

RECEIVED

Form 3160-3
(June 2015)

JUN 21 2019

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM022080

6. If Indian, Allottee or Tribe Name

1a. Type of work: ☒ DRILL ☐ REENTER
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
TOMB RAIDER 12-1 FED
331H
3228672. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP

9. API Well No.

30-015-46129

3a. Address
333 West Sheridan Avenue Oklahoma City OK 731023b. Phone No. (include area code)
(800)583-386610. Field and Pool, or Exploratory
LIVINGSTON-RIDGE / BONESPRING

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

At surface SWSW / 250 FSL / 260 FWL / LAT 32.312387 / LONG -103.7391858

At proposed prod. zone LOT 4 / 20 FNL / 1050 FWL / LAT 32.340667 / LONG -103.7366564

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 12 / T23S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish
EDDY13. State
NM15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)
250 feet16. No of acres in lease
128017. Spacing Unit dedicated to this well
64018. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.
391 feet19. Proposed Depth
11620 feet / 21908 feet20. BLM/BIA Bond No. in file
FED: CO110421. Elevations (Show whether DF, KDB, RT, GL, etc.)
3488 feet22. Approximate date work will start*
06/19/201923. Estimated duration
45 days

24. Attachments

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

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).

- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification.
- 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)552-6560Date
12/14/2018Title
Regulatory Compliance ProfessionalApproved by (Signature)
(Electronic Submission)Name (Printed/Typed)
Cody Layton / Ph: (575)234-5959Date
06/19/2019Title
Assistant Field Manager Lands & MineralsOffice
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: 06/19/2019

(Continued on page 2)

*(Instructions on page 2)

Rev 6-26-19.

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

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

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

Additional Operator Remarks

Location of Well

1. SHL: SWSW / 250 FSL / 260 FWL / TWSP: 23S / RANGE: 31E / SECTION: 12 / LAT: 32.312387 / LONG: -103.7391858 (TVD: 0 feet, MD: 0 feet)
PPP: SWSW / 100 FSL / 1050 FWL / TWSP: 23S / RANGE: 31E / SECTION: 12 / LAT: 32.311963 / LONG: -103.736633 (TVD: 11281 feet, MD: 11329 feet)
BHL: LOT 4 / 20 FNL / 1050 FWL / TWSP: 23S / RANGE: 31E / SECTION: 1 / LAT: 32.340667 / LONG: -103.7366564 (TVD: 11620 feet, MD: 21908 feet)

BLM Point of Contact

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

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Review and Appeal Rights

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

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PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
LEASE NO.:	NMNM022080
WELL NAME & NO.:	Tomb Raider 12-1 Fed 331H
SURFACE HOLE FOOTAGE:	250'/S & 260'/W
BOTTOM HOLE FOOTAGE:	20'/N & 1050'/W
LOCATION:	Section 12, T.23 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

Primary Casing Design:

1. The **10-3/4** inch surface casing shall be set at approximately **826 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 7-5/8 inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst 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 10-3/4" X 7-5/8" annulus. Operator must run a CBL from TD of the 7-5/8" casing to surface. Submit results to BLM.

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

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
Cement excess is less than 25%, more cement might be required.

Alternate Casing Design:

4. The **13-3/8** inch surface casing shall be set at approximately **826 feet** (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - e. 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.
 - f. 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)
 - g. 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.
 - h. 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.

5. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is:

Option 1 (Single Stage):

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

- c. 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.
- d. 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 8-5/8" annulus. Operator must run a CBL from TD of the 8-5/8" casing to surface. Submit results to BLM.

Operator is approved to drill a 9.875" hole for intermediate 1 with TLW connection.

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

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
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.

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 LP
WELL NAME & NO.:	Tomb Raider 12-1 Fed 331H
SURFACE HOLE FOOTAGE:	250'S & 260'/W
BOTTOM HOLE FOOTAGE:	20'/N & 1050'/W
LOCATION:	Section 12, T.23 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Build as you Go Pads No Grading full Proposed Pad**
 - Lesser Prairie-Chicken Timing Stipulations
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 - Range
 - Potash
- ☐ **Construction**
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 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
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- ☐ **Road Section Diagram**
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 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
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I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Build as you Go Pads; No Grading full Proposed Pad!!

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period.

Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted.

Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

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. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Avian Power Line Protection:

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.

Hydrology

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). 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 integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad 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 quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas,

wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

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 Tomb Raider 12-1 Drill Island (See Potash Memo and Map in attached file for Drill Island description).

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

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

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

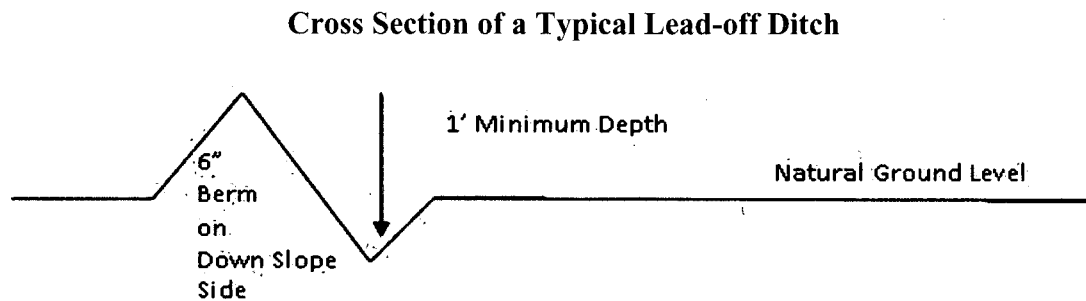
Turnouts

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

Drainage

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

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



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

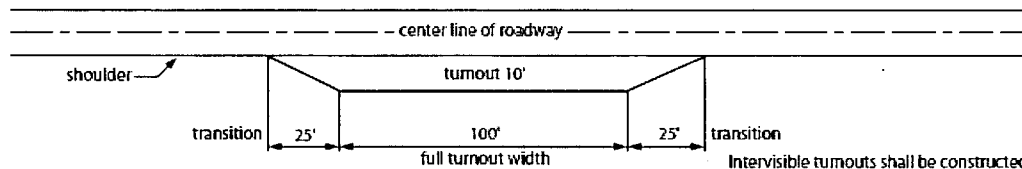
Public Access

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

Construction Steps

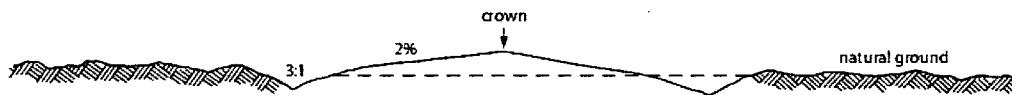
1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

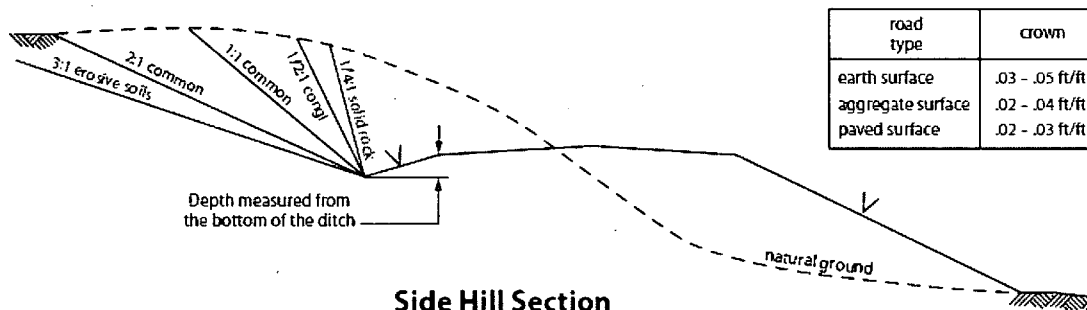


Typical Turnout Plan

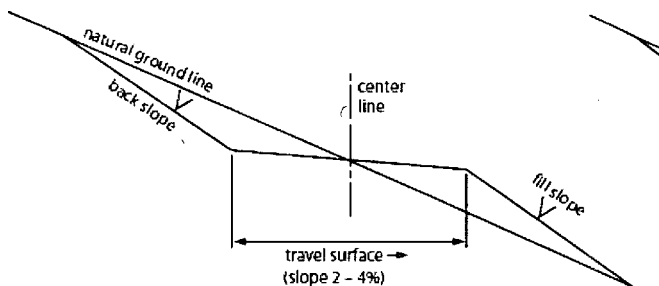
Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.



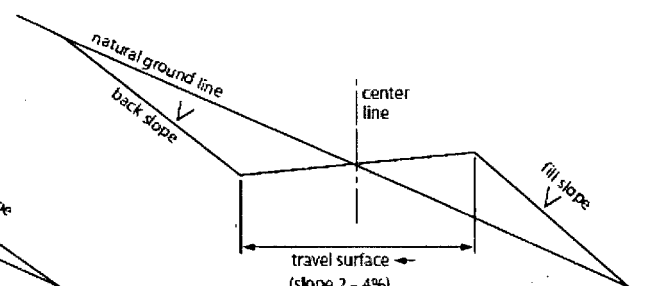
Level Ground Section



Side Hill Section



Typical Outsloped Section



Typical Insloped Section

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

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).

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 leaks 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).

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

06/20/2019

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: 12/14/2018

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: (405)552-4902

Email address: ray.vaz@dvn.com



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

Application Data Report

06/20/2019

APD ID: 10400037314

Submission Date: 12/14/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400037314

Tie to previous NOS?

Submission Date: 12/14/2018

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: NMNM022080

Lease Acres: 1280

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: TOMB RAIDER 12-1 FED

Well Number: 331H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: LIVINGSTON
RIDGE

Pool Name: BONESPRING

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

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

Describe other minerals:

Is the proposed well in a Helium production area? N Use Existing Well Pad? YES New surface disturbance? Y

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: TOMB Number: 2

RAIDER 12 PAD

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town:

Distance to nearest well: 391 FT

Distance to lease line: 250 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: TOMB_RAIDER_12_1_FED_331H_C102_signed_20181214074049.pdf

Well work start Date: 06/19/2019

Duration: 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 6670

	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	250	FSL	260	FWL	23S	31E	12	Aliquot SWS W	32.31238 7	- 103.7391 858	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	348 8	0	0
KOP Leg #1	50	FSL	105 0	FWL	23S	31E	12	Aliquot SWS W	32.31182 5	- 103.7366 33	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 755 9	110 88	110 47
PPP Leg #1	100	FSL	105 0	FWL	23S	31E	12	Aliquot SWS W	32.31196 3	- 103.7366 33	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 779 3	113 29	112 81

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

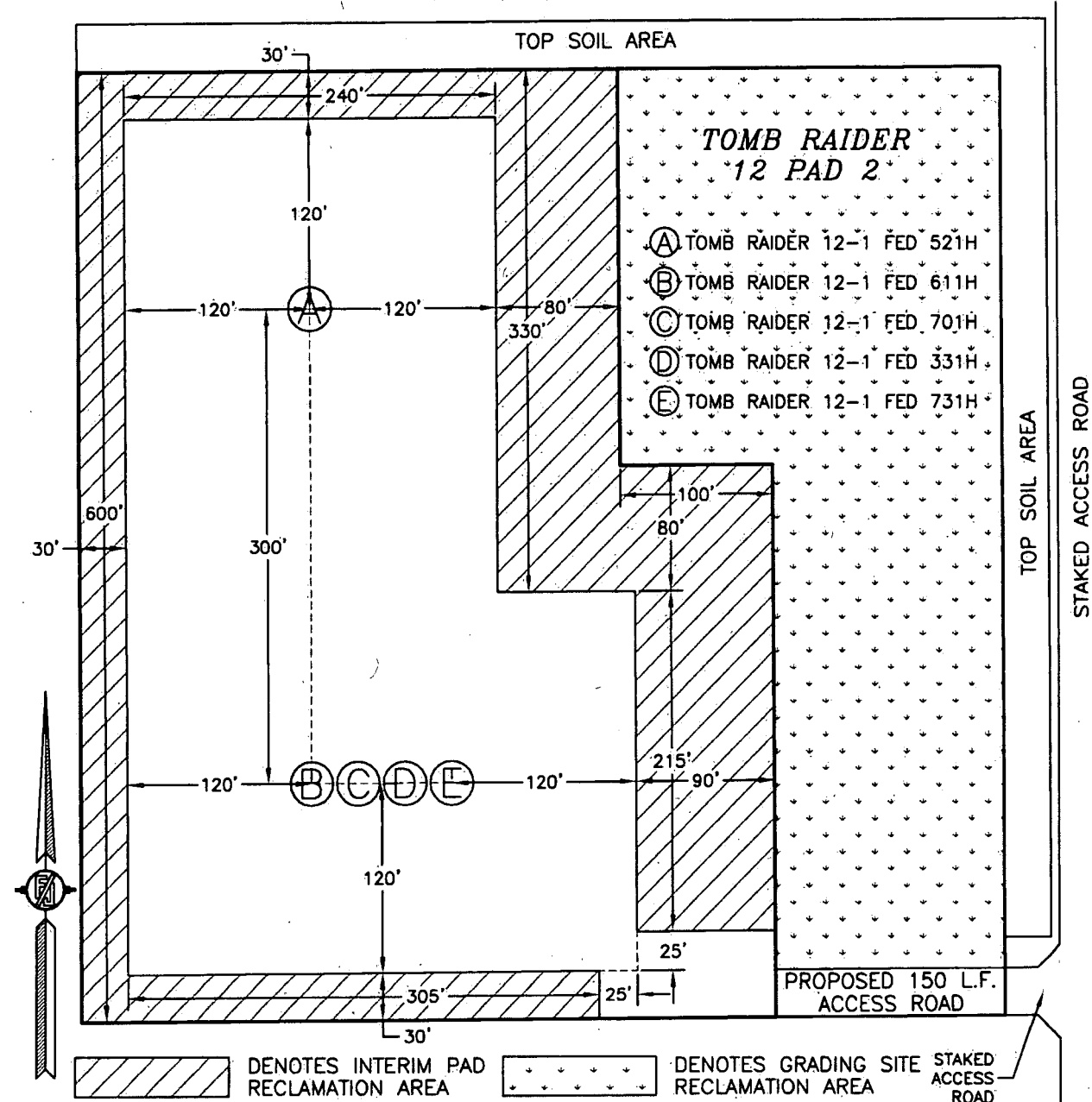
Well Number: 331H

	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	105 0	FWL	23S	31E	1	Lot 4	32.34044 7	- 103.7366 56	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 813 2	218 28	116 20
BHL Leg #1	20	FNL	105 0	FWL	23S	31E	1	Lot 4	32.34066 7	- 103.7366 564	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 813 2	219 08	116 20

SITE MAP



SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



010 50 100 200
SCALE 1" = 100'

2.023± ACRES INTERIM PAD RECLAMATION AREA
2.536± ACRES GRADING SITE RECLAMATION AREA
3.706± ACRES NON-RECLAIMED AREA
8.265± ACRES TOMB RAIDER 12 PAD 2

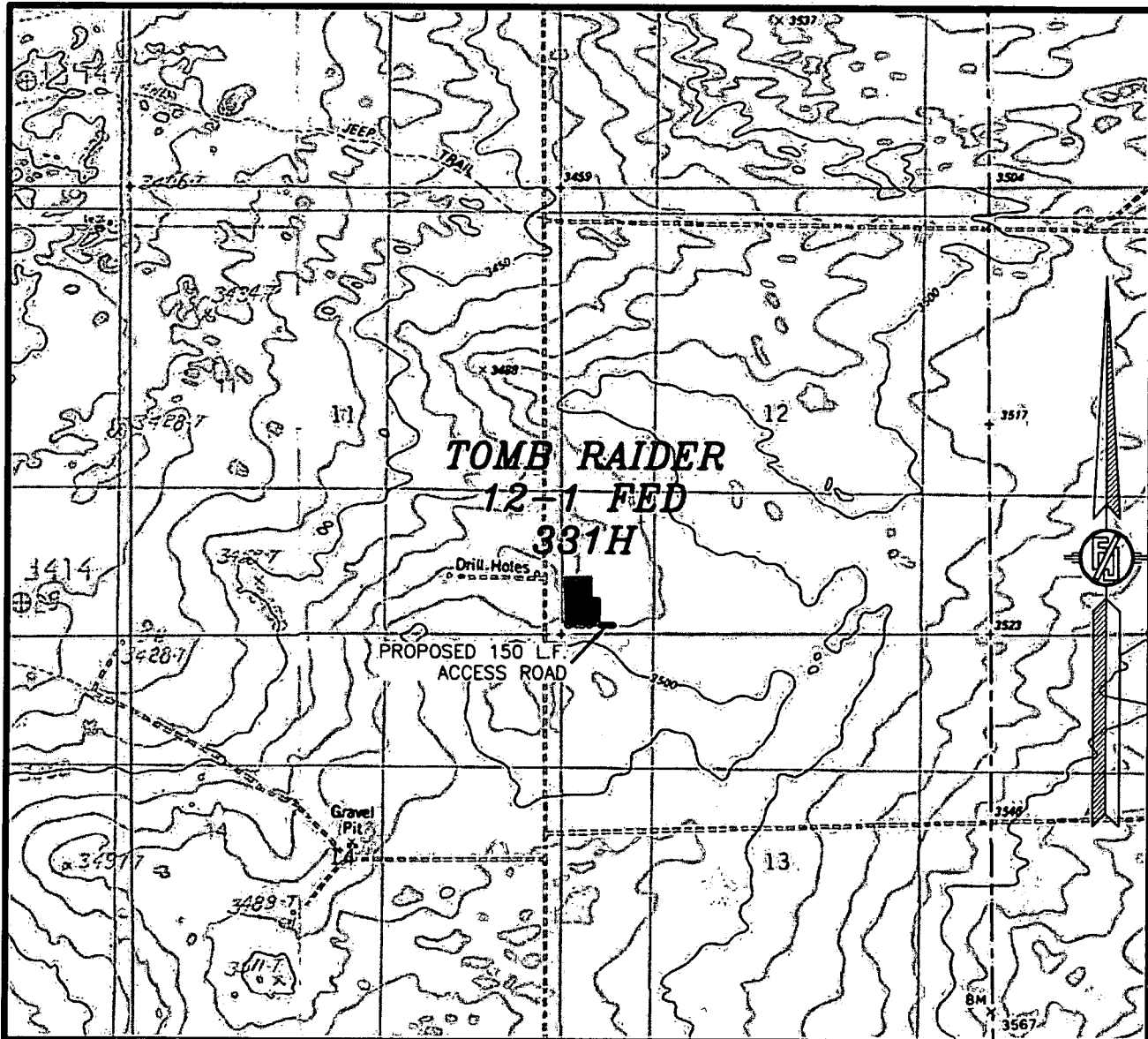
DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 12-1 FED 331H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 260 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 6, 2018

SURVEY NO. 6670

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

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
BOOTLEG RIDGE

NOT TO SCALE

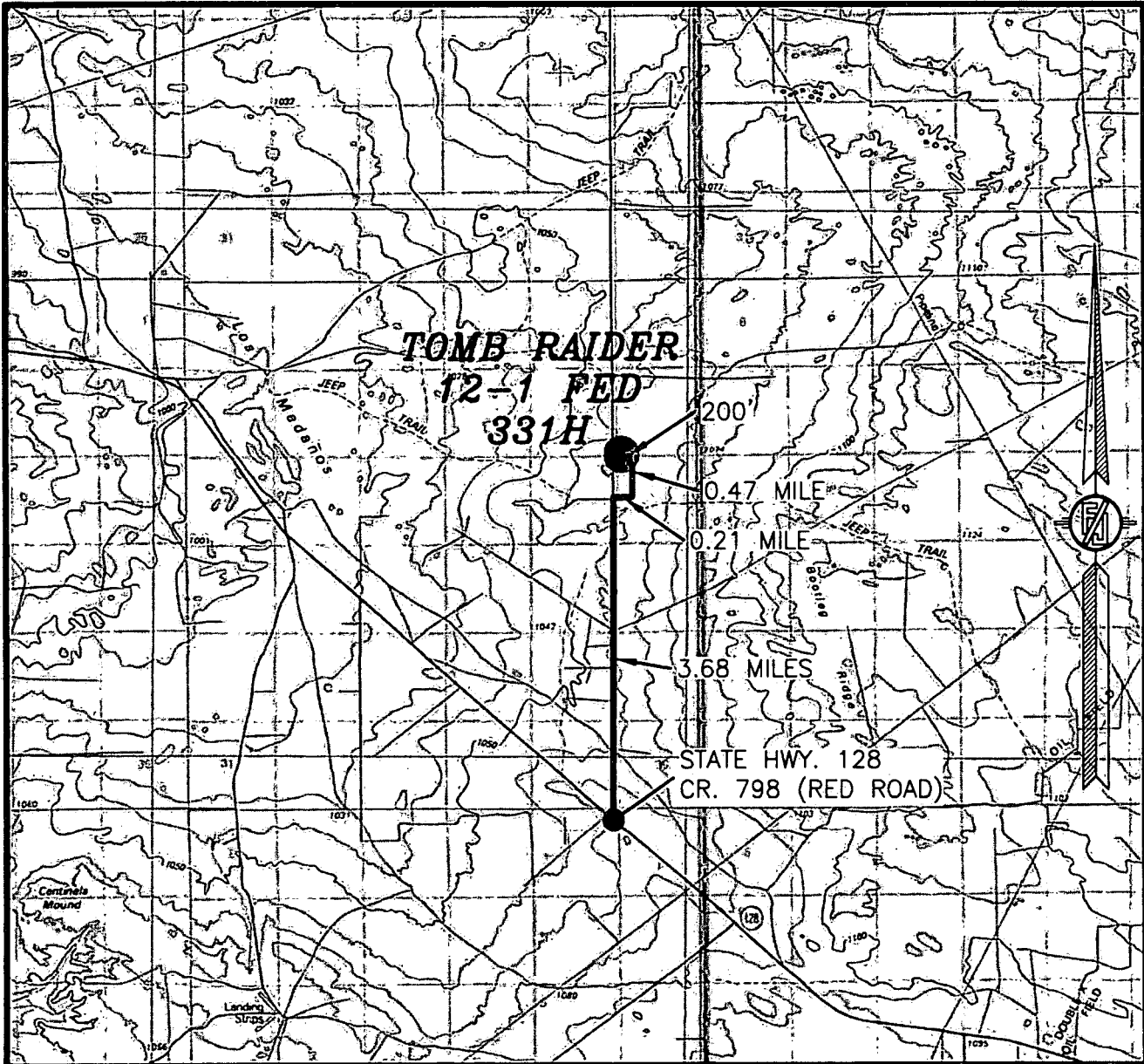
DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 12-1 FED 331H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 260 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 6, 2018

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

SURVEY NO. 6670

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 FOR APPROX. 3.68 MILES, TURN RIGHT ON CALICHE ROAD AND GO EAST APPROX. 0.21 OF A MILE, TURN LEFT GO NORTH APPROX. 0.47 OF A MILE, TURN LEFT GO WEST 200' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.

TOMB RAIDER 12-1 FED 331H

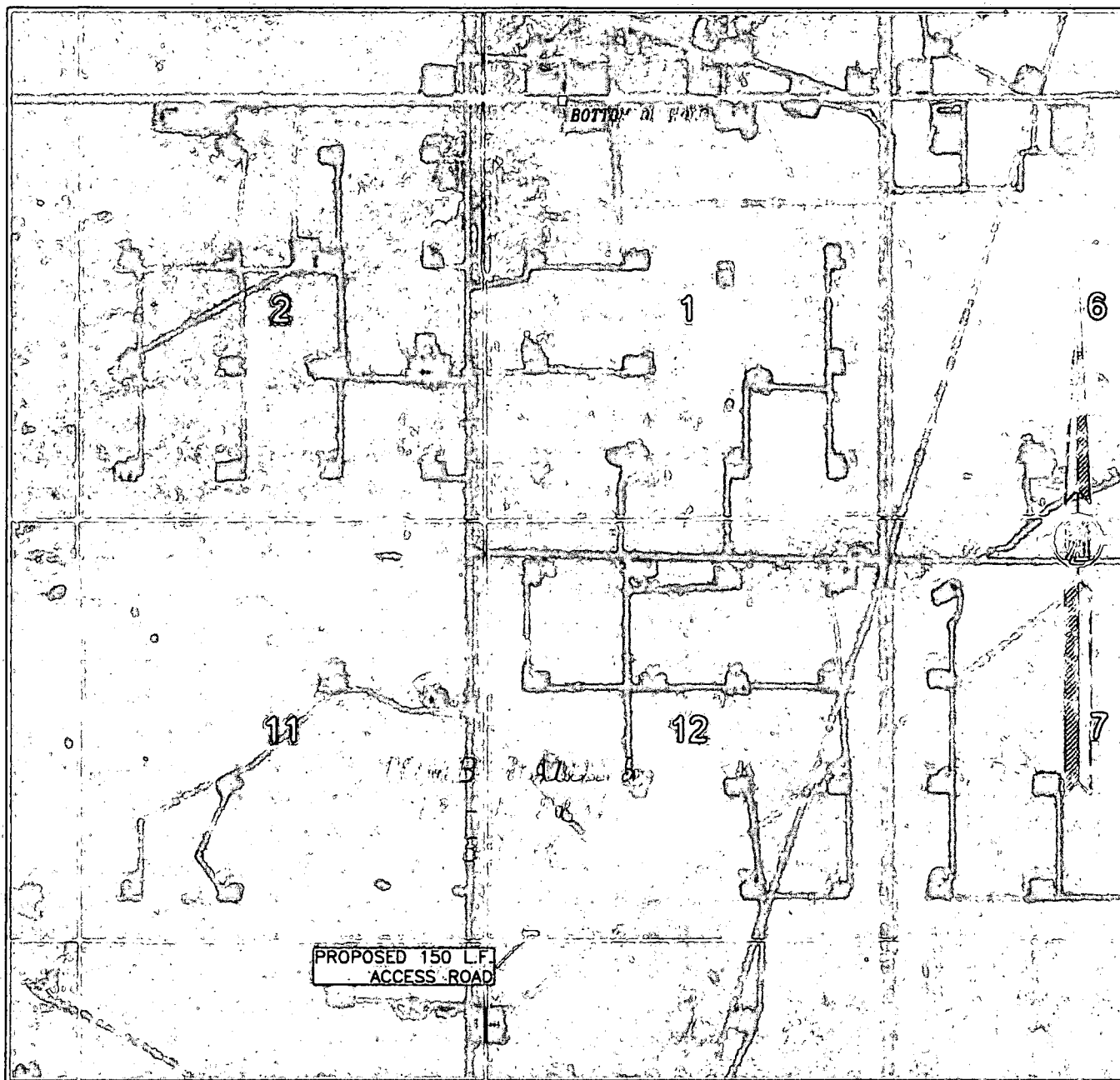
LOCATED 250 FT. FROM THE SOUTH LINE
AND 260 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 6, 2018

SURVEY NO. 6670

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

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOV. 2017

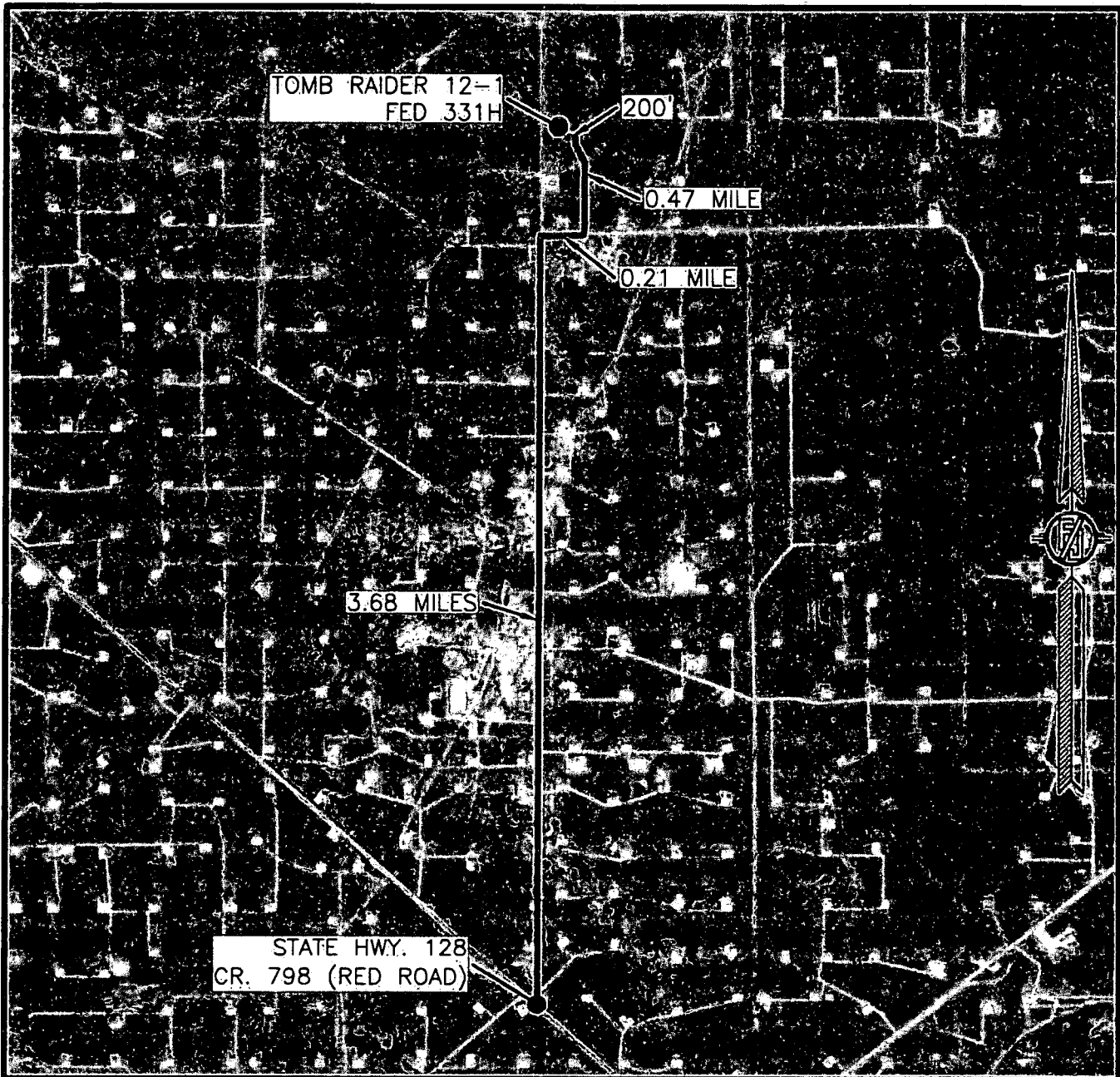
DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 12-1 FED 331H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 260 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 6, 2018

SURVEY NO. 6670

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

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL ACCESS ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOV. 2017

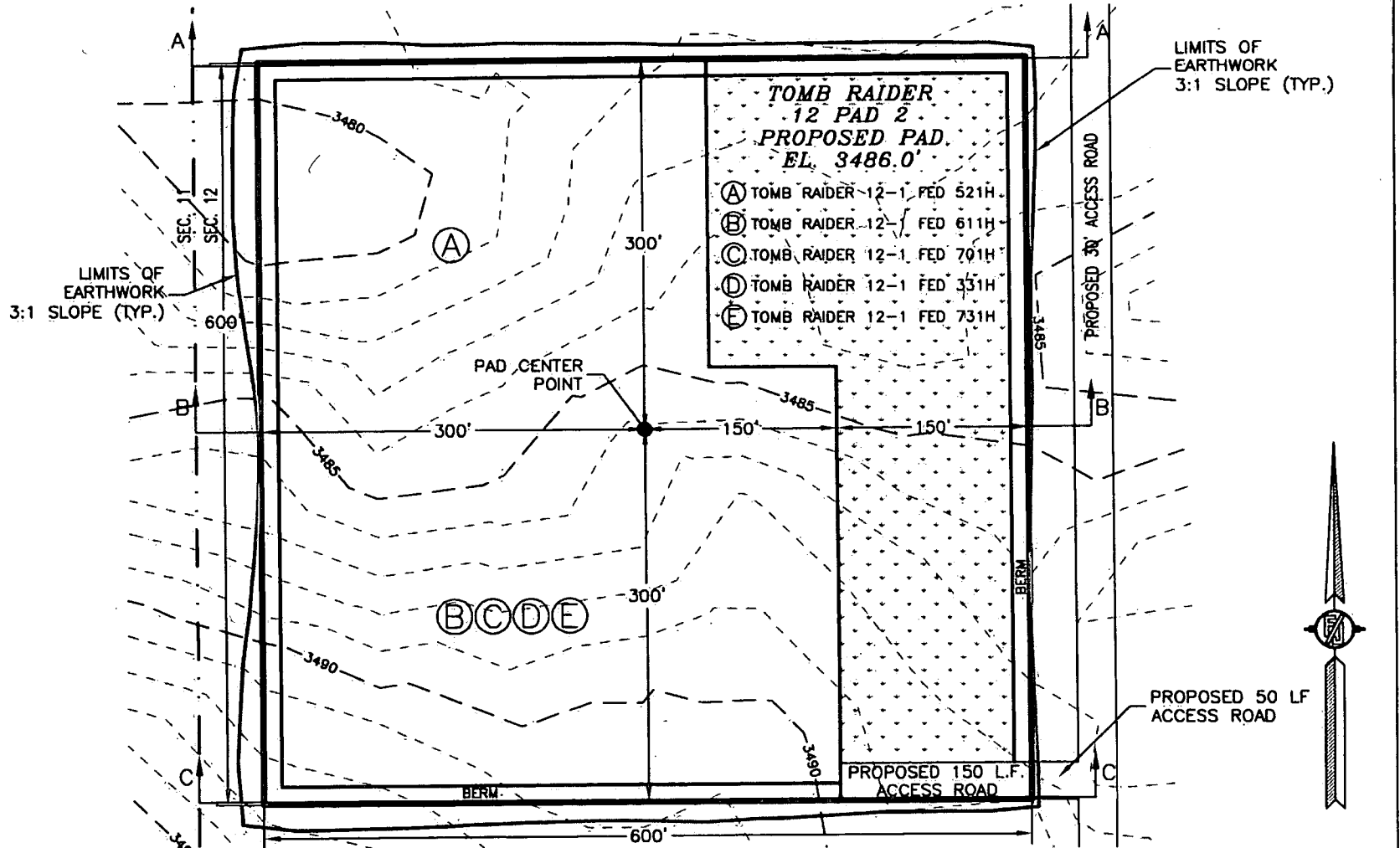
DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 12-1 FED 331H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 260 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 6, 2018

SURVEY NO. 6670

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

PLAN VIEW



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
 FOR TOMB RAIDER 12-1 FED 331H
 SECTION 12, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

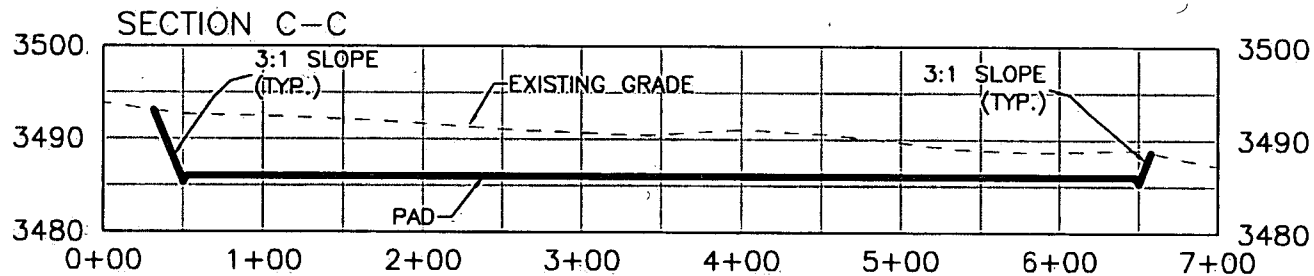
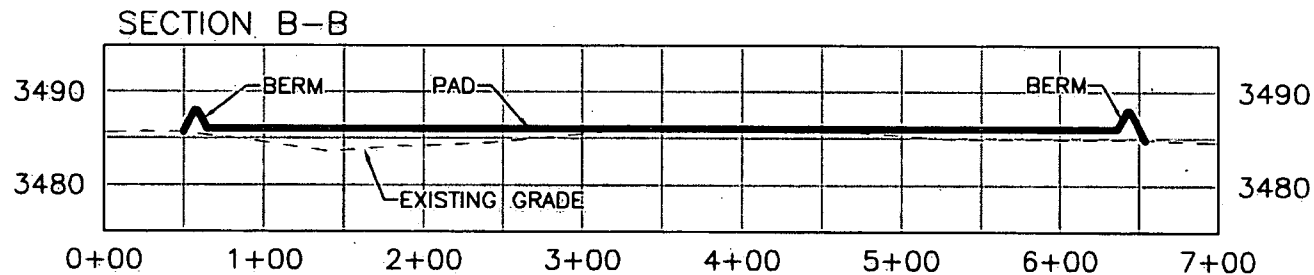
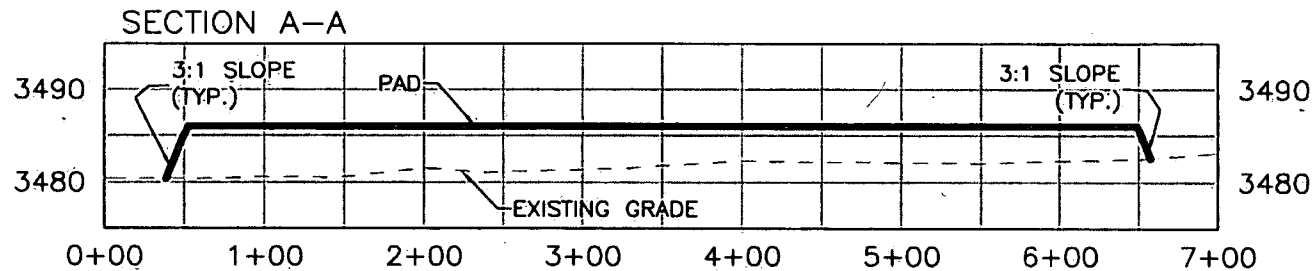
CUT	FILL	NET
15478 CU. YD	24601 CU. YD	9124 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

NOVEMBER 6, 2018
 MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

SHEET 1-2
 SURVEY NO. 6670

CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
 FOR TOMB RAIDER 12-1 FED 331H
 SECTION 12, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

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

CUT	FILL	NET
15478 CU. YD	24601 CU. YD	9124 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

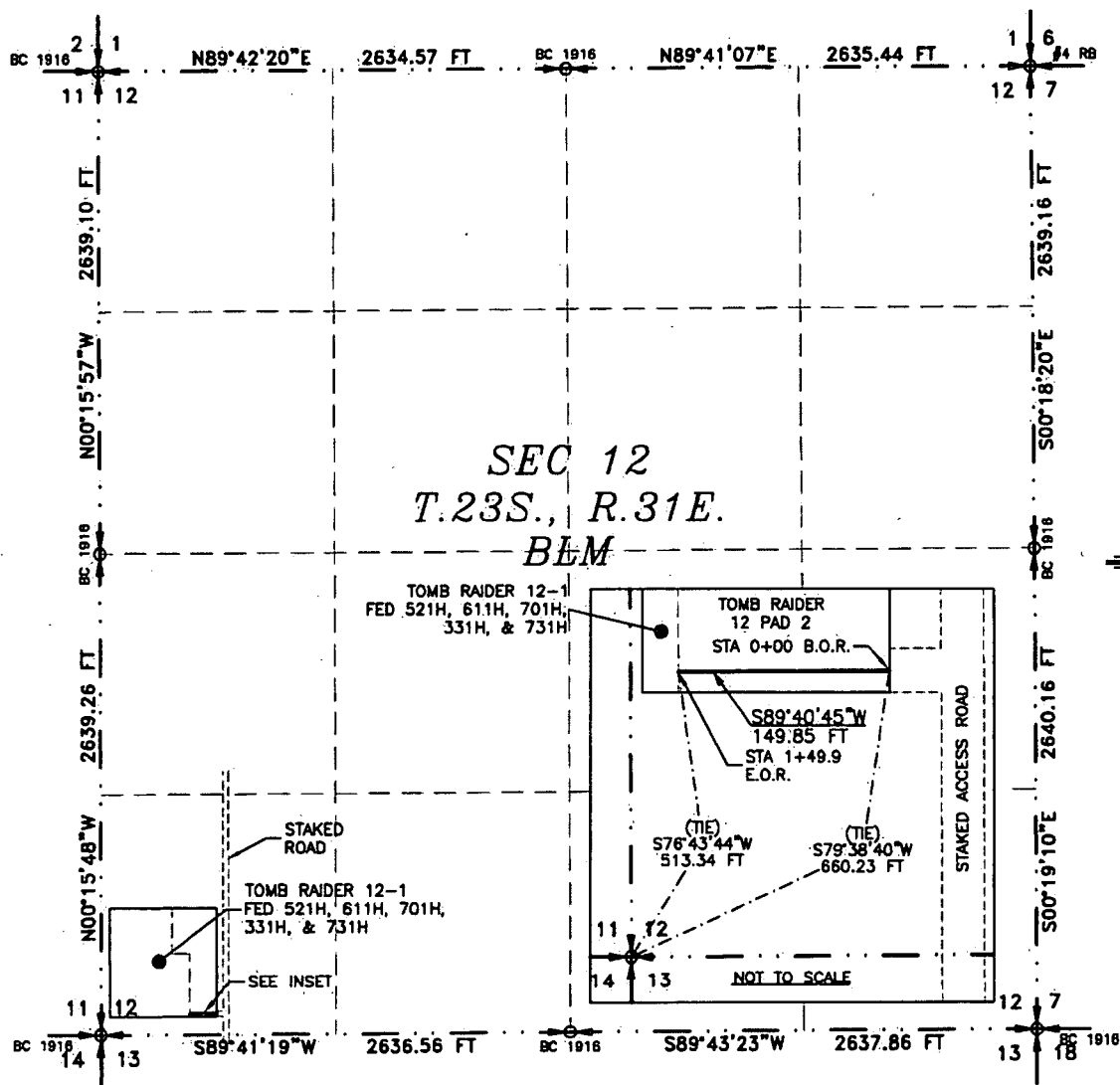
NOVEMBER 6, 2018
 MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

SHEET 2-2
 SURVEY NO. 6870

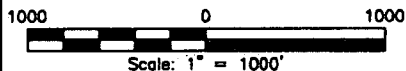
ACCESS ROAD PLAT

ACCESS ROAD FOR TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
NOVEMBER 6, 2018



SEE NEXT SHEET (2-2) FOR DESCRIPTION



GENERAL NOTES

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

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

SHEET: 1-2

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 6th DAY OF NOVEMBER 2018

FILIMON F. JARAMILLO, P.S. 12797
MADRON SURVEYING, INC.
501 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 6670

ACCESS ROAD PLAT

ACCESS ROAD FOR TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
NOVEMBER 6, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S79°38'40"W, A DISTANCE OF 660.23 FEET;
THENCE S89°40'45"W A DISTANCE OF 149.85 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S76°43'44"W, A DISTANCE OF 513.34 FEET;

SAID STRIP OF LAND BEING 149.85 FEET OR 9.08 RODS IN LENGTH, CONTAINING 0.103 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 149.85 L.F. 9.08 RODS 0.103 ACRES

GENERAL NOTES

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

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

SHEET: 2-2

MADRON SURVEYING

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 12TH DAY OF NOVEMBER 2018

(12797)

FILMON F. JARAMILLO, P.S. 12797

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

SURVEY NO. 6670

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO



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

Drilling Plan Data Report

06/20/2019

APD ID: 10400037314

Submission Date: 12/14/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

[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	3488	0	0	OTHER	NONE	No
2	RUSTLER	2722	766	766	SALT	NONE	No
3	SALADO	2347	1141	1141	SALT	NONE	No
4	BASE OF SALT	-963	4451	4451	SALT	NONE	No
5	DELAWARE	-993	4481	4481	SANDSTONE	NATURAL GAS,OIL	No
6	BONE SPRING LIME	-4868	8356	8356	LIMESTONE	NATURAL GAS,OIL	No
7	BONE SPRING 3RD	-8132	11620	21620	SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 11620

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

Requesting Variance? YES

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

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

Choke Diagram Attachment:

5M_BOPE_20180716121144_20181214075309.pdf

BOP Diagram Attachment:

5M_BOPE_20180716121144_20181214075317.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Pressure Rating (PSI): 5M

Rating Depth: 10006

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

Requesting Variance? YES

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

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

Choke Diagram Attachment:

5M_BOPE_20180716121144_20181214075203.pdf

BOP Diagram Attachment:

5M_BOPE_20180716121144_20181214075210.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	10.75	NEW	API	N	0	791	0	791	-6768	-7557	791	J-55	40.5	STC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	10006	0	10006	-6768	-11036	10006	P-110	29.7	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
3	PRODUCTION	6.75	5.5	NEW	API	N	0	21908	0	11620	-6768	-16768	21908	P-110	20	OTHER - VAM SG	1.125	1.25	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20181214075552.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181214075711.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20181214075915.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	791	513	1.33	13.2	683	50	C	Class C + adds

INTERMEDIATE	Lead		0	6006	882	1.85	9	1632	30	TUNED	TUNED LIGHT
INTERMEDIATE	Tail		6006	10006	848	1.33	13.2	1128	30	H	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		0	9506	292	3.31	9	970	10	CLASS H	Lead: Class H / C + additives
PRODUCTION	Tail		9506	21908	865	1.33	13.2	1151	10	class h	Lead: Class H / C + additives

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	10006	OTHER : DBE/CUT BRINE	9	10				2			

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

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	791	OTHER : FW GEL	8.5	9				2			
1000 6	1162 0	OIL-BASED MUD	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: 6345

Anticipated Surface Pressure: 3788.6

Anticipated Bottom Hole Temperature(F): 168

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:

Tomb_Raider_12_1_Fed_331H_H2S_20181214084529.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Tomb_Raider_12_1_Fed_331H_AC_Report_Permit_Plan_1_20181214084652.pdf

Devon_Tomb_Raider_12_1_Fed_331H_Permit_Plan_1_20181214084653.pdf

Devon_Tomb_Raider_12_1_Fed_331H_Plot_Permit_Plan_1_20181214084653.pdf

Other proposed operations facets description:

BOP-WELLHEAD- UPDATED

DRILLING PLAN

CLOSED LOOP DESIGN,

MB VERB MB WELLHEAD, GAS CAPTURE PLAN, SPEC SHEETS, SPUDDER RIG

Other proposed operations facets attachment:

5.5_x_20_P110_EC_VAMSG_20181214084912.pdf

8.625_32_P110EC__7.875_SD__BTC__20181214084913.pdf

Spudder_Rig_Info_20181214084913.pdf

Clsd_Loop_20181214085036.pdf

TODD_12_1_GasCapturePlan_12_13_2018_20181214085108.pdf

MB_Wellhd_5M__WC_10.75_7.625_20190507070758.pdf

MB_Verb_5M_20190507070921.pdf

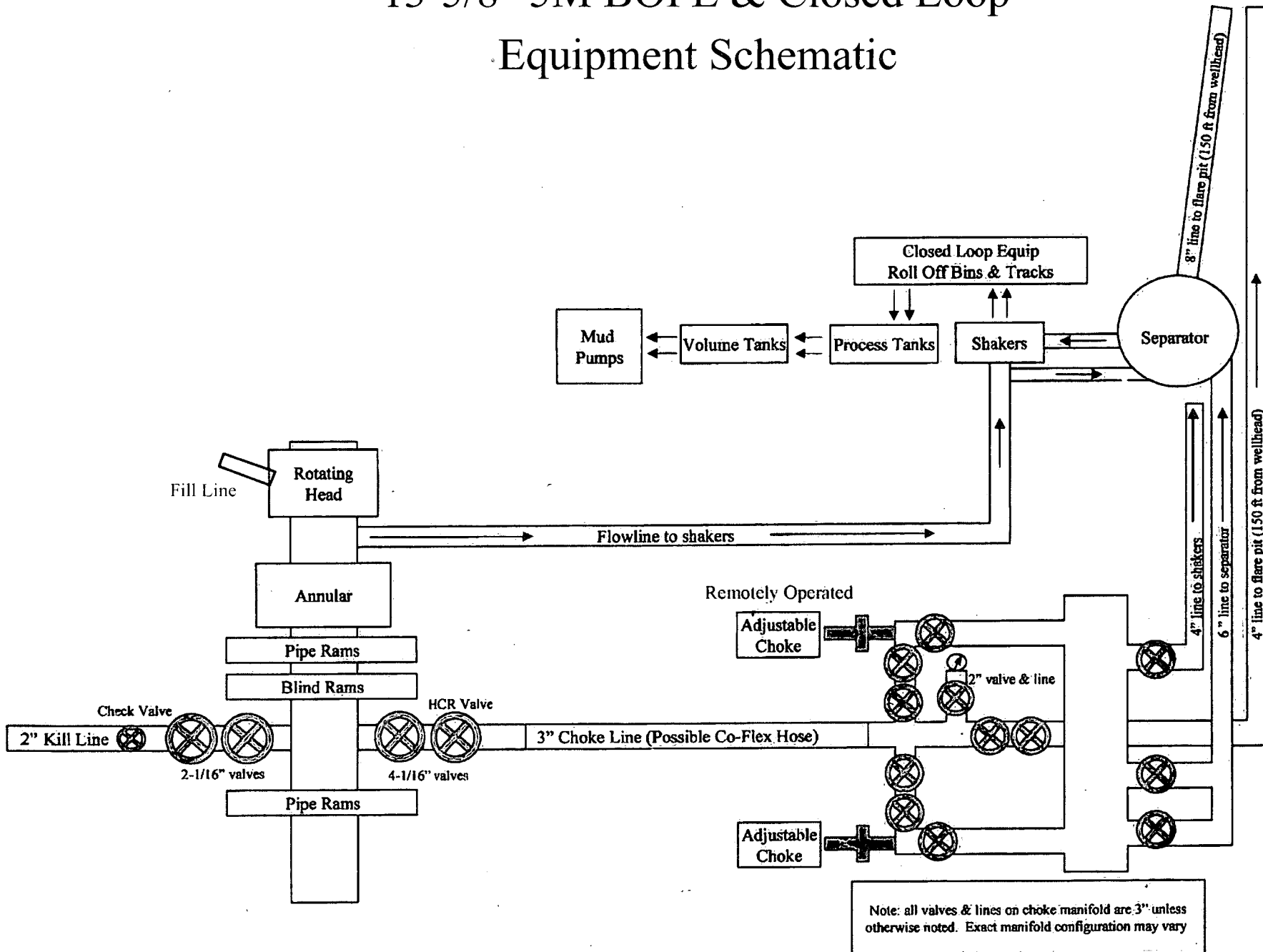
Tomb_Raider_12_1_Fed_331H_Drilling_Plan_5_6_20190507070948.pdf

MB_Wellhd_5M_13.375_8.625_20190514082920.pdf

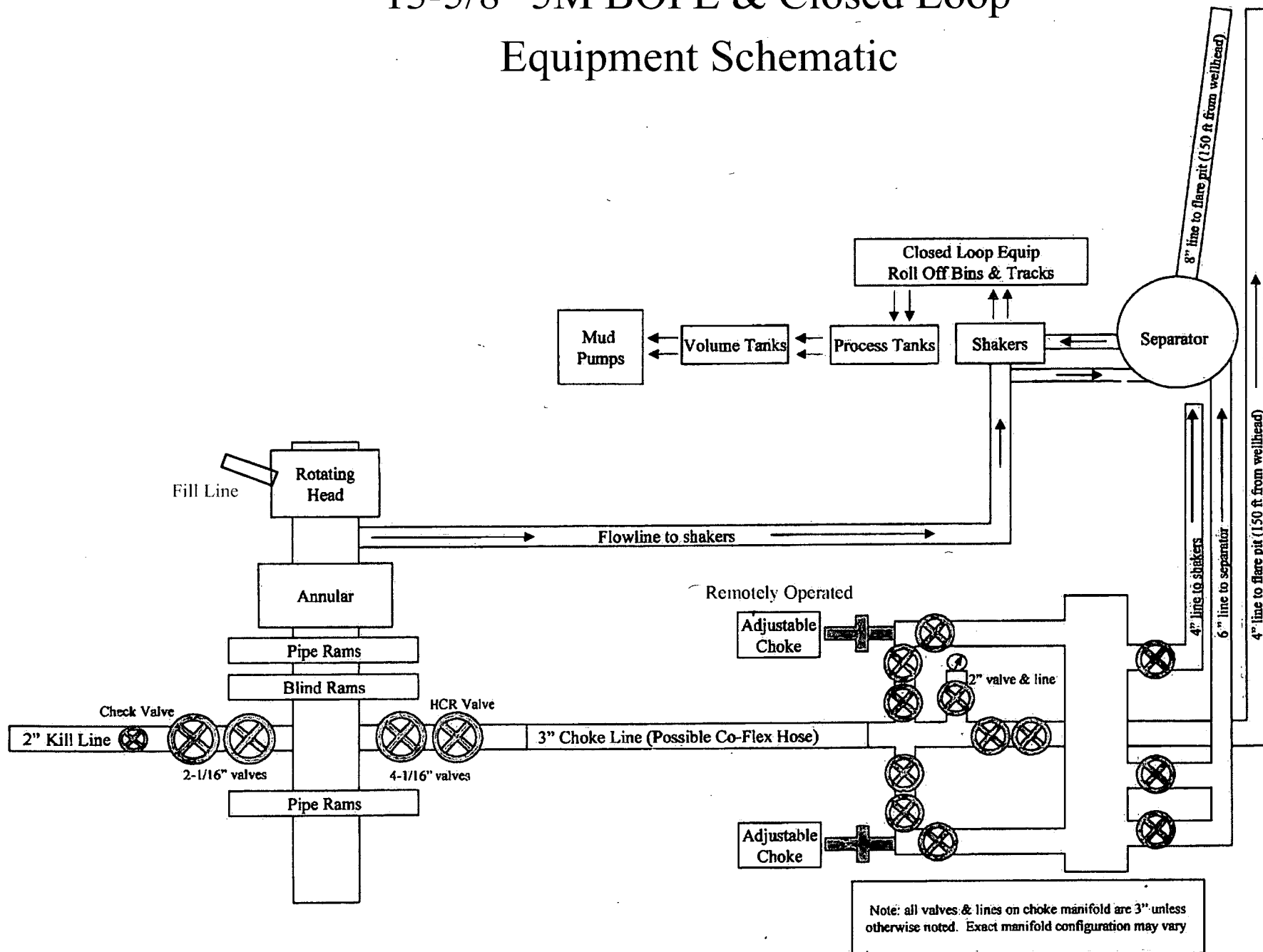
Other Variance attachment:

Co_flex_20181214085236.pdf

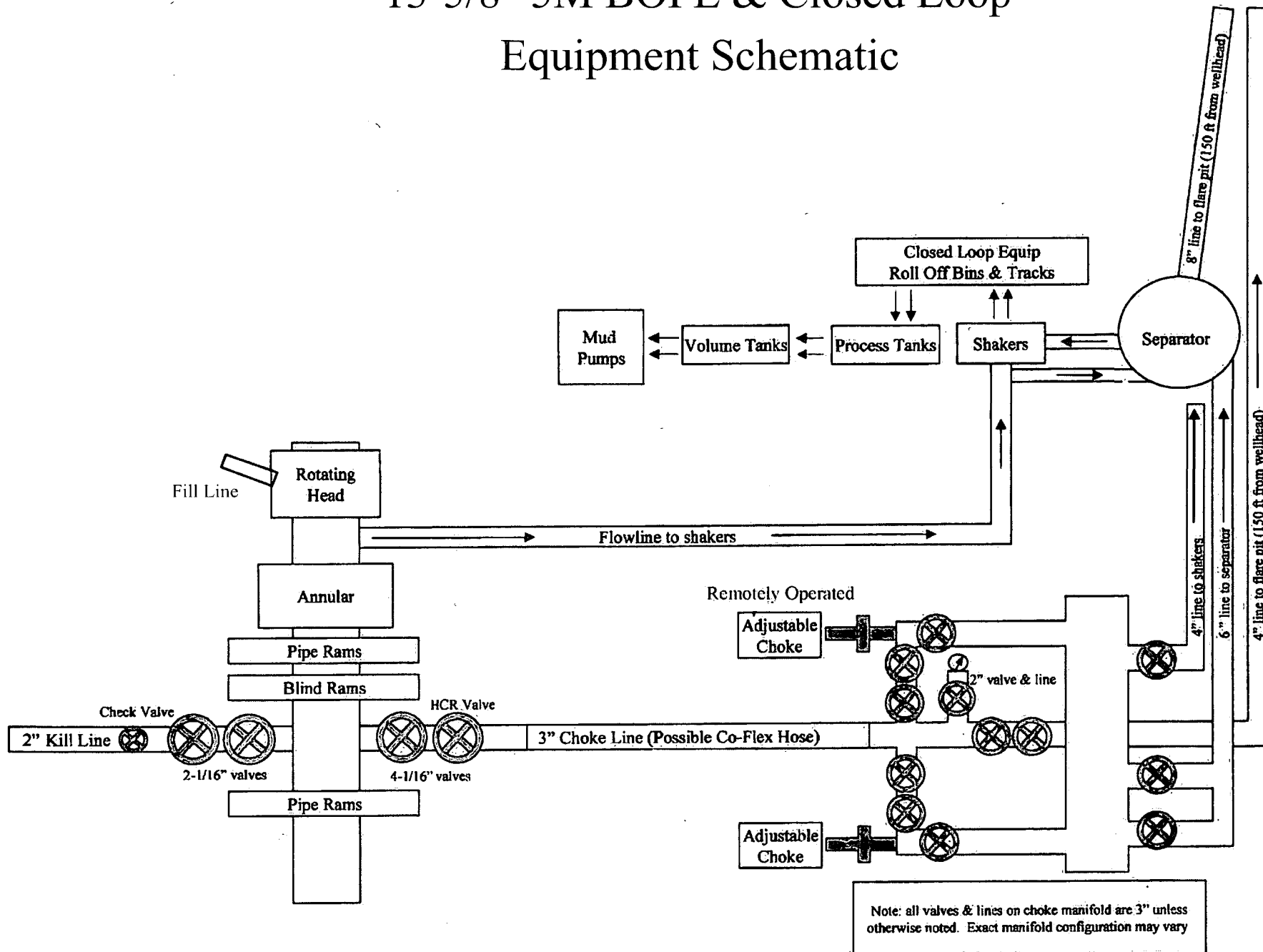
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



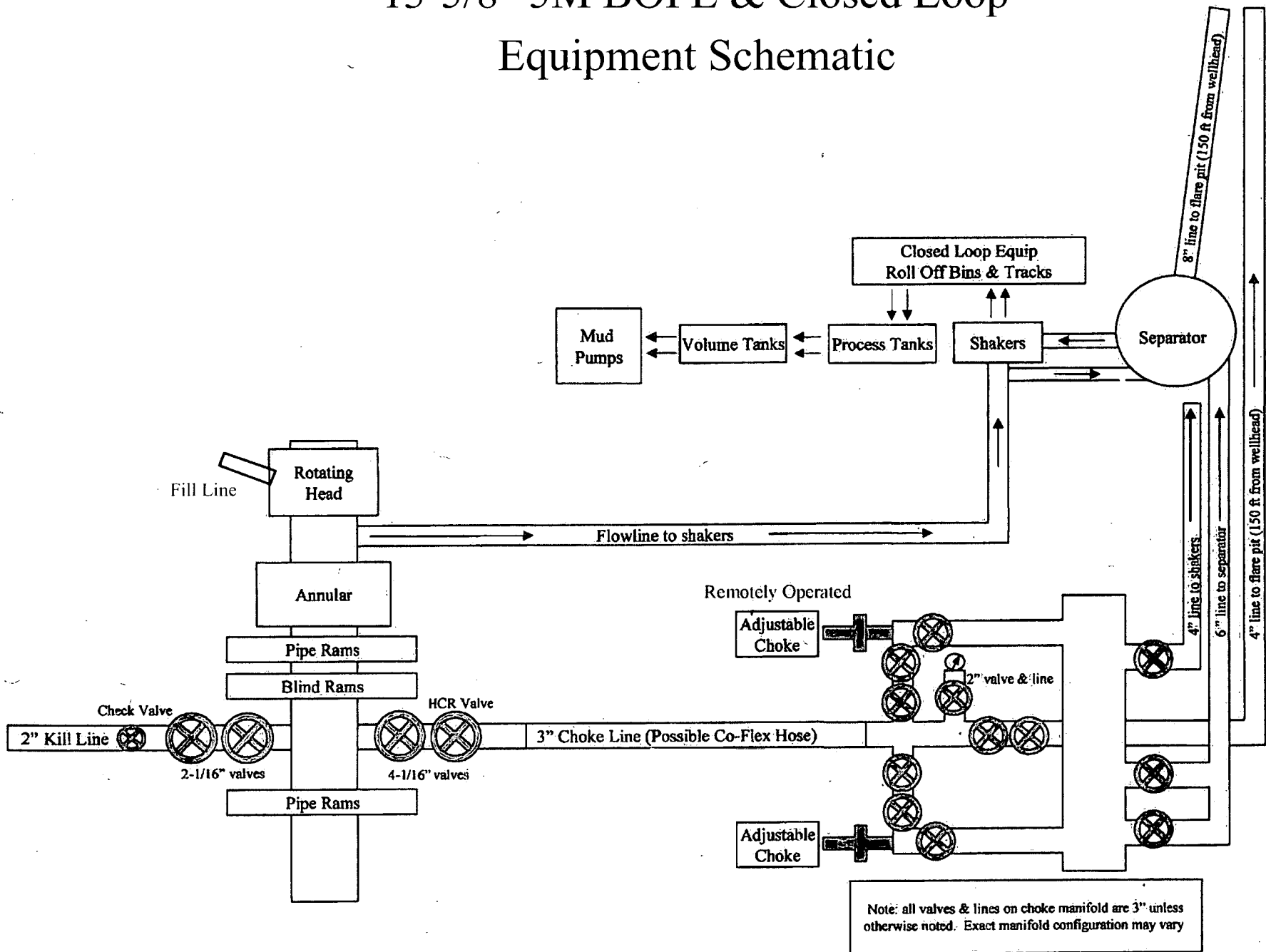
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



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



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



Casing Assumptions and Load Cases

Surface

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

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

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

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

Casing Assumptions and Load Cases

Intermediate

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

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

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

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

Casing Assumptions and Load Cases

Production

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

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

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

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



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

Hydrogen Sulfide (H₂S) Contingency Plan

For

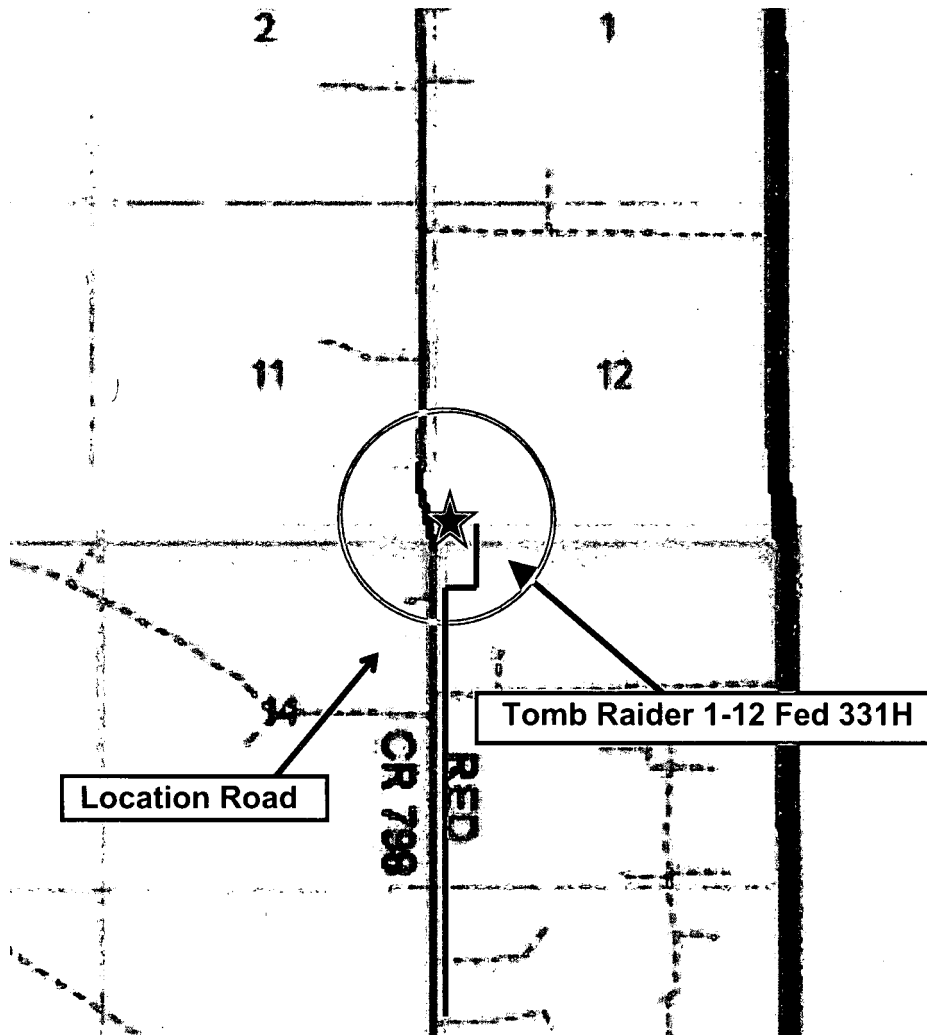
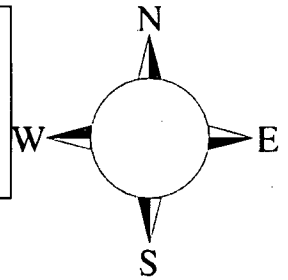
Tomb Raider 12-1 Fed 331H

**Sec-12 T-23S R-31E
250' FSL & 260' FWL
LAT. = 32.3123870' N (NAD83)
LONG = 103.7391858' W**

Eddy County NM

Tomb Raider 1-12 Fed 331H

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 NMOC and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H₂S and SO₂

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

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

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

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

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

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

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

II. HYDROGEN SULFIDE TRAINING

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

1. Well Control Equipment

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

2. Protective equipment for essential personnel:

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

3. H₂S detection and monitoring equipment:

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

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

Visual warning systems:

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

4. Mud program:

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

5. Metallurgy:

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

6. Communication:

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

7. Well testing:

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

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

Prepared in conjunction with
Dave Small



WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 12-T23S-R31E

Tomb Raider 12-1 Fed 331H

Wellbore #1

Permit Plan 1

Anticollision Report

30 November, 2018

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 11/30/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	21,908.36	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.01-T23S-R31E						
Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1	17,306.18	10,704.00	1,308.56	1,067.48	5.428	CC
Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1	17,350.00	10,704.00	1,309.29	1,067.44	5.414	ES
Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1	17,500.00	10,704.00	1,322.83	1,077.65	5.395	SF
Belloq 2 State 5H - Wellbore #1 - Actual						Out of range
Belloq 2 State 5H - Wellbore #1 - Plan #1						Out of range
Belloq 2 State 5H - Wellbore #1 - Plan #2						Out of range
Belloq 2 State 5H - Wellbore #1 - Plan #3						Out of range
Belloq 2 State 5H - Wellbore #1 - PTL						Out of range
Belloq 2 State 5H - Wellbore #1 - PTL - WellCon						Out of range
Belloq 2 State 5H - Wellbore #1 - T&D						Out of range
Tomb Raider 1 Fed 1H - Original - Actual						Out of range
Tomb Raider 1 Fed 1H - Original - Plan 2						Out of range
Tomb Raider 1 Fed 1H - Original - Plan1v2						Out of range
Tomb Raider 1 Fed 1H - Original - PTL						Out of range
Tomb Raider 1 Fed 1H - Original - T&D						Out of range
Tomb Raider 1-12 Fed 334H - Wellbore #1 - Wellbore #1						Out of range
Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1	9,000.00	18,965.00	412.49	233.35	2.303	Minor Risk, SF
Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1	9,025.89	18,965.00	411.68	232.97	2.304	Minor Risk, CC, ES
Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan						Out of range
Tomb Raider 1-12 Fed 523H - Wellbore #1 - Permit Plan	9,350.00	19,014.44	1,292.74	1,112.59	7.176	SF
Tomb Raider 1-12 Fed 523H - Wellbore #1 - Permit Plan	9,364.31	19,014.44	1,292.67	1,112.56	7.177	CC, ES
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Permit Plan	9,300.00	19,026.09	1,203.83	1,071.16	9.074	SF
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Permit Plan	9,345.03	19,026.09	1,202.99	1,070.47	9.078	CC, ES
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Permit Plan	9,300.00	19,047.07	1,188.23	1,055.85	8.976	SF
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Permit Plan	9,343.36	19,047.07	1,187.44	1,055.23	8.981	CC, ES
Tomb Raider 1-12 Fed 525H - Wellbore #1 - Permit Plan						Out of range
Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1						Out of range
Tomb Raider 1-12 Fed 614H - Wellbore #1 - T&D						Out of range
Tomb Raider 1-12 Fed 614H - Wellbore #1 - Wellbore #1						Out of range
Tomb Raider 1-12 Fed 61H - Original Hole - Original Hole	10,230.36	20,215.00	412.80	237.52	2.355	Minor Risk, CC
Tomb Raider 1-12 Fed 61H - Original Hole - Original Hole	10,250.00	20,215.00	413.26	237.40	2.350	Minor Risk, ES, SF
Tomb Raider 1-12 Fed 62H - Wellbore #1 - Wellbore #1	10,499.19	20,480.00	953.26	762.32	4.992	Alert, CC, ES, SF
Tomb Raider 1-12 Fed 714H - Original Hole - Actuals						Out of range
Tomb Raider 1-12 Fed 714H - Original Hole - NTL						Out of range
Tomb Raider 1-12 Fed 714H - Original Hole - T&D						Out of range
Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbo						Out of range

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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

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 01-T23S-R31E						
Tomb Raider 1-12 Fed Com 528H - Wellbore #1 - Wellbo						Out of range
Tomb Raider 1-12 Fed Com 718H - Wellbore #1 - Wellbo						Out of range
Sec 12-T23S-R31E						
Tomb Raider 12-1 Fed 516H - Wellbore #1 - Permit Plan						Out of range
Tomb Raider 12-1 Fed 521H - Wellbore #1 - Permit Plan	5,140.67	5,158.97	286.90	251.06	8.006	CC
Tomb Raider 12-1 Fed 521H - Wellbore #1 - Permit Plan	5,350.00	5,367.27	287.65	250.31	7.704	ES
Tomb Raider 12-1 Fed 521H - Wellbore #1 - Permit Plan	6,950.00	6,959.43	338.11	288.96	6.878	SF
Tomb Raider 12-1 Fed 701H - Wellbore #1 - Permit Plan	2,400.00	2,400.20	29.98	13.19	1.786	Minor Risk, CC
Tomb Raider 12-1 Fed 701H - Wellbore #1 - Permit Plan	2,450.00	2,449.80	30.19	13.05	1.761	Minor Risk, ES
Tomb Raider 12-1 Fed 701H - Wellbore #1 - Permit Plan	21,908.36	22,082.86	381.66	97.90	1.345	Major Risk, SF
Tomb Raider 12-1 Fed 731H - Wellbore #1 - Permit Plan	2,000.00	2,000.20	30.00	16.07	2.154	Minor Risk, CC
Tomb Raider 12-1 Fed 731H - Wellbore #1 - Permit Plan	2,050.00	2,049.94	30.22	15.94	2.116	Minor Risk, ES
Tomb Raider 12-1 Fed 731H - Wellbore #1 - Permit Plan	21,908.36	22,058.60	318.94	58.27	1.224	Major Risk, SF

Offset Design

Sec 01-T23S-R31E - Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1										Offset Site Error: 5.00 ft			
Survey Program: 228-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
16,600.00	11,620.00	10,704.00	10,701.98	84.31	224.15	45.82	5,696.31	1,691.48	1,486.95	1,246.05	240.90	6.173	
16,650.00	11,620.00	10,704.00	10,701.98	84.94	224.15	45.82	5,696.31	1,691.48	1,463.86	1,223.42	240.44	6.088	
16,700.00	11,620.00	10,704.00	10,701.98	85.58	224.15	45.82	5,696.31	1,691.48	1,442.14	1,202.13	240.01	6.009	
16,750.00	11,620.00	10,704.00	10,701.98	86.22	224.15	45.82	5,696.31	1,691.48	1,421.85	1,182.23	239.62	5.934	
16,800.00	11,620.00	10,704.00	10,701.98	86.85	224.15	45.82	5,696.31	1,691.48	1,403.05	1,163.77	239.27	5.864	
16,850.00	11,620.00	10,704.00	10,701.98	87.49	224.15	45.82	5,696.31	1,691.48	1,385.79	1,146.80	238.99	5.798	
16,900.00	11,620.00	10,704.00	10,701.98	88.13	224.15	45.82	5,696.31	1,691.48	1,370.15	1,131.37	238.78	5.738	
16,950.00	11,620.00	10,704.00	10,701.98	88.78	224.15	45.82	5,696.31	1,691.48	1,356.17	1,117.51	238.65	5.683	
17,000.00	11,620.00	10,704.00	10,701.98	89.42	224.15	45.82	5,696.31	1,691.48	1,343.90	1,105.28	238.62	5.632	
17,050.00	11,620.00	10,704.00	10,701.98	90.06	224.15	45.82	5,696.31	1,691.48	1,333.40	1,094.70	238.69	5.586	
17,100.00	11,620.00	10,704.00	10,701.98	90.71	224.15	45.82	5,696.31	1,691.48	1,324.70	1,085.81	238.89	5.545	
17,150.00	11,620.00	10,704.00	10,701.98	91.36	224.15	45.82	5,696.31	1,691.48	1,317.84	1,078.64	239.21	5.509	
17,200.00	11,620.00	10,704.00	10,701.98	92.00	224.15	45.82	5,696.31	1,691.48	1,312.86	1,073.20	239.66	5.478	
17,250.00	11,620.00	10,704.00	10,701.98	92.66	224.15	45.82	5,696.31	1,691.48	1,309.76	1,069.51	240.25	5.452	
17,300.00	11,620.00	10,704.00	10,701.98	93.31	224.15	45.82	5,696.31	1,691.48	1,308.57	1,067.59	240.98	5.430	
17,306.18	11,620.00	10,704.00	10,701.98	93.39	224.15	45.82	5,696.31	1,691.48	1,308.56	1,067.48	241.08	5.428	CC
17,350.00	11,620.00	10,704.00	10,701.98	93.96	224.15	45.82	5,696.31	1,691.48	1,309.29	1,067.44	241.85	5.414	ES
17,400.00	11,620.00	10,704.00	10,701.98	94.61	224.15	45.82	5,696.31	1,691.48	1,311.92	1,069.07	242.84	5.402	
17,450.00	11,620.00	10,704.00	10,701.98	95.27	224.15	45.82	5,696.31	1,691.48	1,316.44	1,072.48	243.96	5.396	
17,500.00	11,620.00	10,704.00	10,701.98	95.92	224.15	45.82	5,696.31	1,691.48	1,322.83	1,077.65	245.19	5.395	SF
17,550.00	11,620.00	10,704.00	10,701.98	96.58	224.15	45.82	5,696.31	1,691.48	1,331.08	1,084.57	246.51	5.400	
17,600.00	11,620.00	10,704.00	10,701.98	97.23	224.15	45.82	5,696.31	1,691.48	1,341.14	1,093.23	247.91	5.410	
17,650.00	11,620.00	10,704.00	10,701.98	97.89	224.15	45.82	5,696.31	1,691.48	1,352.97	1,103.60	249.37	5.426	
17,700.00	11,620.00	10,704.00	10,701.98	98.55	224.15	45.82	5,696.31	1,691.48	1,366.54	1,115.66	250.88	5.447	
17,750.00	11,620.00	10,704.00	10,701.98	99.21	224.15	45.82	5,696.31	1,691.48	1,381.78	1,129.36	252.42	5.474	
17,800.00	11,620.00	10,704.00	10,701.98	99.87	224.15	45.82	5,696.31	1,691.48	1,398.64	1,144.67	253.96	5.507	
17,850.00	11,620.00	10,704.00	10,701.98	100.54	224.15	45.82	5,696.31	1,691.48	1,417.06	1,161.55	255.51	5.546	
17,900.00	11,620.00	10,704.00	10,701.98	101.20	224.15	45.82	5,696.31	1,691.48	1,436.99	1,179.96	257.04	5.591	
17,950.00	11,620.00	10,704.00	10,701.98	101.86	224.15	45.82	5,696.31	1,691.48	1,458.37	1,199.83	258.54	5.641	
18,000.00	11,620.00	10,704.00	10,701.98	102.53	224.15	45.82	5,696.31	1,691.48	1,481.12	1,221.12	260.00	5.697	

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Survey Program: 117-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
7,600.00	7,574.00	18,965.00	8,921.35	27.60	151.95	-29.01	-55.72	1,033.60	1,484.13	1,375.62	108.51	13.677			
7,650.00	7,623.73	18,965.00	8,921.35	27.79	151.95	-29.01	-55.72	1,033.60	1,436.16	1,326.86	109.30	13.139			
7,700.00	7,673.46	18,965.00	8,921.35	27.98	151.95	-29.01	-55.72	1,033.60	1,388.33	1,278.18	110.15	12.604			
7,750.00	7,723.19	18,965.00	8,921.35	28.17	151.95	-29.01	-55.72	1,033.60	1,340.66	1,229.60	111.06	12.072			
7,800.00	7,772.92	18,965.00	8,921.35	28.36	151.95	-29.01	-55.72	1,033.60	1,293.17	1,181.13	112.04	11.542			
7,850.00	7,822.65	18,965.00	8,921.35	28.55	151.95	-29.01	-55.72	1,033.60	1,245.87	1,132.77	113.10	11.016			
7,900.00	7,872.37	18,965.00	8,921.35	28.74	151.95	-29.01	-55.72	1,033.60	1,198.79	1,084.55	114.25	10.493			
7,950.00	7,922.10	18,965.00	8,921.35	28.93	151.95	-29.01	-55.72	1,033.60	1,151.96	1,036.47	115.50	9.974			
8,000.00	7,971.83	18,965.00	8,921.35	29.13	151.95	-29.01	-55.72	1,033.60	1,105.41	988.55	116.86	9.460			
8,050.00	8,021.56	18,965.00	8,921.35	29.32	151.95	-29.01	-55.72	1,033.60	1,059.17	940.82	118.34	8.950			
8,100.00	8,071.29	18,965.00	8,921.35	29.51	151.95	-29.01	-55.72	1,033.60	1,013.29	893.31	119.97	8.446			
8,150.00	8,121.02	18,965.00	8,921.35	29.70	151.95	-29.01	-55.72	1,033.60	967.81	846.04	121.77	7.948			
8,200.00	8,170.75	18,965.00	8,921.35	29.89	151.95	-29.01	-55.72	1,033.60	922.81	799.06	123.74	7.458			
8,250.00	8,220.48	18,965.00	8,921.35	30.08	151.95	-29.01	-55.72	1,033.60	878.34	752.42	125.92	6.975			
8,300.00	8,270.21	18,965.00	8,921.35	30.27	151.95	-29.01	-55.72	1,033.60	834.50	706.17	128.33	6.503			
8,350.00	8,319.94	18,965.00	8,921.35	30.46	151.95	-29.01	-55.72	1,033.60	791.39	660.39	131.00	6.041			
8,400.00	8,369.67	18,965.00	8,921.35	30.66	151.95	-29.01	-55.72	1,033.60	749.14	615.18	133.96	5.592			
8,450.00	8,419.40	18,965.00	8,921.35	30.85	151.95	-29.01	-55.72	1,033.60	707.90	570.67	137.23	5.158			
8,500.00	8,469.13	18,965.00	8,921.35	31.04	151.95	-29.01	-55.72	1,033.60	667.86	527.01	140.85	4.742 Alert			
8,550.00	8,518.86	18,965.00	8,921.35	31.23	151.95	-29.01	-55.72	1,033.60	629.24	484.43	144.81	4.345 Alert			
8,600.00	8,568.58	18,965.00	8,921.35	31.42	151.95	-29.01	-55.72	1,033.60	592.33	443.20	149.13	3.972 Alert			
8,650.00	8,618.31	18,965.00	8,921.35	31.61	151.95	-29.01	-55.72	1,033.60	557.47	403.70	153.77	3.625 Alert			
8,700.00	8,668.04	18,965.00	8,921.35	31.80	151.95	-29.01	-55.72	1,033.60	525.05	366.41	158.65	3.310 Alert			
8,750.00	8,717.77	18,965.00	8,921.35	32.00	151.95	-29.01	-55.72	1,033.60	495.57	331.95	163.62	3.029 Alert			
8,800.00	8,767.50	18,965.00	8,921.35	32.19	151.95	-29.01	-55.72	1,033.60	469.58	301.11	168.47	2.787 Alert			
8,850.00	8,817.23	18,965.00	8,921.35	32.38	151.95	-29.01	-55.72	1,033.60	447.68	274.83	172.85	2.590 Alert			
8,900.00	8,866.96	18,965.00	8,921.35	32.57	151.95	-29.01	-55.72	1,033.60	430.50	254.14	176.36	2.441 Minor Risk			
8,950.00	8,916.69	18,965.00	8,921.35	32.76	151.95	-29.01	-55.72	1,033.60	418.61	240.04	178.57	2.344 Minor Risk			
9,000.00	8,966.42	18,965.00	8,921.35	32.95	151.95	-29.01	-55.72	1,033.60	412.49	233.35	179.14	2.303 Minor Risk, SF			
9,025.89	8,992.17	18,965.00	8,921.35	33.05	151.95	-29.01	-55.72	1,033.60	411.68	232.97	178.71	2.304 Minor Risk, CC, ES			
9,050.00	9,016.15	18,965.00	8,921.35	33.15	151.95	-29.01	-55.72	1,033.60	412.38	234.51	177.87	2.318 Minor Risk			
9,100.00	9,065.88	18,965.00	8,921.35	33.34	151.95	-29.01	-55.72	1,033.60	418.30	243.44	174.85	2.392 Minor Risk			
9,150.00	9,115.61	18,965.00	8,921.35	33.53	151.95	-29.01	-55.72	1,033.60	429.98	259.58	170.39	2.523 Alert			
9,200.00	9,165.34	18,965.00	8,921.35	33.72	151.95	-29.01	-55.72	1,033.60	446.98	282.03	164.95	2.710 Alert			
9,250.00	9,215.07	18,965.00	8,921.35	33.91	151.95	-29.01	-55.72	1,033.60	468.73	309.73	159.00	2.948 Alert			
9,300.00	9,264.79	18,965.00	8,921.35	34.10	151.95	-29.01	-55.72	1,033.60	494.59	341.63	152.95	3.234 Alert			
9,350.00	9,314.52	18,965.00	8,921.35	34.30	151.95	-29.01	-55.72	1,033.60	523.95	376.83	147.12	3.561 Alert			
9,400.00	9,364.25	18,965.00	8,921.35	34.49	151.95	-29.01	-55.72	1,033.60	556.27	414.57	141.70	3.926 Alert			
9,450.00	9,413.98	18,965.00	8,921.35	34.68	151.95	-29.01	-55.72	1,033.60	591.06	454.28	136.78	4.321 Alert			
9,500.00	9,463.71	18,965.00	8,921.35	34.87	151.95	-29.01	-55.72	1,033.60	627.90	495.50	132.40	4.742 Alert			
9,550.00	9,513.44	18,965.00	8,921.35	35.06	151.95	-29.01	-55.72	1,033.60	666.46	537.92	128.54	5.185			
9,600.00	9,563.17	18,965.00	8,921.35	35.25	151.95	-29.01	-55.72	1,033.60	706.46	581.28	125.18	5.644			
9,650.00	9,612.90	18,965.00	8,921.35	35.45	151.95	-29.01	-55.72	1,033.60	747.66	625.40	122.26	6.116			
9,700.00	9,662.63	18,965.00	8,921.35	35.64	151.95	-29.01	-55.72	1,033.60	789.88	670.15	119.73	6.597			
9,750.00	9,712.36	18,965.00	8,921.35	35.83	151.95	-29.01	-55.72	1,033.60	832.96	715.40	117.55	7.086			
9,800.00	9,762.09	18,965.00	8,921.35	36.02	151.95	-29.01	-55.72	1,033.60	876.77	761.10	115.67	7.580			
9,850.00	9,811.82	18,965.00	8,921.35	36.21	151.95	-29.01	-55.72	1,033.60	921.22	807.16	114.06	8.077			
9,900.00	9,861.55	18,965.00	8,921.35	36.41	151.95	-29.01	-55.72	1,033.60	966.20	853.54	112.67	8.576			
9,950.00	9,911.28	18,965.00	8,921.35	36.60	151.95	-29.01	-55.72	1,033.60	1,011.66	900.19	111.47	9.075			
10,000.00	9,961.00	18,965.00	8,921.35	36.79	151.95	-29.01	-55.72	1,033.60	1,057.53	947.09	110.44	9.575			
10,050.00	10,010.73	18,965.00	8,921.35	36.98	151.95	-29.01	-55.72	1,033.60	1,103.76	994.20	109.56	10.075			
10,100.00	10,060.46	18,965.00	8,921.35	37.17	151.95	-29.01	-55.72	1,033.60	1,150.30	1,041.50	108.80	10.573			

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 01-T23S-R31E - Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 117-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,150.00	10,110.19	18,965.00	8,921.35	37.37	151.95	-29.01	-55.72	1,033.60	1,197.12	1,088.97	108.15	11.069		
10,200.00	10,159.92	18,965.00	8,921.35	37.56	151.95	-29.01	-55.72	1,033.60	1,244.19	1,136.60	107.59	11.564		
10,250.00	10,209.65	18,965.00	8,921.35	37.75	151.95	-29.01	-55.72	1,033.60	1,291.48	1,184.37	107.11	12.057		
10,300.00	10,259.38	18,965.00	8,921.35	37.94	151.95	-29.01	-55.72	1,033.60	1,338.97	1,232.26	106.71	12.548		
10,350.00	10,309.11	18,965.00	8,921.35	38.13	151.95	-29.22	-55.72	1,033.60	1,386.63	1,280.27	106.37	13.036		
10,400.00	10,358.88	18,965.00	8,921.35	38.32	151.95	-30.48	-55.72	1,033.60	1,434.57	1,328.48	106.09	13.522		
10,450.00	10,408.72	18,965.00	8,921.35	38.51	151.95	-31.90	-55.72	1,033.60	1,482.79	1,376.91	105.88	14.004		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,650.00	8,618.31	19,014.44	9,185.00	31.61	148.49	-23.96	50.52	1,939.35	1,476.90	1,310.25	166.65	8.862		
8,700.00	8,668.04	19,014.44	9,185.00	31.80	148.49	-23.96	50.52	1,939.35	1,453.37	1,285.06	168.31	8.635		
8,750.00	8,717.77	19,014.44	9,185.00	32.00	148.49	-23.96	50.52	1,939.35	1,431.21	1,261.29	169.92	8.423		
8,800.00	8,767.50	19,014.44	9,185.00	32.19	148.49	-23.96	50.52	1,939.35	1,410.47	1,239.00	171.47	8.226		
8,850.00	8,817.23	19,014.44	9,185.00	32.38	148.49	-23.96	50.52	1,939.35	1,391.22	1,218.29	172.93	8.045		
8,900.00	8,866.96	19,014.44	9,185.00	32.57	148.49	-23.96	50.52	1,939.35	1,373.52	1,199.22	174.30	7.880		
8,950.00	8,916.69	19,014.44	9,185.00	32.76	148.49	-23.96	50.52	1,939.35	1,357.44	1,181.87	175.56	7.732		
9,000.00	8,966.42	19,014.44	9,185.00	32.95	148.49	-23.96	50.52	1,939.35	1,343.02	1,166.32	176.70	7.601		
9,050.00	9,016.15	19,014.44	9,185.00	33.15	148.49	-23.96	50.52	1,939.35	1,330.33	1,152.63	177.70	7.486		
9,100.00	9,065.88	19,014.44	9,185.00	33.34	148.49	-23.96	50.52	1,939.35	1,319.41	1,140.87	178.54	7.390		
9,150.00	9,115.61	19,014.44	9,185.00	33.53	148.49	-23.96	50.52	1,939.35	1,310.31	1,131.08	179.23	7.311		
9,200.00	9,165.34	19,014.44	9,185.00	33.72	148.49	-23.96	50.52	1,939.35	1,303.07	1,123.33	179.74	7.250		
9,250.00	9,215.07	19,014.44	9,185.00	33.91	148.49	-23.96	50.52	1,939.35	1,297.71	1,117.64	180.06	7.207		
9,300.00	9,264.79	19,014.44	9,185.00	34.10	148.49	-23.96	50.52	1,939.35	1,294.26	1,114.06	180.21	7.182		
9,350.00	9,314.52	19,014.44	9,185.00	34.30	148.49	-23.96	50.52	1,939.35	1,292.74	1,112.59	180.16	7.176 SF		
9,364.31	9,328.76	19,014.44	9,185.00	34.35	148.49	-23.96	50.52	1,939.35	1,292.67	1,112.56	180.11	7.177 CC, ES		
9,400.00	9,364.25	19,014.44	9,185.00	34.49	148.49	-23.96	50.52	1,939.35	1,293.16	1,113.24	179.91	7.188		
9,450.00	9,413.98	19,014.44	9,185.00	34.68	148.49	-23.96	50.52	1,939.35	1,295.50	1,116.02	179.48	7.218		
9,500.00	9,463.71	19,014.44	9,185.00	34.87	148.49	-23.96	50.52	1,939.35	1,299.77	1,120.90	178.87	7.266		
9,550.00	9,513.44	19,014.44	9,185.00	35.06	148.49	-23.96	50.52	1,939.35	1,305.93	1,127.85	178.08	7.333		
9,600.00	9,563.17	19,014.44	9,185.00	35.25	148.49	-23.96	50.52	1,939.35	1,313.98	1,136.85	177.13	7.418		
9,650.00	9,612.90	19,014.44	9,185.00	35.45	148.49	-23.96	50.52	1,939.35	1,323.86	1,147.84	176.02	7.521		
9,700.00	9,662.63	19,014.44	9,185.00	35.64	148.49	-23.96	50.52	1,939.35	1,335.54	1,160.77	174.78	7.641		
9,750.00	9,712.36	19,014.44	9,185.00	35.83	148.49	-23.96	50.52	1,939.35	1,348.98	1,175.57	173.40	7.779		
9,800.00	9,762.09	19,014.44	9,185.00	36.02	148.49	-23.96	50.52	1,939.35	1,364.11	1,192.19	171.92	7.934		
9,850.00	9,811.82	19,014.44	9,185.00	36.21	148.49	-23.96	50.52	1,939.35	1,380.90	1,210.55	170.35	8.106		
9,900.00	9,861.55	19,014.44	9,185.00	36.41	148.49	-23.96	50.52	1,939.35	1,399.27	1,230.57	168.70	8.294		
9,950.00	9,911.28	19,014.44	9,185.00	36.60	148.49	-23.96	50.52	1,939.35	1,419.16	1,252.17	166.99	8.498		
10,000.00	9,961.00	19,014.44	9,185.00	36.79	148.49	-23.96	50.52	1,939.35	1,440.52	1,275.28	165.23	8.718		
10,050.00	10,010.73	19,014.44	9,185.00	36.98	148.49	-23.96	50.52	1,939.35	1,463.27	1,299.82	163.45	8.953		
10,100.00	10,060.46	19,014.44	9,185.00	37.17	148.49	-23.96	50.52	1,939.35	1,487.35	1,325.72	161.64	9.202		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 01-T23S-R31E - Tomb Raider 1-12 Fed 524H - Wellbore #1 - Permit Plan 1		Offset Site Error: 5.00 ft	
Survey Program: 0-MWD+IFR1														Offset Well Error: 0.50 ft			
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
8,450.00	8,419.40	19,026.09	9,185.00	30.85	102.23	-26.60	90.12	1,838.93	1,499.42	1,375.75	123.67	12.124					
8,500.00	8,469.13	19,026.09	9,185.00	31.04	102.23	-26.60	90.12	1,838.93	1,470.12	1,345.60	124.52	11.806					
8,550.00	8,518.86	19,026.09	9,185.00	31.23	102.09	-26.60	90.12	1,838.93	1,441.96	1,316.60	125.37	11.502					
8,600.00	8,568.58	19,026.09	9,185.00	31.42	102.23	-26.60	90.12	1,838.93	1,415.01	1,288.81	126.20	11.212					
8,650.00	8,618.31	19,026.09	9,185.00	31.61	102.23	-26.60	90.12	1,838.93	1,389.34	1,262.32	127.02	10.938					
8,700.00	8,668.04	19,026.09	9,185.00	31.80	102.23	-26.60	90.12	1,838.93	1,365.01	1,237.20	127.81	10.680					
8,750.00	8,717.77	19,026.09	9,185.00	32.00	102.23	-26.60	90.12	1,838.93	1,342.11	1,213.54	128.57	10.439					
8,800.00	8,767.50	19,026.09	9,185.00	32.19	102.23	-26.60	90.12	1,838.93	1,320.70	1,191.41	129.29	10.215					
8,850.00	8,817.23	19,026.09	9,185.00	32.38	102.23	-26.60	90.12	1,838.93	1,300.86	1,170.89	129.97	10.009					
8,900.00	8,866.96	19,026.09	9,185.00	32.57	102.23	-26.60	90.12	1,838.93	1,282.67	1,152.08	130.59	9.822					
8,950.00	8,916.69	19,026.09	9,185.00	32.76	102.23	-26.60	90.12	1,838.93	1,266.19	1,135.04	131.15	9.655					
9,000.00	8,966.42	19,026.09	9,185.00	32.95	102.23	-26.60	90.12	1,838.93	1,251.49	1,119.86	131.63	9.508					
9,050.00	9,016.15	19,026.09	9,185.00	33.15	102.23	-26.60	90.12	1,838.93	1,238.64	1,106.60	132.04	9.381					
9,100.00	9,065.88	19,026.09	9,185.00	33.34	102.23	-26.60	90.12	1,838.93	1,227.69	1,095.34	132.36	9.276					
9,150.00	9,115.61	19,026.09	9,185.00	33.53	102.23	-26.60	90.12	1,838.93	1,218.70	1,086.11	132.58	9.192					
9,200.00	9,165.34	19,026.09	9,185.00	33.72	102.23	-26.60	90.12	1,838.93	1,211.70	1,078.99	132.71	9.130					
9,250.00	9,215.07	19,026.09	9,185.00	33.91	102.23	-26.60	90.12	1,838.93	1,206.74	1,074.00	132.74	9.091					
9,300.00	9,264.79	19,026.09	9,185.00	34.10	102.23	-26.60	90.12	1,838.93	1,203.83	1,071.16	132.67	9.074 SF					
9,345.03	9,309.58	19,026.09	9,185.00	34.28	102.23	-26.60	90.12	1,838.93	1,202.99	1,070.47	132.52	9.078 CC, ES					
9,350.00	9,314.52	19,026.09	9,185.00	34.30	102.23	-26.60	90.12	1,838.93	1,203.00	1,070.51	132.50	9.080					
9,400.00	9,364.25	19,026.09	9,185.00	34.49	102.23	-26.60	90.12	1,838.93	1,204.25	1,072.03	132.22	9.108					
9,450.00	9,413.98	19,026.09	9,185.00	34.68	102.23	-26.60	90.12	1,838.93	1,207.56	1,075.71	131.85	9.158					
9,500.00	9,463.71	19,026.09	9,185.00	34.87	102.23	-26.60	90.12	1,838.93	1,212.93	1,081.54	131.39	9.231					
9,550.00	9,513.44	19,026.09	9,185.00	35.06	102.23	-26.60	90.12	1,838.93	1,220.33	1,089.48	130.85	9.326					
9,600.00	9,563.17	19,026.09	9,185.00	35.25	102.23	-26.60	90.12	1,838.93	1,229.72	1,099.48	130.24	9.442					
9,650.00	9,612.90	19,026.09	9,185.00	35.45	102.23	-26.60	90.12	1,838.93	1,241.05	1,111.49	129.56	9.579					
9,700.00	9,662.63	19,026.09	9,185.00	35.64	102.23	-26.60	90.12	1,838.93	1,254.27	1,125.45	128.82	9.737					
9,750.00	9,712.36	19,026.09	9,185.00	35.83	102.23	-26.60	90.12	1,838.93	1,269.33	1,141.29	128.04	9.913					
9,800.00	9,762.09	19,026.09	9,185.00	36.02	102.23	-26.60	90.12	1,838.93	1,286.15	1,158.93	127.23	10.109					
9,850.00	9,811.82	19,026.09	9,185.00	36.21	102.23	-26.60	90.12	1,838.93	1,304.68	1,178.29	126.39	10.323					
9,900.00	9,861.55	19,026.09	9,185.00	36.41	102.23	-26.60	90.12	1,838.93	1,324.83	1,199.30	125.53	10.554					
9,950.00	9,911.28	19,026.09	9,185.00	36.60	102.23	-26.60	90.12	1,838.93	1,346.54	1,221.88	124.67	10.801					
10,000.00	9,961.00	19,026.09	9,185.00	36.79	102.23	-26.60	90.12	1,838.93	1,369.74	1,245.93	123.80	11.064					
10,050.00	10,010.73	19,026.09	9,185.00	36.98	102.23	-26.60	90.12	1,838.93	1,394.34	1,271.39	122.95	11.341					
10,100.00	10,060.46	19,026.09	9,185.00	37.17	102.23	-26.60	90.12	1,838.93	1,420.27	1,298.16	122.11	11.631					
10,150.00	10,110.19	19,026.09	9,185.00	37.37	102.23	-26.60	90.12	1,838.93	1,447.47	1,326.18	121.29	11.934					
10,200.00	10,159.92	19,026.09	9,185.00	37.56	102.23	-26.60	90.12	1,838.93	1,475.86	1,355.38	120.49	12.249					

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:		5.00 ft
Survey Program: 0-MWD+IFR1											Offset Well Error:		0.50 ft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor
8,450.00	8,419.40	19,047.07	9,185.00	30.85	101.99	-26.83	91.34	1,822.65	1,485.97	1,362.46	123.50	12.032	
8,500.00	8,469.13	19,047.07	9,185.00	31.04	101.99	-26.83	91.34	1,822.65	1,456.46	1,332.10	124.36	11.712	
8,550.00	8,518.86	19,047.07	9,185.00	31.23	101.99	-26.83	91.34	1,822.65	1,428.09	1,302.89	125.20	11.406	
8,600.00	8,568.58	19,047.07	9,185.00	31.42	101.99	-26.83	91.34	1,822.65	1,400.93	1,274.89	126.03	11.116	
8,650.00	8,618.31	19,047.07	9,185.00	31.61	101.99	-26.83	91.34	1,822.65	1,375.05	1,248.20	126.85	10.840	
8,700.00	8,668.04	19,047.07	9,185.00	31.80	101.99	-26.83	91.34	1,822.65	1,350.53	1,222.88	127.64	10.581	
8,750.00	8,717.77	19,047.07	9,185.00	32.00	101.99	-26.83	91.34	1,822.65	1,327.44	1,199.03	128.40	10.338	
8,800.00	8,767.50	19,047.07	9,185.00	32.19	101.99	-26.83	91.34	1,822.65	1,305.85	1,176.73	129.12	10.113	
8,850.00	8,817.23	19,047.07	9,185.00	32.38	101.99	-26.83	91.34	1,822.65	1,285.85	1,156.06	129.80	9.907	
8,900.00	8,866.96	19,047.07	9,185.00	32.57	101.99	-26.83	91.34	1,822.65	1,267.51	1,137.10	130.41	9.719	
8,950.00	8,916.69	19,047.07	9,185.00	32.76	101.99	-26.83	91.34	1,822.65	1,250.90	1,119.93	130.96	9.551	
9,000.00	8,966.42	19,047.07	9,185.00	32.95	101.99	-26.83	91.34	1,822.65	1,236.09	1,104.64	131.44	9.404	
9,050.00	9,016.15	19,047.07	9,185.00	33.15	101.99	-26.83	91.34	1,822.65	1,223.14	1,091.30	131.84	9.278	
9,100.00	9,065.88	19,047.07	9,185.00	33.34	101.99	-26.83	91.34	1,822.65	1,212.12	1,079.98	132.14	9.173	
9,150.00	9,115.61	19,047.07	9,185.00	33.53	101.99	-26.83	91.34	1,822.65	1,203.08	1,070.72	132.36	9.090	
9,200.00	9,165.34	19,047.07	9,185.00	33.72	101.99	-26.83	91.34	1,822.65	1,196.06	1,063.59	132.47	9.029	
9,250.00	9,215.07	19,047.07	9,185.00	33.91	101.99	-26.83	91.34	1,822.65	1,191.10	1,058.63	132.48	8.991	
9,300.00	9,264.79	19,047.07	9,185.00	34.10	101.99	-26.83	91.34	1,822.65	1,188.23	1,055.85	132.38	8.976 SF	
9,343.36	9,307.92	19,047.07	9,185.00	34.27	101.99	-26.83	91.34	1,822.65	1,187.44	1,055.23	132.21	8.981 CC, ES	
9,350.00	9,314.52	19,047.07	9,185.00	34.30	101.99	-26.83	91.34	1,822.65	1,187.46	1,055.28	132.18	8.984	
9,400.00	9,364.25	19,047.07	9,185.00	34.49	101.99	-26.83	91.34	1,822.65	1,188.79	1,056.91	131.88	9.014	
9,450.00	9,413.98	19,047.07	9,185.00	34.68	101.99	-26.83	91.34	1,822.65	1,192.22	1,060.74	131.48	9.068	
9,500.00	9,463.71	19,047.07	9,185.00	34.87	101.99	-26.83	91.34	1,822.65	1,197.73	1,066.73	130.99	9.143	
9,550.00	9,513.44	19,047.07	9,185.00	35.06	101.99	-26.83	91.34	1,822.65	1,205.29	1,074.86	130.42	9.241	
9,600.00	9,563.17	19,047.07	9,185.00	35.25	101.99	-26.83	91.34	1,822.65	1,214.86	1,085.08	129.78	9.361	
9,650.00	9,612.90	19,047.07	9,185.00	35.45	101.99	-26.83	91.34	1,822.65	1,226.39	1,097.33	129.06	9.502	
9,700.00	9,662.63	19,047.07	9,185.00	35.64	101.99	-26.83	91.34	1,822.65	1,239.84	1,111.54	128.30	9.664	
9,750.00	9,712.36	19,047.07	9,185.00	35.83	101.99	-26.83	91.34	1,822.65	1,255.14	1,127.65	127.49	9.845	
9,800.00	9,762.09	19,047.07	9,185.00	36.02	101.99	-26.83	91.34	1,822.65	1,272.22	1,145.57	126.65	10.045	
9,850.00	9,811.82	19,047.07	9,185.00	36.21	101.99	-26.83	91.34	1,822.65	1,291.01	1,165.22	125.79	10.264	
9,900.00	9,861.55	19,047.07	9,185.00	36.41	101.99	-26.83	91.34	1,822.65	1,311.44	1,186.53	124.91	10.499	
9,950.00	9,911.28	19,047.07	9,185.00	36.60	101.99	-26.83	91.34	1,822.65	1,333.43	1,209.40	124.03	10.751	
10,000.00	9,961.00	19,047.07	9,185.00	36.79	101.99	-26.83	91.34	1,822.65	1,356.91	1,233.76	123.15	11.019	
10,050.00	10,010.73	19,047.07	9,185.00	36.98	101.99	-26.83	91.34	1,822.65	1,381.80	1,259.52	122.28	11.300	
10,100.00	10,060.46	19,047.07	9,185.00	37.17	101.99	-26.83	91.34	1,822.65	1,408.02	1,286.60	121.43	11.596	
10,150.00	10,110.19	19,047.07	9,185.00	37.37	101.99	-26.83	91.34	1,822.65	1,435.51	1,314.92	120.59	11.904	
10,200.00	10,159.92	19,047.07	9,185.00	37.56	101.99	-26.83	91.34	1,822.65	1,464.19	1,344.40	119.79	12.223	
10,250.00	10,209.65	19,047.07	9,185.00	37.75	101.99	-26.83	91.34	1,822.65	1,493.99	1,374.98	119.01	12.554	

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:		5.00 ft
Survey Program: 150-MWD+HDGM													Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
8,800.00	8,767.50	20,215.00	10,196.11	32.19	151.04	-168.20	-11.67	389.92	1,488.73	1,388.42	100.32	14.840			
8,850.00	8,817.23	20,215.00	10,196.11	32.38	151.04	-168.20	-11.67	389.92	1,440.76	1,339.99	100.77	14.298			
8,900.00	8,866.96	20,215.00	10,196.11	32.57	151.04	-168.20	-11.67	389.92	1,392.93	1,291.67	101.26	13.756			
8,950.00	8,916.69	20,215.00	10,196.11	32.76	151.04	-168.20	-11.67	389.92	1,345.26	1,243.46	101.80	13.215			
9,000.00	8,966.42	20,215.00	10,196.11	32.95	151.04	-168.20	-11.67	389.92	1,297.76	1,195.38	102.38	12.676			
9,050.00	9,016.15	20,215.00	10,196.11	33.15	151.04	-168.20	-11.67	389.92	1,250.46	1,147.43	103.03	12.137			
9,100.00	9,065.88	20,215.00	10,196.11	33.34	151.04	-168.20	-11.67	389.92	1,203.38	1,099.63	103.75	11.599			
9,150.00	9,115.61	20,215.00	10,196.11	33.53	151.04	-168.20	-11.67	389.92	1,156.54	1,051.99	104.55	11.062			
9,200.00	9,165.34	20,215.00	10,196.11	33.72	151.04	-168.20	-11.67	389.92	1,109.97	1,004.54	105.44	10.527			
9,250.00	9,215.07	20,215.00	10,196.11	33.91	151.04	-168.20	-11.67	389.92	1,063.72	957.29	106.43	9.994			
9,300.00	9,264.79	20,215.00	10,196.11	34.10	151.04	-168.20	-11.67	389.92	1,017.83	910.27	107.56	9.463			
9,350.00	9,314.52	20,215.00	10,196.11	34.30	151.04	-168.20	-11.67	389.92	972.33	863.51	108.83	8.935			
9,400.00	9,364.25	20,215.00	10,196.11	34.49	151.04	-168.20	-11.67	389.92	927.31	817.04	110.26	8.410			
9,450.00	9,413.98	20,215.00	10,196.11	34.68	151.04	-168.20	-11.67	389.92	882.81	770.91	111.90	7.889			
9,500.00	9,463.71	20,215.00	10,196.11	34.87	151.04	-168.20	-11.67	389.92	838.94	725.17	113.77	7.374			
9,550.00	9,513.44	20,215.00	10,196.11	35.06	151.04	-168.20	-11.67	389.92	795.79	679.88	115.91	6.865			
9,600.00	9,563.17	20,215.00	10,196.11	35.25	151.04	-168.20	-11.67	389.92	753.49	635.13	118.37	6.366			
9,650.00	9,612.90	20,215.00	10,196.11	35.45	151.04	-168.20	-11.67	389.92	712.19	591.01	121.18	5.877			
9,700.00	9,662.63	20,215.00	10,196.11	35.64	151.04	-168.20	-11.67	389.92	672.07	547.66	124.41	5.402			
9,750.00	9,712.36	20,215.00	10,196.11	35.83	151.04	-168.20	-11.67	389.92	633.36	505.26	128.10	4.944 Alert			
9,800.00	9,762.09	20,215.00	10,196.11	36.02	151.04	-168.20	-11.67	389.92	596.33	464.05	132.28	4.508 Alert			
9,850.00	9,811.82	20,215.00	10,196.11	36.21	151.04	-168.20	-11.67	389.92	561.31	424.32	137.00	4.097 Alert			
9,900.00	9,861.55	20,215.00	10,196.11	36.41	151.04	-168.20	-11.67	389.92	528.71	386.49	142.22	3.718 Alert			
9,950.00	9,911.28	20,215.00	10,196.11	36.60	151.04	-168.20	-11.67	389.92	499.00	351.12	147.88	3.374 Alert			
10,000.00	9,961.00	20,215.00	10,196.11	36.79	151.04	-168.20	-11.67	389.92	472.72	318.89	153.83	3.073 Alert			
10,050.00	10,010.73	20,215.00	10,196.11	36.98	151.04	-168.20	-11.67	389.92	450.48	290.68	159.80	2.819 Alert			
10,100.00	10,060.46	20,215.00	10,196.11	37.17	151.04	-168.20	-11.67	389.92	432.89	267.47	165.42	2.617 Alert			
10,150.00	10,110.19	20,215.00	10,196.11	37.37	151.04	-168.20	-11.67	389.92	420.55	250.29	170.25	2.470 Minor Risk			
10,200.00	10,159.92	20,215.00	10,196.11	37.56	151.04	-168.20	-11.67	389.92	413.91	240.07	173.85	2.381 Minor Risk			
10,230.36	10,190.12	20,215.00	10,196.11	37.67	151.04	-168.20	-11.67	389.92	412.80	237.52	175.27	2.355 Minor Risk, CC			
10,250.00	10,209.65	20,215.00	10,196.11	37.75	151.04	-168.20	-11.67	389.92	413.26	237.40	175.87	2.350 Minor Risk, ES, SF			
10,300.00	10,259.38	20,215.00	10,196.11	37.94	151.04	-168.20	-11.67	389.92	418.63	242.44	176.19	2.376 Minor Risk			
10,350.00	10,309.11	20,215.00	10,196.11	38.13	151.04	-168.21	-11.67	389.92	429.77	254.84	174.93	2.457 Minor Risk			
10,400.00	10,358.88	20,215.00	10,196.11	38.32	151.04	-168.26	-11.67	389.92	445.88	273.51	172.37	2.587 Alert			
10,450.00	10,408.72	20,215.00	10,196.11	38.51	151.04	-168.33	-11.67	389.92	466.24	297.39	168.85	2.761 Alert			
10,500.00	10,458.60	20,215.00	10,196.11	38.70	151.04	-168.42	-11.67	389.92	490.32	325.57	164.75	2.976 Alert			
10,550.00	10,508.52	20,215.00	10,196.11	38.88	151.04	-168.51	-11.67	389.92	517.60	357.24	160.36	3.228 Alert			
10,600.00	10,558.47	20,215.00	10,196.11	39.06	151.04	-168.62	-11.67	389.92	547.60	391.68	155.93	3.512 Alert			
10,650.00	10,608.45	20,215.00	10,196.11	39.23	151.04	-168.75	-11.67	389.92	579.89	428.29	151.60	3.825 Alert			
10,700.00	10,658.44	20,215.00	10,196.11	39.41	151.04	-168.89	-11.67	389.92	614.10	466.61	147.49	4.164 Alert			
10,750.00	10,708.44	20,215.00	10,196.11	39.58	151.04	-64.79	-11.67	389.92	649.94	506.30	143.65	4.525 Alert			
10,800.00	10,758.44	20,215.00	10,196.11	39.74	151.04	-64.79	-11.67	389.92	687.43	547.29	140.14	4.905 Alert			
10,850.00	10,808.44	20,215.00	10,196.11	39.91	151.04	-64.79	-11.67	389.92	726.42	589.44	136.99	5.303			
10,900.00	10,858.44	20,215.00	10,196.11	40.07	151.04	-64.79	-11.67	389.92	766.70	632.52	134.17	5.714			
10,950.00	10,908.44	20,215.00	10,196.11	40.24	151.04	-64.79	-11.67	389.92	808.06	676.38	131.68	6.137			
11,000.00	10,958.44	20,215.00	10,196.11	40.40	151.04	-64.79	-11.67	389.92	850.35	720.88	129.46	6.568			
11,050.00	11,008.44	20,215.00	10,196.11	40.57	151.04	-64.79	-11.67	389.92	893.43	765.92	127.51	7.007			
11,100.00	11,058.44	20,215.00	10,196.11	40.74	151.04	-62.56	-11.67	389.92	937.18	811.40	125.78	7.451			
11,150.00	11,108.32	20,215.00	10,196.11	40.90	151.04	-54.91	-11.67	389.92	980.84	856.57	124.27	7.893			
11,200.00	11,157.74	20,215.00	10,196.11	41.06	151.04	-48.29	-11.67	389.92	1,023.88	900.93	122.94	8.328			
11,250.00	11,206.32	20,215.00	10,196.11	41.21	151.04	-42.69	-11.67	389.92	1,066.07	944.28	121.78	8.754			
11,300.00	11,253.68	20,215.00	10,196.11	41.35	151.04	-38.00	-11.67	389.92	1,107.21	986.44	120.76	9.169			

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 01-T23S-R31E - Tomb Raider 1-12 Fed 61H - Original Hole - Original Hole		Offset Site Error: 5.00 ft	
Survey Program: 150-MWD+HDGM													Offset Well Error: 0.00 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)						
11,350.00	11,299.47	20,215.00	10,196.11	41.48	151.04	-34.11	-11.67	389.92	1,147.11	1,027.25	119.85	9.571				
11,400.00	11,343.34	20,215.00	10,196.11	41.60	151.04	-30.87	-11.67	389.92	1,185.61	1,066.56	119.05	9.959				
11,450.00	11,384.95	20,215.00	10,196.11	41.71	151.04	-28.17	-11.67	389.92	1,222.56	1,104.24	118.32	10.333				
11,500.00	11,423.99	20,215.00	10,196.11	41.80	151.04	-25.90	-11.67	389.92	1,257.83	1,140.17	117.66	10.691				
11,550.00	11,460.16	20,215.00	10,196.11	41.88	151.04	-24.00	-11.67	389.92	1,291.30	1,174.25	117.05	11.032				
11,600.00	11,493.19	20,219.60	10,196.24	41.95	151.10	-22.47	-16.27	389.86	1,322.85	1,206.33	116.52	11.353				
11,650.00	11,522.83	20,180.21	10,195.13	42.00	150.55	-20.64	23.11	390.42	1,351.96	1,236.16	115.81	11.674				
11,700.00	11,548.84	20,132.92	10,193.83	42.04	149.88	-19.15	70.37	391.12	1,377.71	1,262.60	115.11	11.969				
11,750.00	11,571.03	20,075.66	10,192.69	42.07	149.08	-17.93	127.61	392.24	1,399.49	1,285.09	114.40	12.233				
11,800.00	11,589.24	20,022.68	10,192.04	42.09	148.34	-17.05	180.58	393.06	1,417.23	1,303.45	113.78	12.456				
11,850.00	11,603.32	19,974.60	10,191.70	42.10	147.66	-16.44	228.65	393.53	1,430.87	1,317.62	113.25	12.635				
11,900.00	11,613.16	19,929.67	10,191.31	42.12	147.03	-16.03	273.58	393.87	1,440.56	1,327.79	112.78	12.774				
11,950.00	11,618.70	19,879.70	10,190.81	42.14	146.33	-15.79	323.55	394.13	1,446.22	1,333.89	112.33	12.875				
12,000.00	11,620.00	19,826.63	10,190.45	42.19	145.58	-15.72	376.62	394.24	1,447.68	1,335.76	111.92	12.935				
12,050.00	11,620.00	19,766.60	10,190.34	42.26	144.74	-15.70	436.65	394.20	1,447.69	1,336.18	111.50	12.983				
12,100.00	11,620.00	19,708.82	10,190.63	42.37	143.93	-15.69	494.42	394.22	1,447.36	1,336.26	111.10	13.027				
12,150.00	11,620.00	19,660.63	10,190.81	42.50	143.26	-15.66	542.61	394.69	1,446.96	1,336.21	110.74	13.066				
12,200.00	11,620.00	19,612.33	10,190.77	42.64	142.58	-15.61	590.90	395.76	1,446.62	1,336.26	110.36	13.108				
12,250.00	11,620.00	19,563.59	10,190.74	42.81	141.90	-15.57	639.64	396.61	1,446.33	1,336.33	109.99	13.149				
12,300.00	11,620.00	19,511.09	10,190.85	42.98	141.17	-15.54	692.13	396.91	1,446.06	1,336.43	109.63	13.190				
12,350.00	11,620.00	19,449.51	10,191.31	43.18	140.31	-15.51	753.70	397.42	1,445.51	1,336.27	109.24	13.233				
12,400.00	11,620.00	19,405.35	10,191.77	43.38	139.69	-15.49	797.86	397.93	1,444.78	1,335.85	108.93	13.263				
12,450.00	11,620.00	19,367.04	10,191.93	43.59	139.15	-15.47	836.17	398.11	1,444.43	1,335.76	108.67	13.292				
12,471.80	11,620.00	19,356.10	10,191.97	43.69	139.00	-15.47	847.11	398.15	1,444.38	1,335.79	108.59	13.301				
12,500.00	11,620.00	19,323.50	10,191.85	43.81	138.54	-15.47	879.71	398.01	1,444.46	1,336.07	108.40	13.326				
12,550.00	11,620.00	19,265.69	10,191.84	44.05	137.73	-15.46	937.52	397.94	1,444.40	1,336.34	108.06	13.367				
12,600.00	11,620.00	19,212.88	10,191.99	44.29	137.00	-15.44	990.33	398.12	1,444.13	1,336.39	107.75	13.403				
12,650.00	11,620.00	19,162.86	10,192.07	44.55	136.30	-15.41	1,040.35	398.64	1,443.84	1,336.40	107.44	13.438				
12,700.00	11,620.00	19,117.59	10,192.03	44.82	135.67	-15.37	1,085.61	399.29	1,443.61	1,336.45	107.16	13.472				
12,728.80	11,620.00	19,092.46	10,191.94	44.98	135.32	-15.35	1,110.74	399.57	1,443.57	1,336.56	107.01	13.490				
12,750.00	11,620.00	19,073.97	10,191.85	45.10	135.06	-15.34	1,129.23	399.73	1,443.59	1,336.69	106.90	13.504				
12,800.00	11,620.00	19,024.66	10,191.51	45.38	134.37	-15.31	1,178.54	400.09	1,443.74	1,337.12	106.62	13.541				
12,850.00	11,620.00	18,970.98	10,191.20	45.68	133.62	-15.27	1,232.21	400.68	1,443.79	1,337.48	106.32	13.580				
12,869.53	11,620.00	18,951.72	10,191.10	45.80	133.36	-15.26	1,251.47	400.96	1,443.79	1,337.58	106.21	13.594				
12,900.00	11,620.00	18,924.58	10,190.89	45.98	132.98	-15.23	1,278.60	401.44	1,443.82	1,337.77	106.05	13.615				
12,950.00	11,620.00	18,880.08	10,190.34	46.30	132.36	-15.17	1,323.10	402.47	1,444.03	1,338.25	105.79	13.650				
13,000.00	11,620.00	18,827.56	10,189.54	46.62	131.63	-15.10	1,375.59	403.87	1,444.34	1,338.87	105.47	13.694				
13,050.00	11,620.00	18,771.27	10,189.01	46.95	130.85	-15.04	1,431.87	404.97	1,444.45	1,339.29	105.16	13.735				
13,100.00	11,620.00	18,712.40	10,188.79	47.29	130.04	-14.98	1,490.72	406.11	1,444.30	1,339.46	104.84	13.776				
13,150.00	11,620.00	18,656.94	10,188.81	47.64	129.27	-14.91	1,546.16	407.53	1,443.87	1,339.33	104.54	13.811				
13,200.00	11,620.00	18,606.61	10,188.90	48.00	128.57	-14.85	1,596.48	408.81	1,443.38	1,339.10	104.28	13.842				
13,250.00	11,620.00	18,557.31	10,189.02	48.37	127.89	-14.79	1,645.76	409.98	1,442.88	1,338.85	104.03	13.870				
13,300.00	11,620.00	18,508.91	10,189.14	48.74	127.22	-14.75	1,694.15	410.93	1,442.43	1,338.64	103.79	13.897				
13,350.00	11,620.00	18,446.55	10,189.52	49.12	126.36	-14.70	1,756.51	411.80	1,441.89	1,338.40	103.50	13.932				
13,400.00	11,620.00	18,382.34	10,190.89	49.51	125.47	-14.69	1,820.70	412.12	1,440.70	1,337.49	103.21	13.958				
13,450.00	11,620.00	18,339.35	10,191.99	49.91	124.87	-14.70	1,863.68	411.79	1,439.48	1,336.40	103.08	13.965				
13,500.00	11,620.00	18,296.64	10,193.01	50.31	124.27	-14.74	1,906.36	410.93	1,438.50	1,335.54	102.96	13.971				
13,550.00	11,620.00	18,256.97	10,193.76	50.72	123.72	-14.77	1,946.01	409.89	1,437.83	1,334.96	102.87	13.977				
13,598.04	11,620.00	18,225.47	10,194.21	51.12	123.28	-14.80	1,977.50	409.06	1,437.50	1,334.68	102.81	13.982				
13,600.00	11,620.00	18,223.11	10,194.22	51.14	123.25	-14.80	1,979.85	408.99	1,437.50	1,334.69	102.80	13.983				
13,650.00	11,620.00	18,162.98	10,194.68	51.57	122.41	-14.86	2,039.96	407.36	1,437.40	1,334.77	102.63	14.006				
13,700.00	11,620.00	18,104.42	10,195.53	52.00	121.60	-14.91	2,098.50	405.82	1,436.95	1,334.49	102.46	14.024				

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Survey Program: 150-MWD+HDGM													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
13,750.00	11,620.00	18,054.57	10,196.38	52.44	120.90	-14.96	2,148.32	404.52	1,436.38	1,334.04	102.34	14.035		
13,800.00	11,620.00	18,006.33	10,197.20	52.88	120.23	-15.00	2,196.54	403.25	1,435.82	1,333.59	102.23	14.045		
13,850.00	11,620.00	17,962.99	10,197.76	53.33	119.63	-15.04	2,239.87	402.20	1,435.43	1,333.28	102.14	14.053		
13,900.00	11,620.00	17,919.71	10,198.08	53.79	119.03	-15.07	2,283.13	401.29	1,435.27	1,333.22	102.05	14.064		
13,907.65	11,620.00	17,913.23	10,198.10	53.86	118.94	-15.07	2,289.61	401.17	1,435.27	1,333.23	102.04	14.066		
13,950.00	11,620.00	17,877.32	10,198.12	54.25	118.44	-15.09	2,325.51	400.55	1,435.36	1,333.40	101.96	14.077		
14,000.00	11,620.00	17,834.94	10,197.89	54.72	117.86	-15.10	2,367.89	399.98	1,435.72	1,333.85	101.86	14.094		
14,050.00	11,620.00	17,792.50	10,197.44	55.20	117.27	-15.10	2,410.32	399.36	1,436.34	1,334.57	101.77	14.113		
14,100.00	11,620.00	17,750.07	10,196.87	55.67	116.68	-15.13	2,452.74	398.32	1,437.23	1,335.53	101.69	14.133		
14,150.00	11,620.00	17,710.52	10,196.18	56.16	116.13	-15.16	2,492.26	397.09	1,438.40	1,336.77	101.64	14.152		
14,200.00	11,620.00	17,672.90	10,195.12	56.65	115.61	-15.17	2,529.86	396.17	1,440.00	1,338.42	101.58	14.176		
14,250.00	11,620.00	17,632.70	10,193.54	57.14	115.06	-15.17	2,570.02	395.53	1,442.02	1,340.52	101.50	14.208		
14,300.00	11,620.00	17,558.84	10,190.77	57.64	114.04	-15.13	2,643.82	395.49	1,443.75	1,342.52	101.23	14.263		
14,350.00	11,620.00	17,491.39	10,188.99	58.15	113.11	-15.06	2,711.25	396.46	1,444.74	1,343.78	100.97	14.309		
14,400.00	11,620.00	17,433.20	10,188.04	58.66	112.32	-15.00	2,769.42	397.40	1,445.23	1,344.47	100.76	14.343		
14,450.00	11,620.00	17,389.65	10,187.23	59.17	111.72	-14.94	2,812.95	398.32	1,445.78	1,345.14	100.64	14.366		
14,500.00	11,620.00	17,343.63	10,186.10	59.69	111.09	-14.87	2,858.94	399.55	1,446.54	1,346.05	100.49	14.394		
14,550.00	11,620.00	17,284.20	10,184.92	60.21	110.28	-14.80	2,918.35	400.68	1,447.18	1,346.89	100.29	14.430		
14,600.00	11,620.00	17,226.46	10,184.37	60.74	109.49	-14.78	2,976.08	400.91	1,447.50	1,347.38	100.12	14.458		
14,650.00	11,620.00	17,175.83	10,184.31	61.27	108.80	-14.78	3,026.71	400.50	1,447.58	1,347.56	100.02	14.473		
14,700.00	11,620.00	17,066.88	10,186.56	61.81	107.31	-14.85	3,135.61	398.60	1,446.70	1,347.05	99.65	14.518		
14,750.00	11,620.00	17,016.33	10,188.75	62.35	106.61	-14.90	3,186.10	397.38	1,444.84	1,345.24	99.60	14.506		
14,800.00	11,620.00	16,975.00	10,190.66	62.89	106.05	-14.97	3,227.36	395.98	1,442.98	1,343.37	99.61	14.486		
14,850.00	11,620.00	16,936.96	10,192.23	63.44	105.52	-15.04	3,265.33	394.35	1,441.50	1,341.85	99.65	14.466		
14,900.00	11,620.00	16,904.77	10,193.19	63.98	105.08	-15.10	3,297.47	392.72	1,440.65	1,340.93	99.72	14.448		
14,950.00	11,620.00	16,869.73	10,193.84	64.54	104.60	-15.18	3,332.44	390.69	1,440.41	1,340.63	99.77	14.437		
14,954.72	11,620.00	16,865.52	10,193.90	64.59	104.55	-15.19	3,336.64	390.44	1,440.41	1,340.63	99.78	14.436		
15,000.00	11,620.00	16,825.14	10,194.36	65.09	103.99	-15.27	3,376.97	388.23	1,440.49	1,340.69	99.79	14.435		
15,050.00	11,620.00	16,780.94	10,194.62	65.66	103.39	-15.34	3,421.11	386.10	1,440.75	1,340.95	99.80	14.436		
15,100.00	11,620.00	16,740.61	10,194.57	66.22	102.84	-15.40	3,461.41	384.39	1,441.30	1,341.48	99.82	14.439		
15,150.00	11,620.00	16,707.35	10,194.32	66.79	102.38	-15.43	3,494.64	383.15	1,442.14	1,342.29	99.86	14.442		
15,200.00	11,620.00	16,639.14	10,193.39	67.36	101.46	-15.49	3,562.81	381.11	1,443.12	1,343.38	99.74	14.469		
15,250.00	11,620.00	16,579.56	10,193.03	67.93	100.65	-15.50	3,622.38	380.18	1,443.52	1,343.88	99.63	14.488		
15,300.00	11,620.00	16,534.88	10,192.60	68.50	100.05	-15.49	3,667.06	380.06	1,443.94	1,344.35	99.58	14.500		
15,350.00	11,620.00	16,486.53	10,191.80	69.08	99.39	-15.46	3,715.40	380.50	1,444.53	1,345.03	99.50	14.518		
15,400.00	11,620.00	16,427.94	10,190.86	69.66	98.61	-15.39	3,773.97	381.68	1,444.95	1,345.61	99.33	14.547		
15,450.00	11,620.00	16,355.74	10,190.19	70.25	97.64	-15.27	3,846.13	383.95	1,444.93	1,345.86	99.07	14.586		
15,500.00	11,620.00	16,278.51	10,190.86	70.84	96.61	-15.16	3,923.30	386.76	1,443.93	1,345.18	98.75	14.621		
15,550.00	11,620.00	16,209.57	10,192.97	71.43	95.69	-15.11	3,992.20	388.09	1,442.11	1,343.56	98.55	14.633		
15,600.00	11,620.00	16,163.49	10,194.77	72.02	95.07	-15.11	4,038.24	388.29	1,440.08	1,341.57	98.52	14.617		
15,650.00	11,620.00	16,117.37	10,196.57	72.61	94.45	-15.13	4,084.33	388.00	1,438.20	1,339.69	98.51	14.600		
15,700.00	11,620.00	16,070.91	10,198.33	73.21	93.83	-15.16	4,130.75	387.45	1,436.44	1,337.93	98.50	14.583		
15,750.00	11,620.00	16,024.44	10,200.02	73.81	93.21	-15.19	4,177.19	386.77	1,434.80	1,336.30	98.50	14.566		
15,800.00	11,620.00	15,977.63	10,201.60	74.41	92.58	-15.22	4,223.96	386.09	1,433.27	1,334.78	98.50	14.551		
15,850.00	11,620.00	15,930.96	10,203.03	75.02	91.96	-15.25	4,270.60	385.55	1,431.86	1,333.37	98.49	14.538		
15,900.00	11,620.00	15,890.05	10,204.09	75.62	91.41	-15.26	4,311.50	385.13	1,430.67	1,332.15	98.52	14.522		
15,950.00	11,620.00	15,849.12	10,204.86	76.23	90.87	-15.28	4,352.42	384.75	1,429.79	1,331.25	98.54	14.510		
16,000.00	11,620.00	15,800.11	10,205.58	76.84	90.22	-15.29	4,401.42	384.26	1,429.14	1,330.62	98.52	14.507		
16,050.00	11,620.00	15,747.31	10,206.50	77.45	89.52	-15.32	4,454.21	383.49	1,428.41	1,329.92	98.49	14.504		
16,100.00	11,620.00	15,701.91	10,207.30	78.07	88.92	-15.34	4,499.60	382.77	1,427.69	1,329.19	98.50	14.495		
16,150.00	11,620.00	15,657.51	10,207.85	78.68	88.33	-15.36	4,543.99	382.24	1,427.17	1,328.66	98.51	14.488		
16,200.00	11,620.00	15,613.48	10,208.08	79.30	87.75	-15.35	4,588.02	382.16	1,426.85	1,328.35	98.50	14.485		

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 01-T23S-R31E - Tomb Raider 1-12 Fed 61H - Original Hole - Original Hole													5.00 ft
Survey Program: 150-MWD+HDGM													Offset Well Error:
													0.00 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
16,249.80	11,620.00	15,569.78	10,207.84	79.92	87.18	-15.30	4,631.70	383.15	1,426.74	1,328.28	98.46	14.490	
16,250.00	11,620.00	15,569.61	10,207.83	79.92	87.17	-15.30	4,631.88	383.15	1,426.74	1,328.28	98.46	14.490	
16,300.00	11,620.00	15,525.60	10,207.17	80.54	86.60	-15.21	4,675.84	384.95	1,426.85	1,328.46	98.39	14.501	
16,350.00	11,620.00	15,481.42	10,206.44	81.17	86.02	-15.14	4,720.00	386.30	1,427.16	1,328.82	98.34	14.513	
16,400.00	11,620.00	15,433.05	10,205.65	81.79	85.39	-15.09	4,768.35	387.12	1,427.65	1,329.37	98.28	14.526	
16,450.00	11,620.00	15,379.98	10,205.02	82.42	84.69	-15.06	4,821.42	387.39	1,428.07	1,329.85	98.22	14.540	
16,500.00	11,620.00	15,336.59	10,204.62	83.05	84.12	-15.05	4,864.80	387.20	1,428.50	1,330.28	98.22	14.544	
16,550.00	11,620.00	15,297.77	10,204.00	83.68	83.62	-15.05	4,903.62	386.90	1,429.30	1,331.04	98.25	14.547	
16,600.00	11,620.00	15,255.32	10,203.01	84.31	83.06	-15.05	4,946.06	386.46	1,430.47	1,332.20	98.27	14.557	
16,650.00	11,620.00	15,198.96	10,201.74	84.94	82.33	-15.04	5,002.40	385.87	1,431.61	1,333.40	98.21	14.576	
16,700.00	11,620.00	15,135.43	10,200.67	85.58	81.50	-15.04	5,065.92	385.33	1,432.46	1,334.34	98.13	14.598	
16,750.00	11,620.00	15,068.32	10,200.25	86.22	80.63	-15.02	5,133.02	385.26	1,432.69	1,334.68	98.01	14.618	
16,800.00	11,620.00	15,010.53	10,200.34	86.85	79.89	-15.00	5,190.81	385.33	1,432.52	1,334.58	97.94	14.626	
16,850.00	11,620.00	14,960.43	10,200.65	87.49	79.25	-14.99	5,240.91	385.33	1,432.14	1,334.22	97.92	14.625	
16,900.00	11,620.00	14,917.33	10,200.79	88.13	78.69	-14.99	5,284.02	385.16	1,431.95	1,334.00	97.95	14.619	
16,915.17	11,620.00	14,904.24	10,200.80	88.33	78.52	-14.99	5,297.10	385.08	1,431.94	1,333.98	97.96	14.618	
16,950.00	11,620.00	14,872.58	10,200.77	88.78	78.12	-14.99	5,328.76	384.81	1,431.99	1,334.01	97.97	14.616	
17,000.00	11,620.00	14,824.35	10,200.66	89.42	77.50	-15.00	5,376.99	384.39	1,432.13	1,334.15	97.98	14.617	
17,050.00	11,620.00	14,776.68	10,200.49	90.06	76.89	-15.00	5,424.65	383.97	1,432.33	1,334.35	97.99	14.618	
17,100.00	11,620.00	14,729.98	10,200.20	90.71	76.30	-15.00	5,471.36	383.65	1,432.65	1,334.65	98.00	14.619	
17,150.00	11,620.00	14,681.91	10,199.76	91.36	75.69	-14.99	5,519.43	383.41	1,433.06	1,335.06	98.00	14.623	
17,200.00	11,620.00	14,631.12	10,199.35	92.00	75.05	-14.99	5,570.21	382.97	1,433.49	1,335.49	98.00	14.628	
17,250.00	11,620.00	14,580.38	10,199.04	92.66	74.40	-15.00	5,620.94	382.28	1,433.88	1,335.87	98.01	14.631	
17,300.00	11,620.00	14,529.68	10,198.79	93.31	73.77	-15.02	5,671.64	381.42	1,434.25	1,336.23	98.02	14.632	
17,350.00	11,620.00	14,459.89	10,198.77	93.96	72.89	-15.04	5,741.42	380.54	1,434.39	1,336.45	97.94	14.646	
17,400.00	11,620.00	14,397.79	10,199.41	94.61	72.11	-15.01	5,803.51	381.05	1,433.67	1,335.81	97.85	14.651	
17,450.00	11,620.00	14,357.98	10,199.74	95.27	71.62	-14.99	5,843.32	381.31	1,433.09	1,335.18	97.91	14.637	
17,500.00	11,620.00	14,316.13	10,199.88	95.92	71.10	-14.99	5,885.17	381.24	1,432.87	1,334.91	97.96	14.628	
17,550.00	11,620.00	14,255.24	10,200.13	96.58	70.35	-14.97	5,946.06	381.37	1,432.56	1,334.67	97.90	14.633	
17,600.00	11,620.00	14,204.47	10,200.50	97.23	69.72	-14.94	5,996.82	381.95	1,431.97	1,334.09	97.88	14.630	
17,650.00	11,620.00	14,162.45	10,200.67	97.89	69.20	-14.92	6,038.84	382.29	1,431.59	1,333.67	97.93	14.619	
17,700.00	11,620.00	14,116.07	10,200.67	98.55	68.64	-14.90	6,085.22	382.43	1,431.47	1,333.52	97.95	14.614	
17,750.00	11,620.00	14,058.24	10,200.77	99.21	67.93	-14.87	6,143.05	382.84	1,431.22	1,333.31	97.90	14.619	
17,800.00	11,620.00	14,014.82	10,200.90	99.87	67.40	-14.84	6,186.46	383.37	1,430.85	1,332.92	97.94	14.610	
17,815.15	11,620.00	14,004.20	10,200.87	100.07	67.27	-14.84	6,197.08	383.48	1,430.83	1,332.87	97.96	14.606	
17,850.00	11,620.00	13,979.77	10,200.68	100.54	66.98	-14.82	6,221.51	383.71	1,430.96	1,332.94	98.02	14.599	
17,900.00	11,620.00	13,948.95	10,200.21	101.20	66.60	-14.80	6,252.33	383.92	1,431.58	1,333.45	98.12	14.590	
17,950.00	11,620.00	13,859.65	10,199.15	101.86	65.53	-14.73	6,341.62	384.92	1,431.92	1,334.03	97.89	14.628	
18,000.00	11,620.00	13,809.29	10,199.29	102.53	64.93	-14.68	6,391.97	385.83	1,431.48	1,333.60	97.88	14.625	
18,050.00	11,620.00	13,765.33	10,199.35	103.19	64.40	-14.66	6,435.92	386.18	1,431.24	1,333.31	97.93	14.615	
18,100.00	11,620.00	13,715.38	10,199.35	103.86	63.81	-14.64	6,485.88	386.28	1,431.13	1,333.18	97.95	14.611	
18,150.00	11,620.00	13,663.09	10,199.35	104.53	63.19	-14.61	6,538.16	386.68	1,430.95	1,333.01	97.95	14.610	
18,200.00	11,620.00	13,616.33	10,199.32	105.20	62.65	-14.58	6,584.92	387.15	1,430.78	1,332.81	97.98	14.603	
18,244.80	11,620.00	13,577.60	10,199.23	105.79	62.19	-14.56	6,623.65	387.43	1,430.73	1,332.71	98.03	14.595	
18,250.00	11,620.00	13,571.82	10,199.21	105.86	62.12	-14.56	6,629.43	387.44	1,430.74	1,332.72	98.03	14.596	
18,300.00	11,620.00	13,516.31	10,199.03	106.53	61.48	-14.53	6,684.94	387.80	1,430.74	1,332.72	98.01	14.597	
18,350.00	11,620.00	13,459.30	10,198.94	107.20	60.82	-14.48	6,741.94	388.74	1,430.53	1,332.55	97.98	14.600	
18,400.00	11,620.00	13,392.10	10,199.45	107.88	60.05	-14.43	6,809.13	389.84	1,429.88	1,332.00	97.89	14.607	
18,450.00	11,620.00	13,342.67	10,200.28	108.55	59.48	-14.40	6,858.55	390.37	1,428.86	1,330.94	97.92	14.592	
18,500.00	11,620.00	13,299.77	10,200.86	109.22	59.00	-14.39	6,901.44	390.62	1,428.06	1,330.06	98.00	14.572	
18,550.00	11,620.00	13,253.26	10,201.32	109.89	58.47	-14.38	6,947.95	390.71	1,427.47	1,329.40	98.06	14.557	
18,600.00	11,620.00	13,203.67	10,201.78	110.57	57.91	-14.36	6,997.54	390.84	1,426.91	1,328.81	98.11	14.544	

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 61H - Original Hole - Original Hole												Offset Well Error:	0.00 ft
Survey Program: 150-MWD+HDGM													
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
18,650.00	11,620.00	13,147.12	10,202.38	111.24	57.28	-14.35	7,054.08	390.96	1,426.30	1,328.18	98.12	14.536	
18,700.00	11,620.00	13,088.35	10,203.51	111.92	56.63	-14.36	7,112.84	390.70	1,425.34	1,327.21	98.13	14.524	
18,750.00	11,620.00	13,046.50	10,204.34	112.60	56.17	-14.37	7,154.68	390.33	1,424.40	1,326.15	98.25	14.497	
18,800.00	11,620.00	13,004.64	10,204.95	113.27	55.72	-14.38	7,196.53	389.89	1,423.75	1,325.38	98.37	14.473	
18,850.00	11,620.00	12,959.30	10,205.41	113.95	55.23	-14.40	7,241.88	389.37	1,423.33	1,324.86	98.47	14.454	
18,900.00	11,620.00	12,913.29	10,205.73	114.63	54.73	-14.41	7,287.88	388.84	1,423.05	1,324.48	98.57	14.437	
18,929.05	11,620.00	12,890.13	10,205.82	115.02	54.48	-14.42	7,311.04	388.58	1,422.98	1,324.33	98.65	14.425	
18,950.00	11,620.00	12,875.04	10,205.81	115.31	54.32	-14.42	7,326.12	388.40	1,423.02	1,324.31	98.71	14.416	
19,000.00	11,620.00	12,839.03	10,205.54	115.99	53.94	-14.43	7,362.13	387.92	1,423.47	1,324.62	98.86	14.399	
19,050.00	11,620.00	12,800.96	10,204.88	116.67	53.54	-14.43	7,400.20	387.35	1,424.41	1,325.42	99.00	14.389	
19,100.00	11,620.00	12,749.89	10,203.82	117.35	53.00	-14.44	7,451.24	386.66	1,425.51	1,326.44	99.07	14.389	
19,150.00	11,620.00	12,700.44	10,202.79	118.03	52.49	-14.44	7,500.68	386.12	1,426.58	1,327.42	99.15	14.388	
19,200.00	11,620.00	12,654.83	10,201.76	118.71	52.02	-14.44	7,546.27	385.55	1,427.75	1,328.49	99.26	14.384	
19,250.00	11,620.00	12,606.06	10,200.55	119.39	51.52	-14.44	7,595.02	384.80	1,429.07	1,329.71	99.35	14.384	
19,300.00	11,620.00	12,545.68	10,199.20	120.07	50.92	-14.43	7,655.38	384.27	1,430.18	1,330.79	99.39	14.390	
19,350.00	11,620.00	12,481.89	10,198.14	120.76	50.28	-14.40	7,719.17	384.41	1,430.89	1,331.49	99.39	14.396	
19,400.00	11,620.00	12,417.13	10,197.58	121.44	49.65	-14.35	7,783.92	385.21	1,431.06	1,331.69	99.38	14.400	
19,450.00	11,620.00	12,355.17	10,197.56	122.13	49.05	-14.29	7,845.87	386.29	1,430.79	1,331.41	99.37	14.398	
19,500.00	11,620.00	12,297.75	10,197.94	122.81	48.50	-14.24	7,903.28	387.42	1,430.15	1,330.75	99.40	14.388	
19,550.00	11,620.00	12,242.37	10,198.51	123.50	47.98	-14.18	7,958.64	388.59	1,429.31	1,329.87	99.44	14.374	
19,600.00	11,620.00	12,194.23	10,199.04	124.18	47.54	-14.13	8,006.76	389.73	1,428.41	1,328.89	99.52	14.353	
19,650.00	11,620.00	12,146.32	10,199.45	124.87	47.10	-14.07	8,054.66	391.07	1,427.58	1,327.98	99.60	14.333	
19,700.00	11,620.00	12,100.25	10,199.73	125.56	46.69	-14.01	8,100.71	392.40	1,426.85	1,327.16	99.70	14.312	
19,750.00	11,620.00	12,054.20	10,199.90	126.24	46.28	-13.96	8,146.73	393.65	1,426.27	1,326.47	99.79	14.292	
19,800.00	11,620.00	12,007.35	10,199.99	126.93	45.87	-13.90	8,193.58	394.79	1,425.81	1,325.91	99.90	14.273	
19,850.00	11,620.00	11,960.48	10,200.02	127.62	45.47	-13.85	8,240.43	395.73	1,425.46	1,325.45	100.00	14.254	
19,900.00	11,620.00	11,914.04	10,199.98	128.31	45.08	-13.81	8,286.87	396.54	1,425.23	1,325.10	100.13	14.234	
19,950.00	11,620.00	11,868.37	10,199.82	129.00	44.69	-13.77	8,332.53	397.30	1,425.12	1,324.87	100.25	14.215	
20,000.00	11,620.00	11,814.33	10,199.63	129.69	44.26	-13.72	8,386.56	398.13	1,425.03	1,324.69	100.34	14.202	
20,050.00	11,620.00	11,760.96	10,199.63	130.38	43.83	-13.68	8,439.93	398.80	1,424.81	1,324.36	100.44	14.185	
20,100.00	11,620.00	11,710.68	10,199.72	131.07	43.44	-13.65	8,490.21	399.33	1,424.53	1,323.95	100.57	14.164	
20,150.00	11,620.00	11,660.70	10,199.83	131.76	43.06	-13.62	8,540.19	399.78	1,424.24	1,323.53	100.71	14.142	
20,200.00	11,620.00	11,611.23	10,199.92	132.45	42.69	-13.59	8,589.66	400.24	1,423.96	1,323.11	100.86	14.119	
20,250.00	11,620.00	11,550.83	10,200.10	133.14	42.26	-13.55	8,650.05	400.99	1,423.62	1,322.67	100.94	14.103	
20,300.00	11,620.00	11,485.28	10,200.94	133.83	41.79	-13.48	8,715.57	402.59	1,422.61	1,321.62	100.99	14.087	
20,350.00	11,620.00	11,445.30	10,201.47	134.53	41.52	-13.43	8,755.54	403.56	1,421.61	1,320.43	101.19	14.049	
20,400.00	11,620.00	11,406.18	10,201.78	135.22	41.26	-13.40	8,794.65	404.21	1,420.96	1,319.57	101.40	14.014	
20,450.00	11,620.00	11,350.74	10,202.05	135.91	40.90	-13.35	8,850.08	405.30	1,420.43	1,318.90	101.52	13.991	
20,500.00	11,620.00	11,291.26	10,202.36	136.61	40.52	-13.25	8,909.52	407.52	1,419.68	1,318.08	101.60	13.973	
20,550.00	11,620.00	11,222.41	10,203.06	137.30	40.09	-13.06	8,978.21	411.93	1,418.38	1,316.81	101.58	13.964	
20,600.00	11,620.00	11,175.10	10,203.65	137.99	39.82	-12.91	9,025.37	415.70	1,416.80	1,315.12	101.69	13.933	
20,650.00	11,620.00	11,127.80	10,204.15	138.69	39.54	-12.76	9,072.52	419.42	1,415.34	1,313.54	101.80	13.904	
20,700.00	11,620.00	11,069.59	10,204.79	139.38	39.22	-12.55	9,130.51	424.50	1,413.77	1,311.94	101.83	13.884	
20,750.00	11,620.00	11,019.32	10,205.41	140.08	38.95	-12.33	9,180.50	429.66	1,411.98	1,310.08	101.90	13.856	
20,800.00	11,620.00	10,979.81	10,205.60	140.77	38.74	-12.15	9,219.76	434.18	1,410.47	1,308.42	102.05	13.821	
20,850.00	11,620.00	10,937.93	10,205.40	141.47	38.53	-11.93	9,261.32	439.37	1,409.33	1,307.16	102.17	13.794	
20,900.00	11,620.00	10,871.76	10,205.21	142.17	38.21	-11.56	9,326.88	448.28	1,408.02	1,305.94	102.09	13.793	
20,950.00	11,620.00	10,820.55	10,205.40	142.86	37.98	-11.25	9,377.57	455.57	1,406.35	1,304.22	102.13	13.770	
21,000.00	11,620.00	10,776.05	10,205.49	143.56	37.78	-11.00	9,421.65	461.65	1,404.85	1,302.60	102.25	13.740	
21,050.00	11,620.00	10,729.81	10,205.46	144.26	37.59	-10.74	9,467.46	467.88	1,403.54	1,301.18	102.36	13.712	
21,100.00	11,620.00	10,689.49	10,205.21	144.96	37.43	-10.49	9,507.34	473.87	1,402.43	1,299.91	102.52	13.680	
21,150.00	11,620.00	10,653.31	10,204.55	145.65	37.29	-10.24	9,543.04	479.71	1,401.81	1,299.11	102.70	13.650	

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Survey Program: 150-MWD+HDGM													Offset Well Error:	0.00 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		
21,189.41	11,620.00	10,623.84	10,203.70	146.20	37.18	-10.02	9,572.04	484.88	1,401.66	1,298.83	102.83	13.631		
21,200.00	11,620.00	10,617.00	10,203.46	146.35	37.15	-9.96	9,578.76	486.14	1,401.67	1,298.80	102.87	13.625		
21,250.00	11,620.00	10,589.74	10,202.24	147.05	37.05	-9.74	9,605.48	491.39	1,402.21	1,299.09	103.12	13.598		
21,300.00	11,620.00	10,570.00	10,201.03	147.75	36.98	-9.56	9,624.76	495.43	1,403.64	1,300.22	103.43	13.571		
21,350.00	11,620.00	10,538.17	10,198.48	148.45	36.87	-9.26	9,655.72	502.36	1,405.91	1,302.29	103.62	13.568		
21,400.00	11,620.00	10,523.00	10,197.01	149.15	36.81	-9.10	9,670.42	505.83	1,409.17	1,305.21	103.95	13.556		
21,450.00	11,620.00	10,499.22	10,194.20	149.85	36.73	-8.86	9,693.37	511.33	1,413.46	1,309.26	104.21	13.564		
21,500.00	11,620.00	10,482.33	10,191.77	150.55	36.67	-8.68	9,709.64	515.20	1,418.98	1,314.47	104.51	13.577		
21,550.00	11,620.00	10,465.00	10,188.89	151.25	36.62	-8.50	9,726.27	519.11	1,425.66	1,320.85	104.81	13.602		
21,600.00	11,620.00	10,465.00	10,188.89	151.95	36.62	-8.50	9,726.27	519.11	1,433.76	1,328.55	105.22	13.627		
21,650.00	11,620.00	10,436.49	10,183.21	152.65	36.52	-8.21	9,753.50	525.37	1,442.62	1,337.20	105.42	13.684		
21,700.00	11,620.00	10,418.00	10,178.85	153.35	36.46	-8.03	9,771.04	529.26	1,452.92	1,347.23	105.68	13.748		
21,750.00	11,620.00	10,418.00	10,178.85	154.05	36.46	-8.03	9,771.04	529.26	1,464.46	1,358.43	106.03	13.812		
21,800.00	11,620.00	10,388.44	10,170.99	154.75	36.37	-7.74	9,798.92	535.18	1,476.81	1,370.59	106.22	13.903		
21,850.00	11,620.00	10,370.00	10,165.60	155.45	36.31	-7.57	9,816.20	538.68	1,490.32	1,383.87	106.46	13.999		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 01-T23S-R31E - Tomb Raider 1-12 Fed 62H - Wellbore #1 - Wellbore #1		Offset Site Error: 5.00 ft	
Survey Program: 147-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,400.00	9,364.25	20,480.00	10,368.45	34.49	154.90	-26.13	-2.48	1,714.14	1,479.60	1,330.93	148.67	9.952		
9,450.00	9,413.98	20,480.00	10,368.45	34.68	154.90	-26.13	-2.48	1,714.14	1,441.62	1,290.93	150.69	9.567		
9,500.00	9,463.71	20,480.00	10,368.45	34.87	154.90	-26.13	-2.48	1,714.14	1,404.39	1,251.60	152.78	9.192		
9,550.00	9,513.44	20,480.00	10,368.45	35.06	154.90	-26.13	-2.48	1,714.14	1,367.97	1,213.02	154.95	8.828		
9,600.00	9,563.17	20,480.00	10,368.45	35.25	154.90	-26.13	-2.48	1,714.14	1,332.43	1,175.24	157.19	8.476		
9,650.00	9,612.90	20,480.00	10,368.45	35.45	154.90	-26.13	-2.48	1,714.14	1,297.85	1,138.35	159.50	8.137		
9,700.00	9,662.63	20,480.00	10,368.45	35.64	154.90	-26.13	-2.48	1,714.14	1,264.30	1,102.43	161.86	7.811		
9,750.00	9,712.36	20,480.00	10,368.45	35.83	154.90	-26.13	-2.48	1,714.14	1,231.86	1,067.58	164.28	7.499		
9,800.00	9,762.09	20,480.00	10,368.45	36.02	154.90	-26.13	-2.48	1,714.14	1,200.63	1,033.90	166.73	7.201		
9,850.00	9,811.82	20,480.00	10,368.45	36.21	154.90	-26.13	-2.48	1,714.14	1,170.71	1,001.50	169.21	6.919		
9,900.00	9,861.55	20,480.00	10,368.45	36.41	154.90	-26.13	-2.48	1,714.14	1,142.19	970.49	171.70	6.652		
9,950.00	9,911.28	20,480.00	10,368.45	36.60	154.90	-26.13	-2.48	1,714.14	1,115.18	941.02	174.16	6.403		
10,000.00	9,961.00	20,480.00	10,368.45	36.79	154.90	-26.13	-2.48	1,714.14	1,089.80	913.21	176.59	6.171		
10,050.00	10,010.73	20,480.00	10,368.45	36.98	154.90	-26.13	-2.48	1,714.14	1,066.16	887.23	178.94	5.958		
10,100.00	10,060.46	20,480.00	10,368.45	37.17	154.90	-26.13	-2.48	1,714.14	1,044.39	863.20	181.18	5.764		
10,150.00	10,110.19	20,480.00	10,368.45	37.37	154.90	-26.13	-2.48	1,714.14	1,024.59	841.30	183.29	5.590		
10,200.00	10,159.92	20,480.00	10,368.45	37.56	154.90	-26.13	-2.48	1,714.14	1,006.88	821.68	185.21	5.437		
10,250.00	10,209.65	20,480.00	10,368.45	37.75	154.90	-26.13	-2.48	1,714.14	991.39	804.48	186.91	5.304		
10,300.00	10,259.38	20,480.00	10,368.45	37.94	154.90	-26.13	-2.48	1,714.14	978.21	789.85	188.35	5.193		
10,350.00	10,309.11	20,480.00	10,368.45	38.13	154.90	-26.12	-2.48	1,714.14	967.44	777.94	189.51	5.105		
10,400.00	10,358.88	20,480.00	10,368.45	38.32	154.90	-26.07	-2.48	1,714.14	959.55	769.22	190.33	5.041		
10,450.00	10,408.72	20,480.00	10,368.45	38.51	154.90	-26.04	-2.48	1,714.14	954.81	763.99	190.82	5.004		
10,499.19	10,457.79	20,480.00	10,368.45	38.69	154.90	-26.03	-2.48	1,714.14	953.26	762.32	190.94	4.992 Alert, CC, ES, SF		
10,500.00	10,458.60	20,480.00	10,368.45	38.70	154.90	-26.03	-2.48	1,714.14	953.26	762.32	190.94	4.992 Alert		
10,550.00	10,508.52	20,480.00	10,368.45	38.88	154.90	-26.04	-2.48	1,714.14	954.91	764.22	190.70	5.008		
10,600.00	10,558.47	20,480.00	10,368.45	39.06	154.90	-26.07	-2.48	1,714.14	959.76	769.66	190.10	5.049		
10,650.00	10,608.45	20,480.00	10,368.45	39.23	154.90	-26.12	-2.48	1,714.14	967.75	778.59	189.16	5.116		
10,700.00	10,658.44	20,480.00	10,368.45	39.41	154.90	-26.20	-2.48	1,714.14	978.80	790.89	187.92	5.209		
10,750.00	10,708.44	20,480.00	10,368.45	39.58	154.90	77.94	-2.48	1,714.14	992.80	806.40	186.40	5.326		
10,800.00	10,758.44	20,480.00	10,368.45	39.74	154.90	77.94	-2.48	1,714.14	1,009.25	824.59	184.66	5.465		
10,850.00	10,808.44	20,480.00	10,368.45	39.91	154.90	77.94	-2.48	1,714.14	1,027.87	845.14	182.72	5.625		
10,900.00	10,858.44	20,480.00	10,368.45	40.07	154.90	77.94	-2.48	1,714.14	1,048.54	867.91	180.64	5.805		
10,950.00	10,908.44	20,480.00	10,368.45	40.24	154.90	77.94	-2.48	1,714.14	1,071.15	892.72	178.44	6.003		
11,000.00	10,958.44	20,480.00	10,368.45	40.40	154.90	77.94	-2.48	1,714.14	1,095.58	919.43	176.16	6.219		
11,050.00	11,008.44	20,480.00	10,368.45	40.57	154.90	77.94	-2.48	1,714.14	1,121.71	947.87	173.83	6.453		
11,100.00	11,058.44	20,480.00	10,368.45	40.74	154.90	77.53	-2.48	1,714.14	1,149.40	977.90	171.50	6.702		
11,150.00	11,108.32	20,480.00	10,368.45	40.90	154.90	74.15	-2.48	1,714.14	1,178.00	1,008.80	169.19	6.963		
11,200.00	11,157.74	20,480.00	10,368.45	41.06	154.90	70.75	-2.48	1,714.14	1,207.04	1,040.08	166.95	7.230		
11,250.00	11,206.32	20,480.00	10,368.45	41.21	154.90	67.39	-2.48	1,714.14	1,236.28	1,071.48	164.80	7.502		
11,300.00	11,253.68	20,480.00	10,368.45	41.35	154.90	64.11	-2.48	1,714.14	1,265.49	1,102.74	162.74	7.776		
11,350.00	11,299.47	20,480.00	10,368.45	41.48	154.90	60.95	-2.48	1,714.14	1,294.46	1,133.67	160.79	8.051		
11,400.00	11,343.34	20,480.00	10,368.45	41.60	154.90	57.96	-2.48	1,714.14	1,322.99	1,164.05	158.94	8.324		
11,450.00	11,384.95	20,480.00	10,368.45	41.71	154.90	55.15	-2.48	1,714.14	1,350.89	1,193.70	157.20	8.594		
11,500.00	11,423.99	20,458.71	10,369.02	41.80	154.60	51.91	18.78	1,713.00	1,377.85	1,222.48	155.37	8.868		
11,550.00	11,460.16	20,423.29	10,369.97	41.88	154.08	48.70	54.13	1,711.09	1,403.04	1,249.47	153.57	9.136		
11,600.00	11,493.19	20,384.46	10,371.02	41.95	153.52	45.90	92.89	1,709.00	1,426.10	1,274.20	151.90	9.389		
11,650.00	11,522.83	20,340.72	10,372.24	42.00	152.89	43.48	136.54	1,706.63	1,446.71	1,296.36	150.35	9.623		
11,700.00	11,548.84	20,291.50	10,373.62	42.04	152.18	41.42	185.66	1,703.72	1,464.50	1,315.60	148.89	9.836		
11,750.00	11,571.03	20,238.58	10,375.15	42.07	151.41	39.74	238.44	1,700.28	1,479.18	1,331.63	147.55	10.025		
11,800.00	11,589.24	20,181.96	10,377.10	42.09	150.59	38.44	294.91	1,696.44	1,490.49	1,344.15	146.33	10.186		
11,850.00	11,603.32	20,124.33	10,379.48	42.10	149.76	37.51	352.34	1,692.45	1,498.21	1,352.95	145.26	10.314		
12,000.00	11,620.00	19,947.54	10,388.96	42.19	147.19	36.80	528.41	1,679.67	1,499.22	1,356.28	142.93	10.489		

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 62H - Wellbore #1 - Wellbore #1												Offset Well Error:	0.50 ft
Survey Program: 147-MWD+HDGM													
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
12,050.00	11,620.00	19,883.50	10,393.28	42.26	146.26	36.76	592.11	1,674.64	1,494.35	1,352.05	142.30	10.502	
12,100.00	11,620.00	19,836.90	10,396.54	42.37	145.58	36.72	638.44	1,670.87	1,489.31	1,347.44	141.86	10.498	
12,150.00	11,620.00	19,790.20	10,399.64	42.50	144.90	36.69	684.88	1,667.03	1,484.37	1,342.94	141.44	10.495	
12,200.00	11,620.00	19,738.00	10,402.93	42.64	144.14	36.63	736.78	1,662.52	1,479.45	1,338.52	140.93	10.498	
12,250.00	11,620.00	19,688.46	10,405.89	42.81	143.42	36.57	786.02	1,657.89	1,474.45	1,334.01	140.44	10.499	
12,300.00	11,620.00	19,651.20	10,407.97	42.98	142.88	36.52	823.06	1,654.52	1,469.70	1,329.58	140.12	10.489	
12,350.00	11,620.00	19,613.88	10,409.89	43.18	142.34	36.47	860.21	1,651.46	1,465.38	1,325.56	139.82	10.480	
12,400.00	11,620.00	19,578.22	10,411.53	43.38	141.82	36.43	895.73	1,648.81	1,461.50	1,321.96	139.55	10.473	
12,450.00	11,620.00	19,543.52	10,412.83	43.59	141.32	36.39	930.33	1,646.42	1,458.14	1,318.84	139.29	10.468	
12,500.00	11,620.00	19,509.87	10,413.80	43.81	140.83	36.36	963.89	1,644.28	1,455.29	1,316.25	139.05	10.466	
12,550.00	11,620.00	19,461.40	10,415.08	44.05	140.14	36.31	1,012.27	1,641.59	1,452.77	1,314.11	138.66	10.477	
12,600.00	11,620.00	19,412.91	10,416.72	44.29	139.45	36.29	1,060.68	1,639.47	1,450.30	1,311.98	138.32	10.485	
12,650.00	11,620.00	19,372.31	10,418.14	44.55	138.87	36.28	1,101.24	1,638.01	1,448.01	1,309.92	138.09	10.486	
12,700.00	11,620.00	19,332.01	10,419.30	44.82	138.30	36.28	1,141.50	1,636.67	1,446.05	1,308.20	137.85	10.490	
12,750.00	11,620.00	19,295.66	10,420.10	45.10	137.78	36.27	1,177.82	1,635.58	1,444.47	1,306.80	137.66	10.493	
12,800.00	11,620.00	19,261.92	10,420.54	45.38	137.30	36.26	1,211.55	1,634.77	1,443.43	1,305.94	137.49	10.498	
12,850.00	11,620.00	19,220.00	10,420.63	45.68	136.71	36.25	1,253.46	1,634.06	1,442.99	1,305.73	137.26	10.513	
12,900.00	11,620.00	19,179.88	10,420.61	45.98	136.15	36.24	1,293.58	1,633.65	1,442.85	1,305.80	137.05	10.528	
12,950.00	11,620.00	19,127.22	10,420.96	46.30	135.41	36.26	1,346.24	1,633.47	1,442.66	1,305.88	136.79	10.547	
13,000.00	11,620.00	19,061.97	10,422.05	46.62	134.50	36.29	1,411.48	1,633.46	1,442.17	1,305.72	136.46	10.569	
13,050.00	11,620.00	18,993.65	10,424.10	46.95	133.55	36.35	1,479.77	1,633.38	1,441.12	1,304.99	136.13	10.586	
13,100.00	11,620.00	18,924.76	10,427.43	47.29	132.59	36.45	1,548.58	1,633.44	1,439.38	1,303.54	135.83	10.597	
13,150.00	11,620.00	18,863.76	10,430.78	47.64	131.74	36.53	1,609.48	1,633.00	1,437.14	1,301.55	135.59	10.599	
13,200.00	11,620.00	18,787.41	10,435.20	48.00	130.66	36.59	1,685.68	1,631.24	1,434.35	1,299.21	135.15	10.613	
13,250.00	11,620.00	18,721.31	10,439.64	48.37	129.72	36.62	1,751.57	1,628.49	1,430.56	1,295.80	134.76	10.615	
13,300.00	11,620.00	18,673.35	10,442.76	48.74	129.04	36.63	1,799.37	1,626.16	1,426.68	1,292.13	134.56	10.603	
13,350.00	11,620.00	18,627.55	10,445.53	49.12	128.39	36.63	1,845.03	1,623.77	1,422.89	1,288.52	134.37	10.589	
13,400.00	11,620.00	18,583.47	10,447.88	49.51	127.76	36.61	1,888.98	1,621.33	1,419.29	1,285.10	134.19	10.576	
13,450.00	11,620.00	18,540.41	10,449.85	49.91	127.15	36.59	1,931.92	1,618.82	1,415.90	1,281.88	134.02	10.565	
13,500.00	11,620.00	18,498.91	10,451.35	50.31	126.55	36.55	1,973.31	1,616.25	1,412.79	1,278.94	133.84	10.555	
13,550.00	11,620.00	18,461.00	10,452.36	50.72	126.01	36.50	2,011.13	1,613.77	1,409.98	1,276.27	133.70	10.545	
13,600.00	11,620.00	18,421.69	10,452.97	51.14	125.45	36.44	2,050.35	1,611.15	1,407.57	1,274.04	133.53	10.541	
13,650.00	11,620.00	18,385.49	10,453.10	51.57	124.93	36.37	2,086.46	1,608.77	1,405.66	1,272.27	133.38	10.539	
13,700.00	11,620.00	18,339.48	10,452.80	52.00	124.28	36.27	2,132.38	1,605.75	1,404.15	1,271.06	133.09	10.550	
13,750.00	11,620.00	18,282.00	10,452.64	52.44	123.46	36.16	2,189.73	1,601.95	1,402.49	1,269.83	132.66	10.572	
13,800.00	11,620.00	18,245.72	10,452.59	52.88	122.94	36.09	2,225.93	1,599.62	1,400.88	1,268.35	132.52	10.571	
13,850.00	11,620.00	18,214.43	10,452.26	53.33	122.50	36.03	2,257.18	1,597.95	1,399.91	1,267.45	132.46	10.569	
13,900.00	11,620.00	18,177.00	10,451.50	53.79	121.97	35.97	2,294.57	1,596.37	1,399.63	1,267.32	132.31	10.578	
13,902.25	11,620.00	18,184.22	10,451.69	53.81	122.07	35.98	2,287.35	1,596.64	1,399.61	1,267.20	132.41	10.570	
13,950.00	11,620.00	18,138.40	10,450.60	54.25	121.43	35.91	2,333.14	1,595.16	1,399.79	1,267.61	132.18	10.590	
14,000.00	11,620.00	18,091.56	10,449.78	54.72	120.77	35.87	2,379.96	1,594.13	1,400.05	1,268.06	131.98	10.608	
14,050.00	11,620.00	18,036.72	10,449.25	55.20	120.01	35.85	2,434.79	1,593.52	1,400.30	1,268.54	131.76	10.628	
14,100.00	11,620.00	17,983.27	10,449.32	55.67	119.27	35.86	2,488.24	1,593.45	1,400.38	1,268.79	131.59	10.642	
14,150.00	11,620.00	17,940.92	10,449.30	56.16	118.68	35.86	2,530.60	1,593.41	1,400.56	1,269.04	131.53	10.648	
14,200.00	11,620.00	17,899.50	10,448.84	56.65	118.11	35.85	2,572.01	1,593.14	1,401.01	1,269.57	131.44	10.659	
14,250.00	11,620.00	17,850.03	10,447.89	57.14	117.43	35.82	2,621.46	1,592.59	1,401.65	1,270.37	131.27	10.678	
14,300.00	11,620.00	17,801.17	10,446.87	57.64	116.75	35.79	2,670.31	1,591.96	1,402.30	1,271.20	131.10	10.697	
14,350.00	11,620.00	17,740.38	10,445.75	58.15	115.90	35.74	2,731.08	1,591.03	1,402.79	1,271.98	130.81	10.724	
14,400.00	11,620.00	17,681.06	10,445.08	58.66	115.08	35.70	2,790.39	1,589.97	1,402.90	1,272.36	130.54	10.747	
14,450.00	11,620.00	17,624.26	10,444.56	59.17	114.29	35.66	2,847.17	1,588.59	1,402.75	1,272.46	130.29	10.767	
14,500.00	11,620.00	17,552.67	10,444.10	59.69	113.29	35.58	2,918.71	1,586.01	1,402.17	1,272.34	129.83	10.800	
14,550.00	11,620.00	17,483.54	10,444.15	60.21	112.32	35.47	2,987.73	1,582.23	1,400.70	1,271.36	129.34	10.829	

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 62H - Wellbore #1 - Wellbore #1												Offset Well Error:	0.50 ft
Survey Program: 147-MWD+HDGM													
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)			
14,600.00	11,620.00	17,424.16	10,444.68	60.74	111.48	35.37	3,047.01	1,578.69	1,398.80	1,269.81	128.98	10.845	
14,650.00	11,620.00	17,357.93	10,445.57	61.27	110.55	35.26	3,113.07	1,574.15	1,396.45	1,267.94	128.51	10.867	
14,700.00	11,620.00	17,302.78	10,446.28	61.81	109.77	35.13	3,168.02	1,569.43	1,393.61	1,265.47	128.14	10.875	
14,750.00	11,620.00	17,259.15	10,446.68	62.35	109.15	35.01	3,211.48	1,565.61	1,390.91	1,262.95	127.96	10.870	
14,800.00	11,620.00	17,213.86	10,446.88	62.89	108.51	34.90	3,256.60	1,561.69	1,388.42	1,260.67	127.74	10.869	
14,850.00	11,620.00	17,164.95	10,446.82	63.44	107.81	34.75	3,305.31	1,557.20	1,386.01	1,258.56	127.46	10.875	
14,900.00	11,620.00	17,115.86	10,446.55	63.98	107.12	34.59	3,354.16	1,552.43	1,383.65	1,256.50	127.14	10.883	
14,950.00	11,620.00	17,066.41	10,446.53	64.54	106.42	34.45	3,403.41	1,548.03	1,381.31	1,254.45	126.86	10.889	
15,000.00	11,620.00	17,020.77	10,446.78	65.09	105.77	34.35	3,448.91	1,544.42	1,379.03	1,252.37	126.67	10.887	
15,050.00	11,620.00	16,978.90	10,446.77	65.66	105.18	34.24	3,490.65	1,541.15	1,377.02	1,250.48	126.53	10.883	
15,100.00	11,620.00	16,934.77	10,446.42	66.22	104.56	34.12	3,534.64	1,537.65	1,375.28	1,248.94	126.35	10.885	
15,150.00	11,620.00	16,884.24	10,445.88	66.79	103.85	33.98	3,584.99	1,533.54	1,373.62	1,247.56	126.06	10.897	
15,200.00	11,620.00	16,836.45	10,445.30	67.36	103.18	33.84	3,632.62	1,529.54	1,371.96	1,246.16	125.80	10.906	
15,250.00	11,620.00	16,793.03	10,444.68	67.93	102.57	33.71	3,675.89	1,526.06	1,370.50	1,244.87	125.63	10.909	
15,300.00	11,620.00	16,747.33	10,443.94	68.50	101.93	33.59	3,721.46	1,522.64	1,369.26	1,243.84	125.43	10.917	
15,350.00	11,620.00	16,692.25	10,443.18	69.08	101.16	33.44	3,776.39	1,518.62	1,367.99	1,242.90	125.09	10.936	
15,400.00	11,620.00	16,637.99	10,442.70	69.66	100.41	33.30	3,830.50	1,514.68	1,366.54	1,241.76	124.78	10.951	
15,450.00	11,620.00	16,584.68	10,442.38	70.25	99.67	33.17	3,883.67	1,510.81	1,364.96	1,240.47	124.49	10.964	
15,500.00	11,620.00	16,532.80	10,442.21	70.84	98.94	33.05	3,935.42	1,507.03	1,363.28	1,239.05	124.23	10.974	
15,550.00	11,620.00	16,482.47	10,442.15	71.43	98.25	32.93	3,985.62	1,503.42	1,361.55	1,237.55	124.00	10.980	
15,600.00	11,620.00	16,425.75	10,442.26	72.02	97.46	32.80	4,042.19	1,499.41	1,359.72	1,236.04	123.68	10.994	
15,650.00	11,620.00	16,369.59	10,442.69	72.61	96.68	32.68	4,098.21	1,495.41	1,357.63	1,234.26	123.38	11.004	
15,700.00	11,620.00	16,316.32	10,443.31	73.21	95.95	32.57	4,151.34	1,491.61	1,355.39	1,232.26	123.13	11.008	
15,750.00	11,620.00	16,268.23	10,443.95	73.81	95.28	32.47	4,199.30	1,488.16	1,353.06	1,230.10	122.96	11.004	
15,800.00	11,620.00	16,228.13	10,444.13	74.41	94.73	32.38	4,239.29	1,485.13	1,351.01	1,228.11	122.90	10.992	
15,850.00	11,620.00	16,187.81	10,443.85	75.02	94.17	32.27	4,279.47	1,481.91	1,349.33	1,226.51	122.82	10.986	
15,900.00	11,620.00	16,137.67	10,443.41	75.62	93.48	32.13	4,329.46	1,478.06	1,347.82	1,225.23	122.58	10.995	
15,950.00	11,620.00	16,087.17	10,443.29	76.23	92.79	32.02	4,379.85	1,474.67	1,346.30	1,223.93	122.38	11.001	
16,000.00	11,620.00	16,034.61	10,443.42	76.84	92.07	31.91	4,432.31	1,471.44	1,344.73	1,222.57	122.16	11.008	
16,050.00	11,620.00	15,986.39	10,443.71	77.45	91.41	31.83	4,480.44	1,468.60	1,343.09	1,221.06	122.03	11.007	
16,100.00	11,620.00	15,947.30	10,443.70	78.07	90.88	31.75	4,519.47	1,466.34	1,341.74	1,219.72	122.02	10.996	
16,150.00	11,620.00	15,909.80	10,443.36	78.68	90.37	31.68	4,556.91	1,464.19	1,340.79	1,218.77	122.03	10.988	
16,200.00	11,620.00	15,851.37	10,442.73	79.30	89.58	31.56	4,615.24	1,460.94	1,339.96	1,218.23	121.73	11.008	
16,250.00	11,620.00	15,789.07	10,442.66	79.92	88.73	31.45	4,677.45	1,457.62	1,338.79	1,217.39	121.40	11.028	
16,300.00	11,620.00	15,718.20	10,443.68	80.54	87.78	31.35	4,748.21	1,453.84	1,336.95	1,215.98	120.97	11.052	
16,350.00	11,620.00	15,681.51	10,444.29	81.17	87.28	31.30	4,784.84	1,451.82	1,334.97	1,213.93	121.04	11.029	
16,400.00	11,620.00	15,644.92	10,444.42	81.79	86.79	31.23	4,821.37	1,449.71	1,333.49	1,212.40	121.09	11.012	
16,450.00	11,620.00	15,602.41	10,444.05	82.42	86.22	31.14	4,863.80	1,447.19	1,332.47	1,211.43	121.03	11.009	
16,500.00	11,620.00	15,551.04	10,443.64	83.05	85.53	31.04	4,915.09	1,444.25	1,331.49	1,210.65	120.85	11.018	
16,550.00	11,620.00	15,499.56	10,443.40	83.68	84.84	30.94	4,966.50	1,441.48	1,330.47	1,209.79	120.68	11.025	
16,600.00	11,620.00	15,448.01	10,443.29	84.31	84.15	30.85	5,017.98	1,438.82	1,329.39	1,208.87	120.52	11.030	
16,650.00	11,620.00	15,399.58	10,443.23	84.94	83.50	30.77	5,066.34	1,436.35	1,328.30	1,207.88	120.42	11.031	
16,700.00	11,620.00	15,352.34	10,442.98	85.58	82.88	30.68	5,113.51	1,433.79	1,327.31	1,206.99	120.31	11.032	
16,750.00	11,620.00	15,303.56	10,442.56	86.22	82.23	30.58	5,162.21	1,431.04	1,326.39	1,206.21	120.18	11.037	
16,800.00	11,620.00	15,254.23	10,442.10	86.85	81.57	30.48	5,211.46	1,428.24	1,325.51	1,205.48	120.04	11.043	
16,850.00	11,620.00	15,206.95	10,441.58	87.49	80.94	30.38	5,258.66	1,425.53	1,324.69	1,204.77	119.92	11.046	
16,900.00	11,620.00	15,163.95	10,440.99	88.13	80.37	30.28	5,301.58	1,423.00	1,323.98	1,204.11	119.87	11.045	
16,950.00	11,620.00	15,097.71	10,440.13	88.78	79.50	30.13	5,367.70	1,419.00	1,323.18	1,203.71	119.46	11.076	
17,000.00	11,620.00	15,037.61	10,440.10	89.42	78.71	30.00	5,427.68	1,415.33	1,321.81	1,202.64	119.17	11.092	
17,050.00	11,620.00	14,987.97	10,440.28	90.06	78.06	29.91	5,477.23	1,412.38	1,320.33	1,201.29	119.04	11.091	
17,100.00	11,620.00	14,944.92	10,440.45	90.71	77.49	29.83	5,520.21	1,409.97	1,318.92	1,199.90	119.03	11.081	
17,150.00	11,620.00	14,909.10	10,440.37	91.36	77.03	29.77	5,556.00	1,408.25	1,317.98	1,198.86	119.12	11.064	

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 62H - Wellbore #1 - Wellbore #1												Offset Well Error:	0.50 ft
Survey Program: 147-MWD+HDGM													
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
17,200.00	11,620.00	14,878.32	10,440.11	92.00	76.63	29.73	5,586.75	1,407.01	1,317.57	1,198.28	119.29	11.046	
17,223.05	11,620.00	14,848.37	10,439.70	92.30	76.24	29.69	5,616.68	1,406.01	1,317.53	1,198.38	119.16	11.057	
17,250.00	11,620.00	14,813.36	10,439.50	92.66	75.79	29.65	5,651.67	1,404.93	1,317.34	1,198.32	119.02	11.068	
17,300.00	11,620.00	14,755.45	10,439.80	93.31	75.05	29.61	5,709.56	1,403.39	1,316.60	1,197.72	118.88	11.075	
17,350.00	11,620.00	14,709.90	10,440.35	93.96	74.47	29.61	5,755.11	1,402.74	1,315.88	1,196.94	118.94	11.063	
17,400.00	11,620.00	14,662.92	10,441.11	94.61	73.87	29.64	5,802.08	1,402.72	1,315.32	1,196.29	119.03	11.051	
17,450.00	11,620.00	14,612.61	10,441.99	95.27	73.24	29.67	5,852.38	1,402.88	1,314.79	1,195.70	119.09	11.041	
17,500.00	11,620.00	14,564.09	10,442.86	95.92	72.63	29.71	5,900.89	1,403.06	1,314.26	1,195.09	119.17	11.028	
17,550.00	11,620.00	14,518.10	10,443.50	96.58	72.06	29.74	5,946.87	1,403.15	1,313.86	1,194.59	119.27	11.016	
17,600.00	11,620.00	14,473.21	10,443.90	97.23	71.50	29.76	5,991.76	1,403.14	1,313.62	1,194.25	119.38	11.004	
17,624.51	11,620.00	14,452.13	10,443.97	97.56	71.24	29.76	6,012.84	1,403.07	1,313.59	1,194.16	119.43	10.999	
17,650.00	11,620.00	14,430.21	10,443.94	97.89	70.96	29.76	6,034.76	1,402.94	1,313.62	1,194.14	119.48	10.994	
17,700.00	11,620.00	14,385.90	10,443.59	98.55	70.41	29.75	6,079.07	1,402.52	1,313.89	1,194.34	119.55	10.990	
17,750.00	11,620.00	14,334.56	10,443.07	99.21	69.77	29.73	6,130.40	1,401.97	1,314.22	1,194.68	119.54	10.994	
17,800.00	11,620.00	14,283.30	10,442.62	99.87	69.14	29.71	6,181.66	1,401.43	1,314.49	1,194.97	119.53	10.998	
17,850.00	11,620.00	14,232.19	10,442.21	100.54	68.51	29.69	6,232.77	1,400.87	1,314.73	1,195.20	119.52	11.000	
17,900.00	11,620.00	14,179.75	10,441.84	101.20	67.86	29.67	6,285.20	1,400.27	1,314.90	1,195.40	119.50	11.003	
17,950.00	11,620.00	14,128.60	10,441.65	101.86	67.24	29.66	6,336.34	1,399.68	1,314.93	1,195.43	119.50	11.003	
18,000.00	11,620.00	14,064.50	10,441.74	102.53	66.46	29.65	6,400.44	1,398.93	1,314.74	1,195.37	119.37	11.014	
18,050.00	11,620.00	14,003.65	10,442.49	103.19	65.72	29.65	6,461.28	1,398.14	1,314.02	1,194.75	119.28	11.017	
18,100.00	11,620.00	13,952.89	10,443.25	103.86	65.10	29.65	6,512.02	1,397.32	1,313.14	1,193.83	119.31	11.007	
18,150.00	11,620.00	13,906.17	10,443.86	104.53	64.54	29.64	6,558.74	1,396.42	1,312.25	1,192.87	119.37	10.993	
18,200.00	11,620.00	13,865.70	10,444.07	105.20	64.05	29.62	6,599.20	1,395.55	1,311.65	1,192.14	119.51	10.975	
18,250.00	11,620.00	13,824.73	10,443.89	105.86	63.56	29.59	6,640.16	1,394.60	1,311.42	1,191.80	119.62	10.963	
18,300.00	11,620.00	13,772.63	10,443.48	106.53	62.94	29.54	6,692.24	1,393.32	1,311.31	1,191.72	119.59	10.965	
18,350.00	11,620.00	13,721.54	10,443.15	107.20	62.33	29.50	6,743.31	1,392.02	1,311.12	1,191.55	119.57	10.966	
18,400.00	11,620.00	13,673.65	10,442.86	107.88	61.77	29.46	6,791.19	1,390.91	1,310.97	1,191.37	119.60	10.962	
18,450.00	11,620.00	13,622.98	10,442.56	108.55	61.17	29.43	6,841.84	1,389.90	1,310.88	1,191.28	119.60	10.960	
18,500.00	11,620.00	13,564.27	10,442.57	109.22	60.49	29.40	6,900.55	1,388.82	1,310.58	1,191.05	119.53	10.965	
18,550.00	11,620.00	13,515.12	10,442.85	109.89	59.92	29.39	6,949.68	1,387.96	1,310.06	1,190.48	119.58	10.966	
18,600.00	11,620.00	13,471.41	10,442.86	110.57	59.42	29.37	6,993.39	1,387.14	1,309.75	1,190.06	119.69	10.943	
18,650.00	11,620.00	13,425.95	10,442.64	111.24	58.90	29.34	7,038.83	1,386.30	1,309.65	1,189.88	119.78	10.934	
18,661.66	11,620.00	13,414.88	10,442.59	111.40	58.77	29.34	7,049.91	1,386.14	1,309.65	1,189.86	119.79	10.933	
18,700.00	11,620.00	13,378.48	10,442.49	111.92	58.36	29.33	7,086.30	1,385.78	1,309.68	1,189.82	119.86	10.927	
18,750.00	11,620.00	13,331.40	10,442.46	112.60	57.83	29.34	7,133.39	1,385.68	1,309.81	1,189.83	119.97	10.917	
18,800.00	11,620.00	13,284.72	10,442.38	113.27	57.31	29.35	7,180.07	1,385.71	1,310.05	1,189.95	120.10	10.908	
18,850.00	11,620.00	13,237.49	10,442.21	113.95	56.79	29.36	7,227.29	1,385.83	1,310.43	1,190.20	120.23	10.899	
18,900.00	11,620.00	13,189.58	10,441.95	114.63	56.26	29.37	7,275.20	1,385.96	1,310.88	1,190.53	120.35	10.892	
18,950.00	11,620.00	13,140.77	10,441.60	115.31	55.72	29.38	7,324.01	1,386.09	1,311.41	1,190.95	120.46	10.887	
19,000.00	11,620.00	13,090.82	10,441.17	115.99	55.18	29.38	7,373.96	1,386.12	1,311.96	1,191.40	120.55	10.883	
19,050.00	11,620.00	13,042.32	10,440.69	116.67	54.66	29.38	7,422.46	1,386.07	1,312.52	1,191.86	120.66	10.878	
19,100.00	11,620.00	12,995.02	10,440.14	117.35	54.15	29.38	7,469.75	1,386.05	1,313.17	1,192.39	120.78	10.872	
19,150.00	11,620.00	12,945.69	10,439.49	118.03	53.63	29.38	7,519.09	1,386.07	1,313.90	1,193.02	120.89	10.869	
19,200.00	11,620.00	12,894.56	10,438.84	118.71	53.09	29.38	7,570.20	1,386.07	1,314.61	1,193.64	120.97	10.867	
19,250.00	11,620.00	12,827.25	10,438.36	119.39	52.39	29.38	7,637.52	1,385.96	1,315.06	1,194.16	120.90	10.877	
19,300.00	11,620.00	12,762.33	10,438.90	120.07	51.72	29.39	7,702.43	1,385.63	1,314.70	1,193.84	120.87	10.877	
19,350.00	11,620.00	12,711.33	10,439.56	120.76	51.20	29.41	7,753.43	1,385.31	1,314.14	1,193.15	120.99	10.862	
19,400.00	11,620.00	12,661.10	10,440.25	121.44	50.70	29.42	7,803.65	1,385.02	1,313.55	1,192.43	121.13	10.845	
19,450.00	11,620.00	12,611.48	10,441.05	122.13	50.20	29.45	7,853.26	1,384.96	1,312.98	1,191.69	121.29	10.825	
19,500.00	11,620.00	12,555.06	10,442.18	122.81	49.65	29.49	7,909.68	1,385.11	1,312.33	1,190.93	121.40	10.810	
19,550.00	11,620.00	12,495.73	10,443.84	123.50	49.07	29.55	7,968.98	1,385.25	1,311.32	1,189.82	121.50	10.793	
19,600.00	11,620.00	12,447.33	10,445.28	124.18	48.61	29.59	8,017.36	1,385.23	1,310.18	1,188.47	121.71	10.765	

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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:	5.00 ft
Survey Program: 147-MWD+HDGM														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		
19,650.00	11,620.00	12,405.00	10,446.38	124.87	48.21	29.62	8,059.67	1,385.05	1,309.11	1,187.14	121.97	10.733			
19,700.00	11,620.00	12,363.33	10,447.15	125.56	47.82	29.64	8,101.34	1,384.84	1,308.35	1,186.11	122.24	10.703			
19,750.00	11,620.00	12,326.30	10,447.43	126.24	47.48	29.65	8,138.37	1,384.71	1,308.10	1,185.56	122.54	10.675			
19,750.42	11,620.00	12,325.98	10,447.43	126.25	47.47	29.65	8,138.68	1,384.71	1,308.10	1,185.56	122.54	10.675			
19,800.00	11,620.00	12,281.63	10,447.38	126.93	47.07	29.65	8,183.04	1,384.65	1,308.26	1,185.51	122.76	10.657			
19,850.00	11,620.00	12,230.96	10,447.39	127.62	46.62	29.67	8,233.71	1,384.74	1,308.45	1,185.52	122.93	10.644			
19,900.00	11,620.00	12,179.22	10,447.54	128.31	46.16	29.69	8,285.44	1,384.98	1,308.60	1,185.49	123.11	10.630			
19,950.00	11,620.00	12,127.00	10,447.79	129.00	45.71	29.72	8,337.66	1,385.23	1,308.66	1,185.37	123.29	10.614			
20,000.00	11,620.00	12,084.46	10,447.89	129.69	45.35	29.74	8,380.20	1,385.36	1,308.80	1,185.24	123.56	10.592			
20,050.00	11,620.00	12,043.42	10,447.54	130.38	45.00	29.74	8,421.24	1,385.29	1,309.28	1,185.45	123.83	10.573			
20,100.00	11,620.00	11,994.02	10,446.68	131.07	44.59	29.72	8,470.63	1,384.93	1,310.01	1,186.02	123.99	10.566			
20,150.00	11,620.00	11,938.46	10,445.70	131.76	44.13	29.68	8,526.18	1,384.14	1,310.58	1,186.51	124.07	10.563			
20,200.00	11,620.00	11,886.96	10,444.86	132.45	43.72	29.64	8,577.65	1,383.22	1,311.00	1,186.81	124.19	10.556			
20,250.00	11,620.00	11,836.05	10,444.13	133.14	43.32	29.60	8,628.56	1,382.41	1,311.39	1,187.06	124.33	10.547			
20,300.00	11,620.00	11,787.20	10,443.44	133.83	42.95	29.57	8,677.40	1,381.66	1,311.78	1,187.27	124.51	10.536			
20,350.00	11,620.00	11,737.98	10,442.69	134.53	42.58	29.54	8,726.61	1,380.89	1,312.21	1,187.54	124.68	10.525			
20,400.00	11,620.00	11,684.16	10,441.98	135.22	42.19	29.51	8,780.42	1,380.13	1,312.59	1,187.77	124.82	10.516			
20,450.00	11,620.00	11,629.96	10,441.54	135.91	41.81	29.49	8,834.61	1,379.50	1,312.81	1,187.83	124.97	10.505			
20,500.00	11,620.00	11,575.07	10,441.34	136.61	41.44	29.47	8,889.49	1,378.89	1,312.85	1,187.71	125.14	10.491			
20,550.00	11,620.00	11,524.74	10,441.33	137.30	41.11	29.46	8,939.83	1,378.37	1,312.77	1,187.40	125.36	10.472			
20,600.00	11,620.00	11,477.02	10,441.33	137.99	40.80	29.46	8,987.54	1,378.04	1,312.75	1,187.12	125.63	10.449			
20,602.29	11,620.00	11,477.21	10,441.34	138.03	40.79	29.46	8,987.36	1,378.03	1,312.74	1,187.08	125.66	10.447			
20,650.00	11,620.00	11,423.89	10,441.39	138.69	40.47	29.47	9,040.68	1,377.82	1,312.75	1,186.89	125.86	10.430			
20,700.00	11,620.00	11,368.01	10,441.71	139.38	40.14	29.48	9,096.55	1,377.58	1,312.55	1,186.47	126.08	10.410			
20,750.00	11,620.00	11,315.91	10,442.19	140.08	39.85	29.49	9,148.65	1,377.33	1,312.19	1,185.84	126.35	10.385			
20,800.00	11,620.00	11,265.90	10,442.71	140.77	39.57	29.51	9,198.66	1,377.07	1,311.76	1,185.11	126.64	10.358			
20,842.10	11,620.00	11,234.22	10,442.89	141.36	39.40	29.51	9,230.33	1,376.93	1,311.59	1,184.60	126.99	10.328			
20,850.00	11,620.00	11,228.28	10,442.89	141.47	39.37	29.51	9,236.27	1,376.90	1,311.60	1,184.54	127.05	10.323			
20,900.00	11,620.00	11,190.66	10,442.70	142.17	39.18	29.51	9,273.89	1,376.81	1,311.91	1,184.45	127.45	10.293			
20,950.00	11,620.00	11,144.47	10,442.11	142.86	38.95	29.51	9,320.08	1,376.75	1,312.58	1,184.81	127.78	10.272			
21,000.00	11,620.00	11,093.38	10,441.42	143.56	38.71	29.50	9,371.16	1,376.60	1,313.26	1,185.19	128.06	10.255			
21,050.00	11,620.00	11,053.97	10,440.78	144.26	38.53	29.49	9,410.57	1,376.49	1,314.06	1,185.61	128.45	10.230			
21,100.00	11,620.00	11,017.93	10,439.84	144.96	38.38	29.48	9,446.60	1,376.52	1,315.37	1,186.52	128.86	10.208			
21,150.00	11,620.00	10,981.96	10,438.53	145.65	38.22	29.47	9,482.54	1,376.68	1,317.22	1,187.96	129.26	10.191			
21,200.00	11,620.00	10,946.22	10,436.87	146.35	38.08	29.45	9,518.24	1,376.98	1,319.61	1,189.95	129.66	10.177			
21,250.00	11,620.00	10,910.52	10,434.85	147.05	37.94	29.44	9,553.88	1,377.43	1,322.53	1,192.47	130.05	10.169			
21,300.00	11,620.00	10,873.69	10,432.39	147.75	37.81	29.41	9,590.62	1,378.00	1,325.97	1,195.54	130.43	10.166			
21,350.00	11,620.00	10,836.00	10,429.43	148.45	37.67	29.38	9,628.19	1,378.52	1,329.88	1,199.09	130.79	10.168			
21,400.00	11,620.00	10,801.00	10,426.29	149.15	37.55	29.34	9,663.05	1,378.93	1,334.25	1,203.11	131.14	10.174			
21,450.00	11,620.00	10,772.41	10,423.19	149.85	37.45	29.28	9,691.47	1,379.08	1,339.30	1,207.80	131.50	10.185			
21,500.00	11,620.00	10,745.85	10,419.62	150.55	37.36	29.21	9,717.78	1,378.94	1,345.21	1,213.39	131.81	10.205			
21,550.00	11,620.00	10,728.00	10,416.84	151.25	37.31	29.15	9,735.42	1,378.70	1,352.02	1,219.88	132.14	10.232			
21,600.00	11,620.00	10,700.72	10,411.83	151.95	37.22	29.02	9,762.22	1,378.02	1,359.77	1,227.42	132.34	10.274			
21,650.00	11,620.00	10,681.00	10,407.54	152.65	37.15	28.91	9,781.46	1,377.26	1,368.60	1,236.06	132.54	10.326			
21,700.00	11,620.00	10,657.83	10,401.88	153.35	37.08	28.76	9,803.89	1,376.17	1,378.44	1,245.78	132.66	10.391			
21,750.00	11,620.00	10,633.00	10,395.18	154.05	37.00	28.58	9,827.77	1,374.82	1,389.23	1,256.51	132.72	10.468			
21,800.00	11,620.00	10,613.58	10,389.47	154.75	36.94	28.42	9,846.29	1,373.61	1,400.96	1,268.19	132.78	10.551			
21,850.00	11,620.00	10,586.00	10,380.63	155.45	36.85	28.18	9,872.33	1,371.59	1,413.66	1,280.95	132.71	10.652			
21,900.00	11,620.00	10,572.38	10,375.95	156.16	36.81	28.05	9,885.08	1,370.49	1,427.26	1,294.52	132.73	10.753			
21,908.36	11,620.00	10,569.26	10,374.85	156.27	36.80	28.02	9,887.98	1,370.24	1,429.63	1,296.90	132.73	10.771			

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 521H - Wellbore #1 - Permit Plan 2														Offset Site Error:	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)					
0.00	0.00	7.80	-7.80	0.50	0.50	-11.58	299.64	-61.41	305.87						
50.00	50.00	42.20	42.20	0.50	0.50	-11.58	299.64	-61.41	305.87	304.86	1.01	304.283			
100.00	100.00	107.80	92.20	0.52	0.53	-11.58	299.64	-61.41	305.87	304.83	1.04	293.128			
150.00	150.00	142.20	142.20	0.59	0.58	-11.58	299.64	-61.41	305.87	304.70	1.17	262.298			
200.00	200.00	207.80	192.20	0.70	0.72	-11.58	299.64	-61.41	305.87	304.44	1.42	214.779			
250.00	250.00	242.20	242.20	0.84	0.82	-11.58	299.64	-61.41	305.87	304.22	1.65	185.020			
300.00	300.00	307.80	292.20	0.99	1.01	-11.58	299.64	-61.41	305.87	303.87	2.00	153.020			
350.00	350.00	342.20	342.20	1.15	1.12	-11.58	299.64	-61.41	305.87	303.60	2.27	134.988			
400.00	400.00	407.80	392.20	1.31	1.33	-11.58	299.64	-61.41	305.87	303.22	2.64	115.681			
450.00	450.00	442.20	442.20	1.48	1.45	-11.58	299.64	-61.41	305.87	302.94	2.93	104.521			
500.00	500.00	507.80	492.20	1.65	1.67	-11.58	299.64	-61.41	305.87	302.55	3.32	92.161			
550.00	550.00	542.20	542.20	1.82	1.79	-11.58	299.64	-61.41	305.87	302.26	3.61	84.764			
600.00	600.00	607.80	592.20	1.99	2.02	-11.58	299.64	-61.41	305.87	301.86	4.01	76.309			
650.00	650.00	642.20	642.20	2.16	2.14	-11.58	299.64	-61.41	305.87	301.57	4.30	71.100			
700.00	700.00	707.80	692.20	2.34	2.37	-11.58	299.64	-61.41	305.87	301.16	4.71	64.996			
750.00	750.00	742.20	742.20	2.51	2.49	-11.58	299.64	-61.41	305.87	300.87	5.00	61.149			
800.00	800.00	807.80	792.20	2.69	2.72	-11.58	299.64	-61.41	305.87	300.46	5.41	56.552			
850.00	850.00	842.20	842.20	2.87	2.84	-11.58	299.64	-61.41	305.87	300.16	5.71	53.602			
900.00	900.00	907.80	892.20	3.04	3.07	-11.58	299.64	-61.41	305.87	299.75	6.11	50.022			
950.00	950.00	942.20	942.20	3.22	3.19	-11.58	299.64	-61.41	305.87	299.46	6.41	47.692			
1,000.00	1,000.00	1,007.80	992.20	3.40	3.43	-11.58	299.64	-61.41	305.87	299.05	6.82	44.829			
1,050.00	1,050.00	1,042.20	1,042.20	3.58	3.55	-11.58	299.64	-61.41	305.87	298.75	7.12	42.945			
1,100.00	1,100.00	1,107.80	1,092.20	3.75	3.78	-11.58	299.64	-61.41	305.87	298.34	7.53	40.604			
1,150.00	1,150.00	1,142.20	1,142.20	3.93	3.90	-11.58	299.64	-61.41	305.87	298.04	7.83	39.049			
1,200.00	1,200.00	1,207.80	1,192.20	4.11	4.14	-11.58	299.64	-61.41	305.87	297.62	8.24	37.102			
1,250.00	1,250.00	1,242.20	1,242.20	4.29	4.26	-11.58	299.64	-61.41	305.87	297.32	8.54	35.797			
1,300.00	1,300.00	1,307.80	1,292.20	4.46	4.49	-11.58	299.64	-61.41	305.87	296.91	8.96	34.152			
1,350.00	1,350.00	1,342.20	1,342.20	4.64	4.61	-11.58	299.64	-61.41	305.87	296.61	9.26	33.042			
1,400.00	1,400.00	1,407.80	1,392.20	4.82	4.85	-11.58	299.64	-61.41	305.87	296.20	9.67	31.634			
1,450.00	1,450.00	1,442.20	1,442.20	5.00	4.97	-11.58	299.64	-61.41	305.87	295.90	9.97	30.679			
1,500.00	1,500.00	1,507.80	1,492.20	5.18	5.21	-11.58	299.64	-61.41	305.87	295.49	10.38	29.461			
1,550.00	1,550.00	1,542.20	1,542.20	5.36	5.33	-11.58	299.64	-61.41	305.87	295.19	10.68	28.630			
1,600.00	1,600.00	1,607.80	1,592.20	5.53	5.56	-11.58	299.64	-61.41	305.87	294.77	11.10	27.565			
1,650.00	1,650.00	1,642.20	1,642.20	5.71	5.68	-11.58	299.64	-61.41	305.87	294.47	11.40	26.837			
1,700.00	1,700.00	1,707.80	1,692.20	5.89	5.92	-11.58	299.64	-61.41	305.87	294.06	11.81	25.898			
1,750.00	1,750.00	1,742.20	1,742.20	6.07	6.04	-11.58	299.64	-61.41	305.87	293.76	12.11	25.254			
1,800.00	1,800.00	1,807.80	1,792.20	6.25	6.28	-11.58	299.64	-61.41	305.87	293.34	12.52	24.421			
1,850.00	1,850.00	1,842.20	1,842.20	6.43	6.40	-11.58	299.64	-61.41	305.87	293.04	12.83	23.847			
1,900.00	1,900.00	1,907.80	1,892.20	6.61	6.63	-11.58	299.64	-61.41	305.87	292.63	13.24	23.103			
1,950.00	1,950.00	1,942.20	1,942.20	6.78	6.76	-11.58	299.64	-61.41	305.87	292.33	13.54	22.588			
2,000.00	2,000.00	2,007.80	1,992.20	6.96	6.99	-11.58	299.64	-61.41	305.87	291.91	13.95	21.919			
2,050.00	2,050.00	2,042.20	2,042.20	7.14	7.11	-11.58	299.64	-61.41	305.87	291.61	14.26	21.455			
2,100.00	2,100.00	2,107.80	2,092.20	7.32	7.35	-11.58	299.64	-61.41	305.87	291.20	14.67	20.850			
2,150.00	2,150.00	2,142.20	2,142.20	7.50	7.47	-11.58	299.64	-61.41	305.87	290.90	14.97	20.430			
2,200.00	2,200.00	2,207.80	2,192.20	7.68	7.71	-11.58	299.64	-61.41	305.87	290.48	15.39	19.881			
2,250.00	2,250.00	2,242.20	2,242.20	7.86	7.83	-11.58	299.64	-61.41	305.87	290.18	15.69	19.498			
2,300.00	2,300.00	2,307.80	2,292.20	8.04	8.06	-11.58	299.64	-61.41	305.87	289.77	16.10	18.997			
2,350.00	2,350.00	2,342.20	2,342.20	8.22	8.19	-11.58	299.64	-61.41	305.87	289.47	16.40	18.648			
2,400.00	2,400.00	2,407.80	2,392.20	8.39	8.42	-11.58	299.64	-61.41	305.87	289.05	16.82	18.189			
2,450.00	2,450.00	2,442.20	2,442.20	8.57	8.55	-115.82	299.64	-61.41	305.96	288.85	17.11	17.879			
2,500.00	2,499.99	2,507.81	2,492.19	8.74	8.78	-115.93	299.64	-61.41	306.25	288.73	17.52	17.479			
2,550.00	2,549.98	2,542.18	2,542.18	8.91	8.90	-116.11	299.64	-61.41	306.73	288.92	17.81	17.220			

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance		Minimum		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor		
2,600.00	2,599.96	2,607.84	2,592.16	9.08	9.14	-116.36	299.64	-61.41	307.40	289.19	18.22	16.875		
2,650.00	2,649.92	2,642.12	2,642.12	9.25	9.26	-116.68	299.64	-61.41	308.28	289.77	18.51	16.656		
2,700.00	2,699.86	2,707.94	2,692.06	9.42	9.50	-117.07	299.64	-61.41	309.37	290.45	18.91	16.357		
2,750.00	2,749.78	2,741.98	2,741.98	9.59	9.62	-117.52	299.64	-61.41	310.67	291.46	19.21	16.175		
2,800.00	2,799.68	2,808.12	2,791.88	9.76	9.85	-118.04	299.64	-61.41	312.19	292.58	19.61	15.917		
2,850.00	2,849.54	2,841.74	2,841.74	9.93	9.98	-118.62	299.64	-61.41	313.96	294.05	19.91	15.772		
2,900.00	2,899.37	2,908.43	2,891.57	10.10	10.21	-119.26	299.64	-61.41	315.96	295.65	20.32	15.552		
2,950.00	2,949.16	2,941.36	2,941.36	10.28	10.33	-119.95	299.64	-61.41	318.23	297.62	20.61	15.443		
3,000.00	2,998.90	2,991.10	2,991.10	10.45	10.51	-120.71	299.64	-61.41	320.77	299.81	20.96	15.305		
3,050.00	3,048.63	3,043.27	3,043.27	10.63	10.69	-121.53	299.49	-61.35	323.31	302.00	21.31	15.171		
3,100.00	3,098.36	3,096.01	3,096.01	10.80	10.87	-122.35	298.89	-61.11	325.46	303.80	21.66	15.024		
3,150.00	3,148.09	3,148.79	3,148.78	10.98	11.04	-123.14	297.85	-60.69	327.22	305.21	22.01	14.869		
3,200.00	3,197.82	3,201.61	3,201.57	11.16	11.21	-123.93	296.35	-60.09	328.57	306.22	22.35	14.702		
3,250.00	3,247.55	3,254.46	3,254.38	11.33	11.39	-124.71	294.40	-59.31	329.51	306.82	22.69	14.523		
3,300.00	3,297.28	3,307.32	3,307.17	11.51	11.56	-125.49	291.99	-58.35	330.05	307.02	23.03	14.332		
3,350.00	3,347.01	3,360.19	3,359.95	11.69	11.73	-126.26	289.13	-57.21	330.19	306.82	23.37	14.129		
3,400.00	3,396.74	3,413.06	3,412.70	11.87	11.91	-127.03	285.82	-55.88	329.91	306.21	23.71	13.916		
3,450.00	3,446.47	3,465.91	3,465.40	12.05	12.08	-127.81	282.06	-54.38	329.24	305.19	24.05	13.692		
3,500.00	3,496.20	3,518.75	3,518.04	12.23	12.26	-128.59	277.85	-52.69	328.15	303.77	24.38	13.459		
3,550.00	3,545.93	3,571.56	3,570.61	12.41	12.43	-129.38	273.19	-50.83	326.67	301.95	24.72	13.216		
3,600.00	3,595.66	3,624.33	3,623.10	12.59	12.61	-130.18	268.09	-48.79	324.78	299.73	25.05	12.965		
3,650.00	3,645.38	3,675.60	3,674.04	12.77	12.78	-130.98	262.75	-46.65	322.55	297.16	25.39	12.705		
3,700.00	3,695.11	3,725.35	3,723.47	12.95	12.95	-131.76	257.51	-44.56	320.32	294.59	25.73	12.448		
3,750.00	3,744.84	3,775.11	3,772.91	13.13	13.12	-132.56	252.27	-42.46	318.15	292.08	26.08	12.201		
3,800.00	3,794.57	3,824.86	3,822.34	13.31	13.29	-133.36	247.04	-40.37	316.05	289.63	26.42	11.962		
3,850.00	3,844.30	3,874.62	3,871.78	13.49	13.46	-134.18	241.80	-38.27	314.01	287.24	26.77	11.732		
3,900.00	3,894.03	3,924.37	3,921.21	13.68	13.63	-135.01	236.56	-36.18	312.03	284.92	27.11	11.509		
3,950.00	3,943.76	3,974.13	3,970.64	13.86	13.80	-135.84	231.32	-34.08	310.12	282.66	27.46	11.295		
4,000.00	3,993.49	4,023.88	4,020.08	14.04	13.97	-136.69	226.08	-31.99	308.28	280.47	27.80	11.087		
4,050.00	4,043.22	4,073.64	4,069.51	14.23	14.14	-137.55	220.85	-29.89	306.50	278.35	28.15	10.888		
4,100.00	4,092.95	4,123.39	4,118.95	14.41	14.32	-138.41	215.61	-27.80	304.80	276.30	28.50	10.695		
4,150.00	4,142.68	4,173.15	4,168.38	14.59	14.49	-139.29	210.37	-25.70	303.16	274.32	28.85	10.509		
4,200.00	4,192.41	4,222.90	4,217.82	14.78	14.67	-140.18	205.13	-23.61	301.60	272.41	29.20	10.331		
4,250.00	4,242.14	4,272.66	4,267.25	14.96	14.84	-141.07	199.89	-21.51	300.11	270.57	29.54	10.158		
4,300.00	4,291.87	4,322.41	4,316.68	15.15	15.02	-141.97	194.66	-19.42	298.70	268.81	29.89	9.992		
4,350.00	4,341.60	4,372.17	4,366.12	15.33	15.19	-142.88	189.42	-17.32	297.36	267.12	30.24	9.832		
4,400.00	4,391.32	4,421.92	4,415.55	15.52	15.37	-143.80	184.18	-15.23	296.10	265.51	30.59	9.679		
4,450.00	4,441.05	4,471.68	4,464.99	15.70	15.55	-144.73	178.94	-13.13	294.92	263.97	30.94	9.531		
4,500.00	4,490.78	4,521.43	4,514.42	15.89	15.72	-145.66	173.71	-11.04	293.81	262.52	31.30	9.388		
4,550.00	4,540.51	4,571.19	4,563.85	16.07	15.90	-146.60	168.47	-8.94	292.78	261.14	31.65	9.252		
4,600.00	4,590.24	4,620.94	4,613.29	16.26	16.08	-147.55	163.23	-6.85	291.84	259.84	32.00	9.120		
4,650.00	4,639.97	4,670.70	4,662.72	16.44	16.26	-148.50	157.99	-4.75	290.97	258.62	32.35	8.994		
4,700.00	4,689.70	4,720.45	4,712.16	16.63	16.44	-149.46	152.75	-2.66	290.19	257.49	32.70	8.873		
4,750.00	4,739.43	4,770.21	4,761.59	16.82	16.62	-150.43	147.52	-0.56	289.49	256.43	33.06	8.757		
4,800.00	4,789.16	4,819.96	4,811.02	17.00	16.80	-151.39	142.28	1.54	288.87	255.46	33.41	8.646		
4,850.00	4,838.89	4,869.72	4,860.46	17.19	16.98	-152.36	137.04	3.63	288.34	254.57	33.77	8.539		
4,900.00	4,888.62	4,919.47	4,909.89	17.38	17.16	-153.34	131.80	5.73	287.88	253.77	34.12	8.437		
4,950.00	4,938.35	4,969.23	4,959.33	17.56	17.34	-154.32	126.56	7.82	287.52	253.04	34.48	8.340		
5,000.00	4,988.08	5,018.98	5,008.76	17.75	17.52	-155.29	121.33	9.92	287.24	252.41	34.83	8.247		
5,050.00	5,037.81	5,068.74	5,058.19	17.94	17.70	-156.28	116.09	12.01	287.04	251.85	35.19	8.158		
5,100.00	5,087.53	5,118.49	5,107.63	18.13	17.88	-157.26	110.85	14.11	286.93	251.38	35.54	8.072		
5,140.67	5,127.99	5,158.97	5,147.84	18.28	18.03	-158.06	106.59	15.81	286.90	251.06	35.83	8.006 CC		

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
5,150.00	5,137.26	5,168.25	5,157.06	18.31	18.06	-158.24	105.61	16.20	286.90	251.00	35.90	7.991		
5,200.00	5,186.99	5,218.00	5,206.50	18.50	18.25	-159.22	100.37	18.30	286.96	250.70	36.26	7.914		
5,250.00	5,236.72	5,267.76	5,255.93	18.69	18.43	-160.20	95.14	20.39	287.10	250.49	36.62	7.841		
5,300.00	5,286.45	5,317.51	5,305.37	18.88	18.61	-161.18	89.90	22.49	287.33	250.35	36.98	7.771		
5,350.00	5,336.18	5,367.27	5,354.80	19.06	18.80	-162.16	84.66	24.58	287.65	250.31	37.34	7.704 ES		
5,400.00	5,385.91	5,417.02	5,404.23	19.25	18.98	-163.14	79.42	26.68	288.04	250.35	37.70	7.641		
5,450.00	5,435.64	5,466.78	5,453.67	19.44	19.16	-164.11	74.19	28.77	288.53	250.47	38.06	7.581		
5,500.00	5,485.37	5,516.53	5,503.10	19.63	19.35	-165.08	68.95	30.87	289.09	250.67	38.42	7.525		
5,550.00	5,535.10	5,566.29	5,552.54	19.82	19.53	-166.05	63.71	32.96	289.74	250.96	38.78	7.471		
5,600.00	5,584.83	5,616.04	5,601.97	20.00	19.72	-167.01	58.47	35.06	290.47	251.33	39.14	7.421		
5,650.00	5,634.56	5,665.80	5,651.40	20.19	19.90	-167.97	53.23	37.15	291.29	251.78	39.51	7.373		
5,700.00	5,684.29	5,715.55	5,700.84	20.38	20.09	-168.92	48.00	39.25	292.18	252.31	39.87	7.328		
5,750.00	5,734.02	5,765.31	5,750.27	20.57	20.27	-169.86	42.76	41.34	293.16	252.92	40.24	7.286		
5,800.00	5,783.74	5,815.06	5,799.71	20.76	20.46	-170.80	37.52	43.44	294.21	253.61	40.60	7.246		
5,850.00	5,833.47	5,864.82	5,849.14	20.95	20.64	-171.73	32.28	45.53	295.35	254.38	40.97	7.209		
5,900.00	5,883.20	5,914.57	5,898.57	21.14	20.83	-172.65	27.04	47.63	296.56	255.23	41.33	7.175		
5,950.00	5,932.93	5,964.33	5,948.01	21.33	21.01	-173.57	21.81	49.72	297.85	256.15	41.70	7.142		
6,000.00	5,982.66	6,014.08	5,997.44	21.52	21.20	-174.48	16.57	51.82	299.22	257.15	42.07	7.113		
6,050.00	6,032.39	6,063.84	6,046.88	21.70	21.38	-175.38	11.33	53.91	300.66	258.22	42.44	7.085		
6,100.00	6,082.12	6,113.59	6,096.31	21.89	21.57	-176.27	6.09	56.01	302.18	259.37	42.81	7.059		
6,150.00	6,131.85	6,163.35	6,145.74	22.08	21.76	-177.15	0.85	58.10	303.76	260.59	43.18	7.035		
6,200.00	6,181.58	6,213.10	6,195.18	22.27	21.94	-178.02	-4.38	60.20	305.42	261.88	43.55	7.014		
6,250.00	6,231.31	6,262.86	6,244.61	22.46	22.13	-178.89	-9.62	62.29	307.15	263.24	43.92	6.994		
6,300.00	6,281.04	6,312.61	6,294.05	22.65	22.32	-179.74	-14.86	64.39	308.96	264.67	44.29	6.976		
6,350.00	6,330.77	6,362.37	6,343.48	22.84	22.51	-179.42	-20.10	66.49	310.82	266.16	44.66	6.960		
6,400.00	6,380.50	6,412.12	6,392.92	23.03	22.69	-178.58	-25.34	68.58	312.76	267.73	45.03	6.945		
6,450.00	6,430.23	6,461.88	6,442.35	23.22	22.88	-177.76	-30.57	70.68	314.76	269.36	45.40	6.932		
6,500.00	6,479.95	6,511.63	6,491.78	23.41	23.07	-176.95	-35.81	72.77	316.83	271.05	45.78	6.921		
6,550.00	6,529.68	6,561.39	6,541.22	23.60	23.26	-176.15	-41.05	74.87	318.95	272.80	46.15	6.911		
6,600.00	6,579.41	6,611.14	6,590.65	23.79	23.44	-175.35	-46.29	76.96	321.15	274.62	46.53	6.903		
6,650.00	6,629.14	6,660.90	6,640.09	23.98	23.63	-174.57	-51.52	79.06	323.40	276.50	46.90	6.895		
6,700.00	6,678.87	6,710.65	6,689.52	24.17	23.82	-173.80	-56.76	81.15	325.71	278.43	47.27	6.890		
6,750.00	6,728.60	6,760.41	6,738.95	24.36	24.01	-173.05	-62.00	83.25	328.08	280.43	47.65	6.885		
6,800.00	6,778.33	6,810.16	6,788.39	24.55	24.20	-172.30	-67.24	85.34	330.50	282.48	48.03	6.882		
6,850.00	6,828.06	6,859.92	6,837.82	24.74	24.38	-171.56	-72.48	87.44	332.99	284.58	48.40	6.880		
6,900.00	6,877.79	6,909.67	6,887.26	24.93	24.57	-170.84	-77.71	89.53	335.52	286.74	48.78	6.878		
6,950.00	6,927.52	6,959.43	6,936.69	25.12	24.76	-170.12	-82.95	91.63	338.11	288.96	49.16	6.878 SF		
7,000.00	6,977.25	7,009.18	6,986.12	25.31	24.95	-169.42	-88.19	93.72	340.76	291.22	49.53	6.879		
7,050.00	7,026.98	7,058.94	7,035.56	25.50	25.14	-168.72	-93.43	95.82	343.45	293.54	49.91	6.881		
7,100.00	7,076.71	7,108.69	7,084.99	25.69	25.33	-168.04	-98.67	97.91	346.19	295.90	50.29	6.884		
7,150.00	7,126.44	7,158.45	7,134.43	25.88	25.52	-167.37	-103.90	100.01	348.98	298.32	50.67	6.888		
7,200.00	7,176.16	7,208.20	7,183.86	26.07	25.71	-166.71	-109.14	102.10	351.82	300.78	51.05	6.892		
7,250.00	7,225.89	7,257.96	7,233.30	26.26	25.90	-166.06	-114.38	104.20	354.71	303.28	51.42	6.898		
7,300.00	7,275.62	7,307.71	7,282.73	26.45	26.08	-165.42	-119.62	106.29	357.63	305.83	51.80	6.904		
7,350.00	7,325.35	7,357.46	7,332.16	26.64	26.27	-164.79	-124.86	108.39	360.61	308.43	52.18	6.911		
7,400.00	7,375.08	7,407.22	7,381.60	26.84	26.46	-164.17	-130.09	110.48	363.63	311.06	52.56	6.918		
7,450.00	7,424.81	7,456.97	7,431.03	27.03	26.65	-163.56	-135.33	112.58	366.68	313.74	52.94	6.926		
7,500.00	7,474.54	7,506.73	7,480.47	27.22	26.84	-162.96	-140.57	114.67	369.78	316.46	53.32	6.935		
7,550.00	7,524.27	7,556.48	7,529.90	27.41	27.03	-162.37	-145.81	116.77	372.92	319.22	53.70	6.944		
7,600.00	7,574.00	7,606.24	7,579.33	27.60	27.22	-161.80	-151.04	118.86	376.10	322.02	54.08	6.954		
7,650.00	7,623.73	7,655.99	7,628.77	27.79	27.41	-161.23	-156.28	120.96	379.32	324.85	54.46	6.965		
7,700.00	7,673.46	7,705.75	7,678.20	27.98	27.60	-160.67	-161.52	123.05	382.57	327.72	54.84	6.976		

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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		
7,750.00	7,723.19	7,755.50	7,727.64	28.17	27.79	160.12	-166.76	125.15	385.86	330.63	55.22	6.987			
7,800.00	7,772.92	7,805.26	7,777.07	28.36	27.98	159.58	-172.00	127.24	389.18	333.57	55.61	6.999			
7,850.00	7,822.65	7,855.01	7,826.50	28.55	28.17	159.04	-177.23	129.34	392.54	336.55	55.99	7.011			
7,900.00	7,872.37	7,903.56	7,874.76	28.74	28.36	158.57	-182.09	131.28	396.00	339.64	56.36	7.026			
7,950.00	7,922.10	7,952.09	7,923.07	28.93	28.54	158.20	-186.37	132.99	399.65	342.92	56.73	7.045			
8,000.00	7,971.83	8,000.65	7,971.47	29.13	28.72	157.91	-190.09	134.48	403.46	346.37	57.09	7.067			
8,050.00	8,021.56	8,049.23	8,019.93	29.32	28.90	157.71	-193.23	135.74	407.44	349.99	57.46	7.091			
8,100.00	8,071.29	8,097.81	8,068.44	29.51	29.08	157.61	-195.80	136.77	411.58	353.76	57.81	7.119			
8,150.00	8,121.02	8,146.38	8,116.96	29.70	29.25	157.58	-197.80	137.57	415.86	357.69	58.17	7.149			
8,200.00	8,170.75	8,194.92	8,165.47	29.89	29.42	157.64	-199.23	138.14	420.30	361.78	58.52	7.182			
8,250.00	8,220.48	8,243.42	8,213.96	30.08	29.59	157.78	-200.08	138.48	424.88	366.02	58.86	7.219			
8,300.00	8,270.21	8,291.87	8,262.41	30.27	29.75	158.00	-200.36	138.59	429.62	370.43	59.20	7.257			
8,350.00	8,319.94	8,341.60	8,312.14	30.46	29.92	158.25	-200.36	138.59	434.45	374.91	59.54	7.297			
8,400.00	8,369.67	8,406.67	8,361.87	30.66	30.14	158.50	-200.36	138.59	439.28	379.34	59.94	7.329			
8,450.00	8,419.40	8,441.06	8,411.60	30.85	30.25	158.75	-200.36	138.59	444.13	383.90	60.23	7.374			
8,500.00	8,469.13	8,490.79	8,461.33	31.04	30.41	158.99	-200.36	138.59	448.98	388.41	60.57	7.413			
8,550.00	8,518.86	8,540.51	8,511.06	31.23	30.58	159.22	-200.36	138.59	453.83	392.92	60.91	7.451			
8,600.00	8,568.58	8,590.24	8,560.78	31.42	30.74	159.45	-200.36	138.59	458.70	397.44	61.26	7.488			
8,650.00	8,618.31	8,644.03	8,614.50	31.61	30.92	159.99	-197.95	138.58	463.36	401.74	61.62	7.520			
8,700.00	8,668.04	8,696.76	8,666.71	31.80	31.08	161.11	-190.72	138.53	467.68	405.73	61.94	7.550			
8,750.00	8,717.77	8,747.51	8,716.13	32.00	31.22	162.70	-179.25	138.46	471.92	409.68	62.24	7.583			
8,800.00	8,767.50	8,795.63	8,761.88	32.19	31.35	164.67	-164.38	138.37	476.43	413.94	62.49	7.624			
8,850.00	8,817.23	8,840.72	8,803.48	32.38	31.46	166.89	-147.01	138.27	481.63	418.93	62.70	7.681			
8,900.00	8,866.96	8,892.54	8,840.73	32.57	31.55	169.24	-128.02	138.15	487.93	425.08	62.85	7.764			
8,950.00	8,916.69	8,921.04	8,873.71	32.76	31.63	171.64	-108.17	138.03	495.72	432.82	62.90	7.881			
9,000.00	8,966.42	8,956.30	8,902.69	32.95	31.70	174.01	-88.10	137.91	505.34	442.50	62.85	8.041			
9,050.00	9,016.15	8,988.47	8,928.00	33.15	31.76	176.29	-68.26	137.79	517.07	454.42	62.65	8.253			
9,100.00	9,065.88	9,017.76	8,950.05	33.34	31.81	178.45	-48.98	137.67	531.09	468.77	62.32	8.522			
9,150.00	9,115.61	9,044.41	8,969.23	33.53	31.86	-179.53	-30.49	137.56	547.50	485.66	61.84	8.854			
9,200.00	9,165.34	9,068.66	8,985.92	33.72	31.90	-177.66	-12.90	137.45	566.31	505.09	61.22	9.250			
9,250.00	9,215.07	9,090.74	9,000.46	33.91	31.93	-175.93	3.72	137.35	587.51	527.01	60.49	9.712			
9,300.00	9,264.79	9,110.88	9,013.16	34.10	31.96	-174.34	19.36	137.26	610.99	551.32	59.67	10.239			
9,350.00	9,314.52	9,129.27	9,024.26	34.30	31.99	-172.89	34.02	137.17	636.64	577.86	58.79	10.830			
9,400.00	9,364.25	9,150.00	9,036.20	34.49	32.02	-171.25	50.96	137.07	664.34	606.38	57.95	11.463			
9,450.00	9,413.98	9,161.55	9,042.59	34.68	32.04	-170.34	60.58	137.01	693.86	636.95	56.91	12.191			
9,500.00	9,463.71	9,175.74	9,050.17	34.87	32.06	-169.23	72.58	136.93	725.13	669.16	55.97	12.955			
9,550.00	9,513.44	9,188.82	9,056.89	35.06	32.08	-168.21	83.79	136.87	757.95	702.90	55.04	13.770			
9,600.00	9,563.17	9,200.00	9,062.43	35.25	32.10	-167.34	93.51	136.81	792.19	738.06	54.13	14.636			
9,650.00	9,612.90	9,212.05	9,068.19	35.45	32.11	-166.41	104.10	136.74	827.71	774.43	53.29	15.533			
9,700.00	9,662.63	9,222.41	9,072.96	35.64	32.13	-165.62	113.29	136.69	864.39	811.92	52.47	16.474			
9,750.00	9,712.36	9,232.04	9,077.25	35.83	32.14	-164.89	121.91	136.63	902.12	850.42	51.70	17.449			
9,800.00	9,762.09	9,250.00	9,084.85	36.02	32.17	-163.53	138.18	136.54	940.88	889.71	51.17	18.387			
9,850.00	9,811.82	9,250.00	9,084.85	36.21	32.17	-163.53	138.18	136.54	980.30	929.98	50.32	19.482			
9,900.00	9,861.55	9,250.00	9,084.85	36.41	32.17	-163.53	138.18	136.54	1,020.64	971.11	49.54	20.604			
9,950.00	9,911.28	9,264.50	9,090.62	36.60	32.19	-162.46	151.48	136.46	1,061.56	1,012.46	49.10	21.619			
10,000.00	9,961.00	9,271.36	9,093.23	36.79	32.20	-161.95	157.83	136.42	1,103.16	1,054.60	48.57	22.713			
10,050.00	10,010.73	9,277.82	9,095.61	36.98	32.21	-161.48	163.83	136.38	1,145.34	1,097.26	48.08	23.822			
10,100.00	10,060.46	9,283.89	9,097.80	37.17	32.22	-161.04	169.50	136.35	1,188.03	1,140.40	47.63	24.942			
10,150.00	10,110.19	9,300.00	9,103.29	37.37	32.25	-159.89	184.64	136.25	1,231.33	1,183.93	47.39	25.981			
10,200.00	10,159.92	9,300.00	9,103.29	37.56	32.25	-159.89	184.64	136.25	1,274.82	1,227.90	46.93	27.166			
10,250.00	10,209.65	9,300.00	9,103.29	37.75	32.25	-159.89	184.64	136.25	1,318.78	1,272.28	46.51	28.358			
10,300.00	10,259.38	9,300.00	9,103.29	37.94	32.25	-159.89	184.64	136.25	1,363.16	1,317.04	46.13	29.553			

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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 521H - Wellbore #1 - Permit Plan 2														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,350.00	10,309.11	9,300.00	9,103.29	38.13	32.25	-159.98	184.64	136.25	1,407.91	1,362.13	45.78	30.751			
10,400.00	10,358.88	9,300.00	9,103.29	38.32	32.25	-160.50	184.64	136.25	1,452.83	1,407.35	45.47	31.951			
10,450.00	10,408.72	9,318.20	9,108.99	38.51	32.27	-159.78	201.92	136.15	1,497.43	1,452.01	45.42	32.969			

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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		
0.00	0.00	0.20	-0.20	0.50	0.50	-90.29	-0.15	-29.98	29.98						
50.00	50.00	49.80	49.80	0.50	0.50	-90.29	-0.15	-29.98	29.98	28.97	1.01	29.788			
100.00	100.00	100.20	99.80	0.52	0.52	-90.29	-0.15	-29.98	29.98	28.94	1.04	28.947			
150.00	150.00	149.80	149.80	0.59	0.59	-90.29	-0.15	-29.98	29.98	28.80	1.18	25.405			
200.00	200.00	200.20	199.80	0.70	0.70	-90.29	-0.15	-29.98	29.98	28.58	1.40	21.343			
250.00	250.00	249.80	249.80	0.84	0.84	-90.29	-0.15	-29.98	29.98	28.31	1.67	17.900			
300.00	300.00	300.20	299.80	0.99	0.99	-90.29	-0.15	-29.98	29.98	28.01	1.98	15.178			
350.00	350.00	349.80	349.80	1.15	1.14	-90.29	-0.15	-29.98	29.98	27.69	2.29	13.090			
400.00	400.00	400.20	399.80	1.31	1.31	-90.29	-0.15	-29.98	29.98	27.36	2.62	11.448			
450.00	450.00	449.80	449.80	1.48	1.48	-90.29	-0.15	-29.98	29.98	27.03	2.95	10.156			
500.00	500.00	500.20	499.80	1.65	1.65	-90.29	-0.15	-29.98	29.98	26.69	3.29	9.105			
550.00	550.00	549.80	549.80	1.82	1.82	-90.29	-0.15	-29.98	29.98	26.35	3.63	8.249			
600.00	600.00	600.20	599.80	1.99	1.99	-90.29	-0.15	-29.98	29.98	26.00	3.98	7.529			
650.00	650.00	649.80	649.80	2.16	2.16	-90.29	-0.15	-29.98	29.98	25.65	4.33	6.926			
700.00	700.00	700.20	699.80	2.34	2.34	-90.29	-0.15	-29.98	29.98	25.30	4.68	6.407			
750.00	750.00	749.80	749.80	2.51	2.51	-90.29	-0.15	-29.98	29.98	24.95	5.03	5.962			
800.00	800.00	800.20	799.80	2.69	2.69	-90.29	-0.15	-29.98	29.98	24.60	5.38	5.571			
850.00	850.00	849.80	849.80	2.87	2.87	-90.29	-0.15	-29.98	29.98	24.25	5.73	5.229			
900.00	900.00	900.20	899.80	3.04	3.04	-90.29	-0.15	-29.98	29.98	23.89	6.09	4.925 Alert			
950.00	950.00	949.80	949.80	3.22	3.22	-90.29	-0.15	-29.98	29.98	23.54	6.44	4.655 Alert			
1,000.00	1,000.00	1,000.20	999.80	3.40	3.40	-90.29	-0.15	-29.98	29.98	23.18	6.80	4.411 Alert			
1,050.00	1,050.00	1,049.80	1,049.80	3.58	3.57	-90.29	-0.15	-29.98	29.98	22.83	7.15	4.193 Alert			
1,100.00	1,100.00	1,100.20	1,099.80	3.75	3.75	-90.29	-0.15	-29.98	29.98	22.47	7.51	3.994 Alert			
1,150.00	1,150.00	1,149.80	1,149.80	3.93	3.93	-90.29	-0.15	-29.98	29.98	22.12	7.86	3.814 Alert			
1,200.00	1,200.00	1,200.20	1,199.80	4.11	4.11	-90.29	-0.15	-29.98	29.98	21.76	8.22	3.649 Alert			
1,250.00	1,250.00	1,249.80	1,249.80	4.29	4.29	-90.29	-0.15	-29.98	29.98	21.41	8.57	3.498 Alert			
1,300.00	1,300.00	1,300.20	1,299.80	4.46	4.46	-90.29	-0.15	-29.98	29.98	21.05	8.93	3.358 Alert			
1,350.00	1,350.00	1,349.80	1,349.80	4.64	4.64	-90.29	-0.15	-29.98	29.98	20.70	9.28	3.229 Alert			
1,400.00	1,400.00	1,400.20	1,399.80	4.82	4.82	-90.29	-0.15	-29.98	29.98	20.34	9.64	3.109 Alert			
1,450.00	1,450.00	1,449.80	1,449.80	5.00	5.00	-90.29	-0.15	-29.98	29.98	19.98	10.00	2.999 Alert			
1,500.00	1,500.00	1,500.20	1,499.80	5.18	5.18	-90.29	-0.15	-29.98	29.98	19.63	10.36	2.895 Alert			
1,550.00	1,550.00	1,549.80	1,549.80	5.36	5.35	-90.29	-0.15	-29.98	29.98	19.27	10.71	2.799 Alert			
1,600.00	1,600.00	1,600.20	1,599.80	5.53	5.53	-90.29	-0.15	-29.98	29.98	18.91	11.07	2.709 Alert			
1,650.00	1,650.00	1,649.80	1,649.80	5.71	5.71	-90.29	-0.15	-29.98	29.98	18.56	11.42	2.624 Alert			
1,700.00	1,700.00	1,700.20	1,699.80	5.89	5.89	-90.29	-0.15	-29.98	29.98	18.20	11.78	2.544 Alert			
1,750.00	1,750.00	1,749.80	1,749.80	6.07	6.07	-90.29	-0.15	-29.98	29.98	17.84	12.14	2.470 Minor Risk			
1,800.00	1,800.00	1,800.20	1,799.80	6.25	6.25	-90.29	-0.15	-29.98	29.98	17.48	12.50	2.399 Minor Risk			
1,850.00	1,850.00	1,849.80	1,849.80	6.43	6.43	-90.29	-0.15	-29.98	29.98	17.13	12.85	2.332 Minor Risk			
1,900.00	1,900.00	1,900.20	1,899.80	6.61	6.61	-90.29	-0.15	-29.98	29.98	16.77	13.21	2.269 Minor Risk			
1,950.00	1,950.00	1,949.80	1,949.80	6.78	6.78	-90.29	-0.15	-29.98	29.98	16.41	13.57	2.210 Minor Risk			
2,000.00	2,000.00	2,000.20	1,999.80	6.96	6.96	-90.29	-0.15	-29.98	29.98	16.05	13.93	2.153 Minor Risk			
2,050.00	2,050.00	2,049.80	2,049.80	7.14	7.14	-90.29	-0.15	-29.98	29.98	15.70	14.28	2.099 Minor Risk			
2,100.00	2,100.00	2,100.20	2,099.80	7.32	7.32	-90.29	-0.15	-29.98	29.98	15.34	14.64	2.047 Minor Risk			
2,150.00	2,150.00	2,149.80	2,149.80	7.50	7.50	-90.29	-0.15	-29.98	29.98	14.98	15.00	1.999 Minor Risk			
2,200.00	2,200.00	2,200.20	2,199.80	7.68	7.68	-90.29	-0.15	-29.98	29.98	14.62	15.36	1.952 Minor Risk			
2,250.00	2,250.00	2,249.80	2,249.80	7.86	7.86	-90.29	-0.15	-29.98	29.98	14.27	15.71	1.908 Minor Risk			
2,300.00	2,300.00	2,300.20	2,299.80	8.04	8.04	-90.29	-0.15	-29.98	29.98	13.91	16.07	1.865 Minor Risk			
2,350.00	2,350.00	2,349.80	2,349.80	8.22	8.21	-90.29	-0.15	-29.98	29.98	13.55	16.43	1.825 Minor Risk			
2,400.00	2,400.00	2,400.20	2,399.80	8.39	8.39	-90.29	-0.15	-29.98	29.98	13.19	16.79	1.786 Minor Risk, CC			
2,450.00	2,450.00	2,449.80	2,449.80	8.57	8.57	165.61	-0.15	-29.98	30.19	13.05	17.14	1.761 Minor Risk, ES			
2,500.00	2,499.99	2,500.21	2,499.79	8.74	8.75	165.91	-0.15	-29.98	30.83	13.33	17.49	1.762 Minor Risk			
2,550.00	2,549.98	2,549.78	2,549.78	8.91	8.93	166.39	-0.15	-29.98	31.89	14.05	17.84	1.787 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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	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	2,599.96	2,600.24	2,599.76	9.08	9.11	167.00	-0.15	-29.98	33.37	15.18	18.19	1.835	Minor Risk	
2,650.00	2,649.92	2,649.72	2,649.28	9.25	9.29	167.71	-0.15	-29.98	35.29	16.75	18.53	1.904	Minor Risk	
2,700.00	2,699.86	2,700.34	2,699.66	9.42	9.47	168.48	-0.15	-29.98	37.63	18.75	18.88	1.993	Minor Risk	
2,750.00	2,749.78	2,749.58	2,749.58	9.59	9.65	169.28	-0.15	-29.98	40.42	21.19	19.23	2.102	Minor Risk	
2,800.00	2,799.68	2,799.84	2,799.83	9.76	9.82	169.99	-0.23	-29.78	43.43	23.86	19.57	2.219	Minor Risk	
2,850.00	2,849.54	2,850.12	2,850.11	9.93	9.99	170.54	-0.48	-29.17	46.46	26.55	19.91	2.333	Minor Risk	
2,900.00	2,899.37	2,900.43	2,900.41	10.10	10.16	170.95	-0.89	-28.15	49.50	29.26	20.25	2.445	Minor Risk	
2,950.00	2,949.16	2,950.76	2,950.72	10.28	10.32	171.25	-1.47	-26.72	52.56	31.98	20.58	2.554	Alert	
3,000.00	2,998.90	3,001.12	3,001.04	10.45	10.49	171.46	-2.21	-24.88	55.63	34.71	20.92	2.660	Alert	
3,050.00	3,048.63	3,051.53	3,051.39	10.63	10.66	171.55	-3.12	-22.63	58.46	37.21	21.25	2.751	Alert	
3,100.00	3,098.36	3,101.97	3,101.75	10.80	10.84	171.52	-4.20	-19.96	60.87	39.28	21.58	2.820	Alert	
3,150.00	3,148.09	3,152.33	3,152.00	10.98	11.01	171.38	-5.43	-16.90	62.87	40.95	21.92	2.868	Alert	
3,200.00	3,197.82	3,202.29	3,201.85	11.16	11.18	171.22	-6.71	-13.74	64.75	42.48	22.26	2.908	Alert	
3,250.00	3,247.55	3,252.26	3,251.70	11.33	11.35	171.07	-7.98	-10.59	66.62	44.02	22.60	2.947	Alert	
3,300.00	3,297.28	3,302.22	3,301.54	11.51	11.52	170.92	-9.26	-7.44	68.50	45.55	22.95	2.985	Alert	
3,350.00	3,347.01	3,352.19	3,351.39	11.69	11.69	170.79	-10.53	-4.28	70.38	47.09	23.29	3.022	Alert	
3,400.00	3,396.74	3,402.15	3,401.24	11.87	11.86	170.66	-11.81	-1.13	72.26	48.62	23.64	3.057	Alert	
3,450.00	3,446.47	3,452.12	3,451.09	12.05	12.04	170.53	-13.08	2.03	74.14	50.16	23.98	3.092	Alert	
3,500.00	3,496.20	3,502.08	3,500.94	12.23	12.21	170.42	-14.36	5.18	76.02	51.69	24.33	3.125	Alert	
3,550.00	3,545.93	3,552.04	3,550.79	12.41	12.38	170.31	-15.63	8.34	77.90	53.23	24.67	3.157	Alert	
3,600.00	3,595.66	3,602.01	3,600.64	12.59	12.56	170.20	-16.91	11.49	79.78	54.76	25.02	3.189	Alert	
3,650.00	3,645.38	3,651.97	3,650.48	12.77	12.73	170.10	-18.18	14.65	81.66	56.29	25.37	3.219	Alert	
3,700.00	3,695.11	3,701.94	3,700.33	12.95	12.90	170.00	-19.46	17.80	83.54	57.83	25.71	3.249	Alert	
3,750.00	3,744.84	3,751.90	3,750.18	13.13	13.08	169.91	-20.73	20.96	85.42	59.36	26.06	3.278	Alert	
3,800.00	3,794.57	3,801.87	3,800.03	13.31	13.25	169.82	-22.01	24.11	87.30	60.89	26.41	3.306	Alert	
3,850.00	3,844.30	3,851.83	3,849.88	13.49	13.43	169.74	-23.28	27.27	89.19	62.42	26.76	3.333	Alert	
3,900.00	3,894.03	3,901.80	3,899.73	13.68	13.61	169.66	-24.55	30.42	91.07	63.96	27.11	3.359	Alert	
3,950.00	3,943.76	3,951.76	3,949.57	13.86	13.78	169.58	-25.83	33.58	92.95	65.49	27.46	3.385	Alert	
4,000.00	3,993.49	4,001.72	3,999.42	14.04	13.96	169.51	-27.10	36.73	94.83	67.02	27.81	3.410	Alert	
4,050.00	4,043.22	4,051.69	4,049.27	14.23	14.13	169.43	-28.38	39.89	96.71	68.55	28.16	3.434	Alert	
4,100.00	4,092.95	4,101.65	4,099.12	14.41	14.31	169.36	-29.65	43.04	98.60	70.08	28.51	3.458	Alert	
4,150.00	4,142.68	4,151.62	4,148.97	14.59	14.49	169.30	-30.93	46.20	100.48	71.61	28.86	3.481	Alert	
4,200.00	4,192.41	4,201.58	4,198.82	14.78	14.66	169.23	-32.20	49.35	102.36	73.14	29.22	3.504	Alert	
4,250.00	4,242.14	4,251.55	4,248.66	14.96	14.84	169.17	-33.48	52.51	104.24	74.68	29.57	3.526	Alert	
4,300.00	4,291.87	4,301.51	4,298.51	15.15	15.02	169.11	-34.75	55.66	106.13	76.21	29.92	3.547	Alert	
4,350.00	4,341.60	4,351.48	4,348.36	15.33	15.20	169.06	-36.03	58.81	108.01	77.74	30.27	3.568	Alert	
4,400.00	4,391.32	4,401.44	4,398.21	15.52	15.37	169.00	-37.30	61.97	109.89	79.27	30.63	3.588	Alert	
4,450.00	4,441.05	4,451.40	4,448.06	15.70	15.55	168.95	-38.58	65.12	111.78	80.80	30.98	3.608	Alert	
4,500.00	4,490.78	4,501.37	4,497.91	15.89	15.73	168.90	-39.85	68.28	113.66	82.33	31.33	3.627	Alert	
4,550.00	4,540.51	4,551.33	4,547.76	16.07	15.91	168.85	-41.13	71.43	115.54	83.85	31.69	3.646	Alert	
4,600.00	4,590.24	4,601.30	4,597.60	16.26	16.09	168.80	-42.40	74.59	117.43	85.38	32.04	3.665	Alert	
4,650.00	4,639.97	4,651.26	4,647.45	16.44	16.26	168.75	-43.67	77.74	119.31	86.91	32.40	3.683	Alert	
4,700.00	4,689.70	4,701.23	4,697.30	16.63	16.44	168.70	-44.95	80.90	121.19	88.44	32.75	3.700	Alert	
4,750.00	4,739.43	4,751.19	4,747.15	16.82	16.62	168.66	-46.22	84.05	123.08	89.97	33.11	3.718	Alert	
4,800.00	4,789.16	4,801.15	4,797.00	17.00	16.80	168.62	-47.50	87.21	124.96	91.50	33.46	3.735	Alert	
4,850.00	4,838.89	4,851.12	4,846.85	17.19	16.98	168.58	-48.77	90.36	126.84	93.03	33.82	3.751	Alert	
4,900.00	4,888.62	4,901.08	4,896.69	17.38	17.16	168.54	-50.05	93.52	128.73	94.56	34.17	3.767	Alert	
4,950.00	4,938.35	4,951.05	4,946.54	17.56	17.34	168.50	-51.32	96.67	130.61	96.08	34.53	3.783	Alert	
5,000.00	4,988.08	5,001.01	4,996.39	17.75	17.52	168.46	-52.60	99.83	132.50	97.61	34.88	3.798	Alert	
5,050.00	5,037.81	5,050.98	5,046.24	17.94	17.70	168.42	-53.87	102.98	134.38	99.14	35.24	3.813	Alert	
5,100.00	5,087.53	5,100.94	5,096.09	18.13	17.88	168.39	-55.15	106.14	136.26	100.67	35.60	3.828	Alert	
5,150.00	5,137.26	5,150.91	5,145.94	18.31	18.06	168.35	-56.42	109.29	138.15	102.19	35.95	3.842	Alert	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
5,200.00	5,186.99	5,200.87	5,195.78	18.50	18.24	168.32	-57.70	112.45	140.03	103.72	36.31	3.857	Alert	
5,250.00	5,236.72	5,250.83	5,245.63	18.69	18.42	168.28	-58.97	115.60	141.92	105.25	36.67	3.870	Alert	
5,300.00	5,286.45	5,300.80	5,295.48	18.88	18.60	168.25	-60.25	118.76	143.80	106.78	37.02	3.884	Alert	
5,350.00	5,336.18	5,350.76	5,345.33	19.06	18.78	168.22	-61.52	121.91	145.68	108.30	37.38	3.897	Alert	
5,400.00	5,385.91	5,400.73	5,395.18	19.25	18.96	168.19	-62.79	125.07	147.57	109.83	37.74	3.910	Alert	
5,450.00	5,435.64	5,450.69	5,445.03	19.44	19.14	168.16	-64.07	128.22	149.45	111.36	38.10	3.923	Alert	
5,500.00	5,485.37	5,500.66	5,494.88	19.63	19.32	168.13	-65.34	131.37	151.34	112.88	38.45	3.936	Alert	
5,550.00	5,535.10	5,550.62	5,544.72	19.82	19.50	168.10	-66.62	134.53	153.22	114.41	38.81	3.948	Alert	
5,600.00	5,584.83	5,600.59	5,594.57	20.00	19.68	168.08	-67.89	137.68	155.11	115.94	39.17	3.960	Alert	
5,650.00	5,634.56	5,650.55	5,644.42	20.19	19.86	168.05	-69.17	140.84	156.99	117.46	39.53	3.972	Alert	
5,700.00	5,684.29	5,700.51	5,694.27	20.38	20.04	168.02	-70.44	143.99	158.88	118.99	39.89	3.983	Alert	
5,750.00	5,734.02	5,750.48	5,744.12	20.57	20.22	168.00	-71.72	147.15	160.76	120.52	40.25	3.995	Alert	
5,800.00	5,783.74	5,800.44	5,793.97	20.76	20.40	167.97	-72.99	150.30	162.65	122.04	40.60	4.006	Alert	
5,850.00	5,833.47	5,850.41	5,843.81	20.95	20.58	167.95	-74.27	153.46	164.53	123.57	40.96	4.017	Alert	
5,900.00	5,883.20	5,900.37	5,893.66	21.14	20.77	167.92	-75.54	156.61	166.42	125.09	41.32	4.027	Alert	
5,950.00	5,932.93	5,950.34	5,943.51	21.33	20.95	167.90	-76.82	159.77	168.30	126.62	41.68	4.038	Alert	
6,000.00	5,982.66	6,000.30	5,993.36	21.52	21.13	167.88	-78.09	162.92	170.18	128.15	42.04	4.048	Alert	
6,050.00	6,032.39	6,050.27	6,043.21	21.70	21.31	167.85	-79.37	166.08	172.07	129.67	42.40	4.058	Alert	
6,100.00	6,082.12	6,100.23	6,093.06	21.89	21.49	167.83	-80.64	169.23	173.95	131.20	42.76	4.068	Alert	
6,150.00	6,131.85	6,150.19	6,142.90	22.08	21.67	167.81	-81.91	172.39	175.84	132.72	43.12	4.078	Alert	
6,200.00	6,181.58	6,200.16	6,192.75	22.27	21.85	167.79	-83.19	175.54	177.72	134.25	43.48	4.088	Alert	
6,250.00	6,231.31	6,250.12	6,242.60	22.46	22.04	167.77	-84.46	178.70	179.61	135.77	43.84	4.097	Alert	
6,300.00	6,281.04	6,300.09	6,292.45	22.65	22.22	167.75	-85.74	181.85	181.49	137.30	44.20	4.107	Alert	
6,350.00	6,330.77	6,350.05	6,342.30	22.84	22.40	167.73	-87.01	185.01	183.38	138.82	44.56	4.116	Alert	
6,400.00	6,380.50	6,400.02	6,392.15	23.03	22.58	167.71	-88.29	188.16	185.26	140.35	44.92	4.125	Alert	
6,450.00	6,430.23	6,449.98	6,442.00	23.22	22.76	167.69	-89.56	191.32	187.15	141.87	45.28	4.134	Alert	
6,500.00	6,479.95	6,500.06	6,491.84	23.41	22.95	167.67	-90.84	194.47	189.03	143.40	45.64	4.142	Alert	
6,550.00	6,529.68	6,549.91	6,541.69	23.60	23.13	167.65	-92.11	197.62	190.92	144.92	46.00	4.151	Alert	
6,600.00	6,579.41	6,600.13	6,591.54	23.79	23.31	167.64	-93.39	200.78	192.80	146.45	46.36	4.159	Alert	
6,650.00	6,629.14	6,649.84	6,641.39	23.98	23.49	167.62	-94.66	203.93	194.69	147.97	46.72	4.167	Alert	
6,700.00	6,678.87	6,700.20	6,691.24	24.17	23.68	167.60	-95.94	207.09	196.57	149.50	47.08	4.175	Alert	
6,750.00	6,728.60	6,749.77	6,741.09	24.36	23.86	167.58	-97.21	210.24	198.46	151.02	47.44	4.184	Alert	
6,800.00	6,778.33	6,799.73	6,790.93	24.55	24.04	167.57	-98.48	213.40	200.34	152.55	47.80	4.192	Alert	
6,850.00	6,828.06	6,849.70	6,840.78	24.74	24.22	167.55	-99.76	216.55	202.23	154.07	48.16	4.199	Alert	
6,900.00	6,877.79	6,900.34	6,890.63	24.93	24.41	167.54	-101.03	219.71	204.12	155.59	48.52	4.207	Alert	
6,950.00	6,927.52	6,949.62	6,940.48	25.12	24.59	167.52	-102.31	222.86	206.00	157.12	48.88	4.214	Alert	
7,000.00	6,977.25	7,000.41	6,990.33	25.31	24.77	167.50	-103.58	226.02	207.89	158.64	49.24	4.222	Alert	
7,050.00	7,026.98	7,049.55	7,040.18	25.50	24.95	167.49	-104.86	229.17	209.77	160.17	49.60	4.229	Alert	
7,100.00	7,076.71	7,100.48	7,090.03	25.69	25.14	167.47	-106.13	232.33	211.66	161.69	49.97	4.236	Alert	
7,150.00	7,126.44	7,149.48	7,139.87	25.88	25.32	167.46	-107.41	235.48	213.54	163.22	50.32	4.243	Alert	
7,200.00	7,176.16	7,200.55	7,189.72	26.07	25.50	167.45	-108.68	238.64	215.43	164.74	50.69	4.250	Alert	
7,250.00	7,225.89	7,249.41	7,239.57	26.26	25.68	167.43	-109.96	241.79	217.31	166.27	51.05	4.257	Alert	
7,300.00	7,275.62	7,300.62	7,289.42	26.45	25.87	167.42	-111.23	244.95	219.20	167.78	51.41	4.264	Alert	
7,350.00	7,325.35	7,349.34	7,339.27	26.64	26.05	167.40	-112.51	248.10	221.08	169.31	51.77	4.271	Alert	
7,400.00	7,375.08	7,400.70	7,389.12	26.84	26.24	167.39	-113.78	251.26	222.97	170.83	52.14	4.277	Alert	
7,450.00	7,424.81	7,449.27	7,438.96	27.03	26.41	167.38	-115.06	254.41	224.85	172.36	52.49	4.284	Alert	
7,500.00	7,474.54	7,500.77	7,488.81	27.22	26.60	167.37	-116.33	257.57	226.74	173.88	52.86	4.290	Alert	
7,550.00	7,524.27	7,549.20	7,538.66	27.41	26.78	167.35	-117.60	260.72	228.62	175.41	53.21	4.296	Alert	
7,600.00	7,574.00	7,600.84	7,588.51	27.60	26.97	167.34	-118.88	263.88	230.51	176.93	53.58	4.302	Alert	
7,650.00	7,623.73	7,649.13	7,638.36	27.79	27.14	167.33	-120.15	267.03	232.39	178.46	53.94	4.309	Alert	
7,700.00	7,673.46	7,700.91	7,688.21	27.98	27.33	167.32	-121.43	270.18	234.28	179.97	54.31	4.314	Alert	
7,750.00	7,723.19	7,749.06	7,738.05	28.17	27.51	167.30	-122.70	273.34	236.17	181.50	54.66	4.320	Alert	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 701H - 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	7,772.92	7,800.98	7,787.90	28.36	27.70	167.29	-123.98	276.49	238.05	183.02	55.03	4.326	Alert			
7,850.00	7,822.65	7,848.98	7,837.75	28.55	27.88	167.28	-125.25	279.65	239.94	184.55	55.39	4.332	Alert			
7,900.00	7,872.37	7,901.05	7,887.60	28.74	28.07	167.27	-126.53	282.80	241.82	186.07	55.75	4.337	Alert			
7,950.00	7,922.10	7,948.91	7,937.45	28.93	28.24	167.26	-127.80	285.96	243.71	187.60	56.11	4.343	Alert			
8,000.00	7,971.83	8,001.12	7,987.30	29.13	28.43	167.25	-129.08	289.11	245.59	189.11	56.48	4.348	Alert			
8,050.00	8,021.56	8,048.84	8,037.15	29.32	28.61	167.24	-130.35	292.27	247.48	190.64	56.83	4.354	Alert			
8,100.00	8,071.29	8,101.19	8,086.99	29.51	28.80	167.23	-131.63	295.42	249.36	192.16	57.20	4.359	Alert			
8,150.00	8,121.02	8,148.77	8,136.84	29.70	28.98	167.22	-132.90	298.58	251.25	193.69	57.56	4.365	Alert			
8,200.00	8,170.75	8,201.27	8,186.69	29.89	29.17	167.21	-134.18	301.73	253.13	195.20	57.93	4.370	Alert			
8,250.00	8,220.48	8,248.70	8,236.54	30.08	29.34	167.19	-135.45	304.89	255.02	196.74	58.28	4.376	Alert			
8,300.00	8,270.21	8,301.34	8,286.39	30.27	29.54	167.18	-136.72	308.04	256.90	198.25	58.65	4.380	Alert			
8,350.00	8,319.94	8,348.63	8,336.24	30.46	29.71	167.17	-138.00	311.20	258.79	199.78	59.01	4.386	Alert			
8,400.00	8,369.67	8,401.41	8,386.08	30.66	29.90	167.17	-139.27	314.35	260.68	201.30	59.38	4.390	Alert			
8,450.00	8,419.40	8,448.56	8,435.93	30.85	30.08	167.16	-140.55	317.51	262.56	202.83	59.73	4.396	Alert			
8,500.00	8,469.13	8,498.52	8,485.78	31.04	30.26	167.15	-141.82	320.66	264.45	204.35	60.09	4.401	Alert			
8,550.00	8,518.86	8,548.49	8,535.63	31.23	30.44	167.14	-143.10	323.82	266.33	205.88	60.46	4.405	Alert			
8,600.00	8,568.58	8,601.55	8,585.48	31.42	30.64	167.13	-144.37	326.97	268.22	207.39	60.83	4.409	Alert			
8,650.00	8,618.31	8,648.42	8,635.33	31.61	30.81	167.12	-145.65	330.13	270.10	208.92	61.18	4.415	Alert			
8,700.00	8,668.04	8,701.62	8,685.17	31.80	31.01	167.11	-146.92	333.28	271.99	210.43	61.56	4.419	Alert			
8,750.00	8,717.77	8,748.34	8,735.02	32.00	31.18	167.10	-148.20	336.43	273.87	211.97	61.91	4.424	Alert			
8,800.00	8,767.50	8,801.69	8,784.87	32.19	31.37	167.09	-149.47	339.59	275.76	213.48	62.28	4.428	Alert			
8,850.00	8,817.23	8,848.27	8,834.72	32.38	31.54	167.08	-150.75	342.74	277.65	215.01	62.63	4.433	Alert			
8,900.00	8,866.96	8,901.76	8,884.57	32.57	31.74	167.07	-152.02	345.90	279.53	216.52	63.01	4.436	Alert			
8,950.00	8,916.69	8,948.20	8,934.42	32.76	31.91	167.07	-153.30	349.05	281.42	218.06	63.36	4.442	Alert			
9,000.00	8,966.42	9,001.83	8,984.27	32.95	32.11	167.06	-154.57	352.21	283.30	219.57	63.73	4.445	Alert			
9,050.00	9,016.15	9,048.13	9,034.11	33.15	32.28	167.05	-155.84	355.36	285.19	221.10	64.08	4.450	Alert			
9,100.00	9,065.88	9,101.91	9,083.96	33.34	32.48	167.04	-157.12	358.52	287.07	222.61	64.46	4.453	Alert			
9,150.00	9,115.61	9,148.06	9,133.81	33.53	32.65	167.03	-158.39	361.67	288.96	224.15	64.81	4.459	Alert			
9,200.00	9,165.34	9,201.98	9,183.66	33.72	32.85	167.03	-159.67	364.83	290.84	225.66	65.19	4.462	Alert			
9,250.00	9,215.07	9,247.99	9,233.51	33.91	33.01	167.02	-160.94	367.98	292.73	227.19	65.54	4.467	Alert			
9,300.00	9,264.79	9,302.05	9,283.36	34.10	33.21	167.01	-162.22	371.14	294.62	228.70	65.91	4.470	Alert			
9,350.00	9,314.52	9,347.92	9,333.20	34.30	33.38	167.00	-163.49	374.29	296.50	230.24	66.26	4.475	Alert			
9,400.00	9,364.25	9,402.12	9,383.05	34.49	33.58	167.00	-164.77	377.45	298.39	231.75	66.64	4.478	Alert			
9,450.00	9,413.98	9,447.85	9,432.90	34.68	33.75	166.99	-166.04	380.60	300.27	233.28	66.99	4.482	Alert			
9,500.00	9,463.71	9,502.19	9,482.75	34.87	33.95	166.98	-167.32	383.76	302.16	234.79	67.37	4.485	Alert			
9,550.00	9,513.44	9,547.77	9,532.60	35.06	34.12	166.97	-168.59	386.91	304.04	236.33	67.71	4.490	Alert			
9,600.00	9,563.17	9,602.26	9,582.45	35.25	34.32	166.97	-169.87	390.07	305.93	237.84	68.09	4.493	Alert			
9,650.00	9,612.90	9,647.70	9,632.29	35.45	34.49	166.96	-171.14	393.22	307.82	239.37	68.44	4.498	Alert			
9,700.00	9,662.63	9,702.33	9,682.14	35.64	34.69	166.95	-172.41	396.38	309.70	240.88	68.82	4.500	Alert			
9,750.00	9,712.36	9,747.63	9,731.99	35.83	34.85	166.95	-173.69	399.53	311.59	242.42	69.17	4.505	Alert			
9,800.00	9,762.09	9,797.60	9,781.84	36.02	35.04	166.94	-174.96	402.69	313.47	243.94	69.53	4.508	Alert			
9,850.00	9,811.82	9,847.56	9,831.69	36.21	35.22	166.93	-176.24	405.84	315.36	245.46	69.89	4.512	Alert			
9,900.00	9,861.55	9,897.53	9,881.54	36.41	35.41	166.93	-177.51	408.99	317.24	246.99	70.26	4.515	Alert			
9,950.00	9,911.28	9,947.49	9,931.39	36.60	35.59	166.92	-178.79	412.15	319.13	248.51	70.62	4.519	Alert			
10,000.00	9,961.00	10,002.55	9,981.23	36.79	35.79	166.91	-180.06	415.30	321.02	250.01	71.00	4.521	Alert			
10,050.00	10,010.73	10,047.42	10,031.08	36.98	35.96	166.91	-181.34	418.46	322.90	251.55	71.35	4.526	Alert			
10,100.00	10,060.46	10,102.62	10,080.93	37.17	36.16	166.90	-182.61	421.61	324.79	253.06	71.73	4.528	Alert			
10,150.00	10,110.19	10,147.35	10,130.78	37.37	36.33	166.90	-183.89	424.77	326.67	254.60	72.07	4.532	Alert			
10,200.00	10,159.92	10,202.69	10,180.63	37.56	36.53	166.89	-185.16	427.92	328.56	256.10	72.46	4.534	Alert			
10,250.00	10,209.65	10,247.28	10,230.48	37.75	36.69	166.88	-186.44	431.08	330.44	257.64	72.80	4.539	Alert			
10,300.00	10,259.38	10,302.76	10,280.32	37.94	36.90	166.88	-187.71	434.23	332.33	259.14	73.19	4.541	Alert			
10,350.00	10,309.11	10,347.21	10,330.17	38.13	37.06	166.87	-188.99	437.39	334.20	260.68	73.53	4.545	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 701H - Wellbore #1 - Permit Plan 1		Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft			
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning			
10,400.00	10,358.88	10,402.82	10,380.04	38.32	37.27	166.85	-190.26	440.54	335.66	261.74	73.91	4.541	Alert			
10,450.00	10,408.72	10,447.18	10,429.91	38.51	37.43	166.81	-191.54	443.70	336.47	262.21	74.26	4.531	Alert			
10,500.00	10,458.60	10,502.83	10,479.79	38.70	37.64	166.73	-192.81	446.86	336.65	262.01	74.64	4.510	Alert			
10,550.00	10,508.52	10,547.17	10,529.67	38.88	37.80	166.63	-194.09	450.01	336.19	261.21	74.98	4.484	Alert			
10,600.00	10,558.47	10,597.15	10,579.54	39.06	37.98	166.50	-195.36	453.17	335.09	259.75	75.34	4.448	Alert			
10,650.00	10,608.45	10,647.11	10,629.38	39.23	38.17	166.35	-196.64	456.32	333.37	257.66	75.70	4.403	Alert			
10,700.00	10,658.44	10,693.88	10,676.06	39.41	38.34	166.18	-197.75	459.09	331.21	255.15	76.06	4.355	Alert			
10,750.00	10,708.44	10,740.11	10,722.22	39.58	38.51	-89.76	-198.65	461.31	328.99	252.60	76.39	4.307	Alert			
10,800.00	10,758.44	10,786.38	10,768.46	39.74	38.67	-89.88	-199.34	463.01	327.15	250.43	76.72	4.264	Alert			
10,850.00	10,808.44	10,832.69	10,814.75	39.91	38.84	-89.97	-199.82	464.20	325.87	248.83	77.03	4.230	Alert			
10,900.00	10,858.44	10,879.02	10,861.08	40.07	39.00	-90.02	-200.09	464.86	325.15	247.80	77.34	4.204	Alert			
10,950.00	10,908.44	10,926.19	10,908.24	40.24	39.17	-90.03	-200.15	465.02	324.98	247.33	77.65	4.185	Alert			
11,000.00	10,958.44	10,976.19	10,958.24	40.40	39.34	-90.03	-200.15	465.02	324.98	246.99	77.99	4.167	Alert			
11,050.00	11,008.44	11,026.19	11,008.24	40.57	39.51	-90.03	-200.15	465.02	324.98	246.65	78.33	4.149	Alert			
11,100.00	11,058.44	11,076.19	11,058.24	40.74	39.67	-89.69	-200.15	465.02	324.98	246.30	78.67	4.131	Alert			
11,135.15	11,093.54	11,111.28	11,093.34	40.85	39.79	-90.00	-200.15	465.02	324.97	246.06	78.92	4.118	Alert			
11,150.00	11,108.32	11,126.07	11,108.12	40.90	39.84	-90.24	-200.15	465.02	324.98	245.95	79.02	4.112	Alert			
11,200.00	11,157.74	11,175.49	11,157.54	41.06	40.01	-91.54	-200.15	465.02	325.10	245.71	79.39	4.095	Alert			
11,250.00	11,206.32	11,224.06	11,206.12	41.21	40.18	-93.50	-200.15	465.02	325.63	245.87	79.76	4.083	Alert			
11,300.00	11,253.68	11,271.86	11,253.92	41.35	40.34	-96.03	-200.11	465.02	327.03	246.88	80.15	4.080	Alert			
11,350.00	11,299.47	11,322.76	11,304.71	41.48	40.51	-98.87	-197.24	465.00	329.44	248.87	80.58	4.089	Alert			
11,400.00	11,343.34	11,375.44	11,356.81	41.60	40.68	-101.66	-189.54	464.95	332.72	251.73	80.99	4.108	Alert			
11,450.00	11,384.95	11,430.09	11,409.87	41.71	40.85	-104.37	-176.53	464.87	336.78	255.44	81.34	4.140	Alert			
11,500.00	11,423.99	11,486.86	11,463.41	41.80	41.01	-106.98	-157.73	464.75	341.49	259.91	81.58	4.186	Alert			
11,550.00	11,460.16	11,545.92	11,516.85	41.88	41.17	-109.46	-132.65	464.60	346.70	265.04	81.66	4.246	Alert			
11,600.00	11,493.19	11,607.38	11,589.42	41.95	41.32	-111.80	-100.86	464.40	352.22	270.68	81.54	4.320	Alert			
11,650.00	11,522.83	11,671.35	11,620.18	42.00	41.45	-113.95	-61.99	464.15	357.84	276.64	81.20	4.407	Alert			
11,700.00	11,548.84	11,737.85	11,668.02	42.04	41.56	-115.89	-15.85	463.86	363.33	282.67	80.66	4.504	Alert			
11,750.00	11,571.03	11,806.84	11,711.66	42.07	41.66	-117.60	37.53	463.53	368.47	288.49	79.98	4.607	Alert			
11,800.00	11,589.24	11,878.16	11,749.69	42.09	41.73	-119.04	97.81	463.15	373.02	293.79	79.23	4.708	Alert			
11,850.00	11,603.32	11,951.55	11,780.70	42.10	41.79	-120.19	164.27	462.73	376.78	298.23	78.54	4.797	Alert			
11,900.00	11,613.16	12,026.61	11,803.37	42.12	41.89	-121.01	235.76	462.29	379.56	301.51	78.04	4.863	Alert			
11,950.00	11,618.70	12,102.83	11,816.63	42.14	42.05	-121.50	310.76	461.82	381.22	303.36	77.86	4.896	Alert			
12,000.00	11,620.00	12,174.50	11,820.00	42.19	42.22	-121.64	382.31	461.37	381.69	303.65	78.04	4.891	Alert			
12,050.00	11,620.00	12,224.50	11,820.00	42.26	42.34	-121.64	432.31	461.05	381.69	303.40	78.29	4.875	Alert			
12,100.00	11,620.00	12,274.50	11,820.00	42.37	42.47	-121.64	482.31	460.74	381.69	303.14	78.55	4.859	Alert			
12,150.00	11,620.00	12,324.50	11,820.00	42.50	42.62	-121.64	532.31	460.43	381.69	302.85	78.84	4.841	Alert			
12,200.00	11,620.00	12,374.50	11,820.00	42.64	42.78	-121.64	582.30	460.11	381.69	302.55	79.14	4.823	Alert			
12,250.00	11,620.00	12,424.50	11,820.00	42.81	42.95	-121.64	632.30	459.80	381.69	302.22	79.47	4.803	Alert			
12,300.00	11,620.00	12,474.50	11,820.00	42.98	43.13	-121.64	682.30	459.48	381.69	301.87	79.81	4.782	Alert			
12,350.00	11,620.00	12,524.50	11,820.00	43.18	43.32	-121.64	732.30	459.17	381.69	301.50	80.19	4.760	Alert			
12,400.00	11,620.00	12,574.50	11,820.00	43.38	43.52	-121.64	782.30	458.86	381.69	301.12	80.57	4.737	Alert			
12,450.00	11,620.00	12,624.50	11,820.00	43.59	43.73	-121.64	832.30	458.54	381.69	300.71	80.98	4.713	Alert			
12,500.00	11,620.00	12,674.50	11,820.00	43.81	43.95	-121.64	882.30	458.23	381.69	300.29	81.40	4.689	Alert			
12,550.00	11,620.00	12,724.50	11,820.00	44.05	44.19	-121.64	932.30	457.92	381.69	299.84	81.85	4.663	Alert			
12,600.00	11,620.00	12,774.50	11,820.00	44.29	44.43	-121.64	982.30	457.60	381.69	299.38	82.30	4.638	Alert			
12,650.00	11,620.00	12,824.50	11,820.00	44.55	44.68	-121.64	1,032.30	457.29	381.69	298.90	82.79	4.610	Alert			
12,700.00	11,620.00	12,874.50	11,820.00	44.82	44.95	-121.64	1,082.29	456.98	381.69	298.41	83.28	4.583	Alert			
12,750.00	11,620.00	12,924.50	11,820.00	45.10	45.22	-121.64	1,132.29	456.66	381.69	297.89	83.80	4.555	Alert			
12,800.00	11,620.00	12,974.50	11,820.00	45.38	45.51	-121.64	1,182.29	456.35	381.69	297.36	84.33	4.526	Alert			
12,850.00	11,620.00	13,024.50	11,820.00	45.68	45.80	-121.64	1,232.29	456.03	381.69	296.80	84.88	4.497	Alert			
12,900.00	11,620.00	13,074.50	11,820.00	45.98	46.10	-121.64	1,282.29	455.72	381.69	296.24	85.44	4.467	Alert			

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design											Offset Site Error: 0.00 ft		
Survey Program: 0-MWD+HDGM											Offset Well Error: 0.50 ft		
Reference		Offset		Semi Major Axis			Distance				Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)		Minimum Separation (ft)	Separation Factor
12,950.00	11,620.00	13,124.50	11,820.00	46.30	46.41	-121.64	1,332.29	455.41	381.69	295.66	86.03	4.437	Alert
13,000.00	11,620.00	13,174.50	11,820.00	46.62	46.74	-121.64	1,382.29	455.09	381.69	295.06	86.62	4.406	Alert
13,050.00	11,620.00	13,224.50	11,820.00	46.95	47.07	-121.64	1,432.29	454.78	381.69	294.44	87.24	4.375	Alert
13,100.00	11,620.00	13,274.50	11,820.00	47.29	47.40	-121.64	1,482.29	454.47	381.69	293.82	87.87	4.344	Alert
13,150.00	11,620.00	13,324.50	11,820.00	47.64	47.75	-121.64	1,532.29	454.15	381.69	293.17	88.51	4.312	Alert
13,200.00	11,620.00	13,374.50	11,820.00	48.00	48.11	-121.64	1,582.28	453.84	381.69	292.52	89.17	4.281	Alert
13,250.00	11,620.00	13,424.50	11,820.00	48.37	48.47	-121.64	1,632.28	453.53	381.69	291.84	89.84	4.248	Alert
13,300.00	11,620.00	13,474.50	11,820.00	48.74	48.85	-121.64	1,682.28	453.21	381.69	291.16	90.53	4.216	Alert
13,350.00	11,620.00	13,524.50	11,820.00	49.12	49.23	-121.64	1,732.28	452.90	381.69	290.46	91.23	4.184	Alert
13,400.00	11,620.00	13,574.50	11,820.00	49.51	49.61	-121.64	1,782.28	452.58	381.69	289.75	91.94	4.152	Alert
13,450.00	11,620.00	13,624.50	11,820.00	49.91	50.01	-121.64	1,832.28	452.27	381.68	289.02	92.67	4.119	Alert
13,500.00	11,620.00	13,674.50	11,820.00	50.31	50.41	-121.64	1,882.28	451.96	381.68	288.28	93.40	4.086	Alert
13,550.00	11,620.00	13,724.50	11,820.00	50.72	50.82	-121.64	1,932.28	451.64	381.68	287.53	94.16	4.054	Alert
13,600.00	11,620.00	13,774.50	11,820.00	51.14	51.24	-121.64	1,982.28	451.33	381.68	286.77	94.92	4.021	Alert
13,650.00	11,620.00	13,824.50	11,820.00	51.57	51.66	-121.64	2,032.28	451.02	381.68	285.99	95.69	3.989	Alert
13,700.00	11,620.00	13,874.50	11,820.00	52.00	52.09	-121.64	2,082.27	450.70	381.68	285.21	96.48	3.956	Alert
13,750.00	11,620.00	13,924.50	11,820.00	52.44	52.53	-121.64	2,132.27	450.39	381.68	284.41	97.28	3.924	Alert
13,800.00	11,620.00	13,974.50	11,820.00	52.88	52.98	-121.64	2,182.27	450.08	381.68	283.60	98.08	3.891	Alert
13,850.00	11,620.00	14,024.50	11,820.00	53.33	53.43	-121.64	2,232.27	449.76	381.68	282.78	98.91	3.859	Alert
13,900.00	11,620.00	14,074.50	11,820.00	53.79	53.88	-121.64	2,282.27	449.45	381.68	281.95	99.73	3.827	Alert
13,950.00	11,620.00	14,124.50	11,820.00	54.25	54.34	-121.64	2,332.27	449.13	381.68	281.11	100.58	3.795	Alert
14,000.00	11,620.00	14,174.50	11,820.00	54.72	54.81	-121.64	2,382.27	448.82	381.68	280.26	101.42	3.763	Alert
14,050.00	11,620.00	14,224.50	11,820.00	55.20	55.28	-121.64	2,432.27	448.51	381.68	279.40	102.28	3.732	Alert
14,100.00	11,620.00	14,274.50	11,820.00	55.67	55.76	-121.64	2,482.27	448.19	381.68	278.53	103.15	3.700	Alert
14,150.00	11,620.00	14,324.50	11,820.00	56.16	56.25	-121.64	2,532.27	447.88	381.68	277.65	104.03	3.669	Alert
14,200.00	11,620.00	14,374.50	11,820.00	56.65	56.74	-121.64	2,582.26	447.57	381.68	276.77	104.92	3.638	Alert
14,250.00	11,620.00	14,424.50	11,820.00	57.14	57.23	-121.64	2,632.26	447.25	381.68	275.87	105.81	3.607	Alert
14,300.00	11,620.00	14,474.50	11,820.00	57.64	57.73	-121.64	2,682.26	446.94	381.68	274.97	106.72	3.577	Alert
14,350.00	11,620.00	14,524.50	11,820.00	58.15	58.23	-121.64	2,732.26	446.63	381.68	274.05	107.63	3.546	Alert
14,400.00	11,620.00	14,574.50	11,820.00	58.66	58.74	-121.64	2,782.26	446.31	381.68	273.13	108.55	3.516	Alert
14,450.00	11,620.00	14,624.50	11,820.00	59.17	59.26	-121.64	2,832.26	446.00	381.68	272.20	109.48	3.486	Alert
14,500.00	11,620.00	14,674.50	11,820.00	59.69	59.77	-121.64	2,882.26	445.68	381.68	271.27	110.41	3.457	Alert
14,550.00	11,620.00	14,724.50	11,820.00	60.21	60.30	-121.64	2,932.26	445.37	381.68	270.32	111.36	3.427	Alert
14,600.00	11,620.00	14,774.50	11,820.00	60.74	60.82	-121.64	2,982.26	445.06	381.68	269.37	112.31	3.398	Alert
14,650.00	11,620.00	14,824.50	11,820.00	61.27	61.35	-121.64	3,032.26	444.74	381.68	268.41	113.27	3.370	Alert
14,700.00	11,620.00	14,874.50	11,820.00	61.81	61.89	-121.64	3,082.26	444.43	381.68	267.45	114.23	3.341	Alert
14,750.00	11,620.00	14,924.50	11,820.00	62.35	62.43	-121.64	3,132.25	444.12	381.68	266.47	115.21	3.313	Alert
14,800.00	11,620.00	14,974.50	11,820.00	62.89	62.97	-121.64	3,182.25	443.80	381.68	265.50	116.18	3.285	Alert
14,850.00	11,620.00	15,024.50	11,820.00	63.44	63.52	-121.64	3,232.25	443.49	381.68	264.51	117.17	3.258	Alert
14,900.00	11,620.00	15,074.50	11,820.00	63.98	64.07	-121.64	3,282.25	443.18	381.68	263.52	118.16	3.230	Alert
14,950.00	11,620.00	15,124.50	11,820.00	64.54	64.62	-121.64	3,332.25	442.86	381.68	262.52	119.16	3.203	Alert
15,000.00	11,620.00	15,174.50	11,820.00	65.09	65.18	-121.64	3,382.25	442.55	381.68	261.52	120.16	3.176	Alert
15,050.00	11,620.00	15,224.50	11,820.00	65.66	65.74	-121.64	3,432.25	442.23	381.68	260.51	121.17	3.150	Alert
15,100.00	11,620.00	15,274.50	11,820.00	66.22	66.30	-121.64	3,482.25	441.92	381.68	259.50	122.18	3.124	Alert
15,150.00	11,620.00	15,324.50	11,820.00	66.79	66.87	-121.64	3,532.25	441.61	381.68	258.47	123.20	3.098	Alert
15,200.00	11,620.00	15,374.50	11,820.00	67.36	67.43	-121.64	3,582.25	441.29	381.68	257.45	124.23	3.072	Alert
15,250.00	11,620.00	15,424.50	11,820.00	67.93	68.01	-121.64	3,632.24	440.98	381.68	256.42	125.26	3.047	Alert
15,300.00	11,620.00	15,474.50	11,820.00	68.50	68.58	-121.64	3,682.24	440.67	381.68	255.38	126.30	3.022	Alert
15,350.00	11,620.00	15,524.50	11,820.00	69.08	69.16	-121.64	3,732.24	440.35	381.68	254.34	127.34	2.997	Alert
15,400.00	11,620.00	15,574.50	11,820.00	69.66	69.74	-121.64	3,782.24	440.04	381.68	253.30	128.38	2.973	Alert
15,450.00	11,620.00	15,624.50	11,820.00	70.25	70.33	-121.64	3,832.24	439.73	381.68	252.24	129.44	2.949	Alert
15,500.00	11,620.00	15,674.50	11,820.00	70.84	70.91	-121.64	3,882.24	439.41	381.68	251.19	130.49	2.925	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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-MVDD+HDDGM													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	
15,550.00	11,620.00	15,724.50	11,820.00	71.43	71.50	-121.64	3,932.24	439.10	381.68	250.13	131.55	2.901	Alert	
15,600.00	11,620.00	15,774.50	11,820.00	72.02	72.09	-121.64	3,982.24	438.78	381.68	249.06	132.61	2.878	Alert	
15,650.00	11,620.00	15,824.50	11,820.00	72.61	72.69	-121.64	4,032.24	438.47	381.68	247.99	133.68	2.855	Alert	
15,700.00	11,620.00	15,874.50	11,820.00	73.21	73.29	-121.64	4,082.24	438.16	381.68	246.92	134.76	2.832	Alert	
15,750.00	11,620.00	15,924.50	11,820.00	73.81	73.89	-121.64	4,132.23	437.84	381.68	245.84	135.83	2.810	Alert	
15,800.00	11,620.00	15,974.50	11,820.00	74.41	74.49	-121.64	4,182.23	437.53	381.68	244.76	136.91	2.788	Alert	
15,850.00	11,620.00	16,024.50	11,820.00	75.02	75.09	-121.64	4,232.23	437.22	381.68	243.68	138.00	2.766	Alert	
15,900.00	11,620.00	16,074.50	11,820.00	75.62	75.70	-121.64	4,282.23	436.90	381.68	242.59	139.09	2.744	Alert	
15,950.00	11,620.00	16,124.50	11,820.00	76.23	76.30	-121.64	4,332.23	436.59	381.68	241.50	140.18	2.723	Alert	
16,000.00	11,620.00	16,174.50	11,820.00	76.84	76.91	-121.64	4,382.23	436.28	381.68	240.40	141.28	2.702	Alert	
16,050.00	11,620.00	16,224.50	11,820.00	77.45	77.53	-121.64	4,432.23	435.96	381.68	239.30	142.38	2.681	Alert	
16,100.00	11,620.00	16,274.50	11,820.00	78.07	78.14	-121.64	4,482.23	435.65	381.68	238.20	143.48	2.660	Alert	
16,150.00	11,620.00	16,324.50	11,820.00	78.68	78.76	-121.64	4,532.23	435.33	381.68	237.09	144.59	2.640	Alert	
16,200.00	11,620.00	16,374.50	11,820.00	79.30	79.38	-121.64	4,582.23	435.02	381.68	235.98	145.70	2.620	Alert	
16,250.00	11,620.00	16,424.50	11,820.00	79.92	80.00	-121.64	4,632.22	434.71	381.68	234.86	146.81	2.600	Alert	
16,300.00	11,620.00	16,474.50	11,820.00	80.54	80.62	-121.64	4,682.22	434.39	381.68	233.75	147.93	2.580	Alert	
16,350.00	11,620.00	16,524.50	11,820.00	81.17	81.24	-121.64	4,732.22	434.08	381.68	232.63	149.05	2.561	Alert	
16,400.00	11,620.00	16,574.50	11,820.00	81.79	81.87	-121.64	4,782.22	433.77	381.68	231.51	150.17	2.542	Alert	
16,450.00	11,620.00	16,624.50	11,820.00	82.42	82.49	-121.64	4,832.22	433.45	381.68	230.38	151.30	2.523	Alert	
16,500.00	11,620.00	16,674.50	11,820.00	83.05	83.12	-121.64	4,882.22	433.14	381.67	229.25	152.42	2.504	Alert	
16,550.00	11,620.00	16,724.50	11,820.00	83.68	83.75	-121.64	4,932.22	432.83	381.67	228.12	153.56	2.486	Minor Risk	
16,600.00	11,620.00	16,774.50	11,820.00	84.31	84.38	-121.64	4,982.22	432.51	381.67	226.99	154.69	2.467	Minor Risk	
16,650.00	11,620.00	16,824.50	11,820.00	84.94	85.02	-121.64	5,032.22	432.20	381.67	225.85	155.83	2.449	Minor Risk	
16,700.00	11,620.00	16,874.50	11,820.00	85.58	85.65	-121.64	5,082.22	431.88	381.67	224.71	156.97	2.432	Minor Risk	
16,750.00	11,620.00	16,924.50	11,820.00	86.22	86.29	-121.64	5,132.21	431.57	381.67	223.57	158.11	2.414	Minor Risk	
16,800.00	11,620.00	16,974.50	11,820.00	86.85	86.93	-121.64	5,182.21	431.26	381.67	222.42	159.25	2.397	Minor Risk	
16,850.00	11,620.00	17,024.50	11,820.00	87.49	87.57	-121.64	5,232.21	430.94	381.67	221.27	160.40	2.380	Minor Risk	
16,900.00	11,620.00	17,074.50	11,820.00	88.13	88.21	-121.64	5,282.21	430.63	381.67	220.12	161.55	2.363	Minor Risk	
16,950.00	11,620.00	17,124.50	11,820.00	88.78	88.85	-121.64	5,332.21	430.32	381.67	218.97	162.70	2.346	Minor Risk	
17,000.00	11,620.00	17,174.50	11,820.00	89.42	89.49	-121.64	5,382.21	430.00	381.67	217.82	163.86	2.329	Minor Risk	
17,050.00	11,620.00	17,224.50	11,820.00	90.06	90.14	-121.64	5,432.21	429.69	381.67	216.66	165.01	2.313	Minor Risk	
17,100.00	11,620.00	17,274.50	11,820.00	90.71	90.78	-121.64	5,482.21	429.38	381.67	215.50	166.17	2.297	Minor Risk	
17,150.00	11,620.00	17,324.50	11,820.00	91.36	91.43	-121.64	5,532.21	429.06	381.67	214.34	167.33	2.281	Minor Risk	
17,200.00	11,620.00	17,374.50	11,820.00	92.00	92.08	-121.64	5,582.21	428.75	381.67	213.18	168.50	2.265	Minor Risk	
17,250.00	11,620.00	17,424.50	11,820.00	92.66	92.73	-121.64	5,632.21	428.43	381.67	212.01	169.66	2.250	Minor Risk	
17,300.00	11,620.00	17,474.50	11,820.00	93.31	93.38	-121.64	5,682.20	428.12	381.67	210.84	170.83	2.234	Minor Risk	
17,350.00	11,620.00	17,524.50	11,820.00	93.96	94.03	-121.64	5,732.20	427.81	381.67	209.67	172.00	2.219	Minor Risk	
17,400.00	11,620.00	17,574.50	11,820.00	94.61	94.68	-121.64	5,782.20	427.49	381.67	208.50	173.17	2.204	Minor Risk	
17,450.00	11,620.00	17,624.50	11,820.00	95.27	95.34	-121.64	5,832.20	427.18	381.67	207.33	174.34	2.189	Minor Risk	
17,500.00	11,620.00	17,674.50	11,820.00	95.92	95.99	-121.64	5,882.20	426.87	381.67	206.15	175.52	2.175	Minor Risk	
17,550.00	11,620.00	17,724.50	11,820.00	96.58	96.65	-121.64	5,932.20	426.55	381.67	204.97	176.70	2.160	Minor Risk	
17,600.00	11,620.00	17,774.50	11,820.00	97.23	97.31	-121.64	5,982.20	426.24	381.67	203.80	177.88	2.146	Minor Risk	
17,650.00	11,620.00	17,824.50	11,820.00	97.89	97.96	-121.64	6,032.20	425.93	381.67	202.61	179.06	2.132	Minor Risk	
17,700.00	11,620.00	17,874.50	11,820.00	98.55	98.62	-121.64	6,082.20	425.61	381.67	201.43	180.24	2.118	Minor Risk	
17,750.00	11,620.00	17,924.50	11,820.00	99.21	99.28	-121.64	6,132.20	425.30	381.67	200.25	181.42	2.104	Minor Risk	
17,800.00	11,620.00	17,974.50	11,820.00	99.87	99.95	-121.64	6,182.19	424.98	381.67	199.06	182.61	2.090	Minor Risk	
17,850.00	11,620.00	18,024.50	11,820.00	100.54	100.61	-121.64	6,232.19	424.67	381.67	197.87	183.80	2.077	Minor Risk	
17,900.00	11,620.00	18,074.50	11,820.00	101.20	101.27	-121.64	6,282.19	424.36	381.67	196.68	184.99	2.063	Minor Risk	
17,950.00	11,620.00	18,124.50	11,820.00	101.86	101.93	-121.64	6,332.19	424.04	381.67	195.49	186.18	2.050	Minor Risk	
18,000.00	11,620.00	18,174.50	11,820.00	102.53	102.60	-121.64	6,382.19	423.73	381.67	194.30	187.37	2.037	Minor Risk	
18,050.00	11,620.00	18,224.50	11,820.00	103.19	103.27	-121.64	6,432.19	423.42	381.67	193.10	188.56	2.024	Minor Risk	
18,100.00	11,620.00	18,274.50	11,820.00	103.86	103.93	-121.64	6,482.19	423.10	381.67	191.91	189.76	2.011	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 701H - 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 (°)	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)		+N/-S (ft)	+E/-W (ft)					
18,150.00	11,620.00	18,324.50	11,820.00	104.53	104.60	-121.64	6,532.19	422.79	381.67	190.71	190.96	1.999	Minor Risk
18,200.00	11,620.00	18,374.50	11,820.00	105.20	105.27	-121.64	6,582.19	422.48	381.67	189.51	192.16	1.986	Minor Risk
18,250.00	11,620.00	18,424.50	11,820.00	105.86	105.94	-121.64	6,632.19	422.16	381.67	188.31	193.36	1.974	Minor Risk
18,300.00	11,620.00	18,474.50	11,820.00	106.53	106.61	-121.64	6,682.18	421.85	381.67	187.11	194.56	1.962	Minor Risk
18,350.00	11,620.00	18,524.50	11,820.00	107.20	107.28	-121.64	6,732.18	421.53	381.67	185.91	195.76	1.950	Minor Risk
18,400.00	11,620.00	18,574.50	11,820.00	107.88	107.95	-121.64	6,782.18	421.22	381.67	184.71	196.96	1.938	Minor Risk
18,450.00	11,620.00	18,624.50	11,820.00	108.55	108.62	-121.64	6,832.18	420.91	381.67	183.50	198.17	1.926	Minor Risk
18,500.00	11,620.00	18,674.50	11,820.00	109.22	109.29	-121.64	6,882.18	420.59	381.67	182.29	199.38	1.914	Minor Risk
18,550.00	11,620.00	18,724.50	11,820.00	109.89	109.97	-121.64	6,932.18	420.28	381.67	181.08	200.58	1.903	Minor Risk
18,600.00	11,620.00	18,774.50	11,820.00	110.57	110.64	-121.64	6,982.18	419.97	381.67	179.88	201.79	1.891	Minor Risk
18,650.00	11,620.00	18,824.50	11,820.00	111.24	111.32	-121.64	7,032.18	419.65	381.67	178.66	203.00	1.880	Minor Risk
18,700.00	11,620.00	18,874.50	11,820.00	111.92	111.99	-121.64	7,082.18	419.34	381.67	177.45	204.21	1.869	Minor Risk
18,750.00	11,620.00	18,924.50	11,820.00	112.60	112.67	-121.64	7,132.18	419.03	381.67	176.24	205.43	1.858	Minor Risk
18,800.00	11,620.00	18,974.50	11,820.00	113.27	113.34	-121.64	7,182.17	418.71	381.67	175.03	206.64	1.847	Minor Risk
18,850.00	11,620.00	19,024.50	11,820.00	113.95	114.02	-121.64	7,232.17	418.40	381.67	173.81	207.86	1.836	Minor Risk
18,900.00	11,620.00	19,074.50	11,820.00	114.63	114.70	-121.64	7,282.17	418.08	381.67	172.59	209.07	1.826	Minor Risk
18,950.00	11,620.00	19,124.50	11,820.00	115.31	115.38	-121.64	7,332.17	417.77	381.67	171.38	210.29	1.815	Minor Risk
19,000.00	11,620.00	19,174.50	11,820.00	115.99	116.06	-121.64	7,382.17	417.46	381.67	170.16	211.51	1.805	Minor Risk
19,050.00	11,620.00	19,224.50	11,820.00	116.67	116.74	-121.64	7,432.17	417.14	381.67	168.94	212.73	1.794	Minor Risk
19,100.00	11,620.00	19,274.50	11,820.00	117.35	117.42	-121.64	7,482.17	416.83	381.67	167.72	213.95	1.784	Minor Risk
19,150.00	11,620.00	19,324.50	11,820.00	118.03	118.10	-121.64	7,532.17	416.52	381.67	166.50	215.17	1.774	Minor Risk
19,200.00	11,620.00	19,374.50	11,820.00	118.71	118.78	-121.64	7,582.17	416.20	381.67	165.27	216.39	1.764	Minor Risk
19,250.00	11,620.00	19,424.50	11,820.00	119.39	119.46	-121.64	7,632.17	415.89	381.67	164.05	217.62	1.754	Minor Risk
19,300.00	11,620.00	19,474.50	11,820.00	120.07	120.15	-121.64	7,682.16	415.58	381.67	162.83	218.84	1.744	Minor Risk
19,350.00	11,620.00	19,524.50	11,820.00	120.76	120.83	-121.64	7,732.16	415.26	381.67	161.60	220.07	1.734	Minor Risk
19,400.00	11,620.00	19,574.50	11,820.00	121.44	121.51	-121.64	7,782.16	414.95	381.67	160.37	221.29	1.725	Minor Risk
19,450.00	11,620.00	19,624.50	11,820.00	122.13	122.20	-121.64	7,832.16	414.63	381.67	159.15	222.52	1.715	Minor Risk
19,500.00	11,620.00	19,674.50	11,820.00	122.81	122.88	-121.64	7,882.16	414.32	381.66	157.92	223.75	1.706	Minor Risk
19,550.00	11,620.00	19,724.50	11,820.00	123.50	123.57	-121.64	7,932.16	414.01	381.66	156.69	224.98	1.696	Minor Risk
19,600.00	11,620.00	19,774.50	11,820.00	124.18	124.25	-121.64	7,982.16	413.69	381.66	155.46	226.21	1.687	Minor Risk
19,650.00	11,620.00	19,824.50	11,820.00	124.87	124.94	-121.64	8,032.16	413.38	381.66	154.23	227.44	1.678	Minor Risk
19,700.00	11,620.00	19,874.50	11,820.00	125.56	125.63	-121.64	8,082.16	413.07	381.66	153.00	228.67	1.669	Minor Risk
19,750.00	11,620.00	19,924.50	11,820.00	126.24	126.32	-121.64	8,132.16	412.75	381.66	151.76	229.90	1.660	Minor Risk
19,800.00	11,620.00	19,974.50	11,820.00	126.93	127.00	-121.64	8,182.15	412.44	381.66	150.53	231.13	1.651	Minor Risk
19,850.00	11,620.00	20,024.50	11,820.00	127.62	127.69	-121.64	8,232.15	412.13	381.66	149.29	232.37	1.642	Minor Risk
19,900.00	11,620.00	20,074.50	11,820.00	128.31	128.38	-121.64	8,282.15	411.81	381.66	148.06	233.60	1.634	Minor Risk
19,950.00	11,620.00	20,124.50	11,820.00	129.00	129.07	-121.64	8,332.15	411.50	381.66	146.82	234.84	1.625	Minor Risk
20,000.00	11,620.00	20,174.50	11,820.00	129.69	129.76	-121.64	8,382.15	411.18	381.66	145.59	236.08	1.617	Minor Risk
20,050.00	11,620.00	20,224.50	11,820.00	130.38	130.45	-121.64	8,432.15	410.87	381.66	144.35	237.31	1.608	Minor Risk
20,100.00	11,620.00	20,274.50	11,820.00	131.07	131.14	-121.64	8,482.15	410.56	381.66	143.11	238.55	1.600	Minor Risk
20,150.00	11,620.00	20,324.50	11,820.00	131.76	131.83	-121.64	8,532.15	410.24	381.66	141.87	239.79	1.592	Minor Risk
20,200.00	11,620.00	20,374.50	11,820.00	132.45	132.52	-121.64	8,582.15	409.93	381.66	140.63	241.03	1.583	Minor Risk
20,250.00	11,620.00	20,424.50	11,820.00	133.14	133.21	-121.64	8,632.15	409.62	381.66	139.39	242.27	1.575	Minor Risk
20,300.00	11,620.00	20,474.50	11,820.00	133.83	133.91	-121.64	8,682.15	409.30	381.66	138.15	243.51	1.567	Minor Risk
20,350.00	11,620.00	20,524.50	11,820.00	134.53	134.60	-121.64	8,732.14	408.99	381.66	136.91	244.75	1.559	Minor Risk
20,400.00	11,620.00	20,574.50	11,820.00	135.22	135.29	-121.64	8,782.14	408.68	381.66	135.67	246.00	1.551	Minor Risk
20,450.00	11,620.00	20,624.50	11,820.00	135.91	135.98	-121.64	8,832.14	408.36	381.66	134.42	247.24	1.544	Minor Risk
20,500.00	11,620.00	20,674.50	11,820.00	136.61	136.68	-121.64	8,882.14	408.05	381.66	133.18	248.48	1.536	Minor Risk
20,550.00	11,620.00	20,724.50	11,820.00	137.30	137.37	-121.64	8,932.14	407.73	381.66	131.93	249.73	1.528	Minor Risk
20,600.00	11,620.00	20,774.50	11,820.00	137.99	138.07	-121.64	8,982.14	407.42	381.66	130.69	250.97	1.521	Minor Risk
20,650.00	11,620.00	20,824.50	11,820.00	138.69	138.76	-121.64	9,032.14	407.11	381.66	129.44	252.22	1.513	Minor Risk
20,700.00	11,620.00	20,874.50	11,820.00	139.38	139.46	-121.64	9,082.14	406.79	381.66	128.20	253.46	1.506	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 701H - Wellbore #1 - Permit Plan 1				Offset Site Error:		0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:		0.50 ft		
Reference		Offset		Semi Major Axis			Distance					Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S: (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor			
20,750.00	11,620.00	20,924.50	11,820.00	140.08	140.15	-121.64	9,132.14	406.48	381.66	126.95	254.71	1.498	Major Risk			
20,800.00	11,620.00	20,974.50	11,820.00	140.77	140.85	-121.64	9,182.14	406.17	381.66	125.70	255.96	1.491	Major Risk			
20,850.00	11,620.00	21,024.50	11,820.00	141.47	141.54	-121.64	9,232.13	405.85	381.66	124.45	257.21	1.484	Major Risk			
20,900.00	11,620.00	21,074.50	11,820.00	142.17	142.24	-121.64	9,282.13	405.54	381.66	123.20	258.46	1.477	Major Risk			
20,950.00	11,620.00	21,124.50	11,820.00	142.86	142.94	-121.64	9,332.13	405.23	381.66	121.95	259.71	1.470	Major Risk			
21,000.00	11,620.00	21,174.50	11,820.00	143.56	143.63	-121.64	9,382.13	404.91	381.66	120.70	260.96	1.463	Major Risk			
21,050.00	11,620.00	21,224.50	11,820.00	144.26	144.33	-121.64	9,432.13	404.60	381.66	119.45	262.21	1.456	Major Risk			
21,100.00	11,620.00	21,274.50	11,820.00	144.96	145.03	-121.64	9,482.13	404.28	381.66	118.20	263.46	1.449	Major Risk			
21,150.00	11,620.00	21,324.50	11,820.00	145.65	145.73	-121.64	9,532.13	403.97	381.66	116.95	264.71	1.442	Major Risk			
21,200.00	11,620.00	21,374.50	11,820.00	146.35	146.42	-121.64	9,582.13	403.66	381.66	115.70	265.96	1.435	Major Risk			
21,250.00	11,620.00	21,424.50	11,820.00	147.05	147.12	-121.64	9,632.13	403.34	381.66	114.45	267.21	1.428	Major Risk			
21,300.00	11,620.00	21,474.50	11,820.00	147.75	147.82	-121.64	9,682.13	403.03	381.66	113.19	268.47	1.422	Major Risk			
21,350.00	11,620.00	21,524.50	11,820.00	148.45	148.52	-121.64	9,732.12	402.72	381.66	111.94	269.72	1.415	Major Risk			
21,400.00	11,620.00	21,574.50	11,820.00	149.15	149.22	-121.64	9,782.12	402.40	381.66	110.68	270.97	1.408	Major Risk			
21,450.00	11,620.00	21,624.50	11,820.00	149.85	149.92	-121.64	9,832.12	402.09	381.66	109.43	272.23	1.402	Major Risk			
21,500.00	11,620.00	21,674.50	11,820.00	150.55	150.62	-121.64	9,882.12	401.78	381.66	108.17	273.48	1.396	Major Risk			
21,550.00	11,620.00	21,724.50	11,820.00	151.25	151.32	-121.64	9,932.12	401.46	381.66	106.92	274.74	1.389	Major Risk			
21,600.00	11,620.00	21,774.50	11,820.00	151.95	152.02	-121.64	9,982.12	401.15	381.66	105.66	276.00	1.383	Major Risk			
21,650.00	11,620.00	21,824.50	11,820.00	152.65	152.72	-121.64	10,032.12	400.83	381.66	104.40	277.25	1.377	Major Risk			
21,700.00	11,620.00	21,874.50	11,820.00	153.35	153.42	-121.64	10,082.12	400.52	381.66	103.15	278.51	1.370	Major Risk			
21,750.00	11,620.00	21,924.50	11,820.00	154.05	154.12	-121.64	10,132.12	400.21	381.66	101.89	279.77	1.364	Major Risk			
21,800.00	11,620.00	21,974.50	11,820.00	154.75	154.82	-121.64	10,182.12	399.89	381.66	100.63	281.03	1.358	Major Risk			
21,850.00	11,620.00	22,024.50	11,820.00	155.45	155.53	-121.64	10,232.11	399.58	381.66	99.37	282.29	1.352	Major Risk			
21,900.00	11,620.00	22,074.50	11,820.00	156.16	156.23	-121.64	10,282.11	399.27	381.66	98.11	283.54	1.346	Major Risk			
21,908.36	11,620.00	22,082.86	11,820.00	156.27	156.35	-121.64	10,290.47	399.21	381.66	97.90	283.75	1.345	Major Risk, SF			

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		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)				
0.00	0.00	0.20	0.20	0.50	0.50	89.62	0.20	30.00	30.00					
50.00	50.00	50.20	50.20	0.50	0.50	89.62	0.20	30.00	30.00	28.99	1.01	29.806		
100.00	100.00	100.20	100.20	0.52	0.52	89.62	0.20	30.00	30.00	28.97	1.04	28.967		
150.00	150.00	150.20	150.20	0.59	0.59	89.62	0.20	30.00	30.00	28.82	1.18	25.406		
200.00	200.00	200.20	200.20	0.70	0.70	89.62	0.20	30.00	30.00	28.60	1.40	21.357		
250.00	250.00	250.20	250.20	0.84	0.84	89.62	0.20	30.00	30.00	28.32	1.68	17.900		
300.00	300.00	300.20	300.20	0.99	0.99	89.62	0.20	30.00	30.00	28.03	1.98	15.188		
350.00	350.00	350.20	350.20	1.15	1.15	89.62	0.20	30.00	30.00	27.71	2.29	13.091		
400.00	400.00	400.20	400.20	1.31	1.31	89.62	0.20	30.00	30.00	27.38	2.62	11.456		
450.00	450.00	450.20	450.20	1.48	1.48	89.62	0.20	30.00	30.00	27.05	2.95	10.158		
500.00	500.00	500.20	500.20	1.65	1.65	89.62	0.20	30.00	30.00	26.71	3.29	9.111		
550.00	550.00	550.20	550.20	1.82	1.82	89.62	0.20	30.00	30.00	26.36	3.64	8.251		
600.00	600.00	600.20	600.20	1.99	1.99	89.62	0.20	30.00	30.00	26.02	3.98	7.534		
650.00	650.00	650.20	650.20	2.16	2.17	89.62	0.20	30.00	30.00	25.67	4.33	6.929		
700.00	700.00	700.20	700.20	2.34	2.34	89.62	0.20	30.00	30.00	25.32	4.68	6.411		
750.00	750.00	750.20	750.20	2.51	2.52	89.62	0.20	30.00	30.00	24.97	5.03	5.964		
800.00	800.00	800.20	800.20	2.69	2.69	89.62	0.20	30.00	30.00	24.62	5.38	5.574		
850.00	850.00	850.20	850.20	2.87	2.87	89.62	0.20	30.00	30.00	24.27	5.73	5.232		
900.00	900.00	900.20	900.20	3.04	3.04	89.62	0.20	30.00	30.00	23.91	6.09	4.928 Alert		
950.00	950.00	950.20	950.20	3.22	3.22	89.62	0.20	30.00	30.00	23.56	6.44	4.657 Alert		
1,000.00	1,000.00	1,000.20	1,000.20	3.40	3.40	89.62	0.20	30.00	30.00	23.20	6.80	4.414 Alert		
1,050.00	1,050.00	1,050.20	1,050.20	3.58	3.58	89.62	0.20	30.00	30.00	22.85	7.15	4.195 Alert		
1,100.00	1,100.00	1,100.20	1,100.20	3.75	3.75	89.62	0.20	30.00	30.00	22.49	7.51	3.997 Alert		
1,150.00	1,150.00	1,150.20	1,150.20	3.93	3.93	89.62	0.20	30.00	30.00	22.14	7.86	3.816 Alert		
1,200.00	1,200.00	1,200.20	1,200.20	4.11	4.11	89.62	0.20	30.00	30.00	21.78	8.22	3.651 Alert		
1,250.00	1,250.00	1,250.20	1,250.20	4.29	4.29	89.62	0.20	30.00	30.00	21.43	8.57	3.499 Alert		
1,300.00	1,300.00	1,300.20	1,300.20	4.46	4.46	89.62	0.20	30.00	30.00	21.07	8.93	3.360 Alert		
1,350.00	1,350.00	1,350.20	1,350.20	4.64	4.64	89.62	0.20	30.00	30.00	20.72	9.29	3.231 Alert		
1,400.00	1,400.00	1,400.20	1,400.20	4.82	4.82	89.62	0.20	30.00	30.00	20.36	9.64	3.112 Alert		
1,450.00	1,450.00	1,450.20	1,450.20	5.00	5.00	89.62	0.20	30.00	30.00	20.00	10.00	3.001 Alert		
1,500.00	1,500.00	1,500.20	1,500.20	5.18	5.18	89.62	0.20	30.00	30.00	19.65	10.36	2.897 Alert		
1,550.00	1,550.00	1,550.20	1,550.20	5.36	5.36	89.62	0.20	30.00	30.00	19.29	10.71	2.801 Alert		
1,600.00	1,600.00	1,600.20	1,600.20	5.53	5.53	89.62	0.20	30.00	30.00	18.93	11.07	2.710 Alert		
1,650.00	1,650.00	1,650.20	1,650.20	5.71	5.71	89.62	0.20	30.00	30.00	18.57	11.43	2.626 Alert		
1,700.00	1,700.00	1,700.20	1,700.20	5.89	5.89	89.62	0.20	30.00	30.00	18.22	11.78	2.546 Alert		
1,750.00	1,750.00	1,750.20	1,750.20	6.07	6.07	89.62	0.20	30.00	30.00	17.86	12.14	2.471 Minor Risk		
1,800.00	1,800.00	1,800.20	1,800.20	6.25	6.25	89.62	0.20	30.00	30.00	17.50	12.50	2.401 Minor Risk		
1,850.00	1,850.00	1,850.20	1,850.20	6.43	6.43	89.62	0.20	30.00	30.00	17.15	12.86	2.334 Minor Risk		
1,900.00	1,900.00	1,900.20	1,900.20	6.61	6.61	89.62	0.20	30.00	30.00	16.79	13.21	2.271 Minor Risk		
1,950.00	1,950.00	1,950.20	1,950.20	6.78	6.79	89.62	0.20	30.00	30.00	16.43	13.57	2.211 Minor Risk		
2,000.00	2,000.00	2,000.20	2,000.20	6.96	6.96	89.62	0.20	30.00	30.00	16.07	13.93	2.154 Minor Risk, CC		
2,050.00	2,050.00	2,049.94	2,049.94	7.14	7.14	89.68	0.17	30.22	30.22	15.94	14.28	2.116 Minor Risk, ES		
2,100.00	2,100.00	2,099.67	2,099.67	7.32	7.31	89.86	0.07	30.86	30.86	16.23	14.63	2.110 Minor Risk		
2,150.00	2,150.00	2,149.39	2,149.38	7.50	7.48	90.15	-0.08	31.93	31.94	16.96	14.97	2.133 Minor Risk		
2,200.00	2,200.00	2,199.09	2,199.05	7.68	7.65	90.52	-0.31	33.42	33.44	18.13	15.32	2.183 Minor Risk		
2,250.00	2,250.00	2,248.76	2,248.68	7.86	7.82	90.95	-0.59	35.34	35.38	19.72	15.66	2.259 Minor Risk		
2,300.00	2,300.00	2,298.38	2,298.25	8.04	7.99	91.42	-0.94	37.68	37.75	21.74	16.00	2.359 Minor Risk		
2,350.00	2,350.00	2,347.97	2,347.75	8.22	8.16	91.90	-1.34	40.45	40.55	24.20	16.34	2.481 Minor Risk		
2,400.00	2,400.00	2,397.50	2,397.18	8.39	8.33	92.38	-1.81	43.64	43.78	27.09	16.68	2.624 Alert		
2,450.00	2,450.00	2,446.99	2,446.54	8.57	8.50	-11.41	-2.35	47.24	47.23	30.21	17.02	2.775 Alert		
2,500.00	2,499.99	2,496.45	2,495.83	8.74	8.67	-11.10	-2.94	51.26	50.68	33.33	17.35	2.921 Alert		
2,550.00	2,549.98	2,545.88	2,545.05	8.91	8.84	-10.87	-3.60	55.71	54.14	36.46	17.68	3.062 Alert		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 731H - Wellbore #1 - Permit Plan 1		Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft			
Reference		Offset		Semi Major Axis		Highside Toolface (°)	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	2,599.96	2,595.28	2,594.21	9.08	9.02	-10.71	-4.32	60.56	57.59	39.59	18.00	3.199	Alert			
2,650.00	2,649.92	2,645.07	2,643.72	9.25	9.19	-10.63	-5.08	65.75	60.91	42.57	18.34	3.321	Alert			
2,700.00	2,699.86	2,705.01	2,693.36	9.42	9.40	-10.62	-5.85	70.95	63.81	45.10	18.72	3.410	Alert			
2,750.00	2,749.78	2,744.92	2,743.02	9.59	9.55	-10.68	-6.62	76.16	66.29	47.26	19.02	3.484	Alert			
2,800.00	2,799.68	2,805.12	2,792.70	9.76	9.76	-10.81	-7.39	81.37	68.33	48.93	19.40	3.522	Alert			
2,850.00	2,849.54	2,844.85	2,842.40	9.93	9.90	-11.00	-8.16	86.58	69.95	50.24	19.71	3.549	Alert			
2,900.00	2,899.37	2,905.16	2,892.10	10.10	10.12	-11.25	-8.93	91.79	71.14	51.05	20.09	3.541	Alert			
2,950.00	2,949.16	2,944.83	2,941.82	10.26	10.26	-11.56	-9.70	97.00	71.90	51.50	20.40	3.524	Alert			
3,000.00	2,998.90	3,005.17	2,991.53	10.45	10.48	-11.93	-10.47	102.22	72.24	51.46	20.78	3.476	Alert			
3,050.00	3,048.63	3,044.83	3,041.25	10.63	10.62	-12.34	-11.24	107.43	72.40	51.31	21.10	3.432	Alert			
3,100.00	3,098.36	3,105.18	3,090.97	10.80	10.84	-12.74	-12.01	112.65	72.56	51.08	21.48	3.378	Alert			
3,150.00	3,148.09	3,144.82	3,140.69	10.98	10.99	-13.14	-12.78	117.86	72.73	50.94	21.79	3.337	Alert			
3,200.00	3,197.82	3,205.18	3,190.41	11.16	11.21	-13.54	-13.55	123.07	72.90	50.72	22.18	3.287	Alert			
3,250.00	3,247.55	3,244.81	3,240.13	11.33	11.35	-13.94	-14.32	128.29	73.07	50.58	22.49	3.249	Alert			
3,300.00	3,297.28	3,305.19	3,289.85	11.51	11.57	-14.33	-15.09	133.50	73.25	50.37	22.88	3.202	Alert			
3,350.00	3,347.01	3,344.81	3,339.56	11.69	11.72	-14.73	-15.86	138.71	73.43	50.24	23.19	3.166	Alert			
3,400.00	3,396.74	3,405.19	3,389.28	11.87	11.94	-15.12	-16.63	143.93	73.61	50.03	23.58	3.121	Alert			
3,450.00	3,446.47	3,444.80	3,439.00	12.05	12.09	-15.51	-17.40	149.14	73.80	49.90	23.90	3.088	Alert			
3,500.00	3,496.20	3,505.20	3,488.72	12.23	12.31	-15.90	-18.17	154.35	73.99	49.70	24.29	3.046	Alert			
3,550.00	3,545.93	3,544.80	3,538.44	12.41	12.45	-16.28	-18.94	159.57	74.18	49.58	24.61	3.015	Alert			
3,600.00	3,595.66	3,594.79	3,588.16	12.59	12.64	-16.67	-19.71	164.78	74.38	49.42	24.96	2.980	Alert			
3,650.00	3,645.38	3,644.79	3,637.88	12.77	12.82	-17.05	-20.48	169.99	74.58	49.27	25.32	2.946	Alert			
3,700.00	3,695.11	3,705.21	3,687.59	12.95	13.05	-17.43	-21.25	175.21	74.79	49.08	25.71	2.909	Alert			
3,750.00	3,744.84	3,744.79	3,737.31	13.13	13.19	-17.81	-22.02	180.42	74.99	48.97	26.03	2.881	Alert			
3,800.00	3,794.57	3,805.22	3,787.03	13.31	13.42	-18.18	-22.79	185.63	75.20	48.78	26.42	2.846	Alert			
3,850.00	3,844.30	3,844.78	3,836.75	13.49	13.57	-18.55	-23.56	190.85	75.42	48.68	26.74	2.820	Alert			
3,900.00	3,894.03	3,905.22	3,886.47	13.68	13.79	-18.93	-24.33	196.06	75.63	48.50	27.13	2.787	Alert			
3,950.00	3,943.76	3,944.77	3,936.19	13.86	13.94	-19.29	-25.10	201.27	75.85	48.40	27.45	2.763	Alert			
4,000.00	3,993.49	4,005.23	3,985.91	14.04	14.16	-19.66	-25.87	206.49	76.07	48.22	27.85	2.732	Alert			
4,050.00	4,043.22	4,044.77	4,035.62	14.23	14.31	-20.03	-26.64	211.70	76.30	48.13	28.17	2.708	Alert			
4,100.00	4,092.95	4,105.23	4,085.34	14.41	14.54	-20.39	-27.41	216.91	76.53	47.96	28.57	2.679	Alert			
4,150.00	4,142.68	4,144.76	4,135.06	14.59	14.69	-20.75	-28.18	222.13	76.76	47.87	28.89	2.657	Alert			
4,200.00	4,192.41	4,205.24	4,184.78	14.78	14.91	-21.11	-28.95	227.34	77.00	47.71	29.29	2.629	Alert			
4,250.00	4,242.14	4,244.76	4,234.50	14.96	15.06	-21.46	-29.72	232.55	77.24	47.62	29.61	2.608	Alert			
4,300.00	4,291.87	4,305.25	4,284.22	15.15	15.29	-21.82	-30.49	237.77	77.48	47.47	30.01	2.582	Alert			
4,350.00	4,341.60	4,344.75	4,333.94	15.33	15.44	-22.17	-31.26	242.98	77.72	47.39	30.33	2.562	Alert			
4,400.00	4,391.32	4,405.25	4,383.65	15.52	15.66	-22.52	-32.03	248.19	77.97	47.23	30.73	2.537	Alert			
4,450.00	4,441.05	4,444.75	4,433.37	15.70	15.81	-22.86	-32.80	253.41	78.22	47.16	31.06	2.519	Alert			
4,500.00	4,490.78	4,505.26	4,483.09	15.89	16.04	-23.21	-33.57	258.62	78.47	47.01	31.46	2.495	Minor Risk			
4,550.00	4,540.51	4,544.74	4,532.81	16.07	16.19	-23.55	-34.34	263.83	78.72	46.94	31.78	2.477	Minor Risk			
4,600.00	4,590.24	4,594.74	4,582.53	16.26	16.38	-23.89	-35.11	269.05	78.98	46.84	32.14	2.457	Minor Risk			
4,650.00	4,639.97	4,644.73	4,632.25	16.44	16.57	-24.23	-35.88	274.26	79.24	46.74	32.51	2.438	Minor Risk			
4,700.00	4,689.70	4,694.73	4,681.97	16.63	16.75	-24.57	-36.65	279.47	79.51	46.64	32.87	2.419	Minor Risk			
4,750.00	4,739.43	4,744.73	4,731.69	16.82	16.94	-24.90	-37.42	284.69	79.77	46.54	33.24	2.400	Minor Risk			
4,800.00	4,789.16	4,794.73	4,781.40	17.00	17.13	-25.23	-38.19	289.90	80.04	46.44	33.60	2.382	Minor Risk			
4,850.00	4,838.89	4,844.72	4,831.12	17.19	17.32	-25.56	-38.96	295.11	80.32	46.35	33.97	2.365	Minor Risk			
4,900.00	4,888.62	4,894.72	4,880.84	17.38	17.51	-25.89	-39.73	300.33	80.59	46.26	34.33	2.347	Minor Risk			
4,950.00	4,938.35	4,944.72	4,930.56	17.56	17.70	-26.21	-40.50	305.54	80.87	46.17	34.70	2.331	Minor Risk			
5,000.00	4,988.08	5,005.29	4,980.28	17.75	17.93	-26.54	-41.27	310.75	81.15	46.04	35.10	2.312	Minor Risk			
5,050.00	5,037.81	5,044.71	5,030.00	17.94	18.08	-26.86	-42.05	315.97	81.43	46.00	35.43	2.298	Minor Risk			
5,100.00	5,087.53	5,105.29	5,079.72	18.13	18.31	-27.18	-42.82	321.18	81.71	45.88	35.83	2.280	Minor Risk			
5,150.00	5,137.26	5,144.71	5,129.43	18.31	18.46	-27.49	-43.59	326.39	82.00	45.84	36.16	2.268	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 731H - Wellbore #1 - Permit Plan 1		Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft			
Reference		Offset		Semi Major Axis		Highside Toolface (°)	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)						
5,200.00	5,186.99	5,205.30	5,179.15	18.50	18.69	-27.80	-44.36	331.61	82.29	45.72	36.57	2.250	Minor Risk			
5,250.00	5,236.72	5,244.70	5,228.87	18.69	18.84	-28.12	-45.13	336.82	82.58	45.68	36.90	2.238	Minor Risk			
5,300.00	5,286.45	5,305.30	5,278.59	18.88	19.07	-28.43	-45.90	342.03	82.88	45.57	37.30	2.222	Minor Risk			
5,350.00	5,336.18	5,344.69	5,328.31	19.06	19.22	-28.73	-46.67	347.25	83.17	45.54	37.63	2.210	Minor Risk			
5,400.00	5,385.91	5,405.31	5,378.03	19.25	19.45	-29.04	-47.44	352.46	83.47	45.43	38.04	2.194	Minor Risk			
5,450.00	5,435.64	5,444.69	5,427.75	19.44	19.60	-29.34	-48.21	357.67	83.78	45.40	38.37	2.183	Minor Risk			
5,500.00	5,485.37	5,494.69	5,477.46	19.63	19.79	-29.64	-48.98	362.89	84.08	45.34	38.74	2.170	Minor Risk			
5,550.00	5,535.10	5,544.68	5,527.18	19.82	19.98	-29.94	-49.75	368.10	84.39	45.28	39.11	2.158	Minor Risk			
5,600.00	5,584.83	5,605.32	5,576.90	20.00	20.21	-30.24	-50.52	373.31	84.69	45.18	39.52	2.143	Minor Risk			
5,650.00	5,634.56	5,644.68	5,626.62	20.19	20.36	-30.53	-51.29	378.53	85.00	45.16	39.85	2.133	Minor Risk			
5,700.00	5,684.29	5,705.33	5,676.34	20.38	20.59	-30.82	-52.06	383.74	85.32	45.06	40.26	2.119	Minor Risk			
5,750.00	5,734.02	5,744.67	5,726.06	20.57	20.74	-31.11	-52.83	388.95	85.63	45.04	40.59	2.110	Minor Risk			
5,800.00	5,783.74	5,805.33	5,775.78	20.76	20.97	-31.40	-53.60	394.17	85.95	44.95	41.00	2.096	Minor Risk			
5,850.00	5,833.47	5,844.67	5,825.49	20.95	21.12	-31.68	-54.37	399.38	86.27	44.94	41.33	2.087	Minor Risk			
5,900.00	5,883.20	5,905.34	5,875.21	21.14	21.35	-31.97	-55.14	404.59	86.59	44.85	41.74	2.074	Minor Risk			
5,950.00	5,932.93	5,944.66	5,924.93	21.33	21.50	-32.25	-55.91	409.81	86.92	44.84	42.07	2.066	Minor Risk			
6,000.00	5,982.66	6,005.34	5,974.65	21.52	21.73	-32.53	-56.68	415.02	87.24	44.76	42.49	2.053	Minor Risk			
6,050.00	6,032.39	6,044.65	6,024.37	21.70	21.88	-32.81	-57.45	420.23	87.57	44.75	42.82	2.045	Minor Risk			
6,100.00	6,082.12	6,105.35	6,074.09	21.89	22.11	-33.08	-58.22	425.45	87.90	44.67	43.23	2.033	Minor Risk			
6,150.00	6,131.85	6,144.65	6,123.81	22.08	22.26	-33.35	-58.99	430.66	88.23	44.67	43.56	2.025	Minor Risk			
6,200.00	6,181.58	6,205.35	6,173.53	22.27	22.50	-33.62	-59.76	435.87	88.57	44.59	43.98	2.014	Minor Risk			
6,250.00	6,231.31	6,244.64	6,223.24	22.46	22.65	-33.89	-60.53	441.09	88.90	44.59	44.31	2.006	Minor Risk			
6,300.00	6,281.04	6,305.36	6,272.96	22.65	22.88	-34.16	-61.30	446.30	89.24	44.52	44.72	1.995	Minor Risk			
6,350.00	6,330.77	6,344.64	6,322.68	22.84	23.03	-34.43	-62.07	451.51	89.58	44.52	45.06	1.988	Minor Risk			
6,400.00	6,380.50	6,405.37	6,372.40	23.03	23.26	-34.69	-62.84	456.73	89.92	44.45	45.47	1.978	Minor Risk			
6,450.00	6,430.23	6,444.63	6,422.12	23.22	23.41	-34.95	-63.61	461.94	90.26	44.46	45.80	1.971	Minor Risk			
6,500.00	6,479.95	6,505.37	6,471.84	23.41	23.64	-35.21	-64.38	467.16	90.61	44.39	46.22	1.961	Minor Risk			
6,550.00	6,529.68	6,544.63	6,521.56	23.60	23.79	-35.46	-65.15	472.37	90.96	44.41	46.55	1.954	Minor Risk			
6,600.00	6,579.41	6,605.38	6,571.27	23.79	24.02	-35.72	-65.92	477.58	91.31	44.34	46.97	1.944	Minor Risk			
6,650.00	6,629.14	6,644.62	6,620.99	23.98	24.17	-35.97	-66.69	482.80	91.66	44.36	47.30	1.938	Minor Risk			
6,700.00	6,678.87	6,694.62	6,670.71	24.17	24.37	-36.22	-67.46	488.01	92.01	44.33	47.68	1.930	Minor Risk			
6,750.00	6,728.60	6,744.61	6,720.43	24.36	24.56	-36.47	-68.23	493.22	92.36	44.31	48.05	1.922	Minor Risk			
6,800.00	6,778.33	6,805.39	6,770.15	24.55	24.79	-36.72	-69.00	498.44	92.72	44.25	48.47	1.913	Minor Risk			
6,850.00	6,828.06	6,844.61	6,819.87	24.74	24.94	-36.97	-69.77	503.65	93.08	44.28	48.80	1.907	Minor Risk			
6,900.00	6,877.79	6,905.39	6,869.59	24.93	25.17	-37.21	-70.54	508.86	93.44	44.22	49.22	1.898	Minor Risk			
6,950.00	6,927.52	6,944.60	6,919.30	25.12	25.32	-37.45	-71.31	514.08	93.80	44.25	49.55	1.893	Minor Risk			
7,000.00	6,977.25	6,994.60	6,969.02	25.31	25.51	-37.69	-72.08	519.29	94.16	44.23	49.93	1.886	Minor Risk			
7,050.00	7,026.98	7,044.60	7,018.74	25.50	25.71	-37.93	-72.85	524.50	94.53	44.22	50.31	1.879	Minor Risk			
7,100.00	7,076.71	7,105.41	7,068.46	25.69	25.94	-38.16	-73.62	529.72	94.89	44.17	50.72	1.871	Minor Risk			
7,150.00	7,126.44	7,144.59	7,118.18	25.88	26.09	-38.40	-74.39	534.93	95.26	44.20	51.06	1.866	Minor Risk			
7,200.00	7,176.16	7,205.41	7,167.90	26.07	26.32	-38.63	-75.16	540.14	95.63	44.15	51.48	1.858	Minor Risk			
7,250.00	7,225.89	7,244.59	7,217.62	26.26	26.47	-38.86	-75.93	545.36	96.00	44.19	51.81	1.853	Minor Risk			
7,300.00	7,275.62	7,305.42	7,267.33	26.45	26.71	-39.09	-76.70	550.57	96.37	44.14	52.23	1.845	Minor Risk			
7,350.00	7,325.35	7,344.58	7,317.05	26.64	26.86	-39.32	-77.47	555.78	96.75	44.18	52.57	1.840	Minor Risk			
7,400.00	7,375.08	7,405.42	7,366.77	26.84	27.09	-39.54	-78.24	561.00	97.12	44.14	52.99	1.833	Minor Risk			
7,450.00	7,424.81	7,444.57	7,416.49	27.03	27.24	-39.77	-79.01	566.21	97.50	44.18	53.32	1.828	Minor Risk			
7,500.00	7,474.54	7,505.43	7,466.21	27.22	27.47	-39.99	-79.78	571.42	97.88	44.14	53.74	1.821	Minor Risk			
7,550.00	7,524.27	7,544.57	7,515.93	27.41	27.62	-40.21	-80.55	576.64	98.26	44.18	54.08	1.817	Minor Risk			
7,600.00	7,574.00	7,605.44	7,565.65	27.60	27.86	-40.43	-81.32	581.85	98.64	44.14	54.50	1.810	Minor Risk			
7,650.00	7,623.73	7,644.56	7,615.37	27.79	28.01	-40.64	-82.09	587.06	99.02	44.19	54.84	1.806	Minor Risk			
7,700.00	7,673.46	7,694.56	7,665.08	27.98	28.20	-40.86	-82.86	592.28	99.41	44.19	55.21	1.800	Minor Risk			
7,750.00	7,723.19	7,744.56	7,714.80	28.17	28.39	-41.07	-83.63	597.49	99.79	44.20	55.59	1.795	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)							
7,800.00	7,772.92	7,805.45	7,764.52	28.36	28.62	-41.28	-84.40	602.70	100.18	44.17	56.01	1.789	Minor Risk		
7,850.00	7,822.65	7,844.55	7,814.24	28.55	28.77	-41.49	-85.17	607.92	100.57	44.22	56.35	1.785	Minor Risk		
7,900.00	7,872.37	7,894.55	7,863.96	28.74	28.97	-41.70	-85.94	613.13	100.96	44.23	56.73	1.780	Minor Risk		
7,950.00	7,922.10	7,944.55	7,913.68	28.93	29.16	-41.91	-86.71	618.34	101.35	44.24	57.11	1.775	Minor Risk		
8,000.00	7,971.83	8,005.46	7,963.40	29.13	29.39	-42.11	-87.48	623.56	101.74	44.21	57.53	1.768	Minor Risk		
8,050.00	8,021.56	8,044.54	8,013.11	29.32	29.54	-42.32	-88.25	628.77	102.13	44.27	57.87	1.765	Minor Risk		
8,100.00	8,071.29	8,105.46	8,062.83	29.51	29.78	-42.52	-89.02	633.98	102.53	44.24	58.29	1.759	Minor Risk		
8,150.00	8,121.02	8,144.53	8,112.55	29.70	29.93	-42.72	-89.79	639.20	102.92	44.30	58.63	1.756	Minor Risk		
8,200.00	8,170.75	8,205.47	8,162.27	29.89	30.16	-42.92	-90.57	644.41	103.32	44.27	59.05	1.750	Minor Risk		
8,250.00	8,220.48	8,244.53	8,211.99	30.08	30.31	-43.12	-91.34	649.62	103.72	44.33	59.39	1.746	Minor Risk		
8,300.00	8,270.21	8,305.48	8,261.71	30.27	30.55	-43.31	-92.11	654.84	104.12	44.31	59.81	1.741	Minor Risk		
8,350.00	8,319.94	8,344.52	8,311.43	30.46	30.70	-43.51	-92.88	660.05	104.52	44.37	60.15	1.738	Minor Risk		
8,400.00	8,369.67	8,405.48	8,361.14	30.66	30.93	-43.70	-93.65	665.26	104.92	44.35	60.57	1.732	Minor Risk		
8,450.00	8,419.40	8,444.52	8,410.86	30.85	31.08	-43.89	-94.42	670.48	105.33	44.42	60.91	1.729	Minor Risk		
8,500.00	8,469.13	8,494.51	8,460.58	31.04	31.27	-44.08	-95.19	675.69	105.73	44.44	61.29	1.725	Minor Risk		
8,550.00	8,518.86	8,544.51	8,510.30	31.23	31.46	-44.27	-95.96	680.90	106.14	44.47	61.67	1.721	Minor Risk		
8,600.00	8,568.58	8,605.49	8,560.02	31.42	31.70	-44.46	-96.73	686.12	106.54	44.45	62.09	1.716	Minor Risk		
8,650.00	8,618.31	8,644.51	8,609.74	31.61	31.85	-44.64	-97.50	691.33	106.95	44.52	62.43	1.713	Minor Risk		
8,700.00	8,668.04	8,705.50	8,659.46	31.80	32.08	-44.83	-98.27	696.54	107.36	44.51	62.85	1.708	Minor Risk		
8,750.00	8,717.77	8,744.50	8,709.17	32.00	32.23	-45.01	-99.04	701.76	107.77	44.58	63.19	1.705	Minor Risk		
8,800.00	8,767.50	8,805.50	8,758.89	32.19	32.47	-45.19	-99.81	706.97	108.18	44.57	63.62	1.701	Minor Risk		
8,850.00	8,817.23	8,844.49	8,808.61	32.38	32.62	-45.37	-100.58	712.18	108.59	44.64	63.96	1.698	Minor Risk		
8,900.00	8,866.96	8,905.51	8,858.33	32.57	32.85	-45.55	-101.35	717.40	109.01	44.63	64.38	1.693	Minor Risk		
8,950.00	8,916.69	8,944.49	8,908.05	32.76	33.00	-45.73	-102.12	722.61	109.42	44.70	64.72	1.691	Minor Risk		
9,000.00	8,966.42	9,005.52	8,957.77	32.95	33.24	-45.91	-102.89	727.82	109.84	44.69	65.14	1.686	Minor Risk		
9,050.00	9,016.15	9,044.48	9,007.49	33.15	33.39	-46.08	-103.66	733.04	110.25	44.77	65.48	1.684	Minor Risk		
9,100.00	9,065.88	9,105.52	9,057.21	33.34	33.62	-46.25	-104.43	738.25	110.67	44.77	65.91	1.679	Minor Risk		
9,150.00	9,115.61	9,144.48	9,106.92	33.53	33.77	-46.43	-105.20	743.46	111.09	44.84	66.25	1.677	Minor Risk		
9,200.00	9,165.34	9,194.47	9,156.64	33.72	33.97	-46.60	-105.97	748.68	111.51	44.88	66.63	1.674	Minor Risk		
9,250.00	9,215.07	9,244.47	9,206.36	33.91	34.16	-46.77	-106.74	753.89	111.93	44.92	67.01	1.670	Minor Risk		
9,300.00	9,264.79	9,294.47	9,256.08	34.10	34.35	-46.94	-107.51	759.10	112.35	44.96	67.39	1.667	Minor Risk		
9,350.00	9,314.52	9,344.47	9,305.80	34.30	34.54	-47.10	-108.28	764.32	112.77	45.00	67.78	1.664	Minor Risk		
9,400.00	9,364.25	9,394.46	9,355.52	34.49	34.74	-47.27	-109.05	769.53	113.20	45.04	68.16	1.661	Minor Risk		
9,450.00	9,413.98	9,444.46	9,405.24	34.68	34.93	-47.43	-109.82	774.74	113.62	45.08	68.54	1.658	Minor Risk		
9,500.00	9,463.71	9,505.54	9,454.95	34.87	35.16	-47.60	-110.59	779.96	114.05	45.08	68.97	1.654	Minor Risk		
9,550.00	9,513.44	9,544.45	9,504.67	35.06	35.31	-47.76	-111.36	785.17	114.47	45.17	69.31	1.652	Minor Risk		
9,600.00	9,563.17	9,605.55	9,554.39	35.25	35.55	-47.92	-112.13	790.38	114.90	45.17	69.73	1.648	Minor Risk		
9,650.00	9,612.90	9,644.45	9,604.11	35.45	35.70	-48.08	-112.90	795.60	115.33	45.26	70.07	1.646	Minor Risk		
9,700.00	9,662.63	9,705.56	9,653.83	35.64	35.93	-48.24	-113.67	800.81	115.76	45.26	70.50	1.642	Minor Risk		
9,750.00	9,712.36	9,744.44	9,703.55	35.83	36.08	-48.40	-114.44	806.03	116.19	45.35	70.84	1.640	Minor Risk		
9,800.00	9,762.09	9,805.56	9,753.27	36.02	36.32	-48.55	-115.21	811.24	116.62	45.36	71.26	1.636	Minor Risk		
9,850.00	9,811.82	9,844.44	9,802.98	36.21	36.47	-48.71	-115.98	816.45	117.05	45.45	71.60	1.635	Minor Risk		
9,900.00	9,861.55	9,905.57	9,852.70	36.41	36.70	-48.86	-116.75	821.67	117.48	45.45	72.03	1.631	Minor Risk		
9,950.00	9,911.28	9,944.43	9,902.42	36.60	36.85	-49.01	-117.52	826.88	117.92	45.55	72.37	1.629	Minor Risk		
10,000.00	9,961.00	10,005.57	9,952.14	36.79	37.09	-49.17	-118.29	832.09	118.35	45.55	72.80	1.626	Minor Risk		
10,050.00	10,010.73	10,044.43	10,001.86	36.98	37.24	-49.32	-119.06	837.31	118.79	45.65	73.14	1.624	Minor Risk		
10,100.00	10,060.46	10,105.58	10,051.58	37.17	37.48	-49.47	-119.83	842.52	119.22	45.66	73.56	1.621	Minor Risk		
10,150.00	10,110.19	10,144.42	10,101.30	37.37	37.63	-49.61	-120.60	847.73	119.66	45.75	73.91	1.619	Minor Risk		
10,200.00	10,159.92	10,205.58	10,151.01	37.56	37.86	-49.76	-121.37	852.95	120.10	45.76	74.33	1.616	Minor Risk		
10,250.00	10,209.65	10,244.41	10,200.73	37.75	38.01	-49.91	-122.14	858.16	120.53	45.86	74.67	1.614	Minor Risk		
10,300.00	10,259.38	10,305.59	10,250.45	37.94	38.25	-50.05	-122.91	863.37	120.97	45.87	75.10	1.611	Minor Risk		
10,350.00	10,309.11	10,344.41	10,300.17	38.13	38.40	-50.19	-123.68	868.59	121.42	45.98	75.44	1.609	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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
10,400.00	10,358.88	10,394.40	10,349.89	38.32	38.59	-50.18	-124.45	873.80	122.14	46.33	75.81	1.611	Minor Risk
10,450.00	10,408.72	10,444.39	10,399.59	38.51	38.78	-49.95	-125.22	879.01	123.29	47.11	76.18	1.619	Minor Risk
10,500.00	10,458.60	10,494.35	10,449.28	38.70	38.97	-49.49	-125.99	884.22	124.86	48.34	76.53	1.632	Minor Risk
10,550.00	10,508.52	10,544.40	10,499.05	38.88	39.17	-48.82	-126.76	889.44	126.87	50.01	76.86	1.651	Minor Risk
10,600.00	10,558.47	10,595.59	10,549.99	39.06	39.36	-48.06	-127.49	894.37	129.04	51.84	77.20	1.671	Minor Risk
10,650.00	10,608.45	10,646.81	10,601.03	39.23	39.55	-47.31	-128.12	898.64	131.18	53.64	77.54	1.692	Minor Risk
10,700.00	10,658.44	10,698.07	10,652.17	39.41	39.74	-46.57	-128.65	902.23	133.28	55.42	77.86	1.712	Minor Risk
10,750.00	10,708.44	10,749.38	10,703.39	39.58	39.93	58.37	-129.08	905.14	135.33	57.16	78.18	1.731	Minor Risk
10,800.00	10,758.44	10,800.74	10,754.70	39.74	40.12	58.98	-129.41	907.38	137.02	58.54	78.49	1.746	Minor Risk
10,850.00	10,808.44	10,852.15	10,806.08	39.91	40.30	59.39	-129.64	908.93	138.21	59.41	78.79	1.754	Minor Risk
10,900.00	10,858.44	10,903.60	10,857.52	40.07	40.48	59.62	-129.77	909.80	138.87	59.76	79.11	1.755	Minor Risk
10,950.00	10,908.44	10,954.72	10,908.64	40.24	40.65	59.67	-129.80	910.00	139.03	59.60	79.42	1.750	Minor Risk
11,000.00	10,958.44	11,004.72	10,958.64	40.40	40.81	59.67	-129.80	910.00	139.03	59.27	79.76	1.743	Minor Risk
11,050.00	11,008.44	11,054.72	11,008.64	40.57	40.98	59.67	-129.80	910.00	139.03	58.93	80.09	1.736	Minor Risk
11,100.00	11,058.44	11,104.71	11,058.64	40.74	41.14	60.08	-129.80	910.00	138.97	58.55	80.42	1.728	Minor Risk
11,150.00	11,108.32	11,154.60	11,108.52	40.90	41.30	61.36	-129.80	910.00	137.41	56.72	80.69	1.703	Minor Risk
11,200.00	11,157.74	11,204.02	11,157.94	41.06	41.47	64.46	-129.80	910.00	133.96	53.09	80.87	1.656	Minor Risk
11,250.00	11,206.32	11,252.59	11,206.52	41.21	41.63	69.51	-129.80	910.00	129.23	48.28	80.95	1.596	Minor Risk
11,300.00	11,256.68	11,299.15	11,253.08	41.35	41.78	76.41	-129.77	910.01	124.36	43.40	80.96	1.536	Minor Risk
11,350.00	11,299.47	11,340.90	11,294.76	41.48	41.92	83.60	-127.89	910.75	121.97	40.96	81.01	1.506	Minor Risk
11,356.26	11,305.07	11,346.18	11,300.02	41.50	41.94	84.52	-127.45	910.93	121.94	40.93	81.01	1.505	Minor Risk
11,400.00	11,343.34	11,383.46	11,336.99	41.60	42.07	90.94	-122.99	912.68	123.50	42.42	81.08	1.523	Minor Risk
11,450.00	11,384.95	11,426.88	11,379.52	41.71	42.22	97.95	-114.92	915.86	129.16	47.90	81.26	1.590	Minor Risk
11,500.00	11,423.99	11,471.21	11,422.11	41.80	42.36	104.19	-103.51	920.36	138.75	57.25	81.50	1.702	Minor Risk
11,550.00	11,460.16	11,516.53	11,464.50	41.88	42.51	109.44	-88.63	926.22	151.81	70.08	81.73	1.858	Minor Risk
11,600.00	11,493.19	11,562.92	11,506.40	41.95	42.66	113.63	-70.14	933.51	167.75	85.93	81.82	2.050	Minor Risk
11,650.00	11,522.83	11,610.47	11,547.47	42.00	42.81	116.81	-47.87	942.28	186.00	104.26	81.74	2.276	Minor Risk
11,700.00	11,548.84	11,659.30	11,587.37	42.04	42.95	119.09	-21.70	952.59	206.06	124.60	81.46	2.530	Alert
11,750.00	11,571.03	11,709.57	11,625.70	42.07	43.09	120.59	8.53	964.50	227.53	146.53	81.00	2.809	Alert
11,800.00	11,589.24	11,767.44	11,666.05	42.09	43.24	121.78	47.21	979.39	249.83	169.81	80.02	3.122	Alert
11,850.00	11,603.32	11,839.19	11,710.46	42.10	43.41	123.25	100.94	996.21	270.66	192.55	78.11	3.465	Alert
11,900.00	11,613.16	11,917.66	11,751.22	42.12	43.56	124.65	166.14	1,011.55	288.97	213.14	75.83	3.811	Alert
11,950.00	11,618.70	12,003.12	11,785.41	42.14	43.71	126.02	243.32	1,024.27	304.11	230.69	73.42	4.142	Alert
12,000.00	11,620.00	12,095.25	11,809.49	42.19	43.85	127.54	331.71	1,033.01	315.36	244.04	71.32	4.422	Alert
12,050.00	11,620.00	12,193.14	11,819.83	42.26	44.01	128.57	428.86	1,036.38	320.25	249.94	70.31	4.555	Alert
12,100.00	11,620.00	12,250.24	11,820.00	42.37	44.11	128.59	485.96	1,036.07	320.32	249.92	70.41	4.550	Alert
12,150.00	11,620.00	12,300.24	11,820.00	42.50	44.21	128.59	535.96	1,035.75	320.32	249.75	70.57	4.539	Alert
12,200.00	11,620.00	12,350.24	11,820.00	42.64	44.32	128.59	585.96	1,035.43	320.31	249.56	70.75	4.528	Alert
12,250.00	11,620.00	12,400.24	11,820.00	42.81	44.45	128.59	635.96	1,035.10	320.30	249.36	70.95	4.515	Alert
12,300.00	11,620.00	12,450.24	11,820.00	42.98	44.59	128.59	685.96	1,034.78	320.30	249.13	71.17	4.500	Alert
12,350.00	11,620.00	12,500.24	11,820.00	43.18	44.74	128.60	735.96	1,034.46	320.29	248.88	71.41	4.485	Alert
12,400.00	11,620.00	12,550.24	11,820.00	43.38	44.91	128.60	785.96	1,034.14	320.28	248.61	71.68	4.469	Alert
12,450.00	11,620.00	12,600.24	11,820.00	43.59	45.08	128.60	835.95	1,033.81	320.27	248.32	71.96	4.451	Alert
12,500.00	11,620.00	12,650.24	11,820.00	43.81	45.27	128.60	885.95	1,033.49	320.27	248.01	72.26	4.432	Alert
12,550.00	11,620.00	12,700.24	11,820.00	44.05	45.47	128.60	935.95	1,033.17	320.26	247.67	72.59	4.412	Alert
12,600.00	11,620.00	12,750.24	11,820.00	44.29	45.69	128.60	985.95	1,032.84	320.25	247.32	72.93	4.391	Alert
12,650.00	11,620.00	12,800.24	11,820.00	44.55	45.91	128.60	1,035.95	1,032.52	320.25	246.95	73.29	4.369	Alert
12,700.00	11,620.00	12,850.24	11,820.00	44.82	46.14	128.60	1,085.95	1,032.20	320.24	246.57	73.67	4.347	Alert
12,750.00	11,620.00	12,900.24	11,820.00	45.10	46.39	128.60	1,135.95	1,031.88	320.23	246.16	74.07	4.323	Alert
12,800.00	11,620.00	12,950.24	11,820.00	45.38	46.65	128.60	1,185.95	1,031.55	320.23	245.73	74.49	4.299	Alert
12,850.00	11,620.00	13,000.24	11,820.00	45.68	46.91	128.61	1,235.95	1,031.23	320.22	245.29	74.93	4.274	Alert
12,900.00	11,620.00	13,050.24	11,820.00	45.98	47.19	128.61	1,285.94	1,030.91	320.21	244.83	75.38	4.248	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County.(NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 731H - 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			
12,950.00	11,620.00	13,100.24	11,820.00	46.30	47.47	128.61	1,335.94	1,030.58	320.20	244.35	75.86	4.221	Alert			
13,000.00	11,620.00	13,150.24	11,820.00	46.62	47.77	128.61	1,385.94	1,030.26	320.20	243.85	76.35	4.194	Alert			
13,050.00	11,620.00	13,200.24	11,820.00	46.95	48.07	128.61	1,435.94	1,029.94	320.19	243.34	76.85	4.166	Alert			
13,100.00	11,620.00	13,250.24	11,820.00	47.29	48.39	128.61	1,485.94	1,029.62	320.18	242.81	77.38	4.138	Alert			
13,150.00	11,620.00	13,300.24	11,820.00	47.64	48.71	128.61	1,535.94	1,029.29	320.18	242.26	77.92	4.109	Alert			
13,200.00	11,620.00	13,350.24	11,820.00	48.00	49.05	128.61	1,585.94	1,028.97	320.17	241.70	78.47	4.080	Alert			
13,250.00	11,620.00	13,400.24	11,820.00	48.37	49.39	128.61	1,635.94	1,028.65	320.16	241.12	79.04	4.051	Alert			
13,300.00	11,620.00	13,450.24	11,820.00	48.74	49.74	128.61	1,685.94	1,028.32	320.15	240.53	79.63	4.021	Alert			
13,350.00	11,620.00	13,500.24	11,820.00	49.12	50.09	128.62	1,735.94	1,028.00	320.15	239.92	80.23	3.991	Alert			
13,400.00	11,620.00	13,550.24	11,820.00	49.51	50.46	128.62	1,785.93	1,027.68	320.14	239.30	80.84	3.960	Alert			
13,450.00	11,620.00	13,600.24	11,820.00	49.91	50.83	128.62	1,835.93	1,027.36	320.13	238.66	81.47	3.929	Alert			
13,500.00	11,620.00	13,650.24	11,820.00	50.31	51.22	128.62	1,885.93	1,027.03	320.13	238.01	82.11	3.899	Alert			
13,550.00	11,620.00	13,700.24	11,820.00	50.72	51.61	128.62	1,935.93	1,026.71	320.12	237.35	82.77	3.868	Alert			
13,600.00	11,620.00	13,750.24	11,820.00	51.14	52.01	128.62	1,985.93	1,026.39	320.11	236.67	83.44	3.836	Alert			
13,650.00	11,620.00	13,800.24	11,820.00	51.57	52.41	128.62	2,035.93	1,026.06	320.11	235.98	84.12	3.805	Alert			
13,700.00	11,620.00	13,850.24	11,820.00	52.00	52.82	128.62	2,085.93	1,025.74	320.10	235.28	84.82	3.774	Alert			
13,750.00	11,620.00	13,900.24	11,820.00	52.44	53.23	128.62	2,135.93	1,025.42	320.09	234.57	85.53	3.743	Alert			
13,800.00	11,620.00	13,950.24	11,820.00	52.88	53.66	128.62	2,185.93	1,025.10	320.08	233.84	86.25	3.711	Alert			
13,850.00	11,620.00	14,000.24	11,820.00	53.33	54.09	128.63	2,235.93	1,024.77	320.08	233.10	86.98	3.680	Alert			
13,900.00	11,620.00	14,050.24	11,820.00	53.79	54.53	128.63	2,285.92	1,024.45	320.07	232.35	87.72	3.649	Alert			
13,950.00	11,620.00	14,100.24	11,820.00	54.25	54.97	128.63	2,335.92	1,024.13	320.06	231.59	88.47	3.618	Alert			
14,000.00	11,620.00	14,150.24	11,820.00	54.72	55.42	128.63	2,385.92	1,023.80	320.06	230.82	89.24	3.587	Alert			
14,050.00	11,620.00	14,200.24	11,820.00	55.20	55.88	128.63	2,435.92	1,023.48	320.05	230.04	90.01	3.556	Alert			
14,100.00	11,620.00	14,250.24	11,820.00	55.67	56.34	128.63	2,485.92	1,023.16	320.04	229.24	90.80	3.525	Alert			
14,150.00	11,620.00	14,300.24	11,820.00	56.16	56.80	128.63	2,535.92	1,022.84	320.03	228.44	91.59	3.494	Alert			
14,200.00	11,620.00	14,350.24	11,820.00	56.65	57.28	128.63	2,585.92	1,022.51	320.03	227.63	92.40	3.464	Alert			
14,250.00	11,620.00	14,400.24	11,820.00	57.14	57.75	128.63	2,635.92	1,022.19	320.02	226.81	93.21	3.433	Alert			
14,300.00	11,620.00	14,450.24	11,820.00	57.64	58.24	128.63	2,685.92	1,021.87	320.01	225.98	94.04	3.403	Alert			
14,350.00	11,620.00	14,500.24	11,820.00	58.15	58.72	128.64	2,735.91	1,021.54	320.01	225.14	94.87	3.373	Alert			
14,400.00	11,620.00	14,550.24	11,820.00	58.66	59.22	128.64	2,785.91	1,021.22	320.00	224.29	95.71	3.343	Alert			
14,450.00	11,620.00	14,600.24	11,820.00	59.17	59.71	128.64	2,835.91	1,020.90	319.99	223.43	96.56	3.314	Alert			
14,500.00	11,620.00	14,650.24	11,820.00	59.69	60.22	128.64	2,885.91	1,020.58	319.98	222.57	97.42	3.285	Alert			
14,550.00	11,620.00	14,700.24	11,820.00	60.21	60.72	128.64	2,935.91	1,020.25	319.98	221.69	98.29	3.256	Alert			
14,600.00	11,620.00	14,750.24	11,820.00	60.74	61.24	128.64	2,985.91	1,019.93	319.97	220.81	99.16	3.227	Alert			
14,650.00	11,620.00	14,800.24	11,820.00	61.27	61.75	128.64	3,035.91	1,019.61	319.96	219.92	100.04	3.198	Alert			
14,700.00	11,620.00	14,850.24	11,820.00	61.81	62.27	128.64	3,085.91	1,019.28	319.96	219.02	100.93	3.170	Alert			
14,750.00	11,620.00	14,900.24	11,820.00	62.35	62.80	128.64	3,135.91	1,018.96	319.95	218.12	101.83	3.142	Alert			
14,800.00	11,620.00	14,950.24	11,820.00	62.89	63.33	128.64	3,185.91	1,018.64	319.94	217.21	102.73	3.114	Alert			
14,850.00	11,620.00	15,000.24	11,820.00	63.44	63.86	128.65	3,235.90	1,018.32	319.94	216.29	103.64	3.087	Alert			
14,900.00	11,620.00	15,050.24	11,820.00	63.98	64.39	128.65	3,285.90	1,017.99	319.93	215.37	104.56	3.060	Alert			
14,950.00	11,620.00	15,100.24	11,820.00	64.54	64.93	128.65	3,335.90	1,017.67	319.92	214.44	105.48	3.033	Alert			
15,000.00	11,620.00	15,150.24	11,820.00	65.09	65.48	128.65	3,385.90	1,017.35	319.91	213.50	106.42	3.006	Alert			
15,050.00	11,620.00	15,200.24	11,820.00	65.66	66.02	128.65	3,435.90	1,017.02	319.91	212.56	107.35	2.980	Alert			
15,100.00	11,620.00	15,250.24	11,820.00	66.22	66.58	128.65	3,485.90	1,016.70	319.90	211.61	108.29	2.954	Alert			
15,150.00	11,620.00	15,300.24	11,820.00	66.79	67.13	128.65	3,535.90	1,016.38	319.89	210.65	109.24	2.928	Alert			
15,200.00	11,620.00	15,350.24	11,820.00	67.36	67.69	128.65	3,585.90	1,016.05	319.89	209.69	110.20	2.903	Alert			
15,250.00	11,620.00	15,400.24	11,820.00	67.93	68.25	128.65	3,635.90	1,015.73	319.88	208.72	111.16	2.878	Alert			
15,300.00	11,620.00	15,450.24	11,820.00	68.50	68.81	128.65	3,685.89	1,015.41	319.87	207.75	112.12	2.853	Alert			
15,350.00	11,620.00	15,500.24	11,820.00	69.08	69.38	128.66	3,735.89	1,015.09	319.86	206.77	113.09	2.828	Alert			
15,400.00	11,620.00	15,550.24	11,820.00	69.66	69.95	128.66	3,785.89	1,014.76	319.86	205.79	114.07	2.804	Alert			
15,450.00	11,620.00	15,600.24	11,820.00	70.25	70.52	128.66	3,835.89	1,014.44	319.85	204.80	115.05	2.780	Alert			
15,500.00	11,620.00	15,650.24	11,820.00	70.84	71.10	128.66	3,885.89	1,014.12	319.84	203.81	116.04	2.756	Alert			

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
15,550.00	11,620.00	15,700.24	11,820.00	71.43	71.67	128.66	3,935.89	1,013.79	319.84	202.81	117.03	2.733	Alert	
15,600.00	11,620.00	15,750.24	11,820.00	72.02	72.26	128.66	3,985.89	1,013.47	319.83	201.81	118.02	2.710	Alert	
15,650.00	11,620.00	15,800.24	11,820.00	72.61	72.84	128.66	4,035.89	1,013.15	319.82	200.80	119.02	2.687	Alert	
15,700.00	11,620.00	15,850.24	11,820.00	73.21	73.43	128.66	4,085.89	1,012.83	319.82	199.79	120.03	2.665	Alert	
15,750.00	11,620.00	15,900.24	11,820.00	73.81	74.01	128.66	4,135.89	1,012.50	319.81	198.77	121.03	2.642	Alert	
15,800.00	11,620.00	15,950.24	11,820.00	74.41	74.61	128.67	4,185.88	1,012.18	319.80	197.75	122.05	2.620	Alert	
15,850.00	11,620.00	16,000.24	11,820.00	75.02	75.20	128.67	4,235.88	1,011.86	319.79	196.73	123.06	2.599	Alert	
15,900.00	11,620.00	16,050.24	11,820.00	75.62	75.80	128.67	4,285.88	1,011.53	319.79	195.70	124.08	2.577	Alert	
15,950.00	11,620.00	16,100.24	11,820.00	76.23	76.39	128.67	4,335.88	1,011.21	319.78	194.67	125.11	2.556	Alert	
16,000.00	11,620.00	16,150.24	11,820.00	76.84	77.00	128.67	4,385.88	1,010.89	319.77	193.64	126.14	2.535	Alert	
16,050.00	11,620.00	16,200.24	11,820.00	77.45	77.60	128.67	4,435.88	1,010.57	319.77	192.60	127.17	2.514	Alert	
16,100.00	11,620.00	16,250.24	11,820.00	78.07	78.20	128.67	4,485.88	1,010.24	319.76	191.55	128.21	2.494	Minor Risk	
16,150.00	11,620.00	16,300.24	11,820.00	78.68	78.81	128.67	4,535.88	1,009.92	319.75	190.51	129.24	2.474	Minor Risk	
16,200.00	11,620.00	16,350.24	11,820.00	79.30	79.42	128.67	4,585.88	1,009.60	319.74	189.46	130.29	2.454	Minor Risk	
16,250.00	11,620.00	16,400.24	11,820.00	79.92	80.03	128.67	4,635.88	1,009.27	319.74	188.40	131.33	2.435	Minor Risk	
16,300.00	11,620.00	16,450.24	11,820.00	80.54	80.64	128.68	4,685.87	1,008.95	319.73	187.35	132.38	2.415	Minor Risk	
16,350.00	11,620.00	16,500.24	11,820.00	81.17	81.26	128.68	4,735.87	1,008.63	319.72	186.29	133.44	2.396	Minor Risk	
16,400.00	11,620.00	16,550.24	11,820.00	81.79	81.88	128.68	4,785.87	1,008.31	319.72	185.22	134.49	2.377	Minor Risk	
16,450.00	11,620.00	16,600.24	11,820.00	82.42	82.49	128.68	4,835.87	1,007.98	319.71	184.16	135.55	2.359	Minor Risk	
16,500.00	11,620.00	16,650.24	11,820.00	83.05	83.12	128.68	4,885.87	1,007.66	319.70	183.09	136.61	2.340	Minor Risk	
16,550.00	11,620.00	16,700.24	11,820.00	83.68	83.74	128.68	4,935.87	1,007.34	319.69	182.02	137.68	2.322	Minor Risk	
16,600.00	11,620.00	16,750.24	11,820.00	84.31	84.36	128.68	4,985.87	1,007.01	319.69	180.94	138.74	2.304	Minor Risk	
16,650.00	11,620.00	16,800.24	11,820.00	84.94	84.99	128.68	5,035.87	1,006.69	319.68	179.87	139.82	2.286	Minor Risk	
16,700.00	11,620.00	16,850.24	11,820.00	85.58	85.61	128.68	5,085.87	1,006.37	319.67	178.79	140.89	2.269	Minor Risk	
16,750.00	11,620.00	16,900.24	11,820.00	86.22	86.24	128.68	5,135.86	1,006.05	319.67	177.70	141.96	2.252	Minor Risk	
16,800.00	11,620.00	16,950.24	11,820.00	86.85	86.87	128.69	5,185.86	1,005.72	319.66	176.62	143.04	2.235	Minor Risk	
16,850.00	11,620.00	17,000.24	11,820.00	87.49	87.51	128.69	5,235.86	1,005.40	319.65	175.53	144.12	2.218	Minor Risk	
16,900.00	11,620.00	17,050.24	11,820.00	88.13	88.14	128.69	5,285.86	1,005.08	319.65	174.44	145.21	2.201	Minor Risk	
16,950.00	11,620.00	17,100.24	11,820.00	88.78	88.77	128.69	5,335.86	1,004.75	319.64	173.35	146.29	2.185	Minor Risk	
17,000.00	11,620.00	17,150.24	11,820.00	89.42	89.41	128.69	5,385.86	1,004.43	319.63	172.25	147.38	2.169	Minor Risk	
17,050.00	11,620.00	17,200.24	11,820.00	90.06	90.05	128.69	5,435.86	1,004.11	319.62	171.15	148.47	2.153	Minor Risk	
17,100.00	11,620.00	17,250.24	11,820.00	90.71	90.69	128.69	5,485.86	1,003.79	319.62	170.05	149.56	2.137	Minor Risk	
17,150.00	11,620.00	17,300.24	11,820.00	91.36	91.33	128.69	5,535.86	1,003.46	319.61	168.95	150.66	2.121	Minor Risk	
17,200.00	11,620.00	17,350.24	11,820.00	92.00	91.97	128.69	5,585.86	1,003.14	319.60	167.85	151.76	2.106	Minor Risk	
17,250.00	11,620.00	17,400.24	11,820.00	92.66	92.61	128.69	5,635.85	1,002.82	319.60	166.74	152.86	2.091	Minor Risk	
17,300.00	11,620.00	17,450.24	11,820.00	93.31	93.26	128.70	5,685.85	1,002.49	319.59	165.63	153.96	2.076	Minor Risk	
17,350.00	11,620.00	17,500.24	11,820.00	93.96	93.90	128.70	5,735.85	1,002.17	319.58	164.52	155.06	2.061	Minor Risk	
17,400.00	11,620.00	17,550.24	11,820.00	94.61	94.55	128.70	5,785.85	1,001.85	319.57	163.41	156.17	2.046	Minor Risk	
17,450.00	11,620.00	17,600.24	11,820.00	95.27	95.20	128.70	5,835.85	1,001.53	319.57	162.29	157.27	2.032	Minor Risk	
17,500.00	11,620.00	17,650.24	11,820.00	95.92	95.85	128.70	5,885.85	1,001.20	319.56	161.18	158.38	2.018	Minor Risk	
17,550.00	11,620.00	17,700.24	11,820.00	96.58	96.50	128.70	5,935.85	1,000.88	319.55	160.06	159.49	2.004	Minor Risk	
17,600.00	11,620.00	17,750.24	11,820.00	97.23	97.15	128.70	5,985.85	1,000.56	319.55	158.94	160.61	1.990	Minor Risk	
17,650.00	11,620.00	17,800.24	11,820.00	97.89	97.80	128.70	6,035.85	1,000.23	319.54	157.82	161.72	1.976	Minor Risk	
17,700.00	11,620.00	17,850.24	11,820.00	98.55	98.46	128.70	6,085.84	999.91	319.53	156.69	162.84	1.962	Minor Risk	
17,750.00	11,620.00	17,900.24	11,820.00	99.21	99.11	128.70	6,135.84	999.59	319.53	155.57	163.96	1.949	Minor Risk	
17,800.00	11,620.00	17,950.24	11,820.00	99.87	99.77	128.71	6,185.84	999.26	319.52	154.44	165.08	1.936	Minor Risk	
17,850.00	11,620.00	18,000.24	11,820.00	100.54	100.42	128.71	6,235.84	998.94	319.51	153.31	166.20	1.922	Minor Risk	
17,900.00	11,620.00	18,050.24	11,820.00	101.20	101.08	128.71	6,285.84	998.62	319.50	152.18	167.32	1.910	Minor Risk	
17,950.00	11,620.00	18,100.24	11,820.00	101.86	101.74	128.71	6,335.84	998.30	319.50	151.05	168.45	1.897	Minor Risk	
18,000.00	11,620.00	18,150.24	11,820.00	102.53	102.40	128.71	6,385.84	997.97	319.49	149.92	169.57	1.884	Minor Risk	
18,050.00	11,620.00	18,200.24	11,820.00	103.19	103.06	128.71	6,435.84	997.65	319.48	148.78	170.70	1.872	Minor Risk	
18,100.00	11,620.00	18,250.24	11,820.00	103.86	103.72	128.71	6,485.84	997.33	319.48	147.65	171.83	1.859	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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)					
18,150.00	11,620.00	18,300.24	11,820.00	104.53	104.38	128.71	6,535.84	997.00	319.47	146.51	172.96	1.847	Minor Risk
18,200.00	11,620.00	18,350.24	11,820.00	105.20	105.05	128.71	6,585.83	996.68	319.46	145.37	174.09	1.835	Minor Risk
18,250.00	11,620.00	18,400.24	11,820.00	105.86	105.71	128.71	6,635.83	996.36	319.45	144.23	175.23	1.823	Minor Risk
18,300.00	11,620.00	18,450.24	11,820.00	106.53	106.38	128.72	6,685.83	996.04	319.45	143.09	176.36	1.811	Minor Risk
18,350.00	11,620.00	18,500.24	11,820.00	107.20	107.04	128.72	6,735.83	995.71	319.44	141.94	177.50	1.800	Minor Risk
18,400.00	11,620.00	18,550.24	11,820.00	107.88	107.71	128.72	6,785.83	995.39	319.43	140.80	178.63	1.788	Minor Risk
18,450.00	11,620.00	18,600.24	11,820.00	108.55	108.37	128.72	6,835.83	995.07	319.43	139.65	179.77	1.777	Minor Risk
18,500.00	11,620.00	18,650.24	11,820.00	109.22	109.04	128.72	6,885.83	994.74	319.42	138.51	180.91	1.766	Minor Risk
18,550.00	11,620.00	18,700.24	11,820.00	109.89	109.71	128.72	6,935.83	994.42	319.41	137.36	182.05	1.754	Minor Risk
18,600.00	11,620.00	18,750.24	11,820.00	110.57	110.38	128.72	6,985.83	994.10	319.41	136.21	183.20	1.744	Minor Risk
18,650.00	11,620.00	18,800.24	11,820.00	111.24	111.05	128.72	7,035.83	993.78	319.40	135.06	184.34	1.733	Minor Risk
18,700.00	11,620.00	18,850.24	11,820.00	111.92	111.72	128.72	7,085.82	993.45	319.39	133.91	185.49	1.722	Minor Risk
18,750.00	11,620.00	18,900.24	11,820.00	112.60	112.40	128.72	7,135.82	993.13	319.38	132.75	186.63	1.711	Minor Risk
18,800.00	11,620.00	18,950.24	11,820.00	113.27	113.07	128.73	7,185.82	992.81	319.38	131.60	187.78	1.701	Minor Risk
18,850.00	11,620.00	19,000.24	11,820.00	113.95	113.74	128.73	7,235.82	992.48	319.37	130.44	188.93	1.690	Minor Risk
18,900.00	11,620.00	19,050.24	11,820.00	114.63	114.42	128.73	7,285.82	992.16	319.36	129.29	190.08	1.680	Minor Risk
18,950.00	11,620.00	19,100.24	11,820.00	115.31	115.09	128.73	7,335.82	991.84	319.36	128.13	191.23	1.670	Minor Risk
19,000.00	11,620.00	19,150.24	11,820.00	115.99	115.77	128.73	7,385.82	991.52	319.35	126.97	192.38	1.660	Minor Risk
19,050.00	11,620.00	19,200.24	11,820.00	116.67	116.44	128.73	7,435.82	991.19	319.34	125.81	193.53	1.650	Minor Risk
19,100.00	11,620.00	19,250.24	11,820.00	117.35	117.12	128.73	7,485.82	990.87	319.33	124.65	194.69	1.640	Minor Risk
19,150.00	11,620.00	19,300.24	11,820.00	118.03	117.79	128.73	7,535.81	990.55	319.33	123.49	195.84	1.631	Minor Risk
19,200.00	11,620.00	19,350.24	11,820.00	118.71	118.47	128.73	7,585.81	990.22	319.32	122.33	197.00	1.621	Minor Risk
19,250.00	11,620.00	19,400.24	11,820.00	119.39	119.15	128.74	7,635.81	989.90	319.31	121.16	198.15	1.611	Minor Risk
19,300.00	11,620.00	19,450.24	11,820.00	120.07	119.83	128.74	7,685.81	989.58	319.31	120.00	199.31	1.602	Minor Risk
19,350.00	11,620.00	19,500.24	11,820.00	120.76	120.51	128.74	7,735.81	989.26	319.30	118.83	200.47	1.593	Minor Risk
19,400.00	11,620.00	19,550.24	11,820.00	121.44	121.19	128.74	7,785.81	988.93	319.29	117.67	201.63	1.584	Minor Risk
19,450.00	11,620.00	19,600.24	11,820.00	122.13	121.87	128.74	7,835.81	988.61	319.29	116.50	202.79	1.574	Minor Risk
19,500.00	11,620.00	19,650.24	11,820.00	122.81	122.55	128.74	7,885.81	988.29	319.28	115.33	203.95	1.565	Minor Risk
19,550.00	11,620.00	19,700.24	11,820.00	123.50	123.23	128.74	7,935.81	987.96	319.27	114.16	205.11	1.557	Minor Risk
19,600.00	11,620.00	19,750.24	11,820.00	124.18	123.92	128.74	7,985.81	987.64	319.26	112.99	206.27	1.548	Minor Risk
19,650.00	11,620.00	19,800.24	11,820.00	124.87	124.60	128.74	8,035.80	987.32	319.26	111.82	207.44	1.539	Minor Risk
19,700.00	11,620.00	19,850.24	11,820.00	125.56	125.28	128.74	8,085.80	987.00	319.25	110.65	208.60	1.530	Minor Risk
19,750.00	11,620.00	19,900.24	11,820.00	126.24	125.97	128.75	8,135.80	986.67	319.24	109.48	209.77	1.522	Minor Risk
19,800.00	11,620.00	19,950.24	11,820.00	126.93	126.65	128.75	8,185.80	986.35	319.24	108.30	210.93	1.513	Minor Risk
19,850.00	11,620.00	20,000.24	11,820.00	127.62	127.34	128.75	8,235.80	986.03	319.23	107.13	212.10	1.505	Minor Risk
19,900.00	11,620.00	20,050.24	11,820.00	128.31	128.02	128.75	8,285.80	985.70	319.22	105.95	213.27	1.497	Major Risk
19,950.00	11,620.00	20,100.24	11,820.00	129.00	128.71	128.75	8,335.80	985.38	319.21	104.78	214.44	1.489	Major Risk
20,000.00	11,620.00	20,150.24	11,820.00	129.69	129.39	128.75	8,385.80	985.06	319.21	103.60	215.60	1.481	Major Risk
20,050.00	11,620.00	20,200.24	11,820.00	130.38	130.08	128.75	8,435.80	984.74	319.20	102.43	216.77	1.473	Major Risk
20,100.00	11,620.00	20,250.24	11,820.00	131.07	130.77	128.75	8,485.79	984.41	319.19	101.25	217.94	1.465	Major Risk
20,150.00	11,620.00	20,300.24	11,820.00	131.76	131.46	128.75	8,535.79	984.09	319.19	100.07	219.12	1.457	Major Risk
20,200.00	11,620.00	20,350.24	11,820.00	132.45	132.14	128.75	8,585.79	983.77	319.18	98.89	220.29	1.449	Major Risk
20,250.00	11,620.00	20,400.24	11,820.00	133.14	132.83	128.76	8,635.79	983.44	319.17	97.71	221.46	1.441	Major Risk
20,300.00	11,620.00	20,450.24	11,820.00	133.83	133.52	128.76	8,685.79	983.12	319.17	96.53	222.63	1.434	Major Risk
20,350.00	11,620.00	20,500.24	11,820.00	134.53	134.21	128.76	8,735.79	982.80	319.16	95.35	223.81	1.426	Major Risk
20,400.00	11,620.00	20,550.24	11,820.00	135.22	134.90	128.76	8,785.79	982.47	319.15	94.17	224.98	1.419	Major Risk
20,450.00	11,620.00	20,600.24	11,820.00	135.91	135.59	128.76	8,835.79	982.15	319.14	92.99	226.16	1.411	Major Risk
20,500.00	11,620.00	20,650.24	11,820.00	136.61	136.28	128.76	8,885.79	981.83	319.14	91.80	227.33	1.404	Major Risk
20,550.00	11,620.00	20,700.24	11,820.00	137.30	136.97	128.76	8,935.79	981.51	319.13	90.62	228.51	1.397	Major Risk
20,600.00	11,620.00	20,750.24	11,820.00	137.99	137.67	128.76	8,985.78	981.18	319.12	89.44	229.69	1.389	Major Risk
20,650.00	11,620.00	20,800.24	11,820.00	138.69	138.36	128.76	9,035.78	980.86	319.12	88.25	230.86	1.382	Major Risk
20,700.00	11,620.00	20,850.24	11,820.00	139.38	139.05	128.76	9,085.78	980.54	319.11	87.07	232.04	1.375	Major 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 Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E - Tomb Raider 12-1 Fed 731H - Wellbore #1 - Permit Plan 1													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
20,750.00	11,620.00	20,900.24	11,820.00	140.08	139.74	128.77	9,135.78	980.21	319.10	85.88	233.22	1.368	Major Risk	
20,800.00	11,620.00	20,950.24	11,820.00	140.77	140.44	128.77	9,185.78	979.89	319.09	84.69	234.40	1.361	Major Risk	
20,850.00	11,620.00	21,000.24	11,820.00	141.47	141.13	128.77	9,235.78	979.57	319.09	83.51	235.58	1.354	Major Risk	
20,900.00	11,620.00	21,050.24	11,820.00	142.17	141.82	128.77	9,285.78	979.25	319.08	82.32	236.76	1.348	Major Risk	
20,950.00	11,620.00	21,100.24	11,820.00	142.86	142.52	128.77	9,335.78	978.92	319.07	81.13	237.94	1.341	Major Risk	
21,000.00	11,620.00	21,150.24	11,820.00	143.56	143.21	128.77	9,385.78	978.60	319.07	79.94	239.12	1.334	Major Risk	
21,050.00	11,620.00	21,200.24	11,820.00	144.26	143.91	128.77	9,435.77	978.28	319.06	78.75	240.30	1.328	Major Risk	
21,100.00	11,620.00	21,250.24	11,820.00	144.96	144.60	128.77	9,485.77	977.95	319.05	77.56	241.49	1.321	Major Risk	
21,150.00	11,620.00	21,300.24	11,820.00	145.65	145.30	128.77	9,535.77	977.63	319.05	76.37	242.67	1.315	Major Risk	
21,200.00	11,620.00	21,350.24	11,820.00	146.35	145.99	128.77	9,585.77	977.31	319.04	75.18	243.85	1.308	Major Risk	
21,250.00	11,620.00	21,400.24	11,820.00	147.05	146.69	128.78	9,635.77	976.99	319.03	73.99	245.04	1.302	Major Risk	
21,300.00	11,620.00	21,450.24	11,820.00	147.75	147.38	128.78	9,685.77	976.66	319.02	72.80	246.22	1.296	Major Risk	
21,350.00	11,620.00	21,500.24	11,820.00	148.45	148.08	128.78	9,735.77	976.34	319.02	71.61	247.41	1.289	Major Risk	
21,400.00	11,620.00	21,550.24	11,820.00	149.15	148.78	128.78	9,785.77	976.02	319.01	70.42	248.59	1.283	Major Risk	
21,450.00	11,620.00	21,600.24	11,820.00	149.85	149.48	128.78	9,835.77	975.69	319.00	69.22	249.78	1.277	Major Risk	
21,500.00	11,620.00	21,650.24	11,820.00	150.55	150.17	128.78	9,885.77	975.37	319.00	68.03	250.97	1.271	Major Risk	
21,550.00	11,620.00	21,700.24	11,820.00	151.25	150.87	128.78	9,935.76	975.05	318.99	66.84	252.15	1.265	Major Risk	
21,600.00	11,620.00	21,750.24	11,820.00	151.95	151.57	128.78	9,985.76	974.73	318.98	65.64	253.34	1.259	Major Risk	
21,650.00	11,620.00	21,800.24	11,820.00	152.65	152.27	128.78	10,035.76	974.40	318.97	64.45	254.53	1.253	Major Risk	
21,700.00	11,620.00	21,850.24	11,820.00	153.35	152.97	128.78	10,085.76	974.08	318.97	63.25	255.72	1.247	Major Risk	
21,750.00	11,620.00	21,900.24	11,820.00	154.05	153.67	128.79	10,135.76	973.76	318.96	62.06	256.90	1.242	Major Risk	
21,800.00	11,620.00	21,950.24	11,820.00	154.75	154.36	128.79	10,185.76	973.43	318.95	60.86	258.09	1.236	Major Risk	
21,850.00	11,620.00	22,000.24	11,820.00	155.45	155.06	128.79	10,235.76	973.11	318.95	59.66	259.28	1.230	Major Risk	
21,900.00	11,620.00	22,050.24	11,820.00	156.16	155.76	128.79	10,285.76	972.79	318.94	58.47	260.47	1.224	Major Risk	
21,908.36	11,620.00	22,058.60	11,820.00	156.27	155.88	128.79	10,294.12	972.73	318.94	58.27	260.67	1.224	Major Risk, SF	

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 @ 3513.40ft

Offset Depths are relative to Offset Datum

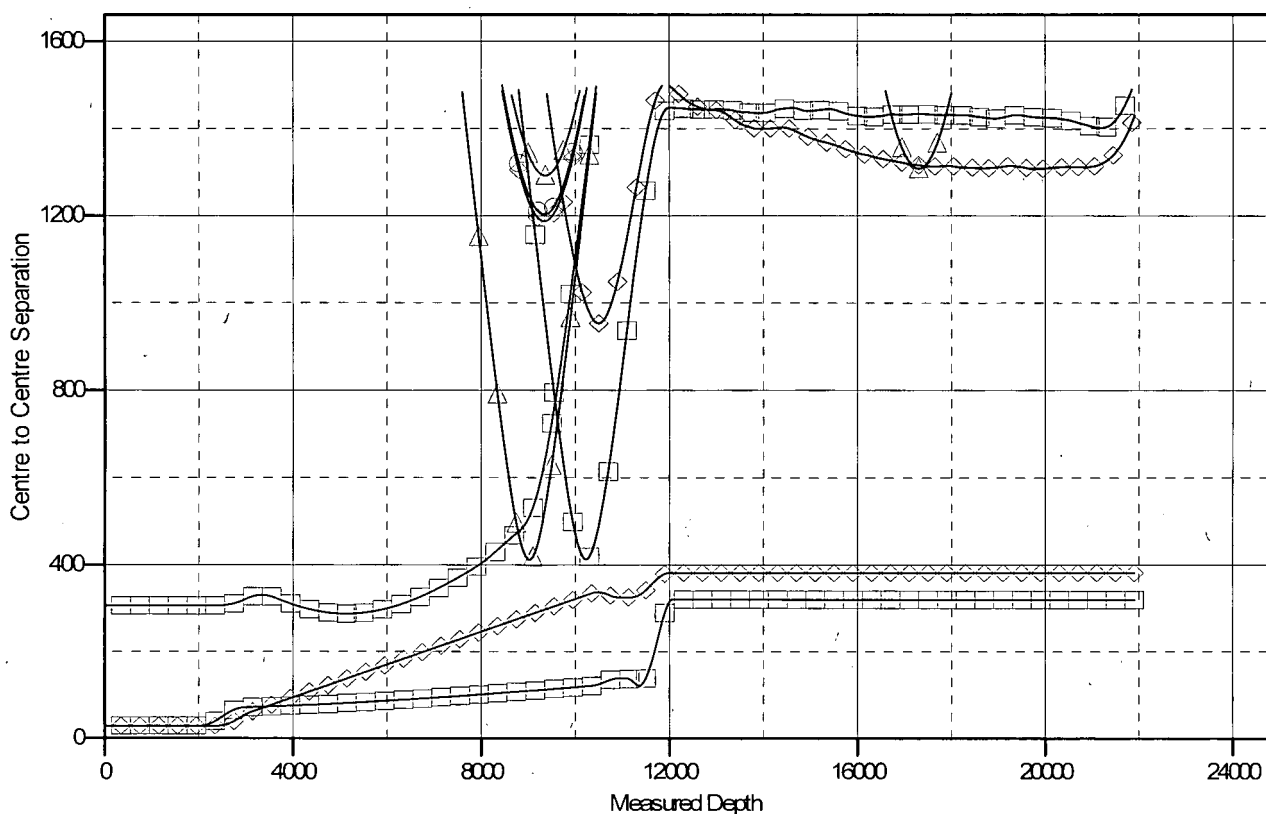
Central Meridian is -104.333334

Coordinates are relative to: Tomb Raider 12-1 Fed 331H

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

Grid Convergence at Surface is: 0.32°

Ladder Plot



LEGEND

	Tomb Raider 1-12 Fed 52H, Wellbore #1, Wellbore #1 V0		Tomb Raider 1-12 Fed 524H, Wellbore #1, Permit Plan 1 V0		Tomb Raider 12-1 Fed 701H, Wellbore #1, Permit Plan 1 V0
	Tomb Raider 1-12 Fed 524H, Wellbore #1, Permit Plan 2 V0		Barclay Fed #1 (P & A), Wellbore #1, Wellbore #1 V0		Tomb Raider 12-1 Fed 731H, Wellbore #1, Permit Plan 1 V0
	Tomb Raider 1-12 Fed 523H, Wellbore #1, Permit Plan 1 V0		Tomb Raider 1-12 Fed 61H, Original Hole, Original Hole V0		
	Tomb Raider 1-12 Fed 512H, Wellbore #1, Wellbore #1 V0		Tomb Raider 12-1 Fed 521H, Wellbore #1, Permit Plan 2 V0		

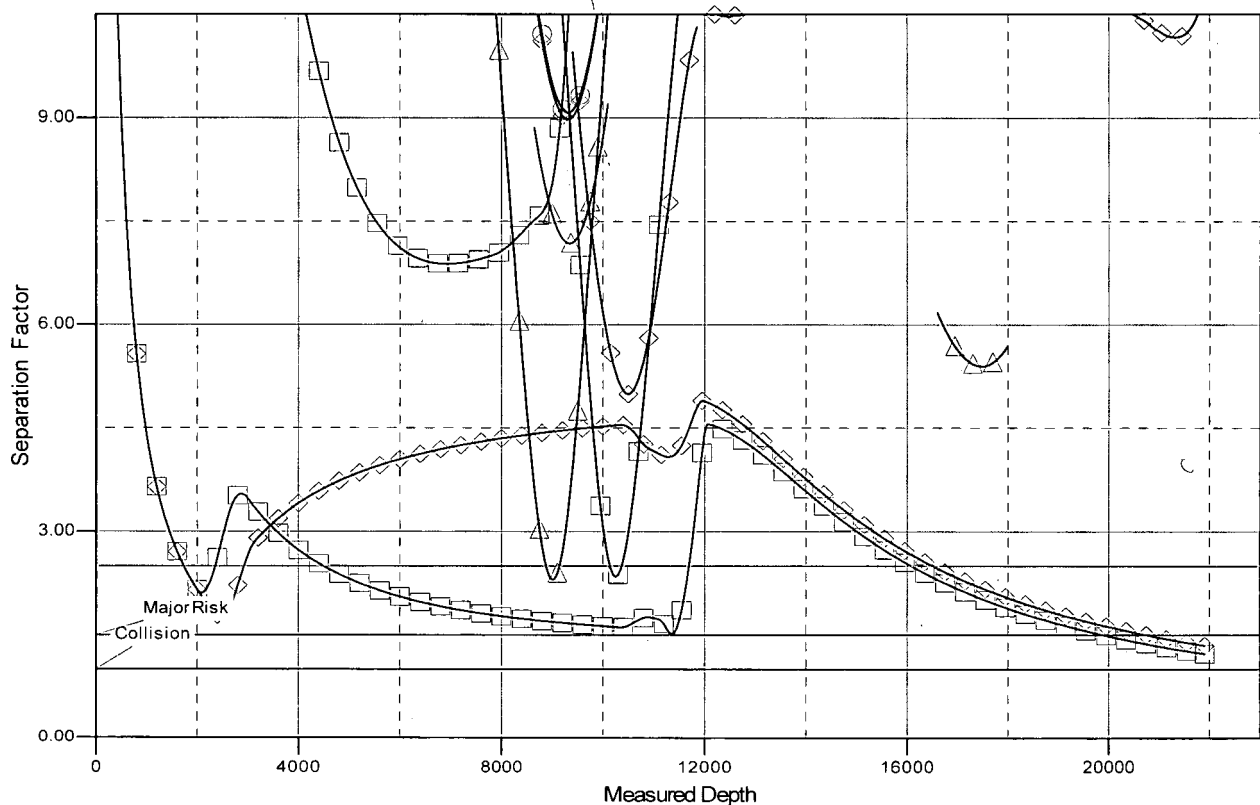
Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3513.40ft
Reference Site:	Sec 12-T23S-R31E	MD Reference:	RKB @ 3513.40ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 12-1 Fed 331H	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 @ 3513.40ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Tomb Raider 12-1 Fed 331H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.32°

Separation Factor Plot



LEGEND

Tomb Raider 1-12 Fed 62H, Wellbore #1, Wellbore #1 V0	Tomb Raider 1-12 Fed 524H, Wellbore #1, Permit Plan 1 V0	Tomb Raider 12-1 Fed 701H, Wellbore #1, Permit Plan 1 V0
Tomb Raider 1-12 Fed 523H, Wellbore #1, Permit Plan 1 V0	Tomb Raider 1-12 Fed 61H, Original Hole, Original Hole V0	Tomb Raider 12-1 Fed 731H, Wellbore #1, Permit Plan 1 V0
Tomb Raider 1-12 Fed 512H, Wellbore #1, Wellbore #1 V0	Tomb Raider 12-1 Fed 521H, Wellbore #1, Permit Plan 2 V0	

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 12-T23S-R31E

Tomb Raider 12-1 Fed 331H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

30 November, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3513.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3513.40ft
Site:	Sec 12-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 12-1 Fed 331H	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 12-T23S-R31E		
Site Position:	Map	Northing:	477,636.10 usft
From:		Easting:	724,631.57 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.311700
		Longitude:	-103.740028
		Grid Convergence:	0.32 °

Well	Tomb Raider 12-1 Fed 331H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.50 ft	Wellhead Elevation:	Ground Level:
			3,488.40 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	11/29/2018	6.88
			Dip Angle
			(°)
			60.10
			Field Strength
			(nT)
			47,823.06337635

Design	Permit Plan 1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			4.02

Plan Survey Tool Program	Date	11/30/2018		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(ft)	(ft)			
1	0.00	21,908.36 Permit Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,996.49	5.96	104.21	2,995.41	-7.61	30.07	1.00	1.00	0.00	104.21	
10,340.90	5.96	104.21	10,300.06	-194.92	769.95	0.00	0.00	0.00	0.00	
10,738.56	0.00	0.00	10,697.00	-200.00	790.00	1.50	-1.50	0.00	180.00	
11,088.60	0.00	0.00	11,047.04	-200.00	790.00	0.00	0.00	0.00	0.00	
11,988.60	90.00	359.64	11,620.00	372.95	786.40	10.00	10.00	0.00	359.64	PBHL - Tomb Raider
21,908.36	90.00	359.64	11,620.00	10,292.51	724.14	0.00	0.00	0.00	0.00	PBHL - Tomb Raider

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3513.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3513.40ft
Site:	Sec 12-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 12-1 Fed 331H	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	477,887.47	724,890.38	32.312387	-103.739186
100.00	0.00	0.00	100.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
200.00	0.00	0.00	200.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
300.00	0.00	0.00	300.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
400.00	0.00	0.00	400.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
500.00	0.00	0.00	500.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
600.00	0.00	0.00	600.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
700.00	0.00	0.00	700.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
800.00	0.00	0.00	800.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
900.00	0.00	0.00	900.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,000.00	0.00	0.00	1,000.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,100.00	0.00	0.00	1,100.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,200.00	0.00	0.00	1,200.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,300.00	0.00	0.00	1,300.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,400.00	0.00	0.00	1,400.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,500.00	0.00	0.00	1,500.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,600.00	0.00	0.00	1,600.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,700.00	0.00	0.00	1,700.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,800.00	0.00	0.00	1,800.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
1,900.00	0.00	0.00	1,900.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
2,000.00	0.00	0.00	2,000.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
2,100.00	0.00	0.00	2,100.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
2,200.00	0.00	0.00	2,200.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
2,300.00	0.00	0.00	2,300.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
2,400.00	0.00	0.00	2,400.00	0.00	0.00	477,887.47	724,890.38	32.312387	-103.739186
2,500.00	1.00	104.21	2,499.99	-0.21	0.85	477,887.26	724,891.22	32.312386	-103.739183
2,600.00	2.00	104.21	2,599.96	-0.86	3.38	477,886.61	724,893.76	32.312385	-103.739175
2,700.00	3.00	104.21	2,699.86	-1.93	7.61	477,885.54	724,897.99	32.312382	-103.739161
2,800.00	4.00	104.21	2,799.68	-3.43	13.53	477,884.05	724,903.91	32.312377	-103.739142
2,900.00	5.00	104.21	2,899.37	-5.35	21.14	477,882.12	724,911.51	32.312372	-103.739118
2,996.49	5.96	104.21	2,995.41	-7.61	30.07	477,879.86	724,920.45	32.312366	-103.739089
3,000.00	5.96	104.21	2,998.90	-7.70	30.43	477,879.77	724,920.80	32.312365	-103.739088
3,100.00	5.96	104.21	3,098.36	-10.25	40.50	477,877.22	724,930.88	32.312358	-103.739055
3,200.00	5.96	104.21	3,197.82	-12.80	50.57	477,874.67	724,940.95	32.312351	-103.739023
3,300.00	5.96	104.21	3,297.28	-15.35	60.65	477,872.12	724,951.02	32.312344	-103.738990
3,400.00	5.96	104.21	3,396.74	-17.90	70.72	477,869.57	724,961.10	32.312337	-103.738957
3,500.00	5.96	104.21	3,496.20	-20.45	80.80	477,867.02	724,971.17	32.312330	-103.738925
3,600.00	5.96	104.21	3,595.66	-23.01	90.87	477,864.47	724,981.25	32.312322	-103.738892
3,700.00	5.96	104.21	3,695.11	-25.56	100.94	477,861.92	724,991.32	32.312315	-103.738860
3,800.00	5.96	104.21	3,794.57	-28.11	111.02	477,859.36	725,001.39	32.312308	-103.738827
3,900.00	5.96	104.21	3,894.03	-30.66	121.09	477,856.81	725,011.47	32.312301	-103.738795
4,000.00	5.96	104.21	3,993.49	-33.21	131.17	477,854.26	725,021.54	32.312294	-103.738762
4,100.00	5.96	104.21	4,092.95	-35.76	141.24	477,851.71	725,031.62	32.312287	-103.738730
4,200.00	5.96	104.21	4,192.41	-38.31	151.31	477,849.16	725,041.69	32.312279	-103.738697
4,300.00	5.96	104.21	4,291.87	-40.86	161.39	477,846.61	725,051.76	32.312272	-103.738664
4,400.00	5.96	104.21	4,391.32	-43.41	171.46	477,844.06	725,061.84	32.312265	-103.738632
4,500.00	5.96	104.21	4,490.78	-45.96	181.54	477,841.51	725,071.91	32.312258	-103.738599
4,600.00	5.96	104.21	4,590.24	-48.51	191.61	477,838.96	725,081.99	32.312251	-103.738567
4,700.00	5.96	104.21	4,689.70	-51.06	201.68	477,836.41	725,092.06	32.312244	-103.738534
4,800.00	5.96	104.21	4,789.16	-53.61	211.76	477,833.86	725,102.13	32.312236	-103.738502
4,900.00	5.96	104.21	4,888.62	-56.16	221.83	477,831.31	725,112.21	32.312229	-103.738469
5,000.00	5.96	104.21	4,988.08	-58.71	231.91	477,828.76	725,122.28	32.312222	-103.738436
5,100.00	5.96	104.21	5,087.53	-61.26	241.98	477,826.21	725,132.36	32.312215	-103.738404
5,200.00	5.96	104.21	5,186.99	-63.81	252.06	477,823.66	725,142.43	32.312208	-103.738371
5,300.00	5.96	104.21	5,286.45	-66.36	262.13	477,821.11	725,152.50	32.312201	-103.738339

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3513.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3513.40ft
Site:	Sec 12-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 12-1 Fed 331H	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	5.96	104.21	5,385.91	-68.91	272.20	477,818.56	725,162.58	32.312193	-103.738306
5,500.00	5.96	104.21	5,485.37	-71.46	282.28	477,816.01	725,172.65	32.312186	-103.738274
5,600.00	5.96	104.21	5,584.83	-74.01	292.35	477,813.46	725,182.73	32.312179	-103.738241
5,700.00	5.96	104.21	5,684.29	-76.56	302.43	477,810.91	725,192.80	32.312172	-103.738209
5,800.00	5.96	104.21	5,783.74	-79.11	312.50	477,808.36	725,202.88	32.312165	-103.738176
5,900.00	5.96	104.21	5,883.20	-81.66	322.57	477,805.81	725,212.95	32.312158	-103.738143
6,000.00	5.96	104.21	5,982.66	-84.21	332.65	477,803.26	725,223.02	32.312150	-103.738111
6,100.00	5.96	104.21	6,082.12	-86.76	342.72	477,800.71	725,233.10	32.312143	-103.738078
6,200.00	5.96	104.21	6,181.58	-89.32	352.80	477,798.16	725,243.17	32.312136	-103.738046
6,300.00	5.96	104.21	6,281.04	-91.87	362.87	477,795.61	725,253.25	32.312129	-103.738013
6,400.00	5.96	104.21	6,380.50	-94.42	372.94	477,793.05	725,263.32	32.312122	-103.737981
6,500.00	5.96	104.21	6,479.95	-96.97	383.02	477,790.50	725,273.39	32.312115	-103.737948
6,600.00	5.96	104.21	6,579.41	-99.52	393.09	477,787.95	725,283.47	32.312108	-103.737915
6,700.00	5.96	104.21	6,678.87	-102.07	403.17	477,785.40	725,293.54	32.312100	-103.737883
6,800.00	5.96	104.21	6,778.33	-104.62	413.24	477,782.85	725,303.62	32.312093	-103.737850
6,900.00	5.96	104.21	6,877.79	-107.17	423.31	477,780.30	725,313.69	32.312086	-103.737818
7,000.00	5.96	104.21	6,977.25	-109.72	433.39	477,777.75	725,323.76	32.312079	-103.737785
7,100.00	5.96	104.21	7,076.71	-112.27	443.46	477,775.20	725,333.84	32.312072	-103.737753
7,200.00	5.96	104.21	7,176.16	-114.82	453.54	477,772.65	725,343.91	32.312065	-103.737720
7,300.00	5.96	104.21	7,275.62	-117.37	463.61	477,770.10	725,353.99	32.312057	-103.737688
7,400.00	5.96	104.21	7,375.08	-119.92	473.68	477,767.55	725,364.06	32.312050	-103.737655
7,500.00	5.96	104.21	7,474.54	-122.47	483.76	477,765.00	725,374.13	32.312043	-103.737622
7,600.00	5.96	104.21	7,574.00	-125.02	493.83	477,762.45	725,384.21	32.312036	-103.737590
7,700.00	5.96	104.21	7,673.46	-127.57	503.91	477,759.90	725,394.28	32.312029	-103.737557
7,800.00	5.96	104.21	7,772.92	-130.12	513.98	477,757.35	725,404.36	32.312022	-103.737525
7,900.00	5.96	104.21	7,872.37	-132.67	524.05	477,754.80	725,414.43	32.312014	-103.737492
8,000.00	5.96	104.21	7,971.83	-135.22	534.13	477,752.25	725,424.50	32.312007	-103.737460
8,100.00	5.96	104.21	8,071.29	-137.77	544.20	477,749.70	725,434.58	32.312000	-103.737427
8,200.00	5.96	104.21	8,170.75	-140.32	554.28	477,747.15	725,444.65	32.311993	-103.737395
8,300.00	5.96	104.21	8,270.21	-142.87	564.35	477,744.60	725,454.73	32.311986	-103.737362
8,400.00	5.96	104.21	8,369.67	-145.42	574.42	477,742.05	725,464.80	32.311979	-103.737329
8,500.00	5.96	104.21	8,469.13	-147.97	584.50	477,739.50	725,474.87	32.311971	-103.737297
8,600.00	5.96	104.21	8,568.58	-150.52	594.57	477,736.95	725,484.95	32.311964	-103.737264
8,700.00	5.96	104.21	8,668.04	-153.08	604.65	477,734.40	725,495.02	32.311957	-103.737232
8,800.00	5.96	104.21	8,767.50	-155.63	614.72	477,731.85	725,505.10	32.311950	-103.737199
8,900.00	5.96	104.21	8,866.96	-158.18	624.79	477,729.30	725,515.17	32.311943	-103.737167
9,000.00	5.96	104.21	8,966.42	-160.73	634.87	477,726.74	725,525.24	32.311936	-103.737134
9,100.00	5.96	104.21	9,065.88	-163.28	644.94	477,724.19	725,535.32	32.311928	-103.737101
9,200.00	5.96	104.21	9,165.34	-165.83	655.02	477,721.64	725,545.39	32.311921	-103.737069
9,300.00	5.96	104.21	9,264.79	-168.38	665.09	477,719.09	725,555.47	32.311914	-103.737036
9,400.00	5.96	104.21	9,364.25	-170.93	675.17	477,716.54	725,565.54	32.311907	-103.737004
9,500.00	5.96	104.21	9,463.71	-173.48	685.24	477,713.99	725,575.61	32.311900	-103.736971
9,600.00	5.96	104.21	9,563.17	-176.03	695.31	477,711.44	725,585.69	32.311893	-103.736939
9,700.00	5.96	104.21	9,662.63	-178.58	705.39	477,708.89	725,595.76	32.311885	-103.736906
9,800.00	5.96	104.21	9,762.09	-181.13	715.46	477,706.34	725,605.84	32.311878	-103.736874
9,900.00	5.96	104.21	9,861.55	-183.68	725.54	477,703.79	725,615.91	32.311871	-103.736841
10,000.00	5.96	104.21	9,961.00	-186.23	735.61	477,701.24	725,625.98	32.311864	-103.736808
10,100.00	5.96	104.21	10,060.46	-188.78	745.68	477,698.69	725,636.06	32.311857	-103.736776
10,200.00	5.96	104.21	10,159.92	-191.33	755.76	477,696.14	725,646.13	32.311850	-103.736743
10,300.00	5.96	104.21	10,259.38	-193.88	765.83	477,693.59	725,656.21	32.311842	-103.736711
10,340.90	5.96	104.21	10,300.06	-194.92	769.95	477,692.55	725,660.33	32.311839	-103.736697
10,400.00	5.08	104.21	10,358.88	-196.32	775.46	477,691.15	725,665.84	32.311836	-103.736680
10,500.00	3.58	104.21	10,458.60	-198.17	782.78	477,689.30	725,673.16	32.311830	-103.736656
10,600.00	2.08	104.21	10,558.47	-199.38	787.56	477,688.09	725,677.94	32.311827	-103.736640
10,700.00	0.58	104.21	10,658.44	-199.95	789.81	477,687.52	725,680.19	32.311825	-103.736633

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3513.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3513.40ft
Site:	Sec 12-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 12-1 Fed 331H	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
10,738.56	0.00	0.00	10,697.00	-200.00	790.00	477,687.47	725,680.37	32.311825	-103.736633
10,800.00	0.00	0.00	10,758.44	-200.00	790.00	477,687.47	725,680.37	32.311825	-103.736633
10,900.00	0.00	0.00	10,858.44	-200.00	790.00	477,687.47	725,680.37	32.311825	-103.736633
11,000.00	0.00	0.00	10,958.44	-200.00	790.00	477,687.47	725,680.37	32.311825	-103.736633
11,088.60	0.00	0.00	11,047.04	-200.00	790.00	477,687.47	725,680.37	32.311825	-103.736633
KOP @ 11089' MD, 50' FSL, 1050' FWL									
11,100.00	1.14	359.64	11,058.44	-199.89	790.00	477,687.58	725,680.37	32.311826	-103.736633
11,200.00	11.14	359.64	11,157.74	-189.20	789.93	477,698.27	725,680.31	32.311855	-103.736633
11,300.00	21.14	359.64	11,253.68	-161.44	789.76	477,726.03	725,680.13	32.311931	-103.736633
11,329.74	24.11	359.64	11,281.13	-150.00	789.69	477,737.47	725,680.06	32.311963	-103.736633
FTP @ 11330' MD, 100' FSL, 1050' FWL									
11,400.00	31.14	359.64	11,343.34	-117.44	789.48	477,770.03	725,679.86	32.312052	-103.736633
11,500.00	41.14	359.64	11,423.99	-58.54	789.11	477,828.93	725,679.49	32.312214	-103.736633
11,600.00	51.14	359.64	11,493.19	13.47	788.66	477,900.94	725,679.03	32.312412	-103.736633
11,700.00	61.14	359.64	11,548.84	96.40	788.14	477,983.87	725,678.51	32.312640	-103.736633
11,800.00	71.14	359.64	11,589.24	187.74	787.57	478,075.21	725,677.94	32.312891	-103.736633
11,900.00	81.14	359.64	11,613.16	284.70	786.96	478,172.17	725,677.33	32.313158	-103.736634
11,988.60	90.00	359.64	11,620.00	372.95	786.40	478,260.42	725,676.78	32.313400	-103.736634
12,000.00	90.00	359.64	11,620.00	384.35	786.33	478,271.82	725,676.71	32.313431	-103.736634
12,100.00	90.00	359.64	11,620.00	484.34	785.70	478,371.81	725,676.08	32.313706	-103.736634
12,200.00	90.00	359.64	11,620.00	584.34	785.08	478,471.81	725,675.45	32.313981	-103.736634
12,300.00	90.00	359.64	11,620.00	684.34	784.45	478,571.81	725,674.82	32.314256	-103.736635
12,400.00	90.00	359.64	11,620.00	784.34	783.82	478,671.81	725,674.20	32.314531	-103.736635
12,500.00	90.00	359.64	11,620.00	884.34	783.19	478,771.81	725,673.57	32.314806	-103.736635
12,600.00	90.00	359.64	11,620.00	984.33	782.57	478,871.80	725,672.94	32.315081	-103.736635
12,700.00	90.00	359.64	11,620.00	1,084.33	781.94	478,971.80	725,672.31	32.315356	-103.736636
12,800.00	90.00	359.64	11,620.00	1,184.33	781.31	479,071.80	725,671.69	32.315630	-103.736636
12,900.00	90.00	359.64	11,620.00	1,284.33	780.68	479,171.80	725,671.06	32.315905	-103.736636
13,000.00	90.00	359.64	11,620.00	1,384.33	780.06	479,271.79	725,670.43	32.316180	-103.736636
13,100.00	90.00	359.64	11,620.00	1,484.33	779.43	479,371.79	725,669.80	32.316455	-103.736636
13,200.00	90.00	359.64	11,620.00	1,584.32	778.80	479,471.79	725,669.17	32.316730	-103.736637
13,300.00	90.00	359.64	11,620.00	1,684.32	778.17	479,571.79	725,668.55	32.317005	-103.736637
13,400.00	90.00	359.64	11,620.00	1,784.32	777.55	479,671.79	725,667.92	32.317280	-103.736637
13,500.00	90.00	359.64	11,620.00	1,884.32	776.92	479,771.78	725,667.29	32.317555	-103.736637
13,600.00	90.00	359.64	11,620.00	1,984.32	776.29	479,871.78	725,666.66	32.317829	-103.736638
13,700.00	90.00	359.64	11,620.00	2,084.31	775.66	479,971.78	725,666.04	32.318104	-103.736638
13,800.00	90.00	359.64	11,620.00	2,184.31	775.03	480,071.78	725,665.41	32.318379	-103.736638
13,900.00	90.00	359.64	11,620.00	2,284.31	774.41	480,171.78	725,664.78	32.318654	-103.736638
14,000.00	90.00	359.64	11,620.00	2,384.31	773.78	480,271.77	725,664.15	32.318929	-103.736639
14,100.00	90.00	359.64	11,620.00	2,484.31	773.15	480,371.77	725,663.53	32.319204	-103.736639
14,200.00	90.00	359.64	11,620.00	2,584.30	772.52	480,471.77	725,662.90	32.319479	-103.736639
14,300.00	90.00	359.64	11,620.00	2,684.30	771.90	480,571.77	725,662.27	32.319754	-103.736639
14,400.00	90.00	359.64	11,620.00	2,784.30	771.27	480,671.76	725,661.64	32.320029	-103.736639
14,500.00	90.00	359.64	11,620.00	2,884.30	770.64	480,771.76	725,661.02	32.320303	-103.736640
14,600.00	90.00	359.64	11,620.00	2,984.30	770.01	480,871.76	725,660.39	32.320578	-103.736640
14,700.00	90.00	359.64	11,620.00	3,084.29	769.39	480,971.76	725,659.76	32.320853	-103.736640
14,800.00	90.00	359.64	11,620.00	3,184.29	768.76	481,071.76	725,659.13	32.321128	-103.736640
14,900.00	90.00	359.64	11,620.00	3,284.29	768.13	481,171.75	725,658.50	32.321403	-103.736641
15,000.00	90.00	359.64	11,620.00	3,384.29	767.50	481,271.75	725,657.88	32.321678	-103.736641
15,100.00	90.00	359.64	11,620.00	3,484.29	766.87	481,371.75	725,657.25	32.321953	-103.736641
15,200.00	90.00	359.64	11,620.00	3,584.28	766.25	481,471.75	725,656.62	32.322228	-103.736641
15,300.00	90.00	359.64	11,620.00	3,684.28	765.62	481,571.75	725,655.99	32.322502	-103.736642
15,400.00	90.00	359.64	11,620.00	3,784.28	764.99	481,671.74	725,655.37	32.322777	-103.736642
15,500.00	90.00	359.64	11,620.00	3,884.28	764.36	481,771.74	725,654.74	32.323052	-103.736642

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3513.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3513.40ft
Site:	Sec 12-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 12-1 Fed 331H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,600.00	90.00	359.64	11,620.00	3,984.28	763.74	481,871.74	725,654.11	32.323327	-103.736642
15,700.00	90.00	359.64	11,620.00	4,084.27	763.11	481,971.74	725,653.48	32.323602	-103.736642
15,800.00	90.00	359.64	11,620.00	4,184.27	762.48	482,071.73	725,652.86	32.323877	-103.736643
15,900.00	90.00	359.64	11,620.00	4,284.27	761.85	482,171.73	725,652.23	32.324152	-103.736643
16,000.00	90.00	359.64	11,620.00	4,384.27	761.23	482,271.73	725,651.60	32.324427	-103.736643
16,100.00	90.00	359.64	11,620.00	4,484.27	760.60	482,371.73	725,650.97	32.324701	-103.736643
16,200.00	90.00	359.64	11,620.00	4,584.26	759.97	482,471.73	725,650.35	32.324976	-103.736644
16,300.00	90.00	359.64	11,620.00	4,684.26	759.34	482,571.72	725,649.72	32.325251	-103.736644
16,400.00	90.00	359.64	11,620.00	4,784.26	758.72	482,671.72	725,649.09	32.325526	-103.736644
16,500.00	90.00	359.64	11,620.00	4,884.26	758.09	482,771.72	725,648.46	32.325801	-103.736644
16,600.00	90.00	359.64	11,620.00	4,984.26	757.46	482,871.72	725,647.83	32.326076	-103.736645
16,646.00	90.00	359.64	11,620.00	5,030.26	757.17	482,917.72	725,647.55	32.326202	-103.736645
Cross Section @ 16646' MD, 0' FSL, 1050' FWL									
16,700.00	90.00	359.64	11,620.00	5,084.25	756.83	482,971.71	725,647.21	32.326351	-103.736645
16,800.00	90.00	359.64	11,620.00	5,184.25	756.20	483,071.71	725,646.58	32.326626	-103.736645
16,900.00	90.00	359.64	11,620.00	5,284.25	755.58	483,171.71	725,645.95	32.326900	-103.736645
17,000.00	90.00	359.64	11,620.00	5,384.25	754.95	483,271.71	725,645.32	32.327175	-103.736645
17,100.00	90.00	359.64	11,620.00	5,484.25	754.32	483,371.71	725,644.70	32.327450	-103.736646
17,200.00	90.00	359.64	11,620.00	5,584.24	753.69	483,471.70	725,644.07	32.327725	-103.736646
17,300.00	90.00	359.64	11,620.00	5,684.24	753.07	483,571.70	725,643.44	32.328000	-103.736646
17,400.00	90.00	359.64	11,620.00	5,784.24	752.44	483,671.70	725,642.81	32.328275	-103.736646
17,500.00	90.00	359.64	11,620.00	5,884.24	751.81	483,771.70	725,642.19	32.328550	-103.736647
17,600.00	90.00	359.64	11,620.00	5,984.24	751.18	483,871.70	725,641.56	32.328825	-103.736647
17,700.00	90.00	359.64	11,620.00	6,084.23	750.56	483,971.69	725,640.93	32.329099	-103.736647
17,800.00	90.00	359.64	11,620.00	6,184.23	749.93	484,071.69	725,640.30	32.329374	-103.736647
17,900.00	90.00	359.64	11,620.00	6,284.23	749.30	484,171.69	725,639.68	32.329649	-103.736647
18,000.00	90.00	359.64	11,620.00	6,384.23	748.67	484,271.69	725,639.05	32.329924	-103.736648
18,100.00	90.00	359.64	11,620.00	6,484.23	748.04	484,371.68	725,638.42	32.330199	-103.736648
18,200.00	90.00	359.64	11,620.00	6,584.22	747.42	484,471.68	725,637.79	32.330474	-103.736648
18,300.00	90.00	359.64	11,620.00	6,684.22	746.79	484,571.68	725,637.16	32.330749	-103.736648
18,400.00	90.00	359.64	11,620.00	6,784.22	746.16	484,671.68	725,636.54	32.331024	-103.736649
18,500.00	90.00	359.64	11,620.00	6,884.22	745.53	484,771.68	725,635.91	32.331298	-103.736649
18,600.00	90.00	359.64	11,620.00	6,984.22	744.91	484,871.67	725,635.28	32.331573	-103.736649
18,700.00	90.00	359.64	11,620.00	7,084.21	744.28	484,971.67	725,634.65	32.331848	-103.736649
18,800.00	90.00	359.64	11,620.00	7,184.21	743.65	485,071.67	725,634.03	32.332123	-103.736650
18,900.00	90.00	359.64	11,620.00	7,284.21	743.02	485,171.67	725,633.40	32.332398	-103.736650
19,000.00	90.00	359.64	11,620.00	7,384.21	742.40	485,271.66	725,632.77	32.332673	-103.736650
19,100.00	90.00	359.64	11,620.00	7,484.21	741.77	485,371.66	725,632.14	32.332948	-103.736650
19,200.00	90.00	359.64	11,620.00	7,584.21	741.14	485,471.66	725,631.52	32.333222	-103.736650
19,300.00	90.00	359.64	11,620.00	7,684.20	740.51	485,571.66	725,630.89	32.333497	-103.736651
19,400.00	90.00	359.64	11,620.00	7,784.20	739.89	485,671.66	725,630.26	32.333772	-103.736651
19,500.00	90.00	359.64	11,620.00	7,884.20	739.26	485,771.65	725,629.63	32.334047	-103.736651
19,600.00	90.00	359.64	11,620.00	7,984.20	738.63	485,871.65	725,629.00	32.334322	-103.736651
19,700.00	90.00	359.64	11,620.00	8,084.20	738.00	485,971.65	725,628.38	32.334597	-103.736652
19,800.00	90.00	359.64	11,620.00	8,184.19	737.37	486,071.65	725,627.75	32.334872	-103.736652
19,900.00	90.00	359.64	11,620.00	8,284.19	736.75	486,171.65	725,627.12	32.335147	-103.736652
20,000.00	90.00	359.64	11,620.00	8,384.19	736.12	486,271.64	725,626.49	32.335421	-103.736652
20,100.00	90.00	359.64	11,620.00	8,484.19	735.49	486,371.64	725,625.87	32.335696	-103.736653
20,200.00	90.00	359.64	11,620.00	8,584.19	734.86	486,471.64	725,625.24	32.335971	-103.736653
20,300.00	90.00	359.64	11,620.00	8,684.18	734.24	486,571.64	725,624.61	32.336246	-103.736653
20,400.00	90.00	359.64	11,620.00	8,784.18	733.61	486,671.63	725,623.98	32.336521	-103.736653
20,500.00	90.00	359.64	11,620.00	8,884.18	732.98	486,771.63	725,623.36	32.336796	-103.736653
20,600.00	90.00	359.64	11,620.00	8,984.18	732.35	486,871.63	725,622.73	32.337071	-103.736654
20,700.00	90.00	359.64	11,620.00	9,084.18	731.73	486,971.63	725,622.10	32.337346	-103.736654

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Tomb Raider 12-1 Fed 331H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3513.40ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3513.40ft
Site:	Sec 12-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 12-1 Fed 331H	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
20,800.00	90.00	359.64	11,620.00	9,184.17	731.10	487,071.63	725,621.47	32.337620	-103.736654
20,900.00	90.00	359.64	11,620.00	9,284.17	730.47	487,171.62	725,620.85	32.337895	-103.736654
21,000.00	90.00	359.64	11,620.00	9,384.17	729.84	487,271.62	725,620.22	32.338170	-103.736655
21,100.00	90.00	359.64	11,620.00	9,484.17	729.22	487,371.62	725,619.59	32.338445	-103.736655
21,200.00	90.00	359.64	11,620.00	9,584.17	728.59	487,471.62	725,618.96	32.338720	-103.736655
21,300.00	90.00	359.64	11,620.00	9,684.16	727.96	487,571.62	725,618.33	32.338995	-103.736655
21,400.00	90.00	359.64	11,620.00	9,784.16	727.33	487,671.61	725,617.71	32.339270	-103.736655
21,500.00	90.00	359.64	11,620.00	9,884.16	726.70	487,771.61	725,617.08	32.339545	-103.736656
21,600.00	90.00	359.64	11,620.00	9,984.16	726.08	487,871.61	725,616.45	32.339819	-103.736656
21,700.00	90.00	359.64	11,620.00	10,084.16	725.45	487,971.61	725,615.82	32.340094	-103.736656
21,800.00	90.00	359.64	11,620.00	10,184.15	724.82	488,071.60	725,615.20	32.340369	-103.736656
21,828.36	90.00	359.64	11,620.00	10,212.51	724.64	488,099.96	725,615.02	32.340447	-103.736656
LTP @ 21828' MD, 100' FNL, 1050' FWL									
21,900.00	90.00	359.64	11,620.00	10,284.15	724.19	488,171.60	725,614.57	32.340644	-103.736657
21,908.35	90.00	359.64	11,620.00	10,292.50	724.14	488,179.95	725,614.52	32.340667	-103.736657
PBHL: 20' FNL, 1050' FWL									
21,908.36	90.00	359.64	11,620.00	10,292.51	724.14	488,179.96	725,614.52	32.340667	-103.736657

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 - Tomb Raider 12-	0.00	0.00	0.00	10,292.51	724.14	488,179.96	725,614.52	32.340667	-103.736657
- plan misses target center by 10317.95ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
11,088.60	11,047.04	-200.00	790.00	KOP @ 11089' MD, 50' FSL, 1050' FWL
11,329.74	11,281.13	-150.00	789.69	FTP @ 11330' MD, 100' FSL, 1050' FWL
16,646.00	11,620.00	5,030.26	757.17	Cross Section @ 16646' MD, 0' FSL, 1050' FWL
21,828.36	11,620.00	10,212.51	724.64	LTP @ 21828' MD, 100' FNL, 1050' FWL
21,908.35	11,620.00	10,292.50	724.14	PBHL: 20' FNL, 1050' FWL

Devon Energy

WELL DETAILS: Tomb Raider 12-1 Fed 331H

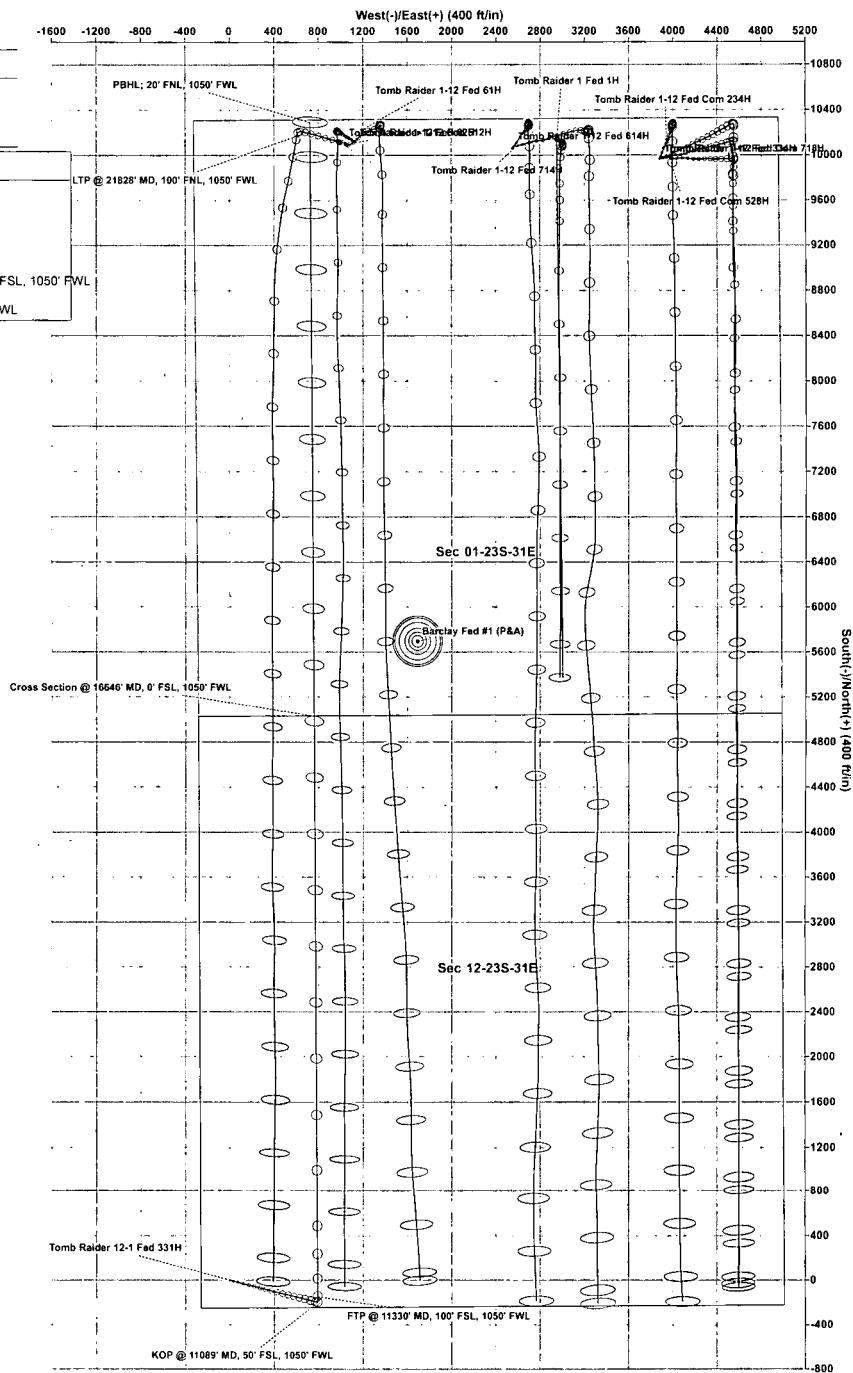
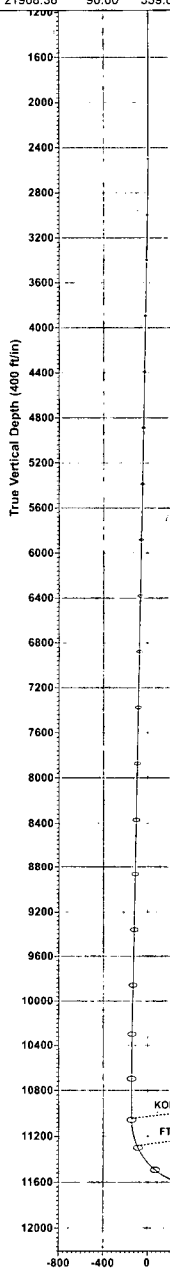
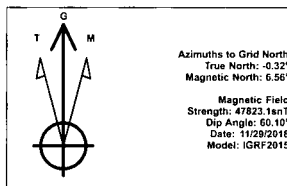
RKB @ 3513.40ft
3488.40

Northing 477887.47 Easting 724890.38 Latitude 32.312387 Longitude -103.739186

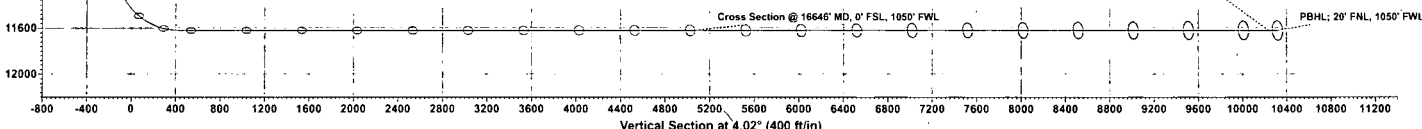
SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	
2996.49	5.96	104.21	2995.41	-7.61	30.07	1.00	-5.48	
10340.90	5.96	104.21	10300.06	-194.92	769.95	0.00	-140.41	
10738.56	0.00	0.00	10697.00	-200.00	790.00	1.50	-144.06	
11088.60	0.00	0.00	11047.04	-200.00	790.00	0.00	-144.06	KOP @ 11089' MD, 50' FSL, 1050' FWL
11988.60	90.00	359.64	11620.00	372.95	786.40	10.00	427.22	
21908.36	90.00	359.64	11620.00	10292.51	724.14	0.00	10317.95	PBHL; 20' FNL, 1050' FWL

devon



Vertical Section at 4.02° (400 ft/in)



CASING PERFORMANCE Data Sheet



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

Grade - Material Properties

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

Pipe Body Data (PE)

Geometry

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

Performance

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

API Connection Data

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

SC Torque (ft-lbs)

minimum: 5,950	optimum: 7,933	maximum: 9,916
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LC Torque (ft-lbs)

minimum: 6,651	optimum: 8,868	maximum: 11,085
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*Special drift must be ordered or API drift will be used for actual drifting of product.

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

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

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. SUMMARY OF Variance:

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

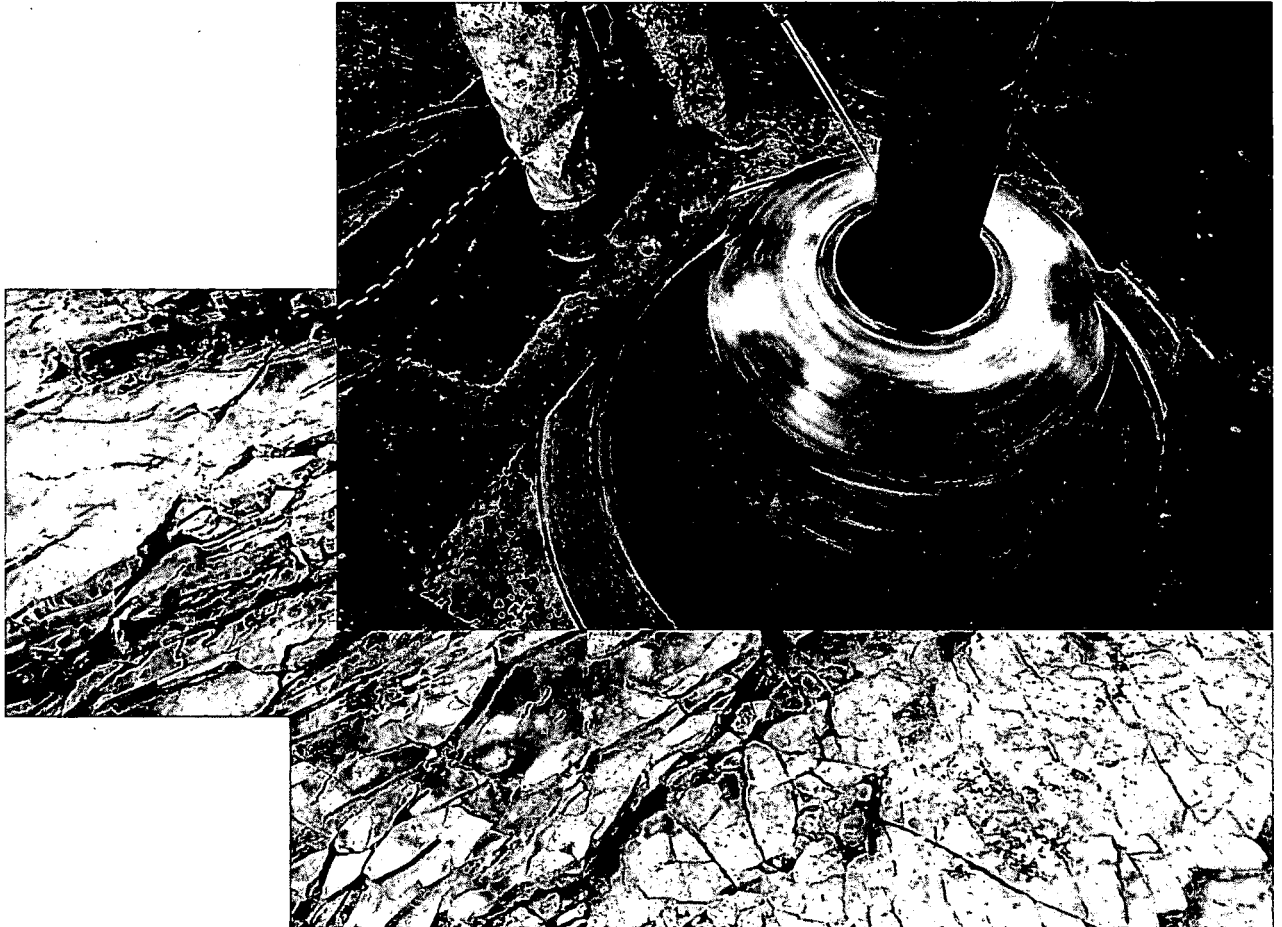
1. Potential utilization of a spudder rig to pre-set surface casing.

2. Description of Operations

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



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.

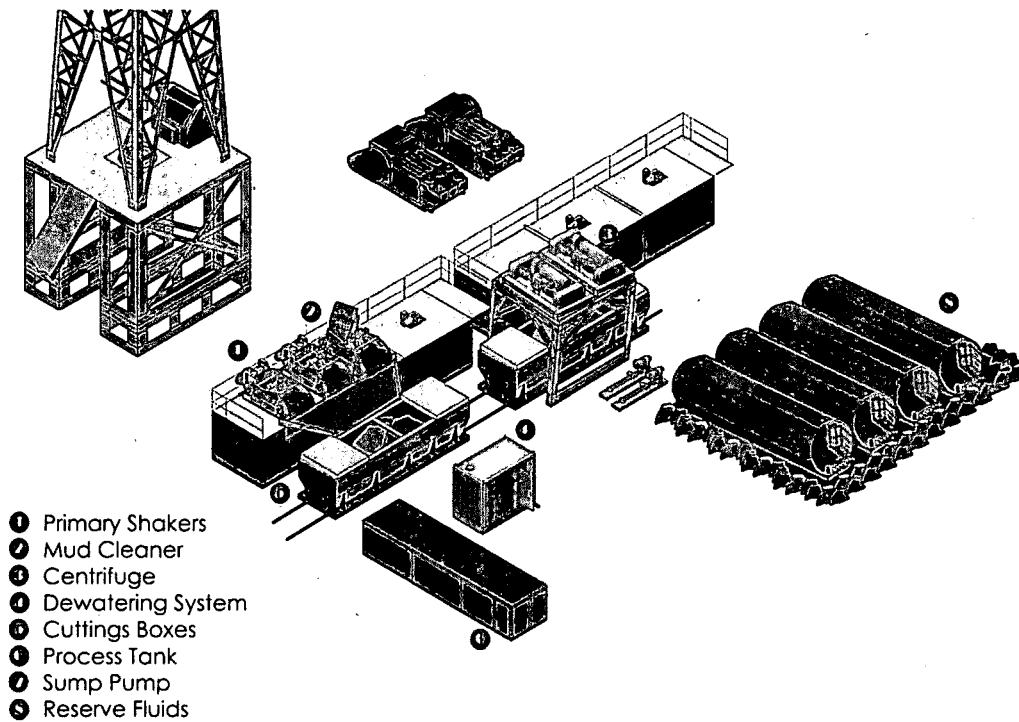
II. Operations and Maintenance Plan

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

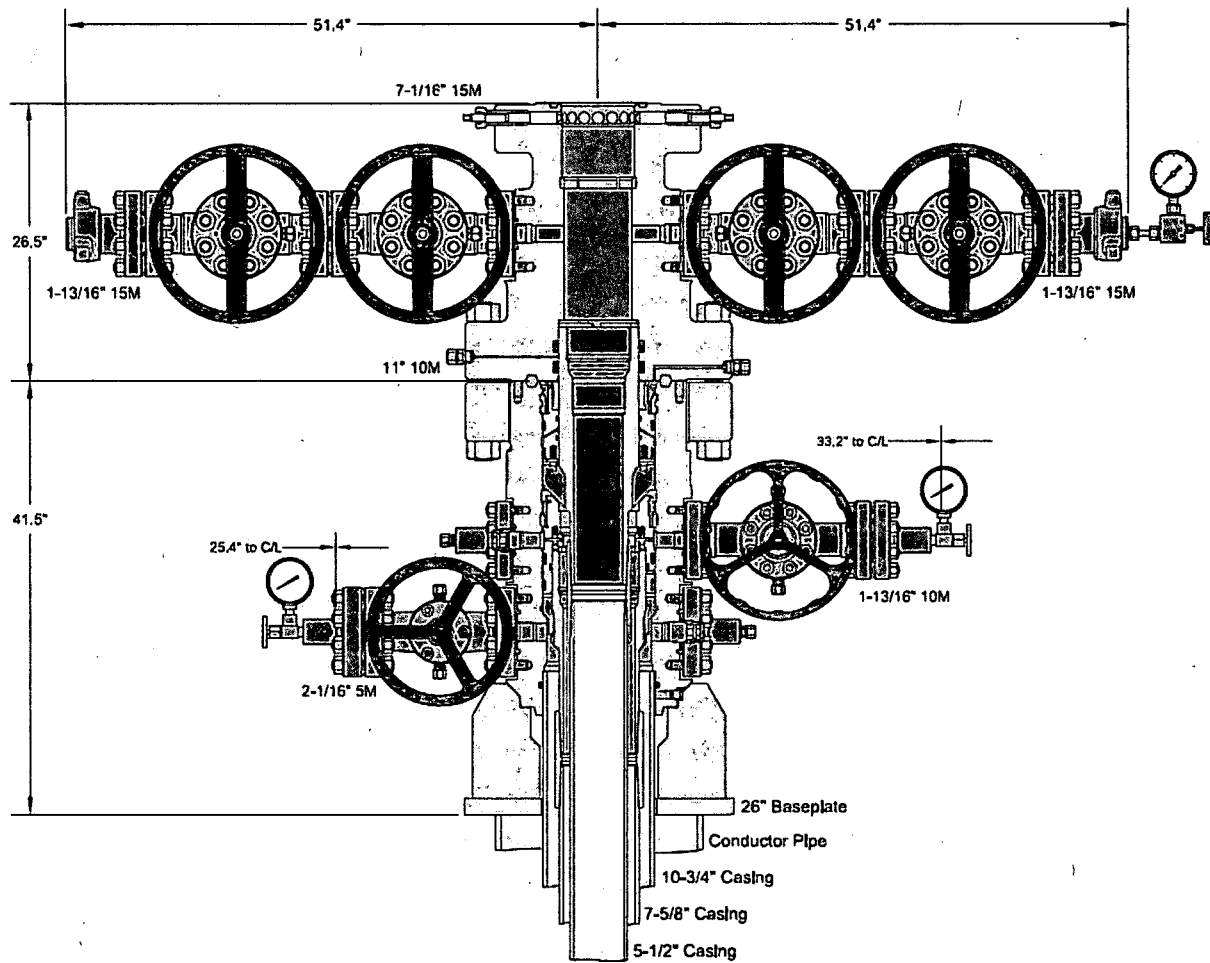
dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

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

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

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

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

Tomb Raider 12-1 Fed 331H

1. Geologic Formations

TVD of target	11620	Pilot hole depth	N/A
MD at TD:	21908	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	766		
Salado	1141		
Base of Salt	4451		
Delaware	4481		
L Brushy Canyon	8061		
Bone Spring	8356		
Leonard 'A'	8461		
Leonard 'B'	8976		
Leonard 'C'	9171		
1st BSPG Sand	9421		
2nd BSPG Sand	9981		
3rd BSPG Lime	10496		
3rd BSPG Sand	11206		

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

Tomb Raider 12-1 Fed 331H

2. Casing Program (Primary Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
14.75"	0	791	10.75"	40.5	J-55	STC	1.125	1.25	1.6
9.875"	0	10006	7.625"	29.7	P110	BTC	1.125	1.25	1.6
6.75"	0	TD	5.5"	20	P110	Vam SG	1.125	1.25	1.6
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

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

Casing Program (Alternate Design)

Hole Size	Casing Interval		Csg. Size	Wt. (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17.5"	0	Same as above	13.375"	48	H-40	STC	1.125	1.25	1.6
10.625"	0	Same as above	8.625"	32	P110EC	BTC	1.125	1.25	1.6
7.875"	0	TD	5.5"	17	P110	BTC	1.125	1.25	1.6
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing
- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
- Int 1 casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.
- If 9.875" hole is drilled for intermediate 1, the 8.625" connection will change from BTC to TLW
- A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.
- Variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing. No losses are expected in subsequent hole section.

Tomb Raider 12-1 Fed 331H

	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?	

Tomb Raider 12-1 Fed 331H

3. Cementing Program (Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft ³ /sack)	Slurry Description
Surface	513	Surf	13.2	1.33	Lead: Class C Cement + additives
Int 1	882	Surf	9	3.31	Lead: Class C Cement + additives
	847	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	440	Surf	9	3.31	1 st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.33	1 st stage Tail: Class H / C + additives
	460	Surf	9	3.31	2 nd stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.33	2 nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	882	Surf	9	3.31	Lead: Class C Cement + additives
	847	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	292	0	9	3.31	Lead: Class H / C Cement + additives
	865	500' tieback	13.2	1.33	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 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

Tomb Raider 12-1 Fed 331H

Cementing Program (Alternate Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft ³ /sack)	Slurry Description
Surface	660	Surf	13.2	1.33	Lead: Class C Cement + additives
Int 1	967	Surf	9	3.31	Lead: Class C Cement + additives
	831	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1, Two Stage w DV @ ~4500	490	Surf	9	3.31	1 st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.33	1 st stage Tail: Class H / C + additives
	500	Surf	9	3.31	2 st stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.33	2 st stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	967	Surf	9	3.31	Lead: Class C Cement + additives
	831	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	559	Surf	9	3.31	Lead: Class H / C + additives
	1745	500' tieback	13.2	1.33	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 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

Tomb Raider 12-1 Fed 331H

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?		Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	5M	Annular		X	50% of rated working pressure
			Blind Ram		X	5M
			Pipe Ram			
			Double Ram		X	
			Other*			
Production	13-5/8"	5M	Annular (5M)		X	50% of rated working pressure
			Blind Ram		X	5M
			Pipe Ram			
			Double Ram		X	
			Other*			
			Annular			
			Blind Ram			
			Pipe Ram			
			Double Ram			
			Other*			
N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					

Tomb Raider 12-1 Fed 331H

5. Mud Program (3 String Design)

Section	Type	Weight (ppg)	Vis	Water Loss
Surface	FW Gel	8.5 - 9	28-34	N/C
Intermediate	DBE / Cut Brine	9 - 10	28-34	N/C
Production	OBM	10-10.5	28-34	N/C

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

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

6. Logging and Testing Procedures

Logging, Coring and Testing.

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

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

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	6345 psi
Abnormal Temperature	No

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

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

N	H ₂ S is present
Y	H ₂ S Plan attached

Tomb Raider 12-1 Fed 331H

8. Other facets of operation

Is this a walking operation? Potentially

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

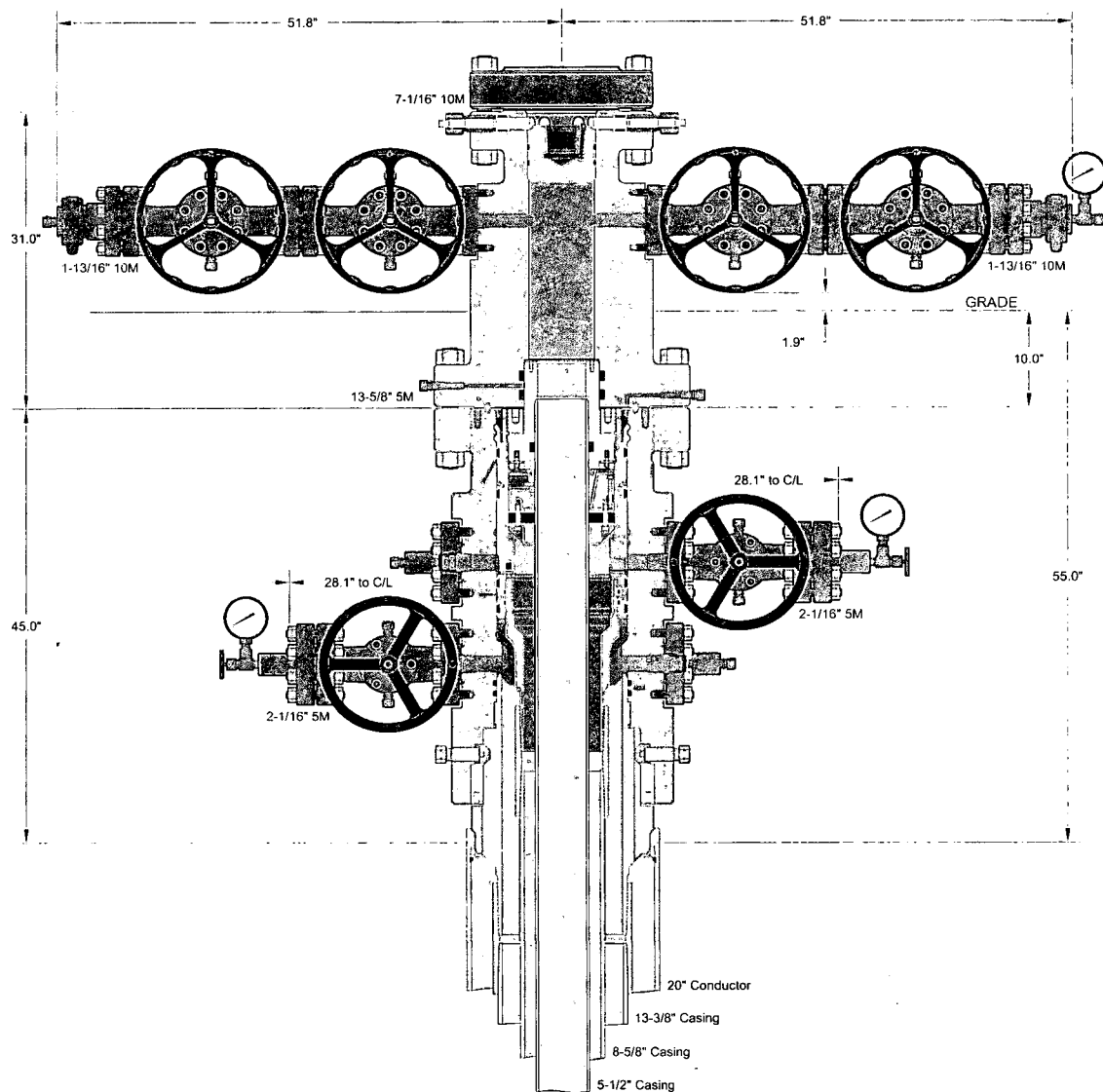
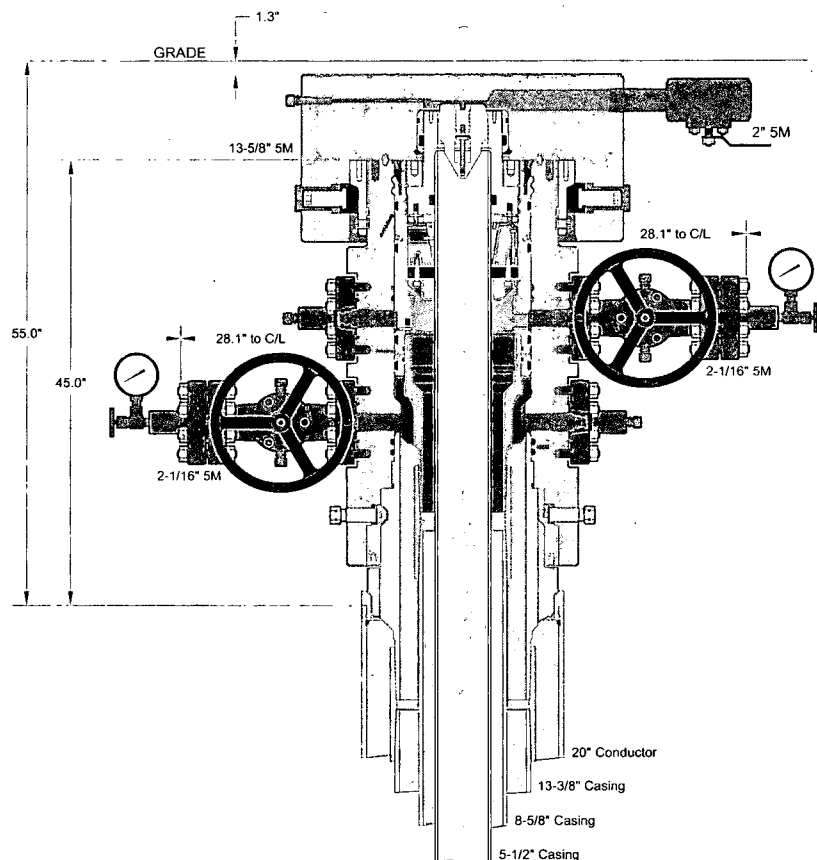
NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

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

Attachments

- ☒ Directional Plan
☐ Other, describe



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CACTUS WELLHEAD LLC

20" x 13-3/8" x 8-5/8" x 5-1/2" MBU-3T-CFL-R-DBLO Wellhead Sys.
With Quick Connect Top TA Cap, 5-1/2" Emergency Slip Hanger
And 13-5/8" 5M x 7-1/16" 10M CTH-DBLHPS Tubing Head

ALL DIMENSIONS APPROXIMATE

DEVON ENERGY CORPORATION
DELAWARE BASIN

DRAWN
APPROV

DLE

25FEB19

DRAWING NO.

SDT-1929



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.

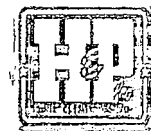
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

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, Budapest út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax: (3662) 566-738SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 • Fax: (361) 217-2972, 456-4273 • www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.			P.O. N°: 1519FA-871		
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH: 11,43 m			
W.P. 68,96 MPa	10000	psi	T.P. 103,4 MPa	15000	psi
			Duration:	60	min.
Pressure test with water at ambient temperature See attachment. (1 page)					
↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
COUPLINGS					
Type	Serial N°		Quality	Heat N°	
3" coupling with 4 1/16" Flange end	720	719	AISI 4130	C7626	
			AISI 4130	47357	
API Spec 16 C Temperature rate: "B"					
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
Date:	Inspector		Quality Control		
29. April. 2002.			PHOENIX RUBBER Industrial Ltd. Hose Inspection and Pressure Testing PHOENIX RUBBER & C.		

14094-65

40920-0-00015 N800C

8	GN	+0.000	PC	14.00			
	RD	+0.000	PC	14.00			
	BL	+0.000	PC	14.00			
7	GN	+0.000	PC	13.40	40	60	80
	RD	+0.000	PC	13.40			
	BL	+0.000	PC	13.40			
6	GN	+0.000	PC	13.20			
	RD	+0.000	PC	13.20			
	BL	+0.000	PC	13.20			
5	GN	+0.000	PC	13.00			
	RD	+0.000	PC	13.00			
	BL	+0.000	PC	13.00			
4	GN	+0.000	PC	12.80			
	RD	+0.000	PC	12.80			
	BL	+0.000	PC	12.80			
3	GN	+0.000	PC	12.60			
	RD	+0.000	PC	12.60			
	BL	+0.000	PC	12.60			
2	GN	+0.000	PC	12.40			
	RD	+0.000	PC	12.40			
	BL	+0.000	PC	12.40			

Donner
GENEX RUBBER
 Industrial Ltd.
 Hose Inspection and
 Certification Dept.

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.



APD ID: 10400037314

Submission Date: 12/14/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

TOMB_RAIDER_12_1_FED_331H_EX_RD_20181214085405.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

TOMB_RAIDER_12_1_FED_331H_ACCESS_RD_20181214085643.pdf

New road type: COLLECTOR, RESOURCE

Length: 4150

Feet

Width (ft.): 30

Max slope (%): 6

Max grade (%): 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: Water Drainage Ditch

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Access surfacing type: GRAVEL

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: See attached Interim reclamation diagram.

Access other construction information:

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CULVERT,OTHER

Drainage Control comments: na

Road Drainage Control Structures (DCS) description: na

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

TOMB_RAIDER_12_1_FED_331H_OneMileBuffer_WA017301211_20181214085726.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: All flowlines will be buried going to the TOMB RAIDER 12 CTB 2. Please attached CTB.

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Water source use type: STIMULATION

Water source type: RECYCLED

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: OTHER

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 320000

Source volume (acre-feet): 41.245792

Source volume (gal): 13440000

Water source and transportation map:

TOMB_RAIDER_12_1_FED_331H_611H_701H_731H_watermap_20181214090123.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: TOMB RAIDER 12-1 FED

Well Number: 331H

Section 6 - Construction Materials

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

Construction Materials source location attachment:

Tomb_Raider_12_Pad_2_Caliche_Map_20181214090214.pdf

Section 7 - Methods for Handling Waste

Waste type: PRODUCED WATER

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

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Waste type: COMPLETIONS/STIMULATION

Waste content description: Flow back water during completion operations.

Amount of waste: 3000 barrels

Waste disposal frequency : One Time Only

Safe containment description: N/A

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: FLOWBACK

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

Amount of waste: 2000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Disposal type description:

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

Waste type: DRILLING

Waste content description: Water Based Cuttings

Amount of waste: 1567.7 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: TOMB RAIDER 12-1 FED

Well Number: 331H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Tomb_Raider_12_1_Fed_331H_riglayout_20181214090456.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: TOMB RAIDER 12 PAD

Multiple Well Pad Number: 2

Recontouring attachment:

TOMB_RAIDER_12_1_FED_331H_RECLAMATION_20181214090517.pdf

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

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

Well pad proposed disturbance (acres): 5.626

Road proposed disturbance (acres): 2.86

Powerline proposed disturbance (acres): 1.172

Pipeline proposed disturbance (acres): 0.138

Other proposed disturbance (acres): 5.74

Total proposed disturbance: 15.536

Well pad interim reclamation (acres): 2.536

Road interim reclamation (acres): 0

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres): 0

Other interim reclamation (acres): 0

Total interim reclamation: 2.536

Well pad long term disturbance (acres): 3.09

Road long term disturbance (acres): 2.86

Powerline long term disturbance (acres): 1.172

Pipeline long term disturbance (acres): 0.138

Other long term disturbance (acres): 5.74

Total long term disturbance: 13

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.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Existing Vegetation at the well pad attachment:

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

Existing Vegetation Community at the road attachment:

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

Existing Vegetation Community at the pipeline attachment:

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

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

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

Total pounds/Acre:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: JACOB

Last Name: OCHOA

Phone: (575)748-9934

Email: JACOB.OCHOA@DVN.COM

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

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

Weed treatment plan attachment:

Monitoring plan description: Monitor as needed.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? NO

Use APD as ROW?

ROW Type(s):

ROW Applications

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 12-1 FED

Well Number: 331H

SUPO Additional Information: *ALL FLOWLINES ARE BURIED*

Use a previously conducted onsite? YES

Previous Onsite information: 5/4/2017; UBER NORTH, TOMB RAIDER 12 -1 FED 521H

Other SUPO Attachment

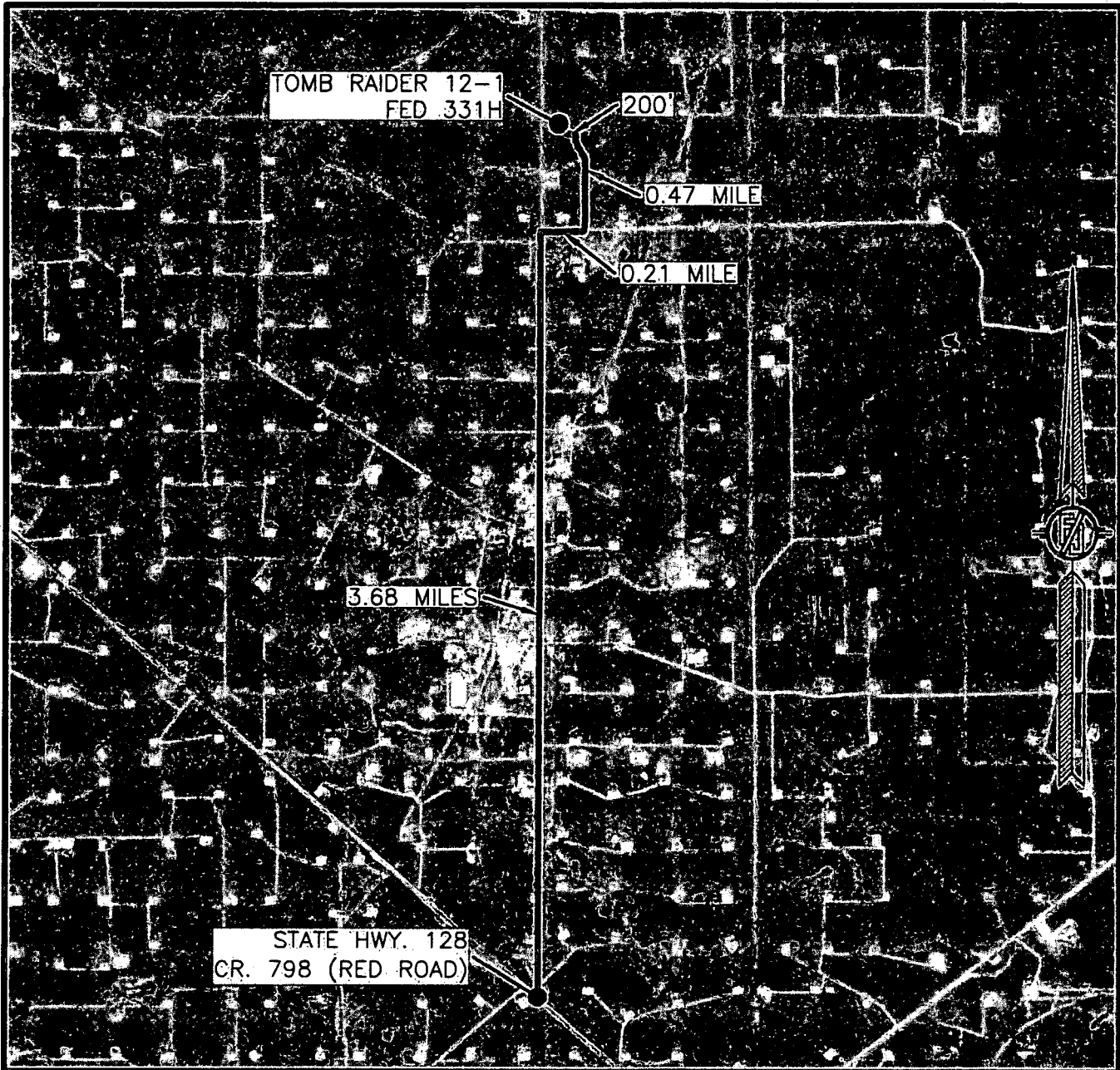
ELECTRIC__Tomb_Raider_12_Wellpad_2__CTB_2_20181214090846.pdf

AA000226609_TOMB_RAIDER_12_CTB_2_PAD_P_R1_20181214090844.pdf

Pay.gov__Receipt_331H_701H_731H_611H_20181214123718.pdf

7660154F_5FL_1GL_TR_12_WP_2_TR_12_CTB_2_P_BURIED_FLOWLINES_20190507072640.pdf

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL ACCESS ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOV. 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 12-1 FED 331H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 260 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 6, 2018

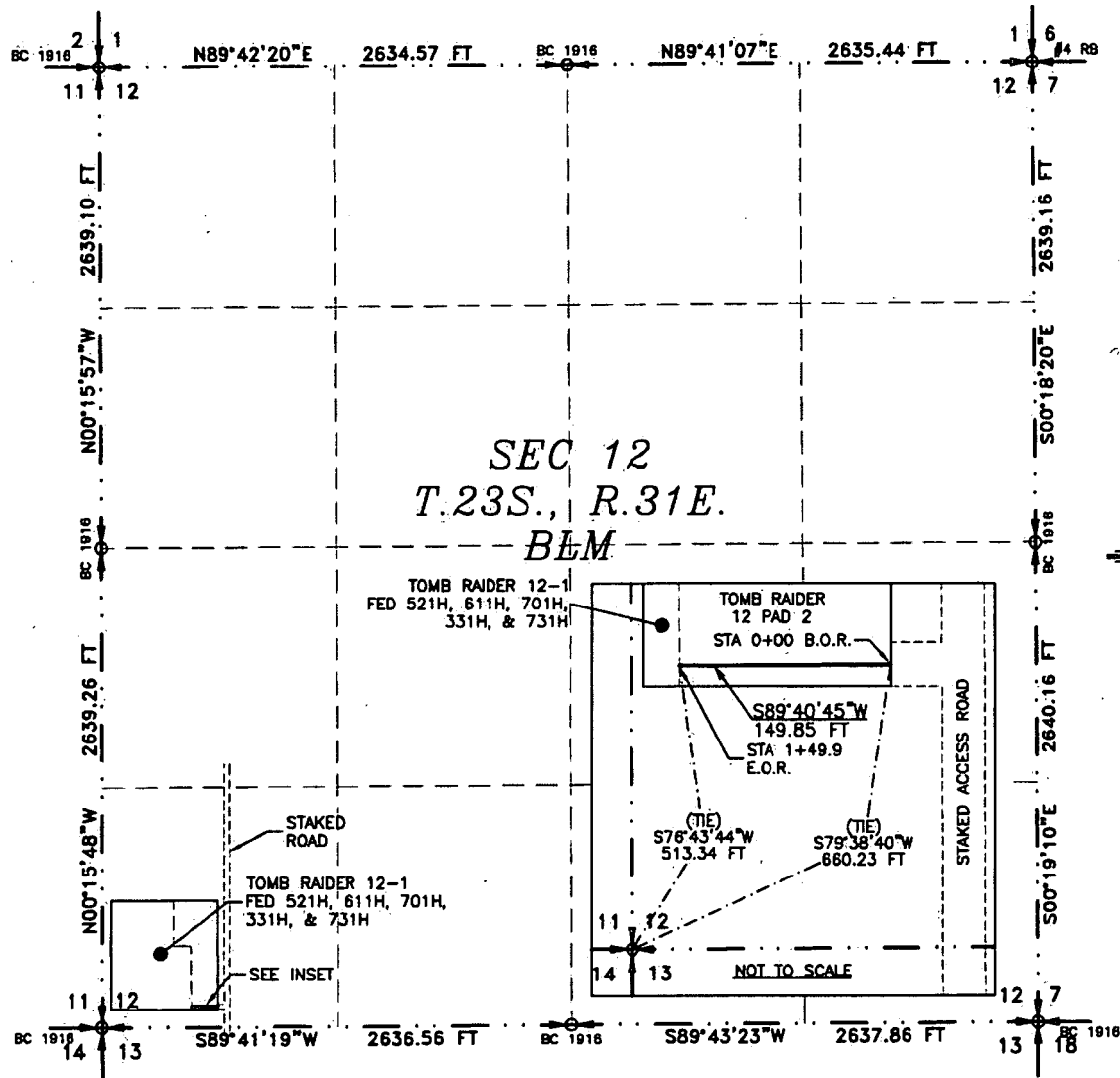
SURVEY NO. 6670

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

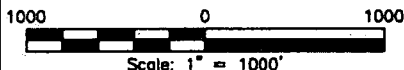
ACCESS ROAD PLAT

ACCESS ROAD FOR TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
NOVEMBER 6, 2018



SEE NEXT SHEET (2-2) FOR DESCRIPTION



GENERAL NOTES

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

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

SHEET: 1-2

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 6TH DAY OF NOVEMBER, 2018

FILMON F. JARAMILLO, P.S. 12797
MADRON SURVEYING, INC.
501 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 6670

ACCESS ROAD PLAT

ACCESS ROAD FOR TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
NOVEMBER 6, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S79°38'40"W, A DISTANCE OF 660.23 FEET;
THENCE S89°40'45"W A DISTANCE OF 149.85 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S76°43'44"W, A DISTANCE OF 513.34 FEET;

SAID STRIP OF LAND BEING 149.85 FEET OR 9.08 RODS IN LENGTH, CONTAINING 0.103 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 149.85 L.F. 9.08 RODS 0.103 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 7TH DAY OF NOVEMBER 2018

(12797)

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

SURVEY NO. 6670

GENERAL NOTES

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

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

SHEET: 2-2

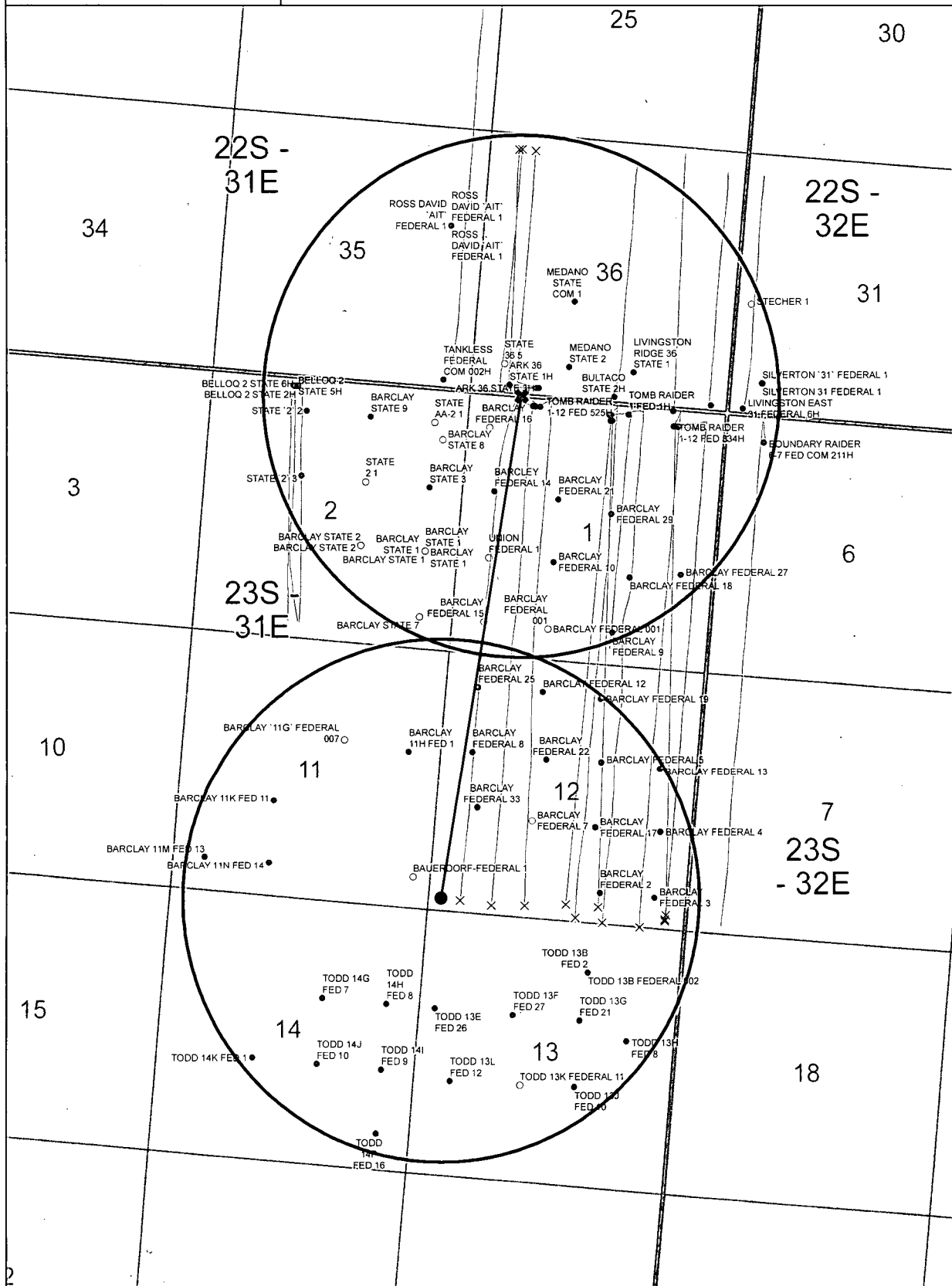
MADRON SURVEYING INC. CARLSBAD, NEW MEXICO

devon

USA Contiguous Equidistant Conic
Datum: North American 1983
Created by: FME Server
Map is current as of 12/12/2018



 Miles 1 inch = 0.44 miles



TOMB RAIDER 12-1 FED

331H/611H/701H/731H

devon

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

WGS_1984_Web_Mercator_Auxiliary_Sphere

Prepared by: _User

Map is current as of: 07-Dec-2018



Miles

0 0.07 0.14 0.28 1: 14,228

TODD 2-TW POND

DURATION: 30 DAY INSTALL PRIOR TO COMPLETION
DEVON WILL CONTACT BLM IF ADDITIONAL TIME IS NEEDED
DISTURBANCE: EXISTING
CONTENTS: TREATED WATER
TYPE OF PIPE: LAYFLAT
SIZE OF PIPE: 10" OR 12"
LENGTH OF PIPE: 7,210'

TOMB RAIDER 12-1 FED
331H/611H/701H/731H

Tomb Raider 12 Pad 2 Caliche Map

Tomb Raider 12 Pad 2

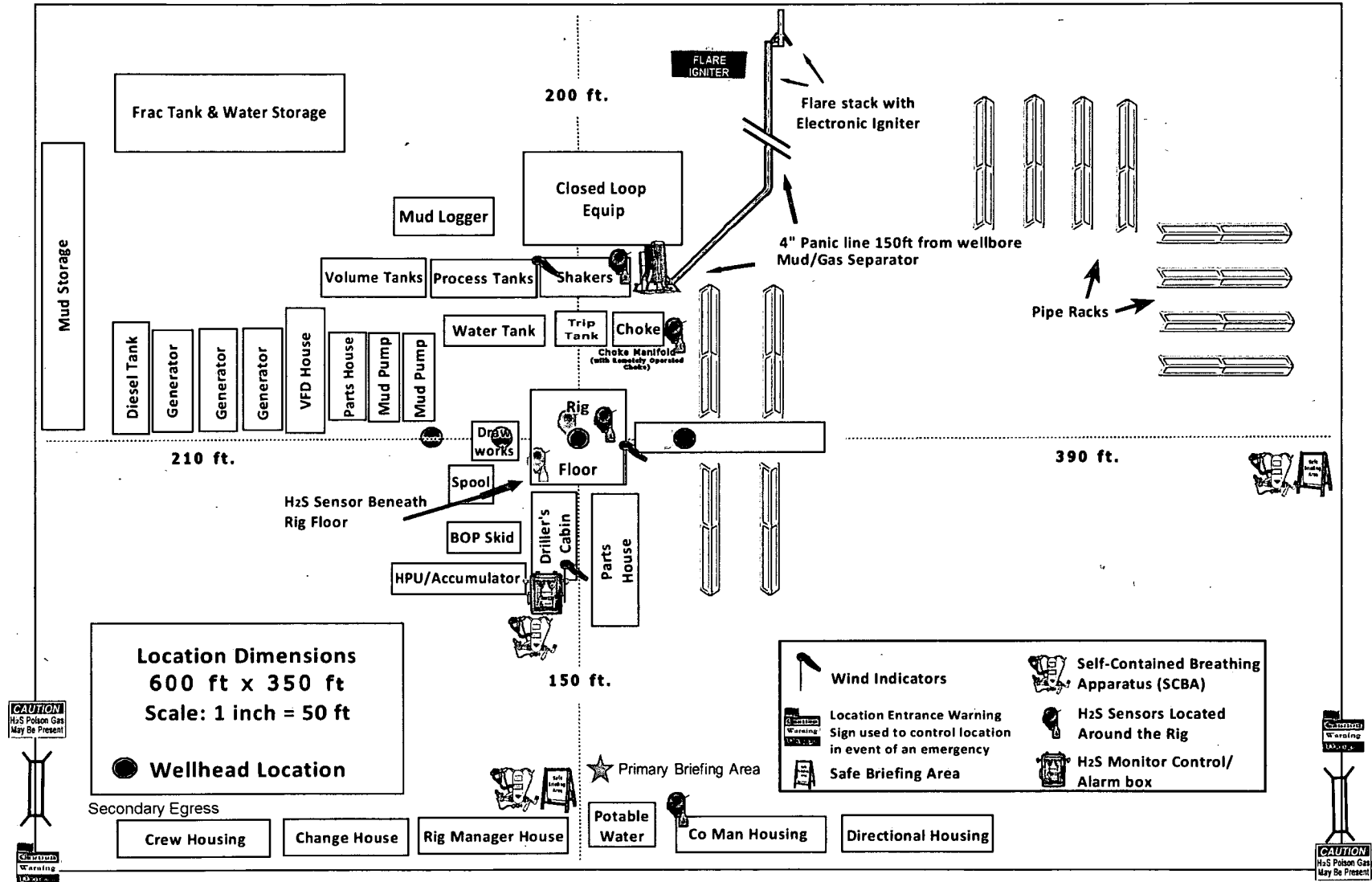
T23S.R31E

Distance= 2.62 Miles

© 2018 Google

Caliche Pit

Devon Energy - Well Pad Rig Location Layout Safety Equipment Location

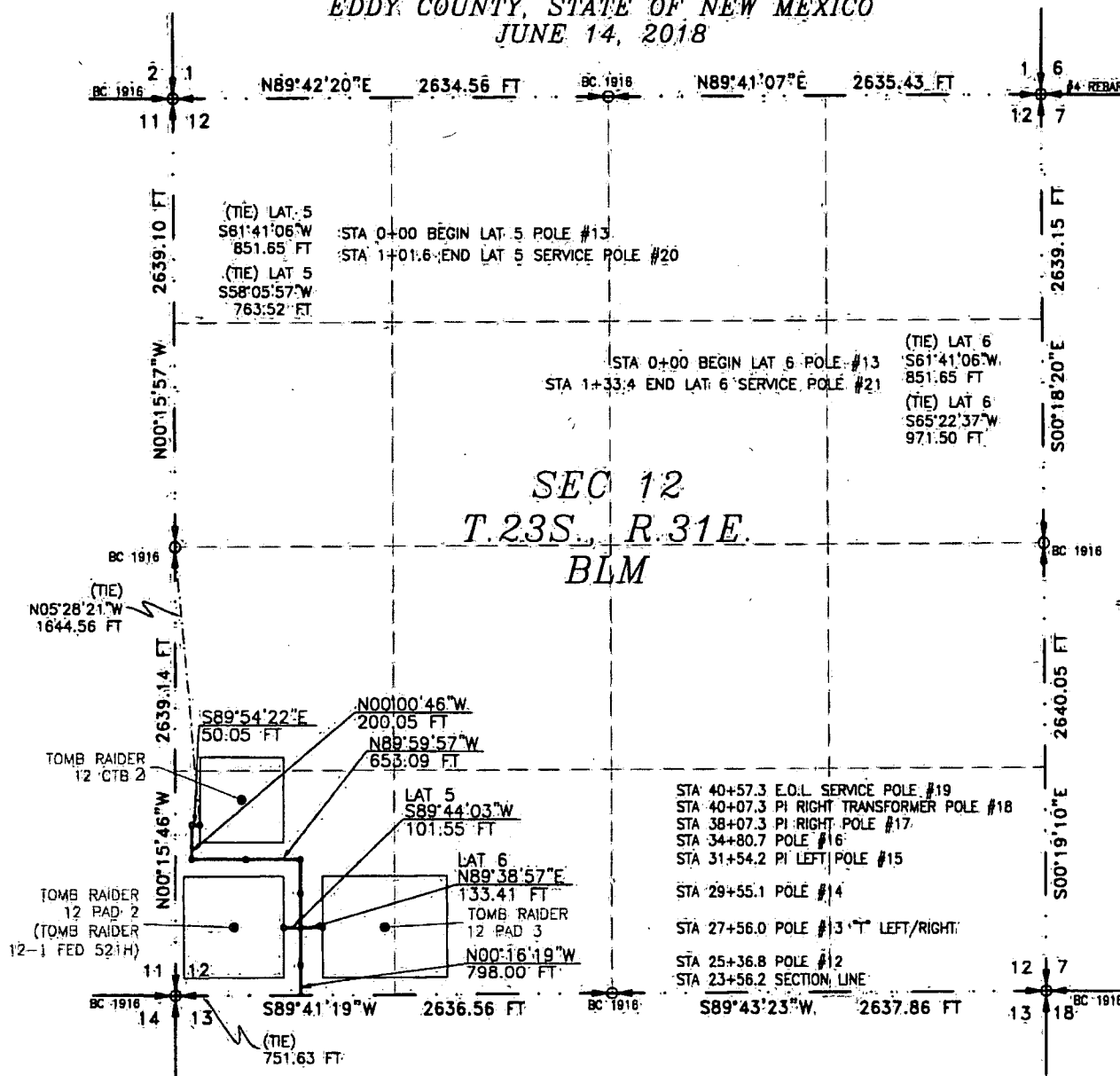


MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 **CARLSBAD, NEW MEXICO**

ELECTRIC LINE PLAT

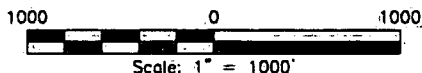
ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 2, TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12 PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13 CTB 1 & 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 14, 2018



SEC 12
T. 23S. R. 31E.
BLM

SEE NEXT SHEET (5-7) FOR DESCRIPTION.



GENERAL NOTES

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

SHEET: 4-7

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

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO THIS 22nd DAY OF JUNE 2018

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

SURVEY NO: 6298

FILMON F. JARAMILLO PLS. 12797

ELECTRIC LINE PLAT

ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 21, TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12 PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13 CTB 1 & 2

DEVON ENERGY PRODUCTION COMPANY, L.P. CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO JUNE 14, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

MAIN TO TOMB RAIDER 12 CTB 1

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°41'19"W, A DISTANCE OF 751.63 FEET;

THENCE N00°16'19"W A DISTANCE OF 798.00 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N89°59'57"W A DISTANCE OF 653.09 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°00'46"W A DISTANCE OF 200.05 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°54'22"E A DISTANCE OF 50.05 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N05°28'21"W, A DISTANCE OF 1644.56 FEET;

SAID STRIP OF LAND BEING 1701.19 FEET OR 103.10 RODS IN LENGTH, CONTAINING 1.172 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 1701.19 L.F. 103.10 RODS 1.172 ACRES

LATERAL 5 TO TOMB RAIDER 12 PAD 2

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S61°41'06"W, A DISTANCE OF 851.65 FEET;

THENCE S89°44'03"W A DISTANCE OF 101.55 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S58°05'57"W, A DISTANCE OF 763.52 FEET;

SAID STRIP OF LAND BEING 101.55 FEET OR 6.15 RODS IN LENGTH, CONTAINING 0.070 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 101.55 L.F. 6.15 RODS 0.070 ACRES

LATERAL 6 TO TOMB RAIDER 12 PAD 3

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S61°41'06"W, A DISTANCE OF 851.65 FEET;

THENCE N89°38'57"E A DISTANCE OF 133.41 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S65°22'37"W, A DISTANCE OF 971.50 FEET;

SAID STRIP OF LAND BEING 133.41 FEET OR 8.09 RODS IN LENGTH, CONTAINING 0.092 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 133.41 L.F. 8.09 RODS 0.092 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS DAY OF JUNE 2018

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

FILMON F. JARAMILLO, PLS. 12797

SURVEY NO. 6298

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

GENERAL NOTES

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

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

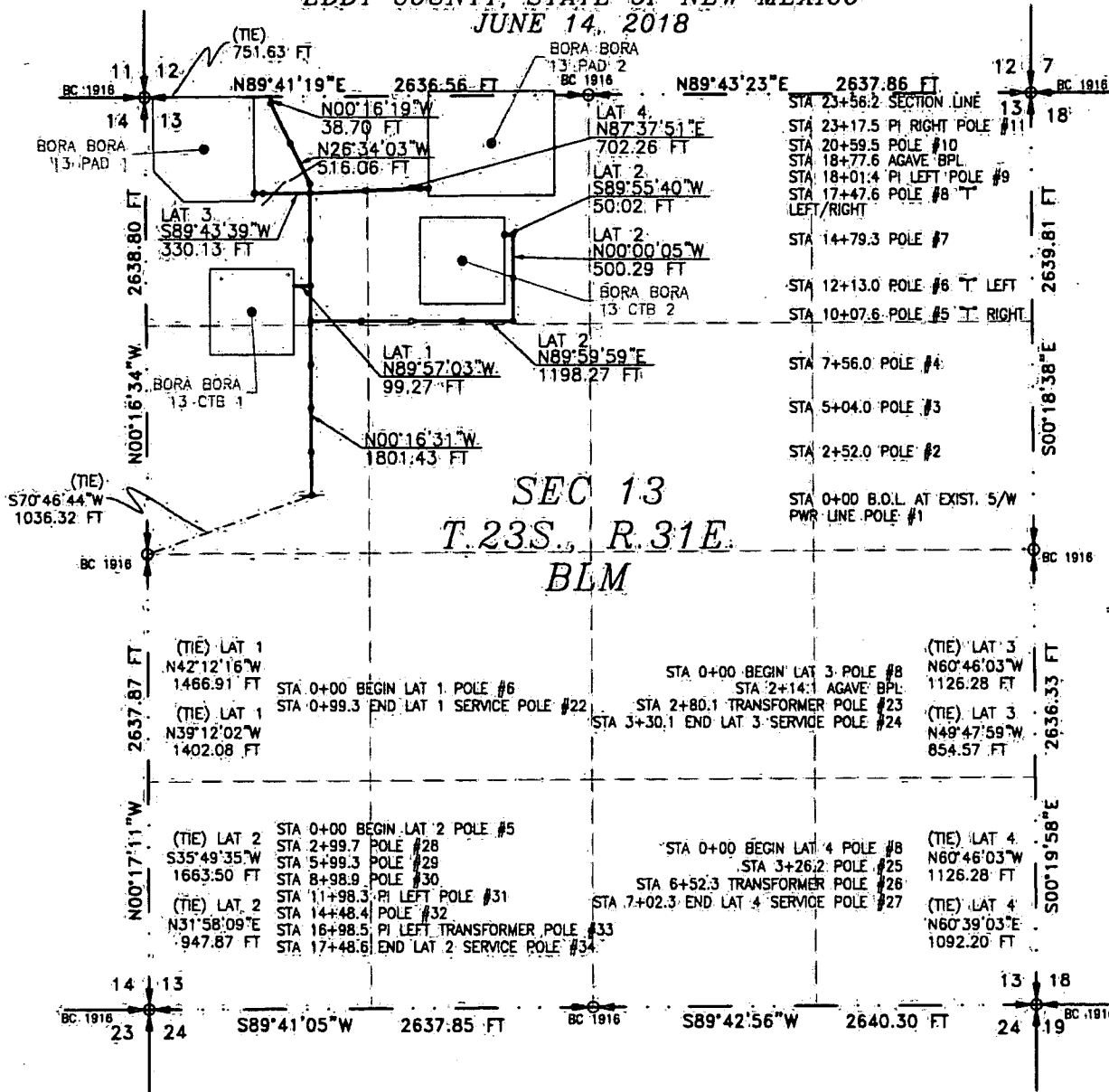
SHEET: 5-7

ELECTRIC LINE PLAT

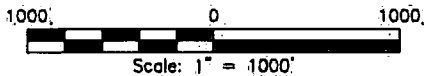
ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 2 TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12 PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13 CTB 1 & 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 14, 2018



SEE NEXT SHEETS (2-7 & 3-7) FOR DESCRIPTION



GENERAL NOTES

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

SHEET: 1-7

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

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 24TH DAY OF JUNE 2018

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

SURVEY NO. 6298

ELECTRIC LINE PLAT

ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 2, TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12, PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13, CTB 1 & 2

DEVON ENERGY PRODUCTION COMPANY, L.P. CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO JUNE 14, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

MAIN TO TOMB RAIDER 12 CTB 1

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S70°46'44"W, A DISTANCE OF 1036.32 FEET;

THENCE N00°16'31"W A DISTANCE OF 1801.43 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N26°34'03"W A DISTANCE OF 516.06 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°16'19"W A DISTANCE OF 38.70 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°41'19"W, A DISTANCE OF 751.63 FEET;

SAID STRIP OF LAND BEING 2356.19 FEET OR 142.79 RODS IN LENGTH, CONTAINING 1.623 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4 983.31 L.F. 59.59 RODS 0.677 ACRES

NW/4 NW/4 1372.88 L.F. 83.20 RODS 0.946 ACRES

LATERAL 1 TO BORA BORA 13 CTB 1

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N42°12'16"W, A DISTANCE OF 1466.91 FEET;

THENCE N89°57'03"W A DISTANCE OF 99.27 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N39°12'02"W, A DISTANCE OF 1402.08 FEET;

SAID STRIP OF LAND BEING 99.27 FEET OR 6.02 RODS IN LENGTH, CONTAINING 0.068 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4 99.27 L.F. 6.02 RODS 0.068 ACRES

LATERAL 2 TO BORA BORA 13 CTB 2

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S35°49'35"W, A DISTANCE OF 1663.50 FEET;

THENCE N89°59'59"E A DISTANCE OF 1198.27 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°00'05"W A DISTANCE OF 500.29 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°55'40"W A DISTANCE OF 50.02 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N31°58'09"E, A DISTANCE OF 947.87 FEET;

SAID STRIP OF LAND BEING 1748.58 FEET OR 105.97 RODS IN LENGTH, CONTAINING 1.204 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

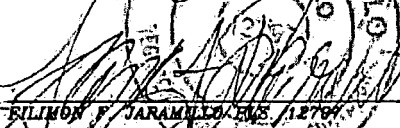
NW/4 NW/4 338.32 L.F. 20.50 RODS 0.233 ACRES

NE/4 NW/4 1410.26 L.F. 85.47 RODS 0.971 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 21 DAY OF JUNE 2018


FILIMÓN F. JARAMILLO, No. 12797

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

GENERAL NOTES

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

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

SHEET: 2-7

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

SURVEY NO. 6298

ELECTRIC LINE PLAT

ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 2, TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12 PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13 CTB 1 & 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 14, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

LATERAL 3 TO BORA BORA 13 PAD 1

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N60°46'03"W, A DISTANCE OF 1126.28 FEET;
THENCE S89°43'39"W A DISTANCE OF 330.13 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N49°47'59"W, A DISTANCE OF 854.57 FEET;

SAID STRIP OF LAND BEING 330.13 FEET OR 20.01 RODS IN LENGTH, CONTAINING 0.227 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4 330.13 LF. 20.01 RODS 0.227 ACRES

LATERAL 4 TO BORA BORA 13 PAD 2

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N60°46'03"W, A DISTANCE OF 1126.28 FEET;
THENCE N87°37'51"E A DISTANCE OF 702.26 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N60°39'03"E, A DISTANCE OF 1092.20 FEET;

SAID STRIP OF LAND BEING 702.26 FEET OR 42.56 RODS IN LENGTH, CONTAINING 0.484 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4 338.42 LF. 20.51 RODS 0.233 ACRES
NE/4 NW/4 363.84 LF. 22.05 RODS 0.251 ACRES

GENERAL NOTES

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

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

SHEET: 3-7

MADRON SURVEYING, INC.

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 14 DAY OF JUNE 2018.


FILMON F. JARAMILLO, PLS. 12797

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

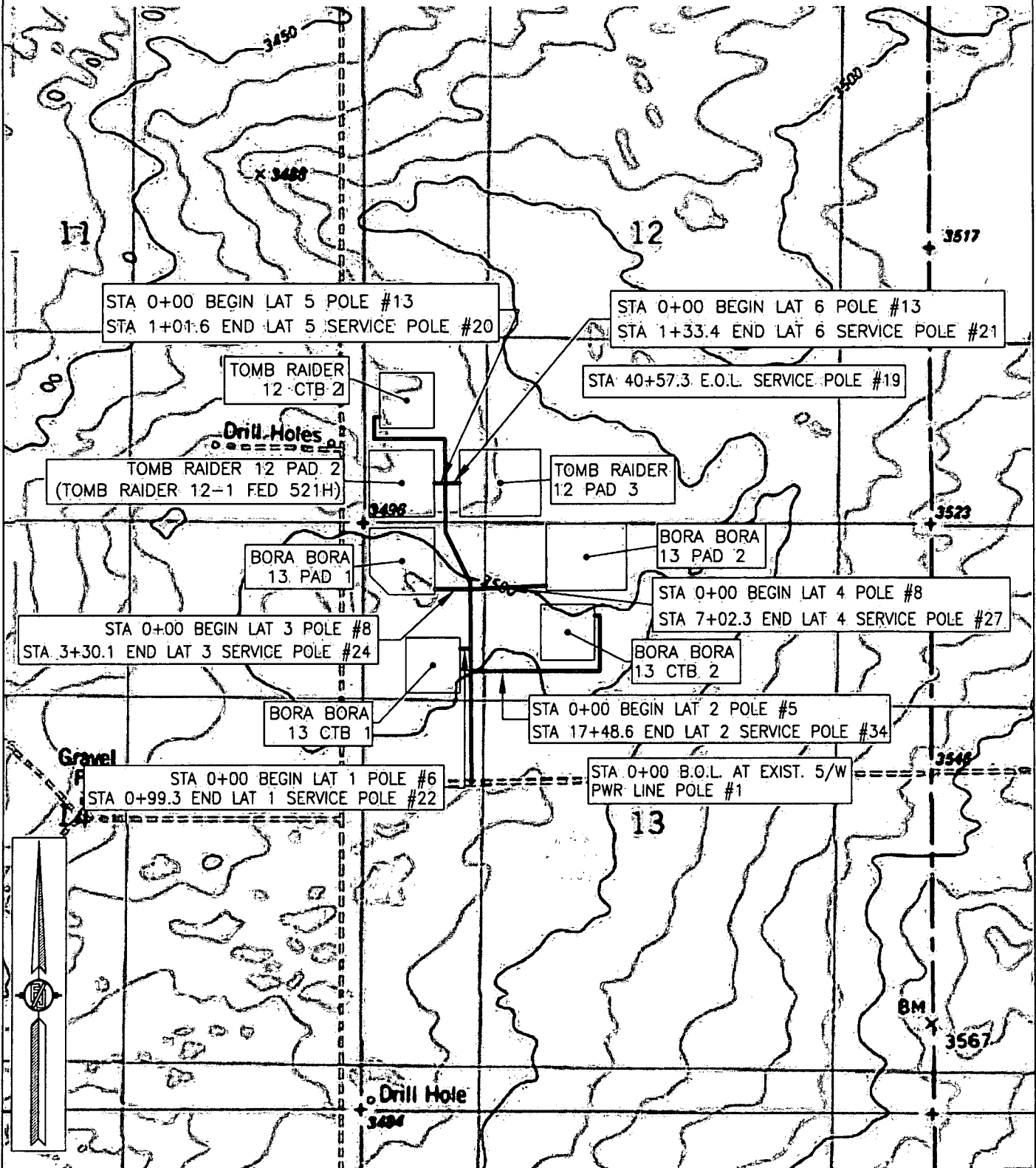
SURVEY NO. 6298

CARLSBAD, NEW MEXICO

ELECTRIC LINE PLAT

ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 2, TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12 PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13 CTB 1 & 2

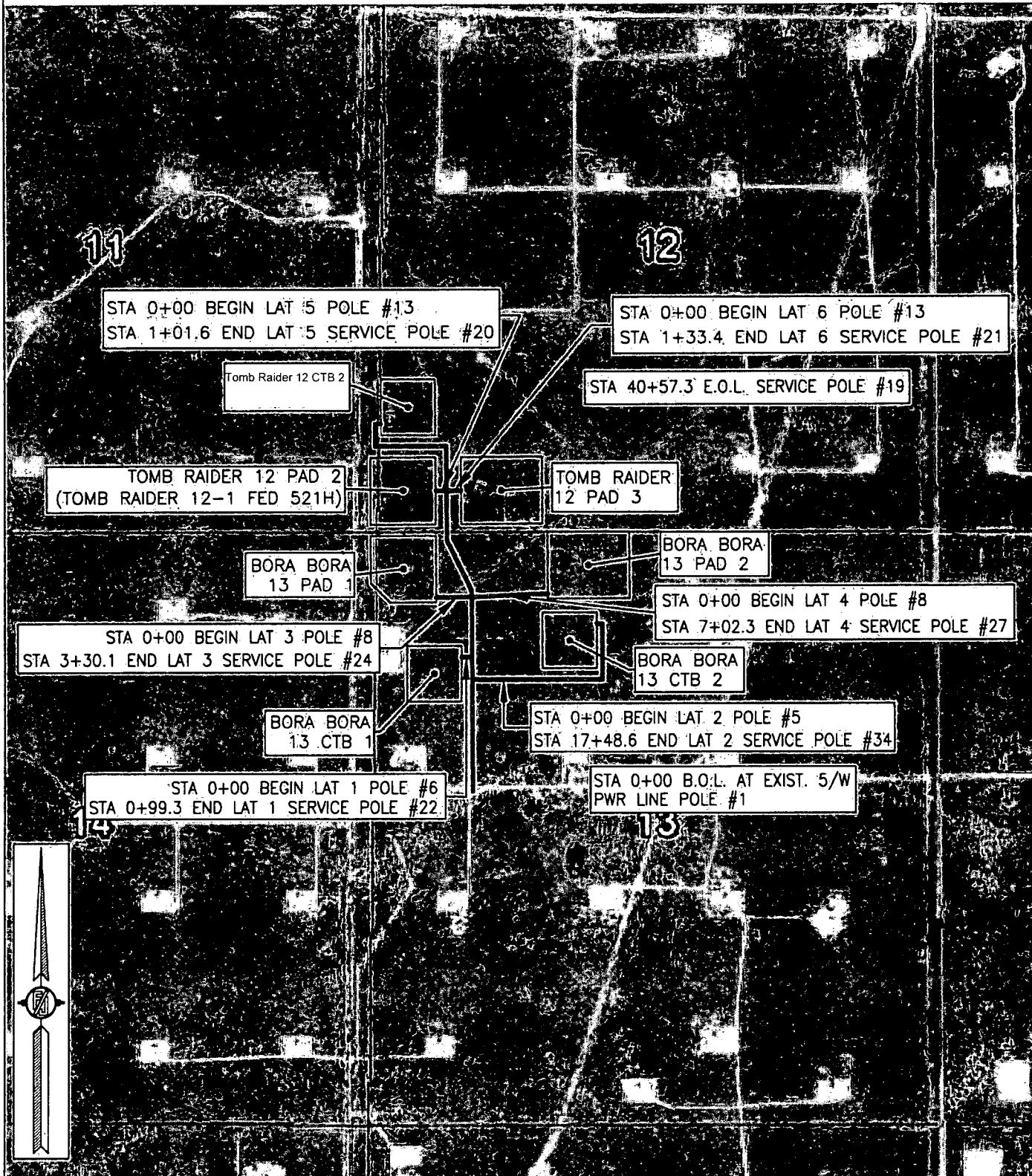
DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTIONS 13, 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 14, 2018



ELECTRIC LINE PLAT

ELECTRIC LINES TO CONNECT THE TOMB RAIDER 12 CTB 2, TOMB RAIDER 12 PAD 2
(TOMB RAIDER 12-1 FED 521H), TOMB RAIDER 12 PAD 3,
BORA BORA 13 PAD 1 & 2, BORA BORA 13 CTB 1 & 2

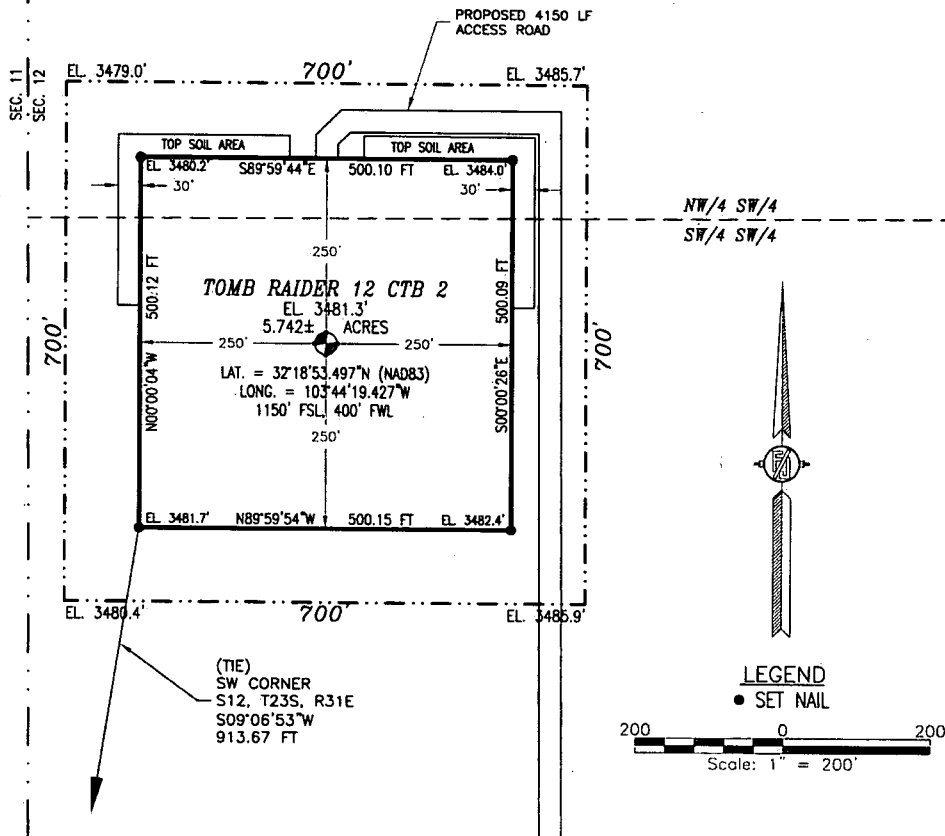
DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING
SECTIONS 13, 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 14, 2018



TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE SW/4 SW/4 & NW/4 SW/4 OF
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DECEMBER 13, 2018



DESCRIPTION

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN THE SW/4 SW/4 & NW/4 SW/4 OF SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE SOUTHWEST CORNER OF THE PARCEL, WHENCE THE SOUTHWEST CORNER OF SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S09°06'53\"W, A DISTANCE OF 913.67 FEET;
THENCE N00°00'04\"W A DISTANCE OF 500.12 FEET TO THE NORTHWEST CORNER OF THE PARCEL;
THENCE S89°59'44\"E A DISTANCE OF 500.10 FEET TO THE NORTHEAST CORNER OF THE PARCEL;
THENCE S00°00'26\"E A DISTANCE OF 500.09 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;
THENCE N89°59'54\"W A DISTANCE OF 500.15 FEET TO THE SOUTHWEST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING;
CONTAINING 4.818 ACRES IN THE SW/4 SW/4 & 0.924 ACRES IN THE NW/4 SW/4 FOR A TOTAL OF 5.742 ACRES MORE OR LESS.

GENERAL NOTES

- 1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL TANK BATTERY
- 2.) BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)

DRIVING DIRECTIONS: FROM THE INTERSECTION OF STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 FOR APPROX. 3.68 MILES, TURN RIGHT ON CALICHE ROAD AND GO EAST APPROX. 0.21 OF A MILE, TURN LEFT GO NORTH APPROX. 0.72 OF A MILE, TURN LEFT GO WEST-SOUTH 336\" (TOTAL 4150') TO THE NORTH EDGE OF PAD FOR THIS LOCATION.

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 13TH DAY OF DECEMBER, 2018

FILMON F. JARAMILLO
12797
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
(575) 234-3341

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

SURVEY NO. 6128A

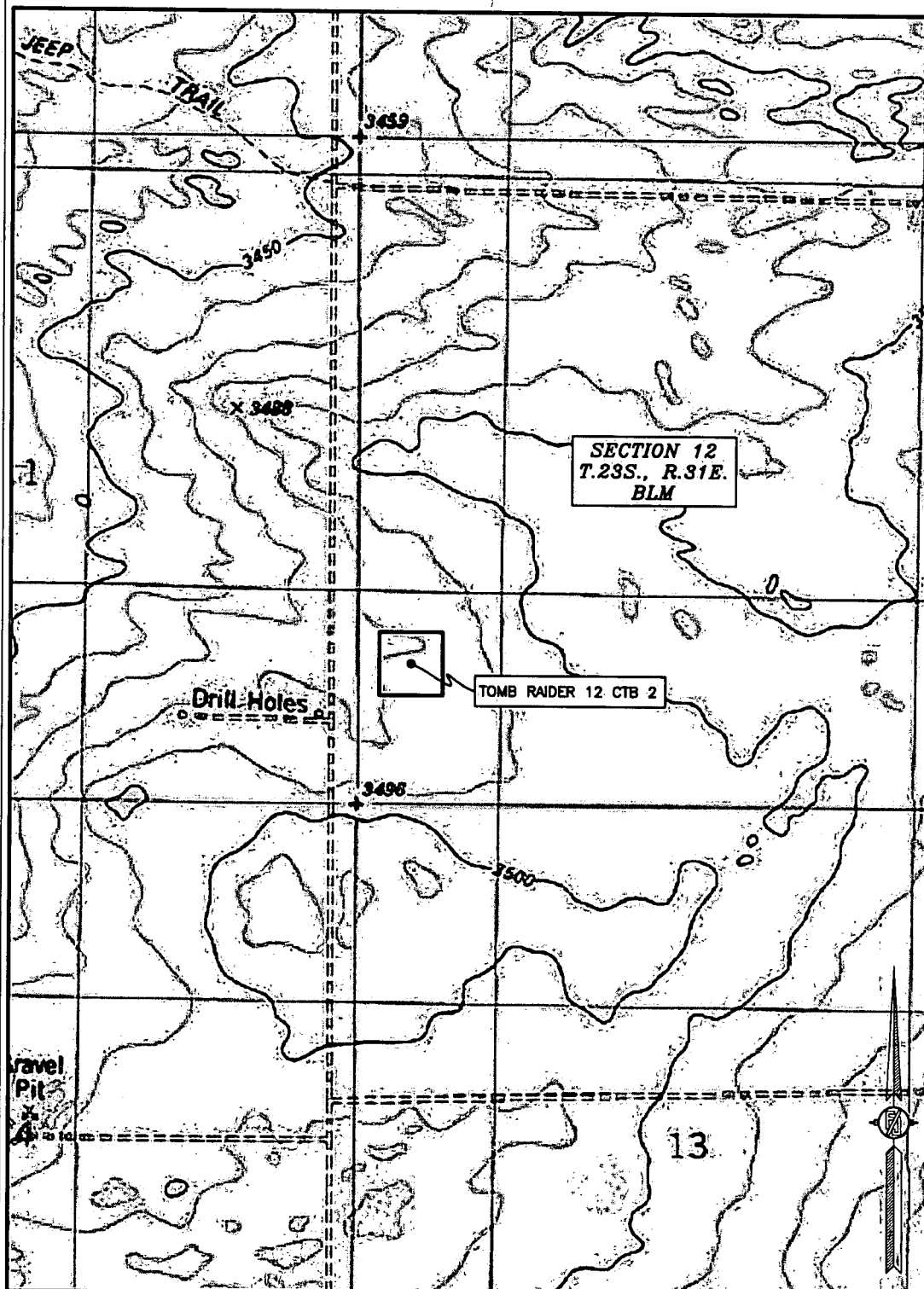
SHEET: 1-3

MADRON SURVEYING, INC.

CARLSBAD, NEW MEXICO

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE SW/4 SW/4 & NW/4 SW/4 OF
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

QUAD MAP



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

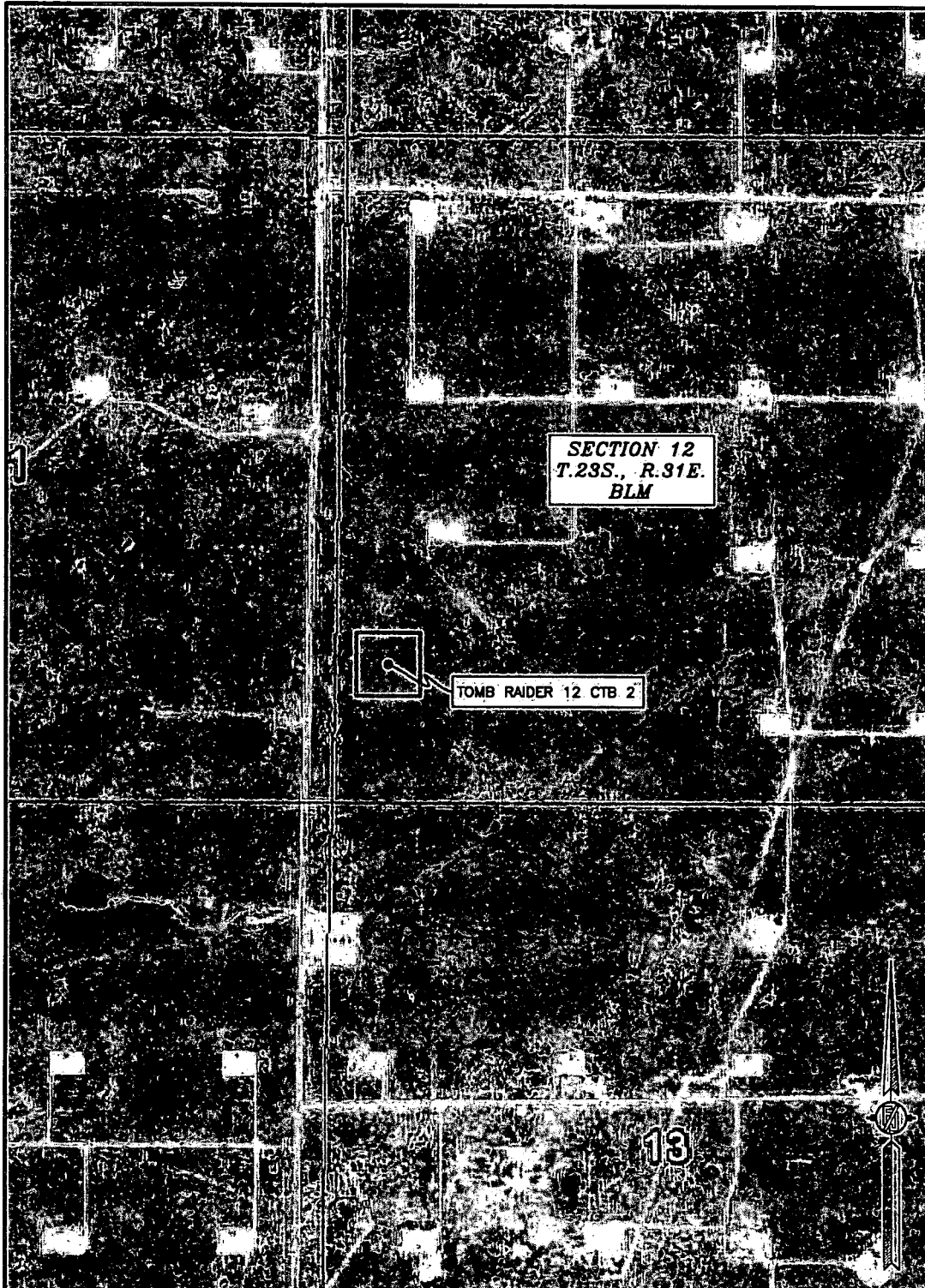
SURVEY NO. 6128A

TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE SW/4 SW/4 & NW/4 SW/4 OF
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DECEMBER 13, 2018

AERIAL PHOTO

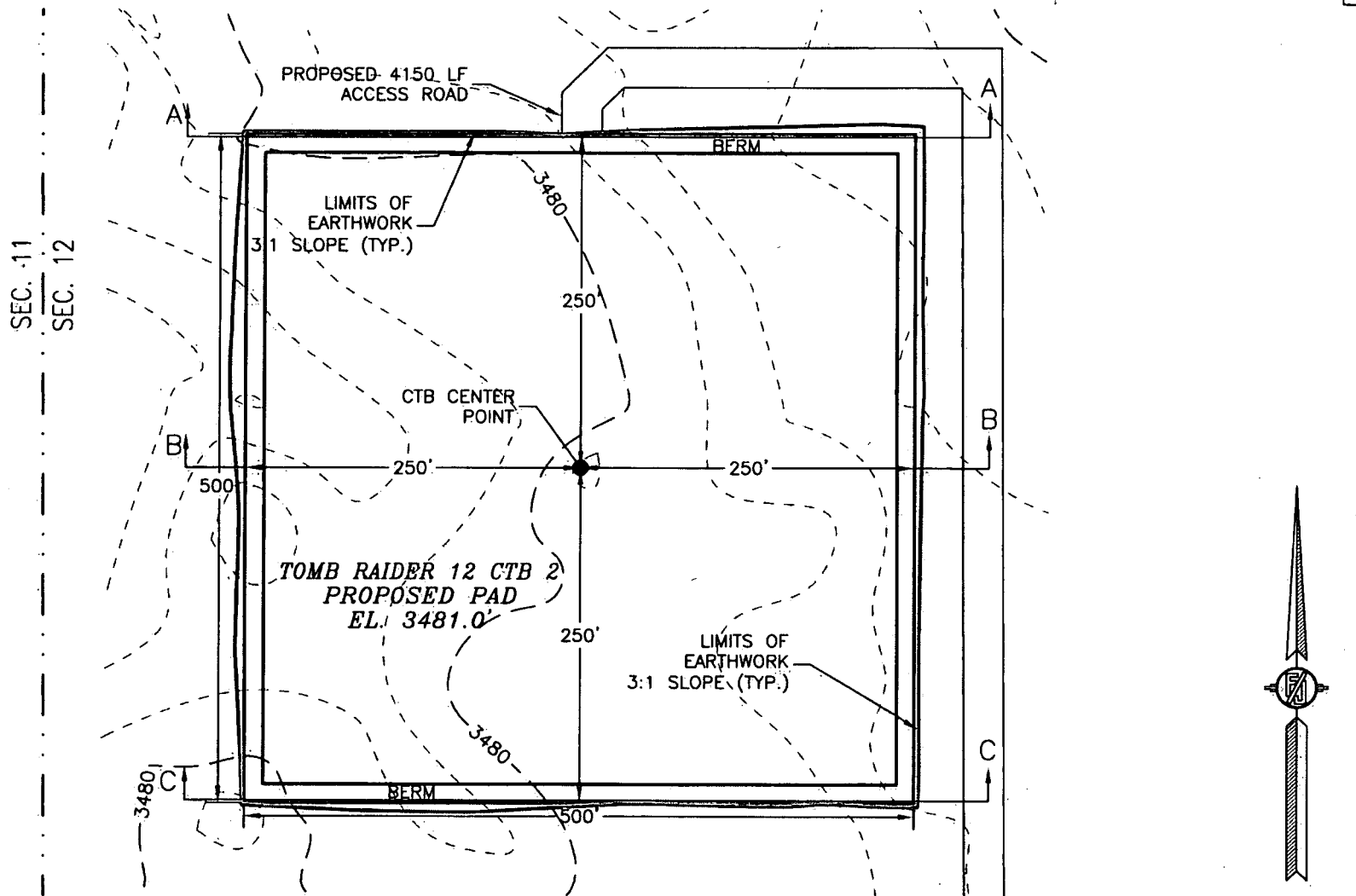


SHEET: 3-3

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3343 CARLSBAD, NEW MEXICO

SURVEY NO. 6128A

PLAN VIEW



DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR TOMB RAIDER 12 CTB 2
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DECEMBER 13, 2018

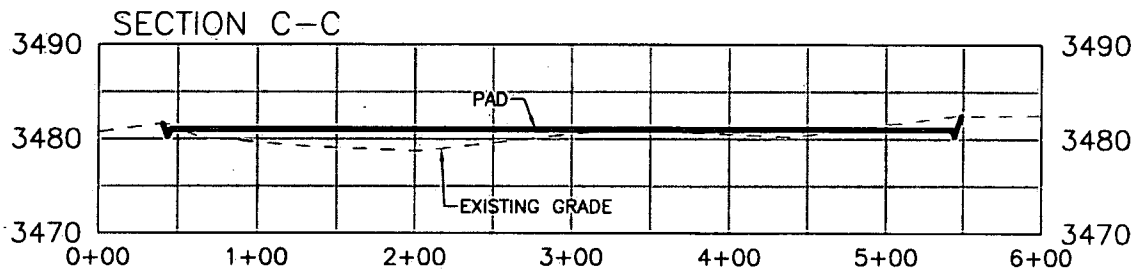
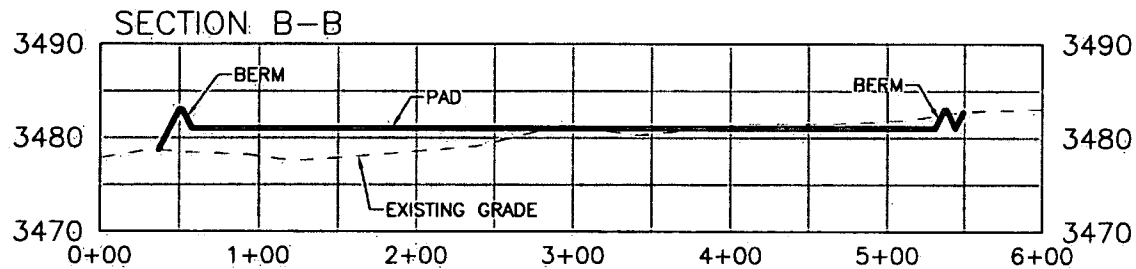
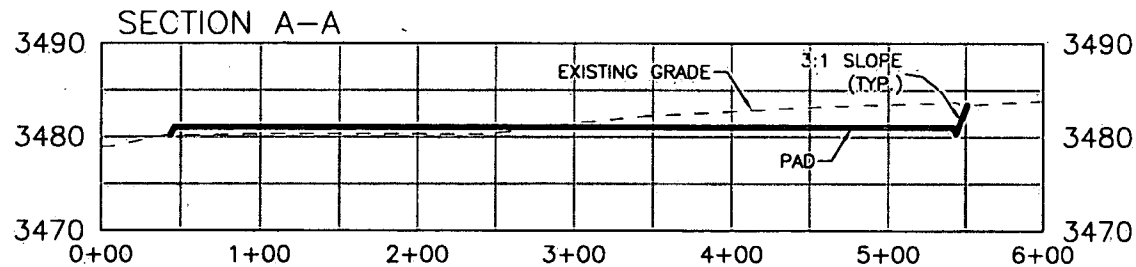
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

CUT	FILL	NET
2591 CU. YD	9976 CU. YD	7386 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 1-2
SURVEY NO. 6128A

CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
 FOR TOMB RAIDER 12 CTB 2
 SECTION 12, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

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

CUT	FILL	NET
2591 CU. YD	9976 CU. YD	7386 CU. YD (FILL)

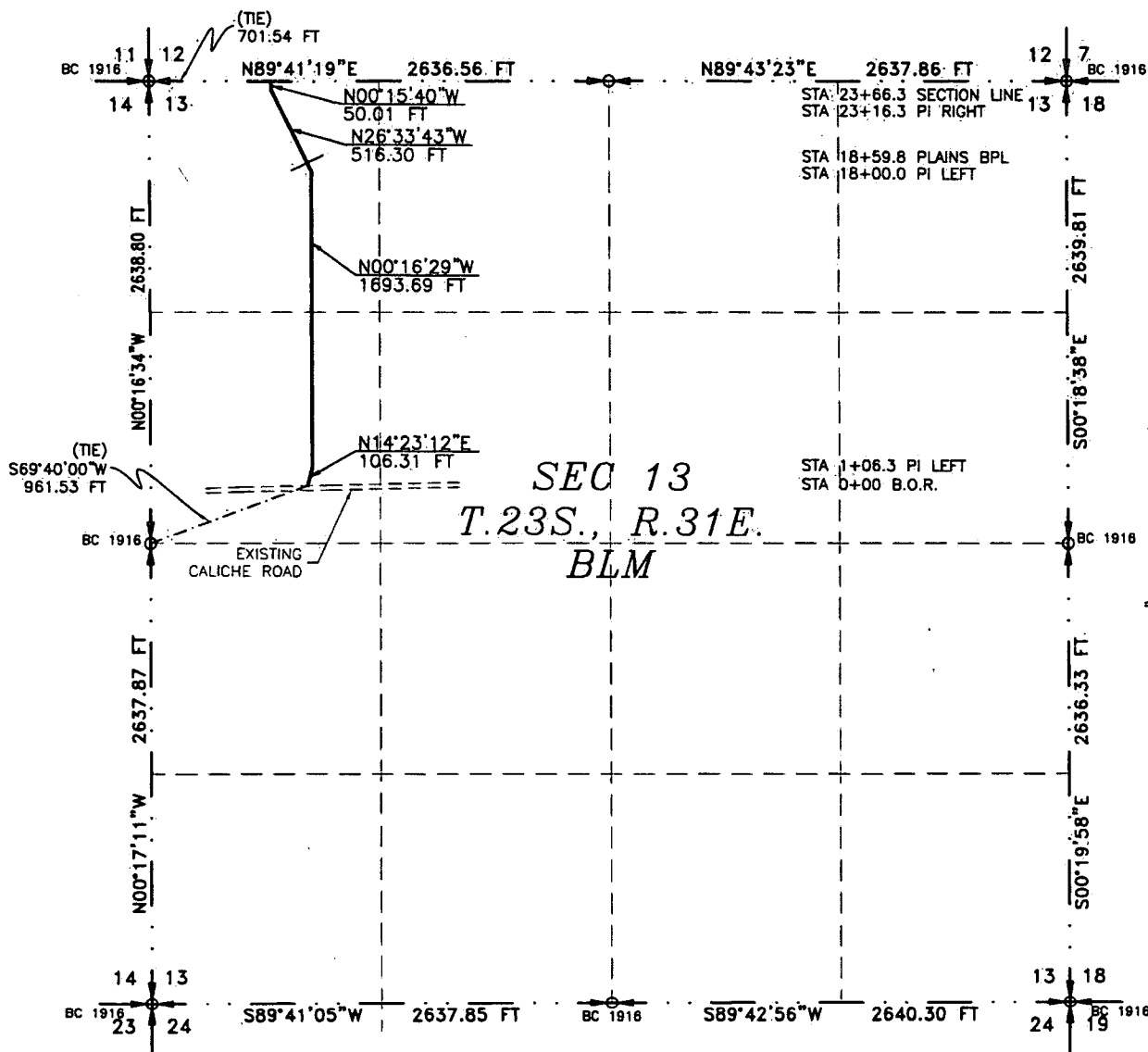
EARTHWORK QUANTITIES ARE ESTIMATED

DECEMBER 13, 2018
 MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

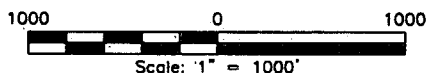
SHEET 2-2
 SURVEY NO. 6128A

ACCESS ROAD PLAT
ACCESS ROAD TO THE TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
DECEMBER 13, 2018



SEE NEXT SHEET (2-4) FOR DESCRIPTION



GENERAL NOTES

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

SHEET: 1-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 13th DAY OF DECEMBER 2018

(Signature of Filimon F. Jaramillo)
FILIMON F. JARAMILLO, PLS 12797
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
(575) 234-3341

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

SURVEY NO. 6128A

ACCESS ROAD PLAT
ACCESS ROAD TO THE TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
DECEMBER 13, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S69°40'00"W, A DISTANCE OF 961.53 FEET;

THENCE N14°23'12"E A DISTANCE OF 106.31 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°16'29"W A DISTANCE OF 1693.69 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N26°33'43"W A DISTANCE OF 516.30 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°15'40"W A DISTANCE OF 50.01 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 13, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°41'19"W, A DISTANCE OF 701.54 FEET;

SAID STRIP OF LAND BEING 2366.31 FEET OR 143.41 RODS IN LENGTH, CONTAINING 1.630 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4	993.30 L.F.	60.20 RODS	0.684 ACRES
NW/4 NW/4	1373.01 L.F.	83.21 RODS	0.946 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 13 DAY OF DECEMBER 2018

GENERAL NOTES

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

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

SHEET: 2-4

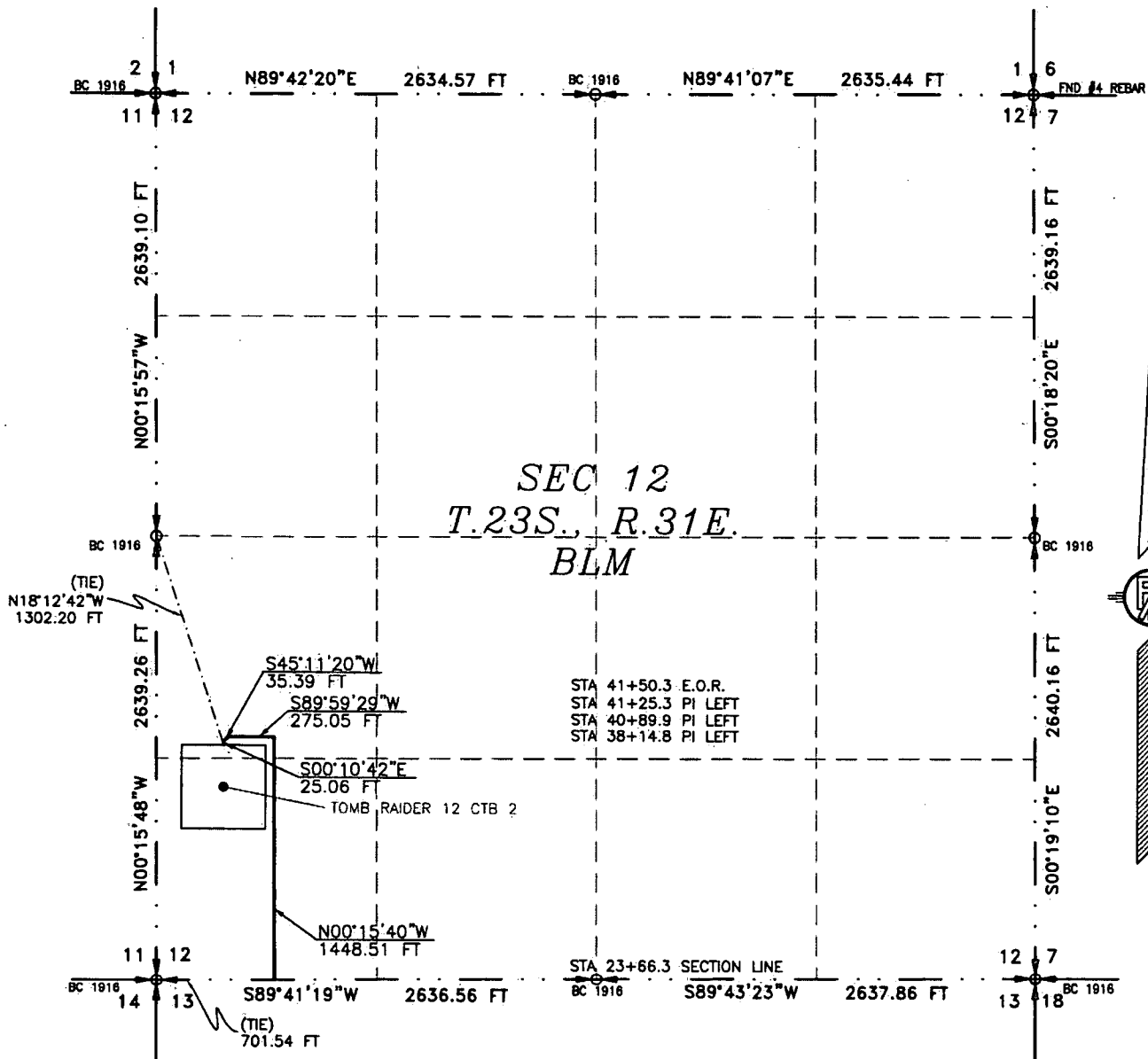
MADRON SURVEYING INC. 301 SOUTH CANAL, CARLSBAD, NEW MEXICO 88220
(575) 234-3341

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

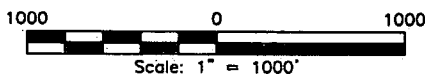
SURVEY NO. 6128A

ACCESS ROAD PLAT
ACCESS ROAD TO THE TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
DECEMBER 13, 2018



SEE NEXT SHEET (4-4) FOR DESCRIPTION



GENERAL NOTES

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

SHEET: 3-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 13 DAY OF DECEMBER 2018



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

SURVEY NO. 6128A

ACCESS ROAD PLAT
ACCESS ROAD TO THE TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
DECEMBER 13, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°41'19"W, A DISTANCE OF 701.54 FEET;

THENCE N00°15'40"W A DISTANCE OF 1448.51 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S89°59'29"W A DISTANCE OF 275.05 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S45°11'20"W A DISTANCE OF 35.39 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE S00°10'42"E A DISTANCE OF 25.06 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N18°12'42"W, A DISTANCE OF 1302.20 FEET;

SAID STRIP OF LAND BEING 1784.01 FEET OR 108.12 RODS IN LENGTH, CONTAINING 1.229 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4	1319.48 L.F.	79.97 RODS	0.909 ACRES
NW/4 SW/4	464.53 L.F.	28.15 RODS	0.320 ACRES

GENERAL NOTES

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

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

SHEET: 4-4

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

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 13 DAY OF DECEMBER 2018.

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

SURVEY NO. 6128A



Receipt

Tracking Information

Pay.gov Tracking ID: 26E449UE

Agency Tracking ID: 75636050260

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

Application Name: BLM Oil and Gas Online Payment

Payment Information

Payment Type: Bank account (ACH)

Payment Amount: \$40,200.00

Transaction Date: 12/14/2018 02:25:59 PM EST

Payment Date: 12/17/2018

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

APD IDs: 10400037332, 10400037323, 10400037318, 10400037314

Lease Numbers: NMNM022080, NMNM022080, NMNM022080, NMNM022080

Well Numbers: 611H, 731H, 701H, 331H

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

Account Information

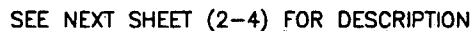
Account Holder Name: Devon Energy Production Company, L.P.

Routing Number: 061000052

Account Number: *****9892

FIVE-8" COMPOSITE FLOWLINES AND ONE-8" GAS LIFT LINE BURIED IN THE SAME DITCH FROM TOMB
RAIDER 12 WELLPAD 2 (TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H)
TO TOMB RAIDER 12 CTB 2

ALL FLOWLINES ARE BURIED NOVEMBER 6, 2018



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

SURVEY NO. 6673

FLOWLINE PLAT

FIVE-8" COMPOSITE FLOWLINES AND ONE-8" GAS LIFT LINE BURIED IN THE SAME DITCH FROM TOMB
RAIDER 12 WELLPAD 2 (TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H)
TO TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ALL FLOWLINES ARE BURIED NOVEMBER 6, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S26°17'43"W, A DISTANCE OF 782.91 FEET;
THENCE N00°00'15"E A DISTANCE OF 200.20 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S21°01'52"W, A DISTANCE OF 966.48 FEET;

SAID STRIP OF LAND BEING 200.20 FEET OR 12.13 RODS IN LENGTH, CONTAINING 0.138 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 200.20 L.F. 12.13 RODS 0.138 ACRES

GENERAL NOTES

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

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

SHEET: 2-4

MADRON SURVEYING, INC.

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 7TH DAY OF NOVEMBER 2018

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

SURVEY NO. 6673

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

FLOWLINE PLAT

FIVE-8" COMPOSITE FLOWLINES AND ONE-8" GAS LIFT LINE BURIED IN THE SAME DITCH FROM TOMB
RAIDER 12 WELLPAD 2 (TOMB RAIDER 12-1 FED 521H, 611H, 701H, 331H, & 731H)
TO TOMB RAIDER 12 CTB 2

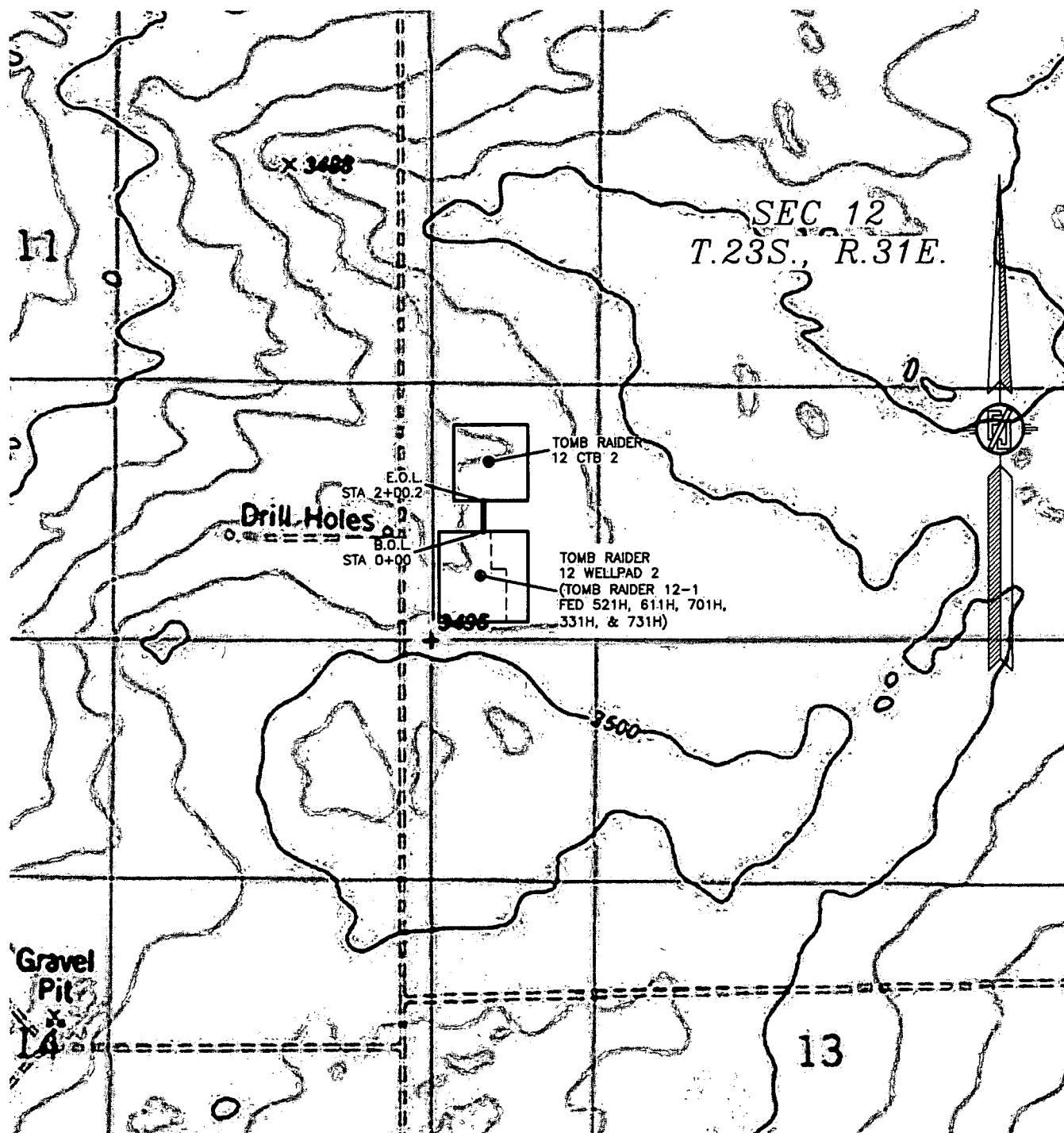
DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

ALL FLOWLINES ARE BURIED NOVEMBER 6, 2018

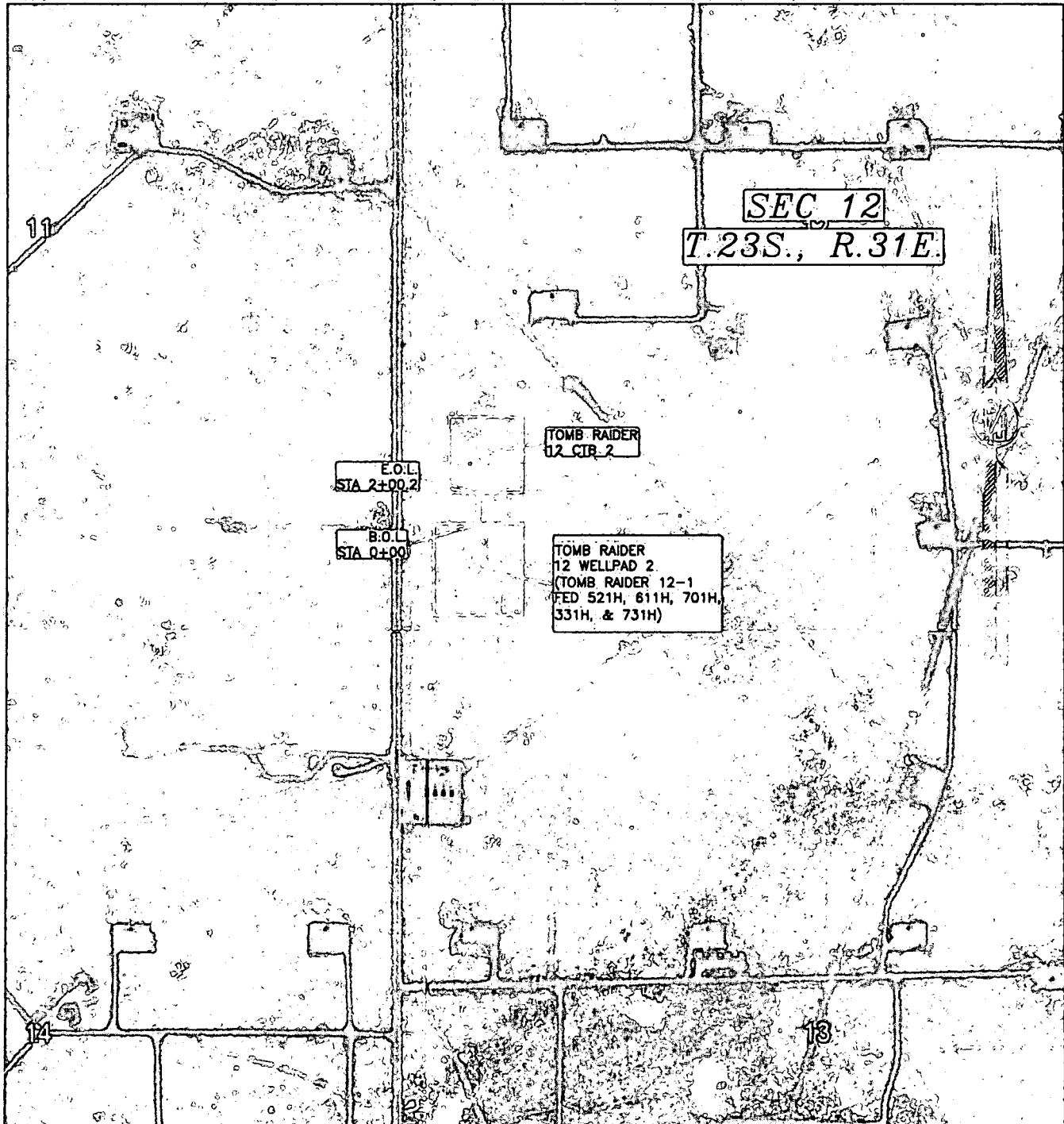


FLOWLINE PLAT

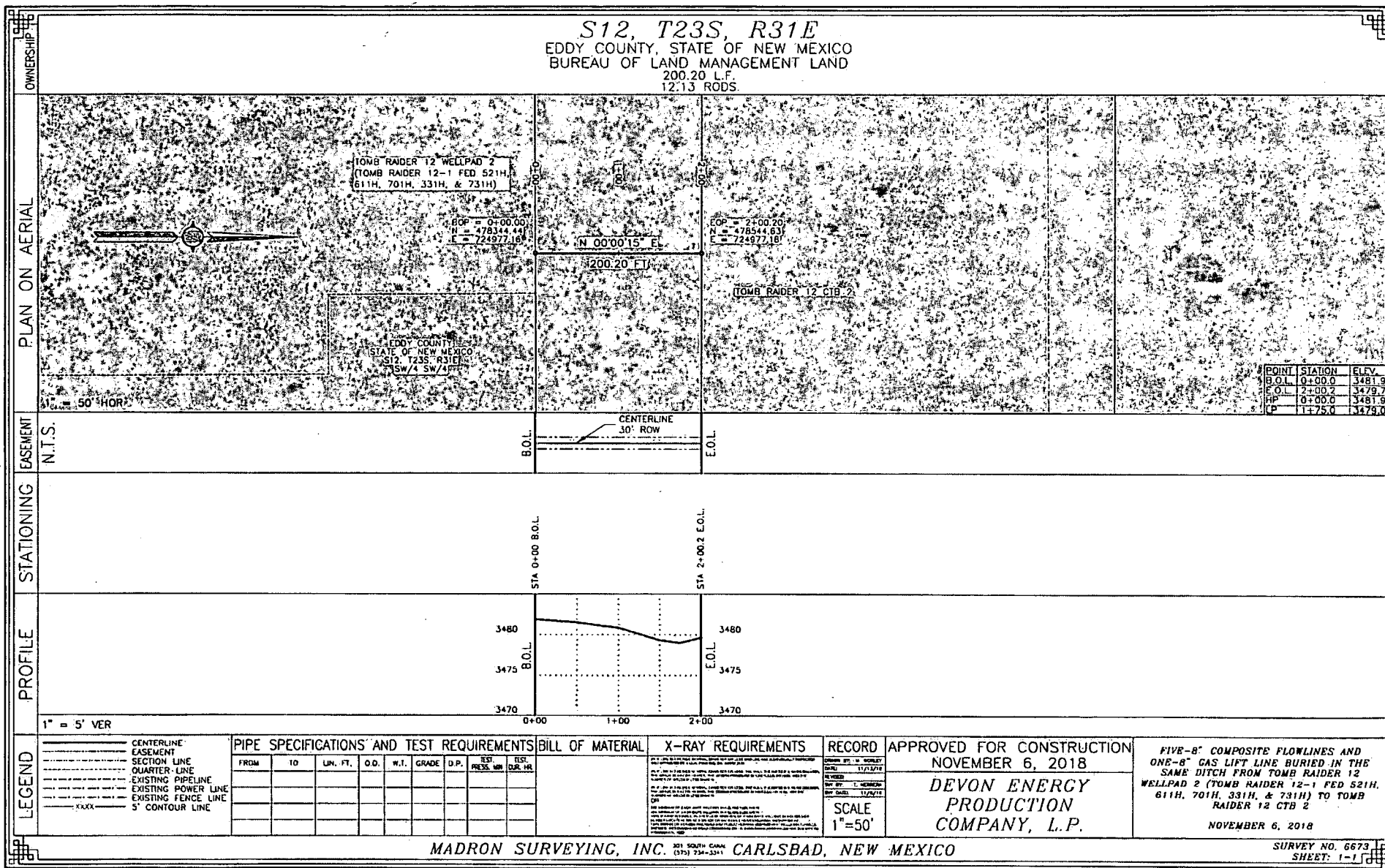
FIVE-8" COMPOSITE FLOWLINES AND ONE-8" GAS LIFT LINE BURIED IN THE SAME DITCH FROM TOMB
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TO TOMB RAIDER 12 CTB 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ALL FLOWLINES ARE BURIED NOVEMBER 6, 2018



ALL FLOWLINES ARE BURIED





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

06/20/2019

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: