

OCD Hobbs
HOBBS OCD

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FEB 13 2019

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM114990
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 (6137)		8. Lease Name and Well No. JAYHAWK 7 FED 14H (324845)
3a. Address 333 West Sheridan Avenue Oklahoma City OK 73102	3b. Phone No. (include area code) (800)583-3866	9. API Well No. 30-024-45582 (98094)
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface LOT 1 / 540 FNL / 740 FWL / LAT 32.0637367 / LONG -103.5151449 At proposed prod. zone LOT 4 / 20 FSL / 360 FWL / LAT 32.050748 / LONG -103.5163732		10. Field and Pool, or Exploratory BOBCAT DRAW / UPPER WOLFCAMP
11. Sec., T. R. M. or Blk. and Survey or Area SEC 7 / T26S / R34E / NMP		12. County or Parish LEA
13. State NM		14. Distance in miles and direction from nearest town or post office*
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 740 feet	16. No of acres in lease 1241.6	17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 371 feet	19. Proposed Depth 12710 feet / 17620 feet	20. BLM/BIA Bond No. in file FED: CO1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3326 feet	22. Approximate date work will start* 04/01/2019	23. Estimated duration 45 days
24. Attachments		

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 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) Rebecca Deal / Ph: (405)228-8429	Date 08/09/2018
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Christopher Walls / Ph: (575)234-2234	Date 01/02/2019
Title Petroleum Engineer		
Office CARLSBAD		

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

Conditions of approval, if any, are attached.

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

(Continued on page 2)

APPROVED WITH CONDITIONS
Approval Date: 01/02/2019

*(Instructions on page 2)

Double sided

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 1 / 540 FNL / 740 FWL / TWSP: 26S / RANGE: 34E / SECTION: 7 / LAT: 32.0637367 / LONG: -103.5151449 (TVD: 0 feet, MD: 0 feet)
PPP: LOT 1 / 100 FNL / 360 FWL / TWSP: 26S / RANGE: 34E / SECTION: 7 / LAT: 32.0649458 / LONG: -103.5163709 (TVD: 12365 feet, MD: 12392 feet)
BHL: LOT 4 / 20 FSL / 360 FWL / TWSP: 26S / RANGE: 34E / SECTION: 7 / LAT: 32.050748 / LONG: -103.5163732 (TVD: 12710 feet, MD: 17620 feet)

BLM Point of Contact

Name: Tenille Ortiz

Title: Legal Instruments Examiner

Phone: 5752342224

Email: tortiz@blm.gov

CONFIDENTIAL

Review and Appeal Rights

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

CONFIDENTIAL

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMNM114990
WELL NAME & NO.:	JAYHAWK 7 FED 14H
SURFACE HOLE FOOTAGE:	540'/N & 740'/W
BOTTOM HOLE FOOTAGE:	20'/S & 360'/W
LOCATION:	SECTION 7, T26S, R34E, NMPM
COUNTY:	LEA

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

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

Primary Casing Design

1. The 10-3/4 inch surface casing shall be set at approximately 900 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 8 hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours

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

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

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

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

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

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.

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

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

- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Alternate Casing Design:

4. The 13-3/8 inch surface casing shall be set at approximately 900 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 **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

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.

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

6. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200** feet into previous casing 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 surface casing shoe shall be **5000 (5M) psi.**
- ii. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M) psi. Variance is approved to use a 5M Annular which shall be tested to 5000 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 **10000 (10M) psi. Variance is approved to use a 5M Annular which shall be tested to 5000 psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

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 (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall

be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a

larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

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

B. 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.

C. WASTE MATERIAL AND FLUIDS

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

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

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMNM114990
WELL NAME & NO.:	JAYHAWK 7 FED 14H
SURFACE HOLE FOOTAGE:	540'/N & 740'/W
BOTTOM HOLE FOOTAGE:	20'/S & 360'/W
LOCATION:	SECTION 7, T26S, R34E, NMPM
COUNTY:	LEA

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**
 - Escape Ramps
 - Well and CTB Pad Berms
 - Range
 - Watershed
 - Karst
- ☐ **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 pads, NO grading the whole area just subpad.

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:

- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

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

Trenches-Escape Ramps

Devon would need to construct and maintain escape ramps according to the following criteria:

- Earthen escape ramps would be required to be constructed to sufficiently support livestock at no more than a 30- degree slope and spaced no more than 500 feet apart.
- If the trench is left open under an 8-hour time period, it would not be required to have an escape ramp; however, before the trench is backfilled the trench will be inspected for wildlife and remove any species that are trapped at a distance of at least 100 yards away from the trench.

Well and CTB Pad Berms

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.
- Tank battery locations will be lined and bermed. A 20-mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

Fence Requirement

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

Livestock Watering Requirement

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

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.

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

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/leasee 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.

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.
- Tank battery locations will be lined and bermed. A 20-mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

CONSTRUCTION IMPACT ANALYSIS

The construction of roads, pipelines, compressor station pads and utilities can impact bedrock integrity and reroute, impede, focus, or erode natural surface drainage systems. Increased silting and sedimentation from construction can plug downstream sinkholes, caves, springs, and other components of aquifer recharge systems and result in adverse impacts to aquifer quality and cave environments. Any contaminants released into the environment during or after construction can impact aquifers and cave systems. A possibility exists for slow subsidence or sudden surface collapse during construction operations due to collapse of underlying cave passages and voids. This would cause associated safety hazards to the operator and the potential for increased

environmental impact. Subsidence processes can be triggered by blasting, intense vibrations, rerouting of surface drainages, focusing of surface drainage, and general surface disturbance.

Blasting fractures in bedrock can serve as direct conduits for transfer of contaminants into cave and groundwater systems. Blasting also creates an expanded volume of rock rubble that cannot be reclaimed to natural contours, soil condition, or native vegetative condition. As such, surface and subsurface disruptions from blasting procedures can lead to permanent changes in vegetation, rainfall percolation, silting/erosion factors, aquifer recharge, and freshwater quality and can increase the risk of contaminant migration from drilling/production facilities built atop the blast are additional or special Conditions of Approval may apply at that time.

CONSTRUCTION MITIGATION

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting to prevent geologic structure instabilities.

Pad Berming to minimize effects of any spilled contaminates.

DRILLING IMPACT ANALYSIS

During drilling, previously unknown cave and karst features could be encountered. If a void is encountered while drilling and a loss of circulation occurs, lost drilling fluids can directly contaminate groundwater recharge areas, aquifers, and groundwater quality. Drilling operations can also lead to sudden collapse of underground voids. Cementing operations may plug or alter groundwater flow, potentially reducing the water quantity at springs and water wells. Inadequate subsurface cementing, casing, and cave/aquifer protection measures can lead to the migration of oil, gas, drilling fluids, and produced saltwater into cave systems and freshwater aquifers.

DRILLING MITIGATION

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required.

Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.

Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.

Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.

Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.

Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See Drilling COAs.

PRODUCTION IMPACT ANALYSIS

Production facilities such as tank batteries, pump-jacks, compressors, transfer stations, and pipe may fail and allow contaminants to enter caves and freshwater systems. Downhole casing and cementing failures can allow migration of fluids and/or gas between formations and aquifers. Facilities may also be subject to slow subsidence or sudden collapse of the underlying bedrock.

PRODUCTION MITIGATION

In order to mitigate the impacts from production activities and due to the nature of karst terrain, the following Conditions of Approval will apply to this APD:

- Tank battery liners and berms to minimize the impact resulting from leaks.
- Leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of line failures used in production or drilling.

RESIDUAL AND CUMULATIVE IMPACT ANALYSIS

Any industrial activities that take place upon or within karst terrains or freshwater aquifer zones have the potential to create both short-term and long-term negative impacts to freshwater aquifers and cave systems. While a number of mitigation measures can be implemented to mitigate many impacts, it is still possible for impacts to occur from containment failures, well blowouts, accidents, spills, and structural collapses. It is therefore necessary to implement long-term monitoring studies to determine if current mitigations measures are sufficient enough to prevent long-term or cumulative impacts.

RESIDUAL AND CUMULATIVE MITIGATION

- Nontoxic fluorescent dyes will be added to the drilling fluid when the hole is spudded and will be circulated to the bottom of the karst layers. This provides data as part of a long-term monitoring study.
- Annual pressure monitoring will be performed by the operator. If the test results indicate a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

PLUGGING AND ABANDONMENT IMPACT ANALYSIS

Failure of a plugged and abandoned well can lead to migration of contaminants to karst resources and fresh water aquifers. While this action does not specifically approve plugging and abandonment procedures, the operator should be made aware that additional or special Conditions of Approval may apply at that time.

PLUGGING AND ABANDONMENT MITIGATION

Abandonment Cementing: Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

MITIGATING MEASURES for ROADS:

- Roads will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction and no further construction will be done until clearance has been issued by the Authorized Officer.
- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to increase or decrease the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required.

MITIGATING MEASURES FOR POWERLINES:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to

Commented [TH1]: Too many spaces between paragraphs

runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
No further construction will be done until clearance has been issued by the Authorized Officer.
Special restoration stipulations or realignment may be required.

MITIGATING MEASURES for BURIED PIPELINES AND CABLES:

The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
Special restoration stipulations or realignment may be required at such intersections, if any.
A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.

MITIGATING MEASURES for SURFACE FLOWLINES:

Flowlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize the possibility of leaks and spills from entering karst systems.
If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

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

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

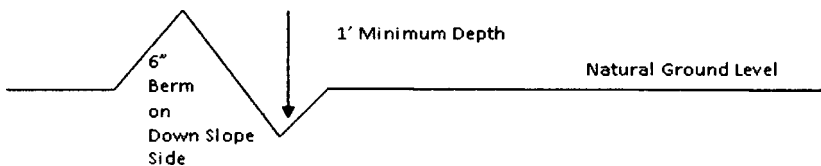
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

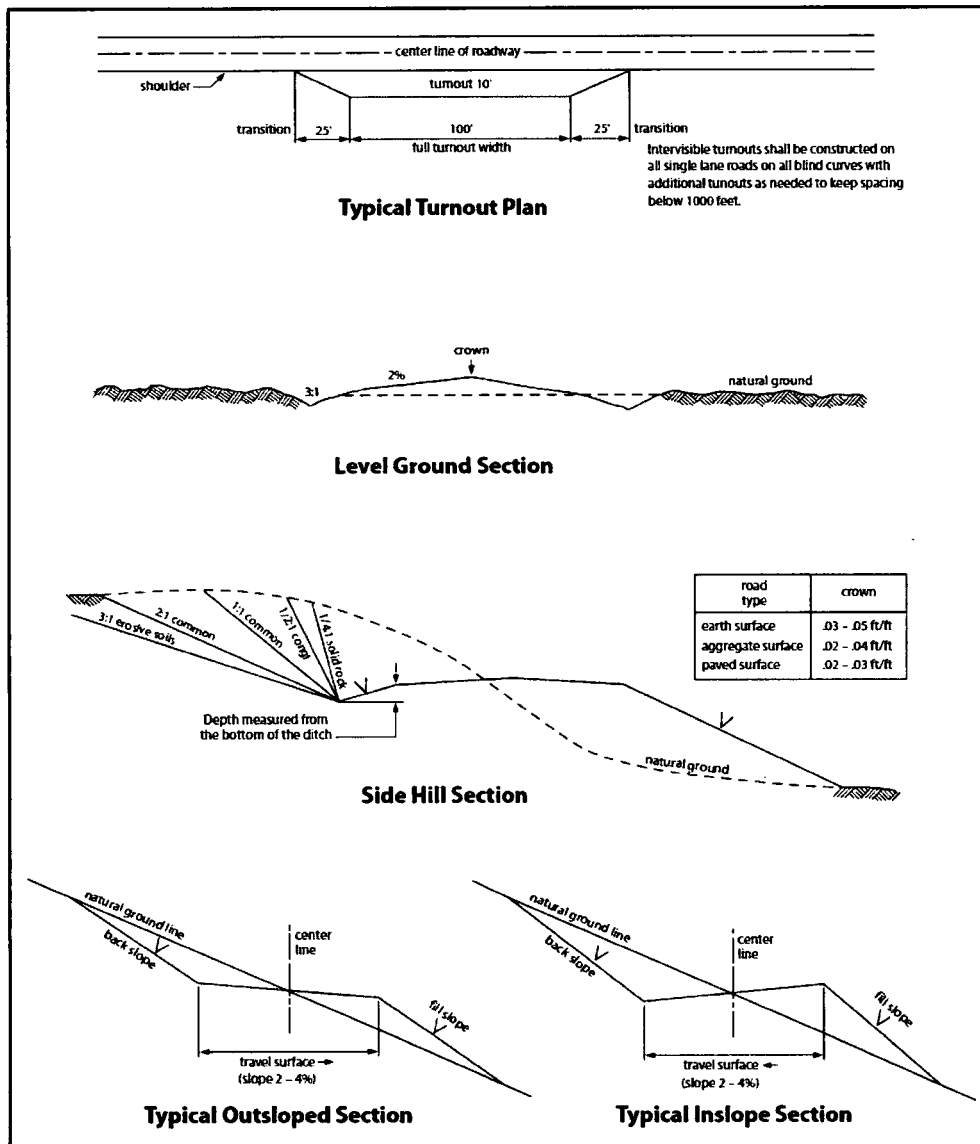


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

Containment Structures

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

Painting Requirement

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

STANDARD STIPULATIONS FOR OIL AND GAS RELATED SITES

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

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

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant and for all response costs, penalties, damages, claims, and other costs arising from the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Chap. 82, Section 6901 et. seq., from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. Chap. 109, Section 9601 et. seq., and from other applicable environmental statutes.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et. seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et. seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et. seq.) on the right-of-way (unless the release or threatened release is wholly unrelated to

the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the site or related pipeline(s), any oil or other pollutant should be discharged from site facilities, the pipeline(s) or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

5. Sites shall be maintained in an orderly, sanitary condition at all times. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, brines, chemicals, oil drums, ashes, and equipment.

6. The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

7. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for this project is **Shale Green**, Munsell Soil Color Chart Number 5Y 4/2.

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

9. A sales contract for removal of mineral material (caliche, sand, gravel, fill dirt) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. There are several options available for purchasing mineral material: contact the BLM office (575-234-5972).

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

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.

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 2, for Sandy Sites

The 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 will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will 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). The 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. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will 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>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

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



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

Operator Certification Data Report

01/03/2019

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Rebecca Deal

Signed on: 08/09/2018

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City

State: OK

Zip: 73102

Phone: (405)228-8429

Email address: Rebecca.Deal@dvn.com

Field Representative

Representative Name: Travis Phibbs

Street Address: 333 W SHERIDAN AVE

City: OKC

State: OK

Zip: 73102

Phone: (575)748-9929

Email address: travis.phibbs@dvn.com



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

Application Data Report

01/03/2019

APD ID: 10400032917

Submission Date: 08/09/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Well Type: OIL WELL

Well Work Type: Drill



[Show Final Text](#)

Section 1 - General

APD ID: 10400032917

Tie to previous NOS?

Submission Date: 08/09/2018

BLM Office: CARLSBAD

User: Rebecca Deal

Title: Regulatory Compliance
Professional

Federal/Indian APD: FED

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

Lease number: NMNM114990

Lease Acres: 1241.6

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue

Zip: 73102

Operator PO Box:

Operator City: Oklahoma City State: OK

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Master Development Plan name: Rattlesnake 3 MDP

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: JAYHAWK 7 FED

Well Number: 14H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: BOBCAT DRAW

Pool Name: UPPER
WOLFCAMP

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

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

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:

Number: 1

JAYHAWK 7 WELLPAD

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town:

Distance to nearest well: 371 FT

Distance to lease line: 740 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: JAYHAWK_7_FED_14H_C_102_20180809070725.pdf

Well work start Date: 04/01/2019

Duration: 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	540	FNL	740	FWL	26S	34E	7	Lot 1	32.06373 67	- 103.5151 449	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 114990	332 6	0	0
KOP Leg #1	50	FNL	740	FWL	26S	34E	7	Lot 1	32.06508 3	- 103.5162 74	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 114990	- 881 1	121 57	121 37
PPP Leg #1	100	FNL	360	FWL	26S	34E	7	Lot 1	32.06494 58	- 103.5163 709	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 114990	- 903 9	123 92	123 65



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

Drilling Plan Data Report

01/03/2019

APD ID: 10400032917

Submission Date: 08/09/2018



Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

[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	---	3315	0	0	OTHER : Surface	NONE	No
2	RUSTLER	2424	891	891	SANDSTONE	NONE	No
3	TOP SALT	2064	1251	1251	SALT	NONE	No
4	BELL CANYON	-1646	4961	4961	SANDSTONE	NATURAL GAS,OIL	No
5	BASE OF SALT	-1646	4961	4961	LIMESTONE	NONE	No
6	CHERRY CANYON	-2986	6301	6301	SANDSTONE	NATURAL GAS,OIL	No
7	BRUSHY CANYON	-4616	7931	7931	SANDSTONE	NATURAL GAS,OIL	No
8	BONE SPRING	-6126	9441	9441	SHALE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-7066	10381	10381	SANDSTONE	NATURAL GAS,OIL	No
10	BONE SPRING 2ND	-7606	10921	10921	SANDSTONE	NATURAL GAS,OIL	No
11	BONE SPRING 3RD	-8756	12071	12071	SANDSTONE	NATURAL GAS,OIL	No
12	WOLFCAMP	-9176	12491	12491	SHALE	NATURAL GAS,OIL	Yes
13	STRAWN	-11696	15011	15011	LIMESTONE	NATURAL GAS,OIL	No

Section 2 - Blowout Prevention

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Pressure Rating (PSI): 10M

Rating Depth: 12710

Equipment: BOP/BOPF will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermediate casing. A 12 1/2" BOP/BOPF system with a minimum rating of 10M will be installed on the wellhead system. BOP/BOPF will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MWAP Minimum Workover and Production Pressure Evaluation. If the system is approved, all the components installed will be run in 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:

10M_BOPE_DR_CLS_RKL_20181205131957.pdf

BOP Diagram Attachment:

10M_BOPE_DR_CLS_RKL_20181205132006.pdf

Pressure Rating (PSI): 5M

Rating Depth: 12706

Equipment: BOP/BOPF will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermediate casing. A 12 1/2" BOP/BOPF system with a minimum rating of 5M will be installed on the wellhead system. BOP/BOPF will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MWAP Minimum Workover and Production Pressure Evaluation. If the system is approved, all the components installed will be run in 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:

Jayhawk_7_Fed_14H_5M_BOPE__CK_20180809071222.pdf

BOP Diagram Attachment:

Jayhawk_7_Fed_14H_5M_BOPE__CK_20180809071230.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	10.75	NEW	API	N	0	900	0	900			900	J-55	40.5	STC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	12157	0	12137			12157	P-110	29.7	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
3	INTERMEDIATE	8.75	7.625	NEW	API	N	12157	12726	12137	12706			569	P-110	29.7	OTHER - FLUSHMAX	1.125	1.25	BUOY	1.6	BUOY	1.6
4	PRODUCTION	6.75	5.5	NEW	API	N	0	17619	0	12710			17619	P-110	20	OTHER - VAM SG	1.125	1.25	BUOY	1.6	BUOY	1.6

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Jayhawk_7_Fed_14H_Surf_Csg_Ass_20180809071300.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Jayhawk_7_Fed_14H_Int_Csg_Ass_20180809071332.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Jayhawk_7_Fed_14H_Int_Csg_Ass_20180809071404.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Jayhawk_7_Fed_14H_Prod_Csg_Ass_20180809071428.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

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

SURFACE	Lead		0	900	560	1.34	14.8	750	50	CLASS C	1% Calcium Chloride
---------	------	--	---	-----	-----	------	------	-----	----	---------	---------------------

INTERMEDIATE	Lead		0	8726	348	3.27	9	1138	30	TUNED	Tuned Light
INTERMEDIATE	Tail		8726	12726	645	1.6	13.2	1031	30	CLASS H	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		12526	17619	399.44	1.33	13.2	531	25	Class H	0.125 lbs/sack Poly-E-Flake

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

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	900	SPUD MUD	8.33	9				2			
900	1272 6	SALT SATURATED	9	10				2			
900	1272 6	SALT SATURATED	9	10				2			
1272 6	1761 9	OIL-BASED MUD	10	12				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:

CALIPER,CBL,DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7000

Anticipated Surface Pressure: 4203.8

Anticipated Bottom Hole Temperature(F): 180

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:

Jayhawk_7_Fed_14H_H2S_Plan_20180809071712.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Jayhawk_7_FED_14H_DIR_SVY_20180809072807.pdf

Other proposed operations facets description:

MULTI-BOWL VERBIAGE
MULTI-BOWL WELLHEAD - 2 VARIATIONS OF 10M
10M ANNULAR VARIANCE DOC & SCHEMATIC
CLOSED LOOP DESIGN PLAN
DRILLING PLAN
AC REPORT
CO-FLEX HOSE
SPUDDER RIG REQUEST
GCP FORM
SPEC SHEETS - 5

Other proposed operations facets attachment:

5.5_x_20_P110_EC_VAMSG_20180809072742.pdf
7.625_29.70_P110_Flushmax_20180809072743.pdf
5.5_x_20_P110_EC_VAMTOP_HT_20180809072743.pdf
8.625_32_P110EC__7.875_SD_20180809072744.pdf
8.625_32_P110EC_VAM_FJL_NA_7.875_SD_20180809072746.PDF
Jayhawk_7_Fed_14H_10M_BOPE_Double_Ram_and_CLS_Exception_Schematic__For_Annular_Exception_20180809072747.pdf
Jayhawk_7_FED_14H_AC_Report_20180809072748.pdf
Jayhawk_7_Fed_14H_Annular_Preventer_Summary_20180809072750.pdf
Jayhawk_7_Fed_14H_Clsd_Loop_20180809072751.pdf
Jayhawk_7_Fed_14H_GCP_Form_20180809072752.pdf
Jayhawk_7_Fed_14H_MB_Verb_10M_20180809072753.pdf
Jayhawk_7_Fed_14H_MB_Wellhd_5M__Use_for_Wolfcamp_5M_Only_20180809072754.pdf
Jayhawk_7_Fed_14H_MB_Wellhd_10M_2_20180809072756.PDF
Jayhawk_7_FED_14H_Plot_20180809072758.pdf
Jayhawk_7_Fed_14H_MB_Wellhd_10M_20180809072757.pdf
Jayhawk_7_Fed_14H_Spudder_Rig_Info_20180809072758.pdf
MB_Verb_5M_Alt_20181213084302.pdf
Jayhawk_7_Fed_14H_Drilling_Document_R2_20181213084325.pdf

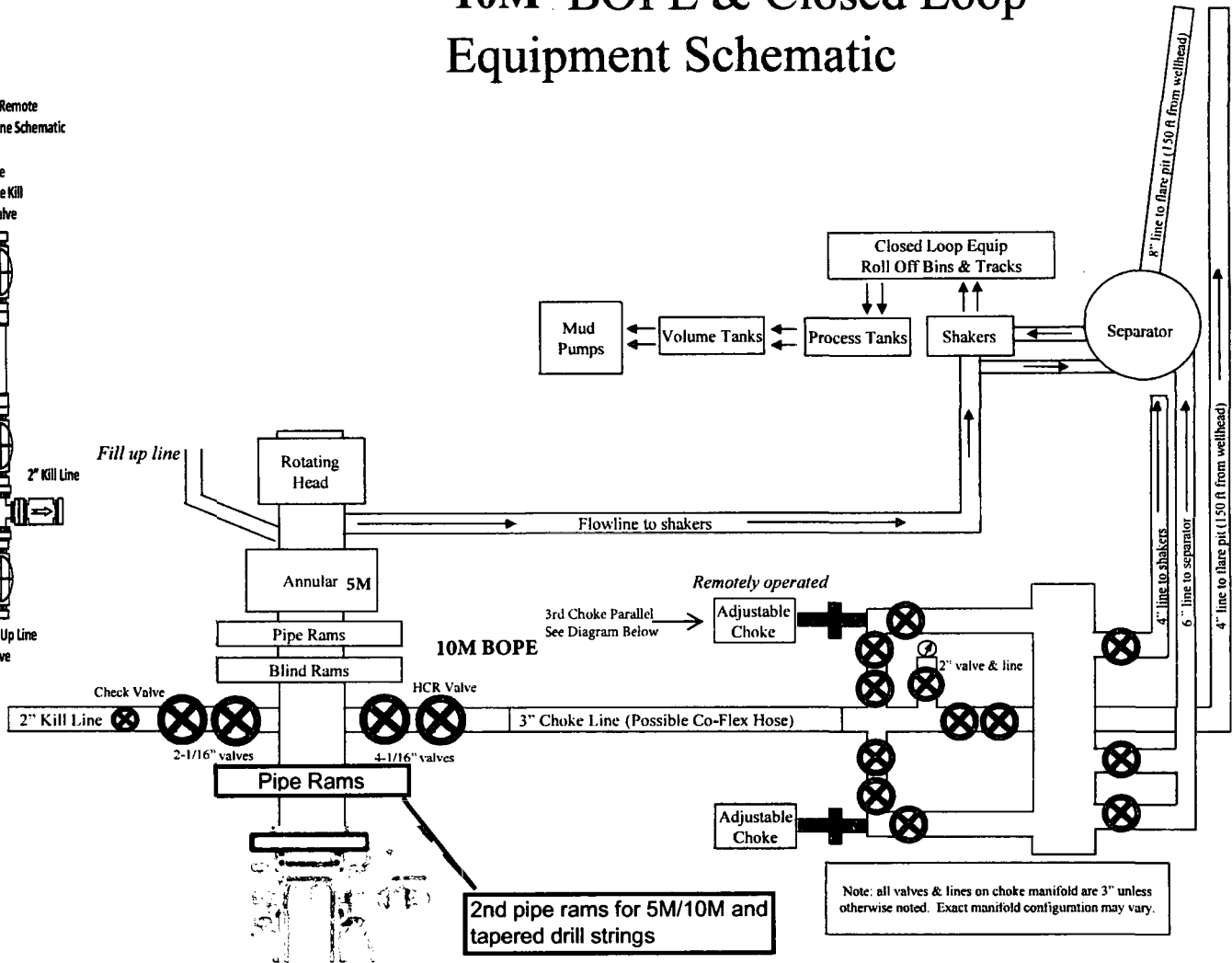
Other Variance attachment:

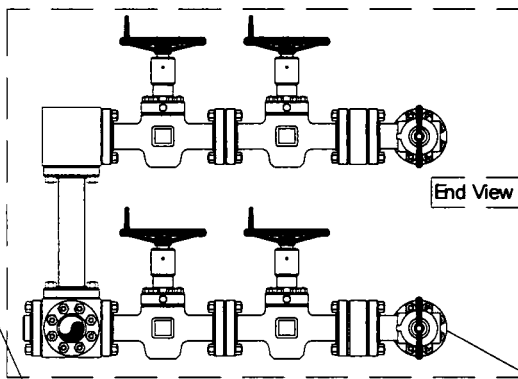
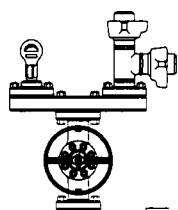
Jayhawk_7_Fed_14H_Co_flex_20180809072826.pdf

10M BOPE & Closed Loop Equipment Schematic

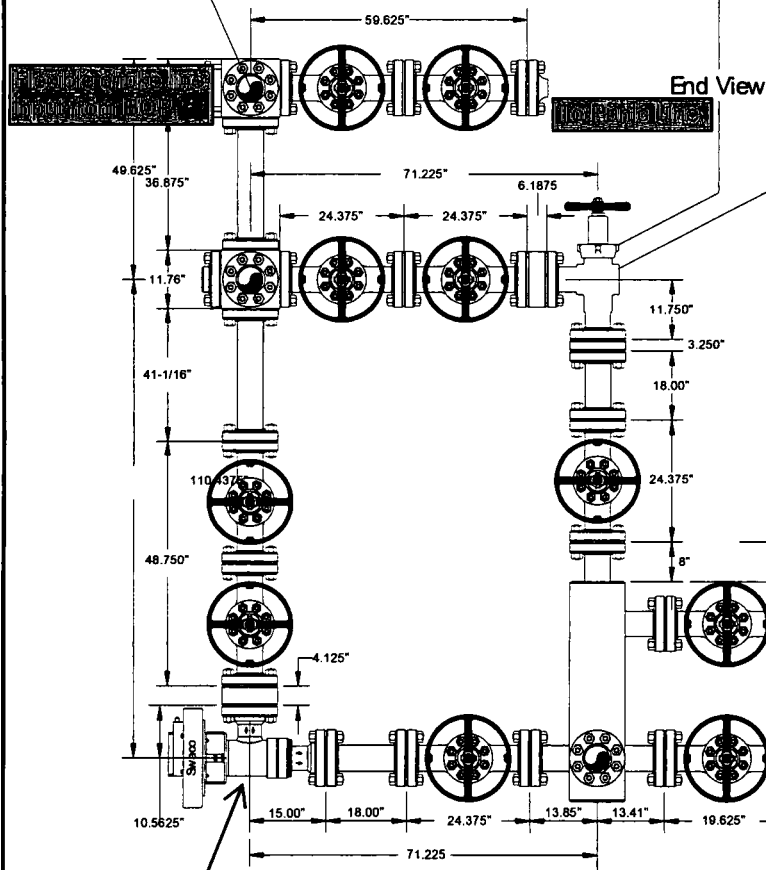
10M Remote Kill Line Schematic

Outside Remote Kill Line Valve



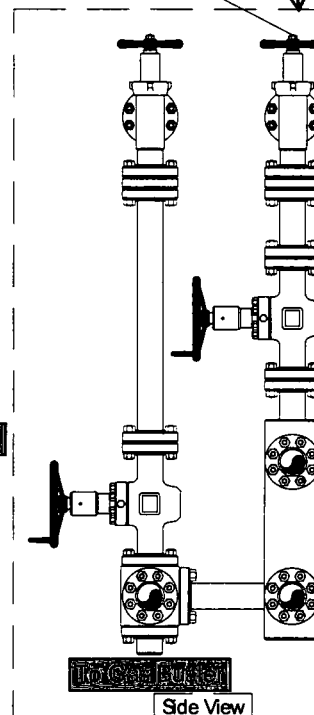


End View



End View

Side View



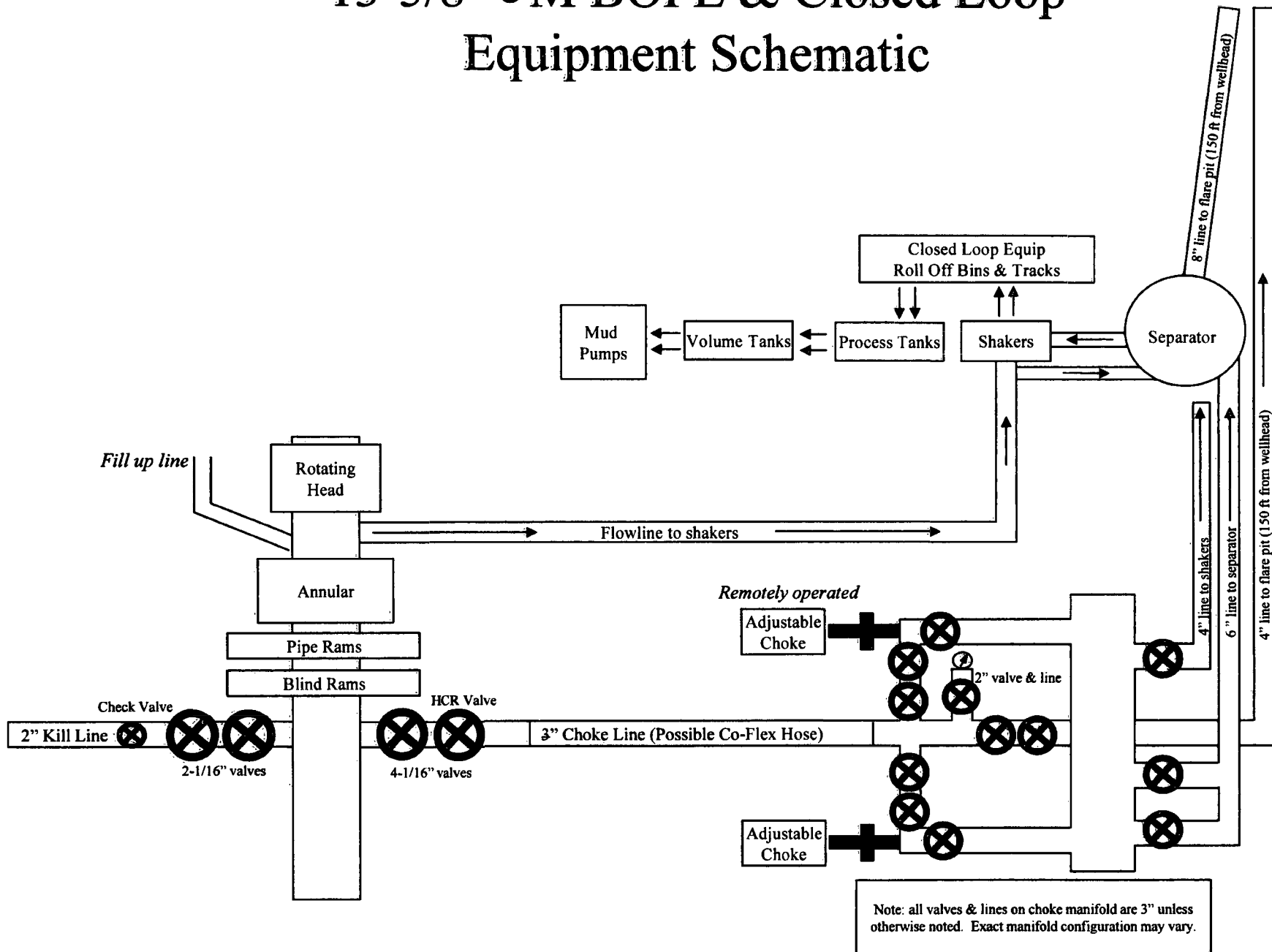
Side View

Helmerich & Payne
Flex 3 Rig w/ 3 Chokes

devon

Name	Mike Potts	Date	6-23-2010	Working Pressure	10M	J-5132-E
------	------------	------	-----------	------------------	-----	----------

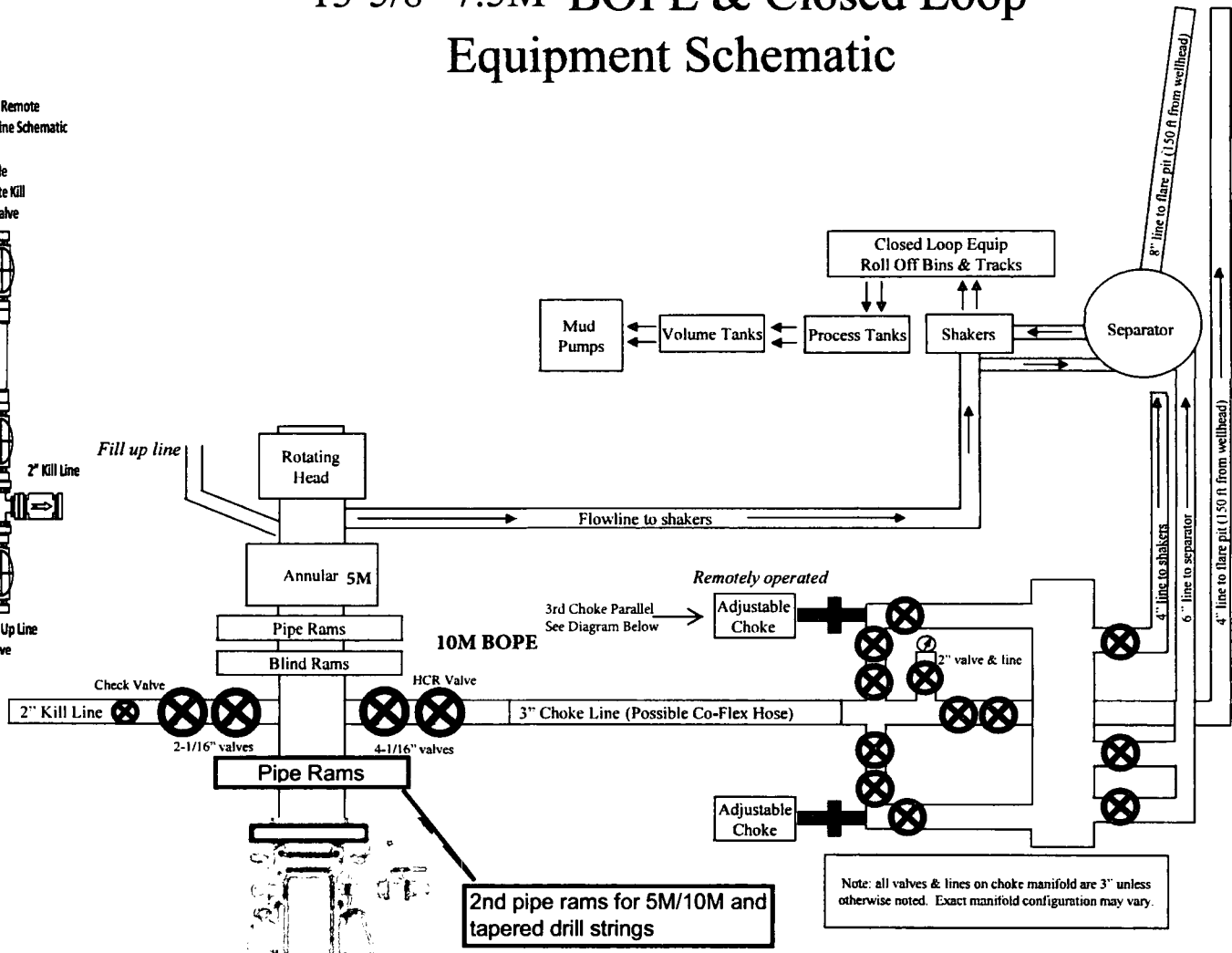
13-5/8" 5M BOPE & Closed Loop Equipment Schematic

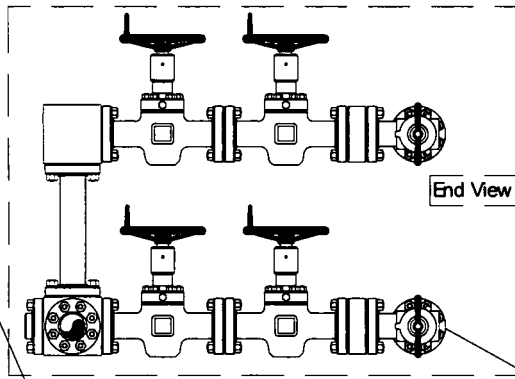
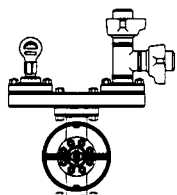


13-5/8" 7.5M BOPE & Closed Loop Equipment Schematic

10M Remote Kill Line Schematic

Outside Remote Kill Line Valve





End View

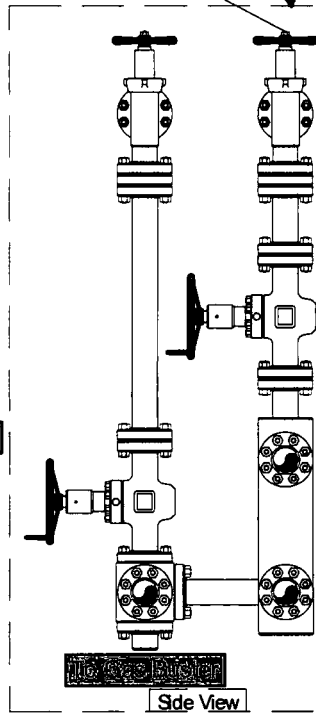
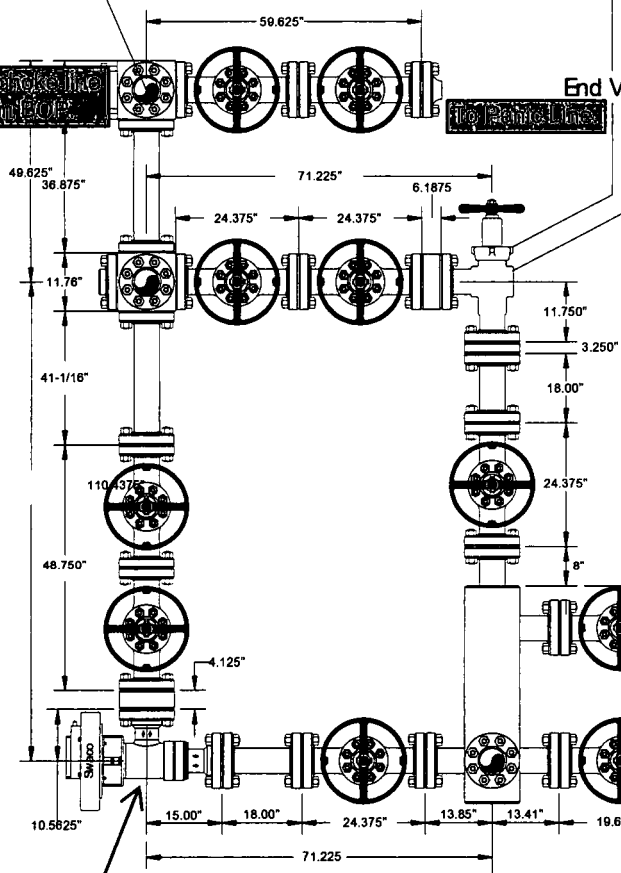
Top choke will be hydraulic

Bottom choke will be manual

Hydraulic choke line
manual for

to Panel Line

Side View



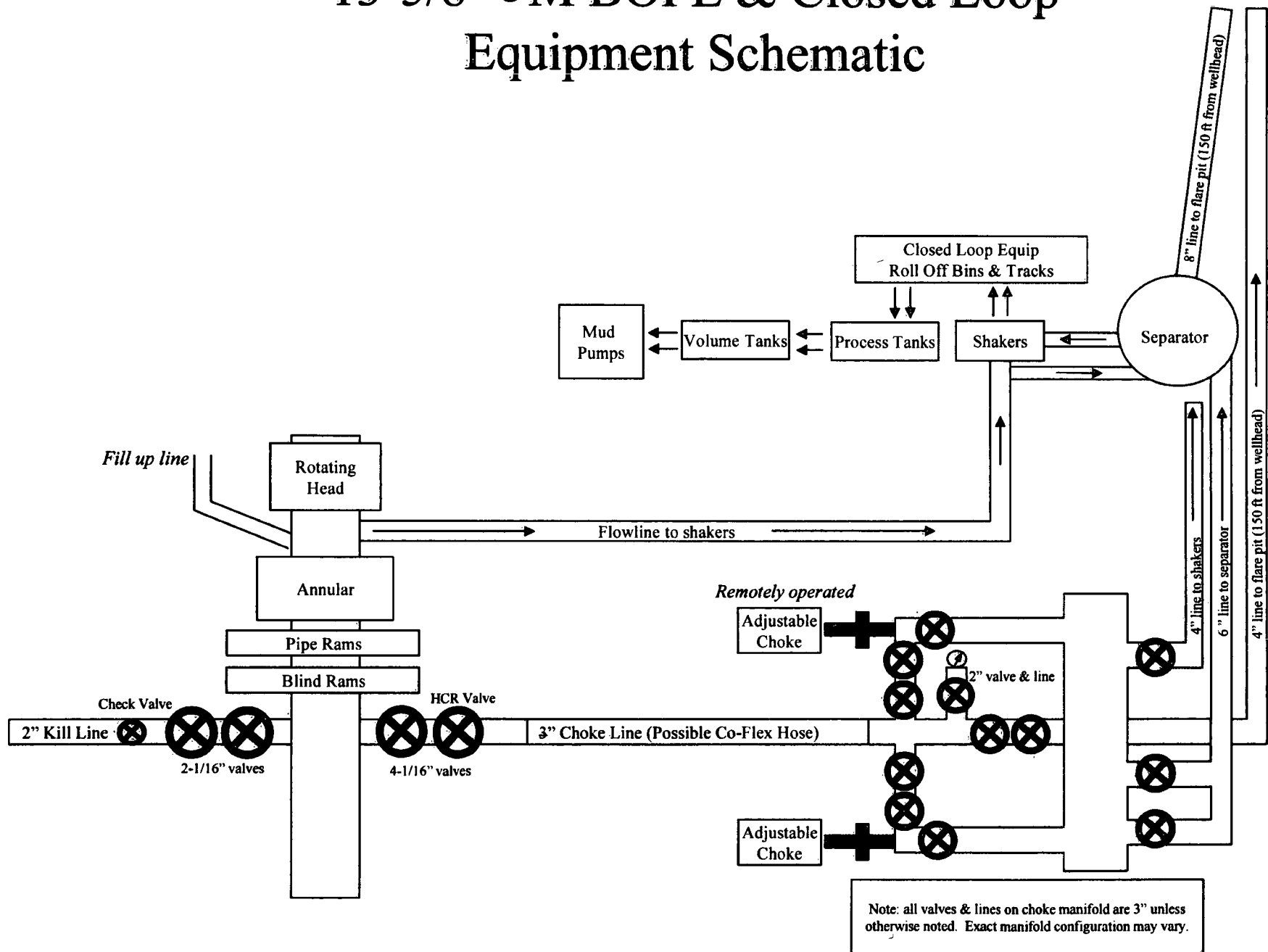
Side View

Helmerich & Payne
Flex 3 Rig w/ 3 Chokes



Name: Mike Potts	Date: 6-23-2010	Working Pressure: 10M	J-5132-E
------------------	-----------------	-----------------------	----------

13-5/8" 5M 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

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 Case

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

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



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

Hydrogen Sulfide (H₂S) Contingency Plan

For

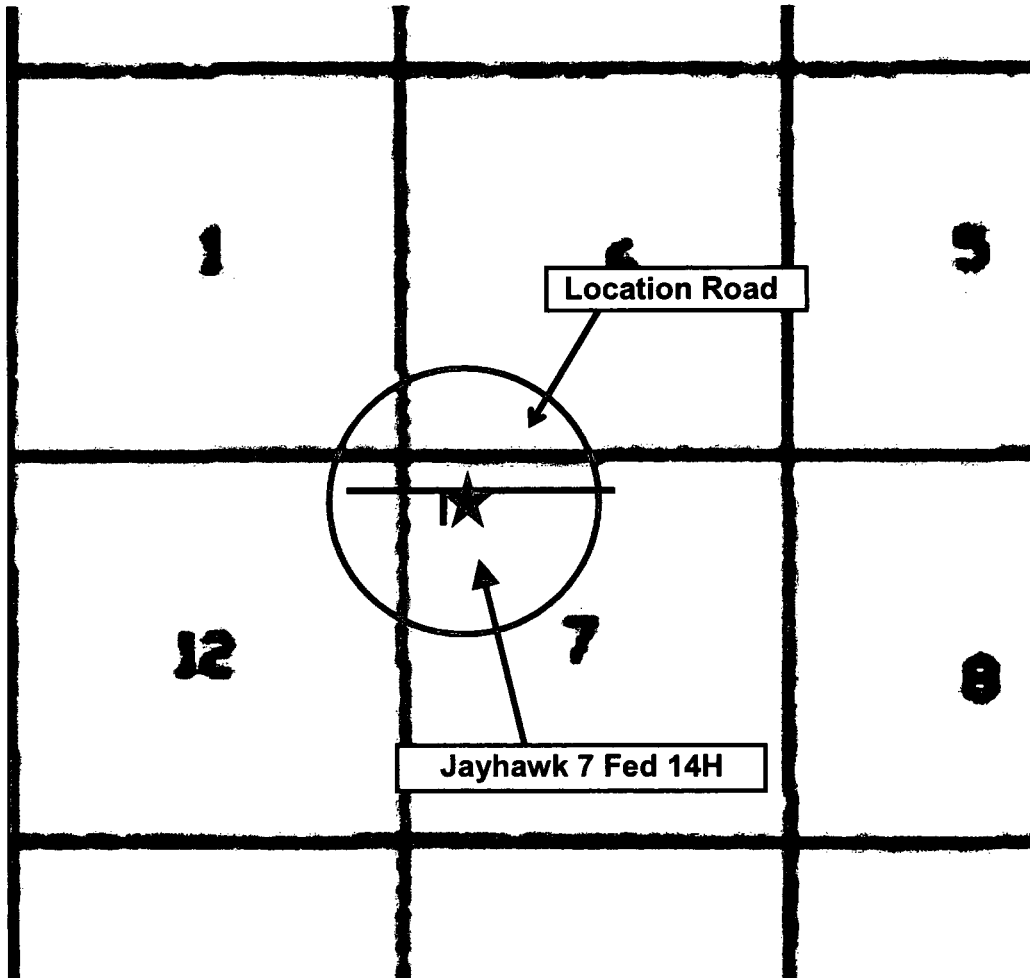
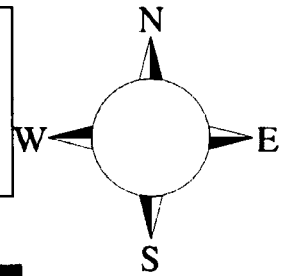
Jayhawk 7 Fed 14H

**Sec-7 T-26S R-34E
540' FNL & 740 FWL
LAT. = 32.0637367' N (NAD83)
LONG = 103.5151449' W**

Lea County NM

Jayhawk 7 Fed 14H

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



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

Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H₂S and SO₂

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

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

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

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

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

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

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

II. HYDROGEN SULFIDE TRAINING

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

1. Well Control Equipment

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

2. Protective equipment for essential personnel:

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

3. H₂S detection and monitoring equipment:

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

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

Visual warning systems:

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

4. Mud program:

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

5. Metallurgy:

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

6. Communication:

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

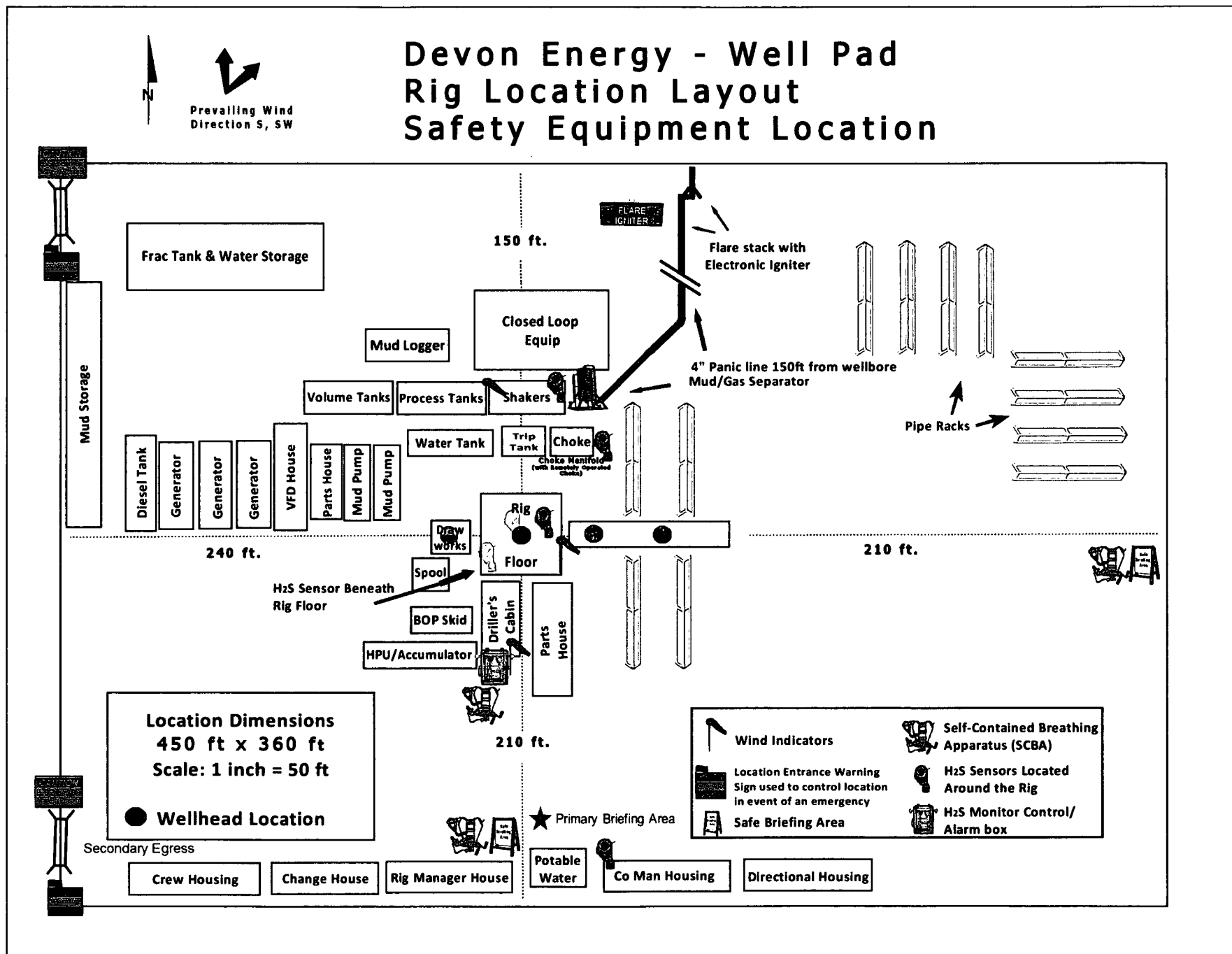
7. Well testing:

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

<u>Devon Energy Corp. Company Call List</u>		
Drilling Supervisor – Basin – Jonathan Fisher		405-228-8976
Randy Gladden – Day 575-748-1805 Cell 575-513-9463		
EHS Professional – Jason Robison		405-541-2841
<u>Agency Call List</u>		
<u>Lea County (575)</u>	Hobbs	
	Lea County Communication Authority	393-3981
	State Police	392-5588
	City Police	397-9265
	Sheriff's Office	393-2515
	Ambulance	911
	Fire Department	397-9308
	LEPC (Local Emergency Planning Committee)	393-2870
	NMOCD	393-6161
	US Bureau of Land Management	393-3612
<u>Eddy County (575)</u>	Carlsbad	
	State Police	885-3137
	City Police	885-2111
	Sheriff's Office	887-7551
	Ambulance	911
	Fire Department	885-3125
	LEPC (Local Emergency Planning Committee)	887-3798
	US Bureau of Land Management	887-6544
	NM Emergency Response Commission (Santa Fe)	(505) 476-9600
	24 HR	(505) 827-9126
	National Emergency Response Center	(800) 424-8802
	National Pollution Control Center: Direct	(703) 872-6000
	For Oil Spills	(800) 280-7118
	Emergency Services	
	Wild Well Control	(281) 784-4700
	Cudd Pressure Control	(915) 699-0139 (915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services	(575) 746-3569
	Native Air – Emergency Helicopter – Hobbs	(575) 392-6429
	Flight For Life - Lubbock, TX	(806) 743-9911
<u>Give GPS position:</u>	Aerocare - Lubbock, TX	(806) 747-8923
	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(800) 222-1222
	Poison Control (24/7)	(575) 272-3115
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - www.nhc.noaa.gov	

Prepared in conjunction with
Dave Small





WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 07-T26S-R34E

Jayhawk 7 FED 14H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

24 July, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3351.30ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.30ft
Site:	Sec 07-T26S-R34E	North Reference:	Grid
Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Project	Lea County (NAD83 New Mexico East)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 07-T26S-R34E		
Site Position:		Northing:	383,354.91 usft
From:	Lat/Long	Easting:	799,057.94 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.051193
		Longitude:	-103.501496
		Grid Convergence:	0.44 °

Well	Jayhawk 7 FED 14H		
Well Position	+N/-S	0.00 ft	Northing: 387,885.74 usft
	+E/-W	0.00 ft	Easting: 794,794.32 usft
Position Uncertainty	0.50 ft	Wellhead Elevation:	Latitude: 32.063737
			Longitude: -103.515145
			Ground Level: 3,326.30 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2015	7/23/2018	6.80	59.91	47,736.67276905

Design	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	184.25

Plan Survey Tool Program	Date 7/24/2018			
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(ft)	(ft)			
1	0.00	17,619.98 Permit Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,197.78	3.98	324.04	3,197.46	11.17	-8.11	1.00	1.00	0.00	324.04	
11,542.45	3.98	324.04	11,522.02	479.73	-348.03	0.00	0.00	0.00	0.00	
11,807.64	0.00	0.00	11,787.00	487.18	-353.43	1.50	-1.50	0.00	180.00	
12,157.68	0.00	0.00	12,137.04	487.18	-353.43	0.00	0.00	0.00	0.00	
13,057.68	90.00	179.91	12,710.00	-85.78	-352.52	10.00	10.00	0.00	179.91	PBHL - Jayhawk 7 FE
17,619.98	90.00	179.91	12,710.00	-4,648.08	-345.29	0.00	0.00	0.00	0.00	PBHL - Jayhawk 7 FE

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Site: Sec 07-T26S-R34E
Well: Jayhawk 7 FED 14H
Wellbore: Wellbore #1
Design: Permit Plan 1

Local Co-ordinate Reference: Well Jayhawk 7 FED 14H
TVD Reference: RKB @ 3351.30ft
MD Reference: RKB @ 3351.30ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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	387,885.74	794,794.32	32.063737	-103.515145
100.00	0.00	0.00	100.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
200.00	0.00	0.00	200.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
300.00	0.00	0.00	300.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
400.00	0.00	0.00	400.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
500.00	0.00	0.00	500.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
600.00	0.00	0.00	600.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
700.00	0.00	0.00	700.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
800.00	0.00	0.00	800.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
900.00	0.00	0.00	900.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,000.00	0.00	0.00	1,000.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,100.00	0.00	0.00	1,100.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,200.00	0.00	0.00	1,200.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,300.00	0.00	0.00	1,300.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,400.00	0.00	0.00	1,400.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,500.00	0.00	0.00	1,500.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,600.00	0.00	0.00	1,600.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,700.00	0.00	0.00	1,700.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,800.00	0.00	0.00	1,800.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
1,900.00	0.00	0.00	1,900.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,000.00	0.00	0.00	2,000.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,100.00	0.00	0.00	2,100.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,200.00	0.00	0.00	2,200.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,300.00	0.00	0.00	2,300.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,400.00	0.00	0.00	2,400.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,500.00	0.00	0.00	2,500.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,600.00	0.00	0.00	2,600.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,700.00	0.00	0.00	2,700.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,800.00	0.00	0.00	2,800.00	0.00	0.00	387,885.74	794,794.32	32.063737	-103.515145
2,900.00	1.00	324.04	2,899.99	0.71	-0.51	387,886.45	794,793.81	32.063739	-103.515147
3,000.00	2.00	324.04	2,999.96	2.83	-2.05	387,888.56	794,792.27	32.063745	-103.515152
3,100.00	3.00	324.04	3,099.86	6.36	-4.61	387,892.09	794,789.71	32.063754	-103.515160
3,197.78	3.98	324.04	3,197.46	11.17	-8.11	387,896.91	794,786.21	32.063768	-103.515171
3,200.00	3.98	324.04	3,199.68	11.30	-8.20	387,897.04	794,786.12	32.063768	-103.515171
3,300.00	3.98	324.04	3,299.43	16.91	-12.27	387,902.65	794,782.05	32.063783	-103.515184
3,400.00	3.98	324.04	3,399.19	22.53	-16.34	387,908.27	794,777.98	32.063799	-103.515197
3,500.00	3.98	324.04	3,498.95	28.14	-20.42	387,913.88	794,773.90	32.063815	-103.515210
3,600.00	3.98	324.04	3,598.71	33.76	-24.49	387,919.50	794,769.83	32.063830	-103.515223
3,700.00	3.98	324.04	3,698.47	39.37	-28.56	387,925.11	794,765.75	32.063846	-103.515236
3,800.00	3.98	324.04	3,798.23	44.99	-32.64	387,930.73	794,761.68	32.063861	-103.515249
3,900.00	3.98	324.04	3,897.99	50.60	-36.71	387,936.34	794,757.61	32.063877	-103.515262
4,000.00	3.98	324.04	3,997.75	56.22	-40.78	387,941.96	794,753.53	32.063892	-103.515275
4,100.00	3.98	324.04	4,097.51	61.83	-44.86	387,947.57	794,749.46	32.063908	-103.515288
4,200.00	3.98	324.04	4,197.27	67.45	-48.93	387,953.19	794,745.39	32.063923	-103.515301
4,300.00	3.98	324.04	4,297.03	73.06	-53.00	387,958.80	794,741.31	32.063939	-103.515314
4,400.00	3.98	324.04	4,396.78	78.68	-57.08	387,964.42	794,737.24	32.063954	-103.515328
4,500.00	3.98	324.04	4,496.54	84.29	-61.15	387,970.03	794,733.17	32.063970	-103.515341
4,600.00	3.98	324.04	4,596.30	89.91	-65.22	387,975.65	794,729.09	32.063985	-103.515354
4,700.00	3.98	324.04	4,696.06	95.52	-69.30	387,981.26	794,725.02	32.064001	-103.515367
4,800.00	3.98	324.04	4,795.82	101.14	-73.37	387,986.88	794,720.95	32.064016	-103.515380
4,900.00	3.98	324.04	4,895.58	106.75	-77.45	387,992.49	794,716.87	32.064032	-103.515393
5,000.00	3.98	324.04	4,995.34	112.37	-81.52	387,998.11	794,712.80	32.064047	-103.515406
5,100.00	3.98	324.04	5,095.10	117.98	-85.59	388,003.72	794,708.73	32.064063	-103.515419
5,200.00	3.98	324.04	5,194.86	123.60	-89.67	388,009.34	794,704.65	32.064078	-103.515432
5,300.00	3.98	324.04	5,294.62	129.21	-93.74	388,014.95	794,700.58	32.064094	-103.515445

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3351.30ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.30ft
Site:	Sec 07-T26S-R34E	North Reference:	Grid
Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	3.98	324.04	5,394.38	134.83	-97.81	388,020.57	794,696.51	32.064109	-103.515458
5,500.00	3.98	324.04	5,494.13	140.44	-101.89	388,026.18	794,692.43	32.064125	-103.515471
5,600.00	3.98	324.04	5,593.89	146.06	-105.96	388,031.80	794,688.36	32.064140	-103.515484
5,700.00	3.98	324.04	5,693.65	151.67	-110.03	388,037.41	794,684.28	32.064156	-103.515497
5,800.00	3.98	324.04	5,793.41	157.29	-114.11	388,043.03	794,680.21	32.064171	-103.515510
5,900.00	3.98	324.04	5,893.17	162.90	-118.18	388,048.64	794,676.14	32.064187	-103.515523
6,000.00	3.98	324.04	5,992.93	168.52	-122.25	388,054.26	794,672.06	32.064202	-103.515536
6,100.00	3.98	324.04	6,092.69	174.13	-126.33	388,059.87	794,667.99	32.064218	-103.515549
6,200.00	3.98	324.04	6,192.45	179.75	-130.40	388,065.49	794,663.92	32.064234	-103.515562
6,300.00	3.98	324.04	6,292.21	185.36	-134.47	388,071.10	794,659.84	32.064249	-103.515575
6,400.00	3.98	324.04	6,391.97	190.98	-138.55	388,076.72	794,655.77	32.064265	-103.515588
6,500.00	3.98	324.04	6,491.73	196.59	-142.62	388,082.33	794,651.70	32.064280	-103.515601
6,600.00	3.98	324.04	6,591.48	202.21	-146.70	388,087.95	794,647.62	32.064296	-103.515614
6,700.00	3.98	324.04	6,691.24	207.82	-150.77	388,093.56	794,643.55	32.064311	-103.515627
6,800.00	3.98	324.04	6,791.00	213.44	-154.84	388,099.18	794,639.48	32.064327	-103.515640
6,900.00	3.98	324.04	6,890.76	219.05	-158.92	388,104.79	794,635.40	32.064342	-103.515653
7,000.00	3.98	324.04	6,990.52	224.67	-162.99	388,110.41	794,631.33	32.064358	-103.515666
7,100.00	3.98	324.04	7,090.28	230.28	-167.06	388,116.02	794,627.26	32.064373	-103.515679
7,200.00	3.98	324.04	7,190.04	235.90	-171.14	388,121.64	794,623.18	32.064389	-103.515692
7,300.00	3.98	324.04	7,289.80	241.51	-175.21	388,127.25	794,619.11	32.064404	-103.515705
7,400.00	3.98	324.04	7,389.56	247.13	-179.28	388,132.87	794,615.03	32.064420	-103.515718
7,500.00	3.98	324.04	7,489.32	252.74	-183.36	388,138.48	794,610.96	32.064435	-103.515731
7,600.00	3.98	324.04	7,589.08	258.36	-187.43	388,144.10	794,606.89	32.064451	-103.515744
7,700.00	3.98	324.04	7,688.83	263.97	-191.50	388,149.71	794,602.81	32.064466	-103.515757
7,800.00	3.98	324.04	7,788.59	269.59	-195.58	388,155.33	794,598.74	32.064482	-103.515770
7,900.00	3.98	324.04	7,888.35	275.20	-199.65	388,160.94	794,594.67	32.064497	-103.515783
8,000.00	3.98	324.04	7,988.11	280.82	-203.72	388,166.56	794,590.59	32.064513	-103.515796
8,100.00	3.98	324.04	8,087.87	286.43	-207.80	388,172.17	794,586.52	32.064528	-103.515809
8,200.00	3.98	324.04	8,187.63	292.05	-211.87	388,177.79	794,582.45	32.064544	-103.515822
8,300.00	3.98	324.04	8,287.39	297.66	-215.94	388,183.40	794,578.37	32.064559	-103.515835
8,400.00	3.98	324.04	8,387.15	303.28	-220.02	388,189.02	794,574.30	32.064575	-103.515848
8,500.00	3.98	324.04	8,486.91	308.89	-224.09	388,194.63	794,570.23	32.064590	-103.515861
8,600.00	3.98	324.04	8,586.67	314.51	-228.17	388,200.25	794,566.15	32.064606	-103.515874
8,700.00	3.98	324.04	8,686.43	320.12	-232.24	388,205.86	794,562.08	32.064621	-103.515887
8,800.00	3.98	324.04	8,786.18	325.74	-236.31	388,211.48	794,558.01	32.064637	-103.515900
8,900.00	3.98	324.04	8,885.94	331.35	-240.39	388,217.09	794,553.93	32.064653	-103.515913
9,000.00	3.98	324.04	8,985.70	336.97	-244.46	388,222.71	794,549.86	32.064668	-103.515926
9,100.00	3.98	324.04	9,085.46	342.58	-248.53	388,228.32	794,545.79	32.064684	-103.515939
9,200.00	3.98	324.04	9,185.22	348.20	-252.61	388,233.94	794,541.71	32.064699	-103.515952
9,300.00	3.98	324.04	9,284.98	353.81	-256.68	388,239.55	794,537.64	32.064715	-103.515965
9,400.00	3.98	324.04	9,384.74	359.43	-260.75	388,245.17	794,533.56	32.064730	-103.515978
9,500.00	3.98	324.04	9,484.50	365.04	-264.83	388,250.78	794,529.49	32.064746	-103.515991
9,600.00	3.98	324.04	9,584.26	370.66	-268.90	388,256.40	794,525.42	32.064761	-103.516004
9,700.00	3.98	324.04	9,684.02	376.27	-272.97	388,262.01	794,521.34	32.064777	-103.516017
9,800.00	3.98	324.04	9,783.78	381.89	-277.05	388,267.63	794,517.27	32.064792	-103.516030
9,900.00	3.98	324.04	9,883.53	387.50	-281.12	388,273.24	794,513.20	32.064808	-103.516043
10,000.00	3.98	324.04	9,983.29	393.12	-285.19	388,278.86	794,509.12	32.064823	-103.516056
10,100.00	3.98	324.04	10,083.05	398.74	-289.27	388,284.47	794,505.05	32.064839	-103.516069
10,200.00	3.98	324.04	10,182.81	404.35	-293.34	388,290.09	794,500.98	32.064854	-103.516082
10,300.00	3.98	324.04	10,282.57	409.97	-297.42	388,295.70	794,496.90	32.064870	-103.516095
10,400.00	3.98	324.04	10,382.33	415.58	-301.49	388,301.32	794,492.83	32.064885	-103.516108
10,500.00	3.98	324.04	10,482.09	421.20	-305.56	388,306.93	794,488.76	32.064901	-103.516121
10,600.00	3.98	324.04	10,581.85	426.81	-309.64	388,312.55	794,484.68	32.064916	-103.516134
10,700.00	3.98	324.04	10,681.61	432.43	-313.71	388,318.16	794,480.61	32.064932	-103.516147
10,800.00	3.98	324.04	10,781.37	438.04	-317.78	388,323.78	794,476.54	32.064947	-103.516160

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Site: Sec 07-T26S-R34E
Well: Jayhawk 7 FED 14H
Wellbore: Wellbore #1
Design: Permit Plan 1

Local Co-ordinate Reference: Well Jayhawk 7 FED 14H
TVD Reference: RKB @ 3351.30ft
MD Reference: RKB @ 3351.30ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,900.00	3.98	324.04	10,881.13	443.66	-321.86	388,329.39	794,472.46	32.064963	-103.516173
11,000.00	3.98	324.04	10,980.89	449.27	-325.93	388,335.01	794,468.39	32.064978	-103.516186
11,100.00	3.98	324.04	11,080.64	454.89	-330.00	388,340.62	794,464.31	32.064994	-103.516199
11,200.00	3.98	324.04	11,180.40	460.50	-334.08	388,346.24	794,460.24	32.065009	-103.516212
11,300.00	3.98	324.04	11,280.16	466.12	-338.15	388,351.85	794,456.17	32.065025	-103.516225
11,400.00	3.98	324.04	11,379.92	471.73	-342.22	388,357.47	794,452.09	32.065040	-103.516238
11,500.00	3.98	324.04	11,479.68	477.35	-346.30	388,363.08	794,448.02	32.065056	-103.516251
11,542.45	3.98	324.04	11,522.02	479.73	-348.03	388,365.47	794,446.29	32.065063	-103.516257
11,600.00	3.11	324.04	11,579.47	482.61	-350.12	388,368.35	794,444.20	32.065071	-103.516264
11,700.00	1.61	324.04	11,679.38	485.95	-352.54	388,371.69	794,441.78	32.065080	-103.516271
11,800.00	0.11	324.04	11,779.37	487.17	-353.43	388,372.91	794,440.89	32.065083	-103.516274
11,807.64	0.00	0.00	11,787.00	487.18	-353.43	388,372.91	794,440.89	32.065083	-103.516274
11,900.00	0.00	0.00	11,879.37	487.18	-353.43	388,372.91	794,440.89	32.065083	-103.516274
12,000.00	0.00	0.00	11,979.37	487.18	-353.43	388,372.91	794,440.89	32.065083	-103.516274
12,100.00	0.00	0.00	12,079.37	487.18	-353.43	388,372.91	794,440.89	32.065083	-103.516274
12,157.68	0.00	0.00	12,137.04	487.18	-353.43	388,372.91	794,440.89	32.065083	-103.516274
12,200.00	4.23	179.91	12,179.33	485.61	-353.43	388,371.35	794,440.89	32.065079	-103.516274
12,300.00	14.23	179.91	12,277.91	469.59	-353.40	388,355.33	794,440.92	32.065035	-103.516274
12,391.81	23.41	179.91	12,364.71	440.00	-353.36	388,325.74	794,440.96	32.064954	-103.516275
First Take Point @ 12392' MD, 100' FNL, 387' FWL									
12,400.00	24.23	179.91	12,372.21	436.69	-353.35	388,322.43	794,440.97	32.064944	-103.516275
12,500.00	34.23	179.91	12,459.36	387.92	-353.27	388,273.66	794,441.05	32.064810	-103.516276
12,600.00	44.23	179.91	12,536.72	324.75	-353.17	388,210.49	794,441.15	32.064637	-103.516277
12,700.00	54.23	179.91	12,601.94	249.11	-353.05	388,134.85	794,441.27	32.064429	-103.516279
12,800.00	64.23	179.91	12,653.03	163.30	-352.92	388,049.04	794,441.40	32.064193	-103.516280
12,900.00	74.23	179.91	12,688.44	69.91	-352.77	387,955.65	794,441.55	32.063936	-103.516282
13,000.00	84.23	179.91	12,707.10	-28.20	-352.61	387,857.54	794,441.71	32.063667	-103.516284
13,057.68	90.00	179.91	12,710.00	-85.78	-352.52	387,799.95	794,441.80	32.063508	-103.516285
Land Point @ 13068' MD, 626' FNL, 386' FWL									
13,100.00	90.00	179.91	12,710.00	-128.10	-352.45	387,757.63	794,441.86	32.063392	-103.516286
13,200.00	90.00	179.91	12,710.00	-228.10	-352.30	387,657.64	794,442.02	32.063117	-103.516288
13,300.00	90.00	179.91	12,710.00	-328.10	-352.14	387,557.64	794,442.18	32.062842	-103.516290
13,400.00	90.00	179.91	12,710.00	-428.10	-351.98	387,457.64	794,442.34	32.062567	-103.516292
13,500.00	90.00	179.91	12,710.00	-528.10	-351.82	387,357.64	794,442.50	32.062292	-103.516294
13,600.00	90.00	179.91	12,710.00	-628.10	-351.66	387,257.64	794,442.66	32.062018	-103.516296
13,700.00	90.00	179.91	12,710.00	-728.10	-351.50	387,157.64	794,442.82	32.061743	-103.516298
13,800.00	90.00	179.91	12,710.00	-828.10	-351.34	387,057.64	794,442.97	32.061468	-103.516300
13,900.00	90.00	179.91	12,710.00	-928.10	-351.19	386,957.64	794,443.13	32.061193	-103.516301
14,000.00	90.00	179.91	12,710.00	-1,028.10	-351.03	386,857.64	794,443.29	32.060918	-103.516303
14,100.00	90.00	179.91	12,710.00	-1,128.10	-350.87	386,757.64	794,443.45	32.060643	-103.516305
14,200.00	90.00	179.91	12,710.00	-1,228.10	-350.71	386,657.64	794,443.61	32.060368	-103.516307
14,300.00	90.00	179.91	12,710.00	-1,328.10	-350.55	386,557.64	794,443.77	32.060093	-103.516309
14,400.00	90.00	179.91	12,710.00	-1,428.10	-350.39	386,457.64	794,443.93	32.059819	-103.516311
14,500.00	90.00	179.91	12,710.00	-1,528.10	-350.23	386,357.64	794,444.08	32.059544	-103.516313
14,600.00	90.00	179.91	12,710.00	-1,628.10	-350.08	386,257.64	794,444.24	32.059269	-103.516315
14,700.00	90.00	179.91	12,710.00	-1,728.10	-349.92	386,157.64	794,444.40	32.058994	-103.516317
14,800.00	90.00	179.91	12,710.00	-1,828.10	-349.76	386,057.64	794,444.56	32.058719	-103.516319
14,900.00	90.00	179.91	12,710.00	-1,928.10	-349.60	385,957.64	794,444.72	32.058444	-103.516321
15,000.00	90.00	179.91	12,710.00	-2,028.10	-349.44	385,857.64	794,444.88	32.058169	-103.516323
15,100.00	90.00	179.91	12,710.00	-2,128.10	-349.28	385,757.64	794,445.04	32.057894	-103.516325
15,200.00	90.00	179.91	12,710.00	-2,228.10	-349.12	385,657.64	794,445.19	32.057620	-103.516327
15,300.00	90.00	179.91	12,710.00	-2,328.10	-348.96	385,557.64	794,445.35	32.057345	-103.516328
15,400.00	90.00	179.91	12,710.00	-2,428.10	-348.81	385,457.64	794,445.51	32.057070	-103.516330
15,500.00	90.00	179.91	12,710.00	-2,528.10	-348.65	385,357.64	794,445.67	32.056795	-103.516332

EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
WCDSC Permian NM	TVD Reference:	RKB @ 3351.30ft
Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.30ft
Sec 07-T26S-R34E	North Reference:	Grid
Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Wellbore #1		
Permit Plan 1		

Survey									
Depth	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	90.00	179.91	12,710.00	-2,628.10	-348.49	385,257.64	794,445.83	32.056520	
0.00	90.00	179.91	12,710.00	-2,728.10	-348.33	385,157.64	794,445.99	32.056245	
0.00	90.00	179.91	12,710.00	-2,828.10	-348.17	385,057.64	794,446.15	32.055970	
0.00	90.00	179.91	12,710.00	-2,928.10	-348.01	384,957.64	794,446.31	32.055696	
0.00	90.00	179.91	12,710.00	-3,028.10	-347.85	384,857.64	794,446.46	32.055421	
0.00	90.00	179.91	12,710.00	-3,128.10	-347.70	384,757.64	794,446.62	32.055146	
0.00	90.00	179.91	12,710.00	-3,228.10	-347.54	384,657.64	794,446.78	32.054871	
0.00	90.00	179.91	12,710.00	-3,328.10	-347.38	384,557.65	794,446.94	32.054596	
0.00	90.00	179.91	12,710.00	-3,428.10	-347.22	384,457.65	794,447.10	32.054321	
0.00	90.00	179.91	12,710.00	-3,528.10	-347.06	384,357.65	794,447.26	32.054046	
0.00	90.00	179.91	12,710.00	-3,628.10	-346.90	384,257.65	794,447.42	32.053771	
0.00	90.00	179.91	12,710.00	-3,728.10	-346.74	384,157.65	794,447.57	32.053497	
0.00	90.00	179.91	12,710.00	-3,828.10	-346.59	384,057.65	794,447.73	32.053222	
0.00	90.00	179.91	12,710.00	-3,928.10	-346.43	383,957.65	794,447.89	32.052947	
0.00	90.00	179.91	12,710.00	-4,028.10	-346.27	383,857.65	794,448.05	32.052672	
0.00	90.00	179.91	12,710.00	-4,128.10	-346.11	383,757.65	794,448.21	32.052397	
0.00	90.00	179.91	12,710.00	-4,228.10	-345.95	383,657.65	794,448.37	32.052122	
0.00	90.00	179.91	12,710.00	-4,328.10	-345.79	383,557.65	794,448.53	32.051847	
0.00	90.00	179.91	12,710.00	-4,428.10	-345.63	383,457.65	794,448.68	32.051572	
0.00	90.00	179.91	12,710.00	-4,528.10	-345.48	383,357.65	794,448.84	32.051298	
0.00	90.00	179.91	12,710.00	-4,628.10	-345.32	383,257.65	794,449.00	32.051023	
0.00	90.00	179.91	12,710.00	-4,647.10	-345.29	383,238.65	794,449.03	32.050970	
Take Point @ 17619' MD, 100' FSL, 360' FWL									
9.98	90.00	179.91	12,710.00	-4,648.08	-345.29	383,237.67	794,449.03	32.050968	
L; 100' FSL, 360' FWL									

Targets									
Target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Jayhawk 7 FED	0.00	0.00	0.00	-4,648.08	-345.29	383,237.67	794,449.03	32.050968	
misses target center by 4660.89ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
Jayhawk 7 FED 14I	0.00	0.00	11,800.00	487.18	-383.43	388,372.91	794,410.89	32.065084	
misses target center by 30.00ft at 11820.63ft MD (11800.00 TVD, 487.18 N, -353.43 E)									

Locations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
12,391.81	12,364.71	440.00	-353.36	First Take Point @ 12392' MD, 100' FNL, 387' FWL	
13,057.68	12,710.00	-85.78	-352.52	Land Point @ 13058' MD, 626' FNL, 386' FWL	
17,619.00	12,710.00	-4,647.10	-345.29	Last Take Point @ 17619' MD, 100' FSL, 360' FWL	
17,619.98	12,710.00	-4,648.08	-345.29	PBHL; 100' FSL, 360' FWL	

Geometry

Imperial

S.I.

Pipe Body

Grade	P110	P110	P110	P110
Pipe OD (D)	7 5/8	in	193.68	mm
Weight	29.70	lb/ft	44.20	kg/m
Actual weight	29.04		43.21	kg/m
Wall thickness (t)	0.875	in	22.23	mm
Pipe ID (d)	6.875	in	174.63	mm
Pipe body cross section	8.537	in ²	5508	mm ²
Drift Dia.	6.750	in	171.45	mm

Connection

Box OD (W)	7.625	in	193.68	mm
PIN ID	6.875	in	174.63	mm
Make up loss	3.040	in	77.22	mm
Box Critical Area	4.424	in ²	2854	mm ²
Joint load efficiency	60	%	60	%
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			

Performance

Performance Properties for Pipe Body

M.I.Y.P.	9,470	psi	65.31	MPa
Coll. Strength	100%		100%	

Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body
M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body

Performance Properties for Connection

Min. Compression Yield	563 kips (60% of S.M.Y.S.)
External Pressure	100% of Collapse Strength

Recommended Torque

Opti.	17,200	ft-lb	23,300	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

Legal Notice

The use of this information is at the reader/user's risk and no warranty is implied or expressed by Metal One Corporation or its parents, subsidiaries or affiliates (herein collectively referred to as "Metal One") with respect to the use of information contained herein. The information provided on this Connection Data Sheet is for informational purposes only, and was prepared by reference to engineering information that is specific to the subject products, without regard to safety-related factors, all of which are the sole responsibility of the operators and users of the subject connectors. Metal One assumes no responsibility for any errors with respect to this information.

Statements regarding the suitability of products for certain types of applications are based on Metal One's knowledge of typical requirements that are often placed on Metal One products in standard well configurations. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application

The products described in this Connection Data Sheet are not recommended for use in deep water offshore applications. For more information, please refer to <http://www.mto.co.jp/mo-con/ images/top/WebsiteTerms Active 20333287 1.pdf> the contents of which are incorporated by reference into this Connection Data Sheet.

Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
5 1/2 in.	20.00 lb/ft	0.361 in.	P110 EC	4.653 in.	VAM® TOP HT

PIPE PROPERTIES	
Nominal OD	5.500 in.
Nominal ID	4.778 in.
Nominal Cross Section Area	5.828 sqin.
Grade Type	High Yield
Min. Yield Strength	125 ksi
Max. Yield Strength	140 ksi
Min. Ultimate Tensile Strength	135 ksi

CONNECTION PROPERTIES	
Connection Type	Premium T&C
Connection OD (nom)	6.071 in.
Connection ID (nom)	4.715 in.
Make-up Loss	4.382 in.
Coupling Length	10.748 in.
Critical Cross Section	5.828 sqin.
Tension Efficiency	100 % of pipe
Compression Efficiency	80 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	100 % of pipe

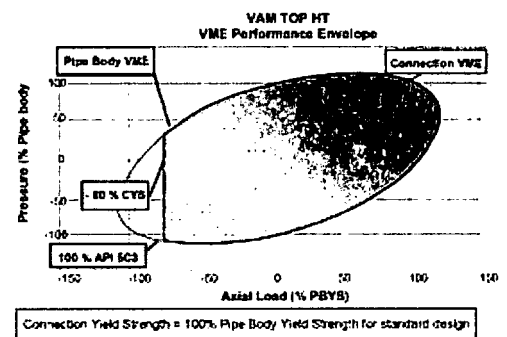
CONNECTION PERFORMANCES	
Tensile Yield Strength	729 klb
Compression Resistance	583 klb
Internal Yield Pressure	14360 psi
External pressure resistance	12090 psi
Max. bending with sealability	30 °/100 ft
Max. Load on Coupling Face	388 klb

TORQUE VALUES	
Min. Make-up torque	10850 ft.lb
Opti. Make-up torque	11950 ft.lb
Max. Make-up torque	13050 ft.lb
Field Liner Max	15900 ft.lb
Mill and Licensees Torque - Min	15900 ft.lb
Mill and Licensees Torque - Max	17500 ft.lb

VAM® TOP HT (High Torque) is a T&C connection based on the main features of the VAM® TOP connection.

This connection provides reinforced torque capability for liners and where High Torque is anticipated due to string rotation during running operations (torque rotating liner while running, rotating casing when cementing). It has been tested as per ISO13679 CAL IV requirements.

VAM® TOP HT is interchangeable with VAM® TOP product line with the exception of 4 1/2" size.



Do you need help on this product? - Remember no one knows VAM® like VAM

canada@vamfieldservice.com
usa@vamfieldservice.com
mexico@vamfieldservice.com
brazil@vamfieldservice.com

uk@vamfieldservice.com
dubai@vamfieldservice.com
nigeria@vamfieldservice.com
angola@vamfieldservice.com

china@vamfieldservice.com
baku@vamfieldservice.com
singapore@vamfieldservice.com
australia@vamfieldservice.com

Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

CASING PERFORMANCE Data Sheet



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

Grade - Material Properties

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

Pipe Body Data (PE)

Geometry

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

Performance

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

API Connection Data

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

SC Torque (ft-lbs)

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

LC Torque (ft-lbs)

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

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

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

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

Equipment Schematic

The diagram illustrates the equipment schematic for a wellhead and its associated processing units. The flow starts from the wellhead (Rotating Head, Annular 5M, Pipe Rams, Blind Rams) and proceeds through a series of valves and lines (2" Kill Line, 2-1/16" valves, HCR Valve, 4-1/16" valves, 3" Choke Line) to a separator. The separator is connected to a flare pit (150 ft from wellhead) and a 4" line to the shakers. The shakers are connected to a closed loop equipment roll off bins & tracks, which in turn connects to process tanks, volume tanks, and mud pumps. The separator also has a 6" line to the separator and a 4" line to the shakers. The flowline to the shakers is labeled "Flowline to shakers".

Equipment Schematic

Rotating Head

Annular 5M

Pipe Rams

Blind Rams

10M BOPE

Check Valve

2" Kill Line

2-1/16" valves

HCR Valve

4-1/16" valves

3" Choke Line (Possible Co-Flex Hose)

Remotely operated

Adjustable Choke

3rd Choke Parallel See Diagram Below

2" valve & line

Adjustable Choke

Flowline to shakers

Shakers

Process Tanks

Volume Tanks

Mud Pumps

Closed Loop Equip Roll Off Bins & Tracks

Separator

8" line to flare pit (150 ft from wellhead)

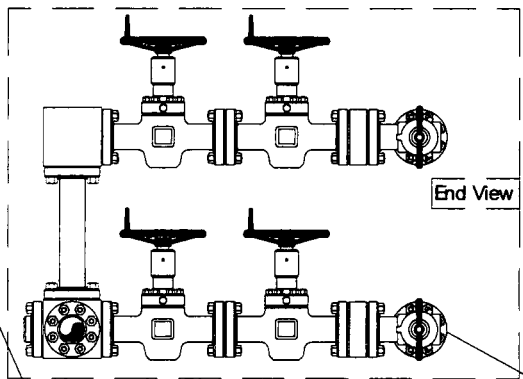
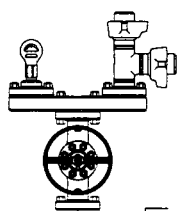
4" line to shakers

6" line to separator

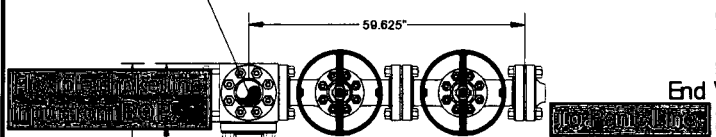
4" line to flare pit (150 ft from wellhead)

Note: all valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.

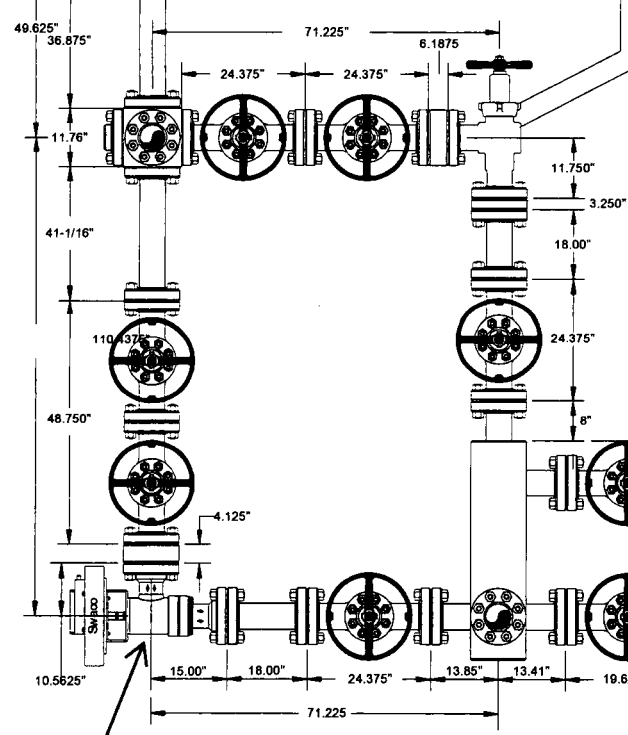
Note: all valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.



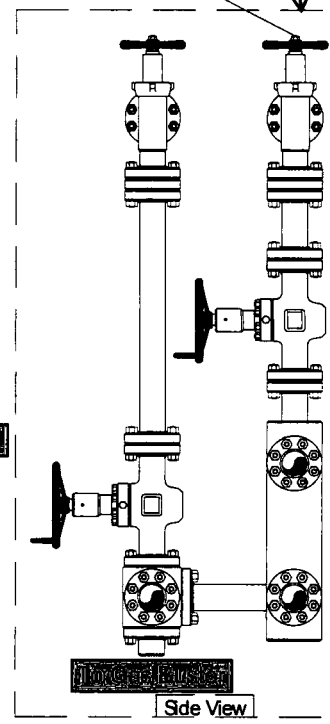
End View



End View



Side View



Side View

Helmerich & Payne
Flex 3 Rig w/ 3 Chokes

devon

Name: Mike Potts	Date: 6-23-2010	Working Pressure: 10M	J-5132-E
------------------	-----------------	-----------------------	----------

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 07-T26S-R34E

Jayhawk 7 FED 14H

Wellbore #1

Permit Plan 1

Anticollision Report

24 July, 2018

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	7/24/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,619.98	Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 07-T26S-R34E						
Ichabod 7 Federal 01H - Wellbore #1 - Wellbore #1						Out of range
Ichabod 7 Federal 04H - Wellbore #1 - Wellbore #1						Out of range
Jayhawk 7 FED 10H - Wellbore #1 - Permit Plan 1	2,800.00	2,813.50	1,304.80	1,285.10	66.233	CC
Jayhawk 7 FED 10H - Wellbore #1 - Permit Plan 1	2,850.00	2,863.50	1,304.93	1,284.87	65.060	ES
Jayhawk 7 FED 10H - Wellbore #1 - Permit Plan 1	6,050.00	6,009.18	1,497.60	1,454.83	35.013	SF
Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1	2,800.00	2,801.60	30.00	10.34	1.526	Minor Risk, CC
Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1	2,850.00	2,851.60	30.13	10.11	1.505	Minor Risk, ES
Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1	2,900.00	2,901.59	30.52	10.14	1.498	Major Risk, SF
Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1	2,500.00	2,501.80	60.00	42.49	3.427	Alert, CC
Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1	2,600.00	2,601.26	60.45	42.23	3.318	Alert, ES
Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1	2,700.00	2,700.64	61.88	42.95	3.268	Alert, SF
Jayhawk 7 Fed 13H - Wellbore #1 - Permit Plan 1	17,619.05	17,439.29	652.87	489.04	3.985	Alert, CC, ES, SF
Jayhawk 7 FED 16H - Wellbore #1 - Permit Plan 1						Out of range
Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1	3,154.88	3,211.61	1,221.34	1,199.00	54.670	CC
Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1	17,620.47	17,198.03	1,329.42	1,168.04	8.238	ES, SF
Jayhawk 7 FED 9H - Wellbore #1 - Permit Plan 1	1,951.78	1,965.98	1,334.80	1,321.17	97.912	CC
Jayhawk 7 FED 9H - Wellbore #1 - Permit Plan 1	2,850.00	2,863.15	1,335.46	1,315.41	66.592	ES
Jayhawk 7 FED 9H - Wellbore #1 - Permit Plan 1	7,050.00	7,059.74	1,498.48	1,448.13	29.757	SF
Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1	2,500.00	2,499.80	30.00	12.50	1.714	Minor Risk, CC
Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1	2,550.00	2,549.60	30.16	12.31	1.689	Minor Risk, ES
Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1	4,700.00	4,702.20	49.96	16.72	1.503	Minor Risk, SF
Jayhawk 7-6 FED Fee Com 6H - Wellbore #1 - Permit PI						Out of range
Jayhawk 7-6 FED Fee Com 7H - Wellbore #1 - Permit PI						Out of range
Jayhawk 7-6 FED Fee Com 8H - Wellbore #1 - Permit PI						Out of range

Sec 07-T26S-R34E - Jayhawk 7 FED 10H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	13.50	13.50	0.50	0.50	89.56	10.03	1,304.76	1,304.80				
50.00	50.00	63.50	63.50	0.50	0.51	89.56	10.03	1,304.76	1,304.80	1,303.79	1.01	1,292.858	
100.00	100.00	113.50	113.50	0.52	0.53	89.56	10.03	1,304.76	1,304.80	1,303.75	1.05	1,242.513	
150.00	150.00	163.50	163.50	0.59	0.62	89.56	10.03	1,304.76	1,304.80	1,303.59	1.21	1,080.526	

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 10H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: O-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)			
200.00	200.00	213.50	213.50	0.70	0.74	89.56	10.03	1,304.76	1,304.80	1,303.36	1.44	906.750	
250.00	250.00	263.50	263.50	0.84	0.88	89.56	10.03	1,304.76	1,304.80	1,303.09	1.71	760.936	
300.00	300.00	313.50	313.50	0.99	1.03	89.56	10.03	1,304.76	1,304.80	1,302.78	2.02	647.001	
350.00	350.00	363.50	363.50	1.15	1.19	89.56	10.03	1,304.76	1,304.80	1,302.47	2.33	558.871	
400.00	400.00	413.50	413.50	1.31	1.35	89.56	10.03	1,304.76	1,304.80	1,302.14	2.66	489.968	
450.00	450.00	463.50	463.50	1.48	1.52	89.56	10.03	1,304.76	1,304.80	1,301.80	3.00	435.184	
500.00	500.00	513.50	513.50	1.65	1.69	89.56	10.03	1,304.76	1,304.80	1,301.46	3.34	390.852	
550.00	550.00	563.50	563.50	1.82	1.86	89.56	10.03	1,304.76	1,304.80	1,301.12	3.68	354.381	
600.00	600.00	613.50	613.50	1.99	2.04	89.56	10.03	1,304.76	1,304.80	1,300.77	4.03	323.926	
650.00	650.00	663.50	663.50	2.16	2.21	89.56	10.03	1,304.76	1,304.80	1,300.42	4.38	298.156	
700.00	700.00	713.50	713.50	2.34	2.39	89.56	10.03	1,304.76	1,304.80	1,300.08	4.73	276.094	
750.00	750.00	763.50	763.50	2.51	2.56	89.56	10.03	1,304.76	1,304.80	1,299.72	5.08	257.010	
800.00	800.00	813.50	813.50	2.69	2.74	89.56	10.03	1,304.76	1,304.80	1,299.37	5.43	240.350	
850.00	850.00	863.50	863.50	2.87	2.91	89.56	10.03	1,304.76	1,304.80	1,299.02	5.78	225.687	
900.00	900.00	913.50	913.50	3.04	3.09	89.56	10.03	1,304.76	1,304.80	1,298.67	6.13	212.687	
950.00	950.00	963.50	963.50	3.22	3.27	89.56	10.03	1,304.76	1,304.80	1,298.31	6.49	201.086	
1,000.00	1,000.00	1,013.50	1,013.50	3.40	3.45	89.56	10.03	1,304.76	1,304.80	1,297.96	6.84	190.671	
1,050.00	1,050.00	1,063.50	1,063.50	3.58	3.62	89.56	10.03	1,304.76	1,304.80	1,297.60	7.20	181.272	
1,100.00	1,100.00	1,113.50	1,113.50	3.75	3.80	89.56	10.03	1,304.76	1,304.80	1,297.25	7.55	172.749	
1,150.00	1,150.00	1,163.50	1,163.50	3.93	3.98	89.56	10.03	1,304.76	1,304.80	1,296.89	7.91	164.984	
1,200.00	1,200.00	1,213.50	1,213.50	4.11	4.16	89.56	10.03	1,304.76	1,304.80	1,296.54	8.26	157.883	
1,250.00	1,250.00	1,263.50	1,263.50	4.29	4.33	89.56	10.03	1,304.76	1,304.80	1,296.18	8.62	151.364	
1,300.00	1,300.00	1,313.50	1,313.50	4.46	4.51	89.56	10.03	1,304.76	1,304.80	1,295.82	8.98	145.358	
1,350.00	1,350.00	1,363.50	1,363.50	4.64	4.69	89.56	10.03	1,304.76	1,304.80	1,295.47	9.33	139.809	
1,400.00	1,400.00	1,413.50	1,413.50	4.82	4.87	89.56	10.03	1,304.76	1,304.80	1,295.11	9.69	134.665	
1,450.00	1,450.00	1,463.50	1,463.50	5.00	5.05	89.56	10.03	1,304.76	1,304.80	1,294.76	10.05	129.884	
1,500.00	1,500.00	1,513.50	1,513.50	5.18	5.23	89.56	10.03	1,304.76	1,304.80	1,294.40	10.40	125.430	
1,550.00	1,550.00	1,563.50	1,563.50	5.36	5.40	89.56	10.03	1,304.76	1,304.80	1,294.04	10.76	121.270	
1,600.00	1,600.00	1,613.50	1,613.50	5.53	5.58	89.56	10.03	1,304.76	1,304.80	1,293.68	11.12	117.376	
1,650.00	1,650.00	1,663.50	1,663.50	5.71	5.76	89.56	10.03	1,304.76	1,304.80	1,293.33	11.47	113.723	
1,700.00	1,700.00	1,713.50	1,713.50	5.89	5.94	89.56	10.03	1,304.76	1,304.80	1,292.97	11.83	110.290	
1,750.00	1,750.00	1,763.50	1,763.50	6.07	6.12	89.56	10.03	1,304.76	1,304.80	1,292.61	12.19	107.057	
1,800.00	1,800.00	1,813.50	1,813.50	6.25	6.30	89.56	10.03	1,304.76	1,304.80	1,292.26	12.55	104.008	
1,850.00	1,850.00	1,863.50	1,863.50	6.43	6.48	89.56	10.03	1,304.76	1,304.80	1,291.90	12.90	101.127	
1,900.00	1,900.00	1,913.50	1,913.50	6.61	6.65	89.56	10.03	1,304.76	1,304.80	1,291.54	13.26	98.401	
1,950.00	1,950.00	1,963.50	1,963.50	6.78	6.83	89.56	10.03	1,304.76	1,304.80	1,291.18	13.62	95.818	
2,000.00	2,000.00	2,013.50	2,013.50	6.96	7.01	89.56	10.03	1,304.76	1,304.80	1,290.83	13.97	93.367	
2,050.00	2,050.00	2,063.50	2,063.50	7.14	7.19	89.56	10.03	1,304.76	1,304.80	1,290.47	14.33	91.038	
2,100.00	2,100.00	2,113.50	2,113.50	7.32	7.37	89.56	10.03	1,304.76	1,304.80	1,290.11	14.69	88.821	
2,150.00	2,150.00	2,163.50	2,163.50	7.50	7.55	89.56	10.03	1,304.76	1,304.80	1,289.75	15.05	86.710	
2,200.00	2,200.00	2,213.50	2,213.50	7.68	7.73	89.56	10.03	1,304.76	1,304.80	1,289.40	15.41	84.697	
2,250.00	2,250.00	2,263.50	2,263.50	7.86	7.91	89.56	10.03	1,304.76	1,304.80	1,289.04	15.76	82.775	
2,300.00	2,300.00	2,313.50	2,313.50	8.04	8.08	89.56	10.03	1,304.76	1,304.80	1,288.68	16.12	80.938	
2,350.00	2,350.00	2,363.50	2,363.50	8.22	8.26	89.56	10.03	1,304.76	1,304.80	1,288.32	16.48	79.180	
2,400.00	2,400.00	2,413.50	2,413.50	8.39	8.44	89.56	10.03	1,304.76	1,304.80	1,287.96	16.84	77.498	
2,450.00	2,450.00	2,463.50	2,463.50	8.57	8.62	89.56	10.03	1,304.76	1,304.80	1,287.61	17.19	75.885	
2,500.00	2,500.00	2,513.50	2,513.50	8.75	8.80	89.56	10.03	1,304.76	1,304.80	1,287.25	17.55	74.338	
2,550.00	2,550.00	2,563.50	2,563.50	8.93	8.98	89.56	10.03	1,304.76	1,304.80	1,286.89	17.91	72.852	
2,600.00	2,600.00	2,613.50	2,613.50	9.11	9.16	89.56	10.03	1,304.76	1,304.80	1,286.53	18.27	71.425	
2,650.00	2,650.00	2,663.50	2,663.50	9.29	9.34	89.56	10.03	1,304.76	1,304.80	1,286.18	18.63	70.052	
2,700.00	2,700.00	2,713.50	2,713.50	9.47	9.52	89.56	10.03	1,304.76	1,304.80	1,285.82	18.98	68.731	
2,750.00	2,750.00	2,763.50	2,763.50	9.65	9.70	89.56	10.03	1,304.76	1,304.80	1,285.46	19.34	67.459	

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:		0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:		0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
2,800.00	2,800.00	2,813.50	2,813.50	9.83	9.87	89.56	10.03	1,304.76	1,304.80	1,285.10	19.70	66.233 CC			
2,850.00	2,850.00	2,863.50	2,863.50	10.00	10.05	125.53	10.03	1,304.76	1,304.93	1,284.87	20.06	65.060 ES			
2,900.00	2,899.99	2,913.49	2,913.49	10.18	10.23	125.55	10.03	1,304.76	1,305.31	1,284.89	20.41	63.941			
2,950.00	2,949.98	2,963.48	2,963.48	10.36	10.41	125.58	10.03	1,304.76	1,305.94	1,285.17	20.77	62.875			
3,000.00	2,999.96	3,013.46	3,013.46	10.54	10.59	125.63	10.03	1,304.76	1,306.83	1,285.71	21.13	61.858			
3,050.00	3,049.92	3,063.42	3,063.42	10.72	10.77	125.69	10.03	1,304.76	1,307.98	1,286.49	21.48	60.886			
3,100.00	3,099.86	3,113.36	3,113.36	10.89	10.95	125.76	10.03	1,304.76	1,309.38	1,287.54	21.84	59.958			
3,150.00	3,149.78	3,163.28	3,163.28	11.07	11.13	125.85	10.03	1,304.76	1,311.04	1,288.84	22.19	59.072			
3,200.00	3,199.68	3,213.18	3,213.18	11.25	11.31	125.95	10.03	1,304.76	1,312.96	1,290.41	22.55	58.225			
3,250.00	3,249.55	3,263.05	3,263.05	11.43	11.48	126.07	10.03	1,304.76	1,315.00	1,292.10	22.91	57.409			
3,300.00	3,299.43	3,312.93	3,312.93	11.60	11.66	126.19	10.03	1,304.76	1,317.05	1,293.79	23.26	56.619			
3,350.00	3,349.31	3,362.81	3,362.81	11.78	11.84	126.31	10.03	1,304.76	1,319.10	1,295.49	23.62	55.852			
3,400.00	3,399.19	3,412.69	3,412.69	11.96	12.02	126.44	10.03	1,304.76	1,321.16	1,297.19	23.97	55.108			
3,450.00	3,449.07	3,462.57	3,462.57	12.14	12.20	126.56	10.03	1,304.76	1,323.23	1,298.90	24.33	54.386			
3,500.00	3,498.95	3,512.45	3,512.45	12.32	12.38	126.68	10.03	1,304.76	1,325.30	1,300.62	24.69	53.685			
3,550.00	3,548.83	3,562.33	3,562.33	12.50	12.56	126.80	10.03	1,304.76	1,327.38	1,302.34	25.04	53.003			
3,600.00	3,598.71	3,612.21	3,612.21	12.68	12.73	126.92	10.03	1,304.76	1,329.46	1,304.06	25.40	52.340			
3,650.00	3,648.59	3,662.09	3,662.09	12.86	12.91	127.03	10.03	1,304.76	1,331.55	1,305.80	25.76	51.696			
3,700.00	3,698.47	3,711.97	3,711.97	13.04	13.09	127.15	10.03	1,304.76	1,333.65	1,307.53	26.11	51.070			
3,750.00	3,748.35	3,761.85	3,761.85	13.22	13.27	127.27	10.03	1,304.76	1,335.75	1,309.28	26.47	50.460			
3,800.00	3,798.23	3,811.73	3,811.73	13.40	13.45	127.39	10.03	1,304.76	1,337.86	1,311.03	26.83	49.866			
3,850.00	3,848.11	3,861.61	3,861.61	13.58	13.63	127.51	10.03	1,304.76	1,339.97	1,312.78	27.19	49.289			
3,900.00	3,897.99	3,911.49	3,911.49	13.76	13.81	127.63	10.03	1,304.76	1,342.09	1,314.54	27.54	48.726			
3,950.00	3,947.87	3,961.37	3,961.37	13.94	13.99	127.74	10.03	1,304.76	1,344.21	1,316.31	27.90	48.177			
4,000.00	3,997.75	4,009.93	4,009.93	14.12	14.16	127.86	10.04	1,304.77	1,346.34	1,318.09	28.25	47.652			
4,050.00	4,047.63	4,053.97	4,053.97	14.30	14.32	127.95	10.31	1,304.92	1,348.64	1,320.05	28.59	47.173			
4,100.00	4,097.51	4,098.03	4,098.02	14.48	14.47	128.02	10.95	1,305.27	1,351.15	1,322.22	28.92	46.713			
4,150.00	4,147.39	4,142.10	4,142.07	14.66	14.63	128.08	11.96	1,305.83	1,353.88	1,324.62	29.26	46.273			
4,200.00	4,197.27	4,186.16	4,186.11	14.84	14.79	128.12	13.34	1,306.59	1,356.82	1,327.23	29.59	45.852			
4,250.00	4,247.15	4,230.22	4,230.12	15.02	14.94	128.15	15.09	1,307.55	1,359.98	1,330.06	29.92	45.447			
4,300.00	4,297.03	4,274.25	4,274.09	15.20	15.10	128.16	17.21	1,308.72	1,363.36	1,333.10	30.26	45.060			
4,350.00	4,346.90	4,318.26	4,318.01	15.38	15.26	128.15	19.70	1,310.09	1,366.95	1,336.36	30.59	44.689			
4,400.00	4,396.78	4,364.20	4,363.82	15.56	15.42	128.13	22.67	1,311.73	1,370.74	1,339.81	30.93	44.321			
4,450.00	4,446.66	4,414.04	4,413.52	15.74	15.60	128.10	25.98	1,313.55	1,374.58	1,343.29	31.28	43.939			
4,500.00	4,496.54	4,463.89	4,463.22	15.92	15.78	128.07	29.29	1,315.37	1,378.42	1,346.78	31.64	43.565			
4,550.00	4,546.42	4,513.74	4,512.93	16.11	15.95	128.05	32.59	1,317.20	1,382.26	1,350.26	32.00	43.200			
4,600.00	4,596.30	4,563.59	4,562.63	16.29	16.13	128.02	35.90	1,319.02	1,386.10	1,353.75	32.35	42.842			
4,650.00	4,646.18	4,613.44	4,612.34	16.47	16.31	127.99	39.21	1,320.84	1,389.94	1,357.23	32.71	42.492			
4,700.00	4,696.06	4,663.28	4,662.04	16.65	16.49	127.97	42.52	1,322.66	1,393.78	1,360.71	33.07	42.149			
4,750.00	4,745.94	4,713.13	4,711.75	16.83	16.67	127.94	45.83	1,324.49	1,397.62	1,364.20	33.43	41.813			
4,800.00	4,795.82	4,762.98	4,761.45	17.01	16.84	127.91	49.13	1,326.31	1,401.46	1,367.68	33.78	41.484			
4,850.00	4,845.70	4,812.83	4,811.16	17.19	17.02	127.89	52.44	1,328.13	1,405.31	1,371.17	34.14	41.162			
4,900.00	4,895.58	4,862.68	4,860.86	17.38	17.20	127.86	55.75	1,329.95	1,409.15	1,374.65	34.50	40.846			
4,950.00	4,945.46	4,912.52	4,910.57	17.56	17.38	127.83	59.06	1,331.78	1,412.99	1,378.13	34.86	40.537			
5,000.00	4,995.34	4,962.37	4,960.27	17.74	17.56	127.81	62.37	1,333.60	1,416.83	1,381.62	35.22	40.233			
5,050.00	5,045.22	5,012.22	5,009.98	17.92	17.74	127.78	65.67	1,335.42	1,420.68	1,385.10	35.57	39.936			
5,100.00	5,095.10	5,062.07	5,059.68	18.10	17.92	127.76	68.98	1,337.25	1,424.52	1,388.59	35.93	39.644			
5,150.00	5,144.98	5,111.92	5,109.39	18.29	18.10	127.73	72.29	1,339.07	1,428.37	1,392.07	36.29	39.358			
5,200.00	5,194.86	5,161.76	5,159.09	18.47	18.27	127.71	75.60	1,340.89	1,432.21	1,395.56	36.65	39.077			
5,250.00	5,244.74	5,211.61	5,208.80	18.65	18.45	127.68	78.91	1,342.71	1,436.05	1,399.04	37.01	38.802			
5,300.00	5,294.62	5,261.46	5,258.50	18.83	18.63	127.66	82.21	1,344.54	1,439.90	1,402.53	37.37	38.532			
5,350.00	5,344.50	5,311.31	5,308.20	19.01	18.81	127.63	85.52	1,346.36	1,443.74	1,406.02	37.73	38.267			

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 10H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
5,400.00	5,394.38	5,361.16	5,357.91	19.20	18.99	127.61	88.83	1,348.18	1,447.59	1,409.50	38.09	38.006		
5,450.00	5,444.26	5,411.00	5,407.61	19.38	19.17	127.58	92.14	1,350.01	1,451.43	1,412.99	38.45	37.751		
5,500.00	5,494.13	5,460.85	5,457.32	19.56	19.35	127.56	95.45	1,351.83	1,455.28	1,416.47	38.81	37.500		
5,550.00	5,544.01	5,510.70	5,507.02	19.74	19.53	127.53	98.76	1,353.65	1,459.13	1,419.96	39.17	37.254		
5,600.00	5,593.89	5,560.55	5,556.73	19.93	19.71	127.51	102.06	1,355.47	1,462.97	1,423.45	39.53	37.012		
5,650.00	5,643.77	5,610.40	5,606.43	20.11	19.89	127.48	105.37	1,357.30	1,466.82	1,426.93	39.89	36.774		
5,700.00	5,693.65	5,660.24	5,656.14	20.29	20.07	127.46	108.68	1,359.12	1,470.67	1,430.42	40.25	36.540		
5,750.00	5,743.53	5,710.09	5,705.84	20.47	20.25	127.44	111.99	1,360.94	1,474.51	1,433.91	40.61	36.311		
5,800.00	5,793.41	5,759.94	5,755.55	20.66	20.43	127.41	115.30	1,362.76	1,478.36	1,437.39	40.97	36.085		
5,850.00	5,843.29	5,809.79	5,805.25	20.84	20.61	127.39	118.60	1,364.59	1,482.21	1,440.88	41.33	35.863		
5,900.00	5,893.17	5,859.64	5,854.96	21.02	20.79	127.36	121.91	1,366.41	1,486.06	1,444.37	41.69	35.645		
5,950.00	5,943.05	5,909.48	5,904.66	21.20	20.97	127.34	125.22	1,368.23	1,489.90	1,447.85	42.05	35.431		
6,000.00	5,992.93	5,959.33	5,954.37	21.39	21.16	127.32	128.53	1,370.06	1,493.75	1,451.34	42.41	35.220		
6,050.00	6,042.81	6,009.18	6,004.07	21.57	21.34	127.29	131.84	1,371.88	1,497.60	1,454.83	42.77	35.013 SF		

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.00	0.00	1.60	1.60	0.50	0.50	89.56	0.23	30.00	30.00					
50.00	50.00	51.60	51.60	0.50	0.50	89.56	0.23	30.00	30.00	28.99	1.01	29.799		
100.00	100.00	101.60	101.60	0.52	0.52	89.56	0.23	30.00	30.00	28.96	1.04	28.930		
150.00	150.00	151.60	151.60	0.59	0.59	89.56	0.23	30.00	30.00	28.82	1.18	25.348		
200.00	200.00	201.60	201.60	0.70	0.71	89.56	0.23	30.00	30.00	28.59	1.41	21.304		
250.00	250.00	251.60	251.60	0.84	0.84	89.56	0.23	30.00	30.00	28.32	1.68	17.857		
300.00	300.00	301.60	301.60	0.99	0.99	89.56	0.23	30.00	30.00	28.02	1.98	15.155		
350.00	350.00	351.60	351.60	1.15	1.15	89.56	0.23	30.00	30.00	27.70	2.30	13.066		
400.00	400.00	401.60	401.60	1.31	1.31	89.56	0.23	30.00	30.00	27.38	2.62	11.436		
450.00	450.00	451.60	451.60	1.48	1.48	89.56	0.23	30.00	30.00	27.04	2.96	10.142		
500.00	500.00	501.60	501.60	1.65	1.65	89.56	0.23	30.00	30.00	26.70	3.30	9.098		
550.00	550.00	551.60	551.60	1.82	1.82	89.56	0.23	30.00	30.00	26.36	3.64	8.240		
600.00	600.00	601.60	601.60	1.99	2.00	89.56	0.23	30.00	30.00	26.01	3.99	7.525		
650.00	650.00	651.60	651.60	2.16	2.17	89.56	0.23	30.00	30.00	25.67	4.33	6.921		
700.00	700.00	701.60	701.60	2.34	2.34	89.56	0.23	30.00	30.00	25.32	4.68	6.405		
750.00	750.00	751.60	751.60	2.51	2.52	89.56	0.23	30.00	30.00	24.97	5.04	5.958		
800.00	800.00	801.60	801.60	2.69	2.70	89.56	0.23	30.00	30.00	24.61	5.39	5.569		
850.00	850.00	851.60	851.60	2.87	2.87	89.56	0.23	30.00	30.00	24.26	5.74	5.227		
900.00	900.00	901.60	901.60	3.04	3.05	89.56	0.23	30.00	30.00	23.91	6.09	4.924 Alert		
950.00	950.00	951.60	951.60	3.22	3.23	89.56	0.23	30.00	30.00	23.55	6.45	4.654 Alert		
1,000.00	1,000.00	1,001.60	1,001.60	3.40	3.40	89.56	0.23	30.00	30.00	23.20	6.80	4.411 Alert		
1,050.00	1,050.00	1,051.60	1,051.60	3.58	3.58	89.56	0.23	30.00	30.00	22.85	7.16	4.193 Alert		
1,100.00	1,100.00	1,101.60	1,101.60	3.75	3.76	89.56	0.23	30.00	30.00	22.49	7.51	3.994 Alert		
1,150.00	1,150.00	1,151.60	1,151.60	3.93	3.94	89.56	0.23	30.00	30.00	22.13	7.87	3.814 Alert		
1,200.00	1,200.00	1,201.60	1,201.60	4.11	4.11	89.56	0.23	30.00	30.00	21.78	8.22	3.649 Alert		
1,250.00	1,250.00	1,251.60	1,251.60	4.29	4.29	89.56	0.23	30.00	30.00	21.42	8.58	3.497 Alert		
1,300.00	1,300.00	1,301.60	1,301.60	4.46	4.47	89.56	0.23	30.00	30.00	21.07	8.93	3.358 Alert		
1,350.00	1,350.00	1,351.60	1,351.60	4.64	4.65	89.56	0.23	30.00	30.00	20.71	9.29	3.229 Alert		
1,400.00	1,400.00	1,401.60	1,401.60	4.82	4.83	89.56	0.23	30.00	30.00	20.35	9.65	3.110 Alert		
1,450.00	1,450.00	1,451.60	1,451.60	5.00	5.00	89.56	0.23	30.00	30.00	20.00	10.00	2.999 Alert		
1,500.00	1,500.00	1,501.60	1,501.60	5.18	5.18	89.56	0.23	30.00	30.00	19.64	10.36	2.896 Alert		
1,550.00	1,550.00	1,551.60	1,551.60	5.36	5.36	89.56	0.23	30.00	30.00	19.28	10.72	2.799 Alert		
1,600.00	1,600.00	1,601.60	1,601.60	5.53	5.54	89.56	0.23	30.00	30.00	18.93	11.07	2.709 Alert		
1,650.00	1,650.00	1,651.60	1,651.60	5.71	5.72	89.56	0.23	30.00	30.00	18.57	11.43	2.625 Alert		
1,700.00	1,700.00	1,701.60	1,701.60	5.89	5.90	89.56	0.23	30.00	30.00	18.21	11.79	2.545 Alert		
1,750.00	1,750.00	1,751.60	1,751.60	6.07	6.08	89.56	0.23	30.00	30.00	17.86	12.15	2.470 Minor Risk		
1,800.00	1,800.00	1,801.60	1,801.60	6.25	6.25	89.56	0.23	30.00	30.00	17.50	12.50	2.400 Minor Risk		
1,850.00	1,850.00	1,851.60	1,851.60	6.43	6.43	89.56	0.23	30.00	30.00	17.14	12.86	2.333 Minor Risk		
1,900.00	1,900.00	1,901.60	1,901.60	6.61	6.61	89.56	0.23	30.00	30.00	16.78	13.22	2.270 Minor Risk		
1,950.00	1,950.00	1,951.60	1,951.60	6.78	6.79	89.56	0.23	30.00	30.00	16.43	13.57	2.210 Minor Risk		
2,000.00	2,000.00	2,001.60	2,001.60	6.96	6.97	89.56	0.23	30.00	30.00	16.07	13.93	2.153 Minor Risk		
2,050.00	2,050.00	2,051.60	2,051.60	7.14	7.15	89.56	0.23	30.00	30.00	15.71	14.29	2.099 Minor Risk		
2,100.00	2,100.00	2,101.60	2,101.60	7.32	7.33	89.56	0.23	30.00	30.00	15.35	14.65	2.048 Minor Risk		
2,150.00	2,150.00	2,151.60	2,151.60	7.50	7.51	89.56	0.23	30.00	30.00	15.00	15.01	1.999 Minor Risk		
2,200.00	2,200.00	2,201.60	2,201.60	7.68	7.68	89.56	0.23	30.00	30.00	14.64	15.36	1.953 Minor Risk		
2,250.00	2,250.00	2,251.60	2,251.60	7.86	7.86	89.56	0.23	30.00	30.00	14.28	15.72	1.908 Minor Risk		
2,300.00	2,300.00	2,301.60	2,301.60	8.04	8.04	89.56	0.23	30.00	30.00	13.92	16.08	1.866 Minor Risk		
2,350.00	2,350.00	2,351.60	2,351.60	8.22	8.22	89.56	0.23	30.00	30.00	13.56	16.44	1.825 Minor Risk		
2,400.00	2,400.00	2,401.60	2,401.60	8.39	8.40	89.56	0.23	30.00	30.00	13.21	16.79	1.786 Minor Risk		
2,450.00	2,450.00	2,451.60	2,451.60	8.57	8.58	89.56	0.23	30.00	30.00	12.85	17.15	1.749 Minor Risk		
2,500.00	2,500.00	2,501.60	2,501.60	8.75	8.76	89.56	0.23	30.00	30.00	12.49	17.51	1.713 Minor Risk		
2,550.00	2,550.00	2,551.60	2,551.60	8.93	8.94	89.56	0.23	30.00	30.00	12.13	17.87	1.679 Minor Risk		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Sec 07-T26S-R34E - Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
2,600.00	2,600.00	2,601.60	2,601.60	9.11	9.12	89.56	0.23	30.00	30.00	11.78	18.23	1.646	Minor Risk	
2,650.00	2,650.00	2,651.60	2,651.60	9.29	9.29	89.56	0.23	30.00	30.00	11.42	18.58	1.614	Minor Risk	
2,700.00	2,700.00	2,701.60	2,701.60	9.47	9.47	89.56	0.23	30.00	30.00	11.06	18.94	1.584	Minor Risk	
2,750.00	2,750.00	2,751.60	2,751.60	9.65	9.65	89.56	0.23	30.00	30.00	10.70	19.30	1.554	Minor Risk	
2,800.00	2,800.00	2,801.60	2,801.60	9.83	9.83	89.56	0.23	30.00	30.00	10.34	19.66	1.526	Minor Risk, CC	
2,850.00	2,850.00	2,851.60	2,851.60	10.00	10.01	125.86	0.23	30.00	30.13	10.11	20.01	1.505	Minor Risk, ES	
2,900.00	2,899.99	2,901.59	2,901.59	10.18	10.19	126.85	0.23	30.00	30.52	10.14	20.37	1.498	Major Risk, SF	
2,950.00	2,949.98	2,951.58	2,951.58	10.36	10.37	128.45	0.23	30.00	31.18	10.45	20.73	1.504	Minor Risk	
3,000.00	2,999.96	3,001.56	3,001.56	10.54	10.55	130.57	0.23	30.00	32.15	11.07	21.08	1.525	Minor Risk	
3,050.00	3,049.92	3,051.52	3,051.52	10.72	10.73	133.11	0.23	30.00	33.46	12.03	21.44	1.561	Minor Risk	
3,100.00	3,099.86	3,101.46	3,101.46	10.89	10.91	135.96	0.23	30.00	35.15	13.35	21.80	1.613	Minor Risk	
3,150.00	3,149.78	3,151.38	3,151.38	11.07	11.08	138.97	0.23	30.00	37.24	15.09	22.15	1.681	Minor Risk	
3,200.00	3,199.68	3,201.28	3,201.28	11.25	11.26	142.05	0.23	30.00	39.77	17.26	22.51	1.767	Minor Risk	
3,250.00	3,249.55	3,251.15	3,251.15	11.43	11.44	144.92	0.23	30.00	42.56	19.69	22.86	1.861	Minor Risk	
3,300.00	3,299.43	3,301.03	3,301.03	11.60	11.62	147.43	0.23	30.00	45.44	22.22	23.22	1.957	Minor Risk	
3,350.00	3,349.31	3,350.91	3,350.91	11.78	11.80	149.64	0.23	30.00	48.40	24.83	23.57	2.053	Minor Risk	
3,400.00	3,399.19	3,400.79	3,400.79	11.96	11.98	151.60	0.23	30.00	51.43	27.50	23.93	2.149	Minor Risk	
3,450.00	3,449.07	3,450.67	3,450.67	12.14	12.16	153.33	0.23	30.00	54.50	30.22	24.29	2.244	Minor Risk	
3,500.00	3,498.95	3,500.55	3,500.55	12.32	12.33	154.88	0.23	30.00	57.63	32.98	24.64	2.339	Minor Risk	
3,550.00	3,548.83	3,550.43	3,550.43	12.50	12.51	156.26	0.23	30.00	60.79	35.79	25.00	2.432	Minor Risk	
3,600.00	3,598.71	3,600.31	3,600.31	12.68	12.69	157.51	0.23	30.00	63.98	38.62	25.36	2.523	Alert	
3,650.00	3,648.59	3,650.19	3,650.19	12.86	12.87	158.65	0.23	30.00	67.20	41.49	25.71	2.613	Alert	
3,700.00	3,698.47	3,700.07	3,700.07	13.04	13.05	159.67	0.23	30.00	70.44	44.37	26.07	2.702	Alert	
3,750.00	3,748.35	3,749.95	3,749.95	13.22	13.23	160.61	0.23	30.00	73.70	47.28	26.42	2.789	Alert	
3,800.00	3,798.23	3,800.17	3,799.83	13.40	13.41	161.47	0.23	30.00	76.98	50.20	26.78	2.874	Alert	
3,850.00	3,848.11	3,849.71	3,849.71	13.58	13.59	162.25	0.23	30.00	80.28	53.14	27.14	2.958	Alert	
3,900.00	3,897.99	3,900.41	3,899.59	13.76	13.77	162.98	0.23	30.00	83.59	56.09	27.50	3.040	Alert	
3,950.00	3,947.87	3,949.47	3,949.47	13.94	13.94	163.65	0.23	30.00	86.91	59.06	27.85	3.121	Alert	
4,000.00	3,997.75	4,000.65	3,999.35	14.12	14.13	164.27	0.23	30.00	90.25	62.04	28.21	3.199	Alert	
4,050.00	4,047.63	4,049.23	4,049.23	14.30	14.30	164.84	0.23	30.00	93.59	65.03	28.57	3.276	Alert	
4,100.00	4,097.51	4,100.89	4,099.11	14.48	14.49	165.38	0.23	30.00	96.95	68.02	28.93	3.351	Alert	
4,150.00	4,147.39	4,148.99	4,148.99	14.66	14.66	165.88	0.23	30.00	100.31	71.03	29.28	3.426	Alert	
4,200.00	4,197.27	4,201.13	4,198.87	14.84	14.84	166.35	0.23	30.00	103.67	74.03	29.65	3.497	Alert	
4,250.00	4,247.15	4,248.75	4,248.75	15.02	15.01	166.78	0.23	30.00	107.05	77.05	29.99	3.569	Alert	
4,300.00	4,297.03	4,301.37	4,298.63	15.20	15.20	167.20	0.23	30.00	110.43	80.07	30.36	3.637	Alert	
4,350.00	4,346.90	4,348.50	4,348.50	15.38	15.37	167.58	0.23	30.00	113.81	83.10	30.71	3.706	Alert	
4,400.00	4,396.78	4,401.62	4,398.38	15.56	15.56	167.95	0.23	30.00	117.20	86.12	31.08	3.771	Alert	
4,450.00	4,446.66	4,448.26	4,448.26	15.74	15.73	168.29	0.23	30.00	120.60	89.17	31.42	3.838	Alert	
4,500.00	4,496.54	4,501.86	4,498.14	15.92	15.92	168.62	0.23	30.00	124.00	92.20	31.79	3.900	Alert	
4,550.00	4,546.42	4,548.02	4,548.02	16.11	16.09	168.92	0.23	30.00	127.40	95.26	32.14	3.964	Alert	
4,600.00	4,596.30	4,602.10	4,597.90	16.29	16.28	169.22	0.23	30.00	130.80	98.29	32.51	4.023	Alert	
4,650.00	4,646.18	4,647.78	4,647.78	16.47	16.44	169.49	0.23	30.00	134.21	101.36	32.85	4.085	Alert	
4,700.00	4,696.06	4,702.34	4,697.66	16.65	16.64	169.76	0.23	30.00	137.63	104.40	33.23	4.142	Alert	
4,750.00	4,745.94	4,747.54	4,747.54	16.83	16.80	170.01	0.23	30.00	141.04	107.47	33.57	4.201	Alert	
4,800.00	4,795.82	4,802.58	4,797.42	17.01	17.00	170.25	0.23	30.00	144.46	110.51	33.95	4.256	Alert	
4,850.00	4,845.70	4,847.30	4,847.30	17.19	17.16	170.47	0.23	30.00	147.88	113.59	34.29	4.313	Alert	
4,900.00	4,895.58	4,902.82	4,897.18	17.38	17.36	170.69	0.23	30.00	151.30	116.64	34.66	4.365	Alert	
4,950.00	4,945.46	4,947.06	4,947.06	17.56	17.52	170.90	0.23	30.00	154.72	119.72	35.00	4.421	Alert	
5,000.00	4,995.34	4,996.94	4,996.94	17.74	17.70	171.10	0.23	30.00	158.15	122.79	35.36	4.473	Alert	
5,050.00	5,045.22	5,046.47	5,046.47	17.92	17.87	171.22	0.32	30.16	161.63	125.92	35.71	4.526	Alert	
5,100.00	5,095.10	5,095.97	5,095.96	18.10	18.05	171.20	0.62	30.70	165.22	129.16	36.07	4.581	Alert	
5,150.00	5,144.98	5,145.44	5,145.42	18.29	18.22	171.03	1.13	31.61	168.93	132.51	36.42	4.639	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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.00	5,194.86	5,194.89	5,194.85	18.47	18.39	170.74	1.85	32.89	172.76	135.99	36.77	4.699 Alert		
5,250.00	5,244.74	5,244.30	5,244.22	18.65	18.57	170.33	2.78	34.54	176.71	139.59	37.12	4.761 Alert		
5,300.00	5,294.62	5,293.66	5,293.53	18.83	18.74	169.80	3.91	36.56	180.79	143.33	37.46	4.826 Alert		
5,350.00	5,344.50	5,342.98	5,342.77	19.01	18.91	169.18	5.25	38.95	185.02	147.21	37.81	4.893 Alert		
5,400.00	5,394.38	5,392.24	5,391.93	19.20	19.08	168.46	6.80	41.70	189.40	151.24	38.16	4.963 Alert		
5,450.00	5,444.26	5,441.43	5,440.99	19.38	19.26	167.65	8.55	44.82	193.95	155.44	38.51	5.037		
5,500.00	5,494.13	5,490.55	5,489.95	19.56	19.43	166.77	10.50	48.30	198.68	159.83	38.85	5.114		
5,550.00	5,544.01	5,539.59	5,538.80	19.74	19.60	165.82	12.66	52.14	203.61	164.41	39.20	5.194		
5,600.00	5,593.89	5,588.55	5,587.52	19.93	19.78	164.80	15.01	56.34	208.75	169.21	39.54	5.279		
5,650.00	5,643.77	5,637.41	5,636.10	20.11	19.95	163.74	17.57	60.89	214.12	174.24	39.88	5.369		
5,700.00	5,693.65	5,686.18	5,684.54	20.29	20.12	162.63	20.32	65.79	219.73	179.51	40.22	5.463		
5,750.00	5,743.53	5,734.84	5,732.82	20.47	20.29	161.48	23.26	71.04	225.61	185.04	40.56	5.562		
5,800.00	5,793.41	5,783.38	5,780.94	20.66	20.47	160.29	26.40	76.63	231.75	190.86	40.90	5.667		
5,850.00	5,843.29	5,831.81	5,828.89	20.84	20.64	159.09	29.73	82.56	238.19	196.96	41.23	5.777		
5,900.00	5,893.17	5,880.10	5,876.65	21.02	20.81	157.86	33.25	88.83	244.93	203.37	41.56	5.893		
5,950.00	5,943.05	5,928.27	5,924.21	21.20	20.98	156.62	36.95	95.43	251.99	210.10	41.89	6.016		
6,000.00	5,992.93	5,976.66	5,971.94	21.39	21.16	155.37	40.86	102.39	259.37	217.15	42.22	6.143		
6,050.00	6,042.81	6,025.77	6,020.36	21.57	21.34	154.15	44.88	109.54	266.92	224.36	42.56	6.271		
6,100.00	6,092.69	6,074.88	6,068.79	21.75	21.51	153.00	48.89	116.69	274.58	231.67	42.91	6.399		
6,150.00	6,142.57	6,124.00	6,117.21	21.94	21.69	151.91	52.90	123.84	282.35	239.10	43.25	6.528		
6,200.00	6,192.45	6,173.11	6,165.63	22.12	21.87	150.88	56.91	130.99	290.21	246.61	43.60	6.656		
6,250.00	6,242.33	6,222.22	6,214.06	22.30	22.05	149.90	60.93	138.14	298.16	254.21	43.95	6.785		
6,300.00	6,292.21	6,271.33	6,262.48	22.48	22.23	148.98	64.94	145.29	306.19	261.90	44.29	6.913		
6,350.00	6,342.09	6,320.45	6,310.90	22.67	22.41	148.10	68.95	152.44	314.30	269.65	44.64	7.040		
6,400.00	6,391.97	6,369.56	6,359.33	22.85	22.59	147.26	72.97	159.59	322.47	277.48	44.99	7.167		
6,450.00	6,441.85	6,418.67	6,407.75	23.03	22.77	146.47	76.98	166.74	330.71	285.37	45.34	7.294		
6,500.00	6,491.73	6,467.78	6,456.17	23.22	22.96	145.71	80.99	173.89	339.00	293.31	45.69	7.420		
6,550.00	6,541.61	6,516.90	6,504.60	23.40	23.14	144.99	85.00	181.04	347.36	301.32	46.04	7.545		
6,600.00	6,591.48	6,566.01	6,553.02	23.58	23.32	144.31	89.02	188.19	355.76	309.37	46.39	7.669		
6,650.00	6,641.36	6,615.12	6,601.44	23.76	23.51	143.65	93.03	195.34	364.21	317.47	46.74	7.792		
6,700.00	6,691.24	6,664.23	6,649.87	23.95	23.69	143.03	97.04	202.49	372.71	325.61	47.09	7.914		
6,750.00	6,741.12	6,713.35	6,698.29	24.13	23.87	142.43	101.06	209.64	381.24	333.80	47.45	8.035		
6,800.00	6,791.00	6,762.46	6,746.71	24.31	24.06	141.86	105.07	216.79	389.82	342.02	47.80	8.155		
6,850.00	6,840.88	6,811.57	6,795.14	24.50	24.24	141.31	109.08	223.94	398.43	350.28	48.15	8.274		
6,900.00	6,890.76	6,860.68	6,843.56	24.68	24.43	140.79	113.09	231.09	407.08	358.57	48.51	8.392		
6,950.00	6,940.64	6,909.80	6,891.98	24.86	24.61	140.29	117.11	238.24	415.75	366.89	48.86	8.509		
7,000.00	6,990.52	6,958.91	6,940.41	25.05	24.80	139.80	121.12	245.39	424.46	375.25	49.21	8.625		
7,050.00	7,040.40	7,008.02	6,988.83	25.23	24.99	139.34	125.13	252.54	433.20	383.63	49.57	8.739		
7,100.00	7,090.28	7,057.13	7,037.25	25.41	25.17	138.90	129.15	259.69	441.96	392.04	49.92	8.853		
7,150.00	7,140.16	7,106.25	7,085.68	25.60	25.36	138.47	133.16	266.84	450.75	400.47	50.28	8.965		
7,200.00	7,190.04	7,155.36	7,134.10	25.78	25.55	138.06	137.17	273.99	459.56	408.92	50.64	9.076		
7,250.00	7,239.92	7,204.47	7,182.52	25.96	25.74	137.67	141.18	281.14	468.39	417.40	50.99	9.186		
7,300.00	7,289.80	7,253.58	7,230.95	26.15	25.93	137.29	145.20	288.29	477.24	425.89	51.35	9.294		
7,350.00	7,339.68	7,302.70	7,279.37	26.33	26.11	136.92	149.21	295.44	486.11	434.41	51.70	9.402		
7,400.00	7,389.56	7,351.81	7,327.79	26.51	26.30	136.56	153.22	302.58	495.01	442.94	52.06	9.508		
7,450.00	7,439.44	7,400.92	7,376.22	26.70	26.49	136.22	157.24	309.73	503.91	451.50	52.42	9.614		
7,500.00	7,489.32	7,450.03	7,424.64	26.88	26.68	135.89	161.25	316.88	512.84	460.07	52.77	9.718		
7,550.00	7,539.20	7,500.85	7,473.06	27.06	26.88	135.58	165.26	324.03	521.78	468.64	53.14	9.819		
7,600.00	7,589.08	7,548.26	7,521.49	27.25	27.06	135.27	169.28	331.18	530.74	477.25	53.49	9.922		
7,650.00	7,638.96	7,602.63	7,569.91	27.43	27.27	134.97	173.29	338.33	539.71	485.84	53.87	10.019		
7,700.00	7,688.83	7,646.48	7,618.33	27.61	27.44	134.68	177.30	345.48	548.69	494.49	54.21	10.123		
7,750.00	7,738.71	7,704.40	7,666.76	27.80	27.67	134.41	181.31	352.63	557.69	503.10	54.60	10.215		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: O-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,788.59	7,744.71	7,715.18	27.98	27.82	134.14	185.33	359.78	566.70	511.78	54.92	10.318	
7,850.00	7,838.47	7,806.18	7,763.60	28.16	28.06	133.88	189.34	366.93	575.72	520.40	55.33	10.406	
7,900.00	7,888.35	7,842.93	7,812.03	28.35	28.21	133.62	193.35	374.08	584.76	529.12	55.64	10.510	
7,950.00	7,938.23	7,892.05	7,860.45	28.53	28.40	133.38	197.37	381.23	593.80	537.80	56.00	10.604	
8,000.00	7,988.11	7,941.16	7,908.87	28.71	28.59	133.14	201.38	388.38	602.86	546.50	56.36	10.697	
8,050.00	8,037.99	7,990.27	7,957.29	28.90	28.78	132.91	205.39	395.53	611.92	555.20	56.72	10.789	
8,100.00	8,087.87	8,039.38	8,005.72	29.08	28.97	132.68	209.40	402.68	620.99	563.91	57.08	10.880	
8,150.00	8,137.75	8,088.50	8,054.14	29.27	29.17	132.47	213.42	409.83	630.07	572.64	57.44	10.970	
8,200.00	8,187.63	8,137.61	8,102.56	29.45	29.36	132.25	217.43	416.98	639.17	581.37	57.80	11.059	
8,250.00	8,237.51	8,186.72	8,150.99	29.63	29.55	132.05	221.44	424.13	648.26	590.11	58.16	11.147	
8,300.00	8,287.39	8,235.83	8,199.41	29.82	29.75	131.85	225.46	431.28	657.37	598.85	58.52	11.234	
8,350.00	8,337.27	8,284.95	8,247.83	30.00	29.94	131.65	229.47	438.43	666.49	607.61	58.88	11.320	
8,400.00	8,387.15	8,334.06	8,296.26	30.18	30.13	131.47	233.48	445.58	675.61	616.37	59.24	11.405	
8,450.00	8,437.03	8,383.17	8,344.68	30.37	30.33	131.28	237.49	452.73	684.74	625.14	59.60	11.489	
8,500.00	8,486.91	8,432.28	8,393.10	30.55	30.52	131.10	241.51	459.88	693.87	633.91	59.96	11.572	
8,550.00	8,536.79	8,481.40	8,441.53	30.73	30.72	130.93	245.52	467.03	703.01	642.69	60.32	11.654	
8,600.00	8,586.67	8,530.51	8,489.95	30.92	30.91	130.76	249.53	474.18	712.16	651.48	60.68	11.736	
8,650.00	8,636.55	8,579.62	8,538.37	31.10	31.11	130.59	253.55	481.33	721.31	660.27	61.04	11.816	
8,700.00	8,686.43	8,628.73	8,586.80	31.29	31.30	130.43	257.56	488.48	730.47	669.07	61.41	11.896	
8,750.00	8,736.31	8,677.85	8,635.22	31.47	31.50	130.27	261.57	495.63	739.64	677.87	61.77	11.975	
8,800.00	8,786.18	8,726.96	8,683.64	31.65	31.69	130.12	265.58	502.78	748.81	686.68	62.13	12.053	
8,850.00	8,836.06	8,776.07	8,732.07	31.84	31.89	129.97	269.60	509.92	757.98	695.49	62.49	12.130	
8,900.00	8,885.94	8,825.18	8,780.49	32.02	32.08	129.82	273.61	517.07	767.16	704.31	62.85	12.206	
8,950.00	8,935.82	8,874.30	8,828.91	32.20	32.28	129.68	277.62	524.22	776.35	713.13	63.21	12.281	
9,000.00	8,985.70	8,923.41	8,877.34	32.39	32.47	129.54	281.64	531.37	785.54	721.96	63.58	12.356	
9,050.00	9,035.58	8,972.52	8,925.76	32.57	32.67	129.40	285.65	538.52	794.73	730.79	63.94	12.429	
9,100.00	9,085.46	9,021.63	8,974.18	32.76	32.87	129.27	289.66	545.67	803.93	739.63	64.30	12.502	
9,150.00	9,135.34	9,070.75	9,022.61	32.94	33.06	129.14	293.67	552.82	813.13	748.47	64.66	12.575	
9,200.00	9,185.22	9,119.86	9,071.03	33.12	33.26	129.01	297.69	559.97	822.34	757.31	65.03	12.646	
9,250.00	9,235.10	9,168.97	9,119.45	33.31	33.46	128.88	301.70	567.12	831.55	766.16	65.39	12.717	
9,300.00	9,284.98	9,218.08	9,167.88	33.49	33.65	128.76	305.71	574.27	840.76	775.01	65.75	12.787	
9,350.00	9,334.86	9,267.20	9,216.30	33.68	33.85	128.64	309.73	581.42	849.98	783.87	66.12	12.856	
9,400.00	9,384.74	9,316.31	9,264.72	33.86	34.05	128.53	313.74	588.57	859.20	792.72	66.48	12.924	
9,450.00	9,434.62	9,365.42	9,313.15	34.04	34.25	128.41	317.75	595.72	868.43	801.59	66.84	12.992	
9,500.00	9,484.50	9,414.53	9,361.57	34.23	34.44	128.30	321.77	602.87	877.66	810.45	67.21	13.059	
9,550.00	9,534.38	9,463.65	9,409.99	34.41	34.64	128.19	325.78	610.02	886.89	819.32	67.57	13.126	
9,600.00	9,584.26	9,512.76	9,458.42	34.59	34.84	128.08	329.79	617.17	896.12	828.19	67.93	13.191	
9,650.00	9,634.14	9,561.87	9,506.84	34.78	35.04	127.98	333.80	624.32	905.36	837.06	68.30	13.256	
9,700.00	9,684.02	9,610.98	9,555.26	34.96	35.23	127.87	337.82	631.47	914.60	845.94	68.66	13.321	
9,750.00	9,733.90	9,660.10	9,603.69	35.15	35.43	127.77	341.83	638.62	923.84	854.82	69.02	13.385	
9,800.00	9,783.78	9,709.21	9,652.11	35.33	35.63	127.68	345.84	645.77	933.09	863.70	69.39	13.448	
9,850.00	9,833.66	9,758.32	9,700.53	35.51	35.83	127.58	349.86	652.92	942.33	872.58	69.75	13.510	
9,900.00	9,883.53	9,807.43	9,748.96	35.70	36.03	127.48	353.87	660.07	951.58	881.47	70.11	13.572	
9,950.00	9,933.41	9,856.55	9,797.38	35.88	36.23	127.39	357.88	667.22	960.84	890.36	70.48	13.633	
10,000.00	9,983.29	9,905.66	9,845.80	36.07	36.42	127.30	361.89	674.37	970.09	899.25	70.84	13.694	
10,050.00	10,033.17	9,954.77	9,894.23	36.25	36.62	127.21	365.91	681.52	979.35	908.14	71.21	13.753	
10,100.00	10,083.05	10,003.88	9,942.65	36.43	36.82	127.12	369.92	688.67	988.61	917.04	71.57	13.813	
10,150.00	10,132.93	10,053.00	9,991.07	36.62	37.02	127.03	373.93	695.82	997.87	925.94	71.94	13.872	
10,200.00	10,182.81	10,102.11	10,039.50	36.80	37.22	126.95	377.95	702.97	1,007.14	934.84	72.30	13.930	
10,250.00	10,232.69	10,151.22	10,087.92	36.99	37.42	126.87	381.96	710.12	1,016.40	943.74	72.67	13.987	
10,300.00	10,282.57	10,200.33	10,136.34	37.17	37.62	126.78	385.97	717.26	1,025.67	952.64	73.03	14.044	
10,350.00	10,332.45	10,249.45	10,184.77	37.35	37.82	126.70	389.98	724.41	1,034.94	961.55	73.40	14.101	

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,400.00	10,382.33	10,301.44	10,233.19	37.54	38.03	126.62	394.00	731.56	1,044.22	970.45	73.77	14.155		
10,450.00	10,432.21	10,347.67	10,281.61	37.72	38.22	126.55	398.01	738.71	1,053.49	979.37	74.12	14.212		
10,500.00	10,482.09	10,396.78	10,330.04	37.91	38.42	126.47	402.02	745.86	1,062.77	988.28	74.49	14.267		
10,550.00	10,531.97	10,445.90	10,378.46	38.09	38.62	126.40	406.04	753.01	1,072.04	997.19	74.86	14.322		
10,600.00	10,581.85	10,504.99	10,426.88	38.27	38.86	126.32	410.05	760.16	1,081.32	1,006.07	75.26	14.368		
10,650.00	10,631.73	10,544.12	10,475.31	38.46	39.02	126.25	414.06	767.31	1,090.61	1,015.02	75.59	14.429		
10,700.00	10,681.61	10,606.77	10,523.73	38.64	39.27	126.18	418.07	774.46	1,099.89	1,023.89	76.00	14.472		
10,750.00	10,731.49	10,642.35	10,572.15	38.83	39.42	126.11	422.09	781.61	1,109.17	1,032.86	76.32	14.534		
10,800.00	10,781.37	10,708.54	10,620.58	39.01	39.69	126.04	426.10	788.76	1,118.46	1,041.71	76.75	14.574		
10,850.00	10,831.25	10,740.57	10,669.00	39.19	39.82	125.97	430.11	795.91	1,127.75	1,050.70	77.05	14.637		
10,900.00	10,881.13	10,789.68	10,717.42	39.38	40.02	125.91	434.13	803.06	1,137.04	1,059.63	77.41	14.688		
10,950.00	10,931.01	10,838.80	10,765.85	39.56	40.22	125.84	438.14	810.21	1,146.33	1,068.55	77.78	14.738		
11,000.00	10,980.89	10,887.91	10,814.27	39.75	40.42	125.78	442.15	817.36	1,155.62	1,077.48	78.14	14.788		
11,050.00	11,030.76	10,937.02	10,862.69	39.93	40.62	125.71	446.16	824.51	1,164.91	1,086.40	78.51	14.838		
11,100.00	11,080.64	10,986.13	10,911.12	40.11	40.82	125.65	450.18	831.66	1,174.21	1,095.33	78.88	14.887		
11,150.00	11,130.52	11,035.25	10,959.54	40.30	41.02	125.59	454.19	838.81	1,183.51	1,104.26	79.24	14.935		
11,200.00	11,180.40	11,084.36	11,007.96	40.48	41.22	125.53	458.20	845.96	1,192.80	1,113.20	79.61	14.984		
11,250.00	11,230.28	11,133.47	11,056.39	40.67	41.42	125.47	462.22	853.11	1,202.10	1,122.13	79.97	15.031		
11,300.00	11,280.16	11,182.58	11,104.81	40.85	41.63	125.41	466.23	860.26	1,211.40	1,131.06	80.34	15.078		
11,350.00	11,330.04	11,231.70	11,153.23	41.03	41.83	125.35	470.24	867.41	1,220.70	1,140.00	80.71	15.125		
11,400.00	11,379.92	11,293.68	11,214.40	41.22	42.08	125.29	475.18	875.20	1,229.83	1,148.64	81.19	15.148		
11,450.00	11,429.80	11,362.42	11,282.40	41.40	42.35	125.24	480.10	884.96	1,238.24	1,156.51	81.72	15.152		
11,500.00	11,479.68	11,431.53	11,350.93	41.59	42.63	125.22	484.44	892.70	1,245.86	1,163.62	82.24	15.149		
11,550.00	11,529.56	11,500.96	11,419.93	41.77	42.89	125.25	488.19	899.38	1,252.69	1,169.94	82.75	15.139		
11,600.00	11,579.47	11,570.71	11,489.39	41.95	43.16	125.34	491.34	904.99	1,258.48	1,175.25	83.24	15.120		
11,650.00	11,629.41	11,640.75	11,559.23	42.13	43.41	125.40	493.87	909.51	1,263.11	1,179.40	83.71	15.089		
11,700.00	11,679.38	11,711.01	11,629.39	42.31	43.67	125.45	495.79	912.93	1,266.55	1,182.39	84.17	15.048		
11,750.00	11,729.37	11,781.44	11,699.76	42.49	43.91	125.48	497.07	915.22	1,268.82	1,184.21	84.60	14.997		
11,800.00	11,779.37	11,851.96	11,770.27	42.67	44.16	125.48	497.73	916.37	1,269.89	1,184.86	85.03	14.935		
11,850.00	11,829.37	11,912.66	11,830.97	42.84	44.36	89.52	497.81	916.53	1,270.00	1,184.60	85.41	14.870		
11,900.00	11,879.37	11,962.66	11,880.97	43.02	44.53	89.52	497.81	916.53	1,270.00	1,184.25	85.75	14.810		
11,950.00	11,929.37	12,012.66	11,930.97	43.19	44.70	89.52	497.81	916.53	1,270.00	1,183.90	86.10	14.750		
12,000.00	11,979.37	12,062.66	11,980.97	43.37	44.87	89.52	497.81	916.53	1,270.00	1,183.55	86.45	14.690		
12,050.00	12,029.37	12,112.66	12,030.97	43.54	45.04	89.52	497.81	916.53	1,270.00	1,183.20	86.80	14.632		
12,100.00	12,079.37	12,162.66	12,080.97	43.72	45.21	89.52	497.81	916.53	1,270.00	1,182.85	87.15	14.573		
12,150.00	12,129.37	12,212.66	12,130.97	43.90	45.38	89.52	497.81	916.53	1,270.00	1,182.51	87.50	14.515		
12,200.00	12,179.33	12,262.72	12,181.02	44.06	45.54	-90.44	497.31	916.53	1,270.01	1,182.18	87.83	14.460		
12,250.00	12,228.97	12,312.96	12,231.06	44.21	45.69	-90.50	493.01	916.56	1,270.05	1,181.92	88.13	14.411		
12,300.00	12,277.91	12,363.35	12,280.67	44.35	45.83	-90.57	484.31	916.63	1,270.12	1,181.70	88.41	14.365		
12,350.00	12,325.77	12,413.87	12,329.46	44.48	45.96	-90.63	471.25	916.73	1,270.21	1,181.53	88.68	14.323		
12,400.00	12,372.21	12,464.53	12,377.04	44.60	46.08	-90.68	453.89	916.85	1,270.32	1,181.40	88.93	14.285		
12,450.00	12,416.85	12,515.31	12,423.01	44.71	46.18	-90.73	432.34	917.01	1,270.47	1,181.31	89.15	14.250		
12,500.00	12,459.36	12,566.23	12,466.99	44.81	46.27	-90.78	406.74	917.20	1,270.63	1,181.27	89.36	14.219		
12,550.00	12,499.42	12,617.26	12,508.63	44.89	46.35	-90.82	377.26	917.42	1,270.82	1,181.26	89.55	14.191		
12,600.00	12,536.72	12,668.41	12,547.56	44.96	46.41	-90.85	344.11	917.67	1,271.02	1,181.29	89.73	14.165		
12,650.00	12,570.98	12,719.66	12,583.45	45.02	46.46	-90.88	307.55	917.94	1,271.25	1,181.36	89.89	14.142		
12,700.00	12,601.94	12,771.00	12,615.99	45.08	46.50	-90.90	267.86	918.24	1,271.49	1,181.45	90.04	14.122		
12,750.00	12,629.35	12,822.43	12,644.88	45.12	46.52	-90.91	225.34	918.55	1,271.74	1,181.57	90.18	14.103		
12,800.00	12,653.03	12,873.92	12,669.89	45.15	46.52	-90.91	180.35	918.89	1,272.01	1,181.70	90.30	14.086		
12,850.00	12,672.77	12,925.48	12,690.77	45.18	46.52	-90.91	133.23	919.24	1,272.28	1,181.86	90.43	14.070		
12,900.00	12,688.44	12,977.08	12,707.35	45.22	46.51	-90.90	84.38	919.60	1,272.57	1,182.03	90.54	14.055		
12,950.00	12,699.91	13,028.72	12,719.47	45.25	46.50	-90.89	34.21	919.97	1,272.86	1,182.21	90.65	14.042		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 11H - 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		Minimum		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor	
13,000.00	12,707.10	13,080.37	12,727.03	45.30	46.48	-90.86	-16.87	920.35	1,273.15	1,182.39	90.75	14.029	
13,050.00	12,709.95	13,132.03	12,729.96	45.34	46.47	-90.83	-68.43	920.73	1,273.44	1,182.59	90.85	14.017	
13,100.00	12,710.00	13,182.25	12,730.00	45.40	46.46	-90.83	-118.64	921.11	1,273.73	1,182.77	90.96	14.004	
13,150.00	12,710.00	13,232.25	12,730.00	45.47	46.47	-90.83	-168.64	921.48	1,274.02	1,182.93	91.09	13.986	
13,200.00	12,710.00	13,282.25	12,730.00	45.55	46.49	-90.83	-218.64	921.85	1,274.31	1,183.08	91.23	13.968	
13,250.00	12,710.00	13,332.24	12,730.00	45.65	46.53	-90.83	-268.64	922.22	1,274.61	1,183.20	91.41	13.944	
13,300.00	12,710.00	13,382.24	12,730.00	45.75	46.59	-90.83	-318.63	922.59	1,274.90	1,183.30	91.59	13.919	
13,350.00	12,710.00	13,432.24	12,730.00	45.87	46.66	-90.83	-368.63	922.96	1,275.19	1,183.37	91.82	13.888	
13,400.00	12,710.00	13,482.24	12,730.00	45.99	46.76	-90.83	-418.63	923.34	1,275.48	1,183.43	92.05	13.857	
13,450.00	12,710.00	13,532.24	12,730.00	46.14	46.87	-90.83	-468.63	923.71	1,275.77	1,183.46	92.32	13.820	
13,500.00	12,710.00	13,582.24	12,730.00	46.28	47.00	-90.83	-518.63	924.08	1,276.07	1,183.48	92.59	13.782	
13,550.00	12,710.00	13,632.24	12,730.00	46.45	47.14	-90.83	-568.62	924.45	1,276.36	1,183.46	92.90	13.739	
13,600.00	12,710.00	13,682.24	12,730.00	46.61	47.30	-90.83	-618.62	924.82	1,276.65	1,183.43	93.22	13.695	
13,650.00	12,710.00	13,732.24	12,730.00	46.80	47.47	-90.83	-668.62	925.19	1,276.94	1,183.37	93.58	13.646	
13,700.00	12,710.00	13,782.24	12,730.00	46.98	47.65	-90.83	-718.62	925.56	1,277.23	1,183.30	93.94	13.597	
13,750.00	12,710.00	13,832.24	12,730.00	47.19	47.84	-90.83	-768.61	925.94	1,277.53	1,183.19	94.33	13.543	
13,800.00	12,710.00	13,882.24	12,730.00	47.40	48.04	-90.83	-818.61	926.31	1,277.82	1,183.08	94.74	13.488	
13,850.00	12,710.00	13,932.23	12,730.00	47.62	48.26	-90.82	-868.61	926.68	1,278.11	1,182.94	95.17	13.429	
13,900.00	12,710.00	13,982.23	12,730.00	47.85	48.48	-90.82	-918.61	927.05	1,278.40	1,182.78	95.62	13.370	
13,950.00	12,710.00	14,032.23	12,730.00	48.09	48.72	-90.82	-968.61	927.42	1,278.69	1,182.60	96.10	13.307	
14,000.00	12,710.00	14,082.23	12,730.00	48.34	48.96	-90.82	-1,018.60	927.79	1,278.99	1,182.41	96.58	13.243	
14,050.00	12,710.00	14,132.23	12,730.00	48.60	49.22	-90.82	-1,068.60	928.16	1,279.28	1,182.18	97.09	13.176	
14,100.00	12,710.00	14,182.23	12,730.00	48.86	49.48	-90.82	-1,118.60	928.54	1,279.57	1,181.95	97.62	13.108	
14,150.00	12,710.00	14,232.23	12,730.00	49.15	49.75	-90.82	-1,168.60	928.91	1,279.86	1,181.69	98.17	13.037	
14,200.00	12,710.00	14,282.23	12,730.00	49.43	50.03	-90.82	-1,218.59	929.28	1,280.16	1,181.43	98.73	12.966	
14,250.00	12,710.00	14,332.23	12,730.00	49.73	50.33	-90.82	-1,268.59	929.65	1,280.45	1,181.13	99.32	12.892	
14,300.00	12,710.00	14,382.23	12,730.00	50.03	50.62	-90.82	-1,318.59	930.02	1,280.74	1,180.83	99.91	12.819	
14,350.00	12,710.00	14,432.23	12,730.00	50.35	50.93	-90.82	-1,368.59	930.39	1,281.03	1,180.49	100.54	12.742	
14,400.00	12,710.00	14,482.23	12,730.00	50.66	51.25	-90.82	-1,418.59	930.76	1,281.32	1,180.16	101.17	12.665	
14,450.00	12,710.00	14,532.22	12,730.00	51.00	51.57	-90.82	-1,468.58	931.14	1,281.62	1,179.79	101.82	12.587	
14,500.00	12,710.00	14,582.22	12,730.00	51.33	51.90	-90.82	-1,518.58	931.51	1,281.91	1,179.42	102.49	12.508	
14,550.00	12,710.00	14,632.22	12,730.00	51.68	52.24	-90.82	-1,568.58	931.88	1,282.20	1,179.02	103.18	12.427	
14,600.00	12,710.00	14,682.22	12,730.00	52.03	52.59	-90.82	-1,618.58	932.25	1,282.49	1,178.62	103.87	12.347	
14,650.00	12,710.00	14,732.22	12,730.00	52.39	52.95	-90.82	-1,668.57	932.62	1,282.78	1,178.19	104.59	12.264	
14,700.00	12,710.00	14,782.22	12,730.00	52.76	53.31	-90.82	-1,718.57	932.99	1,283.08	1,177.76	105.32	12.183	
14,750.00	12,710.00	14,832.22	12,730.00	53.14	53.68	-90.82	-1,768.57	933.36	1,283.37	1,177.30	106.07	12.099	
14,800.00	12,710.00	14,882.22	12,730.00	53.51	54.06	-90.82	-1,818.57	933.73	1,283.66	1,176.83	106.83	12.016	
14,850.00	12,710.00	14,932.22	12,730.00	53.91	54.44	-90.82	-1,868.57	934.11	1,283.95	1,176.35	107.61	11.932	
14,900.00	12,710.00	14,982.22	12,730.00	54.30	54.83	-90.82	-1,918.56	934.48	1,284.24	1,175.85	108.39	11.848	
14,950.00	12,710.00	15,032.22	12,730.00	54.71	55.23	-90.82	-1,968.56	934.85	1,284.54	1,175.34	109.20	11.764	
15,000.00	12,710.00	15,082.22	12,730.00	55.11	55.63	-90.82	-2,018.56	935.22	1,284.83	1,174.82	110.01	11.679	
15,050.00	12,710.00	15,132.21	12,730.00	55.53	56.05	-90.82	-2,068.56	935.59	1,285.12	1,174.28	110.84	11.594	
15,100.00	12,710.00	15,182.21	12,730.00	55.95	56.46	-90.82	-2,118.55	935.96	1,285.41	1,173.73	111.68	11.510	
15,150.00	12,710.00	15,232.21	12,730.00	56.38	56.89	-90.82	-2,168.55	936.33	1,285.70	1,173.17	112.54	11.425	
15,200.00	12,710.00	15,282.21	12,730.00	56.82	57.31	-90.82	-2,218.55	936.71	1,286.00	1,172.60	113.40	11.341	
15,250.00	12,710.00	15,332.21	12,730.00	57.26	57.75	-90.82	-2,268.55	937.08	1,286.29	1,172.01	114.28	11.256	
15,300.00	12,710.00	15,382.21	12,730.00	57.70	58.19	-90.82	-2,318.55	937.45	1,286.58	1,171.42	115.16	11.172	
15,350.00	12,710.00	15,432.21	12,730.00	58.16	58.64	-90.82	-2,368.54	937.82	1,286.87	1,170.80	116.07	11.087	
15,400.00	12,710.00	15,482.21	12,730.00	58.61	59.09	-90.82	-2,418.54	938.19	1,287.16	1,170.19	116.98	11.003	
15,450.00	12,710.00	15,532.21	12,730.00	59.08	59.55	-90.82	-2,468.54	938.56	1,287.46	1,169.55	117.90	10.920	
15,500.00	12,710.00	15,582.21	12,730.00	59.54	60.01	-90.82	-2,518.54	938.93	1,287.75	1,168.92	118.83	10.837	
15,550.00	12,710.00	15,632.21	12,730.00	60.02	60.48	-90.82	-2,568.53	939.31	1,288.04	1,168.26	119.78	10.753	

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 11H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
15,600.00	12,710.00	15,682.20	12,730.00	60.49	60.95	-90.82	-2,618.53	939.68	1,288.33	1,167.60	120.73	10.671	
15,650.00	12,710.00	15,732.20	12,730.00	60.98	61.43	-90.82	-2,668.53	940.05	1,288.63	1,166.93	121.70	10.589	
15,700.00	12,710.00	15,782.20	12,730.00	61.46	61.91	-90.82	-2,718.53	940.42	1,288.92	1,166.25	122.67	10.507	
15,750.00	12,710.00	15,832.20	12,730.00	61.96	62.40	-90.82	-2,768.53	940.79	1,289.21	1,165.56	123.65	10.426	
15,800.00	12,710.00	15,882.20	12,730.00	62.45	62.89	-90.82	-2,818.52	941.16	1,289.50	1,164.86	124.64	10.346	
15,850.00	12,710.00	15,932.20	12,730.00	62.96	63.39	-90.82	-2,868.52	941.53	1,289.79	1,164.15	125.65	10.265	
15,900.00	12,710.00	15,982.20	12,730.00	63.46	63.89	-90.82	-2,918.52	941.91	1,290.09	1,163.43	126.65	10.186	
15,950.00	12,710.00	16,032.20	12,730.00	63.97	64.39	-90.82	-2,968.52	942.28	1,290.38	1,162.70	127.67	10.107	
16,000.00	12,710.00	16,082.20	12,730.00	64.48	64.90	-90.82	-3,018.51	942.65	1,290.67	1,161.97	128.70	10.029	
16,050.00	12,710.00	16,132.20	12,730.00	65.00	65.41	-90.82	-3,068.51	943.02	1,290.96	1,161.23	129.74	9.951	
16,100.00	12,710.00	16,182.20	12,730.00	65.52	65.93	-90.82	-3,118.51	943.39	1,291.25	1,160.48	130.78	9.874	
16,150.00	12,710.00	16,232.20	12,730.00	66.05	66.45	-90.82	-3,168.51	943.76	1,291.55	1,159.72	131.83	9.797	
16,200.00	12,710.00	16,282.19	12,730.00	66.58	66.98	-90.82	-3,218.51	944.13	1,291.84	1,158.95	132.88	9.722	
16,250.00	12,710.00	16,332.19	12,730.00	67.11	67.51	-90.82	-3,268.50	944.51	1,292.13	1,158.18	133.95	9.646	
16,300.00	12,710.00	16,382.19	12,730.00	67.65	68.04	-90.82	-3,318.50	944.88	1,292.42	1,157.40	135.02	9.572	
16,350.00	12,710.00	16,432.19	12,730.00	68.19	68.57	-90.82	-3,368.50	945.25	1,292.71	1,156.61	136.10	9.498	
16,400.00	12,710.00	16,482.19	12,730.00	68.73	69.11	-90.82	-3,418.50	945.62	1,293.01	1,155.82	137.19	9.425	
16,450.00	12,710.00	16,532.19	12,730.00	69.28	69.66	-90.82	-3,468.49	945.99	1,293.30	1,155.02	138.28	9.353	
16,500.00	12,710.00	16,582.19	12,730.00	69.83	70.20	-90.82	-3,518.49	946.36	1,293.59	1,154.21	139.38	9.281	
16,550.00	12,710.00	16,632.19	12,730.00	70.38	70.75	-90.81	-3,568.49	946.73	1,293.88	1,153.39	140.49	9.210	
16,600.00	12,710.00	16,682.19	12,730.00	70.94	71.30	-90.81	-3,618.49	947.11	1,294.17	1,152.58	141.60	9.140	
16,650.00	12,710.00	16,732.19	12,730.00	71.50	71.86	-90.81	-3,668.49	947.48	1,294.47	1,151.75	142.72	9.070	
16,700.00	12,710.00	16,782.19	12,730.00	72.06	72.42	-90.81	-3,718.48	947.85	1,294.76	1,150.92	143.84	9.001	
16,750.00	12,710.00	16,832.19	12,730.00	72.63	72.98	-90.81	-3,768.48	948.22	1,295.05	1,150.08	144.97	8.933	
16,800.00	12,710.00	16,882.18	12,730.00	73.19	73.54	-90.81	-3,818.48	948.59	1,295.34	1,149.24	146.11	8.866	
16,850.00	12,710.00	16,932.18	12,730.00	73.77	74.11	-90.81	-3,868.48	948.96	1,295.64	1,148.38	147.25	8.799	
16,900.00	12,710.00	16,982.18	12,730.00	74.34	74.68	-90.81	-3,918.47	949.33	1,295.93	1,147.53	148.40	8.733	
16,950.00	12,710.00	17,032.18	12,730.00	74.92	75.25	-90.81	-3,968.47	949.70	1,296.22	1,146.67	149.55	8.667	
17,000.00	12,710.00	17,082.18	12,730.00	75.49	75.83	-90.81	-4,018.47	950.08	1,296.51	1,145.81	150.71	8.603	
17,050.00	12,710.00	17,132.18	12,730.00	76.08	76.41	-90.81	-4,068.47	950.45	1,296.80	1,144.93	151.87	8.539	
17,100.00	12,710.00	17,182.18	12,730.00	76.66	76.99	-90.81	-4,118.47	950.82	1,297.10	1,144.06	153.04	8.476	
17,150.00	12,710.00	17,232.18	12,730.00	77.25	77.57	-90.81	-4,168.46	951.19	1,297.39	1,143.18	154.21	8.413	
17,200.00	12,710.00	17,282.18	12,730.00	77.83	78.16	-90.81	-4,218.46	951.56	1,297.68	1,142.30	155.38	8.351	
17,250.00	12,710.00	17,332.18	12,730.00	78.43	78.74	-90.81	-4,268.46	951.93	1,297.97	1,141.40	156.57	8.290	
17,300.00	12,710.00	17,382.18	12,730.00	79.02	79.33	-90.81	-4,318.46	952.30	1,298.26	1,140.51	157.75	8.230	
17,350.00	12,710.00	17,432.18	12,730.00	79.61	79.93	-90.81	-4,368.45	952.68	1,298.56	1,139.61	158.94	8.170	
17,400.00	12,710.00	17,482.17	12,730.00	80.21	80.52	-90.81	-4,418.45	953.05	1,298.85	1,138.71	160.14	8.111	
17,450.00	12,710.00	17,532.17	12,730.00	80.81	81.12	-90.81	-4,468.45	953.42	1,299.14	1,137.80	161.34	8.052	
17,500.00	12,710.00	17,582.17	12,730.00	81.41	81.71	-90.81	-4,518.45	953.79	1,299.43	1,136.89	162.54	7.995	
17,550.00	12,710.00	17,632.17	12,730.00	82.02	82.32	-90.81	-4,568.45	954.16	1,299.72	1,135.98	163.75	7.937	
17,600.00	12,710.00	17,682.17	12,730.00	82.62	82.92	-90.81	-4,618.44	954.53	1,300.02	1,135.06	164.96	7.881	
17,620.47	12,710.00	17,702.64	12,730.00	82.88	83.16	-90.81	-4,638.92	954.69	1,300.14	1,134.68	165.45	7.858	

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	1.80	1.80	0.50	0.50	89.55	0.47	60.00	60.00					
50.00	50.00	51.80	51.80	0.50	0.50	89.55	0.47	60.00	60.00	59.00	1.01	59.595		
100.00	100.00	101.80	101.80	0.52	0.52	89.55	0.47	60.00	60.00	58.96	1.04	57.849		
150.00	150.00	151.80	151.80	0.59	0.59	89.55	0.47	60.00	60.00	58.82	1.18	50.680		
200.00	200.00	201.80	201.80	0.70	0.71	89.55	0.47	60.00	60.00	58.59	1.41	42.592		
250.00	250.00	251.80	251.80	0.84	0.84	89.55	0.47	60.00	60.00	58.32	1.68	35.702		
300.00	300.00	301.80	301.80	0.99	0.99	89.55	0.47	60.00	60.00	58.02	1.98	30.300		
350.00	350.00	351.80	351.80	1.15	1.15	89.55	0.47	60.00	60.00	57.71	2.30	26.124		
400.00	400.00	401.80	401.80	1.31	1.32	89.55	0.47	60.00	60.00	57.38	2.62	22.865		
450.00	450.00	451.80	451.80	1.48	1.48	89.55	0.47	60.00	60.00	57.04	2.96	20.280		
500.00	500.00	501.80	501.80	1.65	1.65	89.55	0.47	60.00	60.00	56.70	3.30	18.192		
550.00	550.00	551.80	551.80	1.82	1.82	89.55	0.47	60.00	60.00	56.36	3.64	16.477		
600.00	600.00	601.80	601.80	1.99	2.00	89.55	0.47	60.00	60.00	56.01	3.99	15.048		
650.00	650.00	651.80	651.80	2.16	2.17	89.55	0.47	60.00	60.00	55.67	4.34	13.840		
700.00	700.00	701.80	701.80	2.34	2.35	89.55	0.47	60.00	60.00	55.32	4.68	12.807		
750.00	750.00	751.80	751.80	2.51	2.52	89.55	0.47	60.00	60.00	54.97	5.04	11.915		
800.00	800.00	801.80	801.80	2.69	2.70	89.55	0.47	60.00	60.00	54.61	5.39	11.137		
850.00	850.00	851.80	851.80	2.87	2.87	89.55	0.47	60.00	60.00	54.26	5.74	10.453		
900.00	900.00	901.80	901.80	3.04	3.05	89.55	0.47	60.00	60.00	53.91	6.09	9.847		
950.00	950.00	951.80	951.80	3.22	3.23	89.55	0.47	60.00	60.00	53.55	6.45	9.306		
1,000.00	1,000.00	1,001.80	1,001.80	3.40	3.40	89.55	0.47	60.00	60.00	53.20	6.80	8.822		
1,050.00	1,050.00	1,051.80	1,051.80	3.58	3.58	89.55	0.47	60.00	60.00	52.85	7.16	8.384		
1,100.00	1,100.00	1,101.80	1,101.80	3.75	3.76	89.55	0.47	60.00	60.00	52.49	7.51	7.988		
1,150.00	1,150.00	1,151.80	1,151.80	3.93	3.94	89.55	0.47	60.00	60.00	52.13	7.87	7.627		
1,200.00	1,200.00	1,201.80	1,201.80	4.11	4.11	89.55	0.47	60.00	60.00	51.78	8.22	7.297		
1,250.00	1,250.00	1,251.80	1,251.80	4.29	4.29	89.55	0.47	60.00	60.00	51.42	8.58	6.994		
1,300.00	1,300.00	1,301.80	1,301.80	4.46	4.47	89.55	0.47	60.00	60.00	51.07	8.93	6.716		
1,350.00	1,350.00	1,351.80	1,351.80	4.64	4.65	89.55	0.47	60.00	60.00	50.71	9.29	6.458		
1,400.00	1,400.00	1,401.80	1,401.80	4.82	4.83	89.55	0.47	60.00	60.00	50.35	9.65	6.219		
1,450.00	1,450.00	1,451.80	1,451.80	5.00	5.01	89.55	0.47	60.00	60.00	50.00	10.00	5.998		
1,500.00	1,500.00	1,501.80	1,501.80	5.18	5.18	89.55	0.47	60.00	60.00	49.64	10.36	5.791		
1,550.00	1,550.00	1,551.80	1,551.80	5.36	5.36	89.55	0.47	60.00	60.00	49.28	10.72	5.598		
1,600.00	1,600.00	1,601.80	1,601.80	5.53	5.54	89.55	0.47	60.00	60.00	48.93	11.07	5.418		
1,650.00	1,650.00	1,651.80	1,651.80	5.71	5.72	89.55	0.47	60.00	60.00	48.57	11.43	5.249		
1,700.00	1,700.00	1,701.80	1,701.80	5.89	5.90	89.55	0.47	60.00	60.00	48.21	11.79	5.090		
1,750.00	1,750.00	1,751.80	1,751.80	6.07	6.08	89.55	0.47	60.00	60.00	47.86	12.15	4.940 Alert		
1,800.00	1,800.00	1,801.80	1,801.80	6.25	6.25	89.55	0.47	60.00	60.00	47.50	12.50	4.799 Alert		
1,850.00	1,850.00	1,851.80	1,851.80	6.43	6.43	89.55	0.47	60.00	60.00	47.14	12.86	4.666 Alert		
1,900.00	1,900.00	1,901.80	1,901.80	6.61	6.61	89.55	0.47	60.00	60.00	46.78	13.22	4.539 Alert		
1,950.00	1,950.00	1,951.80	1,951.80	6.78	6.79	89.55	0.47	60.00	60.00	46.43	13.58	4.420 Alert		
2,000.00	2,000.00	2,001.80	2,001.80	6.96	6.97	89.55	0.47	60.00	60.00	46.07	13.93	4.306 Alert		
2,050.00	2,050.00	2,051.80	2,051.80	7.14	7.15	89.55	0.47	60.00	60.00	45.71	14.29	4.199 Alert		
2,100.00	2,100.00	2,101.80	2,101.80	7.32	7.33	89.55	0.47	60.00	60.00	45.35	14.65	4.096 Alert		
2,150.00	2,150.00	2,151.80	2,151.80	7.50	7.51	89.55	0.47	60.00	60.00	45.00	15.01	3.999 Alert		
2,200.00	2,200.00	2,201.80	2,201.80	7.68	7.69	89.55	0.47	60.00	60.00	44.64	15.36	3.905 Alert		
2,250.00	2,250.00	2,251.80	2,251.80	7.86	7.86	89.55	0.47	60.00	60.00	44.28	15.72	3.817 Alert		
2,300.00	2,300.00	2,301.80	2,301.80	8.04	8.04	89.55	0.47	60.00	60.00	43.92	16.08	3.732 Alert		
2,350.00	2,350.00	2,351.80	2,351.80	8.22	8.22	89.55	0.47	60.00	60.00	43.56	16.44	3.650 Alert		
2,400.00	2,400.00	2,401.80	2,401.80	8.39	8.40	89.55	0.47	60.00	60.00	43.21	16.79	3.573 Alert		
2,450.00	2,450.00	2,451.80	2,451.80	8.57	8.58	89.55	0.47	60.00	60.00	42.85	17.15	3.498 Alert		
2,500.00	2,500.00	2,501.80	2,501.80	8.75	8.76	89.55	0.47	60.00	60.00	42.49	17.51	3.427 Alert, CC		
2,550.00	2,550.00	2,551.53	2,551.53	8.93	8.94	89.30	0.74	60.11	60.12	42.25	17.87	3.365 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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance		Minimum		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,600.00	2,600.00	2,601.26	2,601.25	9.11	9.11	88.58	1.50	60.43	60.45	42.23	18.22	3.318	Alert, ES	
2,650.00	2,650.00	2,650.97	2,650.94	9.29	9.29	87.41	2.76	60.96	61.03	42.45	18.58	3.285	Alert	
2,700.00	2,700.00	2,700.64	2,700.57	9.47	9.47	85.81	4.52	61.70	61.88	42.95	18.93	3.268	Alert, SF	
2,750.00	2,750.00	2,750.26	2,750.13	9.65	9.65	83.83	6.77	62.64	63.03	43.75	19.28	3.268	Alert	
2,800.00	2,800.00	2,800.06	2,799.85	9.83	9.82	81.60	9.41	63.75	64.48	44.84	19.64	3.283	Alert	
2,850.00	2,850.00	2,849.98	2,849.69	10.00	10.00	115.55	12.10	64.88	66.13	46.13	19.99	3.307	Alert	
2,900.00	2,899.99	2,900.09	2,899.53	10.18	10.18	113.98	14.78	66.01	68.03	47.68	20.35	3.343	Alert	
2,950.00	2,949.98	2,949.85	2,949.39	10.36	10.36	112.82	17.46	67.13	70.15	49.44	20.70	3.388	Alert	
3,000.00	2,999.96	3,000.21	2,999.24	10.54	10.54	112.04	20.15	68.26	72.46	51.40	21.06	3.441	Alert	
3,050.00	3,049.92	3,049.72	3,049.09	10.72	10.71	111.62	22.83	69.39	74.93	53.52	21.41	3.500	Alert	
3,100.00	3,099.86	3,100.35	3,098.93	10.89	10.89	111.53	25.51	70.51	77.57	55.80	21.77	3.563	Alert	
3,150.00	3,149.78	3,149.57	3,148.77	11.07	11.07	111.73	28.19	71.64	80.38	58.25	22.12	3.633	Alert	
3,200.00	3,199.68	3,200.52	3,198.59	11.25	11.25	112.19	30.87	72.76	83.34	60.86	22.48	3.707	Alert	
3,250.00	3,249.55	3,249.38	3,248.41	11.43	11.43	112.77	33.56	73.89	86.39	63.56	22.83	3.783	Alert	
3,300.00	3,299.43	3,300.72	3,298.22	11.60	11.61	113.30	36.24	75.01	89.45	66.25	23.20	3.856	Alert	
3,350.00	3,349.31	3,349.18	3,348.04	11.78	11.79	113.80	38.92	76.14	92.51	68.97	23.55	3.929	Alert	
3,400.00	3,399.19	3,400.92	3,397.85	11.96	11.97	114.27	41.60	77.27	95.58	71.67	23.91	3.998	Alert	
3,450.00	3,449.07	3,448.98	3,447.67	12.14	12.14	114.71	44.28	78.39	98.66	74.40	24.26	4.067	Alert	
3,500.00	3,498.95	3,501.12	3,497.48	12.32	12.33	115.13	46.96	79.52	101.74	77.12	24.63	4.132	Alert	
3,550.00	3,548.83	3,548.78	3,547.30	12.50	12.50	115.51	49.64	80.64	104.83	79.85	24.97	4.197	Alert	
3,600.00	3,598.71	3,601.32	3,597.11	12.68	12.69	115.88	52.32	81.77	107.92	82.58	25.34	4.259	Alert	
3,650.00	3,648.59	3,648.58	3,646.93	12.86	12.86	116.23	55.00	82.89	111.02	85.33	25.69	4.321	Alert	
3,700.00	3,698.47	3,701.52	3,696.74	13.04	13.05	116.55	57.69	84.02	114.12	88.06	26.06	4.379	Alert	
3,750.00	3,748.35	3,748.37	3,746.56	13.22	13.22	116.86	60.37	85.14	117.22	90.81	26.41	4.439	Alert	
3,800.00	3,798.23	3,801.73	3,796.37	13.40	13.41	117.16	63.05	86.27	120.33	93.55	26.78	4.494	Alert	
3,850.00	3,848.11	3,848.17	3,846.19	13.58	13.58	117.44	65.73	87.40	123.44	96.31	27.12	4.551	Alert	
3,900.00	3,897.99	3,901.93	3,896.00	13.76	13.77	117.70	68.41	88.52	126.55	99.05	27.49	4.603	Alert	
3,950.00	3,947.87	3,947.97	3,945.82	13.94	13.94	117.96	71.09	89.65	129.66	101.82	27.84	4.658	Alert	
4,000.00	3,997.75	4,002.13	3,995.63	14.12	14.14	118.20	73.77	90.77	132.78	104.57	28.21	4.706	Alert	
4,050.00	4,047.63	4,047.77	4,045.45	14.30	14.30	118.43	76.45	91.90	135.90	107.34	28.56	4.759	Alert	
4,100.00	4,097.51	4,102.33	4,095.26	14.48	14.50	118.65	79.13	93.02	139.02	110.09	28.93	4.805	Alert	
4,150.00	4,147.39	4,147.57	4,145.08	14.66	14.66	118.86	81.82	94.15	142.14	112.87	29.28	4.855	Alert	
4,200.00	4,197.27	4,202.53	4,194.89	14.84	14.86	119.06	84.50	95.27	145.27	115.62	29.65	4.899	Alert	
4,250.00	4,247.15	4,247.37	4,244.71	15.02	15.02	119.25	87.18	96.40	148.40	118.40	29.99	4.948	Alert	
4,300.00	4,297.03	4,302.73	4,294.52	15.20	15.22	119.44	89.86	97.52	151.52	121.15	30.37	4.989	Alert	
4,350.00	4,346.90	4,347.17	4,344.34	15.38	15.38	119.61	92.54	98.65	154.65	123.94	30.71	5.035		
4,400.00	4,396.78	4,402.93	4,394.15	15.56	15.58	119.78	95.22	99.78	157.79	126.69	31.09	5.074		
4,450.00	4,446.66	4,446.97	4,443.97	15.74	15.74	119.95	97.90	100.90	160.92	129.49	31.43	5.119		
4,500.00	4,496.54	4,503.13	4,493.78	15.92	15.94	120.10	100.58	102.03	164.05	132.24	31.82	5.156		
4,550.00	4,546.42	4,546.77	4,543.59	16.11	16.10	120.25	103.26	103.15	167.19	135.03	32.15	5.200		
4,600.00	4,596.30	4,603.33	4,593.41	16.29	16.31	120.40	105.94	104.28	170.32	137.79	32.54	5.235		
4,650.00	4,646.18	4,646.57	4,643.22	16.47	16.46	120.54	108.63	105.40	173.46	140.59	32.87	5.277		
4,700.00	4,696.06	4,696.47	4,693.04	16.65	16.64	120.68	111.31	106.53	176.60	143.37	33.23	5.314		
4,750.00	4,745.94	4,746.37	4,742.85	16.83	16.83	120.81	113.99	107.65	179.74	146.14	33.59	5.350		
4,800.00	4,795.82	4,796.27	4,792.67	17.01	17.01	120.93	116.67	108.78	182.88	148.92	33.96	5.386		
4,850.00	4,845.70	4,846.17	4,842.48	17.19	17.19	121.05	119.35	109.91	186.02	151.70	34.32	5.421		
4,900.00	4,895.58	4,903.93	4,892.30	17.38	17.40	121.17	122.03	111.03	189.16	154.46	34.70	5.451		
4,950.00	4,945.46	4,945.97	4,942.11	17.56	17.55	121.29	124.71	112.16	192.30	157.27	35.04	5.489		
5,000.00	4,995.34	5,004.13	4,991.93	17.74	17.76	121.40	127.39	113.28	195.45	160.02	35.43	5.517		
5,050.00	5,045.22	5,045.77	5,041.74	17.92	17.91	121.50	130.07	114.41	198.59	162.83	35.76	5.554		
5,100.00	5,095.10	5,104.33	5,091.56	18.10	18.12	121.61	132.76	115.53	201.74	165.59	36.15	5.580		
5,150.00	5,144.98	5,145.57	5,141.37	18.29	18.27	121.71	135.44	116.66	204.88	168.40	36.48	5.616		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: O-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.00	5,194.86	5,204.53	5,191.19	18.47	18.49	121.80	138.12	117.78	208.03	171.15	36.88	5.641		
5,250.00	5,244.74	5,245.37	5,241.00	18.65	18.63	121.90	140.80	118.91	211.18	173.97	37.20	5.676		
5,300.00	5,294.62	5,304.73	5,290.82	18.83	18.85	121.99	143.48	120.03	214.32	176.72	37.60	5.700		
5,350.00	5,344.50	5,345.17	5,340.63	19.01	19.00	122.08	146.16	121.16	217.47	179.54	37.93	5.734		
5,400.00	5,394.38	5,404.94	5,390.45	19.20	19.21	122.17	148.84	122.29	220.62	182.29	38.32	5.757		
5,450.00	5,444.26	5,444.96	5,440.26	19.38	19.36	122.25	151.52	123.41	223.77	185.12	38.65	5.790		
5,500.00	5,494.13	5,505.14	5,490.08	19.56	19.58	122.33	154.20	124.54	226.92	187.87	39.05	5.811		
5,550.00	5,544.01	5,544.76	5,539.89	19.74	19.72	122.41	156.88	125.66	230.07	190.69	39.37	5.843		
5,600.00	5,593.89	5,605.34	5,589.71	19.93	19.94	122.49	159.57	126.79	233.22	193.44	39.77	5.864		
5,650.00	5,643.77	5,644.56	5,639.52	20.11	20.08	122.56	162.25	127.91	236.37	196.27	40.10	5.895		
5,700.00	5,693.65	5,705.54	5,689.34	20.29	20.30	122.64	164.93	129.04	239.52	199.02	40.50	5.914		
5,750.00	5,743.53	5,744.36	5,739.15	20.47	20.44	122.71	167.61	130.16	242.67	201.85	40.82	5.945		
5,800.00	5,793.41	5,805.74	5,788.97	20.66	20.67	122.78	170.29	131.29	245.82	204.60	41.22	5.963		
5,850.00	5,843.29	5,844.16	5,838.78	20.84	20.81	122.85	172.97	132.41	248.97	207.43	41.54	5.993		
5,900.00	5,893.17	5,905.94	5,888.60	21.02	21.03	122.91	175.65	133.54	252.12	210.18	41.95	6.010		
5,950.00	5,943.05	5,943.96	5,938.41	21.20	21.17	122.98	178.33	134.67	255.28	213.01	42.27	6.040		
6,000.00	5,992.93	6,006.14	5,988.23	21.39	21.40	123.04	181.01	135.79	258.43	215.76	42.67	6.056		
6,050.00	6,042.81	6,043.76	6,038.04	21.57	21.53	123.10	183.70	136.92	261.58	218.59	42.99	6.085		
6,100.00	6,092.69	6,106.34	6,087.86	21.75	21.76	123.16	186.38	138.04	264.74	221.34	43.40	6.100		
6,150.00	6,142.57	6,143.56	6,137.67	21.94	21.89	123.22	189.06	139.17	267.89	224.17	43.72	6.128		
6,200.00	6,192.45	6,206.54	6,187.49	22.12	22.12	123.28	191.74	140.29	271.04	226.92	44.13	6.143		
6,250.00	6,242.33	6,243.36	6,237.30	22.30	22.26	123.33	194.42	141.42	274.20	229.76	44.44	6.170		
6,300.00	6,292.21	6,306.74	6,287.12	22.48	22.49	123.39	197.10	142.54	277.35	232.50	44.85	6.184		
6,350.00	6,342.09	6,343.16	6,336.93	22.67	22.62	123.44	199.78	143.67	280.51	235.34	45.16	6.211		
6,400.00	6,391.97	6,406.94	6,386.75	22.85	22.85	123.49	202.46	144.80	283.66	238.09	45.58	6.224		
6,450.00	6,441.85	6,442.96	6,436.56	23.03	22.98	123.54	205.14	145.92	286.82	240.93	45.89	6.250		
6,500.00	6,491.73	6,492.86	6,486.38	23.22	23.16	123.59	207.83	147.05	289.97	243.72	46.25	6.269		
6,550.00	6,541.61	6,542.76	6,536.19	23.40	23.35	123.64	210.51	148.17	293.13	246.52	46.61	6.288		
6,600.00	6,591.48	6,607.34	6,586.01	23.58	23.58	123.69	213.19	149.30	296.29	249.26	47.03	6.300		
6,650.00	6,641.36	6,642.56	6,635.82	23.76	23.71	123.74	215.87	150.42	299.44	252.10	47.34	6.325		
6,700.00	6,691.24	6,707.54	6,685.64	23.95	23.95	123.78	218.55	151.55	302.60	254.84	47.76	6.336		
6,750.00	6,741.12	6,742.36	6,735.45	24.13	24.07	123.83	221.23	152.67	305.75	257.69	48.06	6.361		
6,800.00	6,791.00	6,807.74	6,785.27	24.31	24.31	123.87	223.91	153.80	308.91	260.43	48.48	6.372		
6,850.00	6,840.88	6,842.16	6,835.08	24.50	24.44	123.91	226.59	154.92	312.07	263.28	48.79	6.396		
6,900.00	6,890.76	6,907.94	6,884.90	24.68	24.67	123.96	229.27	156.05	315.22	266.02	49.21	6.406		
6,950.00	6,940.64	6,941.96	6,934.71	24.86	24.80	124.00	231.95	157.18	318.38	268.87	49.51	6.430		
7,000.00	6,990.52	7,008.14	6,984.53	25.05	25.04	124.04	234.64	158.30	321.54	271.60	49.94	6.439		
7,050.00	7,040.40	7,041.76	7,034.34	25.23	25.16	124.08	237.32	159.43	324.70	274.46	50.24	6.463		
7,100.00	7,090.28	7,108.35	7,084.16	25.41	25.40	124.12	240.00	160.55	327.85	277.19	50.66	6.471		
7,150.00	7,140.16	7,141.55	7,133.97	25.60	25.52	124.16	242.68	161.68	331.01	280.05	50.97	6.495		
7,200.00	7,190.04	7,208.55	7,183.79	25.78	25.77	124.19	245.36	162.80	334.17	282.78	51.39	6.503		
7,250.00	7,239.92	7,241.35	7,233.60	25.96	25.89	124.23	248.04	163.93	337.33	285.64	51.69	6.526		
7,300.00	7,289.80	7,308.75	7,283.42	26.15	26.13	124.27	250.72	165.05	340.49	288.37	52.12	6.533		
7,350.00	7,339.68	7,341.15	7,333.23	26.33	26.25	124.30	253.40	166.18	343.65	291.23	52.42	6.556		
7,400.00	7,389.56	7,408.95	7,383.04	26.51	26.50	124.34	256.08	167.31	346.80	293.96	52.85	6.563		
7,450.00	7,439.44	7,440.95	7,432.86	26.70	26.61	124.37	258.77	168.43	349.96	296.82	53.14	6.585		
7,500.00	7,489.32	7,509.15	7,482.67	26.88	26.86	124.40	261.45	169.56	353.12	299.55	53.57	6.591		
7,550.00	7,539.20	7,540.75	7,532.49	27.06	26.98	124.44	264.13	170.68	356.28	302.41	53.87	6.614		
7,600.00	7,589.08	7,609.35	7,582.30	27.25	27.23	124.47	266.81	171.81	359.44	305.14	54.30	6.619		
7,650.00	7,638.96	7,640.55	7,632.12	27.43	27.34	124.50	269.49	172.93	362.60	308.00	54.60	6.642		
7,700.00	7,688.83	7,709.55	7,681.93	27.61	27.59	124.53	272.17	174.06	365.76	310.73	55.03	6.647		
7,750.00	7,738.71	7,740.35	7,731.75	27.80	27.70	124.56	274.85	175.18	368.92	313.60	55.32	6.669		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centra +N/-S (ft)	+E/-W (ft)						
7,800.00	7,788.59	7,809.75	7,781.56	27.98	27.96	124.59	277.53	176.31	372.08	316.32	55.76	6.673		
7,850.00	7,838.47	7,840.15	7,831.38	28.16	28.07	124.62	280.21	177.43	375.24	319.19	56.05	6.695		
7,900.00	7,888.35	7,909.95	7,881.19	28.35	28.32	124.65	282.89	178.56	378.40	321.91	56.48	6.699		
7,950.00	7,938.23	7,939.95	7,931.01	28.53	28.43	124.68	285.58	179.69	381.55	324.78	56.77	6.721		
8,000.00	7,988.11	7,989.85	7,980.82	28.71	28.61	124.71	288.26	180.81	384.71	327.58	57.14	6.733		
8,050.00	8,037.99	8,039.75	8,030.64	28.90	28.79	124.74	290.94	181.94	387.87	330.37	57.50	6.746		
8,100.00	8,087.87	8,089.65	8,080.45	29.08	28.98	124.76	293.62	183.06	391.03	333.17	57.86	6.758		
8,150.00	8,137.75	8,139.55	8,130.27	29.27	29.16	124.79	296.30	184.19	394.19	335.97	58.23	6.770		
8,200.00	8,187.63	8,189.45	8,180.08	29.45	29.34	124.82	298.98	185.31	397.35	338.76	58.59	6.782		
8,250.00	8,237.51	8,239.35	8,229.90	29.63	29.52	124.84	301.66	186.44	400.52	341.56	58.95	6.794		
8,300.00	8,287.39	8,289.25	8,279.71	29.82	29.70	124.87	304.34	187.56	403.68	344.36	59.32	6.805		
8,350.00	8,337.27	8,339.15	8,329.53	30.00	29.89	124.89	307.02	188.69	406.84	347.16	59.68	6.817		
8,400.00	8,387.15	8,389.05	8,379.34	30.18	30.07	124.92	309.71	189.81	410.00	349.95	60.04	6.828		
8,450.00	8,437.03	8,438.95	8,429.16	30.37	30.25	124.94	312.39	190.94	413.16	352.75	60.41	6.840		
8,500.00	8,486.91	8,488.85	8,478.97	30.55	30.43	124.97	315.07	192.07	416.32	355.55	60.77	6.851		
8,550.00	8,536.79	8,538.75	8,528.79	30.73	30.61	124.99	317.75	193.19	419.48	358.34	61.13	6.862		
8,600.00	8,586.67	8,588.65	8,578.60	30.92	30.79	125.02	320.43	194.32	422.64	361.14	61.50	6.873		
8,650.00	8,636.55	8,638.55	8,628.42	31.10	30.98	125.04	323.11	195.44	425.80	363.94	61.86	6.883		
8,700.00	8,686.43	8,688.45	8,678.23	31.29	31.16	125.06	325.79	196.57	428.96	366.74	62.22	6.894		
8,750.00	8,736.31	8,738.35	8,728.05	31.47	31.34	125.08	328.47	197.69	432.12	369.53	62.59	6.904		
8,800.00	8,786.18	8,788.24	8,777.86	31.65	31.52	125.11	331.15	198.82	435.28	372.33	62.95	6.915		
8,850.00	8,836.06	8,838.14	8,827.68	31.84	31.70	125.13	333.84	199.94	438.44	375.13	63.31	6.925		
8,900.00	8,885.94	8,888.04	8,877.49	32.02	31.89	125.15	336.52	201.07	441.61	377.93	63.68	6.935		
8,950.00	8,935.82	8,937.94	8,927.31	32.20	32.07	125.17	339.20	202.20	444.77	380.73	64.04	6.945		
9,000.00	8,985.70	8,987.84	8,977.12	32.39	32.25	125.19	341.88	203.32	447.93	383.52	64.40	6.955		
9,050.00	9,035.58	9,037.74	9,026.94	32.57	32.43	125.21	344.56	204.45	451.09	386.32	64.77	6.965		
9,100.00	9,085.46	9,087.64	9,076.75	32.76	32.61	125.23	347.24	205.57	454.25	389.12	65.13	6.974		
9,150.00	9,135.34	9,137.54	9,126.57	32.94	32.80	125.25	349.92	206.70	457.41	391.92	65.49	6.984		
9,200.00	9,185.22	9,187.44	9,176.38	33.12	32.98	125.27	352.60	207.82	460.57	394.71	65.86	6.993		
9,250.00	9,235.10	9,237.34	9,226.20	33.31	33.16	125.29	355.28	208.95	463.73	397.51	66.22	7.003		
9,300.00	9,284.98	9,287.24	9,276.01	33.49	33.34	125.31	357.96	210.07	466.90	400.31	66.59	7.012		
9,350.00	9,334.86	9,337.14	9,325.83	33.68	33.52	125.33	360.65	211.20	470.06	403.11	66.95	7.021		
9,400.00	9,384.74	9,387.04	9,375.64	33.86	33.70	125.35	363.33	212.32	473.22	405.91	67.31	7.030		
9,450.00	9,434.62	9,436.94	9,425.46	34.04	33.89	125.37	366.01	213.45	476.38	408.71	67.68	7.039		
9,500.00	9,484.50	9,486.84	9,475.27	34.23	34.07	125.38	368.69	214.58	479.54	411.50	68.04	7.048		
9,550.00	9,534.38	9,536.74	9,525.09	34.41	34.25	125.40	371.37	215.70	482.71	414.30	68.40	7.057		
9,600.00	9,584.26	9,586.64	9,574.90	34.59	34.43	125.42	374.05	216.83	485.87	417.10	68.77	7.065		
9,650.00	9,634.14	9,636.54	9,624.72	34.78	34.61	125.44	376.73	217.95	489.03	419.90	69.13	7.074		
9,700.00	9,684.02	9,686.44	9,674.53	34.96	34.80	125.45	379.41	219.08	492.19	422.70	69.49	7.082		
9,750.00	9,733.90	9,736.34	9,724.35	35.15	34.98	125.47	382.09	220.20	495.35	425.49	69.86	7.091		
9,800.00	9,783.78	9,786.24	9,774.16	35.33	35.16	125.49	384.78	221.33	498.52	428.29	70.22	7.099		
9,850.00	9,833.66	9,836.14	9,823.98	35.51	35.34	125.50	387.46	222.45	501.68	431.09	70.59	7.107		
9,900.00	9,883.53	9,886.04	9,873.79	35.70	35.52	125.52	390.14	223.58	504.84	433.89	70.95	7.115		
9,950.00	9,933.41	9,935.94	9,923.61	35.88	35.71	125.54	392.82	224.71	508.00	436.69	71.31	7.124		
10,000.00	9,983.29	9,985.84	9,973.42	36.07	35.89	125.55	395.50	225.83	511.16	439.49	71.68	7.131		
10,050.00	10,033.17	10,035.74	10,023.24	36.25	36.07	125.57	398.18	226.96	514.33	442.29	72.04	7.139		
10,100.00	10,083.05	10,085.64	10,073.05	36.43	36.25	125.58	400.86	228.08	517.49	445.08	72.40	7.147		
10,150.00	10,132.93	10,135.54	10,122.86	36.62	36.43	125.60	403.54	229.21	520.65	447.88	72.77	7.155		
10,200.00	10,182.81	10,185.44	10,172.68	36.80	36.62	125.62	406.22	230.33	523.81	450.68	73.13	7.163		
10,250.00	10,232.69	10,235.34	10,222.49	36.99	36.80	125.63	408.90	231.46	526.98	453.48	73.50	7.170		
10,300.00	10,282.57	10,285.24	10,272.31	37.17	36.98	125.65	411.59	232.58	530.14	456.28	73.86	7.178		
10,350.00	10,332.45	10,335.14	10,322.12	37.35	37.16	125.66	414.27	233.71	533.30	459.08	74.22	7.185		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
10,400.00	10,382.33	10,385.04	10,371.94	37.54	37.34	125.67	416.95	234.83	536.46	461.88	74.59	7.192		
10,450.00	10,432.21	10,434.93	10,421.75	37.72	37.53	125.69	419.63	235.96	539.63	464.67	74.95	7.200		
10,500.00	10,482.09	10,484.83	10,471.57	37.91	37.71	125.70	422.31	237.09	542.79	467.47	75.32	7.207		
10,550.00	10,531.97	10,534.73	10,521.38	38.09	37.89	125.72	424.99	238.21	545.95	470.27	75.68	7.214		
10,600.00	10,581.85	10,584.63	10,571.20	38.27	38.07	125.73	427.67	239.34	549.11	473.07	76.04	7.221		
10,650.00	10,631.73	10,634.53	10,621.01	38.46	38.25	125.74	430.35	240.46	552.28	475.87	76.41	7.228		
10,700.00	10,681.61	10,684.43	10,670.83	38.64	38.44	125.76	433.03	241.59	555.44	478.67	76.77	7.235		
10,750.00	10,731.49	10,734.33	10,720.64	38.83	38.62	125.77	435.72	242.71	558.60	481.47	77.13	7.242		
10,800.00	10,781.37	10,784.23	10,770.46	39.01	38.80	125.78	438.40	243.84	561.77	484.27	77.50	7.249		
10,850.00	10,831.25	10,834.13	10,820.27	39.19	38.98	125.80	441.08	244.96	564.93	487.07	77.86	7.255		
10,900.00	10,881.13	10,884.03	10,870.09	39.38	39.16	125.81	443.76	246.09	568.09	489.86	78.23	7.262		
10,950.00	10,931.01	10,933.93	10,919.90	39.56	39.35	125.82	446.44	247.21	571.25	492.66	78.59	7.269		
11,000.00	10,980.89	10,983.83	10,969.72	39.75	39.53	125.84	449.12	248.34	574.42	495.46	78.95	7.275		
11,050.00	11,030.76	11,033.73	11,019.53	39.93	39.71	125.85	451.80	249.47	577.58	498.26	79.32	7.282		
11,100.00	11,080.64	11,083.63	11,069.35	40.11	39.89	125.86	454.48	250.59	580.74	501.06	79.68	7.288		
11,150.00	11,130.52	11,133.53	11,119.16	40.30	40.07	125.87	457.16	251.72	583.91	503.86	80.05	7.295		
11,200.00	11,180.40	11,183.43	11,168.98	40.48	40.26	125.89	459.85	252.84	587.07	506.66	80.41	7.301		
11,250.00	11,230.28	11,233.33	11,218.79	40.67	40.44	125.90	462.53	253.97	590.23	509.46	80.77	7.307		
11,300.00	11,280.16	11,283.23	11,268.61	40.85	40.62	125.91	465.21	255.09	593.39	512.26	81.14	7.313		
11,350.00	11,330.04	11,333.13	11,318.42	41.03	40.80	125.92	467.89	256.22	596.56	515.06	81.50	7.320		
11,400.00	11,379.92	11,383.03	11,368.24	41.22	40.98	125.93	470.57	257.34	599.72	517.86	81.87	7.326		
11,450.00	11,429.80	11,432.93	11,418.05	41.40	41.17	125.94	473.25	258.47	602.88	520.65	82.23	7.332		
11,500.00	11,479.68	11,482.83	11,467.87	41.59	41.35	125.96	475.93	259.60	606.05	523.45	82.59	7.338		
11,550.00	11,529.56	11,532.73	11,517.68	41.77	41.53	125.97	478.61	260.72	609.21	526.25	82.96	7.344		
11,600.00	11,579.47	11,582.64	11,567.51	41.95	41.71	125.99	481.29	261.85	612.12	528.80	83.32	7.346		
11,650.00	11,629.41	11,632.57	11,617.36	42.13	41.89	125.95	483.98	262.97	614.65	530.97	83.68	7.345		
11,700.00	11,679.38	11,682.70	11,667.40	42.31	42.08	125.85	486.67	264.10	616.80	532.75	84.05	7.339		
11,750.00	11,729.37	11,736.01	11,720.64	42.49	42.27	125.73	489.15	265.15	618.41	533.99	84.43	7.325		
11,800.00	11,779.37	11,789.37	11,773.97	42.67	42.46	125.61	490.95	265.90	619.38	534.58	84.80	7.304		
11,850.00	11,829.37	11,842.77	11,827.35	42.84	42.65	89.55	492.07	266.37	619.83	534.66	85.17	7.277		
11,900.00	11,879.37	11,896.19	11,880.77	43.02	42.84	89.51	492.49	266.55	620.00	534.46	85.54	7.248		
11,950.00	11,929.37	11,946.59	11,931.17	43.19	43.02	89.51	492.49	266.55	620.00	534.11	85.89	7.218		
12,000.00	11,979.37	12,003.41	11,981.17	43.37	43.22	89.51	492.49	266.55	620.00	533.73	86.27	7.187		
12,050.00	12,029.37	12,046.59	12,031.17	43.54	43.37	89.51	492.49	266.55	620.00	533.40	86.60	7.160		
12,100.00	12,079.37	12,103.41	12,081.17	43.72	43.57	89.51	492.49	266.55	620.00	533.03	86.97	7.129		
12,150.00	12,129.37	12,146.59	12,131.17	43.90	43.73	89.51	492.49	266.55	620.00	532.70	87.30	7.102		
12,200.00	12,179.33	12,203.45	12,181.13	44.06	43.93	-90.54	492.49	266.55	620.01	532.34	87.67	7.072		
12,250.00	12,228.97	12,246.19	12,230.77	44.21	44.08	-91.07	492.49	266.55	620.10	532.12	87.97	7.049		
12,300.00	12,277.91	12,296.45	12,280.98	44.35	44.24	-91.84	490.81	266.56	620.33	532.04	88.28	7.026		
12,350.00	12,325.77	12,347.59	12,331.73	44.48	44.40	-92.61	484.62	266.61	620.70	532.13	88.57	7.008		
12,400.00	12,372.21	12,399.55	12,382.52	44.60	44.54	-93.36	473.72	266.69	621.20	532.36	88.84	6.992		
12,450.00	12,416.85	12,452.34	12,432.89	44.71	44.68	-94.09	457.98	266.80	621.83	532.74	89.08	6.980		
12,500.00	12,459.36	12,505.99	12,482.38	44.81	44.81	-94.79	437.31	266.96	622.56	533.25	89.30	6.971		
12,550.00	12,499.42	12,560.50	12,530.45	44.89	44.92	-95.46	411.67	267.15	623.37	533.89	89.49	6.966		
12,600.00	12,536.72	12,615.86	12,576.56	44.96	45.03	-96.09	381.07	267.38	624.26	534.61	89.65	6.963		
12,650.00	12,570.98	12,672.04	12,620.11	45.02	45.12	-96.67	345.61	267.64	625.18	535.41	89.78	6.964		
12,700.00	12,601.94	12,729.02	12,660.52	45.08	45.21	-97.20	305.48	267.94	626.12	536.24	89.88	6.966		
12,750.00	12,629.35	12,786.75	12,697.19	45.12	45.28	-97.67	260.93	268.27	627.05	537.09	89.96	6.970		
12,800.00	12,653.03	12,845.15	12,729.54	45.15	45.35	-98.07	212.33	268.63	627.94	537.91	90.03	6.975		
12,850.00	12,672.77	12,904.16	12,757.03	45.18	45.42	-98.41	160.15	269.02	628.76	538.67	90.09	6.979		
12,900.00	12,688.44	12,963.66	12,779.17	45.22	45.49	-98.67	104.95	269.43	629.49	539.35	90.15	6.983		
12,950.00	12,699.91	13,023.56	12,795.56	45.25	45.55	-98.85	47.37	269.85	630.12	539.90	90.22	6.984		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toothface (")	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
13,000.00	12,707.10	13,083.73	12,805.88	45.30	45.62	-98.94	-11.88	270.30	630.62	540.32	90.30	6.983		
13,050.00	12,709.95	13,144.05	12,809.94	45.34	45.68	-98.96	-72.03	270.74	630.99	540.58	90.41	6.979		
13,100.00	12,710.00	13,204.51	12,810.00	45.40	45.75	-98.95	-123.47	271.12	631.28	540.75	90.53	6.973		
13,150.00	12,710.00	13,245.49	12,810.00	45.47	45.81	-98.95	-173.47	271.50	631.57	540.90	90.66	6.966		
13,200.00	12,710.00	13,304.51	12,810.00	45.55	45.90	-98.94	-223.47	271.87	631.86	541.03	90.82	6.957		
13,250.00	12,710.00	13,345.49	12,810.00	45.65	45.98	-98.94	-273.47	272.24	632.15	541.15	90.99	6.947		
13,300.00	12,710.00	13,404.52	12,810.00	45.75	46.09	-98.93	-323.46	272.61	632.43	541.23	91.20	6.934		
13,350.00	12,710.00	13,445.48	12,810.00	45.87	46.19	-98.93	-373.46	272.98	632.72	541.31	91.42	6.921		
13,400.00	12,710.00	13,504.52	12,810.00	45.99	46.33	-98.92	-423.46	273.35	633.01	541.34	91.67	6.905		
13,450.00	12,710.00	13,545.48	12,810.00	46.14	46.45	-98.92	-473.46	273.72	633.30	541.38	91.92	6.889		
13,500.00	12,710.00	13,604.52	12,810.00	46.28	46.62	-98.92	-523.45	274.10	633.59	541.36	92.23	6.870		
13,550.00	12,710.00	13,645.48	12,810.00	46.45	46.75	-98.91	-573.45	274.47	633.88	541.36	92.52	6.851		
13,600.00	12,710.00	13,704.52	12,810.00	46.61	46.94	-98.91	-623.45	274.84	634.17	541.29	92.87	6.828		
13,650.00	12,710.00	13,745.48	12,810.00	46.80	47.09	-98.90	-673.45	275.21	634.45	541.25	93.20	6.807		
13,700.00	12,710.00	13,804.52	12,810.00	46.98	47.31	-98.90	-723.45	275.58	634.74	541.14	93.60	6.782		
13,750.00	12,710.00	13,845.48	12,810.00	47.19	47.48	-98.90	-773.44	275.95	635.03	541.06	93.97	6.758		
13,800.00	12,710.00	13,904.52	12,810.00	47.40	47.72	-98.89	-823.44	276.32	635.32	540.91	94.41	6.730		
13,850.00	12,710.00	13,945.48	12,810.00	47.62	47.90	-98.89	-873.44	276.69	635.61	540.80	94.81	6.704		
13,900.00	12,710.00	14,004.53	12,810.00	47.85	48.17	-98.88	-923.44	277.07	635.90	540.80	95.30	6.673		
13,950.00	12,710.00	14,045.47	12,810.00	48.09	48.37	-98.88	-973.43	277.44	636.19	540.45	95.74	6.645		
14,000.00	12,710.00	14,104.53	12,810.00	48.34	48.65	-98.88	-1,023.43	277.81	636.47	540.21	96.27	6.612		
14,050.00	12,710.00	14,145.47	12,810.00	48.60	48.87	-98.87	-1,073.43	278.18	636.76	540.02	96.74	6.582		
14,100.00	12,710.00	14,204.53	12,810.00	48.86	49.18	-98.87	-1,123.43	278.55	637.05	539.74	97.31	6.547		
14,150.00	12,710.00	14,245.47	12,810.00	49.15	49.41	-98.86	-1,173.43	278.92	637.34	539.52	97.82	6.516		
14,200.00	12,710.00	14,304.53	12,810.00	49.43	49.74	-98.86	-1,223.42	279.29	637.63	539.20	98.43	6.478		
14,250.00	12,710.00	14,345.47	12,810.00	49.73	49.99	-98.86	-1,273.42	279.67	637.92	538.95	98.97	6.446		
14,300.00	12,710.00	14,404.53	12,810.00	50.03	50.34	-98.85	-1,323.42	280.04	638.21	538.59	99.61	6.407		
14,350.00	12,710.00	14,445.47	12,810.00	50.35	50.60	-98.85	-1,373.42	280.41	638.49	538.31	100.18	6.373		
14,400.00	12,710.00	14,504.53	12,810.00	50.66	50.97	-98.84	-1,423.41	280.78	638.78	537.91	100.87	6.333		
14,450.00	12,710.00	14,545.47	12,810.00	51.00	51.25	-98.84	-1,473.41	281.15	639.07	537.60	101.47	6.298		
14,500.00	12,710.00	14,604.54	12,810.00	51.33	51.64	-98.84	-1,523.41	281.52	639.36	537.17	102.19	6.257		
14,550.00	12,710.00	14,645.46	12,810.00	51.68	51.92	-98.83	-1,573.41	281.89	639.65	536.83	102.82	6.221		
14,600.00	12,710.00	14,704.54	12,810.00	52.03	52.34	-98.83	-1,623.41	282.27	639.94	536.36	103.58	6.178		
14,650.00	12,710.00	14,745.46	12,810.00	52.39	52.64	-98.82	-1,673.40	282.64	640.23	535.99	104.23	6.142		
14,700.00	12,710.00	14,804.54	12,810.00	52.76	53.07	-98.82	-1,723.40	283.01	640.52	535.49	105.02	6.099		
14,750.00	12,710.00	14,845.46	12,810.00	53.14	53.38	-98.82	-1,773.40	283.38	640.80	535.10	105.70	6.062		
14,800.00	12,710.00	14,904.54	12,810.00	53.51	53.82	-98.81	-1,823.40	283.75	641.09	534.57	106.53	6.018		
14,850.00	12,710.00	14,945.46	12,810.00	53.91	54.14	-98.81	-1,873.39	284.12	641.38	534.15	107.23	5.981		
14,900.00	12,710.00	15,004.54	12,810.00	54.30	54.61	-98.80	-1,923.39	284.49	641.67	533.58	108.09	5.937		
14,950.00	12,710.00	15,045.46	12,810.00	54.71	54.94	-98.80	-1,973.39	284.87	641.96	533.14	108.82	5.899		
15,000.00	12,710.00	15,104.54	12,810.00	55.11	55.42	-98.80	-2,023.39	285.24	642.25	532.55	109.70	5.855		
15,050.00	12,710.00	15,145.46	12,810.00	55.53	55.76	-98.79	-2,073.39	285.61	642.54	532.08	110.46	5.817		
15,100.00	12,710.00	15,204.55	12,810.00	55.95	56.26	-98.79	-2,123.38	285.98	642.82	531.46	111.36	5.772		
15,150.00	12,710.00	15,245.45	12,810.00	56.38	56.61	-98.78	-2,173.38	286.35	643.11	530.97	112.14	5.735		
15,200.00	12,710.00	15,304.55	12,810.00	56.82	57.12	-98.78	-2,223.38	286.72	643.40	530.32	113.08	5.690		
15,250.00	12,710.00	15,345.45	12,810.00	57.26	57.49	-98.78	-2,273.38	287.09	643.69	529.81	113.88	5.652		
15,300.00	12,710.00	15,404.55	12,810.00	57.70	58.01	-98.77	-2,323.37	287.47	643.98	529.14	114.84	5.608		
15,350.00	12,710.00	15,445.45	12,810.00	58.16	58.38	-98.77	-2,373.37	287.84	644.27	528.61	115.66	5.570		
15,400.00	12,710.00	15,504.55	12,810.00	58.61	58.92	-98.76	-2,423.37	288.21	644.56	527.91	116.64	5.526		
15,450.00	12,710.00	15,545.45	12,810.00	59.08	59.30	-98.76	-2,473.37	288.58	644.85	527.36	117.48	5.489		
15,500.00	12,710.00	15,604.55	12,810.00	59.54	59.85	-98.76	-2,523.36	288.95	645.13	526.64	118.49	5.445		
15,550.00	12,710.00	15,645.45	12,810.00	60.02	60.24	-98.75	-2,573.36	289.32	645.42	526.07	119.35	5.408		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 12H - 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		Minimum		Separation		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)	Separation (ft)	Factor	
15,800.00	12,710.00	15,704.55	12,810.00	60.49	60.80	-98.75	-2,623.36	289.69	645.71	525.33	120.38	5.364	
15,650.00	12,710.00	15,745.45	12,810.00	60.98	61.20	-98.74	-2,673.36	290.07	646.00	524.74	121.26	5.328	
15,700.00	12,710.00	15,804.56	12,810.00	61.46	61.77	-98.74	-2,723.36	290.44	646.29	523.98	122.31	5.284	
15,750.00	12,710.00	15,845.44	12,810.00	61.96	62.18	-98.74	-2,773.35	290.81	646.58	523.38	123.20	5.248	
15,800.00	12,710.00	15,904.56	12,810.00	62.45	62.76	-98.73	-2,823.35	291.18	646.87	522.59	124.27	5.205	
15,850.00	12,710.00	15,945.44	12,810.00	62.96	63.17	-98.73	-2,873.35	291.55	647.15	521.97	125.18	5.170	
15,900.00	12,710.00	16,004.56	12,810.00	63.46	63.77	-98.72	-2,923.35	291.92	647.44	521.17	126.27	5.127	
15,950.00	12,710.00	16,045.44	12,810.00	63.97	64.19	-98.72	-2,973.34	292.29	647.73	520.54	127.19	5.092	
16,000.00	12,710.00	16,104.56	12,810.00	64.48	64.79	-98.72	-3,023.34	292.66	648.02	519.72	128.30	5.051	
16,050.00	12,710.00	16,145.44	12,810.00	65.00	65.22	-98.71	-3,073.34	293.04	648.31	519.07	129.24	5.016	
16,100.00	12,710.00	16,204.56	12,810.00	65.52	65.83	-98.71	-3,123.34	293.41	648.60	518.23	130.37	4.975 Alert	
16,150.00	12,710.00	16,245.44	12,810.00	66.05	66.27	-98.70	-3,173.34	293.78	648.89	517.57	131.32	4.941 Alert	
16,200.00	12,710.00	16,304.57	12,810.00	66.58	66.89	-98.70	-3,223.33	294.15	649.18	516.71	132.47	4.901 Alert	
16,250.00	12,710.00	16,345.43	12,810.00	67.11	67.33	-98.70	-3,273.33	294.52	649.46	516.03	133.43	4.867 Alert	
16,300.00	12,710.00	16,404.57	12,810.00	67.65	67.96	-98.69	-3,323.33	294.89	649.75	515.16	134.59	4.828 Alert	
16,350.00	12,710.00	16,445.43	12,810.00	68.19	68.40	-98.69	-3,373.33	295.26	650.04	514.47	135.57	4.795 Alert	
16,400.00	12,710.00	16,504.57	12,810.00	68.73	69.05	-98.69	-3,423.32	295.64	650.33	513.59	136.74	4.756 Alert	
16,450.00	12,710.00	16,545.43	12,810.00	69.28	69.49	-98.68	-3,473.32	296.01	650.62	512.89	137.73	4.724 Alert	
16,500.00	12,710.00	16,604.57	12,810.00	69.83	70.14	-98.68	-3,523.32	296.38	650.91	511.99	138.92	4.685 Alert	
16,550.00	12,710.00	16,645.43	12,810.00	70.38	70.60	-98.67	-3,573.32	296.75	651.20	511.27	139.92	4.654 Alert	
16,600.00	12,710.00	16,704.57	12,810.00	70.94	71.25	-98.67	-3,623.32	297.12	651.49	510.36	141.13	4.616 Alert	
16,650.00	12,710.00	16,745.43	12,810.00	71.50	71.71	-98.67	-3,673.31	297.49	651.77	509.64	142.14	4.585 Alert	
16,700.00	12,710.00	16,804.57	12,810.00	72.06	72.38	-98.66	-3,723.31	297.86	652.06	508.71	143.36	4.549 Alert	
16,750.00	12,710.00	16,845.43	12,810.00	72.63	72.84	-98.66	-3,773.31	298.24	652.35	507.97	144.38	4.518 Alert	
16,800.00	12,710.00	16,904.58	12,810.00	73.19	73.51	-98.65	-3,823.31	298.61	652.64	507.03	145.61	4.482 Alert	
16,850.00	12,710.00	16,945.42	12,810.00	73.77	73.98	-98.65	-3,873.30	298.98	652.93	506.29	146.64	4.453 Alert	
16,900.00	12,710.00	17,004.58	12,810.00	74.34	74.66	-98.65	-3,923.30	299.35	653.22	505.34	147.88	4.417 Alert	
16,950.00	12,710.00	17,045.42	12,810.00	74.92	75.13	-98.64	-3,973.30	299.72	653.51	504.58	148.92	4.388 Alert	
17,000.00	12,710.00	17,104.58	12,810.00	75.49	75.81	-98.64	-4,023.30	300.09	653.80	503.62	150.18	4.354 Alert	
17,050.00	12,710.00	17,145.42	12,810.00	76.08	76.29	-98.63	-4,073.30	300.46	654.09	502.86	151.23	4.325 Alert	
17,100.00	12,710.00	17,204.58	12,810.00	76.66	76.98	-98.63	-4,123.29	300.84	654.37	501.88	152.49	4.291 Alert	
17,150.00	12,710.00	17,245.42	12,810.00	77.25	77.46	-98.63	-4,173.29	301.21	654.66	501.11	153.55	4.264 Alert	
17,200.00	12,710.00	17,304.58	12,810.00	77.83	78.15	-98.62	-4,223.29	301.58	654.95	500.13	154.82	4.230 Alert	
17,250.00	12,710.00	17,345.42	12,810.00	78.43	78.64	-98.62	-4,273.29	301.95	655.24	499.35	155.89	4.203 Alert	
17,300.00	12,710.00	17,404.58	12,810.00	79.02	79.34	-98.62	-4,323.28	302.32	655.53	498.35	157.18	4.171 Alert	
17,350.00	12,710.00	17,445.42	12,810.00	79.61	79.83	-98.61	-4,373.28	302.69	655.82	497.57	158.25	4.144 Alert	
17,400.00	12,710.00	17,504.59	12,810.00	80.21	80.53	-98.61	-4,423.28	303.06	656.11	496.56	159.55	4.112 Alert	
17,450.00	12,710.00	17,545.41	12,810.00	80.81	81.02	-98.60	-4,473.28	303.44	656.40	495.77	160.63	4.086 Alert	
17,500.00	12,710.00	17,604.59	12,810.00	81.41	81.74	-98.60	-4,523.28	303.81	656.68	494.75	161.93	4.055 Alert	
17,550.00	12,710.00	17,645.41	12,810.00	82.02	82.23	-98.60	-4,573.27	304.18	656.97	493.95	163.02	4.030 Alert	
17,600.00	12,710.00	17,695.41	12,810.00	82.62	82.83	-98.59	-4,623.27	304.55	657.26	493.04	164.22	4.002 Alert	
17,620.47	12,710.00	17,715.89	12,810.00	82.88	83.08	-98.59	-4,643.74	304.70	657.38	492.66	164.72	3.991 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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	+N/-S (ft)		+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.00	0.00	13.30	13.30	0.50	0.50	89.56	9.76	1,274.76	1,274.80					
50.00	50.00	63.30	63.30	0.50	0.51	89.56	9.76	1,274.76	1,274.80	1,273.79	1.01	1,263.188		
100.00	100.00	113.30	113.30	0.52	0.53	89.56	9.76	1,274.76	1,274.80	1,273.75	1.05	1,214.228		
150.00	150.00	163.30	163.30	0.59	0.62	89.56	9.76	1,274.76	1,274.80	1,273.59	1.21	1,056.049		
200.00	200.00	213.30	213.30	0.70	0.74	89.56	9.76	1,274.76	1,274.80	1,273.36	1.44	886.225		
250.00	250.00	263.30	263.30	0.84	0.88	89.56	9.76	1,274.76	1,274.80	1,273.09	1.71	743.695		
300.00	300.00	313.30	313.30	0.99	1.03	89.56	9.76	1,274.76	1,274.80	1,272.78	2.02	632.321		
350.00	350.00	363.30	363.30	1.15	1.19	89.56	9.76	1,274.76	1,274.80	1,272.47	2.33	546.173		
400.00	400.00	413.30	413.30	1.31	1.35	89.56	9.76	1,274.76	1,274.80	1,272.14	2.66	478.822		
450.00	450.00	463.30	463.30	1.48	1.52	89.56	9.76	1,274.76	1,274.80	1,271.80	3.00	425.274		
500.00	500.00	513.30	513.30	1.65	1.69	89.56	9.76	1,274.76	1,274.80	1,271.46	3.34	381.944		
550.00	550.00	563.30	563.30	1.82	1.86	89.56	9.76	1,274.76	1,274.80	1,271.12	3.68	346.298		
600.00	600.00	613.30	613.30	1.99	2.04	89.56	9.76	1,274.76	1,274.80	1,270.77	4.03	316.533		
650.00	650.00	663.30	663.30	2.16	2.21	89.56	9.76	1,274.76	1,274.80	1,270.42	4.38	291.347		
700.00	700.00	713.30	713.30	2.34	2.39	89.56	9.76	1,274.76	1,274.80	1,270.07	4.73	269.786		
750.00	750.00	763.30	763.30	2.51	2.56	89.56	9.76	1,274.76	1,274.80	1,269.72	5.08	251.135		
800.00	800.00	813.30	813.30	2.69	2.74	89.56	9.76	1,274.76	1,274.80	1,269.37	5.43	234.854		
850.00	850.00	863.30	863.30	2.87	2.91	89.56	9.76	1,274.76	1,274.80	1,269.02	5.78	220.525		
900.00	900.00	913.30	913.30	3.04	3.09	89.56	9.76	1,274.76	1,274.80	1,268.67	6.13	207.820		
950.00	950.00	963.30	963.30	3.22	3.27	89.56	9.76	1,274.76	1,274.80	1,268.31	6.49	196.483		
1,000.00	1,000.00	1,013.30	1,013.30	3.40	3.44	89.56	9.76	1,274.76	1,274.80	1,267.96	6.84	186.306		
1,050.00	1,050.00	1,063.30	1,063.30	3.58	3.62	89.56	9.76	1,274.76	1,274.80	1,267.60	7.20	177.122		
1,100.00	1,100.00	1,113.30	1,113.30	3.75	3.80	89.56	9.76	1,274.76	1,274.80	1,267.25	7.55	168.793		
1,150.00	1,150.00	1,163.30	1,163.30	3.93	3.98	89.56	9.76	1,274.76	1,274.80	1,266.89	7.91	161.206		
1,200.00	1,200.00	1,213.30	1,213.30	4.11	4.16	89.56	9.76	1,274.76	1,274.80	1,266.54	8.26	154.266		
1,250.00	1,250.00	1,263.30	1,263.30	4.29	4.33	89.56	9.76	1,274.76	1,274.80	1,266.18	8.62	147.896		
1,300.00	1,300.00	1,313.30	1,313.30	4.46	4.51	89.56	9.76	1,274.76	1,274.80	1,265.82	8.98	142.027		
1,350.00	1,350.00	1,363.30	1,363.30	4.64	4.69	89.56	9.76	1,274.76	1,274.80	1,265.47	9.33	136.604		
1,400.00	1,400.00	1,413.30	1,413.30	4.82	4.87	89.56	9.76	1,274.76	1,274.80	1,265.11	9.69	131.578		
1,450.00	1,450.00	1,463.30	1,463.30	5.00	5.05	89.56	9.76	1,274.76	1,274.80	1,264.75	10.05	126.907		
1,500.00	1,500.00	1,513.30	1,513.30	5.18	5.22	89.56	9.76	1,274.76	1,274.80	1,264.40	10.40	122.554		
1,550.00	1,550.00	1,563.30	1,563.30	5.36	5.40	89.56	9.76	1,274.76	1,274.80	1,264.04	10.76	118.489		
1,600.00	1,600.00	1,613.30	1,613.30	5.53	5.58	89.56	9.76	1,274.76	1,274.80	1,263.68	11.12	114.684		
1,650.00	1,650.00	1,663.30	1,663.30	5.71	5.76	89.56	9.76	1,274.76	1,274.80	1,263.33	11.47	111.115		
1,700.00	1,700.00	1,713.30	1,713.30	5.89	5.94	89.56	9.76	1,274.76	1,274.80	1,262.97	11.83	107.760		
1,750.00	1,750.00	1,763.30	1,763.30	6.07	6.12	89.56	9.76	1,274.76	1,274.80	1,262.61	12.19	104.602		
1,800.00	1,800.00	1,813.30	1,813.30	6.25	6.30	89.56	9.76	1,274.76	1,274.80	1,262.26	12.54	101.622		
1,850.00	1,850.00	1,863.30	1,863.30	6.43	6.47	89.56	9.76	1,274.76	1,274.80	1,261.90	12.90	98.808		
1,900.00	1,900.00	1,913.30	1,913.30	6.61	6.65	89.56	9.76	1,274.76	1,274.80	1,261.54	13.26	96.144		
1,950.00	1,950.00	1,963.30	1,963.30	6.78	6.83	89.56	9.76	1,274.76	1,274.80	1,261.18	13.62	93.620		
2,000.00	2,000.00	2,013.30	2,013.30	6.96	7.01	89.56	9.76	1,274.76	1,274.80	1,260.83	13.97	91.225		
2,050.00	2,050.00	2,063.30	2,063.30	7.14	7.19	89.56	9.76	1,274.76	1,274.80	1,260.47	14.33	88.949		
2,100.00	2,100.00	2,113.30	2,113.30	7.32	7.37	89.56	9.76	1,274.76	1,274.80	1,260.11	14.69	86.783		
2,150.00	2,150.00	2,163.30	2,163.30	7.50	7.55	89.56	9.76	1,274.76	1,274.80	1,259.75	15.05	84.720		
2,200.00	2,200.00	2,213.30	2,213.30	7.68	7.73	89.56	9.76	1,274.76	1,274.80	1,259.40	15.40	82.753		
2,250.00	2,250.00	2,263.30	2,263.30	7.86	7.91	89.56	9.76	1,274.76	1,274.80	1,259.04	15.76	80.875		
2,300.00	2,300.00	2,313.30	2,313.30	8.04	8.08	89.56	9.76	1,274.76	1,274.80	1,258.68	16.12	79.080		
2,350.00	2,350.00	2,363.30	2,363.30	8.22	8.26	89.56	9.76	1,274.76	1,274.80	1,258.32	16.48	77.363		
2,400.00	2,400.00	2,413.30	2,413.30	8.39	8.44	89.56	9.76	1,274.76	1,274.80	1,257.96	16.84	75.719		
2,450.00	2,450.00	2,463.30	2,463.30	8.57	8.62	89.56	9.76	1,274.76	1,274.80	1,257.61	17.19	74.143		
2,500.00	2,500.00	2,513.30	2,513.30	8.75	8.80	89.56	9.76	1,274.76	1,274.80	1,257.25	17.55	72.631		
2,550.00	2,550.00	2,563.30	2,563.30	8.93	8.98	89.56	9.76	1,274.76	1,274.80	1,256.89	17.91	71.180		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft	
Reference		Offset		Semi Major Axis		Highside Tooface (°)	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)		
2,600.00	2,600.00	2,613.30	2,613.30	9.11	9.16	89.56	9.76	1,274.76	1,274.80	1,256.53	18.27	69.785			
2,650.00	2,650.00	2,663.30	2,663.30	9.29	9.34	89.56	9.76	1,274.76	1,274.80	1,256.17	18.63	68.444			
2,700.00	2,700.00	2,713.30	2,713.30	9.47	9.52	89.56	9.76	1,274.76	1,274.80	1,255.82	18.98	67.153			
2,750.00	2,750.00	2,763.30	2,763.30	9.65	9.69	89.56	9.76	1,274.76	1,274.80	1,255.46	19.34	65.910			
2,800.00	2,800.00	2,813.30	2,813.30	9.83	9.87	89.56	9.76	1,274.76	1,274.80	1,255.10	19.70	64.713			
2,850.00	2,850.00	2,863.30	2,863.30	10.00	10.05	125.53	9.76	1,274.76	1,274.93	1,254.87	20.06	63.567			
2,900.00	2,899.99	2,913.29	2,913.29	10.18	10.23	125.55	9.76	1,274.76	1,275.31	1,254.89	20.41	62.474			
2,950.00	2,949.98	2,963.28	2,963.28	10.36	10.41	125.58	9.76	1,274.76	1,275.94	1,255.17	20.77	61.433			
3,000.00	2,999.96	3,013.26	3,013.26	10.54	10.59	125.63	9.76	1,274.76	1,276.83	1,255.71	21.13	60.440			
3,050.00	3,049.92	3,063.22	3,063.22	10.72	10.77	125.69	9.76	1,274.76	1,277.98	1,256.49	21.48	59.492			
3,100.00	3,099.86	3,113.16	3,113.16	10.89	10.95	125.77	9.76	1,274.76	1,279.38	1,257.54	21.84	58.586			
3,150.00	3,149.78	3,163.08	3,163.08	11.07	11.13	125.86	9.76	1,274.76	1,281.04	1,258.85	22.19	57.722			
3,200.00	3,199.68	3,212.98	3,212.98	11.25	11.30	125.96	9.76	1,274.76	1,282.96	1,260.41	22.55	56.896			
3,250.00	3,249.55	3,262.85	3,262.85	11.43	11.48	126.09	9.76	1,274.76	1,285.00	1,262.10	22.91	56.101			
3,300.00	3,299.43	3,317.41	3,317.41	11.60	11.68	126.22	9.77	1,274.73	1,287.03	1,263.75	23.28	55.293			
3,350.00	3,349.31	3,385.68	3,385.67	11.78	11.92	126.38	10.00	1,274.00	1,288.55	1,264.86	23.69	54.389			
3,400.00	3,399.19	3,454.02	3,453.99	11.96	12.16	126.53	10.53	1,272.29	1,289.36	1,265.26	24.10	53.502			
3,450.00	3,449.07	3,522.40	3,522.32	12.14	12.39	126.66	11.36	1,269.61	1,289.46	1,264.96	24.50	52.626			
3,500.00	3,498.95	3,590.80	3,590.61	12.32	12.63	126.78	12.49	1,265.95	1,288.85	1,263.95	24.90	51.758			
3,550.00	3,548.83	3,659.19	3,658.82	12.50	12.87	126.89	13.92	1,261.33	1,287.53	1,262.23	25.30	50.897			
3,600.00	3,598.71	3,727.52	3,726.90	12.68	13.11	126.99	15.66	1,255.73	1,285.49	1,259.81	25.69	50.044			
3,650.00	3,648.59	3,795.78	3,794.82	12.86	13.35	127.07	17.69	1,249.18	1,282.75	1,256.67	26.07	49.197			
3,700.00	3,698.47	3,863.94	3,862.51	13.04	13.59	127.14	20.01	1,241.67	1,279.29	1,252.84	26.45	48.358			
3,750.00	3,748.35	3,920.86	3,918.98	13.22	13.79	127.19	22.16	1,234.75	1,275.26	1,248.44	26.82	47.555			
3,800.00	3,798.23	3,970.69	3,968.39	13.40	13.97	127.24	24.05	1,228.64	1,271.17	1,244.00	27.17	46.789			
3,850.00	3,848.11	4,020.51	4,017.80	13.58	14.15	127.28	25.94	1,222.53	1,267.08	1,239.56	27.52	46.042			
3,900.00	3,897.99	4,070.33	4,067.21	13.76	14.33	127.33	27.84	1,216.41	1,262.99	1,235.12	27.87	45.313			
3,950.00	3,947.87	4,120.16	4,116.62	13.94	14.51	127.37	29.73	1,210.30	1,258.91	1,230.68	28.23	44.602			
4,000.00	3,997.75	4,169.98	4,166.03	14.12	14.69	127.42	31.63	1,204.19	1,254.82	1,226.24	28.58	43.908			
4,050.00	4,047.63	4,219.80	4,215.44	14.30	14.87	127.46	33.52	1,198.07	1,250.74	1,221.80	28.93	43.230			
4,100.00	4,097.51	4,269.63	4,264.85	14.48	15.05	127.51	35.42	1,191.96	1,246.65	1,217.37	29.29	42.569			
4,150.00	4,147.39	4,319.45	4,314.26	14.66	15.23	127.56	37.31	1,185.85	1,242.57	1,212.93	29.64	41.922			
4,200.00	4,197.27	4,369.27	4,363.67	14.84	15.41	127.60	39.20	1,179.73	1,238.49	1,208.49	29.99	41.291			
4,250.00	4,247.15	4,419.09	4,413.08	15.02	15.59	127.65	41.10	1,173.62	1,234.41	1,204.06	30.35	40.673			
4,300.00	4,297.03	4,468.92	4,462.49	15.20	15.78	127.70	42.99	1,167.51	1,230.33	1,199.62	30.70	40.070			
4,350.00	4,346.90	4,518.74	4,511.90	15.38	15.96	127.74	44.89	1,161.39	1,226.25	1,195.19	31.06	39.481			
4,400.00	4,396.78	4,568.56	4,561.31	15.56	16.14	127.79	46.78	1,155.28	1,222.17	1,190.75	31.42	38.904			
4,450.00	4,446.66	4,618.39	4,610.72	15.74	16.33	127.84	48.67	1,149.17	1,218.09	1,186.32	31.77	38.340			
4,500.00	4,496.54	4,668.21	4,660.13	15.92	16.51	127.89	50.57	1,143.05	1,214.01	1,181.89	32.13	37.788			
4,550.00	4,546.42	4,718.03	4,709.54	16.11	16.70	127.94	52.46	1,136.94	1,209.94	1,177.45	32.48	37.248			
4,600.00	4,596.30	4,767.85	4,758.95	16.29	16.88	127.99	54.36	1,130.82	1,205.86	1,173.02	32.84	36.719			
4,650.00	4,646.18	4,817.68	4,808.36	16.47	17.07	128.04	56.25	1,124.71	1,201.79	1,168.59	33.20	36.202			
4,700.00	4,696.06	4,867.50	4,857.77	16.65	17.25	128.09	58.15	1,118.60	1,197.71	1,164.16	33.55	35.696			
4,750.00	4,745.94	4,917.32	4,907.18	16.83	17.44	128.14	60.04	1,112.48	1,193.64	1,159.73	33.91	35.199			
4,800.00	4,795.82	4,967.15	4,956.59	17.01	17.62	128.19	61.93	1,106.37	1,189.57	1,155.30	34.27	34.714			
4,850.00	4,845.70	5,016.97	5,006.00	17.19	17.81	128.24	63.83	1,100.26	1,185.50	1,150.87	34.63	34.237			
4,900.00	4,895.58	5,066.79	5,055.41	17.38	18.00	128.29	65.72	1,094.14	1,181.43	1,146.45	34.98	33.771			
4,950.00	4,945.46	5,116.62	5,104.82	17.56	18.18	128.34	67.62	1,088.03	1,177.36	1,142.02	35.34	33.314			
5,000.00	4,995.34	5,166.44	5,154.23	17.74	18.37	128.39	69.51	1,081.92	1,173.29	1,137.59	35.70	32.866			
5,050.00	5,045.22	5,216.26	5,203.64	17.92	18.56	128.44	71.40	1,075.80	1,169.23	1,133.17	36.06	32.426			
5,100.00	5,095.10	5,266.08	5,253.05	18.10	18.75	128.50	73.30	1,069.69	1,165.16	1,128.74	36.42	31.996			
5,150.00	5,144.98	5,315.91	5,302.46	18.29	18.93	128.55	75.19	1,063.58	1,161.09	1,124.32	36.77	31.573			

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.00	5,194.86	5,365.73	5,351.87	18.47	19.12	128.60	77.09	1,057.46	1,157.03	1,119.90	37.13	31.158		
5,250.00	5,244.74	5,415.55	5,401.29	18.65	19.31	128.66	78.98	1,051.35	1,152.97	1,115.48	37.49	30.752		
5,300.00	5,294.62	5,465.38	5,450.70	18.83	19.50	128.71	80.88	1,045.24	1,148.91	1,111.05	37.85	30.353		
5,350.00	5,344.50	5,515.20	5,500.11	19.01	19.69	128.77	82.77	1,039.12	1,144.85	1,106.63	38.21	29.961		
5,400.00	5,394.38	5,565.02	5,549.52	19.20	19.88	128.82	84.66	1,033.01	1,140.79	1,102.21	38.57	29.577		
5,450.00	5,444.26	5,614.84	5,598.93	19.38	20.07	128.88	86.56	1,026.89	1,136.73	1,097.80	38.93	29.199		
5,500.00	5,494.13	5,664.67	5,648.34	19.56	20.26	128.93	88.45	1,020.78	1,132.67	1,093.38	39.29	28.829		
5,550.00	5,544.01	5,714.49	5,697.75	19.74	20.45	128.99	90.35	1,014.67	1,128.61	1,088.96	39.65	28.465		
5,600.00	5,593.89	5,764.31	5,747.16	19.93	20.64	129.04	92.24	1,008.55	1,124.56	1,084.55	40.01	28.108		
5,650.00	5,643.77	5,814.14	5,796.57	20.11	20.83	129.10	94.14	1,002.44	1,120.50	1,080.13	40.37	27.757		
5,700.00	5,693.65	5,863.96	5,845.98	20.29	21.02	129.16	96.03	996.33	1,116.45	1,075.72	40.73	27.412		
5,750.00	5,743.53	5,913.78	5,895.39	20.47	21.21	129.22	97.92	990.21	1,112.40	1,071.31	41.09	27.073		
5,800.00	5,793.41	5,963.61	5,944.80	20.66	21.40	129.27	99.82	984.10	1,108.34	1,066.90	41.45	26.740		
5,850.00	5,843.29	6,013.43	5,994.21	20.84	21.59	129.33	101.71	977.99	1,104.29	1,062.49	41.81	26.412		
5,900.00	5,893.17	6,063.25	6,043.62	21.02	21.78	129.39	103.61	971.87	1,100.25	1,058.08	42.17	26.091		
5,950.00	5,943.05	6,113.07	6,093.03	21.20	21.97	129.45	105.50	965.76	1,096.20	1,053.67	42.53	25.774		
6,000.00	5,992.93	6,162.90	6,142.44	21.39	22.16	129.51	107.39	959.65	1,092.15	1,049.26	42.89	25.463		
6,050.00	6,042.81	6,212.72	6,191.85	21.57	22.35	129.57	109.29	953.53	1,088.11	1,044.85	43.25	25.157		
6,100.00	6,092.69	6,262.54	6,241.26	21.75	22.54	129.63	111.18	947.42	1,084.06	1,040.45	43.61	24.856		
6,150.00	6,142.57	6,312.37	6,290.67	21.94	22.73	129.69	113.08	941.30	1,080.02	1,036.05	43.97	24.561		
6,200.00	6,192.45	6,362.19	6,340.08	22.12	22.93	129.76	114.97	935.19	1,075.98	1,031.64	44.33	24.269		
6,250.00	6,242.33	6,412.01	6,389.49	22.30	23.12	129.82	116.87	929.08	1,071.94	1,027.24	44.70	23.983		
6,300.00	6,292.21	6,461.83	6,438.90	22.48	23.31	129.88	118.76	922.96	1,067.90	1,022.84	45.06	23.701		
6,350.00	6,342.09	6,511.66	6,488.31	22.67	23.50	129.94	120.65	916.85	1,063.86	1,018.44	45.42	23.424		
6,400.00	6,391.97	6,561.48	6,537.72	22.85	23.69	130.01	122.55	910.74	1,059.82	1,014.04	45.78	23.151		
6,450.00	6,441.85	6,611.30	6,587.13	23.03	23.89	130.07	124.44	904.62	1,055.79	1,009.65	46.14	22.882		
6,500.00	6,491.73	6,661.13	6,636.54	23.22	24.08	130.14	126.34	898.51	1,051.75	1,005.25	46.50	22.617		
6,550.00	6,541.61	6,710.95	6,685.95	23.40	24.27	130.20	128.23	892.40	1,047.72	1,000.86	46.86	22.357		
6,600.00	6,591.48	6,760.77	6,735.36	23.58	24.46	130.27	130.12	886.28	1,043.69	996.46	47.23	22.100		
6,650.00	6,641.36	6,810.60	6,784.77	23.76	24.66	130.33	132.02	880.17	1,039.66	992.07	47.59	21.848		
6,700.00	6,691.24	6,860.42	6,834.18	23.95	24.85	130.40	133.91	874.06	1,035.63	987.68	47.95	21.599		
6,750.00	6,741.12	6,910.24	6,883.59	24.13	25.04	130.47	135.81	867.94	1,031.60	983.29	48.31	21.354		
6,800.00	6,791.00	6,960.06	6,933.00	24.31	25.24	130.53	137.70	861.83	1,027.58	978.91	48.67	21.112		
6,850.00	6,840.88	7,009.89	6,982.41	24.50	25.43	130.60	139.60	855.72	1,023.55	974.52	49.03	20.874		
6,900.00	6,890.76	7,059.71	7,031.82	24.68	25.62	130.67	141.49	849.60	1,019.53	970.14	49.40	20.640		
6,950.00	6,940.64	7,109.53	7,081.23	24.86	25.82	130.74	143.38	843.49	1,015.51	965.75	49.76	20.409		
7,000.00	6,990.52	7,159.36	7,130.64	25.05	26.01	130.81	145.28	837.37	1,011.49	961.37	50.12	20.181		
7,050.00	7,040.40	7,209.18	7,180.05	25.23	26.20	130.88	147.17	831.26	1,007.47	956.99	50.48	19.957		
7,100.00	7,090.28	7,259.00	7,229.46	25.41	26.40	130.95	149.07	825.15	1,003.46	952.61	50.84	19.736		
7,150.00	7,140.16	7,308.82	7,278.87	25.60	26.59	131.02	150.96	819.03	999.44	948.23	51.21	19.518		
7,200.00	7,190.04	7,358.65	7,328.28	25.78	26.78	131.09	152.85	812.92	995.43	943.86	51.57	19.303		
7,250.00	7,239.92	7,408.47	7,377.69	25.96	26.98	131.17	154.75	806.81	991.41	939.48	51.93	19.091		
7,300.00	7,289.80	7,458.29	7,427.10	26.15	27.17	131.24	156.64	800.69	987.40	935.11	52.29	18.882		
7,350.00	7,339.68	7,508.12	7,476.51	26.33	27.37	131.31	158.54	794.58	983.40	930.74	52.66	18.676		
7,400.00	7,389.56	7,557.94	7,525.92	26.51	27.56	131.39	160.43	788.47	979.39	926.37	53.02	18.473		
7,450.00	7,439.44	7,607.76	7,575.33	26.70	27.75	131.46	162.33	782.35	975.38	922.00	53.38	18.272		
7,500.00	7,489.32	7,657.59	7,624.74	26.88	27.95	131.54	164.22	776.24	971.38	917.64	53.74	18.075		
7,550.00	7,539.20	7,707.41	7,674.15	27.06	28.14	131.62	166.11	770.13	967.38	913.27	54.11	17.880		
7,600.00	7,589.08	7,757.23	7,723.56	27.25	28.34	131.69	168.01	764.01	963.38	908.91	54.47	17.687		
7,650.00	7,638.96	7,807.05	7,772.97	27.43	28.53	131.77	169.90	757.90	959.38	904.55	54.83	17.497		
7,700.00	7,688.83	7,856.88	7,822.38	27.61	28.73	131.85	171.80	751.79	955.38	900.19	55.19	17.310		
7,750.00	7,738.71	7,906.70	7,871.79	27.80	28.92	131.93	173.69	745.67	951.38	895.83	55.56	17.125		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - 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		Minimum		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor	
7,800.00	7,788.59	7,956.52	7,921.20	27.98	29.12	132.01	175.59	739.56	947.39	891.47	55.92	16.943	
7,850.00	7,838.47	8,006.35	7,970.61	28.16	29.31	132.09	177.48	733.44	943.40	887.12	56.28	16.762	
7,900.00	7,888.35	8,056.17	8,020.02	28.35	29.50	132.17	179.37	727.33	939.41	882.77	56.64	16.585	
7,950.00	7,938.23	8,105.99	8,069.43	28.53	29.70	132.25	181.27	721.22	935.42	878.42	57.01	16.409	
8,000.00	7,988.11	8,155.81	8,118.84	28.71	29.89	132.33	183.16	715.10	931.44	874.07	57.37	16.236	
8,050.00	8,037.99	8,205.64	8,168.25	28.90	30.09	132.41	185.06	708.99	927.45	869.72	57.73	16.065	
8,100.00	8,087.87	8,255.46	8,217.66	29.08	30.28	132.50	186.95	702.88	923.47	865.38	58.09	15.896	
8,150.00	8,137.75	8,305.28	8,267.07	29.27	30.48	132.58	188.84	696.76	919.49	861.03	58.46	15.729	
8,200.00	8,187.63	8,355.11	8,316.48	29.45	30.67	132.67	190.74	690.65	915.51	856.69	58.82	15.565	
8,250.00	8,237.51	8,404.93	8,365.89	29.63	30.87	132.75	192.63	684.54	911.54	852.35	59.18	15.402	
8,300.00	8,287.39	8,454.75	8,415.30	29.82	31.06	132.84	194.53	678.42	907.56	848.02	59.55	15.241	
8,350.00	8,337.27	8,504.58	8,464.71	30.00	31.26	132.93	196.42	672.31	903.59	843.68	59.91	15.083	
8,400.00	8,387.15	8,554.40	8,514.12	30.18	31.46	133.02	198.32	666.20	899.62	839.35	60.27	14.926	
8,450.00	8,437.03	8,604.22	8,563.53	30.37	31.65	133.10	200.21	660.08	895.65	835.02	60.63	14.771	
8,500.00	8,486.91	8,654.04	8,612.94	30.55	31.85	133.19	202.10	653.97	891.69	830.69	61.00	14.618	
8,550.00	8,536.79	8,703.87	8,662.35	30.73	32.04	133.29	204.00	647.85	887.72	826.36	61.36	14.467	
8,600.00	8,586.67	8,753.69	8,711.76	30.92	32.24	133.38	205.89	641.74	883.76	822.04	61.72	14.318	
8,650.00	8,636.55	8,803.51	8,761.17	31.10	32.43	133.47	207.79	635.63	879.80	817.72	62.09	14.171	
8,700.00	8,686.43	8,853.34	8,810.58	31.29	32.63	133.56	209.68	629.51	875.85	813.40	62.45	14.025	
8,750.00	8,736.31	8,903.16	8,860.00	31.47	32.82	133.66	211.57	623.40	871.89	809.08	62.81	13.881	
8,800.00	8,786.18	8,952.98	8,909.41	31.65	33.02	133.75	213.47	617.29	867.94	804.76	63.18	13.739	
8,850.00	8,836.06	9,002.80	8,958.82	31.84	33.22	133.85	215.36	611.17	863.99	800.45	63.54	13.598	
8,900.00	8,885.94	9,052.63	9,008.23	32.02	33.41	133.94	217.26	605.06	860.04	796.14	63.90	13.459	
8,950.00	8,935.82	9,102.45	9,057.64	32.20	33.61	134.04	219.15	598.95	856.10	791.83	64.26	13.321	
9,000.00	8,985.70	9,152.27	9,107.05	32.39	33.80	134.14	221.05	592.83	852.16	787.53	64.63	13.186	
9,050.00	9,035.58	9,202.10	9,156.46	32.57	34.00	134.24	222.94	586.72	848.22	783.23	64.99	13.051	
9,100.00	9,085.46	9,251.92	9,205.87	32.76	34.20	134.34	224.83	580.61	844.28	778.93	65.35	12.919	
9,150.00	9,135.34	9,301.74	9,255.28	32.94	34.39	134.44	226.73	574.49	840.35	774.63	65.72	12.787	
9,200.00	9,185.22	9,351.57	9,304.69	33.12	34.59	134.54	228.62	568.38	836.41	770.33	66.08	12.657	
9,250.00	9,235.10	9,401.39	9,354.10	33.31	34.78	134.64	230.52	562.27	832.48	766.04	66.44	12.529	
9,300.00	9,284.98	9,451.21	9,403.51	33.49	34.98	134.75	232.41	556.15	828.56	761.75	66.81	12.402	
9,350.00	9,334.86	9,501.03	9,452.92	33.68	35.18	134.85	234.31	550.04	824.63	757.46	67.17	12.277	
9,400.00	9,384.74	9,550.86	9,502.33	33.86	35.37	134.96	236.20	543.92	820.71	753.18	67.53	12.153	
9,450.00	9,434.62	9,600.68	9,551.74	34.04	35.57	135.06	238.09	537.81	816.79	748.90	67.90	12.030	
9,500.00	9,484.50	9,650.50	9,601.15	34.23	35.76	135.17	239.99	531.70	812.88	744.62	68.26	11.909	
9,550.00	9,534.38	9,700.33	9,650.56	34.41	35.96	135.28	241.88	525.58	808.97	740.34	68.62	11.789	
9,600.00	9,584.26	9,750.15	9,699.97	34.59	36.16	135.39	243.78	519.47	805.06	736.07	68.99	11.670	
9,650.00	9,634.14	9,799.97	9,749.38	34.78	36.35	135.50	245.67	513.36	801.15	731.80	69.35	11.552	
9,700.00	9,684.02	9,849.79	9,798.79	34.96	36.55	135.62	247.56	507.24	797.25	727.53	69.71	11.436	
9,750.00	9,733.90	9,900.38	9,848.20	35.15	36.75	135.73	249.46	501.13	793.35	723.27	70.08	11.321	
9,800.00	9,783.78	9,949.44	9,897.61	35.33	36.94	135.84	251.35	495.02	789.45	719.01	70.44	11.207	
9,850.00	9,833.66	9,999.26	9,947.02	35.51	37.14	135.96	253.25	488.90	785.55	714.75	70.80	11.095	
9,900.00	9,883.53	10,049.09	9,996.43	35.70	37.34	136.08	255.14	482.79	781.66	710.50	71.17	10.984	
9,950.00	9,933.41	10,101.09	10,045.84	35.88	37.54	136.19	257.04	476.68	777.78	706.24	71.54	10.872	
10,000.00	9,983.29	10,148.73	10,095.25	36.07	37.73	136.31	258.93	470.56	773.89	702.00	71.89	10.765	
10,050.00	10,033.17	10,201.45	10,144.66	36.25	37.94	136.43	260.82	464.45	770.01	697.74	72.27	10.655	
10,100.00	10,083.05	10,248.38	10,194.07	36.43	38.12	136.55	262.72	458.34	766.13	693.51	72.62	10.550	
10,150.00	10,132.93	10,301.80	10,243.48	36.62	38.33	136.68	264.61	452.22	762.26	689.26	73.00	10.442	
10,200.00	10,182.81	10,348.02	10,292.89	36.80	38.52	136.80	266.51	446.11	758.39	685.04	73.35	10.340	
10,250.00	10,232.69	10,402.15	10,342.30	36.99	38.73	136.93	268.40	439.99	754.52	680.80	73.73	10.234	
10,300.00	10,282.57	10,447.67	10,391.71	37.17	38.91	137.05	270.29	433.88	750.66	676.58	74.07	10.134	
10,350.00	10,332.45	10,502.51	10,441.12	37.35	39.13	137.18	272.19	427.77	746.80	672.34	74.45	10.030	

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,400.00	10,382.33	10,547.32	10,490.53	37.54	39.30	137.31	274.08	421.65	742.94	668.14	74.80	9.932		
10,450.00	10,432.21	10,602.86	10,539.94	37.72	39.52	137.44	275.98	415.54	739.09	663.91	75.18	9.830		
10,500.00	10,482.09	10,646.96	10,589.35	37.91	39.70	137.57	277.87	409.43	735.24	659.71	75.53	9.735		
10,550.00	10,531.97	10,703.22	10,638.76	38.09	39.92	137.70	279.77	403.31	731.40	655.48	75.91	9.635		
10,600.00	10,581.85	10,746.61	10,688.17	38.27	40.09	137.84	281.66	397.20	727.56	651.30	76.25	9.541		
10,650.00	10,631.73	10,803.57	10,737.58	38.46	40.32	137.98	283.55	391.09	723.72	647.08	76.64	9.443		
10,700.00	10,681.61	10,846.25	10,786.99	38.64	40.48	138.11	285.45	384.97	719.89	642.91	76.98	9.352		
10,750.00	10,731.49	10,896.08	10,836.40	38.83	40.68	138.25	287.34	378.86	716.06	638.72	77.34	9.258		
10,800.00	10,781.37	10,945.90	10,885.81	39.01	40.88	138.39	289.24	372.75	712.24	634.53	77.71	9.166		
10,850.00	10,831.25	10,995.72	10,935.22	39.19	41.08	138.53	291.13	366.63	708.42	630.34	78.07	9.074		
10,900.00	10,881.13	11,045.54	10,984.63	39.38	41.27	138.68	293.03	360.52	704.60	626.17	78.43	8.983		
10,950.00	10,931.01	11,095.37	11,034.04	39.56	41.47	138.82	294.92	354.40	700.79	621.99	78.80	8.893		
11,000.00	10,980.89	11,145.19	11,083.45	39.75	41.67	138.97	296.81	348.29	696.98	617.82	79.16	8.805		
11,050.00	11,030.76	11,204.99	11,132.86	39.93	41.90	139.12	298.71	342.18	693.18	613.62	79.56	8.712		
11,100.00	11,080.64	11,244.84	11,182.27	40.11	42.06	139.27	300.60	336.06	689.38	609.50	79.89	8.629		
11,150.00	11,130.52	11,294.66	11,231.68	40.30	42.26	139.42	302.50	329.95	685.59	605.34	80.25	8.543		
11,200.00	11,180.40	11,339.49	11,276.15	40.48	42.43	139.56	304.17	324.55	681.93	601.30	80.62	8.458		
11,250.00	11,230.28	11,381.83	11,318.21	40.67	42.60	139.69	305.62	319.87	678.78	597.79	80.99	8.381		
11,300.00	11,280.16	11,424.22	11,360.37	40.85	42.76	139.83	306.93	315.63	676.20	594.84	81.36	8.312		
11,350.00	11,330.04	11,466.65	11,402.61	41.03	42.92	139.97	308.11	311.84	674.18	592.46	81.71	8.251		
11,400.00	11,379.92	11,509.12	11,444.93	41.22	43.08	140.12	309.14	308.49	672.71	590.65	82.06	8.198		
11,450.00	11,429.80	11,551.60	11,487.31	41.40	43.24	140.26	310.04	305.59	671.80	589.40	82.40	8.153		
11,500.00	11,479.68	11,594.10	11,529.72	41.59	43.39	140.41	310.80	303.14	671.46	588.72	82.74	8.115		
11,506.53	11,486.19	11,599.64	11,535.26	41.61	43.41	140.43	310.89	302.86	671.46	588.68	82.78	8.111		
11,550.00	11,529.56	11,636.59	11,572.17	41.77	43.55	140.57	311.42	301.14	671.67	588.61	83.06	8.086		
11,600.00	11,579.47	11,679.09	11,614.63	41.95	43.70	140.70	311.90	299.60	672.12	588.74	83.38	8.061		
11,650.00	11,629.41	11,721.59	11,657.12	42.13	43.84	140.81	312.24	298.50	672.62	588.93	83.69	8.037		
11,700.00	11,679.38	11,764.09	11,699.62	42.31	43.99	140.90	312.44	297.86	673.18	589.18	84.00	8.014		
11,750.00	11,729.37	11,807.14	11,742.67	42.49	44.14	140.95	312.50	297.66	673.78	589.49	84.29	7.993		
11,800.00	11,779.37	11,857.14	11,792.67	42.67	44.30	140.98	312.50	297.66	674.11	589.47	84.64	7.964		
11,850.00	11,829.37	11,907.14	11,842.67	42.84	44.47	105.02	312.50	297.66	674.12	589.13	84.99	7.932		
11,900.00	11,879.37	11,957.14	11,892.67	43.02	44.64	105.02	312.50	297.66	674.12	588.78	85.34	7.899		
11,950.00	11,929.37	12,007.14	11,942.67	43.19	44.80	105.02	312.50	297.66	674.12	588.43	85.69	7.867		
12,000.00	11,979.37	12,057.14	11,992.67	43.37	44.97	105.02	312.50	297.66	674.12	588.08	86.04	7.835		
12,050.00	12,029.37	12,107.14	12,042.67	43.54	45.14	105.02	312.50	297.66	674.12	587.73	86.39	7.804		
12,100.00	12,079.37	12,157.14	12,092.67	43.72	45.31	105.02	312.50	297.66	674.12	587.38	86.73	7.772		
12,150.00	12,129.37	12,194.49	12,129.98	43.90	45.42	105.14	311.04	297.66	674.62	587.65	86.97	7.757		
12,200.00	12,179.33	12,232.47	12,167.74	44.06	45.54	-74.46	307.07	297.67	675.59	588.42	87.17	7.750		
12,250.00	12,228.97	12,270.33	12,205.04	44.21	45.65	-74.23	300.63	297.68	676.31	588.98	87.33	7.744		
12,300.00	12,277.91	12,308.12	12,241.77	44.35	45.75	-74.09	291.77	297.69	676.75	589.28	87.47	7.737		
12,350.00	12,325.77	12,345.87	12,277.80	44.48	45.86	-74.04	280.51	297.71	676.89	589.31	87.59	7.728		
12,400.00	12,372.21	12,383.62	12,313.01	44.60	45.95	-74.09	266.91	297.73	676.74	589.06	87.68	7.718		
12,450.00	12,416.85	12,421.41	12,347.28	44.71	46.04	-74.23	251.00	297.75	676.30	588.54	87.76	7.706		
12,500.00	12,459.36	12,459.27	12,380.49	44.81	46.12	-74.46	232.84	297.78	675.58	587.75	87.83	7.692		
12,550.00	12,499.42	12,497.24	12,412.51	44.89	46.20	-74.79	212.45	297.80	674.59	586.69	87.90	7.674		
12,600.00	12,536.72	12,535.36	12,443.24	44.96	46.27	-75.21	189.90	297.84	673.35	585.37	87.98	7.654		
12,650.00	12,570.98	12,573.66	12,472.53	45.02	46.33	-75.71	165.24	297.87	671.88	583.82	88.06	7.629		
12,700.00	12,601.94	12,612.19	12,500.27	45.08	46.38	-76.31	138.50	297.91	670.23	582.05	88.17	7.601		
12,750.00	12,629.35	12,650.00	12,525.68	45.12	46.43	-76.97	110.52	297.95	668.41	580.12	88.29	7.570		
12,800.00	12,653.03	12,680.12	12,550.57	45.15	46.47	-77.75	79.06	297.99	666.47	578.00	88.47	7.534		
12,850.00	12,672.77	12,729.61	12,572.85	45.18	46.50	-78.59	46.47	298.04	664.45	575.79	88.66	7.495		
12,900.00	12,688.44	12,769.51	12,593.04	45.22	46.53	-79.50	12.06	298.09	662.40	573.52	88.88	7.453		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,950.00	12,699.91	12,809.89	12,610.98	45.25	46.55	-80.48	-24.11	298.14	660.37	571.24	89.13	7.409		
13,000.00	12,707.10	12,850.81	12,626.51	45.30	46.57	-81.53	-61.95	298.19	658.41	569.01	89.40	7.365		
13,050.00	12,709.95	12,892.33	12,639.48	45.34	46.59	-82.64	-101.39	298.25	656.57	566.88	89.69	7.321		
13,100.00	12,710.00	12,934.85	12,649.75	45.40	46.60	-83.55	-142.63	298.31	655.07	565.10	89.96	7.281		
13,150.00	12,710.00	12,978.72	12,657.12	45.47	46.62	-84.19	-185.87	298.37	654.15	563.94	90.21	7.252		
13,200.00	12,710.00	13,023.48	12,661.21	45.55	46.65	-84.55	-230.44	298.43	653.69	563.29	90.40	7.231		
13,250.00	12,710.00	13,070.24	12,662.00	45.65	46.68	-84.62	-277.18	298.50	653.60	563.03	90.57	7.217		
13,300.00	12,710.00	13,120.24	12,662.00	45.75	46.72	-84.62	-327.18	298.57	653.59	562.84	90.75	7.202		
13,350.00	12,710.00	13,170.24	12,662.00	45.87	46.78	-84.62	-377.18	298.64	653.58	562.63	90.95	7.186		
13,400.00	12,710.00	13,220.24	12,662.00	45.99	46.86	-84.62	-427.18	298.71	653.57	562.40	91.17	7.168		
13,450.00	12,710.00	13,270.24	12,662.00	46.14	46.95	-84.62	-477.18	298.78	653.56	562.14	91.43	7.148		
13,500.00	12,710.00	13,320.24	12,662.00	46.28	47.05	-84.62	-527.18	298.85	653.56	561.87	91.69	7.128		
13,550.00	12,710.00	13,370.24	12,662.00	46.45	47.17	-84.62	-577.18	298.93	653.55	561.56	91.99	7.105		
13,600.00	12,710.00	13,420.24	12,662.00	46.61	47.30	-84.62	-627.18	299.00	653.54	561.25	92.29	7.081		
13,650.00	12,710.00	13,470.24	12,662.00	46.80	47.45	-84.62	-677.18	299.07	653.53	560.90	92.63	7.055		
13,700.00	12,710.00	13,520.24	12,662.00	46.98	47.61	-84.62	-727.18	299.14	653.52	560.54	92.98	7.028		
13,750.00	12,710.00	13,570.24	12,662.00	47.19	47.78	-84.62	-777.18	299.21	653.51	560.15	93.37	6.999		
13,800.00	12,710.00	13,620.24	12,662.00	47.40	47.97	-84.62	-827.18	299.28	653.51	559.75	93.76	6.970		
13,850.00	12,710.00	13,670.24	12,662.00	47.62	48.17	-84.62	-877.18	299.35	653.50	559.31	94.18	6.939		
13,900.00	12,710.00	13,720.24	12,662.00	47.85	48.38	-84.62	-927.18	299.42	653.49	558.87	94.62	6.907		
13,950.00	12,710.00	13,770.24	12,662.00	48.09	48.60	-84.62	-977.18	299.49	653.48	558.40	95.08	6.873		
14,000.00	12,710.00	13,820.24	12,662.00	48.34	48.83	-84.62	-1,027.18	299.56	653.47	557.92	95.55	6.839		
14,050.00	12,710.00	13,870.24	12,662.00	48.60	49.07	-84.62	-1,077.18	299.63	653.46	557.41	96.06	6.803		
14,100.00	12,710.00	13,920.24	12,662.00	48.86	49.32	-84.62	-1,127.18	299.71	653.46	556.89	96.57	6.767		
14,150.00	12,710.00	13,970.24	12,662.00	49.15	49.58	-84.62	-1,177.18	299.78	653.45	556.34	97.11	6.729		
14,200.00	12,710.00	14,020.24	12,662.00	49.43	49.85	-84.62	-1,227.18	299.85	653.44	555.78	97.66	6.691		
14,250.00	12,710.00	14,070.24	12,662.00	49.73	50.13	-84.62	-1,277.18	299.92	653.43	555.20	98.23	6.652		
14,300.00	12,710.00	14,120.24	12,662.00	50.03	50.42	-84.62	-1,327.18	299.99	653.42	554.60	98.82	6.612		
14,350.00	12,710.00	14,170.24	12,662.00	50.35	50.72	-84.62	-1,377.18	300.06	653.41	553.98	99.43	6.572		
14,400.00	12,710.00	14,220.24	12,662.00	50.68	51.03	-84.62	-1,427.18	300.13	653.41	553.36	100.05	6.531		
14,450.00	12,710.00	14,270.24	12,662.00	51.00	51.34	-84.62	-1,477.18	300.20	653.40	552.70	100.70	6.489		
14,500.00	12,710.00	14,320.24	12,662.00	51.33	51.67	-84.62	-1,527.18	300.27	653.39	552.04	101.35	6.447		
14,550.00	12,710.00	14,370.24	12,662.00	51.68	52.00	-84.62	-1,577.18	300.34	653.38	551.35	102.03	6.404		
14,600.00	12,710.00	14,420.24	12,662.00	52.03	52.34	-84.62	-1,627.18	300.42	653.37	550.66	102.72	6.361		
14,650.00	12,710.00	14,470.24	12,662.00	52.39	52.69	-84.62	-1,677.18	300.49	653.36	549.94	103.43	6.317		
14,700.00	12,710.00	14,520.24	12,662.00	52.76	53.04	-84.62	-1,727.18	300.56	653.36	549.21	104.14	6.274		
14,750.00	12,710.00	14,570.24	12,662.00	53.14	53.41	-84.62	-1,777.18	300.63	653.35	548.46	104.88	6.229		
14,800.00	12,710.00	14,620.24	12,662.00	53.51	53.78	-84.62	-1,827.18	300.70	653.34	547.71	105.63	6.185		
14,850.00	12,710.00	14,670.24	12,662.00	53.91	54.15	-84.62	-1,877.18	300.77	653.33	546.93	106.40	6.140		
14,900.00	12,710.00	14,720.24	12,662.00	54.30	54.54	-84.62	-1,927.18	300.84	653.32	546.15	107.18	6.096		
14,950.00	12,710.00	14,770.24	12,662.00	54.71	54.93	-84.62	-1,977.18	300.91	653.31	545.34	107.97	6.051		
15,000.00	12,710.00	14,820.24	12,662.00	55.11	55.33	-84.62	-2,027.18	300.98	653.31	544.53	108.78	6.006		
15,050.00	12,710.00	14,870.24	12,662.00	55.53	55.73	-84.62	-2,077.18	301.05	653.30	543.70	109.60	5.961		
15,100.00	12,710.00	14,920.24	12,662.00	55.95	56.14	-84.62	-2,127.18	301.12	653.29	542.86	110.43	5.916		
15,150.00	12,710.00	14,970.24	12,662.00	56.38	56.56	-84.62	-2,177.18	301.20	653.28	542.01	111.28	5.871		
15,200.00	12,710.00	15,020.24	12,662.00	56.82	56.99	-84.62	-2,227.18	301.27	653.27	541.14	112.13	5.826		
15,250.00	12,710.00	15,070.24	12,662.00	57.26	57.42	-84.62	-2,277.18	301.34	653.26	540.26	113.00	5.781		
15,300.00	12,710.00	15,120.24	12,662.00	57.70	57.85	-84.62	-2,327.18	301.41	653.26	539.38	113.88	5.736		
15,350.00	12,710.00	15,170.24	12,662.00	58.16	58.29	-84.62	-2,377.18	301.48	653.25	538.47	114.78	5.691		
15,400.00	12,710.00	15,220.24	12,662.00	58.61	58.74	-84.62	-2,427.18	301.55	653.24	537.56	115.68	5.647		
15,450.00	12,710.00	15,270.24	12,662.00	59.08	59.19	-84.62	-2,477.18	301.62	653.23	536.64	116.60	5.603		
15,500.00	12,710.00	15,320.24	12,662.00	59.54	59.65	-84.62	-2,527.18	301.69	653.22	535.70	117.52	5.558		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 Fed 13H - 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		
15,550.00	12,710.00	15,370.24	12,662.00	60.02	60.11	-84.62	-2,577.18	301.76	653.22	534.76	118.46	5.514		
15,600.00	12,710.00	15,420.24	12,662.00	60.49	60.58	-84.62	-2,627.18	301.83	653.21	533.81	119.40	5.471		
15,650.00	12,710.00	15,470.24	12,662.00	60.98	61.05	-84.62	-2,677.18	301.91	653.20	532.84	120.36	5.427		
15,700.00	12,710.00	15,520.24	12,662.00	61.46	61.53	-84.62	-2,727.18	301.98	653.19	531.87	121.32	5.384		
15,750.00	12,710.00	15,570.24	12,662.00	61.96	62.02	-84.61	-2,777.18	302.05	653.18	530.88	122.30	5.341		
15,800.00	12,710.00	15,620.24	12,662.00	62.45	62.50	-84.61	-2,827.18	302.12	653.17	529.89	123.28	5.298		
15,850.00	12,710.00	15,670.24	12,662.00	62.96	63.00	-84.61	-2,877.18	302.19	653.17	528.89	124.28	5.256		
15,900.00	12,710.00	15,720.24	12,662.00	63.46	63.49	-84.61	-2,927.18	302.26	653.16	527.88	125.28	5.214		
15,950.00	12,710.00	15,770.24	12,662.00	63.97	63.99	-84.61	-2,977.18	302.33	653.15	526.86	126.29	5.172		
16,000.00	12,710.00	15,820.24	12,662.00	64.48	64.50	-84.61	-3,027.18	302.40	653.14	525.83	127.31	5.130		
16,050.00	12,710.00	15,870.24	12,662.00	65.00	65.01	-84.61	-3,077.18	302.47	653.13	524.79	128.34	5.089		
16,100.00	12,710.00	15,920.24	12,662.00	65.52	65.52	-84.61	-3,127.18	302.54	653.12	523.75	129.37	5.048		
16,150.00	12,710.00	15,970.24	12,662.00	66.05	66.04	-84.61	-3,177.18	302.61	653.12	522.70	130.42	5.008		
16,200.00	12,710.00	16,020.24	12,662.00	66.58	66.56	-84.61	-3,227.18	302.69	653.11	521.64	131.47	4.968	Alert	
16,250.00	12,710.00	16,070.24	12,662.00	67.11	67.08	-84.61	-3,277.18	302.76	653.10	520.57	132.53	4.928	Alert	
16,300.00	12,710.00	16,120.24	12,662.00	67.65	67.61	-84.61	-3,327.18	302.83	653.09	519.50	133.59	4.889	Alert	
16,350.00	12,710.00	16,170.24	12,662.00	68.19	68.15	-84.61	-3,377.18	302.90	653.08	518.42	134.67	4.850	Alert	
16,400.00	12,710.00	16,220.24	12,662.00	68.73	68.68	-84.61	-3,427.18	302.97	653.07	517.33	135.74	4.811	Alert	
16,450.00	12,710.00	16,270.24	12,662.00	69.28	69.22	-84.61	-3,477.18	303.04	653.07	516.23	136.83	4.773	Alert	
16,500.00	12,710.00	16,320.24	12,662.00	69.83	69.76	-84.61	-3,527.18	303.11	653.06	515.13	137.92	4.735	Alert	
16,550.00	12,710.00	16,370.24	12,662.00	70.38	70.31	-84.61	-3,577.18	303.18	653.05	514.02	139.03	4.697	Alert	
16,600.00	12,710.00	16,420.24	12,662.00	70.94	70.86	-84.61	-3,627.18	303.25	653.04	512.91	140.13	4.660	Alert	
16,650.00	12,710.00	16,470.24	12,662.00	71.50	71.41	-84.61	-3,677.18	303.32	653.03	511.79	141.24	4.623	Alert	
16,700.00	12,710.00	16,520.24	12,662.00	72.06	71.97	-84.61	-3,727.18	303.40	653.02	510.66	142.36	4.587	Alert	
16,750.00	12,710.00	16,570.24	12,662.00	72.63	72.52	-84.61	-3,777.18	303.47	653.02	509.53	143.49	4.551	Alert	
16,800.00	12,710.00	16,620.24	12,662.00	73.19	73.09	-84.61	-3,827.18	303.54	653.01	508.39	144.61	4.516	Alert	
16,850.00	12,710.00	16,670.24	12,662.00	73.77	73.65	-84.61	-3,877.18	303.61	653.00	507.25	145.75	4.480	Alert	
16,900.00	12,710.00	16,720.24	12,662.00	74.34	74.22	-84.61	-3,927.18	303.68	652.99	506.10	146.89	4.445	Alert	
16,950.00	12,710.00	16,770.24	12,662.00	74.92	74.79	-84.61	-3,977.18	303.75	652.98	504.94	148.04	4.411	Alert	
17,000.00	12,710.00	16,820.24	12,662.00	75.49	75.36	-84.61	-4,027.18	303.82	652.97	503.79	149.19	4.377	Alert	
17,050.00	12,710.00	16,870.24	12,662.00	76.08	75.93	-84.61	-4,077.18	303.89	652.97	502.62	150.35	4.343	Alert	
17,100.00	12,710.00	16,920.24	12,662.00	76.66	76.51	-84.61	-4,127.18	303.96	652.96	501.45	151.51	4.310	Alert	
17,150.00	12,710.00	16,970.24	12,662.00	77.25	77.09	-84.61	-4,177.18	304.03	652.95	500.28	152.67	4.277	Alert	
17,200.00	12,710.00	17,020.24	12,662.00	77.83	77.67	-84.61	-4,227.18	304.10	652.94	499.10	153.84	4.244	Alert	
17,250.00	12,710.00	17,070.24	12,662.00	78.43	78.26	-84.61	-4,277.18	304.18	652.93	497.91	155.02	4.212	Alert	
17,300.00	12,710.00	17,120.24	12,662.00	79.02	78.85	-84.61	-4,327.18	304.25	652.92	496.72	156.20	4.180	Alert	
17,350.00	12,710.00	17,170.24	12,662.00	79.61	79.44	-84.61	-4,377.18	304.32	652.92	495.53	157.39	4.149	Alert	
17,400.00	12,710.00	17,220.24	12,662.00	80.21	80.03	-84.61	-4,427.18	304.39	652.91	494.33	158.57	4.117	Alert	
17,450.00	12,710.00	17,270.24	12,662.00	80.81	80.62	-84.61	-4,477.18	304.46	652.90	493.13	159.77	4.087	Alert	
17,500.00	12,710.00	17,320.24	12,662.00	81.41	81.22	-84.61	-4,527.18	304.53	652.89	491.93	160.96	4.056	Alert	
17,550.00	12,710.00	17,370.24	12,662.00	82.02	81.81	-84.61	-4,577.18	304.60	652.88	490.72	162.17	4.026	Alert	
17,600.00	12,710.00	17,420.24	12,662.00	82.62	82.41	-84.61	-4,627.18	304.67	652.87	489.50	163.37	3.996	Alert	
17,619.05	12,710.00	17,439.29	12,662.00	82.86	82.64	-84.61	-4,646.23	304.70	652.87	489.04	163.83	3.985	Alert, CC, ES, SF	
17,620.47	12,710.00	17,435.86	12,662.00	82.88	82.60	-84.61	-4,642.80	304.69	652.89	489.16	163.73	3.988	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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft	
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	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)										
0.00	0.00	13.10	13.10	0.50	0.50	89.56	9.55	1,244.77	1,244.81						
50.00	50.00	63.10	63.10	0.50	0.51	89.56	9.55	1,244.77	1,244.81	1,243.80	1.01	1,233.525			
100.00	100.00	113.10	113.10	0.52	0.53	89.56	9.55	1,244.77	1,244.81	1,243.76	1.05	1,185.939			
150.00	150.00	163.10	163.10	0.59	0.62	89.56	9.55	1,244.77	1,244.81	1,243.60	1.21	1,031.563			
200.00	200.00	213.10	213.10	0.70	0.74	89.56	9.55	1,244.77	1,244.81	1,243.37	1.44	865.693			
250.00	250.00	263.10	263.10	0.84	0.88	89.56	9.55	1,244.77	1,244.81	1,243.10	1.71	726.449			
300.00	300.00	313.10	313.10	0.99	1.03	89.56	9.55	1,244.77	1,244.81	1,242.79	2.02	617.637			
350.00	350.00	363.10	363.10	1.15	1.19	89.56	9.55	1,244.77	1,244.81	1,242.48	2.33	533.473			
400.00	400.00	413.10	413.10	1.31	1.35	89.56	9.55	1,244.77	1,244.81	1,242.15	2.66	467.675			
450.00	450.00	463.10	463.10	1.48	1.52	89.56	9.55	1,244.77	1,244.81	1,241.81	3.00	415.363			
500.00	500.00	513.10	513.10	1.65	1.69	89.56	9.55	1,244.77	1,244.81	1,241.47	3.34	373.035			
550.00	550.00	563.10	563.10	1.82	1.86	89.56	9.55	1,244.77	1,244.81	1,241.13	3.68	338.214			
600.00	600.00	613.10	613.10	1.99	2.04	89.56	9.55	1,244.77	1,244.81	1,240.78	4.03	309.139			
650.00	650.00	663.10	663.10	2.16	2.21	89.56	9.55	1,244.77	1,244.81	1,240.43	4.37	284.538			
700.00	700.00	713.10	713.10	2.34	2.39	89.56	9.55	1,244.77	1,244.81	1,240.08	4.72	263.478			
750.00	750.00	763.10	763.10	2.51	2.56	89.56	9.55	1,244.77	1,244.81	1,239.73	5.08	245.261			
800.00	800.00	813.10	813.10	2.69	2.74	89.56	9.55	1,244.77	1,244.81	1,239.38	5.43	229.359			
850.00	850.00	863.10	863.10	2.87	2.91	89.56	9.55	1,244.77	1,244.81	1,239.03	5.78	215.363			
900.00	900.00	913.10	913.10	3.04	3.09	89.56	9.55	1,244.77	1,244.81	1,238.68	6.13	202.955			
950.00	950.00	963.10	963.10	3.22	3.27	89.56	9.55	1,244.77	1,244.81	1,238.32	6.49	191.882			
1,000.00	1,000.00	1,013.10	1,013.10	3.40	3.44	89.56	9.55	1,244.77	1,244.81	1,237.97	6.84	181.942			
1,050.00	1,050.00	1,063.10	1,063.10	3.58	3.62	89.56	9.55	1,244.77	1,244.81	1,237.61	7.20	172.972			
1,100.00	1,100.00	1,113.10	1,113.10	3.75	3.80	89.56	9.55	1,244.77	1,244.81	1,237.26	7.55	164.837			
1,150.00	1,150.00	1,163.10	1,163.10	3.93	3.98	89.56	9.55	1,244.77	1,244.81	1,236.90	7.91	157.427			
1,200.00	1,200.00	1,213.10	1,213.10	4.11	4.15	89.56	9.55	1,244.77	1,244.81	1,236.55	8.26	150.650			
1,250.00	1,250.00	1,263.10	1,263.10	4.29	4.33	89.56	9.55	1,244.77	1,244.81	1,236.19	8.62	144.428			
1,300.00	1,300.00	1,313.10	1,313.10	4.46	4.51	89.56	9.55	1,244.77	1,244.81	1,235.83	8.98	138.697			
1,350.00	1,350.00	1,363.10	1,363.10	4.64	4.69	89.56	9.55	1,244.77	1,244.81	1,235.48	9.33	133.401			
1,400.00	1,400.00	1,413.10	1,413.10	4.82	4.87	89.56	9.55	1,244.77	1,244.81	1,235.12	9.69	128.492			
1,450.00	1,450.00	1,463.10	1,463.10	5.00	5.05	89.56	9.55	1,244.77	1,244.81	1,234.76	10.04	123.930			
1,500.00	1,500.00	1,513.10	1,513.10	5.18	5.22	89.56	9.55	1,244.77	1,244.81	1,234.41	10.40	119.679			
1,550.00	1,550.00	1,563.10	1,563.10	5.36	5.40	89.56	9.55	1,244.77	1,244.81	1,234.05	10.76	115.709			
1,600.00	1,600.00	1,613.10	1,613.10	5.53	5.58	89.56	9.55	1,244.77	1,244.81	1,233.69	11.12	111.993			
1,650.00	1,650.00	1,663.10	1,663.10	5.71	5.76	89.56	9.55	1,244.77	1,244.81	1,233.34	11.47	108.508			
1,700.00	1,700.00	1,713.10	1,713.10	5.89	5.94	89.56	9.55	1,244.77	1,244.81	1,232.98	11.83	105.231			
1,750.00	1,750.00	1,763.10	1,763.10	6.07	6.12	89.56	9.55	1,244.77	1,244.81	1,232.62	12.19	102.147			
1,800.00	1,800.00	1,813.10	1,813.10	6.25	6.30	89.56	9.55	1,244.77	1,244.81	1,232.27	12.54	99.237			
1,850.00	1,850.00	1,863.10	1,863.10	6.43	6.47	89.56	9.55	1,244.77	1,244.81	1,231.91	12.90	96.488			
1,900.00	1,900.00	1,913.10	1,913.10	6.61	6.65	89.56	9.55	1,244.77	1,244.81	1,231.55	13.26	93.887			
1,950.00	1,950.00	1,963.10	1,963.10	6.78	6.83	89.56	9.55	1,244.77	1,244.81	1,231.19	13.62	91.422			
2,000.00	2,000.00	2,013.10	2,013.10	6.96	7.01	89.56	9.55	1,244.77	1,244.81	1,230.84	13.97	89.083			
2,050.00	2,050.00	2,063.10	2,063.10	7.14	7.19	89.56	9.55	1,244.77	1,244.81	1,230.48	14.33	86.860			
2,100.00	2,100.00	2,113.10	2,113.10	7.32	7.37	89.56	9.55	1,244.77	1,244.81	1,230.12	14.69	84.746			
2,150.00	2,150.00	2,163.10	2,163.10	7.50	7.55	89.56	9.55	1,244.77	1,244.81	1,229.76	15.05	82.731			
2,200.00	2,200.00	2,215.41	2,215.41	7.68	7.73	89.56	9.56	1,244.76	1,244.80	1,229.39	15.41	80.768			
2,250.00	2,250.00	2,274.22	2,274.21	7.86	7.94	89.54	9.90	1,244.44	1,244.53	1,228.73	15.80	78.772			
2,300.00	2,300.00	2,333.01	2,333.00	8.04	8.15	89.51	10.66	1,243.70	1,243.90	1,227.72	16.18	76.857			
2,350.00	2,350.00	2,391.77	2,391.74	8.22	8.36	89.45	11.86	1,242.54	1,242.93	1,226.36	16.57	75.016			
2,400.00	2,400.00	2,450.50	2,450.42	8.39	8.57	89.38	13.49	1,240.97	1,241.60	1,224.65	16.95	73.240			
2,450.00	2,450.00	2,507.34	2,507.19	8.57	8.77	89.28	15.47	1,239.05	1,239.93	1,222.60	17.33	71.551			
2,500.00	2,500.00	2,557.27	2,557.06	8.75	8.94	89.20	17.33	1,237.25	1,238.15	1,220.47	17.68	70.014			
2,550.00	2,550.00	2,607.20	2,606.92	8.93	9.12	89.11	19.18	1,235.46	1,236.38	1,218.34	18.04	68.536			

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)	
2,600.00	2,600.00	2,657.14	2,656.79	9.11	9.30	89.02	21.04	1,233.66	1,234.61	1,216.21	18.40	67.115		
2,650.00	2,650.00	2,707.07	2,706.65	9.29	9.48	88.93	22.90	1,231.86	1,232.84	1,214.09	18.75	65.748		
2,700.00	2,700.00	2,757.00	2,756.52	9.47	9.65	88.85	24.76	1,230.06	1,231.08	1,211.97	19.11	64.430		
2,750.00	2,750.00	2,806.93	2,806.39	9.65	9.83	88.76	26.62	1,228.26	1,229.32	1,209.85	19.46	63.161		
2,800.00	2,800.00	2,856.87	2,856.25	9.83	10.01	88.67	28.48	1,226.47	1,227.56	1,207.74	19.82	61.937		
2,850.00	2,850.00	2,906.81	2,906.13	10.00	10.19	124.56	30.34	1,224.67	1,225.92	1,205.75	20.17	60.766		
2,900.00	2,899.99	2,956.77	2,956.02	10.18	10.37	124.51	32.20	1,222.87	1,224.54	1,204.01	20.53	59.646		
2,950.00	2,949.98	3,006.75	3,005.93	10.36	10.55	124.47	34.06	1,221.07	1,223.41	1,202.52	20.88	58.578		
3,000.00	2,999.96	3,056.74	3,055.85	10.54	10.72	124.45	35.92	1,219.27	1,222.52	1,201.28	21.24	57.558		
3,050.00	3,049.92	3,106.73	3,105.78	10.72	10.90	124.44	37.78	1,217.47	1,221.88	1,200.28	21.59	56.582		
3,100.00	3,099.86	3,156.73	3,155.71	10.89	11.08	124.45	39.64	1,215.67	1,221.48	1,199.53	21.95	55.648		
3,150.00	3,149.78	3,206.73	3,205.64	11.07	11.26	124.47	41.50	1,213.87	1,221.34	1,199.03	22.31	54.756		
3,154.88	3,154.66	3,211.61	3,210.52	11.09	11.28	124.47	41.68	1,213.70	1,221.34	1,199.00	22.34	54.670 CC		
3,200.00	3,199.68	3,256.72	3,255.57	11.25	11.44	124.50	43.36	1,212.07	1,221.44	1,198.78	22.66	53.901		
3,250.00	3,249.55	3,306.71	3,305.49	11.43	11.62	124.55	45.22	1,210.27	1,221.65	1,198.64	23.02	53.078		
3,300.00	3,299.43	3,356.70	3,355.42	11.60	11.80	124.59	47.09	1,208.47	1,221.87	1,198.50	23.37	52.279		
3,350.00	3,349.31	3,406.69	3,405.34	11.78	11.98	124.64	48.95	1,206.67	1,222.08	1,198.35	23.73	51.503		
3,400.00	3,399.19	3,456.68	3,455.26	11.96	12.16	124.68	50.81	1,204.87	1,222.30	1,198.21	24.08	50.751		
3,450.00	3,449.07	3,506.67	3,505.19	12.14	12.34	124.73	52.67	1,203.07	1,222.52	1,198.07	24.44	50.019		
3,500.00	3,498.95	3,556.66	3,555.11	12.32	12.52	124.77	54.53	1,201.27	1,222.73	1,197.94	24.80	49.308		
3,550.00	3,548.83	3,606.66	3,605.03	12.50	12.70	124.82	56.39	1,199.47	1,222.95	1,197.80	25.15	48.617		
3,600.00	3,598.71	3,656.65	3,654.96	12.68	12.88	124.86	58.25	1,197.67	1,223.17	1,197.66	25.51	47.945		
3,650.00	3,648.59	3,706.64	3,704.88	12.86	13.06	124.91	60.11	1,195.87	1,223.39	1,197.52	25.87	47.292		
3,700.00	3,698.47	3,756.63	3,754.80	13.04	13.24	124.95	61.97	1,194.08	1,223.61	1,197.38	26.23	46.656		
3,750.00	3,748.35	3,806.62	3,804.73	13.22	13.42	125.00	63.83	1,192.28	1,223.83	1,197.25	26.58	46.036		
3,800.00	3,798.23	3,856.61	3,854.65	13.40	13.60	125.04	65.70	1,190.48	1,224.05	1,197.11	26.94	45.433		
3,850.00	3,848.11	3,906.60	3,904.57	13.58	13.78	125.08	67.56	1,188.68	1,224.28	1,196.98	27.30	44.845		
3,900.00	3,897.99	3,956.59	3,954.50	13.76	13.96	125.13	69.42	1,186.88	1,224.50	1,196.84	27.66	44.273		
3,950.00	3,947.87	4,006.58	4,004.42	13.94	14.14	125.17	71.28	1,185.08	1,224.72	1,196.71	28.02	43.715		
4,000.00	3,997.75	4,056.57	4,054.34	14.12	14.32	125.22	73.14	1,183.28	1,224.95	1,196.58	28.37	43.170		
4,050.00	4,047.63	4,106.56	4,104.27	14.30	14.50	125.26	75.00	1,181.48	1,225.18	1,196.44	28.73	42.640		
4,100.00	4,097.51	4,156.55	4,154.19	14.48	14.68	125.31	76.86	1,179.68	1,225.40	1,196.31	29.09	42.122		
4,150.00	4,147.39	4,206.54	4,204.11	14.66	14.86	125.35	78.72	1,177.88	1,225.63	1,196.18	29.45	41.616		
4,200.00	4,197.27	4,256.53	4,254.04	14.84	15.04	125.40	80.58	1,176.08	1,225.86	1,196.05	29.81	41.123		
4,250.00	4,247.15	4,306.52	4,303.96	15.02	15.22	125.44	82.44	1,174.28	1,226.09	1,195.92	30.17	40.641		
4,300.00	4,297.03	4,356.51	4,353.88	15.20	15.40	125.48	84.30	1,172.48	1,226.32	1,195.79	30.53	40.171		
4,350.00	4,346.90	4,406.50	4,403.81	15.38	15.58	125.53	86.17	1,170.68	1,226.55	1,195.66	30.89	39.711		
4,400.00	4,396.78	4,456.49	4,453.73	15.56	15.76	125.57	88.03	1,168.88	1,226.78	1,195.53	31.25	39.262		
4,450.00	4,446.66	4,506.48	4,503.65	15.74	15.94	125.62	89.89	1,167.08	1,227.01	1,195.40	31.61	38.822		
4,500.00	4,496.54	4,556.47	4,553.58	15.92	16.12	125.66	91.75	1,165.28	1,227.24	1,195.28	31.97	38.393		
4,550.00	4,546.42	4,606.46	4,603.50	16.11	16.30	125.71	93.61	1,163.48	1,227.47	1,195.15	32.32	37.973		
4,600.00	4,596.30	4,656.45	4,653.42	16.29	16.48	125.75	95.47	1,161.68	1,227.71	1,195.02	32.68	37.562		
4,650.00	4,646.18	4,706.45	4,703.35	16.47	16.66	125.79	97.33	1,159.88	1,227.94	1,194.90	33.04	37.161		
4,700.00	4,696.06	4,756.44	4,753.27	16.65	16.85	125.84	99.19	1,158.08	1,228.18	1,194.77	33.40	36.767		
4,750.00	4,745.94	4,806.43	4,803.19	16.83	17.03	125.88	101.05	1,156.28	1,228.41	1,194.65	33.76	36.382		
4,800.00	4,795.82	4,856.42	4,853.12	17.01	17.21	125.93	102.91	1,154.48	1,228.65	1,194.53	34.12	36.005		
4,850.00	4,845.70	4,906.41	4,903.04	17.19	17.39	125.97	104.78	1,152.68	1,228.89	1,194.40	34.48	35.636		
4,900.00	4,895.58	4,956.40	4,952.96	17.38	17.57	126.02	106.64	1,150.88	1,229.13	1,194.28	34.84	35.275		
4,950.00	4,945.46	5,006.39	5,002.89	17.56	17.75	126.06	108.50	1,149.08	1,229.36	1,194.16	35.20	34.921		
5,000.00	4,995.34	5,056.38	5,052.81	17.74	17.93	126.10	110.36	1,147.28	1,229.60	1,194.04	35.56	34.574		
5,050.00	5,045.22	5,106.37	5,102.73	17.92	18.11	126.15	112.22	1,145.48	1,229.84	1,193.92	35.93	34.234		
5,100.00	5,095.10	5,156.36	5,152.66	18.10	18.29	126.19	114.08	1,143.68	1,230.09	1,193.80	36.29	33.900		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1														Offset Site Error:	0.00 ft
Survey Program: O-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)							
5,150.00	5,144.98	5,206.35	5,202.58	18.29	18.47	126.24	115.94	1,141.88	1,230.33	1,193.68	36.65	33.573			
5,200.00	5,194.86	5,256.34	5,252.50	18.47	18.65	126.28	117.80	1,140.08	1,230.57	1,193.56	37.01	33.253			
5,250.00	5,244.74	5,306.33	5,302.43	18.65	18.84	126.32	119.66	1,138.28	1,230.81	1,193.45	37.37	32.939			
5,300.00	5,294.62	5,356.32	5,352.35	18.83	19.02	126.37	121.52	1,136.48	1,231.06	1,193.33	37.73	32.630			
5,350.00	5,344.50	5,406.31	5,402.27	19.01	19.20	126.41	123.38	1,134.69	1,231.30	1,193.21	38.09	32.328			
5,400.00	5,394.38	5,456.30	5,452.20	19.20	19.38	126.46	125.25	1,132.89	1,231.55	1,193.10	38.45	32.031			
5,450.00	5,444.26	5,506.29	5,502.12	19.38	19.56	126.50	127.11	1,131.09	1,231.79	1,192.98	38.81	31.739			
5,500.00	5,494.13	5,556.28	5,552.04	19.56	19.74	126.54	128.97	1,129.29	1,232.04	1,192.87	39.17	31.453			
5,550.00	5,544.01	5,606.27	5,601.97	19.74	19.92	126.59	130.83	1,127.49	1,232.29	1,192.76	39.53	31.172			
5,600.00	5,593.89	5,656.26	5,651.89	19.93	20.10	126.63	132.69	1,125.69	1,232.54	1,192.64	39.89	30.897			
5,650.00	5,643.77	5,706.25	5,701.82	20.11	20.28	126.68	134.55	1,123.89	1,232.79	1,192.53	40.25	30.626			
5,700.00	5,693.65	5,756.24	5,751.74	20.29	20.47	126.72	136.41	1,122.09	1,233.04	1,192.42	40.61	30.360			
5,750.00	5,743.53	5,806.24	5,801.66	20.47	20.65	126.76	138.27	1,120.29	1,233.29	1,192.31	40.98	30.098			
5,800.00	5,793.41	5,856.23	5,851.59	20.66	20.83	126.81	140.13	1,118.49	1,233.54	1,192.20	41.34	29.842			
5,850.00	5,843.29	5,906.22	5,901.51	20.84	21.01	126.85	141.99	1,116.69	1,233.79	1,192.09	41.70	29.589			
5,900.00	5,893.17	5,956.21	5,951.43	21.02	21.19	126.89	143.86	1,114.89	1,234.04	1,191.98	42.06	29.341			
5,950.00	5,943.05	6,006.20	6,001.36	21.20	21.37	126.94	145.72	1,113.09	1,234.30	1,191.88	42.42	29.097			
6,000.00	5,992.93	6,056.19	6,051.28	21.39	21.55	126.98	147.58	1,111.29	1,234.55	1,191.77	42.78	28.857			
6,050.00	6,042.81	6,106.18	6,101.20	21.57	21.74	127.03	149.44	1,109.49	1,234.81	1,191.66	43.14	28.622			
6,100.00	6,092.69	6,156.17	6,151.13	21.75	21.92	127.07	151.30	1,107.69	1,235.06	1,191.56	43.50	28.390			
6,150.00	6,142.57	6,206.16	6,201.05	21.94	22.10	127.11	153.16	1,105.89	1,235.32	1,191.45	43.86	28.162			
6,200.00	6,192.45	6,256.15	6,250.97	22.12	22.28	127.16	155.02	1,104.09	1,235.57	1,191.35	44.23	27.938			
6,250.00	6,242.33	6,306.14	6,300.90	22.30	22.46	127.20	156.88	1,102.29	1,235.83	1,191.24	44.59	27.717			
6,300.00	6,292.21	6,356.13	6,350.82	22.48	22.64	127.24	158.74	1,100.49	1,236.09	1,191.14	44.95	27.500			
6,350.00	6,342.09	6,406.12	6,400.74	22.67	22.82	127.29	160.60	1,098.69	1,236.35	1,191.04	45.31	27.286			
6,400.00	6,391.97	6,456.11	6,450.67	22.85	23.00	127.33	162.46	1,096.89	1,236.61	1,190.94	45.67	27.076			
6,450.00	6,441.85	6,506.10	6,500.59	23.03	23.19	127.38	164.33	1,095.09	1,236.87	1,190.84	46.03	26.869			
6,500.00	6,491.73	6,556.09	6,550.51	23.22	23.37	127.42	166.19	1,093.29	1,237.13	1,190.74	46.39	26.665			
6,550.00	6,541.61	6,606.08	6,600.44	23.40	23.55	127.46	168.05	1,091.49	1,237.39	1,190.64	46.76	26.465			
6,600.00	6,591.48	6,656.07	6,650.36	23.58	23.73	127.51	169.91	1,089.69	1,237.66	1,190.54	47.12	26.267			
6,650.00	6,641.36	6,706.06	6,700.28	23.76	23.91	127.55	171.77	1,087.89	1,237.92	1,190.44	47.48	26.073			
6,700.00	6,691.24	6,756.05	6,750.21	23.95	24.09	127.59	173.63	1,086.09	1,238.18	1,190.34	47.84	25.881			
6,750.00	6,741.12	6,806.04	6,800.13	24.13	24.28	127.64	175.49	1,084.29	1,238.45	1,190.25	48.20	25.693			
6,800.00	6,791.00	6,856.03	6,850.05	24.31	24.46	127.68	177.35	1,082.49	1,238.71	1,190.15	48.56	25.507			
6,850.00	6,840.88	6,906.03	6,899.98	24.50	24.64	127.72	179.21	1,080.69	1,238.98	1,190.06	48.93	25.324			
6,900.00	6,890.76	6,956.02	6,949.90	24.68	24.82	127.77	181.07	1,078.89	1,239.25	1,189.96	49.29	25.143			
6,950.00	6,940.64	7,006.01	6,999.82	24.86	25.00	127.81	182.94	1,077.09	1,239.52	1,189.87	49.65	24.966			
7,000.00	6,990.52	7,056.00	7,049.75	25.05	25.18	127.85	184.80	1,075.30	1,239.78	1,189.77	50.01	24.790			
7,050.00	7,040.40	7,105.99	7,099.67	25.23	25.36	127.90	186.66	1,073.50	1,240.05	1,189.68	50.37	24.618			
7,100.00	7,090.28	7,155.98	7,149.59	25.41	25.55	127.94	188.52	1,071.70	1,240.32	1,189.59	50.73	24.448			
7,150.00	7,140.16	7,205.97	7,199.52	25.60	25.73	127.98	190.38	1,069.90	1,240.59	1,189.50	51.10	24.280			
7,200.00	7,190.04	7,255.96	7,249.44	25.78	25.91	128.03	192.24	1,068.10	1,240.87	1,189.41	51.46	24.114			
7,250.00	7,239.92	7,305.95	7,299.36	25.96	26.09	128.07	194.10	1,066.30	1,241.14	1,189.32	51.82	23.951			
7,300.00	7,289.80	7,355.94	7,349.29	26.15	26.27	128.11	195.96	1,064.50	1,241.41	1,189.23	52.18	23.790			
7,350.00	7,339.68	7,405.93	7,399.21	26.33	26.45	128.16	197.82	1,062.70	1,241.68	1,189.14	52.54	23.632			
7,400.00	7,389.56	7,455.92	7,449.13	26.51	26.64	128.20	199.68	1,060.90	1,241.96	1,189.05	52.90	23.475			
7,450.00	7,439.44	7,505.91	7,499.06	26.70	26.82	128.24	201.54	1,059.10	1,242.23	1,188.97	53.27	23.321			
7,500.00	7,489.32	7,555.90	7,548.98	26.88	27.00	128.29	203.41	1,057.30	1,242.51	1,188.88	53.63	23.169			
7,550.00	7,539.20	7,605.89	7,598.90	27.06	27.18	128.33	205.27	1,055.50	1,242.78	1,188.79	53.99	23.019			
7,600.00	7,589.08	7,655.88	7,648.83	27.25	27.36	128.37	207.13	1,053.70	1,243.06	1,188.71	54.35	22.871			
7,650.00	7,638.96	7,705.87	7,698.75	27.43	27.54	128.42	208.99	1,051.90	1,243.34	1,188.63	54.71	22.724			
7,700.00	7,688.83	7,755.86	7,748.67	27.61	27.73	128.46	210.85	1,050.10	1,243.62	1,188.54	55.08	22.580			

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 17H - 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		Minimum		Separation		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)	Separation (ft)	Factor		
7,750.00	7,738.71	7,805.85	7,798.60	27.80	27.91	128.50	212.71	1,048.30	1,243.90	1,188.46	55.44	22.438		
7,800.00	7,788.59	7,855.84	7,848.52	27.98	28.09	128.55	214.57	1,046.50	1,244.18	1,188.38	55.80	22.297		
7,850.00	7,838.47	7,905.83	7,898.44	28.16	28.27	128.59	216.43	1,044.70	1,244.46	1,188.30	56.16	22.159		
7,900.00	7,888.35	7,955.83	7,948.37	28.35	28.45	128.63	218.29	1,042.90	1,244.74	1,188.22	56.52	22.022		
7,950.00	7,938.23	8,005.82	7,998.29	28.53	28.63	128.67	220.15	1,041.10	1,245.02	1,188.14	56.89	21.887		
8,000.00	7,988.11	8,055.81	8,048.21	28.71	28.82	128.72	222.02	1,039.30	1,245.30	1,188.06	57.25	21.753		
8,050.00	8,037.99	8,105.80	8,098.14	28.90	29.00	128.76	223.88	1,037.50	1,245.59	1,187.98	57.61	21.621		
8,100.00	8,087.87	8,155.79	8,148.06	29.08	29.18	128.80	225.74	1,035.70	1,245.87	1,187.90	57.97	21.491		
8,150.00	8,137.75	8,205.78	8,197.98	29.27	29.36	128.85	227.60	1,033.90	1,246.16	1,187.82	58.33	21.363		
8,200.00	8,187.63	8,255.77	8,247.91	29.45	29.54	128.89	229.46	1,032.10	1,246.44	1,187.75	58.70	21.236		
8,250.00	8,237.51	8,305.76	8,297.83	29.63	29.72	128.93	231.32	1,030.30	1,246.73	1,187.67	59.06	21.111		
8,300.00	8,287.39	8,355.75	8,347.75	29.82	29.91	128.98	233.18	1,028.50	1,247.01	1,187.59	59.42	20.987		
8,350.00	8,337.27	8,405.74	8,397.68	30.00	30.09	129.02	235.04	1,026.70	1,247.30	1,187.52	59.78	20.864		
8,400.00	8,387.15	8,455.73	8,447.60	30.18	30.27	129.06	236.90	1,024.90	1,247.59	1,187.45	60.14	20.744		
8,450.00	8,437.03	8,505.72	8,497.52	30.37	30.45	129.10	238.76	1,023.10	1,247.88	1,187.37	60.51	20.624		
8,500.00	8,486.91	8,555.71	8,547.45	30.55	30.63	129.15	240.62	1,021.30	1,248.17	1,187.30	60.87	20.506		
8,550.00	8,536.79	8,605.70	8,597.37	30.73	30.81	129.19	242.49	1,019.50	1,248.46	1,187.23	61.23	20.390		
8,600.00	8,586.67	8,655.69	8,647.29	30.92	31.00	129.23	244.35	1,017.71	1,248.75	1,187.16	61.59	20.275		
8,650.00	8,636.55	8,705.68	8,697.22	31.10	31.18	129.28	246.21	1,015.91	1,249.04	1,187.09	61.95	20.161		
8,700.00	8,686.43	8,755.67	8,747.14	31.29	31.36	129.32	248.07	1,014.11	1,249.33	1,187.02	62.32	20.049		
8,750.00	8,736.31	8,805.66	8,797.06	31.47	31.54	129.36	249.93	1,012.31	1,249.63	1,186.95	62.68	19.937		
8,800.00	8,786.18	8,855.65	8,846.99	31.65	31.72	129.40	251.79	1,010.51	1,249.92	1,186.88	63.04	19.828		
8,850.00	8,836.06	8,905.64	8,896.91	31.84	31.90	129.45	253.65	1,008.71	1,250.21	1,186.81	63.40	19.719		
8,900.00	8,885.94	8,955.63	8,946.83	32.02	32.09	129.49	255.51	1,006.91	1,250.51	1,186.75	63.76	19.612		
8,950.00	8,935.82	9,005.62	8,996.76	32.20	32.27	129.53	257.37	1,005.11	1,250.81	1,186.68	64.13	19.506		
9,000.00	8,985.70	9,055.62	9,046.68	32.39	32.45	129.57	259.23	1,003.31	1,251.10	1,186.62	64.49	19.401		
9,050.00	9,035.58	9,105.61	9,096.61	32.57	32.63	129.62	261.10	1,001.51	1,251.40	1,186.55	64.85	19.297		
9,100.00	9,085.46	9,155.60	9,146.53	32.76	32.81	129.66	262.96	999.71	1,251.70	1,186.49	65.21	19.194		
9,150.00	9,135.34	9,205.59	9,196.45	32.94	33.00	129.70	264.82	997.91	1,252.00	1,186.42	65.57	19.093		
9,200.00	9,185.22	9,255.58	9,246.38	33.12	33.18	129.74	266.68	996.11	1,252.30	1,186.36	65.94	18.993		
9,250.00	9,235.10	9,305.57	9,296.30	33.31	33.36	129.79	268.54	994.31	1,252.60	1,186.30	66.30	18.893		
9,300.00	9,284.98	9,355.56	9,346.22	33.49	33.54	129.83	270.40	992.51	1,252.90	1,186.24	66.66	18.795		
9,350.00	9,334.86	9,405.55	9,396.15	33.68	33.72	129.87	272.26	990.71	1,253.20	1,186.18	67.02	18.698		
9,400.00	9,384.74	9,455.54	9,446.07	33.86	33.90	129.91	274.12	988.91	1,253.50	1,186.12	67.38	18.602		
9,450.00	9,434.62	9,505.53	9,495.99	34.04	34.09	129.96	275.98	987.11	1,253.80	1,186.06	67.75	18.507		
9,500.00	9,484.50	9,555.52	9,546.92	34.23	34.27	130.00	277.84	985.31	1,254.11	1,186.00	68.11	18.413		
9,550.00	9,534.38	9,605.51	9,595.84	34.41	34.45	130.04	279.70	983.51	1,254.41	1,185.94	68.47	18.320		
9,600.00	9,584.26	9,655.50	9,645.76	34.59	34.63	130.08	281.57	981.71	1,254.72	1,185.88	68.83	18.229		
9,650.00	9,634.14	9,705.49	9,695.69	34.78	34.81	130.13	283.43	979.91	1,255.02	1,185.83	69.19	18.138		
9,700.00	9,684.02	9,755.48	9,745.61	34.96	35.00	130.17	285.29	978.11	1,255.33	1,185.77	69.56	18.048		
9,750.00	9,733.90	9,805.47	9,795.53	35.15	35.18	130.21	287.15	976.31	1,255.63	1,185.72	69.92	17.958		
9,800.00	9,783.78	9,855.46	9,845.46	35.33	35.36	130.25	289.01	974.51	1,255.94	1,185.66	70.28	17.870		
9,850.00	9,833.66	9,905.45	9,895.38	35.51	35.54	130.30	290.87	972.71	1,256.25	1,185.61	70.64	17.783		
9,900.00	9,883.53	9,955.44	9,945.30	35.70	35.72	130.34	292.73	970.91	1,256.56	1,185.55	71.01	17.697		
9,950.00	9,933.41	10,005.43	9,995.23	35.88	35.90	130.38	294.59	969.11	1,256.87	1,185.50	71.37	17.611		
10,000.00	9,983.29	10,055.42	10,045.15	36.07	36.09	130.42	296.45	967.31	1,257.18	1,185.45	71.73	17.527		
10,050.00	10,033.17	10,105.41	10,095.07	36.25	36.27	130.46	298.31	965.51	1,257.49	1,185.40	72.09	17.443		
10,100.00	10,083.05	10,155.41	10,145.00	36.43	36.45	130.51	300.18	963.71	1,257.80	1,185.35	72.45	17.360		
10,150.00	10,132.93	10,205.40	10,194.92	36.62	36.63	130.55	302.04	961.91	1,258.11	1,185.30	72.82	17.278		
10,200.00	10,182.81	10,255.39	10,244.84	36.80	36.81	130.59	303.90	960.11	1,258.43	1,185.25	73.18	17.197		
10,250.00	10,232.69	10,305.38	10,294.77	36.99	37.00	130.63	305.76	958.32	1,258.74	1,185.20	73.54	17.116		
10,300.00	10,282.57	10,355.37	10,344.69	37.17	37.18	130.67	307.62	956.52	1,259.06	1,185.15	73.90	17.037		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Sec 07-T26S-R34E - Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,350.00	10,332.45	10,405.36	10,394.61	37.35	37.36	130.72	309.48	954.72	1,259.37	1,185.11	74.26	16.958		
10,400.00	10,382.33	10,455.35	10,444.54	37.54	37.54	130.76	311.34	952.92	1,259.69	1,185.06	74.63	16.880		
10,450.00	10,432.21	10,505.34	10,494.46	37.72	37.72	130.80	313.20	951.12	1,260.00	1,185.01	74.99	16.803		
10,500.00	10,482.09	10,555.33	10,544.38	37.91	37.91	130.84	315.06	949.32	1,260.32	1,184.97	75.35	16.726		
10,550.00	10,531.97	10,605.32	10,594.31	38.09	38.09	130.89	316.92	947.52	1,260.64	1,184.92	75.71	16.650		
10,600.00	10,581.85	10,655.31	10,644.23	38.27	38.27	130.93	318.78	945.72	1,260.96	1,184.88	76.07	16.575		
10,650.00	10,631.73	10,705.30	10,694.15	38.46	38.45	130.97	320.65	943.92	1,261.28	1,184.84	76.44	16.501		
10,700.00	10,681.61	10,755.29	10,744.08	38.64	38.63	131.01	322.51	942.12	1,261.59	1,184.80	76.80	16.427		
10,750.00	10,731.49	10,805.28	10,794.00	38.83	38.81	131.05	324.37	940.32	1,261.92	1,184.75	77.16	16.354		
10,800.00	10,781.37	10,855.27	10,843.92	39.01	39.00	131.09	326.23	938.52	1,262.24	1,184.71	77.52	16.282		
10,850.00	10,831.25	10,905.26	10,893.85	39.19	39.18	131.14	328.09	936.72	1,262.56	1,184.67	77.89	16.210		
10,900.00	10,881.13	10,955.25	10,943.77	39.38	39.36	131.18	329.95	934.92	1,262.88	1,184.63	78.25	16.140		
10,950.00	10,931.01	11,005.24	10,993.69	39.56	39.54	131.22	331.81	933.12	1,263.20	1,184.59	78.61	16.069		
11,000.00	10,980.89	11,055.23	11,043.62	39.75	39.72	131.26	333.67	931.32	1,263.53	1,184.56	78.97	16.000		
11,050.00	11,030.76	11,105.22	11,093.54	39.93	39.91	131.30	335.53	929.52	1,263.85	1,184.52	79.33	15.931		
11,100.00	11,080.64	11,155.21	11,143.46	40.11	40.09	131.35	337.39	927.72	1,264.18	1,184.48	79.70	15.863		
11,150.00	11,130.52	11,205.20	11,193.39	40.30	40.27	131.39	339.26	925.92	1,264.50	1,184.45	80.06	15.795		
11,200.00	11,180.40	11,255.20	11,243.31	40.48	40.45	131.43	341.12	924.12	1,264.83	1,184.41	80.42	15.728		
11,250.00	11,230.28	11,305.19	11,293.23	40.67	40.63	131.47	342.98	922.32	1,265.16	1,184.38	80.78	15.661		
11,300.00	11,280.16	11,355.18	11,339.34	40.85	40.80	131.51	344.87	920.58	1,265.51	1,184.38	81.13	15.598		
11,350.00	11,330.04	11,391.26	11,379.21	41.03	40.95	131.55	346.80	919.50	1,266.19	1,184.73	81.46	15.544		
11,400.00	11,379.92	11,431.14	11,419.07	41.22	41.09	131.61	348.82	918.61	1,267.27	1,185.49	81.78	15.496		
11,450.00	11,429.80	11,470.99	11,458.91	41.40	41.23	131.68	347.44	918.00	1,268.75	1,186.65	82.10	15.454		
11,500.00	11,479.68	11,510.79	11,498.71	41.59	41.37	131.76	347.76	917.69	1,270.63	1,188.22	82.41	15.418		
11,550.00	11,529.56	11,554.74	11,542.66	41.77	41.53	131.86	347.82	917.64	1,272.87	1,190.13	82.74	15.384		
11,600.00	11,579.47	11,604.65	11,592.57	41.95	41.70	131.99	347.82	917.64	1,274.91	1,191.81	83.10	15.343		
11,650.00	11,629.41	11,654.59	11,642.51	42.13	41.88	132.08	347.82	917.64	1,276.51	1,193.06	83.45	15.296		
11,700.00	11,679.38	11,704.56	11,692.48	42.31	42.06	132.15	347.82	917.64	1,277.67	1,193.86	83.81	15.245		
11,750.00	11,729.37	11,754.55	11,742.47	42.49	42.23	132.20	347.82	917.64	1,278.40	1,194.24	84.16	15.190		
11,800.00	11,779.37	11,804.55	11,792.47	42.67	42.41	132.22	347.82	917.64	1,278.68	1,194.17	84.51	15.130		
11,850.00	11,829.37	11,854.55	11,842.47	42.84	42.58	96.26	347.82	917.64	1,278.69	1,193.82	84.87	15.067		
11,853.16	11,832.53	11,857.71	11,845.63	42.86	42.59	96.26	347.82	917.64	1,278.69	1,193.80	84.89	15.063		
11,900.00	11,879.37	11,900.00	11,887.92	43.02	42.74	96.27	347.60	917.64	1,278.72	1,193.53	85.19	15.010		
11,950.00	11,929.37	11,939.85	11,927.68	43.19	42.87	96.38	345.11	917.66	1,279.09	1,193.62	85.48	14.964		
12,000.00	11,979.37	11,978.85	11,966.33	43.37	42.98	96.60	340.00	917.70	1,279.89	1,194.14	85.75	14.926		
12,050.00	12,029.37	12,016.98	12,003.71	43.54	43.10	96.94	332.48	917.76	1,281.15	1,195.15	86.00	14.897		
12,100.00	12,079.37	12,053.95	12,039.39	43.72	43.20	97.37	322.83	917.83	1,282.94	1,196.70	86.24	14.877		
12,150.00	12,129.37	12,089.52	12,073.07	43.90	43.30	97.87	311.39	917.91	1,285.31	1,198.86	86.45	14.868		
12,200.00	12,179.33	12,123.95	12,104.92	44.06	43.38	-81.27	298.35	918.01	1,288.13	1,201.50	86.63	14.869		
12,250.00	12,228.97	12,157.96	12,135.58	44.21	43.46	-80.50	283.61	918.12	1,290.98	1,204.20	86.78	14.877		
12,300.00	12,277.91	12,191.64	12,165.00	44.35	43.54	-79.79	267.26	918.24	1,293.79	1,206.89	86.90	14.888		
12,350.00	12,325.77	12,225.02	12,193.18	44.48	43.61	-79.13	249.36	918.37	1,296.52	1,209.52	87.00	14.903		
12,400.00	12,372.21	12,258.14	12,220.06	44.60	43.67	-78.52	230.01	918.52	1,299.10	1,212.03	87.07	14.920		
12,450.00	12,416.85	12,291.05	12,245.61	44.71	43.73	-77.99	209.29	918.67	1,301.51	1,214.38	87.13	14.938		
12,500.00	12,459.36	12,323.78	12,269.80	44.81	43.78	-77.52	187.25	918.84	1,303.68	1,216.51	87.17	14.956		
12,550.00	12,499.42	12,356.36	12,292.59	44.89	43.83	-77.11	163.98	919.01	1,305.60	1,218.40	87.20	14.973		
12,600.00	12,536.72	12,388.81	12,313.95	44.96	43.87	-76.79	139.55	919.19	1,307.23	1,220.00	87.22	14.987		
12,650.00	12,570.98	12,421.18	12,333.84	45.02	43.90	-76.53	114.02	919.38	1,308.53	1,221.29	87.24	14.999		
12,700.00	12,601.84	12,450.00	12,350.31	45.08	43.93	-76.36	90.37	919.55	1,309.51	1,222.26	87.24	15.010		
12,750.00	12,629.35	12,485.74	12,369.04	45.12	43.97	-76.25	59.94	919.78	1,310.12	1,222.82	87.30	15.008		
12,800.00	12,653.03	12,517.99	12,384.29	45.15	44.00	-76.23	31.53	919.99	1,310.38	1,223.04	87.34	15.003		
12,850.00	12,672.77	12,550.00	12,397.83	45.18	44.04	-76.28	2.53	920.21	1,310.27	1,222.88	87.40	14.992		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,900.00	12,688.44	12,582.55	12,409.90	45.22	44.09	-76.41	-27.69	920.43	1,309.81	1,222.34	87.48	14.973		
12,950.00	12,699.91	12,614.91	12,420.19	45.25	44.14	-76.62	-58.37	920.65	1,309.01	1,221.43	87.58	14.947		
13,000.00	12,707.10	12,650.00	12,429.37	45.30	44.20	-76.91	-92.23	920.91	1,307.88	1,220.17	87.71	14.912		
13,050.00	12,709.95	12,679.93	12,435.55	45.34	44.25	-77.25	-121.51	921.13	1,306.43	1,218.59	87.84	14.873		
13,100.00	12,710.00	12,712.80	12,440.57	45.40	44.30	-77.49	-153.99	921.37	1,305.04	1,217.04	87.99	14.831		
13,150.00	12,710.00	12,750.00	12,443.98	45.47	44.37	-77.64	-191.02	921.65	1,304.30	1,216.15	88.15	14.796		
13,183.73	12,710.00	12,768.80	12,444.79	45.52	44.40	-77.68	-209.81	921.78	1,304.15	1,215.91	88.24	14.780		
13,200.00	12,710.00	12,779.76	12,444.98	45.55	44.42	-77.69	-220.76	921.87	1,304.18	1,215.91	88.28	14.774		
13,250.00	12,710.00	12,827.63	12,445.00	45.65	44.50	-77.69	-268.64	922.22	1,304.46	1,216.02	88.44	14.750		
13,300.00	12,710.00	12,877.63	12,445.00	45.75	44.60	-77.69	-318.63	922.59	1,304.75	1,216.13	88.61	14.724		
13,350.00	12,710.00	12,927.63	12,445.00	45.87	44.71	-77.70	-368.63	922.96	1,305.03	1,216.21	88.82	14.693		
13,400.00	12,710.00	12,977.63	12,445.00	45.99	44.83	-77.70	-418.63	923.34	1,305.32	1,216.28	89.04	14.660		
13,450.00	12,710.00	13,027.63	12,445.00	46.14	44.96	-77.70	-468.63	923.71	1,305.60	1,216.31	89.29	14.622		
13,500.00	12,710.00	13,077.63	12,445.00	46.28	45.10	-77.70	-518.63	924.08	1,305.89	1,216.33	89.55	14.582		
13,550.00	12,710.00	13,127.63	12,445.00	46.45	45.25	-77.71	-568.62	924.45	1,306.17	1,216.32	89.85	14.537		
13,600.00	12,710.00	13,177.63	12,445.00	46.61	45.41	-77.71	-618.62	924.82	1,306.46	1,216.30	90.16	14.491		
13,650.00	12,710.00	13,227.63	12,445.00	46.80	45.58	-77.71	-668.62	925.19	1,306.75	1,216.25	90.50	14.440		
13,700.00	12,710.00	13,277.63	12,445.00	46.98	45.77	-77.71	-718.62	925.56	1,307.03	1,216.18	90.85	14.387		
13,750.00	12,710.00	13,327.63	12,445.00	47.19	45.96	-77.72	-768.61	925.94	1,307.32	1,216.09	91.23	14.330		
13,800.00	12,710.00	13,377.63	12,445.00	47.40	46.16	-77.72	-818.61	926.31	1,307.60	1,215.98	91.62	14.272		
13,850.00	12,710.00	13,427.62	12,445.00	47.62	46.38	-77.72	-868.61	926.68	1,307.89	1,215.84	92.04	14.209		
13,900.00	12,710.00	13,477.62	12,445.00	47.85	46.60	-77.73	-918.61	927.05	1,308.17	1,215.70	92.48	14.146		
13,950.00	12,710.00	13,527.62	12,445.00	48.09	46.84	-77.73	-968.61	927.42	1,308.46	1,215.52	92.94	14.079		
14,000.00	12,710.00	13,577.62	12,445.00	48.34	47.08	-77.73	-1,018.60	927.79	1,308.74	1,215.33	93.41	14.011		
14,050.00	12,710.00	13,627.62	12,445.00	48.60	47.33	-77.73	-1,068.60	928.16	1,309.03	1,215.12	93.91	13.939		
14,100.00	12,710.00	13,677.62	12,445.00	48.86	47.60	-77.74	-1,118.60	928.54	1,309.31	1,214.89	94.42	13.866		
14,150.00	12,710.00	13,727.62	12,445.00	49.15	47.87	-77.74	-1,168.60	928.91	1,309.60	1,214.64	94.96	13.791		
14,200.00	12,710.00	13,777.62	12,445.00	49.43	48.15	-77.74	-1,218.59	929.28	1,309.88	1,214.37	95.51	13.715		
14,250.00	12,710.00	13,827.62	12,445.00	49.73	48.44	-77.74	-1,268.59	929.65	1,310.17	1,214.08	96.09	13.635		
14,300.00	12,710.00	13,877.62	12,445.00	50.03	48.75	-77.75	-1,318.59	930.02	1,310.46	1,213.79	96.67	13.556		
14,350.00	12,710.00	13,927.62	12,445.00	50.35	49.05	-77.75	-1,368.59	930.39	1,310.74	1,213.46	97.28	13.474		
14,400.00	12,710.00	13,977.62	12,445.00	50.66	49.37	-77.75	-1,418.59	930.76	1,311.03	1,213.13	97.90	13.392		
14,450.00	12,710.00	14,027.61	12,445.00	51.00	49.70	-77.76	-1,468.58	931.14	1,311.31	1,212.77	98.54	13.307		
14,500.00	12,710.00	14,077.61	12,445.00	51.33	50.03	-77.76	-1,518.58	931.51	1,311.60	1,212.40	99.20	13.222		
14,550.00	12,710.00	14,127.61	12,445.00	51.68	50.38	-77.76	-1,568.58	931.88	1,311.88	1,212.01	99.87	13.135		
14,600.00	12,710.00	14,177.61	12,445.00	52.03	50.73	-77.76	-1,618.58	932.25	1,312.17	1,211.61	100.56	13.049		
14,650.00	12,710.00	14,227.61	12,445.00	52.39	51.09	-77.77	-1,668.57	932.62	1,312.45	1,211.19	101.27	12.960		
14,700.00	12,710.00	14,277.61	12,445.00	52.76	51.46	-77.77	-1,718.57	932.99	1,312.74	1,210.76	101.98	12.872		
14,750.00	12,710.00	14,327.61	12,445.00	53.14	51.83	-77.77	-1,768.57	933.36	1,313.02	1,210.30	102.72	12.783		
14,800.00	12,710.00	14,377.61	12,445.00	53.51	52.21	-77.77	-1,818.57	933.73	1,313.31	1,209.85	103.46	12.693		
14,850.00	12,710.00	14,427.61	12,445.00	53.91	52.60	-77.78	-1,868.57	934.11	1,313.60	1,209.36	104.23	12.603		
14,900.00	12,710.00	14,477.61	12,445.00	54.30	53.00	-77.78	-1,918.56	934.48	1,313.88	1,208.88	105.00	12.513		
14,950.00	12,710.00	14,527.61	12,445.00	54.71	53.40	-77.78	-1,968.56	934.85	1,314.17	1,208.37	105.80	12.421		
15,000.00	12,710.00	14,577.61	12,445.00	55.11	53.81	-77.79	-2,018.56	935.22	1,314.45	1,207.85	106.60	12.331		
15,050.00	12,710.00	14,627.60	12,445.00	55.53	54.23	-77.79	-2,068.56	935.59	1,314.74	1,207.32	107.42	12.239		
15,100.00	12,710.00	14,677.60	12,445.00	55.95	54.65	-77.79	-2,118.55	935.96	1,315.02	1,206.78	108.25	12.148		
15,150.00	12,710.00	14,727.60	12,445.00	56.38	55.08	-77.79	-2,168.55	936.33	1,315.31	1,206.22	109.09	12.057		
15,200.00	12,710.00	14,777.60	12,445.00	56.82	55.52	-77.80	-2,218.55	936.71	1,315.59	1,205.65	109.94	11.966		
15,250.00	12,710.00	14,827.60	12,445.00	57.26	55.96	-77.80	-2,268.55	937.08	1,315.88	1,205.07	110.81	11.875		
15,300.00	12,710.00	14,877.60	12,445.00	57.70	56.40	-77.80	-2,318.55	937.45	1,316.17	1,204.48	111.69	11.784		
15,350.00	12,710.00	14,927.60	12,445.00	58.16	56.86	-77.80	-2,368.54	937.82	1,316.45	1,203.87	112.58	11.694		
15,400.00	12,710.00	14,977.60	12,445.00	58.61	57.32	-77.81	-2,418.54	938.19	1,316.74	1,203.26	113.48	11.604		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 17H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
15,450.00	12,710.00	15,027.60	12,445.00	59.08	57.78	-77.81	-2,468.54	938.56	1,317.02	1,202.63	114.39	11.513	
15,500.00	12,710.00	15,077.60	12,445.00	59.54	58.25	-77.81	-2,518.54	938.93	1,317.31	1,202.00	115.31	11.424	
15,550.00	12,710.00	15,127.60	12,445.00	60.02	58.73	-77.81	-2,568.53	939.31	1,317.59	1,201.35	116.24	11.335	
15,600.00	12,710.00	15,177.59	12,445.00	60.49	59.21	-77.82	-2,618.53	939.68	1,317.88	1,200.70	117.18	11.246	
15,650.00	12,710.00	15,227.59	12,445.00	60.98	59.69	-77.82	-2,668.53	940.05	1,318.16	1,200.03	118.14	11.158	
15,700.00	12,710.00	15,277.59	12,445.00	61.46	60.18	-77.82	-2,718.53	940.42	1,318.45	1,199.35	119.10	11.070	
15,750.00	12,710.00	15,327.59	12,445.00	61.96	60.68	-77.83	-2,768.53	940.79	1,318.74	1,198.67	120.07	10.983	
15,800.00	12,710.00	15,377.59	12,445.00	62.45	61.17	-77.83	-2,818.52	941.16	1,319.02	1,197.97	121.05	10.897	
15,850.00	12,710.00	15,427.59	12,445.00	62.96	61.68	-77.83	-2,868.52	941.53	1,319.31	1,197.27	122.04	10.811	
15,900.00	12,710.00	15,477.59	12,445.00	63.46	62.19	-77.83	-2,918.52	941.91	1,319.59	1,196.56	123.03	10.726	
15,950.00	12,710.00	15,527.59	12,445.00	63.97	62.70	-77.84	-2,968.52	942.28	1,319.88	1,195.84	124.04	10.641	
16,000.00	12,710.00	15,577.59	12,445.00	64.48	63.22	-77.84	-3,018.51	942.65	1,320.16	1,195.11	125.05	10.557	
16,050.00	12,710.00	15,627.59	12,445.00	65.00	63.74	-77.84	-3,068.51	943.02	1,320.45	1,194.37	126.08	10.473	
16,100.00	12,710.00	15,677.59	12,445.00	65.52	64.26	-77.84	-3,118.51	943.39	1,320.73	1,193.63	127.11	10.391	
16,150.00	12,710.00	15,727.59	12,445.00	66.05	64.79	-77.85	-3,168.51	943.76	1,321.02	1,192.87	128.15	10.309	
16,200.00	12,710.00	15,777.58	12,445.00	66.58	65.32	-77.85	-3,218.51	944.13	1,321.30	1,192.12	129.19	10.228	
16,250.00	12,710.00	15,827.58	12,445.00	67.11	65.86	-77.85	-3,268.50	944.51	1,321.59	1,191.35	130.24	10.147	
16,300.00	12,710.00	15,877.58	12,445.00	67.65	66.40	-77.86	-3,318.50	944.88	1,321.88	1,190.57	131.30	10.068	
16,350.00	12,710.00	15,927.58	12,445.00	68.19	66.94	-77.86	-3,368.50	945.25	1,322.16	1,189.79	132.37	9.988	
16,400.00	12,710.00	15,977.58	12,445.00	68.73	67.49	-77.86	-3,418.50	945.62	1,322.45	1,189.01	133.44	9.910	
16,450.00	12,710.00	16,027.58	12,445.00	69.28	68.04	-77.86	-3,468.49	945.99	1,322.73	1,188.21	134.52	9.833	
16,500.00	12,710.00	16,077.58	12,445.00	69.83	68.59	-77.87	-3,518.49	946.36	1,323.02	1,187.41	135.61	9.756	
16,550.00	12,710.00	16,127.58	12,445.00	70.38	69.15	-77.87	-3,568.49	946.73	1,323.30	1,186.60	136.70	9.680	
16,600.00	12,710.00	16,177.58	12,445.00	70.94	69.71	-77.87	-3,618.49	947.11	1,323.59	1,185.79	137.80	9.605	
16,650.00	12,710.00	16,227.58	12,445.00	71.50	70.27	-77.87	-3,668.49	947.48	1,323.88	1,184.97	138.91	9.531	
16,700.00	12,710.00	16,277.58	12,445.00	72.06	70.84	-77.88	-3,718.48	947.85	1,324.16	1,184.14	140.02	9.457	
16,750.00	12,710.00	16,327.58	12,445.00	72.63	71.41	-77.88	-3,768.48	948.22	1,324.45	1,183.31	141.14	9.384	
16,800.00	12,710.00	16,377.57	12,445.00	73.19	71.98	-77.88	-3,818.48	948.59	1,324.73	1,182.47	142.26	9.312	
16,850.00	12,710.00	16,427.57	12,445.00	73.77	72.55	-77.88	-3,868.48	948.96	1,325.02	1,181.63	143.39	9.241	
16,900.00	12,710.00	16,477.57	12,445.00	74.34	73.13	-77.89	-3,918.47	949.33	1,325.30	1,180.78	144.52	9.170	
16,950.00	12,710.00	16,527.57	12,445.00	74.92	73.71	-77.89	-3,968.47	949.70	1,325.59	1,179.93	145.66	9.101	
17,000.00	12,710.00	16,577.57	12,445.00	75.49	74.29	-77.89	-4,018.47	950.08	1,325.87	1,179.07	146.80	9.032	
17,050.00	12,710.00	16,627.57	12,445.00	76.08	74.88	-77.89	-4,068.47	950.45	1,326.16	1,178.21	147.95	8.963	
17,100.00	12,710.00	16,677.57	12,445.00	76.66	75.47	-77.90	-4,118.47	950.82	1,326.45	1,177.34	149.11	8.896	
17,150.00	12,710.00	16,727.57	12,445.00	77.25	76.06	-77.90	-4,168.46	951.19	1,326.73	1,176.47	150.27	8.829	
17,200.00	12,710.00	16,777.57	12,445.00	77.83	76.65	-77.90	-4,218.46	951.56	1,327.02	1,175.59	151.43	8.763	
17,250.00	12,710.00	16,827.57	12,445.00	78.43	77.24	-77.91	-4,268.46	951.93	1,327.30	1,174.71	152.60	8.698	
17,300.00	12,710.00	16,877.57	12,445.00	79.02	77.84	-77.91	-4,318.46	952.30	1,327.59	1,173.82	153.77	8.634	
17,350.00	12,710.00	16,927.57	12,445.00	79.61	78.44	-77.91	-4,368.45	952.68	1,327.87	1,172.93	154.95	8.570	
17,400.00	12,710.00	16,977.56	12,445.00	80.21	79.04	-77.91	-4,418.45	953.05	1,328.16	1,172.03	156.13	8.507	
17,450.00	12,710.00	17,027.56	12,445.00	80.81	79.64	-77.92	-4,468.45	953.42	1,328.44	1,171.13	157.31	8.445	
17,500.00	12,710.00	17,077.56	12,445.00	81.41	80.25	-77.92	-4,518.45	953.79	1,328.73	1,170.23	158.50	8.383	
17,550.00	12,710.00	17,127.56	12,445.00	82.02	80.85	-77.92	-4,568.45	954.16	1,329.02	1,169.32	159.69	8.322	
17,600.00	12,710.00	17,177.56	12,445.00	82.62	81.46	-77.92	-4,618.44	954.53	1,329.30	1,168.41	160.89	8.262	
17,620.47	12,710.00	17,198.03	12,445.00	82.88	81.71	-77.92	-4,638.92	954.69	1,329.42	1,168.04	161.37	8.238 ES, SF	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Sec 07-T26S-R34E - Jayhawk 7 FED 9H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Minimum Separation (")	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	14.20	14.20	0.50	0.50	89.56	10.26	1,334.76	1,334.80					
50.00	50.00	64.20	64.20	0.50	0.51	89.56	10.26	1,334.76	1,334.80	1,333.79	1.01	1,322.375		
100.00	100.00	114.20	114.20	0.52	0.53	89.56	10.26	1,334.76	1,334.80	1,333.75	1.05	1,270.033		
150.00	150.00	164.20	164.20	0.59	0.62	89.56	10.26	1,334.76	1,334.80	1,333.59	1.21	1,104.021		
200.00	200.00	214.20	214.20	0.70	0.74	89.56	10.26	1,334.76	1,334.80	1,333.36	1.44	926.411		
250.00	250.00	264.20	264.20	0.84	0.88	89.56	10.26	1,334.76	1,334.80	1,333.09	1.72	777.497		
300.00	300.00	314.20	314.20	0.99	1.03	89.56	10.26	1,334.76	1,334.80	1,332.78	2.02	661.158		
350.00	350.00	364.20	364.20	1.15	1.19	89.56	10.26	1,334.76	1,334.80	1,332.47	2.34	571.164		
400.00	400.00	414.20	414.20	1.31	1.36	89.56	10.26	1,334.76	1,334.80	1,332.14	2.67	500.796		
450.00	450.00	464.20	464.20	1.48	1.52	89.56	10.26	1,334.76	1,334.80	1,331.80	3.00	444.839		
500.00	500.00	514.20	514.20	1.65	1.69	89.56	10.26	1,334.76	1,334.80	1,331.46	3.34	399.552		
550.00	550.00	564.20	564.20	1.82	1.87	89.56	10.26	1,334.76	1,334.80	1,331.12	3.68	362.291		
600.00	600.00	614.20	614.20	1.99	2.04	89.56	10.26	1,334.76	1,334.80	1,330.77	4.03	331.174		
650.00	650.00	664.20	664.20	2.16	2.21	89.56	10.26	1,334.76	1,334.80	1,330.42	4.38	304.841		
700.00	700.00	714.20	714.20	2.34	2.39	89.56	10.26	1,334.76	1,334.80	1,330.07	4.73	282.296		
750.00	750.00	764.20	764.20	2.51	2.56	89.56	10.26	1,334.76	1,334.80	1,329.72	5.08	262.792		
800.00	800.00	814.20	814.20	2.69	2.74	89.56	10.26	1,334.76	1,334.80	1,329.37	5.43	245.765		
850.00	850.00	864.20	864.20	2.87	2.92	89.56	10.26	1,334.76	1,334.80	1,329.02	5.78	230.777		
900.00	900.00	914.20	914.20	3.04	3.09	89.56	10.26	1,334.76	1,334.80	1,328.66	6.14	217.489		
950.00	950.00	964.20	964.20	3.22	3.27	89.56	10.26	1,334.76	1,334.80	1,328.31	6.49	205.630		
1,000.00	1,000.00	1,014.20	1,014.20	3.40	3.45	89.56	10.26	1,334.76	1,334.80	1,327.96	6.85	194.985		
1,050.00	1,050.00	1,064.20	1,064.20	3.58	3.63	89.56	10.26	1,334.76	1,334.80	1,327.60	7.20	185.376		
1,100.00	1,100.00	1,114.20	1,114.20	3.75	3.80	89.56	10.26	1,334.76	1,334.80	1,327.25	7.56	176.663		
1,150.00	1,150.00	1,164.20	1,164.20	3.93	3.98	89.56	10.26	1,334.76	1,334.80	1,326.89	7.91	168.725		
1,200.00	1,200.00	1,214.20	1,214.20	4.11	4.16	89.56	10.26	1,334.76	1,334.80	1,326.54	8.27	161.465		
1,250.00	1,250.00	1,264.20	1,264.20	4.29	4.34	89.56	10.26	1,334.76	1,334.80	1,326.18	8.62	154.799		
1,300.00	1,300.00	1,314.20	1,314.20	4.46	4.51	89.56	10.26	1,334.76	1,334.80	1,325.82	8.98	148.659		
1,350.00	1,350.00	1,364.20	1,364.20	4.64	4.69	89.56	10.26	1,334.76	1,334.80	1,325.47	9.34	142.985		
1,400.00	1,400.00	1,414.20	1,414.20	4.82	4.87	89.56	10.26	1,334.76	1,334.80	1,325.11	9.69	137.726		
1,450.00	1,450.00	1,464.20	1,464.20	5.00	5.05	89.56	10.26	1,334.76	1,334.80	1,324.75	10.05	132.838		
1,500.00	1,500.00	1,514.20	1,514.20	5.18	5.23	89.56	10.26	1,334.76	1,334.80	1,324.40	10.41	128.283		
1,550.00	1,550.00	1,564.20	1,564.20	5.36	5.41	89.56	10.26	1,334.76	1,334.80	1,324.04	10.76	124.029		
1,600.00	1,600.00	1,614.20	1,614.20	5.53	5.58	89.56	10.26	1,334.76	1,334.80	1,323.68	11.12	120.047		
1,650.00	1,650.00	1,664.20	1,664.20	5.71	5.76	89.56	10.26	1,334.76	1,334.80	1,323.33	11.48	116.312		
1,700.00	1,700.00	1,714.20	1,714.20	5.89	5.94	89.56	10.26	1,334.76	1,334.80	1,322.97	11.83	112.802		
1,750.00	1,750.00	1,764.20	1,764.20	6.07	6.12	89.56	10.26	1,334.76	1,334.80	1,322.61	12.19	109.496		
1,800.00	1,800.00	1,814.20	1,814.20	6.25	6.30	89.56	10.26	1,334.76	1,334.80	1,322.25	12.55	106.378		
1,850.00	1,850.00	1,864.20	1,864.20	6.43	6.48	89.56	10.26	1,334.76	1,334.80	1,321.90	12.91	103.432		
1,900.00	1,900.00	1,914.20	1,914.20	6.61	6.66	89.56	10.26	1,334.76	1,334.80	1,321.54	13.26	100.645		
1,950.00	1,950.00	1,964.20	1,964.20	6.78	6.84	89.56	10.26	1,334.76	1,334.80	1,321.18	13.62	98.003		
1,951.78	1,951.78	1,965.98	1,965.98	6.79	6.84	89.56	10.26	1,334.76	1,334.80	1,321.17	13.63	97.912 CC		
2,000.00	2,000.00	2,014.20	2,014.20	6.96	7.01	89.56	10.28	1,334.76	1,334.80	1,320.82	13.98	95.497		
2,050.00	2,050.00	2,064.18	2,064.18	7.14	7.19	89.54	10.62	1,334.76	1,334.80	1,320.47	14.33	93.116		
2,100.00	2,100.00	2,114.16	2,114.15	7.32	7.37	89.51	11.40	1,334.76	1,334.80	1,320.11	14.69	90.852		
2,150.00	2,150.00	2,164.11	2,164.09	7.50	7.55	89.46	12.61	1,334.75	1,334.81	1,319.76	15.05	88.696		
2,200.00	2,200.00	2,214.05	2,214.00	7.68	7.73	89.39	14.26	1,334.74	1,334.81	1,319.41	15.41	86.641		
2,250.00	2,250.00	2,263.95	2,263.85	7.86	7.91	89.30	16.34	1,334.72	1,334.82	1,319.06	15.76	84.681		
2,300.00	2,300.00	2,313.85	2,313.69	8.04	8.09	89.19	18.81	1,334.71	1,334.84	1,318.72	16.12	82.807		
2,350.00	2,350.00	2,363.78	2,363.56	8.22	8.26	89.08	21.34	1,334.69	1,334.86	1,318.38	16.48	81.013		
2,400.00	2,400.00	2,413.72	2,413.44	8.39	8.44	88.98	23.87	1,334.67	1,334.89	1,318.05	16.83	79.296		
2,450.00	2,450.00	2,463.65	2,463.31	8.57	8.62	88.87	26.41	1,334.66	1,334.92	1,317.73	17.19	77.649		
2,500.00	2,500.00	2,513.59	2,513.18	8.75	8.80	88.76	28.94	1,334.64	1,334.95	1,317.40	17.55	76.069		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 9H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,550.00	2,550.00	2,563.53	2,563.05	8.93	8.98	88.65	31.47	1,334.62	1,334.99	1,317.09	17.91	74.552		
2,600.00	2,600.00	2,613.46	2,612.92	9.11	9.16	88.54	34.01	1,334.61	1,335.04	1,316.77	18.26	73.094		
2,650.00	2,650.00	2,663.40	2,662.79	9.29	9.34	88.43	36.54	1,334.59	1,335.09	1,316.47	18.62	71.692		
2,700.00	2,700.00	2,713.33	2,712.66	9.47	9.51	88.32	39.07	1,334.57	1,335.14	1,316.16	18.98	70.343		
2,750.00	2,750.00	2,763.27	2,762.53	9.65	9.69	88.21	41.61	1,334.56	1,335.20	1,315.87	19.34	69.043		
2,800.00	2,800.00	2,813.20	2,812.41	9.83	9.87	88.11	44.14	1,334.54	1,335.27	1,315.57	19.70	67.791		
2,850.00	2,850.00	2,863.15	2,862.29	10.00	10.05	123.96	46.67	1,334.52	1,335.46	1,315.41	20.05	66.592 ES		
2,900.00	2,899.99	2,913.11	2,912.18	10.18	10.23	123.87	49.21	1,334.51	1,335.90	1,315.49	20.41	65.448		
2,950.00	2,949.98	2,963.07	2,962.08	10.36	10.41	123.80	51.74	1,334.49	1,336.58	1,315.82	20.77	64.357		
3,000.00	2,999.96	3,013.05	3,011.99	10.54	10.59	123.74	54.28	1,334.47	1,337.51	1,316.39	21.13	63.314		
3,050.00	3,049.92	3,063.03	3,061.91	10.72	10.77	123.69	56.82	1,334.45	1,338.68	1,317.20	21.48	62.317		
3,100.00	3,099.86	3,113.00	3,111.82	10.89	10.95	123.65	59.35	1,334.44	1,340.10	1,318.26	21.84	61.363		
3,150.00	3,149.78	3,162.98	3,161.73	11.07	11.13	123.63	61.89	1,334.42	1,341.76	1,319.56	22.20	60.451		
3,200.00	3,199.68	3,212.94	3,211.63	11.25	11.31	123.62	64.42	1,334.40	1,343.65	1,321.10	22.55	59.578		
3,250.00	3,249.55	3,262.90	3,261.52	11.43	11.49	123.64	66.96	1,334.39	1,345.66	1,322.75	22.91	58.737		
3,300.00	3,299.43	3,312.86	3,311.42	11.60	11.67	123.65	69.49	1,334.37	1,347.67	1,324.40	23.27	57.922		
3,350.00	3,349.31	3,362.82	3,361.31	11.78	11.85	123.67	72.02	1,334.35	1,349.68	1,326.05	23.62	57.130		
3,400.00	3,399.19	3,412.77	3,411.20	11.96	12.03	123.68	74.56	1,334.34	1,351.68	1,327.70	23.98	56.362		
3,450.00	3,449.07	3,462.73	3,461.10	12.14	12.21	123.70	77.09	1,334.32	1,353.69	1,329.35	24.34	55.616		
3,500.00	3,498.95	3,512.69	3,510.99	12.32	12.39	123.71	79.63	1,334.30	1,355.70	1,331.00	24.70	54.891		
3,550.00	3,548.83	3,562.65	3,560.89	12.50	12.57	123.73	82.16	1,334.29	1,357.71	1,332.65	25.06	54.186		
3,600.00	3,598.71	3,612.61	3,610.78	12.68	12.75	123.74	84.70	1,334.27	1,359.72	1,334.30	25.41	53.501		
3,650.00	3,648.59	3,662.57	3,660.67	12.86	12.93	123.76	87.23	1,334.25	1,361.72	1,335.95	25.77	52.834		
3,700.00	3,698.47	3,712.52	3,710.57	13.04	13.11	123.77	89.77	1,334.24	1,363.73	1,337.60	26.13	52.186		
3,750.00	3,748.35	3,762.48	3,760.46	13.22	13.29	123.79	92.30	1,334.22	1,365.74	1,339.25	26.49	51.554		
3,800.00	3,798.23	3,812.44	3,810.36	13.40	13.47	123.80	94.84	1,334.20	1,367.75	1,340.90	26.85	50.940		
3,850.00	3,848.11	3,862.40	3,860.25	13.58	13.65	123.82	97.37	1,334.19	1,369.76	1,342.55	27.21	50.341		
3,900.00	3,897.99	3,912.36	3,910.15	13.76	13.83	123.83	99.90	1,334.17	1,371.77	1,344.20	27.57	49.758		
3,950.00	3,947.87	3,962.32	3,960.04	13.94	14.01	123.85	102.44	1,334.15	1,373.78	1,345.85	27.93	49.189		
4,000.00	3,997.75	4,012.28	4,009.93	14.12	14.19	123.86	104.97	1,334.14	1,375.79	1,347.50	28.29	48.635		
4,050.00	4,047.63	4,062.23	4,059.83	14.30	14.37	123.87	107.51	1,334.12	1,377.79	1,349.15	28.65	48.094		
4,100.00	4,097.51	4,112.19	4,109.72	14.48	14.55	123.89	110.04	1,334.10	1,379.80	1,350.80	29.01	47.567		
4,150.00	4,147.39	4,162.15	4,159.62	14.66	14.73	123.90	112.58	1,334.09	1,381.81	1,352.45	29.37	47.052		
4,200.00	4,197.27	4,212.11	4,209.51	14.84	14.91	123.92	115.11	1,334.07	1,383.82	1,354.09	29.73	46.550		
4,250.00	4,247.15	4,262.07	4,259.40	15.02	15.09	123.93	117.65	1,334.05	1,385.83	1,355.74	30.09	46.059		
4,300.00	4,297.03	4,312.03	4,309.30	15.20	15.27	123.95	120.18	1,334.04	1,387.84	1,357.39	30.45	45.580		
4,350.00	4,346.90	4,361.98	4,359.19	15.38	15.46	123.96	122.72	1,334.02	1,389.85	1,359.04	30.81	45.112		
4,400.00	4,396.78	4,411.94	4,409.09	15.56	15.64	123.97	125.25	1,334.00	1,391.86	1,360.69	31.17	44.655		
4,450.00	4,446.66	4,461.90	4,458.98	15.74	15.82	123.99	127.78	1,333.99	1,393.87	1,362.34	31.53	44.208		
4,500.00	4,496.54	4,511.86	4,508.87	15.92	16.00	124.00	130.32	1,333.97	1,395.88	1,363.99	31.89	43.771		
4,550.00	4,546.42	4,561.82	4,558.77	16.11	16.18	124.02	132.85	1,333.95	1,397.89	1,365.64	32.25	43.344		
4,600.00	4,596.30	4,611.78	4,608.66	16.29	16.36	124.03	135.39	1,333.94	1,399.90	1,367.29	32.61	42.926		
4,650.00	4,646.18	4,661.73	4,658.56	16.47	16.54	124.04	137.92	1,333.92	1,401.91	1,368.94	32.97	42.517		
4,700.00	4,696.06	4,711.69	4,708.45	16.65	16.72	124.06	140.46	1,333.90	1,403.92	1,370.59	33.33	42.117		
4,750.00	4,745.94	4,761.65	4,758.34	16.83	16.90	124.07	142.99	1,333.88	1,405.93	1,372.24	33.70	41.725		
4,800.00	4,795.82	4,811.61	4,808.24	17.01	17.08	124.08	145.53	1,333.87	1,407.94	1,373.88	34.06	41.342		
4,850.00	4,845.70	4,861.57	4,858.13	17.19	17.26	124.10	148.06	1,333.85	1,409.95	1,375.53	34.42	40.966		
4,900.00	4,895.58	4,911.53	4,908.03	17.38	17.44	124.11	150.60	1,333.83	1,411.96	1,377.18	34.78	40.598		
4,950.00	4,945.46	4,961.49	4,957.92	17.56	17.62	124.13	153.13	1,333.82	1,413.97	1,378.83	35.14	40.238		
5,000.00	4,995.34	5,011.44	5,007.82	17.74	17.81	124.14	155.66	1,333.80	1,415.98	1,380.48	35.50	39.885		
5,050.00	5,045.22	5,061.40	5,057.71	17.92	17.99	124.15	158.20	1,333.78	1,417.99	1,382.13	35.86	39.539		
5,100.00	5,095.10	5,111.36	5,107.60	18.10	18.17	124.17	160.73	1,333.77	1,420.00	1,383.78	36.22	39.200		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7 FED 9H - Wellbore #1 - Permit Plan 1													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,150.00	5,144.98	5,161.32	5,157.50	18.29	18.35	124.18	163.27	1,333.75	1,422.02	1,385.43	36.59	38.868		
5,200.00	5,194.86	5,211.28	5,207.39	18.47	18.53	124.19	165.80	1,333.73	1,424.03	1,387.08	36.95	38.542		
5,250.00	5,244.74	5,261.24	5,257.29	18.65	18.71	124.21	168.34	1,333.72	1,426.04	1,388.73	37.31	38.222		
5,300.00	5,294.62	5,311.19	5,307.18	18.83	18.89	124.22	170.87	1,333.70	1,428.05	1,390.38	37.67	37.908		
5,350.00	5,344.50	5,361.15	5,357.07	19.01	19.07	124.23	173.41	1,333.68	1,430.06	1,392.03	38.03	37.600		
5,400.00	5,394.38	5,411.11	5,406.97	19.20	19.25	124.25	175.94	1,333.67	1,432.07	1,393.68	38.39	37.298		
5,450.00	5,444.26	5,461.07	5,456.86	19.38	19.43	124.26	178.48	1,333.65	1,434.08	1,395.33	38.76	37.002		
5,500.00	5,494.13	5,511.03	5,506.76	19.56	19.61	124.27	181.01	1,333.63	1,436.09	1,396.97	39.12	36.711		
5,550.00	5,544.01	5,560.99	5,556.65	19.74	19.80	124.29	183.54	1,333.62	1,438.11	1,398.62	39.48	36.425		
5,600.00	5,593.89	5,610.94	5,606.54	19.93	19.98	124.30	186.08	1,333.60	1,440.12	1,400.27	39.84	36.145		
5,650.00	5,643.77	5,660.90	5,656.44	20.11	20.16	124.31	188.61	1,333.58	1,442.13	1,401.92	40.20	35.869		
5,700.00	5,693.65	5,710.86	5,706.33	20.29	20.34	124.33	191.15	1,333.57	1,444.14	1,403.57	40.57	35.599		
5,750.00	5,743.53	5,760.82	5,756.23	20.47	20.52	124.34	193.68	1,333.55	1,446.15	1,405.22	40.93	35.333		
5,800.00	5,793.41	5,810.78	5,806.12	20.66	20.70	124.35	196.22	1,333.53	1,448.16	1,406.87	41.29	35.072		
5,850.00	5,843.29	5,860.74	5,856.01	20.84	20.88	124.36	198.75	1,333.52	1,450.18	1,408.52	41.65	34.815		
5,900.00	5,893.17	5,910.70	5,905.91	21.02	21.06	124.38	201.29	1,333.50	1,452.19	1,410.17	42.02	34.563		
5,950.00	5,943.05	5,960.65	5,955.80	21.20	21.24	124.39	203.82	1,333.48	1,454.20	1,411.82	42.38	34.315		
6,000.00	5,992.93	6,010.61	6,005.70	21.39	21.43	124.40	206.36	1,333.47	1,456.21	1,413.47	42.74	34.071		
6,050.00	6,042.81	6,060.57	6,055.59	21.57	21.61	124.42	208.89	1,333.45	1,458.22	1,415.12	43.10	33.831		
6,100.00	6,092.69	6,110.53	6,105.49	21.75	21.79	124.43	211.42	1,333.43	1,460.24	1,416.77	43.47	33.595		
6,150.00	6,142.57	6,160.49	6,155.38	21.94	21.97	124.44	213.96	1,333.42	1,462.25	1,418.42	43.83	33.363		
6,200.00	6,192.45	6,210.45	6,205.27	22.12	22.15	124.45	216.49	1,333.40	1,464.26	1,420.07	44.19	33.135		
6,250.00	6,242.33	6,260.40	6,255.17	22.30	22.33	124.47	219.03	1,333.38	1,466.27	1,421.72	44.55	32.911		
6,300.00	6,292.21	6,310.36	6,305.06	22.48	22.51	124.48	221.56	1,333.37	1,468.29	1,423.37	44.92	32.690		
6,350.00	6,342.09	6,360.32	6,354.96	22.67	22.69	124.49	224.10	1,333.35	1,470.30	1,425.02	45.28	32.473		
6,400.00	6,391.97	6,410.28	6,404.85	22.85	22.87	124.50	226.63	1,333.33	1,472.31	1,426.67	45.64	32.259		
6,450.00	6,441.85	6,460.24	6,454.74	23.03	23.06	124.52	229.17	1,333.31	1,474.32	1,428.32	46.00	32.048		
6,500.00	6,491.73	6,510.20	6,504.64	23.22	23.24	124.53	231.70	1,333.30	1,476.34	1,429.97	46.37	31.841		
6,550.00	6,541.61	6,560.16	6,554.53	23.40	23.42	124.54	234.24	1,333.28	1,478.35	1,431.62	46.73	31.637		
6,600.00	6,591.48	6,610.11	6,604.43	23.58	23.60	124.55	236.77	1,333.26	1,480.36	1,433.27	47.09	31.436		
6,650.00	6,641.36	6,660.07	6,654.32	23.76	23.78	124.57	239.30	1,333.25	1,482.38	1,434.92	47.45	31.238		
6,700.00	6,691.24	6,710.03	6,704.21	23.95	23.96	124.58	241.84	1,333.23	1,484.39	1,436.57	47.82	31.043		
6,750.00	6,741.12	6,759.99	6,754.11	24.13	24.14	124.59	244.37	1,333.21	1,486.40	1,438.22	48.18	30.851		
6,800.00	6,791.00	6,809.95	6,804.00	24.31	24.32	124.60	246.91	1,333.20	1,488.42	1,439.87	48.54	30.662		
6,850.00	6,840.88	6,859.91	6,853.90	24.50	24.50	124.62	249.44	1,333.18	1,490.43	1,441.52	48.91	30.476		
6,900.00	6,890.76	6,909.86	6,903.79	24.68	24.69	124.63	251.98	1,333.16	1,492.44	1,443.17	49.27	30.292		
6,950.00	6,940.64	6,959.82	6,953.68	24.86	24.87	124.64	254.51	1,333.15	1,494.46	1,444.83	49.63	30.111		
7,000.00	6,990.52	7,009.78	7,003.58	25.05	25.05	124.65	257.05	1,333.13	1,496.47	1,446.48	49.99	29.933		
7,050.00	7,040.40	7,059.74	7,053.47	25.23	25.23	124.66	259.58	1,333.11	1,498.48	1,448.13	50.36	29.757 SF		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)	
0.00	0.00	0.20	-0.20	0.50	0.50	-90.46	-0.24	-30.00	30.00					
50.00	50.00	49.80	49.80	0.50	0.50	-90.46	-0.24	-30.00	30.00	28.99	1.01	29.808		
100.00	100.00	100.20	99.80	0.52	0.52	-90.46	-0.24	-30.00	30.00	28.97	1.04	28.967		
150.00	150.00	149.80	149.80	0.59	0.59	-90.46	-0.24	-30.00	30.00	28.82	1.18	25.422		
200.00	200.00	200.20	199.80	0.70	0.70	-90.46	-0.24	-30.00	30.00	28.60	1.40	21.357		
250.00	250.00	249.80	249.80	0.84	0.84	-90.46	-0.24	-30.00	30.00	28.33	1.67	17.913		
300.00	300.00	300.20	299.80	0.99	0.99	-90.46	-0.24	-30.00	30.00	28.03	1.98	15.188		
350.00	350.00	349.80	349.80	1.15	1.14	-90.46	-0.24	-30.00	30.00	27.71	2.29	13.099		
400.00	400.00	400.20	399.80	1.31	1.31	-90.46	-0.24	-30.00	30.00	27.38	2.62	11.456		
450.00	450.00	449.80	449.80	1.48	1.48	-90.46	-0.24	-30.00	30.00	27.05	2.95	10.163		
500.00	500.00	500.20	499.80	1.65	1.65	-90.46	-0.24	-30.00	30.00	26.71	3.29	9.111		
550.00	550.00	549.80	549.80	1.82	1.82	-90.46	-0.24	-30.00	30.00	26.37	3.63	8.254		
600.00	600.00	600.20	599.80	1.99	1.99	-90.46	-0.24	-30.00	30.00	26.02	3.98	7.534		
650.00	650.00	649.80	649.80	2.16	2.16	-90.46	-0.24	-30.00	30.00	25.67	4.33	6.931		
700.00	700.00	700.20	699.80	2.34	2.34	-90.46	-0.24	-30.00	30.00	25.32	4.68	6.411		
750.00	750.00	749.80	749.80	2.51	2.51	-90.46	-0.24	-30.00	30.00	24.97	5.03	5.966		
800.00	800.00	800.20	799.80	2.69	2.69	-90.46	-0.24	-30.00	30.00	24.62	5.38	5.574		
850.00	850.00	849.80	849.80	2.87	2.87	-90.46	-0.24	-30.00	30.00	24.27	5.73	5.233		
900.00	900.00	900.20	899.80	3.04	3.04	-90.46	-0.24	-30.00	30.00	23.91	6.09	4.928 Alert		
950.00	950.00	949.80	949.80	3.22	3.22	-90.46	-0.24	-30.00	30.00	23.56	6.44	4.658 Alert		
1,000.00	1,000.00	1,000.20	999.80	3.40	3.40	-90.46	-0.24	-30.00	30.00	23.20	6.80	4.414 Alert		
1,050.00	1,050.00	1,049.80	1,049.80	3.58	3.57	-90.46	-0.24	-30.00	30.00	22.85	7.15	4.196 Alert		
1,100.00	1,100.00	1,100.20	1,099.80	3.75	3.75	-90.46	-0.24	-30.00	30.00	22.50	7.51	3.997 Alert		
1,150.00	1,150.00	1,149.80	1,149.80	3.93	3.93	-90.46	-0.24	-30.00	30.00	22.14	7.86	3.817 Alert		
1,200.00	1,200.00	1,200.20	1,199.80	4.11	4.11	-90.46	-0.24	-30.00	30.00	21.78	8.22	3.651 Alert		
1,250.00	1,250.00	1,249.80	1,249.80	4.29	4.29	-90.46	-0.24	-30.00	30.00	21.43	8.57	3.500 Alert		
1,300.00	1,300.00	1,300.20	1,299.80	4.46	4.46	-90.46	-0.24	-30.00	30.00	21.07	8.93	3.360 Alert		
1,350.00	1,350.00	1,349.80	1,349.80	4.64	4.64	-90.46	-0.24	-30.00	30.00	20.72	9.28	3.231 Alert		
1,400.00	1,400.00	1,400.20	1,399.80	4.82	4.82	-90.46	-0.24	-30.00	30.00	20.36	9.64	3.112 Alert		
1,450.00	1,450.00	1,449.80	1,449.80	5.00	5.00	-90.46	-0.24	-30.00	30.00	20.00	10.00	3.001 Alert		
1,500.00	1,500.00	1,500.20	1,499.80	5.18	5.18	-90.46	-0.24	-30.00	30.00	19.65	10.36	2.897 Alert		
1,550.00	1,550.00	1,549.80	1,549.80	5.36	5.35	-90.46	-0.24	-30.00	30.00	19.29	10.71	2.801 Alert		
1,600.00	1,600.00	1,600.20	1,599.80	5.53	5.53	-90.46	-0.24	-30.00	30.00	18.93	11.07	2.710 Alert		
1,650.00	1,650.00	1,649.80	1,649.80	5.71	5.71	-90.46	-0.24	-30.00	30.00	18.58	11.42	2.626 Alert		
1,700.00	1,700.00	1,700.20	1,699.80	5.89	5.89	-90.46	-0.24	-30.00	30.00	18.22	11.78	2.546 Alert		
1,750.00	1,750.00	1,749.80	1,749.80	6.07	6.07	-90.46	-0.24	-30.00	30.00	17.86	12.14	2.471 Minor Risk		
1,800.00	1,800.00	1,800.20	1,799.80	6.25	6.25	-90.46	-0.24	-30.00	30.00	17.50	12.50	2.401 Minor Risk		
1,850.00	1,850.00	1,849.80	1,849.80	6.43	6.43	-90.46	-0.24	-30.00	30.00	17.15	12.85	2.334 Minor Risk		
1,900.00	1,900.00	1,900.20	1,899.80	6.61	6.61	-90.46	-0.24	-30.00	30.00	16.79	13.21	2.271 Minor Risk		
1,950.00	1,950.00	1,949.80	1,949.80	6.78	6.78	-90.46	-0.24	-30.00	30.00	16.43	13.57	2.211 Minor Risk		
2,000.00	2,000.00	2,000.20	1,999.80	6.96	6.96	-90.46	-0.24	-30.00	30.00	16.07	13.93	2.154 Minor Risk		
2,050.00	2,050.00	2,049.80	2,049.80	7.14	7.14	-90.46	-0.24	-30.00	30.00	15.72	14.28	2.100 Minor Risk		
2,100.00	2,100.00	2,100.20	2,099.80	7.32	7.32	-90.46	-0.24	-30.00	30.00	15.36	14.64	2.049 Minor Risk		
2,150.00	2,150.00	2,149.80	2,149.80	7.50	7.50	-90.46	-0.24	-30.00	30.00	15.00	15.00	2.000 Minor Risk		
2,200.00	2,200.00	2,200.20	2,199.80	7.68	7.68	-90.46	-0.24	-30.00	30.00	14.64	15.36	1.953 Minor Risk		
2,250.00	2,250.00	2,249.80	2,249.80	7.86	7.86	-90.46	-0.24	-30.00	30.00	14.29	15.71	1.909 Minor Risk		
2,300.00	2,300.00	2,300.20	2,299.80	8.04	8.04	-90.46	-0.24	-30.00	30.00	13.93	16.07	1.866 Minor Risk		
2,350.00	2,350.00	2,349.80	2,349.80	8.22	8.21	-90.46	-0.24	-30.00	30.00	13.57	16.43	1.826 Minor Risk		
2,400.00	2,400.00	2,400.20	2,399.80	8.39	8.39	-90.46	-0.24	-30.00	30.00	13.21	16.79	1.787 Minor Risk		
2,450.00	2,450.00	2,449.80	2,449.80	8.57	8.57	-90.46	-0.24	-30.00	30.00	12.86	17.15	1.750 Minor Risk		
2,500.00	2,500.00	2,499.80	2,499.80	8.75	8.75	-90.46	-0.24	-30.00	30.00	12.50	17.50	1.714 Minor Risk, CC		
2,550.00	2,550.00	2,549.60	2,549.60	8.93	8.93	-90.19	-0.10	-30.16	30.16	12.31	17.86	1.689 Minor Risk, ES		

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

Anticollision Report

Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 07-T26S-R34E
Site Error: 0.00 ft
Reference Well: Jayhawk 7 FED 14H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Jayhawk 7 FED 14H
TVD Reference: RKB @ 3351.30ft
MD Reference: RKB @ 3351.30ft
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 07-T26S-R34E - Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
2,600.00	2,600.00	2,599.40	2,599.39	9.11	9.10	-89.40	0.32	-30.66	30.66	12.45	18.21	1.683	Minor Risk		
2,650.00	2,650.00	2,649.18	2,649.16	9.29	9.28	-88.14	1.02	-31.48	31.50	12.94	18.57	1.697	Minor Risk		
2,700.00	2,700.00	2,698.93	2,698.89	9.47	9.46	-86.49	2.00	-32.63	32.70	13.79	18.92	1.729	Minor Risk		
2,750.00	2,750.00	2,748.66	2,748.58	9.65	9.63	-84.54	3.26	-34.11	34.28	15.02	19.27	1.779	Minor Risk		
2,800.00	2,800.00	2,806.09	2,798.19	9.83	9.83	-82.39	4.80	-35.91	36.26	16.62	19.64	1.846	Minor Risk		
2,850.00	2,850.00	2,848.27	2,848.06	10.00	9.98	-44.52	6.51	-37.91	38.35	18.38	19.97	1.921	Minor Risk		
2,900.00	2,899.99	2,901.77	2,897.95	10.18	10.17	-43.22	8.21	-39.92	40.15	19.82	20.33	1.975	Minor Risk		
2,950.00	2,949.98	2,948.20	2,947.86	10.36	10.34	-42.45	9.92	-41.92	41.65	20.98	20.67	2.015	Minor Risk		
3,000.00	2,999.96	3,001.81	2,997.78	10.54	10.53	-42.12	11.63	-43.93	42.84	21.80	21.04	2.036	Minor Risk		
3,050.00	3,049.92	3,048.18	3,047.70	10.72	10.69	-42.19	13.34	-45.93	43.70	22.32	21.38	2.044	Minor Risk		
3,100.00	3,099.86	3,101.82	3,097.62	10.89	10.88	-42.63	15.05	-47.94	44.24	22.49	21.75	2.034	Minor Risk		
3,150.00	3,149.78	3,148.17	3,147.55	11.07	11.05	-43.46	16.76	-49.94	44.46	22.37	22.09	2.013	Minor Risk		
3,200.00	3,199.68	3,201.84	3,197.47	11.25	11.24	-44.67	18.47	-51.95	44.38	21.93	22.46	1.976	Minor Risk		
3,250.00	3,249.55	3,248.15	3,247.39	11.43	11.40	-46.06	20.18	-53.95	44.19	21.39	22.80	1.938	Minor Risk		
3,300.00	3,299.43	3,301.86	3,297.31	11.60	11.60	-47.47	21.89	-55.96	44.01	20.85	23.17	1.900	Minor Risk		
3,350.00	3,349.31	3,348.13	3,347.23	11.78	11.76	-48.89	23.60	-57.96	43.87	20.36	23.51	1.866	Minor Risk		
3,400.00	3,399.19	3,401.89	3,397.15	11.96	11.95	-50.32	25.31	-59.97	43.75	19.88	23.88	1.832	Minor Risk		
3,450.00	3,449.07	3,448.10	3,447.06	12.14	12.12	-51.76	27.02	-61.97	43.67	19.45	24.22	1.803	Minor Risk		
3,500.00	3,498.95	3,501.91	3,496.98	12.32	12.31	-53.20	28.73	-63.98	43.60	19.01	24.59	1.773	Minor Risk		
3,550.00	3,548.83	3,548.08	3,546.90	12.50	12.47	-54.64	30.44	-65.99	43.57	18.64	24.93	1.747	Minor Risk		
3,586.46	3,585.20	3,584.53	3,583.30	12.63	12.61	-55.69	31.69	-67.45	43.56	18.37	25.19	1.729	Minor Risk		
3,600.00	3,598.71	3,601.93	3,596.82	12.68	12.67	-56.09	32.15	-67.99	43.56	18.26	25.30	1.722	Minor Risk		
3,650.00	3,648.59	3,648.05	3,646.74	12.86	12.83	-57.53	33.86	-70.00	43.58	17.94	25.65	1.699	Minor Risk		
3,700.00	3,698.47	3,701.96	3,696.66	13.04	13.03	-58.97	35.57	-72.00	43.63	17.61	26.02	1.677	Minor Risk		
3,750.00	3,748.35	3,748.03	3,746.57	13.22	13.19	-60.41	37.28	-74.01	43.71	17.35	26.36	1.658	Minor Risk		
3,800.00	3,798.23	3,801.98	3,796.49	13.40	13.38	-61.84	38.99	-76.01	43.81	17.08	26.74	1.639	Minor Risk		
3,850.00	3,848.11	3,848.01	3,846.41	13.58	13.55	-63.27	40.70	-78.02	43.95	16.86	27.08	1.623	Minor Risk		
3,900.00	3,897.99	3,902.01	3,896.33	13.76	13.74	-64.68	42.41	-80.02	44.10	16.65	27.46	1.606	Minor Risk		
3,950.00	3,947.87	3,947.98	3,946.25	13.94	13.91	-66.08	44.12	-82.03	44.29	16.49	27.80	1.593	Minor Risk		
4,000.00	3,997.75	4,002.03	3,996.17	14.12	14.10	-67.48	45.83	-84.03	44.50	16.32	28.18	1.579	Minor Risk		
4,050.00	4,047.63	4,047.96	4,046.08	14.30	14.27	-68.85	47.54	-86.04	44.74	16.22	28.52	1.569	Minor Risk		
4,100.00	4,097.51	4,102.05	4,096.00	14.48	14.46	-70.21	49.25	-88.04	45.00	16.10	28.90	1.557	Minor Risk		
4,150.00	4,147.39	4,147.93	4,145.92	14.66	14.63	-71.56	50.96	-90.05	45.29	16.04	29.24	1.549	Minor Risk		
4,200.00	4,197.27	4,202.08	4,195.84	14.84	14.82	-72.89	52.67	-92.05	45.60	15.98	29.62	1.540	Minor Risk		
4,250.00	4,247.15	4,247.91	4,245.76	15.02	14.99	-74.20	54.38	-94.06	45.94	15.97	29.97	1.533	Minor Risk		
4,300.00	4,297.03	4,302.10	4,295.68	15.20	15.18	-75.49	56.09	-96.07	46.30	15.95	30.34	1.526	Minor Risk		
4,350.00	4,346.90	4,347.88	4,345.60	15.38	15.35	-76.75	57.80	-98.07	46.68	15.99	30.69	1.521	Minor Risk		
4,400.00	4,396.78	4,402.13	4,395.51	15.56	15.54	-78.00	59.51	-100.08	47.09	16.02	31.07	1.516	Minor Risk		
4,450.00	4,446.66	4,447.86	4,445.43	15.74	15.71	-79.23	61.22	-102.08	47.52	16.10	31.41	1.513	Minor Risk		
4,500.00	4,496.54	4,502.15	4,495.35	15.92	15.90	-80.43	62.93	-104.09	47.97	16.17	31.79	1.509	Minor Risk		
4,550.00	4,546.42	4,547.84	4,545.27	16.11	16.07	-81.61	64.64	-106.09	48.44	16.29	32.14	1.507	Minor Risk		
4,600.00	4,596.30	4,602.18	4,595.19	16.29	16.26	-82.77	66.35	-108.10	48.93	16.41	32.52	1.505	Minor Risk		
4,650.00	4,646.18	4,647.81	4,645.11	16.47	16.43	-83.90	68.06	-110.10	49.44	16.57	32.87	1.504	Minor Risk		
4,700.00	4,696.06	4,702.20	4,695.02	16.65	16.62	-85.01	69.77	-112.11	49.96	16.72	33.25	1.503	Minor Risk, SF		
4,750.00	4,745.94	4,747.79	4,744.94	16.83	16.79	-86.10	71.48	-114.11	50.51	16.92	33.59	1.504	Minor Risk		
4,800.00	4,795.82	4,802.22	4,794.86	17.01	16.99	-87.16	73.19	-116.12	51.08	17.10	33.97	1.503	Minor Risk		
4,850.00	4,845.70	4,847.76	4,844.78	17.19	17.15	-88.20	74.90	-118.12	51.66	17.34	34.32	1.505	Minor Risk		
4,900.00	4,895.58	4,897.75	4,894.70	17.38	17.33	-89.22	76.61	-120.13	52.26	17.57	34.68	1.507	Minor Risk		
4,950.00	4,945.46	4,947.74	4,944.62	17.56	17.51	-90.21	78.32	-122.13	52.87	17.82	35.05	1.509	Minor Risk		
5,000.00	4,995.34	4,997.73	4,994.53	17.74	17.69	-91.18	80.03	-124.14	53.50	18.09	35.41	1.511	Minor Risk		
5,050.00	5,045.22	5,047.72	5,044.45	17.92	17.87	-92.12	81.74	-126.15	54.15	18.37	35.77	1.514	Minor Risk		
5,100.00	5,095.10	5,102.30	5,094.37	18.10	18.07	-93.05	83.45	-128.15	54.81	18.65	36.16	1.516	Minor Risk		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	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)										
5,150.00	5,144.98	5,147.69	5,144.29	18.29	18.23	-93.95	85.16	-130.16	55.48	18.98	36.50	1.520	Minor Risk		
5,200.00	5,194.86	5,202.32	5,194.21	18.47	18.43	-94.83	86.87	-132.16	56.17	19.28	36.88	1.523	Minor Risk		
5,250.00	5,244.74	5,247.67	5,244.13	18.65	18.59	-95.69	88.58	-134.17	56.87	19.64	37.23	1.527	Minor Risk		
5,300.00	5,294.62	5,302.34	5,294.04	18.83	18.79	-96.53	90.29	-136.17	57.58	19.97	37.61	1.531	Minor Risk		
5,350.00	5,344.50	5,347.64	5,343.96	19.01	18.96	-97.34	92.00	-138.18	58.30	20.35	37.96	1.536	Minor Risk		
5,400.00	5,394.38	5,402.37	5,393.88	19.20	19.15	-98.14	93.71	-140.18	59.04	20.70	38.34	1.540	Minor Risk		
5,450.00	5,444.26	5,447.62	5,443.80	19.38	19.32	-98.92	95.42	-142.19	59.79	21.10	38.69	1.545	Minor Risk		
5,500.00	5,494.13	5,502.39	5,493.72	19.56	19.52	-99.67	97.13	-144.19	60.55	21.48	39.07	1.550	Minor Risk		
5,550.00	5,544.01	5,547.60	5,543.64	19.74	19.68	-100.41	98.84	-146.20	61.31	21.90	39.42	1.556	Minor Risk		
5,600.00	5,593.89	5,602.42	5,593.56	19.93	19.88	-101.13	100.55	-148.20	62.09	22.29	39.80	1.560	Minor Risk		
5,650.00	5,643.77	5,647.57	5,643.47	20.11	20.04	-101.84	102.26	-150.21	62.88	22.74	40.14	1.566	Minor Risk		
5,700.00	5,693.65	5,702.44	5,693.39	20.29	20.24	-102.52	103.97	-152.21	63.68	23.15	40.52	1.571	Minor Risk		
5,750.00	5,743.53	5,747.55	5,743.31	20.47	20.40	-103.19	105.68	-154.22	64.48	23.61	40.87	1.578	Minor Risk		
5,800.00	5,793.41	5,802.47	5,793.23	20.66	20.60	-103.84	107.39	-156.23	65.30	24.04	41.25	1.583	Minor Risk		
5,850.00	5,843.29	5,847.52	5,843.15	20.84	20.77	-104.48	109.10	-158.23	66.12	24.52	41.60	1.589	Minor Risk		
5,900.00	5,893.17	5,902.49	5,893.07	21.02	20.96	-105.10	110.81	-160.24	66.95	24.97	41.98	1.595	Minor Risk		
5,950.00	5,943.05	5,947.50	5,942.98	21.20	21.13	-105.70	112.52	-162.24	67.79	25.46	42.33	1.601	Minor Risk		
6,000.00	5,992.93	6,002.51	5,992.90	21.39	21.33	-106.29	114.23	-164.25	68.63	25.92	42.71	1.607	Minor Risk		
6,050.00	6,042.81	6,047.47	6,042.82	21.57	21.49	-106.86	115.94	-166.25	69.48	26.43	43.06	1.614	Minor Risk		
6,100.00	6,092.69	6,102.54	6,092.74	21.75	21.69	-107.43	117.65	-168.26	70.34	26.91	43.44	1.619	Minor Risk		
6,150.00	6,142.57	6,147.45	6,142.66	21.94	21.85	-107.97	119.36	-170.26	71.21	27.43	43.78	1.626	Minor Risk		
6,200.00	6,192.45	6,202.56	6,192.58	22.12	22.05	-108.51	121.07	-172.27	72.08	27.92	44.17	1.632	Minor Risk		
6,250.00	6,242.33	6,247.43	6,242.49	22.30	22.22	-109.03	122.78	-174.27	72.96	28.45	44.51	1.638	Minor Risk		
6,300.00	6,292.21	6,302.59	6,292.41	22.48	22.42	-109.54	124.49	-176.28	73.85	28.95	44.89	1.645	Minor Risk		
6,350.00	6,342.09	6,347.40	6,342.33	22.67	22.58	-110.03	126.20	-178.28	74.74	29.50	45.24	1.652	Minor Risk		
6,400.00	6,391.97	6,402.61	6,392.25	22.85	22.78	-110.52	127.91	-180.29	75.63	30.01	45.62	1.658	Minor Risk		
6,450.00	6,441.85	6,447.38	6,442.17	23.03	22.94	-110.99	129.62	-182.30	76.53	30.56	45.97	1.665	Minor Risk		
6,500.00	6,491.73	6,497.37	6,492.09	23.22	23.12	-111.46	131.33	-184.30	77.44	31.11	46.33	1.671	Minor Risk		
6,550.00	6,541.61	6,547.35	6,542.01	23.40	23.30	-111.91	133.04	-186.31	78.35	31.65	46.70	1.678	Minor Risk		
6,600.00	6,591.48	6,602.66	6,591.92	23.58	23.50	-112.35	134.75	-188.31	79.26	32.18	47.08	1.684	Minor Risk		
6,650.00	6,641.36	6,647.33	6,641.84	23.76	23.67	-112.78	136.46	-190.32	80.18	32.76	47.42	1.691	Minor Risk		
6,700.00	6,691.24	6,702.68	6,691.76	23.95	23.87	-113.20	138.17	-192.32	81.11	33.30	47.81	1.697	Minor Risk		
6,750.00	6,741.12	6,747.31	6,741.68	24.13	24.03	-113.62	139.88	-194.33	82.04	33.89	48.15	1.704	Minor Risk		
6,800.00	6,791.00	6,802.71	6,791.60	24.31	24.23	-114.02	141.59	-196.33	82.97	34.44	48.54	1.709	Minor Risk		
6,850.00	6,840.88	6,847.28	6,841.52	24.50	24.39	-114.41	143.30	-198.34	83.91	35.03	48.88	1.717	Minor Risk		
6,900.00	6,890.76	6,902.73	6,891.43	24.68	24.59	-114.80	145.01	-200.34	84.85	35.59	49.26	1.722	Minor Risk		
6,950.00	6,940.64	6,947.26	6,941.35	24.86	24.75	-115.17	146.72	-202.35	85.79	36.19	49.61	1.729	Minor Risk		
7,000.00	6,990.52	7,002.76	6,991.27	25.05	24.96	-115.54	148.43	-204.35	86.74	36.75	49.99	1.735	Minor Risk		
7,050.00	7,040.40	7,047.23	7,041.19	25.23	25.12	-115.90	150.14	-206.36	87.69	37.36	50.33	1.742	Minor Risk		
7,100.00	7,090.28	7,102.78	7,091.11	25.41	25.32	-116.26	151.85	-208.36	88.65	37.93	50.72	1.748	Minor Risk		
7,150.00	7,140.16	7,147.21	7,141.03	25.60	25.48	-116.60	153.56	-210.37	89.61	38.54	51.06	1.755	Minor Risk		
7,200.00	7,190.04	7,202.80	7,190.94	25.78	25.68	-116.94	155.27	-212.38	90.57	39.12	51.45	1.760	Minor Risk		
7,250.00	7,239.92	7,247.18	7,240.86	25.96	25.84	-117.27	156.98	-214.38	91.53	39.74	51.79	1.767	Minor Risk		
7,300.00	7,289.80	7,302.83	7,290.78	26.15	26.04	-117.59	158.69	-216.39	92.50	40.33	52.17	1.773	Minor Risk		
7,350.00	7,339.68	7,347.16	7,340.70	26.33	26.21	-117.91	160.40	-218.39	93.47	40.95	52.52	1.780	Minor Risk		
7,400.00	7,389.56	7,402.85	7,390.62	26.51	26.41	-118.22	162.11	-220.40	94.45	41.54	52.90	1.785	Minor Risk		
7,450.00	7,439.44	7,447.14	7,440.54	26.70	26.57	-118.53	163.82	-222.40	95.42	42.18	53.25	1.792	Minor Risk		
7,500.00	7,489.32	7,502.88	7,490.45	26.88	26.77	-118.82	165.53	-224.41	96.40	42.77	53.63	1.798	Minor Risk		
7,550.00	7,539.20	7,547.11	7,540.37	27.06	26.93	-119.12	167.24	-226.41	97.38	43.41	53.97	1.804	Minor Risk		
7,600.00	7,589.08	7,602.90	7,590.29	27.25	27.13	-119.40	168.95	-228.42	98.37	44.01	54.36	1.810	Minor Risk		
7,650.00	7,638.96	7,647.09	7,640.21	27.43	27.30	-119.68	170.66	-230.42	99.35	44.65	54.70	1.816	Minor Risk		
7,700.00	7,688.83	7,702.92	7,690.13	27.61	27.50	-119.96	172.37	-232.43	100.34	45.25	55.09	1.822	Minor Risk		

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1													Offset Site Error:
Survey Program: 0-MWD+HDGM													Offset Well Error:
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,750.00	7,738.71	7,747.06	7,740.05	27.80	27.66	-120.23	174.08	-234.43	101.33	45.90	55.43	1.828 Minor Risk	
7,800.00	7,788.59	7,802.95	7,789.97	27.98	27.86	-120.49	175.79	-236.44	102.32	46.51	55.81	1.833 Minor Risk	
7,850.00	7,838.47	7,847.04	7,839.88	28.16	28.02	-120.75	177.50	-238.44	103.32	47.16	56.16	1.840 Minor Risk	
7,900.00	7,888.35	7,902.97	7,889.80	28.35	28.23	-121.01	179.21	-240.45	104.32	47.78	56.54	1.845 Minor Risk	
7,950.00	7,938.23	7,947.02	7,939.72	28.53	28.39	-121.26	180.92	-242.46	105.32	48.43	56.88	1.851 Minor Risk	
8,000.00	7,988.11	8,003.00	7,989.64	28.71	28.59	-121.50	182.63	-244.46	106.32	49.05	57.27	1.856 Minor Risk	
8,050.00	8,037.99	8,046.99	8,039.56	28.90	28.75	-121.74	184.34	-246.47	107.32	49.71	57.61	1.863 Minor Risk	
8,100.00	8,087.87	8,103.02	8,089.48	29.08	28.95	-121.98	186.05	-248.47	108.33	50.33	58.00	1.868 Minor Risk	
8,150.00	8,137.75	8,146.97	8,139.39	29.27	29.11	-122.21	187.76	-250.48	109.33	50.99	58.34	1.874 Minor Risk	
8,200.00	8,187.63	8,203.05	8,189.31	29.45	29.32	-122.44	189.47	-252.48	110.34	51.62	58.72	1.879 Minor Risk	
8,250.00	8,237.51	8,246.94	8,239.23	29.63	29.48	-122.66	191.18	-254.49	111.35	52.29	59.07	1.885 Minor Risk	
8,300.00	8,287.39	8,303.07	8,289.15	29.82	29.68	-122.88	192.89	-256.49	112.36	52.91	59.45	1.890 Minor Risk	
8,350.00	8,337.27	8,346.92	8,339.07	30.00	29.84	-123.09	194.60	-258.50	113.38	53.58	59.79	1.896 Minor Risk	
8,400.00	8,387.15	8,403.09	8,388.99	30.18	30.04	-123.31	196.31	-260.50	114.39	54.21	60.18	1.901 Minor Risk	
8,450.00	8,437.03	8,446.89	8,438.90	30.37	30.20	-123.51	198.02	-262.51	115.41	54.89	60.52	1.907 Minor Risk	
8,500.00	8,486.91	8,496.88	8,488.82	30.55	30.38	-123.72	199.73	-264.51	116.43	55.54	60.88	1.912 Minor Risk	
8,550.00	8,536.79	8,546.87	8,538.74	30.73	30.57	-123.92	201.44	-266.52	117.45	56.20	61.25	1.918 Minor Risk	
8,600.00	8,586.67	8,603.14	8,588.66	30.92	30.77	-124.12	203.15	-268.53	118.47	56.83	61.63	1.922 Minor Risk	
8,650.00	8,636.55	8,646.85	8,638.58	31.10	30.93	-124.31	204.86	-270.53	119.49	57.51	61.98	1.928 Minor Risk	
8,700.00	8,686.43	8,703.17	8,688.50	31.29	31.13	-124.50	206.57	-272.54	120.51	58.15	62.36	1.932 Minor Risk	
8,750.00	8,736.31	8,746.82	8,738.42	31.47	31.29	-124.69	208.28	-274.54	121.54	58.84	62.70	1.938 Minor Risk	
8,800.00	8,786.18	8,803.19	8,788.33	31.65	31.50	-124.87	209.99	-276.55	122.57	59.48	63.09	1.943 Minor Risk	
8,850.00	8,836.06	8,846.80	8,838.25	31.84	31.66	-125.05	211.70	-278.55	123.59	60.16	63.43	1.948 Minor Risk	
8,900.00	8,885.94	8,903.21	8,888.17	32.02	31.86	-125.23	213.41	-280.56	124.62	60.80	63.82	1.953 Minor Risk	
8,950.00	8,935.82	8,946.77	8,938.09	32.20	32.02	-125.41	215.12	-282.56	125.65	61.49	64.16	1.958 Minor Risk	
9,000.00	8,985.70	8,996.76	8,988.01	32.39	32.20	-125.58	216.83	-284.57	126.68	62.16	64.52	1.963 Minor Risk	
9,050.00	9,035.58	9,046.75	9,037.93	32.57	32.38	-125.75	218.54	-286.57	127.72	62.83	64.89	1.968 Minor Risk	
9,100.00	9,085.46	9,103.26	9,087.84	32.76	32.59	-125.91	220.25	-288.58	128.75	63.48	65.27	1.972 Minor Risk	
9,150.00	9,135.34	9,146.73	9,137.76	32.94	32.75	-126.08	221.96	-290.58	129.78	64.17	65.61	1.978 Minor Risk	
9,200.00	9,185.22	9,203.29	9,187.68	33.12	32.95	-126.24	223.67	-292.59	130.82	64.82	66.00	1.982 Minor Risk	
9,250.00	9,235.10	9,246.70	9,237.60	33.31	33.11	-126.40	225.38	-294.59	131.85	65.51	66.34	1.988 Minor Risk	
9,300.00	9,284.98	9,303.31	9,287.52	33.49	33.32	-126.56	227.09	-296.60	132.89	66.16	66.73	1.992 Minor Risk	
9,350.00	9,334.86	9,346.68	9,337.44	33.68	33.47	-126.71	228.80	-298.61	133.93	66.86	67.07	1.997 Minor Risk	
9,400.00	9,384.74	9,403.33	9,387.35	33.86	33.68	-126.86	230.51	-300.61	134.97	67.51	67.46	2.001 Minor Risk	
9,450.00	9,434.62	9,446.65	9,437.27	34.04	33.84	-127.01	232.22	-302.62	136.01	68.22	67.80	2.006 Minor Risk	
9,500.00	9,484.50	9,503.36	9,487.19	34.23	34.04	-127.16	233.93	-304.62	137.05	68.87	68.18	2.010 Minor Risk	
9,550.00	9,534.38	9,546.63	9,537.11	34.41	34.20	-127.30	235.64	-306.63	138.09	69.57	68.52	2.015 Minor Risk	
9,600.00	9,584.26	9,603.38	9,587.03	34.59	34.41	-127.45	237.35	-308.63	139.14	70.23	68.91	2.019 Minor Risk	
9,650.00	9,634.14	9,646.61	9,636.95	34.78	34.57	-127.59	239.06	-310.64	140.18	70.93	69.25	2.024 Minor Risk	
9,700.00	9,684.02	9,703.41	9,686.86	34.96	34.77	-127.72	240.77	-312.64	141.23	71.59	69.64	2.028 Minor Risk	
9,750.00	9,733.90	9,746.58	9,736.78	35.15	34.93	-127.86	242.48	-314.65	142.27	72.29	69.98	2.033 Minor Risk	
9,800.00	9,783.78	9,803.43	9,786.70	35.33	35.14	-128.00	244.19	-316.65	143.32	72.95	70.37	2.037 Minor Risk	
9,850.00	9,833.66	9,846.58	9,836.62	35.51	35.29	-128.13	245.90	-318.66	144.36	73.66	70.71	2.042 Minor Risk	
9,900.00	9,883.53	9,903.46	9,886.54	35.70	35.50	-128.26	247.61	-320.66	145.41	74.32	71.09	2.045 Minor Risk	
9,950.00	9,933.41	9,946.53	9,936.46	35.88	35.66	-128.39	249.32	-322.67	146.46	75.03	71.43	2.050 Minor Risk	
10,000.00	9,983.29	10,003.48	9,986.38	36.07	35.86	-128.51	251.03	-324.67	147.51	75.69	71.82	2.054 Minor Risk	
10,050.00	10,033.17	10,046.51	10,036.29	36.25	36.02	-128.64	252.74	-326.68	148.56	76.40	72.16	2.059 Minor Risk	
10,100.00	10,083.05	10,103.50	10,086.21	36.43	36.23	-128.76	254.45	-328.69	149.61	77.06	72.55	2.062 Minor Risk	
10,150.00	10,132.93	10,146.48	10,136.13	36.62	36.38	-128.88	256.16	-330.69	150.66	77.77	72.89	2.067 Minor Risk	
10,200.00	10,182.81	10,203.53	10,186.05	36.80	36.59	-129.00	257.87	-332.70	151.72	78.44	73.28	2.070 Minor Risk	
10,250.00	10,232.69	10,246.46	10,235.97	36.99	36.75	-129.12	259.58	-334.70	152.77	79.15	73.62	2.075 Minor Risk	
10,300.00	10,282.57	10,303.55	10,285.89	37.17	36.96	-129.24	261.29	-336.71	153.82	79.82	74.01	2.079 Minor Risk	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,350.00	10,332.45	10,346.44	10,335.80	37.35	37.11	-129.35	263.00	-338.71	154.88	80.53	74.34	2.083	Minor Risk	
10,400.00	10,382.33	10,403.58	10,385.72	37.54	37.32	-129.47	264.71	-340.72	155.93	81.20	74.73	2.086	Minor Risk	
10,450.00	10,432.21	10,446.41	10,435.64	37.72	37.48	-129.58	266.42	-342.72	156.99	81.91	75.07	2.091	Minor Risk	
10,500.00	10,482.09	10,503.60	10,485.56	37.91	37.68	-129.69	268.13	-344.73	158.04	82.58	75.46	2.094	Minor Risk	
10,550.00	10,531.97	10,546.39	10,535.48	38.09	37.84	-129.80	269.84	-346.73	159.10	83.30	75.80	2.099	Minor Risk	
10,600.00	10,581.85	10,603.62	10,585.40	38.27	38.05	-129.91	271.55	-348.74	160.15	83.97	76.19	2.102	Minor Risk	
10,650.00	10,631.73	10,646.36	10,635.31	38.46	38.20	-130.01	273.26	-350.74	161.21	84.69	76.53	2.107	Minor Risk	
10,700.00	10,681.61	10,703.65	10,685.23	38.64	38.41	-130.12	274.97	-352.75	162.27	85.35	76.92	2.110	Minor Risk	
10,750.00	10,731.49	10,746.34	10,735.15	38.83	38.57	-130.22	276.68	-354.76	163.33	86.08	77.25	2.114	Minor Risk	
10,800.00	10,781.37	10,803.67	10,785.07	39.01	38.78	-130.32	278.39	-356.76	164.39	86.74	77.44	2.117	Minor Risk	
10,850.00	10,831.25	10,846.32	10,834.99	39.19	38.93	-130.43	280.10	-358.77	165.45	87.47	77.98	2.122	Minor Risk	
10,900.00	10,881.13	10,903.70	10,884.91	39.38	39.14	-130.52	281.81	-360.77	166.51	88.14	78.37	2.125	Minor Risk	
10,950.00	10,931.01	10,946.29	10,934.83	39.56	39.30	-130.62	283.52	-362.78	167.57	88.86	78.71	2.129	Minor Risk	
11,000.00	10,980.89	11,003.72	10,984.74	39.75	39.51	-130.72	285.23	-364.78	168.63	89.53	79.10	2.132	Minor Risk	
11,050.00	11,030.76	11,046.27	11,034.66	39.93	39.66	-130.82	286.94	-366.79	169.69	90.26	79.44	2.136	Minor Risk	
11,100.00	11,080.64	11,103.75	11,084.58	40.11	39.87	-130.91	288.65	-368.79	170.75	90.93	79.83	2.139	Minor Risk	
11,150.00	11,130.52	11,146.24	11,134.50	40.30	40.02	-131.00	290.36	-370.80	171.82	91.65	80.16	2.143	Minor Risk	
11,200.00	11,180.40	11,203.77	11,184.42	40.48	40.23	-131.10	292.07	-372.80	172.88	92.32	80.55	2.146	Minor Risk	
11,250.00	11,230.28	11,246.22	11,234.34	40.67	40.39	-131.19	293.78	-374.81	173.94	93.05	80.89	2.150	Minor Risk	
11,300.00	11,280.16	11,296.21	11,284.25	40.85	40.57	-131.28	295.49	-376.81	175.01	93.75	81.25	2.154	Minor Risk	
11,350.00	11,330.04	11,345.91	11,333.89	41.03	40.75	-131.37	297.17	-378.79	176.08	94.46	81.62	2.157	Minor Risk	
11,400.00	11,379.92	11,394.83	11,382.76	41.22	40.93	-131.60	298.53	-380.39	177.38	95.40	81.97	2.164	Minor Risk	
11,450.00	11,429.80	11,443.71	11,431.62	41.40	41.10	-131.99	299.49	-381.50	178.98	96.66	82.32	2.174	Minor Risk	
11,500.00	11,479.68	11,492.53	11,480.44	41.59	41.28	-132.56	300.03	-382.14	180.90	98.23	82.67	2.188	Minor Risk	
11,550.00	11,529.56	11,541.46	11,529.36	41.77	41.45	-133.28	300.18	-382.32	183.15	100.14	83.01	2.206	Minor Risk	
11,600.00	11,579.47	11,608.64	11,579.27	41.95	41.69	-133.99	300.18	-382.32	185.25	101.83	83.42	2.221	Minor Risk	
11,650.00	11,629.41	11,641.31	11,629.21	42.13	41.80	-134.53	300.18	-382.32	186.92	103.21	83.71	2.233	Minor Risk	
11,700.00	11,679.38	11,708.72	11,679.18	42.31	42.04	-134.92	300.18	-382.32	188.14	104.02	84.12	2.237	Minor Risk	
11,750.00	11,729.37	11,741.26	11,729.17	42.49	42.15	-135.16	300.18	-382.32	188.91	104.50	84.41	2.238	Minor Risk	
11,800.00	11,779.37	11,791.26	11,779.17	42.67	42.33	-135.26	300.18	-382.32	189.21	104.45	84.76	2.232	Minor Risk	
11,850.00	11,829.37	11,841.26	11,829.17	42.84	42.50	-171.22	300.18	-382.32	189.22	104.10	85.11	2.223	Minor Risk	
11,900.00	11,879.37	11,891.26	11,879.17	43.02	42.68	-171.22	300.18	-382.32	189.22	103.75	85.47	2.214	Minor Risk	
11,950.00	11,929.37	11,927.14	11,915.00	43.19	42.79	-171.30	298.57	-382.31	191.33	105.84	85.50	2.238	Minor Risk	
12,000.00	11,979.37	11,964.40	11,952.04	43.37	42.91	-171.48	294.57	-382.28	196.64	111.32	85.32	2.305	Minor Risk	
12,050.00	12,029.37	12,000.00	11,987.12	43.54	43.02	-171.75	288.51	-382.23	205.11	120.24	84.86	2.417	Minor Risk	
12,100.00	12,079.37	12,036.64	12,022.74	43.72	43.12	-172.10	280.01	-382.17	216.63	132.30	84.34	2.569	Alert	
12,150.00	12,129.37	12,071.12	12,055.72	43.90	43.22	-172.48	269.94	-382.09	231.10	147.52	83.58	2.765	Alert	
12,200.00	12,179.33	12,104.63	12,087.14	44.06	43.31	7.07	258.27	-382.00	246.91	164.23	82.68	2.986	Alert	
12,250.00	12,228.97	12,137.83	12,117.52	44.21	43.39	6.60	244.93	-381.90	261.40	179.79	81.61	3.203	Alert	
12,300.00	12,277.91	12,170.75	12,146.85	44.35	43.47	6.21	229.98	-381.79	274.49	194.08	80.41	3.414	Alert	
12,350.00	12,325.77	12,200.00	12,172.15	44.48	43.54	5.91	215.30	-381.68	286.17	207.42	78.75	3.634	Alert	
12,400.00	12,372.21	12,235.95	12,202.16	44.60	43.61	5.63	195.53	-381.53	296.32	218.66	77.66	3.815	Alert	
12,450.00	12,416.85	12,268.28	12,228.05	44.71	43.67	5.42	176.16	-381.39	305.00	228.86	76.14	4.006	Alert	
12,500.00	12,459.36	12,300.00	12,252.34	44.81	43.73	5.25	155.77	-381.24	312.17	237.68	74.49	4.191	Alert	
12,550.00	12,499.42	12,332.59	12,276.08	44.89	43.78	5.12	133.46	-381.07	317.79	244.92	72.87	4.361	Alert	
12,600.00	12,536.72	12,364.61	12,298.15	44.96	43.82	5.01	110.26	-380.90	321.87	250.70	71.16	4.523	Alert	
12,650.00	12,570.98	12,400.00	12,320.98	45.02	43.87	4.94	83.23	-380.69	324.41	254.61	69.79	4.648	Alert	
12,700.00	12,601.94	12,428.52	12,338.14	45.08	43.89	4.90	60.45	-380.52	325.32	257.62	67.70	4.805	Alert	
12,750.00	12,629.35	12,460.46	12,355.98	45.12	43.92	4.88	33.96	-380.32	324.69	258.69	66.00	4.919	Alert	
12,800.00	12,653.03	12,492.42	12,372.33	45.15	43.95	4.89	6.51	-380.12	322.50	258.14	64.35	5.011		
12,850.00	12,672.77	12,524.43	12,387.14	45.18	43.97	4.93	-21.86	-379.91	318.73	255.95	62.79	5.077		
12,900.00	12,688.44	12,556.51	12,400.37	45.22	44.02	5.00	-51.08	-379.69	313.42	252.08	61.34	5.110		

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 Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 07-T26S-R34E - Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
12,950.00	12,699.91	12,588.69	12,411.98	45.25	44.08	5.10	-81.09	-379.46	306.56	246.53	60.03	5.107		
13,000.00	12,707.10	12,620.99	12,421.93	45.30	44.14	5.24	-111.81	-379.23	298.17	239.27	58.91	5.062		
13,050.00	12,709.95	12,650.00	12,429.37	45.34	44.20	5.40	-139.85	-379.02	288.32	230.50	57.82	4.986	Alert	
13,100.00	12,710.00	12,686.30	12,436.67	45.40	44.26	5.52	-175.40	-378.76	278.44	221.11	57.34	4.856	Alert	
13,150.00	12,710.00	12,719.80	12,441.39	45.47	44.32	5.57	-208.57	-378.51	271.39	214.45	56.94	4.766	Alert	
13,200.00	12,710.00	12,753.76	12,444.19	45.55	44.39	5.59	-242.40	-378.26	267.25	210.42	56.83	4.703	Alert	
13,250.00	12,710.00	12,789.67	12,445.00	45.65	44.45	5.56	-278.30	-377.99	266.05	209.04	57.01	4.666	Alert	
13,300.00	12,710.00	12,839.67	12,445.00	45.75	44.55	5.50	-328.29	-377.61	266.02	208.88	57.14	4.656	Alert	
13,350.00	12,710.00	12,889.67	12,445.00	45.87	44.66	5.43	-378.29	-377.24	265.99	208.72	57.28	4.644	Alert	
13,400.00	12,710.00	12,939.67	12,445.00	45.99	44.77	5.37	-428.29	-376.87	265.97	208.54	57.42	4.632	Alert	
13,450.00	12,710.00	12,989.67	12,445.00	46.14	44.90	5.31	-478.29	-376.49	265.94	208.36	57.58	4.618	Alert	
13,500.00	12,710.00	13,039.67	12,445.00	46.28	45.04	5.24	-528.29	-376.12	265.91	208.16	57.75	4.604	Alert	
13,550.00	12,710.00	13,089.67	12,445.00	46.45	45.19	5.18	-578.28	-375.74	265.89	207.96	57.93	4.590	Alert	
13,600.00	12,710.00	13,139.67	12,445.00	46.61	45.35	5.12	-628.28	-375.37	265.86	207.74	58.12	4.574	Alert	
13,650.00	12,710.00	13,189.67	12,445.00	46.80	45.52	5.05	-678.28	-374.99	265.83	207.52	58.32	4.558	Alert	
13,700.00	12,710.00	13,239.67	12,445.00	46.98	45.70	4.99	-728.28	-374.62	265.81	207.28	58.52	4.542	Alert	
13,750.00	12,710.00	13,289.66	12,445.00	47.19	45.89	4.93	-778.27	-374.25	265.78	207.04	58.74	4.524	Alert	
13,800.00	12,710.00	13,339.66	12,445.00	47.40	46.09	4.86	-828.27	-373.87	265.76	206.79	58.97	4.507	Alert	
13,850.00	12,710.00	13,389.66	12,445.00	47.62	46.30	4.80	-878.27	-373.50	265.73	206.52	59.21	4.488	Alert	
13,900.00	12,710.00	13,439.66	12,445.00	47.85	46.53	4.74	-928.27	-373.12	265.71	206.25	59.45	4.469	Alert	
13,950.00	12,710.00	13,489.66	12,445.00	48.09	46.75	4.67	-978.27	-372.75	265.68	205.97	59.71	4.449	Alert	
14,000.00	12,710.00	13,539.66	12,445.00	48.34	47.00	4.61	-1,028.26	-372.38	265.66	205.68	59.98	4.429	Alert	
14,050.00	12,710.00	13,589.66	12,445.00	48.60	47.25	4.55	-1,078.26	-372.00	265.64	205.39	60.25	4.409	Alert	
14,100.00	12,710.00	13,639.66	12,445.00	48.86	47.51	4.48	-1,128.26	-371.63	265.61	205.08	60.53	4.388	Alert	
14,150.00	12,710.00	13,689.66	12,445.00	49.15	47.78	4.42	-1,178.26	-371.25	265.59	204.77	60.82	4.367	Alert	
14,200.00	12,710.00	13,739.66	12,445.00	49.43	48.06	4.36	-1,228.25	-370.88	265.57	204.44	61.12	4.345	Alert	
14,250.00	12,710.00	13,789.66	12,445.00	49.73	48.35	4.29	-1,278.25	-370.50	265.54	204.11	61.43	4.323	Alert	
14,300.00	12,710.00	13,839.65	12,445.00	50.03	48.65	4.23	-1,328.25	-370.13	265.52	203.77	61.75	4.300	Alert	
14,350.00	12,710.00	13,889.65	12,445.00	50.35	48.95	4.17	-1,378.25	-369.76	265.50	203.43	62.07	4.277	Alert	
14,400.00	12,710.00	13,939.65	12,445.00	50.66	49.27	4.10	-1,428.24	-369.38	265.48	203.07	62.41	4.254	Alert	
14,450.00	12,710.00	13,989.65	12,445.00	51.00	49.59	4.04	-1,478.24	-369.01	265.46	202.71	62.75	4.230	Alert	
14,500.00	12,710.00	14,039.65	12,445.00	51.33	49.93	3.97	-1,528.24	-368.63	265.44	202.34	63.10	4.207	Alert	
14,550.00	12,710.00	14,089.65	12,445.00	51.68	50.27	3.91	-1,578.24	-368.26	265.42	201.96	63.45	4.183	Alert	
14,600.00	12,710.00	14,139.65	12,445.00	52.03	50.62	3.85	-1,628.24	-367.89	265.40	201.58	63.82	4.159	Alert	
14,650.00	12,710.00	14,189.65	12,445.00	52.39	50.98	3.78	-1,678.23	-367.51	265.38	201.19	64.19	4.134	Alert	
14,700.00	12,710.00	14,239.65	12,445.00	52.76	51.34	3.72	-1,728.23	-367.14	265.36	200.79	64.57	4.110	Alert	
14,750.00	12,710.00	14,289.65	12,445.00	53.14	51.71	3.66	-1,778.23	-366.76	265.34	200.39	64.95	4.085	Alert	
14,800.00	12,710.00	14,339.65	12,445.00	53.51	52.09	3.59	-1,828.23	-366.39	265.32	199.97	65.35	4.060	Alert	
14,850.00	12,710.00	14,389.65	12,445.00	53.91	52.48	3.53	-1,878.22	-366.01	265.30	199.56	65.75	4.035	Alert	
14,900.00	12,710.00	14,439.64	12,445.00	54.30	52.88	3.47	-1,928.22	-365.64	265.29	199.13	66.15	4.010	Alert	
14,950.00	12,710.00	14,489.64	12,445.00	54.71	53.28	3.40	-1,978.22	-365.27	265.27	198.70	66.57	3.985	Alert	
15,000.00	12,710.00	14,539.64	12,445.00	55.11	53.69	3.34	-2,028.22	-364.89	265.25	198.26	66.99	3.960	Alert	
15,050.00	12,710.00	14,589.64	12,445.00	55.53	54.10	3.28	-2,078.22	-364.52	265.23	197.82	67.41	3.935	Alert	
15,100.00	12,710.00	14,639.64	12,445.00	55.95	54.52	3.21	-2,128.21	-364.14	265.22	197.37	67.84	3.909	Alert	
15,150.00	12,710.00	14,689.64	12,445.00	56.38	54.95	3.15	-2,178.21	-363.77	265.20	196.92	68.28	3.884	Alert	
15,200.00	12,710.00	14,739.64	12,445.00	56.82	55.38	3.09	-2,228.21	-363.40	265.18	196.46	68.73	3.859	Alert	
15,250.00	12,710.00	14,789.64	12,445.00	57.26	55.82	3.02	-2,278.21	-363.02	265.17	195.99	69.18	3.833	Alert	
15,300.00	12,710.00	14,839.64	12,445.00	57.70	56.27	2.96	-2,328.20	-362.65	265.15	195.52	69.63	3.808	Alert	
15,350.00	12,710.00	14,889.64	12,445.00	58.16	56.72	2.89	-2,378.20	-362.27	265.14	195.04	70.09	3.783	Alert	
15,400.00	12,710.00	14,939.64	12,445.00	58.61	57.18	2.83	-2,428.20	-361.90	265.12	194.56	70.56	3.757	Alert	
15,450.00	12,710.00	14,989.63	12,445.00	59.08	57.64	2.77	-2,478.20	-361.52	265.11	194.07	71.03	3.732	Alert	
15,500.00	12,710.00	15,039.63	12,445.00	59.54	58.11	2.70	-2,528.19	-361.15	265.10	193.58	71.51	3.707	Alert	

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

Anticollision Report

Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 07-T26S-R34E
Site Error: 0.00 ft
Reference Well: Jayhawk 7 FED 14H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

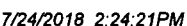
Local Co-ordinate Reference: Well Jayhawk 7 FED 14H
TVD Reference: RKB @ 3351.30ft
MD Reference: RKB @ 3351.30ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Sec 07-T26S-R34E - Jayhawk 7-6 FED 18H - Wellbore #1 - Permit Plan 1												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
15,550.00	12,710.00	15,089.63	12,445.00	60.02	58.58	2.64	-2,578.19	-360.78	265.08	193.09	72.00	3.682	Alert
15,600.00	12,710.00	15,139.63	12,445.00	60.49	59.06	2.58	-2,628.19	-360.40	265.07	192.58	72.48	3.657	Alert
15,650.00	12,710.00	15,189.63	12,445.00	60.98	59.55	2.51	-2,678.19	-360.03	265.05	192.08	72.98	3.632	Alert
15,700.00	12,710.00	15,239.63	12,445.00	61.46	60.04	2.45	-2,728.19	-359.65	265.04	191.57	73.47	3.607	Alert
15,750.00	12,710.00	15,289.63	12,445.00	61.96	60.53	2.38	-2,778.18	-359.28	265.03	191.05	73.98	3.583	Alert
15,800.00	12,710.00	15,339.63	12,445.00	62.45	61.03	2.32	-2,828.18	-358.91	265.02	190.53	74.49	3.558	Alert
15,850.00	12,710.00	15,389.63	12,445.00	62.96	61.53	2.26	-2,878.18	-358.53	265.01	190.01	75.00	3.533	Alert
15,900.00	12,710.00	15,439.63	12,445.00	63.46	62.04	2.19	-2,928.18	-358.16	264.99	189.48	75.52	3.509	Alert
15,950.00	12,710.00	15,489.63	12,445.00	63.97	62.55	2.13	-2,978.17	-357.78	264.98	188.95	76.04	3.485	Alert
16,000.00	12,710.00	15,539.63	12,445.00	64.48	63.06	2.07	-3,028.17	-357.41	264.97	188.41	76.56	3.461	Alert
16,050.00	12,710.00	15,589.62	12,445.00	65.00	63.58	2.00	-3,078.17	-357.03	264.96	187.87	77.09	3.437	Alert
16,100.00	12,710.00	15,639.62	12,445.00	65.52	64.11	1.94	-3,128.17	-356.66	264.95	187.32	77.63	3.413	Alert
16,150.00	12,710.00	15,689.62	12,445.00	66.05	64.63	1.88	-3,178.17	-356.29	264.94	186.78	78.17	3.389	Alert
16,200.00	12,710.00	15,739.62	12,445.00	66.58	65.17	1.81	-3,228.16	-355.91	264.93	186.22	78.71	3.366	Alert
16,250.00	12,710.00	15,789.62	12,445.00	67.11	65.70	1.75	-3,278.16	-355.54	264.92	185.67	79.25	3.343	Alert
16,300.00	12,710.00	15,839.62	12,445.00	67.65	66.24	1.68	-3,328.16	-355.16	264.91	185.11	79.80	3.320	Alert
16,350.00	12,710.00	15,889.62	12,445.00	68.19	66.78	1.62	-3,378.16	-354.79	264.91	184.55	80.36	3.297	Alert
16,400.00	12,710.00	15,939.62	12,445.00	68.73	67.33	1.56	-3,428.15	-354.41	264.90	183.98	80.92	3.274	Alert
16,450.00	12,710.00	15,989.62	12,445.00	69.28	67.88	1.49	-3,478.15	-354.04	264.89	183.41	81.48	3.251	Alert
16,500.00	12,710.00	16,039.62	12,445.00	69.83	68.43	1.43	-3,528.15	-353.67	264.88	182.84	82.04	3.229	Alert
16,550.00	12,710.00	16,089.62	12,445.00	70.38	68.99	1.37	-3,578.15	-353.29	264.88	182.26	82.61	3.206	Alert
16,600.00	12,710.00	16,139.61	12,445.00	70.94	69.55	1.30	-3,628.14	-352.92	264.87	181.68	83.18	3.184	Alert
16,650.00	12,710.00	16,189.61	12,445.00	71.50	70.11	1.24	-3,678.14	-352.54	264.86	181.10	83.76	3.162	Alert
16,700.00	12,710.00	16,239.61	12,445.00	72.06	70.67	1.17	-3,728.14	-352.17	264.86	180.52	84.34	3.140	Alert
16,750.00	12,710.00	16,289.61	12,445.00	72.63	71.24	1.11	-3,778.14	-351.80	264.85	179.93	84.92	3.119	Alert
16,800.00	12,710.00	16,339.61	12,445.00	73.19	71.81	1.05	-3,828.14	-351.42	264.84	179.34	85.51	3.097	Alert
16,850.00	12,710.00	16,389.61	12,445.00	73.77	72.39	0.98	-3,878.13	-351.05	264.84	178.74	86.10	3.076	Alert
16,900.00	12,710.00	16,439.61	12,445.00	74.34	72.96	0.92	-3,928.13	-350.67	264.83	178.15	86.69	3.055	Alert
16,950.00	12,710.00	16,489.61	12,445.00	74.92	73.54	0.85	-3,978.13	-350.30	264.83	177.55	87.28	3.034	Alert
17,000.00	12,710.00	16,539.61	12,445.00	75.49	74.12	0.79	-4,028.13	-349.92	264.83	176.95	87.88	3.013	Alert
17,050.00	12,710.00	16,589.61	12,445.00	76.08	74.71	0.73	-4,078.12	-349.55	264.82	176.34	88.48	2.993	Alert
17,100.00	12,710.00	16,639.61	12,445.00	76.66	75.30	0.66	-4,128.12	-349.18	264.82	175.73	89.08	2.973	Alert
17,150.00	12,710.00	16,689.61	12,445.00	77.25	75.88	0.60	-4,178.12	-348.80	264.81	175.12	89.69	2.953	Alert
17,200.00	12,710.00	16,739.60	12,445.00	77.83	76.48	0.54	-4,228.12	-348.43	264.81	174.51	90.30	2.933	Alert
17,250.00	12,710.00	16,789.60	12,445.00	78.43	77.07	0.47	-4,278.12	-348.05	264.81	173.90	90.91	2.913	Alert
17,300.00	12,710.00	16,839.60	12,445.00	79.02	77.67	0.41	-4,328.11	-347.68	264.81	173.28	91.53	2.893	Alert
17,350.00	12,710.00	16,889.60	12,445.00	79.61	78.26	0.34	-4,378.11	-347.31	264.80	172.66	92.14	2.874	Alert
17,400.00	12,710.00	16,939.60	12,445.00	80.21	78.86	0.28	-4,428.11	-346.93	264.80	172.04	92.76	2.855	Alert
17,450.00	12,710.00	16,989.60	12,445.00	80.81	79.47	0.22	-4,478.11	-346.56	264.80	171.42	93.39	2.836	Alert
17,500.00	12,710.00	17,039.60	12,445.00	81.41	80.07	0.15	-4,528.10	-346.18	264.80	170.79	94.01	2.817	Alert
17,550.00	12,710.00	17,089.60	12,445.00	82.02	80.68	0.09	-4,578.10	-345.81	264.80	170.16	94.64	2.798	Alert
17,600.00	12,710.00	17,139.60	12,445.00	82.62	81.29	0.03	-4,628.10	-345.43	264.80	169.53	95.27	2.780	Alert
17,619.98	12,710.00	17,159.58	12,445.00	82.88	81.53	0.00	-4,648.08	-345.29	264.80	169.28	95.52	2.772	Alert
17,620.47	12,710.00	17,160.07	12,445.00	82.88	81.54	0.00	-4,648.57	-345.28	264.80	169.27	95.53	2.772	Alert

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Central Meridian is -104.333334

Grid Convergence at Surface is: 0.43°

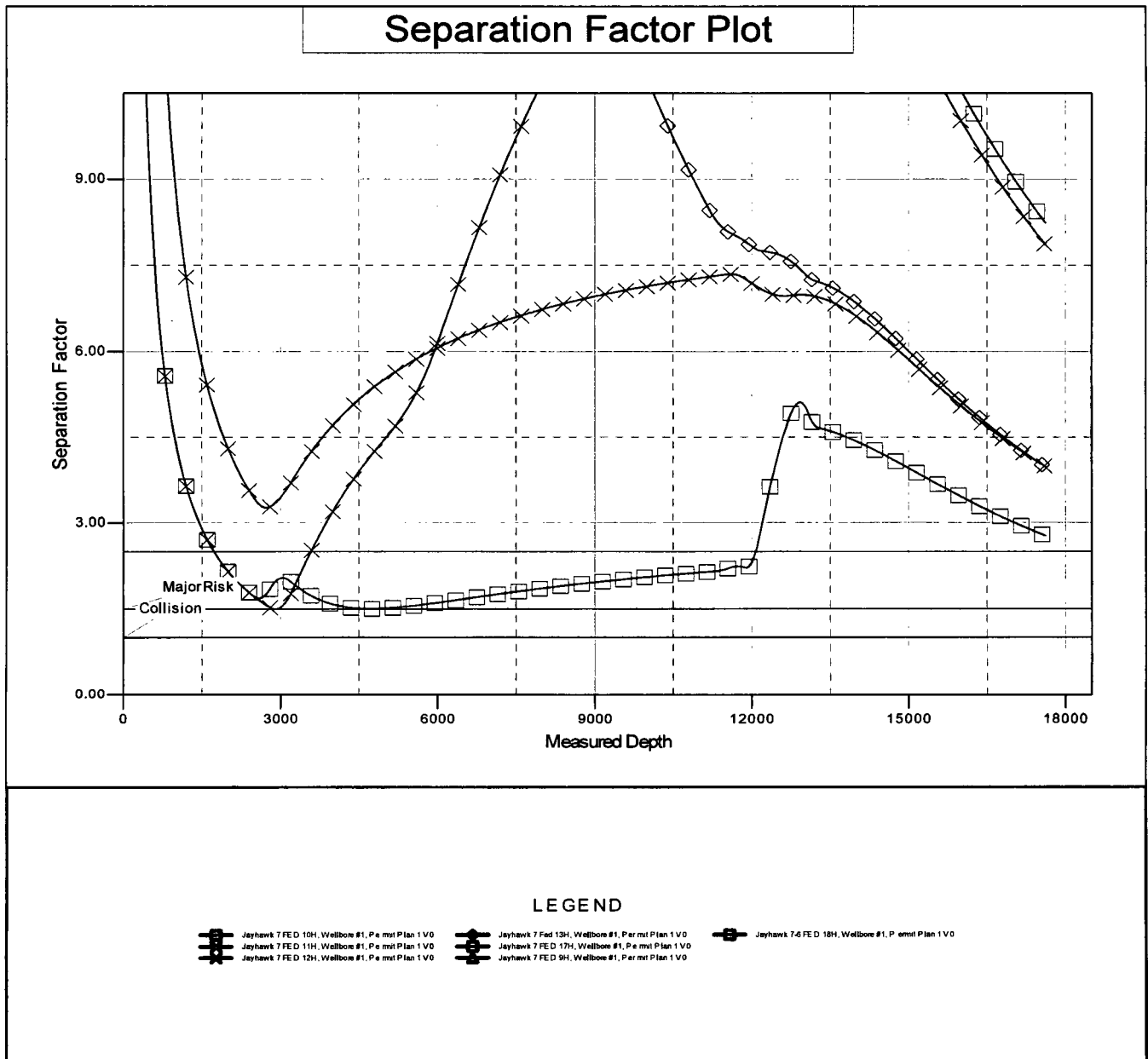


Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference:	Well Jayhawk 7 FED 14H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3351.30ft
Reference Site:	Sec 07-T26S-R34E	MD Reference:	RKB @ 3351.30ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Jayhawk 7 FED 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3351.30ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Jayhawk 7 FED 14H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.43°



Devon Energy Annular Preventer Summary

1. Component and Preventer Compatibility Table

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

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

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

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

2. Well Control Procedures

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

General Procedure While Drilling

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

Devon Energy Annular Preventer Summary

General Procedure While Tripping

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

General Procedure While Running Casing

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

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
 - a. SICP
 - b. Pit gain
 - c. Time
6. Regroup and identify forward plan

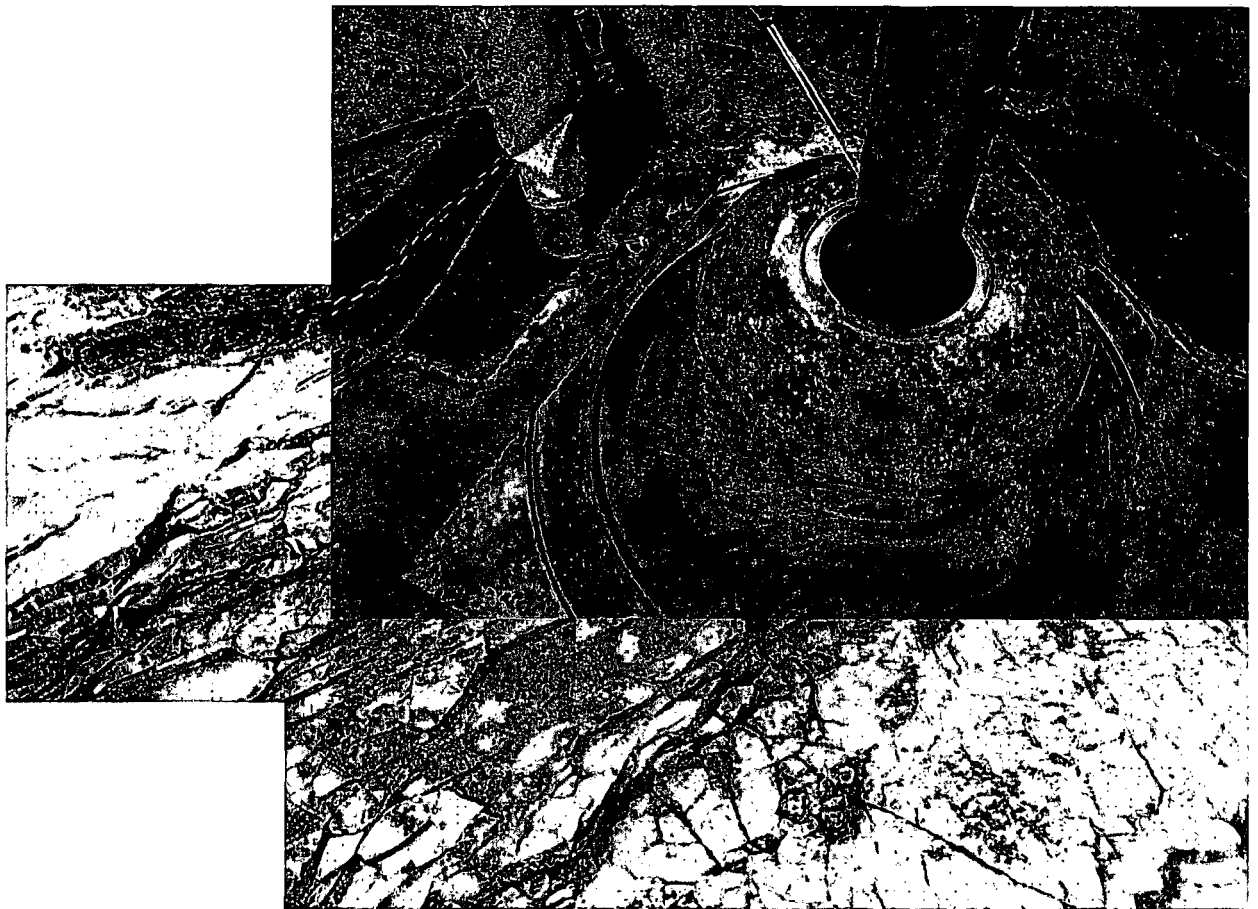
Devon Energy Annular Preventer Summary

General Procedures While Pulling BHA thru Stack

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



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.

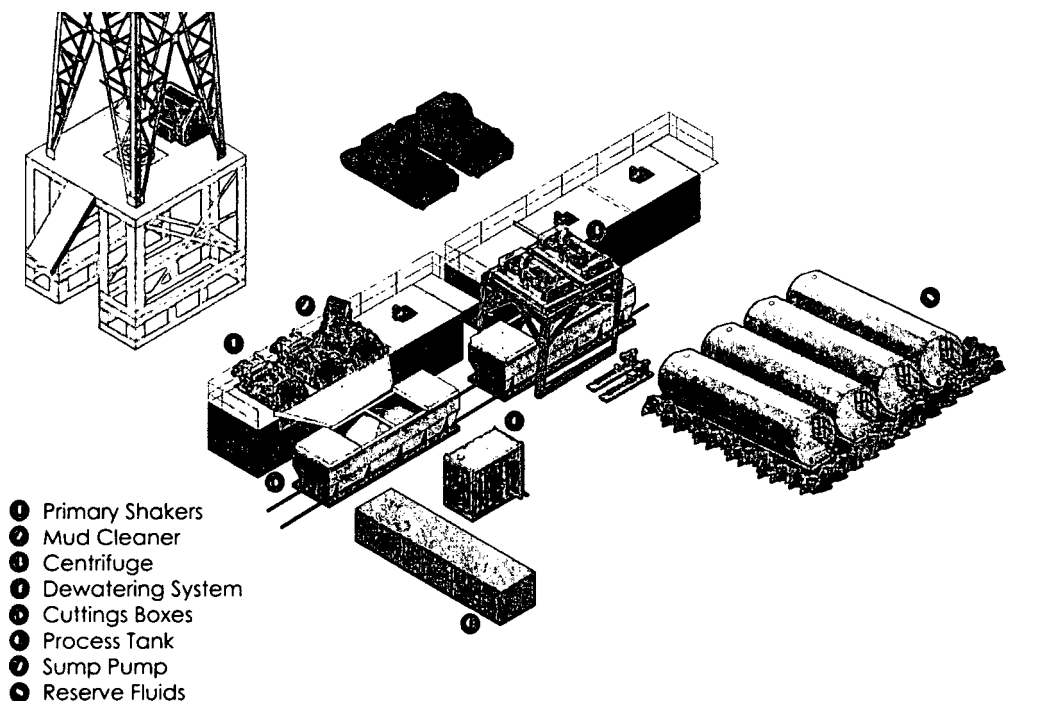
II. Operations and Maintenance Plan

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

- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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

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

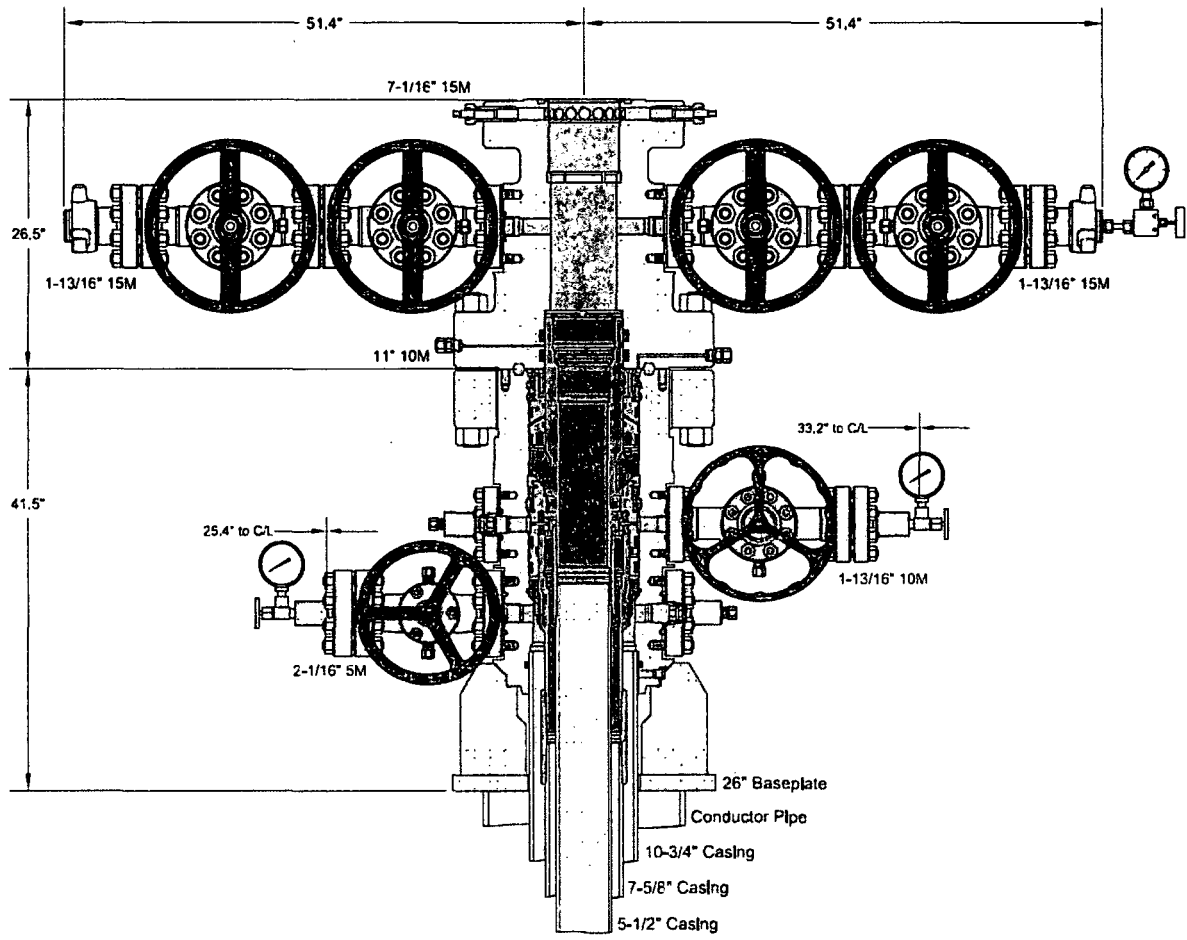
- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial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

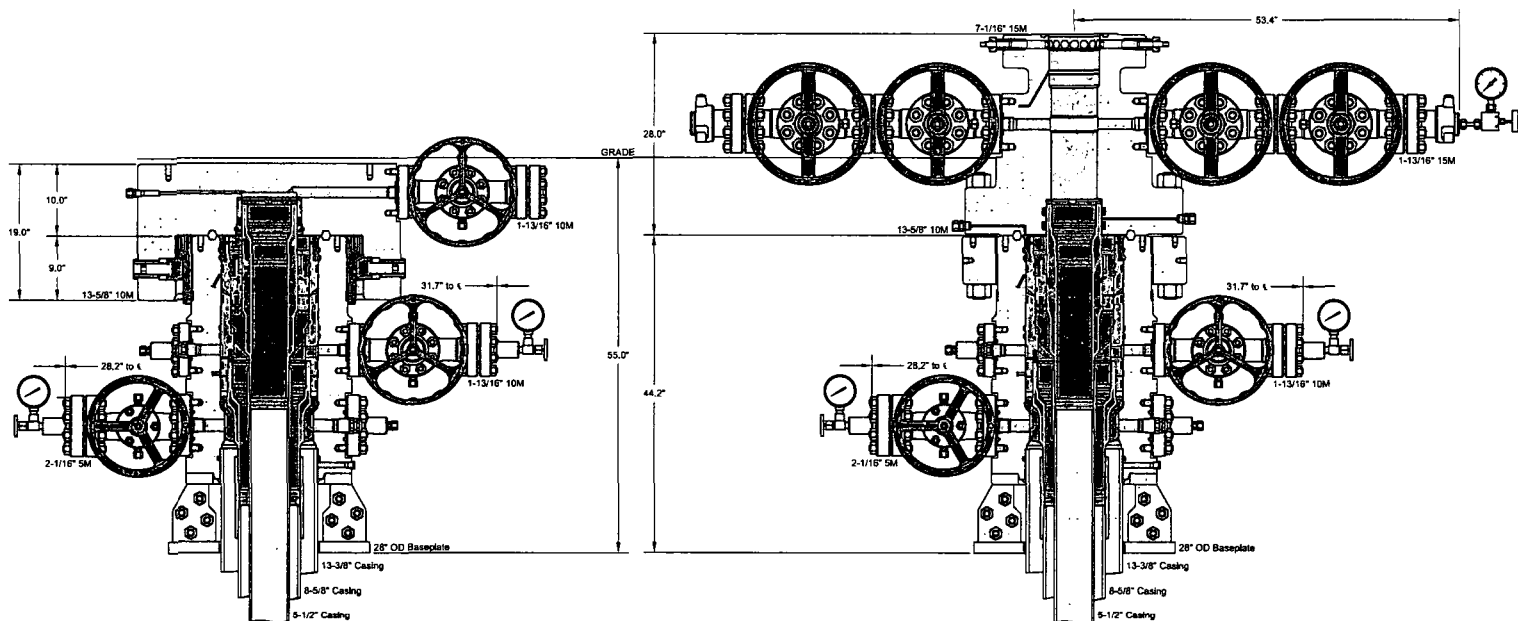
After running the 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the 7-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 10M will be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 10,000 psi WP.

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





INFORMATION CONTAINED HEREIN IS THE PROPERTY OF CACTUS WELLHEAD, LLC. REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PERMISSIBLE ONLY AS PROVIDED BY CONTRACT OR AS EXPRESSLY AUTHORIZED BY CACTUS WELLHEAD, LLC.

CACTUS WELLHEAD LLC

13-3/8" x 8-5/8" x 5-1/2" 5M MBU-3T Wellhead System
With 8-5/8" & 5-1/2" Pin Down Rotating Mandrel Hangers
And 13-5/8" 10M x 7-1/16" 15M CTH-P-DBLHPS Tubing Head

DEVON ENERGY CORPORATION

DRAWN

DLE

10MAY18

APPRV

DRAWING NO.

ODE0002309

WCDSC Permian NM

WELL DETAILS: Jayhawk 7 FED 14H

RKB @ 3351.30ft

3326.30

Northing
387885.74

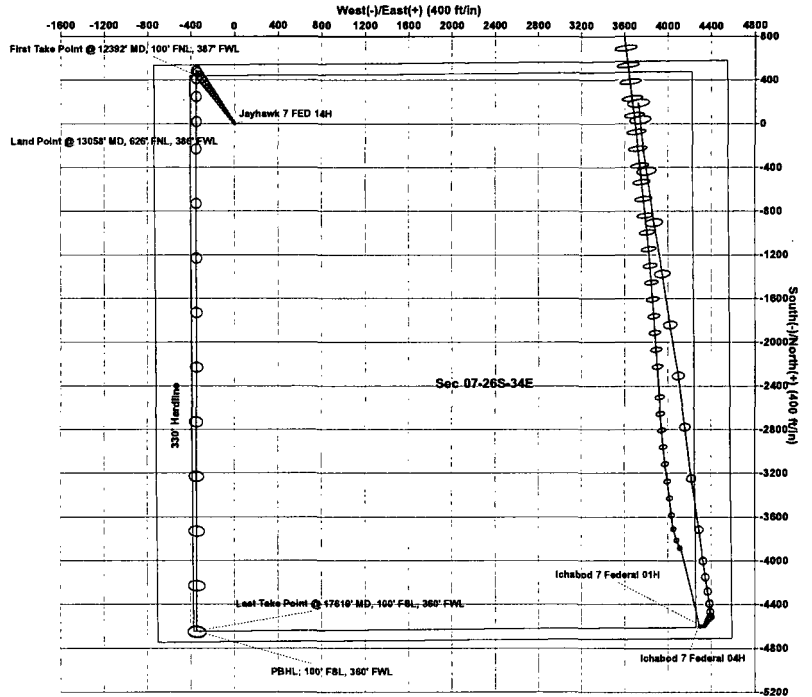
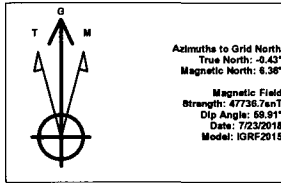
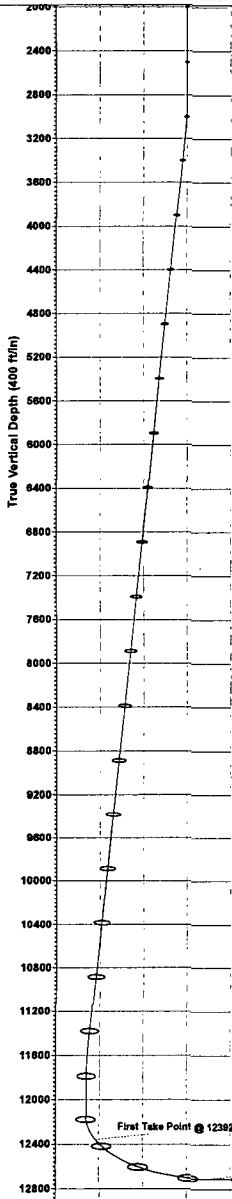
Easting
794794.32

Latitude
32.063737

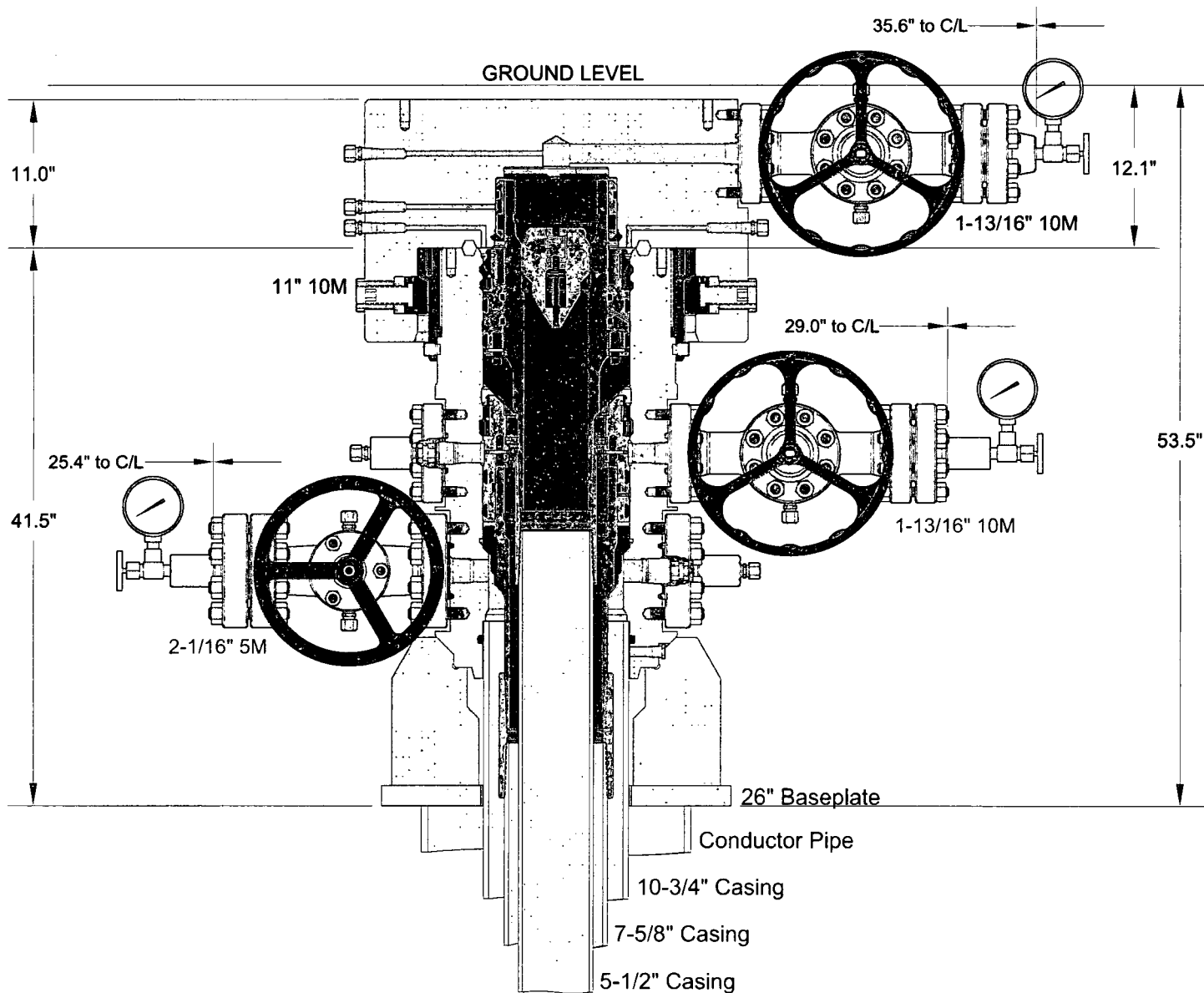
Longitude
-103.515145

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	
3197.78	3.98	324.04	3197.46	11.17	-8.11	1.00	-10.54	
11542.45	3.98	324.04	11522.02	479.73	-348.03	0.00	-452.63	
11807.63	0.00	0.00	11787.00	487.18	-353.43	1.50	-459.66	
12157.67	0.00	0.00	12137.04	487.18	-353.43	0.00	-459.66	
13057.68	90.00	179.91	12710.00	-85.78	-352.52	10.00	111.66	Land Point @ 13058' MD, 626' FNL, 386' FWL
17619.98	90.00	179.91	12710.00	-4648.08	-345.29	0.00	4660.89	Last Take Point @ 17619' MD, 100' FSL, 360' FWL



Vertical Section at 184.25° (200 ft/in)



INFORMATION CONTAINED HEREIN IS THE PROPERTY OF CACTUS WELLHEAD, LLC. REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PERMISSIBLE ONLY AS PROVIDED BY CONTRACT OR AS EXPRESSLY AUTHORIZED BY CACTUS WELLHEAD, LLC.

CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION

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

DRAWN	DLE	29NOV17
APPRV		

DRAWING NO. OKE0001764

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. SUMMARY OF Variance:

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

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

2. Description of Operations

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

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

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

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

Devon Energy, Jayhawk 7 Fed 11H

1. Geologic Formations

TVD of target	12,710'	Pilot hole depth	N/A
MD at TD:	17,619'	Deepest expected fresh water:	890'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
RUSTLER	891		
TOP SALT	1251		
BASE OF SALT	4961		
BELL CANYON	4961		
CHERRY CANYON	6301		
BRUSHY CANYON	7931		
BONE SPRING	9441		
BONE SPRING 1ST	10381		
BONE SPRING 2ND	10921		
BONE SPRING 3RD	12071		
WOLFCAMP	12491		
STRAWN	15011		

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

Devon Energy, Jayhawk 7 Fed 11H

2. Casing Program

Casing	# Sks	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	Slurry Description
Surface	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Int	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Intermediate Two-Stage (Bradenhead)	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Production	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 7-5/8" flush casing in the 8-3/4" hole and the 5-1/2" SF/Flush casing in the 6-3/4" hole.

Casing Program (Alternate Design)

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	900'	13.375"	48	H-40	STC	1.125	1.25	1.6
10.625"	0	5000'	8.625"	32	P110EC	BTC	1.125	1.25	1.6
9.875"	5000'	12,706'	8.625"	32	P110EC	VAM FJL	1.125	1.25	1.6
7.875"	0	17,619'	5.5"	20	P110	Vam SG	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 8-5/8" flush casing in the 9-7/8" hole and the 5-1/2" SF/Flush casing in the 7-7/8" hole.

8-5/8" Intermediate casing will be kept fluid filled.

	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

Devon Energy, Jayhawk 7 Fed 11H

Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program (Primary Design)

Casing	# Sk	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	Slurry Description
Surface	560	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
Int	350	9	13.5	3.27	Lead: Tuned Light® Cement
	640	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Intermediate Two-Stage (Bradenhead)	1000	14.8	6.32	1.33	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	640	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Production	400	14.8	6.32	1.33	Class H Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
10-3/4" Surface	0'	50%
7-5/8" Intermediate	0'	30%
5-1/2" Production Casing	200' Tie-Back to intermediate	25%

Devon Energy, Jayhawk 7 Fed 11H

Cementing Program (Alternate Design)

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	Slurry Description
Surface	823	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
Int	350	9	13.5	3.27	Lead: Tuned Light® Cement
	640	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Intermediate Two-Stage (Bradenhead)	1000	14.8	6.32	1.33	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	640	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Production	400	14.8	6.32	1.33	Class H Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	50%
8-5/8" Intermediate	0'	30%
5-1/2" Production Casing	200' Tie-Back to intermediate	25%

4. Pressure Control Equipment

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

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

Devon Energy, Jayhawk 7 Fed 11H

Production	13-5/8"	10M	Annular (5M)	X	50% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram	X	
			Double Ram	X	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	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.

Devon Energy, Jayhawk 7 Fed 11H

- 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 3M, 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 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.

13-5/8" BOP/BOPE system will have been tested to 10M rating prior to drilling out intermediate casing.

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

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

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

Devon Energy, Jayhawk 7 Fed 11H

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surface Casing Shoe	FW Gel	8.6-8.8	28-34	N/C
Surface Casing Shoe	Intermediate Casing Shoe	DBE/Brine	9-10	34-65	N/C - 6
Intermediate Casing Shoe	TD	Oil Based Mud	10-12	45-65	N/C - 6

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

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

6. Logging and Testing Procedures

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

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

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7000 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

Devon Energy, Jayhawk 7 Fed 11H

Y	H2S Plan attached
---	-------------------

8. Other facets of operation

Is this a walking operation? Potentially

1. In the event the spudder rig is unable to drill the surface holes the 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 with either OBM or cut brine 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 14 3/4" 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 10-3/4" 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



Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

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

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

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

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

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



R16 212



QUALITY DOCUMENT

PHOENIX RUBBER
INDUSTRIAL LTD.

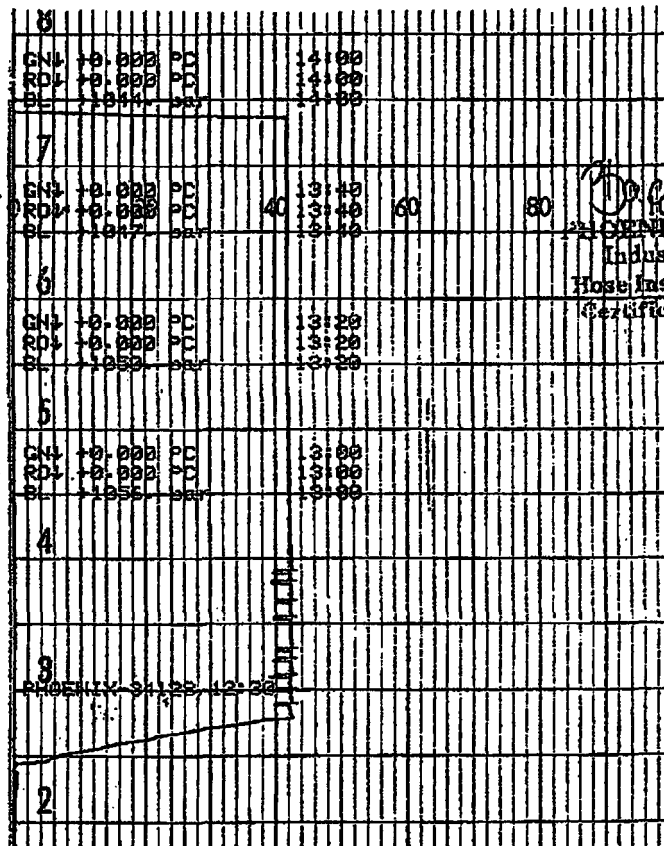
5728 Szeged, Budapest út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax: (3662) 566-738

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

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

14094-66

40920-0-00015 N800C



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

VERIFIED TRUE CO.
 PHOENIX RUBBER CO.



APD ID: 10400032917

Submission Date: 08/09/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Well Type: OIL WELL

Well Work Type: Drill



Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Jayhawk_7_Fed_14H_Access_Rd_20180809072837.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Improve road to accommodate Drilling and Completion operations.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Jayhawk_7_Fed_14H_NEW_ACCESS_RDS_20180809072858.pdf

New road type: LOCAL

Length: 210

Feet

Width (ft.): 30

Max slope (%): 6

Max grade (%): 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Water Drainage Ditch

New road access plan or profile prepared? YES

New road access plan attachment:

Jayhawk_7_Fed_14H_NEW_ACCESS_RDS_20180809072910.pdf

Access road engineering design? YES

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Access road engineering design attachment:

Jayhawk_7_Fed_14H_NEW_ACCESS_RDS_20180809072922.pdf

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: See attached Interim reclamation diagram.

Access other construction information:

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: Water Drainage Ditch

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

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Jayhawk_7_Fed_14H_OneMileBuffer_20180809072934.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: PART OF RATTLESNAKE MDP 3 - 8 ATTACHMENTS - JAYHAWK 7 WELLPAD 1 & JAYHAWK 7 CTB 2 - CTB PLAT, 3 BATT CONN PLATS, CTB ELECTRIC PLAT, PAD TO CTB FLOWLINE, WELLPAD ELECTRIC, WELLPAD PLAT

Production Facilities map:

Jayhawk_7_Fed_14H_JHWK_7_WP_1_CONN_ELE_20180809073045.PDF

Jayhawk_7_Fed_14H_JHWK_7_CTB_2_BAT_CONN_GAS_20180809073047.PDF

Jayhawk_7_Fed_14H_JHWK_7_CTB_2_BATT_CONN_CRUDE_20180809073049.PDF

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Jayhawk_7_Fed_14H_JHWK_7_CTB_2_BATT_CONN_WATER_20180809073050.PDF

Jayhawk_7_Fed_14H_JHWK_7_CTB_2_CONN_ELE_20180809073052.PDF

Jayhawk_7_Fed_14H_JHWK_7_CTB_2_PAD_P_20180809073102.pdf

Jayhawk_7_Fed_14H_JHWK_7_PAD_1_RDS_20180809073103.pdf

Jayhawk_7_Fed_14H_JHWK_7_PAD_1_TO_JYHK_7_CTB_2_20180809073105.pdf

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: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 160000

Source volume (acre-feet): 20.622896

Source volume (gal): 6720000

Water source and transportation map:

JAYHAWK_7_FED_14H_Water_Map_20180809073120.PDF

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

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

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:

Jayhawk_7_Pad_1_2_Caliche_Map_20180809073208.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: Average produced BWPD over the first year of production.

Amount of waste: 1200 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: Produced water will be primarily disposed of at our Rattlesnake 16 SWD. At certain times during the year, some of the water will be recycled and used for drilling/completion operations. This recycle facility is at the same location as the SWD (state).

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Waste type: FLOWBACK

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

Amount of waste: 4000 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: Produced water during flowback will be disposed of at our Rattlesnake 16 SWD.

Waste type: DRILLING

Waste content description: Water Based and Oil Based Cuttings

Amount of waste: 1740 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

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

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

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

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

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:

Jayhawk_7_Fed_14H_Well_Layout_20180809073242.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: JAYHAWK 7 WELLPAD

Multiple Well Pad Number: 1

Recontouring attachment:

Jayhawk_7_Fed_14H_INTERIM_RECL_20180809073258.pdf

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

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

**Well pad proposed disturbance
(acres):** 8.263

Road proposed disturbance (acres):
0.145

**Powerline proposed disturbance
(acres):** 1.749

**Pipeline proposed disturbance
(acres):** 1.339

Other proposed disturbance (acres): 0

Well pad interim reclamation (acres):
6.052

Road interim reclamation (acres): 0

Powerline interim reclamation (acres):
0

Pipeline interim reclamation (acres): 0

Other interim reclamation (acres): 0

Total interim reclamation: 6.052

**Well pad long term disturbance
(acres):** 2.211

Road long term disturbance (acres):
0.145

**Powerline long term disturbance
(acres):** 1.749

**Pipeline long term disturbance
(acres):** 1.339

Other long term disturbance (acres): 0

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Total proposed disturbance: 11.496

Total long term disturbance: 5.444

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? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

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: Travis

Last Name: Phibbs

Phone: (575)748-9929

Email: travis.phibbs@dvn.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

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

Weed treatment plan attachment:

Monitoring plan description: Monitor as needed.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

Section 12 - Other Information

Right of Way needed? YES

Use APD as ROW? YES

ROW Type(s): 281001 ROW - ROADS,288100 ROW – O&G Pipeline,FLPMA (Powerline),Other

ROW Applications

SUPO Additional Information: Part of Rattlesnake 3 MDP. See Section 4 for 8 Facility & Infrastructure Plats. See C-102 for grading plats.

Use a previously conducted onsite? YES

Previous Onsite information: 8/31/2017

Other SUPO Attachment



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

PWD Data Report

01/03/2019

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

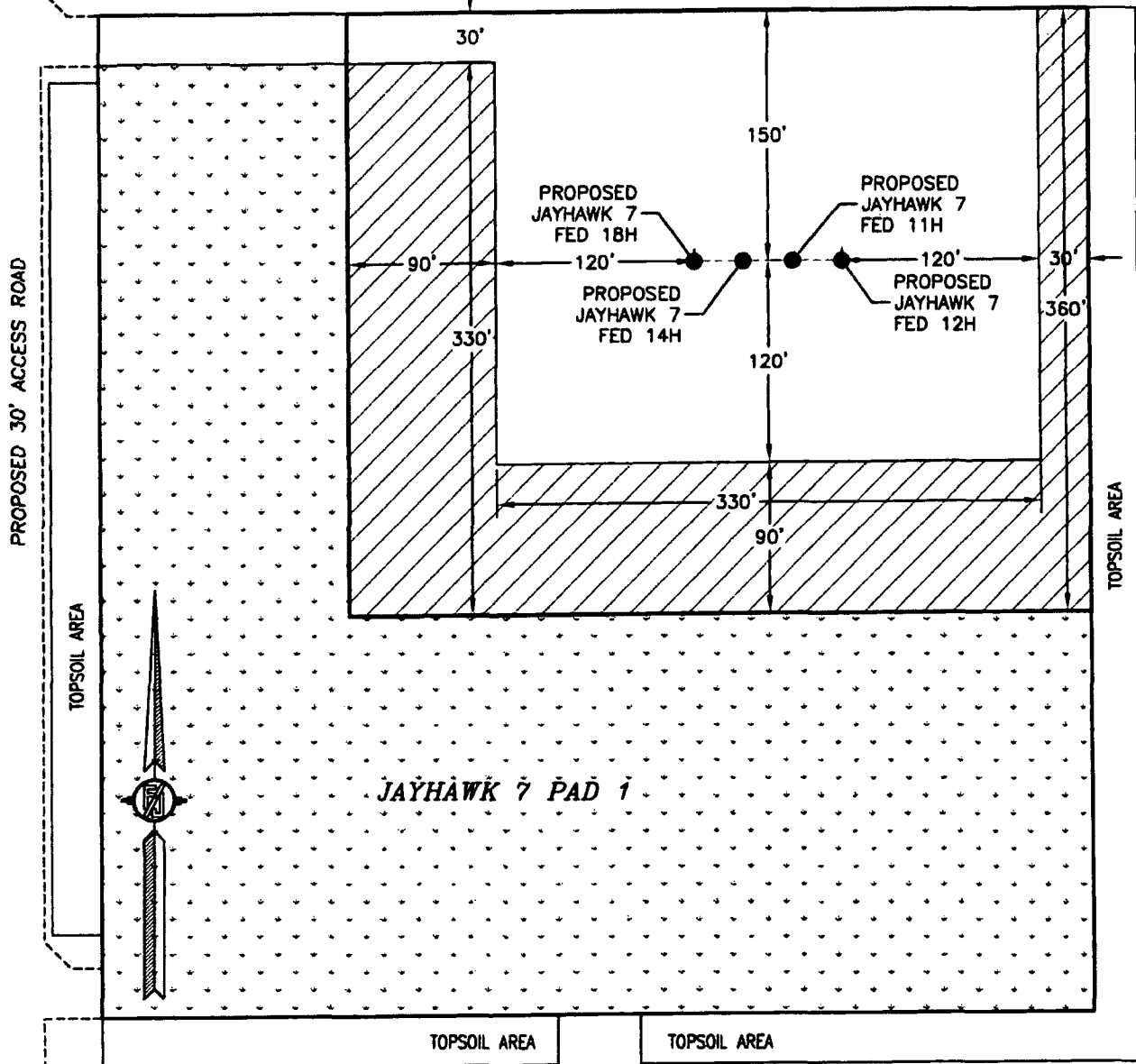
Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

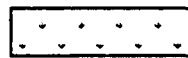
Lined pit bond amount:

Additional bond information attachment:

SECTION 7, TOWNSHIP 26 SOUTH, RANGE 34 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



DENOTES INTERIM PAD
RECLAMATION AREA



DENOTES GRADING SITE
RECLAMATION AREA

0 10 50 100 200
SCALE 1" = 100'

1.611± ACRES INTERIM PAD RECLAMATION AREA
4.441± ACRES GRADING SITE RECLAMATION AREA
2.211± ACRES NON-RECLAIMED AREA
8.263± ACRES JAYHAWK 7 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.
JAYHAWK 7 FED 14H

LOCATED 540 FT. FROM THE NORTH LINE
AND 740 FT. FROM THE WEST LINE OF
SECTION 7, TOWNSHIP 26 SOUTH,
RANGE 34 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

JULY 27, 2018

SURVEY NO. 6375A

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

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

01/03/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: JAYHAWK 7 FED

Well Number: 14H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	20	FSL	360	FWL	26S	34E	7	Lot 4	32.05074 8	- 103.5163 732	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 114990	- 938 4	176 20	127 10
BHL Leg #1	20	FSL	360	FWL	26S	34E	7	Lot 4	32.05074 8	- 103.5163 732	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 114990	- 938 4	176 20	127 10

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.