14,050.00	10,200.00	9,812.07	9,007.58	67.03	37.37	14.02	3,884.88	1,672.74	1,256.06	1,194.59	61.46	20.436		
14,100.00	10,200.00	9,770.68	9,009.31	67.62	36.78	13.26	3,922.31	1,655.14	1,248.43	1,187.29	61.14	20.420		
14,150.00	10,200.00	9,725.96	9,011.08	68.21	36.17	12.42	3,962.75	1,636.13	1,241.22	1,180.43	60.79	20.418		
14,200.00	10,200.00	9,679.36	9,012.99	68.81	35.55	11.55	4,004.93	1,616.41	1,234.30	1,173.85	60.44	20.421		
14,250.00	10,200.00	9,636.86	9,014.75	69.41	35.01	10.75	4,043.43	1,598.50	1,227.89	1,167.50	60.19	20.398		
14,300.00	10,200.00	9,596.74	9,016.27	70.01	34.52	9.99	4,079.83	1,581.69	1,221.59	1,161.59	60.00	20.361		
14,350.00	10,200.00	9,557.67	9,017.59	70.61	34.05	9.25	4,115.32	1,565.41	1,216.02	1,156.17	59.85	20.319		
14,400.00	10,200.00	9,521.66	9,018.60	71.22	33.65	8.57	4,148.14	1,550.64	1,211.09	1,151.32	59.77	20.262		
14,450.00	10,200.00	9,485.36	9,019.38	71.83	33.25	7.90	4,181.37	1,536.04	1,206.84	1,147.12	59.72	20.208		
14,500.00	10,200.00	9,451.03	9,019.89	72.44	32.89	7.28	4,212.94	1,522.59	1,203.29	1,143.56	59.73	20.146		
14,550.00	10,200.00	9,424.38	9,020.02	73.05	32.62	6.81	4,237.63	1,512.54	1,200.81	1,140.74	59.87	20.055		
14,600.00	10,200.00	9,397.99	9,019.68	73.67	32.37	6.35	4,262.17	1,502.86	1,199.05	1,139.02	60.03	19.973		
14,650.00	10,200.00	9,378.00	9,019.18	74.28	32.18	6.00	4,280.76	1,495.51	1,198.51	1,138.20	60.31	19.873 ES		
14,653.61	10,200.00	9,370.17	9,018.91	74.33	32.11	5.87	4,288.04	1,492.61	1,198.47	1,138.23	60.24	19.894 CC		
14,700.00	10,200.00	9,347.00	9,017.68	74.90	31.90	5.46	4,309.53	1,484.08	1,199.17	1,138.71	60.46	19.835		
14,750.00	10,200.00	9,334.26	9,016.72	75.52	31.79	5.24	4,321.35	1,479.41	1,201.16	1,140.28	60.88	19.730		
14,800.00	10,200.00	9,316.00	9,014.97	76.15	31.64	4.92	4,338.28	1,472.80	1,204.57	1,143.32	61.25	19.666		
14,850.00	10,200.00	9,297.62	9,012.78	76.77	31.49	4.60	4,355.30	1,466.21	1,209.34	1,147.69	61.65	19.618		
14,900.00	10,200.00	9,284.00	9,010.90	77.40	31.38	4.37	4,367.88	1,461.34	1,215.45	1,153.32	62.13	19.563		
14,950.00	10,200.00	9,253.00	9,005.76	78.03	31.14	3.83	4,396.39	1,450.31	1,222.90	1,160.54	62.36	19.609		
15,000.00	10,200.00	9,253.00	9,005.76	78.66	31.14	3.83	4,396.39	1,450.31	1,231.66	1,168.57	63.09	19.522		
15,050.00	10,200.00	9,231.19	9,001.30	79.29	30.98	3.46	4,416.29	1,442.60	1,241.75	1,178.27	63.49	19.559		
15,100.00	10,200.00	9,221.00	8,998.92	79.92	30.91	3.29	4,425.53	1,439.02	1,253.35	1,189.27	64.07	19.561		
15,150.00	10,200.00	9,201.86	8,994.00	80.56	30.78	2.96	4,442.78	1,432.35	1,266.24	1,201.72	64.52	19.625		

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 36B State 20H (Offset) - Wellbore #1 - Wellbore #1														Offset Well Error: 0.50 ft	
Survey Program: 100-GYRO-NS-CT, 8402-MWD+IGRF															
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)				
15,200.00	10,200.00	9,190.00	8,990.67	81.19	30.71	2.77	4,453.40	1,428.25	1,280.46	1,215.38	65.09	19.673			
15,250.00	10,200.00	9,172.83	8,985.46	81.83	30.60	2.48	4,468.66	1,422.33	1,295.94	1,230.38	65.56	19.767			
15,300.00	10,200.00	9,158.00	8,980.80	82.47	30.51	2.24	4,481.68	1,417.18	1,312.67	1,246.61	66.07	19.869			
15,350.00	10,200.00	9,146.70	8,976.65	83.11	30.45	2.05	4,491.51	1,413.26	1,330.64	1,264.03	66.62	19.975			
15,400.00	10,200.00	9,127.00	8,969.20	83.75	30.34	1.73	4,508.45	1,406.49	1,349.92	1,282.90	67.03	20.140			
15,450.00	10,200.00	9,127.00	8,969.20	84.40	30.34	1.73	4,508.45	1,406.49	1,370.25	1,302.53	67.71	20.236			
15,500.00	10,200.00	9,111.19	8,962.72	85.04	30.25	1.48	4,521.84	1,401.13	1,391.75	1,323.60	68.15	20.421			
15,550.00	10,200.00	9,095.00	8,955.64	85.69	30.17	1.23	4,535.35	1,395.71	1,414.38	1,345.81	68.57	20.626			
15,600.00	10,200.00	9,095.00	8,955.64	86.34	30.17	1.23	4,535.35	1,395.71	1,438.08	1,368.89	69.19	20.786			
15,650.00	10,200.00	9,077.43	8,947.45	86.99	30.09	0.96	4,549.80	1,389.95	1,462.70	1,393.14	69.55	21.030			
15,700.00	10,200.00	9,064.00	8,940.84	87.64	30.03	0.77	4,560.67	1,385.68	1,488.36	1,418.40	69.96	21.275			

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 230H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3529.30ft
Reference Site:	Sec. 36-T23S-R31E	MD Reference:	RKB @ 3529.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Todd 36-25 State Fed Com 230H	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 @ 3529.30ft

Offset Depths are relative to Offset Datum

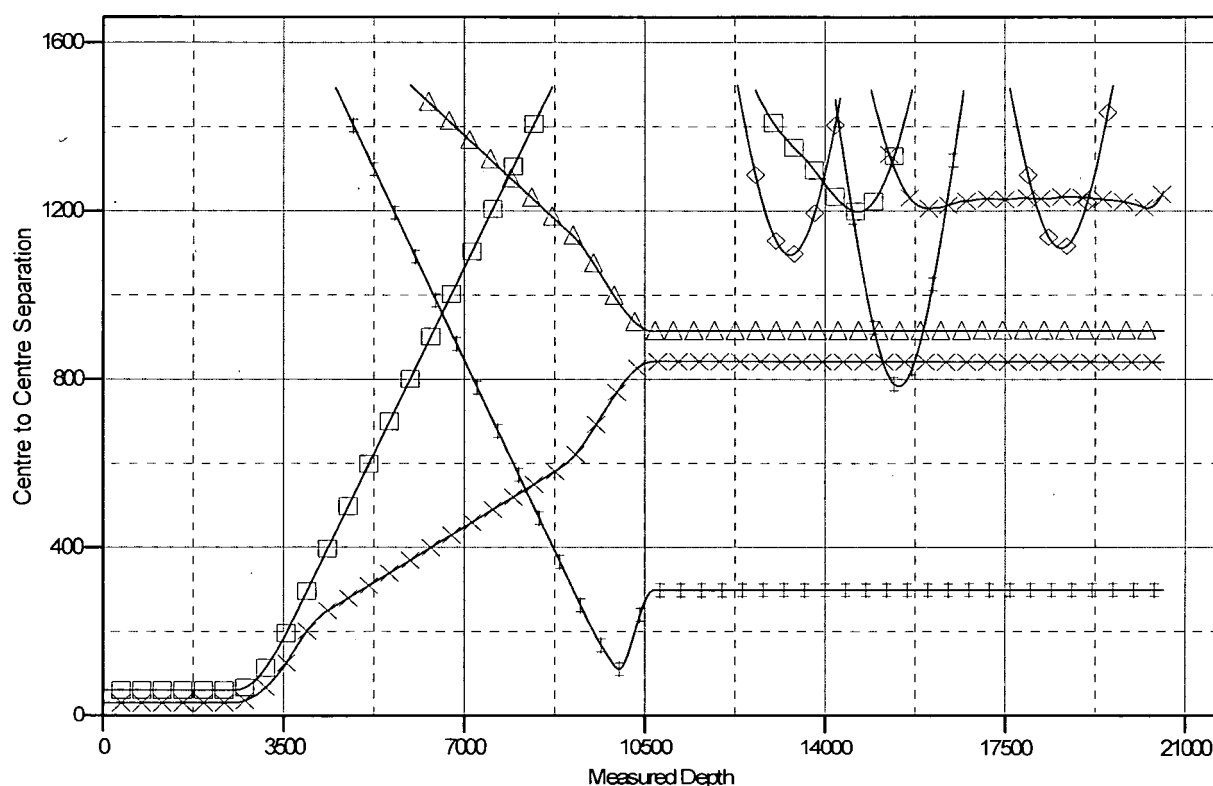
Central Meridian is -104.333334

Coordinates are relative to: Todd 36-25 State Fed Com 230H

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 234H, Wellbore #1, Permit Plan 1 V0
Todd 36-25 State Fed Com 232H, Wellbore #1, Permit Plan 1 V0
Todd 36-25 State Fed Com 233H, Wellbore #1, Permit Plan 1 V0



Todd 36B State 20H (Offset), Wellbore #1, Wellbore #1 V0
Todd 36 State 231H, Wellbore #1, Permit Plan 1 V0
Todd 36 State 01 SWD, Wellbore #1, Wellbore #1 V0



Todd 25 Fed 0012 SWD (Offset), Wellbore #1, Wellbore #1 V0
Alabara 25 Fed 01, Wellbore #1, Wellbore #1 V0
Alabara 25 Fed 3H, Wellbore #1, Wellbore #1 V0

Anticollision Report

Company: WCDSC Permian NM
 Project: Eddy County (NAD 83 NM Eastern)
 Reference Site: Sec. 36-T23S-R31E
 Site Error: 0.00 ft
 Reference Well: Todd 36-25 State Fed Com 230H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Output errors are at
 Database:
 Offset TVD Reference:

Well Todd 36-25 State Fed Com 230H
 RKB @ 3529.30ft
 RKB @ 3529.30ft
 Grid
 Minimum Curvature
 2.00 sigma
 EDM r5000.141_Prod US
 Offset Datum

Reference Depths are relative to RKB @ 3529.30ft

Offset Depths are relative to Offset Datum

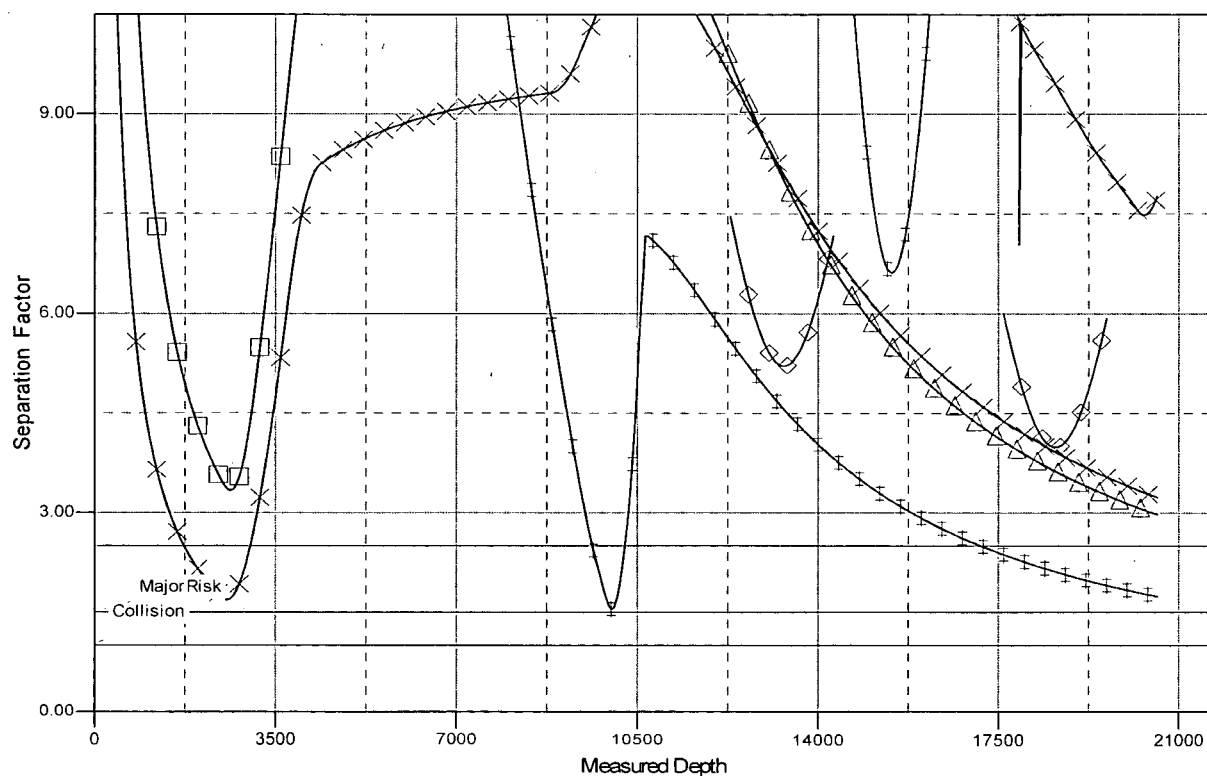
Central Meridian is -104.333334

Coordinates are relative to: Todd 36-25 State Fed Com 230H

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 V0
 Todd 36-25 State Fed Com 232H, Wellbore #1, Permit Plan 1 V0
 Todd 36-25 State Fed Com 233H, Wellbore #1, Permit Plan 1 V0



Todd 36B State 20H (Offset), Wellbore #1, Wellbore #1 V0
 Todd 36 State 231H, Wellbore #1, Permit Plan 1 V0
 Todd 36 State 01 SWD, Wellbore #1, Wellbore #1 V0



Todd 25 Fed 0012 SWD (Offset), Wellbore #1, Wellbore #1 V0
 Alisaire 25 Fed 5H, Wellbore #1, Wellbore #1 V0
 Alisaire 25 Fed 3H, Wellbore #1, Wellbore #1 V0

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

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec. 36-T23S-R31E

Todd 36-25 State Fed Com 230H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

02 October, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3529.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3529.30ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36-25 State Fed Com 230H	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:		Northing:	461,801.03 usft	Latitude:	32.26817
From:	Map	Easting:	724,712.45 usft	Longitude:	-103.74005
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32

Well	Todd 36-25 State Fed Com 230H				
Well Position	+N/-S	0.00 ft	Northing:	456,863.87 usft	Latitude: 32.25457
	+E/-W	0.00 ft	Easting:	726,427.61 usft	Longitude: -103.73459
Position Uncertainty		0.50 ft	Wellhead Elevation:		Ground Level: 3,504.30 ft

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/1/2018	6.89	60.05	47,805.82928824

Design:	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	7.47

Plan Survey Tool Program		Date	10/2/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	20,577.93	Permit Plan 1 (Wellbore #1)	MWD+HDGM	
				OWSG MWD + HDGM	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,630.14	11.30	102.05	3,622.83	-23.18	108.65	1.00	1.00	0.00	102.05	
9,739.88	11.30	102.05	9,614.10	-273.05	1,279.62	0.00	0.00	0.00	0.00	
10,663.89	90.00	359.70	10,200.00	300.00	1,391.00	10.00	8.52	-11.08	-102.11	
20,577.94	90.00	359.70	10,200.00	10,213.92	1,339.09	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 230H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3529.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3529.30ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36-25 State Fed Com 230H	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	456,863.87	726,427.61	32.254575	-103.734590
100.00	0.00	0.00	100.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
200.00	0.00	0.00	200.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
300.00	0.00	0.00	300.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
400.00	0.00	0.00	400.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
500.00	0.00	0.00	500.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
600.00	0.00	0.00	600.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
700.00	0.00	0.00	700.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
800.00	0.00	0.00	800.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
900.00	0.00	0.00	900.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,000.00	0.00	0.00	1,000.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,100.00	0.00	0.00	1,100.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,200.00	0.00	0.00	1,200.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,300.00	0.00	0.00	1,300.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,400.00	0.00	0.00	1,400.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,500.00	0.00	0.00	1,500.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,600.00	0.00	0.00	1,600.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,700.00	0.00	0.00	1,700.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,800.00	0.00	0.00	1,800.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
1,900.00	0.00	0.00	1,900.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,000.00	0.00	0.00	2,000.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,100.00	0.00	0.00	2,100.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,200.00	0.00	0.00	2,200.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,300.00	0.00	0.00	2,300.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,400.00	0.00	0.00	2,400.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,500.00	0.00	0.00	2,500.00	0.00	0.00	456,863.87	726,427.61	32.254575	-103.734590
2,600.00	1.00	102.05	2,599.99	-0.18	0.85	456,863.69	726,428.46	32.254575	-103.734587
2,700.00	2.00	102.05	2,699.96	-0.73	3.41	456,863.14	726,431.02	32.254573	-103.734579
2,800.00	3.00	102.05	2,799.86	-1.64	7.68	456,862.23	726,435.29	32.254571	-103.734565
2,900.00	4.00	102.05	2,899.68	-2.91	13.65	456,860.96	726,441.26	32.254567	-103.734546
3,000.00	5.00	102.05	2,999.37	-4.55	21.32	456,859.32	726,448.93	32.254562	-103.734521
3,100.00	6.00	102.05	3,098.90	-6.55	30.70	456,857.32	726,458.30	32.254557	-103.734491
3,200.00	7.00	102.05	3,198.26	-8.91	41.77	456,854.96	726,469.37	32.254550	-103.734455
3,300.00	8.00	102.05	3,297.40	-11.64	54.53	456,852.24	726,482.14	32.254543	-103.734414
3,400.00	9.00	102.05	3,396.30	-14.72	68.99	456,849.15	726,496.59	32.254534	-103.734367
3,500.00	10.00	102.05	3,494.93	-18.16	85.13	456,845.71	726,512.73	32.254524	-103.734315
3,600.00	11.00	102.05	3,593.26	-21.97	102.95	456,841.91	726,530.56	32.254513	-103.734258
3,630.14	11.30	102.05	3,622.83	-23.18	108.65	456,840.69	726,536.26	32.254510	-103.734239
3,700.00	11.30	102.05	3,691.33	-26.04	122.04	456,837.83	726,549.65	32.254502	-103.734196
3,800.00	11.30	102.05	3,789.39	-30.13	141.21	456,833.74	726,568.81	32.254490	-103.734134
3,900.00	11.30	102.05	3,887.45	-34.22	160.37	456,829.65	726,587.98	32.254479	-103.734072
4,000.00	11.30	102.05	3,985.51	-38.31	179.54	456,825.56	726,607.14	32.254467	-103.734010
4,100.00	11.30	102.05	4,083.58	-42.40	198.70	456,821.47	726,626.31	32.254456	-103.733948
4,200.00	11.30	102.05	4,181.64	-46.49	217.87	456,817.38	726,645.47	32.254444	-103.733886
4,300.00	11.30	102.05	4,279.70	-50.58	237.03	456,813.29	726,664.64	32.254433	-103.733824
4,400.00	11.30	102.05	4,377.76	-54.67	256.20	456,809.21	726,683.80	32.254421	-103.733762
4,500.00	11.30	102.05	4,475.82	-58.76	275.36	456,805.12	726,702.97	32.254410	-103.733701
4,600.00	11.30	102.05	4,573.88	-62.85	294.53	456,801.03	726,722.14	32.254398	-103.733639
4,700.00	11.30	102.05	4,671.94	-66.94	313.70	456,796.94	726,741.30	32.254387	-103.733577
4,800.00	11.30	102.05	4,770.00	-71.03	332.86	456,792.85	726,760.47	32.254375	-103.733515
4,900.00	11.30	102.05	4,868.06	-75.12	352.03	456,788.76	726,779.63	32.254363	-103.733453
5,000.00	11.30	102.05	4,966.12	-79.21	371.19	456,784.67	726,798.80	32.254352	-103.733391
5,100.00	11.30	102.05	5,064.19	-83.30	390.36	456,780.58	726,817.96	32.254340	-103.733329
5,200.00	11.30	102.05	5,162.25	-87.38	409.52	456,776.49	726,837.13	32.254329	-103.733267
5,300.00	11.30	102.05	5,260.31	-91.47	428.69	456,772.40	726,856.29	32.254317	-103.733205

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3529.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3529.30ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36-25 State Fed Com 230H	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	11.30	102.05	5,358.37	-95.56	447.85	456,768.31	726,875.46	32.254306	-103.733143	
5,500.00	11.30	102.05	5,456.43	-99.65	467.02	456,764.22	726,894.63	32.254294	-103.733081	
5,600.00	11.30	102.05	5,554.49	-103.74	486.19	456,760.13	726,913.79	32.254283	-103.733019	
5,700.00	11.30	102.05	5,652.55	-107.83	505.35	456,756.04	726,932.96	32.254271	-103.732957	
5,800.00	11.30	102.05	5,750.61	-111.92	524.52	456,751.95	726,952.12	32.254260	-103.732896	
5,900.00	11.30	102.05	5,848.67	-116.01	543.68	456,747.86	726,971.29	32.254248	-103.732834	
6,000.00	11.30	102.05	5,946.73	-120.10	562.85	456,743.77	726,990.45	32.254237	-103.732772	
6,100.00	11.30	102.05	6,044.80	-124.19	582.01	456,739.68	727,009.62	32.254225	-103.732710	
6,200.00	11.30	102.05	6,142.86	-128.28	601.18	456,735.59	727,028.78	32.254213	-103.732648	
6,300.00	11.30	102.05	6,240.92	-132.37	620.34	456,731.50	727,047.95	32.254202	-103.732586	
6,400.00	11.30	102.05	6,338.98	-136.46	639.51	456,727.41	727,067.12	32.254190	-103.732524	
6,500.00	11.30	102.05	6,437.04	-140.55	658.68	456,723.32	727,086.28	32.254179	-103.732462	
6,600.00	11.30	102.05	6,535.10	-144.64	677.84	456,719.23	727,105.45	32.254167	-103.732400	
6,700.00	11.30	102.05	6,633.16	-148.73	697.01	456,715.14	727,124.61	32.254156	-103.732338	
6,800.00	11.30	102.05	6,731.22	-152.82	716.17	456,711.06	727,143.78	32.254144	-103.732276	
6,900.00	11.30	102.05	6,829.28	-156.91	735.34	456,706.97	727,162.94	32.254133	-103.732214	
7,000.00	11.30	102.05	6,927.34	-161.00	754.50	456,702.88	727,182.11	32.254121	-103.732153	
7,100.00	11.30	102.05	7,025.41	-165.09	773.67	456,698.79	727,201.27	32.254110	-103.732091	
7,200.00	11.30	102.05	7,123.47	-169.18	792.83	456,694.70	727,220.44	32.254098	-103.732029	
7,300.00	11.30	102.05	7,221.53	-173.27	812.00	456,690.61	727,239.60	32.254087	-103.731967	
7,400.00	11.30	102.05	7,319.59	-177.36	831.17	456,686.52	727,258.77	32.254075	-103.731905	
7,500.00	11.30	102.05	7,417.65	-181.45	850.33	456,682.43	727,277.94	32.254064	-103.731843	
7,600.00	11.30	102.05	7,515.71	-185.53	869.50	456,678.34	727,297.10	32.254052	-103.731781	
7,700.00	11.30	102.05	7,613.77	-189.62	888.66	456,674.25	727,316.27	32.254040	-103.731719	
7,800.00	11.30	102.05	7,711.83	-193.71	907.83	456,670.16	727,335.43	32.254029	-103.731657	
7,900.00	11.30	102.05	7,809.89	-197.80	926.99	456,666.07	727,354.60	32.254017	-103.731595	
8,000.00	11.30	102.05	7,907.95	-201.89	946.16	456,661.98	727,373.76	32.254006	-103.731533	
8,100.00	11.30	102.05	8,006.01	-205.98	965.32	456,657.89	727,392.93	32.253994	-103.731471	
8,200.00	11.30	102.05	8,104.08	-210.07	984.49	456,653.80	727,412.09	32.253983	-103.731409	
8,300.00	11.30	102.05	8,202.14	-214.16	1,003.66	456,649.71	727,431.26	32.253971	-103.731348	
8,400.00	11.30	102.05	8,300.20	-218.25	1,022.82	456,645.62	727,450.43	32.253960	-103.731286	
8,500.00	11.30	102.05	8,398.26	-222.34	1,041.99	456,641.53	727,469.59	32.253948	-103.731224	
8,600.00	11.30	102.05	8,496.32	-226.43	1,061.15	456,637.44	727,488.76	32.253937	-103.731162	
8,700.00	11.30	102.05	8,594.38	-230.52	1,080.32	456,633.35	727,507.92	32.253925	-103.731100	
8,800.00	11.30	102.05	8,692.44	-234.61	1,099.48	456,629.26	727,527.09	32.253914	-103.731038	
8,900.00	11.30	102.05	8,790.50	-238.70	1,118.65	456,625.17	727,546.25	32.253902	-103.730976	
9,000.00	11.30	102.05	8,888.56	-242.79	1,137.81	456,621.08	727,565.42	32.253890	-103.730914	
9,100.00	11.30	102.05	8,986.62	-246.88	1,156.98	456,617.00	727,584.58	32.253879	-103.730852	
9,200.00	11.30	102.05	9,084.69	-250.97	1,176.15	456,612.91	727,603.75	32.253867	-103.730790	
9,300.00	11.30	102.05	9,182.75	-255.06	1,195.31	456,608.82	727,622.91	32.253856	-103.730728	
9,400.00	11.30	102.05	9,280.81	-259.15	1,214.48	456,604.73	727,642.08	32.253844	-103.730666	
9,500.00	11.30	102.05	9,378.87	-263.24	1,233.64	456,600.64	727,661.25	32.253833	-103.730605	
9,600.00	11.30	102.05	9,476.93	-267.33	1,252.81	456,596.55	727,680.41	32.253821	-103.730543	
9,700.00	11.30	102.05	9,574.99	-271.42	1,271.97	456,592.46	727,699.58	32.253810	-103.730481	
9,739.88	11.30	102.05	9,614.10	-273.05	1,279.62	456,590.83	727,707.22	32.253805	-103.730456	
KOP @ 9740' MD, 56' FSL, 2088' FEL										
9,800.00	11.61	71.47	9,673.07	-272.35	1,291.13	456,591.52	727,718.73	32.253807	-103.730419	
9,900.00	17.46	38.06	9,769.99	-257.30	1,309.97	456,606.57	727,737.57	32.253848	-103.730358	
10,000.00	25.93	23.37	9,862.89	-225.33	1,327.94	456,638.54	727,755.54	32.253936	-103.730299	
10,056.78	31.13	18.56	9,912.76	-200.00	1,337.54	456,663.87	727,765.14	32.254005	-103.730267	
FTP @ 10057' MD, 100' FSL, 2200' FEL										
10,100.00	35.18	15.78	9,948.94	-177.42	1,344.49	456,686.45	727,772.09	32.254067	-103.730244	
10,200.00	44.71	11.07	10,025.54	-115.02	1,359.11	456,748.85	727,786.72	32.254238	-103.730196	
10,300.00	54.39	7.74	10,090.35	-40.03	1,371.37	456,823.85	727,798.98	32.254444	-103.730155	

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3529.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3529.30ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36-25 State Fed Com 230H	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
10,400.00	64.14	5.13	10,141.40	45.28	1,380.89	456,909.15	727,808.50	32.254679	-103.730123
10,500.00	73.92	2.93	10,177.15	138.31	1,387.39	457,002.18	727,814.99	32.254934	-103.730100
10,600.00	83.73	0.93	10,196.51	236.24	1,390.65	457,100.11	727,818.26	32.255203	-103.730088
10,663.89	90.00	359.70	10,200.00	300.00	1,391.00	457,163.87	727,818.60	32.255379	-103.730085
10,700.00	90.00	359.70	10,200.00	336.11	1,390.81	457,199.98	727,818.41	32.255478	-103.730085
10,800.00	90.00	359.70	10,200.00	436.10	1,390.29	457,299.98	727,817.89	32.255753	-103.730085
10,900.00	90.00	359.70	10,200.00	536.10	1,389.76	457,399.98	727,817.37	32.256028	-103.730085
11,000.00	90.00	359.70	10,200.00	636.10	1,389.24	457,499.97	727,816.84	32.256302	-103.730085
11,100.00	90.00	359.70	10,200.00	736.10	1,388.72	457,599.97	727,816.32	32.256577	-103.730085
11,200.00	90.00	359.70	10,200.00	836.10	1,388.19	457,699.97	727,815.80	32.256852	-103.730085
11,300.00	90.00	359.70	10,200.00	936.10	1,387.67	457,799.97	727,815.27	32.257127	-103.730084
11,400.00	90.00	359.70	10,200.00	1,036.10	1,387.15	457,899.97	727,814.75	32.257402	-103.730084
11,500.00	90.00	359.70	10,200.00	1,136.10	1,386.62	457,999.97	727,814.23	32.257677	-103.730084
11,600.00	90.00	359.70	10,200.00	1,236.09	1,386.10	458,099.96	727,813.70	32.257952	-103.730084
11,700.00	90.00	359.70	10,200.00	1,336.09	1,385.58	458,199.96	727,813.18	32.258227	-103.730084
11,800.00	90.00	359.70	10,200.00	1,436.09	1,385.05	458,299.96	727,812.65	32.258501	-103.730084
11,900.00	90.00	359.70	10,200.00	1,536.09	1,384.53	458,399.96	727,812.13	32.258776	-103.730084
12,000.00	90.00	359.70	10,200.00	1,636.09	1,384.00	458,499.96	727,811.61	32.259051	-103.730084
12,100.00	90.00	359.70	10,200.00	1,736.09	1,383.48	458,599.96	727,811.08	32.259326	-103.730083
12,200.00	90.00	359.70	10,200.00	1,836.09	1,382.96	458,699.96	727,810.56	32.259601	-103.730083
12,300.00	90.00	359.70	10,200.00	1,936.08	1,382.43	458,799.95	727,810.04	32.259876	-103.730083
12,400.00	90.00	359.70	10,200.00	2,036.08	1,381.91	458,899.95	727,809.51	32.260151	-103.730083
12,500.00	90.00	359.70	10,200.00	2,136.08	1,381.39	458,999.95	727,808.99	32.260426	-103.730083
12,600.00	90.00	359.70	10,200.00	2,236.08	1,380.86	459,099.95	727,808.47	32.260700	-103.730083
12,700.00	90.00	359.70	10,200.00	2,336.08	1,380.34	459,199.95	727,807.94	32.260975	-103.730083
12,800.00	90.00	359.70	10,200.00	2,436.08	1,379.82	459,299.95	727,807.42	32.261250	-103.730083
12,900.00	90.00	359.70	10,200.00	2,536.08	1,379.29	459,399.94	727,806.90	32.261525	-103.730082
13,000.00	90.00	359.70	10,200.00	2,636.07	1,378.77	459,499.94	727,806.37	32.261800	-103.730082
13,100.00	90.00	359.70	10,200.00	2,736.07	1,378.24	459,599.94	727,805.85	32.262075	-103.730082
13,200.00	90.00	359.70	10,200.00	2,836.07	1,377.72	459,699.94	727,805.32	32.262350	-103.730082
13,300.00	90.00	359.70	10,200.00	2,936.07	1,377.20	459,799.94	727,804.80	32.262625	-103.730082
13,400.00	90.00	359.70	10,200.00	3,036.07	1,376.67	459,899.94	727,804.28	32.262899	-103.730082
13,500.00	90.00	359.70	10,200.00	3,136.07	1,376.15	459,999.93	727,803.75	32.263174	-103.730082
13,600.00	90.00	359.70	10,200.00	3,236.07	1,375.63	460,099.93	727,803.23	32.263449	-103.730082
13,700.00	90.00	359.70	10,200.00	3,336.07	1,375.10	460,199.93	727,802.71	32.263724	-103.730081
13,800.00	90.00	359.70	10,200.00	3,436.06	1,374.58	460,299.93	727,802.18	32.263999	-103.730081
13,900.00	90.00	359.70	10,200.00	3,536.06	1,374.06	460,399.93	727,801.66	32.264274	-103.730081
14,000.00	90.00	359.70	10,200.00	3,636.06	1,373.53	460,499.93	727,801.14	32.264549	-103.730081
14,100.00	90.00	359.70	10,200.00	3,736.06	1,373.01	460,599.93	727,800.61	32.264824	-103.730081
14,200.00	90.00	359.70	10,200.00	3,836.06	1,372.49	460,699.92	727,800.09	32.265099	-103.730081
14,300.00	90.00	359.70	10,200.00	3,936.06	1,371.96	460,799.92	727,799.57	32.265373	-103.730081
14,400.00	90.00	359.70	10,200.00	4,036.06	1,371.44	460,899.92	727,799.04	32.265648	-103.730081
14,500.00	90.00	359.70	10,200.00	4,136.05	1,370.91	460,999.92	727,798.52	32.265923	-103.730080
14,600.00	90.00	359.70	10,200.00	4,236.05	1,370.39	461,099.92	727,797.99	32.266198	-103.730080
14,700.00	90.00	359.70	10,200.00	4,336.05	1,369.87	461,199.92	727,797.47	32.266473	-103.730080
14,800.00	90.00	359.70	10,200.00	4,436.05	1,369.34	461,299.91	727,796.95	32.266748	-103.730080
14,900.00	90.00	359.70	10,200.00	4,536.05	1,368.82	461,399.91	727,796.42	32.267023	-103.730080
15,000.00	90.00	359.70	10,200.00	4,636.05	1,368.30	461,499.91	727,795.90	32.267298	-103.730080
15,100.00	90.00	359.70	10,200.00	4,736.05	1,367.77	461,599.91	727,795.38	32.267572	-103.730080
15,114.00	90.00	359.70	10,200.00	4,750.05	1,367.70	461,613.91	727,795.30	32.267611	-103.730080
Cross Section @ 15114' MD, 0' FSL, 2200' FEL									
15,200.00	90.00	359.70	10,200.00	4,836.04	1,367.25	461,699.91	727,794.85	32.267847	-103.730080
15,300.00	90.00	359.70	10,200.00	4,936.04	1,366.73	461,799.91	727,794.33	32.268122	-103.730080
15,400.00	90.00	359.70	10,200.00	5,036.04	1,366.20	461,899.90	727,793.81	32.268397	-103.730079

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3529.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3529.30ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36-25 State Fed Com 230H	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
15,500.00	90.00	359.70	10,200.00	5,136.04	1,365.68	461,999.90	727,793.28	32.268672	-103.730079
15,600.00	90.00	359.70	10,200.00	5,236.04	1,365.15	462,099.90	727,792.76	32.268947	-103.730079
15,700.00	90.00	359.70	10,200.00	5,336.04	1,364.63	462,199.90	727,792.23	32.269222	-103.730079
15,800.00	90.00	359.70	10,200.00	5,436.04	1,364.11	462,299.90	727,791.71	32.269497	-103.730079
15,900.00	90.00	359.70	10,200.00	5,536.03	1,363.58	462,399.90	727,791.19	32.269771	-103.730079
16,000.00	90.00	359.70	10,200.00	5,636.03	1,363.06	462,499.90	727,790.66	32.270046	-103.730079
16,100.00	90.00	359.70	10,200.00	5,736.03	1,362.54	462,599.89	727,790.14	32.270321	-103.730079
16,200.00	90.00	359.70	10,200.00	5,836.03	1,362.01	462,699.89	727,789.62	32.270596	-103.730078
16,300.00	90.00	359.70	10,200.00	5,936.03	1,361.49	462,799.89	727,789.09	32.270871	-103.730078
16,400.00	90.00	359.70	10,200.00	6,036.03	1,360.97	462,899.89	727,788.57	32.271146	-103.730078
16,500.00	90.00	359.70	10,200.00	6,136.03	1,360.44	462,999.89	727,788.05	32.271421	-103.730078
16,600.00	90.00	359.70	10,200.00	6,236.03	1,359.92	463,099.89	727,787.52	32.271696	-103.730078
16,700.00	90.00	359.70	10,200.00	6,336.02	1,359.40	463,199.88	727,787.00	32.271970	-103.730078
16,800.00	90.00	359.70	10,200.00	6,436.02	1,358.87	463,299.88	727,786.48	32.272245	-103.730078
16,900.00	90.00	359.70	10,200.00	6,536.02	1,358.35	463,399.88	727,785.95	32.272520	-103.730078
17,000.00	90.00	359.70	10,200.00	6,636.02	1,357.82	463,499.88	727,785.43	32.272795	-103.730077
17,100.00	90.00	359.70	10,200.00	6,736.02	1,357.30	463,599.88	727,784.90	32.273070	-103.730077
17,200.00	90.00	359.70	10,200.00	6,836.02	1,356.78	463,699.88	727,784.38	32.273345	-103.730077
17,300.00	90.00	359.70	10,200.00	6,936.02	1,356.25	463,799.88	727,783.86	32.273620	-103.730077
17,400.00	90.00	359.70	10,200.00	7,036.01	1,355.73	463,899.87	727,783.33	32.273895	-103.730077
17,500.00	90.00	359.70	10,200.00	7,136.01	1,355.21	463,999.87	727,782.81	32.274169	-103.730077
17,600.00	90.00	359.70	10,200.00	7,236.01	1,354.68	464,099.87	727,782.29	32.274444	-103.730077
17,700.00	90.00	359.70	10,200.00	7,336.01	1,354.16	464,199.87	727,781.76	32.274719	-103.730077
17,800.00	90.00	359.70	10,200.00	7,436.01	1,353.64	464,299.87	727,781.24	32.274994	-103.730076
17,900.00	90.00	359.70	10,200.00	7,536.01	1,353.11	464,399.87	727,780.72	32.275269	-103.730076
18,000.00	90.00	359.70	10,200.00	7,636.01	1,352.59	464,499.86	727,780.19	32.275544	-103.730076
18,100.00	90.00	359.70	10,200.00	7,736.00	1,352.06	464,599.86	727,779.67	32.275819	-103.730076
18,200.00	90.00	359.70	10,200.00	7,836.00	1,351.54	464,699.86	727,779.14	32.276094	-103.730076
18,300.00	90.00	359.70	10,200.00	7,936.00	1,351.02	464,799.86	727,778.62	32.276368	-103.730076
18,400.00	90.00	359.70	10,200.00	8,036.00	1,350.49	464,899.86	727,778.10	32.276643	-103.730076
18,500.00	90.00	359.70	10,200.00	8,136.00	1,349.97	464,999.86	727,777.57	32.276918	-103.730076
18,600.00	90.00	359.70	10,200.00	8,236.00	1,349.45	465,099.85	727,777.05	32.277193	-103.730075
18,700.00	90.00	359.70	10,200.00	8,336.00	1,348.92	465,199.85	727,776.53	32.277468	-103.730075
18,800.00	90.00	359.70	10,200.00	8,436.00	1,348.40	465,299.85	727,776.00	32.277743	-103.730075
18,900.00	90.00	359.70	10,200.00	8,535.99	1,347.88	465,399.85	727,775.48	32.278018	-103.730075
19,000.00	90.00	359.70	10,200.00	8,635.99	1,347.35	465,499.85	727,774.96	32.278293	-103.730075
19,100.00	90.00	359.70	10,200.00	8,735.99	1,346.83	465,599.85	727,774.43	32.278567	-103.730075
19,200.00	90.00	359.70	10,200.00	8,835.99	1,346.31	465,699.85	727,773.91	32.278842	-103.730075
19,300.00	90.00	359.70	10,200.00	8,935.99	1,345.78	465,799.84	727,773.39	32.279117	-103.730075
19,400.00	90.00	359.70	10,200.00	9,035.99	1,345.26	465,899.84	727,772.86	32.279392	-103.730074
19,500.00	90.00	359.70	10,200.00	9,135.99	1,344.73	465,999.84	727,772.34	32.279667	-103.730074
19,600.00	90.00	359.70	10,200.00	9,235.98	1,344.21	466,099.84	727,771.81	32.279942	-103.730074
19,700.00	90.00	359.70	10,200.00	9,335.98	1,343.69	466,199.84	727,771.29	32.280217	-103.730074
19,800.00	90.00	359.70	10,200.00	9,435.98	1,343.16	466,299.84	727,770.77	32.280492	-103.730074
19,900.00	90.00	359.70	10,200.00	9,535.98	1,342.64	466,399.83	727,770.24	32.280766	-103.730074
20,000.00	90.00	359.70	10,200.00	9,635.98	1,342.12	466,499.83	727,769.72	32.281041	-103.730074
20,100.00	90.00	359.70	10,200.00	9,735.98	1,341.59	466,599.83	727,769.20	32.281316	-103.730074
20,200.00	90.00	359.70	10,200.00	9,835.98	1,341.07	466,699.83	727,768.67	32.281591	-103.730073
20,300.00	90.00	359.70	10,200.00	9,935.97	1,340.55	466,799.83	727,768.15	32.281866	-103.730073
20,400.00	90.00	359.70	10,200.00	10,035.97	1,340.02	466,899.83	727,767.63	32.282141	-103.730073
20,497.94	90.00	359.70	10,200.00	10,133.91	1,339.51	466,997.76	727,767.11	32.282410	-103.730073
LTP @ 20498' MD, 100' FNL, 2200' FEL									
20,500.00	90.00	359.70	10,200.00	10,135.97	1,339.50	466,999.82	727,767.10	32.282416	-103.730073

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Todd 36-25 State Fed Com 230H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3529.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3529.30ft
Site:	Sec. 36-T23S-R31E	North Reference:	Grid
Well:	Todd 36-25 State Fed Com 230H	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
20,577.94	90.00	359.70	10,200.00	10,213.91	1,339.09	467,077.76	727,766.69	32.282630	-103.730073
PBHL; 20' FNL, 2200' FEL									

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	10,214.47	1,334.90	467,078.32	727,762.50	32.282632	-103.730086
- plan misses target center by 10200.00ft at 20577.94ft MD (10200.00 TVD, 10213.91 N, 1339.09 E)									
- Point									

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
9,739.88	9,614.10	-273.05	1,279.62	KOP @ 9740' MD, 56' FSL, 2088' FEL	
10,056.78	9,912.76	-200.00	1,337.54	FTP @ 10057' MD, 100' FSL, 2200' FEL	
15,114.00	10,200.00	4,750.05	1,367.70	Cross Section @ 15114' MD, 0' FSL, 2200' FEL	
20,497.94	10,200.00	10,133.91	1,339.51	LTP @ 20498' MD, 100' FNL, 2200' FEL	
20,577.94	10,200.00	10,213.91	1,339.09	PBHL; 20' FNL, 2200' FEL	

Devon Energy

WELL DETAILS: Todd 36-25 State Fed Com 230H

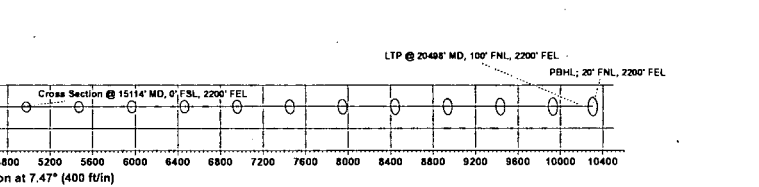
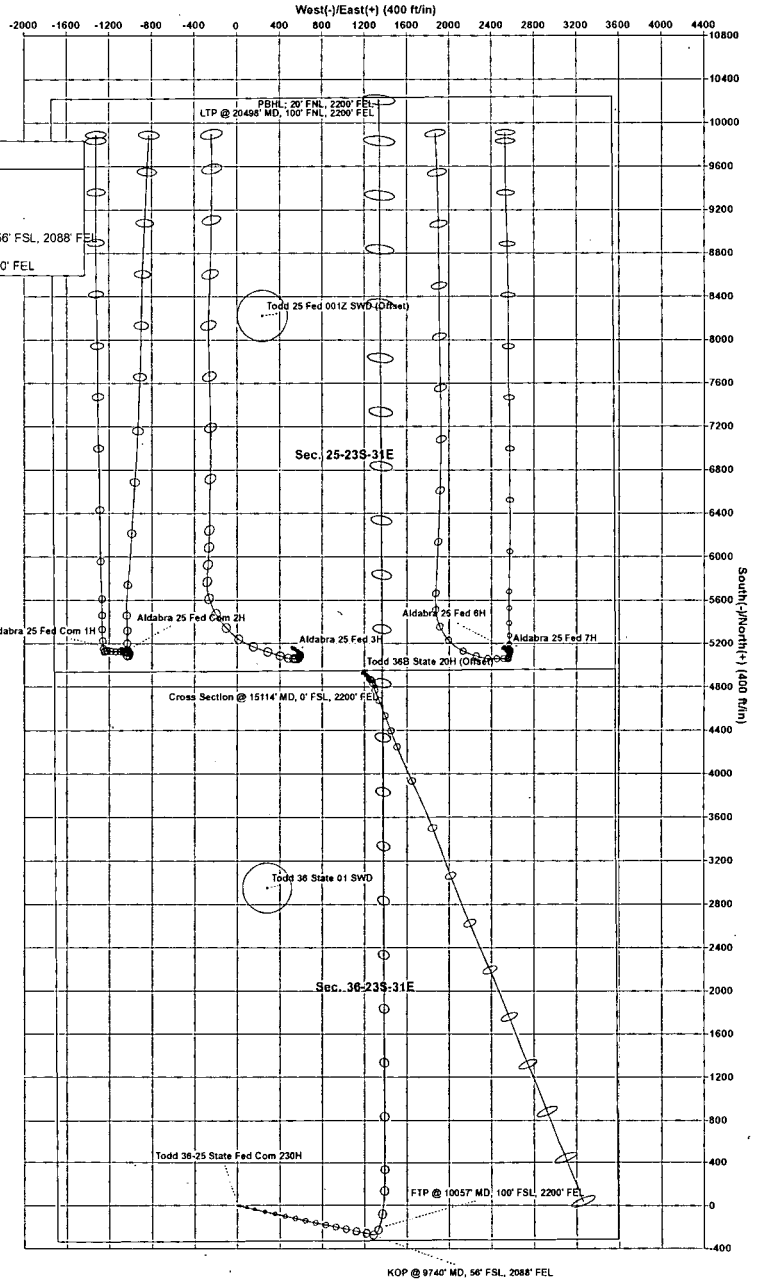
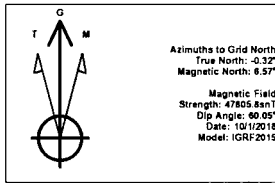
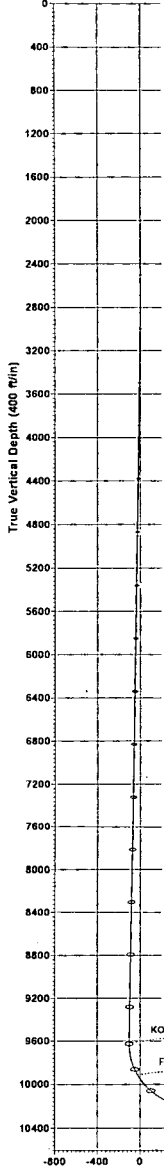
RKB @ 3529.30ft

3504.30

Northing 456863.87 Easting 726427.61 Latitude 32.254575 Longitude -103.734590

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
3630.14	11.30	102.05	3622.83	-23.18	108.65	1.00	-8.86	
9739.88	11.30	102.05	9614.10	-273.05	1279.62	0.00	-104.39	KOP @ 9740' MD, 56' FSL, 2088' FEL
10663.89	90.00	359.70	10200.00	300.00	1391.00	10.00	478.27	
20577.94	90.00	359.70	10200.00	10213.92	1339.09	0.00	10301.32	PBHL: 20' FNL, 2200' FEL



2. Casing Program

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17 1/2	0	836 TVD	13 3/8	48.0	H40	BTC	1.125	1.25	1.6
12 1/4	0	6000 TVD	9 5/8	40.0	J-55	BTC	1.125	1.25	1.6
8 3/4	0	TD	5 1/2	17.0	P110	BTC	1.125	1.25	1.6
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

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

Todd 36-25 State Fed Com 230H

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

3. Cementing Program (3-String Primary Design)

Casing	# Skts	TOC	Wt. (lb/gal)	Yld (ft ³ /sack)	Slurry Description
Surface	643	Surf	13.2	1.4	Lead: Class C Cement + additives
Int	677	Surf	9.0	3.3	Lead: Class C Cement + additives
	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Int 1 Two Stage w/ DV @ TVD of Delaware	658	Surf	9.0	3.3	1st stage Lead: Class C Cement + additives
	136	500' above shoe	13.2	1.4	1st stage Tail: Class H / C + additives
	476	Surf	9.0	3.3	2nd stage Lead: Class C Cement + additives
	136	500' above DV	13.2	1.4	2nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	9.0	3.3	Squeeze Lead: Class C Cement + additives
	677	Surf	9.0	3.3	Lead: Class C Cement + additives
	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Production	362	500' tieback	9.0	3.3	Lead: Class H / C + additives
	2091	KOP	13.2	1.4	Tail: Class H / C + additives

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

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

4. Pressure Control Equipment (Three String Design)

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

5. Mud Program (Three String Design)

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

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

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

7. Drilling Conditions

Condition	Specify what type and where?
BH pressure at deepest TVD	4774
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	H ₂ S is present
Y	H ₂ S plan attached.

8. Other facets of operation

Is this a walking operation? Potentially

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

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

Will be pre-setting casing? Potentially

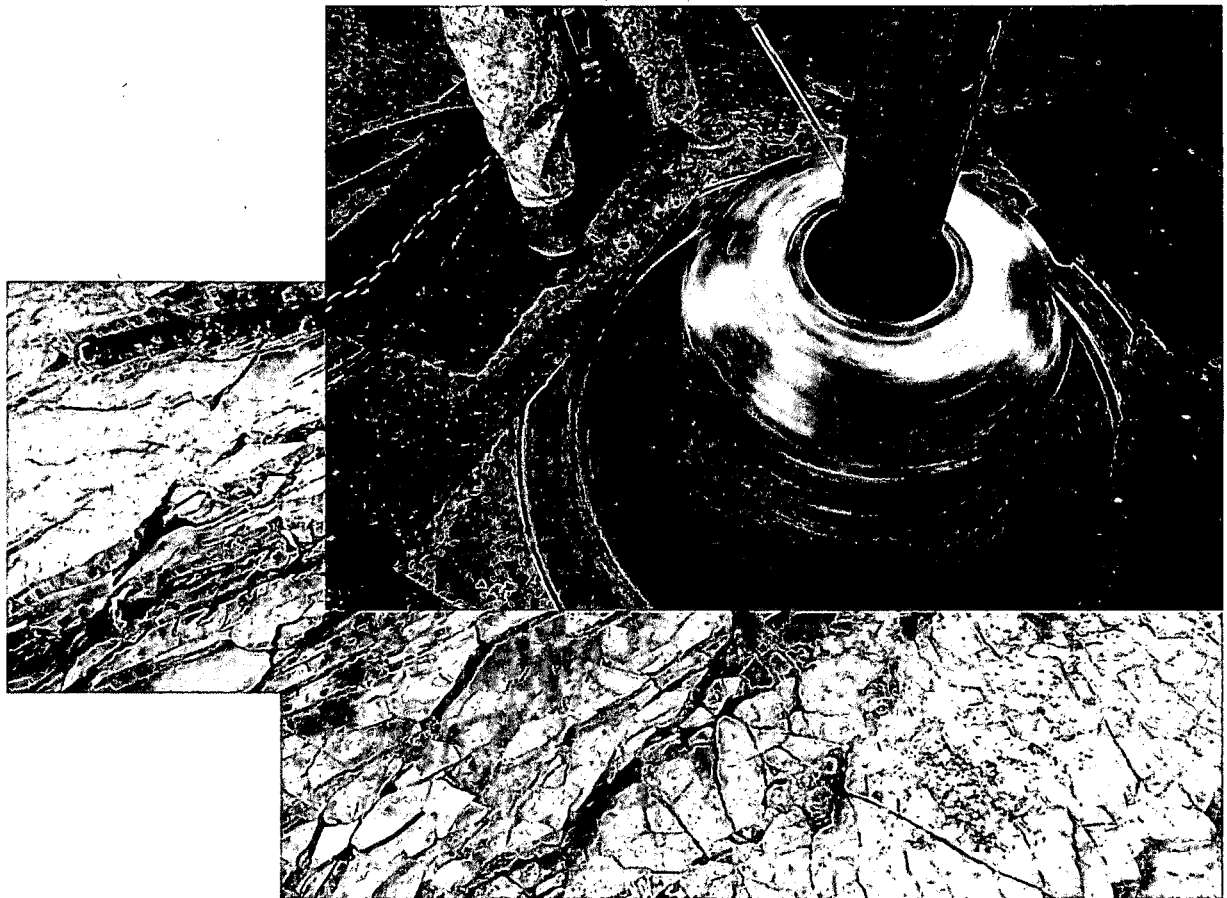
- 1 Spudder rig will move in and batch drill surface hole.
 - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
- 2 After drilling the surface hole section, the spudder rig will run casing and cement following all of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

X Directional Plan
 Other, describe



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.

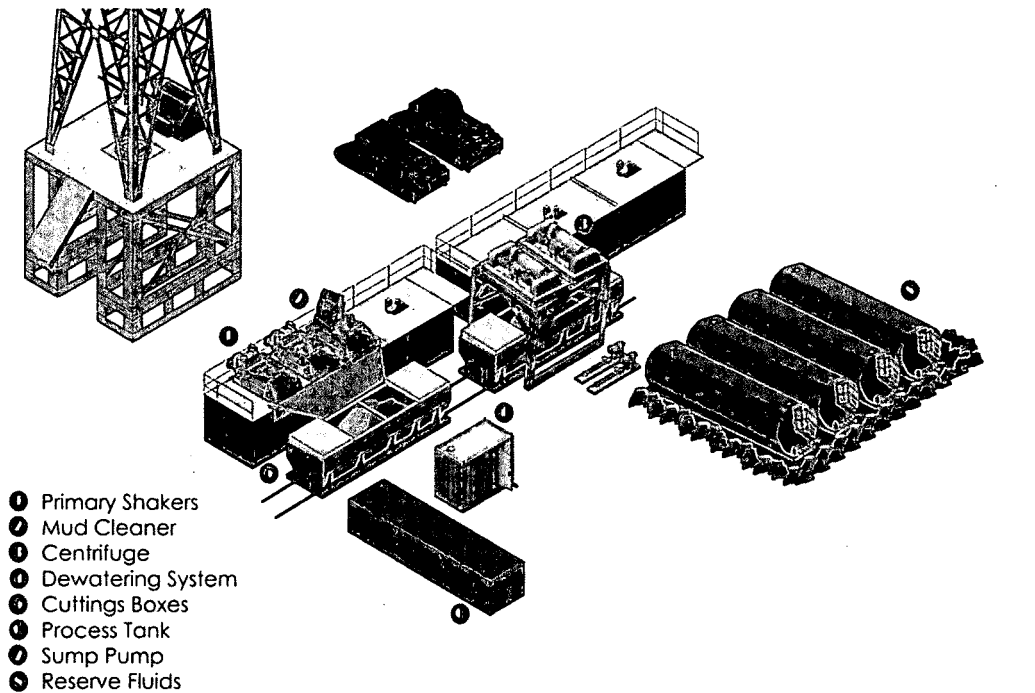
II. Operations and Maintenance Plan

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.

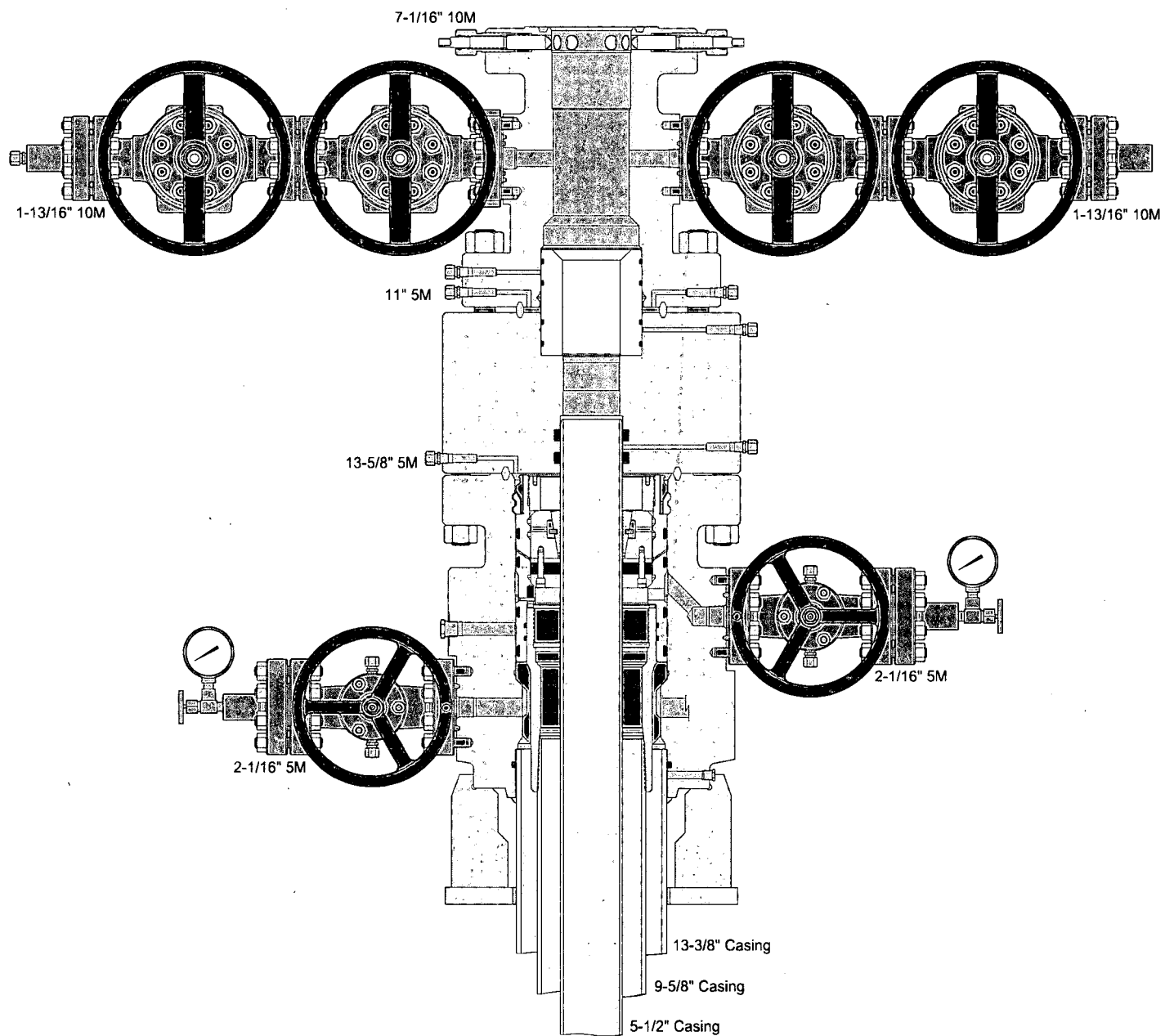
- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial 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.





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.

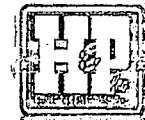
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

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) 568-738

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.taurusermerge.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 Pressure Test PHOENIX RUBBER & C.			

14094-68

40920-0-00015 NB00C

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	RD	+0.000	PC	14:00
	B	11044	50	14:00
7	GN	+0.000	PC	40 13:40 60 80 100
	RD	+0.000	PC	40 13:40 60 80 100
	B	11047	50	13:40
6	GN	+0.000	PC	13:20
	RD	+0.000	PC	13:20
	B	11050	50	13:20
5	GN	+0.000	PC	13:00
	RD	+0.000	PC	13:00
	B	11056	50	13:00
4				
3				
2				

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

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.
[Signature]



APD ID: 10400035681

Submission Date: 10/29/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

[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_230H_EXISTING_RD_20181029112402.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_230H_ACCESS_RD_20181029112441.pdf

New road type: COLLECTOR,RESOURCE

Length: 200

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: 230H

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_230H_OneMileBuffer_WA017446822_20181029112524.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description:

Production Facilities map:

AA000145925_TODD_36_CTB_2_P_20181029080831.PDF

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: 230H

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_230H_232H_231H_waterxmap_20181029080908.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: 230H

Section 6 - Construction Materials

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

Construction Materials source location attachment:

Todd_36_Wellpad_2_Caliche_Map_REVISED_3_18_2019_20190319110856.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: 230H

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: 2005 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: 230H

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_230H_RIGLAYOUT_20181029112734.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: 2

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): 3.76
Road proposed disturbance (acres):
0.199
Powerline proposed disturbance
(acres): 0.398
Pipeline proposed disturbance
(acres): 1.044
Other proposed disturbance (acres):
5.165
Total proposed disturbance: 10.566

Well pad interim reclamation (acres): 2.228
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 2.228

Well pad long term disturbance
(acres): 1.594
Road long term disturbance (acres):
0.199
Powerline long term disturbance
(acres): 0.398
Pipeline long term disturbance
(acres): 1.044
Other long term disturbance (acres):
5.165
Total long term disturbance: 8.4

Disturbance Comments:

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

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

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

Existing Vegetation at the well pad: Shinnery, yucca, grasses and mesquite.

Existing Vegetation at the well pad attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

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

Existing Vegetation Community at the road attachment:

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

Existing Vegetation Community at the pipeline attachment:

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

Existing Vegetation Community at other disturbances attachment:

Non native seed used?

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

Total pounds/Acre:

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

Seed reclamation attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

Well Number: 230H

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: 230H

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: 230H

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: ELECTRIC LINES All flowlines are buried CTB- includes lat/longs PAYMENT

Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

_EXTERNAL__Pay.gov_Payment_Confirmation__BLM_Oil_and_Gas_Online_Payment_20181029113225.pdf

EL8245_TODD_36_CTB_2_EL_P_20181029113310.PDF

EL8248_TODD_36_WP_2_EL_P_20181029113315.PDF

7660143F_TODD_36_WP_2_TO_CTB_2_FL_20190319115506.pdf

7660143F_TODD_36_WP_2_TO_CTB_2_FL_all_flowlines_buried_20190402063236.pdf

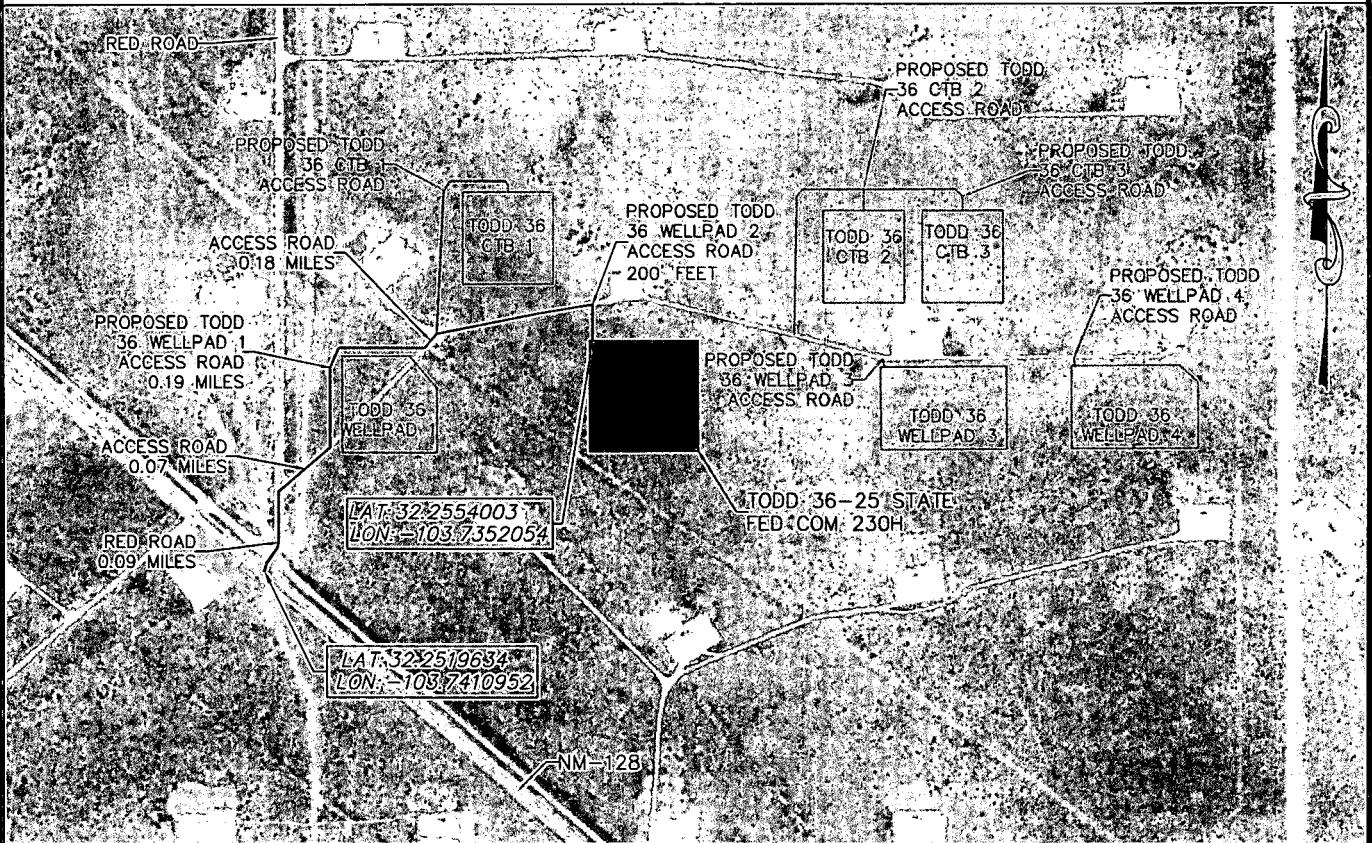
Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TODD 36-25 STATE FED COM

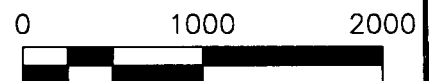
Well Number: 230H

AA000145925_TODD_36_CTB_2_P_R2_20190408070941.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 230H
 LOCATED 330 FT. FROM THE SOUTH LINE
 AND 1689 FT. FROM THE WEST LINE OF
 SECTION 36, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO



HORIZON ROW LLC

Drawn for:

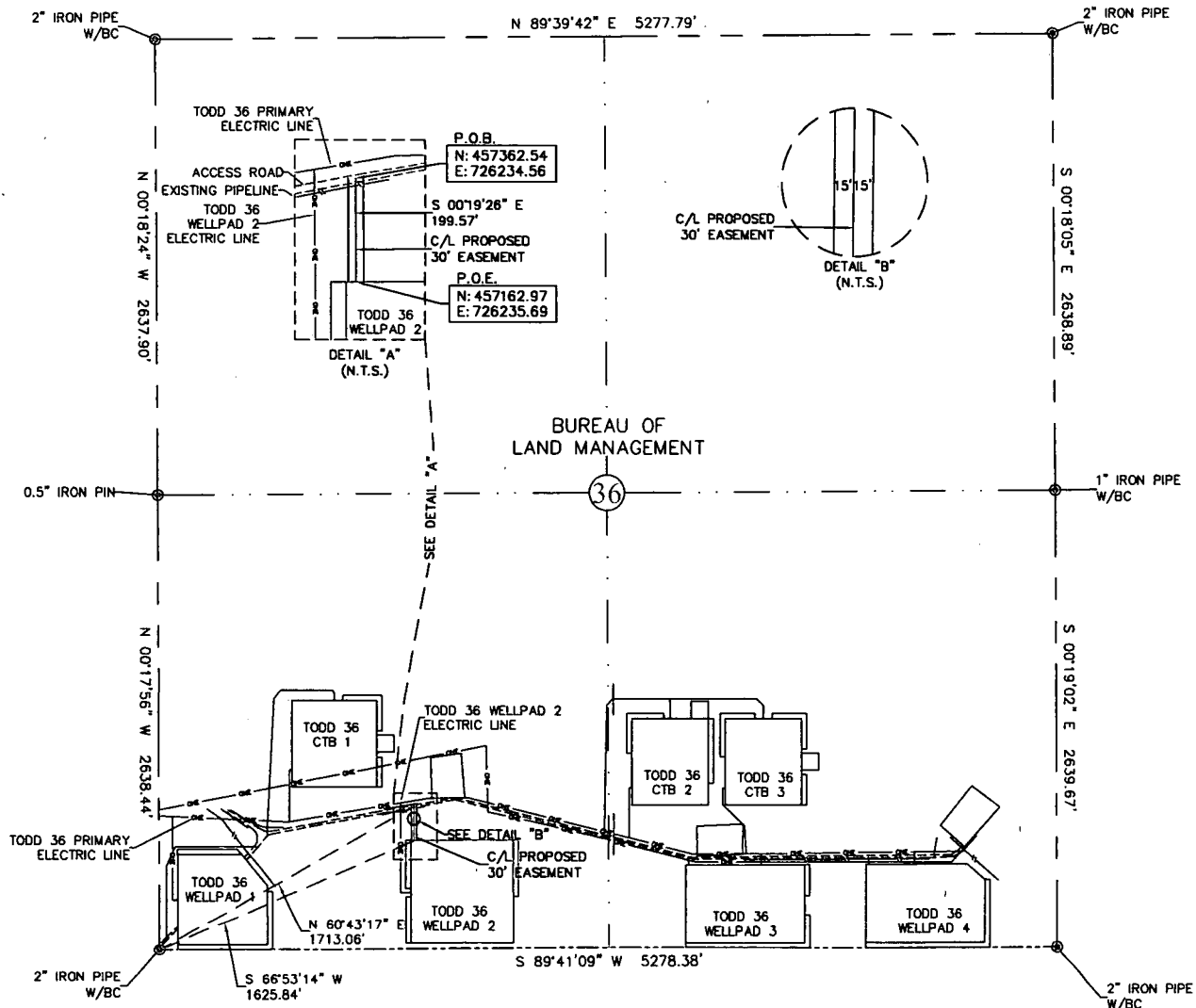
DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

Date: 09/22/2018
Rev. Date: 10/08/18

devon

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



30' EASEMENT AREA = 0.137 ACRE(S)
199.57 FEET OR 12.10 RODS

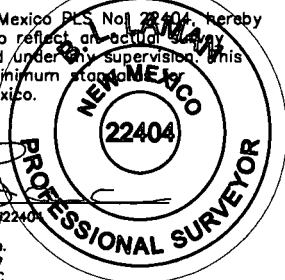
0+00.0 P.O.B./EXISTING ACCESS ROAD
0+08.0 EDGE OF ROAD
0+13.3 EXISTING FLOW LINE
1+99.6 P.O.E./TODD 36 WELLPAD 2

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: 09-25-2018
P.O. Box 548, Dry Creek, La.
(903) 368-3045 70637
Employee of Horizonrow, LLC



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 07/06/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36
WELLPAD 2 ACCESS ROAD

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

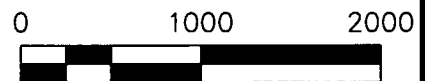
LINE NUMBER:

WBS NUMBER:

SCALE:
1" = 1000'

REVISIONS:

SHEET:
6/13/2018



**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 southwest quarter (SW 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 southwest corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 60°43'17" E a distance of 1713.06' to the **Point of Beginning** of this easement having coordinates of Northing=457362.54, Easting=726234.56 feet and continuing the following course;

Thence S 00°19'26" E a distance of 199.57' to the **Point of Ending** having coordinates of Northing=457162.97, Easting=726235.69 feet from said point a 2" iron pipe w/BC for the southwest corner of Section 36, T23S-R31E bears S 66°53'14" W a distance of 1625.84', covering **199.57' or 12.10 rods** and having an area of **0.137 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: 09/25/2018
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.



 Miles 1 inch = 0.44 miles

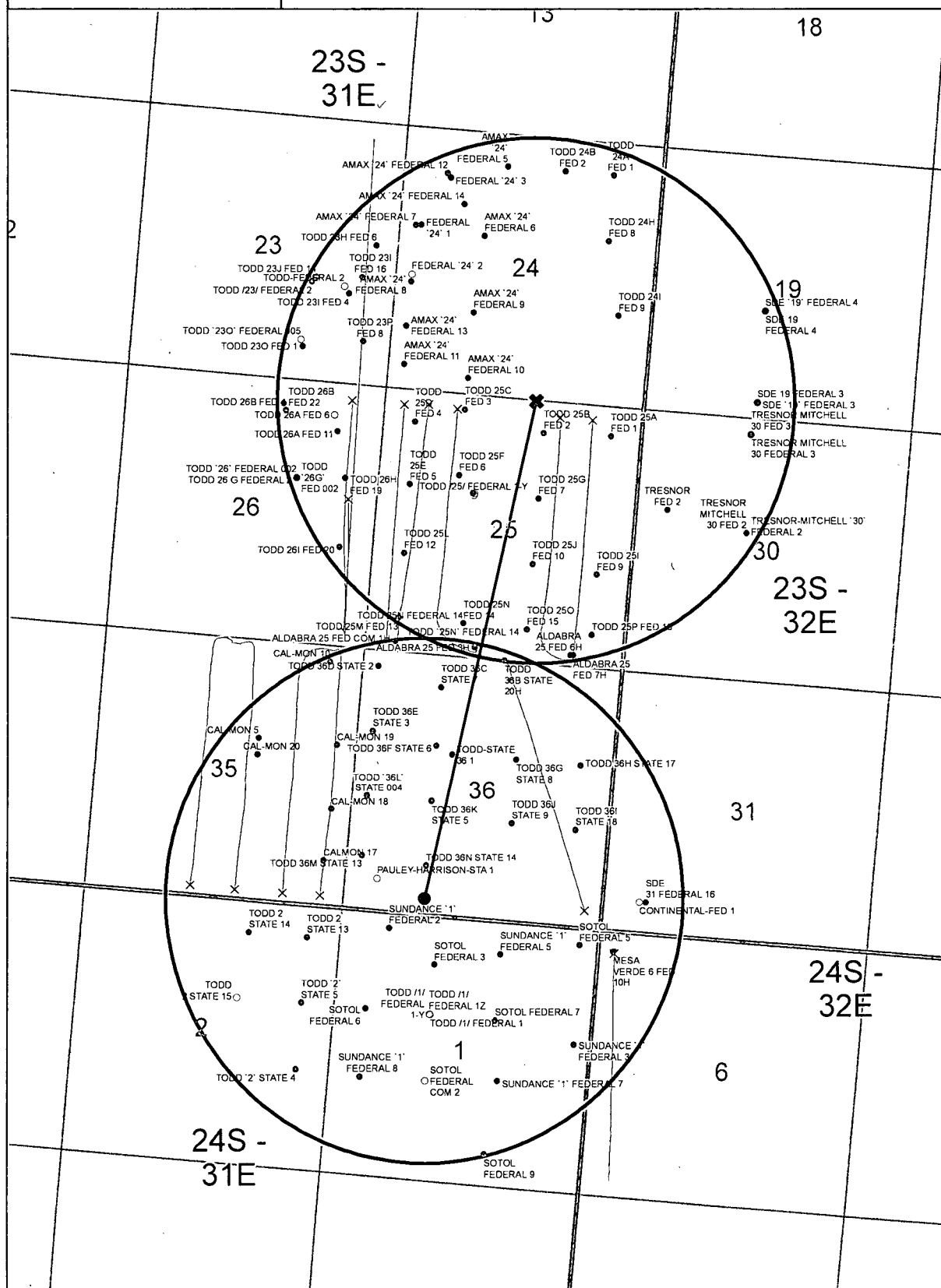
CAL-MON MDP1 `35` FEDERAL 006H

Nearest wellbore to SHL: 2124 ft.

ALDABRA 25 FED 6H

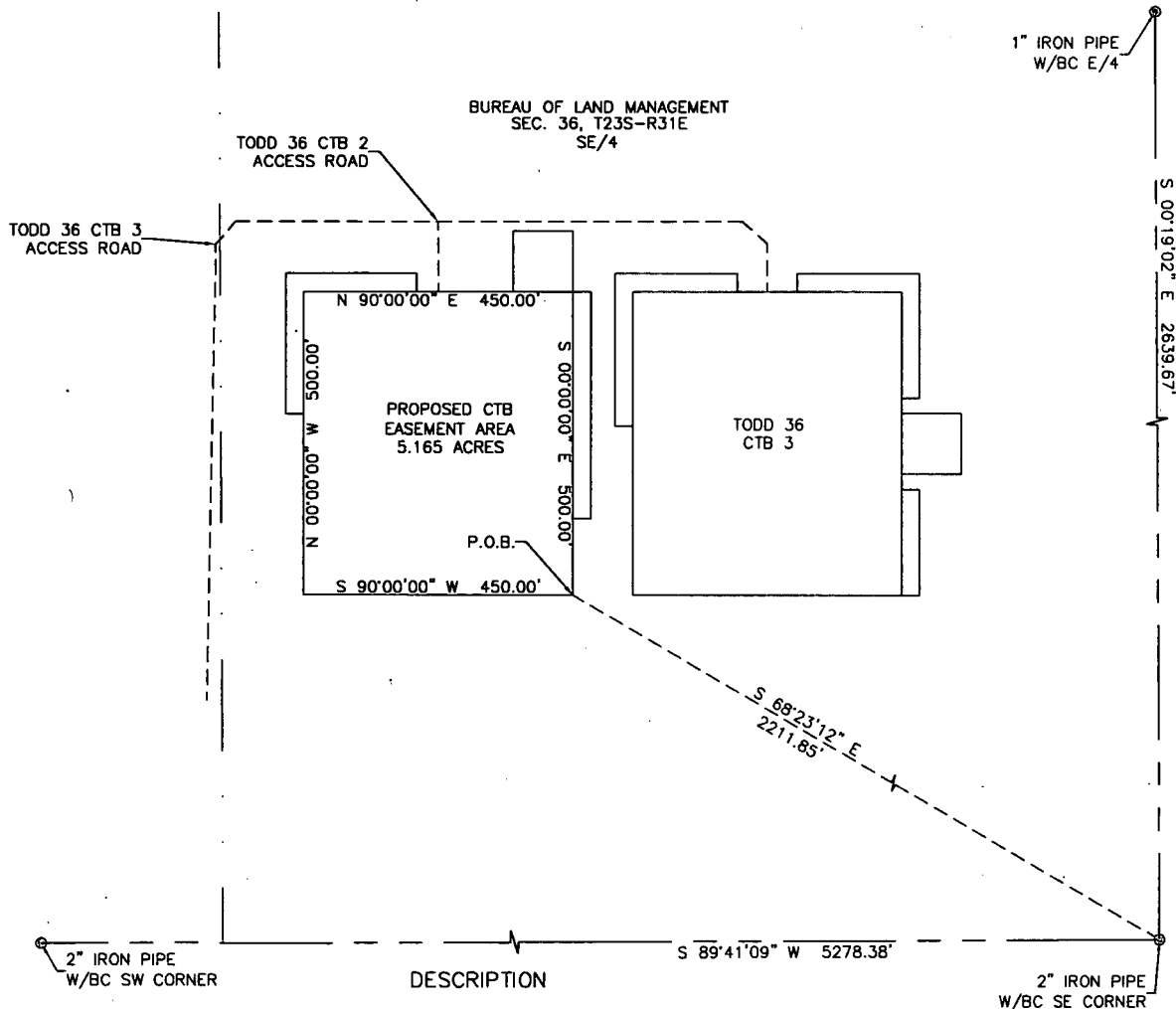
Nearest wellbore to BHL: 601 ft.

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



TODD 36 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE SOUTHEAST QUARTER (SE/4)
SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
SHEET 1 OF 6



BEING A SURFACE SITE EASEMENT LYING IN THE SOUTHEAST QUARTER (SE/4) OF SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE SOUTHEAST CORNER OF SAID SITE EASEMENT, WHERE A 2" IRON PIPE W/BC FOR THE SOUTHEAST CORNER OF SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST N.M.P.M. BEARS S 68°23'12" E, A DISTANCE 2211.85';

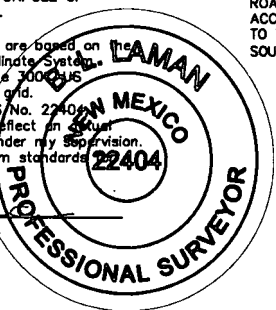
THENCE S 90°00'00" W, A DISTANCE 450.00 FEET TO THE SOUTHWEST CORNER OF THIS EASEMENT;
THENCE N 00°00'00" W, A DISTANCE 500.00 FEET TO THE NORTHWEST CORNER OF THIS EASEMENT;
THENCE N 90°00'00" E, A DISTANCE 450.00 FEET TO THE NORTHEAST CORNER OF THIS EASEMENT;
THENCE S 00°00'00" E, A DISTANCE 500.00 FEET TO THE SOUTHEAST CORNER OF THIS EASEMENT;
TO THE POINT OF BEGINNING; CONTAINING 5.165 ACRES.

GENERAL NOTES:

1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL BATTERY.

2.) All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 300000 US Survey Feet, all distances are in feet.
I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an accurate survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

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



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 0.40 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 3 ACCESS ROAD. HEAD NORTH AND EAST ALONG THE PROPOSED TODD 36 CTB 3 ACCESS ROAD FOR 0.21 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 2 ACCESS ROAD. TURN RIGHT AND HEAD SOUTH 115° TO THE NORTH CENTER POINT OF THE TODD 36 CTB 2.



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 07/06/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36 CTB 2

SURVEY PLAT SHOWING
A CTB

ON THE PROPERTY OF THE
BUREAU OF LAND MANAGEMENT

SITE NUMBER:
AA000145925

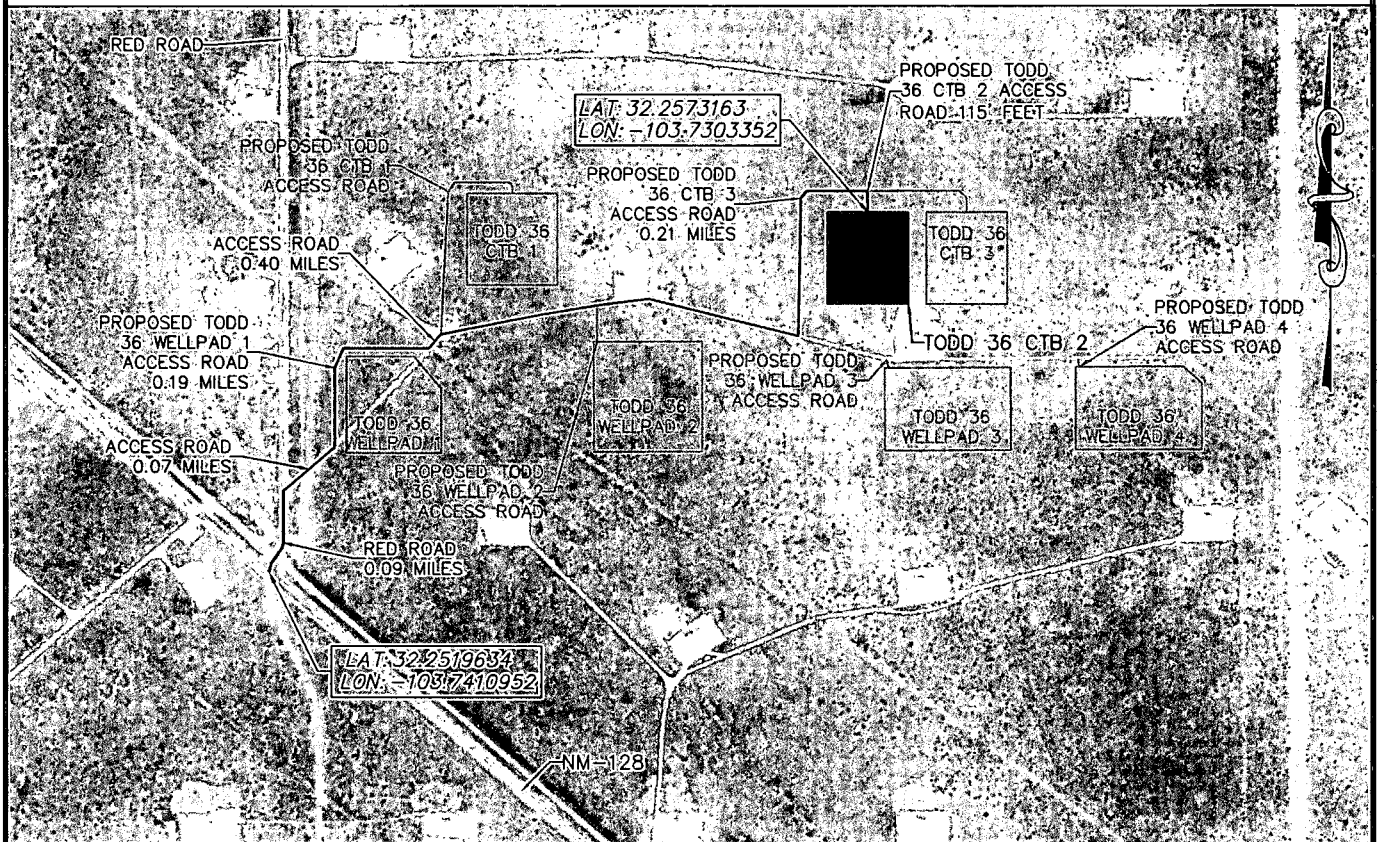
WBS NUMBER:

SCALE:
1" = 300'

REVISIONS:

DATE OF SURVEY:
8/22/18

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



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 0.40 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 3 ACCESS ROAD. HEAD NORTH AND EAST ALONG THE PROPOSED TODD 36 CTB 3 ACCESS ROAD FOR 0.21 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 2 ACCESS ROAD. TURN RIGHT AND HEAD SOUTH 115' TO THE NORTH CENTER POINT OF THE TODD 36 CTB 2.

0 1000 2000

SHEET 2 OF 6

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

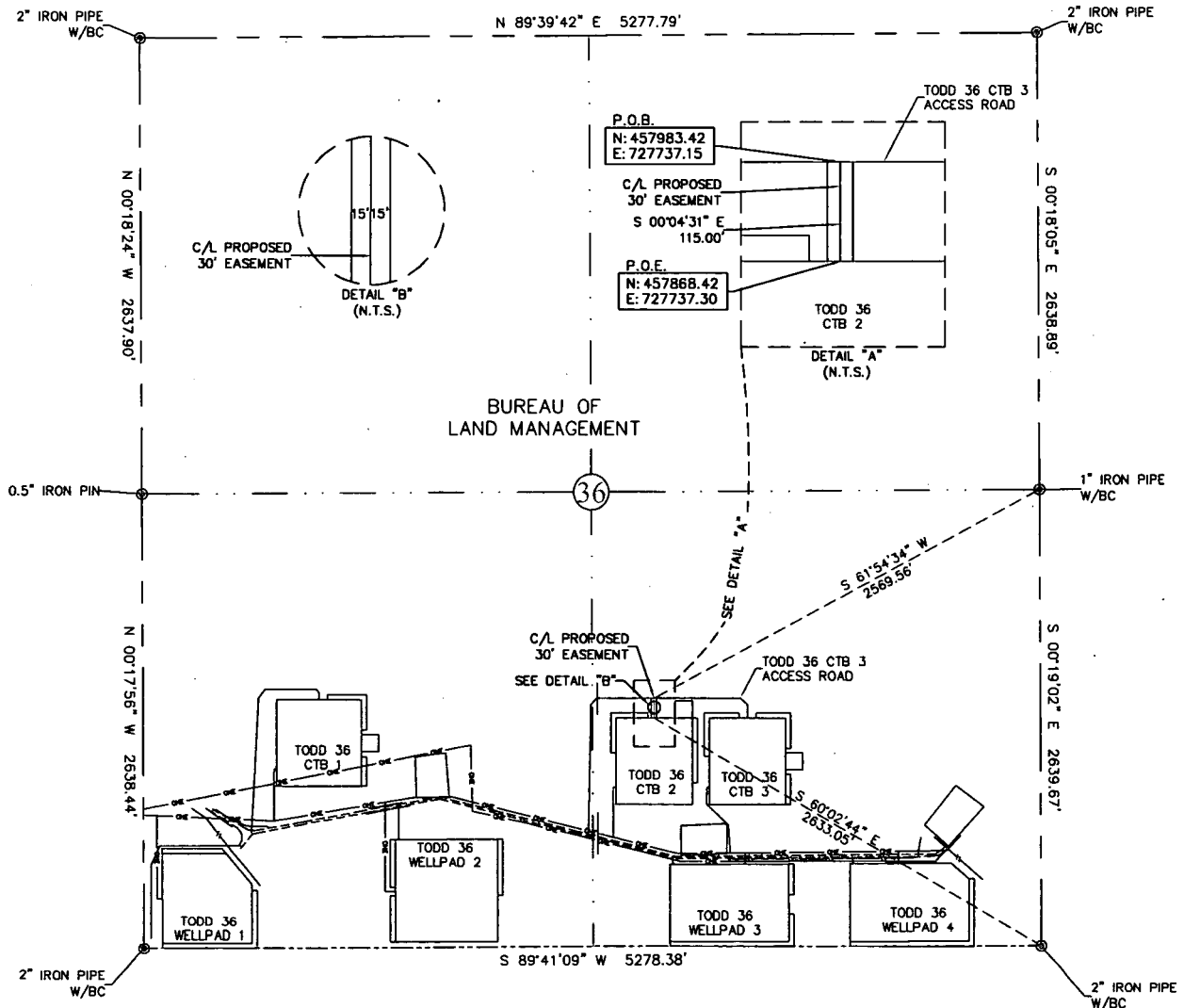
Drawn by:
CHRIS MAAS

Date: 07/06/2018

Drawn for:

devon

EXHIBIT "A"
PAGE 3 of 6
ACCESS ROAD PLAT
SECTION 36, T23S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.079 ACRE(S)
115.00 FEET OR 6.97 RODS

0+00.0 P.O.B./EXISTING ACCESS ROAD
1+15.0 P.O.E./TODD 36 CTB 2

SEE THE ATTACHED LEGAL DESCRIPTION

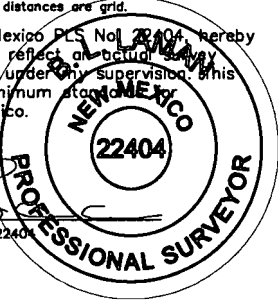
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

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.

0 1000 2000



B.L. Laman
Date Signed: 09-09-2018
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: 07/06/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36
CTB 2 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:

SHEET:
3 OF 6

**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;

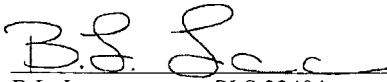
Thence S 61°54'34" W a distance of 2569.56' to the **Point of Beginning** of this easement having coordinates of Northing=457983.42, Easting=727737.15 feet and continuing the following course;

Thence S 00°04'31" E a distance of 115.00' to the **Point of Ending** having coordinates of Northing=457868.42, Easting=727737.30 feet from said point a 2" iron pipe w/BC for the southeast corner of Section 36, T23S-R31E bears S 60°02'44" E a distance of 2633.05', covering **115.00' or 6.97 rods** and having an area of **0.079 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: 09/09/2018

Horizon Row, LLC

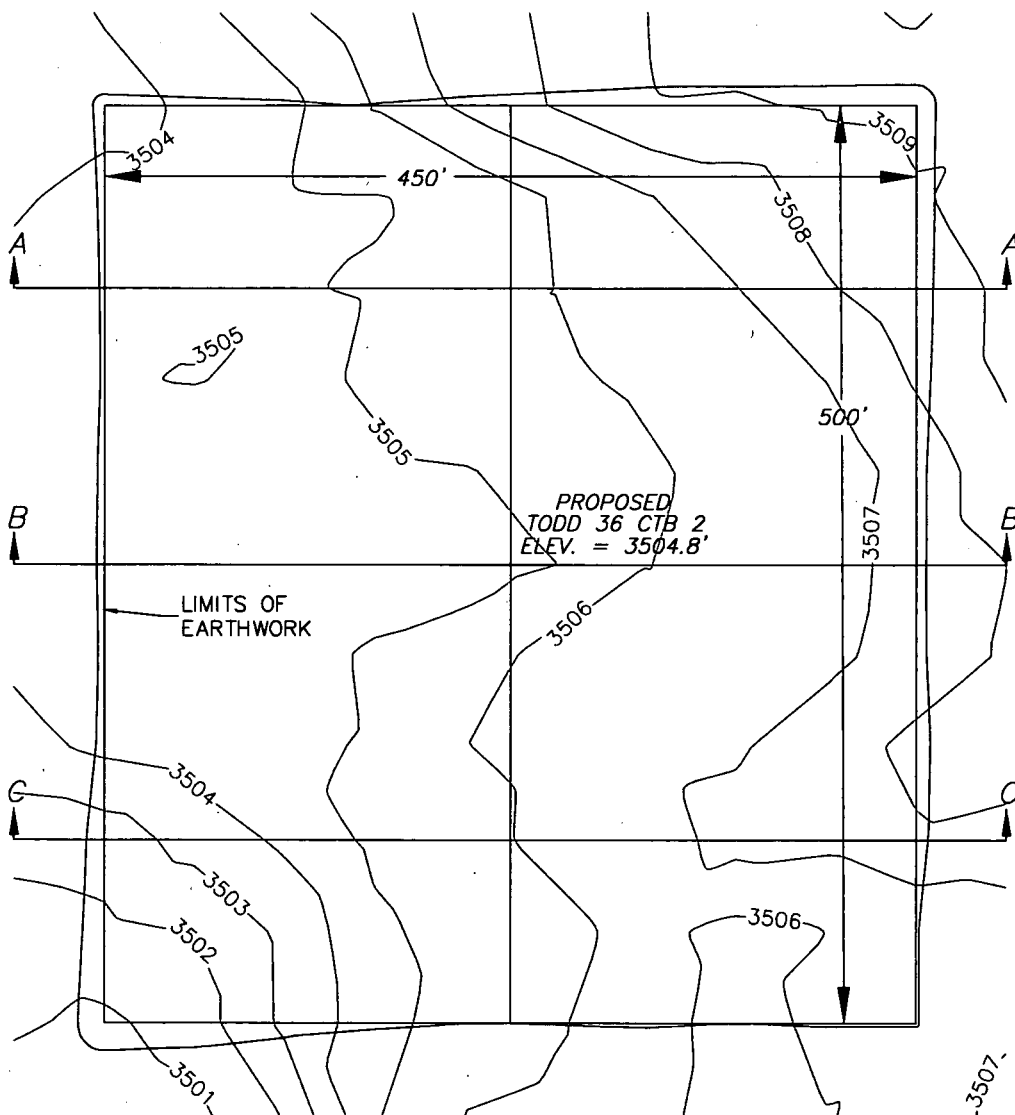
P.O. Box 548, Dry Creek, La.

(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



EARTHWORK QUANTITIES FOR
TODD 36 CTB 2

CUT	FILL	NET
4,836 CY	4,836 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

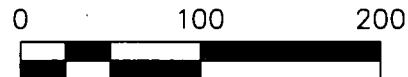
SHEET 5 OF 6

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

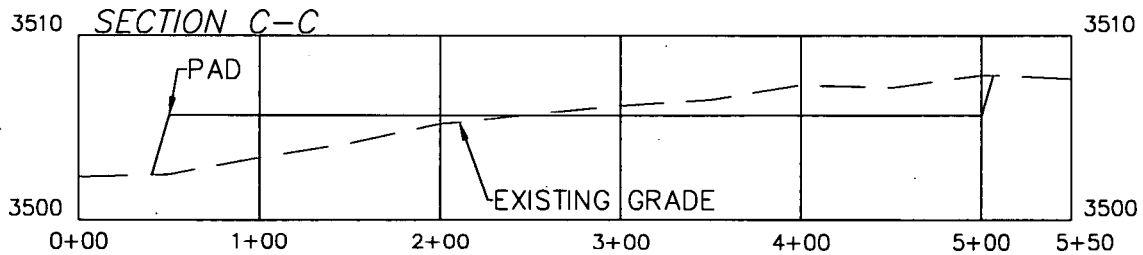
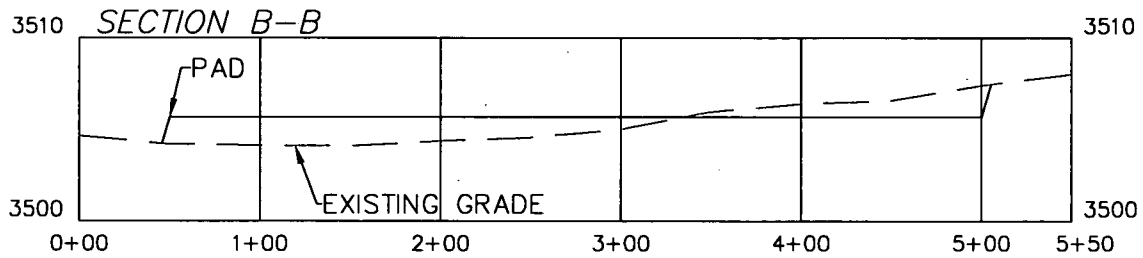
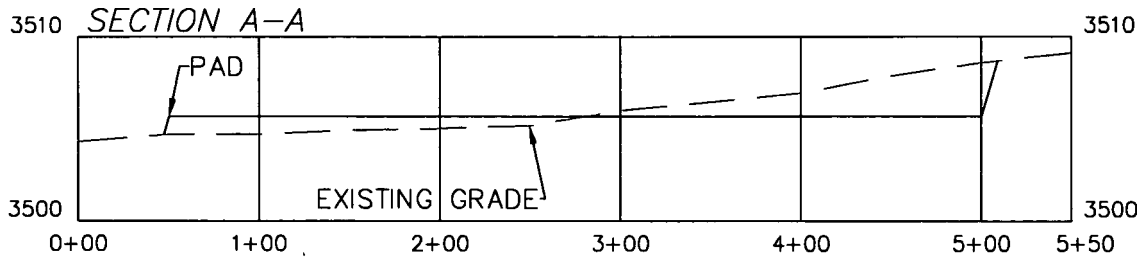
Date: 07/06/2018



Drawn for:



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



SCALE 1" = 100' HORIZONTAL
SCALE 1" = 10' VERTICAL

SHEET 6 OF 6

EARTHWORK QUANTITIES FOR
TODD 36 CTB 2

CUT	FILL	NET
4,836 CY	4,836 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

Date: 07/06/2018

Drawn for:



TODD 36-25 STATE FED COM 230H/232H

TODD 36 STATE 231H



This map is for illustrative purposes only 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: 25-Oct-2018



Miles
0 0.25 0.56 1.12 1:56,913

- # DVN Currently Drilling
- # DVN Currently Fracing



TODD 36 WELLPAD 2
CALICHE MAP

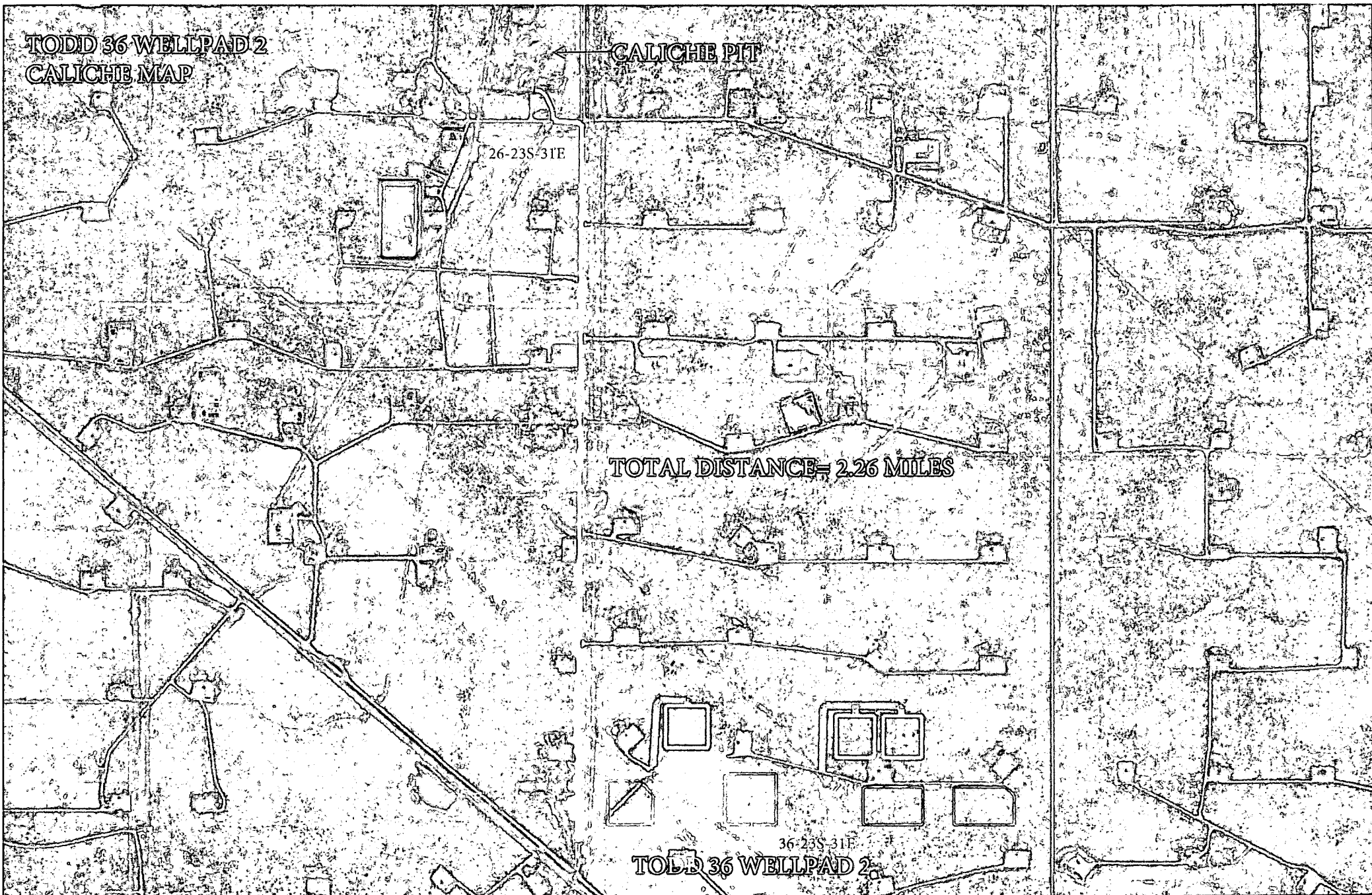
← CALICHE PIT

26-23S-31E

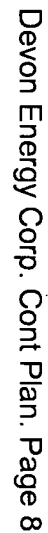
TOTAL DISTANCE = 2.26 MILES

36-23S-31E

TODD 36 WELLPAD 2



Prevailing Wind Direction S, SW



From: notification@pay.gov
To: [Harms, Jenny](#)
Subject: [EXTERNAL] Pay.gov Payment Confirmation: BLM Oil and Gas Online Payment
Date: Monday, October 29, 2018 9:34:58 AM



An official email of the United States government

Paygov logo



Your payment has been submitted to Pay.gov and the details are below. To confirm that the payment processed as expected, you may refer to your bank statement on the scheduled payment date. If you have any questions or wish to cancel this payment, you will need to contact the agency you paid at your earliest convenience.

Application Name: BLM Oil and Gas Online Payment
Pay.gov Tracking ID: 26D5HTI4
Agency Tracking ID: 75603995480

Account Holder Name: Devon Energy Production Company, L.P.
Transaction Type: ACH Debit
Transaction Amount: \$20,100.00
Payment Date: 10/30/2018

Account Type: Business Checking
Routing Number: 061000052
Account Number: *****9892

Transaction Date: 10/29/2018 10:34:40 AM EDT
Total Payments Scheduled: 1
Frequency: OneTime

Company: Devon Energy Production Company, L.P.
APD IDs: 10400035681, 10400035677
Lease Numbers: NMNM0544986, NMNM0544986
Well Numbers: 232H, 230H

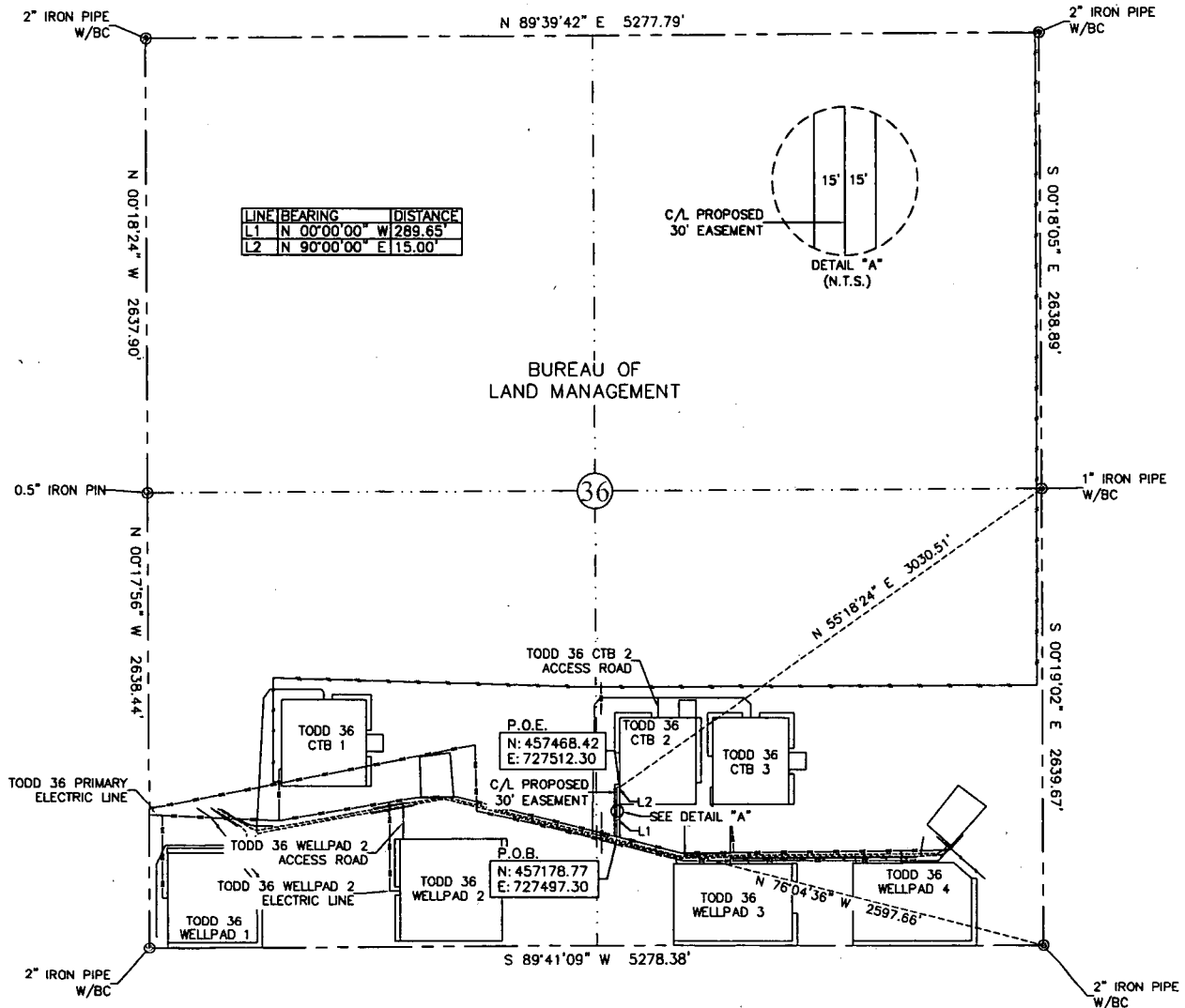
Note: You will need your Pay.gov Tracking ID to complete your APD transaction in AFMSS II. Please ensure you write this number down upon completion of payment.

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.



Pay.gov is a program of the U.S. Department of the Treasury, Bureau of
the Fiscal Service

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

STATION TABLE

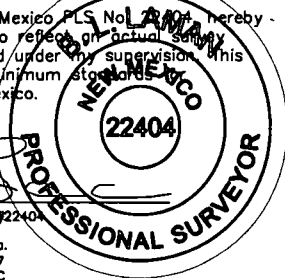
0+00.0 P.O.B./TODD 36 PRIMARY ELECTRIC LINE
2+14.7 EXISTING FLOW LINE
3+04.7 P.O.E./TODD 36 CTB 2

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 of 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 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 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.

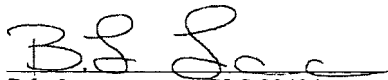
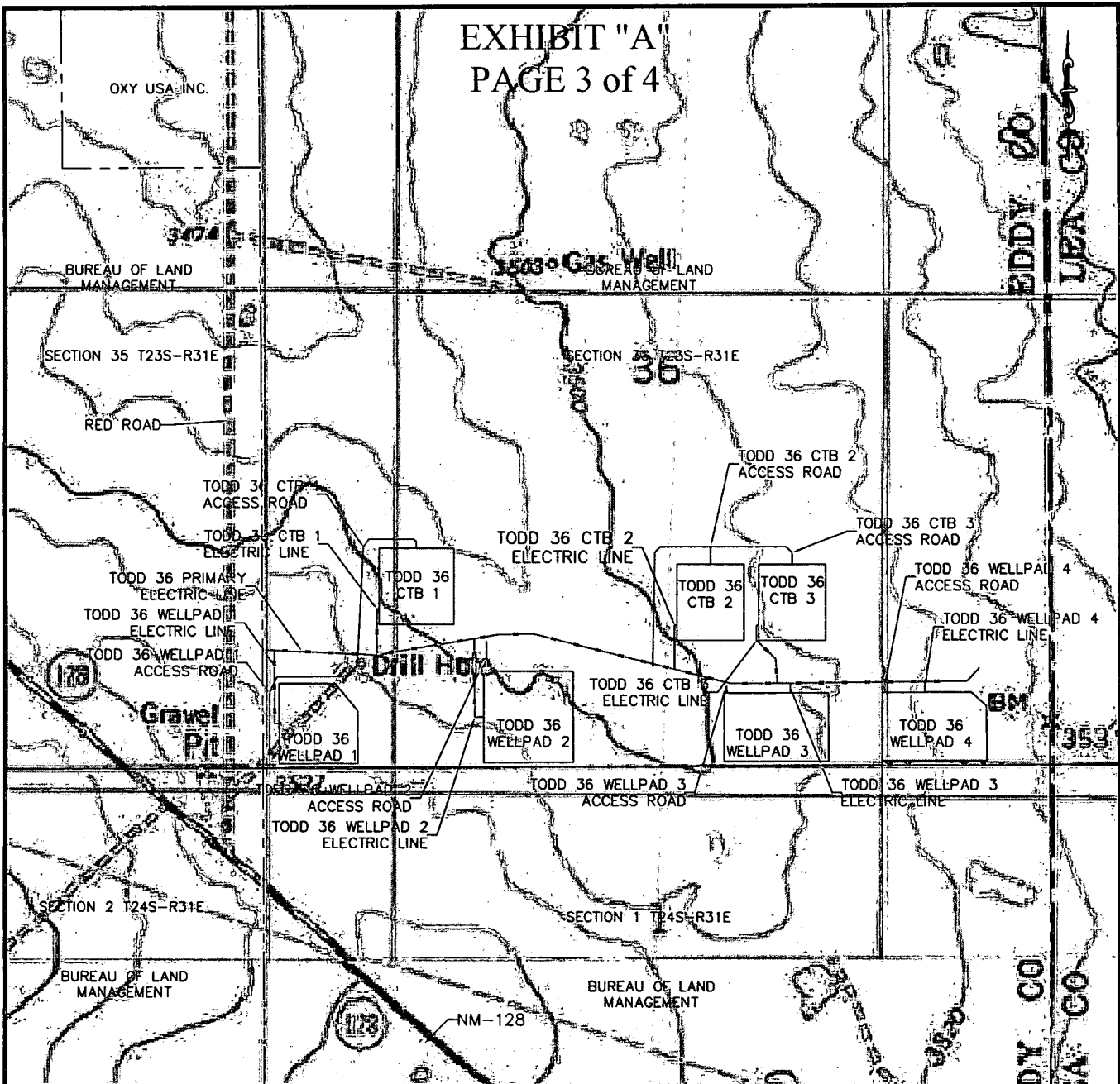

B.L. Laman PLS 22404
Date Signed: 09/07/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC



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

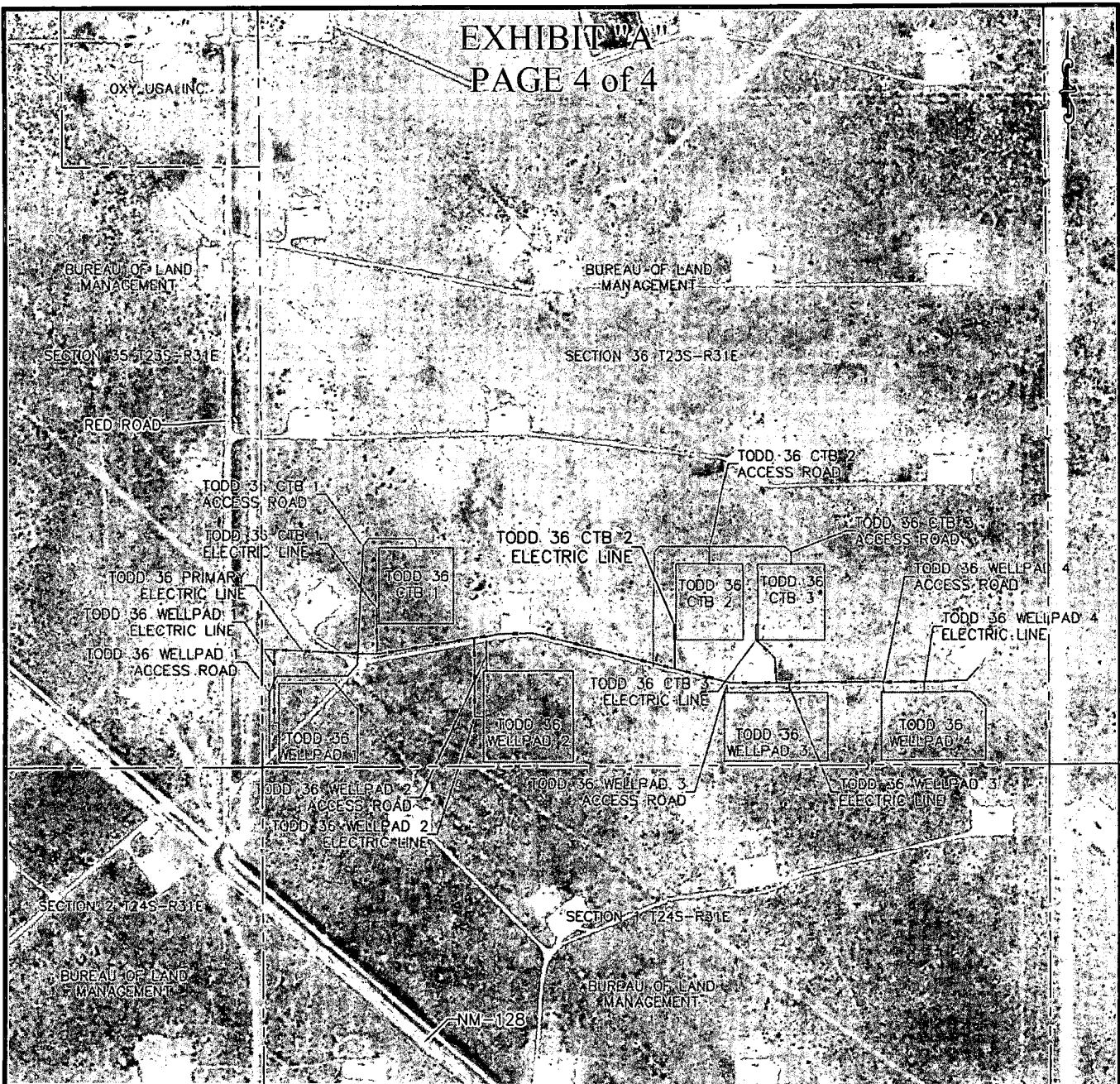
Drawn for:



LINE NUMBER:
ELB245
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 Rivera

Date: 07/03/2018

Drawn for:



LINE NUMBER:
EL8245

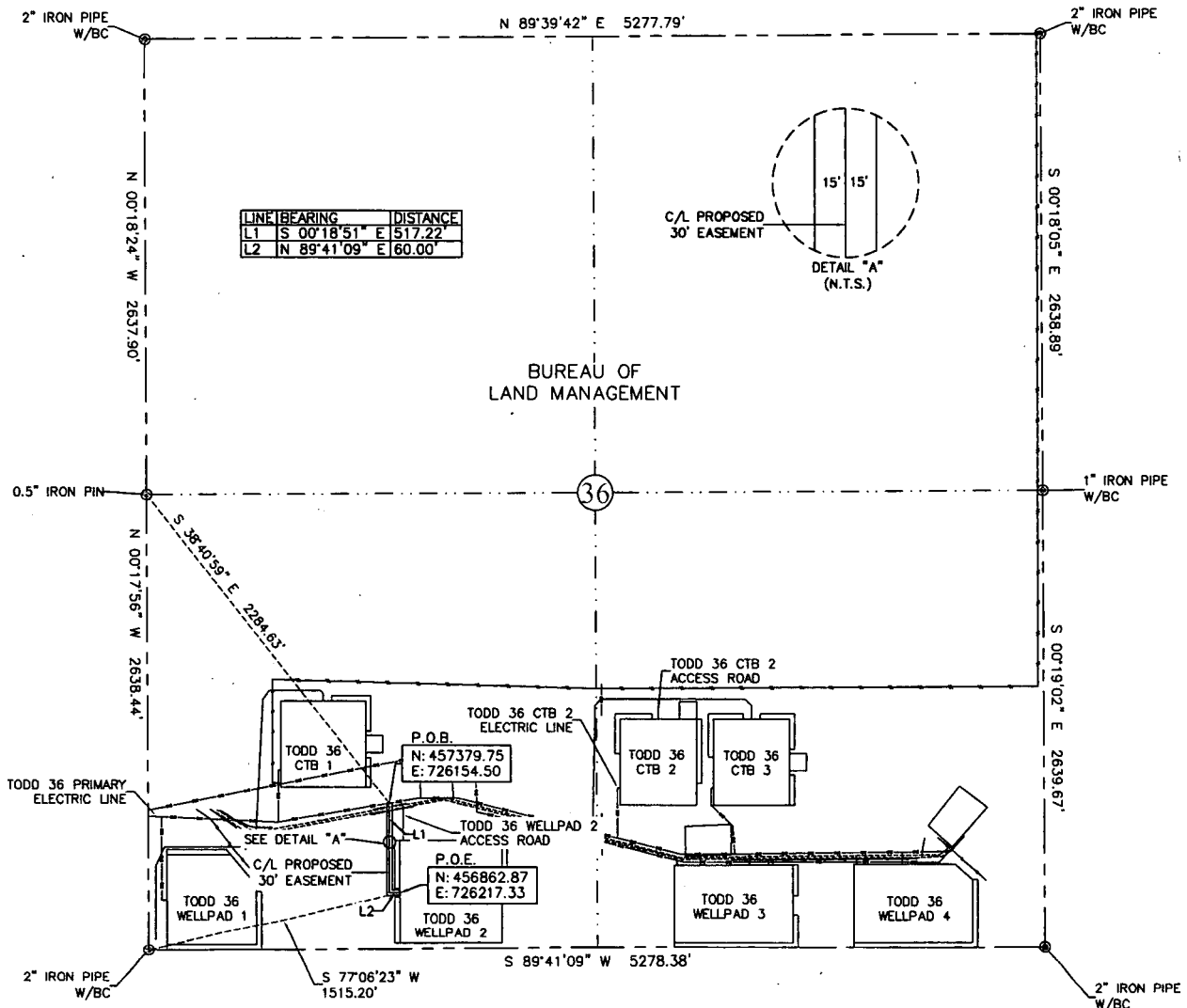
WBS NUMBER:
XX-129865.01.SLC

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

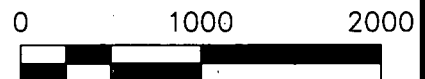
SEE THE ATTACHED LEGAL DESCRIPTION

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



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
Jesus Rivero

Date: 07/03/2018

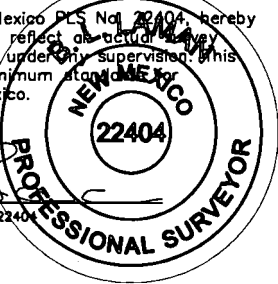
DEVON ENERGY PRODUCTION COMPANY, L.P.

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

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



**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 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 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°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°18'51" E a distance of 517.22' to an angle point;

Thence N 89°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°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.

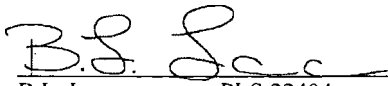

B.L. Laman PLS 22404
Date Signed: 09/07/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC



EXHIBIT "A"

PAGE 3 of 4

OXY USA, INC.

BUREAU OF LAND MANAGEMENT

SECTION 35 T23S-R31E

RED ROAD

TODD 36 CTB 1

TODD 36 CTB 2

TODD 36 CTB 3

TODD 36 CTB 4

TODD 36 WELLPAD 1

TODD 36 WELLPAD 2

TODD 36 WELLPAD 3

TODD 36 WELLPAD 4

TODD 36 CTB 1

TODD 36 CTB 2

TODD 36 CTB 3

TODD 36 CTB 4

TODD 36 WELLPAD 1

TODD 36 WELLPAD 2

TODD 36 WELLPAD 3

TODD 36 WELLPAD 4

Gravel Pit

Drill Hole

ACCESS ROAD

ELECTRIC LINE

SECTION 36 T23S-R31E

SECTION 2 T24S-R31E

SECTION 1 T24S-R31E

BUREAU OF LAND MANAGEMENT

NM-128

EDDY CO

LEA CO

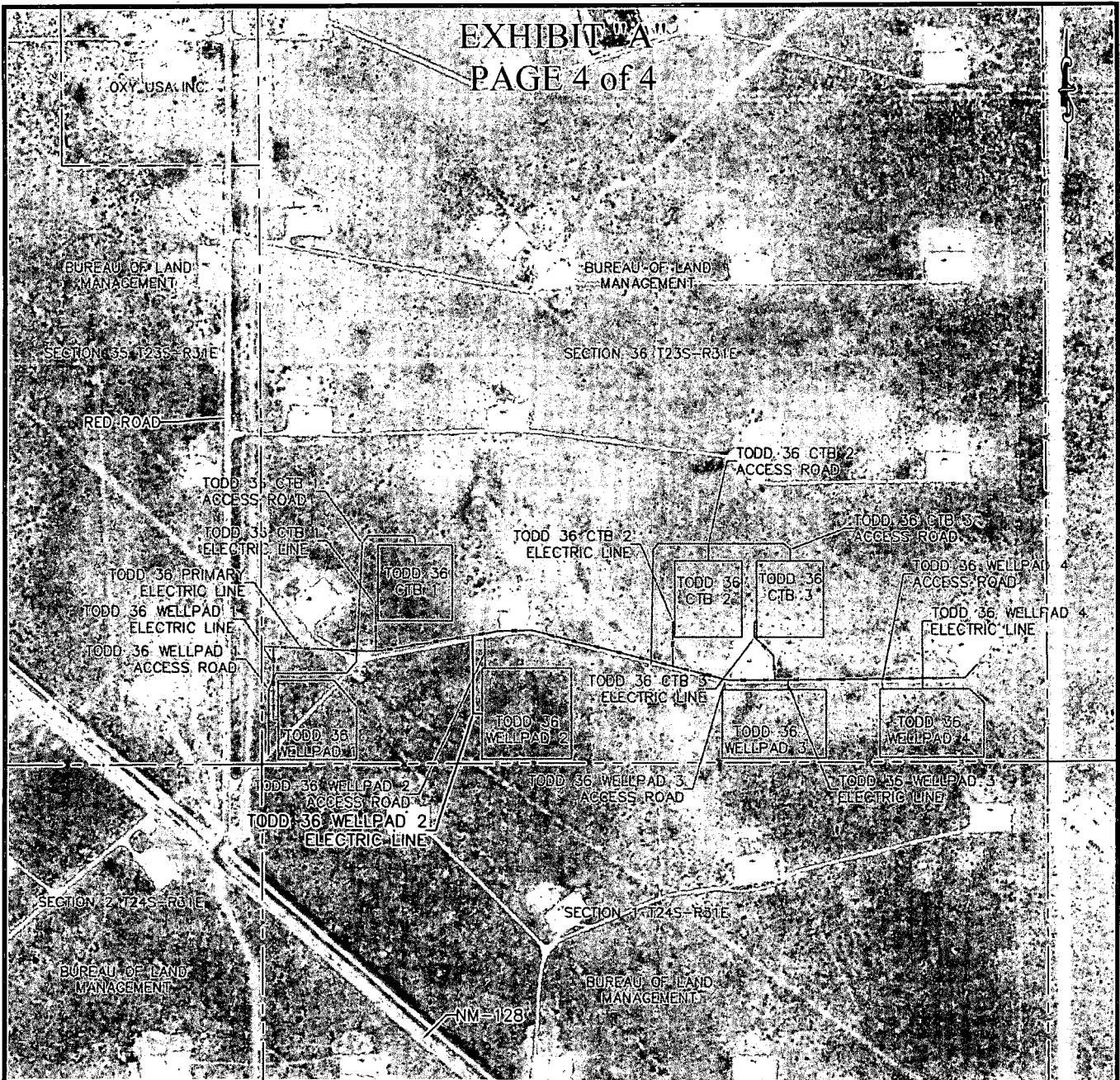
QUAD MAP

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

LINE NUMBER: EL8248
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:
EL8248

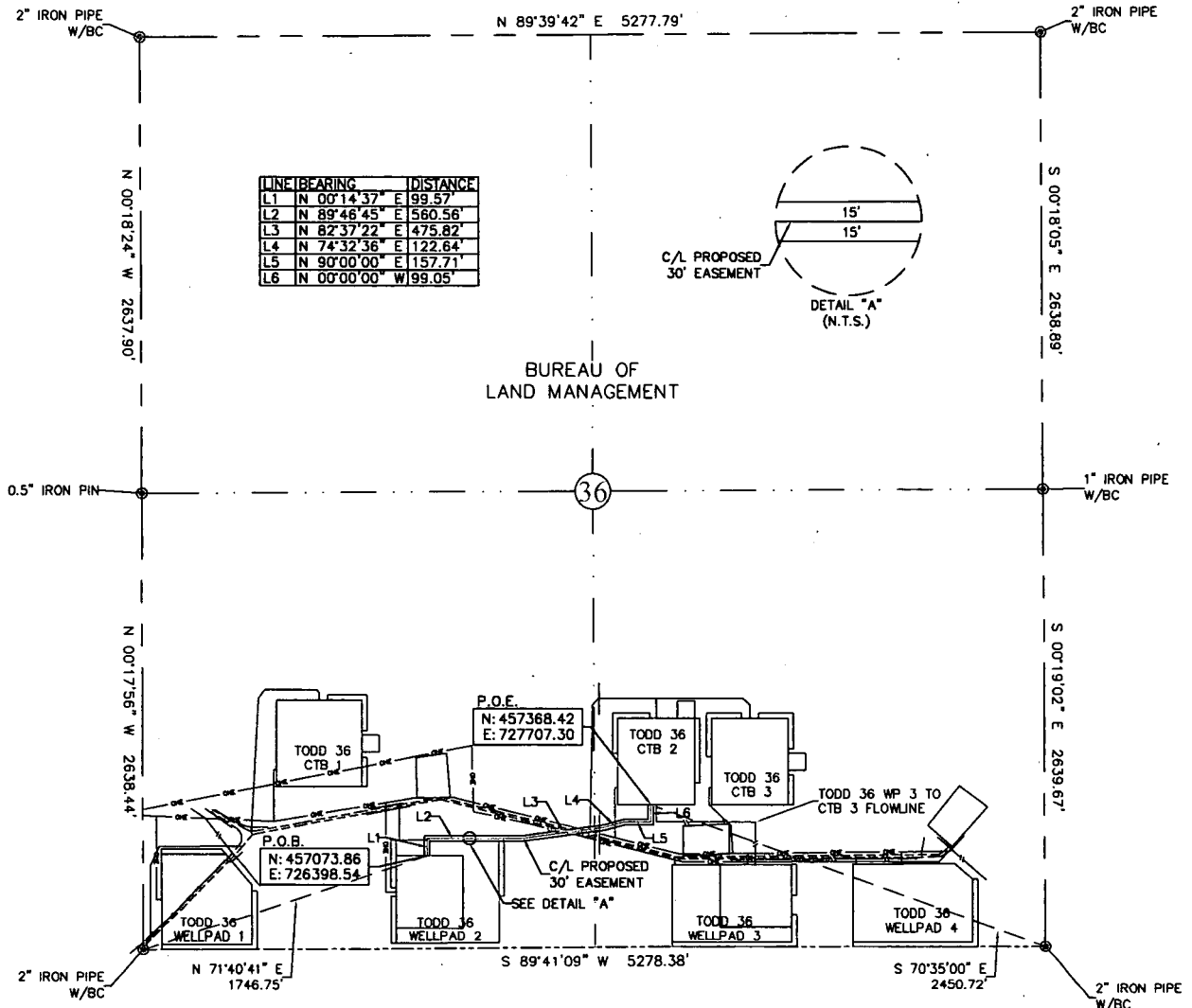
WBS NUMBER:
XX-129865.01.SLC

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



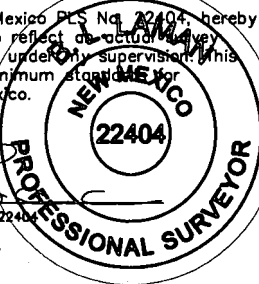
30' EASEMENT AREA = 1.044 ACRE(S)
1515.35 FEET OR 91.84 RODS

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 2 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:
7660143F

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 southwest quarter (SW ¼) and 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 southwest corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 71°40'41" E a distance of 1746.75' to the **Point of Beginning** of this easement having coordinates of Northing=457073.86, Easting=726398.54 feet and continuing the following courses;

Thence N 00°14'37" E a distance of 99.57' to an angle point;

Thence N 89°46'45" E a distance of 560.56' to an angle point;

Thence N 82°37'22" E a distance of 475.82' to an angle point;

Thence N 74°32'36" E a distance of 122.64' to an angle point;

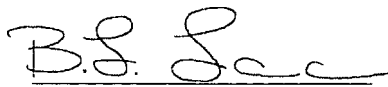
Thence N 90°00'00" E a distance of 157.71' to an angle point;

Thence N 00°00'00" W a distance of 99.05' to the **Point of Ending** having coordinates of Northing=457368.42, Easting=727707.30 feet from said point a 2" iron pipe w/BC for the southeast corner of Section 36, T23S-R31E bears S 70°35'00" E a distance of 2450.72', covering **1515.35' or 91.84 rods** and having an area of **1.044 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



[illegible]

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

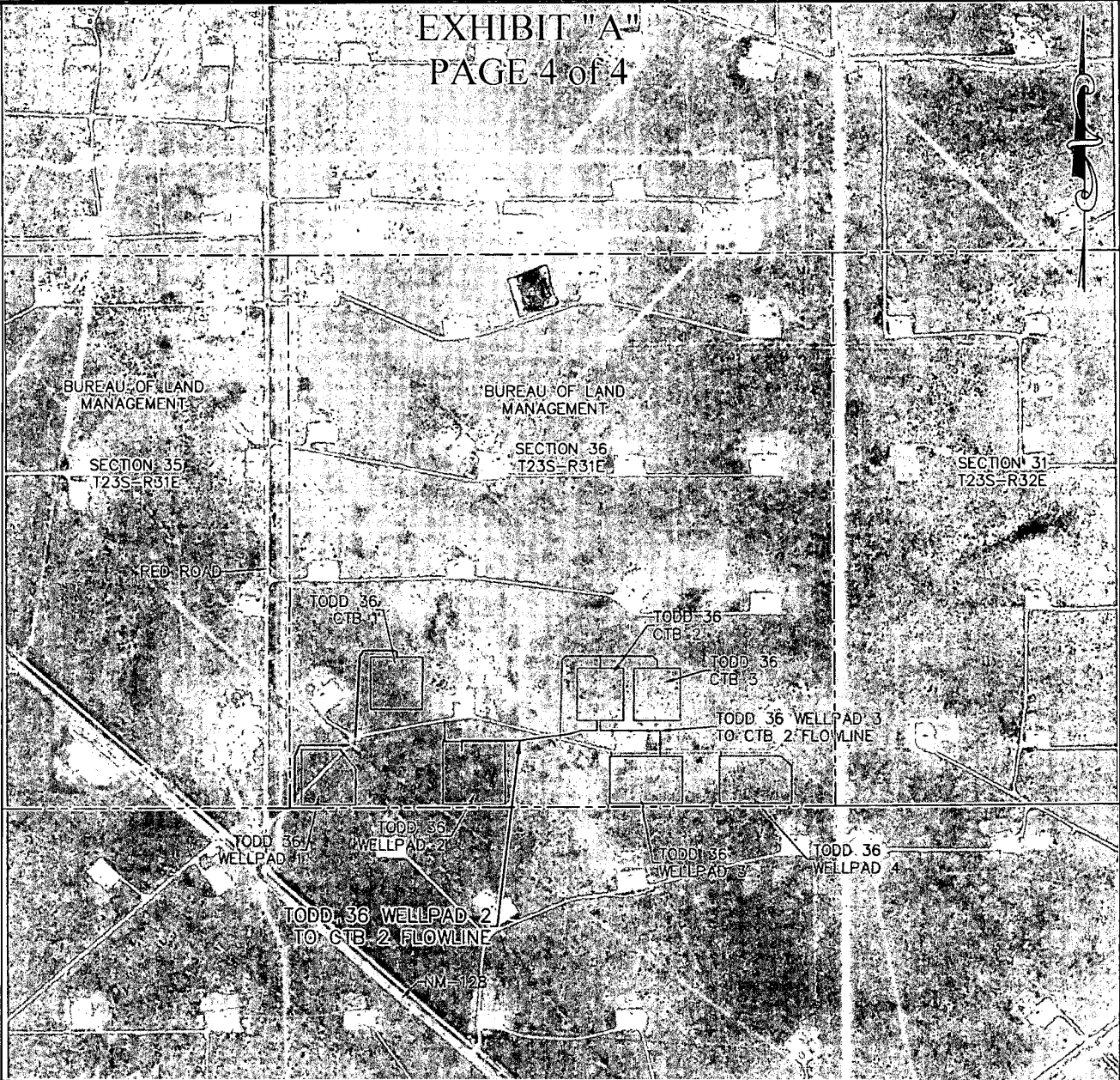
HORIZON ROW LLC

Drawn for:



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:
7660143F

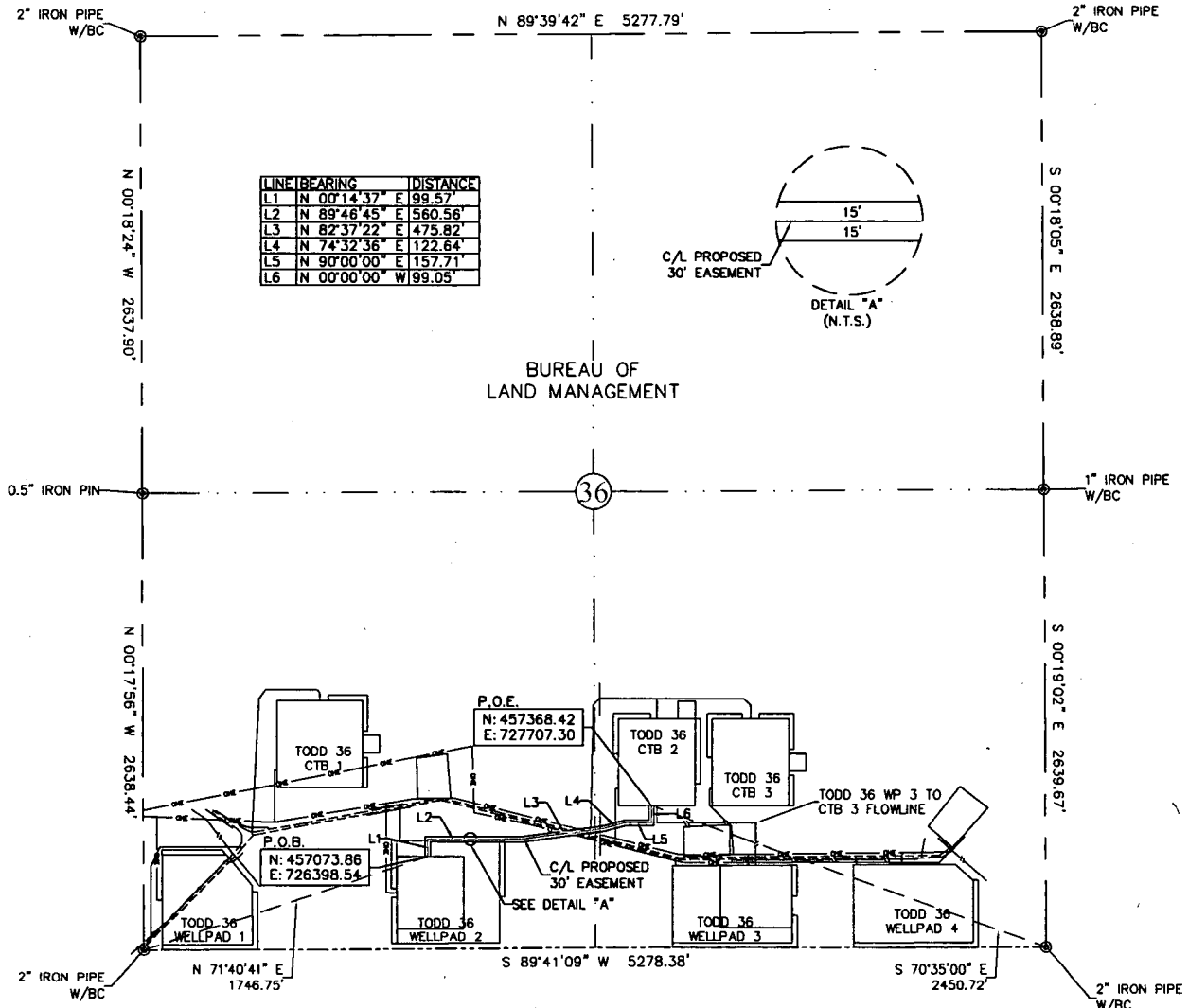
WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1500'

REVISIONS:

DATE OF SURVEY:
9/27/18

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



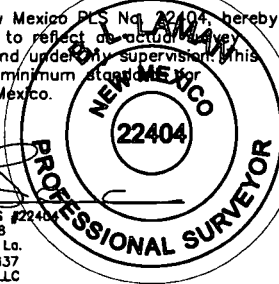
30' EASEMENT AREA = 1.044 ACRE(S)
1515.35 FEET OR 91.84 RODS

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 70837
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 2 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:
7680143P

WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1000'

REVISIONS:

DATE OF SURVEY:
9/28/18

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 southwest quarter (SW ¼) and 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 southwest corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 71°40'41" E a distance of 1746.75' to the **Point of Beginning** of this easement having coordinates of Northing=457073.86, Easting=726398.54 feet and continuing the following courses;

Thence N 00°14'37" E a distance of 99.57' to an angle point;

Thence N 89°46'45" E a distance of 560.56' to an angle point;

Thence N 82°37'22" E a distance of 475.82' to an angle point;

Thence N 74°32'36" E a distance of 122.64' to an angle point;

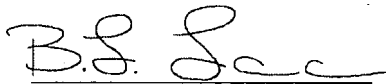
Thence N 90°00'00" E a distance of 157.71' to an angle point;

Thence N 00°00'00" W a distance of 99.05' to the **Point of Ending** having coordinates of Northing=457368.42, Easting=727707.30 feet from said point a 2" iron pipe w/BC for the southeast corner of Section 36, T23S-R31E bears S 70°35'00" E a distance of 2450.72', covering **1515.35' or 91.84 rods** and having an area of **1.044 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.

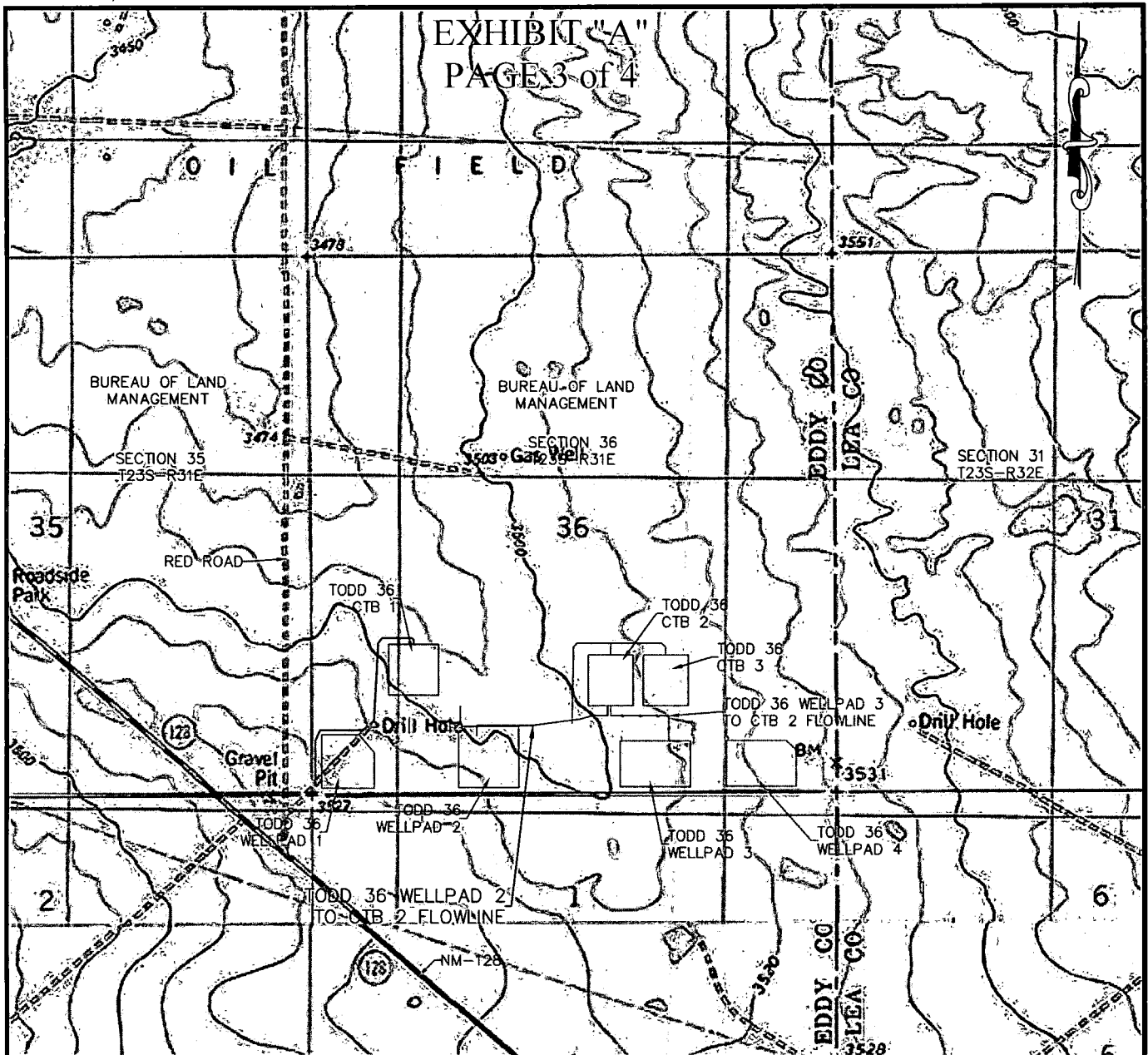
I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



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



EXHIBIT "A" PAGE 3 of 4



QUAD MAP

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

All Flowlines are buried

HORIZON ROW LLC

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

Drawn by:
CHRIS MAAS

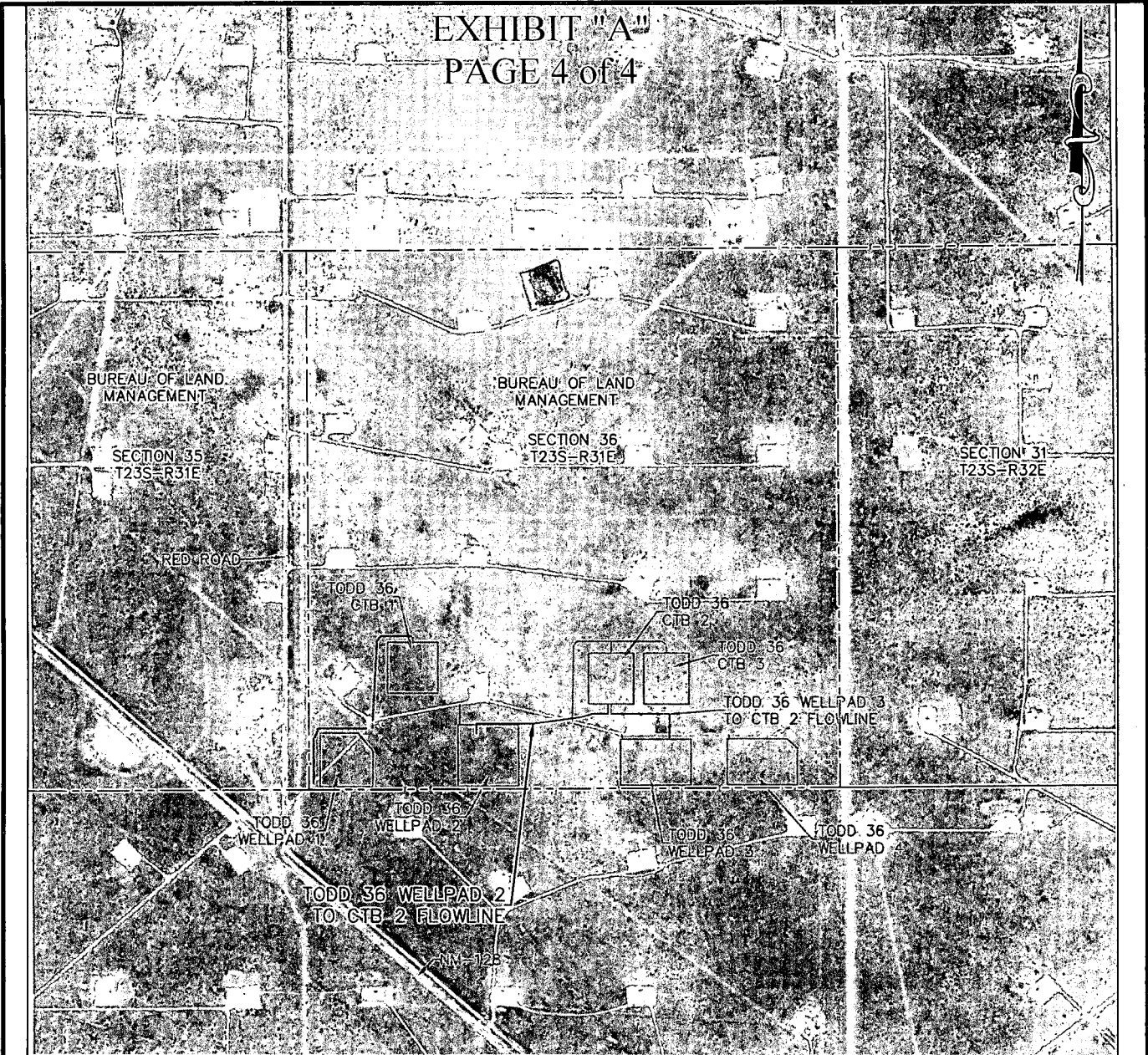
Date: 09/27/2018

Drawn for:



LINE NUMBER:
7660143F
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
All 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:
7860143F

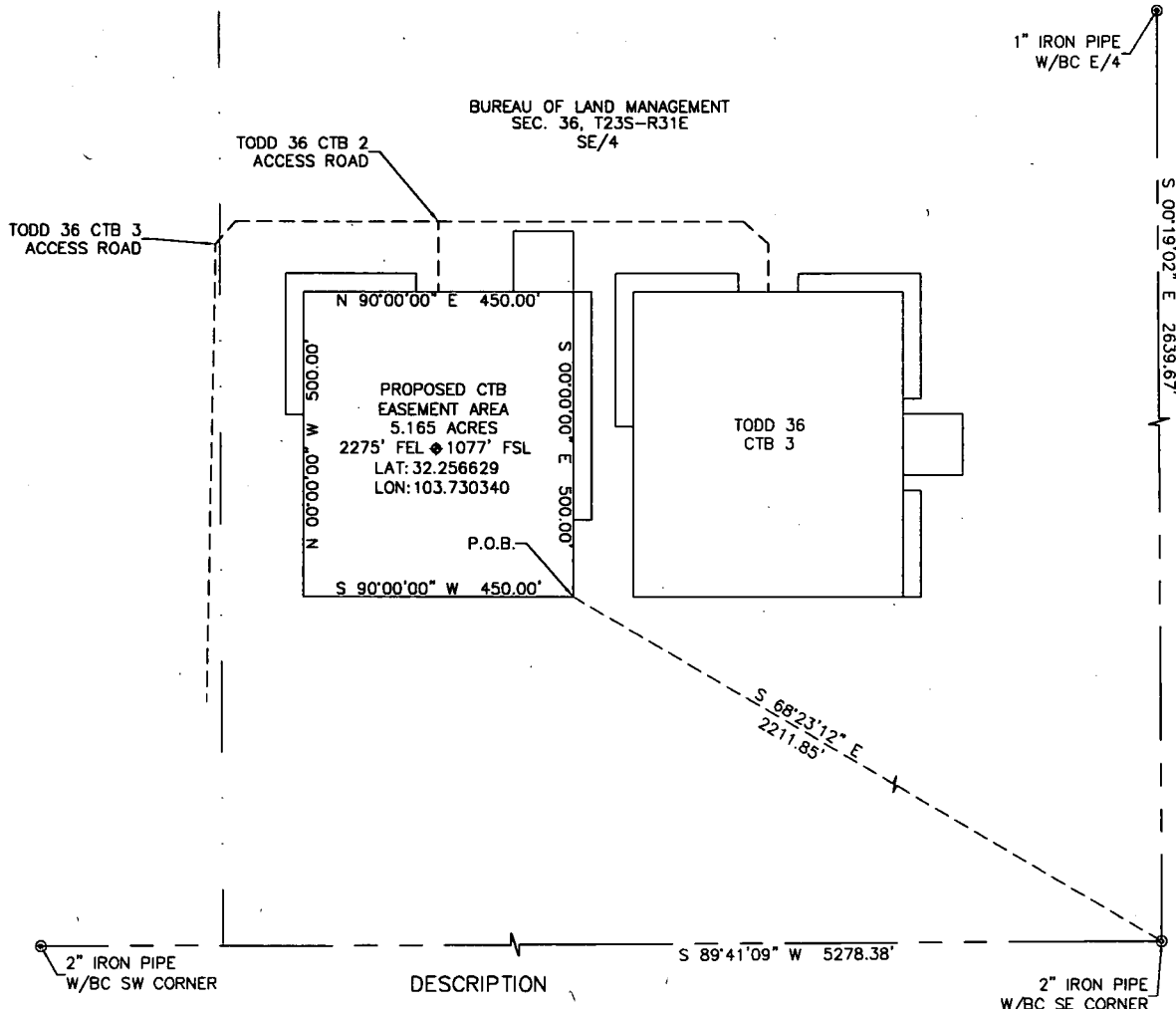
WBS NUMBER:
XX-129865.01.SLC

SCALE:
1" = 1500'

REVISIONS:

DATE OF SURVEY:
9/27/18

TODD 36 CTB 2
DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE SOUTHEAST QUARTER (SE/4)
SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO
SHEET 1 OF 6



BEING A SURFACE SITE EASEMENT LYING IN THE SOUTHEAST QUARTER (SE/4) OF SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE SOUTHEAST CORNER OF SAID SITE EASEMENT, WHERE A 2" IRON PIPE W/BC FOR THE SOUTHEAST CORNER OF SECTION 36, TOWNSHIP 23 SOUTH, RANGE 31 EAST N.M.P.M. BEARS S 68°23'12" E, A DISTANCE 2211.85';

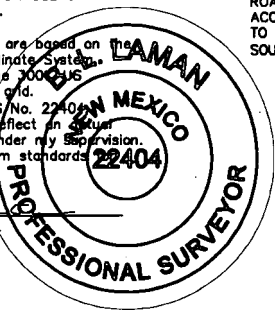
THENCE S 90°00'00" W, A DISTANCE 450.00 FEET TO THE SOUTHWEST CORNER OF THIS EASEMENT;
THENCE N 00°00'00" W, A DISTANCE 500.00 FEET TO THE NORTHWEST CORNER OF THIS EASEMENT;
THENCE N 90°00'00" E, A DISTANCE 450.00 FEET TO THE NORTHEAST CORNER OF THIS EASEMENT;
THENCE S 00°00'00" E, A DISTANCE 500.00 FEET TO THE SOUTHEAST CORNER OF THIS EASEMENT;
TO THE POINT OF BEGINNING; CONTAINING 5.165 ACRES.

GENERAL NOTES:

1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL BATTERY.

2.) All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3000 PLUS Survey Feet, all distances are in feet.
I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an accurate survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman
Horizonrow, LLC
Date Signed: 03-21-2019
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC



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 0.40 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 3 ACCESS ROAD. HEAD NORTH AND EAST ALONG THE PROPOSED TODD 36 CTB 3 ACCESS ROAD FOR 0.21 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 2 ACCESS ROAD. TURN RIGHT AND HEAD SOUTH 115° TO THE NORTH CENTER POINT OF THE TODD 36 CTB 2.



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 07/06/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36 CTB 2

SURVEY PLAT SHOWING
A CTB

ON THE PROPERTY OF THE
BUREAU OF LAND MANAGEMENT

SITE NUMBER:
AA000145925

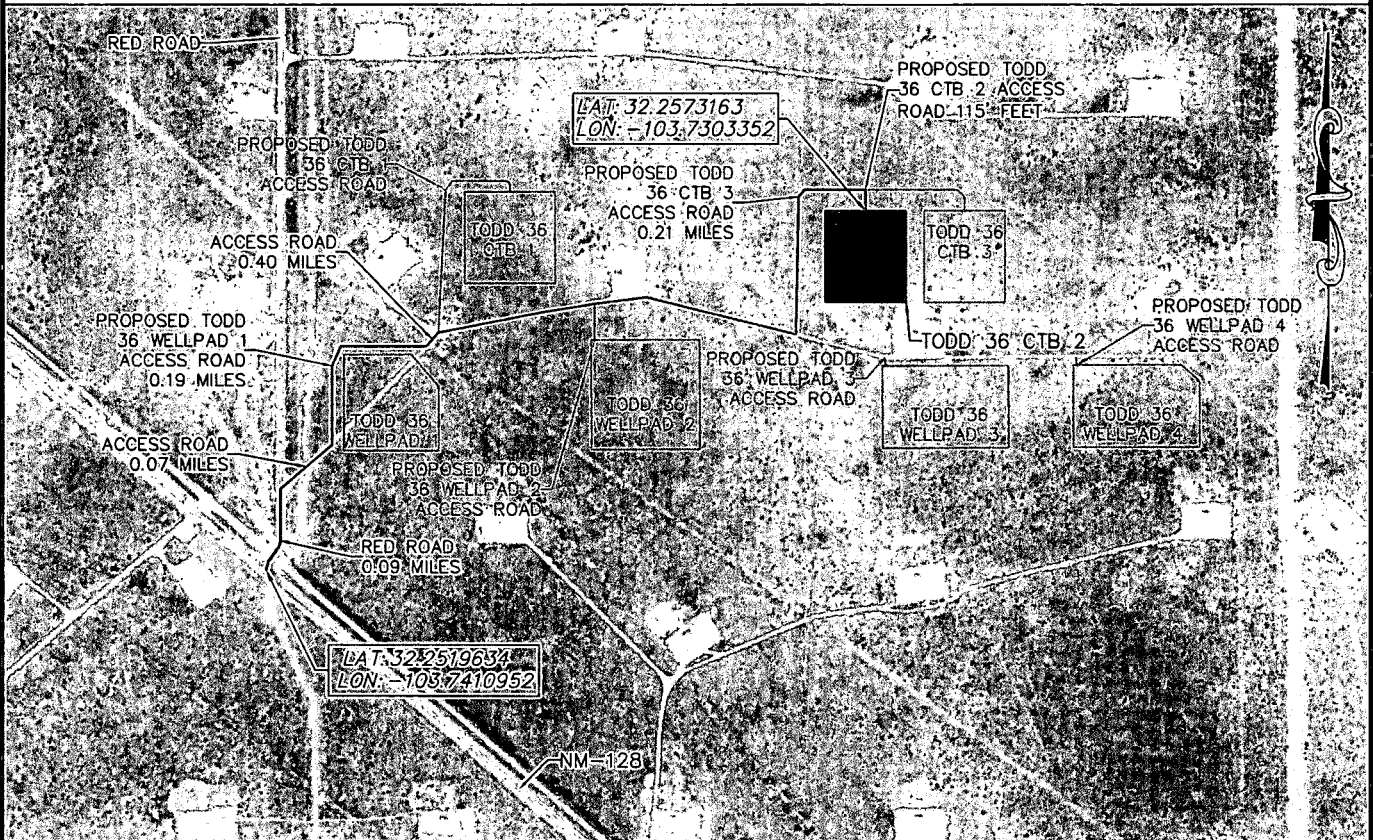
WBS NUMBER:

SCALE:
1" = 300'

REVISIONS:

DATE OF SURVEY:
8/22/18

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



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 0.40 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 3 ACCESS ROAD. HEAD NORTH AND EAST ALONG THE PROPOSED TODD 36 CTB 3 ACCESS ROAD FOR 0.21 MILES TO THE POINT OF BEGINNING OF THE PROPOSED TODD 36 CTB 2 ACCESS ROAD. TURN RIGHT AND HEAD SOUTH 115' TO THE NORTH CENTER POINT OF THE TODD 36 CTB 2.

0 1000 2000



SHEET 2 OF 6

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

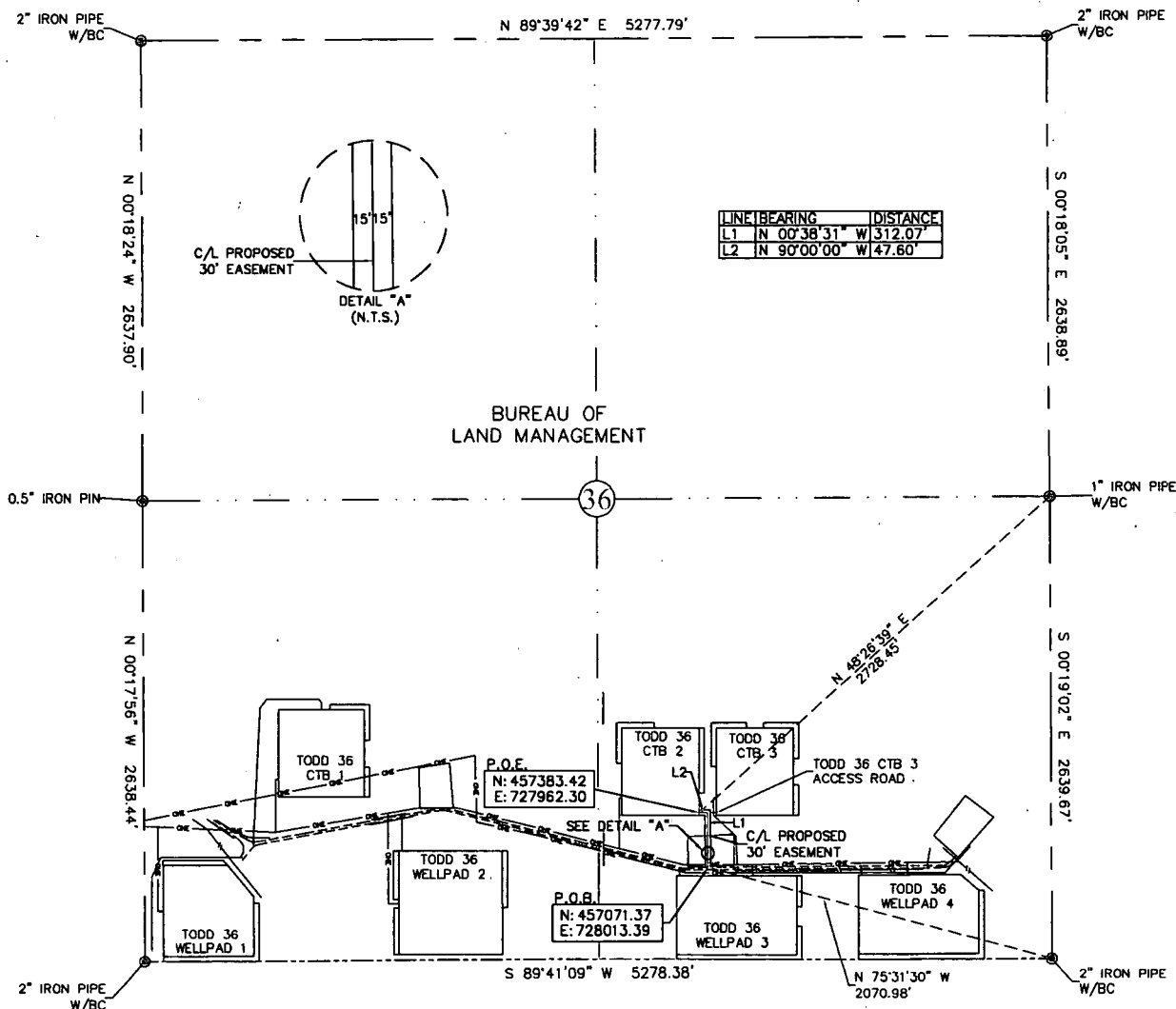
Drawn by:
CHRIS MAAS

Date: 07/06/2018

Drawn for:

devon

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



30' EASEMENT AREA = 0.248 ACRE(S)
359.67 FEET OR 21.80 RODS

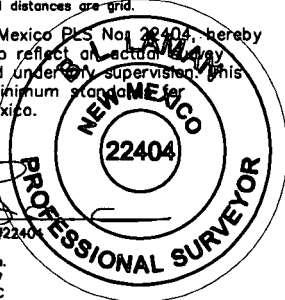
0+00.0 P.O.B./EXISTING ACCESS ROAD
0+09.7 EDGE OF ROAD
0+15.0 TODD 36 PRIMARY ELECTRIC LINE
3+12.1 TODD 36 CTB 3 ACCESS ROAD
3+59.7 P.O.E./TODD 36 CTB 2

SEE THE ATTACHED LEGAL DESCRIPTION

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

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

B.L. Laman PLS #22404
Date Signed: 12-27-2018
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: 07/06/2018

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD 36
CTB 2 ACCESS ROAD

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

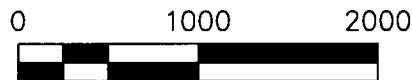
LINE NUMBER:
7660159R

WBS NUMBER:

SCALE:
1" = 1000'

REVISIONS:
CMAAS 12/10/18

DATE OF SURVEY:
12/6/18



**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 2" iron pipe w/BC for the southeast corner of Section 36, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 75°31'30" W a distance of 2070.98' to the **Point of Beginning** of this easement having coordinates of Northing=457071.37, Easting=728013.39 feet and continuing the following courses;

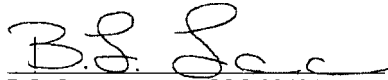
Thence N 00°38'31" W a distance of 312.07' to an angle point;

Thence N 90°00'00" W a distance of 47.60' to the **Point of Ending** having coordinates of Northing=457383.42, Easting=727962.30 feet from said point a 1" iron pipe w/BC for the east quarter corner of Section 36, T23S-R31E bears N 48°26'39" E a distance of 2728.45', covering **359.67' or 21.80 rods** and having an area of **0.248 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: 12/27/2018

Horizon Row, LLC

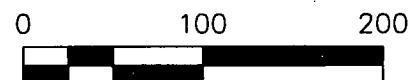
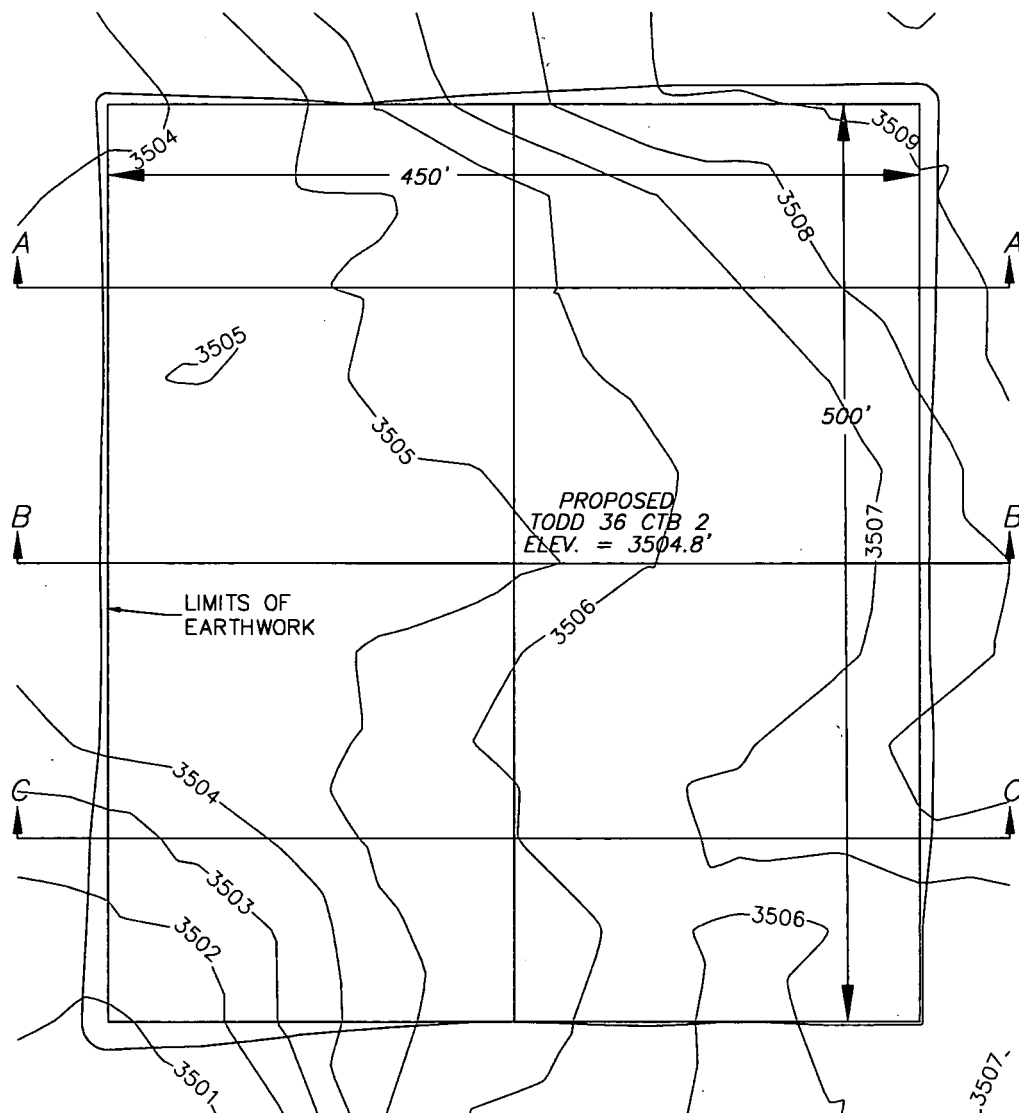
P.O. Box 548, Dry Creek, La.

(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



SHEET 5 OF 6

EARTHWORK QUANTITIES FOR
TODD 36 CTB 2

CUT	FILL	NET
4,836 CY	4,836 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

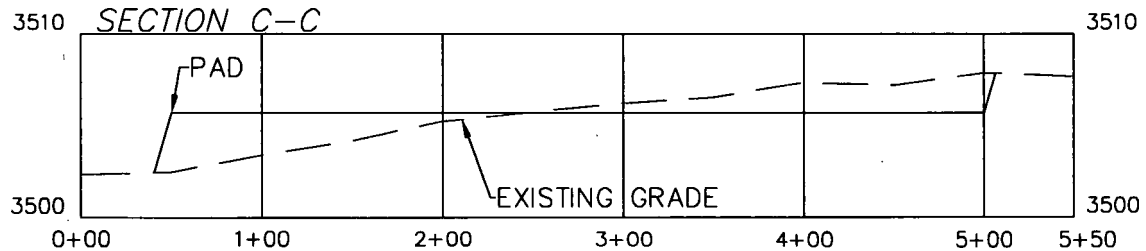
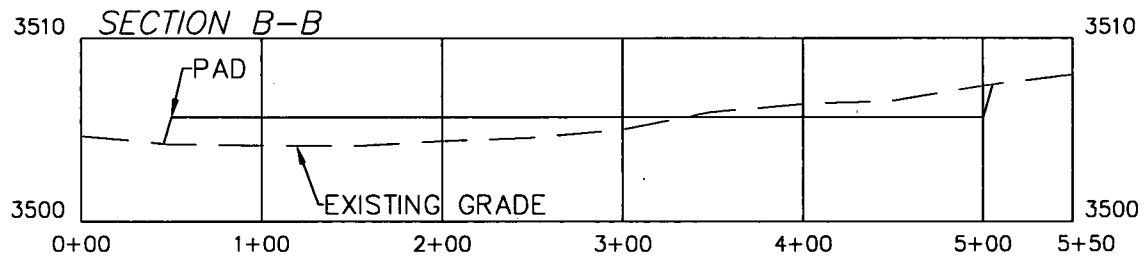
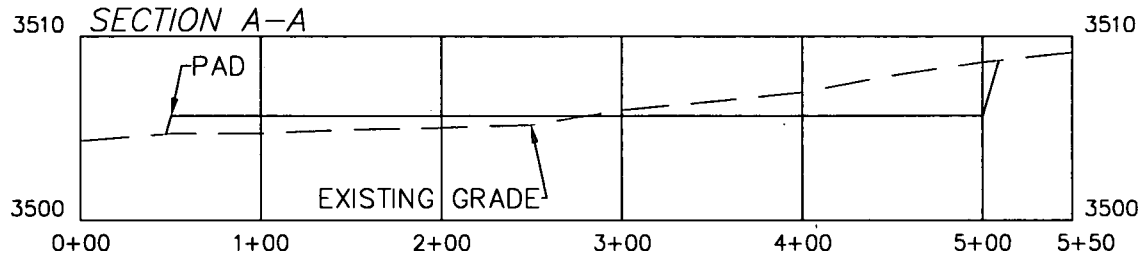
Drawn by:
CHRIS MAAS

Date: 07/06/2018

Drawn for:


devon

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



SCALE 1" = 100' HORIZONTAL
SCALE 1" = 10' VERTICAL

SHEET 6 OF 6

EARTHWORK QUANTITIES FOR
TODD 36 CTB 2

CUT	FILL	NET
4,836 CY	4,836 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by:
CHRIS MAAS

Date: 07/06/2018

Drawn for:





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

PWD Data Report

04/23/2019

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

04/23/2019

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: