

NM OIL CONSERVATION

ARTESIA DISTRICT

NOV 13 2018

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM022080
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY LP		8. Lease Name and Well No. TOMB RAIDER 1-12 FED 525H 316874
3a. Address 333 West Sheridan Avenue Oklahoma City OK 73102		9. API Well No. 6137 30-015-45439
3b. Phone No. (include area code) (405)552-6571		10. Field and Pool, or Exploratory 39350 LIVINGSTON RIDGE / BONE SPRING
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface LOT 2 / 360 FNL / 2335 FEL / LAT 32.3397276 / LONG -103.7305146 At proposed prod. zone SWSE / 330 FSL / 1860 FEL / LAT 32.3120641 / LONG -103.7289785		11. Sec., T, R, M, or Blk. and Survey or Area SEC 1 / T23S / R31E / NMP
14. Distance in miles and direction from nearest town or post office*		12. County or Parish EDDY
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 360 feet		13. State NM
16. No of acres in lease 1280		17. Spacing Unit dedicated to this well 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 370 feet		20. BLM/BIA Bond No. in file FED: CO1104
19. Proposed Depth 9185 feet / 18866 feet		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3475 feet
22. Approximate date work will start* 06/01/2019		23. Estimated duration 30 days
24. Attachments		

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Jenny Harms / Ph: (405)552-6560	Date 07/13/2018
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 10/31/2018
Title Assistant Field Manager Lands & Minerals CARLSBAD		

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

Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS
Approval Date: 10/31/2018

INSTRUCTIONS

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

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

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

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

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

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

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

NOTICES

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

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

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

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

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

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

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

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

Additional Operator Remarks

Location of Well

1. SHL: LOT 2 / 360 FNL / 2335 FEL / TWSP: 23S / RANGE: 31E / SECTION: 1 / LAT: 32.3397276 / LONG: -103.7305146 (TVD: 0 feet, MD: 0 feet)
PPP: LOT 2 / 330 FNL / 1860 FEL / TWSP: 23S / RANGE: 31E / SECTION: 1 / LAT: 32.3397276 / LONG: -103.2289785 (TVD: 8718 feet, MD: 8741 feet)
BHL: SWSE / 330 FSL / 1860 FEL / TWSP: 23S / RANGE: 31E / SECTION: 12 / LAT: 32.3120641 / LONG: -103.7289785 (TVD: 9185 feet, MD: 18866 feet)

BLM Point of Contact

Name: Sipra Dahal

Title: Legal Instruments Examiner

Phone: 5752345983

Email: sdahal@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
LEASE NO.:	NMNM022080
WELL NAME & NO.:	525H:TOMB RAIDER 1-12 FED
SURFACE HOLE FOOTAGE:	360'/N & 2335'/E
BOTTOM HOLE FOOTAGE:	330'/S & 1860'/E
LOCATION:	T-23S, R-31E, S1. NMPM
COUNTY:	EDDY, NM

Potash	☐ None	☒ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

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

B. CASING

1. The 13 3/8 inch surface casing shall be set at approximately **815** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours

after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9 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 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 potash.**

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

- Cement should tie-back at least **500** feet into previous string.. Operator shall provide method of verification.

C. PRESSURE CONTROL

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

2.

Option 1:

- i. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13 3/8** inch surface casing shoe shall be **3000 (3M)** psi.

Option 2:

- i. 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 **3000 (3M)** 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. 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.

D. SPECIAL REQUIREMENT(S)

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

MHH 10272018

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
LEASE NO.:	NMNM022080
WELL NAME & NO.:	525H:TOMB RAIDER 1-12 FED
SURFACE HOLE FOOTAGE:	360'/N & 2335'/E
BOTTOM HOLE FOOTAGE	330'/S & 1860'/E
LOCATION:	T-23S, R-31E, S1. NMPM
COUNTY:	EDDY, NM

TABLE OF CONTENTS

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

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

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Build as you go, no Grading of all pad.

In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

The proposed action occurs within one-half mile of the WIPP and Mills lesser prairie-chicken Habitat Evaluation Areas (HEA) as described in the 2008 Special Status Species Resource Management Plan Amendment. Therefore, according to the prescriptions set forth in the RMPA for management of HEAs, non-emergency exceptions to the Timing Limitation Condition-of-Approval will not be granted to afford the species protection during its breeding season.

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.

Raptor Nest Mitigation

- A BLM Wildlife Biologist must be contacted by the operator prior to construction activities to determine if the raptor nests/burrows are active.
- Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest.
- 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.

Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Livestock Watering Requirement

The operator must contact the allotment holder prior to construction to identify the location of the pipelines. The operator must take measures to protect the pipelines from compression or other damages. If the pipelines are damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipelines immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

Interim reclamation will be conducted on all disturbed areas not needed for active support of production operations, and if caliche is used as a surfacing material it will be removed at time of reclamation to enhance re-establishment of vegetation.

Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Devon would need to avoid the two identified archaeology sites by ensuring that infrastructure and vehicles maintain a minimum distance of 100 feet from these sites.

- Any water erosion that may occur due to the construction of the well pad and CTB pad during the life of the well and CTB will be corrected within two weeks and proper measures will be taken to prevent future erosion.

Permitted Exceptions for Drilling in the Designated Potash Area

1. It is the intent of the Department of the Interior to administer oil and gas operations throughout the Designated Potash Area in a manner which promotes safe, orderly co-development of oil, gas, and potash resources. It is the policy of the Department of the Interior to deny approval of most applications for permits to drill oil and gas wells from surface locations within the Designated Potash Area. Three exceptions to this policy will be permitted if the drilling will occur under the following conditions from:
 - a. A Drilling Island associated with a Development Area established under this Order or a Drilling Island established under a prior Order;
 - b. A Barren Area and the Authorized Officer determines that such operations will not adversely affect active or planned potash mining operations in the immediate vicinity of the proposed drill-site; or
 - c. A Drilling Island, not covered by (a) above or single well site established under this Order by the approval and in the sole discretion of the Authorized Officer, provided that such site was jointly recommended to the Authorized Officer by the oil and gas lessee(s) and the nearest potash lessee(s).

Development Areas

2. When processing an application for permit to drill (APD) an oil or gas well in the Designated Potash Area that complies with regulatory requirements, the Authorized Officer will determine whether to establish a Development Area in connection with the application, and if so, will determine the boundaries of the Development Area and the location within the Development Area of one or more Drilling Islands from which drilling will be permitted. The BLM may also designate a Development Area outside of the APD process based on information in its possession, and may modify the boundaries of a Development Area. Existing wells may be included within the boundaries of a Development Area. A Development Area may include Federal oil and gas leases and other Federal and non-Federal lands.
 - a. After designating or modifying a Development Area, the BLM will issue a Notice to Lessees, consistent with its authorities under 43 CFR Subpart 3105 and part 3180, information lessees that future drilling on lands under an oil and gas lease within that Development Area will:
 - i. occur, under most circumstances, from a Barren Area or A Drilling Island within the Development Area; and
 - ii. be managed under a unit or communitization agreement, generally by a single operator, consistent with BLM regulations and this Order. Unit and communitization agreements will be negotiated among lessees. The BLM will consider whether a specific plan of development is necessary or advisable for a particular Drilling Island.
 - b. The Authorized Officer reserves the right to approve an operator or successor operator of a Development Area and/or a Drilling Island, if applicable, to ensure that the operator has the resources to operate and extract the oil and gas resources consistent with the requirements of this Order and all applicable laws

and regulations, and has provided financial assurance in the amount required by the Authorized Officer.

- c. The Authorized Officer will determine the appropriate designation of a Development Area in terms of location, shape and size. In most cases, a single Drilling Island will be established for each Development Area. In establishing the location, shape and size of a Development Area and an associated Drilling Island, the Authorized Officer will consider:
 - i. the appropriate location, shape, and size of a Development Area and associated Drilling Island to allow effective extraction of oil and gas resources while managing the impact on potash resources;
 - ii. the application of available oil and gas drilling and production technology in the Permian Basin;
 - iii. the applicable geology of the Designated Potash Area and optimal locations to minimize loss of potash ore while considering co-development of both resources;
 - iv. any long term exploration and/or mining plans provided by the potash industry;
 - v. whether a Barren Area may be the most appropriate area for a Drilling Island;
 - vi. the requirements of this Order; and
 - vii. any other relevant factors
- d. As the Authorized Officer establishes a Development Area, the Authorized Officer will more strictly apply the factors listed in Section 6.e.(2)(d), especially the appropriate application of the available oil and gas drilling and production technology in the Permian Basin, when closer to current traditional (non-solution) potash mining operations. Greater flexibility in the application of the factors listed in Section 6.e(2)(d) will be applied further from current and near-term traditional (non-solution) potash mining operations. No Drilling Islands will be established within one mile of any area where approved potash mining operations will be conducted within 3 years consistent with the 3-year mine plan referenced above (Section 6.d.(8)) without the consent of the affected potash lessee(s).
- e. The Authorized Officer may establish a Development Area associated with a well or wells drilled from a Barren Area as appropriate and necessary.
- f. As part of the consideration for establishing Development Areas and Drilling Islands, the BLM will consider input from the potash lessees and the oil and gas lessees or mineral right owner who would be potentially subject to a unitization agreement supporting the Development Area, provided that the input is given timely.

Buffer Zones

- 3. Buffer Zones of ¼ mile for oil wells and ½ mile for gas wells are hereby established. These Buffer Zones will stay in effect until such time as revised distances are adopted by the BLM Director or other BLM official, as delegated. However, the Authorized Officer may adjust the Buffer Zones in an individual case, when the facts and circumstances demonstrate that such adjustment would enhance conservation and would not compromise safety. The Director will base revised Buffer Zones on science, engineering, and new technology and will consider comments and reports from the Joint Industry Technical Committee and other interested parties in adopting any revisions.

Unitization and Communitization

4. To more properly conserve the potash, oil, and gas resources in the Designated Potash Area, and to adequately protect the rights of all parties in interest, including the United States, it is the policy of the Department of the Interior that all Federal oil and gas leases within a Development Area should be unitized or subject to an approved communitization agreement unless there is a compelling reason for another operating system. The Authorized Officer will make full use of his/her authorities wherever necessary or advisable to require unitization and/or communitization pursuant to the regulations in 43 CFR Subparts 3105 and 3180. The Authorized Officer will use his/her discretion to the fullest extent possible to assure that any communitization agreement and any unit plan of operations hereafter approved or prescribed within the Designated Potash Area will adhere to the provisions of this Order. The Authorized Officer will work with Federal lessees, and with the State Of New Mexico as provided below, to include non-Federal mineral rights owners in unit or communitization agreements to the extent possible.
5. Coordination with the State of New Mexico.
 - a. If the effective operation of any Development Area requires that the New Mexico Oil Conservation Division (NMOCD) revise the State's mandatory well spacing requirements, the BLM will participate as needed in such a process. The BLM may adopt the NMOCD spacing requirements and require lessees to enter into communitization agreements based on those requirements.
 - b. The BLM will cooperate with the NMOCD in the implementation of that agency's rules and regulations.
 - c. In taking any action under Section 6.e. of this Order, the Authorized Officer will take into consideration the applicable rules and regulations of the NMOCD.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Tomb Raider Drill Island (See Potash Memo and Map in attached file for Drill Island description).

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

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

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

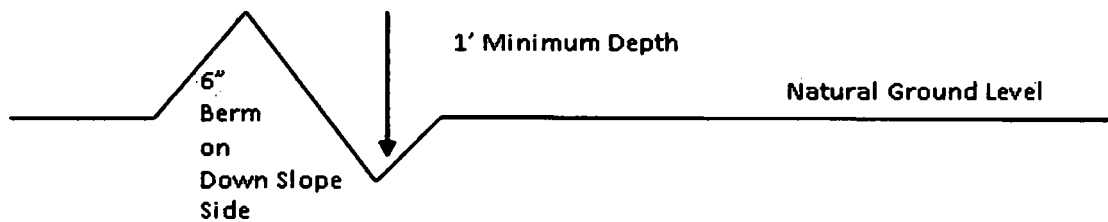
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

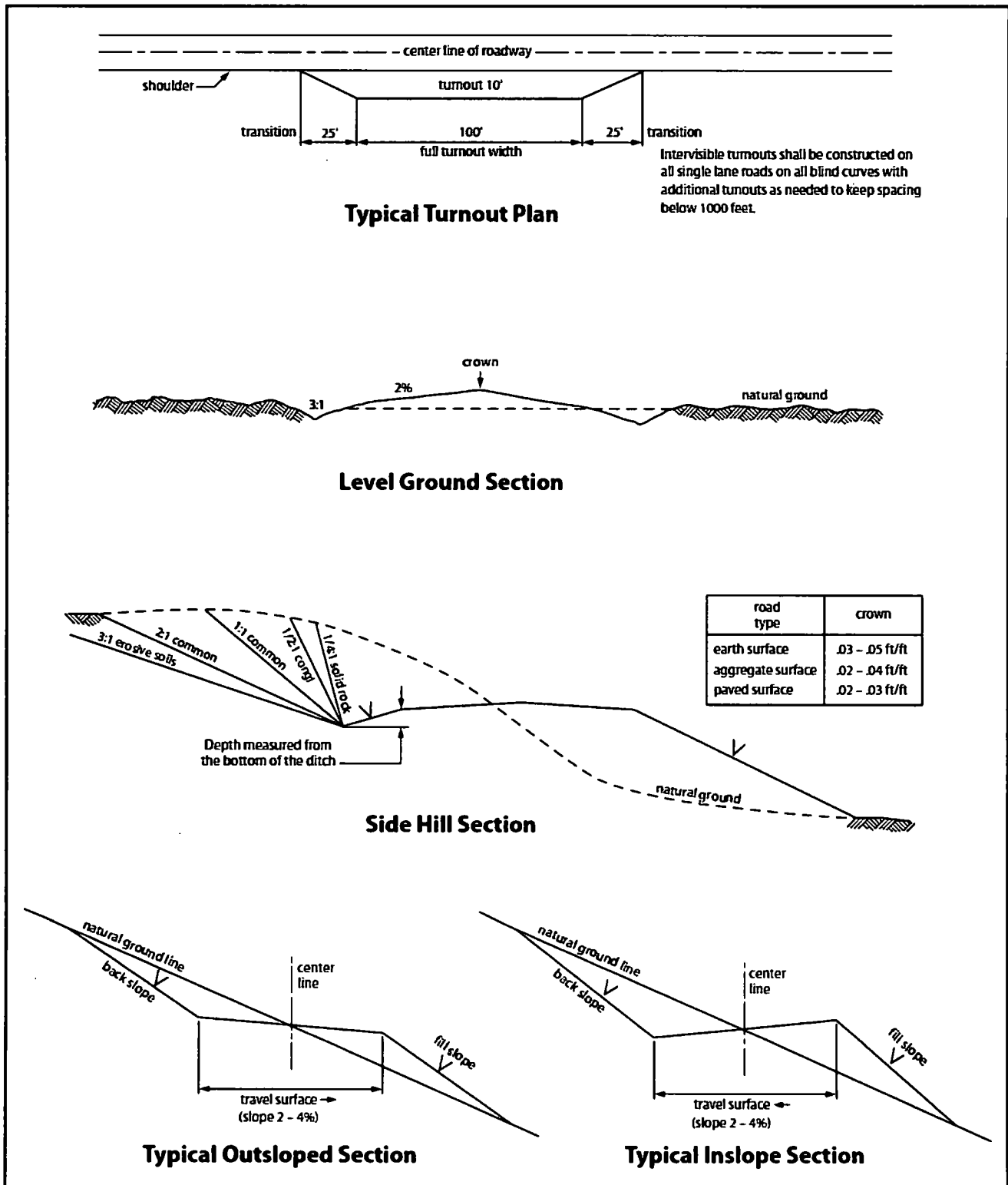


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

Containment Structures

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

Painting Requirement

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

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.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) 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 activity of 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. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, 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, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages 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 the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. 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.

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. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**,

Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. 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. Signs will be maintained in a legible condition for the life of the pipeline.

14. 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. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. 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 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.

16. 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, powerline 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.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

- a. **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 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.
- b. This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your

Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

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

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

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The

holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

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

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

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

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

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

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

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.

- Fill in any holes from the poles removed.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

VIII. INTERIM RECLAMATION

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

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

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

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

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

IX. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

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

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed



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

Operator Certification Data Report

11/01/2018

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: 07/11/2018

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: 6488 SEVEN RIVERS HWY

City: ARTESIA

State: NM

Zip: 88210

Phone: (575)748-1871

Email address: RAY.VAZ@DVN.COM



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

Application Data Report

11/01/2018

APD ID: 10400032006

Submission Date: 07/13/2018

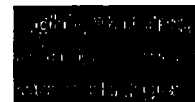
Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Well Type: OIL WELL

Well Work Type: Drill



[Show Final Text](#)

Section 1 - General

APD ID: 10400032006

Tie to previous NOS?

Submission Date: 07/13/2018

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: (405)552-6571

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 1-12 FED

Well Number: 525H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: LIVINGSTON
RIDGE

Pool Name: BONE SPRING

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

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?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: TODD-**Number:** 2

APACHE 1-1

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: DELINEATION

Describe sub-type:

Distance to town:

Distance to nearest well: 370 FT

Distance to lease line: 360 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: TOMB_RAIDER_1_12_FED_525H_C102_signed_20181017142317.pdf

Well work start Date: 06/01/2019

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 6215A

	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	360	FNL	233 5	FEL	23S	31E	1	Lot 2	32.33972 76	- 103.7305 146	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	347 5	0	0
KOP Leg #1	100	FNL	186 0	FEL	23S	31E	1	Lot 2	32.33972 76	- 103.2289 785	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 513 7	863 4	861 2
PPP Leg #1	330	FNL	186 0	FEL	23S	31E	1	Lot 2	32.33972 76	- 103.2289 785	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 524 3	874 1	871 8

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

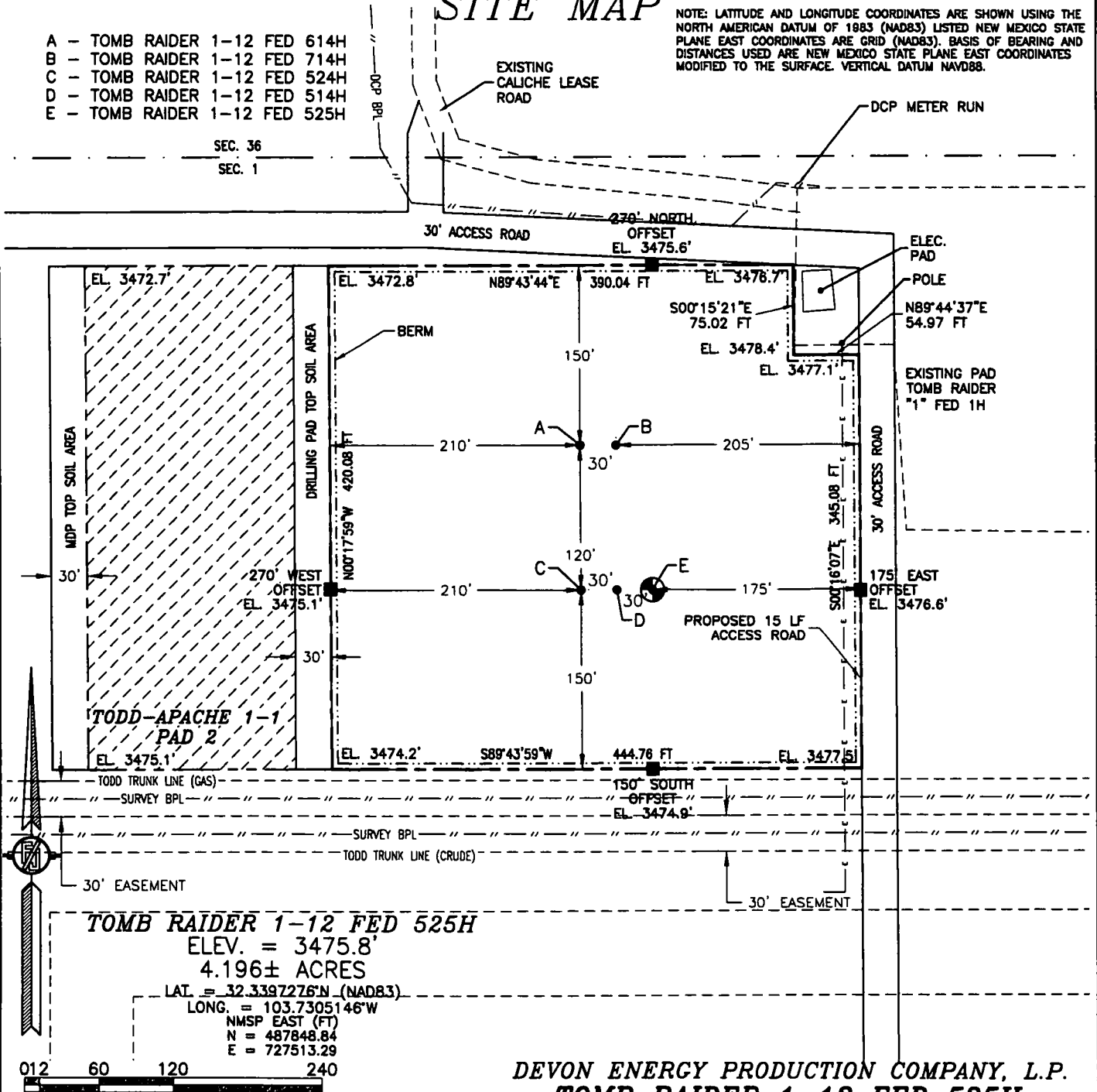
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FSL	186 0	FEL	23S	31E	12	Aliquot SWSE	32.31206 41	- 103.7289 785	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 571 0	188 66	918 5
BHL Leg #1	330	FSL	186 0	FEL	23S	31E	12	Aliquot SWSE	32.31206 41	- 103.7289 785	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 022080	- 571 0	188 66	918 5

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SITE MAP

- A - TOMB RAIDER 1-12 FED 614H
- B - TOMB RAIDER 1-12 FED 714H
- C - TOMB RAIDER 1-12 FED 524H
- D - TOMB RAIDER 1-12 FED 514H
- E - TOMB RAIDER 1-12 FED 525H

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83) LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.



DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 1-12 FED 525H
LOCATED 360 FT. FROM THE NORTH LINE
AND 2335 FT. FROM THE EAST LINE OF
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

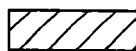
MAY 21, 2018

SURVEY NO. 6213A

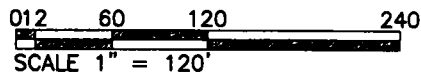
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

A - TOMB RAIDER 1-12 FED 614H
B - TOMB RAIDER 1-12 FED 714H
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D - TOMB RAIDER 1-12 FED 514H
E - TOMB RAIDER 1-12 FED 525H

SEC. 36
SEC. 1



303



1.680± ACRES	INTERIM PAD RECLAMATION AREA
1.687± ACRES	GRADING SITE RECLAMATION AREA
2.807± ACRES	NON-RECLAIMED AREA
6.174± ACRES	TODD-APACHE 1-1 PAD 2

**DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 1-12 FED 525H
LOCATED 360 FT. FROM THE NORTH LINE
AND 2335 FT. FROM THE EAST LINE OF
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM**

MAY 21, 2018

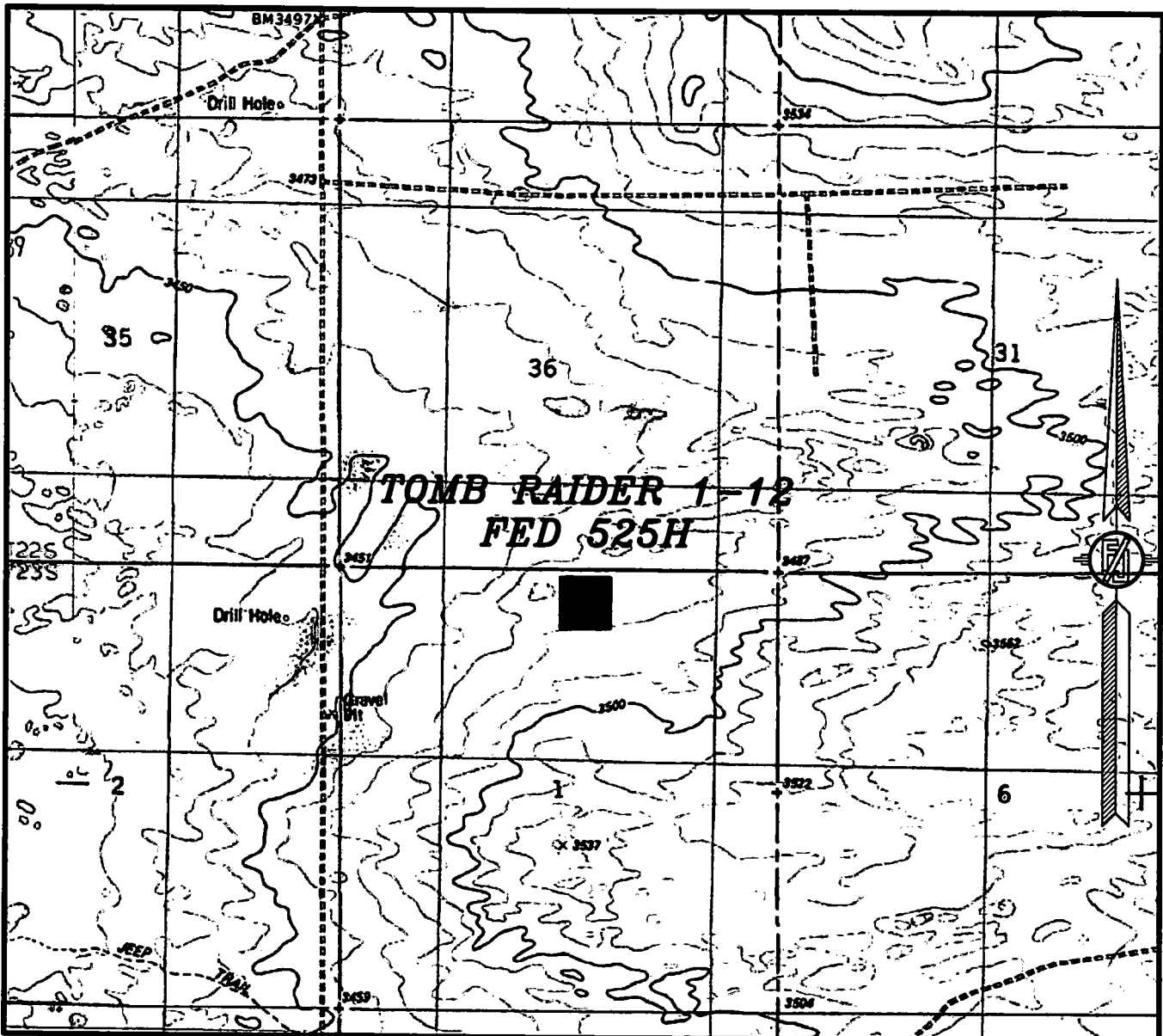
SURVEY NO. 6213A

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
BOOTLEG RIDGE

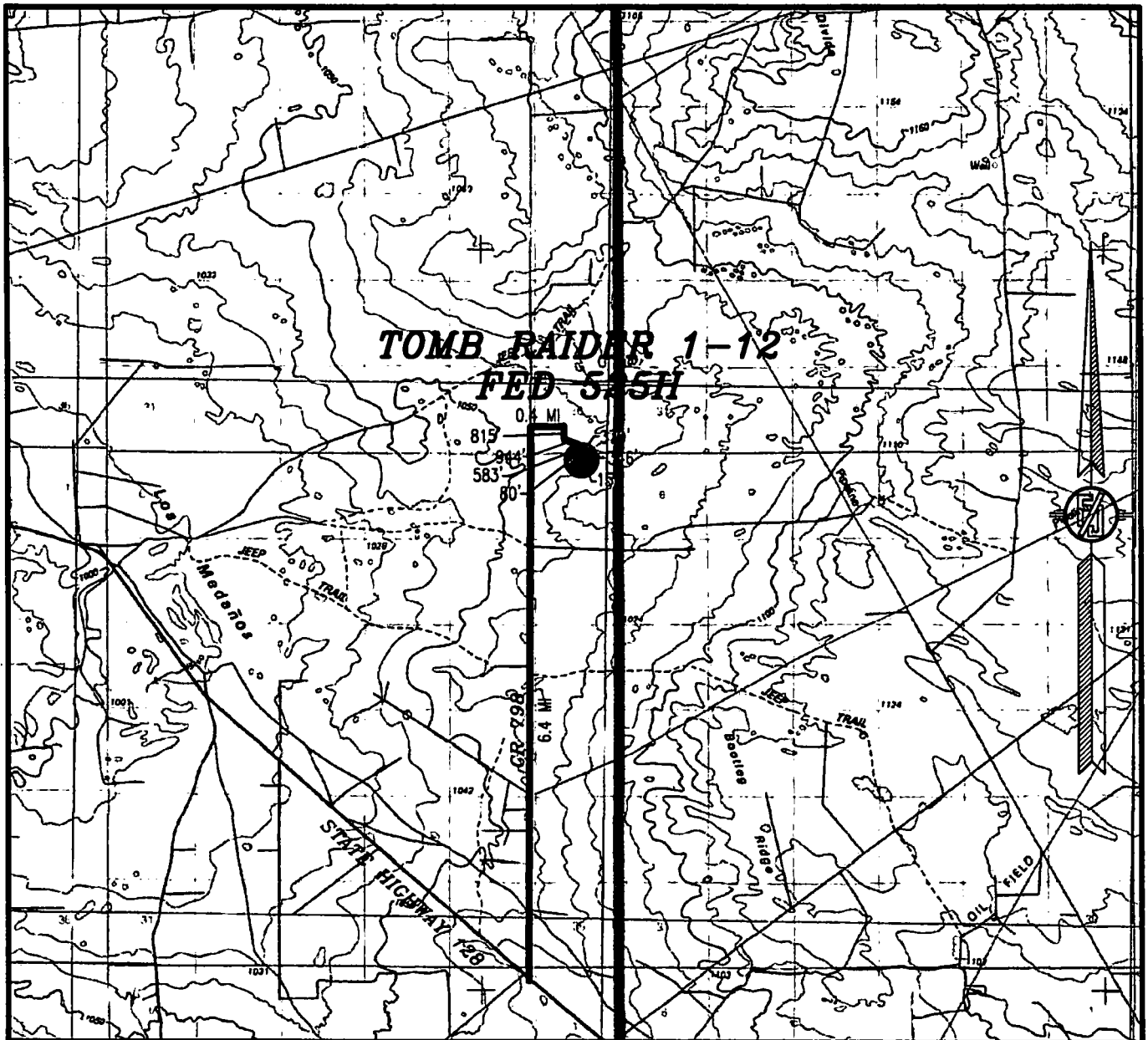
NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 1-12 FED 525H
LOCATED 360 FT. FROM THE NORTH LINE
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RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

MAY 21, 2018

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO SURVEY NO. 6213A

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

TOMB RAIDER 1-12 FED 525H

LOCATED 360 FT. FROM THE NORTH LINE

AND 2335 FT. FROM THE EAST LINE OF

SECTION 1, TOWNSHIP 23 SOUTH,

RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

LAND STATUS: BLM

DIRECTIONS TO LOCATION

FROM STATE HIGHWAY 128 AND CR 788 (RED ROAD) GO NORTH ON CR 788 6.4 MILES, TURN RIGHT ON CALICHE ROAD AND GO EAST 0.4 OF A MILE, BEND RIGHT AND GO SOUTH 815', BEND LEFT AND GO SOUTHEAST 944', TURN RIGHT AND GO SOUTH 583' TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS SOUTH 80', THEN EAST 379', THEN SOUTH 346', THEN WEST 15' TO THE SOUTHEAST PAD CORNER.

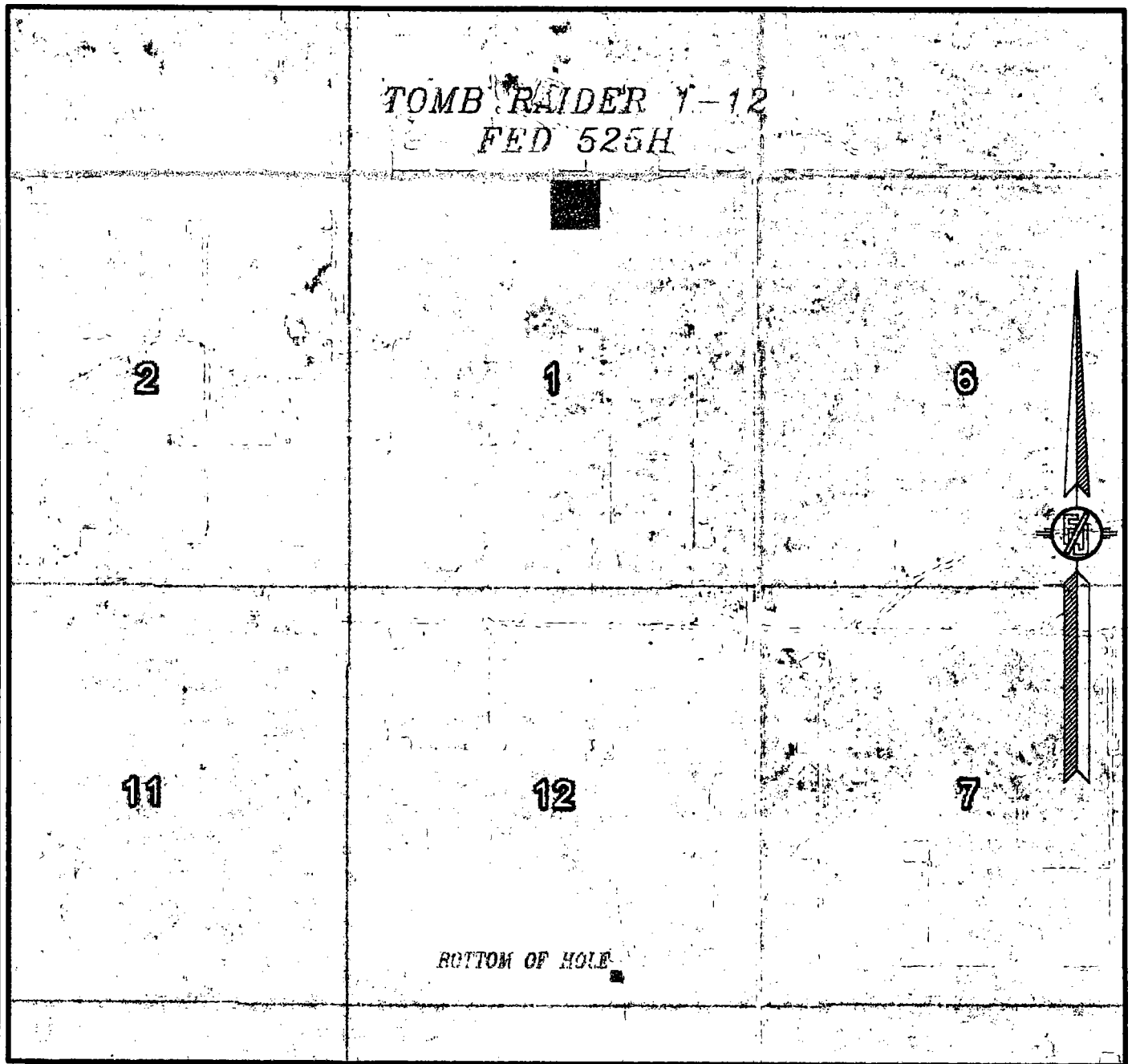
MAY 21, 2018

SURVEY NO. 6213A

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

CARLSBAD, NEW MEXICO

SECTION 1, 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
FEBRUARY 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

TOMB RAIDER 1-12 FED 525H

LOCATED 360 FT. FROM THE NORTH LINE
AND 2335 FT. FROM THE EAST LINE OF
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

MAY 21, 2018

SURVEY NO. 6213A

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 ACCESS AERIAL ROUTE MAP



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 FEBRUARY 2017

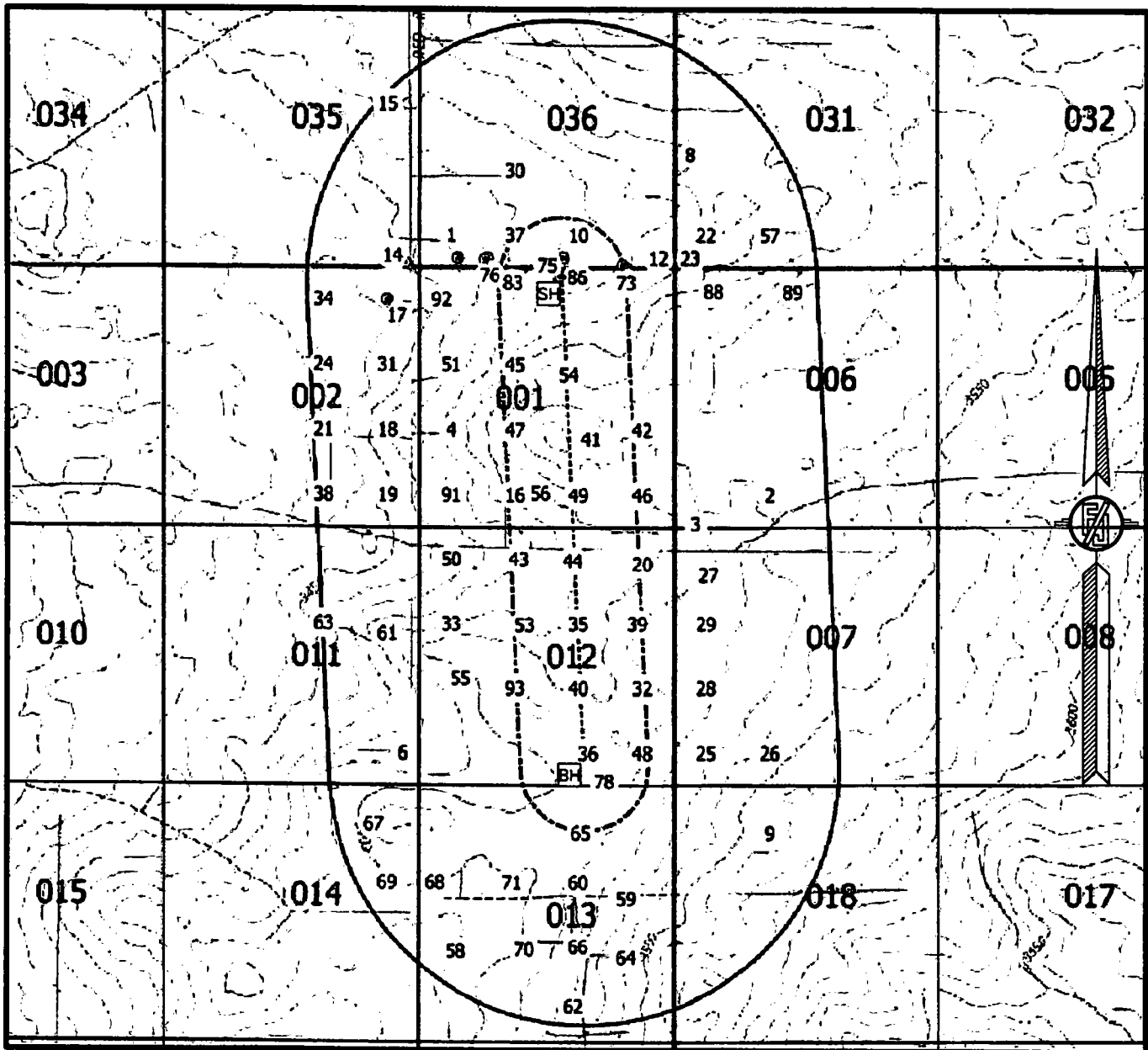
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 EDDY COUNTY, STATE OF NEW MEXICO
 LAND STATUS: BLM

MAY 21, 2018

SURVEY NO. 6213A

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

1-MILE MAP



NOT TO SCALE

WELL DATA FROM NMOC GIS - 5/17/18

[SH] SURFACE LOCATION

[BH] BOTTOM OF HOLE

(XX) WELLS WITHIN 1 MILE

----- WELL PATH

..... 1/4 MILE BOUNDARY

----- 1-MILE BOUNDARY

DEVON ENERGY PRODUCTION COMPANY, L.P.

TOMB RAIDER 1-12 FED 525H

LOCATED 360 FT. FROM THE NORTH LINE

AND 2335 FT. FROM THE EAST LINE OF

SECTION 1, TOWNSHIP 23 SOUTH,

RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

LAND STATUS: BLM

MAY 21, 2018

SURVEY NO. 6213A

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

CARLSBAD, NEW MEXICO

PLAN VIEW

- A - TOMB RAIDER 1-12 FED 614H
- B - TOMB RAIDER 1-12 FED 214H
- C - TOMB RAIDER 1-12 FED 524H
- D - TOMB RAIDER 1-12 FED 514H
- E - TOMB RAIDER 1-12 FED 525M

SEC. 36
SEC. 1

30' ACCESS ROAD

A.
ELEC.
PAD
POLE

EXISTING PAD
TOMB RAIDER
"1" FED 1H

LIMITS OF
EARTHWORK
3:1 SLOPE (TYP.)

LIMITS OF
EARTHWORK
3:1 SLOPE (TYP.)

420'

B

287'

3470'

3475'

210'

363'

210'

3475'

3470'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

3475'

TODD-APACHE 1-1 PAD 2
PROPOSED PAD
EL. 3474.0'

BERM

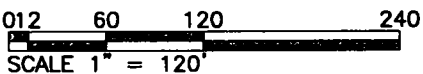
TODD TRUNK LINE (GAS)
SURVEY BPL

SURVEY BPL

TODD TRUNK LINE (CRUDE)

650'

ADJUST CUT SLOPE
TO REMAIN OUTSIDE
OF PIPELINE EASEMENT



DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
TOMB RAIDER 1-12 FED 525H
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MAY 21, 2018

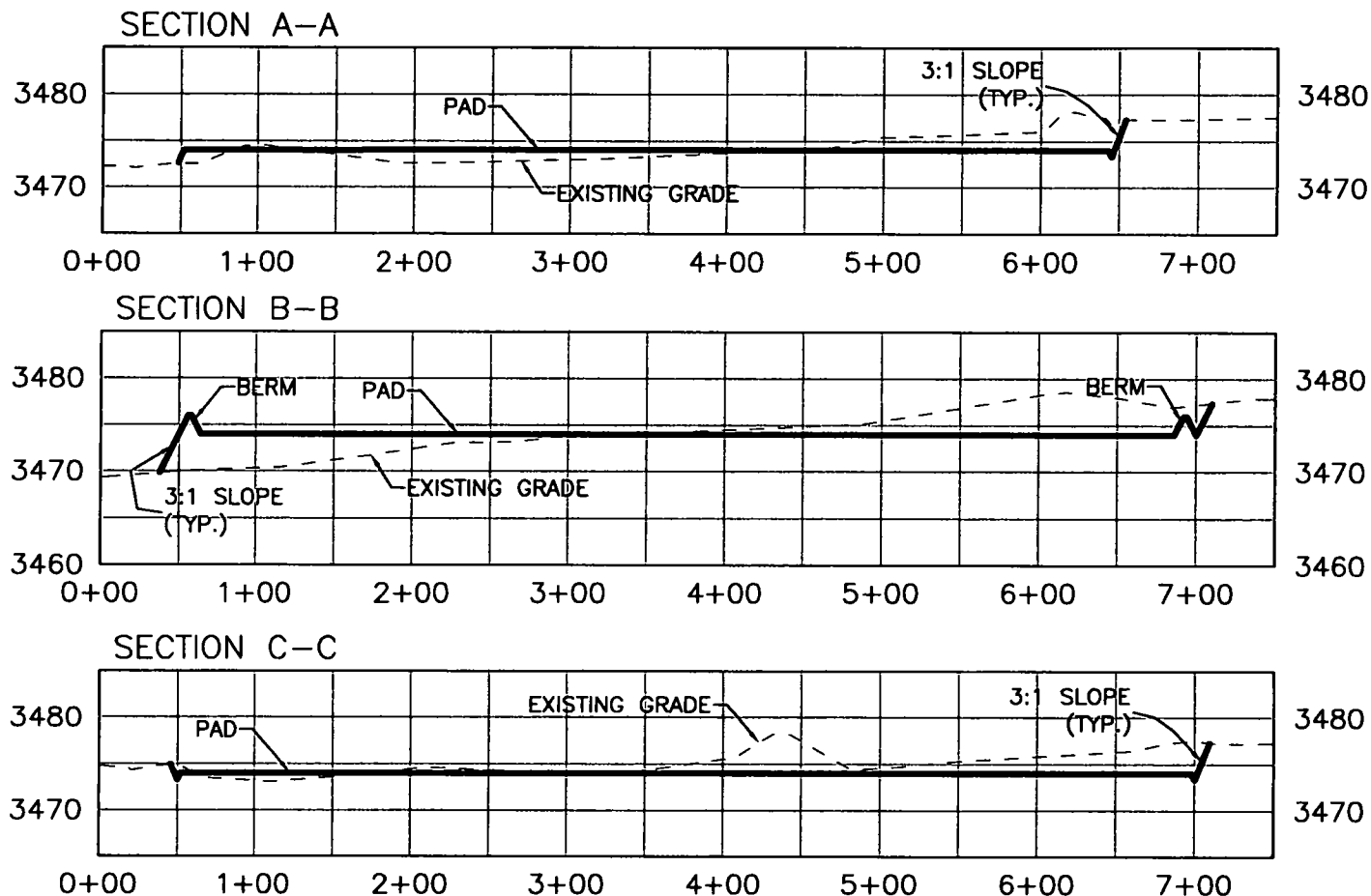
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

CUT	FILL	NET
9962 CU. YD	8348 CU. YD	1614 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 1-2
SURVEY NO. 6213A

CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
TOMB RAIDER 1-12 FED 525H
 SECTION 1, TOWNSHIP 23 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

MAY 21, 2018

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

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

CUT	FILL	NET
9962 CU. YD	8348 CU. YD	1614 CU. YD (CUT)

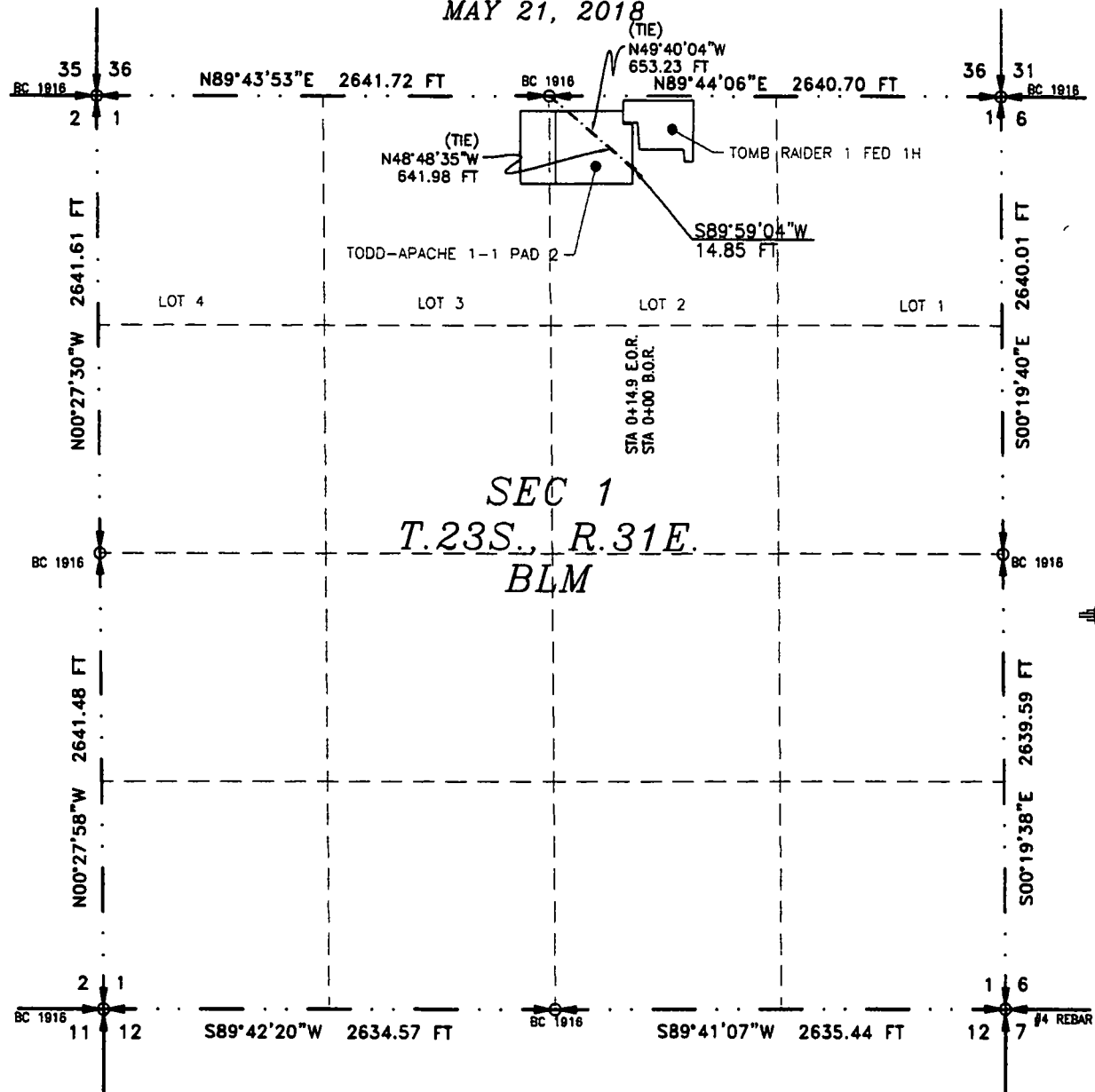
EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 2-2
 SURVEY NO. 6213A

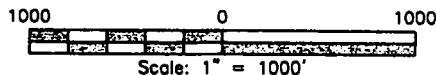
ACCESS ROAD PLAT
 ACCESS ROAD TO THE TODD-APACHE 1-1 PAD 2
 (TOMB RAIDER 1-12 FED 614H, 714H, 524H, 514H, & 525H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
 CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
 SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

MAY 21, 2018



SEE NEXT SHEET (2-2) FOR DESCRIPTION



GENERAL NOTES

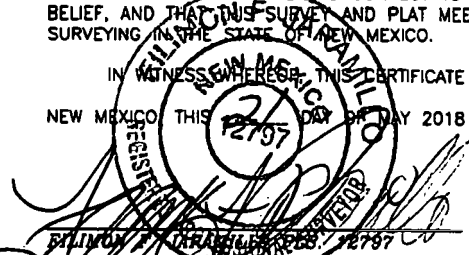
1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

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.

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 21 DAY OF MAY 2018



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

SHEET: 1-2

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 6213A

ACCESS ROAD PLAT

ACCESS ROAD TO THE TODD-APACHE 1-1 PAD 2
(TOMB RAIDER 1-12 FED 614H, 714H, 524H, 514H, & 525H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 21, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, 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 LOT 2 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N49°40'04"W A DISTANCE OF 653.23 FEET;

THENCE S89°59'04"W A DISTANCE OF 14.85 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N48°48'35"W, A DISTANCE OF 641.98 FEET;

SAID STRIP OF LAND BEING 14.85 FEET OR 0.90 RODS IN LENGTH, CONTAINING 0.010 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 2 14.85 L.F. 0.90 RODS 0.010 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, 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 21 DAY OF MAY 2018.

FILMON F. JARAMILLO, PROFESSIONAL SURVEYOR NO. 12797

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

SURVEY NO. 6213A

CARLSBAD, NEW MEXICO



APD ID: 10400032006

Submission Date: 07/13/2018

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

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	3475	0	0	ALLUVIUM	NONE	No
2	RUSTLER	-697	697	758	SALT	NONE	No
3	BASE OF SALT	-4480	4480	4453	SALT	NONE	No
4	DELAWARE	-4500	4500	4473	SANDSTONE	NATURAL GAS,OIL	No
5	BONE SPRING	-8352	8352	8310	SANDSTONE	OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 9185

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M 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? NO

Variance request:

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:

TOMB_RAIDER_1_12_FED_525H_3M_BOPE_20180711141901.pdf

BOP Diagram Attachment:

TOMB_RAIDER_1_12_FED_525H_3M_BOPE_20180711141913.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Pressure Rating (PSI): 3M

Rating Depth: 6000

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M 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:

TOMB_RAIDER_1_12_FED_525H_3M_BOPE_20180711141925.pdf

BOP Diagram Attachment:

TOMB_RAIDER_1_12_FED_525H_3M_BOPE_20180711141934.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	750	0	750	0		750	H-40	48	STC	1.125	1	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	6000	0	6000			6000	J-55	40	LTC	1.125	1	BUOY	1.6	BUOY	1.6
3	PRODUCTION	8.75	5.5	NEW	API	N	0	18866	0	9185			18866	P-110	17	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

TOMB_RAIDER_1_12_FED_525H_SurfCsg_Ass_20180711143247.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

TOMB_RAIDER_1_12_FED_525H_Int_Csg_Ass_20180711143258.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

TOMB_RAIDER_1_12_FED_525H_ProdCasing_Ass_20180711143308.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	750	786	1.33	13.2	1046	100	C	Class C + adds

INTERMEDIATE	Lead		0	5500	1290	1.94	9	2503	50	C	Class C + Adds
INTERMEDIATE	Tail		5500	6000	190	1.33	13.2	252	50	C	Class C + Adds
PRODUCTION	Lead		0	5500	354	3.27	9	1263	25	Tuned	N/A
PRODUCTION	Tail		8157	18866	1810	1.2	14.5	2643	10	H	(50:50) Clas H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	750	WATER-BASED MUD	8.5	9				2			

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

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
750	6000	SALT SATURATED	10	10.5				2			
6000	9185	WATER-BASED MUD	8.5	9				12			

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:

CBL,DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4299

Anticipated Surface Pressure: 2278.3

Anticipated Bottom Hole Temperature(F): 152

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_1_12_Fed_525H_H2S_20180711143633.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Tomb_Raider_1_12_Fed_Com_525H_AC_Report_Permit_Plan_2_20180711143736.pdf

Devon_Tomb_Raider_1_12_Fed_Com_525H_Permit_Plan_2_20180711143736.pdf

Devon_Tomb_Raider_1_12_Fed_Com_525H_Plot_Permit_Plan_2_20180711143737.pdf

Devon_Tomb_Raider_1_12_Plot.wpc_20180711143737.pdf

Other proposed operations facets description:

REVISED DRILLING PLAN 10-18-2018

REVISED MB VERB 10-18-2018

CLOSED LOOP DESIGN

REVISED MB WELLHEAD

GAS CAPTURE PLAN

Other proposed operations facets attachment:

TOMB_RAIDER_1_12_FED_525H_Clsd_Loop_20180711143824.pdf

TOMB_RAIDER_1_12_FED_525H_MB_Wellhd_20180711143825.pdf

TOMB_RAIDER_1_12_GasCapturePlan_20180711143906.pdf

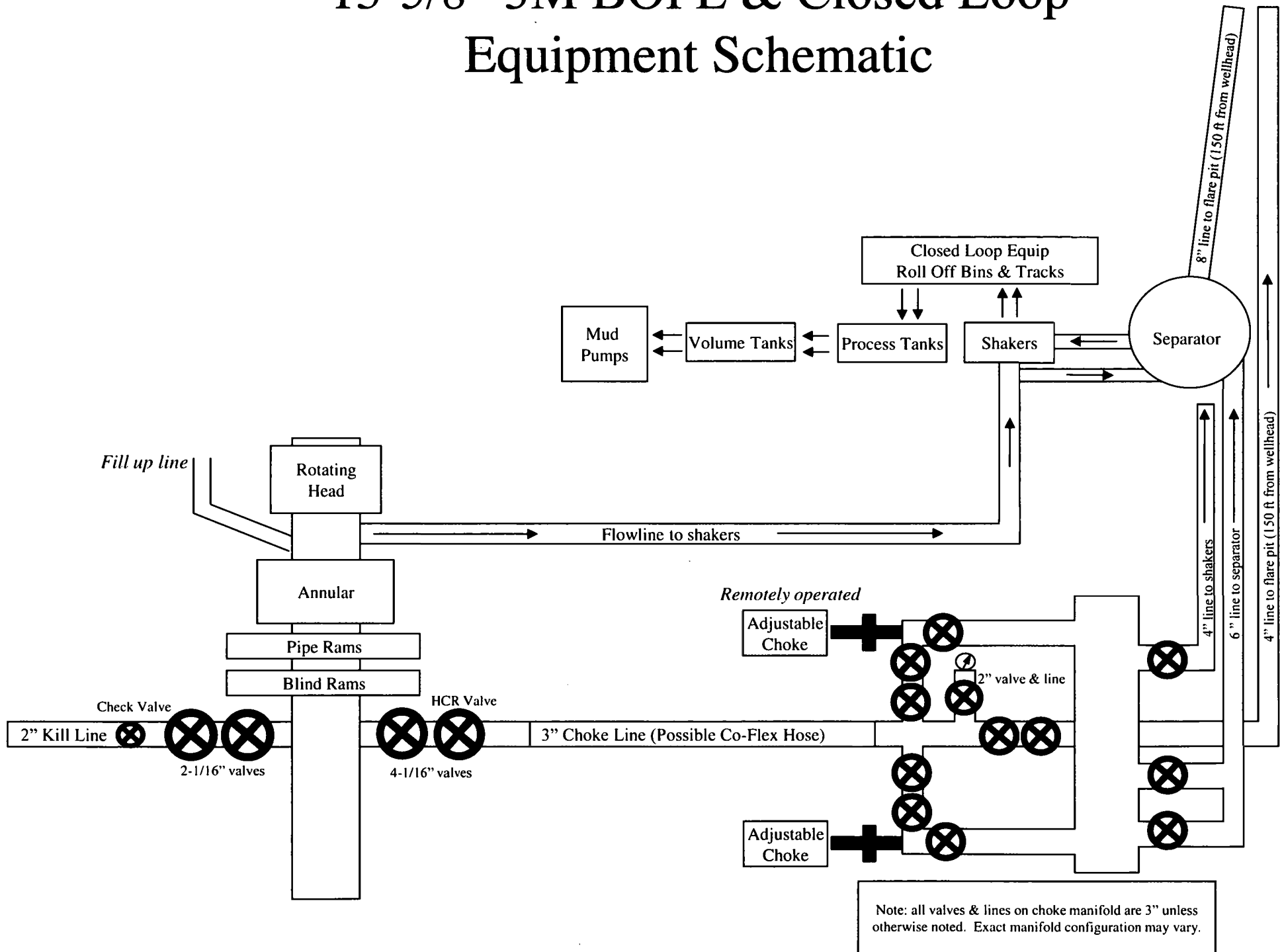
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Multi_Bowl_Verbiage_3M_Rev1_20181018135849.pdf

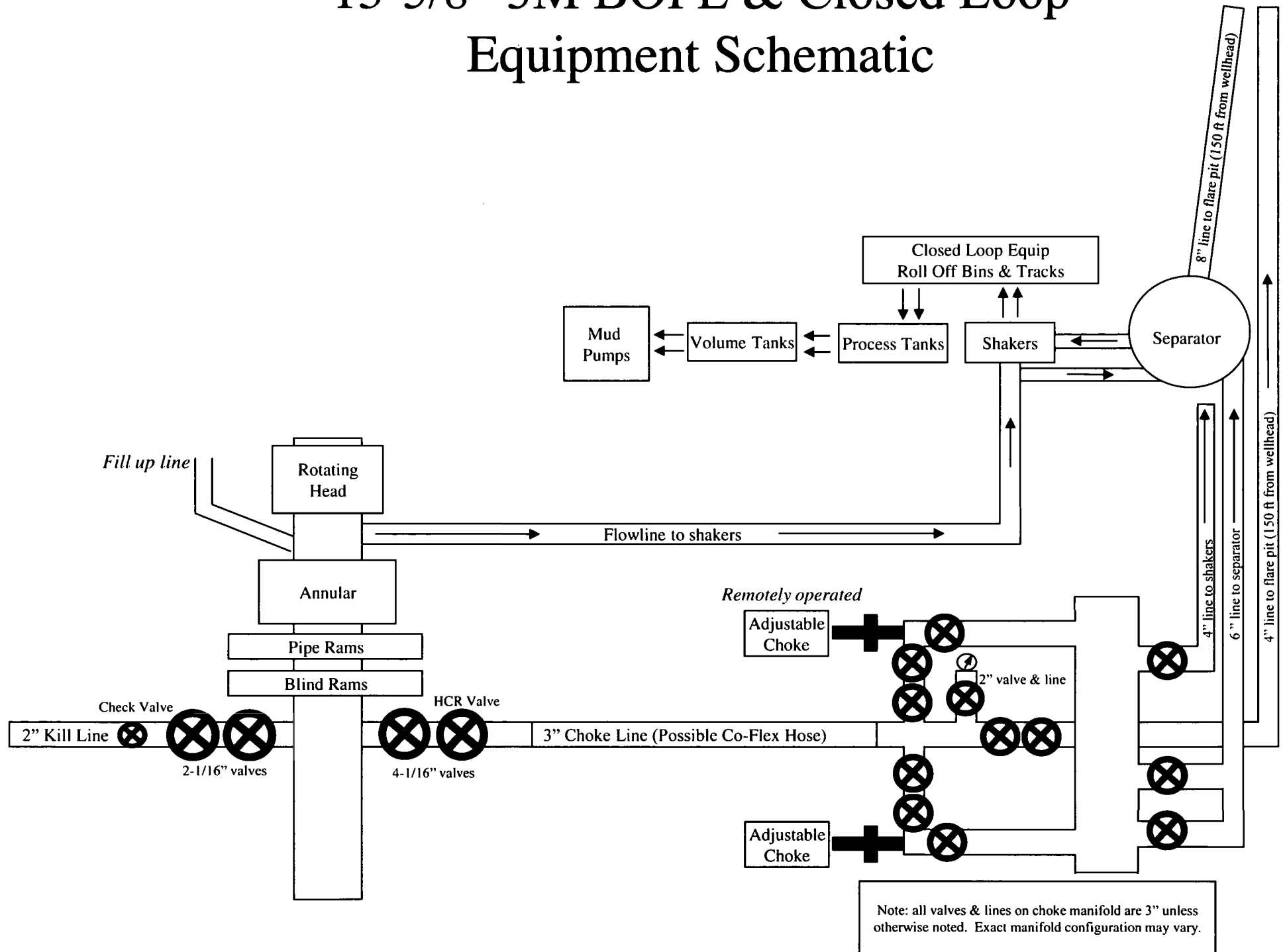
Other Variance attachment:

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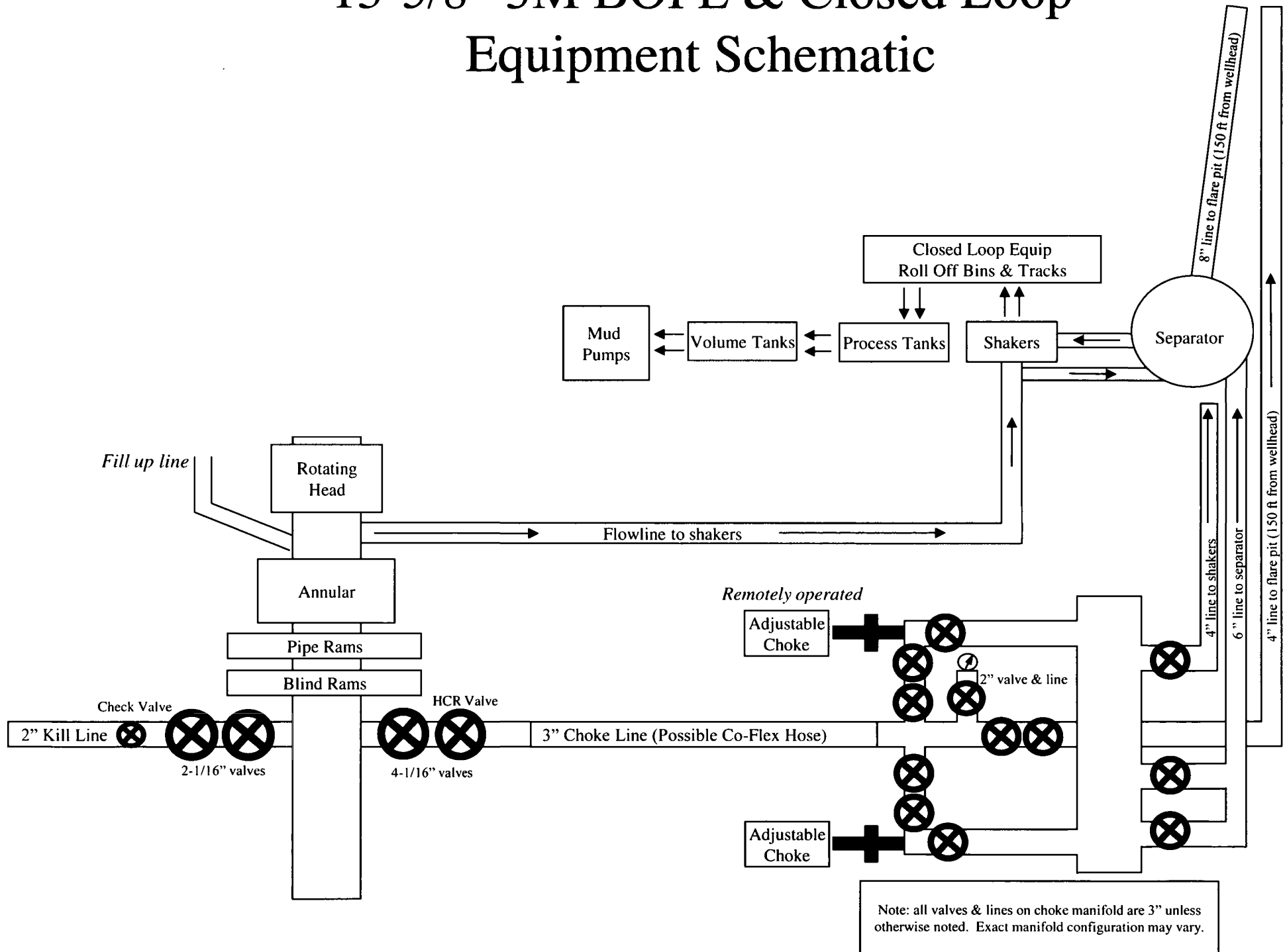
13-5/8" 3M BOPE & Closed Loop Equipment Schematic



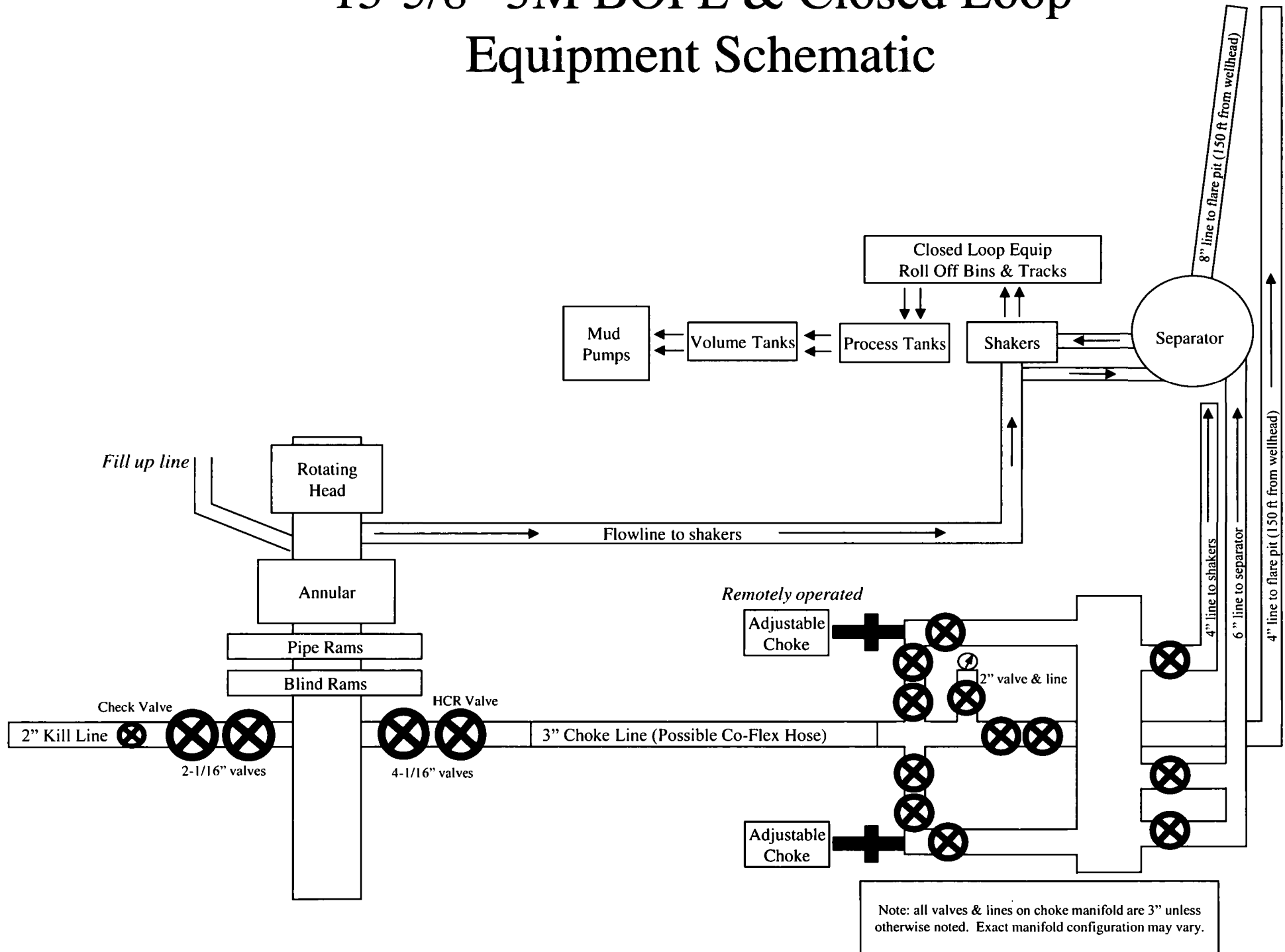
13-5/8" 3M BOPE & Closed Loop Equipment Schematic



13-5/8" 3M BOPE & Closed Loop Equipment Schematic



13-5/8" 3M BOPE & Closed Loop Equipment Schematic



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

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

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

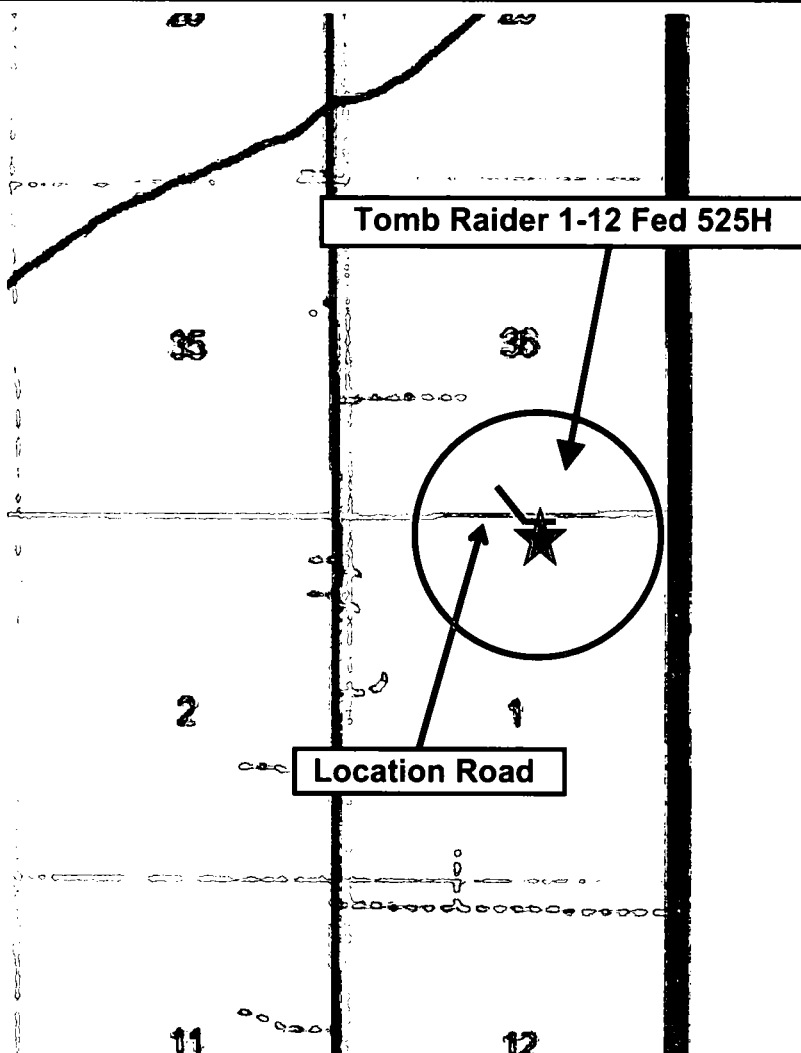
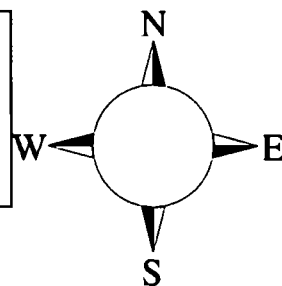
Tomb Raider 1-12 Fed 525H

**Sec-1 T-23S R-31E
360' FNL & 2335' FEL
LAT. = 32.3397276' N (NAD83)
LONG = 103.7305146' W**

Eddy County NM

Tomb Raider 1-12 Fed 525H

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



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

Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H₂S and SO₂

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

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

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

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

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

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

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

II. HYDROGEN SULFIDE TRAINING

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

1. Well Control Equipment

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

2. Protective equipment for essential personnel:

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

3. H₂S detection and monitoring equipment:

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

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

Visual warning systems:

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

4. Mud program:

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

5. Metallurgy:

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

6. Communication:

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

7. Well testing:

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

Devon Energy Corp. Company Call List

Drilling Supervisor – Basin – Mark Kramer	405-823-4796
EHS Professional – Laura Wright	405-439-8129

Agency Call List

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

Prepared in conjunction with
Dave Small



NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 13 2018

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WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 01-T23S-R31E

Tomb Raider 1-12 Fed 525H

Wellbore #1

Permit Plan 2

Anticollision Report

28 June, 2018

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Reference	Permit Plan 2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method	MD Interval 50.00ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,500.00 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 6/28/2018			
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.00	18,845.98	Permit Plan 2 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

Summary						
Site Name	Referenc	Offset	Distance		Separatio	Warning
Offset Well - Wellbore - Design	Measure	Measure	Between	Between	n	
Sec 01-T23S-R31E			Centres	Ellipses		
			(ft)	(ft)		
Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1	13,257.71	9,193.17	1,429.60	1,167.86	5.462	CC, ES
Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1	13,300.00	9,193.47	1,430.23	1,168.10	5.456	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	8,650.00	8,633.95	119.56	58.77	1.967	Minor Risk, CC, ES, SF
Tomb Raider 1-12 Fed 334H - Wellbore #1 - Wellbore #1	8,650.00	8,649.74	940.96	880.12	15.464	CC, ES
Tomb Raider 1-12 Fed 334H - Wellbore #1 - Wellbore #1	8,800.00	8,795.18	947.63	885.79	15.323	SF
Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1	196.97	176.17	1,495.08	1,493.76	1,136.312	CC
Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1	2,450.00	2,421.86	1,498.61	1,481.81	89.191	ES
Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1	2,550.00	2,508.90	1,499.79	1,482.33	85.899	SF
Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1	2,500.00	2,500.10	29.95	12.45	1.711	Minor Risk, CC
Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1	2,550.00	2,549.90	30.17	12.31	1.689	Minor Risk, ES, SF
Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1	2,500.00	2,499.80	59.97	42.47	3.426	Alert, CC, ES
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Permit Plan 1	2,550.00	2,549.16	60.45	42.60	3.386	Alert, SF
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Plan 2 Steer	2,500.00	2,499.80	59.97	42.47	3.426	Alert, CC, ES
Tomb Raider 1-12 Fed 524H - Wellbore #1 - Plan 2 Steer	2,550.00	2,549.16	60.45	42.60	3.386	Alert, SF
Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1	2,500.00	2,501.20	134.20	116.69	7.666	CC
Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1	2,550.00	2,550.42	134.43	116.57	7.529	ES
Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1	2,800.00	2,796.30	142.30	122.72	7.268	SF
Tomb Raider 1-12 Fed 61H - Original Hol - P1v2						Out of range
Tomb Raider 1-12 Fed 62H - Wellbore #1 - Wellbore #1						Out of range
Tomb Raider 1-12 Fed 714H - Original Hole - Actuals	2,366.97	2,374.00	121.26	105.02	7.466	CC
Tomb Raider 1-12 Fed 714H - Original Hole - Actuals	2,500.00	2,506.19	121.75	104.56	7.083	ES
Tomb Raider 1-12 Fed 714H - Original Hole - Actuals	8,350.00	8,368.11	236.70	176.54	3.935	Alert, SF
Tomb Raider 1-12 Fed 714H - Original Hole - NTL	2,366.97	2,374.00	121.26	105.02	7.466	CC
Tomb Raider 1-12 Fed 714H - Original Hole - NTL	2,500.00	2,506.19	121.75	104.56	7.083	ES
Tomb Raider 1-12 Fed 714H - Original Hole - NTL	8,350.00	8,368.11	236.70	176.54	3.935	Alert, SF
Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbor	3,662.84	3,540.55	1,298.00	1,273.17	52.279	CC
Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbor	7,600.00	7,477.97	1,310.16	1,257.11	24.695	ES
Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbor	9,050.00	8,961.64	1,443.20	1,379.79	22.758	SF
Tomb Raider 1-12 Fed Com 528H - Wellbore #1 - Wellbor	0.00	2.29	1,354.77			

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measure	Offset Measure	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation	Warning
Offset Well - Wellbore - Design						
Sec 01-T23S-R31E						
Tomb Raider 1-12 Fed Com 528H - Wellbore #1 - Wellbore	18,866.10	18,791.18	1,449.13	1,154.10	4.912	Alert, ES, SF
Tomb Raider 1-12 Fed Com 718H - Wellbore #1 - Wellbore	4,998.34	4,885.58	1,180.90	1,146.64	34.463	CC
Tomb Raider 1-12 Fed Com 718H - Wellbore #1 - Wellbore	5,850.00	5,730.18	1,185.70	1,145.42	29.431	ES
Tomb Raider 1-12 Fed Com 718H - Wellbore #1 - Wellbore	8,800.00	8,696.82	1,309.44	1,247.98	21.305	SF
Sec 12-T23S-R31E						
Tomb Raider 12-1 Fed 516H - Wellbore #1 - Permit Plan 1	9,300.00	18,784.96	661.05	481.81	3.688	Alert, ES, SF
Tomb Raider 12-1 Fed 516H - Wellbore #1 - Permit Plan 1	18,583.04	9,525.04	660.36	483.68	3.737	Alert, CC
Tomb Raider 12-1 Fed 521H - Wellbore #1 - Permit Plan 1						Out of range

Offset Design Sec 01-T23S-R31E - Barclay Fed #1 (P&A) - Wellbore #1 - Wellbore #1

Survey Program: 228-INC-ONLY

Offset Site Error: 5.00 ft

Offset Well Error: 10.00 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)			
12,850.00	9,185.00	9,190.42	9,188.70	64.90	191.78	89.89	-4,264.56	-931.44	1,486.60	1,230.73	255.87	5.810	
12,900.00	9,185.00	9,190.75	9,189.03	65.53	191.78	89.90	-4,264.57	-931.44	1,473.67	1,216.92	256.75	5.740	
12,950.00	9,185.00	9,191.08	9,189.36	66.17	191.79	89.91	-4,264.57	-931.44	1,462.34	1,204.74	257.60	5.677	
13,000.00	9,185.00	9,191.41	9,189.70	66.80	191.80	89.93	-4,264.57	-931.44	1,452.64	1,194.24	258.40	5.622	
13,050.00	9,185.00	9,191.75	9,190.03	67.44	191.81	89.94	-4,264.57	-931.44	1,444.61	1,185.45	259.17	5.574	
13,100.00	9,185.00	9,192.09	9,190.37	68.07	191.82	89.95	-4,264.58	-931.44	1,438.27	1,178.40	259.88	5.534	
13,150.00	9,185.00	9,192.43	9,190.71	68.71	191.82	89.97	-4,264.58	-931.44	1,433.65	1,173.12	260.53	5.503	
13,200.00	9,185.00	9,192.77	9,191.06	69.35	191.83	89.98	-4,264.58	-931.44	1,430.77	1,169.64	261.13	5.479	
13,250.00	9,185.00	9,193.12	9,191.40	70.00	191.84	90.00	-4,264.58	-931.44	1,429.62	1,167.96	261.66	5.464	
13,257.71	9,185.00	9,193.17	9,191.46	70.10	191.84	90.00	-4,264.58	-931.44	1,429.60	1,167.86	261.74	5.462	CC, ES
13,300.00	9,185.00	9,193.47	9,191.75	70.64	191.85	90.01	-4,264.59	-931.44	1,430.23	1,168.10	262.13	5.456	SF
13,350.00	9,185.00	9,193.82	9,192.10	71.29	191.86	90.02	-4,264.59	-931.44	1,432.58	1,170.05	262.53	5.457	
13,400.00	9,185.00	9,194.17	9,192.46	71.94	191.86	90.04	-4,264.59	-931.44	1,436.67	1,173.80	262.87	5.465	
13,450.00	9,185.00	9,194.53	9,192.81	72.59	191.87	90.05	-4,264.59	-931.44	1,442.48	1,179.34	263.13	5.482	
13,500.00	9,185.00	9,194.89	9,193.17	73.24	191.88	90.07	-4,264.60	-931.44	1,449.99	1,186.66	263.33	5.508	
13,550.00	9,185.00	9,195.25	9,193.53	73.89	191.89	90.08	-4,264.60	-931.44	1,459.18	1,195.71	263.47	5.538	
13,600.00	9,185.00	9,195.61	9,193.90	74.54	191.90	90.10	-4,264.60	-931.44	1,470.01	1,206.47	263.54	5.578	
13,650.00	9,185.00	9,195.98	9,194.26	75.20	191.91	90.11	-4,264.60	-931.44	1,482.45	1,218.90	263.55	5.625	
13,700.00	9,185.00	9,196.35	9,194.63	75.86	191.92	90.13	-4,264.61	-931.44	1,496.46	1,232.96	263.49	5.679	

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1 Fed 1H - Original - Actual													Offset Site Error:	5.00 ft
Survey Program: 102-GYRO-NS, 9646-MWD+IGRF													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Tooface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(")	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	3.07	3.07	0.50	0.00	63.86	161.53	329.09	366.60					
50.00	50.00	52.54	52.54	0.50	0.07	63.84	161.65	329.08	366.64	366.06	0.57	640.680		
100.00	100.00	102.02	102.02	0.52	0.14	63.79	161.99	329.03	366.75	366.09	0.65	560.634		
150.00	150.00	152.63	152.63	0.59	0.31	63.73	162.40	328.95	366.85	365.95	0.90	405.981		
200.00	200.00	203.25	203.24	0.70	0.49	63.67	162.71	328.82	366.88	365.68	1.19	307.594		
202.53	202.53	205.81	205.81	0.71	0.50	63.67	162.73	328.81	366.88	365.67	1.21	303.676		
250.00	250.00	253.03	253.03	0.84	0.66	63.62	162.99	328.69	366.88	365.38	1.50	244.275		
300.00	300.00	302.79	302.78	0.99	0.84	63.58	163.25	328.58	366.90	365.08	1.82	201.044		
350.00	350.00	352.17	352.16	1.15	1.01	63.55	163.45	328.58	366.99	364.83	2.16	170.269		
400.00	400.00	401.81	401.80	1.31	1.19	63.54	163.59	328.69	367.15	364.66	2.49	147.318		
450.00	450.00	451.88	451.87	1.48	1.36	63.50	163.90	328.73	367.32	364.49	2.83	129.594		
500.00	500.00	501.96	501.95	1.65	1.54	63.43	164.40	328.66	367.48	364.31	3.18	115.587		
550.00	550.00	552.07	552.06	1.82	1.71	63.35	164.91	328.57	367.63	364.11	3.53	104.256		
600.00	600.00	601.38	601.37	1.99	1.88	63.28	165.40	328.51	367.80	363.93	3.87	94.996		
650.00	650.00	650.25	650.23	2.16	2.06	63.20	165.96	328.57	368.12	363.90	4.22	87.299		
700.00	700.00	700.54	700.52	2.34	2.23	63.13	166.57	328.71	368.51	363.95	4.57	80.684		
750.00	750.00	751.39	751.36	2.51	2.41	63.07	167.02	328.81	368.81	363.89	4.92	74.952		
800.00	800.00	801.63	801.60	2.69	2.59	63.02	167.43	328.85	369.02	363.75	5.27	69.995		
850.00	850.00	851.79	851.76	2.87	2.76	62.94	167.97	328.79	369.21	363.59	5.62	65.653		
900.00	900.00	901.95	901.92	3.04	2.94	62.85	168.55	328.68	369.38	363.41	5.98	61.813		
950.00	950.00	952.12	952.08	3.22	3.11	62.77	169.10	328.57	369.53	363.20	6.33	58.395		
1,000.00	1,000.00	1,001.58	1,001.54	3.40	3.29	62.70	169.55	328.54	369.71	363.03	6.68	55.362		
1,050.00	1,050.00	1,051.40	1,051.36	3.58	3.46	62.66	169.88	328.63	369.95	362.92	7.03	52.627		
1,100.00	1,100.00	1,102.00	1,101.96	3.75	3.64	62.62	170.25	328.66	370.14	362.76	7.38	50.128		
1,150.00	1,150.00	1,152.12	1,152.08	3.93	3.81	62.55	170.69	328.58	370.27	362.53	7.74	47.859		
1,200.00	1,200.00	1,201.56	1,201.52	4.11	3.99	62.51	171.01	328.61	370.45	362.36	8.09	45.806		
1,250.00	1,250.00	1,251.43	1,251.39	4.29	4.16	62.50	171.17	328.79	370.68	362.24	8.44	43.922		
1,300.00	1,300.00	1,301.71	1,301.67	4.46	4.34	62.50	171.26	328.98	370.89	362.10	8.79	42.178		
1,350.00	1,350.00	1,352.19	1,352.15	4.64	4.51	62.50	171.33	329.13	371.06	361.91	9.15	40.561		
1,400.00	1,400.00	1,402.78	1,402.73	4.82	4.69	62.48	171.50	329.15	371.15	361.65	9.50	39.055		
1,450.00	1,450.00	1,452.67	1,452.62	5.00	4.87	62.43	171.78	329.06	371.20	361.34	9.88	37.683		
1,500.00	1,500.00	1,502.39	1,502.34	5.18	5.04	62.37	172.20	328.93	371.28	361.07	10.21	36.373		
1,550.00	1,550.00	1,552.67	1,552.62	5.36	5.22	62.30	172.65	328.79	371.37	360.81	10.56	35.162		
1,600.00	1,600.00	1,603.00	1,602.95	5.53	5.39	62.25	172.93	328.69	371.41	360.49	10.92	34.026		
1,650.00	1,650.00	1,653.05	1,652.99	5.71	5.57	62.22	173.12	328.61	371.43	360.16	11.27	32.961		
1,700.00	1,700.00	1,703.11	1,703.06	5.89	5.74	62.19	173.29	328.54	371.44	359.82	11.62	31.960		
1,750.00	1,750.00	1,752.61	1,752.56	6.07	5.92	62.18	173.35	328.56	371.48	359.51	11.97	31.026		
1,800.00	1,800.00	1,802.32	1,802.27	6.25	6.09	62.20	173.30	328.69	371.58	359.26	12.33	30.148		
1,850.00	1,850.00	1,852.31	1,852.25	6.43	6.26	62.23	173.21	328.87	371.70	359.02	12.68	29.316		
1,900.00	1,900.00	1,902.33	1,902.27	6.61	6.44	62.25	173.11	329.05	371.81	358.78	13.03	28.530		
1,950.00	1,950.00	1,952.40	1,952.35	6.78	6.61	62.28	173.01	329.22	371.92	358.53	13.39	27.784		
2,000.00	2,000.00	2,003.22	2,003.16	6.96	6.79	62.30	172.94	329.34	371.98	358.24	13.74	27.069		
2,050.00	2,050.00	2,054.62	2,054.57	7.14	6.97	62.29	172.93	329.22	371.88	357.78	14.10	26.375		
2,100.00	2,100.00	2,104.68	2,104.63	7.32	7.14	62.26	172.97	328.95	371.66	357.20	14.45	25.715		
2,150.00	2,150.00	2,154.26	2,154.21	7.50	7.31	62.24	173.03	328.72	371.48	356.67	14.80	25.093		
2,200.00	2,200.00	2,204.63	2,204.57	7.68	7.49	62.22	173.07	328.51	371.31	356.16	15.16	24.496		
2,250.00	2,250.00	2,255.13	2,255.07	7.86	7.66	62.20	173.07	328.24	371.08	355.57	15.51	23.921		
2,300.00	2,300.00	2,303.90	2,303.84	8.04	7.83	62.19	173.04	328.06	370.90	355.04	15.86	23.383		
2,330.05	2,330.05	2,333.21	2,333.15	8.14	7.94	62.19	173.02	328.04	370.87	354.80	16.07	23.076		
2,350.00	2,350.00	2,352.84	2,352.78	8.22	8.00	62.20	173.00	328.06	370.88	354.67	16.21	22.878		
2,400.00	2,400.00	2,403.93	2,403.87	8.39	8.18	62.20	172.96	328.04	370.85	354.28	16.57	22.383		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1 Fed 1H - Original - Actual													Offset Site Error:	5.00 ft
Survey Program: 102-GYRO-NS, 9646-MWD+IGRF													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		
2,450.00	2,450.00	2,454.77	2,454.71	8.57	8.36	62.19	172.94	327.86	370.68	353.75	16.92	21.902		
2,500.00	2,500.00	2,504.82	2,504.76	8.75	8.53	62.17	172.92	327.62	370.46	353.18	17.28	21.441		
2,550.00	2,550.00	2,554.40	2,554.34	8.93	8.71	-23.03	172.89	327.39	370.04	352.41	17.63	20.995		
2,600.00	2,599.99	2,603.18	2,603.13	9.10	8.88	-23.07	172.84	327.32	369.35	351.38	17.97	20.554		
2,650.00	2,649.98	2,652.46	2,652.40	9.27	9.05	-23.12	172.77	327.43	368.41	350.10	18.31	20.117		
2,700.00	2,699.96	2,702.31	2,702.25	9.44	9.22	-23.19	172.69	327.59	367.11	348.45	18.66	19.675		
2,750.00	2,749.92	2,752.63	2,752.57	9.62	9.40	-23.30	172.61	327.74	365.41	346.40	19.01	19.225		
2,800.00	2,799.86	2,803.27	2,803.21	9.79	9.57	-23.46	172.60	327.77	363.22	343.86	19.35	18.766		
2,850.00	2,849.78	2,853.33	2,853.27	9.96	9.75	-23.66	172.63	327.69	360.56	340.86	19.70	18.301		
2,900.00	2,899.68	2,903.15	2,903.09	10.14	9.92	-23.89	172.68	327.61	357.52	337.47	20.05	17.833		
2,950.00	2,949.54	2,953.05	2,952.99	10.31	10.10	-24.17	172.75	327.52	354.09	333.69	20.39	17.362		
3,000.00	2,999.37	3,002.94	3,002.88	10.49	10.27	-24.48	172.84	327.40	350.26	329.52	20.74	16.887		
3,050.00	3,049.16	3,051.82	3,051.76	10.66	10.44	-24.82	172.93	327.35	346.10	325.02	21.09	16.414		
3,100.00	3,098.93	3,100.73	3,100.67	10.84	10.61	-25.16	173.02	327.46	341.90	320.47	21.43	15.954		
3,150.00	3,148.70	3,150.62	3,150.56	11.01	10.79	-25.50	173.09	327.64	337.76	315.98	21.78	15.509		
3,200.00	3,198.47	3,200.71	3,200.65	11.19	10.96	-25.85	173.15	327.81	333.61	311.48	22.13	15.077		
3,250.00	3,248.24	3,251.70	3,251.64	11.37	11.14	-26.24	173.25	327.80	329.35	306.87	22.48	14.651		
3,300.00	3,298.01	3,302.18	3,302.12	11.54	11.32	-26.67	173.44	327.54	324.94	302.11	22.83	14.232		
3,350.00	3,347.78	3,351.75	3,351.69	11.72	11.49	-27.12	173.69	327.22	320.52	297.34	23.18	13.828		
3,400.00	3,397.55	3,401.03	3,400.96	11.90	11.66	-27.59	173.99	326.92	316.16	292.64	23.53	13.438		
3,450.00	3,447.32	3,449.96	3,449.90	12.08	11.83	-28.04	174.27	326.76	311.94	288.07	23.87	13.066		
3,500.00	3,497.09	3,499.53	3,499.46	12.26	12.01	-28.50	174.52	326.74	307.85	283.62	24.22	12.708		
3,550.00	3,546.86	3,549.60	3,549.53	12.44	12.18	-28.97	174.73	326.71	303.74	279.16	24.58	12.359		
3,600.00	3,596.63	3,599.90	3,599.83	12.62	12.36	-29.46	174.94	326.62	299.59	274.66	24.93	12.018		
3,650.00	3,646.40	3,650.29	3,650.22	12.80	12.53	-30.00	175.21	326.34	295.35	270.07	25.28	11.683		
3,700.00	3,696.17	3,699.85	3,699.78	12.98	12.71	-30.56	175.54	325.97	291.10	265.47	25.63	11.357		
3,750.00	3,745.94	3,749.24	3,749.16	13.16	12.88	-31.15	175.94	325.62	286.93	260.95	25.98	11.043		
3,800.00	3,795.71	3,798.42	3,798.34	13.34	13.05	-31.76	176.41	325.31	282.87	256.53	26.33	10.742		
3,850.00	3,845.48	3,847.60	3,847.51	13.52	13.22	-32.40	176.98	325.05	278.94	252.26	26.68	10.454		
3,900.00	3,895.25	3,896.33	3,896.24	13.71	13.40	-33.04	177.61	324.92	275.19	248.16	27.03	10.180		
3,950.00	3,945.02	3,945.19	3,945.10	13.89	13.57	-33.67	178.25	325.01	271.67	244.28	27.38	9.921		
4,000.00	3,994.79	3,994.93	3,994.83	14.07	13.74	-34.29	178.77	325.31	268.25	240.52	27.74	9.671		
4,050.00	4,044.56	4,044.60	4,044.50	14.25	13.91	-34.85	179.06	325.82	264.88	236.79	28.09	9.429		
4,100.00	4,094.33	4,093.95	4,093.84	14.43	14.09	-35.36	179.19	326.53	261.60	233.15	28.44	9.197		
4,150.00	4,144.10	4,143.38	4,143.27	14.62	14.26	-35.84	179.22	327.45	258.43	229.63	28.80	8.974		
4,200.00	4,193.87	4,192.97	4,192.84	14.80	14.43	-36.27	179.06	328.61	255.33	226.18	29.15	8.759		
4,250.00	4,243.64	4,242.73	4,242.59	14.98	14.61	-36.64	178.71	330.02	252.30	222.80	29.51	8.551		
4,300.00	4,293.41	4,292.72	4,292.55	15.17	14.78	-36.98	178.20	331.55	249.27	219.41	29.86	8.347		
4,350.00	4,343.18	4,342.82	4,342.61	15.35	14.96	-37.28	177.53	333.19	246.22	216.00	30.22	8.148		
4,400.00	4,392.95	4,393.01	4,392.77	15.53	15.13	-37.54	176.64	334.95	243.12	212.55	30.58	7.951		
4,450.00	4,442.72	4,442.88	4,442.59	15.72	15.31	-37.75	175.60	336.81	239.99	209.06	30.93	7.758		
4,500.00	4,492.49	4,492.60	4,492.27	15.90	15.48	-37.97	174.60	338.65	236.89	205.60	31.29	7.571		
4,550.00	4,542.26	4,541.34	4,540.96	16.09	15.65	-38.21	173.74	340.51	233.92	202.28	31.64	7.393		
4,600.00	4,592.03	4,589.87	4,589.45	16.27	15.82	-38.47	173.12	342.54	231.24	199.25	31.99	7.228		
4,650.00	4,641.80	4,640.42	4,639.95	16.46	16.00	-38.77	172.60	344.67	228.68	196.32	32.35	7.068		
4,700.00	4,691.57	4,691.24	4,690.73	16.64	16.18	-39.10	172.02	346.60	225.92	193.21	32.71	6.906		
4,750.00	4,741.34	4,742.08	4,741.53	16.83	16.35	-39.45	171.35	348.33	222.97	189.90	33.07	6.742		
4,800.00	4,791.11	4,792.89	4,792.31	17.01	16.53	-39.82	170.52	349.91	219.82	186.39	33.43	6.575		
4,850.00	4,840.89	4,842.36	4,841.76	17.20	16.70	-40.19	169.70	351.42	216.65	182.86	33.79	6.411		
4,900.00	4,890.66	4,892.06	4,891.42	17.38	16.88	-40.57	168.91	352.96	213.53	179.38	34.15	6.253		
4,950.00	4,940.43	4,941.77	4,941.11	17.57	17.05	-41.00	168.24	354.44	210.45	175.95	34.51	6.099		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1 Fed 1H - Original - Actual													Offset Site Error:	5.00 ft
Survey Program: 102-GYRO-NS, 9646-MWD+IGRF													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		
5,000.00	4,990.20	4,991.55	4,990.87	17.75	17.23	-41.49	167.70	355.83	207.43	172.57	34.87	5.950		
5,050.00	5,039.97	5,041.42	5,040.71	17.94	17.40	-42.02	167.24	357.16	204.43	169.21	35.22	5.804		
5,100.00	5,089.74	5,091.51	5,090.79	18.12	17.58	-42.58	166.79	358.46	201.44	165.86	35.58	5.661		
5,150.00	5,139.51	5,141.80	5,141.06	18.31	17.75	-43.12	166.20	359.78	198.37	162.43	35.94	5.519		
5,200.00	5,189.28	5,192.24	5,191.48	18.49	17.93	-43.66	165.45	361.09	195.20	158.90	36.30	5.377		
5,250.00	5,239.05	5,242.74	5,241.95	18.68	18.10	-44.23	164.61	362.26	191.89	155.22	36.67	5.234		
5,300.00	5,288.82	5,291.64	5,290.84	18.87	18.27	-44.84	163.89	363.29	188.60	151.58	37.02	5.094		
5,350.00	5,338.59	5,340.24	5,339.43	19.05	18.44	-45.54	163.56	364.36	185.67	148.28	37.38	4.967 Alert		
5,400.00	5,388.36	5,389.66	5,388.83	19.24	18.62	-46.34	163.54	365.43	183.00	145.26	37.74	4.849 Alert		
5,450.00	5,438.13	5,439.18	5,438.34	19.42	18.79	-47.21	163.70	366.44	180.48	142.37	38.10	4.736 Alert		
5,500.00	5,487.90	5,490.26	5,489.41	19.61	18.97	-48.12	163.74	367.44	177.87	139.40	38.47	4.624 Alert		
5,550.00	5,537.67	5,541.33	5,540.47	19.80	19.15	-48.98	163.35	368.42	174.96	136.13	38.83	4.505 Alert		
5,600.00	5,587.44	5,591.00	5,590.12	19.98	19.32	-49.85	162.87	369.32	171.98	132.78	39.20	4.387 Alert		
5,650.00	5,637.21	5,640.81	5,639.93	20.17	19.49	-50.77	162.43	370.14	169.02	129.46	39.56	4.273 Alert		
5,700.00	5,686.98	5,690.48	5,689.59	20.36	19.67	-51.78	162.10	370.85	166.15	126.22	39.92	4.162 Alert		
5,750.00	5,736.75	5,740.18	5,739.29	20.54	19.84	-52.88	161.91	371.45	163.37	123.09	40.29	4.055 Alert		
5,800.00	5,786.52	5,789.93	5,789.04	20.73	20.01	-54.04	161.76	372.02	160.69	120.04	40.65	3.953 Alert		
5,850.00	5,836.29	5,839.97	5,839.08	20.92	20.19	-55.25	161.63	372.56	158.07	117.06	41.02	3.854 Alert		
5,900.00	5,886.06	5,890.26	5,889.36	21.11	20.36	-56.49	161.35	373.09	155.40	114.01	41.38	3.755 Alert		
5,950.00	5,935.83	5,940.22	5,939.31	21.29	20.54	-57.76	160.95	373.60	152.68	110.93	41.75	3.657 Alert		
6,000.00	5,985.60	5,990.02	5,989.11	21.48	20.71	-59.08	160.58	374.05	150.03	107.92	42.12	3.562 Alert		
6,050.00	6,035.37	6,039.83	6,038.92	21.67	20.89	-60.46	160.21	374.48	147.47	104.99	42.48	3.471 Alert		
6,100.00	6,085.14	6,089.66	6,088.74	21.85	21.06	-61.88	159.84	374.91	144.99	102.14	42.85	3.384 Alert		
6,150.00	6,134.91	6,139.04	6,138.12	22.04	21.23	-63.37	159.55	375.31	142.67	99.45	43.22	3.301 Alert		
6,200.00	6,184.68	6,188.39	6,187.47	22.23	21.40	-64.95	159.46	375.64	140.61	97.03	43.58	3.226 Alert		
6,250.00	6,234.45	6,238.17	6,237.25	22.42	21.58	-66.62	159.47	375.94	138.75	94.80	43.95	3.157 Alert		
6,300.00	6,284.22	6,288.02	6,287.10	22.60	21.75	-68.35	159.50	376.22	137.01	92.70	44.32	3.092 Alert		
6,350.00	6,333.99	6,338.32	6,337.40	22.79	21.93	-70.11	159.40	376.52	135.29	90.61	44.68	3.028 Alert		
6,400.00	6,383.76	6,388.45	6,387.53	22.98	22.10	-71.89	159.11	376.83	133.53	88.48	45.05	2.964 Alert		
6,450.00	6,433.53	6,438.16	6,437.23	23.17	22.28	-73.70	158.80	377.13	131.87	86.45	45.42	2.903 Alert		
6,500.00	6,483.30	6,487.77	6,486.85	23.35	22.45	-75.56	158.53	377.42	130.38	84.60	45.78	2.848 Alert		
6,550.00	6,533.07	6,537.24	6,536.31	23.54	22.62	-77.48	158.39	377.66	129.15	83.00	46.15	2.799 Alert		
6,600.00	6,582.84	6,586.89	6,585.96	23.73	22.80	-79.48	158.35	377.83	128.17	81.66	46.51	2.756 Alert		
6,650.00	6,632.61	6,636.73	6,635.80	23.92	22.97	-81.53	158.32	377.95	127.36	80.49	46.88	2.717 Alert		
6,700.00	6,682.38	6,686.76	6,685.83	24.11	23.14	-83.63	158.25	378.04	126.67	79.43	47.24	2.682 Alert		
6,750.00	6,732.16	6,736.92	6,735.99	24.29	23.32	-85.74	158.03	378.18	126.01	78.41	47.60	2.647 Alert		
6,800.00	6,781.93	6,786.75	6,785.82	24.48	23.49	-87.83	157.72	378.37	125.42	77.46	47.96	2.615 Alert		
6,850.00	6,831.70	6,836.48	6,835.55	24.67	23.67	-89.92	157.42	378.57	125.01	76.69	48.32	2.587 Alert		
6,896.69	6,878.17	6,882.59	6,881.66	24.85	23.83	-91.86	157.22	378.78	124.86	76.21	48.65	2.566 Alert		
6,900.00	6,881.47	6,885.86	6,884.93	24.86	23.84	-92.00	157.21	378.79	124.86	76.18	48.67	2.565 Alert		
6,950.00	6,931.24	6,935.18	6,934.25	25.05	24.01	-94.06	157.19	379.02	125.06	76.03	49.03	2.551 Alert		
7,000.00	6,981.01	6,985.11	6,984.18	25.23	24.18	-96.12	157.24	379.27	125.49	76.11	49.38	2.541 Alert		
7,050.00	7,030.78	7,035.10	7,034.17	25.42	24.36	-98.17	157.23	379.53	126.02	76.29	49.74	2.534 Alert		
7,100.00	7,080.55	7,085.49	7,084.55	25.61	24.54	-100.22	157.06	379.84	126.56	76.47	50.09	2.527 Alert		
7,150.00	7,130.32	7,135.62	7,134.68	25.80	24.71	-102.23	156.68	380.21	127.02	76.58	50.44	2.518 Alert		
7,200.00	7,180.09	7,184.96	7,184.02	25.99	24.88	-104.21	156.36	380.54	127.71	76.92	50.79	2.515 Alert		
7,250.00	7,229.86	7,234.49	7,233.55	26.18	25.06	-106.17	156.19	380.79	128.72	77.58	51.14	2.517 Alert		
7,300.00	7,279.63	7,284.43	7,283.49	26.36	25.23	-108.11	156.02	381.07	129.87	78.39	51.48	2.523 Alert		
7,350.00	7,329.40	7,334.76	7,333.81	26.55	25.41	-110.02	155.78	381.41	131.08	79.25	51.83	2.529 Alert		
7,400.00	7,379.17	7,385.52	7,384.57	26.74	25.58	-111.93	155.21	381.85	132.12	79.94	52.18	2.532 Alert		
7,450.00	7,428.94	7,435.91	7,434.95	26.93	25.76	-113.83	154.34	382.38	132.97	80.45	52.53	2.532 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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1 Fed 1H - Original - Actual													Offset Site Error: 5.00 ft	
Survey Program: 102-GYRO-NS, 9646-MWD+IGRF													Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis		Highside Tooface ('')	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)						
7,500.00	7,478.71	7,486.07	7,485.10	27.12	25.93	-115.72	153.31	382.92	133.82	80.95	52.87	2.531	Alert	
7,550.00	7,528.48	7,535.57	7,534.58	27.31	26.11	-117.58	152.23	383.43	134.77	81.56	53.21	2.533	Alert	
7,600.00	7,578.27	7,584.87	7,583.87	27.49	26.28	-119.34	151.29	383.83	135.92	82.36	53.55	2.538	Alert	
7,650.00	7,628.12	7,634.91	7,633.90	27.68	26.45	-120.86	150.39	384.17	136.93	83.04	53.89	2.541	Alert	
7,700.00	7,678.02	7,685.10	7,684.08	27.86	26.63	-122.16	149.37	384.53	137.60	83.36	54.24	2.537	Alert	
7,750.00	7,727.95	7,735.57	7,734.54	28.04	26.80	-123.22	148.21	384.95	137.82	83.24	54.58	2.525	Alert	
7,800.00	7,777.91	7,786.08	7,785.02	28.22	26.98	-124.05	146.89	385.51	137.52	82.59	54.93	2.504	Alert	
7,850.00	7,827.90	7,836.00	7,834.92	28.40	27.15	-124.61	145.59	386.17	136.81	81.53	55.27	2.475	Minor Risk	
7,900.00	7,877.89	7,885.82	7,884.73	28.58	27.33	-124.89	144.37	386.93	135.73	80.11	55.62	2.440	Minor Risk	
7,950.00	7,927.89	7,935.16	7,934.05	28.75	27.50	-39.82	143.29	387.57	134.51	78.54	55.97	2.403	Minor Risk	
8,000.00	7,977.89	7,984.84	7,983.72	28.92	27.67	-39.93	142.33	388.03	133.47	77.16	56.31	2.370	Minor Risk	
8,050.00	8,027.89	8,035.10	8,033.96	29.09	27.85	-40.06	141.31	388.49	132.40	75.74	56.66	2.337	Minor Risk	
8,100.00	8,077.89	8,085.42	8,084.26	29.26	28.02	-40.21	140.17	388.99	131.22	74.21	57.00	2.302	Minor Risk	
8,150.00	8,127.89	8,135.79	8,134.62	29.43	28.20	-40.40	138.88	389.53	129.90	72.55	57.35	2.265	Minor Risk	
8,200.00	8,177.89	8,185.83	8,184.64	29.60	28.38	-40.62	137.48	390.08	128.47	70.77	57.70	2.227	Minor Risk	
8,250.00	8,227.89	8,235.70	8,234.48	29.78	28.55	-40.86	136.08	390.59	127.07	69.03	58.04	2.189	Minor Risk	
8,300.00	8,277.89	8,285.26	8,284.02	29.95	28.72	-41.12	134.73	391.00	125.77	67.39	58.38	2.154	Minor Risk	
8,350.00	8,327.89	8,334.73	8,333.48	30.12	28.90	-41.40	133.49	391.25	124.67	65.94	58.73	2.123	Minor Risk	
8,400.00	8,377.89	8,384.33	8,383.06	30.29	29.07	-41.72	132.36	391.35	123.75	64.68	59.07	2.095	Minor Risk	
8,450.00	8,427.89	8,433.95	8,432.67	30.46	29.24	-42.05	131.32	391.31	122.99	63.58	59.41	2.070	Minor Risk	
8,500.00	8,477.89	8,484.51	8,483.22	30.63	29.42	-42.41	130.21	391.28	122.20	62.44	59.76	2.045	Minor Risk	
8,550.00	8,527.89	8,535.07	8,533.77	30.81	29.59	-42.76	128.95	391.44	121.17	61.06	60.11	2.016	Minor Risk	
8,600.00	8,577.89	8,584.45	8,583.13	30.98	29.77	-43.11	127.72	391.55	120.19	59.74	60.45	1.988	Minor Risk	
8,644.69	8,622.58	8,628.72	8,627.39	31.13	29.92	137.05	126.71	391.51	119.88	59.12	60.75	1.973	Minor Risk	
8,650.00	8,627.89	8,633.95	8,632.62	31.15	29.94	136.90	126.60	391.50	119.56	58.77	60.79	1.967	Minor Risk, CC, ES, SF	
8,700.00	8,677.75	8,683.31	8,681.97	31.31	30.11	137.51	125.64	391.30	121.60	60.48	61.13	1.989	Minor Risk	
8,750.00	8,727.10	8,732.53	8,731.18	31.47	30.28	139.18	124.84	390.97	127.15	65.68	61.48	2.068	Minor Risk	
8,800.00	8,775.58	8,781.52	8,780.16	31.63	30.45	141.63	124.01	390.67	136.19	74.36	61.83	2.203	Minor Risk	
8,850.00	8,822.82	8,829.09	8,827.72	31.78	30.62	144.44	123.14	390.44	148.93	86.76	62.17	2.395	Minor Risk	
8,900.00	8,868.45	8,874.69	8,873.32	31.93	30.78	147.28	122.43	390.28	165.73	103.23	62.50	2.652	Alert	
8,950.00	8,912.14	8,918.51	8,917.13	32.06	30.93	149.84	121.89	390.21	186.71	123.91	62.80	2.973	Alert	
9,000.00	8,953.53	8,960.45	8,959.07	32.19	31.08	152.28	121.41	390.27	211.71	148.62	63.09	3.356	Alert	
9,050.00	8,992.33	8,999.79	8,998.41	32.31	31.21	154.17	120.99	390.48	240.56	177.21	63.35	3.797	Alert	
9,100.00	9,028.23	9,035.72	9,034.34	32.43	31.34	155.49	120.61	390.66	273.06	209.47	63.58	4.294	Alert	
9,150.00	9,060.97	9,068.58	9,067.19	32.54	31.45	156.24	120.27	390.74	308.92	245.14	63.79	4.843	Alert	
9,200.00	9,090.29	9,098.06	9,096.68	32.65	31.56	156.40	119.97	390.73	347.81	283.85	63.97	5.437		
9,250.00	9,115.97	9,122.74	9,121.35	32.77	31.64	155.73	119.77	390.66	389.42	325.31	64.11	6.074		
9,300.00	9,137.82	9,143.84	9,142.46	32.90	31.72	154.12	119.65	390.54	433.36	369.13	64.23	6.747		
9,350.00	9,155.66	9,160.99	9,159.60	33.04	31.78	151.08	119.58	390.40	479.22	414.90	64.32	7.450		
9,400.00	9,169.37	9,174.08	9,172.69	33.19	31.82	145.54	119.54	390.28	526.62	462.23	64.39	8.178		
9,450.00	9,178.83	9,183.08	9,181.69	33.34	31.85	135.00	119.52	390.18	575.14	510.70	64.44	8.926		
9,500.00	9,183.98	9,188.76	9,187.37	33.51	31.87	114.08	119.51	390.11	624.37	559.91	64.46	9.686		
9,550.00	9,185.00	9,190.00	9,188.61	33.68	31.88	90.35	119.51	390.10	673.94	609.47	64.47	10.453		
9,600.00	9,185.00	9,190.12	9,188.73	33.87	31.88	90.44	119.51	390.10	723.59	659.11	64.47	11.223		
9,650.00	9,185.00	9,190.25	9,188.86	34.07	31.88	90.52	119.51	390.10	773.28	708.80	64.47	11.993		
9,700.00	9,185.00	9,190.38	9,188.99	34.27	31.88	90.61	119.51	390.09	823.00	758.53	64.48	12.764		
9,750.00	9,185.00	9,190.51	9,189.12	34.51	31.88	90.70	119.51	390.09	872.76	808.28	64.48	13.535		
9,800.00	9,185.00	9,190.64	9,189.25	34.74	31.88	90.79	119.51	390.09	922.55	858.06	64.48	14.307		
9,850.00	9,185.00	9,190.77	9,189.38	35.00	31.88	90.88	119.51	390.09	972.35	907.87	64.49	15.078		
9,900.00	9,185.00	9,190.91	9,189.52	35.26	31.88	90.98	119.51	390.09	1,022.18	957.69	64.49	15.850		
9,950.00	9,185.00	11,054.19	10,234.81	35.54	39.15	173.09	-953.10	352.40	1,054.38	1,014.45	39.93	26.405		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1 Fed 1H - Original - Actual													Offset Site Error:	5.00 ft	
Survey Program: 102-GYRO-NS, 9646-MWD+IGRF													Offset Well Error:	0.00 ft	
Reference		Offset		Semi Major Axis		Hightide 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)					
12,350.00	9,185.00	13,465.02	10,233.26	58.73	74.56	172.54	-3,363.63	356.13	1,054.19	988.29	65.89	15.998			
12,400.00	9,185.00	13,518.20	10,232.46	59.34	75.47	172.53	-3,416.80	356.43	1,053.44	986.84	66.60	15.817			
12,450.00	9,185.00	13,565.90	10,231.65	59.95	76.29	172.52	-3,464.49	356.61	1,052.62	985.36	67.26	15.650			
12,500.00	9,185.00	13,608.81	10,231.19	60.56	77.03	172.52	-3,507.40	356.89	1,052.07	984.21	67.86	15.503			
12,550.00	9,185.00	13,654.30	10,231.01	61.17	77.82	172.53	-3,552.89	357.33	1,051.85	983.36	68.49	15.358			
12,600.00	9,185.00	13,704.74	10,230.85	61.79	78.70	172.53	-3,603.33	357.79	1,051.68	982.50	69.17	15.204			
12,650.00	9,185.00	13,752.28	10,230.71	62.41	79.53	172.54	-3,650.86	358.17	1,051.52	981.69	69.83	15.059			
12,681.36	9,185.00	13,762.30	10,230.71	62.55	79.70	172.54	-3,660.88	358.27	1,051.51	981.54	69.97	15.028			
12,700.00	9,185.00	13,796.40	10,230.82	63.03	80.30	172.56	-3,694.98	358.71	1,051.59	981.15	70.44	14.928			
12,750.00	9,185.00	13,843.99	10,231.21	63.65	81.13	172.59	-3,742.56	359.51	1,051.92	980.83	71.09	14.797			
12,800.00	9,185.00	13,898.64	10,231.52	64.28	82.09	172.62	-3,797.20	360.35	1,052.14	980.33	71.81	14.651			
12,850.00	9,185.00	13,952.33	10,231.58	64.90	83.03	172.64	-3,850.89	360.98	1,052.15	979.62	72.54	14.505			
12,900.00	9,185.00	14,005.36	10,231.44	65.53	83.97	172.64	-3,903.92	361.37	1,052.02	978.75	73.26	14.359			
12,937.62	9,185.00	14,038.57	10,231.34	66.01	84.55	172.64	-3,937.13	361.52	1,051.91	978.16	73.75	14.264			
12,950.00	9,185.00	14,048.80	10,231.34	66.17	84.73	172.64	-3,947.36	361.55	1,051.92	978.03	73.90	14.235			
13,000.00	9,185.00	14,090.12	10,231.58	66.80	85.46	172.63	-3,988.68	361.63	1,052.23	977.72	74.51	14.123			
13,050.00	9,185.00	14,132.62	10,232.15	67.44	86.21	172.62	-4,031.17	361.60	1,052.94	977.80	75.14	14.014			
13,100.00	9,185.00	14,176.11	10,232.99	68.07	86.98	172.60	-4,074.66	361.38	1,053.96	978.18	75.78	13.908			
13,150.00	9,185.00	14,227.96	10,234.20	68.71	87.90	172.56	-4,126.48	360.86	1,055.22	978.69	76.53	13.788			
13,200.00	9,185.00	14,294.77	10,234.97	69.35	89.08	172.50	-4,193.29	359.97	1,055.92	978.45	77.47	13.630			
13,250.00	9,185.00	14,346.01	10,235.06	70.00	89.99	172.44	-4,244.51	359.05	1,056.17	977.93	78.24	13.499			
13,300.00	9,185.00	14,396.44	10,235.09	70.64	90.88	172.35	-4,294.93	357.82	1,056.39	977.38	79.01	13.370			
13,350.00	9,185.00	14,444.74	10,235.18	71.29	91.74	172.29	-4,343.22	356.84	1,056.66	976.90	79.76	13.249			
13,400.00	9,185.00	14,493.83	10,235.42	71.94	92.62	172.25	-4,392.31	356.45	1,056.99	976.50	80.49	13.132			
13,450.00	9,185.00	14,547.23	10,235.63	72.59	93.57	172.23	-4,445.71	356.23	1,057.25	975.99	81.27	13.010			
13,500.00	9,185.00	14,600.22	10,235.66	73.24	94.52	172.19	-4,498.69	355.92	1,057.36	975.31	82.05	12.887			
13,550.00	9,185.00	14,651.09	10,235.55	73.89	95.43	172.15	-4,549.57	355.35	1,057.36	974.55	82.81	12.768			
13,580.11	9,185.00	14,681.20	10,235.47	74.28	95.97	172.12	-4,579.67	354.99	1,057.36	974.09	83.27	12.698			
13,600.00	9,185.00	14,690.00	10,235.45	74.54	96.13	172.11	-4,588.47	354.88	1,057.42	973.98	83.44	12.673			
13,650.00	9,185.00	14,690.00	10,235.45	75.20	96.13	172.11	-4,588.47	354.88	1,059.13	975.56	83.56	12.675			
13,700.00	9,185.00	14,690.00	10,235.45	75.86	96.13	172.11	-4,588.47	354.88	1,063.18	979.66	83.62	12.714			
13,750.00	9,185.00	14,690.00	10,235.45	76.51	96.13	172.11	-4,588.47	354.88	1,069.56	985.94	83.62	12.791			
13,800.00	9,185.00	14,690.00	10,235.45	77.17	96.13	172.11	-4,588.47	354.88	1,078.23	994.67	83.56	12.903			
13,850.00	9,185.00	14,690.00	10,235.45	77.83	96.13	172.11	-4,588.47	354.88	1,089.12	1,005.67	83.45	13.051			
13,900.00	9,185.00	14,690.00	10,235.45	78.49	96.13	172.11	-4,588.47	354.88	1,102.18	1,018.89	83.29	13.234			
13,950.00	9,185.00	14,690.00	10,235.45	79.16	96.13	172.11	-4,588.47	354.88	1,117.32	1,034.24	83.08	13.449			
14,000.00	9,185.00	14,690.00	10,235.45	79.82	96.13	172.11	-4,588.47	354.88	1,134.47	1,051.63	82.83	13.696			
14,050.00	9,185.00	14,690.00	10,235.45	80.49	96.13	172.11	-4,588.47	354.88	1,153.53	1,070.97	82.55	13.973			
14,100.00	9,185.00	14,690.00	10,235.45	81.15	96.13	172.11	-4,588.47	354.88	1,174.41	1,092.16	82.25	14.278			
14,150.00	9,185.00	14,690.00	10,235.45	81.82	96.13	172.11	-4,588.47	354.88	1,197.01	1,115.09	81.93	14.611			
14,200.00	9,185.00	14,690.00	10,235.45	82.49	96.13	172.11	-4,588.47	354.88	1,221.25	1,139.66	81.59	14.969			
14,250.00	9,185.00	14,690.00	10,235.45	83.16	96.13	172.11	-4,588.47	354.88	1,247.02	1,165.78	81.24	15.351			
14,300.00	9,185.00	14,690.00	10,235.45	83.83	96.13	172.11	-4,588.47	354.88	1,274.23	1,193.35	80.88	15.754			
14,350.00	9,185.00	14,690.00	10,235.45	84.50	96.13	172.11	-4,588.47	354.88	1,302.79	1,222.27	80.52	16.179			
14,400.00	9,185.00	14,690.00	10,235.45	85.17	96.13	172.11	-4,588.47	354.88	1,332.62	1,252.45	80.17	16.623			
14,450.00	9,185.00	14,690.00	10,235.45	85.84	96.13	172.11	-4,588.47	354.88	1,363.63	1,283.81	79.82	17.084			
14,500.00	9,185.00	14,690.00	10,235.45	86.52	96.13	172.11	-4,588.47	354.88	1,395.74	1,316.27	79.47	17.563			
14,550.00	9,185.00	14,690.00	10,235.45	87.19	96.13	172.11	-4,588.47	354.88	1,428.88	1,349.75	79.14	18.056			
14,600.00	9,185.00	14,690.00	10,235.45	87.87	96.13	172.11	-4,588.47	354.88	1,462.98	1,384.17	78.81	18.564			
14,650.00	9,185.00	14,690.00	10,235.45	88.55	96.13	172.11	-4,588.47	354.88	1,497.97	1,419.48	78.49	19.084			

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

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 01-T23S-R31E
Site Error: 5.00 ft
Reference Well: Tomb Raider 1-12 Fed 525H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 2

Local Co-ordinate Reference: Well Tomb Raider 1-12 Fed 525H
TVD Reference: RKB @ 3500.80ft
MD Reference: RKB @ 3500.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 334H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 104-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.00	0.00	4.69	4.69	0.50	0.50	89.73	5.86	1,264.65	1,264.67					
50.00	50.00	53.60	53.60	0.50	0.51	89.73	5.90	1,264.68	1,264.69	1,263.68	1.01	1,255.526		
100.00	100.00	102.50	102.50	0.52	0.52	89.73	6.01	1,264.74	1,264.76	1,263.72	1.04	1,219.783		
150.00	150.00	156.05	156.05	0.59	0.60	89.72	6.11	1,264.77	1,264.78	1,263.60	1.19	1,066.823		
200.00	200.00	205.10	205.10	0.70	0.70	89.72	6.13	1,264.72	1,264.73	1,263.32	1.41	899.795		
205.77	205.77	210.57	210.57	0.72	0.72	89.72	6.13	1,264.71	1,264.73	1,263.30	1.43	882.031		
250.00	250.00	253.51	253.51	0.84	0.83	89.72	6.19	1,264.75	1,264.76	1,263.09	1.67	757.294		
300.00	300.00	304.75	304.75	0.99	0.98	89.72	6.22	1,264.78	1,264.79	1,262.83	1.97	642.669		
350.00	350.00	358.42	358.42	1.15	1.14	89.72	6.16	1,264.72	1,264.74	1,262.45	2.29	552.292		
400.00	400.00	413.32	413.32	1.31	1.32	89.72	6.18	1,264.45	1,264.50	1,261.87	2.63	481.314		
450.00	450.00	462.34	462.34	1.48	1.48	89.72	6.16	1,264.14	1,264.18	1,261.22	2.95	427.826		
500.00	500.00	511.58	511.58	1.65	1.64	89.73	5.99	1,263.87	1,263.90	1,260.61	3.29	384.358		
550.00	550.00	564.19	564.19	1.82	1.82	89.74	5.82	1,263.53	1,263.58	1,259.94	3.64	347.366		
600.00	600.00	614.72	614.71	1.99	1.99	89.74	5.78	1,263.12	1,263.17	1,259.19	3.98	317.152		
650.00	650.00	661.80	661.80	2.16	2.15	89.74	5.84	1,262.81	1,262.84	1,258.52	4.32	292.399		
700.00	700.00	710.92	710.92	2.34	2.32	89.73	5.97	1,262.57	1,262.60	1,257.94	4.66	270.731		
750.00	750.00	762.61	762.60	2.51	2.50	89.72	6.08	1,262.29	1,262.33	1,257.31	5.02	251.518		
800.00	800.00	813.50	813.49	2.69	2.68	89.72	6.13	1,261.95	1,261.99	1,256.62	5.37	234.902		
850.00	850.00	863.45	863.44	2.87	2.86	89.72	6.11	1,261.60	1,261.65	1,255.92	5.72	220.426		
900.00	900.00	910.86	910.85	3.04	3.02	89.72	6.07	1,261.32	1,261.34	1,255.28	6.07	207.932		
950.00	950.00	957.52	957.50	3.22	3.19	89.72	6.14	1,261.15	1,261.17	1,254.77	6.41	196.865		
1,000.00	1,000.00	1,009.42	1,009.41	3.40	3.37	89.72	6.23	1,261.02	1,261.05	1,254.28	6.76	186.413		
1,050.00	1,050.00	1,062.50	1,062.48	3.58	3.55	89.72	6.11	1,260.76	1,260.80	1,253.67	7.13	176.887		
1,100.00	1,100.00	1,107.29	1,107.28	3.75	3.71	89.73	5.89	1,260.60	1,260.62	1,253.16	7.46	168.993		
1,128.00	1,128.00	1,132.82	1,132.80	3.85	3.80	89.74	5.74	1,260.58	1,260.59	1,252.94	7.65	164.844		
1,150.00	1,150.00	1,153.24	1,153.23	3.93	3.87	89.75	5.60	1,260.59	1,260.61	1,252.81	7.80	161.706		
1,200.00	1,200.00	1,202.33	1,202.32	4.11	4.03	89.76	5.27	1,260.67	1,260.69	1,252.55	8.14	154.860		
1,250.00	1,250.00	1,253.49	1,253.48	4.29	4.21	89.78	4.94	1,260.78	1,260.79	1,252.30	8.49	148.430		
1,300.00	1,300.00	1,310.77	1,310.75	4.46	4.41	89.79	4.69	1,260.68	1,260.70	1,251.83	8.87	142.107		
1,350.00	1,350.00	1,361.16	1,361.14	4.64	4.58	89.79	4.61	1,260.39	1,260.41	1,251.19	9.23	136.619		
1,400.00	1,400.00	1,408.08	1,408.06	4.82	4.75	89.79	4.71	1,260.21	1,260.22	1,250.65	9.57	131.708		
1,450.00	1,450.00	1,457.78	1,457.76	5.00	4.92	89.78	4.89	1,260.10	1,260.11	1,250.19	9.92	127.016		
1,500.00	1,500.00	1,508.53	1,508.51	5.18	5.10	89.78	4.81	1,259.96	1,259.98	1,249.70	10.28	122.599		
1,550.00	1,550.00	1,558.76	1,558.73	5.36	5.28	89.78	4.79	1,259.81	1,259.83	1,249.19	10.63	118.486		
1,600.00	1,600.00	1,608.93	1,608.91	5.53	5.46	89.79	4.61	1,259.65	1,259.67	1,248.68	10.99	114.638		
1,650.00	1,650.00	1,656.62	1,656.60	5.71	5.62	89.79	4.53	1,259.55	1,259.56	1,248.22	11.33	111.146		
1,693.28	1,693.28	1,698.10	1,698.08	5.87	5.77	89.79	4.60	1,259.52	1,259.52	1,247.89	11.63	108.287		
1,700.00	1,700.00	1,704.66	1,704.64	5.89	5.79	89.79	4.62	1,259.52	1,259.52	1,247.85	11.68	107.855		
1,750.00	1,750.00	1,753.62	1,753.60	6.07	5.96	89.79	4.69	1,259.54	1,259.55	1,247.53	12.02	104.748		
1,800.00	1,800.00	1,802.90	1,802.88	6.25	6.12	89.79	4.60	1,259.61	1,259.62	1,247.25	12.37	101.808		
1,850.00	1,850.00	1,853.98	1,853.96	6.43	6.30	89.79	4.63	1,259.67	1,259.67	1,246.95	12.73	98.978		
1,900.00	1,900.00	1,905.24	1,905.22	6.61	6.48	89.78	4.92	1,259.68	1,259.69	1,246.60	13.08	96.287		
1,950.00	1,950.00	1,956.93	1,956.91	6.78	6.66	89.76	5.18	1,259.62	1,259.63	1,246.19	13.44	93.712		
2,000.00	2,000.00	2,006.15	2,006.13	6.96	6.83	89.76	5.31	1,259.53	1,259.54	1,245.75	13.79	91.329		
2,019.06	2,019.06	2,023.88	2,023.86	7.03	6.89	89.76	5.33	1,259.52	1,259.53	1,245.61	13.92	90.479		
2,050.00	2,050.00	2,052.67	2,052.64	7.14	6.99	89.76	5.35	1,259.54	1,259.56	1,245.43	14.13	89.136		
2,100.00	2,100.00	2,101.47	2,101.44	7.32	7.16	89.76	5.33	1,259.68	1,259.69	1,245.22	14.48	87.010		
2,150.00	2,150.00	2,153.53	2,153.51	7.50	7.34	89.75	5.44	1,259.77	1,259.79	1,244.95	14.84	84.918		
2,200.00	2,200.00	2,202.99	2,202.97	7.68	7.51	89.74	5.69	1,259.81	1,259.83	1,244.64	15.18	82.967		
2,250.00	2,250.00	2,250.63	2,250.60	7.86	7.67	89.73	6.01	1,259.93	1,259.95	1,244.42	15.53	81.138		
2,300.00	2,300.00	2,295.14	2,295.12	8.04	7.83	89.71	6.41	1,260.14	1,260.20	1,244.34	15.86	79.453		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 334H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft	
Survey Program: 104-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)					
4,900.00	4,890.66	4,844.07	4,835.18	17.38	17.01	-4.22	198.17	1,340.16	1,153.25	1,119.13	34.12	33.800			
4,950.00	4,940.43	4,898.95	4,889.83	17.57	17.21	-4.44	202.75	1,342.20	1,150.98	1,116.48	34.50	33.360			
5,000.00	4,990.20	4,952.54	4,943.21	17.75	17.41	-4.66	207.03	1,344.00	1,148.52	1,113.64	34.88	32.930			
5,050.00	5,039.97	5,002.92	4,993.42	17.94	17.59	-4.86	210.93	1,345.63	1,145.99	1,110.75	35.24	32.519			
5,100.00	5,089.74	5,052.42	5,042.75	18.12	17.77	-5.05	214.69	1,347.23	1,143.45	1,107.85	35.60	32.119			
5,150.00	5,139.51	5,100.46	5,090.62	18.31	17.95	-5.24	218.36	1,348.83	1,140.99	1,105.03	35.95	31.735			
5,200.00	5,189.28	5,148.01	5,138.00	18.49	18.13	-5.43	222.08	1,350.47	1,138.62	1,102.31	36.31	31.362			
5,250.00	5,239.05	5,194.85	5,184.65	18.68	18.30	-5.63	225.94	1,352.17	1,136.38	1,099.72	36.66	31.002			
5,300.00	5,288.82	5,241.92	5,231.50	18.87	18.47	-5.84	230.03	1,353.97	1,134.28	1,097.28	37.01	30.652			
5,350.00	5,338.59	5,289.41	5,278.77	19.05	18.65	-6.05	234.16	1,355.87	1,132.31	1,094.96	37.36	30.310			
5,400.00	5,388.36	5,340.48	5,329.61	19.24	18.84	-6.27	238.56	1,358.01	1,130.43	1,092.71	37.72	29.965			
5,450.00	5,438.13	5,397.97	5,386.85	19.42	19.05	-6.53	243.53	1,360.12	1,128.31	1,090.20	38.12	29.600			
5,500.00	5,487.90	5,452.13	5,440.77	19.61	19.25	-6.78	248.29	1,361.77	1,125.93	1,087.43	38.50	29.245			
5,550.00	5,537.67	5,504.85	5,493.25	19.80	19.45	-7.04	253.14	1,363.17	1,123.42	1,084.54	38.87	28.899			
5,600.00	5,587.44	5,555.46	5,543.62	19.98	19.64	-7.30	257.90	1,364.40	1,120.84	1,081.60	39.24	28.564			
5,650.00	5,637.21	5,605.80	5,593.73	20.17	19.82	-7.55	262.60	1,365.60	1,118.25	1,078.64	39.61	28.235			
5,700.00	5,686.98	5,655.15	5,642.86	20.36	20.01	-7.79	267.05	1,366.81	1,115.67	1,075.71	39.97	27.915			
5,750.00	5,736.75	5,704.75	5,692.27	20.54	20.19	-8.02	271.28	1,368.09	1,113.13	1,072.80	40.33	27.601			
5,800.00	5,786.52	5,756.80	5,744.13	20.73	20.38	-8.26	275.53	1,369.43	1,110.56	1,069.86	40.70	27.286			
5,850.00	5,836.29	5,808.38	5,795.53	20.92	20.57	-8.49	279.61	1,370.67	1,107.90	1,066.83	41.07	26.976			
5,900.00	5,886.06	5,858.50	5,845.48	21.11	20.76	-8.71	283.50	1,371.85	1,105.21	1,063.78	41.43	26.675			
5,950.00	5,935.83	5,908.62	5,895.43	21.29	20.94	-8.92	287.34	1,373.03	1,102.53	1,060.73	41.80	26.379			
6,000.00	5,985.60	5,958.74	5,945.41	21.48	21.13	-9.13	290.97	1,374.25	1,099.84	1,057.68	42.16	26.088			
6,050.00	6,035.37	6,010.01	5,996.55	21.67	21.32	-9.33	294.43	1,375.52	1,097.14	1,054.61	42.53	25.799			
6,100.00	6,085.14	6,062.60	6,049.01	21.85	21.51	-9.54	297.89	1,376.73	1,094.34	1,051.44	42.90	25.510			
6,150.00	6,134.91	6,114.39	6,100.69	22.04	21.70	-9.73	301.22	1,377.82	1,091.44	1,048.17	43.27	25.226			
6,200.00	6,184.68	6,165.74	6,151.92	22.23	21.89	-9.93	304.38	1,378.86	1,088.47	1,044.84	43.63	24.946			
6,250.00	6,234.45	6,216.00	6,202.08	22.42	22.07	-10.11	307.35	1,379.85	1,085.47	1,041.47	44.00	24.672			
6,300.00	6,284.22	6,265.96	6,251.96	22.60	22.25	-10.28	310.19	1,380.86	1,082.46	1,038.10	44.36	24.403			
6,350.00	6,333.99	6,319.67	6,305.58	22.79	22.45	-10.47	313.08	1,381.89	1,079.38	1,034.65	44.73	24.130			
6,400.00	6,383.76	6,374.10	6,359.83	22.98	22.64	-10.64	315.71	1,382.79	1,076.11	1,031.00	45.11	23.857			
6,450.00	6,433.53	6,430.07	6,415.86	23.17	22.85	-10.80	317.97	1,383.54	1,072.59	1,027.11	45.48	23.582			
6,500.00	6,483.30	6,485.09	6,470.84	23.35	23.04	-10.93	319.70	1,384.11	1,068.80	1,022.94	45.86	23.307			
6,550.00	6,533.07	6,538.71	6,524.45	23.54	23.23	-11.06	321.19	1,384.49	1,064.81	1,018.59	46.23	23.035			
6,600.00	6,582.84	6,591.47	6,577.18	23.73	23.42	-11.17	322.48	1,384.73	1,060.67	1,014.08	46.59	22.766			
6,650.00	6,632.61	6,643.71	6,629.42	23.92	23.61	-11.27	323.37	1,384.95	1,056.41	1,009.45	46.95	22.499			
6,700.00	6,682.38	6,693.49	6,679.20	24.11	23.78	-11.35	323.93	1,385.16	1,052.08	1,004.77	47.31	22.238			
6,750.00	6,732.16	6,742.60	6,728.31	24.29	23.95	-11.42	324.39	1,385.43	1,047.78	1,000.11	47.67	21.982			
6,800.00	6,781.93	6,791.99	6,777.69	24.48	24.13	-11.49	324.80	1,385.75	1,043.51	995.49	48.02	21.731			
6,850.00	6,831.70	6,841.42	6,827.12	24.67	24.30	-11.55	325.19	1,386.09	1,039.25	990.88	48.38	21.483			
6,900.00	6,881.47	6,892.28	6,877.98	24.86	24.48	-11.63	325.62	1,386.42	1,034.99	986.26	48.73	21.237			
6,950.00	6,931.24	6,943.29	6,928.98	25.05	24.66	-11.71	326.16	1,386.66	1,030.67	981.58	49.09	20.994			
7,000.00	6,981.01	6,994.71	6,980.39	25.23	24.84	-11.79	326.74	1,386.81	1,026.28	976.83	49.45	20.752			
7,050.00	7,030.78	7,046.50	7,032.18	25.42	25.02	-11.88	327.29	1,386.89	1,021.82	972.00	49.81	20.512			
7,100.00	7,080.55	7,100.08	7,085.76	25.61	25.21	-11.96	327.78	1,386.82	1,017.21	967.03	50.18	20.272			
7,150.00	7,130.32	7,153.02	7,138.70	25.80	25.39	-12.05	328.17	1,386.59	1,012.42	961.88	50.54	20.033			
7,200.00	7,180.09	7,205.06	7,190.74	25.99	25.57	-12.12	328.35	1,386.28	1,007.50	956.61	50.89	19.796			
7,250.00	7,229.86	7,259.77	7,245.45	26.18	25.76	-12.19	328.29	1,385.85	1,002.44	951.19	51.25	19.560			
7,300.00	7,279.63	7,316.37	7,302.04	26.36	25.95	-12.25	327.91	1,385.13	997.05	945.44	51.60	19.321			
7,350.00	7,329.40	7,364.88	7,350.55	26.55	26.11	-12.29	327.37	1,384.40	991.50	939.55	51.95	19.086			
7,400.00	7,379.17	7,412.35	7,398.01	26.74	26.26	-12.32	326.76	1,383.83	986.05	933.76	52.29	18.857			

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 512H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 117-MVWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.50	0.50	-84.13	153.04	-1,487.37	1,495.37					
50.00	50.00	29.83	29.83	0.50	0.50	-84.13	153.04	-1,487.37	1,495.22	1,494.22	1.00	1,489.662		
100.00	100.00	80.90	80.90	0.52	0.51	-84.13	153.02	-1,487.33	1,495.18	1,494.15	1.03	1,451.172		
150.00	150.00	131.08	131.08	0.59	0.54	-84.13	152.99	-1,487.26	1,495.11	1,493.98	1.13	1,319.197		
196.97	196.97	176.17	176.17	0.69	0.62	-84.13	152.99	-1,487.23	1,495.08	1,493.76	1.32	1,136.312 CC		
200.00	200.00	179.08	179.08	0.70	0.63	-84.13	152.99	-1,487.23	1,495.08	1,493.75	1.33	1,124.649		
250.00	250.00	227.08	227.08	0.84	0.74	-84.12	153.04	-1,487.26	1,495.12	1,493.54	1.58	947.656		
300.00	300.00	275.10	275.10	0.99	0.87	-84.12	153.15	-1,487.35	1,495.22	1,493.36	1.86	804.897		
350.00	350.00	323.31	323.31	1.15	1.01	-84.12	153.27	-1,487.50	1,495.39	1,493.23	2.16	692.963		
400.00	400.00	372.44	372.43	1.31	1.16	-84.11	153.38	-1,487.71	1,495.61	1,493.14	2.47	604.585		
450.00	450.00	425.29	425.29	1.48	1.33	-84.11	153.44	-1,487.90	1,495.79	1,492.98	2.81	532.090		
500.00	500.00	475.01	475.01	1.65	1.50	-84.11	153.43	-1,488.00	1,495.90	1,492.75	3.14	475.671		
550.00	550.00	521.00	521.00	1.82	1.65	-84.11	153.45	-1,488.19	1,496.11	1,492.64	3.47	431.075		
600.00	600.00	568.43	568.42	1.99	1.81	-84.11	153.52	-1,488.50	1,496.44	1,492.63	3.80	393.324		
650.00	650.00	617.57	617.56	2.16	1.98	-84.11	153.66	-1,488.86	1,496.81	1,492.66	4.15	360.928		
700.00	700.00	666.06	666.05	2.34	2.15	-84.10	153.85	-1,489.24	1,497.22	1,492.73	4.49	333.505		
750.00	750.00	714.13	714.12	2.51	2.32	-84.10	153.96	-1,489.88	1,497.69	1,492.86	4.83	309.977		
800.00	800.00	764.71	764.70	2.69	2.49	-84.10	154.02	-1,490.19	1,498.20	1,493.01	5.18	289.014		
850.00	850.00	816.41	816.40	2.87	2.67	-84.10	154.16	-1,490.65	1,498.65	1,493.11	5.54	270.469		
900.00	900.00	868.11	868.10	3.04	2.86	-84.09	154.39	-1,491.04	1,499.05	1,493.15	5.90	254.126		
950.00	950.00	920.20	920.19	3.22	3.04	-84.08	154.65	-1,491.36	1,499.39	1,493.13	6.26	239.560		
1,000.00	1,000.00	972.52	972.50	3.40	3.22	-84.07	154.84	-1,491.62	1,499.65	1,493.03	6.62	226.526		
1,050.00	1,050.00	1,026.92	1,026.90	3.58	3.41	-84.07	155.00	-1,491.77	1,499.80	1,492.82	6.99	214.652		
1,100.00	1,100.00	1,080.20	1,080.18	3.75	3.60	-84.06	155.18	-1,491.76	1,499.81	1,492.46	7.35	204.072		
1,150.00	1,150.00	1,131.42	1,131.40	3.93	3.77	-84.05	155.34	-1,491.69	1,499.76	1,492.06	7.70	194.701		
1,200.00	1,200.00	1,181.92	1,181.90	4.11	3.95	-84.05	155.47	-1,491.59	1,499.67	1,491.62	8.05	186.230		
1,250.00	1,250.00	1,231.84	1,231.83	4.29	4.11	-84.05	155.53	-1,491.49	1,499.58	1,491.18	8.40	178.522		
1,300.00	1,300.00	1,281.68	1,281.66	4.46	4.29	-84.05	155.56	-1,491.41	1,499.50	1,490.75	8.75	171.406		
1,350.00	1,350.00	1,331.48	1,331.46	4.64	4.46	-84.04	155.73	-1,491.31	1,499.42	1,490.32	9.10	164.826		
1,400.00	1,400.00	1,384.02	1,384.00	4.82	4.64	-84.03	155.90	-1,491.17	1,499.31	1,489.85	9.46	158.566		
1,450.00	1,450.00	1,436.91	1,436.89	5.00	4.82	-84.03	155.86	-1,490.96	1,499.10	1,489.28	9.82	152.734		
1,500.00	1,500.00	1,481.90	1,481.88	5.18	4.97	-84.04	155.74	-1,490.83	1,498.94	1,488.79	10.15	147.730		
1,531.82	1,531.82	1,511.05	1,511.02	5.29	5.07	-84.04	155.65	-1,490.81	1,498.91	1,488.55	10.36	144.693		
1,550.00	1,550.00	1,528.32	1,528.30	5.36	5.13	-84.04	155.59	-1,490.82	1,498.92	1,488.44	10.48	142.985		
1,600.00	1,600.00	1,580.31	1,580.29	5.53	5.31	-84.05	155.47	-1,490.83	1,498.92	1,488.08	10.84	138.286		
1,650.00	1,650.00	1,631.82	1,631.80	5.71	5.48	-84.05	155.41	-1,490.77	1,498.85	1,487.66	11.19	133.893		
1,700.00	1,700.00	1,682.31	1,682.29	5.89	5.66	-84.05	155.44	-1,490.67	1,498.76	1,487.21	11.55	129.795		
1,750.00	1,750.00	1,733.71	1,733.69	6.07	5.83	-84.04	155.55	-1,490.54	1,498.64	1,486.73	11.90	125.900		
1,800.00	1,800.00	1,786.21	1,786.19	6.25	6.02	-84.04	155.58	-1,490.33	1,498.45	1,486.18	12.26	122.184		
1,850.00	1,850.00	1,833.79	1,833.77	6.43	6.18	-84.04	155.56	-1,490.12	1,498.23	1,485.62	12.61	118.832		
1,896.23	1,896.23	1,875.45	1,875.43	6.59	6.33	-84.04	155.56	-1,490.06	1,498.16	1,485.24	12.92	115.973		
1,900.00	1,900.00	1,878.85	1,878.83	6.61	6.34	-84.04	155.56	-1,490.06	1,498.16	1,485.21	12.94	115.746		
1,950.00	1,950.00	1,928.82	1,928.80	6.78	6.51	-84.04	155.60	-1,490.10	1,498.20	1,484.91	13.30	112.675		
2,000.00	2,000.00	1,982.43	1,982.41	6.96	6.70	-84.04	155.69	-1,490.04	1,498.16	1,484.49	13.66	109.652		
2,050.00	2,050.00	2,030.12	2,030.10	7.14	6.87	-84.03	155.81	-1,489.95	1,498.07	1,484.06	14.01	106.937		
2,062.54	2,062.54	2,041.77	2,041.74	7.19	6.91	-84.03	155.85	-1,489.94	1,498.07	1,483.97	14.09	106.287		
2,100.00	2,100.00	2,076.53	2,076.51	7.32	7.03	-84.02	155.99	-1,489.95	1,498.10	1,483.75	14.35	104.394		
2,150.00	2,150.00	2,124.18	2,124.16	7.50	7.20	-84.02	156.18	-1,490.06	1,498.23	1,483.54	14.70	101.947		
2,200.00	2,200.00	2,172.15	2,172.12	7.68	7.37	-84.02	156.22	-1,490.25	1,498.44	1,483.39	15.04	99.610		
2,250.00	2,250.00	2,226.27	2,226.24	7.86	7.55	-84.02	156.15	-1,490.46	1,498.62	1,483.21	15.41	97.254		
2,300.00	2,300.00	2,281.60	2,281.57	8.04	7.74	-84.02	156.07	-1,490.48	1,498.63	1,482.85	15.78	94.974		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S	+E/-W	(ft)	(ft)	(ft)			
2,350.00	2,350.00	2,331.45	2,331.43	8.22	7.92	-84.02	156.03	-1,490.42	1,498.57	1,482.44	16.13	92.904		
2,400.00	2,400.00	2,379.67	2,379.64	8.39	8.08	-84.02	156.02	-1,490.35	1,498.49	1,482.02	16.48	90.950		
2,402.85	2,402.85	2,382.07	2,382.05	8.40	8.09	-84.02	156.02	-1,490.35	1,498.49	1,482.00	16.49	90.847		
2,450.00	2,450.00	2,421.86	2,421.84	8.57	8.23	-84.02	156.14	-1,490.43	1,498.61	1,481.81	16.80	89.191 ES		
2,500.00	2,500.00	2,464.18	2,464.15	8.75	8.38	-84.01	156.42	-1,490.73	1,498.98	1,481.86	17.13	87.515		
2,550.00	2,550.00	2,508.90	2,508.86	8.93	8.54	-169.17	156.85	-1,491.21	1,499.79	1,482.33	17.46	85.899 SF		

Anticollision Report

Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Reference Site: Sec 01-T23S-R31E
Site Error: 5.00 ft
Reference Well: Tomb Raider 1-12 Fed 525H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 2

Local Co-ordinate Reference: Well Tomb Raider 1-12 Fed 525H
TVD Reference: RKB @ 3500.80ft
MD Reference: RKB @ 3500.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1													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		
0.00	0.00	0.10	-0.10	0.50	0.50	-90.21	-0.11	-29.95	29.95					
50.00	50.00	49.90	49.90	0.50	0.50	-90.21	-0.11	-29.95	29.95	28.94	1.01	29.757		
100.00	100.00	100.10	99.90	0.52	0.52	-90.21	-0.11	-29.95	29.95	28.91	1.04	28.921		
150.00	150.00	149.90	149.90	0.59	0.59	-90.21	-0.11	-29.95	29.95	28.77	1.18	25.375		
200.00	200.00	200.10	199.90	0.70	0.70	-90.21	-0.11	-29.95	29.95	28.55	1.40	21.325		
250.00	250.00	249.90	249.90	0.84	0.84	-90.21	-0.11	-29.95	29.95	28.28	1.68	17.879		
300.00	300.00	300.10	299.90	0.99	0.99	-90.21	-0.11	-29.95	29.95	27.98	1.97	15.165		
350.00	350.00	349.90	349.90	1.15	1.15	-90.21	-0.11	-29.95	29.95	27.66	2.29	13.075		
400.00	400.00	400.10	399.90	1.31	1.31	-90.21	-0.11	-29.95	29.95	27.33	2.62	11.438		
450.00	450.00	449.90	449.90	1.48	1.48	-90.21	-0.11	-29.95	29.95	27.00	2.95	10.145		
500.00	500.00	500.10	499.90	1.65	1.65	-90.21	-0.11	-29.95	29.95	26.66	3.29	9.096		
550.00	550.00	549.90	549.90	1.82	1.82	-90.21	-0.11	-29.95	29.95	26.32	3.63	8.239		
600.00	600.00	600.10	599.90	1.99	1.99	-90.21	-0.11	-29.95	29.95	25.97	3.98	7.522		
650.00	650.00	649.90	649.90	2.16	2.16	-90.21	-0.11	-29.95	29.95	25.62	4.33	6.919		
700.00	700.00	700.10	699.90	2.34	2.34	-90.21	-0.11	-29.95	29.95	25.27	4.68	6.401		
750.00	750.00	749.90	749.90	2.51	2.51	-90.21	-0.11	-29.95	29.95	24.92	5.03	5.955		
800.00	800.00	800.10	799.90	2.69	2.69	-90.21	-0.11	-29.95	29.95	24.57	5.38	5.565		
850.00	850.00	849.90	849.90	2.87	2.87	-90.21	-0.11	-29.95	29.95	24.22	5.73	5.224		
900.00	900.00	900.10	899.90	3.04	3.04	-90.21	-0.11	-29.95	29.95	23.86	6.09	4.920 Alert		
950.00	950.00	949.90	949.90	3.22	3.22	-90.21	-0.11	-29.95	29.95	23.51	6.44	4.650 Alert		
1,000.00	1,000.00	1,000.10	999.90	3.40	3.40	-90.21	-0.11	-29.95	29.95	23.15	6.80	4.407 Alert		
1,050.00	1,050.00	1,049.90	1,049.90	3.58	3.57	-90.21	-0.11	-29.95	29.95	22.80	7.15	4.189 Alert		
1,100.00	1,100.00	1,100.10	1,099.90	3.75	3.75	-90.21	-0.11	-29.95	29.95	22.44	7.51	3.990 Alert		
1,150.00	1,150.00	1,149.90	1,149.90	3.93	3.93	-90.21	-0.11	-29.95	29.95	22.09	7.86	3.810 Alert		
1,200.00	1,200.00	1,200.10	1,199.90	4.11	4.11	-90.21	-0.11	-29.95	29.95	21.73	8.22	3.645 Alert		
1,250.00	1,250.00	1,249.90	1,249.90	4.29	4.29	-90.21	-0.11	-29.95	29.95	21.38	8.57	3.494 Alert		
1,300.00	1,300.00	1,300.10	1,299.90	4.46	4.46	-90.21	-0.11	-29.95	29.95	21.02	8.93	3.354 Alert		
1,350.00	1,350.00	1,349.90	1,349.90	4.64	4.64	-90.21	-0.11	-29.95	29.95	20.67	9.28	3.226 Alert		
1,400.00	1,400.00	1,400.10	1,399.90	4.82	4.82	-90.21	-0.11	-29.95	29.95	20.31	9.64	3.106 Alert		
1,450.00	1,450.00	1,449.90	1,449.90	5.00	5.00	-90.21	-0.11	-29.95	29.95	19.95	10.00	2.996 Alert		
1,500.00	1,500.00	1,500.10	1,499.90	5.18	5.18	-90.21	-0.11	-29.95	29.95	19.60	10.35	2.892 Alert		
1,550.00	1,550.00	1,549.90	1,549.90	5.36	5.36	-90.21	-0.11	-29.95	29.95	19.24	10.71	2.796 Alert		
1,600.00	1,600.00	1,600.10	1,599.90	5.53	5.53	-90.21	-0.11	-29.95	29.95	18.88	11.07	2.706 Alert		
1,650.00	1,650.00	1,649.90	1,649.90	5.71	5.71	-90.21	-0.11	-29.95	29.95	18.53	11.42	2.621 Alert		
1,700.00	1,700.00	1,700.10	1,699.90	5.89	5.89	-90.21	-0.11	-29.95	29.95	18.17	11.78	2.542 Alert		
1,750.00	1,750.00	1,749.90	1,749.90	6.07	6.07	-90.21	-0.11	-29.95	29.95	17.81	12.14	2.467 Minor Risk		
1,800.00	1,800.00	1,800.10	1,799.90	6.25	6.25	-90.21	-0.11	-29.95	29.95	17.45	12.50	2.397 Minor Risk		
1,850.00	1,850.00	1,849.90	1,849.90	6.43	6.43	-90.21	-0.11	-29.95	29.95	17.10	12.85	2.330 Minor Risk		
1,900.00	1,900.00	1,900.10	1,899.90	6.61	6.61	-90.21	-0.11	-29.95	29.95	16.74	13.21	2.267 Minor Risk		
1,950.00	1,950.00	1,949.90	1,949.90	6.78	6.78	-90.21	-0.11	-29.95	29.95	16.38	13.57	2.207 Minor Risk		
2,000.00	2,000.00	2,000.10	1,999.90	6.96	6.96	-90.21	-0.11	-29.95	29.95	16.02	13.93	2.151 Minor Risk		
2,050.00	2,050.00	2,049.90	2,049.90	7.14	7.14	-90.21	-0.11	-29.95	29.95	15.67	14.28	2.097 Minor Risk		
2,100.00	2,100.00	2,100.10	2,099.90	7.32	7.32	-90.21	-0.11	-29.95	29.95	15.31	14.64	2.045 Minor Risk		
2,150.00	2,150.00	2,149.90	2,149.90	7.50	7.50	-90.21	-0.11	-29.95	29.95	14.95	15.00	1.997 Minor Risk		
2,200.00	2,200.00	2,200.10	2,199.90	7.68	7.68	-90.21	-0.11	-29.95	29.95	14.59	15.36	1.950 Minor Risk		
2,250.00	2,250.00	2,249.90	2,249.90	7.86	7.86	-90.21	-0.11	-29.95	29.95	14.24	15.71	1.906 Minor Risk		
2,300.00	2,300.00	2,300.10	2,299.90	8.04	8.04	-90.21	-0.11	-29.95	29.95	13.88	16.07	1.863 Minor Risk		
2,350.00	2,350.00	2,349.90	2,349.90	8.22	8.21	-90.21	-0.11	-29.95	29.95	13.52	16.43	1.823 Minor Risk		
2,400.00	2,400.00	2,400.10	2,399.90	8.39	8.39	-90.21	-0.11	-29.95	29.95	13.16	16.79	1.784 Minor Risk		
2,450.00	2,450.00	2,449.90	2,449.90	8.57	8.57	-90.21	-0.11	-29.95	29.95	12.80	17.15	1.747 Minor Risk		
2,500.00	2,500.00	2,500.10	2,499.90	8.75	8.75	-90.21	-0.11	-29.95	29.95	12.45	17.50	1.711 Minor Risk, CC		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1													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		
2,550.00	2,550.00	2,549.90	2,549.90	8.93	8.93	-175.42	-0.11	-29.95	30.17	12.31	17.86	1.689	Minor Risk, ES, SF	
2,600.00	2,599.99	2,600.11	2,599.89	9.10	9.11	-175.51	-0.11	-29.95	30.82	12.61	18.21	1.692	Minor Risk	
2,650.00	2,649.98	2,649.88	2,649.88	9.27	9.29	-175.67	-0.11	-29.95	31.91	13.35	18.56	1.719	Minor Risk	
2,700.00	2,699.96	2,700.14	2,699.86	9.44	9.47	-175.86	-0.11	-29.95	33.43	14.52	18.91	1.768	Minor Risk	
2,750.00	2,749.92	2,749.82	2,749.82	9.62	9.65	-176.09	-0.11	-29.95	35.39	16.13	19.26	1.837	Minor Risk	
2,800.00	2,799.86	2,800.24	2,799.76	9.79	9.83	-176.34	-0.11	-29.95	37.78	18.17	19.61	1.926	Minor Risk	
2,850.00	2,849.78	2,849.68	2,849.68	9.96	10.00	-176.59	-0.11	-29.95	40.61	20.65	19.96	2.034	Minor Risk	
2,900.00	2,899.68	2,900.42	2,899.58	10.14	10.19	-176.84	-0.11	-29.95	43.88	23.56	20.32	2.160	Minor Risk	
2,950.00	2,949.54	2,949.44	2,949.44	10.31	10.36	-177.09	-0.11	-29.95	47.58	26.91	20.66	2.302	Minor Risk	
3,000.00	2,999.37	3,000.73	2,999.27	10.49	10.54	-177.32	-0.11	-29.95	51.71	30.69	21.02	2.460	Minor Risk	
3,050.00	3,049.16	3,049.06	3,049.06	10.66	10.72	-177.53	-0.11	-29.95	56.28	34.92	21.37	2.634	Alert	
3,100.00	3,098.93	3,101.17	3,098.83	10.84	10.90	-177.73	-0.11	-29.95	61.07	39.34	21.73	2.811	Alert	
3,150.00	3,148.70	3,148.60	3,148.60	11.01	11.07	-177.89	-0.11	-29.95	65.85	43.78	22.07	2.984	Alert	
3,200.00	3,198.47	3,201.63	3,198.37	11.19	11.26	-178.04	-0.11	-29.95	70.63	48.20	22.43	3.149	Alert	
3,250.00	3,248.24	3,248.14	3,248.14	11.37	11.43	-178.16	-0.11	-29.95	75.42	52.65	22.77	3.312	Alert	
3,300.00	3,298.01	3,302.09	3,297.91	11.54	11.62	-178.27	-0.11	-29.95	80.21	57.07	23.14	3.466	Alert	
3,350.00	3,347.78	3,347.68	3,347.68	11.72	11.79	-178.37	-0.11	-29.95	84.99	61.52	23.47	3.621	Alert	
3,400.00	3,397.55	3,402.55	3,397.45	11.90	11.98	-178.45	-0.11	-29.95	89.78	65.93	23.84	3.765	Alert	
3,450.00	3,447.32	3,447.22	3,447.22	12.08	12.14	-178.53	-0.11	-29.95	94.56	70.38	24.18	3.911	Alert	
3,500.00	3,497.09	3,503.01	3,496.99	12.26	12.34	-178.60	-0.11	-29.95	99.35	74.80	24.55	4.046	Alert	
3,550.00	3,546.86	3,546.76	3,546.76	12.44	12.50	-178.67	-0.11	-29.95	104.13	79.25	24.88	4.185	Alert	
3,600.00	3,596.63	3,603.47	3,596.53	12.62	12.70	-178.73	-0.11	-29.95	108.92	83.66	25.26	4.312	Alert	
3,650.00	3,646.40	3,646.30	3,646.30	12.80	12.86	-178.78	-0.11	-29.95	113.71	88.12	25.59	4.443	Alert	
3,700.00	3,696.17	3,703.93	3,696.07	12.98	13.06	-178.83	-0.11	-29.95	118.49	92.52	25.97	4.562	Alert	
3,750.00	3,745.94	3,745.84	3,745.84	13.16	13.21	-178.87	-0.11	-29.95	123.28	96.98	26.30	4.688	Alert	
3,800.00	3,795.71	3,804.39	3,795.61	13.34	13.42	-178.92	-0.11	-29.95	128.07	101.38	26.68	4.800	Alert	
3,850.00	3,845.48	3,845.38	3,845.38	13.52	13.57	-178.96	-0.11	-29.95	132.85	105.85	27.01	4.919	Alert	
3,900.00	3,895.25	3,904.85	3,895.15	13.71	13.78	-178.99	-0.11	-29.95	137.64	110.25	27.39	5.024		
3,950.00	3,945.02	3,944.92	3,944.92	13.89	13.93	-179.03	-0.11	-29.95	142.43	114.71	27.71	5.139		
4,000.00	3,994.79	3,994.69	3,994.69	14.07	14.10	-179.06	-0.11	-29.95	147.22	119.15	28.07	5.245		
4,050.00	4,044.56	4,043.52	4,043.52	14.25	14.28	-179.03	0.04	-30.09	152.14	123.72	28.42	5.354		
4,100.00	4,094.33	4,092.17	4,092.16	14.43	14.45	-178.86	0.55	-30.60	157.41	128.65	28.76	5.473		
4,150.00	4,144.10	4,140.73	4,140.71	14.62	14.62	-178.56	1.43	-31.46	163.02	133.92	29.10	5.601		
4,200.00	4,193.87	4,189.20	4,189.15	14.80	14.79	-178.15	2.68	-32.69	168.99	139.54	29.44	5.739		
4,250.00	4,243.64	4,237.57	4,237.46	14.98	14.97	-177.64	4.28	-34.26	175.31	145.53	29.78	5.886		
4,300.00	4,293.41	4,285.96	4,285.78	15.17	15.14	-177.05	6.25	-36.20	182.00	151.88	30.12	6.043		
4,350.00	4,343.18	4,335.45	4,335.17	15.35	15.31	-176.44	8.41	-38.32	188.85	158.38	30.47	6.198		
4,400.00	4,392.95	4,384.94	4,384.57	15.53	15.49	-175.88	10.57	-40.44	195.72	164.90	30.82	6.350		
4,450.00	4,442.72	4,434.43	4,433.97	15.72	15.66	-175.35	12.72	-42.56	202.61	171.43	31.17	6.500		
4,500.00	4,492.49	4,483.92	4,483.37	15.90	15.84	-174.86	14.88	-44.68	209.51	177.99	31.52	6.646		
4,550.00	4,542.26	4,533.41	4,532.76	16.09	16.02	-174.40	17.04	-46.80	216.42	184.55	31.87	6.790		
4,600.00	4,592.03	4,582.90	4,582.16	16.27	16.19	-173.97	19.20	-48.92	223.35	191.13	32.22	6.931		
4,650.00	4,641.80	4,632.39	4,631.56	16.46	16.37	-173.56	21.36	-51.04	230.29	197.72	32.58	7.069		
4,700.00	4,691.57	4,681.88	4,680.96	16.64	16.54	-173.18	23.52	-53.16	237.24	204.31	32.93	7.205		
4,750.00	4,741.34	4,731.37	4,730.36	16.83	16.72	-172.82	25.67	-55.28	244.20	210.92	33.28	7.338		
4,800.00	4,791.11	4,780.86	4,779.75	17.01	16.90	-172.48	27.83	-57.40	251.17	217.54	33.63	7.468		
4,850.00	4,840.89	4,830.35	4,829.15	17.20	17.07	-172.15	29.99	-59.52	258.15	224.17	33.98	7.596		
4,900.00	4,890.66	4,879.84	4,878.55	17.38	17.25	-171.85	32.15	-61.64	265.14	230.80	34.34	7.722		
4,950.00	4,940.43	4,929.34	4,927.95	17.57	17.43	-171.56	34.31	-63.76	272.13	237.44	34.69	7.845		
5,000.00	4,990.20	4,978.83	4,977.34	17.75	17.60	-171.28	36.46	-65.88	279.13	244.09	35.04	7.965		
5,050.00	5,039.97	5,028.32	5,026.74	17.94	17.78	-171.02	38.62	-68.00	286.13	250.74	35.40	8.084		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1													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		
7,650.00	7,628.12	7,601.96	7,595.57	27.68	27.06	-165.22	150.86	-178.26	652.73	598.83	53.91	12.109		
7,700.00	7,678.02	7,651.64	7,645.16	27.86	27.24	-165.16	153.03	-180.39	658.34	604.07	54.26	12.132		
7,750.00	7,727.95	7,706.05	7,699.48	28.04	27.44	-165.08	155.30	-182.62	663.21	608.56	54.66	12.134		
7,800.00	7,777.91	7,764.16	7,757.52	28.22	27.65	-165.01	157.16	-184.45	666.90	611.83	55.07	12.110		
7,850.00	7,827.90	7,822.41	7,815.75	28.40	27.86	-164.97	158.39	-185.66	669.34	613.86	55.48	12.064		
7,900.00	7,877.89	7,880.74	7,874.08	28.58	28.07	-164.95	158.99	-186.25	670.52	614.64	55.88	11.999		
7,950.00	7,927.89	7,934.46	7,927.79	28.75	28.26	-79.77	159.06	-186.31	670.65	614.39	56.25	11.922		
8,000.00	7,977.89	7,984.46	7,977.79	28.92	28.44	-79.77	159.06	-186.31	670.65	614.04	56.60	11.848		
8,050.00	8,027.89	8,034.46	8,027.79	29.09	28.62	-79.77	159.06	-186.31	670.65	613.69	56.96	11.775		
8,100.00	8,077.89	8,084.46	8,077.79	29.26	28.79	-79.77	159.06	-186.31	670.65	613.34	57.31	11.703		
8,150.00	8,127.89	8,134.46	8,127.79	29.43	28.97	-79.77	159.06	-186.31	670.65	612.99	57.66	11.631		
8,200.00	8,177.89	8,184.46	8,177.79	29.60	29.15	-79.77	159.06	-186.31	670.65	612.64	58.01	11.561		
8,250.00	8,227.89	8,234.46	8,227.79	29.78	29.33	-79.77	159.06	-186.31	670.65	612.28	58.36	11.491		
8,300.00	8,277.89	8,284.46	8,277.79	29.95	29.50	-79.77	159.06	-186.31	670.65	611.93	58.72	11.422		
8,350.00	8,327.89	8,334.46	8,327.79	30.12	29.68	-79.77	159.06	-186.31	670.65	611.58	59.07	11.354		
8,400.00	8,377.89	8,384.46	8,377.79	30.29	29.86	-79.77	159.06	-186.31	670.65	611.23	59.42	11.287		
8,450.00	8,427.89	8,434.46	8,427.79	30.46	30.04	-79.77	159.06	-186.31	670.65	610.87	59.77	11.220		
8,500.00	8,477.89	8,484.46	8,477.79	30.63	30.22	-79.77	159.06	-186.31	670.65	610.52	60.12	11.154		
8,550.00	8,527.89	8,534.46	8,527.79	30.81	30.39	-79.77	159.06	-186.31	670.65	610.17	60.48	11.089		
8,600.00	8,577.89	8,584.46	8,577.79	30.98	30.57	-79.77	159.06	-186.31	670.65	609.82	60.83	11.025		
8,650.00	8,627.89	8,634.46	8,632.08	31.15	30.76	100.55	158.70	-186.31	670.64	609.44	61.20	10.959		
8,700.00	8,677.75	8,702.31	8,695.35	31.31	30.96	100.46	152.97	-186.28	670.46	608.90	61.56	10.891		
8,750.00	8,727.10	8,765.61	8,757.34	31.47	31.15	100.27	140.33	-186.21	670.08	608.18	61.90	10.826		
8,800.00	8,775.58	8,828.45	8,817.14	31.63	31.33	99.98	121.09	-186.10	669.50	607.30	62.20	10.763		
8,850.00	8,822.82	8,890.67	8,873.91	31.78	31.50	99.60	95.71	-185.95	668.76	606.27	62.49	10.702		
8,900.00	8,868.45	8,952.11	8,926.94	31.93	31.65	99.12	64.76	-185.78	667.88	605.11	62.77	10.640		
8,950.00	8,912.14	9,012.64	8,975.66	32.06	31.78	98.57	28.89	-185.58	666.90	603.85	63.04	10.578		
9,000.00	8,953.53	9,072.16	9,019.62	32.19	31.89	97.94	-11.21	-185.35	665.85	602.53	63.32	10.515		
9,050.00	8,992.33	9,130.61	9,058.51	32.31	32.01	97.25	-54.81	-185.11	664.78	601.17	63.61	10.451		
9,100.00	9,028.23	9,187.94	9,092.15	32.43	32.15	96.50	-101.20	-184.84	663.73	599.82	63.91	10.385		
9,150.00	9,060.97	9,244.12	9,120.45	32.54	32.29	95.71	-149.70	-184.57	662.74	598.51	64.23	10.319		
9,200.00	9,090.29	9,299.15	9,143.44	32.65	32.43	94.88	-199.68	-184.29	661.82	597.27	64.55	10.253		
9,250.00	9,115.97	9,353.05	9,161.22	32.77	32.57	94.02	-250.54	-184.00	661.02	596.15	64.88	10.189		
9,300.00	9,137.82	9,405.84	9,173.92	32.90	32.71	93.13	-301.76	-183.71	660.36	595.16	65.20	10.128		
9,350.00	9,155.66	9,457.56	9,181.74	33.04	32.85	92.24	-352.87	-183.43	659.86	594.34	65.52	10.070		
9,400.00	9,169.37	9,508.27	9,184.90	33.19	33.00	91.33	-403.46	-183.14	659.52	593.69	65.84	10.018		
9,450.00	9,178.83	9,557.63	9,185.00	33.34	33.15	90.54	-452.82	-182.86	659.37	593.23	66.14	9.969		
9,500.00	9,183.98	9,607.35	9,185.00	33.51	33.30	90.10	-502.54	-182.58	659.34	592.89	66.46	9.921		
9,507.13	9,184.38	9,614.47	9,185.00	33.53	33.33	90.06	-509.65	-182.54	659.34	592.84	66.51	9.914		
9,550.00	9,185.00	9,657.33	9,185.00	33.68	33.48	90.01	-552.52	-182.30	659.35	592.54	66.81	9.869		
9,600.00	9,185.00	9,707.33	9,185.00	33.87	33.67	90.01	-602.51	-182.02	659.35	592.18	67.17	9.816		
9,650.00	9,185.00	9,757.33	9,185.00	34.07	33.88	90.01	-652.51	-181.74	659.35	591.77	67.58	9.757		
9,700.00	9,185.00	9,807.33	9,185.00	34.27	34.09	90.01	-702.51	-181.45	659.35	591.36	67.99	9.698		
9,750.00	9,185.00	9,857.33	9,185.00	34.51	34.33	90.01	-752.51	-181.17	659.36	590.90	68.46	9.631		
9,800.00	9,185.00	9,907.33	9,185.00	34.74	34.57	90.01	-802.51	-180.89	659.36	590.43	68.93	9.566		
9,850.00	9,185.00	9,957.33	9,185.00	35.00	34.83	90.01	-852.51	-180.61	659.36	589.91	69.45	9.494		
9,900.00	9,185.00	10,007.33	9,185.00	35.26	35.10	90.01	-902.51	-180.33	659.37	589.39	69.98	9.423		
9,950.00	9,185.00	10,057.33	9,185.00	35.54	35.39	90.01	-952.51	-180.05	659.37	588.82	70.55	9.346		
10,000.00	9,185.00	10,107.33	9,185.00	35.82	35.68	90.01	-1,002.51	-179.76	659.37	588.24	71.13	9.270		
10,050.00	9,185.00	10,157.33	9,185.00	36.13	36.00	90.01	-1,052.51	-179.48	659.37	587.62	71.75	9.190		
10,100.00	9,185.00	10,207.33	9,185.00	36.44	36.32	90.01	-1,102.51	-179.20	659.38	587.00	72.38	9.110		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1													Offset Site Error:	5.00 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)				
10,150.00	9,185.00	10,257.33	9,185.00	36.77	36.66	90.01	-1,152.51	-178.92	659.38	586.33	73.05	9.027		
10,200.00	9,185.00	10,307.33	9,185.00	37.10	37.00	90.01	-1,202.51	-178.64	659.38	585.66	73.72	8.944		
10,250.00	9,185.00	10,357.33	9,185.00	37.46	37.36	90.01	-1,252.50	-178.35	659.39	584.95	74.44	8.858		
10,300.00	9,185.00	10,407.33	9,185.00	37.81	37.72	90.01	-1,302.50	-178.07	659.39	584.23	75.16	8.774		
10,350.00	9,185.00	10,457.33	9,185.00	38.18	38.10	90.01	-1,352.50	-177.79	659.39	583.48	75.91	8.686		
10,400.00	9,185.00	10,507.33	9,185.00	38.56	38.48	90.01	-1,402.50	-177.51	659.39	582.72	76.67	8.600		
10,450.00	9,185.00	10,557.33	9,185.00	38.95	38.89	90.01	-1,452.50	-177.23	659.40	581.92	77.47	8.511		
10,500.00	9,185.00	10,607.33	9,185.00	39.35	39.29	90.01	-1,502.50	-176.95	659.40	581.13	78.27	8.424		
10,550.00	9,185.00	10,657.33	9,185.00	39.76	39.71	90.01	-1,552.50	-176.66	659.40	580.30	79.11	8.336		
10,600.00	9,185.00	10,707.33	9,185.00	40.17	40.13	90.01	-1,602.50	-176.38	659.40	579.46	79.94	8.248		
10,650.00	9,185.00	10,757.33	9,185.00	40.60	40.57	90.01	-1,652.50	-176.10	659.41	578.59	80.81	8.160		
10,700.00	9,185.00	10,807.33	9,185.00	41.03	41.01	90.01	-1,702.50	-175.82	659.41	577.73	81.68	8.073		
10,750.00	9,185.00	10,857.33	9,185.00	41.48	41.46	90.01	-1,752.50	-175.54	659.41	576.83	82.59	7.984		
10,800.00	9,185.00	10,907.33	9,185.00	41.93	41.91	90.01	-1,802.50	-175.25	659.42	575.92	83.49	7.898		
10,850.00	9,185.00	10,957.33	9,185.00	42.39	42.38	90.01	-1,852.49	-174.97	659.42	574.99	84.42	7.811		
10,900.00	9,185.00	11,007.33	9,185.00	42.85	42.85	90.01	-1,902.49	-174.69	659.42	574.06	85.36	7.725		
10,950.00	9,185.00	11,057.33	9,185.00	43.33	43.33	90.01	-1,952.49	-174.41	659.42	573.10	86.32	7.639		
11,000.00	9,185.00	11,107.33	9,185.00	43.80	43.82	90.01	-2,002.49	-174.13	659.43	572.14	87.29	7.555		
11,050.00	9,185.00	11,157.33	9,185.00	44.29	44.31	90.01	-2,052.49	-173.85	659.43	571.16	88.27	7.470		
11,100.00	9,185.00	11,207.33	9,185.00	44.78	44.81	90.01	-2,102.49	-173.56	659.43	570.17	89.27	7.387		
11,150.00	9,185.00	11,257.33	9,185.00	45.29	45.32	90.01	-2,152.49	-173.28	659.44	569.16	90.28	7.304		
11,200.00	9,185.00	11,307.33	9,185.00	45.79	45.83	90.01	-2,202.49	-173.00	659.44	568.14	91.30	7.223		
11,250.00	9,185.00	11,357.33	9,185.00	46.30	46.35	90.01	-2,252.49	-172.72	659.44	567.11	92.33	7.142		
11,300.00	9,185.00	11,407.33	9,185.00	46.82	46.87	90.01	-2,302.49	-172.44	659.44	566.07	93.37	7.063		
11,350.00	9,185.00	11,457.33	9,185.00	47.34	47.40	90.01	-2,352.49	-172.15	659.45	565.02	94.43	6.983		
11,400.00	9,185.00	11,507.33	9,185.00	47.87	47.93	90.01	-2,402.49	-171.87	659.45	563.96	95.49	6.906		
11,450.00	9,185.00	11,557.33	9,185.00	48.41	48.47	90.01	-2,452.49	-171.59	659.45	562.88	96.57	6.829		
11,500.00	9,185.00	11,607.33	9,185.00	48.94	49.01	90.01	-2,502.48	-171.31	659.46	561.80	97.65	6.753		
11,550.00	9,185.00	11,657.33	9,185.00	49.49	49.57	90.01	-2,552.48	-171.03	659.46	560.70	98.75	6.678		
11,600.00	9,185.00	11,707.33	9,185.00	50.03	50.12	90.01	-2,602.48	-170.74	659.46	559.61	99.85	6.604		
11,650.00	9,185.00	11,757.33	9,185.00	50.59	50.68	90.01	-2,652.48	-170.46	659.46	558.49	100.97	6.531		
11,700.00	9,185.00	11,807.33	9,185.00	51.14	51.24	90.01	-2,702.48	-170.18	659.47	557.38	102.09	6.460		
11,750.00	9,185.00	11,857.33	9,185.00	51.71	51.81	90.01	-2,752.48	-169.90	659.47	556.25	103.22	6.389		
11,800.00	9,185.00	11,907.33	9,185.00	52.27	52.38	90.01	-2,802.48	-169.62	659.47	555.11	104.36	6.319		
11,850.00	9,185.00	11,957.33	9,185.00	52.84	52.95	90.01	-2,852.48	-169.34	659.48	553.97	105.51	6.250		
11,900.00	9,185.00	12,007.33	9,185.00	53.41	53.53	90.01	-2,902.48	-169.05	659.48	552.82	106.66	6.183		
11,950.00	9,185.00	12,057.33	9,185.00	53.99	54.11	90.01	-2,952.48	-168.77	659.48	551.66	107.83	6.116		
12,000.00	9,185.00	12,107.33	9,185.00	54.57	54.69	90.01	-3,002.48	-168.49	659.48	550.49	108.99	6.051		
12,050.00	9,185.00	12,157.33	9,185.00	55.16	55.28	90.01	-3,052.48	-168.21	659.49	549.32	110.17	5.986		
12,100.00	9,185.00	12,207.33	9,185.00	55.74	55.87	90.01	-3,102.47	-167.93	659.49	548.14	111.35	5.923		
12,150.00	9,185.00	12,257.33	9,185.00	56.34	56.47	90.01	-3,152.47	-167.64	659.49	546.95	112.54	5.860		
12,200.00	9,185.00	12,307.33	9,185.00	56.93	57.07	90.01	-3,202.47	-167.36	659.49	545.76	113.73	5.799		
12,250.00	9,185.00	12,357.33	9,185.00	57.53	57.67	90.01	-3,252.47	-167.08	659.50	544.56	114.94	5.738		
12,300.00	9,185.00	12,407.33	9,185.00	58.13	58.27	90.01	-3,302.47	-166.80	659.50	543.36	116.14	5.678		
12,350.00	9,185.00	12,457.33	9,185.00	58.73	58.88	90.01	-3,352.47	-166.52	659.50	542.15	117.36	5.620		
12,400.00	9,185.00	12,507.33	9,185.00	59.34	59.49	90.01	-3,402.47	-166.24	659.51	540.93	118.57	5.562		
12,450.00	9,185.00	12,557.33	9,185.00	59.95	60.10	90.01	-3,452.47	-165.95	659.51	539.71	119.80	5.505		
12,500.00	9,185.00	12,607.33	9,185.00	60.56	60.72	90.01	-3,502.47	-165.67	659.51	538.49	121.02	5.449		
12,550.00	9,185.00	12,657.33	9,185.00	61.17	61.34	90.01	-3,552.47	-165.39	659.51	537.25	122.26	5.394		
12,600.00	9,185.00	12,707.33	9,185.00	61.79	61.95	90.01	-3,602.47	-165.11	659.52	536.02	123.50	5.340		
12,650.00	9,185.00	12,757.33	9,185.00	62.41	62.58	90.01	-3,652.47	-164.83	659.52	534.78	124.74	5.287		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1													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		
15,250.00	9,185.00	15,357.33	9,185.00	96.73	97.00	90.01	-6,252.42	-150.17	659.67	466.10	193.57	3.408	Alert	
15,300.00	9,185.00	15,407.33	9,185.00	97.41	97.69	90.01	-6,302.42	-149.89	659.67	464.73	194.94	3.384	Alert	
15,350.00	9,185.00	15,457.33	9,185.00	98.10	98.38	90.01	-6,352.42	-149.61	659.67	463.35	196.32	3.360	Alert	
15,400.00	9,185.00	15,507.33	9,185.00	98.78	99.07	90.01	-6,402.42	-149.32	659.67	461.98	197.70	3.337	Alert	
15,450.00	9,185.00	15,557.33	9,185.00	99.47	99.75	90.01	-6,452.42	-149.04	659.68	460.60	199.07	3.314	Alert	
15,500.00	9,185.00	15,607.33	9,185.00	100.16	100.44	90.01	-6,502.42	-148.76	659.68	459.23	200.45	3.291	Alert	
15,550.00	9,185.00	15,657.33	9,185.00	100.85	101.13	90.01	-6,552.42	-148.48	659.68	457.85	201.83	3.268	Alert	
15,600.00	9,185.00	15,707.33	9,185.00	101.54	101.83	90.01	-6,602.42	-148.20	659.69	456.47	203.21	3.246	Alert	
15,650.00	9,185.00	15,757.33	9,185.00	102.23	102.52	90.01	-6,652.42	-147.92	659.69	455.09	204.60	3.224	Alert	
15,700.00	9,185.00	15,807.33	9,185.00	102.92	103.21	90.01	-6,702.42	-147.63	659.69	453.71	205.98	3.203	Alert	
15,750.00	9,185.00	15,857.33	9,185.00	103.61	103.90	90.01	-6,752.42	-147.35	659.69	452.33	207.36	3.181	Alert	
15,800.00	9,185.00	15,907.33	9,185.00	104.30	104.59	90.01	-6,802.42	-147.07	659.70	450.95	208.75	3.160	Alert	
15,850.00	9,185.00	15,957.33	9,185.00	105.00	105.29	90.01	-6,852.42	-146.79	659.70	449.56	210.14	3.139	Alert	
15,900.00	9,185.00	16,007.33	9,185.00	105.69	105.98	90.01	-6,902.41	-146.51	659.70	448.18	211.52	3.119	Alert	
15,950.00	9,185.00	16,057.33	9,185.00	106.38	106.67	90.01	-6,952.41	-146.22	659.71	446.79	212.91	3.098	Alert	
16,000.00	9,185.00	16,107.33	9,185.00	107.08	107.37	90.01	-7,002.41	-145.94	659.71	445.41	214.30	3.078	Alert	
16,050.00	9,185.00	16,157.33	9,185.00	107.77	108.06	90.01	-7,052.41	-145.66	659.71	444.02	215.69	3.059	Alert	
16,100.00	9,185.00	16,207.33	9,185.00	108.46	108.76	90.01	-7,102.41	-145.38	659.71	442.63	217.08	3.039	Alert	
16,150.00	9,185.00	16,257.33	9,185.00	109.16	109.46	90.01	-7,152.41	-145.10	659.72	441.24	218.47	3.020	Alert	
16,200.00	9,185.00	16,307.33	9,185.00	109.85	110.15	90.01	-7,202.41	-144.82	659.72	439.85	219.87	3.001	Alert	
16,250.00	9,185.00	16,357.33	9,185.00	110.55	110.85	90.01	-7,252.41	-144.53	659.72	438.46	221.26	2.982	Alert	
16,300.00	9,185.00	16,407.33	9,185.00	111.25	111.55	90.01	-7,302.41	-144.25	659.72	437.07	222.65	2.963	Alert	
16,350.00	9,185.00	16,457.33	9,185.00	111.94	112.24	90.01	-7,352.41	-143.97	659.73	435.68	224.05	2.945	Alert	
16,400.00	9,185.00	16,507.33	9,185.00	112.64	112.94	90.01	-7,402.41	-143.69	659.73	434.28	225.45	2.926	Alert	
16,450.00	9,185.00	16,557.33	9,185.00	113.34	113.64	90.01	-7,452.41	-143.41	659.73	432.89	226.84	2.908	Alert	
16,500.00	9,185.00	16,607.33	9,185.00	114.04	114.34	90.01	-7,502.41	-143.12	659.74	431.50	228.24	2.891	Alert	
16,550.00	9,185.00	16,657.33	9,185.00	114.73	115.04	90.01	-7,552.40	-142.84	659.74	430.10	229.64	2.873	Alert	
16,600.00	9,185.00	16,707.33	9,185.00	115.43	115.74	90.01	-7,602.40	-142.56	659.74	428.70	231.04	2.856	Alert	
16,650.00	9,185.00	16,757.33	9,185.00	116.13	116.44	90.01	-7,652.40	-142.28	659.74	427.31	232.44	2.838	Alert	
16,700.00	9,185.00	16,807.33	9,185.00	116.83	117.14	90.01	-7,702.40	-142.00	659.75	425.91	233.84	2.821	Alert	
16,750.00	9,185.00	16,857.33	9,185.00	117.53	117.84	90.01	-7,752.40	-141.72	659.75	424.51	235.24	2.805	Alert	
16,800.00	9,185.00	16,907.33	9,185.00	118.23	118.54	90.01	-7,802.40	-141.43	659.75	423.11	236.64	2.788	Alert	
16,850.00	9,185.00	16,957.33	9,185.00	118.93	119.24	90.01	-7,852.40	-141.15	659.76	421.71	238.04	2.772	Alert	
16,900.00	9,185.00	17,007.33	9,185.00	119.63	119.94	90.01	-7,902.40	-140.87	659.76	420.31	239.45	2.755	Alert	
16,950.00	9,185.00	17,057.33	9,185.00	120.33	120.64	90.01	-7,952.40	-140.59	659.76	418.91	240.85	2.739	Alert	
17,000.00	9,185.00	17,107.33	9,185.00	121.04	121.35	90.01	-8,002.40	-140.31	659.76	417.51	242.25	2.723	Alert	
17,050.00	9,185.00	17,157.33	9,185.00	121.74	122.05	90.01	-8,052.40	-140.02	659.77	416.11	243.66	2.708	Alert	
17,100.00	9,185.00	17,207.33	9,185.00	122.44	122.75	90.01	-8,102.40	-139.74	659.77	414.70	245.07	2.692	Alert	
17,150.00	9,185.00	17,257.33	9,185.00	123.14	123.46	90.01	-8,152.39	-139.46	659.77	413.30	246.47	2.677	Alert	
17,200.00	9,185.00	17,307.33	9,185.00	123.84	124.16	90.01	-8,202.39	-139.18	659.78	411.90	247.88	2.662	Alert	
17,250.00	9,185.00	17,357.33	9,185.00	124.55	124.86	90.01	-8,252.39	-138.90	659.78	410.49	249.29	2.647	Alert	
17,300.00	9,185.00	17,407.33	9,185.00	125.25	125.57	90.01	-8,302.39	-138.62	659.78	409.09	250.69	2.632	Alert	
17,350.00	9,185.00	17,457.33	9,185.00	125.95	126.27	90.01	-8,352.39	-138.33	659.78	407.68	252.10	2.617	Alert	
17,400.00	9,185.00	17,507.33	9,185.00	126.66	126.98	90.01	-8,402.39	-138.05	659.79	406.27	253.51	2.603	Alert	
17,450.00	9,185.00	17,557.33	9,185.00	127.36	127.68	90.01	-8,452.39	-137.77	659.79	404.87	254.92	2.588	Alert	
17,500.00	9,185.00	17,607.33	9,185.00	128.07	128.39	90.01	-8,502.39	-137.49	659.79	403.46	256.33	2.574	Alert	
17,550.00	9,185.00	17,657.33	9,185.00	128.77	129.09	90.01	-8,552.39	-137.21	659.79	402.05	257.74	2.560	Alert	
17,600.00	9,185.00	17,707.33	9,185.00	129.48	129.80	90.01	-8,602.39	-136.92	659.80	400.64	259.15	2.546	Alert	
17,650.00	9,185.00	17,757.33	9,185.00	130.18	130.50	90.01	-8,652.39	-136.64	659.80	399.23	260.57	2.532	Alert	
17,700.00	9,185.00	17,807.33	9,185.00	130.89	131.21	90.01	-8,702.39	-136.36	659.80	397.82	261.98	2.519	Alert	
17,750.00	9,185.00	17,857.33	9,185.00	131.59	131.92	90.01	-8,752.39	-136.08	659.81	396.41	263.39	2.505	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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 514H - Wellbore #1 - Permit Plan 1													Offset Site Error:	5.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
17,800.00	9,185.00	17,907.33	9,185.00	132.30	132.62	90.01	-8,802.38	-135.80	659.81	395.00	264.81	2.492	Minor Risk	
17,850.00	9,185.00	17,957.33	9,185.00	133.01	133.33	90.01	-8,852.38	-135.51	659.81	393.59	266.22	2.478	Minor Risk	
17,900.00	9,185.00	18,007.33	9,185.00	133.71	134.04	90.01	-8,902.38	-135.23	659.81	392.18	267.63	2.465	Minor Risk	
17,950.00	9,185.00	18,057.33	9,185.00	134.42	134.74	90.01	-8,952.38	-134.95	659.82	390.77	269.05	2.452	Minor Risk	
18,000.00	9,185.00	18,107.33	9,185.00	135.13	135.45	90.01	-9,002.38	-134.67	659.82	389.36	270.46	2.440	Minor Risk	
18,050.00	9,185.00	18,157.33	9,185.00	135.83	136.16	90.01	-9,052.38	-134.39	659.82	387.94	271.88	2.427	Minor Risk	
18,100.00	9,185.00	18,207.33	9,185.00	136.54	136.87	90.01	-9,102.38	-134.11	659.83	386.53	273.30	2.414	Minor Risk	
18,150.00	9,185.00	18,257.33	9,185.00	137.25	137.58	90.01	-9,152.38	-133.82	659.83	385.12	274.71	2.402	Minor Risk	
18,200.00	9,185.00	18,307.33	9,185.00	137.96	138.28	90.01	-9,202.38	-133.54	659.83	383.70	276.13	2.390	Minor Risk	
18,250.00	9,185.00	18,357.33	9,185.00	138.67	138.99	90.01	-9,252.38	-133.26	659.83	382.29	277.55	2.377	Minor Risk	
18,300.00	9,185.00	18,407.33	9,185.00	139.37	139.70	90.01	-9,302.38	-132.98	659.84	380.87	278.96	2.365	Minor Risk	
18,350.00	9,185.00	18,457.33	9,185.00	140.08	140.41	90.01	-9,352.38	-132.70	659.84	379.46	280.38	2.353	Minor Risk	
18,400.00	9,185.00	18,507.33	9,185.00	140.79	141.12	90.01	-9,402.38	-132.41	659.84	378.04	281.80	2.342	Minor Risk	
18,450.00	9,185.00	18,557.33	9,185.00	141.50	141.83	90.01	-9,452.37	-132.13	659.85	376.62	283.22	2.330	Minor Risk	
18,500.00	9,185.00	18,607.33	9,185.00	142.21	142.54	90.01	-9,502.37	-131.85	659.85	375.21	284.64	2.318	Minor Risk	
18,550.00	9,185.00	18,657.33	9,185.00	142.92	143.25	90.01	-9,552.37	-131.57	659.85	373.79	286.06	2.307	Minor Risk	
18,600.00	9,185.00	18,707.33	9,185.00	143.63	143.96	90.01	-9,602.37	-131.29	659.85	372.37	287.48	2.295	Minor Risk	
18,650.00	9,185.00	18,757.33	9,185.00	144.34	144.67	90.01	-9,652.37	-131.01	659.86	370.96	288.90	2.284	Minor Risk	
18,700.00	9,185.00	18,807.33	9,185.00	145.05	145.38	90.01	-9,702.37	-130.72	659.86	369.54	290.32	2.273	Minor Risk	
18,750.00	9,185.00	18,857.33	9,185.00	145.76	146.09	90.01	-9,752.37	-130.44	659.86	368.12	291.74	2.262	Minor Risk	
18,800.00	9,185.00	18,907.33	9,185.00	146.47	146.80	90.01	-9,802.37	-130.16	659.87	366.70	293.16	2.251	Minor Risk	
18,850.00	9,185.00	18,957.33	9,185.00	147.18	147.51	90.01	-9,852.37	-129.88	659.87	365.28	294.59	2.240	Minor Risk	
18,866.10	9,185.00	18,973.43	9,185.00	147.41	147.74	90.01	-9,868.47	-129.79	659.87	364.82	295.04	2.237	Minor Risk	

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 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		
0.00	0.00	0.20	-0.20	0.50	0.50	-90.30	-0.31	-59.97	59.97					
50.00	50.00	49.80	49.80	0.50	0.50	-90.30	-0.31	-59.97	59.97	58.96	1.01	59.586		
100.00	100.00	100.20	99.80	0.52	0.52	-90.30	-0.31	-59.97	59.97	58.94	1.04	57.904		
150.00	150.00	149.80	149.80	0.59	0.59	-90.30	-0.31	-59.97	59.97	58.79	1.18	50.818		
200.00	200.00	200.20	199.80	0.70	0.70	-90.30	-0.31	-59.97	59.97	58.57	1.40	42.693		
250.00	250.00	249.80	249.80	0.84	0.84	-90.30	-0.31	-59.97	59.97	58.30	1.67	35.807		
300.00	300.00	300.20	299.80	0.99	0.99	-90.30	-0.31	-59.97	59.97	58.00	1.98	30.361		
350.00	350.00	349.80	349.80	1.15	1.14	-90.30	-0.31	-59.97	59.97	57.68	2.29	26.184		
400.00	400.00	400.20	399.80	1.31	1.31	-90.30	-0.31	-59.97	59.97	57.35	2.62	22.900		
450.00	450.00	449.80	449.80	1.48	1.48	-90.30	-0.31	-59.97	59.97	57.02	2.95	20.316		
500.00	500.00	500.20	499.80	1.65	1.65	-90.30	-0.31	-59.97	59.97	56.68	3.29	18.212		
550.00	550.00	549.80	549.80	1.82	1.82	-90.30	-0.31	-59.97	59.97	56.34	3.63	16.500		
600.00	600.00	600.20	599.80	1.99	1.99	-90.30	-0.31	-59.97	59.97	55.99	3.98	15.061		
650.00	650.00	649.80	649.80	2.16	2.16	-90.30	-0.31	-59.97	59.97	55.64	4.33	13.855		
700.00	700.00	700.20	699.80	2.34	2.34	-90.30	-0.31	-59.97	59.97	55.29	4.68	12.816		
750.00	750.00	749.80	749.80	2.51	2.51	-90.30	-0.31	-59.97	59.97	54.94	5.03	11.926		
800.00	800.00	800.20	799.80	2.69	2.69	-90.30	-0.31	-59.97	59.97	54.59	5.38	11.143		
850.00	850.00	849.80	849.80	2.87	2.87	-90.30	-0.31	-59.97	59.97	54.24	5.73	10.460		
900.00	900.00	900.20	899.80	3.04	3.04	-90.30	-0.31	-59.97	59.97	53.88	6.09	9.851		
950.00	950.00	949.80	949.80	3.22	3.22	-90.30	-0.31	-59.97	59.97	53.53	6.44	9.312		
1,000.00	1,000.00	1,000.20	999.80	3.40	3.40	-90.30	-0.31	-59.97	59.97	53.17	6.80	8.824		
1,050.00	1,050.00	1,049.80	1,049.80	3.58	3.57	-90.30	-0.31	-59.97	59.97	52.82	7.15	8.388		
1,100.00	1,100.00	1,100.20	1,099.80	3.75	3.75	-90.30	-0.31	-59.97	59.97	52.47	7.51	7.990		
1,150.00	1,150.00	1,149.80	1,149.80	3.93	3.93	-90.30	-0.31	-59.97	59.97	52.11	7.86	7.630		
1,200.00	1,200.00	1,200.20	1,199.80	4.11	4.11	-90.30	-0.31	-59.97	59.97	51.75	8.22	7.298		
1,250.00	1,250.00	1,249.80	1,249.80	4.29	4.29	-90.30	-0.31	-59.97	59.97	51.40	8.57	6.997		
1,300.00	1,300.00	1,300.20	1,299.80	4.46	4.46	-90.30	-0.31	-59.97	59.97	51.04	8.93	6.716		
1,350.00	1,350.00	1,349.80	1,349.80	4.64	4.64	-90.30	-0.31	-59.97	59.97	50.69	9.28	6.460		
1,400.00	1,400.00	1,400.20	1,399.80	4.82	4.82	-90.30	-0.31	-59.97	59.97	50.33	9.64	6.220		
1,450.00	1,450.00	1,449.80	1,449.80	5.00	5.00	-90.30	-0.31	-59.97	59.97	49.97	10.00	5.999		
1,500.00	1,500.00	1,500.20	1,499.80	5.18	5.18	-90.30	-0.31	-59.97	59.97	49.62	10.36	5.791		
1,550.00	1,550.00	1,549.80	1,549.80	5.36	5.35	-90.30	-0.31	-59.97	59.97	49.26	10.71	5.599		
1,600.00	1,600.00	1,600.20	1,599.80	5.53	5.53	-90.30	-0.31	-59.97	59.97	48.90	11.07	5.418		
1,650.00	1,650.00	1,649.80	1,649.80	5.71	5.71	-90.30	-0.31	-59.97	59.97	48.55	11.42	5.249		
1,700.00	1,700.00	1,700.20	1,699.80	5.89	5.89	-90.30	-0.31	-59.97	59.97	48.19	11.78	5.090		
1,750.00	1,750.00	1,749.80	1,749.80	6.07	6.07	-90.30	-0.31	-59.97	59.97	47.83	12.14	4.940 Alert		
1,800.00	1,800.00	1,800.20	1,799.80	6.25	6.25	-90.30	-0.31	-59.97	59.97	47.47	12.50	4.799 Alert		
1,850.00	1,850.00	1,849.80	1,849.80	6.43	6.43	-90.30	-0.31	-59.97	59.97	47.12	12.85	4.666 Alert		
1,900.00	1,900.00	1,900.20	1,899.80	6.61	6.61	-90.30	-0.31	-59.97	59.97	46.76	13.21	4.539 Alert		
1,950.00	1,950.00	1,949.80	1,949.80	6.78	6.78	-90.30	-0.31	-59.97	59.97	46.40	13.57	4.420 Alert		
2,000.00	2,000.00	2,000.20	1,999.80	6.96	6.96	-90.30	-0.31	-59.97	59.97	46.04	13.93	4.306 Alert		
2,050.00	2,050.00	2,049.80	2,049.80	7.14	7.14	-90.30	-0.31	-59.97	59.97	45.69	14.28	4.199 Alert		
2,100.00	2,100.00	2,100.20	2,099.80	7.32	7.32	-90.30	-0.31	-59.97	59.97	45.33	14.64	4.096 Alert		
2,150.00	2,150.00	2,149.80	2,149.80	7.50	7.50	-90.30	-0.31	-59.97	59.97	44.97	15.00	3.998 Alert		
2,200.00	2,200.00	2,200.20	2,199.80	7.68	7.68	-90.30	-0.31	-59.97	59.97	44.61	15.36	3.905 Alert		
2,250.00	2,250.00	2,249.80	2,249.80	7.86	7.86	-90.30	-0.31	-59.97	59.97	44.26	15.71	3.816 Alert		
2,300.00	2,300.00	2,300.20	2,299.80	8.04	8.04	-90.30	-0.31	-59.97	59.97	43.90	16.07	3.731 Alert		
2,350.00	2,350.00	2,349.80	2,349.80	8.22	8.21	-90.30	-0.31	-59.97	59.97	43.54	16.43	3.650 Alert		
2,400.00	2,400.00	2,400.20	2,399.80	8.39	8.39	-90.30	-0.31	-59.97	59.97	43.18	16.79	3.572 Alert		
2,450.00	2,450.00	2,449.80	2,449.80	8.57	8.57	-90.30	-0.31	-59.97	59.97	42.83	17.15	3.498 Alert		
2,500.00	2,500.00	2,499.80	2,499.80	8.75	8.75	-90.30	-0.31	-59.97	59.97	42.47	17.50	3.426 Alert, CC, ES		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 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		
2,550.00	2,550.00	2,549.16	2,549.16	8.93	8.92	-175.44	-0.26	-60.23	60.45	42.60	17.85	3.386	Alert, SF	
2,600.00	2,599.99	2,598.50	2,598.49	9.10	9.10	-175.33	-0.10	-61.01	61.89	43.70	18.20	3.401	Alert	
2,650.00	2,649.98	2,647.78	2,647.75	9.27	9.27	-175.18	0.15	-62.31	64.29	45.76	18.53	3.469	Alert	
2,700.00	2,699.96	2,696.97	2,696.91	9.44	9.44	-174.98	0.51	-64.12	67.66	48.79	18.87	3.586	Alert	
2,750.00	2,749.92	2,746.05	2,745.93	9.62	9.61	-174.74	0.98	-66.45	71.98	52.78	19.20	3.749	Alert	
2,800.00	2,799.86	2,794.98	2,794.78	9.79	9.78	-174.50	1.54	-69.28	77.26	57.73	19.53	3.956	Alert	
2,850.00	2,849.78	2,843.75	2,843.43	9.96	9.95	-174.24	2.20	-72.61	83.49	63.64	19.86	4.205	Alert	
2,900.00	2,899.68	2,892.32	2,891.84	10.14	10.12	-173.99	2.96	-76.43	90.68	70.49	20.18	4.493	Alert	
2,950.00	2,949.54	2,940.67	2,939.99	10.31	10.28	-173.75	3.81	-80.73	98.80	78.30	20.50	4.818	Alert	
3,000.00	2,999.37	2,988.77	2,987.85	10.49	10.45	-173.53	4.76	-85.51	107.87	87.04	20.82	5.180		
3,050.00	3,049.16	3,036.60	3,035.37	10.66	10.62	-173.32	5.80	-90.74	117.87	96.73	21.14	5.575		
3,100.00	3,098.93	3,084.17	3,082.59	10.84	10.79	-173.12	6.93	-96.43	128.58	107.12	21.45	5.993		
3,150.00	3,148.70	3,131.53	3,129.54	11.01	10.95	-172.93	8.15	-102.58	139.79	118.02	21.76	6.423		
3,200.00	3,198.47	3,178.66	3,176.18	11.19	11.12	-172.73	9.46	-109.16	151.50	129.42	22.07	6.864		
3,250.00	3,248.24	3,226.15	3,223.12	11.37	11.29	-172.54	10.86	-116.24	163.66	141.28	22.39	7.311		
3,300.00	3,298.01	3,274.62	3,271.01	11.54	11.46	-172.36	12.32	-123.56	175.94	153.21	22.73	7.742		
3,350.00	3,347.78	3,323.08	3,318.90	11.72	11.63	-172.21	13.77	-130.88	188.21	165.14	23.06	8.160		
3,400.00	3,397.55	3,371.55	3,366.79	11.90	11.81	-172.07	15.22	-138.20	200.48	177.08	23.40	8.566		
3,450.00	3,447.32	3,420.02	3,414.68	12.08	11.98	-171.96	16.68	-145.52	212.76	189.01	23.74	8.960		
3,500.00	3,497.09	3,468.49	3,462.57	12.26	12.15	-171.85	18.13	-152.84	225.03	200.95	24.09	9.343		
3,550.00	3,546.86	3,516.96	3,510.46	12.44	12.33	-171.75	19.58	-160.16	237.31	212.88	24.43	9.715		
3,600.00	3,596.63	3,565.42	3,558.35	12.62	12.50	-171.67	21.04	-167.48	249.59	224.82	24.77	10.077		
3,650.00	3,646.40	3,613.89	3,606.24	12.80	12.68	-171.59	22.49	-174.80	261.86	236.75	25.11	10.428		
3,700.00	3,696.17	3,662.36	3,654.13	12.98	12.85	-171.52	23.94	-182.12	274.14	248.69	25.45	10.770		
3,750.00	3,745.94	3,710.83	3,702.02	13.16	13.03	-171.46	25.40	-189.45	286.42	260.62	25.80	11.102		
3,800.00	3,795.71	3,759.30	3,749.91	13.34	13.21	-171.40	26.85	-196.77	298.70	272.56	26.14	11.426		
3,850.00	3,845.48	3,807.77	3,797.80	13.52	13.38	-171.34	28.30	-204.09	310.98	284.49	26.49	11.741		
3,900.00	3,895.25	3,856.23	3,845.69	13.71	13.56	-171.29	29.76	-211.41	323.25	296.42	26.83	12.048		
3,950.00	3,945.02	3,904.70	3,893.58	13.89	13.73	-171.25	31.21	-218.73	335.53	308.36	27.18	12.347		
4,000.00	3,994.79	3,953.17	3,941.47	14.07	13.91	-171.20	32.67	-226.05	347.81	320.29	27.52	12.638		
4,050.00	4,044.56	4,001.64	3,989.36	14.25	14.09	-171.16	34.12	-233.37	360.09	332.23	27.87	12.922		
4,100.00	4,094.33	4,050.11	4,037.25	14.43	14.27	-171.12	35.57	-240.69	372.37	344.16	28.21	13.199		
4,150.00	4,144.10	4,101.43	4,085.14	14.62	14.45	-171.09	37.03	-248.01	384.65	356.08	28.57	13.464		
4,200.00	4,193.87	4,147.04	4,133.03	14.80	14.62	-171.05	38.48	-255.33	396.93	368.02	28.91	13.732		
4,250.00	4,243.64	4,195.51	4,180.92	14.98	14.80	-171.02	39.93	-262.65	409.21	379.96	29.25	13.988		
4,300.00	4,293.41	4,243.98	4,228.81	15.17	14.98	-170.99	41.39	-269.97	421.49	391.89	29.60	14.239		
4,350.00	4,343.18	4,307.55	4,276.70	15.35	15.21	-170.97	42.84	-277.30	433.77	403.77	30.00	14.458		
4,400.00	4,392.95	4,340.91	4,324.59	15.53	15.33	-170.94	44.29	-284.62	446.05	415.76	30.30	14.723		
4,450.00	4,442.72	4,389.38	4,372.48	15.72	15.51	-170.92	45.75	-291.94	458.33	427.69	30.64	14.956		
4,500.00	4,492.49	4,437.85	4,420.37	15.90	15.69	-170.89	47.20	-299.26	470.61	439.62	30.99	15.184		
4,550.00	4,542.26	4,486.32	4,468.26	16.09	15.87	-170.87	48.66	-306.58	482.89	451.55	31.34	15.407		
4,600.00	4,592.03	4,534.79	4,516.15	16.27	16.05	-170.85	50.11	-313.90	495.17	463.48	31.69	15.625		
4,650.00	4,641.80	4,583.25	4,564.04	16.46	16.23	-170.83	51.56	-321.22	507.45	475.41	32.04	15.838		
4,700.00	4,691.57	4,631.72	4,611.93	16.64	16.41	-170.81	53.02	-328.54	519.73	487.34	32.39	16.046		
4,750.00	4,741.34	4,680.19	4,659.82	16.83	16.59	-170.79	54.47	-335.86	532.02	499.28	32.74	16.250		
4,800.00	4,791.11	4,728.66	4,707.71	17.01	16.77	-170.77	55.92	-343.18	544.30	511.21	33.09	16.449		
4,850.00	4,840.89	4,777.13	4,755.60	17.20	16.95	-170.76	57.38	-350.50	556.58	523.14	33.44	16.644		
4,900.00	4,890.66	4,825.60	4,803.49	17.38	17.13	-170.74	58.83	-357.82	568.86	535.07	33.79	16.835		
4,950.00	4,940.43	4,874.06	4,851.38	17.57	17.31	-170.72	60.28	-365.15	581.14	547.00	34.14	17.022		
5,000.00	4,990.20	4,922.53	4,899.27	17.75	17.49	-170.71	61.74	-372.47	593.42	558.93	34.49	17.205		
5,050.00	5,039.97	4,971.00	4,947.16	17.94	17.67	-170.70	63.19	-379.79	605.70	570.86	34.84	17.384		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.00	5,089.74	5,019.47	4,995.05	18.12	17.85	-170.68	64.64	-387.11	617.98	582.79	35.19	17.559		
5,150.00	5,139.51	5,067.94	5,042.94	18.31	18.03	-170.67	66.10	-394.43	630.26	594.72	35.55	17.731		
5,200.00	5,189.28	5,116.40	5,090.83	18.49	18.21	-170.66	67.55	-401.75	642.54	606.65	35.90	17.900		
5,250.00	5,239.05	5,164.87	5,138.72	18.68	18.39	-170.65	69.01	-409.07	654.83	618.58	36.25	18.065		
5,300.00	5,288.82	5,213.34	5,186.61	18.87	18.57	-170.63	70.46	-416.39	667.11	630.51	36.60	18.227		
5,350.00	5,338.59	5,261.81	5,234.50	19.05	18.75	-170.62	71.91	-423.71	679.39	642.43	36.95	18.385		
5,400.00	5,388.36	5,310.28	5,282.39	19.24	18.94	-170.61	73.37	-431.03	691.67	654.36	37.31	18.541		
5,450.00	5,438.13	5,358.74	5,330.28	19.42	19.12	-170.60	74.82	-438.35	703.95	666.29	37.66	18.693		
5,500.00	5,487.90	5,407.21	5,378.17	19.61	19.30	-170.59	76.27	-445.67	716.23	678.22	38.01	18.843		
5,550.00	5,537.67	5,455.68	5,426.06	19.80	19.48	-170.58	77.73	-453.00	728.51	690.15	38.36	18.990		
5,600.00	5,587.44	5,504.15	5,473.95	19.98	19.66	-170.57	79.18	-460.32	740.79	702.08	38.72	19.134		
5,650.00	5,637.21	5,552.62	5,521.84	20.17	19.84	-170.56	80.63	-467.64	753.07	714.01	39.07	19.276		
5,700.00	5,686.98	5,601.08	5,569.73	20.36	20.02	-170.55	82.09	-474.96	765.36	725.93	39.42	19.415		
5,750.00	5,736.75	5,649.55	5,617.62	20.54	20.21	-170.55	83.54	-482.28	777.64	737.86	39.77	19.551		
5,800.00	5,786.52	5,701.98	5,665.51	20.73	20.40	-170.54	84.99	-489.60	789.92	749.78	40.14	19.678		
5,850.00	5,836.29	5,746.49	5,713.40	20.92	20.57	-170.53	86.45	-496.92	802.20	761.72	40.48	19.816		
5,900.00	5,886.06	5,805.04	5,761.29	21.11	20.79	-170.52	87.90	-504.24	814.48	773.61	40.87	19.927		
5,950.00	5,935.83	5,843.43	5,809.18	21.29	20.93	-170.51	89.36	-511.56	826.76	785.57	41.19	20.072		
6,000.00	5,985.60	5,891.89	5,857.07	21.48	21.12	-170.51	90.81	-518.88	839.04	797.50	41.54	20.197		
6,050.00	6,035.37	5,940.36	5,904.96	21.67	21.30	-170.50	92.26	-526.20	851.33	809.43	41.90	20.319		
6,100.00	6,085.14	5,988.83	5,952.85	21.85	21.48	-170.49	93.72	-533.52	863.61	821.36	42.25	20.440		
6,150.00	6,134.91	6,037.30	6,000.74	22.04	21.66	-170.49	95.17	-540.84	875.89	833.28	42.61	20.558		
6,200.00	6,184.68	6,085.77	6,048.63	22.23	21.85	-170.48	96.62	-548.17	888.17	845.21	42.96	20.675		
6,250.00	6,234.45	6,134.23	6,096.52	22.42	22.03	-170.47	98.08	-555.49	900.45	857.14	43.31	20.789		
6,300.00	6,284.22	6,182.70	6,144.41	22.60	22.21	-170.47	99.53	-562.81	912.73	869.06	43.67	20.901		
6,350.00	6,333.99	6,231.17	6,192.30	22.79	22.39	-170.46	100.98	-570.13	925.01	880.99	44.02	21.012		
6,400.00	6,383.76	6,279.64	6,240.19	22.98	22.58	-170.45	102.44	-577.45	937.30	892.92	44.38	21.121		
6,450.00	6,433.53	6,328.11	6,288.08	23.17	22.76	-170.45	103.89	-584.77	949.58	904.84	44.73	21.228		
6,500.00	6,483.30	6,376.57	6,335.97	23.35	22.94	-170.44	105.34	-592.09	961.86	916.77	45.09	21.333		
6,550.00	6,533.07	6,425.04	6,383.86	23.54	23.13	-170.44	106.80	-599.41	974.14	928.70	45.44	21.437		
6,600.00	6,582.84	6,473.51	6,431.75	23.73	23.31	-170.43	108.25	-606.73	986.42	940.62	45.80	21.538		
6,650.00	6,632.61	6,521.98	6,479.64	23.92	23.49	-170.43	109.71	-614.05	998.70	952.55	46.15	21.639		
6,700.00	6,682.38	6,570.45	6,527.53	24.11	23.67	-170.42	111.16	-621.37	1,010.98	964.48	46.51	21.737		
6,750.00	6,732.16	6,618.92	6,575.42	24.29	23.86	-170.42	112.61	-628.69	1,023.27	976.40	46.86	21.835		
6,800.00	6,781.93	6,667.38	6,623.31	24.48	24.04	-170.41	114.07	-636.02	1,035.55	988.33	47.22	21.930		
6,850.00	6,831.70	6,715.85	6,671.20	24.67	24.22	-170.41	115.52	-643.34	1,047.83	1,000.25	47.58	22.025		
6,900.00	6,881.47	6,764.32	6,719.09	24.86	24.41	-170.40	116.97	-650.66	1,060.11	1,012.18	47.93	22.117		
6,950.00	6,931.24	6,812.79	6,766.98	25.05	24.59	-170.40	118.43	-657.98	1,072.39	1,024.11	48.29	22.209		
7,000.00	6,981.01	6,861.26	6,814.87	25.23	24.77	-170.40	119.88	-665.30	1,084.67	1,036.03	48.64	22.299		
7,050.00	7,030.78	6,909.72	6,862.76	25.42	24.96	-170.39	121.33	-672.62	1,096.96	1,047.96	49.00	22.387		
7,100.00	7,080.55	6,958.19	6,910.65	25.61	25.14	-170.39	122.79	-679.94	1,109.24	1,059.88	49.35	22.475		
7,150.00	7,130.32	7,006.66	6,958.54	25.80	25.32	-170.38	124.24	-687.26	1,121.52	1,071.81	49.71	22.561		
7,200.00	7,180.09	7,055.13	7,006.43	25.99	25.51	-170.38	125.69	-694.58	1,133.80	1,083.73	50.07	22.646		
7,250.00	7,229.86	7,103.60	7,054.32	26.18	25.69	-170.37	127.15	-701.90	1,146.08	1,095.66	50.42	22.729		
7,300.00	7,279.63	7,152.06	7,102.21	26.36	25.87	-170.37	128.60	-709.22	1,158.36	1,107.58	50.78	22.811		
7,350.00	7,329.40	7,200.53	7,150.10	26.55	26.06	-170.37	130.06	-716.54	1,170.64	1,119.51	51.14	22.893		
7,400.00	7,379.17	7,249.00	7,197.99	26.74	26.24	-170.36	131.51	-723.87	1,182.93	1,131.43	51.49	22.973		
7,450.00	7,428.94	7,302.53	7,245.88	26.93	26.44	-170.36	132.96	-731.19	1,195.21	1,143.34	51.87	23.043		
7,500.00	7,478.71	7,345.94	7,293.77	27.12	26.61	-170.36	134.42	-738.51	1,207.49	1,155.28	52.21	23.129		
7,550.00	7,528.48	7,394.40	7,341.66	27.31	26.79	-170.35	135.87	-745.83	1,219.77	1,167.21	52.56	23.206		
7,600.00	7,578.27	7,442.93	7,389.61	27.49	26.98	-170.37	137.33	-753.16	1,231.81	1,178.89	52.92	23.277		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 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 Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,750.00	9,185.00	12,911.75	9,185.00	63.65	49.62	90.01	-3,757.04	-822.47	1,317.75	1,204.76	112.98	11.663		
12,800.00	9,185.00	12,961.75	9,185.00	64.28	49.98	90.01	-3,807.04	-822.15	1,317.72	1,203.74	113.98	11.561		
12,850.00	9,185.00	13,011.75	9,185.00	64.90	50.35	90.01	-3,857.04	-821.84	1,317.69	1,202.71	114.98	11.461		
12,900.00	9,185.00	13,061.75	9,185.00	65.53	50.72	90.01	-3,907.04	-821.52	1,317.66	1,201.68	115.98	11.361		
12,950.00	9,185.00	13,111.75	9,185.00	66.17	51.09	90.01	-3,957.04	-821.21	1,317.63	1,200.64	116.98	11.263		
13,000.00	9,185.00	13,161.75	9,185.00	66.80	51.47	90.01	-4,007.04	-820.89	1,317.60	1,199.60	117.99	11.167		
13,050.00	9,185.00	13,211.75	9,185.00	67.44	51.84	90.01	-4,057.04	-820.58	1,317.57	1,198.56	119.01	11.071		
13,100.00	9,185.00	13,261.75	9,185.00	68.07	52.22	90.01	-4,107.03	-820.26	1,317.54	1,197.51	120.03	10.977		
13,150.00	9,185.00	13,311.75	9,185.00	68.71	52.60	90.01	-4,157.03	-819.95	1,317.51	1,196.46	121.05	10.884		
13,200.00	9,185.00	13,361.75	9,185.00	69.35	52.98	90.01	-4,207.03	-819.64	1,317.48	1,195.40	122.07	10.793		
13,250.00	9,185.00	13,411.75	9,185.00	70.00	53.36	90.01	-4,257.03	-819.32	1,317.45	1,194.35	123.10	10.702		
13,300.00	9,185.00	13,461.75	9,185.00	70.64	53.75	90.01	-4,307.03	-819.01	1,317.42	1,193.29	124.13	10.613		
13,350.00	9,185.00	13,511.75	9,185.00	71.29	54.13	90.01	-4,357.03	-818.69	1,317.39	1,192.22	125.17	10.525		
13,400.00	9,185.00	13,561.75	9,185.00	71.94	54.52	90.01	-4,407.03	-818.38	1,317.36	1,191.15	126.20	10.438		
13,450.00	9,185.00	13,611.75	9,185.00	72.59	54.91	90.01	-4,457.03	-818.06	1,317.33	1,190.08	127.24	10.353		
13,500.00	9,185.00	13,661.75	9,185.00	73.24	55.30	90.01	-4,507.03	-817.75	1,317.30	1,189.01	128.29	10.268		
13,550.00	9,185.00	13,711.75	9,185.00	73.89	55.70	90.01	-4,557.03	-817.43	1,317.27	1,187.93	129.33	10.185		
13,600.00	9,185.00	13,761.75	9,185.00	74.54	56.09	90.01	-4,607.02	-817.12	1,317.24	1,186.85	130.38	10.103		
13,650.00	9,185.00	13,811.75	9,185.00	75.20	56.48	90.01	-4,657.02	-816.80	1,317.21	1,185.77	131.44	10.022		
13,700.00	9,185.00	13,861.75	9,185.00	75.86	56.88	90.01	-4,707.02	-816.49	1,317.18	1,184.68	132.49	9.942		
13,750.00	9,185.00	13,911.75	9,185.00	76.51	57.28	90.01	-4,757.02	-816.17	1,317.15	1,183.60	133.55	9.863		
13,800.00	9,185.00	13,961.75	9,185.00	77.17	57.68	90.01	-4,807.02	-815.86	1,317.12	1,182.51	134.61	9.785		
13,850.00	9,185.00	14,011.75	9,185.00	77.83	58.08	90.01	-4,857.02	-815.54	1,317.09	1,181.41	135.67	9.708		
13,900.00	9,185.00	14,061.75	9,185.00	78.49	58.48	90.01	-4,907.02	-815.23	1,317.06	1,180.32	136.74	9.632		
13,950.00	9,185.00	14,111.75	9,185.00	79.16	58.88	90.01	-4,957.02	-814.91	1,317.02	1,179.22	137.81	9.557		
14,000.00	9,185.00	14,161.75	9,185.00	79.82	59.29	90.01	-5,007.02	-814.60	1,316.99	1,178.12	138.88	9.483		
14,050.00	9,185.00	14,211.75	9,185.00	80.49	59.70	90.01	-5,057.02	-814.29	1,316.96	1,177.02	139.95	9.410		
14,100.00	9,185.00	14,261.75	9,185.00	81.15	60.10	90.01	-5,107.01	-813.97	1,316.93	1,175.91	141.02	9.338		
14,150.00	9,185.00	14,311.75	9,185.00	81.82	60.51	90.01	-5,157.01	-813.66	1,316.90	1,174.80	142.10	9.267		
14,200.00	9,185.00	14,361.75	9,185.00	82.49	60.92	90.01	-5,207.01	-813.34	1,316.87	1,173.69	143.18	9.197		
14,250.00	9,185.00	14,411.75	9,185.00	83.16	61.33	90.01	-5,257.01	-813.03	1,316.84	1,172.58	144.26	9.128		
14,300.00	9,185.00	14,461.75	9,185.00	83.83	61.74	90.01	-5,307.01	-812.71	1,316.81	1,171.47	145.35	9.060		
14,350.00	9,185.00	14,511.75	9,185.00	84.50	62.15	90.01	-5,357.01	-812.40	1,316.78	1,170.35	146.43	8.993		
14,400.00	9,185.00	14,561.75	9,185.00	85.17	62.57	90.01	-5,407.01	-812.08	1,316.75	1,169.24	147.52	8.926		
14,450.00	9,185.00	14,611.75	9,185.00	85.84	62.98	90.01	-5,457.01	-811.77	1,316.72	1,168.12	148.61	8.860		
14,500.00	9,185.00	14,661.75	9,185.00	86.52	63.40	90.01	-5,507.01	-811.45	1,316.69	1,167.00	149.70	8.796		
14,550.00	9,185.00	14,711.75	9,185.00	87.19	63.81	90.01	-5,557.01	-811.14	1,316.66	1,165.87	150.79	8.732		
14,600.00	9,185.00	14,761.75	9,185.00	87.87	64.23	90.01	-5,607.00	-810.82	1,316.63	1,164.75	151.89	8.669		
14,650.00	9,185.00	14,811.75	9,185.00	88.55	64.65	90.01	-5,657.00	-810.51	1,316.60	1,163.62	152.98	8.606		
14,700.00	9,185.00	14,861.75	9,185.00	89.22	65.07	90.01	-5,707.00	-810.19	1,316.57	1,162.49	154.08	8.545		
14,750.00	9,185.00	14,911.75	9,185.00	89.90	65.49	90.01	-5,757.00	-809.88	1,316.54	1,161.36	155.18	8.484		
14,800.00	9,185.00	14,961.75	9,185.00	90.58	65.91	90.01	-5,807.00	-809.56	1,316.51	1,160.23	156.28	8.424		
14,850.00	9,185.00	15,011.75	9,185.00	91.26	66.33	90.01	-5,857.00	-809.25	1,316.48	1,159.10	157.39	8.365		
14,900.00	9,185.00	15,061.74	9,185.00	91.94	66.76	90.01	-5,907.00	-808.93	1,316.45	1,157.96	158.49	8.306		
14,950.00	9,185.00	15,111.74	9,185.00	92.62	67.18	90.01	-5,957.00	-808.62	1,316.42	1,156.82	159.60	8.248		
15,000.00	9,185.00	15,161.74	9,185.00	93.30	67.61	90.01	-6,007.00	-808.31	1,316.39	1,155.69	160.71	8.191		
15,050.00	9,185.00	15,211.74	9,185.00	93.99	68.03	90.01	-6,057.00	-807.99	1,316.36	1,154.55	161.82	8.135		
15,100.00	9,185.00	15,261.74	9,185.00	94.67	68.46	90.01	-6,106.99	-807.68	1,316.33	1,153.40	162.93	8.079		
15,150.00	9,185.00	15,311.74	9,185.00	95.35	68.89	90.01	-6,156.99	-807.36	1,316.30	1,152.26	164.04	8.024		
15,200.00	9,185.00	15,361.74	9,185.00	96.04	69.31	90.01	-6,206.99	-807.05	1,316.27	1,151.12	165.16	7.970		
15,250.00	9,185.00	15,411.74	9,185.00	96.73	69.74	90.01	-6,256.99	-806.73	1,316.24	1,149.97	166.27	7.916		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 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 Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
17,850.00	9,185.00	18,011.74	9,185.00	133.01	92.82	90.01	-8,856.94	-790.37	1,314.68	1,089.00	225.68	5.825		
17,900.00	9,185.00	18,061.74	9,185.00	133.71	93.28	90.01	-8,906.94	-790.05	1,314.65	1,087.80	226.85	5.795		
17,950.00	9,185.00	18,111.74	9,185.00	134.42	93.73	90.01	-8,956.94	-789.74	1,314.62	1,086.61	228.01	5.766		
18,000.00	9,185.00	18,161.74	9,185.00	135.13	94.19	90.01	-9,006.94	-789.42	1,314.59	1,085.42	229.17	5.736		
18,050.00	9,185.00	18,211.74	9,185.00	135.83	94.65	90.01	-9,056.94	-789.11	1,314.56	1,084.22	230.34	5.707		
18,100.00	9,185.00	18,261.74	9,185.00	136.54	95.10	90.01	-9,106.93	-788.79	1,314.53	1,083.03	231.50	5.678		
18,150.00	9,185.00	18,311.74	9,185.00	137.25	95.56	90.01	-9,156.93	-788.48	1,314.50	1,081.83	232.67	5.650		
18,200.00	9,185.00	18,361.74	9,185.00	137.96	96.02	90.01	-9,206.93	-788.16	1,314.47	1,080.64	233.83	5.621		
18,250.00	9,185.00	18,411.74	9,185.00	138.67	96.47	90.01	-9,256.93	-787.85	1,314.44	1,079.44	235.00	5.593		
18,300.00	9,185.00	18,461.74	9,185.00	139.37	96.93	90.01	-9,306.93	-787.53	1,314.41	1,078.24	236.16	5.566		
18,350.00	9,185.00	18,511.74	9,185.00	140.08	97.39	90.01	-9,356.93	-787.22	1,314.38	1,077.05	237.33	5.538		
18,400.00	9,185.00	18,561.74	9,185.00	140.79	97.85	90.01	-9,406.93	-786.90	1,314.35	1,075.85	238.50	5.511		
18,450.00	9,185.00	18,611.74	9,185.00	141.50	98.30	90.01	-9,456.93	-786.59	1,314.32	1,074.65	239.67	5.484		
18,500.00	9,185.00	18,661.74	9,185.00	142.21	98.76	90.01	-9,506.93	-786.27	1,314.29	1,073.45	240.83	5.457		
18,550.00	9,185.00	18,711.74	9,185.00	142.92	99.22	90.01	-9,556.93	-785.96	1,314.26	1,072.25	242.00	5.431		
18,600.00	9,185.00	18,761.74	9,185.00	143.63	99.68	90.01	-9,606.92	-785.65	1,314.23	1,071.06	243.17	5.405		
18,650.00	9,185.00	18,811.74	9,185.00	144.34	100.14	90.01	-9,656.92	-785.33	1,314.20	1,069.86	244.34	5.379		
18,700.00	9,185.00	18,861.74	9,185.00	145.05	100.60	90.01	-9,706.92	-785.02	1,314.17	1,068.66	245.51	5.353		
18,750.00	9,185.00	18,911.74	9,185.00	145.76	101.06	90.01	-9,756.92	-784.70	1,314.14	1,067.45	246.68	5.327		
18,800.00	9,185.00	18,961.74	9,185.00	146.47	101.52	90.01	-9,806.92	-784.39	1,314.11	1,066.25	247.85	5.302		
18,850.00	9,185.00	19,011.74	9,185.00	147.18	101.98	90.01	-9,856.92	-784.07	1,314.08	1,065.05	249.03	5.277		
18,866.10	9,185.00	19,027.85	9,185.00	147.41	102.13	90.01	-9,873.02	-783.97	1,314.07	1,064.67	249.40	5.269		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 524H - Wellbore #1 - Plan 2 Steer for AC													Offset Site Error: 5.00 ft	
Survey Program: 0-MWD+IFR1													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	0.20	-0.20	0.50	0.50	-90.30	-0.31	-59.97	59.97					
50.00	50.00	49.80	49.80	0.50	0.50	-90.30	-0.31	-59.97	59.97	58.96	1.01	59.586		
100.00	100.00	100.20	99.80	0.52	0.52	-90.30	-0.31	-59.97	59.97	58.94	1.04	57.904		
150.00	150.00	149.80	149.80	0.59	0.59	-90.30	-0.31	-59.97	59.97	58.79	1.18	50.818		
200.00	200.00	200.20	199.80	0.70	0.70	-90.30	-0.31	-59.97	59.97	58.57	1.40	42.693		
250.00	250.00	249.80	249.80	0.84	0.84	-90.30	-0.31	-59.97	59.97	58.30	1.67	35.807		
300.00	300.00	300.20	299.80	0.99	0.99	-90.30	-0.31	-59.97	59.97	58.00	1.98	30.361		
350.00	350.00	349.80	349.80	1.15	1.14	-90.30	-0.31	-59.97	59.97	57.68	2.29	26.184		
400.00	400.00	400.20	399.80	1.31	1.31	-90.30	-0.31	-59.97	59.97	57.35	2.62	22.900		
450.00	450.00	449.80	449.80	1.48	1.48	-90.30	-0.31	-59.97	59.97	57.02	2.95	20.316		
500.00	500.00	500.20	499.80	1.65	1.65	-90.30	-0.31	-59.97	59.97	56.68	3.29	18.212		
550.00	550.00	549.80	549.80	1.82	1.82	-90.30	-0.31	-59.97	59.97	56.34	3.63	16.500		
600.00	600.00	600.20	599.80	1.99	1.99	-90.30	-0.31	-59.97	59.97	55.99	3.98	15.061		
650.00	650.00	649.80	649.80	2.16	2.16	-90.30	-0.31	-59.97	59.97	55.64	4.33	13.855		
700.00	700.00	700.20	699.80	2.34	2.34	-90.30	-0.31	-59.97	59.97	55.29	4.68	12.816		
750.00	750.00	749.80	749.80	2.51	2.51	-90.30	-0.31	-59.97	59.97	54.94	5.03	11.926		
800.00	800.00	800.20	799.80	2.69	2.69	-90.30	-0.31	-59.97	59.97	54.59	5.38	11.143		
850.00	850.00	849.80	849.80	2.87	2.87	-90.30	-0.31	-59.97	59.97	54.24	5.73	10.460		
900.00	900.00	900.20	899.80	3.04	3.04	-90.30	-0.31	-59.97	59.97	53.88	6.09	9.851		
950.00	950.00	949.80	949.80	3.22	3.22	-90.30	-0.31	-59.97	59.97	53.53	6.44	9.312		
1,000.00	1,000.00	1,000.20	999.80	3.40	3.40	-90.30	-0.31	-59.97	59.97	53.17	6.80	8.824		
1,050.00	1,050.00	1,049.80	1,049.80	3.58	3.57	-90.30	-0.31	-59.97	59.97	52.82	7.15	8.388		
1,100.00	1,100.00	1,100.20	1,099.80	3.75	3.75	-90.30	-0.31	-59.97	59.97	52.47	7.51	7.990		
1,150.00	1,150.00	1,149.80	1,149.80	3.93	3.93	-90.30	-0.31	-59.97	59.97	52.11	7.86	7.630		
1,200.00	1,200.00	1,200.20	1,199.80	4.11	4.11	-90.30	-0.31	-59.97	59.97	51.75	8.22	7.298		
1,250.00	1,250.00	1,249.80	1,249.80	4.29	4.29	-90.30	-0.31	-59.97	59.97	51.40	8.57	6.997		
1,300.00	1,300.00	1,300.20	1,299.80	4.46	4.46	-90.30	-0.31	-59.97	59.97	51.04	8.93	6.716		
1,350.00	1,350.00	1,349.80	1,349.80	4.64	4.64	-90.30	-0.31	-59.97	59.97	50.69	9.28	6.460		
1,400.00	1,400.00	1,400.20	1,399.80	4.82	4.82	-90.30	-0.31	-59.97	59.97	50.33	9.64	6.220		
1,450.00	1,450.00	1,449.80	1,449.80	5.00	5.00	-90.30	-0.31	-59.97	59.97	49.97	10.00	5.999		
1,500.00	1,500.00	1,500.20	1,499.80	5.18	5.18	-90.30	-0.31	-59.97	59.97	49.62	10.36	5.791		
1,550.00	1,550.00	1,549.80	1,549.80	5.36	5.35	-90.30	-0.31	-59.97	59.97	49.26	10.71	5.599		
1,600.00	1,600.00	1,600.20	1,599.80	5.53	5.53	-90.30	-0.31	-59.97	59.97	48.90	11.07	5.418		
1,650.00	1,650.00	1,649.80	1,649.80	5.71	5.71	-90.30	-0.31	-59.97	59.97	48.55	11.42	5.249		
1,700.00	1,700.00	1,700.20	1,699.80	5.89	5.89	-90.30	-0.31	-59.97	59.97	48.19	11.78	5.090		
1,750.00	1,750.00	1,749.80	1,749.80	6.07	6.07	-90.30	-0.31	-59.97	59.97	47.83	12.14	4.940 Alert		
1,800.00	1,800.00	1,800.20	1,799.80	6.25	6.25	-90.30	-0.31	-59.97	59.97	47.47	12.50	4.799 Alert		
1,850.00	1,850.00	1,849.80	1,849.80	6.43	6.43	-90.30	-0.31	-59.97	59.97	47.12	12.85	4.666 Alert		
1,900.00	1,900.00	1,900.20	1,899.80	6.61	6.61	-90.30	-0.31	-59.97	59.97	46.76	13.21	4.539 Alert		
1,950.00	1,950.00	1,949.80	1,949.80	6.78	6.78	-90.30	-0.31	-59.97	59.97	46.40	13.57	4.420 Alert		
2,000.00	2,000.00	2,000.20	1,999.80	6.96	6.96	-90.30	-0.31	-59.97	59.97	46.04	13.93	4.306 Alert		
2,050.00	2,050.00	2,049.80	2,049.80	7.14	7.14	-90.30	-0.31	-59.97	59.97	45.69	14.28	4.199 Alert		
2,100.00	2,100.00	2,100.20	2,099.80	7.32	7.32	-90.30	-0.31	-59.97	59.97	45.33	14.64	4.096 Alert		
2,150.00	2,150.00	2,149.80	2,149.80	7.50	7.50	-90.30	-0.31	-59.97	59.97	44.97	15.00	3.998 Alert		
2,200.00	2,200.00	2,200.20	2,199.80	7.68	7.68	-90.30	-0.31	-59.97	59.97	44.61	15.36	3.905 Alert		
2,250.00	2,250.00	2,249.80	2,249.80	7.86	7.86	-90.30	-0.31	-59.97	59.97	44.26	15.71	3.816 Alert		
2,300.00	2,300.00	2,300.20	2,299.80	8.04	8.04	-90.30	-0.31	-59.97	59.97	43.90	16.07	3.731 Alert		
2,350.00	2,350.00	2,349.80	2,349.80	8.22	8.21	-90.30	-0.31	-59.97	59.97	43.54	16.43	3.650 Alert		
2,400.00	2,400.00	2,400.20	2,399.80	8.39	8.39	-90.30	-0.31	-59.97	59.97	43.18	16.79	3.572 Alert		
2,450.00	2,450.00	2,449.80	2,449.80	8.57	8.57	-90.30	-0.31	-59.97	59.97	42.83	17.15	3.498 Alert		
2,500.00	2,500.00	2,499.80	2,499.80	8.75	8.75	-90.30	-0.31	-59.97	59.97	42.47	17.50	3.426 Alert, CC, ES		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 524H - Wellbore #1 - Plan 2 Steer for AC													Offset Site Error:	5.00 ft
Survey Program: 0-MWD+IFR1													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
2,550.00	2,550.00	2,549.16	2,549.16	8.93	8.92	-175.44	-0.26	-60.23	60.45	42.60	17.85	3.386	Alert, SF	
2,600.00	2,599.99	2,598.50	2,598.49	9.10	9.10	-175.33	-0.10	-61.01	61.89	43.70	18.20	3.401	Alert	
2,650.00	2,649.98	2,647.78	2,647.75	9.27	9.27	-175.18	0.15	-62.31	64.29	45.76	18.53	3.469	Alert	
2,700.00	2,699.96	2,696.97	2,696.91	9.44	9.44	-174.98	0.51	-64.12	67.66	48.79	18.87	3.586	Alert	
2,750.00	2,749.92	2,746.05	2,745.93	9.62	9.61	-174.74	0.98	-66.45	71.98	52.78	19.20	3.749	Alert	
2,800.00	2,799.86	2,794.98	2,794.78	9.79	9.78	-174.50	1.54	-69.28	77.26	57.73	19.53	3.956	Alert	
2,850.00	2,849.78	2,843.75	2,843.43	9.96	9.95	-174.24	2.20	-72.61	83.49	63.64	19.86	4.205	Alert	
2,900.00	2,899.68	2,892.32	2,891.84	10.14	10.12	-173.99	2.96	-76.43	90.68	70.49	20.18	4.493	Alert	
2,950.00	2,949.54	2,940.67	2,939.99	10.31	10.28	-173.75	3.81	-80.73	98.80	78.30	20.50	4.818	Alert	
3,000.00	2,999.37	2,988.77	2,987.85	10.49	10.45	-173.53	4.76	-85.51	107.87	87.04	20.82	5.180		
3,050.00	3,049.16	3,036.60	3,035.37	10.66	10.62	-173.32	5.80	-90.74	117.87	96.73	21.14	5.575		
3,100.00	3,098.93	3,084.17	3,082.59	10.84	10.79	-173.12	6.93	-96.43	128.58	107.12	21.45	5.993		
3,150.00	3,148.70	3,131.53	3,129.54	11.01	10.95	-172.93	8.15	-102.58	139.79	118.02	21.76	6.423		
3,200.00	3,198.47	3,178.66	3,176.18	11.19	11.12	-172.73	9.46	-109.16	151.50	129.42	22.07	6.864		
3,250.00	3,248.24	3,226.15	3,223.12	11.37	11.29	-172.54	10.86	-116.24	163.66	141.28	22.39	7.311		
3,300.00	3,298.01	3,274.62	3,271.01	11.54	11.46	-172.36	12.32	-123.56	175.94	153.21	22.73	7.742		
3,350.00	3,347.78	3,323.08	3,318.90	11.72	11.63	-172.21	13.77	-130.88	188.21	165.14	23.06	8.160		
3,400.00	3,397.55	3,371.55	3,366.79	11.90	11.81	-172.07	15.22	-138.20	200.48	177.08	23.40	8.566		
3,450.00	3,447.32	3,420.02	3,414.68	12.08	11.98	-171.96	16.68	-145.52	212.76	189.01	23.74	8.960		
3,500.00	3,497.09	3,468.49	3,462.57	12.26	12.15	-171.85	18.13	-152.84	225.03	200.95	24.09	9.343		
3,550.00	3,546.86	3,516.96	3,510.46	12.44	12.33	-171.75	19.58	-160.16	237.31	212.88	24.43	9.715		
3,600.00	3,596.63	3,565.42	3,558.35	12.62	12.50	-171.67	21.04	-167.48	249.59	224.82	24.77	10.077		
3,650.00	3,646.40	3,613.89	3,606.24	12.80	12.68	-171.59	22.49	-174.80	261.86	236.75	25.11	10.428		
3,700.00	3,696.17	3,662.36	3,654.13	12.98	12.85	-171.52	23.94	-182.12	274.14	248.69	25.45	10.770		
3,750.00	3,745.94	3,710.83	3,702.02	13.16	13.03	-171.46	25.40	-189.45	286.42	260.62	25.80	11.102		
3,800.00	3,795.71	3,759.30	3,749.91	13.34	13.21	-171.40	26.85	-196.77	298.70	272.56	26.14	11.426		
3,850.00	3,845.48	3,807.77	3,797.80	13.52	13.38	-171.34	28.30	-204.09	310.98	284.49	26.49	11.741		
3,900.00	3,895.25	3,856.23	3,845.69	13.71	13.56	-171.29	29.76	-211.41	323.25	296.42	26.83	12.048		
3,950.00	3,945.02	3,904.70	3,893.58	13.89	13.73	-171.25	31.21	-218.73	335.53	308.36	27.18	12.347		
4,000.00	3,994.79	3,953.17	3,941.47	14.07	13.91	-171.20	32.67	-226.05	347.81	320.29	27.52	12.638		
4,050.00	4,044.56	4,001.64	3,989.36	14.25	14.09	-171.16	34.12	-233.37	360.09	332.23	27.87	12.922		
4,100.00	4,094.33	4,050.11	4,037.25	14.43	14.27	-171.12	35.57	-240.69	372.37	344.16	28.21	13.199		
4,150.00	4,144.10	4,101.43	4,085.14	14.62	14.45	-171.09	37.03	-248.01	384.65	356.08	28.57	13.464		
4,200.00	4,193.87	4,147.04	4,133.03	14.80	14.62	-171.05	38.48	-255.33	396.93	368.02	28.91	13.732		
4,250.00	4,243.64	4,195.51	4,180.92	14.98	14.80	-171.02	39.93	-262.65	409.21	379.96	29.25	13.988		
4,300.00	4,293.41	4,243.98	4,228.81	15.17	14.98	-170.99	41.39	-269.97	421.49	391.89	29.60	14.239		
4,350.00	4,343.18	4,307.55	4,276.70	15.35	15.21	-170.97	42.84	-277.30	433.77	403.77	30.00	14.458		
4,400.00	4,392.95	4,340.91	4,324.59	15.53	15.33	-170.94	44.29	-284.62	446.05	415.76	30.30	14.723		
4,450.00	4,442.72	4,389.38	4,372.48	15.72	15.51	-170.92	45.75	-291.94	458.33	427.69	30.64	14.956		
4,500.00	4,492.49	4,437.85	4,420.37	15.90	15.69	-170.89	47.20	-299.26	470.61	439.62	30.99	15.184		
4,550.00	4,542.26	4,486.32	4,468.26	16.09	15.87	-170.87	48.66	-306.58	482.89	451.55	31.34	15.407		
4,600.00	4,592.03	4,534.79	4,516.15	16.27	16.05	-170.85	50.11	-313.90	495.17	463.48	31.69	15.625		
4,650.00	4,641.80	4,583.25	4,564.04	16.46	16.23	-170.83	51.56	-321.22	507.45	475.41	32.04	15.838		
4,700.00	4,691.57	4,631.72	4,611.93	16.64	16.41	-170.81	53.02	-328.54	519.73	487.34	32.39	16.046		
4,750.00	4,741.34	4,680.19	4,659.82	16.83	16.59	-170.79	54.47	-335.86	532.02	499.28	32.74	16.250		
4,800.00	4,791.11	4,728.66	4,707.71	17.01	16.77	-170.77	55.92	-343.18	544.30	511.21	33.09	16.449		
4,850.00	4,840.89	4,777.13	4,755.60	17.20	16.95	-170.76	57.38	-350.50	556.58	523.14	33.44	16.644		
4,900.00	4,890.66	4,825.60	4,803.49	17.38	17.13	-170.74	58.83	-357.82	568.86	535.07	33.79	16.835		
4,950.00	4,940.43	4,874.06	4,851.38	17.57	17.31	-170.72	60.28	-365.15	581.14	547.00	34.14	17.022		
5,000.00	4,990.20	4,922.53	4,899.27	17.75	17.49	-170.71	61.74	-372.47	593.42	558.93	34.49	17.205		
5,050.00	5,039.97	4,971.00	4,947.16	17.94	17.67	-170.70	63.19	-379.79	605.70	570.86	34.84	17.384		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 524H - Wellbore #1 - Plan 2 Steer for AC													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		
15,250.00	9,185.00	15,429.28	9,185.00	96.73	69.60	90.01	-6,257.07	-821.73	1,331.25	1,165.12	166.13	8.013		
15,300.00	9,185.00	15,479.28	9,185.00	97.41	70.03	90.01	-6,307.07	-821.42	1,331.22	1,163.97	167.25	7.960		
15,350.00	9,185.00	15,529.28	9,185.00	98.10	70.46	90.01	-6,357.07	-821.11	1,331.19	1,162.82	168.36	7.907		
15,400.00	9,185.00	15,579.28	9,185.00	98.78	70.89	90.01	-6,407.07	-820.79	1,331.16	1,161.67	169.48	7.854		
15,450.00	9,185.00	15,629.28	9,185.00	99.47	71.32	90.01	-6,457.07	-820.48	1,331.13	1,160.52	170.60	7.802		
15,500.00	9,185.00	15,679.28	9,185.00	100.16	71.76	90.01	-6,507.07	-820.16	1,331.10	1,159.37	171.73	7.751		
15,550.00	9,185.00	15,729.28	9,185.00	100.85	72.19	90.01	-6,557.07	-819.85	1,331.07	1,158.22	172.85	7.701		
15,600.00	9,185.00	15,779.28	9,185.00	101.54	72.62	90.01	-6,607.06	-819.54	1,331.04	1,157.07	173.97	7.651		
15,650.00	9,185.00	15,829.28	9,185.00	102.23	73.06	90.01	-6,657.06	-819.22	1,331.01	1,155.91	175.10	7.601		
15,700.00	9,185.00	15,879.28	9,185.00	102.92	73.49	90.01	-6,707.06	-818.91	1,330.98	1,154.76	176.22	7.553		
15,750.00	9,185.00	15,929.28	9,185.00	103.61	73.93	90.01	-6,757.06	-818.59	1,330.95	1,153.60	177.35	7.505		
15,800.00	9,185.00	15,979.28	9,185.00	104.30	74.36	90.01	-6,807.06	-818.28	1,330.92	1,152.44	178.48	7.457		
15,850.00	9,185.00	16,029.28	9,185.00	105.00	74.80	90.01	-6,857.06	-817.96	1,330.89	1,151.28	179.61	7.410		
15,900.00	9,185.00	16,079.28	9,185.00	105.69	75.24	90.01	-6,907.06	-817.65	1,330.86	1,150.12	180.74	7.363		
15,950.00	9,185.00	16,129.28	9,185.00	106.38	75.67	90.01	-6,957.06	-817.34	1,330.83	1,148.96	181.88	7.317		
16,000.00	9,185.00	16,179.28	9,185.00	107.08	76.11	90.01	-7,007.06	-817.02	1,330.80	1,147.79	183.01	7.272		
16,050.00	9,185.00	16,229.28	9,185.00	107.77	76.55	90.01	-7,057.06	-816.71	1,330.77	1,146.63	184.14	7.227		
16,100.00	9,185.00	16,279.28	9,185.00	108.46	76.99	90.01	-7,107.05	-816.39	1,330.74	1,145.47	185.28	7.182		
16,150.00	9,185.00	16,329.28	9,185.00	109.16	77.43	90.01	-7,157.05	-816.08	1,330.71	1,144.30	186.41	7.138		
16,200.00	9,185.00	16,379.28	9,185.00	109.85	77.87	90.01	-7,207.05	-815.77	1,330.68	1,143.13	187.55	7.095		
16,250.00	9,185.00	16,429.28	9,185.00	110.55	78.31	90.01	-7,257.05	-815.45	1,330.66	1,141.97	188.69	7.052		
16,300.00	9,185.00	16,479.28	9,185.00	111.25	78.76	90.01	-7,307.05	-815.14	1,330.63	1,140.80	189.83	7.010		
16,350.00	9,185.00	16,529.28	9,185.00	111.94	79.20	90.01	-7,357.05	-814.82	1,330.60	1,139.63	190.97	6.968		
16,400.00	9,185.00	16,579.28	9,185.00	112.64	79.64	90.01	-7,407.05	-814.51	1,330.57	1,138.46	192.11	6.926		
16,450.00	9,185.00	16,629.28	9,185.00	113.34	80.08	90.01	-7,457.05	-814.19	1,330.54	1,137.28	193.25	6.885		
16,500.00	9,185.00	16,679.28	9,185.00	114.04	80.53	90.01	-7,507.05	-813.88	1,330.51	1,136.11	194.39	6.844		
16,550.00	9,185.00	16,729.28	9,185.00	114.73	80.97	90.01	-7,557.05	-813.57	1,330.48	1,134.94	195.54	6.804		
16,600.00	9,185.00	16,779.28	9,185.00	115.43	81.42	90.01	-7,607.04	-813.25	1,330.45	1,133.77	196.68	6.764		
16,650.00	9,185.00	16,829.28	9,185.00	116.13	81.86	90.01	-7,657.04	-812.94	1,330.42	1,132.59	197.83	6.725		
16,700.00	9,185.00	16,879.28	9,185.00	116.83	82.31	90.01	-7,707.04	-812.62	1,330.39	1,131.42	198.97	6.686		
16,750.00	9,185.00	16,929.28	9,185.00	117.53	82.75	90.01	-7,757.04	-812.31	1,330.36	1,130.24	200.12	6.648		
16,800.00	9,185.00	16,979.28	9,185.00	118.23	83.20	90.01	-7,807.04	-812.00	1,330.33	1,129.06	201.27	6.610		
16,850.00	9,185.00	17,029.28	9,185.00	118.93	83.65	90.01	-7,857.04	-811.68	1,330.30	1,127.88	202.42	6.572		
16,900.00	9,185.00	17,079.28	9,185.00	119.63	84.10	90.01	-7,907.04	-811.37	1,330.27	1,126.70	203.57	6.535		
16,950.00	9,185.00	17,129.28	9,185.00	120.33	84.54	90.01	-7,957.04	-811.05	1,330.24	1,125.52	204.72	6.498		
17,000.00	9,185.00	17,179.28	9,185.00	121.04	84.99	90.01	-8,007.04	-810.74	1,330.21	1,124.34	205.87	6.461		
17,050.00	9,185.00	17,229.28	9,185.00	121.74	85.44	90.01	-8,057.04	-810.42	1,330.18	1,123.16	207.02	6.425		
17,100.00	9,185.00	17,279.28	9,185.00	122.44	85.89	90.01	-8,107.03	-810.11	1,330.15	1,121.98	208.17	6.390		
17,150.00	9,185.00	17,329.28	9,185.00	123.14	86.34	90.01	-8,157.03	-809.80	1,330.12	1,120.80	209.32	6.354		
17,200.00	9,185.00	17,379.28	9,185.00	123.84	86.79	90.01	-8,207.03	-809.48	1,330.09	1,119.62	210.48	6.319		
17,250.00	9,185.00	17,429.28	9,185.00	124.55	87.24	90.01	-8,257.03	-809.17	1,330.07	1,118.43	211.63	6.285		
17,300.00	9,185.00	17,479.28	9,185.00	125.25	87.69	90.01	-8,307.03	-808.85	1,330.04	1,117.25	212.79	6.251		
17,350.00	9,185.00	17,529.28	9,185.00	125.95	88.14	90.01	-8,357.03	-808.54	1,330.01	1,116.06	213.94	6.217		
17,400.00	9,185.00	17,579.28	9,185.00	126.66	88.59	90.01	-8,407.03	-808.23	1,329.98	1,114.88	215.10	6.183		
17,450.00	9,185.00	17,629.28	9,185.00	127.36	89.05	90.01	-8,457.03	-807.91	1,329.95	1,113.69	216.26	6.150		
17,500.00	9,185.00	17,679.28	9,185.00	128.07	89.50	90.01	-8,507.03	-807.60	1,329.92	1,112.50	217.41	6.117		
17,550.00	9,185.00	17,729.28	9,185.00	128.77	89.95	90.01	-8,557.03	-807.28	1,329.89	1,111.32	218.57	6.084		
17,600.00	9,185.00	17,779.28	9,185.00	129.48	90.40	90.01	-8,607.02	-806.97	1,329.86	1,110.13	219.73	6.052		
17,650.00	9,185.00	17,829.28	9,185.00	130.18	90.86	90.01	-8,657.02	-806.65	1,329.83	1,108.94	220.89	6.020		
17,700.00	9,185.00	17,879.28	9,185.00	130.89	91.31	90.01	-8,707.02	-806.34	1,329.80	1,107.75	222.05	5.989		
17,750.00	9,185.00	17,929.28	9,185.00	131.59	91.77	90.01	-8,757.02	-806.03	1,329.77	1,106.56	223.21	5.957		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 524H - Wellbore #1 - Plan 2 Steer for AC													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		
17,800.00	9,185.00	17,979.28	9,185.00	132.30	92.22	90.01	-8,807.02	-805.71	1,329.74	1,105.37	224.37	5.926		
17,850.00	9,185.00	18,029.28	9,185.00	133.01	92.67	90.01	-8,857.02	-805.40	1,329.71	1,104.18	225.53	5.896		
17,900.00	9,185.00	18,079.28	9,185.00	133.71	93.13	90.01	-8,907.02	-805.08	1,329.68	1,102.99	226.70	5.865		
17,950.00	9,185.00	18,129.28	9,185.00	134.42	93.58	90.01	-8,957.02	-804.77	1,329.65	1,101.79	227.86	5.835		
18,000.00	9,185.00	18,179.28	9,185.00	135.13	94.04	90.01	-9,007.02	-804.46	1,329.62	1,100.60	229.02	5.806		
18,050.00	9,185.00	18,229.28	9,185.00	135.83	94.50	90.01	-9,057.02	-804.14	1,329.59	1,099.41	230.19	5.776		
18,100.00	9,185.00	18,279.28	9,185.00	136.54	94.95	90.01	-9,107.01	-803.83	1,329.56	1,098.21	231.35	5.747		
18,150.00	9,185.00	18,329.28	9,185.00	137.25	95.41	90.01	-9,157.01	-803.51	1,329.53	1,097.02	232.52	5.718		
18,200.00	9,185.00	18,379.28	9,185.00	137.96	95.87	90.01	-9,207.01	-803.20	1,329.50	1,095.82	233.68	5.689		
18,250.00	9,185.00	18,429.28	9,185.00	138.67	96.32	90.01	-9,257.01	-802.88	1,329.47	1,094.63	234.85	5.661		
18,300.00	9,185.00	18,479.28	9,185.00	139.37	96.78	90.01	-9,307.01	-802.57	1,329.45	1,093.43	236.01	5.633		
18,350.00	9,185.00	18,529.28	9,185.00	140.08	97.24	90.01	-9,357.01	-802.26	1,329.42	1,092.24	237.18	5.605		
18,400.00	9,185.00	18,579.28	9,185.00	140.79	97.70	90.01	-9,407.01	-801.94	1,329.39	1,091.04	238.35	5.578		
18,450.00	9,185.00	18,629.28	9,185.00	141.50	98.15	90.01	-9,457.01	-801.63	1,329.36	1,089.84	239.52	5.550		
18,500.00	9,185.00	18,679.28	9,185.00	142.21	98.61	90.01	-9,507.01	-801.31	1,329.33	1,088.64	240.68	5.523		
18,550.00	9,185.00	18,729.28	9,185.00	142.92	99.07	90.01	-9,557.01	-801.00	1,329.30	1,087.45	241.85	5.496		
18,600.00	9,185.00	18,779.28	9,185.00	143.63	99.53	90.01	-9,607.00	-800.69	1,329.27	1,086.25	243.02	5.470		
18,650.00	9,185.00	18,829.28	9,185.00	144.34	99.99	90.01	-9,657.00	-800.37	1,329.24	1,085.05	244.19	5.443		
18,700.00	9,185.00	18,879.28	9,185.00	145.05	100.45	90.01	-9,707.00	-800.06	1,329.21	1,083.85	245.36	5.417		
18,750.00	9,185.00	18,929.28	9,185.00	145.76	100.91	90.01	-9,757.00	-799.74	1,329.18	1,082.65	246.53	5.392		
18,800.00	9,185.00	18,979.28	9,185.00	146.47	101.37	90.01	-9,807.00	-799.43	1,329.15	1,081.45	247.70	5.366		
18,850.00	9,185.00	19,029.28	9,185.00	147.18	101.83	90.01	-9,857.00	-799.12	1,329.12	1,080.25	248.87	5.341		
18,866.10	9,185.00	19,045.39	9,185.00	147.41	101.98	90.01	-9,873.10	-799.01	1,329.11	1,079.86	249.25	5.332		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1													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		
0.00	0.00	1.20	1.20	0.50	0.50	-26.84	119.74	-60.59	134.20					
50.00	50.00	51.20	51.20	0.50	0.50	-26.84	119.74	-60.59	134.20	133.19	1.01	133.334		
100.00	100.00	101.20	101.20	0.52	0.52	-26.84	119.74	-60.59	134.20	133.16	1.04	129.572		
150.00	150.00	151.20	151.20	0.59	0.59	-26.84	119.74	-60.59	134.20	133.02	1.18	113.643		
200.00	200.00	201.20	201.20	0.70	0.70	-26.84	119.74	-60.59	134.20	132.79	1.40	95.534		
250.00	250.00	251.20	251.20	0.84	0.84	-26.84	119.74	-60.59	134.20	132.52	1.68	80.070		
300.00	300.00	301.20	301.20	0.99	0.99	-26.84	119.74	-60.59	134.20	132.22	1.98	67.938		
350.00	350.00	351.20	351.20	1.15	1.15	-26.84	119.74	-60.59	134.20	131.91	2.29	58.560		
400.00	400.00	401.20	401.20	1.31	1.31	-26.84	119.74	-60.59	134.20	131.58	2.62	51.243		
450.00	450.00	451.20	451.20	1.48	1.48	-26.84	119.74	-60.59	134.20	131.24	2.95	45.439		
500.00	500.00	501.20	501.20	1.65	1.65	-26.84	119.74	-60.59	134.20	130.90	3.29	40.754		
550.00	550.00	551.20	551.20	1.82	1.82	-26.84	119.74	-60.59	134.20	130.56	3.64	36.908		
600.00	600.00	601.20	601.20	1.99	1.99	-26.84	119.74	-60.59	134.20	130.22	3.98	33.702		
650.00	650.00	651.20	651.20	2.16	2.17	-26.84	119.74	-60.59	134.20	129.87	4.33	30.994		
700.00	700.00	701.20	701.20	2.34	2.34	-26.84	119.74	-60.59	134.20	129.52	4.68	28.679		
750.00	750.00	751.20	751.20	2.51	2.52	-26.84	119.74	-60.59	134.20	129.17	5.03	26.679		
800.00	800.00	801.20	801.20	2.69	2.69	-26.84	119.74	-60.59	134.20	128.82	5.38	24.935		
850.00	850.00	851.20	851.20	2.87	2.87	-26.84	119.74	-60.59	134.20	128.46	5.73	23.402		
900.00	900.00	901.20	901.20	3.04	3.04	-26.84	119.74	-60.59	134.20	128.11	6.09	22.044		
950.00	950.00	951.20	951.20	3.22	3.22	-26.84	119.74	-60.59	134.20	127.76	6.44	20.833		
1,000.00	1,000.00	1,001.20	1,001.20	3.40	3.40	-26.84	119.74	-60.59	134.20	127.40	6.80	19.746		
1,050.00	1,050.00	1,051.20	1,051.20	3.58	3.58	-26.84	119.74	-60.59	134.20	127.05	7.15	18.787		
1,100.00	1,100.00	1,101.20	1,101.20	3.75	3.75	-26.84	119.74	-60.59	134.20	126.69	7.51	17.879		
1,150.00	1,150.00	1,151.20	1,151.20	3.93	3.93	-26.84	119.74	-60.59	134.20	126.34	7.86	17.071		
1,200.00	1,200.00	1,201.20	1,201.20	4.11	4.11	-26.84	119.74	-60.59	134.20	125.98	8.22	16.332		
1,250.00	1,250.00	1,251.20	1,251.20	4.29	4.29	-26.84	119.74	-60.59	134.20	125.62	8.57	15.654		
1,300.00	1,300.00	1,301.20	1,301.20	4.46	4.46	-26.84	119.74	-60.59	134.20	125.27	8.93	15.029		
1,350.00	1,350.00	1,351.20	1,351.20	4.64	4.64	-26.84	119.74	-60.59	134.20	124.91	9.29	14.453		
1,400.00	1,400.00	1,401.20	1,401.20	4.82	4.82	-26.84	119.74	-60.59	134.20	124.56	9.64	13.918		
1,450.00	1,450.00	1,451.20	1,451.20	5.00	5.00	-26.84	119.74	-60.59	134.20	124.20	10.00	13.422		
1,500.00	1,500.00	1,501.20	1,501.20	5.18	5.18	-26.84	119.74	-60.59	134.20	123.84	10.36	12.959		
1,550.00	1,550.00	1,551.20	1,551.20	5.36	5.36	-26.84	119.74	-60.59	134.20	123.49	10.71	12.528		
1,600.00	1,600.00	1,601.20	1,601.20	5.53	5.53	-26.84	119.74	-60.59	134.20	123.13	11.07	12.124		
1,650.00	1,650.00	1,651.20	1,651.20	5.71	5.71	-26.84	119.74	-60.59	134.20	122.77	11.43	11.745		
1,700.00	1,700.00	1,701.20	1,701.20	5.89	5.89	-26.84	119.74	-60.59	134.20	122.41	11.78	11.389		
1,750.00	1,750.00	1,751.20	1,751.20	6.07	6.07	-26.84	119.74	-60.59	134.20	122.06	12.14	11.054		
1,800.00	1,800.00	1,801.20	1,801.20	6.25	6.25	-26.84	119.74	-60.59	134.20	121.70	12.50	10.738		
1,850.00	1,850.00	1,851.20	1,851.20	6.43	6.43	-26.84	119.74	-60.59	134.20	121.34	12.86	10.439		
1,900.00	1,900.00	1,901.20	1,901.20	6.61	6.61	-26.84	119.74	-60.59	134.20	120.98	13.21	10.157		
1,950.00	1,950.00	1,951.20	1,951.20	6.78	6.79	-26.84	119.74	-60.59	134.20	120.63	13.57	9.889		
2,000.00	2,000.00	2,001.20	2,001.20	6.96	6.96	-26.84	119.74	-60.59	134.20	120.27	13.93	9.635		
2,050.00	2,050.00	2,051.20	2,051.20	7.14	7.14	-26.84	119.74	-60.59	134.20	119.91	14.29	9.394		
2,100.00	2,100.00	2,101.20	2,101.20	7.32	7.32	-26.84	119.74	-60.59	134.20	119.55	14.64	9.165		
2,150.00	2,150.00	2,151.20	2,151.20	7.50	7.50	-26.84	119.74	-60.59	134.20	119.20	15.00	8.946		
2,200.00	2,200.00	2,201.20	2,201.20	7.68	7.68	-26.84	119.74	-60.59	134.20	118.84	15.36	8.738		
2,250.00	2,250.00	2,251.20	2,251.20	7.86	7.86	-26.84	119.74	-60.59	134.20	118.48	15.72	8.539		
2,300.00	2,300.00	2,301.20	2,301.20	8.04	8.04	-26.84	119.74	-60.59	134.20	118.12	16.07	8.349		
2,350.00	2,350.00	2,351.20	2,351.20	8.22	8.22	-26.84	119.74	-60.59	134.20	117.77	16.43	8.167		
2,400.00	2,400.00	2,401.20	2,401.20	8.39	8.39	-26.84	119.74	-60.59	134.20	117.41	16.79	7.993		
2,450.00	2,450.00	2,451.20	2,451.20	8.57	8.57	-26.84	119.74	-60.59	134.20	117.05	17.15	7.826		
2,500.00	2,500.00	2,501.20	2,501.20	8.75	8.75	-26.84	119.74	-60.59	134.20	116.69	17.50	7.666 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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1													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		
2,550.00	2,550.00	2,550.42	2,550.42	8.93	8.93	-111.97	120.01	-60.39	134.43	116.57	17.85	7.529 ES		
2,600.00	2,599.99	2,599.65	2,599.64	9.10	9.10	-111.85	120.78	-59.80	135.10	116.90	18.20	7.422		
2,650.00	2,649.98	2,648.86	2,648.83	9.27	9.28	-111.65	122.05	-58.84	136.23	117.68	18.55	7.344		
2,700.00	2,699.96	2,698.05	2,697.96	9.44	9.45	-111.38	123.83	-57.49	137.80	118.91	18.89	7.294		
2,750.00	2,749.92	2,747.20	2,747.03	9.62	9.63	-111.05	126.11	-55.76	139.82	120.59	19.24	7.269		
2,800.00	2,799.86	2,796.30	2,796.01	9.79	9.80	-110.66	128.89	-53.65	142.30	122.72	19.58	7.268 SF		
2,850.00	2,849.78	2,845.35	2,844.88	9.96	9.98	-110.22	132.17	-51.17	145.23	125.31	19.92	7.290		
2,900.00	2,899.68	2,894.34	2,893.64	10.14	10.15	-109.72	135.95	-48.31	148.62	128.35	20.27	7.334		
2,950.00	2,949.54	2,943.26	2,942.26	10.31	10.32	-109.19	140.21	-45.07	152.46	131.86	20.61	7.398		
3,000.00	2,999.37	2,992.09	2,990.73	10.49	10.50	-108.63	144.97	-41.47	156.77	135.82	20.95	7.484		
3,050.00	3,049.16	3,041.00	3,039.19	10.66	10.67	-108.05	150.22	-37.49	161.54	140.25	21.29	7.587		
3,100.00	3,098.93	3,109.27	3,088.44	10.84	10.92	-107.53	155.73	-33.31	166.50	144.79	21.71	7.669		
3,150.00	3,148.70	3,140.46	3,137.69	11.01	11.03	-107.04	161.25	-29.13	171.47	149.47	22.00	7.795		
3,200.00	3,198.47	3,209.81	3,186.94	11.19	11.28	-106.58	166.76	-24.95	176.46	154.03	22.42	7.869		
3,250.00	3,248.24	3,239.93	3,236.18	11.37	11.39	-106.15	172.28	-20.77	181.45	158.74	22.71	7.990		
3,300.00	3,298.01	3,289.66	3,285.43	11.54	11.58	-105.74	177.80	-16.59	186.46	163.39	23.07	8.084		
3,350.00	3,347.78	3,339.39	3,334.68	11.72	11.76	-105.35	183.31	-12.41	191.47	168.05	23.42	8.174		
3,400.00	3,397.55	3,389.12	3,383.93	11.90	11.94	-104.98	188.83	-8.23	196.49	172.71	23.78	8.262		
3,450.00	3,447.32	3,438.85	3,433.17	12.08	12.12	-104.63	194.34	-4.05	201.52	177.38	24.14	8.347		
3,500.00	3,497.09	3,488.58	3,482.42	12.26	12.31	-104.30	199.86	0.14	206.56	182.06	24.50	8.430		
3,550.00	3,546.86	3,538.32	3,531.67	12.44	12.49	-103.98	205.38	4.32	211.60	186.74	24.86	8.511		
3,600.00	3,596.63	3,588.05	3,580.92	12.62	12.68	-103.68	210.89	8.50	216.65	191.43	25.22	8.589		
3,650.00	3,646.40	3,637.78	3,630.17	12.80	12.86	-103.39	216.41	12.68	221.70	196.12	25.59	8.665		
3,700.00	3,696.17	3,687.51	3,679.41	12.98	13.05	-103.11	221.92	16.86	226.77	200.82	25.95	8.739		
3,750.00	3,745.94	3,737.24	3,728.66	13.16	13.24	-102.85	227.44	21.04	231.83	205.52	26.31	8.810		
3,800.00	3,795.71	3,786.97	3,777.91	13.34	13.42	-102.60	232.95	25.22	236.90	210.22	26.68	8.880		
3,850.00	3,845.48	3,836.71	3,827.16	13.52	13.61	-102.35	238.47	29.40	241.98	214.93	27.04	8.948		
3,900.00	3,895.25	3,886.44	3,876.40	13.71	13.80	-102.12	243.99	33.58	247.05	219.65	27.41	9.014		
3,950.00	3,945.02	3,936.17	3,925.65	13.89	13.98	-101.80	249.50	37.76	252.14	224.36	27.77	9.078		
4,000.00	3,994.79	3,985.90	3,974.90	14.07	14.17	-101.68	255.02	41.94	257.22	229.08	28.14	9.141		
4,050.00	4,044.56	4,035.63	4,024.15	14.25	14.36	-101.48	260.53	46.12	262.31	233.81	28.51	9.202		
4,100.00	4,094.33	4,085.36	4,073.39	14.43	14.55	-101.28	266.05	50.30	267.40	238.53	28.87	9.261		
4,150.00	4,144.10	4,135.10	4,122.64	14.62	14.74	-101.09	271.57	54.49	272.50	243.26	29.24	9.319		
4,200.00	4,193.87	4,184.83	4,171.89	14.80	14.93	-100.91	277.08	58.67	277.60	247.99	29.61	9.375		
4,250.00	4,243.64	4,235.57	4,222.15	14.98	15.12	-100.74	282.66	62.89	282.66	252.67	29.99	9.426		
4,300.00	4,293.41	4,287.69	4,273.85	15.17	15.32	-100.66	287.91	66.87	287.38	257.00	30.38	9.460		
4,350.00	4,343.18	4,339.89	4,325.72	15.35	15.51	-100.71	292.61	70.44	291.69	260.93	30.77	9.481		
4,400.00	4,392.95	4,392.15	4,377.72	15.53	15.71	-100.86	296.75	73.57	295.59	264.44	31.15	9.488		
4,450.00	4,442.72	4,444.45	4,429.82	15.72	15.90	-101.11	300.32	76.28	299.09	267.55	31.54	9.483		
4,500.00	4,492.49	4,496.77	4,482.01	15.90	16.10	-101.47	303.33	78.56	302.18	270.26	31.92	9.467		
4,550.00	4,542.26	4,549.10	4,534.24	16.09	16.29	-101.94	305.77	80.41	304.89	272.59	32.30	9.440		
4,600.00	4,592.03	4,601.40	4,586.50	16.27	16.48	-102.50	307.63	81.82	307.21	274.54	32.68	9.402		
4,650.00	4,641.80	4,653.67	4,638.74	16.46	16.66	-103.16	308.93	82.80	309.17	276.13	33.05	9.355		
4,700.00	4,691.57	4,705.88	4,690.94	16.64	16.85	-103.92	309.65	83.35	310.79	277.37	33.42	9.300		
4,750.00	4,741.34	4,757.49	4,742.54	16.83	17.03	-104.77	309.82	83.48	312.10	278.31	33.78	9.238		
4,800.00	4,791.11	4,807.26	4,792.31	17.01	17.20	-105.61	309.82	83.48	313.36	279.21	34.14	9.178		
4,850.00	4,840.89	4,857.03	4,842.09	17.20	17.38	-106.45	309.82	83.48	314.69	280.18	34.50	9.120		
4,900.00	4,890.66	4,906.80	4,891.86	17.38	17.55	-107.28	309.82	83.48	316.08	281.22	34.86	9.066		
4,950.00	4,940.43	4,956.57	4,941.63	17.57	17.73	-108.10	309.82	83.48	317.54	282.32	35.22	9.015		
5,000.00	4,990.20	5,006.34	4,991.40	17.75	17.90	-108.91	309.82	83.48	319.07	283.48	35.58	8.967		
5,050.00	5,039.97	5,056.11	5,041.17	17.94	18.08	-109.72	309.82	83.48	320.66	284.71	35.94	8.921		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1													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 Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,089.74	5,105.88	5,090.94	18.12	18.25	-110.52	309.82	83.48	322.31	286.01	36.30	8.879		
5,150.00	5,139.51	5,155.65	5,140.71	18.31	18.43	-111.31	309.82	83.48	324.03	287.36	36.66	8.839		
5,200.00	5,189.28	5,205.42	5,190.48	18.49	18.60	-112.09	309.82	83.48	325.80	288.78	37.02	8.801		
5,250.00	5,239.05	5,255.19	5,240.25	18.68	18.78	-112.86	309.82	83.48	327.64	290.26	37.38	8.765		
5,300.00	5,288.82	5,304.96	5,290.02	18.87	18.95	-113.62	309.82	83.48	329.54	291.80	37.74	8.732		
5,350.00	5,338.59	5,354.73	5,339.79	19.05	19.13	-114.38	309.82	83.48	331.49	293.40	38.10	8.702		
5,400.00	5,388.36	5,404.50	5,389.56	19.24	19.31	-115.13	309.82	83.48	333.50	295.05	38.45	8.673		
5,450.00	5,438.13	5,454.27	5,439.33	19.42	19.48	-115.86	309.82	83.48	335.57	296.76	38.81	8.646		
5,500.00	5,487.90	5,504.04	5,489.10	19.61	19.66	-116.59	309.82	83.48	337.70	298.53	39.17	8.621		
5,550.00	5,537.67	5,553.81	5,538.87	19.80	19.83	-117.31	309.82	83.48	339.87	300.35	39.53	8.598		
5,600.00	5,587.44	5,603.58	5,588.64	19.98	20.01	-118.02	309.82	83.48	342.11	302.22	39.89	8.577		
5,650.00	5,637.21	5,653.35	5,638.41	20.17	20.18	-118.72	309.82	83.48	344.39	304.15	40.24	8.558		
5,700.00	5,686.98	5,703.12	5,688.18	20.36	20.36	-119.41	309.82	83.48	346.72	306.12	40.60	8.540		
5,750.00	5,736.75	5,752.89	5,737.95	20.54	20.54	-120.09	309.82	83.48	349.11	308.15	40.96	8.524		
5,800.00	5,786.52	5,802.66	5,787.72	20.73	20.71	-120.77	309.82	83.48	351.54	310.23	41.31	8.509		
5,850.00	5,836.29	5,852.43	5,837.49	20.92	20.89	-121.43	309.82	83.48	354.02	312.35	41.67	8.496		
5,900.00	5,886.06	5,902.20	5,887.26	21.11	21.06	-122.09	309.82	83.48	356.55	314.52	42.03	8.484		
5,950.00	5,935.83	5,951.97	5,937.03	21.29	21.24	-122.73	309.82	83.48	359.12	316.74	42.38	8.473		
6,000.00	5,985.60	6,001.74	5,986.80	21.48	21.42	-123.37	309.82	83.48	361.74	319.00	42.74	8.464		
6,050.00	6,035.37	6,051.51	6,036.57	21.67	21.59	-123.99	309.82	83.48	364.41	321.31	43.10	8.455		
6,100.00	6,085.14	6,101.28	6,086.34	21.85	21.77	-124.61	309.82	83.48	367.11	323.66	43.45	8.448		
6,150.00	6,134.91	6,151.05	6,136.11	22.04	21.94	-125.22	309.82	83.48	369.86	326.05	43.81	8.442		
6,200.00	6,184.68	6,200.82	6,185.88	22.23	22.12	-125.82	309.82	83.48	372.65	328.49	44.17	8.437		
6,250.00	6,234.45	6,250.59	6,235.65	22.42	22.30	-126.41	309.82	83.48	375.48	330.96	44.52	8.433		
6,300.00	6,284.22	6,300.36	6,285.42	22.60	22.47	-126.99	309.82	83.48	378.35	333.47	44.88	8.430		
6,350.00	6,333.99	6,350.13	6,335.19	22.79	22.65	-127.56	309.82	83.48	381.26	336.03	45.24	8.428		
6,400.00	6,383.76	6,400.10	6,384.96	22.98	22.83	-128.13	309.82	83.48	384.21	338.61	45.59	8.427		
6,450.00	6,433.53	6,449.68	6,434.73	23.17	23.00	-128.68	309.82	83.48	387.19	341.24	45.95	8.427		
6,500.00	6,483.30	6,500.55	6,484.50	23.35	23.18	-129.23	309.82	83.48	390.21	343.90	46.31	8.427		
6,550.00	6,533.07	6,549.22	6,534.27	23.54	23.35	-129.77	309.82	83.48	393.26	346.60	46.66	8.428		
6,600.00	6,582.84	6,601.01	6,584.04	23.73	23.54	-130.30	309.82	83.48	396.35	349.33	47.02	8.429		
6,650.00	6,632.61	6,648.76	6,633.81	23.92	23.71	-130.82	309.82	83.48	399.47	352.10	47.37	8.433		
6,700.00	6,682.38	6,701.47	6,683.58	24.11	23.89	-131.34	309.82	83.48	402.63	354.89	47.74	8.434		
6,750.00	6,732.16	6,748.30	6,733.36	24.29	24.06	-131.84	309.82	83.48	405.81	357.73	48.08	8.440		
6,800.00	6,781.93	6,801.93	6,783.13	24.48	24.25	-132.34	309.82	83.48	409.03	360.58	48.45	8.442		
6,850.00	6,831.70	6,847.84	6,832.90	24.67	24.41	-132.83	309.82	83.48	412.28	363.48	48.79	8.450		
6,900.00	6,881.47	6,902.39	6,882.87	24.86	24.61	-133.32	309.82	83.48	415.55	366.39	49.17	8.452		
6,950.00	6,931.24	6,947.38	6,932.44	25.05	24.77	-133.79	309.82	83.48	418.86	369.36	49.50	8.461		
7,000.00	6,981.01	7,002.85	6,982.21	25.23	24.96	-134.26	309.82	83.48	422.20	372.32	49.88	8.464		
7,050.00	7,030.78	7,046.92	7,031.98	25.42	25.12	-134.72	309.82	83.48	425.56	375.35	50.21	8.475		
7,100.00	7,080.55	7,103.31	7,081.75	25.61	25.32	-135.17	309.82	83.48	428.95	378.36	50.59	8.478		
7,150.00	7,130.32	7,146.46	7,131.52	25.80	25.47	-135.62	309.82	83.48	432.37	381.44	50.93	8.490		
7,200.00	7,180.09	7,203.77	7,181.29	25.99	25.68	-136.06	309.82	83.48	435.81	384.50	51.31	8.494		
7,250.00	7,229.86	7,246.00	7,231.06	26.18	25.83	-136.49	309.82	83.48	439.28	387.64	51.64	8.507		
7,300.00	7,279.63	7,304.23	7,280.83	26.36	26.03	-136.92	309.82	83.48	442.77	390.75	52.02	8.511		
7,350.00	7,329.40	7,345.54	7,330.60	26.55	26.18	-137.34	309.82	83.48	446.28	393.94	52.35	8.525		
7,400.00	7,379.17	7,404.69	7,380.37	26.74	26.39	-137.75	309.82	83.48	449.82	397.09	52.74	8.530		
7,450.00	7,428.94	7,445.08	7,430.14	26.93	26.53	-138.15	309.82	83.48	453.39	400.33	53.06	8.545		
7,500.00	7,478.71	7,505.15	7,479.91	27.12	26.75	-138.55	309.82	83.48	456.97	403.52	53.45	8.549		
7,550.00	7,528.48	7,544.62	7,529.68	27.31	26.89	-138.95	309.82	83.48	460.58	406.81	53.77	8.566		
7,600.00	7,578.27	7,605.59	7,579.47	27.49	27.10	-139.34	309.82	83.48	464.01	409.85	54.16	8.567		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 614H - Wellbore #1 - Prelim 1													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		
7,650.00	7,628.12	7,644.26	7,629.32	27.68	27.24	-139.68	309.82	83.48	466.97	412.49	54.48	8.571		
7,700.00	7,678.02	7,705.84	7,679.22	27.86	27.46	-139.96	309.82	83.48	469.44	414.57	54.88	8.555		
7,750.00	7,727.95	7,744.09	7,729.15	28.04	27.60	-140.18	309.82	83.48	471.42	416.23	55.19	8.542		
7,800.00	7,777.91	7,805.95	7,779.11	28.22	27.82	-140.35	309.82	83.48	472.90	417.32	55.59	8.508		
7,850.00	7,827.90	7,844.04	7,829.10	28.40	27.95	-140.45	309.82	83.48	473.88	417.98	55.90	8.478		
7,900.00	7,877.89	7,905.97	7,879.09	28.58	28.17	-140.50	309.82	83.48	474.36	418.06	56.29	8.426		
7,950.00	7,927.89	7,944.03	7,929.09	28.75	28.31	-55.34	309.82	83.48	474.41	417.80	56.60	8.381		
8,000.00	7,977.89	8,005.97	7,979.09	28.92	28.53	-55.34	309.82	83.48	474.41	417.41	57.00	8.324		
8,050.00	8,027.89	8,044.03	8,029.09	29.09	28.66	-55.34	309.82	83.48	474.41	417.10	57.30	8.279		
8,100.00	8,077.89	8,105.97	8,079.09	29.26	28.88	-55.34	309.82	83.48	474.41	416.71	57.70	8.222		
8,150.00	8,127.89	8,144.03	8,129.09	29.43	29.02	-55.34	309.82	83.48	474.41	416.40	58.01	8.179		
8,200.00	8,177.89	8,205.97	8,179.09	29.60	29.24	-55.34	309.82	83.48	474.41	416.01	58.40	8.124		
8,250.00	8,227.89	8,244.03	8,229.09	29.78	29.38	-55.34	309.82	83.48	474.41	415.70	58.71	8.081		
8,300.00	8,277.89	8,305.97	8,279.09	29.95	29.60	-55.34	309.82	83.48	474.41	415.31	59.10	8.027		
8,350.00	8,327.89	8,344.03	8,329.09	30.12	29.73	-55.34	309.82	83.48	474.41	415.00	59.41	7.985		
8,400.00	8,377.89	8,405.97	8,379.09	30.29	29.95	-55.34	309.82	83.48	474.41	414.60	59.80	7.933		
8,450.00	8,427.89	8,444.03	8,429.09	30.46	30.09	-55.34	309.82	83.48	474.41	414.29	60.11	7.892		
8,500.00	8,477.89	8,505.97	8,479.09	30.63	30.31	-55.34	309.82	83.48	474.41	413.90	60.51	7.840		
8,550.00	8,527.89	8,544.03	8,529.09	30.81	30.44	-55.34	309.82	83.48	474.41	413.59	60.82	7.801		
8,600.00	8,577.89	8,605.97	8,579.09	30.98	30.66	-55.34	309.82	83.48	474.41	413.20	61.21	7.750		
8,600.02	8,577.91	8,605.95	8,579.11	30.98	30.66	-55.34	309.82	83.48	474.41	413.20	61.21	7.750		
8,650.00	8,627.89	8,644.03	8,629.09	31.15	30.80	125.00	309.82	83.48	474.53	413.01	61.52	7.714		
8,700.00	8,677.75	8,706.11	8,678.95	31.31	31.02	125.18	309.82	83.48	476.58	414.68	61.91	7.699		
8,750.00	8,727.10	8,743.25	8,728.30	31.47	31.15	125.57	309.82	83.48	481.20	418.99	62.20	7.736		
8,800.00	8,775.58	8,808.27	8,778.78	31.63	31.39	126.11	309.82	83.48	488.47	425.87	62.60	7.803		
8,850.00	8,822.82	8,838.96	8,824.02	31.78	31.50	126.76	309.82	83.48	498.54	435.67	62.86	7.930		
8,900.00	8,868.45	8,884.60	8,869.65	31.93	31.66	127.43	309.82	83.48	511.56	448.38	63.18	8.097		
8,950.00	8,912.14	8,928.28	8,913.34	32.06	31.81	128.04	309.82	83.48	527.68	464.20	63.48	8.313		
9,000.00	8,953.53	8,969.67	8,954.73	32.19	31.96	128.49	309.82	83.48	547.01	483.25	63.76	8.579		
9,050.00	8,992.33	9,008.47	8,993.53	32.31	32.10	128.71	309.82	83.48	569.63	505.61	64.02	8.897		
9,100.00	9,028.23	9,044.38	9,029.43	32.43	32.23	128.59	309.82	83.48	595.53	531.27	64.26	9.267		
9,150.00	9,060.97	9,077.11	9,062.17	32.54	32.34	128.02	309.82	83.48	624.63	560.16	64.47	9.688		
9,200.00	9,090.29	9,106.43	9,091.49	32.65	32.45	126.88	309.82	83.48	656.81	592.15	64.66	10.158		
9,250.00	9,115.97	9,132.11	9,117.17	32.77	32.54	125.02	309.82	83.48	691.84	627.02	64.82	10.674		
9,300.00	9,137.82	9,153.96	9,139.02	32.90	32.62	122.26	309.82	83.48	729.47	664.53	64.94	11.232		
9,350.00	9,155.66	9,171.80	9,156.86	33.04	32.68	118.36	309.82	83.48	769.38	704.34	65.04	11.829		
9,400.00	9,169.37	9,185.51	9,170.57	33.19	32.73	113.03	309.82	83.48	811.23	746.12	65.12	12.458		
9,450.00	9,178.83	9,205.03	9,180.03	33.34	32.80	105.99	309.82	83.48	854.64	789.44	65.20	13.108		
9,500.00	9,183.98	9,200.12	9,185.18	33.51	32.78	97.08	309.82	83.48	899.20	834.02	65.18	13.795		
9,550.00	9,185.00	9,201.14	9,186.20	33.68	32.79	90.00	309.82	83.48	944.52	879.33	65.16	14.491		
9,600.00	9,185.00	9,201.14	9,186.20	33.87	32.79	90.00	309.82	83.48	990.30	925.13	65.17	15.195		
9,650.00	9,185.00	9,201.14	9,186.20	34.07	32.79	90.00	309.82	83.48	1,036.47	971.30	65.17	15.904		
9,700.00	9,185.00	9,201.14	9,186.20	34.27	32.79	90.00	309.82	83.48	1,082.99	1,017.82	65.17	16.619		
9,750.00	9,185.00	9,201.14	9,186.20	34.51	32.79	90.00	309.82	83.48	1,129.80	1,064.64	65.16	17.338		
9,800.00	9,185.00	9,201.14	9,186.20	34.74	32.79	90.00	309.82	83.48	1,176.87	1,111.71	65.16	18.061		
9,850.00	9,185.00	9,201.14	9,186.20	35.00	32.79	90.00	309.82	83.48	1,224.18	1,159.02	65.16	18.787		
9,900.00	9,185.00	9,201.14	9,186.20	35.26	32.79	90.00	309.82	83.48	1,271.69	1,206.53	65.16	19.516		
9,950.00	9,185.00	9,201.14	9,186.20	35.54	32.79	90.00	309.82	83.48	1,319.39	1,254.23	65.16	20.248		
10,000.00	9,185.00	9,201.14	9,186.20	35.82	32.79	90.00	309.82	83.48	1,367.25	1,302.09	65.16	20.982		
10,050.00	9,185.00	9,201.14	9,186.20	36.13	32.79	90.00	309.82	83.48	1,415.26	1,350.09	65.16	21.718		
10,100.00	9,185.00	9,201.14	9,186.20	36.44	32.79	90.00	309.82	83.48	1,463.40	1,398.23	65.17	22.457		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - Actuals													Offset Site Error: 5.00 ft	
Survey Program: 188-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)				
0.00	0.00	7.02	7.02	0.50	0.01	-14.32	119.91	-30.61	123.75					
50.00	50.00	57.19	57.19	0.50	0.09	-14.28	119.89	-30.52	123.71	123.13	0.59	210.806		
100.00	100.00	107.35	107.35	0.52	0.16	-14.19	119.83	-30.30	123.60	122.93	0.68	182.566		
150.00	150.00	157.51	157.51	0.59	0.23	-14.04	119.74	-29.94	123.43	122.60	0.82	149.805		
200.00	200.00	207.47	207.47	0.70	0.35	-13.83	119.63	-29.45	123.20	122.15	1.05	117.256		
250.00	250.00	257.12	257.11	0.84	0.53	-13.59	119.64	-28.91	123.09	121.72	1.36	90.244		
300.00	300.00	307.09	307.08	0.99	0.71	-13.31	119.77	-28.33	123.08	121.39	1.69	72.727		
350.00	350.00	357.36	357.34	1.15	0.89	-13.05	119.81	-27.78	122.99	120.96	2.03	60.572		
400.00	400.00	407.43	407.41	1.31	1.07	-12.82	119.76	-27.26	122.83	120.45	2.37	51.747		
450.00	450.00	457.40	457.38	1.48	1.24	-12.59	119.72	-26.74	122.67	119.95	2.72	45.098		
500.00	500.00	507.33	507.30	1.65	1.42	-12.36	119.69	-26.23	122.53	119.46	3.07	39.926		
550.00	550.00	557.25	557.23	1.82	1.60	-12.15	119.67	-25.77	122.42	119.00	3.42	35.801		
600.00	600.00	607.33	607.30	1.99	1.78	-11.98	119.65	-25.38	122.31	118.54	3.77	32.430		
650.00	650.00	657.42	657.39	2.16	1.96	-11.85	119.56	-25.10	122.17	118.04	4.12	29.619		
700.00	700.00	707.37	707.34	2.34	2.14	-11.74	119.47	-24.82	122.02	117.54	4.48	27.247		
750.00	750.00	757.33	757.30	2.51	2.32	-11.58	119.40	-24.48	121.89	117.06	4.83	25.223		
800.00	800.00	807.29	807.26	2.69	2.50	-11.40	119.37	-24.07	121.77	116.59	5.19	23.476		
850.00	850.00	857.25	857.22	2.87	2.68	-11.25	119.34	-23.73	121.68	116.13	5.54	21.953		
900.00	900.00	907.18	907.15	3.04	2.86	-11.16	119.30	-23.53	121.60	115.70	5.90	20.617		
950.00	950.00	957.05	957.01	3.22	3.03	-11.10	119.29	-23.40	121.56	115.31	6.25	19.441		
955.20	955.20	962.23	962.20	3.24	3.05	-11.10	119.29	-23.39	121.56	115.27	6.29	19.327		
1,000.00	1,000.00	1,006.95	1,006.92	3.40	3.21	-11.06	119.32	-23.33	121.58	114.98	6.60	18.409		
1,050.00	1,050.00	1,056.91	1,056.88	3.58	3.38	-11.06	119.36	-23.33	121.62	114.67	6.95	17.495		
1,100.00	1,100.00	1,106.92	1,106.88	3.75	3.54	-11.09	119.40	-23.40	121.67	114.38	7.30	16.676		
1,150.00	1,150.00	1,156.96	1,156.92	3.93	3.71	-11.12	119.43	-23.48	121.71	114.07	7.64	15.934		
1,200.00	1,200.00	1,207.06	1,207.03	4.11	3.88	-11.15	119.43	-23.54	121.73	113.74	7.99	15.240		
1,250.00	1,250.00	1,257.18	1,257.14	4.29	4.05	-11.14	119.40	-23.52	121.69	113.35	8.34	14.596		
1,300.00	1,300.00	1,307.17	1,307.14	4.46	4.23	-11.10	119.36	-23.42	121.63	112.94	8.69	13.991		
1,350.00	1,350.00	1,357.16	1,357.13	4.64	4.41	-11.03	119.33	-23.26	121.58	112.53	9.05	13.434		
1,400.00	1,400.00	1,407.14	1,407.10	4.82	4.59	-10.97	119.31	-23.12	121.53	112.12	9.41	12.919		
1,450.00	1,450.00	1,457.04	1,457.00	5.00	4.76	-10.93	119.29	-23.03	121.50	111.73	9.76	12.446		
1,450.67	1,450.67	1,457.70	1,457.67	5.00	4.77	-10.93	119.29	-23.03	121.50	111.73	9.77	12.440		
1,500.00	1,500.00	1,506.76	1,506.72	5.18	4.94	-10.91	119.36	-23.00	121.55	111.44	10.11	12.018		
1,550.00	1,550.00	1,556.75	1,556.72	5.36	5.11	-10.91	119.50	-23.03	121.70	111.23	10.46	11.629		
1,600.00	1,600.00	1,607.05	1,607.02	5.53	5.28	-10.93	119.54	-23.08	121.75	110.94	10.81	11.258		
1,650.00	1,650.00	1,657.19	1,657.16	5.71	5.45	-10.96	119.48	-23.13	121.70	110.54	11.16	10.901		
1,700.00	1,700.00	1,707.24	1,707.20	5.89	5.62	-10.97	119.41	-23.15	121.63	110.11	11.51	10.563		
1,750.00	1,750.00	1,757.23	1,757.20	6.07	5.80	-10.97	119.32	-23.12	121.54	109.68	11.87	10.241		
1,800.00	1,800.00	1,807.22	1,807.18	6.25	5.98	-10.95	119.25	-23.08	121.47	109.24	12.22	9.937		
1,850.00	1,850.00	1,857.13	1,857.09	6.43	6.15	-10.94	119.20	-23.03	121.41	108.83	12.58	9.653		
1,900.00	1,900.00	1,907.03	1,907.00	6.61	6.33	-10.93	119.19	-23.02	121.39	108.46	12.93	9.387		
1,950.00	1,950.00	1,957.03	1,957.00	6.78	6.50	-10.93	119.19	-23.02	121.39	108.11	13.28	9.138		
2,000.00	2,000.00	2,007.04	2,007.01	6.96	6.67	-10.93	119.19	-23.02	121.39	107.75	13.64	8.902		
2,050.00	2,050.00	2,057.11	2,057.08	7.14	6.85	-10.90	119.18	-22.96	121.37	107.38	13.99	8.675		
2,100.00	2,100.00	2,107.12	2,107.08	7.32	7.02	-10.84	119.16	-22.81	121.33	106.98	14.34	8.458		
2,126.78	2,126.78	2,133.81	2,133.78	7.42	7.12	-10.80	119.17	-22.74	121.32	106.78	14.53	8.347		
2,150.00	2,150.00	2,156.96	2,156.93	7.50	7.20	-10.78	119.18	-22.69	121.33	106.63	14.70	8.254		
2,200.00	2,200.00	2,206.96	2,206.92	7.68	7.38	-10.75	119.24	-22.63	121.37	106.32	15.05	8.062		
2,250.00	2,250.00	2,257.14	2,257.11	7.86	7.55	-10.73	119.25	-22.59	121.37	105.96	15.41	7.876		
2,300.00	2,300.00	2,307.17	2,307.14	8.04	7.73	-10.71	119.19	-22.54	121.30	105.53	15.77	7.694		
2,350.00	2,350.00	2,357.07	2,357.04	8.22	7.91	-10.70	119.15	-22.52	121.26	105.14	16.12	7.522		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - Actuals													Offset Site Error:	5.00 ft
Survey Program: 188-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)				
2,366.97	2,366.97	2,374.00	2,373.97	8.28	7.97	-10.70	119.15	-22.52	121.26	105.02	16.24	7.466 CC		
2,400.00	2,400.00	2,406.82	2,406.79	8.39	8.08	-10.62	119.21	-22.34	121.29	104.81	16.48	7.361		
2,450.00	2,450.00	2,456.48	2,456.44	8.57	8.26	-10.14	119.55	-21.39	121.45	104.62	16.83	7.215		
2,500.00	2,500.00	2,506.19	2,506.11	8.75	8.44	-9.25	120.16	-19.58	121.75	104.56	17.19	7.083 ES		
2,550.00	2,550.00	2,555.85	2,555.68	8.93	8.61	-93.19	121.03	-16.83	122.21	104.67	17.54	6.968		
2,600.00	2,599.99	2,605.11	2,604.79	9.10	8.79	-91.76	122.18	-13.27	122.94	105.06	17.89	6.873		
2,650.00	2,649.98	2,654.24	2,653.72	9.27	8.97	-90.20	123.70	-8.99	124.06	105.83	18.23	6.805		
2,700.00	2,699.96	2,703.34	2,702.55	9.44	9.14	-88.59	125.56	-4.15	125.58	107.00	18.58	6.760		
2,750.00	2,749.92	2,752.45	2,751.33	9.62	9.32	-87.02	127.75	1.09	127.49	108.57	18.92	6.739		
2,800.00	2,799.86	2,802.64	2,801.13	9.79	9.50	-85.50	130.07	6.79	129.54	110.27	19.27	6.721		
2,850.00	2,849.78	2,852.95	2,851.03	9.96	9.68	-84.09	132.26	12.81	131.50	111.87	19.63	6.700		
2,900.00	2,899.68	2,903.86	2,901.51	10.14	9.87	-82.77	134.16	19.17	133.19	113.20	19.99	6.663		
2,950.00	2,949.54	2,954.48	2,951.68	10.31	10.05	-81.56	135.67	25.75	134.52	114.17	20.35	6.610		
3,000.00	2,999.37	3,004.47	3,001.21	10.49	10.23	-80.53	137.05	32.34	135.73	115.02	20.71	6.554		
3,050.00	3,049.16	3,054.43	3,050.72	10.66	10.42	-79.69	138.41	38.95	136.89	115.82	21.07	6.498		
3,100.00	3,098.93	3,104.35	3,100.20	10.84	10.60	-79.04	139.80	45.36	138.04	116.62	21.43	6.443		
3,150.00	3,148.70	3,154.30	3,149.75	11.01	10.79	-78.52	141.23	51.52	139.22	117.44	21.79	6.390		
3,200.00	3,198.47	3,204.27	3,199.37	11.19	10.97	-78.15	142.71	57.30	140.41	118.27	22.15	6.340		
3,250.00	3,248.24	3,254.17	3,248.93	11.37	11.16	-77.91	144.23	62.79	141.62	119.11	22.51	6.292		
3,300.00	3,298.01	3,304.01	3,298.44	11.54	11.35	-77.64	145.79	68.37	142.88	120.00	22.87	6.247		
3,350.00	3,347.78	3,353.20	3,347.26	11.72	11.53	-77.28	147.42	74.14	144.26	121.04	23.23	6.211		
3,400.00	3,397.55	3,402.13	3,395.75	11.90	11.71	-76.72	149.29	80.43	146.00	122.42	23.58	6.192		
3,450.00	3,447.32	3,451.49	3,444.58	12.08	11.90	-75.99	151.39	87.29	148.05	124.11	23.94	6.184		
3,500.00	3,497.09	3,500.90	3,493.41	12.26	12.09	-75.13	153.60	94.55	150.29	125.99	24.30	6.185		
3,550.00	3,546.86	3,551.27	3,543.17	12.44	12.28	-74.25	155.84	102.04	152.58	127.91	24.67	6.185		
3,600.00	3,596.63	3,601.78	3,593.12	12.62	12.47	-73.49	157.96	109.27	154.71	129.67	25.04	6.178		
3,650.00	3,646.40	3,652.58	3,643.37	12.80	12.67	-72.77	159.87	116.41	156.63	131.21	25.42	6.162		
3,700.00	3,696.17	3,703.43	3,693.69	12.98	12.87	-72.04	161.48	123.58	158.29	132.50	25.80	6.136		
3,750.00	3,745.94	3,754.44	3,744.17	13.16	13.06	-71.28	162.76	130.79	159.67	133.49	26.18	6.100		
3,800.00	3,795.71	3,805.29	3,794.50	13.34	13.26	-70.52	163.69	137.97	160.74	134.18	26.55	6.054		
3,850.00	3,845.48	3,855.86	3,844.58	13.52	13.45	-69.82	164.45	144.90	161.62	134.69	26.93	6.002		
3,900.00	3,895.25	3,906.48	3,894.76	13.71	13.65	-69.21	165.08	151.57	162.32	135.02	27.30	5.945		
3,950.00	3,945.02	3,957.15	3,945.02	13.89	13.84	-68.67	165.55	158.02	162.83	135.16	27.68	5.883		
4,000.00	3,994.79	4,007.93	3,995.41	14.07	14.04	-68.17	165.85	164.30	163.13	135.08	28.05	5.815		
4,050.00	4,044.56	4,058.77	4,045.86	14.25	14.23	-67.65	165.86	170.58	163.18	134.75	28.43	5.740		
4,100.00	4,094.33	4,108.56	4,095.27	14.43	14.42	-67.10	165.72	176.78	163.11	134.31	28.80	5.664		
4,101.12	4,095.45	4,109.67	4,096.37	14.44	14.43	-67.09	165.72	176.92	163.11	134.30	28.81	5.662		
4,150.00	4,144.10	4,158.06	4,144.36	14.62	14.61	-66.53	165.67	183.07	163.19	134.02	29.17	5.595		
4,200.00	4,193.87	4,206.10	4,192.00	14.80	14.80	-65.98	165.95	189.26	163.62	134.10	29.52	5.542		
4,250.00	4,243.64	4,253.94	4,239.42	14.98	14.99	-65.50	166.87	195.44	164.72	134.85	29.87	5.514		
4,300.00	4,293.41	4,303.59	4,288.66	15.17	15.18	-65.11	168.29	201.73	166.22	135.98	30.24	5.497		
4,350.00	4,343.18	4,353.47	4,338.14	15.35	15.37	-64.85	169.88	207.73	167.77	137.16	30.61	5.481		
4,400.00	4,392.95	4,404.44	4,388.76	15.53	15.57	-64.70	171.48	213.52	169.19	138.19	30.99	5.459		
4,450.00	4,442.72	4,455.43	4,439.44	15.72	15.76	-64.63	172.89	218.97	170.31	138.93	31.38	5.428		
4,500.00	4,492.49	4,504.88	4,488.60	15.90	15.95	-64.59	174.26	224.17	171.40	139.66	31.74	5.400		
4,550.00	4,542.26	4,554.31	4,537.73	16.09	16.14	-64.55	175.71	229.40	172.58	140.48	32.11	5.375		
4,600.00	4,592.03	4,603.13	4,586.22	16.27	16.33	-64.46	177.34	234.80	174.04	141.57	32.47	5.360		
4,650.00	4,641.80	4,651.66	4,634.39	16.46	16.51	-64.31	179.21	240.48	175.85	143.03	32.82	5.358		
4,700.00	4,691.57	4,699.75	4,682.03	16.64	16.70	-64.07	181.40	246.53	178.15	144.98	33.17	5.371		
4,750.00	4,741.34	4,748.15	4,729.93	16.83	16.89	-63.74	183.94	253.08	180.95	147.43	33.52	5.398		
4,800.00	4,791.11	4,796.98	4,778.19	17.01	17.08	-63.35	186.72	260.01	184.09	150.21	33.87	5.434		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - Actuals													Offset Site Error:	5.00 ft
Survey Program: 188-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		
4,850.00	4,840.89	4,846.48	4,827.05	17.20	17.28	-62.90	189.67	267.31	187.47	153.23	34.24	5.475		
4,900.00	4,890.66	4,896.61	4,876.53	17.38	17.48	-62.44	192.61	274.77	190.84	156.23	34.62	5.513		
4,950.00	4,940.43	4,947.11	4,926.39	17.57	17.68	-61.98	195.46	282.28	194.12	159.12	35.00	5.547		
5,000.00	4,990.20	4,997.83	4,976.50	17.75	17.89	-61.54	198.15	289.70	197.21	161.82	35.38	5.573		
5,050.00	5,039.97	5,048.13	5,026.21	17.94	18.09	-61.13	200.67	296.96	200.13	164.37	35.76	5.596		
5,100.00	5,089.74	5,098.33	5,075.82	18.12	18.29	-60.74	203.12	304.17	202.99	166.86	36.14	5.617		
5,150.00	5,139.51	5,148.63	5,125.55	18.31	18.49	-60.35	205.49	311.38	205.78	169.26	36.52	5.635		
5,200.00	5,189.28	5,198.95	5,175.30	18.49	18.69	-59.96	207.76	318.57	208.47	171.58	36.89	5.650		
5,250.00	5,239.05	5,249.19	5,224.97	18.68	18.89	-59.57	209.92	325.77	211.09	173.82	37.27	5.663		
5,300.00	5,288.82	5,299.65	5,274.87	18.87	19.09	-59.17	211.99	333.02	213.63	175.98	37.65	5.674		
5,350.00	5,338.59	5,350.89	5,325.57	19.05	19.30	-58.78	213.90	340.22	215.95	177.91	38.04	5.677		
5,400.00	5,388.36	5,401.75	5,375.93	19.24	19.50	-58.44	215.58	347.13	217.98	179.56	38.42	5.673		
5,450.00	5,438.13	5,451.98	5,425.69	19.42	19.70	-58.16	217.23	353.76	219.92	181.12	38.80	5.668		
5,500.00	5,487.90	5,501.92	5,475.19	19.61	19.90	-57.93	218.91	360.15	221.81	182.63	39.17	5.662		
5,550.00	5,537.67	5,551.57	5,524.42	19.80	20.09	-57.76	220.72	366.37	223.76	184.21	39.55	5.658		
5,600.00	5,587.44	5,601.47	5,573.90	19.98	20.29	-57.62	222.64	372.50	225.75	185.84	39.92	5.655		
5,650.00	5,637.21	5,651.50	5,623.52	20.17	20.48	-57.49	224.57	378.65	227.74	187.45	40.29	5.652		
5,700.00	5,686.98	5,701.91	5,673.51	20.36	20.68	-57.36	226.46	384.83	229.69	189.01	40.67	5.647		
5,750.00	5,736.75	5,752.44	5,723.63	20.54	20.88	-57.23	228.25	390.96	231.51	190.46	41.05	5.639		
5,800.00	5,786.52	5,802.83	5,773.62	20.73	21.08	-57.10	229.94	397.03	233.23	191.80	41.43	5.629		
5,850.00	5,836.29	5,853.20	5,823.61	20.92	21.28	-56.97	231.55	403.06	234.86	193.05	41.81	5.617		
5,900.00	5,886.06	5,903.39	5,873.42	21.11	21.47	-56.85	233.10	409.04	236.43	194.24	42.19	5.604		
5,950.00	5,935.83	5,953.62	5,923.27	21.29	21.67	-56.73	234.61	414.99	237.95	195.38	42.56	5.590		
6,000.00	5,985.60	6,003.95	5,973.22	21.48	21.87	-56.61	236.07	420.91	239.40	196.46	42.94	5.575		
6,050.00	6,035.37	6,054.15	6,023.06	21.67	22.06	-56.49	237.46	426.80	240.79	197.47	43.32	5.559		
6,100.00	6,085.14	6,104.08	6,072.62	21.85	22.26	-56.37	238.81	432.68	242.17	198.48	43.69	5.543		
6,150.00	6,134.91	6,153.44	6,121.62	22.04	22.45	-56.23	240.16	438.55	243.59	199.53	44.06	5.529		
6,200.00	6,184.68	6,202.06	6,169.86	22.23	22.65	-56.10	241.69	444.44	245.24	200.82	44.42	5.521		
6,250.00	6,234.45	6,251.60	6,218.98	22.42	22.84	-55.98	243.45	450.54	247.12	202.33	44.79	5.517		
6,300.00	6,284.22	6,301.96	6,268.94	22.60	23.04	-55.86	245.22	456.68	248.96	203.79	45.17	5.512		
6,350.00	6,333.99	6,352.55	6,319.14	22.79	23.24	-55.76	246.94	462.77	250.70	205.15	45.55	5.504		
6,400.00	6,383.76	6,403.27	6,369.46	22.98	23.44	-55.65	248.53	468.80	252.30	206.37	45.93	5.493		
6,450.00	6,433.53	6,453.63	6,419.46	23.17	23.64	-55.54	250.00	474.75	253.78	207.47	46.31	5.480		
6,500.00	6,483.30	6,503.92	6,469.38	23.35	23.83	-55.44	251.42	480.65	255.20	208.52	46.69	5.466		
6,550.00	6,533.07	6,554.75	6,519.85	23.54	24.03	-55.34	252.76	486.54	256.52	209.45	47.07	5.450		
6,600.00	6,582.84	6,605.63	6,570.38	23.73	24.23	-55.25	253.97	492.32	257.66	210.20	47.45	5.430		
6,650.00	6,632.61	6,656.28	6,620.70	23.92	24.43	-55.16	255.06	497.98	258.65	210.82	47.83	5.407		
6,700.00	6,682.38	6,706.95	6,671.05	24.11	24.63	-55.08	256.04	503.57	259.51	211.30	48.21	5.383		
6,750.00	6,732.16	6,757.62	6,721.41	24.29	24.82	-55.00	256.91	509.08	260.24	211.65	48.59	5.356		
6,800.00	6,781.93	6,808.39	6,771.89	24.48	25.02	-54.93	257.68	514.51	260.84	211.87	48.97	5.326		
6,850.00	6,831.70	6,859.34	6,822.56	24.67	25.22	-54.88	258.34	519.80	261.26	211.91	49.35	5.294		
6,900.00	6,881.47	6,910.25	6,873.20	24.86	25.41	-54.84	258.89	524.92	261.51	211.78	49.73	5.258		
6,950.00	6,931.24	6,961.12	6,923.83	25.05	25.61	-54.82	259.32	529.89	261.59	211.48	50.11	5.220		
7,000.00	6,981.01	7,012.11	6,974.59	25.23	25.80	-54.81	259.63	534.73	261.49	211.00	50.49	5.179		
7,050.00	7,030.78	7,063.14	7,025.41	25.42	25.99	-54.83	259.82	539.39	261.20	210.33	50.87	5.135		
7,100.00	7,080.55	7,114.09	7,076.16	25.61	26.18	-54.86	259.88	543.88	260.72	209.47	51.25	5.087		
7,150.00	7,130.32	7,165.02	7,126.90	25.80	26.38	-54.91	259.81	548.21	260.05	208.43	51.63	5.037		
7,200.00	7,180.09	7,216.42	7,178.13	25.99	26.57	-54.97	259.58	552.41	259.17	207.16	52.00	4.984 Alert		
7,250.00	7,229.86	7,267.83	7,229.39	26.18	26.76	-55.05	259.15	556.41	258.00	205.62	52.38	4.926 Alert		
7,300.00	7,279.63	7,318.87	7,280.28	26.36	26.95	-55.15	258.55	560.18	256.60	203.85	52.75	4.864 Alert		
7,350.00	7,329.40	7,369.89	7,331.17	26.55	27.13	-55.27	257.80	563.78	254.99	201.87	53.13	4.800 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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - Actuals													Offset Site Error:	5.00 ft
Survey Program: 188-MWD+HDGM													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Tooface (")	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)						
7,400.00	7,379.17	7,420.80	7,381.96	26.74	27.32	-55.42	256.94	567.16	253.19	199.69	53.50	4.733	Alert	
7,450.00	7,428.94	7,471.71	7,432.76	26.93	27.50	-55.60	256.00	570.31	251.21	197.33	53.87	4.663	Alert	
7,500.00	7,478.71	7,522.62	7,483.57	27.12	27.69	-55.83	254.96	573.24	249.03	194.79	54.24	4.591	Alert	
7,550.00	7,528.48	7,573.26	7,534.13	27.31	27.87	-56.09	253.85	575.92	246.69	192.07	54.62	4.517	Alert	
7,600.00	7,578.27	7,623.72	7,584.52	27.49	28.05	-56.31	252.70	578.42	244.37	189.38	54.99	4.444	Alert	
7,650.00	7,628.12	7,674.00	7,634.73	27.68	28.22	-56.43	251.53	580.78	242.33	186.97	55.35	4.378	Alert	
7,700.00	7,678.02	7,724.21	7,684.87	27.86	28.40	-56.44	250.34	583.06	240.59	184.87	55.72	4.318	Alert	
7,750.00	7,727.95	7,774.37	7,734.98	28.04	28.58	-56.34	249.15	585.25	239.17	183.10	56.07	4.263	Alert	
7,800.00	7,777.91	7,824.53	7,785.08	28.22	28.75	-56.15	247.99	587.30	238.08	181.66	56.43	4.219	Alert	
7,850.00	7,827.90	7,874.82	7,835.31	28.40	28.93	-55.85	246.84	589.24	237.31	180.54	56.77	4.180	Alert	
7,900.00	7,877.89	7,925.10	7,885.55	28.58	29.10	-55.44	245.65	591.11	236.85	179.74	57.11	4.147	Alert	
7,950.00	7,927.89	7,975.46	7,935.86	28.75	29.28	30.26	244.41	592.92	236.64	179.20	57.45	4.119	Alert	
8,000.00	7,977.89	8,025.81	7,986.16	28.92	29.45	30.78	243.09	594.68	236.41	178.63	57.78	4.092	Alert	
8,050.00	8,027.89	8,076.05	8,036.36	29.09	29.63	31.29	241.78	596.31	236.12	178.01	58.11	4.063	Alert	
8,100.00	8,077.89	8,126.34	8,086.61	29.26	29.80	31.76	240.48	597.78	235.78	177.34	58.44	4.034	Alert	
8,150.00	8,127.89	8,176.68	8,136.91	29.43	29.97	32.22	239.14	599.17	235.39	176.61	58.78	4.005	Alert	
8,200.00	8,177.89	8,225.65	8,185.85	29.60	30.14	32.65	237.86	600.47	235.00	175.88	59.12	3.975	Alert	
8,220.64	8,198.53	8,245.34	8,205.53	29.68	30.21	32.81	237.48	600.99	234.96	175.70	59.26	3.965	Alert	
8,250.00	8,227.89	8,273.36	8,233.54	29.78	30.31	33.01	237.10	601.72	235.04	175.58	59.47	3.952	Alert	
8,300.00	8,277.89	8,320.85	8,281.01	29.95	30.48	33.30	236.88	603.00	235.59	175.77	59.82	3.939	Alert	
8,350.00	8,327.89	8,368.11	8,328.24	30.12	30.64	33.60	237.08	604.61	236.70	176.54	60.16	3.935	Alert, SF	
8,400.00	8,377.89	8,416.26	8,376.35	30.29	30.81	33.90	237.71	606.53	238.35	177.85	60.50	3.940	Alert	
8,450.00	8,427.89	8,465.22	8,425.27	30.46	30.99	34.07	238.84	608.17	240.24	179.40	60.84	3.949	Alert	
8,500.00	8,477.89	8,515.06	8,475.06	30.63	31.16	34.13	240.40	609.51	242.30	181.11	61.19	3.960	Alert	
8,550.00	8,527.89	8,565.50	8,525.47	30.81	31.34	34.18	241.93	610.81	244.27	182.74	61.53	3.970	Alert	
8,600.00	8,577.89	8,616.42	8,576.35	30.98	31.52	34.23	243.37	612.04	246.12	184.24	61.88	3.977	Alert	
8,650.00	8,627.89	8,667.52	8,627.42	31.15	31.69	-145.43	244.72	613.00	247.92	185.69	62.23	3.984	Alert	
8,700.00	8,677.75	8,718.64	8,678.52	31.31	31.87	-145.70	245.98	613.64	252.23	189.65	62.58	4.031	Alert	
8,750.00	8,727.10	8,769.22	8,729.09	31.47	32.04	-146.38	247.16	613.87	259.90	196.96	62.94	4.129	Alert	
8,800.00	8,775.58	8,819.49	8,779.35	31.63	32.20	-147.37	248.13	613.79	270.95	207.65	63.30	4.280	Alert	
8,850.00	8,822.82	8,868.70	8,828.55	31.78	32.36	-148.53	248.79	613.47	285.42	221.76	63.66	4.484	Alert	
8,900.00	8,868.45	8,917.02	8,876.87	31.93	32.51	-149.77	249.05	612.98	303.33	239.33	64.01	4.739	Alert	
8,950.00	8,912.14	8,963.68	8,923.52	32.06	32.66	-150.96	248.89	612.35	324.67	260.33	64.34	5.046		
9,000.00	8,953.53	9,005.59	8,965.43	32.19	32.79	-151.87	248.58	611.73	349.63	284.97	64.66	5.407		
9,050.00	8,992.33	9,045.48	9,005.31	32.31	32.92	-152.57	248.19	611.11	378.17	313.22	64.95	5.822		
9,100.00	9,028.23	9,080.22	9,040.05	32.43	33.03	-152.83	247.86	610.58	410.22	345.00	65.23	6.289		
9,150.00	9,060.97	9,111.45	9,071.28	32.54	33.12	-152.64	247.70	610.11	445.66	380.19	65.47	6.807		
9,200.00	9,090.29	9,139.19	9,099.01	32.65	33.21	-151.91	247.66	609.72	484.17	418.49	65.68	7.372		
9,250.00	9,115.97	9,164.77	9,124.59	32.77	33.29	-150.59	247.68	609.38	525.36	459.50	65.86	7.977		
9,300.00	9,137.82	9,186.90	9,146.72	32.90	33.36	-148.30	247.67	609.11	568.82	502.81	66.01	8.617		
9,350.00	9,155.66	9,205.06	9,164.87	33.04	33.42	-144.50	247.65	608.91	614.19	548.05	66.13	9.287		
9,400.00	9,169.37	9,219.07	9,178.88	33.19	33.46	-138.22	247.63	608.78	661.09	594.86	66.23	9.982		
9,450.00	9,178.83	9,228.82	9,188.63	33.34	33.49	-127.53	247.61	608.69	709.15	642.85	66.30	10.696		
9,500.00	9,183.98	9,234.20	9,194.01	33.51	33.51	-109.21	247.60	608.64	757.98	691.64	66.35	11.425		
9,550.00	9,185.00	9,235.37	9,195.18	33.68	33.51	-91.34	247.59	608.63	807.20	740.82	66.37	12.162		
9,600.00	9,185.00	9,235.50	9,195.31	33.87	33.51	-91.39	247.59	608.63	856.52	790.13	66.39	12.901		
9,650.00	9,185.00	9,235.63	9,195.44	34.07	33.51	-91.45	247.59	608.63	905.92	839.51	66.41	13.641		
9,700.00	9,185.00	9,235.76	9,195.57	34.27	33.51	-91.50	247.59	608.63	955.38	888.95	66.43	14.382		
9,750.00	9,185.00	9,235.89	9,195.71	34.51	33.51	-91.56	247.59	608.63	1,004.90	938.45	66.44	15.124		
9,800.00	9,185.00	9,236.03	9,195.84	34.74	33.51	-91.62	247.59	608.63	1,054.46	988.00	66.46	15.866		
9,850.00	9,185.00	9,236.16	9,195.97	35.00	33.51	-91.67	247.59	608.62	1,104.06	1,037.59	66.47	16.609		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - Actuals													Offset Site Error: 5.00 ft
Survey Program: 188-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	
9,900.00	9,185.00	9,236.29	9,196.11	35.26	33.52	-91.73	247.59	608.62	1,153.69	1,087.21	66.49	17.352	
9,950.00	9,185.00	9,236.43	9,196.24	35.54	33.52	-91.79	247.59	608.62	1,203.36	1,136.86	66.50	18.096	
10,000.00	9,185.00	9,236.56	9,196.38	35.82	33.52	-91.84	247.59	608.62	1,253.05	1,186.54	66.51	18.840	
10,050.00	9,185.00	9,236.70	9,196.51	36.13	33.52	-91.90	247.59	608.62	1,302.76	1,236.24	66.52	19.583	
10,100.00	9,185.00	9,236.84	9,196.65	36.44	33.52	-91.96	247.59	608.62	1,352.50	1,285.96	66.54	20.327	
10,150.00	9,185.00	9,236.97	9,196.79	36.77	33.52	-92.02	247.59	608.62	1,402.25	1,335.71	66.55	21.071	
10,200.00	9,185.00	9,237.11	9,196.93	37.10	33.52	-92.07	247.59	608.62	1,452.03	1,385.47	66.56	21.815	

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - NTL													Offset Site Error:	5.00 ft
Survey Program: 188-MWD+HDGM													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	7.02	7.02	0.50	0.01	-14.32	119.91	-30.61	123.75					
50.00	50.00	57.19	57.19	0.50	0.09	-14.28	119.89	-30.52	123.71	123.13	0.59	210.806		
100.00	100.00	107.35	107.35	0.52	0.16	-14.19	119.83	-30.30	123.60	122.93	0.68	182.566		
150.00	150.00	157.51	157.51	0.59	0.23	-14.04	119.74	-29.94	123.43	122.60	0.82	149.805		
200.00	200.00	207.47	207.47	0.70	0.35	-13.83	119.63	-29.45	123.20	122.15	1.05	117.256		
250.00	250.00	257.12	257.11	0.84	0.53	-13.59	119.64	-28.91	123.09	121.72	1.36	90.244		
300.00	300.00	307.09	307.08	0.99	0.71	-13.31	119.77	-28.33	123.08	121.39	1.69	72.727		
350.00	350.00	357.36	357.34	1.15	0.89	-13.05	119.81	-27.78	122.99	120.96	2.03	60.572		
400.00	400.00	407.43	407.41	1.31	1.07	-12.82	119.76	-27.26	122.83	120.45	2.37	51.747		
450.00	450.00	457.40	457.38	1.48	1.24	-12.59	119.72	-26.74	122.67	119.95	2.72	45.098		
500.00	500.00	507.33	507.30	1.65	1.42	-12.36	119.69	-26.23	122.53	119.46	3.07	39.926		
550.00	550.00	557.25	557.23	1.82	1.60	-12.15	119.67	-25.77	122.42	119.00	3.42	35.801		
600.00	600.00	607.33	607.30	1.99	1.78	-11.98	119.65	-25.38	122.31	118.54	3.77	32.430		
650.00	650.00	657.42	657.39	2.16	1.96	-11.85	119.56	-25.10	122.17	118.04	4.12	29.619		
700.00	700.00	707.37	707.34	2.34	2.14	-11.74	119.47	-24.82	122.02	117.54	4.48	27.247		
750.00	750.00	757.33	757.30	2.51	2.32	-11.58	119.40	-24.48	121.89	117.06	4.83	25.223		
800.00	800.00	807.29	807.26	2.69	2.50	-11.40	119.37	-24.07	121.77	116.59	5.19	23.476		
850.00	850.00	857.25	857.22	2.87	2.68	-11.25	119.34	-23.73	121.68	116.13	5.54	21.953		
900.00	900.00	907.18	907.15	3.04	2.86	-11.16	119.30	-23.53	121.60	115.70	5.90	20.617		
950.00	950.00	957.05	957.01	3.22	3.03	-11.10	119.29	-23.40	121.56	115.31	6.25	19.441		
955.20	955.20	962.23	962.20	3.24	3.05	-11.10	119.29	-23.39	121.56	115.27	6.29	19.327		
1,000.00	1,000.00	1,006.95	1,006.92	3.40	3.21	-11.06	119.32	-23.33	121.58	114.98	6.60	18.409		
1,050.00	1,050.00	1,056.91	1,056.88	3.58	3.38	-11.06	119.36	-23.33	121.62	114.67	6.95	17.495		
1,100.00	1,100.00	1,106.92	1,106.88	3.75	3.54	-11.09	119.40	-23.40	121.67	114.38	7.30	16.676		
1,150.00	1,150.00	1,156.96	1,156.92	3.93	3.71	-11.12	119.43	-23.48	121.71	114.07	7.64	15.934		
1,200.00	1,200.00	1,207.06	1,207.03	4.11	3.88	-11.15	119.43	-23.54	121.73	113.74	7.99	15.240		
1,250.00	1,250.00	1,257.18	1,257.14	4.29	4.05	-11.14	119.40	-23.52	121.69	113.35	8.34	14.596		
1,300.00	1,300.00	1,307.17	1,307.14	4.46	4.23	-11.10	119.36	-23.42	121.63	112.94	8.69	13.991		
1,350.00	1,350.00	1,357.16	1,357.13	4.64	4.41	-11.03	119.33	-23.26	121.58	112.53	9.05	13.434		
1,400.00	1,400.00	1,407.14	1,407.10	4.82	4.59	-10.97	119.31	-23.12	121.53	112.12	9.41	12.919		
1,450.00	1,450.00	1,457.04	1,457.00	5.00	4.76	-10.93	119.29	-23.03	121.50	111.73	9.76	12.446		
1,450.67	1,450.67	1,457.70	1,457.67	5.00	4.77	-10.93	119.29	-23.03	121.50	111.73	9.77	12.440		
1,500.00	1,500.00	1,506.76	1,506.72	5.18	4.94	-10.91	119.36	-23.00	121.55	111.44	10.11	12.018		
1,550.00	1,550.00	1,556.75	1,556.72	5.36	5.11	-10.91	119.50	-23.03	121.70	111.23	10.46	11.629		
1,600.00	1,600.00	1,607.05	1,607.02	5.53	5.28	-10.93	119.54	-23.08	121.75	110.94	10.81	11.258		
1,650.00	1,650.00	1,657.19	1,657.16	5.71	5.45	-10.96	119.48	-23.13	121.70	110.54	11.16	10.901		
1,700.00	1,700.00	1,707.24	1,707.20	5.89	5.62	-10.97	119.41	-23.15	121.63	110.11	11.51	10.563		
1,750.00	1,750.00	1,757.23	1,757.20	6.07	5.80	-10.97	119.32	-23.12	121.54	109.68	11.87	10.241		
1,800.00	1,800.00	1,807.22	1,807.18	6.25	5.98	-10.95	119.25	-23.08	121.47	109.24	12.22	9.937		
1,850.00	1,850.00	1,857.13	1,857.09	6.43	6.15	-10.94	119.20	-23.03	121.41	108.83	12.58	9.653		
1,900.00	1,900.00	1,907.03	1,907.00	6.61	6.33	-10.93	119.19	-23.02	121.39	108.46	12.93	9.387		
1,950.00	1,950.00	1,957.03	1,957.00	6.78	6.50	-10.93	119.19	-23.02	121.39	108.11	13.28	9.138		
2,000.00	2,000.00	2,007.04	2,007.01	6.96	6.67	-10.93	119.19	-23.02	121.39	107.75	13.64	8.902		
2,050.00	2,050.00	2,057.11	2,057.08	7.14	6.85	-10.90	119.18	-22.96	121.37	107.38	13.99	8.675		
2,100.00	2,100.00	2,107.12	2,107.08	7.32	7.02	-10.84	119.16	-22.81	121.33	106.98	14.34	8.458		
2,126.78	2,126.78	2,133.81	2,133.78	7.42	7.12	-10.80	119.17	-22.74	121.32	106.78	14.53	8.347		
2,150.00	2,150.00	2,156.96	2,156.93	7.50	7.20	-10.78	119.18	-22.69	121.33	106.63	14.70	8.254		
2,200.00	2,200.00	2,206.96	2,206.92	7.68	7.38	-10.75	119.24	-22.63	121.37	106.32	15.05	8.062		
2,250.00	2,250.00	2,257.14	2,257.11	7.86	7.55	-10.73	119.25	-22.59	121.37	105.96	15.41	7.876		
2,300.00	2,300.00	2,307.17	2,307.14	8.04	7.73	-10.71	119.19	-22.54	121.30	105.53	15.77	7.694		
2,350.00	2,350.00	2,357.07	2,357.04	8.22	7.91	-10.70	119.15	-22.52	121.26	105.14	16.12	7.522		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - NTL													Offset Site Error:	5.00 ft
Survey Program: 188-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	
2,366.97	2,366.97	2,374.00	2,373.97	8.28	7.97	-10.70	119.15	-22.52	121.26	105.02	16.24	7.466 CC		
2,400.00	2,400.00	2,406.82	2,406.79	8.39	8.08	-10.62	119.21	-22.34	121.29	104.81	16.48	7.361		
2,450.00	2,450.00	2,456.48	2,456.44	8.57	8.26	-10.14	119.55	-21.39	121.45	104.62	16.83	7.215		
2,500.00	2,500.00	2,506.19	2,506.11	8.75	8.44	-9.25	120.16	-19.58	121.75	104.56	17.19	7.083 ES		
2,550.00	2,550.00	2,555.85	2,555.68	8.93	8.61	-93.19	121.03	-16.83	122.21	104.67	17.54	6.968		
2,600.00	2,599.99	2,605.11	2,604.79	9.10	8.79	-91.76	122.18	-13.27	122.94	105.06	17.89	6.873		
2,650.00	2,649.98	2,654.24	2,653.72	9.27	8.97	-90.20	123.70	-8.99	124.06	105.83	18.23	6.805		
2,700.00	2,699.96	2,703.34	2,702.55	9.44	9.14	-88.59	125.56	-4.15	125.58	107.00	18.58	6.760		
2,750.00	2,749.92	2,752.45	2,751.33	9.62	9.32	-87.02	127.75	1.09	127.49	108.57	18.92	6.739		
2,800.00	2,799.86	2,802.64	2,801.13	9.79	9.50	-85.50	130.07	6.79	129.54	110.27	19.27	6.721		
2,850.00	2,849.78	2,852.95	2,851.03	9.96	9.68	-84.09	132.26	12.81	131.50	111.87	19.63	6.700		
2,900.00	2,899.68	2,903.86	2,901.51	10.14	9.87	-82.77	134.16	19.17	133.19	113.20	19.99	6.663		
2,950.00	2,949.54	2,954.48	2,951.68	10.31	10.05	-81.56	135.67	25.75	134.52	114.17	20.35	6.610		
3,000.00	2,999.37	3,004.47	3,001.21	10.49	10.23	-80.53	137.05	32.34	135.73	115.02	20.71	6.554		
3,050.00	3,049.16	3,054.43	3,050.72	10.66	10.42	-79.69	138.41	38.95	136.89	115.82	21.07	6.498		
3,100.00	3,098.93	3,104.35	3,100.20	10.84	10.60	-79.04	139.80	45.36	138.04	116.62	21.43	6.443		
3,150.00	3,148.70	3,154.30	3,149.75	11.01	10.79	-78.52	141.23	51.52	139.22	117.44	21.79	6.390		
3,200.00	3,198.47	3,204.27	3,199.37	11.19	10.97	-78.15	142.71	57.30	140.41	118.27	22.15	6.340		
3,250.00	3,248.24	3,254.17	3,248.93	11.37	11.16	-77.91	144.23	62.79	141.62	119.11	22.51	6.292		
3,300.00	3,298.01	3,304.01	3,298.44	11.54	11.35	-77.64	145.79	68.37	142.88	120.00	22.87	6.247		
3,350.00	3,347.78	3,353.20	3,347.26	11.72	11.53	-77.28	147.42	74.14	144.26	121.04	23.23	6.211		
3,400.00	3,397.55	3,402.13	3,395.75	11.90	11.71	-76.72	149.29	80.43	146.00	122.42	23.58	6.192		
3,450.00	3,447.32	3,451.49	3,444.58	12.08	11.90	-75.99	151.39	87.29	148.05	124.11	23.94	6.184		
3,500.00	3,497.09	3,500.90	3,493.41	12.26	12.09	-75.13	153.60	94.55	150.29	125.99	24.30	6.185		
3,550.00	3,546.86	3,551.27	3,543.17	12.44	12.28	-74.25	155.84	102.04	152.58	127.91	24.67	6.185		
3,600.00	3,596.63	3,601.78	3,593.12	12.62	12.47	-73.49	157.96	109.27	154.71	129.67	25.04	6.178		
3,650.00	3,646.40	3,652.58	3,643.37	12.80	12.67	-72.77	159.87	116.41	156.63	131.21	25.42	6.162		
3,700.00	3,696.17	3,703.43	3,693.69	12.98	12.87	-72.04	161.48	123.58	158.29	132.50	25.80	6.136		
3,750.00	3,745.94	3,754.44	3,744.17	13.16	13.06	-71.28	162.76	130.79	159.67	133.49	26.18	6.100		
3,800.00	3,795.71	3,805.29	3,794.50	13.34	13.26	-70.52	163.69	137.97	160.74	134.18	26.55	6.054		
3,850.00	3,845.48	3,855.86	3,844.58	13.52	13.45	-69.82	164.45	144.90	161.62	134.69	26.93	6.002		
3,900.00	3,895.25	3,906.48	3,894.76	13.71	13.65	-69.21	165.08	151.57	162.32	135.02	27.30	5.945		
3,950.00	3,945.02	3,957.15	3,945.02	13.89	13.84	-68.67	165.55	158.02	162.83	135.16	27.68	5.883		
4,000.00	3,994.79	4,007.93	3,995.41	14.07	14.04	-68.17	165.85	164.30	163.13	135.08	28.05	5.815		
4,050.00	4,044.56	4,058.77	4,045.86	14.25	14.23	-67.65	165.86	170.58	163.18	134.75	28.43	5.740		
4,100.00	4,094.33	4,108.56	4,095.27	14.43	14.42	-67.10	165.72	176.78	163.11	134.31	28.80	5.664		
4,101.12	4,095.45	4,109.67	4,096.37	14.44	14.43	-67.09	165.72	176.92	163.11	134.30	28.81	5.662		
4,150.00	4,144.10	4,158.06	4,144.36	14.62	14.61	-66.53	165.67	183.07	163.19	134.02	29.17	5.595		
4,200.00	4,193.87	4,206.10	4,192.00	14.80	14.80	-65.98	165.95	189.26	163.62	134.10	29.52	5.542		
4,250.00	4,243.64	4,253.94	4,239.42	14.98	14.99	-65.50	166.87	195.44	164.72	134.85	29.87	5.514		
4,300.00	4,293.41	4,303.59	4,288.66	15.17	15.18	-65.11	168.29	201.73	166.22	135.98	30.24	5.497		
4,350.00	4,343.18	4,353.47	4,338.14	15.35	15.37	-64.85	169.88	207.73	167.77	137.16	30.61	5.481		
4,400.00	4,392.95	4,404.44	4,388.76	15.53	15.57	-64.70	171.48	213.52	169.19	138.19	30.99	5.459		
4,450.00	4,442.72	4,455.43	4,439.44	15.72	15.76	-64.63	172.89	218.97	170.31	138.93	31.38	5.428		
4,500.00	4,492.49	4,504.88	4,488.60	15.90	15.95	-64.59	174.26	224.17	171.40	139.66	31.74	5.400		
4,550.00	4,542.26	4,554.31	4,537.73	16.09	16.14	-64.55	175.71	229.40	172.58	140.48	32.11	5.375		
4,600.00	4,592.03	4,603.13	4,586.22	16.27	16.33	-64.46	177.34	234.80	174.04	141.57	32.47	5.360		
4,650.00	4,641.80	4,651.66	4,634.39	16.46	16.51	-64.31	179.21	240.48	175.85	143.03	32.82	5.358		
4,700.00	4,691.57	4,699.75	4,682.03	16.64	16.70	-64.07	181.40	246.53	178.15	144.98	33.17	5.371		
4,750.00	4,741.34	4,748.15	4,729.93	16.83	16.89	-63.74	183.94	253.08	180.95	147.43	33.52	5.398		
4,800.00	4,791.11	4,796.98	4,778.19	17.01	17.08	-63.35	186.72	260.01	184.09	150.21	33.87	5.434		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - NTL													Offset Site Error:	5.00 ft
Survey Program: 188-MWD+HDGM													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Tooface (")	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)						
4,850.00	4,840.89	4,846.48	4,827.05	17.20	17.28	-62.90	189.67	267.31	187.47	153.23	34.24	5.475		
4,900.00	4,890.66	4,896.61	4,876.53	17.38	17.48	-62.44	192.61	274.77	190.84	156.23	34.62	5.513		
4,950.00	4,940.43	4,947.11	4,926.39	17.57	17.68	-61.98	195.46	282.28	194.12	159.12	35.00	5.547		
5,000.00	4,990.20	4,997.83	4,976.50	17.75	17.89	-61.54	198.15	289.70	197.21	161.82	35.38	5.573		
5,050.00	5,039.97	5,048.13	5,026.21	17.94	18.09	-61.13	200.67	296.96	200.13	164.37	35.76	5.596		
5,100.00	5,089.74	5,098.33	5,075.82	18.12	18.29	-60.74	203.12	304.17	202.99	166.86	36.14	5.617		
5,150.00	5,139.51	5,148.63	5,125.55	18.31	18.49	-60.35	205.49	311.38	205.78	169.26	36.52	5.635		
5,200.00	5,189.28	5,198.95	5,175.30	18.49	18.69	-59.96	207.76	318.57	208.47	171.58	36.89	5.650		
5,250.00	5,239.05	5,249.19	5,224.97	18.68	18.89	-59.57	209.92	325.77	211.09	173.82	37.27	5.663		
5,300.00	5,288.82	5,299.65	5,274.87	18.87	19.09	-59.17	211.99	333.02	213.63	175.98	37.65	5.674		
5,350.00	5,338.59	5,350.89	5,325.57	19.05	19.30	-58.78	213.90	340.22	215.95	177.91	38.04	5.677		
5,400.00	5,388.36	5,401.75	5,375.93	19.24	19.50	-58.44	215.58	347.13	217.98	179.56	38.42	5.673		
5,450.00	5,438.13	5,451.98	5,425.69	19.42	19.70	-58.16	217.23	353.76	219.92	181.12	38.80	5.668		
5,500.00	5,487.90	5,501.92	5,475.19	19.61	19.90	-57.83	218.91	360.15	221.81	182.63	39.17	5.662		
5,550.00	5,537.67	5,551.57	5,524.42	19.80	20.09	-57.46	220.72	366.37	223.76	184.21	39.55	5.658		
5,600.00	5,587.44	5,601.47	5,573.90	19.98	20.29	-57.02	222.64	372.50	225.75	185.84	39.92	5.655		
5,650.00	5,637.21	5,651.50	5,623.52	20.17	20.48	-56.59	224.57	378.65	227.74	187.45	40.29	5.652		
5,700.00	5,686.98	5,701.91	5,673.51	20.36	20.68	-56.16	226.46	384.83	229.69	189.01	40.67	5.647		
5,750.00	5,736.75	5,752.44	5,723.63	20.54	20.88	-55.73	228.25	390.96	231.51	190.46	41.05	5.639		
5,800.00	5,786.52	5,802.83	5,773.62	20.73	21.08	-55.29	229.94	397.03	233.23	191.80	41.43	5.629		
5,850.00	5,836.29	5,853.20	5,823.61	20.92	21.28	-54.86	231.55	403.06	234.86	193.05	41.81	5.617		
5,900.00	5,886.06	5,903.39	5,873.42	21.11	21.47	-54.42	233.10	409.04	236.43	194.24	42.19	5.604		
5,950.00	5,935.83	5,953.62	5,923.27	21.29	21.67	-53.99	234.61	414.99	237.95	195.38	42.56	5.590		
6,000.00	5,985.60	6,003.95	5,973.22	21.48	21.87	-53.56	236.07	420.91	239.40	196.46	42.94	5.575		
6,050.00	6,035.37	6,054.15	6,023.06	21.67	22.06	-53.12	237.46	426.80	240.79	197.47	43.32	5.559		
6,100.00	6,085.14	6,104.08	6,072.62	21.85	22.26	-52.69	238.81	432.68	242.17	198.48	43.69	5.543		
6,150.00	6,134.91	6,153.44	6,121.62	22.04	22.45	-52.25	240.16	438.55	243.59	199.53	44.06	5.529		
6,200.00	6,184.68	6,202.06	6,169.86	22.23	22.65	-51.82	241.69	444.44	245.24	200.82	44.42	5.521		
6,250.00	6,234.45	6,251.60	6,218.98	22.42	22.84	-51.38	243.45	450.54	247.12	202.33	44.79	5.517		
6,300.00	6,284.22	6,301.96	6,268.94	22.60	23.04	-50.94	245.22	456.68	248.96	203.79	45.17	5.512		
6,350.00	6,333.99	6,352.55	6,319.14	22.79	23.24	-50.50	246.94	462.77	250.70	205.15	45.55	5.504		
6,400.00	6,383.76	6,403.27	6,369.46	22.98	23.44	-50.06	248.53	468.80	252.30	206.37	45.93	5.493		
6,450.00	6,433.53	6,453.63	6,419.46	23.17	23.64	-49.62	250.00	474.75	253.78	207.47	46.31	5.480		
6,500.00	6,483.30	6,503.92	6,469.38	23.35	23.83	-49.18	251.42	480.65	255.20	208.52	46.69	5.466		
6,550.00	6,533.07	6,554.75	6,519.85	23.54	24.03	-48.74	252.76	486.54	256.52	209.45	47.07	5.450		
6,600.00	6,582.84	6,605.63	6,570.38	23.73	24.23	-48.29	253.97	492.32	257.66	210.20	47.45	5.430		
6,650.00	6,632.61	6,656.28	6,620.70	23.92	24.43	-47.85	255.06	497.98	258.65	210.82	47.83	5.407		
6,700.00	6,682.38	6,706.95	6,671.05	24.11	24.63	-47.41	256.04	503.57	259.51	211.30	48.21	5.383		
6,750.00	6,732.16	6,757.62	6,721.41	24.29	24.82	-46.97	256.91	509.08	260.24	211.65	48.59	5.356		
6,800.00	6,781.93	6,808.39	6,771.89	24.48	25.02	-46.53	257.68	514.51	260.84	211.87	48.97	5.326		
6,850.00	6,831.70	6,859.34	6,822.56	24.67	25.22	-46.08	258.34	519.80	261.26	211.91	49.35	5.294		
6,900.00	6,881.47	6,910.25	6,873.20	24.86	25.41	-45.64	258.89	524.92	261.51	211.78	49.73	5.258		
6,950.00	6,931.24	6,961.12	6,923.83	25.05	25.61	-45.20	259.32	529.89	261.59	211.48	50.11	5.220		
7,000.00	6,981.01	7,012.11	6,974.59	25.23	25.80	-44.76	259.63	534.73	261.49	211.00	50.49	5.179		
7,050.00	7,030.78	7,063.14	7,025.41	25.42	25.99	-44.32	259.82	539.39	261.20	210.33	50.87	5.135		
7,100.00	7,080.55	7,114.09	7,076.16	25.61	26.18	-43.88	259.88	543.88	260.72	209.47	51.25	5.087		
7,150.00	7,130.32	7,165.02	7,126.90	25.80	26.38	-43.44	259.81	548.21	260.05	208.43	51.63	5.037		
7,200.00	7,180.09	7,216.42	7,178.13	25.99	26.57	-43.00	259.58	552.41	259.17	207.16	52.00	4.984 Alert		
7,250.00	7,229.86	7,267.83	7,229.39	26.18	26.76	-42.56	259.15	556.41	258.00	205.62	52.38	4.926 Alert		
7,300.00	7,279.63	7,318.87	7,280.28	26.36	26.95	-42.12	258.55	560.18	256.60	203.85	52.75	4.864 Alert		
7,350.00	7,329.40	7,369.89	7,331.17	26.55	27.13	-41.68	257.80	563.78	254.99	201.87	53.13	4.800 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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error: 5.00 ft	
Survey Program: 188-MWD+HDGM													Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,400.00	7,379.17	7,420.80	7,381.96	26.74	27.32	-55.42	256.94	567.16	253.19	199.69	53.50	4.733	Alert	
7,450.00	7,428.94	7,471.71	7,432.76	26.93	27.50	-55.60	256.00	570.31	251.21	197.33	53.87	4.663	Alert	
7,500.00	7,478.71	7,522.62	7,483.57	27.12	27.69	-55.83	254.96	573.24	249.03	194.79	54.24	4.591	Alert	
7,550.00	7,528.48	7,573.26	7,534.13	27.31	27.87	-56.09	253.85	575.92	246.69	192.07	54.62	4.517	Alert	
7,600.00	7,578.27	7,623.72	7,584.52	27.49	28.05	-56.31	252.70	578.42	244.37	189.38	54.99	4.444	Alert	
7,650.00	7,628.12	7,674.00	7,634.73	27.68	28.22	-56.43	251.53	580.78	242.33	186.97	55.35	4.378	Alert	
7,700.00	7,678.02	7,724.21	7,684.87	27.86	28.40	-56.44	250.34	583.06	240.59	184.87	55.72	4.318	Alert	
7,750.00	7,727.95	7,774.37	7,734.98	28.04	28.58	-56.34	249.15	585.25	239.17	183.10	56.07	4.265	Alert	
7,800.00	7,777.91	7,824.53	7,785.08	28.22	28.75	-56.15	247.99	587.30	238.08	181.66	56.43	4.219	Alert	
7,850.00	7,827.90	7,874.82	7,835.31	28.40	28.93	-55.85	246.84	589.24	237.31	180.54	56.77	4.180	Alert	
7,900.00	7,877.89	7,925.10	7,885.55	28.58	29.10	-55.44	245.65	591.11	236.85	179.74	57.11	4.147	Alert	
7,950.00	7,927.89	7,975.46	7,935.86	28.75	29.28	30.26	244.41	592.92	236.64	179.20	57.45	4.119	Alert	
8,000.00	7,977.89	8,025.81	7,986.16	28.92	29.45	30.78	243.09	594.68	236.41	178.63	57.78	4.092	Alert	
8,050.00	8,027.89	8,076.05	8,036.36	29.09	29.63	31.29	241.78	596.31	236.12	178.01	58.11	4.063	Alert	
8,100.00	8,077.89	8,126.34	8,086.61	29.26	29.80	31.76	240.48	597.78	235.78	177.34	58.44	4.034	Alert	
8,150.00	8,127.89	8,176.68	8,136.91	29.43	29.97	32.22	239.14	599.17	235.39	176.61	58.78	4.005	Alert	
8,200.00	8,177.89	8,225.65	8,185.85	29.60	30.14	32.65	237.86	600.47	235.00	175.88	59.12	3.975	Alert	
8,220.64	8,198.53	8,245.34	8,205.53	29.68	30.21	32.81	237.48	600.99	234.96	175.70	59.26	3.965	Alert	
8,250.00	8,227.89	8,273.36	8,233.54	29.78	30.31	33.01	237.10	601.72	235.04	175.58	59.47	3.952	Alert	
8,300.00	8,277.89	8,320.85	8,281.01	29.95	30.48	33.30	236.88	603.00	235.59	175.77	59.82	3.939	Alert	
8,350.00	8,327.89	8,368.11	8,328.24	30.12	30.64	33.60	237.08	604.61	236.70	176.54	60.16	3.935	Alert, SF	
8,400.00	8,377.89	8,416.26	8,376.35	30.29	30.81	33.90	237.71	606.53	238.35	177.85	60.50	3.940	Alert	
8,450.00	8,427.89	8,465.22	8,425.27	30.46	30.99	34.07	238.84	608.17	240.24	179.40	60.84	3.949	Alert	
8,500.00	8,477.89	8,515.06	8,475.06	30.63	31.16	34.13	240.40	609.51	242.30	181.11	61.19	3.960	Alert	
8,550.00	8,527.89	8,565.50	8,525.47	30.81	31.34	34.18	241.93	610.81	244.27	182.74	61.53	3.970	Alert	
8,600.00	8,577.89	8,616.42	8,576.35	30.98	31.52	34.23	243.37	612.04	246.12	184.24	61.88	3.977	Alert	
8,650.00	8,627.89	8,667.52	8,627.42	31.15	31.69	-145.43	244.72	613.00	247.92	185.69	62.23	3.984	Alert	
8,700.00	8,677.75	8,718.64	8,678.52	31.31	31.87	-145.70	245.98	613.64	252.23	189.65	62.58	4.031	Alert	
8,750.00	8,727.10	8,769.22	8,729.09	31.47	32.04	-146.38	247.16	613.87	259.90	196.96	62.94	4.129	Alert	
8,800.00	8,775.58	8,819.49	8,779.35	31.63	32.20	-147.37	248.13	613.79	270.95	207.65	63.30	4.280	Alert	
8,850.00	8,822.82	8,868.70	8,828.55	31.78	32.36	-148.53	248.79	613.47	285.42	221.76	63.66	4.484	Alert	
8,900.00	8,868.45	8,917.02	8,876.87	31.93	32.51	-149.77	249.05	612.98	303.33	239.33	64.01	4.739	Alert	
8,950.00	8,912.14	8,963.68	8,923.52	32.06	32.66	-150.96	248.89	612.35	324.67	260.33	64.34	5.046		
9,000.00	8,953.53	9,005.59	8,965.43	32.19	32.79	-151.87	248.58	611.73	349.63	284.97	64.66	5.407		
9,050.00	8,992.33	9,045.48	9,005.31	32.31	32.92	-152.57	248.19	611.11	378.17	313.22	64.95	5.822		
9,100.00	9,028.23	9,080.22	9,040.05	32.43	33.03	-152.83	247.86	610.58	410.22	345.00	65.23	6.289		
9,150.00	9,060.97	9,111.45	9,071.28	32.54	33.12	-152.64	247.70	610.11	445.66	380.19	65.47	6.807		
9,200.00	9,090.29	9,139.19	9,099.01	32.65	33.21	-151.91	247.66	609.72	484.17	418.49	65.68	7.372		
9,250.00	9,115.97	9,164.77	9,124.59	32.77	33.29	-150.59	247.68	609.38	525.36	459.50	65.86	7.977		
9,300.00	9,137.82	9,186.90	9,146.72	32.90	33.36	-148.30	247.67	609.11	568.82	502.81	66.01	8.617		
9,350.00	9,155.66	9,205.06	9,164.87	33.04	33.42	-144.50	247.65	608.91	614.19	548.05	66.13	9.287		
9,400.00	9,169.37	9,219.07	9,178.88	33.19	33.46	-138.22	247.63	608.78	661.09	594.86	66.23	9.982		
9,450.00	9,178.83	9,228.82	9,188.63	33.34	33.49	-127.53	247.61	608.69	709.15	642.85	66.30	10.686		
9,500.00	9,183.98	9,234.20	9,194.01	33.51	33.51	-109.21	247.60	608.64	757.98	691.64	66.35	11.425		
9,550.00	9,185.00	9,235.37	9,195.18	33.68	33.51	-91.34	247.59	608.63	807.20	740.82	66.37	12.162		
9,600.00	9,185.00	9,235.50	9,195.31	33.87	33.51	-91.39	247.59	608.63	856.52	790.13	66.39	12.901		
9,650.00	9,185.00	9,235.63	9,195.44	34.07	33.51	-91.45	247.59	608.63	905.92	839.51	66.41	13.641		
9,700.00	9,185.00	9,235.76	9,195.57	34.27	33.51	-91.50	247.59	608.63	955.38	888.95	66.43	14.382		
9,750.00	9,185.00	9,235.89	9,195.71	34.51	33.51	-91.56	247.59	608.63	1,004.90	938.45	66.44	15.124		
9,800.00	9,185.00	9,236.03	9,195.84	34.74	33.51	-91.62	247.59	608.63	1,054.46	988.00	66.46	15.866		
9,850.00	9,185.00	9,236.16	9,195.97	35.00	33.51	-91.67	247.59	608.62	1,104.06	1,037.59	66.47	16.609		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed 714H - Original Hole - NTL													Offset Site Error: 5.00 ft
Survey Program: 188-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
9,900.00	9,185.00	9,236.29	9,196.11	35.26	33.52	-91.73	247.59	608.62	1,153.69	1,087.21	66.49	17.352	
9,950.00	9,185.00	9,236.43	9,196.24	35.54	33.52	-91.79	247.59	608.62	1,203.36	1,136.86	66.50	18.096	
10,000.00	9,185.00	9,236.56	9,196.38	35.82	33.52	-91.84	247.59	608.62	1,253.05	1,186.54	66.51	18.840	
10,050.00	9,185.00	9,236.70	9,196.51	36.13	33.52	-91.90	247.59	608.62	1,302.76	1,236.24	66.52	19.583	
10,100.00	9,185.00	9,236.84	9,196.65	36.44	33.52	-91.96	247.59	608.62	1,352.50	1,285.96	66.54	20.327	
10,150.00	9,185.00	9,236.97	9,196.79	36.77	33.52	-92.02	247.59	608.62	1,402.25	1,335.71	66.55	21.071	
10,200.00	9,185.00	9,237.11	9,196.93	37.10	33.52	-92.07	247.59	608.62	1,452.03	1,385.47	66.56	21.815	

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 138-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	2.93	2.93	0.50	0.50	89.73	6.22	1,324.75	1,324.77					
50.00	50.00	57.28	57.28	0.50	0.51	89.73	6.29	1,324.65	1,324.68	1,323.67	1.01	1,312.563		
100.00	100.00	111.63	111.63	0.52	0.53	89.72	6.50	1,324.38	1,324.42	1,323.38	1.04	1,267.627		
150.00	150.00	165.61	165.61	0.59	0.59	89.70	6.84	1,323.93	1,324.01	1,322.83	1.18	1,125.944		
200.00	200.00	217.44	217.43	0.70	0.70	89.69	7.25	1,323.36	1,323.46	1,322.06	1.40	943.598		
250.00	250.00	266.89	266.88	0.84	0.83	89.67	7.68	1,322.82	1,322.92	1,321.25	1.67	791.311		
300.00	300.00	316.98	316.96	0.99	0.98	89.65	8.13	1,322.29	1,322.39	1,320.42	1.97	670.941		
350.00	350.00	368.06	368.03	1.15	1.15	89.63	8.61	1,321.71	1,321.83	1,319.54	2.29	577.082		
400.00	400.00	419.13	419.10	1.31	1.31	89.61	9.09	1,321.09	1,321.23	1,318.61	2.62	504.047		
450.00	450.00	469.23	469.20	1.48	1.48	89.58	9.57	1,320.47	1,320.61	1,317.65	2.96	446.743		
500.00	500.00	519.39	519.34	1.65	1.65	89.56	10.04	1,319.84	1,319.98	1,316.68	3.30	400.462		
550.00	550.00	569.76	569.71	1.82	1.82	89.54	10.49	1,319.19	1,319.34	1,315.70	3.64	362.396		
600.00	600.00	620.06	620.01	1.99	2.00	89.53	10.93	1,318.53	1,318.69	1,314.70	3.99	330.708		
650.00	650.00	670.23	670.17	2.16	2.17	89.51	11.35	1,317.87	1,318.03	1,313.69	4.34	303.973		
700.00	700.00	719.41	719.34	2.34	2.35	89.49	11.73	1,317.22	1,317.38	1,312.69	4.68	281.338		
750.00	750.00	768.21	768.14	2.51	2.52	89.48	12.02	1,316.62	1,316.77	1,311.74	5.03	261.840		
800.00	800.00	815.93	815.86	2.69	2.68	89.47	12.24	1,316.10	1,316.22	1,310.85	5.37	244.994		
850.00	850.00	863.03	862.95	2.87	2.85	89.46	12.46	1,315.67	1,315.77	1,310.06	5.71	230.246		
900.00	900.00	912.09	912.01	3.04	3.02	89.45	12.67	1,315.32	1,315.41	1,309.35	6.06	216.921		
950.00	950.00	961.97	961.89	3.22	3.20	89.44	12.76	1,314.97	1,315.06	1,308.64	6.42	204.944		
1,000.00	1,000.00	1,011.96	1,011.88	3.40	3.38	89.44	12.77	1,314.62	1,314.71	1,307.94	6.77	194.204		
1,050.00	1,050.00	1,061.96	1,061.88	3.58	3.55	89.44	12.77	1,314.27	1,314.36	1,307.24	7.12	184.519		
1,100.00	1,100.00	1,110.61	1,110.53	3.75	3.72	89.44	12.78	1,313.96	1,314.04	1,306.57	7.47	175.847		
1,150.00	1,150.00	1,159.96	1,159.88	3.93	3.90	89.44	12.81	1,313.68	1,313.77	1,305.94	7.83	167.893		
1,200.00	1,200.00	1,211.96	1,211.88	4.11	4.08	89.44	12.91	1,313.36	1,313.45	1,305.27	8.19	160.423		
1,250.00	1,250.00	1,263.38	1,263.29	4.29	4.27	89.43	13.08	1,312.96	1,313.07	1,304.52	8.55	153.611		
1,300.00	1,300.00	1,314.01	1,313.92	4.46	4.45	89.43	13.17	1,312.54	1,312.66	1,303.75	8.91	147.393		
1,350.00	1,350.00	1,363.38	1,363.29	4.64	4.62	89.42	13.19	1,312.12	1,312.23	1,302.97	9.26	141.719		
1,400.00	1,400.00	1,412.01	1,411.91	4.82	4.79	89.42	13.23	1,311.76	1,311.85	1,302.24	9.61	136.503		
1,450.00	1,450.00	1,461.78	1,461.69	5.00	4.97	89.42	13.30	1,311.41	1,311.51	1,301.55	9.97	131.602		
1,500.00	1,500.00	1,511.93	1,511.83	5.18	5.15	89.42	13.34	1,311.07	1,311.17	1,300.84	10.32	127.019		
1,550.00	1,550.00	1,559.50	1,559.40	5.36	5.32	89.41	13.40	1,310.78	1,310.88	1,300.19	10.67	122.855		
1,600.00	1,600.00	1,608.90	1,608.81	5.53	5.49	89.41	13.55	1,310.58	1,310.66	1,299.64	11.02	118.969		
1,650.00	1,650.00	1,657.69	1,657.60	5.71	5.67	89.40	13.74	1,310.40	1,310.48	1,299.11	11.38	115.198		
1,700.00	1,700.00	1,708.73	1,708.63	5.89	5.85	89.39	13.91	1,310.19	1,310.28	1,298.55	11.74	111.645		
1,750.00	1,750.00	1,760.69	1,760.59	6.07	6.03	89.39	14.01	1,309.92	1,310.02	1,297.92	12.10	108.268		
1,800.00	1,800.00	1,810.73	1,810.63	6.25	6.21	89.39	14.03	1,309.59	1,309.69	1,297.24	12.46	105.141		
1,850.00	1,850.00	1,857.34	1,857.24	6.43	6.38	89.39	14.02	1,309.37	1,309.45	1,296.65	12.80	102.296		
1,900.00	1,900.00	1,903.64	1,903.54	6.61	6.54	89.39	14.01	1,309.27	1,309.35	1,296.21	13.14	99.635		
1,909.65	1,909.65	1,912.45	1,912.35	6.64	6.57	89.39	14.01	1,309.27	1,309.34	1,296.14	13.21	99.150		
1,950.00	1,950.00	1,949.27	1,949.17	6.78	6.70	89.39	14.00	1,309.32	1,309.40	1,295.92	13.47	97.174		
2,000.00	2,000.00	1,996.06	1,995.96	6.96	6.85	89.39	14.00	1,309.52	1,309.61	1,295.80	13.81	94.825		
2,050.00	2,050.00	2,046.56	2,046.46	7.14	7.02	89.39	14.05	1,309.77	1,309.86	1,295.70	14.16	92.531		
2,100.00	2,100.00	2,096.47	2,096.37	7.32	7.18	89.38	14.17	1,310.00	1,310.09	1,295.59	14.50	90.352		
2,150.00	2,150.00	2,145.32	2,145.22	7.50	7.35	89.37	14.32	1,310.26	1,310.36	1,295.51	14.84	88.289		
2,200.00	2,200.00	2,195.11	2,195.01	7.68	7.51	89.37	14.47	1,310.55	1,310.66	1,295.47	15.19	86.300		
2,250.00	2,250.00	2,246.24	2,246.13	7.86	7.69	89.36	14.62	1,310.83	1,310.93	1,295.39	15.54	84.370		
2,300.00	2,300.00	2,296.55	2,296.44	8.04	7.85	89.36	14.74	1,311.07	1,311.17	1,295.28	15.89	82.537		
2,350.00	2,350.00	2,346.20	2,346.10	8.22	8.02	89.35	14.83	1,311.31	1,311.41	1,295.18	16.23	80.793		
2,400.00	2,400.00	2,396.12	2,396.01	8.39	8.19	89.35	14.89	1,311.56	1,311.67	1,295.09	16.58	79.117		
2,450.00	2,450.00	2,446.19	2,446.09	8.57	8.36	89.35	14.95	1,311.82	1,311.92	1,294.99	16.93	77.507		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbore #1													Offset Site Error: 5.00 ft	
Survey Program: 138-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
4,950.00	4,940.43	4,827.89	4,818.68	17.57	16.83	3.12	55.87	1,502.72	1,301.68	1,267.72	33.96	38.334		
4,950.07	4,940.49	4,827.95	4,818.74	17.57	16.83	3.12	55.87	1,502.72	1,301.68	1,267.72	33.96	38.334		
5,000.00	4,990.20	4,874.86	4,865.41	17.75	17.01	3.08	56.97	1,507.25	1,301.76	1,267.46	34.30	37.953		
5,050.00	5,039.97	4,923.31	4,913.62	17.94	17.19	3.05	58.05	1,511.99	1,301.90	1,267.25	34.65	37.574		
5,100.00	5,089.74	4,975.45	4,965.50	18.12	17.38	3.03	59.13	1,517.10	1,302.06	1,267.04	35.02	37.183		
5,150.00	5,139.51	5,028.90	5,018.69	18.31	17.58	3.00	60.14	1,522.21	1,302.08	1,266.69	35.39	36.791		
5,181.15	5,170.51	5,059.05	5,048.70	18.42	17.69	2.99	60.68	1,525.07	1,302.07	1,266.46	35.61	36.565		
5,200.00	5,189.28	5,077.11	5,066.67	18.49	17.76	2.98	61.01	1,526.79	1,302.07	1,266.33	35.74	36.431		
5,250.00	5,239.05	5,124.99	5,114.32	18.68	17.93	2.96	61.93	1,531.41	1,302.14	1,266.06	36.09	36.081		
5,300.00	5,288.82	5,168.82	5,157.92	18.87	18.10	2.93	62.78	1,535.77	1,302.37	1,265.95	36.42	35.763		
5,350.00	5,338.59	5,212.37	5,201.23	19.05	18.26	2.91	63.61	1,540.32	1,302.84	1,266.10	36.74	35.458		
5,400.00	5,388.36	5,263.43	5,251.98	19.24	18.45	2.89	64.53	1,545.79	1,303.46	1,266.35	37.11	35.127		
5,450.00	5,438.13	5,316.92	5,305.17	19.42	18.65	2.87	65.38	1,551.40	1,303.94	1,266.46	37.48	34.787		
5,500.00	5,487.90	5,367.67	5,355.65	19.61	18.84	2.86	66.21	1,556.64	1,304.35	1,266.50	37.85	34.465		
5,550.00	5,537.67	5,418.56	5,406.28	19.80	19.03	2.83	67.23	1,561.86	1,304.73	1,266.52	38.21	34.147		
5,600.00	5,587.44	5,472.04	5,459.45	19.98	19.23	2.80	68.47	1,567.25	1,305.02	1,266.44	38.59	33.821		
5,650.00	5,637.21	5,525.52	5,512.66	20.17	19.43	2.75	69.88	1,572.48	1,305.18	1,266.22	38.96	33.498		
5,700.00	5,686.98	5,579.03	5,565.91	20.36	19.63	2.71	71.27	1,577.58	1,305.21	1,265.87	39.34	33.178		
5,750.00	5,736.75	5,630.16	5,616.80	20.54	19.82	2.67	72.53	1,582.34	1,305.12	1,265.42	39.70	32.871		
5,800.00	5,786.52	5,679.03	5,665.44	20.73	20.00	2.64	73.74	1,586.91	1,305.06	1,265.00	40.08	32.579		
5,829.59	5,815.98	5,707.96	5,694.23	20.84	20.11	2.62	74.47	1,589.64	1,305.05	1,264.78	40.27	32.409		
5,850.00	5,836.29	5,724.60	5,710.79	20.92	20.17	2.60	74.90	1,591.24	1,305.08	1,264.68	40.40	32.307		
5,900.00	5,886.06	5,767.69	5,753.65	21.11	20.33	2.57	76.07	1,595.54	1,305.34	1,264.62	40.72	32.055		
5,950.00	5,935.83	5,813.39	5,799.07	21.29	20.50	2.53	77.39	1,600.33	1,305.85	1,264.79	41.06	31.803		
6,000.00	5,985.60	5,863.62	5,849.00	21.48	20.69	2.48	78.90	1,605.63	1,306.41	1,264.98	41.42	31.539		
6,050.00	6,035.37	5,916.29	5,901.36	21.67	20.89	2.43	80.52	1,611.16	1,306.93	1,265.14	41.80	31.269		
6,100.00	6,085.14	5,971.89	5,956.65	21.85	21.10	2.37	82.23	1,616.79	1,307.27	1,265.09	42.18	30.989		
6,150.00	6,134.91	6,026.88	6,011.35	22.04	21.31	2.32	83.91	1,622.13	1,307.42	1,264.85	42.57	30.712		
6,200.00	6,184.68	6,081.95	6,066.16	22.23	21.51	2.26	85.57	1,627.28	1,307.37	1,264.41	42.95	30.436		
6,250.00	6,234.45	6,136.83	6,120.79	22.42	21.72	2.21	87.16	1,632.19	1,307.12	1,263.79	43.34	30.161		
6,300.00	6,284.22	6,191.74	6,175.48	22.60	21.92	2.17	88.66	1,636.92	1,306.70	1,262.98	43.72	29.887		
6,350.00	6,333.99	6,246.94	6,230.47	22.79	22.13	2.12	90.09	1,641.45	1,306.07	1,261.97	44.10	29.613		
6,400.00	6,383.76	6,297.37	6,280.73	22.98	22.32	2.08	91.37	1,645.44	1,305.29	1,260.83	44.47	29.355		
6,450.00	6,433.53	6,341.68	6,324.87	23.17	22.48	2.05	92.47	1,649.07	1,304.67	1,259.87	44.80	29.121		
6,500.00	6,483.30	6,384.11	6,367.13	23.35	22.64	2.02	93.50	1,652.74	1,304.27	1,259.14	45.13	28.902		
6,524.57	6,507.77	6,402.72	6,385.66	23.45	22.71	2.00	93.99	1,654.46	1,304.21	1,258.94	45.28	28.806		
6,550.00	6,533.07	6,421.99	6,404.83	23.54	22.78	1.99	94.51	1,656.33	1,304.27	1,258.84	45.43	28.710		
6,600.00	6,582.84	6,459.86	6,442.48	23.73	22.92	1.95	95.64	1,660.25	1,304.74	1,259.01	45.73	28.532		
6,650.00	6,632.61	6,506.09	6,488.40	23.92	23.10	1.90	97.13	1,665.35	1,305.55	1,259.48	46.07	28.338		
6,700.00	6,682.38	6,554.97	6,536.95	24.11	23.28	1.85	98.71	1,670.80	1,306.42	1,259.99	46.43	28.140		
6,750.00	6,732.16	6,609.74	6,591.36	24.29	23.49	1.80	100.47	1,676.85	1,307.24	1,260.43	46.81	27.925		
6,800.00	6,781.93	6,666.06	6,647.33	24.48	23.71	1.74	102.14	1,682.81	1,307.83	1,260.62	47.21	27.704		
6,850.00	6,831.70	6,717.42	6,698.40	24.67	23.90	1.70	103.54	1,688.12	1,308.28	1,260.70	47.58	27.499		
6,900.00	6,881.47	6,772.02	6,752.71	24.86	24.11	1.66	104.88	1,693.67	1,308.64	1,260.68	47.96	27.286		
6,950.00	6,931.24	6,833.91	6,814.30	25.05	24.34	1.62	106.29	1,699.54	1,308.65	1,260.28	48.38	27.050		
7,000.00	6,981.01	6,882.74	6,862.92	25.23	24.52	1.59	107.39	1,703.91	1,308.40	1,259.66	48.73	26.847		
7,038.68	7,019.51	6,916.96	6,896.98	25.38	24.65	1.57	108.26	1,707.08	1,308.33	1,259.34	48.99	26.705		
7,050.00	7,030.78	6,926.98	6,906.95	25.42	24.69	1.56	108.54	1,708.03	1,308.34	1,259.27	49.07	26.684		
7,100.00	7,080.55	6,977.40	6,957.12	25.61	24.88	1.51	109.98	1,712.87	1,308.42	1,258.99	49.43	26.469		
7,150.00	7,130.32	7,031.70	7,011.16	25.80	25.08	1.46	111.59	1,717.93	1,308.38	1,258.56	49.81	26.265		
7,200.00	7,180.09	7,081.98	7,061.20	25.99	25.27	1.41	113.08	1,722.51	1,308.23	1,258.05	50.18	26.072		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed Com 234H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 138-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		
7,250.00	7,229.86	7,131.52	7,110.52	26.18	25.46	1.37	114.48	1,727.05	1,308.10	1,257.56	50.54	25.884		
7,272.12	7,251.88	7,150.45	7,129.36	26.26	25.53	1.35	115.00	1,728.80	1,308.07	1,257.39	50.68	25.810		
7,300.00	7,279.63	7,173.60	7,152.39	26.36	25.62	1.33	115.61	1,731.03	1,308.12	1,257.26	50.86	25.720		
7,350.00	7,329.40	7,215.11	7,193.68	26.55	25.78	1.30	116.68	1,735.23	1,308.46	1,257.28	51.18	25.566		
7,400.00	7,379.17	7,263.28	7,241.56	26.74	25.96	1.27	117.86	1,740.34	1,309.05	1,257.52	51.53	25.403		
7,450.00	7,428.94	7,315.56	7,293.54	26.93	26.16	1.24	119.08	1,745.83	1,309.58	1,257.68	51.91	25.230		
7,500.00	7,478.71	7,373.67	7,351.34	27.12	26.38	1.20	120.32	1,751.74	1,309.94	1,257.63	52.31	25.043		
7,550.00	7,528.48	7,433.24	7,410.63	27.31	26.60	1.18	121.41	1,757.38	1,309.94	1,257.22	52.72	24.849		
7,557.25	7,535.69	7,441.88	7,419.23	27.33	26.63	1.17	121.56	1,758.16	1,309.91	1,257.14	52.78	24.821		
7,600.00	7,578.27	7,477.97	7,455.15	27.49	26.77	1.15	122.29	1,761.59	1,310.16	1,257.11	53.05	24.695 ES		
7,650.00	7,628.12	7,523.95	7,500.90	27.68	26.94	1.12	123.31	1,766.00	1,311.14	1,257.75	53.39	24.556		
7,700.00	7,678.02	7,564.61	7,541.34	27.86	27.10	1.09	124.33	1,770.12	1,313.05	1,259.34	53.71	24.447		
7,750.00	7,727.95	7,605.22	7,581.69	28.04	27.25	1.06	125.46	1,774.50	1,315.96	1,261.94	54.02	24.361		
8,050.00	8,027.89	7,914.44	7,889.13	29.09	28.43	0.61	133.03	1,806.77	1,343.80	1,287.59	56.21	23.906		
8,100.00	8,077.89	7,959.22	7,933.65	29.26	28.60	0.97	128.48	1,785.89	1,324.07	1,269.32	54.75	24.183		
7,900.00	7,877.89	7,770.04	7,745.48	28.58	27.88	0.92	130.14	1,792.44	1,328.78	1,273.60	55.18	24.083		
7,950.00	7,927.89	7,824.56	7,799.72	28.75	28.09	0.65	131.33	1,797.73	1,333.63	1,278.08	55.55	24.006		
8,000.00	7,977.89	7,869.54	7,844.47	28.92	28.26	0.63	132.21	1,802.17	1,338.63	1,282.74	55.88	23.954		
8,050.00	8,027.89	7,914.44	7,889.13	29.09	28.43	0.61	133.03	1,806.77	1,343.80	1,287.59	56.21	23.906		
8,100.00	8,077.89	7,959.22	7,933.65	29.26	28.60	0.97	128.48	1,785.89	1,324.07	1,269.32	54.75	24.183		
8,150.00	8,127.89	8,006.23	7,980.36	29.43	28.78	0.95	135.13	1,816.64	1,354.68	1,297.80	56.88	23.817		
8,200.00	8,177.89	8,061.17	8,034.96	29.60	28.99	0.91	136.51	1,822.55	1,360.13	1,302.87	57.26	23.753		
8,250.00	8,227.89	8,114.31	8,087.80	29.78	29.19	0.87	137.80	1,828.07	1,365.40	1,307.77	57.63	23.692		
8,300.00	8,277.89	8,165.42	8,138.62	29.95	29.39	0.82	139.25	1,833.30	1,370.61	1,312.62	57.99	23.634		
8,350.00	8,327.89	8,220.79	8,193.69	30.12	29.60	0.77	141.04	1,838.84	1,375.72	1,317.34	58.38	23.567		
8,400.00	8,377.89	8,279.11	8,251.72	30.29	29.82	0.71	142.81	1,844.34	1,380.54	1,321.77	58.77	23.490		
8,450.00	8,427.89	8,329.09	8,301.47	30.46	30.01	0.67	144.15	1,848.91	1,385.20	1,326.07	59.13	23.428		
8,500.00	8,477.89	8,379.41	8,351.57	30.63	30.20	0.64	145.28	1,853.53	1,389.86	1,330.38	59.48	23.366		
8,550.00	8,527.89	8,437.18	8,409.10	30.81	30.41	0.60	146.50	1,858.65	1,394.36	1,334.48	59.87	23.288		
8,600.00	8,577.89	8,503.10	8,474.78	30.98	30.66	0.56	148.00	1,864.00	1,398.51	1,338.21	60.30	23.193		
8,650.00	8,627.89	8,579.77	8,551.26	31.15	30.94	-94.10	150.03	1,868.92	1,401.83	1,341.08	60.75	23.074		
8,700.00	8,677.75	8,630.33	8,601.73	31.31	31.13	-93.99	151.35	1,871.76	1,404.99	1,343.89	61.10	22.995		
8,750.00	8,727.10	8,677.05	8,648.37	31.47	31.30	-93.98	152.50	1,874.26	1,408.36	1,346.93	61.43	22.925		
8,800.00	8,775.58	8,713.38	8,684.62	31.63	31.43	-93.96	153.29	1,876.45	1,412.42	1,350.70	61.72	22.883		
8,850.00	8,822.82	8,748.73	8,719.88	31.78	31.56	-93.95	153.97	1,878.88	1,417.34	1,355.34	62.01	22.858		
8,900.00	8,868.45	8,794.41	8,765.43	31.93	31.73	-94.15	154.65	1,882.26	1,423.03	1,360.70	62.33	22.831		
8,950.00	8,912.14	8,841.40	8,812.29	32.06	31.91	-94.44	155.03	1,885.68	1,429.28	1,366.62	62.66	22.810		
9,000.00	8,953.53	8,901.31	8,872.07	32.19	32.12	-95.11	155.29	1,889.64	1,436.05	1,373.01	63.04	22.780		
9,050.00	8,992.33	8,961.64	8,932.33	32.31	32.34	-95.91	155.75	1,892.68	1,443.20	1,379.79	63.41	22.758 SF		
9,100.00	9,028.23	8,990.78	8,961.43	32.43	32.45	-95.90	156.02	1,894.07	1,451.40	1,387.71	63.69	22.789		
9,150.00	9,060.97	9,022.26	8,992.87	32.54	32.56	-95.88	156.34	1,895.55	1,460.92	1,396.95	63.98	22.836		
9,200.00	9,090.29	9,050.32	9,020.90	32.65	32.66	-95.67	156.65	1,896.88	1,471.89	1,407.63	64.26	22.906		
9,250.00	9,115.97	9,068.80	9,039.35	32.77	32.73	-95.01	156.87	1,897.82	1,484.46	1,419.95	64.51	23.011		
9,300.00	9,137.82	9,085.57	9,056.09	32.90	32.79	-94.13	157.07	1,898.72	1,498.67	1,433.91	64.76	23.140		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed Com 528H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 138-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	2.29	2.29	0.50	0.50	89.73	6.32	1,354.75	1,354.77					
50.00	50.00	46.26	46.26	0.50	0.50	89.73	6.32	1,354.86	1,354.89	1,353.88	1.01	1,345.777		
100.00	100.00	90.24	90.24	0.52	0.52	89.73	6.30	1,355.16	1,355.24	1,354.20	1.04	1,308.268		
150.00	150.00	134.21	134.21	0.59	0.54	89.73	6.29	1,355.66	1,355.80	1,354.67	1.13	1,200.497		
200.00	200.00	183.68	183.67	0.70	0.62	89.74	6.27	1,356.35	1,356.50	1,355.17	1.32	1,024.188		
250.00	250.00	233.67	233.65	0.84	0.74	89.74	6.27	1,357.05	1,357.20	1,355.62	1.58	858.785		
300.00	300.00	282.45	282.43	0.99	0.88	89.74	6.28	1,357.75	1,357.92	1,356.05	1.87	727.270		
350.00	350.00	331.68	331.66	1.15	1.03	89.73	6.29	1,358.51	1,358.68	1,356.51	2.18	624.579		
400.00	400.00	384.41	384.38	1.31	1.20	89.74	6.28	1,359.27	1,359.40	1,356.89	2.51	542.111		
450.00	450.00	436.07	436.04	1.48	1.37	89.74	6.26	1,359.91	1,360.03	1,357.18	2.85	477.994		
500.00	500.00	486.15	486.11	1.65	1.54	89.73	6.30	1,360.52	1,360.64	1,357.45	3.18	427.402		
550.00	550.00	536.91	536.87	1.82	1.71	89.73	6.37	1,361.13	1,361.23	1,357.71	3.53	385.825		
600.00	600.00	588.15	588.11	1.99	1.89	89.73	6.42	1,361.70	1,361.79	1,357.91	3.88	351.211		
650.00	650.00	638.41	638.36	2.16	2.06	89.73	6.45	1,362.22	1,362.31	1,358.09	4.23	322.392		
700.00	700.00	688.44	688.39	2.34	2.24	89.73	6.49	1,362.75	1,362.83	1,358.26	4.57	297.903		
750.00	750.00	737.18	737.13	2.51	2.41	89.73	6.52	1,363.28	1,363.38	1,358.46	4.92	277.067		
800.00	800.00	786.05	786.00	2.69	2.58	89.73	6.51	1,363.85	1,363.97	1,358.70	5.27	258.901		
850.00	850.00	838.93	838.87	2.87	2.77	89.73	6.46	1,364.44	1,364.53	1,358.90	5.63	242.339		
900.00	900.00	891.47	891.41	3.04	2.95	89.73	6.36	1,364.92	1,364.98	1,358.99	5.99	227.777		
950.00	950.00	942.57	942.51	3.22	3.13	89.74	6.28	1,365.32	1,365.37	1,359.02	6.35	215.015		
1,000.00	1,000.00	993.22	993.15	3.40	3.31	89.74	6.27	1,365.67	1,365.72	1,359.01	6.71	203.643		
1,050.00	1,050.00	1,043.36	1,043.30	3.58	3.49	89.74	6.30	1,366.02	1,366.06	1,359.00	7.06	193.453		
1,100.00	1,100.00	1,093.48	1,093.41	3.75	3.67	89.73	6.36	1,366.36	1,366.40	1,358.99	7.42	184.235		
1,150.00	1,150.00	1,143.58	1,143.51	3.93	3.84	89.73	6.33	1,366.69	1,366.74	1,358.97	7.77	175.854		
1,200.00	1,200.00	1,193.38	1,193.31	4.11	4.02	89.74	6.24	1,367.03	1,367.07	1,358.95	8.13	168.220		
1,250.00	1,250.00	1,243.17	1,243.10	4.29	4.20	89.74	6.21	1,367.37	1,367.42	1,358.94	8.48	161.221		
1,300.00	1,300.00	1,295.37	1,295.30	4.46	4.38	89.74	6.16	1,367.69	1,367.72	1,358.88	8.84	154.639		
1,350.00	1,350.00	1,347.24	1,347.17	4.64	4.57	89.75	6.02	1,367.93	1,367.95	1,358.75	9.21	148.586		
1,400.00	1,400.00	1,398.21	1,398.13	4.82	4.75	89.75	5.97	1,368.11	1,368.13	1,358.57	9.56	143.042		
1,450.00	1,450.00	1,448.56	1,448.48	5.00	4.93	89.75	6.05	1,368.26	1,368.28	1,358.36	9.92	137.919		
1,500.00	1,500.00	1,498.18	1,498.10	5.18	5.10	89.74	6.12	1,368.42	1,368.44	1,358.17	10.28	133.178		
1,550.00	1,550.00	1,549.20	1,549.13	5.36	5.28	89.74	6.18	1,368.58	1,368.60	1,357.96	10.63	128.710		
1,600.00	1,600.00	1,601.09	1,601.01	5.53	5.46	89.74	6.30	1,368.67	1,368.69	1,357.70	10.99	124.501		
1,650.00	1,650.00	1,649.79	1,649.71	5.71	5.63	89.73	6.44	1,368.74	1,368.76	1,357.42	11.34	120.673		
1,700.00	1,700.00	1,698.00	1,697.93	5.89	5.80	89.73	6.51	1,368.88	1,368.90	1,357.21	11.69	117.094		
1,750.00	1,750.00	1,748.58	1,748.51	6.07	5.98	89.73	6.56	1,369.04	1,369.06	1,357.01	12.05	113.626		
1,800.00	1,800.00	1,799.46	1,799.39	6.25	6.16	89.72	6.66	1,369.18	1,369.20	1,356.79	12.41	110.352		
1,850.00	1,850.00	1,853.14	1,853.06	6.43	6.35	89.72	6.79	1,369.23	1,369.25	1,356.48	12.77	107.224		
1,900.00	1,900.00	1,905.26	1,905.19	6.61	6.52	89.71	6.93	1,369.15	1,369.17	1,356.05	13.13	104.310		
1,950.00	1,950.00	1,953.99	1,953.91	6.78	6.69	89.71	6.97	1,369.09	1,369.10	1,355.64	13.47	101.658		
1,989.88	1,989.88	1,992.85	1,992.77	6.93	6.82	89.71	6.92	1,369.06	1,369.08	1,355.34	13.74	99.639		
2,000.00	2,000.00	2,000.73	2,000.65	6.96	6.84	89.71	6.92	1,369.07	1,369.09	1,355.29	13.81	99.173		
2,050.00	2,050.00	2,044.00	2,043.92	7.14	7.00	89.71	6.89	1,369.24	1,369.29	1,355.15	14.13	96.878		
2,100.00	2,100.00	2,086.99	2,086.91	7.32	7.15	89.71	6.91	1,369.62	1,369.73	1,355.26	14.46	94.708		
2,150.00	2,150.00	2,128.59	2,128.50	7.50	7.29	89.71	6.93	1,370.22	1,370.45	1,355.66	14.79	92.665		
2,200.00	2,200.00	2,170.18	2,170.08	7.68	7.44	89.71	6.93	1,371.08	1,371.48	1,356.37	15.12	90.734		
2,250.00	2,250.00	2,213.37	2,213.27	7.86	7.60	89.71	6.91	1,372.22	1,372.80	1,357.35	15.45	88.870		
2,300.00	2,300.00	2,256.77	2,256.64	8.04	7.75	89.71	6.91	1,373.56	1,374.35	1,358.57	15.78	87.097		
2,350.00	2,350.00	2,299.04	2,298.89	8.22	7.91	89.71	6.90	1,375.09	1,376.16	1,360.05	16.11	85.438		
2,400.00	2,400.00	2,340.81	2,340.62	8.39	8.06	89.72	6.77	1,376.84	1,378.26	1,361.82	16.43	83.875		
2,450.00	2,450.00	2,382.39	2,382.15	8.57	8.20	89.73	6.54	1,378.84	1,380.65	1,363.90	16.76	82.397		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed Com 528H - Wellbore #1 - Wellbore #1													Offset Site Error: 5.00 ft	
Survey Program: 138-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,500.00	2,500.00	2,423.73	2,423.43	8.75	8.35	89.74	6.32	1,381.08	1,383.36	1,366.28	17.08	81.001		
2,550.00	2,550.00	2,465.17	2,464.79	8.93	8.50	4.57	6.16	1,383.58	1,386.16	1,368.76	17.40	79.681		
2,600.00	2,599.99	2,507.48	2,507.01	9.10	8.66	4.57	6.06	1,386.38	1,388.81	1,371.10	17.72	78.388		
2,650.00	2,649.98	2,549.79	2,549.21	9.27	8.81	4.58	6.05	1,389.40	1,391.31	1,373.27	18.03	77.149		
2,700.00	2,699.96	2,591.36	2,590.66	9.44	8.96	4.58	6.10	1,392.62	1,393.65	1,375.30	18.35	75.961		
2,750.00	2,749.92	2,632.83	2,631.98	9.62	9.11	4.58	6.18	1,396.07	1,395.86	1,377.20	18.66	74.807		
2,800.00	2,799.86	2,673.79	2,672.78	9.79	9.26	4.58	6.29	1,399.73	1,397.95	1,378.98	18.97	73.696		
2,850.00	2,849.78	2,714.39	2,713.19	9.96	9.41	4.58	6.44	1,403.64	1,399.93	1,380.66	19.28	72.623		
2,900.00	2,899.68	2,757.64	2,756.21	10.14	9.56	4.58	6.63	1,408.07	1,401.81	1,382.21	19.60	71.533		
2,950.00	2,949.54	2,809.04	2,807.33	10.31	9.75	4.58	6.91	1,413.40	1,403.30	1,383.35	19.95	70.324		
3,000.00	2,999.37	2,863.46	2,861.47	10.49	9.95	4.58	7.27	1,418.96	1,404.29	1,383.97	20.33	69.083		
3,050.00	3,049.16	2,922.45	2,920.18	10.66	10.17	4.59	7.56	1,424.68	1,404.58	1,383.86	20.72	67.782		
3,075.50	3,074.54	2,952.54	2,950.14	10.75	10.28	4.59	7.66	1,427.45	1,404.49	1,383.57	20.92	67.127		
3,100.00	3,098.93	2,968.38	2,965.90	10.84	10.34	4.60	7.73	1,429.00	1,404.51	1,383.46	21.06	66.704		
3,150.00	3,148.70	3,010.78	3,008.09	11.01	10.49	4.60	7.94	1,433.20	1,404.70	1,383.33	21.37	65.721		
3,200.00	3,198.47	3,058.79	3,055.85	11.19	10.67	4.61	8.21	1,438.18	1,405.11	1,383.39	21.72	64.698		
3,250.00	3,248.24	3,111.46	3,108.24	11.37	10.87	4.61	8.50	1,443.57	1,405.46	1,383.38	22.08	63.639		
3,300.00	3,298.01	3,158.78	3,155.31	11.54	11.04	4.62	8.74	1,448.39	1,405.79	1,383.36	22.43	62.684		
3,350.00	3,347.78	3,204.06	3,200.34	11.72	11.21	4.62	8.95	1,453.14	1,406.27	1,383.51	22.76	61.790		
3,400.00	3,397.55	3,253.09	3,249.09	11.90	11.39	4.63	9.13	1,458.41	1,406.87	1,383.77	23.11	60.879		
3,450.00	3,447.32	3,304.37	3,300.07	12.08	11.58	4.65	9.24	1,463.90	1,407.45	1,383.98	23.47	59.966		
3,500.00	3,497.09	3,351.88	3,347.30	12.26	11.76	4.66	9.27	1,468.98	1,408.03	1,384.22	23.81	59.125		
3,550.00	3,546.86	3,398.27	3,393.42	12.44	11.93	4.68	9.25	1,474.06	1,408.74	1,384.59	24.15	58.325		
3,600.00	3,596.63	3,452.67	3,447.49	12.62	12.14	4.70	9.18	1,480.04	1,409.47	1,384.94	24.53	57.457		
3,650.00	3,646.40	3,510.10	3,504.60	12.80	12.35	4.72	9.12	1,486.07	1,409.96	1,385.03	24.92	56.573		
3,700.00	3,696.17	3,565.69	3,559.91	12.98	12.56	4.74	9.11	1,491.66	1,410.21	1,384.90	25.31	55.727		
3,750.00	3,745.94	3,616.75	3,610.73	13.16	12.75	4.75	9.15	1,496.61	1,410.29	1,384.82	25.67	54.944		
3,800.00	3,795.71	3,659.10	3,652.86	13.34	12.91	4.77	9.12	1,500.87	1,410.54	1,384.55	25.99	54.274		
3,850.00	3,845.48	3,701.49	3,695.02	13.52	13.07	4.78	9.00	1,505.35	1,411.06	1,384.75	26.31	53.632		
3,900.00	3,895.25	3,744.24	3,737.50	13.71	13.23	4.81	8.74	1,510.10	1,411.85	1,385.22	26.63	53.012		
3,950.00	3,945.02	3,786.98	3,779.95	13.89	13.39	4.84	8.28	1,515.06	1,412.89	1,385.93	26.95	52.417		
4,000.00	3,994.79	3,838.43	3,831.03	14.07	13.59	4.89	7.56	1,521.16	1,414.05	1,386.73	27.32	51.759		
4,050.00	4,044.56	3,891.51	3,883.74	14.25	13.79	4.94	6.78	1,527.35	1,415.12	1,387.43	27.69	51.098		
4,100.00	4,094.33	3,947.58	3,939.45	14.43	14.00	4.99	5.91	1,533.70	1,416.02	1,387.94	28.08	50.423		
4,150.00	4,144.10	4,002.92	3,994.45	14.62	14.21	5.05	4.99	1,539.74	1,416.72	1,388.25	28.47	49.766		
4,200.00	4,193.87	4,056.99	4,048.21	14.80	14.42	5.10	4.13	1,545.47	1,417.25	1,388.41	28.85	49.132		
4,250.00	4,243.64	4,107.42	4,098.36	14.98	14.61	5.14	3.39	1,550.71	1,417.69	1,388.48	29.21	48.539		
4,300.00	4,293.41	4,155.52	4,146.20	15.17	14.79	5.18	2.90	1,555.75	1,418.17	1,388.61	29.56	47.981		
4,350.00	4,343.18	4,203.97	4,194.37	15.35	14.97	5.21	2.61	1,560.90	1,418.72	1,388.81	29.91	47.434		
4,400.00	4,392.95	4,252.61	4,242.73	15.53	15.16	5.23	2.48	1,566.11	1,419.31	1,389.05	30.26	46.901		
4,450.00	4,442.72	4,304.96	4,294.78	15.72	15.36	5.25	2.47	1,571.73	1,419.91	1,389.28	30.63	46.352		
4,500.00	4,492.49	4,359.20	4,348.72	15.90	15.56	5.26	2.42	1,577.40	1,420.37	1,389.36	31.01	45.799		
4,550.00	4,542.26	4,414.82	4,404.05	16.09	15.77	5.28	2.36	1,583.02	1,420.66	1,389.26	31.40	45.245		
4,600.00	4,592.03	4,470.58	4,459.55	16.27	15.98	5.31	2.31	1,588.43	1,420.75	1,389.97	31.79	44.698		
4,650.00	4,641.80	4,521.08	4,509.82	16.46	16.17	5.32	2.28	1,593.24	1,420.75	1,388.60	32.15	44.194		
4,693.48	4,685.08	4,565.73	4,554.27	16.62	16.34	5.34	2.28	1,597.46	1,420.70	1,388.24	32.47	43.760		
4,700.00	4,691.57	4,570.01	4,558.53	16.64	16.36	5.34	2.28	1,597.87	1,420.71	1,388.20	32.50	43.710		
4,750.00	4,741.34	4,614.25	4,602.56	16.83	16.52	5.35	2.30	1,602.18	1,420.82	1,387.98	32.84	43.270		
4,800.00	4,791.11	4,658.31	4,646.39	17.01	16.69	5.36	2.35	1,606.66	1,421.13	1,387.96	33.17	42.846		
4,850.00	4,840.89	4,701.58	4,689.42	17.20	16.86	5.38	2.39	1,611.25	1,421.66	1,388.17	33.50	42.442		
4,900.00	4,890.66	4,744.86	4,732.43	17.38	17.02	5.39	2.42	1,616.04	1,422.44	1,388.61	33.82	42.054		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 01-T23S-R31E - Tomb Raider 1-12 Fed Com 528H - Wellbore #1 - Wellbore #1													Offset Site Error:	5.00 ft
Survey Program: 138-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				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)	Minimum Separation (ft)	Separation Factor		
7,400.00	7,379.17	7,276.45	7,249.77	26.74	26.71	6.17	2.83	1,883.25	1,448.36	1,396.27	52.09	27.806		
7,450.00	7,428.94	7,339.80	7,312.89	26.93	26.95	6.20	2.60	1,888.72	1,447.92	1,395.41	52.51	27.576		
7,500.00	7,478.71	7,385.98	7,358.91	27.12	27.12	6.22	2.57	1,892.63	1,447.38	1,394.52	52.85	27.384		
7,550.00	7,528.48	7,435.43	7,408.17	27.31	27.31	6.23	2.73	1,896.83	1,446.86	1,393.65	53.21	27.189		
7,599.20	7,577.48	7,486.04	7,458.60	27.49	27.50	6.23	2.97	1,901.11	1,446.61	1,393.03	53.58	27.001		
7,600.00	7,578.27	7,486.86	7,459.42	27.49	27.50	6.23	2.98	1,901.18	1,446.58	1,392.99	53.58	26.997		
7,650.00	7,628.12	7,538.17	7,510.54	27.68	27.70	6.23	3.24	1,905.47	1,446.89	1,392.94	53.95	26.819		
7,700.00	7,678.02	7,589.25	7,561.46	27.86	27.89	6.24	3.34	1,909.70	1,447.81	1,393.50	54.32	26.656		
7,750.00	7,727.95	7,642.86	7,614.88	28.04	28.09	6.25	3.26	1,914.06	1,449.33	1,394.64	54.69	26.501		
7,800.00	7,777.91	7,698.82	7,670.67	28.22	28.30	6.27	3.07	1,918.41	1,451.30	1,396.23	55.07	26.352		
7,850.00	7,827.90	7,762.97	7,734.66	28.40	28.54	6.29	2.74	1,922.97	1,453.61	1,398.12	55.49	26.198		
7,900.00	7,877.89	7,826.50	7,798.07	28.58	28.77	6.31	2.34	1,926.83	1,456.03	1,400.14	55.89	26.052		
7,950.00	7,927.89	7,885.98	7,857.46	28.75	28.99	91.50	1.97	1,929.99	1,458.64	1,402.36	56.28	25.920		
8,000.00	7,977.89	7,946.93	7,918.35	28.92	29.21	91.51	1.63	1,932.81	1,460.96	1,404.29	56.66	25.784		
8,050.00	8,027.89	8,008.33	7,979.71	29.09	29.43	91.51	1.38	1,935.18	1,462.89	1,405.84	57.05	25.644		
8,100.00	8,077.89	8,067.33	8,038.67	29.26	29.64	91.51	1.31	1,937.05	1,464.48	1,407.06	57.42	25.504		
8,150.00	8,127.89	8,131.34	8,102.66	29.43	29.86	91.51	1.33	1,938.61	1,465.70	1,407.89	57.80	25.356		
8,200.00	8,177.89	8,198.17	8,169.48	29.60	30.10	91.52	1.12	1,939.49	1,466.36	1,408.17	58.19	25.200		
8,250.00	8,227.89	8,253.56	8,224.87	29.78	30.28	91.53	0.78	1,939.83	1,466.68	1,408.13	58.54	25.052		
8,300.00	8,277.89	8,307.49	8,278.81	29.95	30.46	91.55	0.32	1,939.92	1,466.78	1,407.88	58.90	24.905		
8,350.00	8,327.89	8,358.46	8,329.77	30.12	30.63	91.57	-0.22	1,939.95	1,466.82	1,407.58	59.24	24.760		
8,400.00	8,377.89	8,411.58	8,382.89	30.29	30.80	91.60	-0.88	1,939.91	1,466.80	1,407.22	59.59	24.616		
8,450.00	8,427.89	8,465.93	8,437.23	30.46	30.97	91.63	-1.63	1,939.72	1,466.65	1,406.71	59.93	24.471		
8,500.00	8,477.89	8,518.88	8,490.16	30.63	31.14	91.65	-2.30	1,939.41	1,466.37	1,406.10	60.28	24.328		
8,550.00	8,527.89	8,575.68	8,546.96	30.81	31.32	91.69	-3.27	1,938.89	1,465.94	1,405.32	60.62	24.182		
8,600.00	8,577.89	8,637.81	8,608.73	30.98	31.52	91.94	-9.47	1,937.74	1,465.17	1,404.20	60.97	24.031		
8,650.00	8,627.89	8,695.38	8,664.73	31.15	31.70	-87.27	-22.52	1,936.02	1,464.06	1,402.75	61.31	23.879		
8,700.00	8,677.75	8,758.02	8,723.31	31.31	31.89	-86.73	-44.46	1,933.43	1,462.58	1,400.83	61.65	23.724		
8,750.00	8,727.10	8,811.17	8,770.88	31.47	32.03	-86.30	-67.96	1,930.61	1,460.62	1,398.64	61.98	23.567		
8,800.00	8,775.58	8,848.98	8,803.42	31.63	32.13	-86.08	-87.08	1,928.57	1,458.63	1,396.33	62.29	23.415		
8,850.00	8,822.82	8,886.55	8,834.67	31.78	32.23	-85.89	-107.85	1,926.68	1,456.79	1,394.19	62.60	23.271		
8,900.00	8,868.45	8,920.56	8,861.89	31.93	32.32	-85.75	-128.18	1,925.15	1,455.13	1,392.24	62.89	23.137		
8,950.00	8,912.14	8,951.00	8,885.39	32.06	32.39	-85.67	-147.49	1,924.04	1,453.80	1,390.63	63.17	23.015		
9,000.00	8,953.53	8,981.57	8,908.09	32.19	32.47	-85.59	-167.95	1,923.24	1,452.82	1,389.39	63.43	22.903		
9,050.00	8,992.33	9,010.18	8,928.41	32.31	32.54	-85.54	-188.08	1,922.79	1,452.22	1,388.53	63.69	22.802		
9,093.40	9,023.67	9,033.78	8,944.46	32.41	32.60	-85.50	-205.38	1,922.68	1,452.05	1,388.15	63.90	22.723		
9,100.00	9,028.23	9,037.37	8,946.84	32.43	32.61	-85.50	-208.06	1,922.69	1,452.06	1,388.12	63.93	22.712		
9,150.00	9,060.97	9,069.37	8,967.55	32.54	32.70	-85.46	-232.45	1,922.96	1,452.28	1,388.08	64.20	22.623		
9,200.00	9,090.29	9,106.05	8,990.50	32.65	32.80	-85.50	-261.06	1,923.58	1,452.70	1,388.23	64.48	22.531		
9,250.00	9,115.97	9,154.49	9,018.91	32.77	32.94	-85.63	-300.28	1,924.51	1,453.09	1,388.29	64.80	22.424		
9,300.00	9,137.82	9,221.90	9,053.63	32.90	33.15	-85.90	-358.01	1,924.86	1,452.77	1,387.58	65.18	22.287		
9,350.00	9,155.66	9,278.79	9,078.38	33.04	33.34	-86.19	-409.23	1,924.32	1,451.73	1,386.19	65.54	22.150		
9,400.00	9,169.37	9,314.05	9,091.87	33.19	33.46	-86.46	-441.79	1,923.92	1,450.55	1,384.69	65.85	22.027		
9,450.00	9,178.83	9,352.37	9,104.35	33.34	33.60	-86.77	-478.02	1,923.76	1,449.63	1,383.45	66.18	21.904		
9,500.00	9,183.98	9,391.89	9,114.82	33.51	33.75	-87.11	-516.11	1,923.65	1,448.78	1,382.26	66.52	21.780		
9,550.00	9,185.00	9,426.00	9,122.04	33.68	33.89	-87.41	-549.45	1,923.80	1,448.25	1,381.40	66.85	21.664		
9,569.25	9,185.00	9,435.41	9,123.74	33.75	33.93	-87.47	-558.71	1,923.90	1,448.20	1,381.22	66.97	21.624		
9,600.00	9,185.00	9,451.17	9,126.31	33.87	33.99	-87.57	-574.25	1,924.20	1,448.38	1,381.21	67.17	21.562		
9,650.00	9,185.00	9,478.25	9,129.87	34.07	34.11	-87.72	-601.08	1,925.03	1,449.36	1,381.83	67.53	21.462		
9,700.00	9,185.00	9,515.55	9,132.85	34.27	34.27	-87.84	-638.22	1,926.55	1,450.96	1,383.03	67.92	21.362		
9,750.00	9,185.00	9,561.94	9,134.17	34.51	34.48	-87.89	-684.55	1,928.59	1,452.82	1,384.45	68.38	21.247		

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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 12-T23S-R31E - Tomb Raider 12-1 Fed 516H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDMG													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,900.00	9,185.00	15,208.57	9,185.00	65.72	96.36	-87.70	-3,895.05	1,156.48	660.91	499.02	161.89	4.082	Alert	
12,950.00	9,185.00	15,141.43	9,185.00	66.36	95.43	-87.70	-3,945.05	1,156.76	660.91	499.30	161.60	4.090	Alert	
13,000.00	9,185.00	15,108.57	9,185.00	66.99	94.98	-87.70	-3,995.05	1,157.04	660.90	499.12	161.79	4.085	Alert	
13,050.00	9,185.00	15,041.43	9,185.00	67.62	94.07	-87.70	-4,045.05	1,157.32	660.90	499.39	161.51	4.092	Alert	
13,100.00	9,185.00	15,008.57	9,185.00	68.26	93.62	-87.70	-4,095.05	1,157.60	660.89	499.20	161.69	4.087	Alert	
13,150.00	9,185.00	14,941.43	9,185.00	68.90	92.70	-87.70	-4,145.04	1,157.88	660.89	499.47	161.42	4.094	Alert	
13,200.00	9,185.00	14,908.57	9,185.00	69.53	92.25	-87.70	-4,195.04	1,158.16	660.88	499.28	161.61	4.089	Alert	
13,250.00	9,185.00	14,841.43	9,185.00	70.18	91.33	-87.70	-4,245.04	1,158.44	660.88	499.54	161.34	4.096	Alert	
13,300.00	9,185.00	14,808.57	9,185.00	70.82	90.89	-87.70	-4,295.04	1,158.72	660.87	499.34	161.53	4.091	Alert	
13,350.00	9,185.00	14,741.43	9,185.00	71.46	89.97	-87.70	-4,345.04	1,159.00	660.87	499.60	161.27	4.098	Alert	
13,400.00	9,185.00	14,708.57	9,185.00	72.11	89.53	-87.70	-4,395.04	1,159.28	660.86	499.40	161.47	4.093	Alert	
13,450.00	9,185.00	14,641.43	9,185.00	72.76	88.61	-87.70	-4,445.04	1,159.56	660.86	499.66	161.20	4.100	Alert	
13,500.00	9,185.00	14,608.57	9,185.00	73.41	88.17	-87.70	-4,495.04	1,159.84	660.86	499.45	161.41	4.094	Alert	
13,550.00	9,185.00	14,541.43	9,185.00	74.06	87.26	-87.70	-4,545.04	1,160.12	660.85	499.70	161.15	4.101	Alert	
13,600.00	9,185.00	14,508.57	9,185.00	74.71	86.81	-87.70	-4,595.04	1,160.40	660.85	499.48	161.36	4.095	Alert	
13,650.00	9,185.00	14,441.43	9,185.00	75.37	85.91	-87.70	-4,645.04	1,160.68	660.84	499.73	161.11	4.102	Alert	
13,700.00	9,185.00	14,408.57	9,185.00	76.02	85.46	-87.70	-4,695.04	1,160.96	660.84	499.51	161.32	4.096	Alert	
13,750.00	9,185.00	14,341.43	9,185.00	76.68	84.56	-87.70	-4,745.04	1,161.23	660.83	499.75	161.08	4.103	Alert	
13,800.00	9,185.00	14,308.57	9,185.00	77.33	84.12	-87.70	-4,795.03	1,161.51	660.83	499.53	161.29	4.097	Alert	
13,850.00	9,185.00	14,241.43	9,185.00	77.99	83.22	-87.70	-4,845.03	1,161.79	660.82	499.77	161.05	4.103	Alert	
13,900.00	9,185.00	14,208.57	9,185.00	78.65	82.77	-87.70	-4,895.03	1,162.07	660.82	499.55	161.27	4.098	Alert	
13,950.00	9,185.00	14,141.43	9,185.00	79.32	81.87	-87.70	-4,945.03	1,162.35	660.81	499.78	161.04	4.104	Alert	
14,000.00	9,185.00	14,108.57	9,185.00	79.98	81.44	-87.70	-4,995.03	1,162.63	660.81	499.55	161.26	4.098	Alert	
14,050.00	9,185.00	14,041.43	9,185.00	80.64	80.54	-87.70	-5,045.03	1,162.91	660.80	499.77	161.03	4.104	Alert	
14,100.00	9,185.00	14,008.57	9,185.00	81.31	80.10	-87.70	-5,095.03	1,163.19	660.80	499.54	161.25	4.098	Alert	
14,150.00	9,185.00	13,941.43	9,185.00	81.97	79.21	-87.70	-5,145.03	1,163.47	660.79	499.76	161.03	4.104	Alert	
14,200.00	9,185.00	13,908.57	9,185.00	82.64	78.77	-87.70	-5,195.03	1,163.75	660.79	499.53	161.26	4.098	Alert	
14,250.00	9,185.00	13,841.43	9,185.00	83.31	77.88	-87.70	-5,245.03	1,164.03	660.78	499.74	161.04	4.103	Alert	
14,300.00	9,185.00	13,808.57	9,185.00	83.98	77.44	-87.70	-5,295.03	1,164.31	660.78	499.51	161.27	4.097	Alert	
14,350.00	9,185.00	13,741.43	9,185.00	84.65	76.56	-87.70	-5,345.03	1,164.59	660.77	499.72	161.06	4.103	Alert	
14,400.00	9,185.00	13,691.43	9,185.00	85.32	75.90	-87.70	-5,395.03	1,164.87	660.77	499.70	161.07	4.102	Alert	
14,450.00	9,185.00	13,641.43	9,185.00	85.99	75.24	-87.70	-5,445.02	1,165.15	660.76	499.68	161.08	4.102	Alert	
14,500.00	9,185.00	13,608.57	9,185.00	86.66	74.81	-87.70	-5,495.02	1,165.43	660.76	499.43	161.33	4.096	Alert	
14,550.00	9,185.00	13,541.43	9,185.00	87.34	73.92	-87.70	-5,545.02	1,165.71	660.75	499.63	161.12	4.101	Alert	
14,600.00	9,185.00	13,508.57	9,185.00	88.01	73.49	-87.70	-5,595.02	1,165.99	660.75	499.38	161.36	4.095	Alert	
14,650.00	9,185.00	13,441.43	9,185.00	88.69	72.62	-87.70	-5,645.02	1,166.27	660.74	499.58	161.16	4.100	Alert	
14,700.00	9,185.00	13,408.57	9,185.00	89.36	72.19	-87.70	-5,695.02	1,166.55	660.74	499.33	161.41	4.093	Alert	
14,750.00	9,185.00	13,341.43	9,185.00	90.04	71.32	-87.70	-5,745.02	1,166.83	660.73	499.52	161.22	4.098	Alert	
14,800.00	9,185.00	13,308.57	9,185.00	90.72	70.89	-87.70	-5,795.02	1,167.11	660.73	499.26	161.47	4.092	Alert	
14,850.00	9,185.00	13,241.43	9,185.00	91.40	70.02	-87.70	-5,845.02	1,167.39	660.73	499.44	161.28	4.097	Alert	
14,900.00	9,185.00	13,208.57	9,185.00	92.08	69.60	-87.70	-5,895.02	1,167.67	660.72	499.18	161.54	4.090	Alert	
14,950.00	9,185.00	13,141.43	9,185.00	92.76	68.73	-87.70	-5,945.02	1,167.95	660.72	499.36	161.35	4.095	Alert	
15,000.00	9,185.00	13,108.57	9,185.00	93.44	68.31	-87.70	-5,995.02	1,168.23	660.71	499.10	161.61	4.088	Alert	
15,050.00	9,185.00	13,041.43	9,185.00	94.12	67.45	-87.70	-6,045.02	1,168.51	660.71	499.27	161.44	4.093	Alert	
15,100.00	9,185.00	13,008.57	9,185.00	94.80	67.03	-87.70	-6,095.01	1,168.79	660.70	499.00	161.70	4.086	Alert	
15,150.00	9,185.00	12,941.43	9,185.00	95.49	66.18	-87.70	-6,145.01	1,169.07	660.70	499.17	161.53	4.090	Alert	
15,200.00	9,185.00	12,908.57	9,185.00	96.17	65.76	-87.70	-6,195.01	1,169.35	660.69	498.90	161.80	4.083	Alert	
15,250.00	9,185.00	12,841.43	9,185.00	96.85	64.91	-87.70	-6,245.01	1,169.63	660.69	499.05	161.63	4.088	Alert	
15,300.00	9,185.00	12,808.57	9,185.00	97.54	64.49	-87.70	-6,295.01	1,169.91	660.68	498.78	161.90	4.081	Alert	
15,350.00	9,185.00	12,741.43	9,185.00	98.23	63.65	-87.70	-6,345.01	1,170.19	660.68	498.93	161.75	4.085	Alert	
15,400.00	9,185.00	12,708.57	9,185.00	98.91	63.24	-87.70	-6,395.01	1,170.47	660.67	498.65	162.02	4.078	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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 12-T23S-R31E - Tomb Raider 12-1 Fed 516H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
15,450.00	9,185.00	12,641.43	9,185.00	99.60	62.40	-87.70	-6,445.01	1,170.75	660.67	498.80	161.87	4.081 Alert		
15,500.00	9,185.00	12,608.57	9,185.00	100.29	61.99	-87.70	-6,495.01	1,171.03	660.66	498.51	162.15	4.074 Alert		
15,550.00	9,185.00	12,541.43	9,185.00	100.97	61.16	-87.70	-6,545.01	1,171.31	660.66	498.65	162.01	4.078 Alert		
15,600.00	9,185.00	12,508.57	9,185.00	101.66	60.75	-87.70	-6,595.01	1,171.59	660.65	498.36	162.29	4.071 Alert		
15,650.00	9,185.00	12,441.43	9,185.00	102.35	59.93	-87.70	-6,645.01	1,171.87	660.65	498.49	162.15	4.074 Alert		
15,700.00	9,185.00	12,408.57	9,185.00	103.04	59.52	-87.70	-6,695.01	1,172.15	660.64	498.20	162.44	4.067 Alert		
15,750.00	9,185.00	12,341.43	9,185.00	103.73	58.71	-87.70	-6,745.00	1,172.43	660.64	498.32	162.31	4.070 Alert		
15,800.00	9,185.00	12,308.57	9,185.00	104.42	58.31	-87.70	-6,795.00	1,172.71	660.63	498.03	162.61	4.063 Alert		
15,850.00	9,185.00	12,241.43	9,185.00	105.11	57.50	-87.70	-6,845.00	1,172.99	660.63	498.14	162.49	4.066 Alert		
15,900.00	9,185.00	12,208.57	9,185.00	105.81	57.10	-87.70	-6,895.00	1,173.27	660.62	497.84	162.78	4.058 Alert		
15,950.00	9,185.00	12,141.43	9,185.00	106.50	56.30	-87.70	-6,945.00	1,173.55	660.62	497.94	162.67	4.061 Alert		
16,000.00	9,185.00	12,108.57	9,185.00	107.19	55.91	-87.70	-6,995.00	1,173.83	660.61	497.64	162.98	4.053 Alert		
16,050.00	9,185.00	12,041.43	9,185.00	107.89	55.11	-87.70	-7,045.00	1,174.11	660.61	497.73	162.88	4.056 Alert		
16,100.00	9,185.00	12,008.57	9,185.00	108.58	54.72	-87.70	-7,095.00	1,174.39	660.60	497.42	163.18	4.048 Alert		
16,150.00	9,185.00	11,941.43	9,185.00	109.27	53.94	-87.70	-7,145.00	1,174.67	660.60	497.51	163.09	4.050 Alert		
16,200.00	9,185.00	11,908.57	9,185.00	109.97	53.56	-87.70	-7,195.00	1,174.95	660.59	497.19	163.40	4.043 Alert		
16,250.00	9,185.00	11,841.43	9,185.00	110.66	52.78	-87.70	-7,245.00	1,175.23	660.59	497.26	163.33	4.045 Alert		
16,300.00	9,185.00	11,808.57	9,185.00	111.36	52.40	-87.70	-7,295.00	1,175.51	660.59	496.94	163.64	4.037 Alert		
16,350.00	9,185.00	11,741.43	9,185.00	112.06	51.64	-87.70	-7,344.99	1,175.79	660.58	497.01	163.57	4.038 Alert		
16,400.00	9,185.00	11,708.57	9,185.00	112.75	51.27	-87.70	-7,394.99	1,176.07	660.58	496.68	163.90	4.030 Alert		
16,450.00	9,185.00	11,641.43	9,185.00	113.45	50.51	-87.70	-7,444.99	1,176.34	660.57	496.73	163.84	4.032 Alert		
16,500.00	9,185.00	11,608.57	9,185.00	114.15	50.14	-87.70	-7,494.99	1,176.62	660.57	496.39	164.17	4.024 Alert		
16,550.00	9,185.00	11,541.43	9,185.00	114.84	49.40	-87.70	-7,544.99	1,176.90	660.56	496.43	164.13	4.025 Alert		
16,600.00	9,185.00	11,508.57	9,185.00	115.54	49.04	-87.70	-7,594.99	1,177.18	660.56	496.09	164.46	4.016 Alert		
16,650.00	9,185.00	11,441.43	9,185.00	116.24	48.31	-87.70	-7,644.99	1,177.46	660.55	496.12	164.43	4.017 Alert		
16,700.00	9,185.00	11,391.43	9,185.00	116.94	47.77	-87.70	-7,694.99	1,177.74	660.55	495.95	164.59	4.013 Alert		
16,750.00	9,185.00	11,341.43	9,185.00	117.64	47.24	-87.70	-7,744.99	1,178.02	660.54	495.78	164.76	4.009 Alert		
16,800.00	9,185.00	11,308.57	9,185.00	118.34	46.89	-87.70	-7,794.99	1,178.30	660.54	495.43	165.11	4.001 Alert		
16,850.00	9,185.00	11,241.43	9,185.00	119.04	46.19	-87.70	-7,844.99	1,178.58	660.53	495.42	165.11	4.001 Alert		
16,900.00	9,185.00	11,191.43	9,185.00	119.74	45.67	-87.70	-7,894.99	1,178.86	660.53	495.24	165.29	3.996 Alert		
16,950.00	9,185.00	11,141.43	9,185.00	120.44	45.16	-87.70	-7,944.99	1,179.14	660.52	495.04	165.48	3.991 Alert		
17,000.00	9,185.00	11,108.57	9,185.00	121.14	44.83	-87.70	-7,994.98	1,179.42	660.52	494.67	165.85	3.983 Alert		
17,050.00	9,185.00	11,041.43	9,185.00	121.84	44.16	-87.70	-8,044.98	1,179.70	660.51	494.63	165.88	3.982 Alert		
17,100.00	9,185.00	11,008.57	9,185.00	122.54	43.83	-87.70	-8,094.98	1,179.98	660.51	494.25	166.26	3.973 Alert		
17,150.00	9,185.00	10,941.43	9,185.00	123.24	43.18	-87.70	-8,144.98	1,180.26	660.50	494.19	166.31	3.972 Alert		
17,200.00	9,185.00	10,908.57	9,185.00	123.95	42.86	-87.70	-8,194.98	1,180.54	660.50	493.81	166.69	3.962 Alert		
17,250.00	9,185.00	10,841.43	9,185.00	124.65	42.23	-87.70	-8,244.98	1,180.82	660.49	493.73	166.76	3.961 Alert		
17,300.00	9,185.00	10,808.57	9,185.00	125.35	41.92	-87.70	-8,294.98	1,181.10	660.49	493.33	167.16	3.951 Alert		
17,350.00	9,185.00	10,741.43	9,185.00	126.05	41.31	-87.70	-8,344.98	1,181.38	660.48	493.23	167.25	3.949 Alert		
17,400.00	9,185.00	10,708.57	9,185.00	126.76	41.01	-87.70	-8,394.98	1,181.66	660.48	492.82	167.65	3.940 Alert		
17,450.00	9,185.00	10,641.43	9,185.00	127.46	40.42	-87.70	-8,444.98	1,181.94	660.47	492.71	167.77	3.937 Alert		
17,500.00	9,185.00	10,608.57	9,185.00	128.16	40.13	-87.70	-8,494.98	1,182.22	660.47	492.29	168.18	3.927 Alert		
17,550.00	9,185.00	10,541.43	9,185.00	128.87	39.57	-87.70	-8,544.98	1,182.50	660.46	492.14	168.32	3.924 Alert		
17,600.00	9,185.00	10,508.57	9,185.00	129.57	39.29	-87.70	-8,594.98	1,182.78	660.46	491.71	168.75	3.914 Alert		
17,650.00	9,185.00	10,441.43	9,185.00	130.28	38.75	-87.70	-8,644.97	1,183.06	660.45	491.54	168.91	3.910 Alert		
17,700.00	9,185.00	10,408.57	9,185.00	130.98	38.48	-87.70	-8,694.97	1,183.34	660.45	491.10	169.35	3.900 Alert		
17,750.00	9,185.00	10,341.43	9,185.00	131.69	37.97	-87.70	-8,744.97	1,183.62	660.45	490.90	169.54	3.896 Alert		
17,800.00	9,185.00	10,308.57	9,185.00	132.39	37.72	-87.70	-8,794.97	1,183.90	660.44	490.45	169.99	3.885 Alert		
17,850.00	9,185.00	10,241.43	9,185.00	133.10	37.23	-87.70	-8,844.97	1,184.18	660.44	490.22	170.21	3.880 Alert		
17,900.00	9,185.00	10,208.57	9,185.00	133.81	36.99	-87.70	-8,894.97	1,184.46	660.43	489.75	170.68	3.869 Alert		
17,950.00	9,185.00	10,141.43	9,185.00	134.51	36.53	-87.70	-8,944.97	1,184.74	660.43	489.50	170.93	3.864 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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Offset Design Sec 12-T23S-R31E - Tomb Raider 12-1 Fed 516H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
18,000.00	9,185.00	10,108.57	9,185.00	135.22	36.31	-87.70	-8,994.97	1,185.02	660.42	489.01	171.41	3.853	Alert	
18,050.00	9,185.00	10,041.43	9,185.00	135.93	35.88	-87.70	-9,044.97	1,185.30	660.42	488.73	171.69	3.847	Alert	
18,100.00	9,185.00	10,008.57	9,185.00	136.63	35.67	-87.70	-9,094.97	1,185.58	660.41	488.22	172.19	3.835	Alert	
18,150.00	9,185.00	9,941.43	9,185.00	137.34	35.27	-87.70	-9,144.97	1,185.86	660.41	487.91	172.50	3.828	Alert	
18,200.00	9,185.00	9,908.57	9,185.00	138.05	35.08	-87.70	-9,194.97	1,186.14	660.40	487.39	173.02	3.817	Alert	
18,250.00	9,185.00	9,841.43	9,185.00	138.76	34.72	-87.70	-9,244.97	1,186.42	660.40	487.04	173.36	3.809	Alert	
18,300.00	9,185.00	9,808.57	9,185.00	139.46	34.54	-87.70	-9,294.96	1,186.70	660.39	486.50	173.90	3.798	Alert	
18,350.00	9,185.00	9,741.43	9,185.00	140.17	34.22	-87.70	-9,344.96	1,186.98	660.39	486.11	174.28	3.789	Alert	
18,400.00	9,185.00	9,708.57	9,185.00	140.88	34.06	-87.70	-9,394.96	1,187.26	660.38	485.55	174.83	3.777	Alert	
18,450.00	9,185.00	9,641.43	9,185.00	141.59	33.77	-87.70	-9,444.96	1,187.54	660.38	485.13	175.25	3.768	Alert	
18,500.00	9,185.00	9,608.57	9,185.00	142.30	33.63	-87.70	-9,494.96	1,187.82	660.37	484.55	175.82	3.756	Alert	
18,550.00	9,185.00	9,541.43	9,185.00	143.01	33.38	-87.70	-9,544.96	1,188.10	660.37	484.09	176.28	3.746	Alert	
18,583.04	9,185.00	9,525.04	9,185.00	143.47	33.32	-87.70	-9,578.00	1,188.28	660.36	483.68	176.69	3.737	Alert, CC	
18,600.00	9,185.00	9,492.56	9,184.49	143.71	33.20	-87.66	-9,593.82	1,188.37	660.36	483.56	176.82	3.735	Alert	
18,650.00	9,185.00	9,445.13	9,180.53	144.42	33.04	-87.31	-9,641.07	1,188.64	660.56	483.19	177.37	3.724	Alert	
18,700.00	9,185.00	9,398.66	9,172.88	145.13	32.88	-86.65	-9,686.89	1,188.89	661.00	483.09	177.91	3.715	Alert	
18,750.00	9,185.00	9,353.72	9,161.97	145.84	32.73	-85.71	-9,730.47	1,189.14	661.83	483.43	178.40	3.710	Alert	
18,800.00	9,185.00	9,310.74	9,148.37	146.55	32.59	-84.54	-9,771.23	1,189.36	663.25	484.43	178.82	3.709	Alert	
18,850.00	9,185.00	9,270.05	9,132.72	147.26	32.46	-83.19	-9,808.78	1,189.57	665.48	486.35	179.13	3.715	Alert	
18,866.10	9,185.00	9,257.48	9,127.35	147.49	32.41	-82.73	-9,820.15	1,189.64	666.41	487.22	179.19	3.719	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 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3500.80ft

Offset Depths are relative to Offset Datum

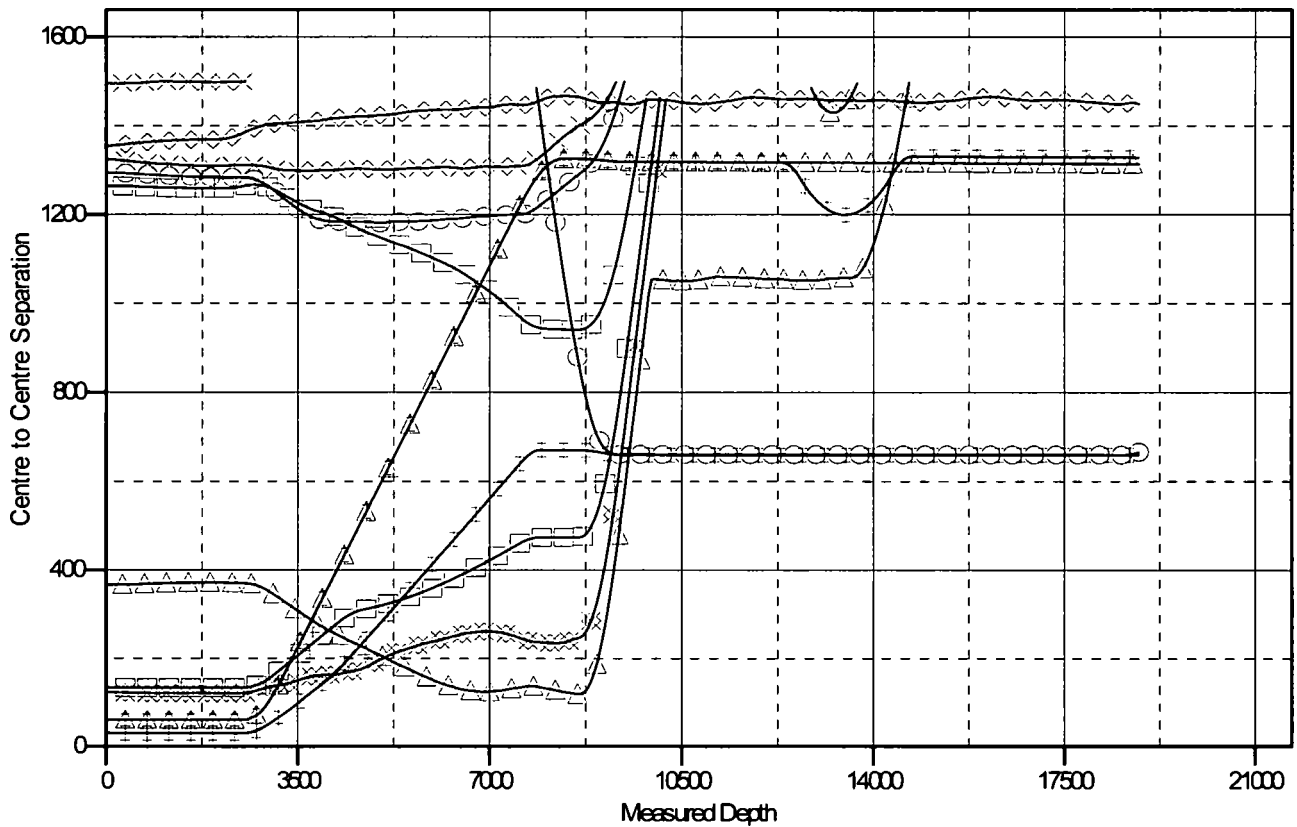
Central Meridian is -104.333334

Coordinates are relative to: Tomb Raider 1-12 Fed 525H

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

Grid Convergence at Surface is: 0.32°

Ladder Plot



LEGEND

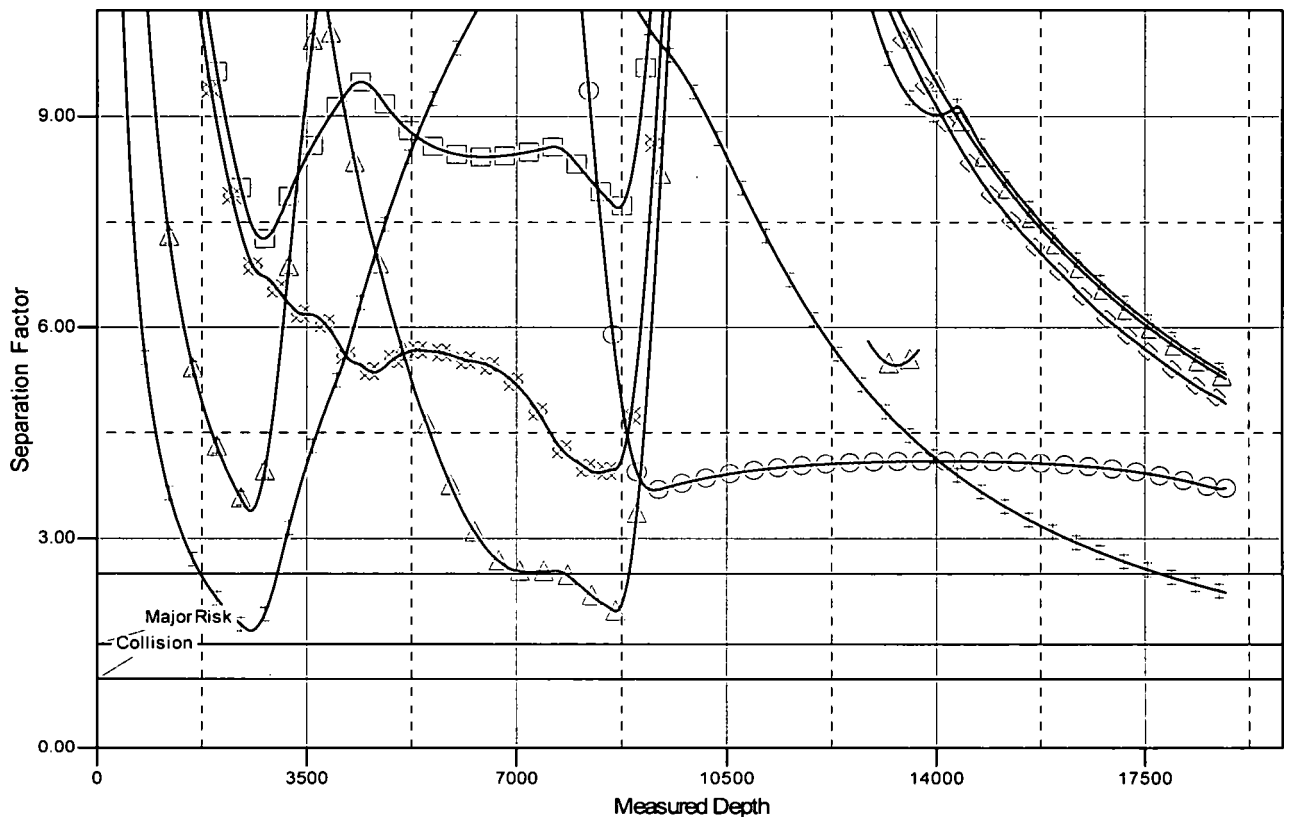
- Tomb Raider 1-12 Fed Com 234H, Wellbore #1, Wellbore #1 VO - Tomb Raider 1 Fed 1H, Original, Actual VO - Tomb Raider 1-12 Fed 514H, Wellbore #1, Permit 1 VO - Tomb Raider 1-12 Fed 334H, Wellbore #1, Wellbore #1 VO - Tomb Raider 1-12 Fed 514H, Wellbore #1, Permit Plan 1 VO	- Tomb Raider 1-12 Fed 512H, Wellbore #1, Wellbore #1 VO - Tomb Raider 1-12 Fed 524H, Wellbore #1, Permit Plan 1 VO - Tomb Raider 1-12 Fed 524H, Wellbore #1, Plan 2 Sider for AC VO - Tomb Raider 1-12 Fed Com 718H, Wellbore #1, Wellbore #1 VO - Tomb Raider 1-12 Fed 714H, Original H ole, Actual VO	- Tomb Raider 1-12 Fed 714H, Original H ole, NTL VO - Barclay Fed #1 (P&A), Wellbore #1, Wellbore #1 VO - Tomb Raider 1-12 Fed Com 528H, Wellbore #1, Wellbore #1 VO - Tomb Raider 12-1 Fed 516H, Wellbore #1, Permit Plan 1 VO
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Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Project:	Eddy County (NAD 83 NM Eastern)	TVD Reference:	RKB @ 3500.80ft
Reference Site:	Sec 01-T23S-R31E	MD Reference:	RKB @ 3500.80ft
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3500.80ft	Coordinates are relative to: Tomb Raider 1-12 Fed 525H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Central Meridian is -104.333334	Grid Convergence at Surface is: 0.32°

Separation Factor Plot



LEGEND

Tomb Raider 1-12 Fed Com 234H, Wellbore #1, Wellbore #1 V/D	Tomb Raider 1-12 Fed 512H, Wellbore #1, Wellbore #1 V/D	Tomb Raider 1-12 Fed 714H, Original H ole, NTL V/D
Tomb Raider 1 Fed 1H, Original, Actual V/D	Tomb Raider 1-12 Fed 524H, Wellbore #1, Permit Plan 1 V/D	Barclay Fed #1 (P&A), Wellbore #1, Wellbore #1 V/D
Tomb Raider 1-12 Fed 514H, Wellbore #1, Permit Plan 1 V/D	Tomb Raider 1-12 Fed 524H, Wellbore #1, Plan 2 Steel for AC V/D	Tomb Raider 1-12 Fed Com 528H, Wellbore #1, Wellbore #1 V/D
Tomb Raider 1-12 Fed 334H, Wellbore #1, Wellbore #1 V/D	Tomb Raider 1-12 Fed Com 716H, Wellbore #1, Wellbore #1 V/D	Tomb Raider 12-1 Fed 516H, Wellbore #1, Permit Plan 1 V/D
Tomb Raider 1-12 Fed 514H, Wellbore #1, Permit Plan 1 V/D	Tomb Raider 1-12 Fed 714H, Original H ole, Actual V/D	

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 01-T23S-R31E

Tomb Raider 1-12 Fed 525H

Wellbore #1

Plan: Permit Plan 2

Standard Planning Report - Geographic

28 June, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3500.80ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3500.80ft
Site:	Sec 01-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

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

Site	Sec 01-T23S-R31E			
Site Position:		Northing:	488,170.26 usft	Latitude: 32.340736
From:	Map	Easting:	719,281.88 usft	Longitude: -103.757161
Position Uncertainty:	5.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.31 °

Well	Tomb Raider 1-12 Fed 525H			
Well Position	+N/-S	0.00 ft	Northing:	487,848.84 usft
	+E/-W	0.00 ft	Easting:	727,513.29 usft
Position Uncertainty		0.50 ft	Wellhead Elevation:	
			Ground Level:	3,475.80 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/14/2018	6.93	60.13	47,887.60156107

Design	Permit Plan 2			
Audit Notes:				
Version:		Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	176.92

Plan Survey Tool Program	Date 6/28/2018			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,866.10 Permit Plan 2 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth (ft)	(°)	(°)	Depth (ft)	(ft)	(ft)	Rate (°/100usft)	Rate (°/100usft)	Rate (°/100usft)	(°)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,049.46	5.49	85.17	3,048.62	2.22	26.23	1.00	1.00	0.00	85.17	
7,555.80	5.49	85.17	7,534.25	38.52	456.19	0.00	0.00	0.00	0.00	
7,922.11	0.00	0.01	7,900.00	40.00	473.68	1.50	-1.50	0.00	180.00	
8,634.15	0.00	0.01	8,612.04	40.00	473.68	0.00	0.00	0.00	0.01	
9,534.15	90.00	179.67	9,185.00	-532.95	476.95	10.00	10.00	0.00	179.67	PBHL - Tomb Raider
18,866.10	90.00	179.67	9,185.00	-9,864.75	530.07	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 1-12 Fed 525H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3500.80ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3500.80ft
Site:	Sec 01-T23S-R31E	North Reference:	Grid
	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
100.00	0.00	0.00	100.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
200.00	0.00	0.00	200.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
300.00	0.00	0.00	300.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
400.00	0.00	0.00	400.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
500.00	0.00	0.00	500.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
600.00	0.00	0.00	600.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
700.00	0.00	0.00	700.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
800.00	0.00	0.00	800.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
900.00	0.00	0.00	900.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,000.00	0.00	0.00	1,000.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,100.00	0.00	0.00	1,100.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,200.00	0.00	0.00	1,200.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,300.00	0.00	0.00	1,300.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,400.00	0.00	0.00	1,400.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,500.00	0.00	0.00	1,500.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,600.00	0.00	0.00	1,600.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,700.00	0.00	0.00	1,700.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,800.00	0.00	0.00	1,800.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
1,900.00	0.00	0.00	1,900.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,000.00	0.00	0.00	2,000.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,100.00	0.00	0.00	2,100.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,200.00	0.00	0.00	2,200.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,300.00	0.00	0.00	2,300.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,400.00	0.00	0.00	2,400.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,500.00	0.00	0.00	2,500.00	0.00	0.00	487,848.84	727,513.29	32.339728	-103.730515
2,600.00	1.00	85.17	2,599.99	0.07	0.87	487,848.91	727,514.16	32.339728	-103.730512
2,700.00	2.00	85.17	2,699.96	0.29	3.48	487,849.13	727,516.76	32.339728	-103.730504
2,800.00	3.00	85.17	2,799.86	0.66	7.82	487,849.50	727,521.11	32.339729	-103.730490
2,900.00	4.00	85.17	2,899.68	1.17	13.91	487,850.02	727,527.19	32.339731	-103.730470
3,000.00	5.00	85.17	2,999.37	1.83	21.73	487,850.68	727,535.01	32.339732	-103.730445
3,049.46	5.49	85.17	3,048.62	2.22	26.23	487,851.06	727,539.52	32.339733	-103.730430
3,100.00	5.49	85.17	3,098.93	2.62	31.05	487,851.46	727,544.34	32.339734	-103.730414
3,200.00	5.49	85.17	3,198.47	3.43	40.60	487,852.27	727,553.88	32.339737	-103.730383
3,300.00	5.49	85.17	3,298.01	4.23	50.14	487,853.07	727,563.42	32.339739	-103.730352
3,400.00	5.49	85.17	3,397.55	5.04	59.68	487,853.88	727,572.96	32.339741	-103.730322
3,500.00	5.49	85.17	3,497.09	5.85	69.22	487,854.69	727,582.51	32.339743	-103.730291
3,600.00	5.49	85.17	3,596.63	6.65	78.76	487,855.49	727,592.05	32.339745	-103.730260
3,700.00	5.49	85.17	3,696.17	7.46	88.30	487,856.30	727,601.59	32.339747	-103.730229
3,800.00	5.49	85.17	3,795.71	8.26	97.84	487,857.10	727,611.13	32.339749	-103.730198
3,900.00	5.49	85.17	3,895.25	9.07	107.38	487,857.91	727,620.67	32.339751	-103.730167
4,000.00	5.49	85.17	3,994.79	9.87	116.93	487,858.71	727,630.21	32.339753	-103.730136
4,100.00	5.49	85.17	4,094.33	10.68	126.47	487,859.52	727,639.75	32.339755	-103.730105
4,200.00	5.49	85.17	4,193.87	11.49	136.01	487,860.33	727,649.29	32.339757	-103.730074
4,300.00	5.49	85.17	4,293.41	12.29	145.55	487,861.13	727,658.84	32.339759	-103.730043
4,400.00	5.49	85.17	4,392.95	13.10	155.09	487,861.94	727,668.38	32.339761	-103.730012
4,500.00	5.49	85.17	4,492.49	13.90	164.63	487,862.74	727,677.92	32.339763	-103.729982
4,600.00	5.49	85.17	4,592.03	14.71	174.17	487,863.55	727,687.46	32.339765	-103.729951
4,700.00	5.49	85.17	4,691.57	15.51	183.72	487,864.35	727,697.00	32.339768	-103.729920
4,800.00	5.49	85.17	4,791.11	16.32	193.26	487,865.16	727,706.54	32.339770	-103.729889
4,900.00	5.49	85.17	4,890.66	17.13	202.80	487,865.97	727,716.08	32.339772	-103.729858
5,000.00	5.49	85.17	4,990.20	17.93	212.34	487,866.77	727,725.62	32.339774	-103.729827
5,100.00	5.49	85.17	5,089.74	18.74	221.88	487,867.58	727,735.17	32.339776	-103.729796
5,200.00	5.49	85.17	5,189.28	19.54	231.42	487,868.38	727,744.71	32.339778	-103.729765

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3500.80ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3500.80ft
Site:	Sec 01-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,300.00	5.49	85.17	5,288.82	20.35	240.96	487,869.19	727,754.25	32.339780	-103.729734
5,400.00	5.49	85.17	5,388.36	21.15	250.50	487,869.99	727,763.79	32.339782	-103.729703
5,500.00	5.49	85.17	5,487.90	21.96	260.05	487,870.80	727,773.33	32.339784	-103.729673
5,600.00	5.49	85.17	5,587.44	22.77	269.59	487,871.61	727,782.87	32.339786	-103.729642
5,700.00	5.49	85.17	5,686.98	23.57	279.13	487,872.41	727,792.41	32.339788	-103.729611
5,800.00	5.49	85.17	5,786.52	24.38	288.67	487,873.22	727,801.95	32.339790	-103.729580
5,900.00	5.49	85.17	5,886.06	25.18	298.21	487,874.02	727,811.50	32.339792	-103.729549
6,000.00	5.49	85.17	5,985.60	25.99	307.75	487,874.83	727,821.04	32.339794	-103.729518
6,100.00	5.49	85.17	6,085.14	26.79	317.29	487,875.63	727,830.58	32.339796	-103.729487
6,200.00	5.49	85.17	6,184.68	27.60	326.83	487,876.44	727,840.12	32.339799	-103.729456
6,300.00	5.49	85.17	6,284.22	28.41	336.38	487,877.25	727,849.66	32.339801	-103.729425
6,400.00	5.49	85.17	6,383.76	29.21	345.92	487,878.05	727,859.20	32.339803	-103.729394
6,500.00	5.49	85.17	6,483.30	30.02	355.46	487,878.86	727,868.74	32.339805	-103.729363
6,600.00	5.49	85.17	6,582.84	30.82	365.00	487,879.66	727,878.28	32.339807	-103.729333
6,700.00	5.49	85.17	6,682.38	31.63	374.54	487,880.47	727,887.83	32.339809	-103.729302
6,800.00	5.49	85.17	6,781.93	32.43	384.08	487,881.27	727,897.37	32.339811	-103.729271
6,900.00	5.49	85.17	6,881.47	33.24	393.62	487,882.08	727,906.91	32.339813	-103.729240
7,000.00	5.49	85.17	6,981.01	34.05	403.16	487,882.89	727,916.45	32.339815	-103.729209
7,100.00	5.49	85.17	7,080.55	34.85	412.71	487,883.69	727,925.99	32.339817	-103.729178
7,200.00	5.49	85.17	7,180.09	35.66	422.25	487,884.50	727,935.53	32.339819	-103.729147
7,300.00	5.49	85.17	7,279.63	36.46	431.79	487,885.30	727,945.07	32.339821	-103.729116
7,400.00	5.49	85.17	7,379.17	37.27	441.33	487,886.11	727,954.61	32.339823	-103.729085
7,500.00	5.49	85.17	7,478.71	38.07	450.87	487,886.91	727,964.16	32.339825	-103.729054
7,555.80	5.49	85.17	7,534.25	38.52	456.19	487,887.36	727,969.48	32.339827	-103.729037
7,600.00	4.83	85.17	7,578.27	38.86	460.16	487,887.70	727,973.44	32.339827	-103.729024
7,700.00	3.33	85.17	7,678.02	39.46	467.25	487,888.30	727,980.54	32.339829	-103.729001
7,800.00	1.83	85.17	7,777.91	39.84	471.74	487,888.68	727,985.02	32.339830	-103.728987
7,900.00	0.33	85.17	7,877.89	39.99	473.62	487,888.84	727,986.90	32.339830	-103.728981
7,922.11	0.00	0.01	7,900.00	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,000.00	0.00	0.00	7,977.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,100.00	0.00	0.00	8,077.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,200.00	0.00	0.00	8,177.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,300.00	0.00	0.00	8,277.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,400.00	0.00	0.00	8,377.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,500.00	0.00	0.00	8,477.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,600.00	0.00	0.00	8,577.89	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,634.15	0.00	0.01	8,612.04	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
8,634.64	0.05	179.67	8,612.53	40.00	473.68	487,888.84	727,986.97	32.339830	-103.728980
KOP @ 8634' MD, 320' FNL, 1861' FEL									
8,700.00	6.59	179.67	8,677.75	36.22	473.70	487,885.06	727,986.99	32.339820	-103.728980
8,741.37	10.72	179.67	8,718.64	30.00	473.74	487,878.84	727,987.03	32.339803	-103.728980
1st Take Point @ 8741' MD, 330' FNL, 1861' FEL									
8,800.00	16.59	179.67	8,775.58	16.16	473.82	487,865.00	727,987.10	32.339765	-103.728980
8,900.00	26.59	179.67	8,868.45	-20.58	474.03	487,828.26	727,987.31	32.339664	-103.728980
9,000.00	36.59	179.67	8,953.53	-72.89	474.33	487,775.95	727,987.61	32.339520	-103.728980
9,100.00	46.59	179.67	9,028.23	-139.17	474.70	487,709.67	727,987.99	32.339338	-103.728980
9,200.00	56.59	179.67	9,090.29	-217.43	475.15	487,631.41	727,988.43	32.339123	-103.728980
9,300.00	66.58	179.67	9,137.82	-305.27	475.65	487,543.58	727,988.93	32.338881	-103.728980
9,400.00	76.58	179.67	9,169.37	-400.02	476.19	487,448.82	727,989.47	32.338621	-103.728980
9,500.00	86.58	179.67	9,183.98	-498.82	476.75	487,350.02	727,990.04	32.338349	-103.728980
9,534.15	90.00	179.67	9,185.00	-532.95	476.95	487,315.89	727,990.23	32.338255	-103.728980
9,600.00	90.00	179.67	9,185.00	-598.80	477.32	487,250.04	727,990.61	32.338074	-103.728980
9,700.00	90.00	179.67	9,185.00	-698.80	477.89	487,150.05	727,991.17	32.337800	-103.728980

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3500.80ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3500.80ft
Site:	Sec 01-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,800.00	90.00	179.67	9,185.00	-798.79	478.46	487,050.05	727,991.74	32.337525	-103.728980
9,900.00	90.00	179.67	9,185.00	-898.79	479.03	486,950.05	727,992.31	32.337250	-103.728980
10,000.00	90.00	179.67	9,185.00	-998.79	479.60	486,850.05	727,992.88	32.336975	-103.728980
10,100.00	90.00	179.67	9,185.00	-1,098.79	480.17	486,750.05	727,993.45	32.336700	-103.728980
10,200.00	90.00	179.67	9,185.00	-1,198.79	480.74	486,650.05	727,994.02	32.336425	-103.728980
10,300.00	90.00	179.67	9,185.00	-1,298.79	481.30	486,550.06	727,994.59	32.336150	-103.728980
10,400.00	90.00	179.67	9,185.00	-1,398.79	481.87	486,450.06	727,995.16	32.335875	-103.728980
10,500.00	90.00	179.67	9,185.00	-1,498.78	482.44	486,350.06	727,995.73	32.335601	-103.728980
10,600.00	90.00	179.67	9,185.00	-1,598.78	483.01	486,250.06	727,996.30	32.335326	-103.728980
10,700.00	90.00	179.67	9,185.00	-1,698.78	483.58	486,150.06	727,996.87	32.335051	-103.728980
10,800.00	90.00	179.67	9,185.00	-1,798.78	484.15	486,050.07	727,997.44	32.334776	-103.728980
10,900.00	90.00	179.67	9,185.00	-1,898.78	484.72	485,950.07	727,998.01	32.334501	-103.728980
11,000.00	90.00	179.67	9,185.00	-1,998.78	485.29	485,850.07	727,998.58	32.334226	-103.728980
11,100.00	90.00	179.67	9,185.00	-2,098.77	485.86	485,750.07	727,999.14	32.333951	-103.728980
11,200.00	90.00	179.67	9,185.00	-2,198.77	486.43	485,650.07	727,999.71	32.333676	-103.728980
11,300.00	90.00	179.67	9,185.00	-2,298.77	487.00	485,550.07	728,000.28	32.333402	-103.728980
11,400.00	90.00	179.67	9,185.00	-2,398.77	487.57	485,450.08	728,000.85	32.333127	-103.728980
11,500.00	90.00	179.67	9,185.00	-2,498.77	488.14	485,350.08	728,001.42	32.332852	-103.728980
11,600.00	90.00	179.67	9,185.00	-2,598.77	488.71	485,250.08	728,001.99	32.332577	-103.728980
11,700.00	90.00	179.67	9,185.00	-2,698.76	489.28	485,150.08	728,002.56	32.332302	-103.728980
11,800.00	90.00	179.67	9,185.00	-2,798.76	489.84	485,050.08	728,003.13	32.332027	-103.728980
11,900.00	90.00	179.67	9,185.00	-2,898.76	490.41	484,950.09	728,003.70	32.331752	-103.728980
12,000.00	90.00	179.67	9,185.00	-2,998.76	490.98	484,850.09	728,004.27	32.331477	-103.728980
12,100.00	90.00	179.67	9,185.00	-3,098.76	491.55	484,750.09	728,004.84	32.331203	-103.728980
12,200.00	90.00	179.67	9,185.00	-3,198.76	492.12	484,650.09	728,005.41	32.330928	-103.728980
12,300.00	90.00	179.67	9,185.00	-3,298.75	492.69	484,550.09	728,005.98	32.330653	-103.728980
12,400.00	90.00	179.67	9,185.00	-3,398.75	493.26	484,450.09	728,006.55	32.330378	-103.728980
12,500.00	90.00	179.67	9,185.00	-3,498.75	493.83	484,350.10	728,007.11	32.330103	-103.728980
12,600.00	90.00	179.67	9,185.00	-3,598.75	494.40	484,250.10	728,007.68	32.329828	-103.728980
12,700.00	90.00	179.67	9,185.00	-3,698.75	494.97	484,150.10	728,008.25	32.329553	-103.728980
12,800.00	90.00	179.67	9,185.00	-3,798.75	495.54	484,050.10	728,008.82	32.329278	-103.728980
12,900.00	90.00	179.67	9,185.00	-3,898.74	496.11	483,950.10	728,009.39	32.329004	-103.728980
13,000.00	90.00	179.67	9,185.00	-3,998.74	496.68	483,850.11	728,009.96	32.328729	-103.728980
13,100.00	90.00	179.67	9,185.00	-4,098.74	497.25	483,750.11	728,010.53	32.328454	-103.728980
13,200.00	90.00	179.67	9,185.00	-4,198.74	497.81	483,650.11	728,011.10	32.328179	-103.728980
13,300.00	90.00	179.67	9,185.00	-4,298.74	498.38	483,550.11	728,011.67	32.327904	-103.728980
13,400.00	90.00	179.67	9,185.00	-4,398.74	498.95	483,450.11	728,012.24	32.327629	-103.728980
13,500.00	90.00	179.67	9,185.00	-4,498.73	499.52	483,350.11	728,012.81	32.327354	-103.728980
13,600.00	90.00	179.67	9,185.00	-4,598.73	500.09	483,250.12	728,013.38	32.327079	-103.728980
13,700.00	90.00	179.67	9,185.00	-4,698.73	500.66	483,150.12	728,013.95	32.326805	-103.728980
13,800.00	90.00	179.67	9,185.00	-4,798.73	501.23	483,050.12	728,014.52	32.326530	-103.728980
13,900.00	90.00	179.67	9,185.00	-4,898.73	501.80	482,950.12	728,015.08	32.326255	-103.728980
14,000.00	90.00	179.67	9,185.00	-4,998.73	502.37	482,850.12	728,015.65	32.325980	-103.728980
14,100.00	90.00	179.67	9,185.00	-5,098.73	502.94	482,750.13	728,016.22	32.325705	-103.728980
14,200.00	90.00	179.67	9,185.00	-5,198.72	503.51	482,650.13	728,016.79	32.325430	-103.728980
14,300.00	90.00	179.67	9,185.00	-5,298.72	504.08	482,550.13	728,017.36	32.325155	-103.728980
14,400.00	90.00	179.67	9,185.00	-5,398.72	504.65	482,450.13	728,017.93	32.324880	-103.728980
14,500.00	90.00	179.67	9,185.00	-5,498.72	505.22	482,350.13	728,018.50	32.324606	-103.728980
14,600.00	90.00	179.67	9,185.00	-5,598.72	505.78	482,250.13	728,019.07	32.324331	-103.728980
14,700.00	90.00	179.67	9,185.00	-5,698.72	506.35	482,150.14	728,019.64	32.324056	-103.728980
14,800.00	90.00	179.67	9,185.00	-5,798.71	506.92	482,050.14	728,020.21	32.323781	-103.728980
14,900.00	90.00	179.67	9,185.00	-5,898.71	507.49	481,950.14	728,020.78	32.323506	-103.728979
15,000.00	90.00	179.67	9,185.00	-5,998.71	508.06	481,850.14	728,021.35	32.323231	-103.728979
15,100.00	90.00	179.67	9,185.00	-6,098.71	508.63	481,750.14	728,021.92	32.322956	-103.728979

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3500.80ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3500.80ft
Site:	Sec 01-T23S-R31E	North Reference:	Grid
Well:	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,200.00	90.00	179.67	9,185.00	-6,198.71	509.20	481,650.15	728,022.49	32.322681	-103.728979
15,300.00	90.00	179.67	9,185.00	-6,298.71	509.77	481,550.15	728,023.05	32.322407	-103.728979
15,400.00	90.00	179.67	9,185.00	-6,398.70	510.34	481,450.15	728,023.62	32.322132	-103.728979
15,500.00	90.00	179.67	9,185.00	-6,498.70	510.91	481,350.15	728,024.19	32.321857	-103.728979
15,600.00	90.00	179.67	9,185.00	-6,598.70	511.48	481,250.15	728,024.76	32.321582	-103.728979
15,700.00	90.00	179.67	9,185.00	-6,698.70	512.05	481,150.15	728,025.33	32.321307	-103.728979
15,800.00	90.00	179.67	9,185.00	-6,798.70	512.62	481,050.16	728,025.90	32.321032	-103.728979
15,900.00	90.00	179.67	9,185.00	-6,898.70	513.19	480,950.16	728,026.47	32.320757	-103.728979
16,000.00	90.00	179.67	9,185.00	-6,998.69	513.75	480,850.16	728,027.04	32.320482	-103.728979
16,100.00	90.00	179.67	9,185.00	-7,098.69	514.32	480,750.16	728,027.61	32.320208	-103.728979
16,200.00	90.00	179.67	9,185.00	-7,198.69	514.89	480,650.16	728,028.18	32.319933	-103.728979
16,300.00	90.00	179.67	9,185.00	-7,298.69	515.46	480,550.17	728,028.75	32.319658	-103.728979
16,400.00	90.00	179.67	9,185.00	-7,398.69	516.03	480,450.17	728,029.32	32.319383	-103.728979
16,500.00	90.00	179.67	9,185.00	-7,498.69	516.60	480,350.17	728,029.89	32.319108	-103.728979
16,600.00	90.00	179.67	9,185.00	-7,598.68	517.17	480,250.17	728,030.46	32.318833	-103.728979
16,700.00	90.00	179.67	9,185.00	-7,698.68	517.74	480,150.17	728,031.02	32.318558	-103.728979
16,800.00	90.00	179.67	9,185.00	-7,798.68	518.31	480,050.17	728,031.59	32.318283	-103.728979
16,900.00	90.00	179.67	9,185.00	-7,898.68	518.88	479,950.18	728,032.16	32.318009	-103.728979
17,000.00	90.00	179.67	9,185.00	-7,998.68	519.45	479,850.18	728,032.73	32.317734	-103.728979
17,100.00	90.00	179.67	9,185.00	-8,098.68	520.02	479,750.18	728,033.30	32.317459	-103.728979
17,200.00	90.00	179.67	9,185.00	-8,198.68	520.59	479,650.18	728,033.87	32.317184	-103.728979
17,300.00	90.00	179.67	9,185.00	-8,298.67	521.16	479,550.18	728,034.44	32.316909	-103.728979
17,400.00	90.00	179.67	9,185.00	-8,398.67	521.72	479,450.19	728,035.01	32.316634	-103.728979
17,500.00	90.00	179.67	9,185.00	-8,498.67	522.29	479,350.19	728,035.58	32.316359	-103.728979
17,600.00	90.00	179.67	9,185.00	-8,598.67	522.86	479,250.19	728,036.15	32.316084	-103.728979
17,700.00	90.00	179.67	9,185.00	-8,698.67	523.43	479,150.19	728,036.72	32.315810	-103.728979
17,800.00	90.00	179.67	9,185.00	-8,798.67	524.00	479,050.19	728,037.29	32.315535	-103.728979
17,900.00	90.00	179.67	9,185.00	-8,898.66	524.57	478,950.19	728,037.86	32.315260	-103.728979
18,000.00	90.00	179.67	9,185.00	-8,998.66	525.14	478,850.20	728,038.43	32.314985	-103.728979
18,100.00	90.00	179.67	9,185.00	-9,098.66	525.71	478,750.20	728,038.99	32.314710	-103.728979
18,200.00	90.00	179.67	9,185.00	-9,198.66	526.28	478,650.20	728,039.56	32.314435	-103.728979
18,300.00	90.00	179.67	9,185.00	-9,298.66	526.85	478,550.20	728,040.13	32.314160	-103.728979
18,400.00	90.00	179.67	9,185.00	-9,398.66	527.42	478,450.20	728,040.70	32.313885	-103.728979
18,500.00	90.00	179.67	9,185.00	-9,498.65	527.99	478,350.21	728,041.27	32.313611	-103.728979
18,600.00	90.00	179.67	9,185.00	-9,598.65	528.56	478,250.21	728,041.84	32.313336	-103.728979
18,700.00	90.00	179.67	9,185.00	-9,698.65	529.13	478,150.21	728,042.41	32.313061	-103.728979
18,786.10	90.00	179.67	9,185.00	-9,784.75	529.62	478,064.11	728,042.90	32.312824	-103.728979
Last Take Point @ 18786' MD, 430' FSL, 1860' FEL									
18,800.00	90.00	179.67	9,185.00	-9,798.65	529.69	478,050.21	728,042.98	32.312786	-103.728979
18,866.10	90.00	179.67	9,185.00	-9,864.75	530.07	477,984.11	728,043.36	32.312604	-103.728979
PBHL; 330' FSL, 1860' FEL									

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Tomb Raider 1-12 Fed 525H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3500.80ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 3500.80ft
	Sec 01-T23S-R31E	North Reference:	Grid
	Tomb Raider 1-12 Fed 525H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
PBHL - Tomb Raider 1-1	0.00	0.00	0.00	-9,864.75	530.07	477,984.11	728,043.36	32.312604	-103.728979
- plan misses target center by 9185.00ft at 18866.10ft MD (9185.00 TVD, -9864.75 N, 530.07 E)									
- Point									
VP - Tomb Raider 1-12 f	0.00	0.00	7,900.00	162.13	473.68	488,010.97	727,986.97	32.340166	-103.728978
- plan misses target center by 122.13ft at 7922.11ft MD (7900.00 TVD, 40.00 N, 473.68 E)									
- Point									

Plan Annotations				
Measured	Vertical	Local Coordinates		Comment
Depth	Depth	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
8,634.64	8,612.53	40.00	473.68	KOP @ 8634' MD, 320' FNL, 1861' FEL
8,741.37	8,718.64	30.00	473.74	1st Take Point @ 8741' MD, 330' FNL, 1861' FEL
18,786.10	9,185.00	-9,784.75	529.62	Last Take Point @ 18786' MD, 430' FSL, 1860' FEL
18,866.10	9,185.00	-9,864.75	530.07	PBHL; 330' FSL, 1860' FEL

Devon Energy

WELL DETAILS: Tomb Raider 1-12 Fed 525H

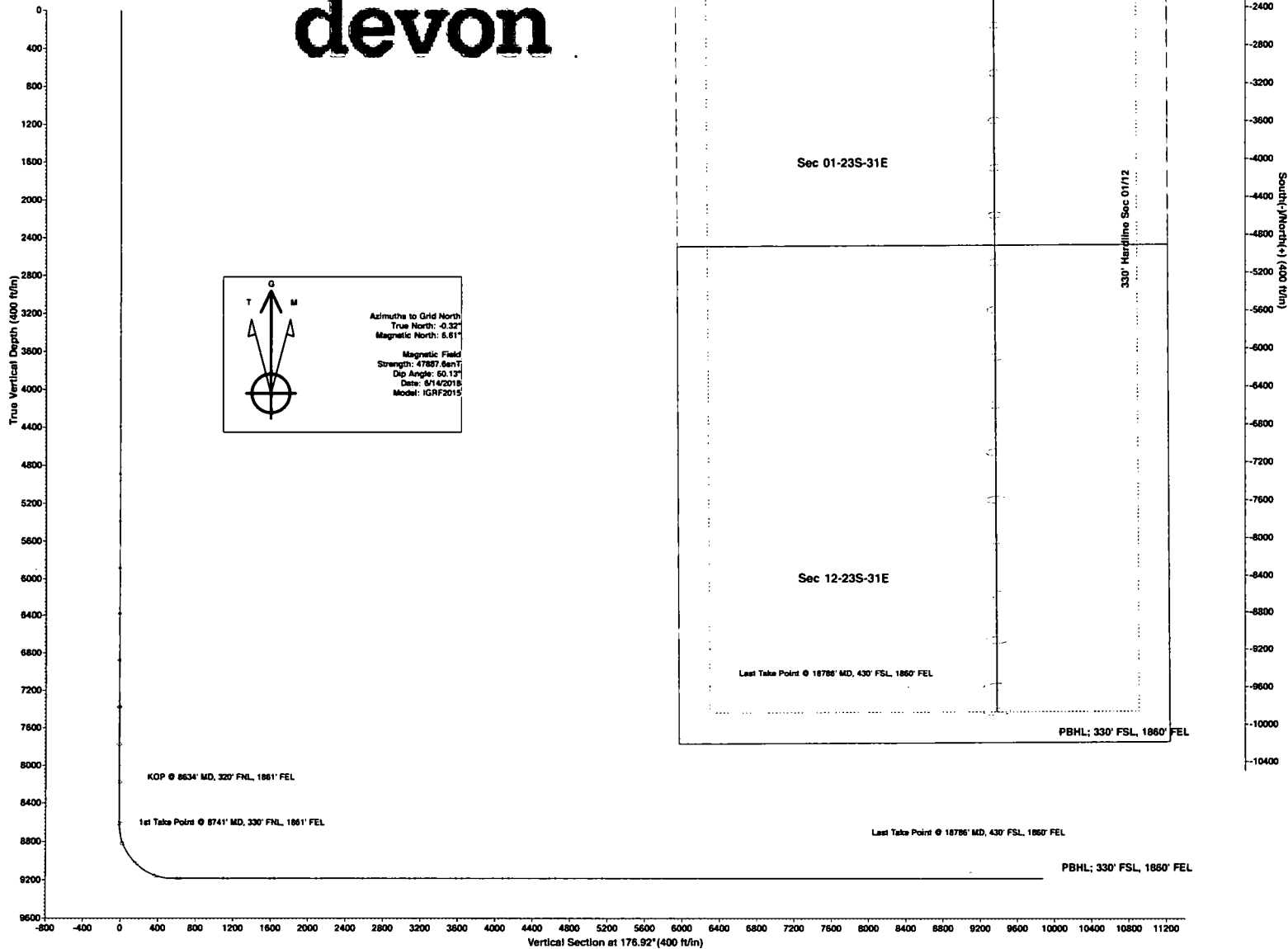
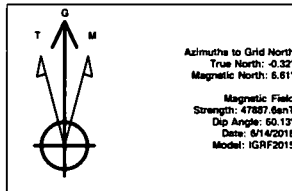
RKB @ 3500.80ft

Northing 487848.84 Easting 727513.29 Latitude 32.339728 Longitude -103.730515

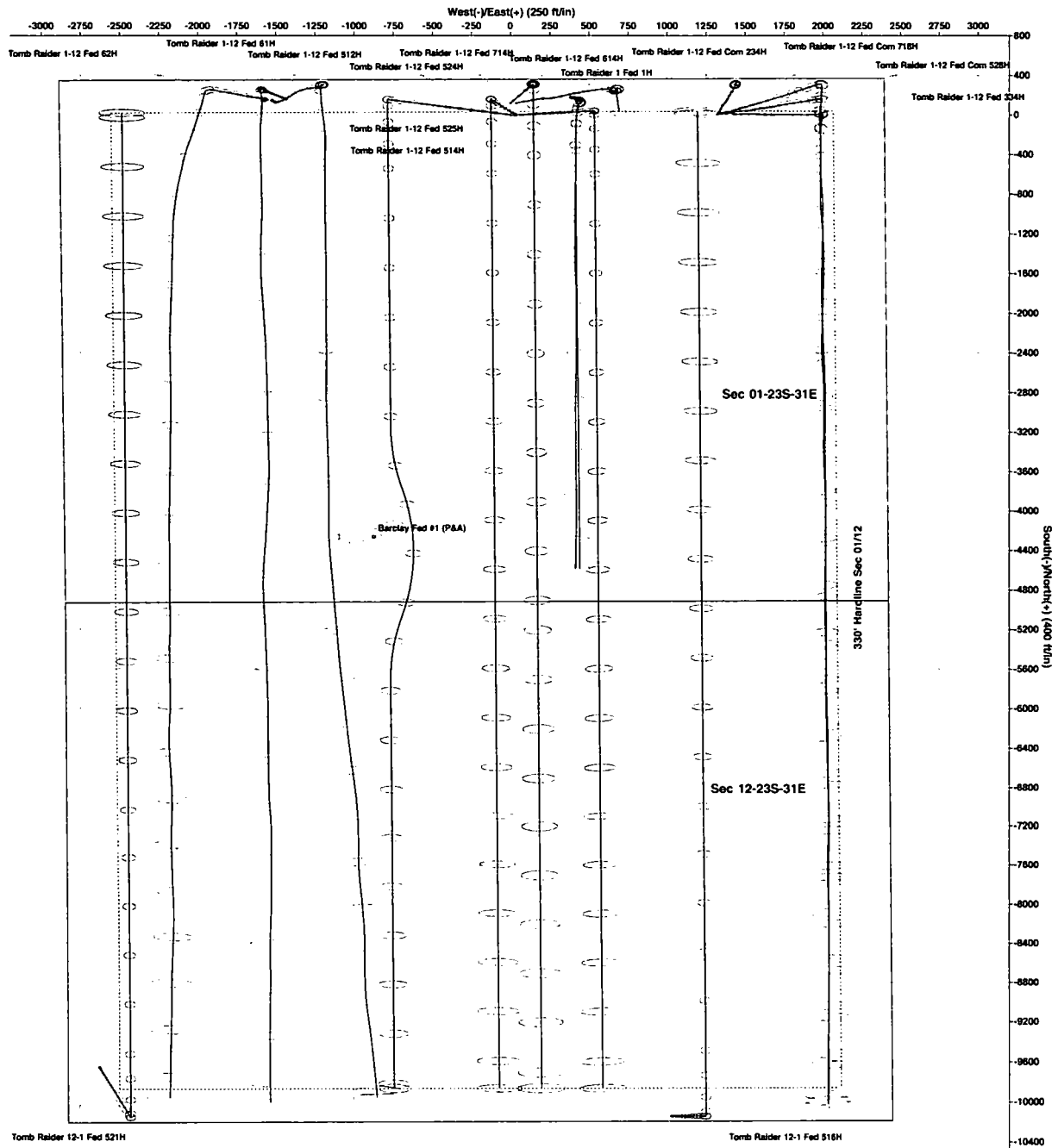
SECTION DETAILS Permit Plan 2

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
3049.46	5.49	85.17	3048.62	2.22	26.23	1.00	-0.80	
7555.80	5.49	85.17	7534.25	36.52	456.19	0.00	-13.99	
7922.11	0.00	0.00	7900.00	40.00	473.68	1.50	-14.53	
8634.15	0.00	0.00	8612.04	40.00	473.68	0.00	-14.53	KOP @ 8634' MD, 320' FNL, 1861' FEL
9534.15	90.00	179.67	9185.00	-532.95	476.95	10.00	557.77	
18866.10	90.00	179.67	9185.00	-9864.75	530.07	0.00	9878.98	PBHL; 330' FSL, 1860' FEL

devon

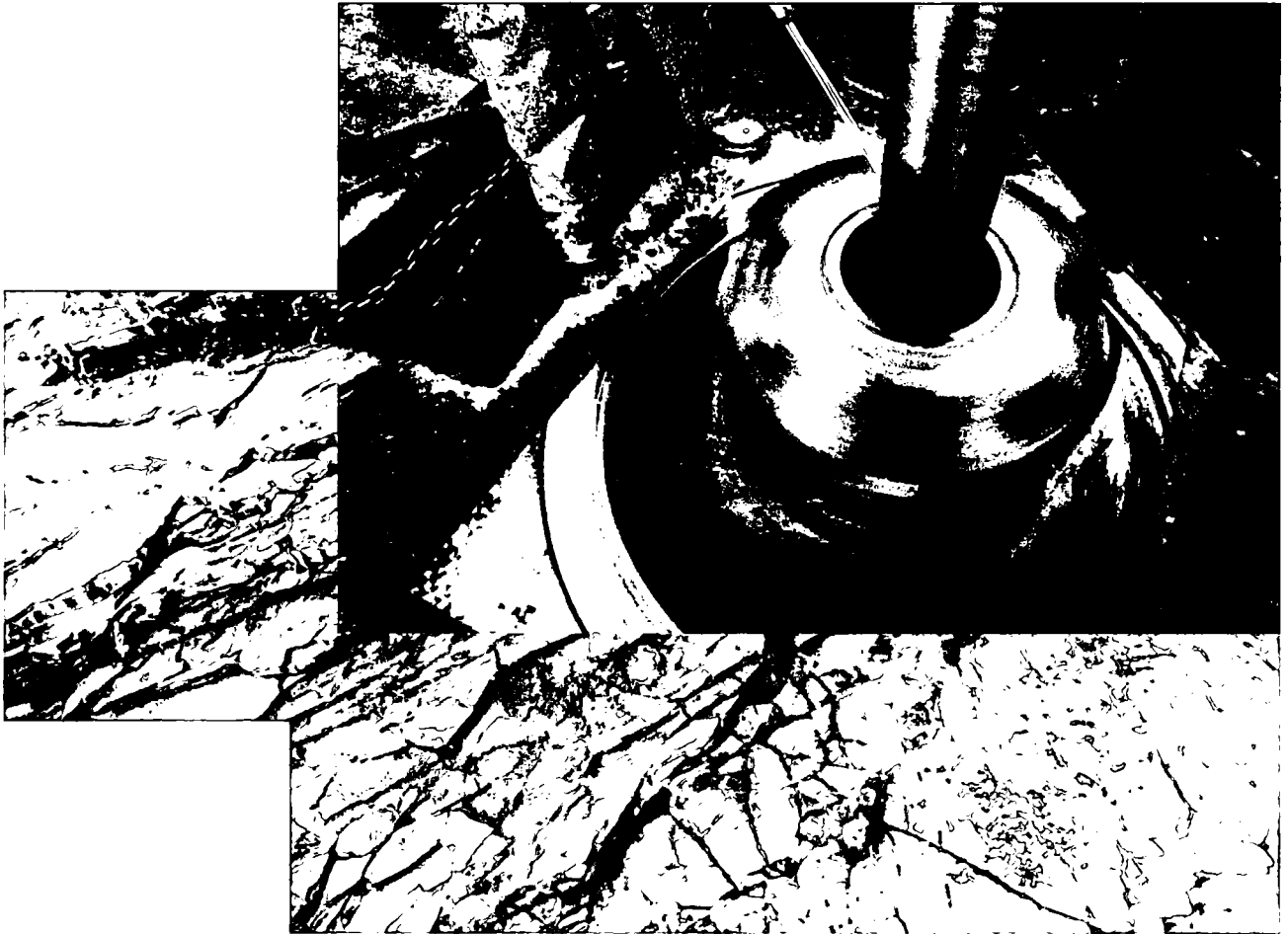


Devon Energy





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.

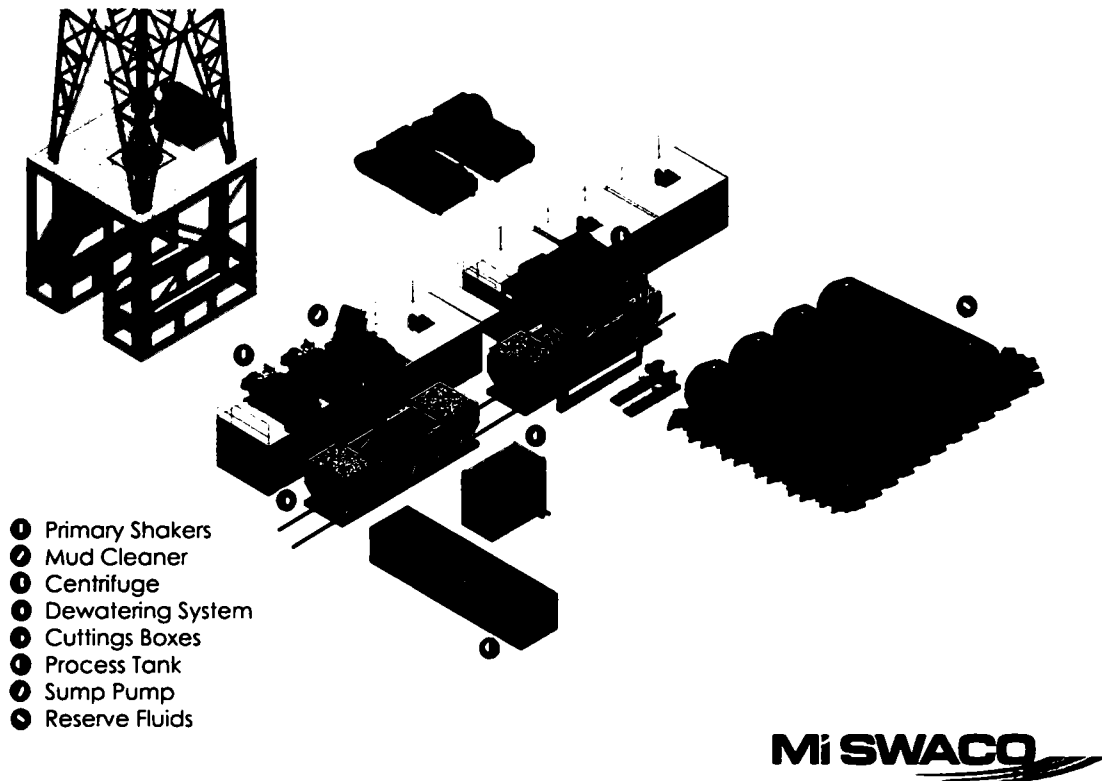
II. Operations and Maintenance Plan

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

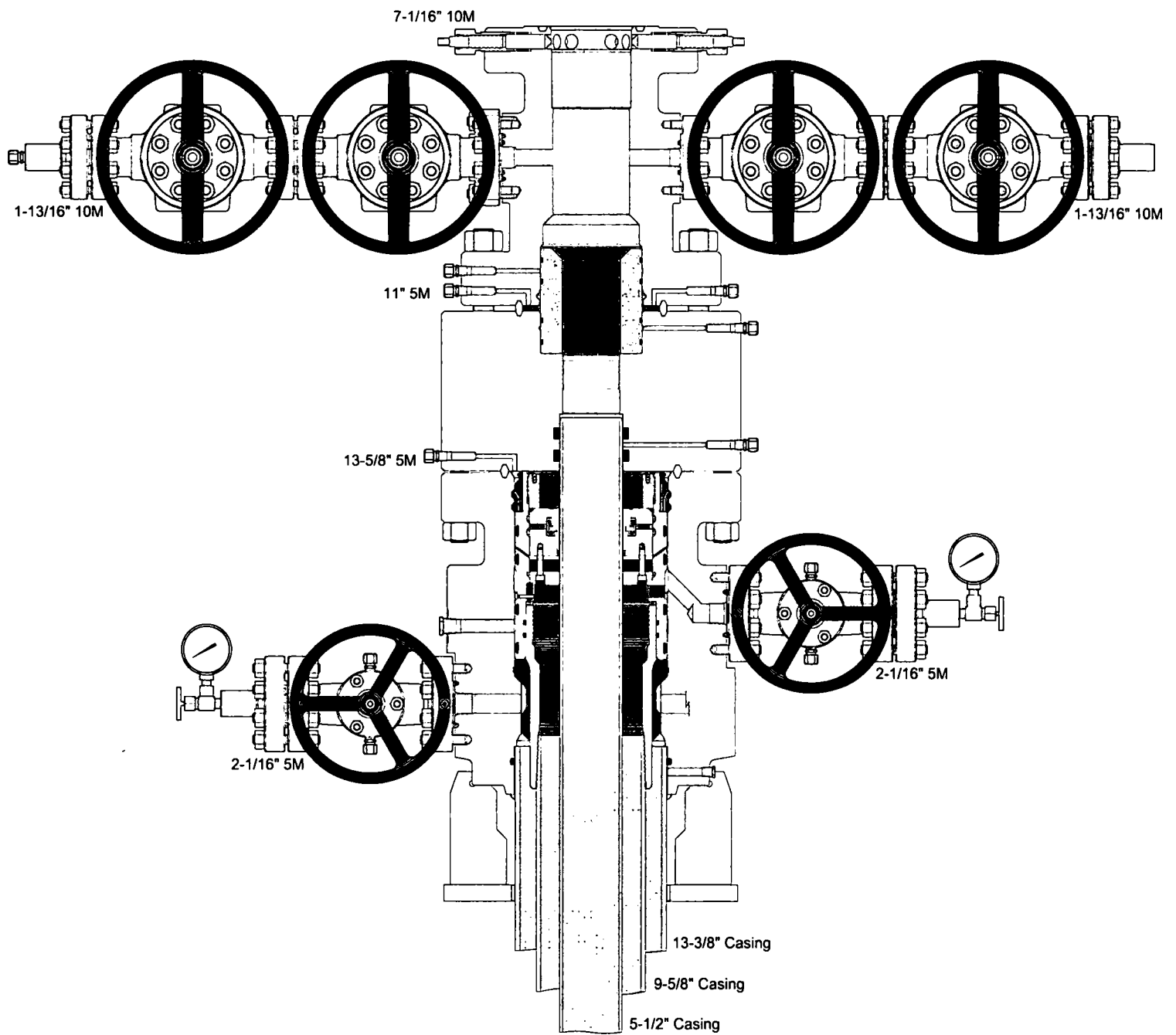
dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

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.



Devon Energy, Tomb Raider 1-12 Fed 525H

1. Geologic Formations

TVD of target	9185	Pilot hole depth	N/A
MD at TD:	18866	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	697		
Salado	1156		
Delaware	4500		
L.Brushy	8074		
1st BSPG Lime	8352		
Leonard A	8490		
Leonard B	8855		
Landing Pt	9185		

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

Devon Energy, Tomb Raider 1-12 Fed 525H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (PPF)	Grade	Conn.
	From	To				
17.5"	0	750'	13.375"	48	H-40	STC
12.25"	0	6,000'	9.625"	40	J-55	BTC
8.75"	0	TD	5.5"	17	P-110	BTC
BLM Minimum Safety Factor				Collapse: 1.125	Burst: 1.00	Tension: 1.6 Dry 1.8 Wet

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

Devon Energy, Tomb Raider 1-12 Fed 525H

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

Devon Energy, Tomb Raider 1-12 Fed 525H

3. Cementing Program (3-String Primary Design)

Casing	# Sk	TOC	Wt. (lb/gal)	H ₂ O (gal/sk)	Yld (ft ³ /sack)	Slurry Description
Surface	786	Surf	13.2	6.33	1.33	Lead: Class C Cement + additives
Int	1290	Surf	9	20.6	1.94	Lead: Class C Cement + additives
	190	500' above shoe	13.2	6.42	1.33	Tail: Class H / C + additives
Production	349	Surf	9	20.6	1.94	Lead: Class H / C + additives
	1807	KOP	13.2	5.31	1.6	Tail: Class H / C + additives

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

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

Devon Energy, Tomb Raider 1-12 Fed 525H

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	3M	Annular	X	50% of rated working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	3M	Annular (5M)	X	50% of rated working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

Devon Energy, Tomb Raider 1-12 Fed 525H

5. Mud Program

6. Depth		Type	Weight (ppg)	Vis	Water Loss
From	To				
0	750'	FW Gel	8.5 – 9.0	28-34	N/C
750'	6000'	WBM	10 – 10.5	28-34	N/C
6,000'	TD	WBM	8.5 – 9.0	28-34	N/C

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

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

6. Logging and Testing Procedures

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

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

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4299 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H ₂ S is present
Y	H ₂ S Plan attached

Devon Energy, Tomb Raider 1-12 Fed 525H

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

 x Directional Plan

 Other, describe

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.



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.

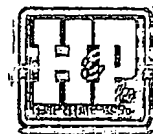
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

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 Brittonmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com





QUALITY DOCUMENT

PHOENIX RUBBER

INDUSTRIAL LTD.

• 6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
phone: (3662) 568-737 • Fax: (3662) 568-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 • Fax: (361) 217-2972, 456-4273 • www.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	
3" coupling with 4 1/16" Flange end		720 719		AISI 4130 AISI 4130	
				Heat N° C7626 47357	
API Spec 16 C Temperature rate: "B"					
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
Date: 29. April. 2002.		Inspector		Quality Control PHOENIX RUBBER Industrial Ltd. Hose Inspection and Pressure Testing Dept.	

14094-65

40920-0-00015 N800C

8	GN	+0.000	PC	13:00		
	RD	+0.000	PC	14:00		
	BL	+0.015	PC	13:00		
7	GN	+0.000	PC	13:40	40	
	RD	+0.000	PC	13:40	60	
	BL	+0.015	PC	13:40	80	
6	GN	+0.000	PC	13:20		
	RD	+0.000	PC	13:20		
	BL	+0.015	PC	13:20		
5	GN	+0.000	PC	13:00		
	RD	+0.000	PC	13:00		
	BL	+0.015	PC	13:00		
4						
3						
2						

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

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.
[Signature]



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

SUPO Data Report

11/01/2018

APD ID: 10400032006

Submission Date: 07/13/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data
reflects the most
recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Tomb_Raider_1_12_Fed_525H_EX_ACCESS_RD_20180711144147.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? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

TOMB_RAIDER_1_12_FED_525H__1Mile_map_20180711144212.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

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 1 CTB 3.

Section 5 - Location and Types of Water Supply

Water Source Table

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: STATE

Water source transport method: PIPELINE

Source transportation land ownership: STATE

Water source volume (barrels): 270000

Source volume (acre-feet): 34.801136

Source volume (gal): 11340000

Water source and transportation map:

Tomb_Raider_1_12_Fed_525H_WATER_MAP_20180711144331.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.):

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

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:

Section 6 - Construction Materials

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

Construction Materials source location attachment:

Caliche_Map__Aleutian__Belloq__Tomb_Raider_20180711144436.pdf

Section 7 - Methods for Handling Waste

Waste type: COMPLETIONS/STIMULATION

Waste content description: Flow back water during completion operations.

Amount of waste: 3000 barrels

Waste disposal frequency : One Time Only

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Waste type: PRODUCED WATER

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

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Waste type: FLOWBACK

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

Amount of waste: 1500 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Waste type: DRILLING

Waste content description: Water Based Cuttings

Amount of waste: 1954 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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Description of cuttings location

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Tomb_Raider_1_12_Fed_525H_RIGLAYOUT_20180711150240.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: No New Surface Disturbance **Multiple Well Pad Name:** TODD-APACHE 1-1

Multiple Well Pad Number: 2

Recontouring attachment:

Tomb_Raider_1_12_Fed_525H_RECLAMATION_20180711150325.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.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Well pad proposed disturbance (acres): 0	Well pad interim reclamation (acres):	Well pad long term disturbance (acres):
Road proposed disturbance (acres): 0	Road interim reclamation (acres):	Road long term disturbance (acres):
Powerline proposed disturbance (acres): 0	Powerline interim reclamation (acres): 0	Powerline long term disturbance (acres): 0
Pipeline proposed disturbance (acres): 0	Pipeline interim reclamation (acres):	Pipeline long term disturbance (acres):
Other proposed disturbance (acres): 0	Other interim reclamation (acres):	Other long term disturbance (acres):
Total proposed disturbance: 0	Total interim reclamation:	Total long term disturbance:

Disturbance Comments:

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

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

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

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

Existing Vegetation at the well pad attachment:

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

Existing Vegetation Community at the road attachment:

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

Existing Vegetation Community at the pipeline attachment:

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

Existing Vegetation Community at other disturbances attachment:

Non native seed used?

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project?

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary	
Seed Type	Pounds/Acre

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name:

Last Name:

Phone:

Email:

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:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

Section 11 - Surface Ownership

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: 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:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

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:

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED

Well Number: 525H

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? NO

Use APD as ROW?

ROW Type(s):

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

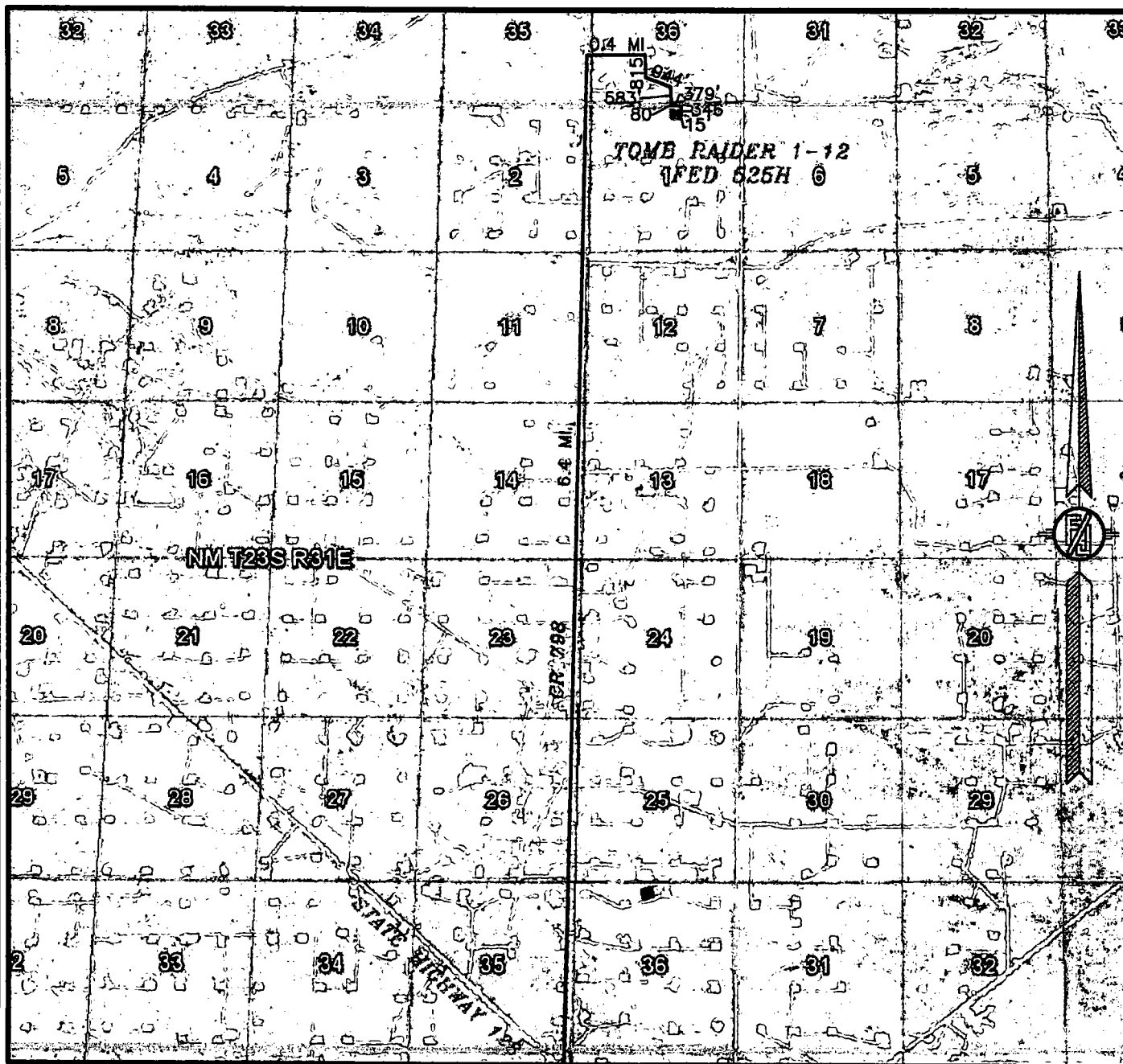
Todd_Apache_1_1_CTB_3_Plat_20180711150403.pdf

Todd_Apache_1_1_Wellpad_2_Electric_20180711150405.PDF

Todd_Apache_1_1_Wellpad_2_to_CTB_3_Pod_2_Flowlines_20180711150406.pdf

Pay.gov_Receipt_20180713103859.pdf

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

TOMB RAIDER 1-12 FED 525H

LOCATED 360 FT. FROM THE NORTH LINE
AND 2335 FT. FROM THE EAST LINE OF
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

MAY 21, 2018

SURVEY NO. 6213A

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

PLAT

One Mile Radius Map



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

USA Contiguous Equidistant Conic
Datum: North American 1983
Created by: FME Server
Map is current as of 6/13/2018



0 0.3 Miles
1 inch = 0.44 miles

TOMB RAIDER 1-12 FED 525H WA017271215

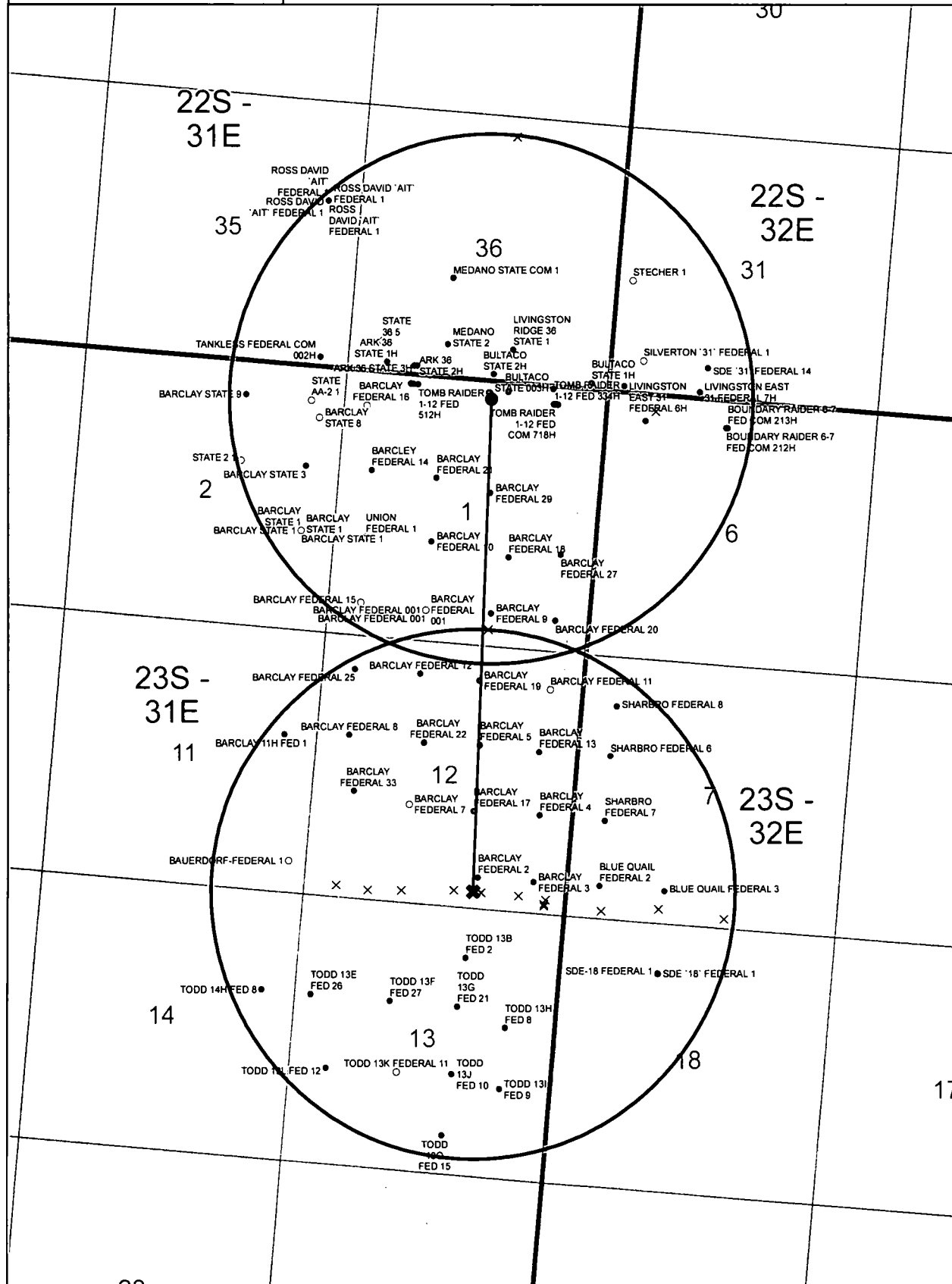
TOMB RAIDER 1-12 FED 714H

Nearest wellbore to SHL: 22 ft.

TOMB RAIDER 1-12 FED 714H

Nearest wellbore to BHL: 159 ft.

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



WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: _User
Map is current as of: 17-May-2018



Miles

0 0.07 0.14 0.28 1: 14,228

Caliche Map

Todd Area - Aleutian, Belloq, Tomb Raider

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:

Map is current as of: 02-Jul-2018

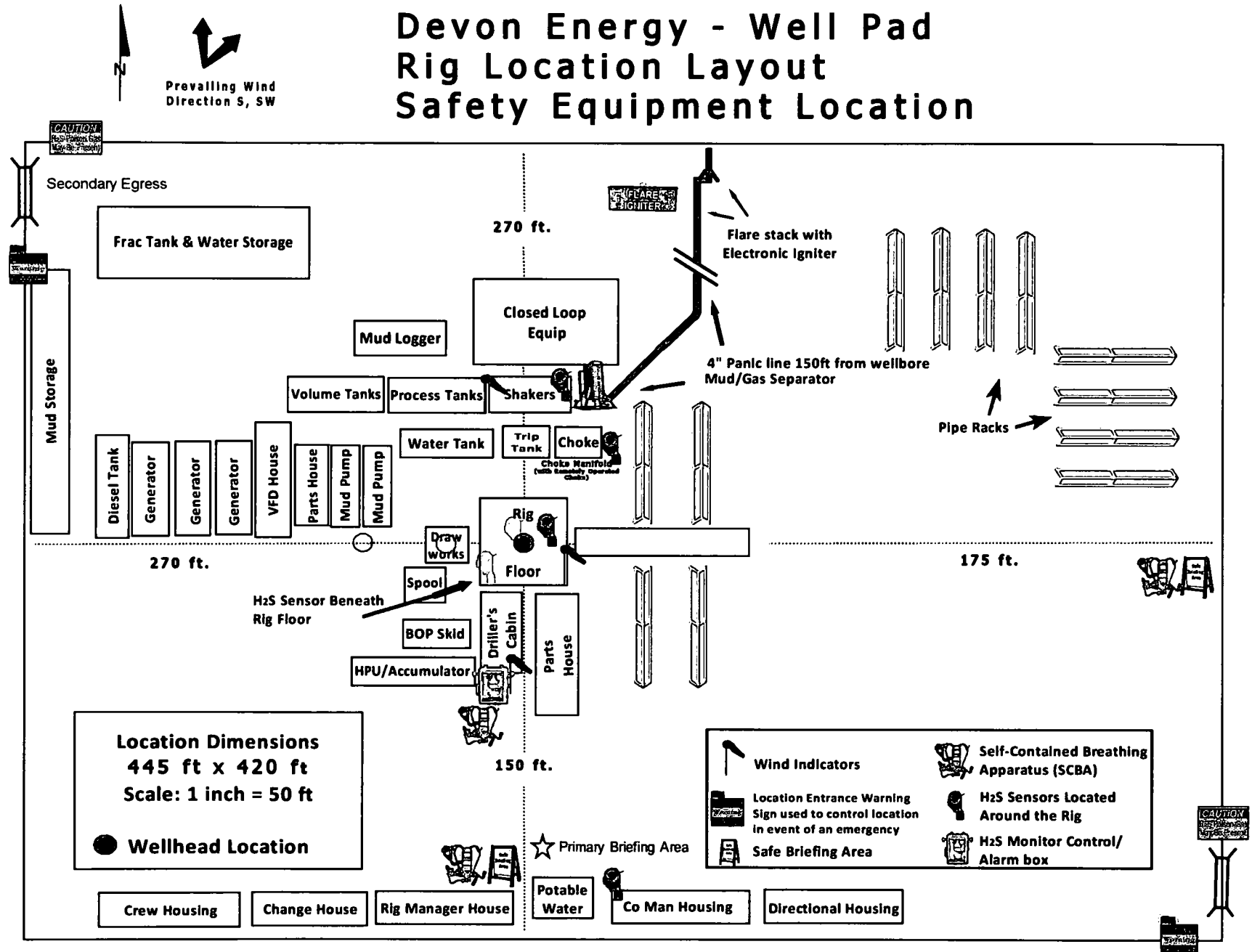


Miles

0 0.14 0.28 0.56 1:28,457



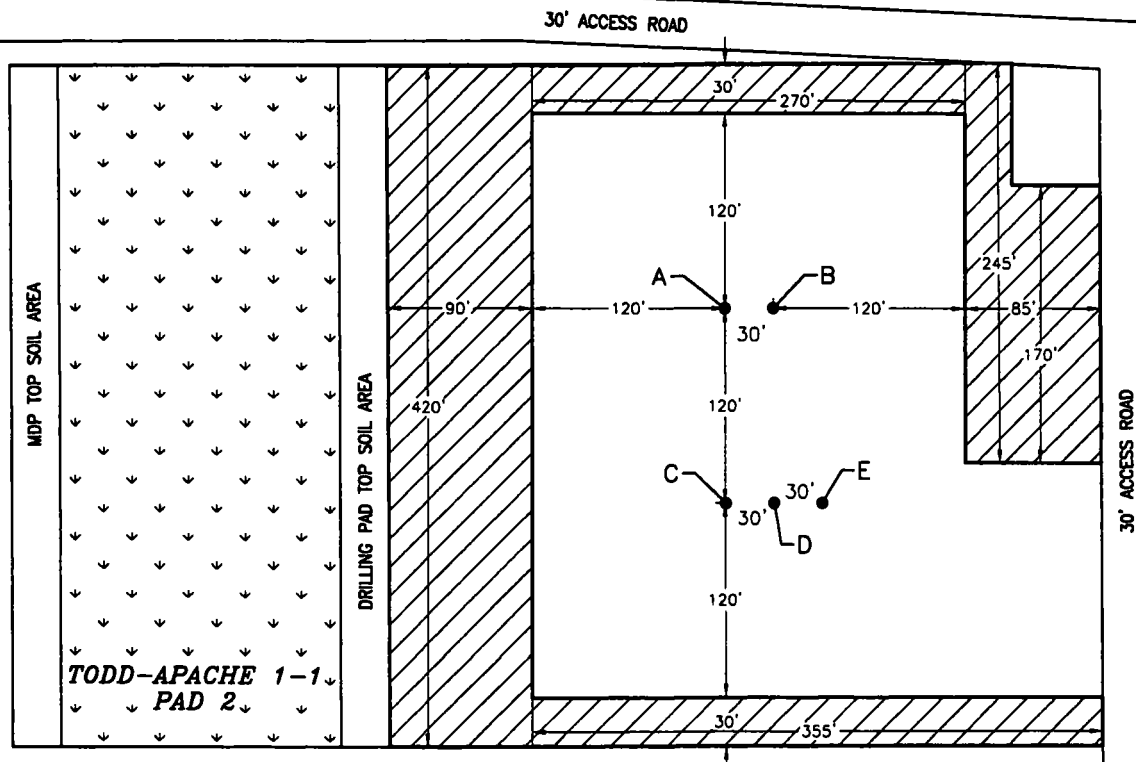
Devon Energy - Well Pad Rig Location Layout Safety Equipment Location



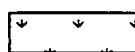
**SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN**

A - TOMB RAIDER 1-12 FED 614H
B - TOMB RAIDER 1-12 FED 714H
C - TOMB RAIDER 1-12 FED 524H
D - TOMB RAIDER 1-12 FED 514H
E - TOMB RAIDER 1-12 FED 525H

SEC. 36
SEC. 1



DENOTES INTERIM PAD
RECLAMATION AREA



DENOTES GRADING SITE
RECLAMATION AREA

0 12 60 120 240
SCALE 1" = 120'

1.680± ACRES INTERIM PAD RECLAMATION AREA
1.687± ACRES GRADING SITE RECLAMATION AREA
2.807± ACRES NON-RECLAIMED AREA
6.174± ACRES TODD-APACHE 1-1 PAD 2

DEVON ENERGY PRODUCTION COMPANY, L.P.
TOMB RAIDER 1-12 FED 525H
LOCATED 360 FT. FROM THE NORTH LINE
AND 2335 FT. FROM THE EAST LINE OF
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

MAY 21, 2018

SURVEY NO. 6213A

MADRON SURVEYING, INC.

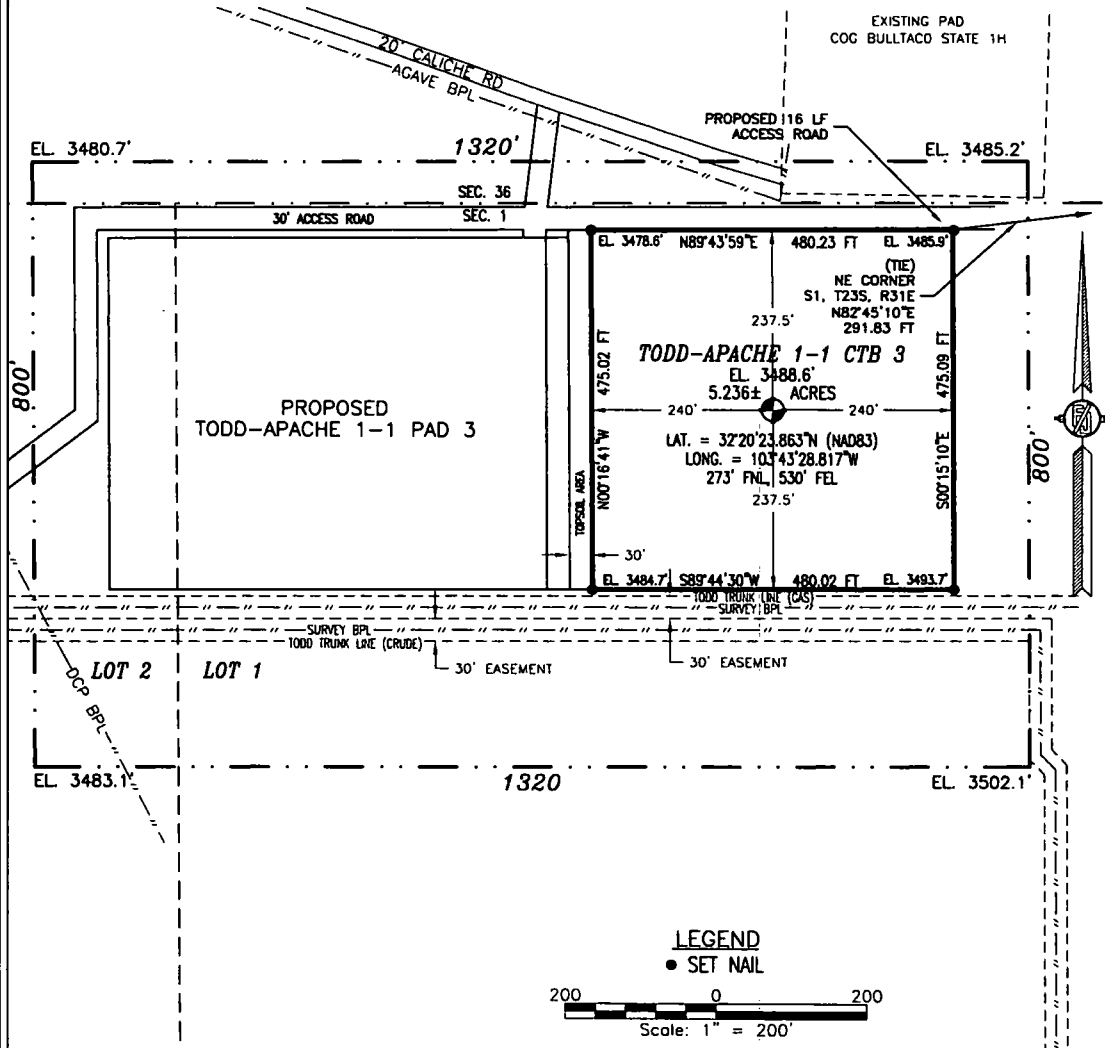
301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

TODD-APACHE 1-1 CTB 3 (AA000056005)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN LOT 1 OF
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 12, 2016



DESCRIPTION

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN LOT 1 OF SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHEAST CORNER OF THE PARCEL, WHENCE THE NORTHEAST CORNER OF SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N82°45'10"E, A DISTANCE OF 291.83 FEET;

THENCE S00°15'10"E A DISTANCE OF 475.09 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;

THENCE S89°44'30"W A DISTANCE OF 480.02 FEET TO THE SOUTHWEST CORNER OF THE PARCEL;

THENCE N00°16'41"W A DISTANCE OF 475.02 FEET TO THE NORTHWEST CORNER OF THE PARCEL;

THENCE N89°43'59"E A DISTANCE OF 480.23 FEET TO THE NORTHEAST CORNER OF THE PARCEL, TO THE POINT OF

BEGINNING;

CONTAINING 5.236 ACRES MORE OR LESS.

GENERAL NOTES

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

2.) BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)

DRIVING DIRECTION: FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 8.2 MILES, TURN RIGHT ON CALICHE ROAD AND GO EAST 0.4 OF A MILE, BEND RIGHT AND GO SOUTH 0.15 OF A MILE, BEND LEFT AND GO SOUTHEAST 0.5 OF A MILE TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS SOUTH 156', TURN LEFT GO EAST 541', GO SOUTH 18' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12787, 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 JULY 2016

[Signature]
FILMON F. JARAMILLO, PROFESSIONAL SURVEYOR NO. 12787

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

SURVEY NO. 4529B

SHEET: 1-3

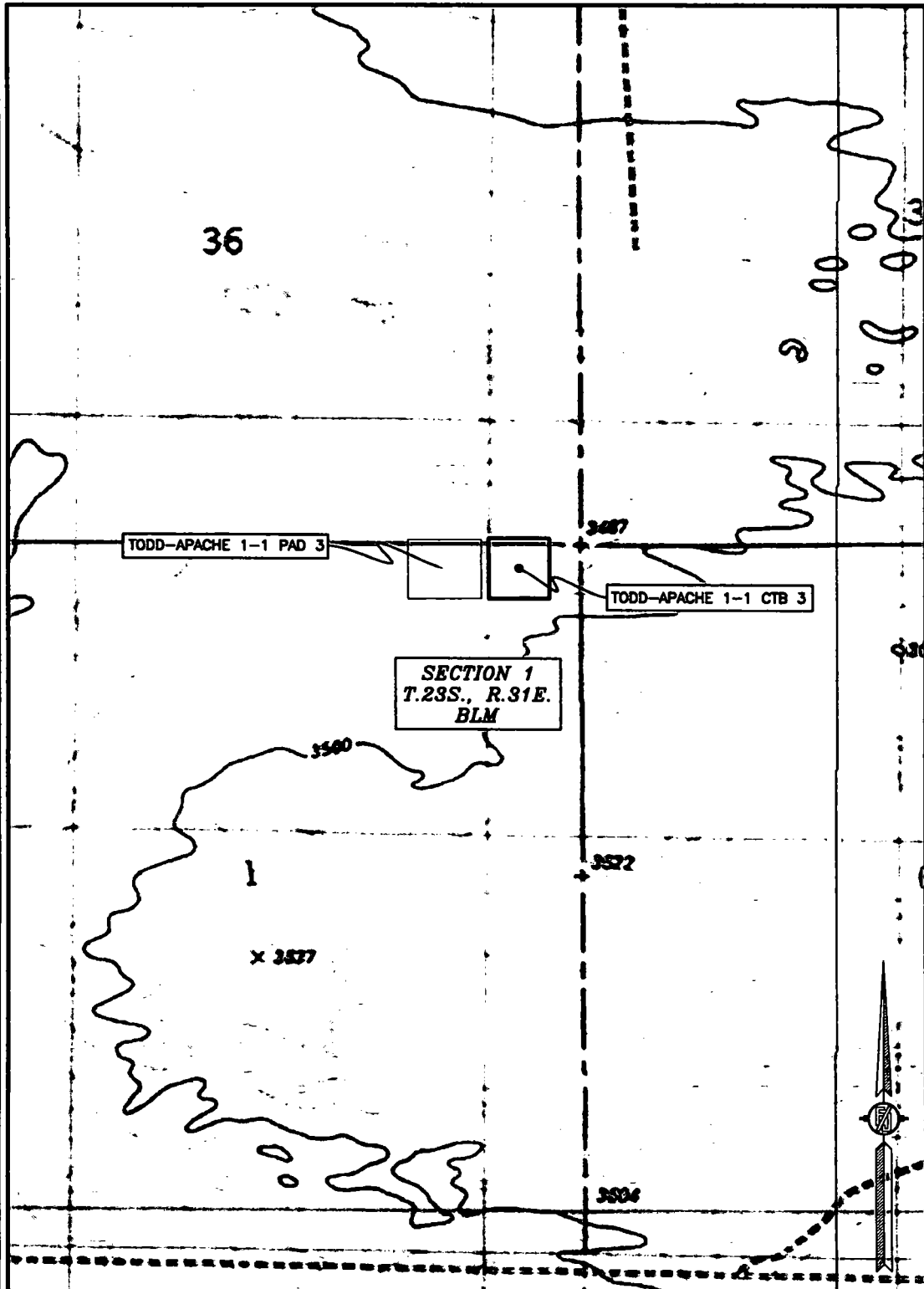
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

TODD-APACHE 1-1 CTB 3 (AA000056005)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN LOT 1 OF
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 12, 2016

QUAD MAP



SHEET: 2-3

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

SURVEY NO. 4529B

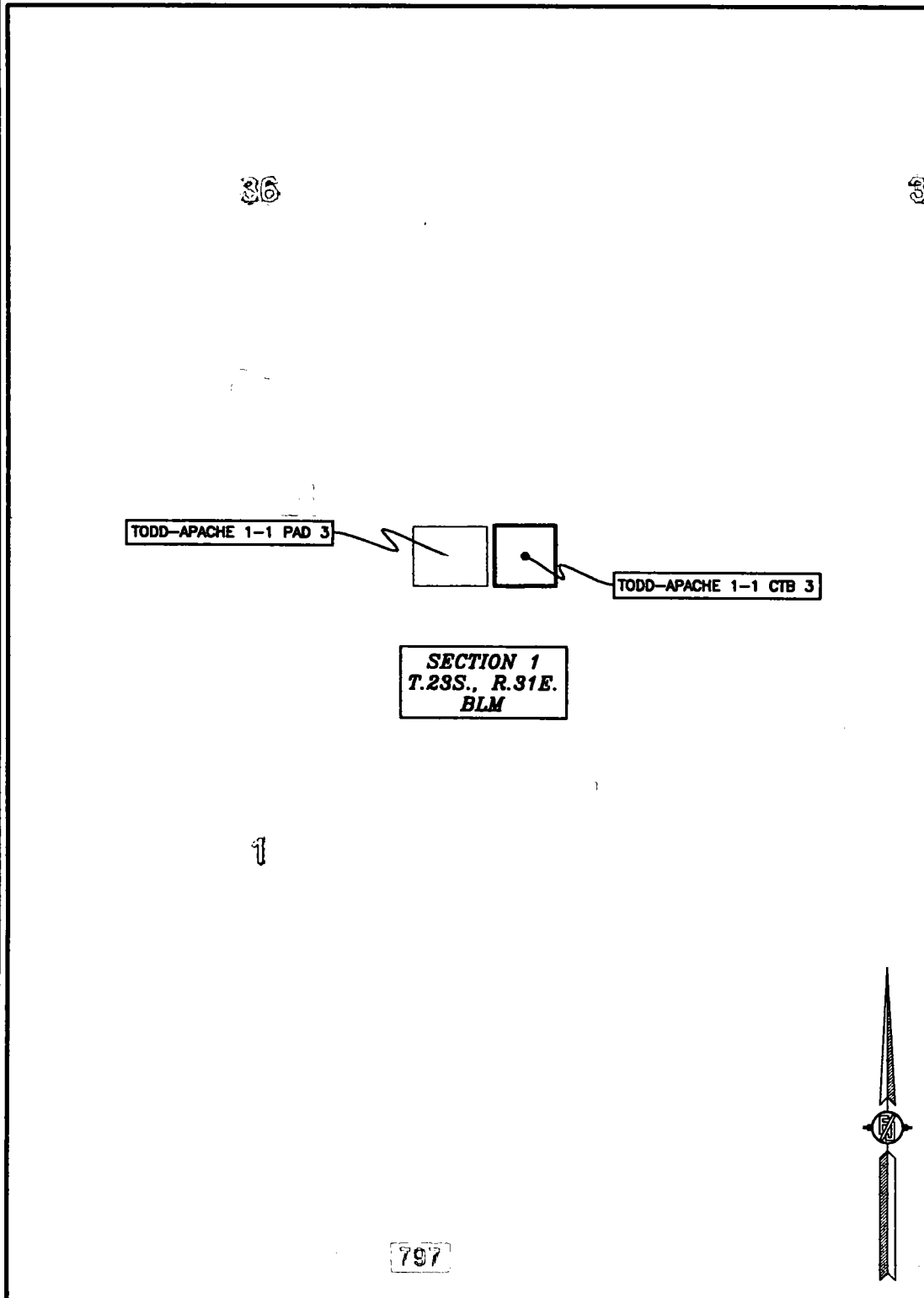
CARLSBAD, NEW MEXICO

TODD-APACHE 1-1 CTB 3 (AA000056005)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN LOT 1 OF
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 12, 2016

AERIAL PHOTO



SHEET: 3-3

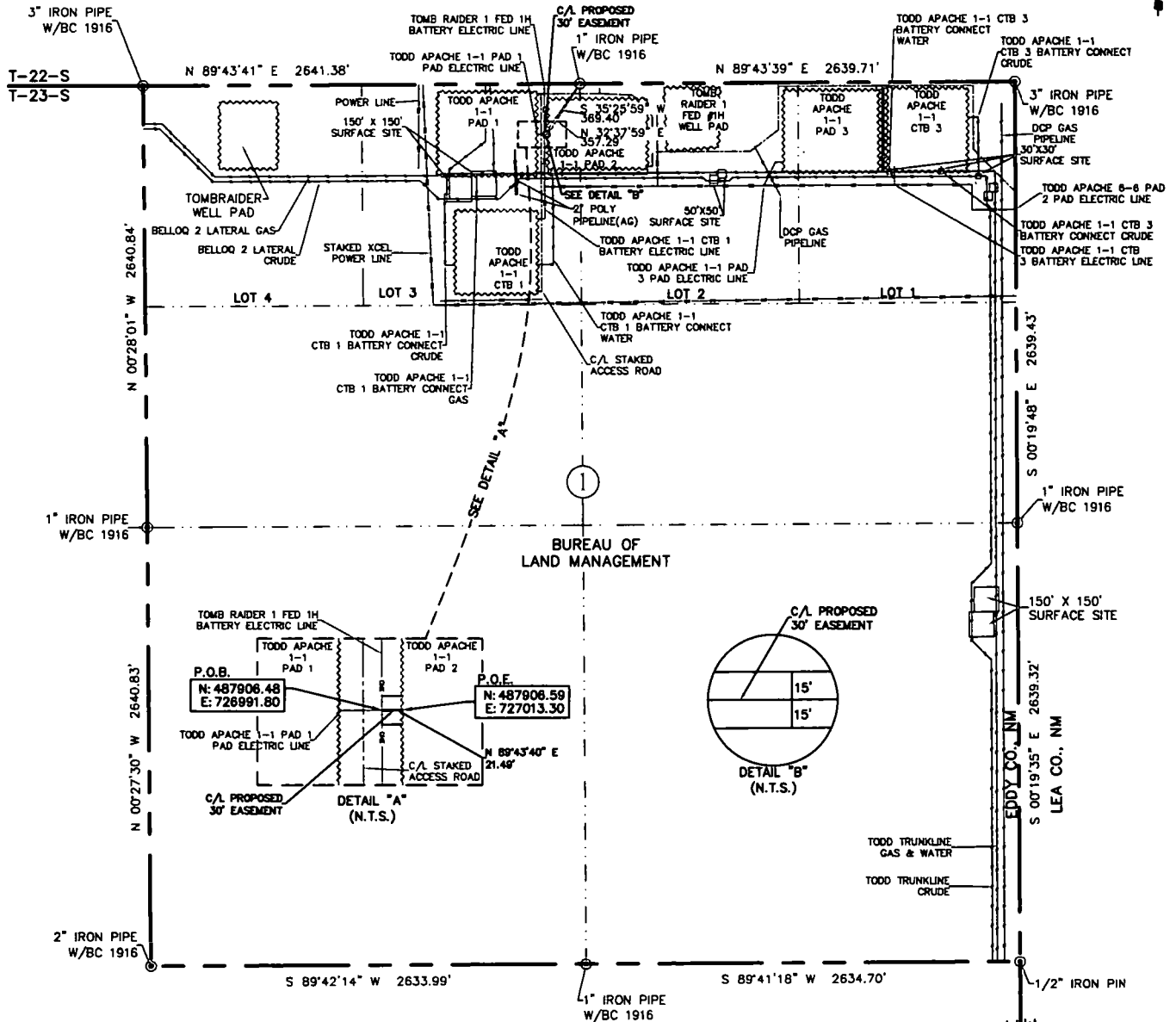
MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SURVEY NO. 4529B

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



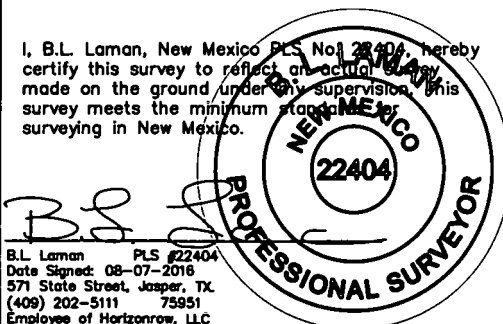
30' EASEMENT AREA = 0.015 ACRE(S)
 21.49 FEET OR 1.30 RODS

0+00.0 P.O.B./TOMB RAIDER 1 FED 1H BATTERY ELECTRIC LINE/
 TODD APACHE 1-1 PAD 1 PAD ELECTRIC LINE
 0+21.5 P.O.E./TODD APACHE 1-1 PAD 1

SEE THE ATTACHED LEGAL DESCRIPTION

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

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



HORIZON ROW LLC

Drawn for:

devon

Drawn by:
CHRIS MAAS

Date: 08/05/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.

TODD APACHE 1-1 PAD 2
 PAD ELECTRIC LINE

PROPOSED 30' EASEMENT
 ON THE PROPERTY OF
 BUREAU OF LAND MANAGEMENT
 SECTION 1, T23S-R31E, N.M.P.M.

LINE NUMBER:
EL7837

WBS NUMBER:
XX-117680

SCALE:
1" = 1000'

REVISIONS:

SHEET:
1 OF 4

0 1000 2000



**SECTION 1, T23S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of Lot 3 of Section 1, Township 23 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1916 for the north quarter corner of Section 1, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 35°25'59" W a distance of 369.40' to the **Point of Beginning** of this easement having coordinates of Northing=487906.48, Easting=726991.80 feet, and continuing the following course;

Thence N 89°43'40" E a distance of 21.49' to the **Point of Ending** having coordinates of Northing=487906.59, Easting=727013.30 feet in Lot 3, from said point a 1" iron pipe w/ BC 1916 for the north quarter corner of Section 1, T23S-R31E bears N 32°37'59" E a distance of 357.29', covering **21.49'** or **1.30 rods** and having an area of **0.015 acres**.

NOTES:

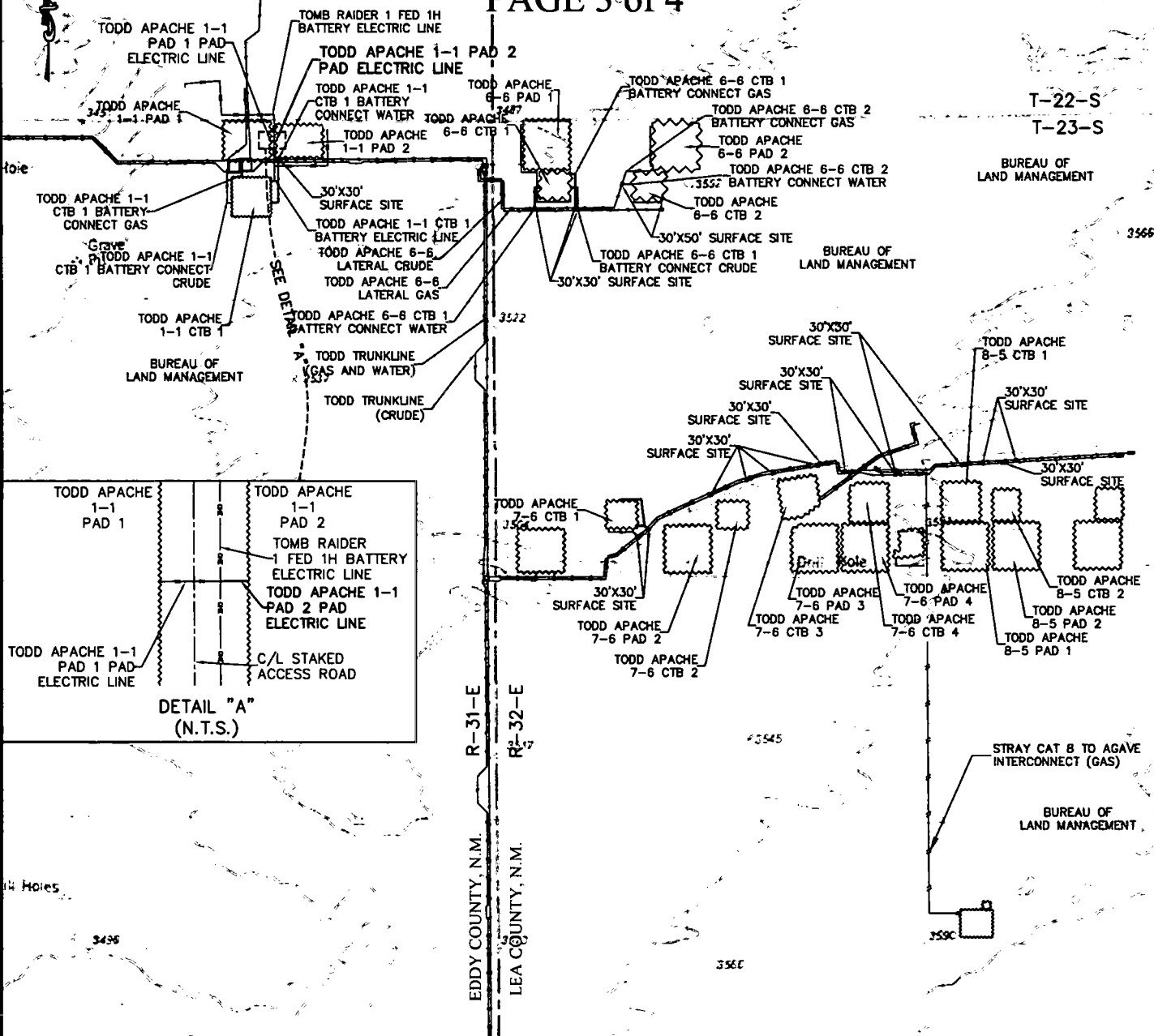
Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

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


B.L. Laman PLS 22404
Date Signed: 08/07/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 3 of 4



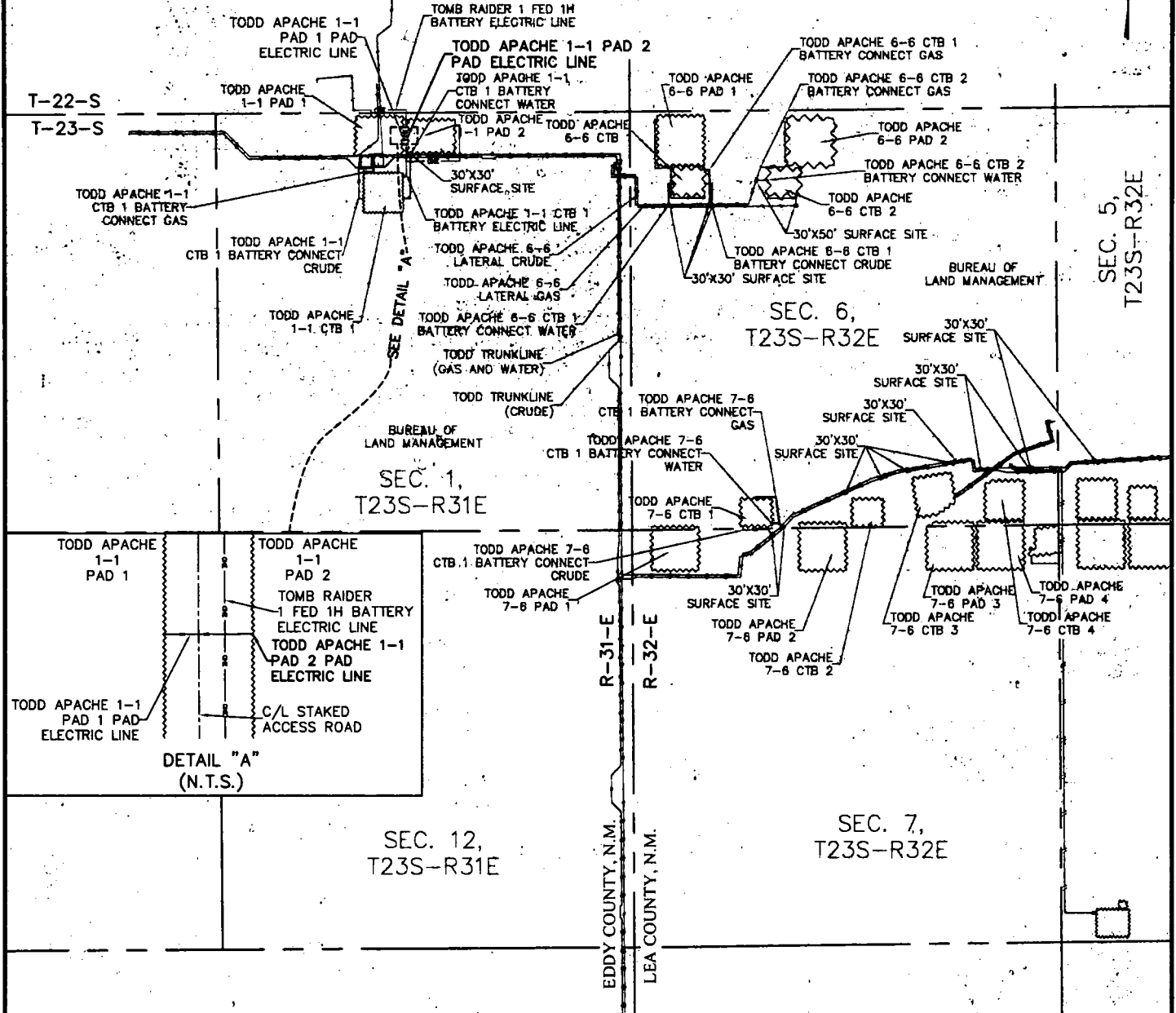
QUAD MAP

SECTION 1, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO

<i>HORIZON ROW LLC</i>		Drawn for:  devon	LINE NUMBER: EL7837
DEVON ENERGY PRODUCTION CO., L.P.			WBS NUMBER: XX-117680
PROPOSED 30' EASEMENT			SCALE: 1" = 2000'
Drawn by: CHRIS MAAS	Date: 08/05/2016	REVISIONS:	
		SHEET: 3 OF 4	

EXHIBIT "A"

PAGE 4 of 4



AERIAL MAP

SECTION 1, T23S-R31E, N.M.P.M.;
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:
CHRIS MAAS

Date: 08/05/2016

Drawn for:



LINE NUMBER:
EL7837

WBS NUMBER:
XX-117680

SCALE:
1" = 2000'

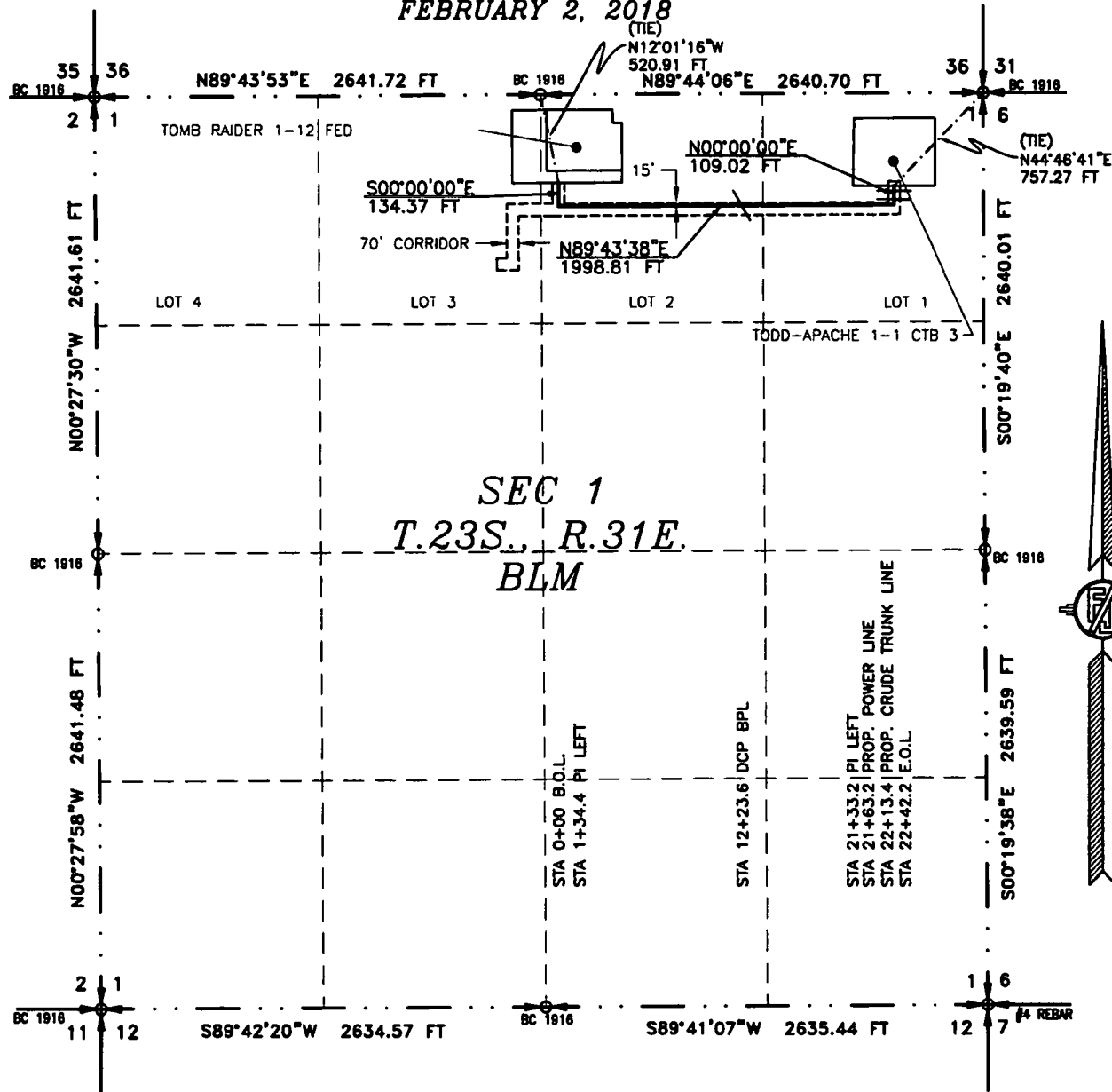
REVISIONS:

SHEET:
4 OF 4

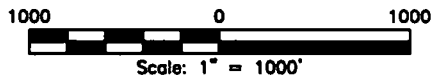
FLOWLINE PLAT

THREE 8" POLY FLOWLINES AND ONE 8" POLY GAS LIFT LINE, BURIED IN THE SAME TRENCH FROM
THE TOMB RAIDER 1-12 FED 514H, 524H, 525H TO THE TODD-APACHE 1-1 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P. **CENTERLINE SURVEY OF A PIPELINE CROSSING** **SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.** **EDDY COUNTY, STATE OF NEW MEXICO** **FEBRUARY 2, 2018**



SEE NEXT SHEET (2-4) FOR DESCRIPTION



GENERAL NOTES

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

SHEET: 1-4

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 **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 17th DAY OF FEBRUARY 2018

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

SURVEY NO. 6033

FLOWLINE PLAT

THREE 8" POLY FLOWLINES AND ONE 8" POLY GAS LIFT LINE, BURIED IN THE SAME TRENCH FROM
THE TOMB RAIDER 1-12 FED 514H, 524H, 525H TO THE TODD-APACHE 1-1 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 2, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, 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 LOT 2 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N12°01'16"W, A DISTANCE OF 520.91 FEET;

THENCE S00°00'00"E A DISTANCE OF 134.37 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N89°43'38"E A DISTANCE OF 1998.81 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N00°00'00"E A DISTANCE OF 109.02 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N44°46'41"E, A DISTANCE OF 757.27 FEET;

SAID STRIP OF LAND BEING 2242.20 FEET OR 135.89 RODS IN LENGTH, CONTAINING 1.544 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 2 1350.23 L.F. 81.83 RODS 0.930 ACRES
LOT 1 891.97 L.F. 54.06 RODS 0.614 ACRES

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 2 DAY OF FEBRUARY 2018

[Signature]
FILIMON F. JARAMILLO, P.S. 12797

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 (575) 234-3341 CARLSBAD, NEW MEXICO

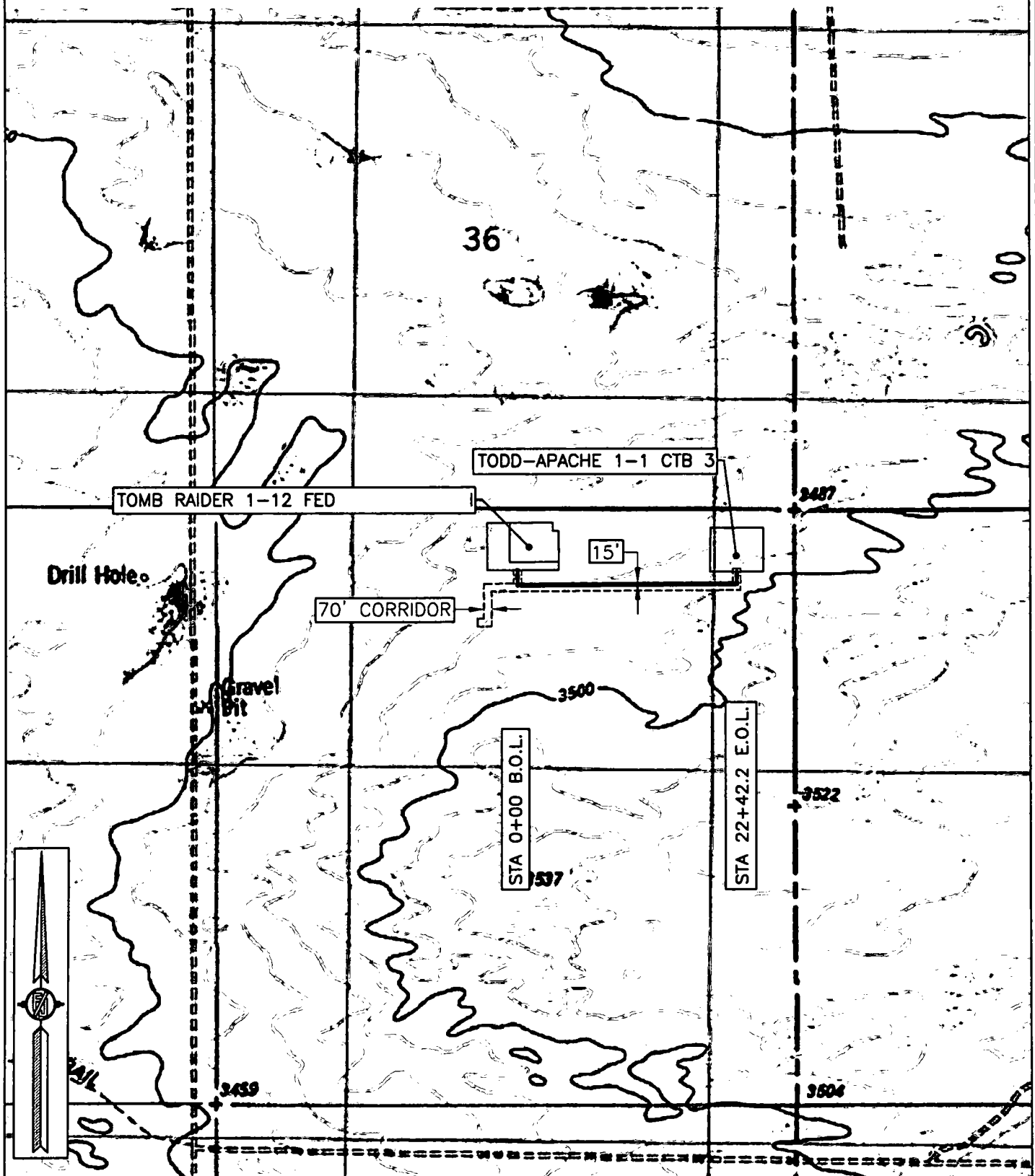
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 6033

FLOWLINE PLAT

THREE 8" POLY FLOWLINES AND ONE 8" POLY GAS LIFT LINE, BURIED IN THE SAME TRENCH FROM
THE TOMB RAIDER 1-12 FED 514H, 524H, 525H TO THE TODD-APACHE 1-1 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 2, 2018



SHEET: 3-4

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

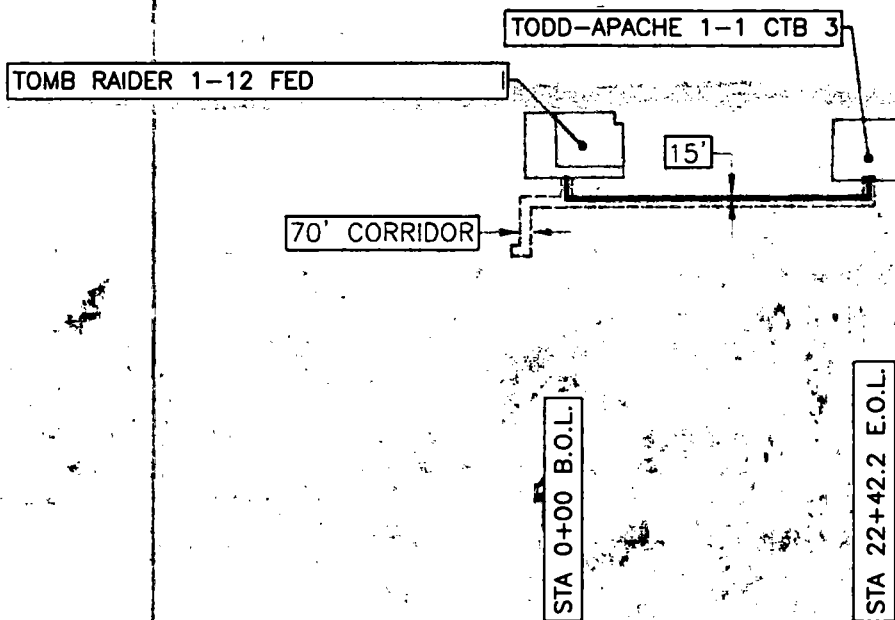
SURVEY NO. 6033

FLOWLINE PLAT

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THE TOMB RAIDER 1-12 FED 514H, 524H, 525H TO THE TODD-APACHE 1-1 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 2, 2018

36





Receipt

Your payment is submitted

Pay.gov Tracking ID: 26AU19C5

Agency Tracking ID: 75529014779

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: \$29,370.00

Transaction Date: 07/13/2018 10:09:09 AM EDT

Payment Date: 07/16/2018

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

APD IDs: 10400031815, 10400031998, 10400032006

Lease Numbers: NMNM022080, NMNM022080, NMNM022080

Well Numbers: 514H, 524H, 525H

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

Account Information

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

Routing Number: 061000052

Account Number: *****9892

Email Confirmation Receipt

Confirmation Receipts have been emailed to:

JENNY.HARMS@DVN.COM

JEFF.WALLA@DVN.COM

LISA.OTHON@DVN.COM



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

11/01/2018

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: