PECOS DISTRICT DRILLING
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company, L.P.**
LEASE NO.:	**NMNM-114990**
WELL NAME & NO.:	**Jayhawk 6-7 Fed Fee Com 1H**
SURFACE HOLE FOOTAGE:	**0365' FNL & 0230' FEL**
BOTTOM HOLE FOOTAGE	**0330' FSL & 0360' FEL Sec. 07, T. 26 S., R 34 E.**
LOCATION:	**Section 06, T. 26 S., R 34 E., NMPM**
COUNTY:	**County, New Mexico**

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

A. DRILLING OPERATIONS 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)

☐ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 3933612

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.

2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. **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 wells.**

4. Option – Setting surface casing with Spudder Rig

   a. Notify the BLM when removing the Spudder Rig.

   b. Notify the BLM when moving in the H&P Flex Rig. Rig to be moved in within 60 days of notification that Spudder Rig has left the location. Failure to notify or have rig on location within 60 days will result in an Incident of Non-Compliance.

   c. Once the H&P Flex Rig is on location, it shall not be removed from over the hole without prior approval unless the production casing has been run and cemented or the well has been properly plugged. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

   d. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as H&P Flex Rig is rigged up on well. CIT for the surface casing shall be performed and results recorded on subsequent sundry – pressure to be 1200 psi.

5. 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 is located, this does not include the dog house or stairway area.

6. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If**

available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Red Beds, Rustler, and Delaware.
Abnormal pressures may be encountered upon penetrating the 3rd Bone Spring Sandstone and all subsequent formations.

1. The **10-3/4** inch surface casing shall be set at approximately **905** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

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 is to include the lead cement slurry.**

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.

Formation below the 10-3/4" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

7-5/8'' Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

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

☐ Cement as proposed. If cement does not circulate see B.1.a, c-d above.

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

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.

4. 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.

C. **PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be psi.

10M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)

<u>Multibowl Option:</u>

4. **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 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. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

5. The appropriate BLM office shall be notified a minimum of hours in advance for a representative to witness the tests.

a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

a. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

b. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

c. The results of the test shall be reported to the appropriate BLM office.

d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. 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.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

F. 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.

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PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION
LEASE NO.:	NMNM114990
WELL NAME & NO.:	4H –JAYHAWK 6-7 FED FEE COM
SURFACE HOLE FOOTAGE:	515'/N & 530'/E
BOTTOM HOLE FOOTAGE	330'/S & 1284'/E
LOCATION:	Section. 6.,T26S., R.34E., NMP
COUNTY:	LEA County, New Mexico

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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.

Approval Date: 08/23/2018

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

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 line 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 ANAYLSIS

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.

V. SPECIAL REQUIREMENT(S)

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

- 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 line 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

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.

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 values, 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:

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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 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.

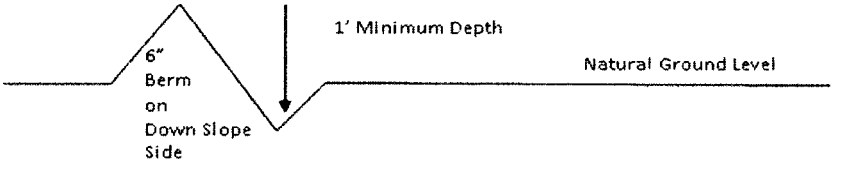
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping 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 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ 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

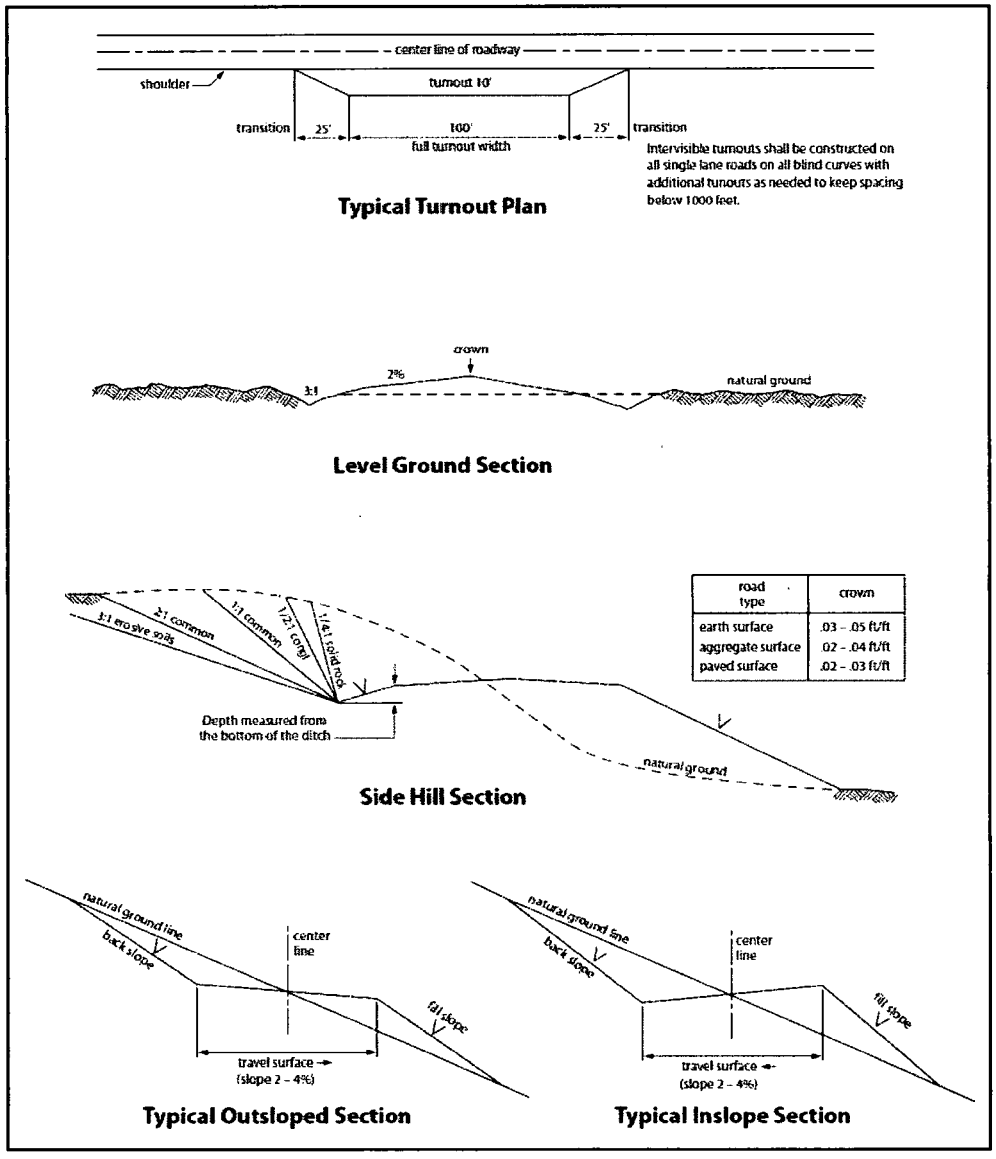


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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 statues.

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 of 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
(X) 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 exclosure 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 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.

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
(X) 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:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION
LEASE NO.:	NMNM114990
WELL NAME & NO.:	4H –JAYHAWK 6-7 FED FEE COM
SURFACE HOLE FOOTAGE:	515'/N & 530'/E
BOTTOM HOLE FOOTAGE	330'/S & 1284'/E
LOCATION:	Section. 6.,T26S., R.34E., NMP
COUNTY:	LEA County, New Mexico

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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.

Approval Date: 08/23/2018

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

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

- 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 line 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 line 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 ANAYLSIS

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 values, 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:

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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 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.

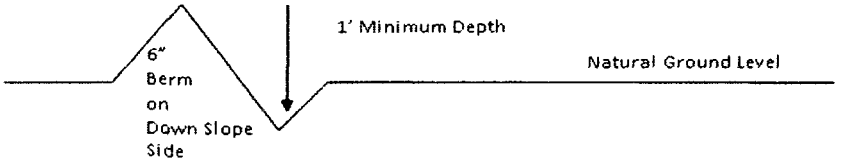
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping 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 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ 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

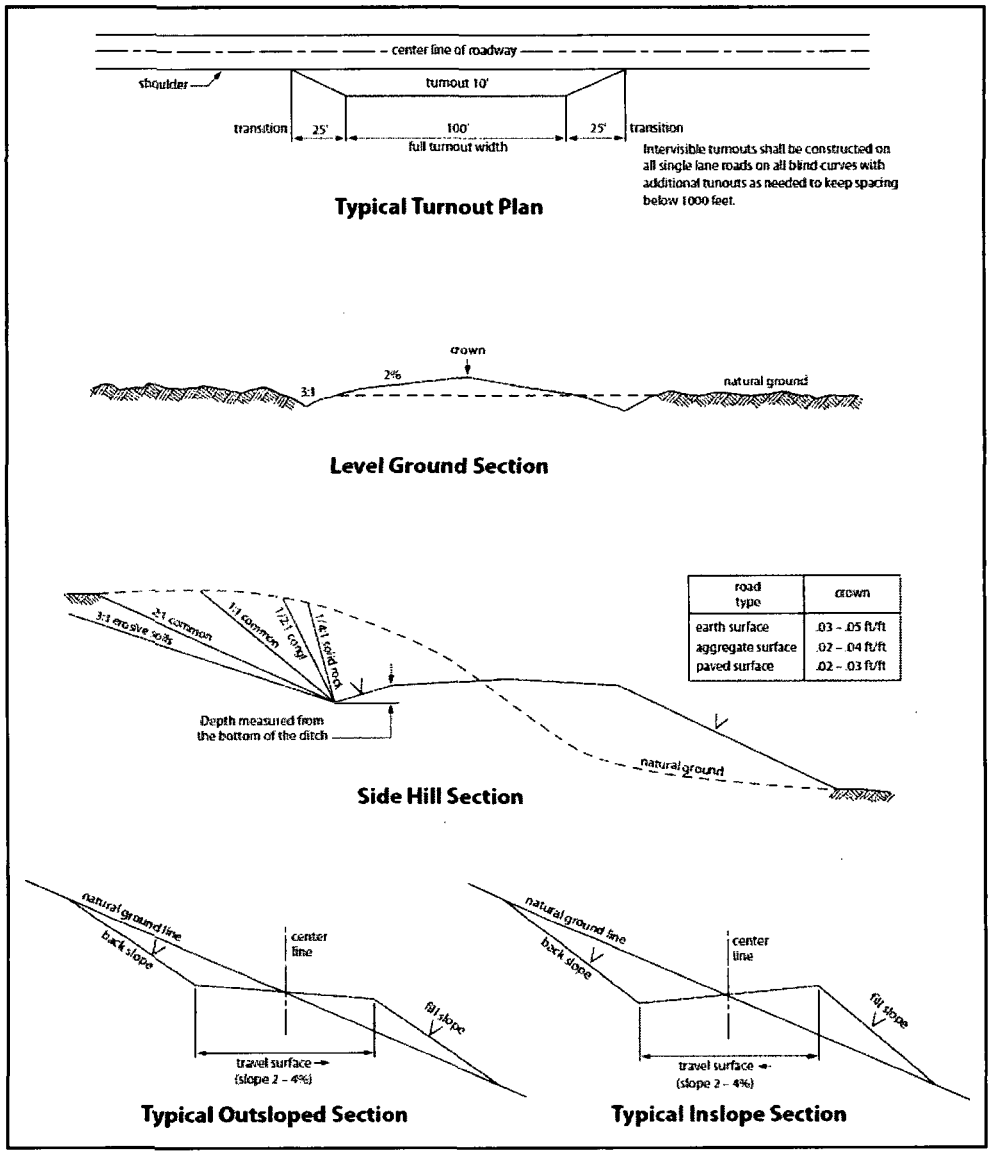


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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 statues.

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 of 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
(X) 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 exclosure 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 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.

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
(X) 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:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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

AFMSS

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

Operator Certification Data Report

08/23/2018

Operator Certification

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

NAME: Rebecca Deal **Signed on:** 04/02/2018

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: 6488 Seven Rivers Hwy

City: Artesia **State:** NM **Zip:** 88210

Phone: (575)748-9929

Email address: travis.phibbs@dvn.com

devon

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

Jayhawk 6-7 Fed Fee Com 1H

Sec-6 T-26S R-34E
365' FNL & 230' FEL
LAT. = 32.0787266' N (NAD83)
LONG = 103.5012113' W

Lea County NM

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.

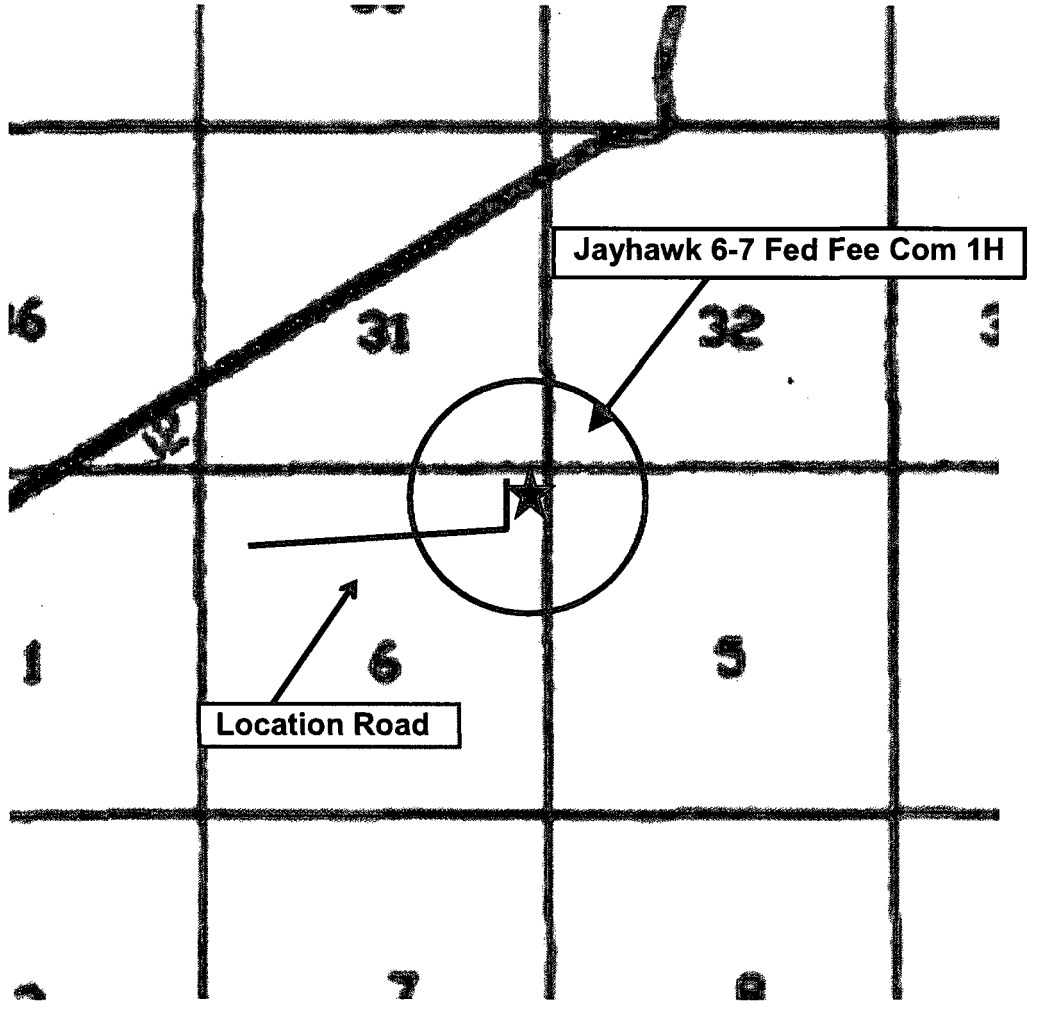
Surface Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Displace to Gas	Formation Pore Pressure	Dry gas from next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

Jayhawk 6-7 Fed Fee Com 1H

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H_2S, including warning signs, wind indicators and H_2S 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 H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, 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 H_2S 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 H_2S, 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 (SO_2). 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 H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	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 (H_2S) 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 (H_2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S 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 H_2S 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 H_2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan.

II. HYDROGEN SULFIDE TRAINING

Note: All H_2S 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 H_2S.

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. **H_2S detection and monitoring equipment:**

   Portable H_2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H_2S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

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

   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 H_2S circulated to surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

5. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H_2S trim.

   B. All elastomers used for packing and seals shall be H_2S trim.

6. **Communication:**

   A. Company personnel have/use cellular telephones in the field.

   B. Land line (telephone) communications at Office

7. **Well testing:**

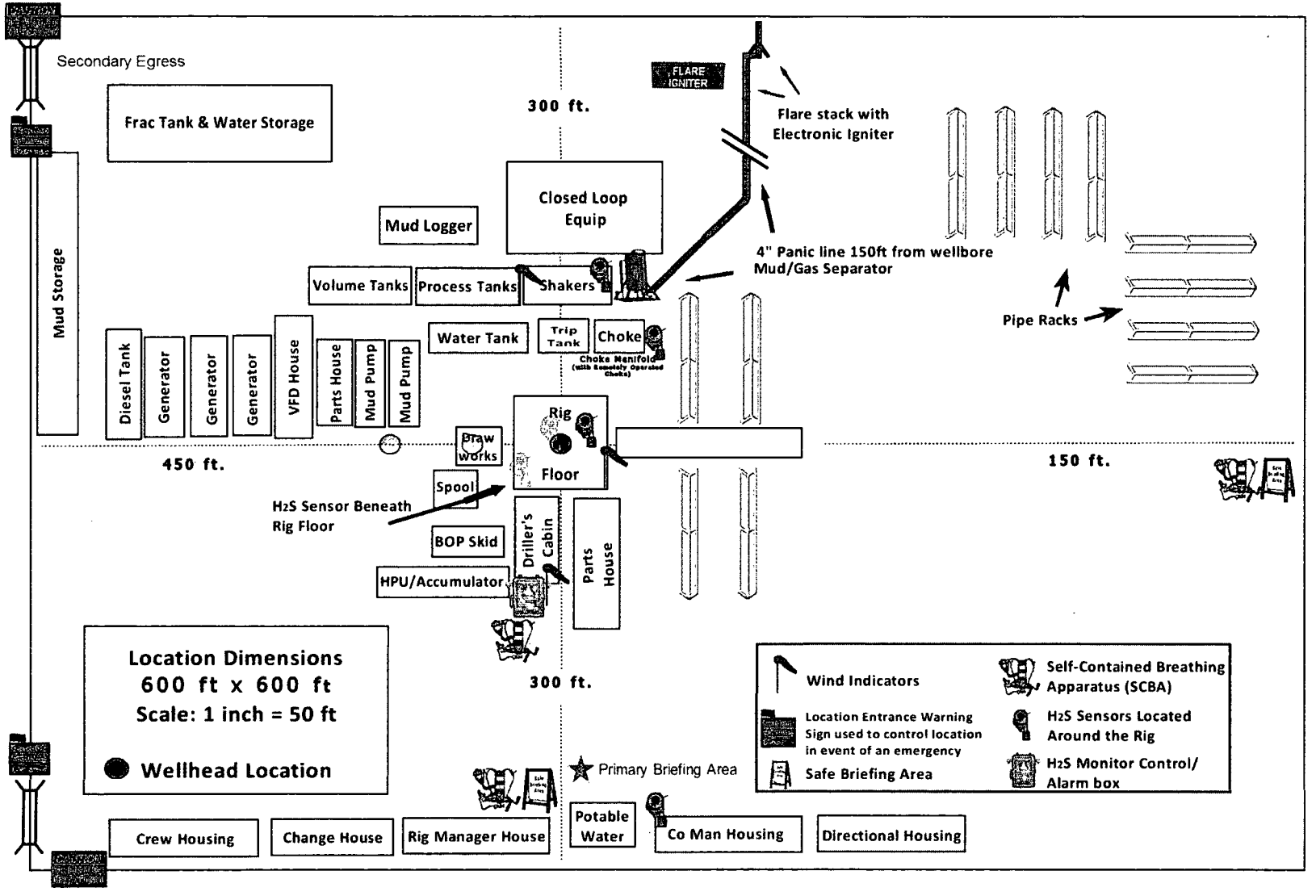
   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H_2S environment will use the closed chamber method of testing.

   B. There will be no drill stem testing.

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

Prepared in conjunction with
Dave Small SHARP COMMUNICATIONS & CONSULTING, LLC

Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location



WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 06-T26S-R34E
Jayhawk FED FEE COM 1H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

23 March, 2018

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E

Site Position:		**Northing:**	393,700.60 usft	**Latitude:**	32.079736
From:	Map	**Easting:**	794,011.60 usft	**Longitude:**	-103.517530
Position Uncertainty:	5.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.43 °

Well Jayhawk FED FEE COM 1H

Well Position	**+N/-S**	0.00 ft	**Northing:**	393,371.93 usft	**Latitude:**	32.078727
	+E/-W	0.00 ft	**Easting:**	799,068.73 usft	**Longitude:**	-103.501212
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,332.70 ft

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	3/23/2018	6.83	59.93	47,781.29403058

Design Permit Plan 1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	180.28

Plan Survey Tool Program **Date** 3/23/2018

	Depth From (ft)	**Depth To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Remarks**
1	0.00	22,750.61	Permit Plan 1 (Wellbore #1)	MWD+HDGM OWSG MWD + HDGM	

Plan Sections

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**	**TFO (°)**	**Target**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,508.59	6.36	3.14	5,507.54	28.14	1.55	1.25	1.25	0.00	3.14	
7,892.75	6.36	3.14	7,877.05	291.74	16.02	0.00	0.00	0.00	0.00	
8,316.57	0.00	0.00	8,300.00	315.20	17.30	1.50	-1.50	0.00	180.00	Vertical Point - Jayhw
11,956.57	0.00	0.00	11,940.00	315.20	17.30	0.00	0.00	0.00	0.00	
12,074.72	11.81	298.68	12,057.31	321.02	6.66	10.00	10.00	0.00	298.68	
13,283.40	90.00	179.50	12,840.00	-400.00	-130.00	7.92	6.47	-9.86	-118.66	
22,750.85	90.00	179.50	12,840.00	-9,867.10	-47.38	0.00	0.00	0.00	0.00	PBHL - Jayhawk FED

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
100.00	0.00	0.00	100.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
200.00	0.00	0.00	200.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
300.00	0.00	0.00	300.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
400.00	0.00	0.00	400.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
500.00	0.00	0.00	500.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
600.00	0.00	0.00	600.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
700.00	0.00	0.00	700.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
800.00	0.00	0.00	800.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
900.00	0.00	0.00	900.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,000.00	0.00	0.00	1,000.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,100.00	0.00	0.00	1,100.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,200.00	0.00	0.00	1,200.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,300.00	0.00	0.00	1,300.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,400.00	0.00	0.00	1,400.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,500.00	0.00	0.00	1,500.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,600.00	0.00	0.00	1,600.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,700.00	0.00	0.00	1,700.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,800.00	0.00	0.00	1,800.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
1,900.00	0.00	0.00	1,900.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,000.00	0.00	0.00	2,000.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,100.00	0.00	0.00	2,100.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,200.00	0.00	0.00	2,200.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,300.00	0.00	0.00	2,300.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,400.00	0.00	0.00	2,400.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,500.00	0.00	0.00	2,500.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,600.00	0.00	0.00	2,600.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,700.00	0.00	0.00	2,700.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,800.00	0.00	0.00	2,800.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
2,900.00	0.00	0.00	2,900.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,000.00	0.00	0.00	3,000.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,100.00	0.00	0.00	3,100.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,200.00	0.00	0.00	3,200.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,300.00	0.00	0.00	3,300.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,400.00	0.00	0.00	3,400.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,500.00	0.00	0.00	3,500.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,600.00	0.00	0.00	3,600.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,700.00	0.00	0.00	3,700.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,800.00	0.00	0.00	3,800.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
3,900.00	0.00	0.00	3,900.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,000.00	0.00	0.00	4,000.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,100.00	0.00	0.00	4,100.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,200.00	0.00	0.00	4,200.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,300.00	0.00	0.00	4,300.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,400.00	0.00	0.00	4,400.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,500.00	0.00	0.00	4,500.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,600.00	0.00	0.00	4,600.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,700.00	0.00	0.00	4,700.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,800.00	0.00	0.00	4,800.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
4,900.00	0.00	0.00	4,900.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
5,000.00	0.00	0.00	5,000.00	0.00	0.00	393,371.93	799,068.73	32.078727	-103.501212
Begin Nudge									
5,100.00	1.25	3.14	5,099.99	1.09	0.06	393,373.02	799,068.79	32.078730	-103.501211
5,200.00	2.50	3.14	5,199.94	4.36	0.24	393,376.28	799,068.97	32.078739	-103.501211

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**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
5,300.00	3.75	3.14	5,299.79	9.80	0.54	393,381.73	799,069.27	32.078754	-103.501210
5,400.00	5.00	3.14	5,399.49	17.42	0.96	393,389.34	799,069.68	32.078775	-103.501208
5,500.00	6.25	3.14	5,499.01	27.20	1.49	393,399.13	799,070.22	32.078801	-103.501206
5,508.59	6.36	3.14	5,507.55	28.14	1.55	393,400.07	799,070.27	32.078804	-103.501206
EOB									
5,600.00	6.36	3.14	5,598.40	38.25	2.10	393,410.18	799,070.83	32.078832	-103.501204
5,700.00	6.36	3.14	5,697.78	49.31	2.71	393,421.24	799,071.43	32.078862	-103.501202
5,800.00	6.36	3.14	5,797.17	60.36	3.31	393,432.29	799,072.04	32.078893	-103.501199
5,900.00	6.36	3.14	5,896.55	71.42	3.92	393,443.35	799,072.65	32.078923	-103.501197
6,000.00	6.36	3.14	5,995.94	82.48	4.53	393,454.40	799,073.26	32.078953	-103.501195
6,100.00	6.36	3.14	6,095.32	93.53	5.14	393,465.46	799,073.86	32.078984	-103.501193
6,200.00	6.36	3.14	6,194.71	104.59	5.74	393,476.52	799,074.47	32.079014	-103.501190
6,300.00	6.36	3.14	6,294.09	115.64	6.35	393,487.57	799,075.08	32.079044	-103.501188
6,400.00	6.36	3.14	6,393.48	126.70	6.96	393,498.63	799,075.68	32.079075	-103.501186
6,500.00	6.36	3.14	6,492.86	137.76	7.56	393,509.69	799,076.29	32.079105	-103.501184
6,600.00	6.36	3.14	6,592.25	148.81	8.17	393,520.74	799,076.90	32.079136	-103.501181
6,700.00	6.36	3.14	6,691.63	159.87	8.78	393,531.80	799,077.50	32.079166	-103.501179
6,800.00	6.36	3.14	6,791.02	170.93	9.38	393,542.85	799,078.11	32.079196	-103.501177
6,900.00	6.36	3.14	6,890.40	181.98	9.99	393,553.91	799,078.72	32.079227	-103.501175
7,000.00	6.36	3.14	6,989.79	193.04	10.60	393,564.97	799,079.33	32.079257	-103.501173
7,100.00	6.36	3.14	7,089.17	204.09	11.21	393,576.02	799,079.93	32.079287	-103.501170
7,200.00	6.36	3.14	7,188.56	215.15	11.81	393,587.08	799,080.54	32.079318	-103.501168
7,300.00	6.36	3.14	7,287.94	226.21	12.42	393,598.13	799,081.15	32.079348	-103.501166
7,400.00	6.36	3.14	7,387.33	237.26	13.03	393,609.19	799,081.75	32.079379	-103.501164
7,500.00	6.36	3.14	7,486.71	248.32	13.63	393,620.25	799,082.36	32.079409	-103.501161
7,600.00	6.36	3.14	7,586.10	259.38	14.24	393,631.30	799,082.97	32.079439	-103.501159
7,700.00	6.36	3.14	7,685.48	270.43	14.85	393,642.36	799,083.57	32.079470	-103.501157
7,800.00	6.36	3.14	7,784.87	281.49	15.45	393,653.42	799,084.18	32.079500	-103.501155
7,892.75	6.36	3.14	7,877.05	291.74	16.02	393,663.67	799,084.74	32.079528	-103.501153
EOH									
7,900.00	6.25	3.14	7,884.25	292.54	16.06	393,664.47	799,084.79	32.079530	-103.501152
8,000.00	4.75	3.14	7,983.79	302.10	16.59	393,674.03	799,085.31	32.079557	-103.501151
8,100.00	3.25	3.14	8,083.54	309.07	16.97	393,681.00	799,085.70	32.079576	-103.501149
8,200.00	1.75	3.14	8,183.45	313.42	17.21	393,685.35	799,085.93	32.079588	-103.501148
8,300.00	0.25	3.14	8,283.43	315.16	17.30	393,687.09	799,086.03	32.079593	-103.501148
8,316.57	0.00	0.00	8,300.00	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
Drop to Vertical									
8,400.00	0.00	0.00	8,383.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
8,500.00	0.00	0.00	8,483.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
8,600.00	0.00	0.00	8,583.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
8,700.00	0.00	0.00	8,683.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
8,800.00	0.00	0.00	8,783.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
8,900.00	0.00	0.00	8,883.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,000.00	0.00	0.00	8,983.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,100.00	0.00	0.00	9,083.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,200.00	0.00	0.00	9,183.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,300.00	0.00	0.00	9,283.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,400.00	0.00	0.00	9,383.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,500.00	0.00	0.00	9,483.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,600.00	0.00	0.00	9,583.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,700.00	0.00	0.00	9,683.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,800.00	0.00	0.00	9,783.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
9,900.00	0.00	0.00	9,883.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,000.00	0.00	0.00	9,983.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,100.00	0.00	0.00	10,083.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,200.00	0.00	0.00	10,183.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,300.00	0.00	0.00	10,283.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,400.00	0.00	0.00	10,383.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,500.00	0.00	0.00	10,483.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,600.00	0.00	0.00	10,583.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,700.00	0.00	0.00	10,683.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,800.00	0.00	0.00	10,783.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
10,900.00	0.00	0.00	10,883.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,000.00	0.00	0.00	10,983.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,100.00	0.00	0.00	11,083.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,200.00	0.00	0.00	11,183.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,300.00	0.00	0.00	11,283.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,400.00	0.00	0.00	11,383.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,500.00	0.00	0.00	11,483.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,600.00	0.00	0.00	11,583.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,700.00	0.00	0.00	11,683.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,800.00	0.00	0.00	11,783.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,900.00	0.00	0.00	11,883.43	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
11,956.57	0.00	0.00	11,940.00	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
KOP @ 11957' MD, 50' FNL, 213' FEL									
12,000.00	4.34	298.68	11,983.39	315.99	15.86	393,687.91	799,084.59	32.079595	-103.501152
12,074.72	11.81	298.68	12,057.31	321.02	6.66	393,692.95	799,075.38	32.079609	-103.501182
EOB @ 298.68° TF									
12,100.00	10.99	289.43	12,082.09	323.07	2.11	393,694.99	799,070.84	32.079615	-103.501197
12,200.00	11.16	247.30	12,180.39	322.50	-15.84	393,694.43	799,052.89	32.079613	-103.501255
12,300.00	15.88	219.43	12,277.69	308.18	-33.48	393,680.11	799,035.25	32.079574	-103.501312
12,400.00	22.45	205.73	12,372.14	280.36	-50.49	393,652.29	799,018.24	32.079498	-103.501368
12,500.00	29.66	198.20	12,461.94	239.59	-66.53	393,611.52	799,002.19	32.079387	-103.501420
12,600.00	37.14	193.45	12,545.38	186.64	-81.31	393,558.57	798,987.42	32.079241	-103.501469
12,700.00	44.76	190.11	12,620.86	122.52	-94.54	393,494.44	798,974.19	32.079065	-103.501514
12,800.00	52.45	187.57	12,686.95	48.45	-105.96	393,420.37	798,962.77	32.078862	-103.501552
12,877.61	58.44	185.94	12,730.95	-15.00	-113.44	393,356.93	798,955.29	32.078688	-103.501578
1st Take Point @ 12878' MD, 330' FNL, 343' FEL									
12,900.00	60.18	185.51	12,742.37	-34.16	-115.36	393,337.77	798,953.37	32.078635	-103.501585
13,000.00	67.94	183.74	12,786.09	-123.72	-122.56	393,248.21	798,946.16	32.078389	-103.501610
13,100.00	75.72	182.17	12,817.25	-218.53	-127.43	393,153.40	798,941.30	32.078129	-103.501628
13,200.00	83.50	180.69	12,835.28	-316.78	-129.86	393,055.15	798,938.86	32.077859	-103.501639
13,283.40	90.00	179.50	12,840.00	-400.00	-130.00	392,971.93	798,938.73	32.077630	-103.501641
Land Point									
13,300.00	90.00	179.50	12,840.00	-416.60	-129.86	392,955.33	798,938.87	32.077584	-103.501641
13,400.00	90.00	179.50	12,840.00	-516.60	-128.98	392,855.33	798,939.75	32.077309	-103.501641
13,500.00	90.00	179.50	12,840.00	-616.59	-128.11	392,755.34	798,940.62	32.077035	-103.501640
13,600.00	90.00	179.50	12,840.00	-716.59	-127.24	392,655.34	798,941.49	32.076760	-103.501640
13,700.00	90.00	179.50	12,840.00	-816.59	-126.36	392,555.34	798,942.36	32.076485	-103.501640
13,800.00	90.00	179.50	12,840.00	-916.58	-125.49	392,455.35	798,943.24	32.076210	-103.501640
13,900.00	90.00	179.50	12,840.00	-1,016.58	-124.62	392,355.35	798,944.11	32.075935	-103.501639
14,000.00	90.00	179.50	12,840.00	-1,116.58	-123.75	392,255.36	798,944.98	32.075660	-103.501639
14,100.00	90.00	179.50	12,840.00	-1,216.57	-122.87	392,155.36	798,945.85	32.075385	-103.501639
14,200.00	90.00	179.50	12,840.00	-1,316.57	-122.00	392,055.36	798,946.73	32.075110	-103.501638
14,300.00	90.00	179.50	12,840.00	-1,416.56	-121.13	391,955.37	798,947.60	32.074836	-103.501638
14,400.00	90.00	179.50	12,840.00	-1,516.56	-120.26	391,855.37	798,948.47	32.074561	-103.501638
14,500.00	90.00	179.50	12,840.00	-1,616.56	-119.38	391,755.38	798,949.34	32.074286	-103.501637
14,600.00	90.00	179.50	12,840.00	-1,716.55	-118.51	391,655.38	798,950.22	32.074011	-103.501637

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**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
14,700.00	90.00	179.50	12,840.00	-1,816.55	-117.64	391,555.38	798,951.09	32.073736	-103.501637
14,800.00	90.00	179.50	12,840.00	-1,916.54	-116.77	391,455.39	798,951.96	32.073461	-103.501636
14,900.00	90.00	179.50	12,840.00	-2,016.54	-115.89	391,355.39	798,952.84	32.073186	-103.501636
15,000.00	90.00	179.50	12,840.00	-2,116.54	-115.02	391,255.40	798,953.71	32.072911	-103.501636
15,100.00	90.00	179.50	12,840.00	-2,216.53	-114.15	391,155.40	798,954.58	32.072637	-103.501635
15,200.00	90.00	179.50	12,840.00	-2,316.53	-113.27	391,055.40	798,955.45	32.072362	-103.501635
15,300.00	90.00	179.50	12,840.00	-2,416.53	-112.40	390,955.41	798,956.33	32.072087	-103.501635
15,400.00	90.00	179.50	12,840.00	-2,516.52	-111.53	390,855.41	798,957.20	32.071812	-103.501634
15,500.00	90.00	179.50	12,840.00	-2,616.52	-110.66	390,755.42	798,958.07	32.071537	-103.501634
15,600.00	90.00	179.50	12,840.00	-2,716.51	-109.78	390,655.42	798,958.94	32.071262	-103.501634
15,700.00	90.00	179.50	12,840.00	-2,816.51	-108.91	390,555.42	798,959.82	32.070987	-103.501633
15,800.00	90.00	179.50	12,840.00	-2,916.51	-108.04	390,455.43	798,960.69	32.070712	-103.501633
15,900.00	90.00	179.50	12,840.00	-3,016.50	-107.17	390,355.43	798,961.56	32.070438	-103.501633
16,000.00	90.00	179.50	12,840.00	-3,116.50	-106.29	390,255.44	798,962.43	32.070163	-103.501632
16,100.00	90.00	179.50	12,840.00	-3,216.50	-105.42	390,155.44	798,963.31	32.069888	-103.501632
16,200.00	90.00	179.50	12,840.00	-3,316.49	-104.55	390,055.44	798,964.18	32.069613	-103.501632
16,300.00	90.00	179.50	12,840.00	-3,416.49	-103.68	389,955.45	798,965.05	32.069338	-103.501631
16,400.00	90.00	179.50	12,840.00	-3,516.48	-102.80	389,855.45	798,965.93	32.069063	-103.501631
16,500.00	90.00	179.50	12,840.00	-3,616.48	-101.93	389,755.46	798,966.80	32.068788	-103.501631
16,600.00	90.00	179.50	12,840.00	-3,716.48	-101.06	389,655.46	798,967.67	32.068513	-103.501630
16,700.00	90.00	179.50	12,840.00	-3,816.47	-100.18	389,555.46	798,968.54	32.068239	-103.501630
16,800.00	90.00	179.50	12,840.00	-3,916.47	-99.31	389,455.47	798,969.42	32.067964	-103.501630
16,900.00	90.00	179.50	12,840.00	-4,016.46	-98.44	389,355.47	798,970.29	32.067689	-103.501629
17,000.00	90.00	179.50	12,840.00	-4,116.46	-97.57	389,255.48	798,971.16	32.067414	-103.501629
17,100.00	90.00	179.50	12,840.00	-4,216.46	-96.69	389,155.48	798,972.03	32.067139	-103.501629
17,200.00	90.00	179.50	12,840.00	-4,316.45	-95.82	389,055.48	798,972.91	32.066864	-103.501628
17,300.00	90.00	179.50	12,840.00	-4,416.45	-94.95	388,955.49	798,973.78	32.066589	-103.501628
17,400.00	90.00	179.50	12,840.00	-4,516.45	-94.08	388,855.49	798,974.65	32.066314	-103.501628
17,500.00	90.00	179.50	12,840.00	-4,616.44	-93.20	388,755.50	798,975.52	32.066040	-103.501627
17,600.00	90.00	179.50	12,840.00	-4,716.44	-92.33	388,655.50	798,976.40	32.065765	-103.501627
17,700.00	90.00	179.50	12,840.00	-4,816.43	-91.46	388,555.50	798,977.27	32.065490	-103.501627
17,800.00	90.00	179.50	12,840.00	-4,916.43	-90.59	388,455.51	798,978.14	32.065215	-103.501626
17,900.00	90.00	179.50	12,840.00	-5,016.43	-89.71	388,355.51	798,979.01	32.064940	-103.501626
18,000.00	90.00	179.50	12,840.00	-5,116.42	-88.84	388,255.52	798,979.89	32.064665	-103.501626
18,100.00	90.00	179.50	12,840.00	-5,216.42	-87.97	388,155.52	798,980.76	32.064390	-103.501625
18,200.00	90.00	179.50	12,840.00	-5,316.42	-87.10	388,055.52	798,981.63	32.064115	-103.501625
18,300.00	90.00	179.50	12,840.00	-5,416.41	-86.22	387,955.53	798,982.51	32.063841	-103.501625
18,400.00	90.00	179.50	12,840.00	-5,516.41	-85.35	387,855.53	798,983.38	32.063566	-103.501624
18,500.00	90.00	179.50	12,840.00	-5,616.40	-84.48	387,755.54	798,984.25	32.063291	-103.501624
18,600.00	90.00	179.50	12,840.00	-5,716.40	-83.60	387,655.54	798,985.12	32.063016	-103.501624
18,700.00	90.00	179.50	12,840.00	-5,816.40	-82.73	387,555.54	798,986.00	32.062741	-103.501623
18,800.00	90.00	179.50	12,840.00	-5,916.39	-81.86	387,455.55	798,986.87	32.062466	-103.501623
18,900.00	90.00	179.50	12,840.00	-6,016.39	-80.99	387,355.55	798,987.74	32.062191	-103.501623
19,000.00	90.00	179.50	12,840.00	-6,116.38	-80.11	387,255.56	798,988.61	32.061916	-103.501622
19,100.00	90.00	179.50	12,840.00	-6,216.38	-79.24	387,155.56	798,989.49	32.061642	-103.501622
19,200.00	90.00	179.50	12,840.00	-6,316.38	-78.37	387,055.56	798,990.36	32.061367	-103.501622
19,300.00	90.00	179.50	12,840.00	-6,416.37	-77.50	386,955.57	798,991.23	32.061092	-103.501621
19,400.00	90.00	179.50	12,840.00	-6,516.37	-76.62	386,855.57	798,992.10	32.060817	-103.501621
19,500.00	90.00	179.50	12,840.00	-6,616.37	-75.75	386,755.58	798,992.98	32.060542	-103.501621
19,600.00	90.00	179.50	12,840.00	-6,716.36	-74.88	386,655.58	798,993.85	32.060267	-103.501620
19,700.00	90.00	179.50	12,840.00	-6,816.36	-74.01	386,555.58	798,994.72	32.059992	-103.501620
19,800.00	90.00	179.50	12,840.00	-6,916.35	-73.13	386,455.59	798,995.60	32.059717	-103.501620
19,900.00	90.00	179.50	12,840.00	-7,016.35	-72.26	386,355.59	798,996.47	32.059443	-103.501619
20,000.00	90.00	179.50	12,840.00	-7,116.35	-71.39	386,255.60	798,997.34	32.059168	-103.501619
20,100.00	90.00	179.50	12,840.00	-7,216.34	-70.51	386,155.60	798,998.21	32.058893	-103.501619

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,200.00	90.00	179.50	12,840.00	-7,316.34	-69.64	386,055.60	798,999.09	32.058618	-103.501618
20,300.00	90.00	179.50	12,840.00	-7,416.34	-68.77	385,955.61	798,999.96	32.058343	-103.501618
20,400.00	90.00	179.50	12,840.00	-7,516.33	-67.90	385,855.61	799,000.83	32.058068	-103.501618
20,500.00	90.00	179.50	12,840.00	-7,616.33	-67.02	385,755.62	799,001.70	32.057793	-103.501617
20,600.00	90.00	179.50	12,840.00	-7,716.32	-66.15	385,655.62	799,002.58	32.057518	-103.501617
20,700.00	90.00	179.50	12,840.00	-7,816.32	-65.28	385,555.62	799,003.45	32.057244	-103.501617
20,800.00	90.00	179.50	12,840.00	-7,916.32	-64.41	385,455.63	799,004.32	32.056969	-103.501616
20,900.00	90.00	179.50	12,840.00	-8,016.31	-63.53	385,355.63	799,005.19	32.056694	-103.501616
21,000.00	90.00	179.50	12,840.00	-8,116.31	-62.66	385,255.64	799,006.07	32.056419	-103.501616
21,100.00	90.00	179.50	12,840.00	-8,216.30	-61.79	385,155.64	799,006.94	32.056144	-103.501615
21,200.00	90.00	179.50	12,840.00	-8,316.30	-60.92	385,055.64	799,007.81	32.055869	-103.501615
21,300.00	90.00	179.50	12,840.00	-8,416.30	-60.04	384,955.65	799,008.69	32.055594	-103.501615
21,400.00	90.00	179.50	12,840.00	-8,516.29	-59.17	384,855.65	799,009.56	32.055319	-103.501614
21,500.00	90.00	179.50	12,840.00	-8,616.29	-58.30	384,755.66	799,010.43	32.055045	-103.501614
21,600.00	90.00	179.50	12,840.00	-8,716.29	-57.42	384,655.66	799,011.30	32.054770	-103.501614
21,700.00	90.00	179.50	12,840.00	-8,816.28	-56.55	384,555.66	799,012.18	32.054495	-103.501614
21,800.00	90.00	179.50	12,840.00	-8,916.28	-55.68	384,455.67	799,013.05	32.054220	-103.501613
21,900.00	90.00	179.50	12,840.00	-9,016.27	-54.81	384,355.67	799,013.92	32.053945	-103.501613
22,000.00	90.00	179.50	12,840.00	-9,116.27	-53.93	384,255.68	799,014.79	32.053670	-103.501613
22,100.00	90.00	179.50	12,840.00	-9,216.27	-53.06	384,155.68	799,015.67	32.053395	-103.501612
22,200.00	90.00	179.50	12,840.00	-9,316.26	-52.19	384,055.68	799,016.54	32.053120	-103.501612
22,300.00	90.00	179.50	12,840.00	-9,416.26	-51.32	383,955.69	799,017.41	32.052846	-103.501612
22,400.00	90.00	179.50	12,840.00	-9,516.26	-50.44	383,855.69	799,018.28	32.052571	-103.501611
22,500.00	90.00	179.50	12,840.00	-9,616.25	-49.57	383,755.70	799,019.16	32.052296	-103.501611
22,600.00	90.00	179.50	12,840.00	-9,716.25	-48.70	383,655.70	799,020.03	32.052021	-103.501611
22,700.00	90.00	179.50	12,840.00	-9,816.24	-47.83	383,555.70	799,020.90	32.051746	-103.501610
22,750.85	90.00	179.50	12,840.00	-9,867.09	-47.38	383,504.86	799,021.35	32.051606	-103.501610
PBHL; 330' FSL, 360' FEL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Jayhawk FED FE	0.00	0.00	0.00	-9,867.10	-46.62	383,504.85	799,022.11	32.051606	-103.501608
- plan misses target center by 9867.21ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Vertical Point - Jayhwak	0.00	0.00	8,300.00	315.20	17.30	393,687.12	799,086.03	32.079593	-103.501148
- plan hits target center									
- Point									

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 06-T26S-R34E	**North Reference:**	Grid
Well:	Jayhawk FED FEE COM 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
5,000.00	5,000.00	0.00	0.00	Begin Nudge
5,508.59	5,507.55	28.14	1.55	EOB
7,892.75	7,877.05	291.74	16.02	EOH
8,316.57	8,300.00	315.20	17.30	Drop to Vertical
11,956.57	11,940.00	315.20	17.30	KOP @ 11957' MD, 50' FNL, 213' FEL
12,074.72	12,057.31	321.02	6.66	EOB @ 298.68° TF
12,877.61	12,730.95	-15.00	-113.44	1st Take Point @ 12878' MD, 330' FNL, 343' FEL
13,283.40	12,840.00	-400.00	-130.00	Land Point
22,750.85	12,840.00	-9,867.09	-47.38	PBHL; 330' FSL, 360' FEL

WCDSC Permian NM

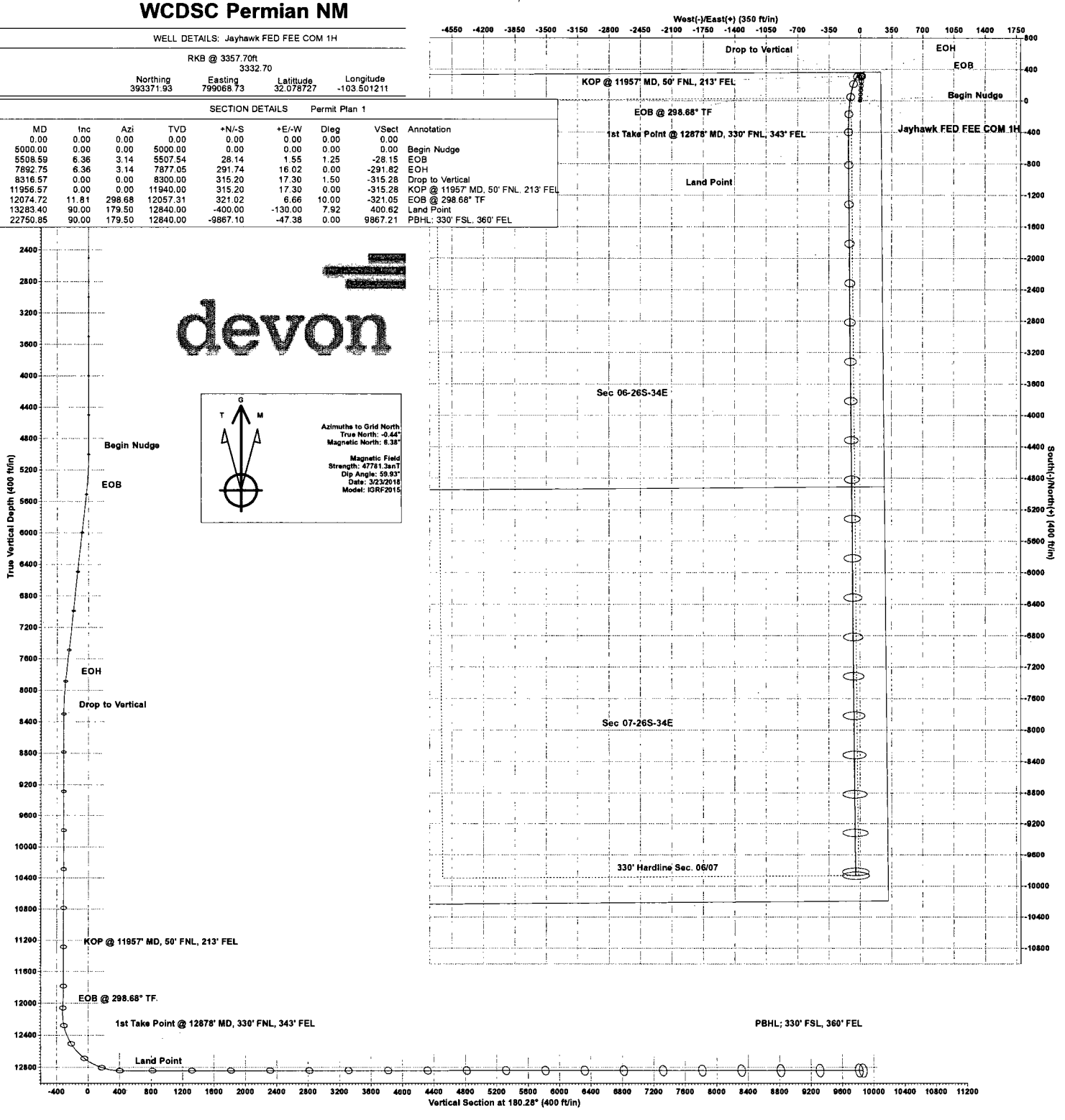
WELL DETAILS: Jayhawk FED FEE COM 1H

RKB @ 3357.70ft
3332.70

Northing	Easting	Latitude	Longitude
393371.93	799068.73	32.078727	-103.501211

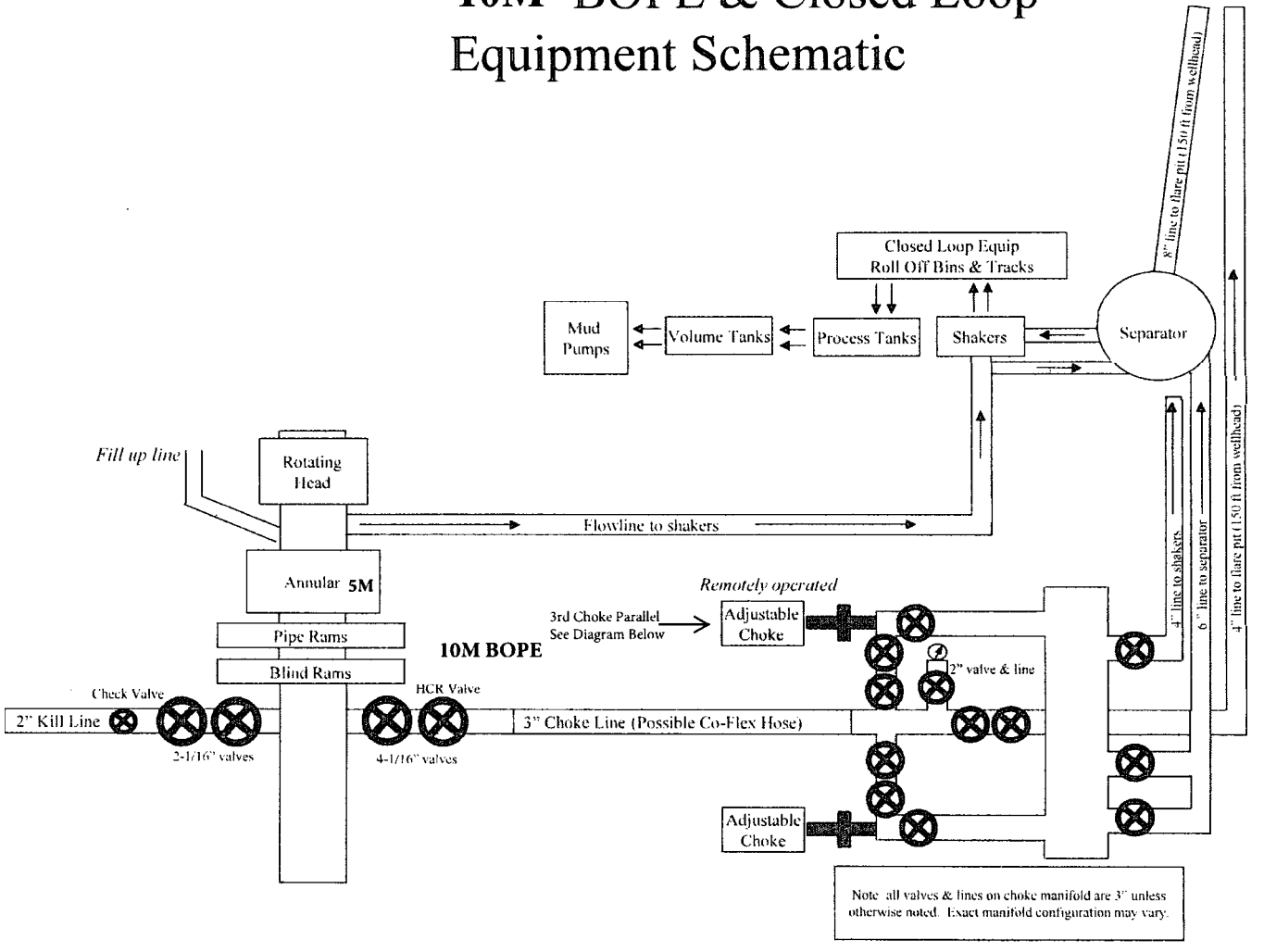
SECTION DETAILS Permit Plan 1

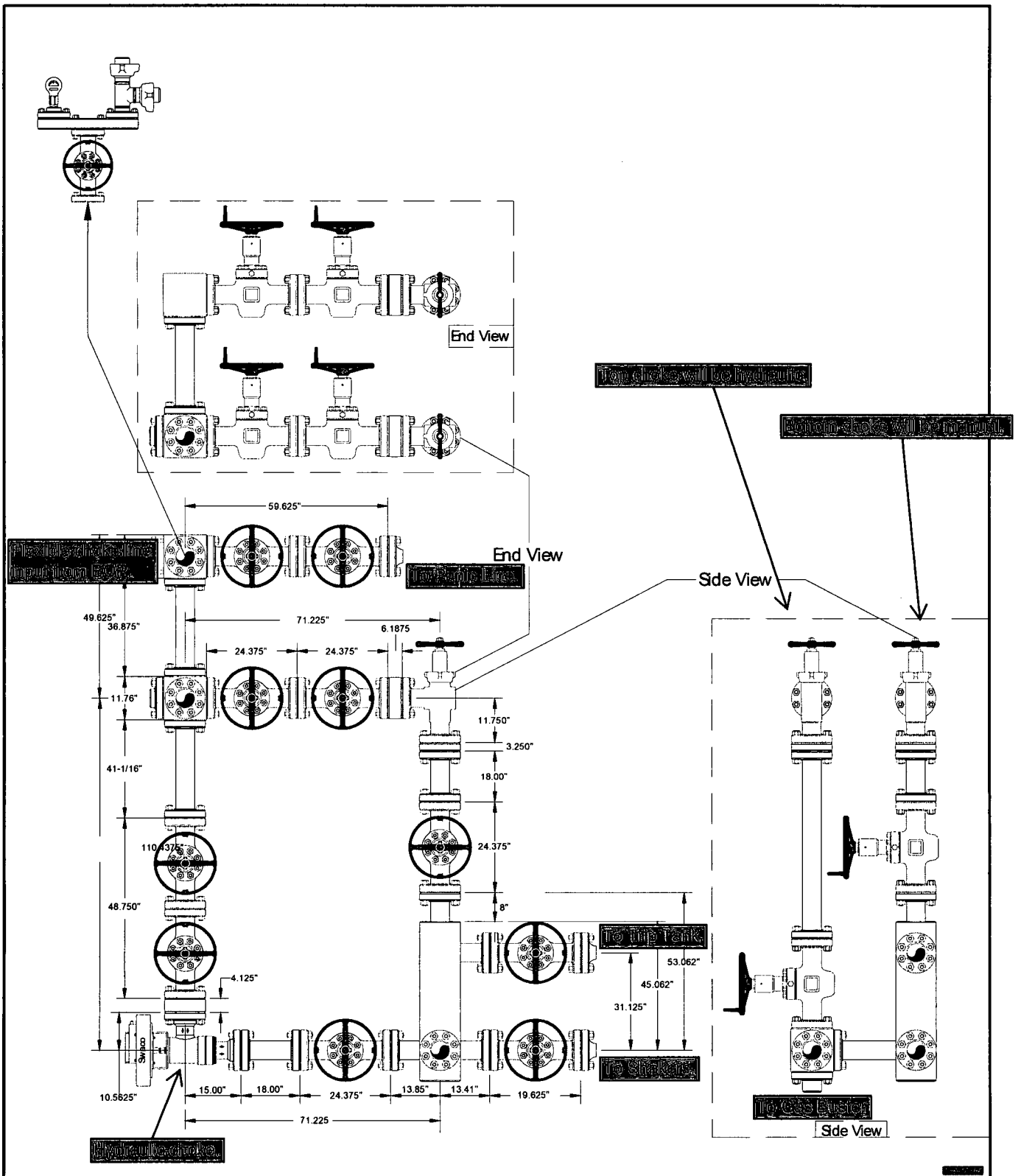
	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	Begin Nudge
	5508.59	6.36	3.14	5507.54	28.14	1.55	1.25	-28.15	EOB
	7892.75	6.36	3.14	7877.05	291.74	16.02	0.00	-291.82	EOH
5	8316.57	0.00	0.00	8300.00	315.20	17.30	1.50	-315.28	Drop to Vertical
6	11956.57	0.00	0.00	11940.00	315.20	17.30	0.00	-315.28	KOP @ 11957' MD, 50' FNL, 213' FEL
7	12074.72	11.81	298.68	12057.31	321.02	6.66	10.00	-321.05	EOB @ 298.68° TF
8	13283.40	90.00	179.50	12840.00	-400.00	-130.00	7.92	400.62	Land Point
9	22750.85	90.00	179.50	12840.00	-9867.10	-47.38	0.00	9867.21	PBHL; 330' FSL, 360' FEL



devon

10M BOPE & Closed Loop Equipment Schematic





Helmerich & Payne

Flex 3 Rig w/ 3 Chokes

devon

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

WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 06-T26S-R34E
Jayhawk FED FEE COM 1H

Wellbore #1
Permit Plan 1

Anticollision Report

23 March, 2018

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 100.00ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.00 ft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 3/23/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	22,750.61	Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Sec 06-T26S-R34E						
Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit P	2,700.00	2,699.10	30.00	11.07	1.585	Minor Risk, CC
Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit P	2,800.00	2,798.87	30.38	10.73	1.546	Minor Risk, ES
Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit P	22,750.85	22,587.48	199.10	30.95	1.184	Major Risk, SF
Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit P	4,000.00	3,998.20	59.98	31.74	2.124	Minor Risk, CC, ES
Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit P	22,750.85	22,590.98	667.95	325.06	1.948	Minor Risk, SF
Jayhawk 6-7 FED FEE COM 4H - Wellbore #1 - Permit P	2,700.00	2,694.90	335.22	316.30	17.720	CC, ES
Jayhawk 6-7 FED FEE COM 4H - Wellbore #1 - Permit P	3,500.00	3,455.33	388.41	364.07	15.958	SF
Jayhawk 6-7 FED FEE COM 5H - Wellbore #1 - Permit P	5,010.68	5,011.52	149.95	114.45	4.225	Alert, CC
Jayhawk 6-7 FED FEE COM 5H - Wellbore #1 - Permit P	5,700.00	5,716.70	152.70	112.39	3.788	Alert, ES
Jayhawk 6-7 FED FEE COM 5H - Wellbore #1 - Permit P	10,300.00	10,300.00	212.16	138.41	2.877	Alert, SF
NE Salado Draw Deep Unit 1 / INC / AUD - Original Hole						Out of range
Salado Draw 6 Fed 1H - Original Hole - Actual						Out of range
Salado Draw 6 Fed 2H - Original Hole - BRN						Out of range
Salado Draw 6 Fed 2H - Original Hole - Original Hole						Out of range
Salado Draw 6 Fed 2H - Original Hole - Plan 4						Out of range
Salado Draw 6 Fed 2H - Original Hole - Plan 5						Out of range
Salado Draw 6 Fed 2H - Original Hole - Plan 6						Out of range
Salado Draw 6 Fed 2H - Original Hole - Plan 7						Out of range
Salado Draw 6 Fed 2H - Original Hole - Plan 8						Out of range
Salado Draw 6 Fed 2H - Original Hole - T&D						Out of range
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

Offset Design Sec 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit Plan 1

Offset Site Error: 5.00 ft

Survey Program: 0-MWD+HDGM

Offset Well Error: 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.90	-0.90	0.50	0.50	-90.40	-0.21	-30.00	30.00				
100.00	100.00	100.90	99.10	0.52	0.52	-90.40	-0.21	-30.00	30.00	28.96	1.04	28.948	
200.00	200.00	200.90	199.10	0.70	0.70	-90.40	-0.21	-30.00	30.00	28.59	1.41	21.330	
300.00	300.00	300.90	299.10	0.99	0.99	-90.40	-0.21	-30.00	30.00	28.02	1.98	15.171	
400.00	400.00	400.90	399.10	1.31	1.31	-90.40	-0.21	-30.00	30.00	27.38	2.62	11.446	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
500.00	500.00	500.90	499.10	1.65	1.65	-90.40	-0.21	-30.00	30.00	26.71	3.30	9.104	
600.00	600.00	600.90	599.10	1.99	1.99	-90.40	-0.21	-30.00	30.00	26.02	3.98	7.530	
700.00	700.00	700.90	699.10	2.34	2.34	-90.40	-0.21	-30.00	30.00	25.32	4.68	6.408	
800.00	800.00	800.90	799.10	2.69	2.69	-90.40	-0.21	-30.00	30.00	24.62	5.38	5.572	
900.00	900.00	900.90	899.10	3.04	3.05	-90.40	-0.21	-30.00	30.00	23.91	6.09	4.926	Alert
1,000.00	1,000.00	1,000.90	999.10	3.40	3.40	-90.40	-0.21	-30.00	30.00	23.20	6.80	4.413	Alert
1,100.00	1,100.00	1,100.90	1,099.10	3.75	3.76	-90.40	-0.21	-30.00	30.00	22.49	7.51	3.996	Alert
1,200.00	1,200.00	1,200.90	1,199.10	4.11	4.11	-90.40	-0.21	-30.00	30.00	21.78	8.22	3.650	Alert
1,300.00	1,300.00	1,300.90	1,299.10	4.46	4.47	-90.40	-0.21	-30.00	30.00	21.07	8.93	3.359	Alert
1,400.00	1,400.00	1,400.90	1,399.10	4.82	4.82	-90.40	-0.21	-30.00	30.00	20.36	9.64	3.111	Alert
1,500.00	1,500.00	1,500.90	1,499.10	5.18	5.18	-90.40	-0.21	-30.00	30.00	19.64	10.36	2.896	Alert
1,600.00	1,600.00	1,600.90	1,599.10	5.53	5.54	-90.40	-0.21	-30.00	30.00	18.93	11.07	2.710	Alert
1,700.00	1,700.00	1,700.90	1,699.10	5.89	5.89	-90.40	-0.21	-30.00	30.00	18.22	11.79	2.546	Alert
1,800.00	1,800.00	1,800.90	1,799.10	6.25	6.25	-90.40	-0.21	-30.00	30.00	17.50	12.50	2.400	Minor Risk
1,900.00	1,900.00	1,900.90	1,899.10	6.61	6.61	-90.40	-0.21	-30.00	30.00	16.79	13.21	2.270	Minor Risk
2,000.00	2,000.00	2,000.90	1,999.10	6.96	6.97	-90.40	-0.21	-30.00	30.00	16.07	13.93	2.154	Minor Risk
2,100.00	2,100.00	2,100.90	2,099.10	7.32	7.32	-90.40	-0.21	-30.00	30.00	15.36	14.65	2.049	Minor Risk
2,200.00	2,200.00	2,200.90	2,199.10	7.68	7.68	-90.40	-0.21	-30.00	30.00	14.64	15.36	1.953	Minor Risk
2,300.00	2,300.00	2,300.90	2,299.10	8.04	8.04	-90.40	-0.21	-30.00	30.00	13.92	16.08	1.866	Minor Risk
2,400.00	2,400.00	2,400.90	2,399.10	8.39	8.40	-90.40	-0.21	-30.00	30.00	13.21	16.79	1.787	Minor Risk
2,500.00	2,500.00	2,500.90	2,499.10	8.75	8.76	-90.40	-0.21	-30.00	30.00	12.49	17.51	1.714	Minor Risk
2,600.00	2,600.00	2,600.90	2,599.10	9.11	9.11	-90.40	-0.21	-30.00	30.00	11.78	18.22	1.646	Minor Risk
2,700.00	2,700.00	2,699.10	2,699.10	9.47	9.46	-90.40	-0.21	-30.00	30.00	11.07	18.93	1.585	Minor Risk, CC
2,800.00	2,800.00	2,798.87	2,798.86	9.83	9.82	-88.95	0.56	-30.37	30.38	10.73	19.65	1.546	Minor Risk, ES
2,900.00	2,900.00	2,898.57	2,898.53	10.18	10.18	-84.77	2.88	-31.50	31.64	11.28	20.36	1.554	Minor Risk
3,000.00	3,000.00	2,998.16	2,998.02	10.54	10.53	-78.54	6.77	-33.39	34.08	13.02	21.06	1.618	Minor Risk
3,100.00	3,100.00	3,102.35	3,097.34	10.90	10.90	-71.33	12.17	-36.01	38.05	16.27	21.78	1.747	Minor Risk
3,200.00	3,200.00	3,202.57	3,196.90	11.26	11.26	-65.05	18.09	-38.89	42.95	20.46	22.49	1.910	Minor Risk
3,300.00	3,300.00	3,302.78	3,296.47	11.62	11.62	-60.11	24.01	-41.77	48.25	25.05	23.20	2.079	Minor Risk
3,400.00	3,400.00	3,397.00	3,396.03	11.97	11.96	-56.16	29.93	-44.64	53.84	29.94	23.89	2.253	Minor Risk
3,500.00	3,500.00	3,503.22	3,495.59	12.33	12.34	-52.97	35.85	-47.52	59.63	35.00	24.63	2.421	Minor Risk
3,600.00	3,600.00	3,603.44	3,595.16	12.69	12.70	-50.34	41.78	-50.40	65.58	40.24	25.34	2.588	Alert
3,700.00	3,700.00	3,703.65	3,694.72	13.05	13.06	-48.16	47.70	-53.27	71.64	45.58	26.06	2.749	Alert
3,800.00	3,800.00	3,803.87	3,794.29	13.41	13.42	-46.32	53.62	-56.15	77.79	51.01	26.77	2.905	Alert
3,900.00	3,900.00	3,904.09	3,893.85	13.77	13.78	-44.75	59.54	-59.03	84.00	56.52	27.49	3.056	Alert
4,000.00	4,000.00	4,004.31	3,993.42	14.12	14.14	-43.40	65.46	-61.90	90.28	62.07	28.21	3.201	Alert
4,100.00	4,100.00	4,104.53	4,092.98	14.48	14.50	-42.22	71.38	-64.78	96.59	67.67	28.92	3.340	Alert
4,200.00	4,200.00	4,195.26	4,192.55	14.84	14.83	-41.19	77.30	-67.66	102.94	73.34	29.60	3.477	Alert
4,300.00	4,300.00	4,304.96	4,292.11	15.20	15.23	-40.28	83.23	-70.53	109.32	78.96	30.36	3.601	Alert
4,400.00	4,400.00	4,405.18	4,391.68	15.56	15.59	-39.47	89.15	-73.41	115.72	84.65	31.07	3.724	Alert
4,500.00	4,500.00	4,505.40	4,491.24	15.92	15.95	-38.74	95.07	-76.29	122.15	90.36	31.79	3.842	Alert
4,600.00	4,600.00	4,605.62	4,590.81	16.27	16.32	-38.09	100.99	-79.16	128.59	96.08	32.51	3.956	Alert
4,700.00	4,700.00	4,705.83	4,690.37	16.63	16.68	-37.50	106.91	-82.04	135.05	101.82	33.22	4.065	Alert
4,800.00	4,800.00	4,793.95	4,789.94	16.99	17.00	-36.96	112.83	-84.92	141.52	107.62	33.90	4.175	Alert
4,900.00	4,900.00	4,906.27	4,889.50	17.35	17.41	-36.48	118.76	-87.79	148.00	113.34	34.66	4.270	Alert
5,000.00	5,000.00	5,006.49	4,989.07	17.71	17.77	-36.03	124.68	-90.67	154.49	119.11	35.38	4.367	Alert
5,100.00	5,099.99	5,106.65	5,088.68	18.06	18.14	-38.96	130.60	-93.55	160.14	124.04	36.10	4.437	Alert
5,200.00	5,199.94	5,206.73	5,188.38	18.42	18.50	-39.25	136.53	-96.43	164.10	127.29	36.81	4.458	Alert
5,300.00	5,299.79	5,306.79	5,288.11	18.78	18.87	-40.01	142.46	-99.31	166.39	128.86	37.53	4.434	Alert
5,400.00	5,399.49	5,406.86	5,387.82	19.14	19.23	-41.26	148.39	-102.19	167.07	128.82	38.25	4.368	Alert
5,500.00	5,499.01	5,506.99	5,487.47	19.49	19.59	-43.01	154.32	-105.07	166.22	127.25	38.96	4.266	Alert
5,600.00	5,598.40	5,592.81	5,587.06	19.85	19.91	-45.09	160.24	-107.95	164.63	125.00	39.63	4.154	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,700.00	5,697.78	5,707.38	5,686.65	20.20	20.32	-47.20	166.17	-110.83	163.25	122.85	40.40	4.041	Alert
5,800.00	5,797.17	5,807.57	5,786.24	20.56	20.69	-49.34	172.09	-113.70	162.10	120.98	41.12	3.942	Alert
5,900.00	5,896.55	5,907.77	5,885.83	20.92	21.06	-51.52	178.01	-116.58	161.18	119.34	41.84	3.852	Alert
6,000.00	5,995.94	5,992.04	5,985.42	21.28	21.36	-53.71	183.93	-119.46	160.50	117.99	42.51	3.776	Alert
6,100.00	6,095.32	6,108.15	6,085.01	21.64	21.79	-55.92	189.86	-122.34	160.05	116.76	43.29	3.697	Alert
6,200.00	6,194.71	6,208.34	6,184.60	22.00	22.15	-58.14	195.78	-125.21	159.84	115.83	44.02	3.632	Alert
6,235.50	6,229.99	6,227.09	6,219.96	22.13	22.22	-58.93	197.88	-126.24	159.83	115.62	44.21	3.615	Alert
6,300.00	6,294.09	6,308.54	6,284.19	22.37	22.52	-60.36	201.70	-128.09	159.88	115.14	44.74	3.573	Alert
6,400.00	6,393.48	6,408.73	6,383.78	22.73	22.88	-62.57	207.63	-130.97	160.16	114.68	45.47	3.522	Alert
6,500.00	6,492.86	6,491.08	6,483.37	23.09	23.18	-64.78	213.55	-133.85	160.67	114.53	46.14	3.482	Alert
6,600.00	6,592.25	6,609.12	6,582.96	23.46	23.62	-66.97	219.47	-136.72	161.42	114.49	46.94	3.439	Alert
6,700.00	6,691.63	6,709.31	6,682.55	23.82	23.98	-69.13	225.40	-139.60	162.41	114.74	47.67	3.407	Alert
6,800.00	6,791.02	6,809.50	6,782.14	24.19	24.35	-71.27	231.32	-142.48	163.63	115.22	48.40	3.380	Alert
6,900.00	6,890.40	6,909.69	6,881.73	24.56	24.71	-73.37	237.24	-145.36	165.07	115.93	49.14	3.359	Alert
7,000.00	6,989.79	7,009.89	6,981.32	24.92	25.08	-75.43	243.17	-148.23	166.73	116.85	49.88	3.343	Alert
7,100.00	7,089.17	7,089.92	7,080.91	25.29	25.37	-77.45	249.09	-151.11	168.60	118.06	50.54	3.336	Alert
7,200.00	7,188.56	7,189.73	7,180.49	25.66	25.74	-79.42	255.01	-153.99	170.68	119.40	51.28	3.328	Alert
7,300.00	7,287.94	7,289.54	7,280.08	26.03	26.10	-81.35	260.93	-156.87	172.95	120.93	52.02	3.325	Alert
7,400.00	7,387.33	7,389.34	7,379.67	26.40	26.47	-83.22	266.86	-159.74	175.42	122.66	52.76	3.325	Alert
7,500.00	7,486.71	7,489.15	7,479.26	26.77	26.83	-85.04	272.78	-162.62	178.06	124.57	53.50	3.329	Alert
7,600.00	7,586.10	7,588.96	7,578.85	27.14	27.20	-86.80	278.70	-165.50	180.89	126.65	54.24	3.335	Alert
7,700.00	7,685.48	7,688.76	7,678.44	27.51	27.56	-88.51	284.63	-168.38	183.87	128.90	54.98	3.345	Alert
7,800.00	7,784.87	7,788.57	7,778.03	27.88	27.93	-90.16	290.55	-171.25	187.02	131.30	55.72	3.357	Alert
7,900.00	7,884.25	7,888.38	7,877.62	28.25	28.30	-91.76	296.47	-174.13	190.32	133.86	56.46	3.371	Alert
8,000.00	7,983.79	7,988.25	7,977.28	28.62	28.66	-92.91	302.40	-177.01	193.68	136.48	57.20	3.386	Alert
8,100.00	8,083.54	8,088.86	8,077.67	28.98	29.03	-93.29	308.27	-179.86	196.89	138.96	57.93	3.399	Alert
8,200.00	8,183.45	8,191.13	8,179.84	29.34	29.40	-93.41	312.39	-181.86	199.09	140.42	58.67	3.393	Alert
8,300.00	8,283.43	8,293.43	8,282.12	29.70	29.76	-93.46	314.05	-182.67	199.98	140.59	59.39	3.367	Alert
8,400.00	8,383.43	8,406.16	8,382.53	30.06	30.16	-90.32	314.09	-182.69	200.00	139.85	60.14	3.325	Alert
8,500.00	8,483.43	8,506.16	8,482.53	30.41	30.52	-90.32	314.09	-182.69	200.00	139.14	60.85	3.287	Alert
8,600.00	8,583.43	8,606.16	8,582.53	30.77	30.87	-90.32	314.09	-182.69	200.00	138.44	61.56	3.249	Alert
8,700.00	8,683.43	8,706.16	8,682.53	31.12	31.22	-90.32	314.09	-182.69	200.00	137.73	62.27	3.212	Alert
8,800.00	8,783.43	8,806.16	8,782.53	31.48	31.58	-90.32	314.09	-182.69	200.00	137.02	62.98	3.176	Alert
8,900.00	8,883.43	8,906.16	8,882.53	31.83	31.93	-90.32	314.09	-182.69	200.00	136.31	63.69	3.140	Alert
9,000.00	8,983.43	9,006.16	8,982.53	32.19	32.28	-90.32	314.09	-182.69	200.00	135.60	64.40	3.106	Alert
9,100.00	9,083.43	9,106.16	9,082.53	32.54	32.64	-90.32	314.09	-182.69	200.00	134.89	65.11	3.072	Alert
9,200.00	9,183.43	9,206.16	9,182.53	32.90	32.99	-90.32	314.09	-182.69	200.00	134.18	65.82	3.039	Alert
9,300.00	9,283.43	9,306.16	9,282.53	33.25	33.35	-90.32	314.09	-182.69	200.00	133.47	66.53	3.006	Alert
9,400.00	9,383.43	9,406.16	9,382.53	33.61	33.70	-90.32	314.09	-182.69	200.00	132.76	67.23	2.975	Alert
9,500.00	9,483.43	9,506.16	9,482.53	33.96	34.06	-90.32	314.09	-182.69	200.00	132.05	67.94	2.944	Alert
9,600.00	9,583.43	9,606.16	9,582.53	34.32	34.41	-90.32	314.09	-182.69	200.00	131.34	68.65	2.913	Alert
9,700.00	9,683.43	9,706.16	9,682.53	34.67	34.76	-90.32	314.09	-182.69	200.00	130.63	69.37	2.883	Alert
9,800.00	9,783.43	9,806.16	9,782.53	35.03	35.12	-90.32	314.09	-182.69	200.00	129.92	70.08	2.854	Alert
9,900.00	9,883.43	9,906.16	9,882.53	35.38	35.47	-90.32	314.09	-182.69	200.00	129.21	70.79	2.825	Alert
10,000.00	9,983.43	10,006.16	9,982.53	35.74	35.83	-90.32	314.09	-182.69	200.00	128.50	71.50	2.797	Alert
10,100.00	10,083.43	10,106.16	10,082.53	36.10	36.18	-90.32	314.09	-182.69	200.00	127.79	72.21	2.770	Alert
10,200.00	10,183.43	10,206.16	10,182.53	36.45	36.54	-90.32	314.09	-182.69	200.00	127.08	72.92	2.743	Alert
10,300.00	10,283.43	10,306.16	10,282.53	36.81	36.89	-90.32	314.09	-182.69	200.00	126.37	73.63	2.716	Alert
10,400.00	10,383.43	10,406.16	10,382.53	37.16	37.25	-90.32	314.09	-182.69	200.00	125.66	74.34	2.690	Alert
10,500.00	10,483.43	10,506.16	10,482.53	37.52	37.60	-90.32	314.09	-182.69	200.00	124.95	75.05	2.665	Alert
10,600.00	10,583.43	10,606.16	10,582.53	37.87	37.96	-90.32	314.09	-182.69	200.00	124.24	75.76	2.640	Alert
10,700.00	10,683.43	10,706.16	10,682.53	38.23	38.31	-90.32	314.09	-182.69	200.00	123.52	76.47	2.615	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,800.00	10,783.43	10,806.16	10,782.53	38.59	38.67	-90.32	314.09	-182.69	200.00	122.81	77.19	2.591	Alert
10,900.00	10,883.43	10,906.16	10,882.53	38.94	39.02	-90.32	314.09	-182.69	200.00	122.10	77.90	2.567	Alert
11,000.00	10,983.43	11,006.16	10,982.53	39.30	39.38	-90.32	314.09	-182.69	200.00	121.39	78.61	2.544	Alert
11,100.00	11,083.43	11,106.16	11,082.53	39.65	39.74	-90.32	314.09	-182.69	200.00	120.68	79.32	2.521	Alert
11,200.00	11,183.43	11,206.16	11,182.53	40.01	40.09	-90.32	314.09	-182.69	200.00	119.97	80.03	2.499	Minor Risk
11,300.00	11,283.43	11,306.16	11,282.53	40.37	40.45	-90.32	314.09	-182.69	200.00	119.25	80.74	2.477	Minor Risk
11,400.00	11,383.43	11,406.16	11,382.53	40.72	40.80	-90.32	314.09	-182.69	200.00	118.54	81.46	2.455	Minor Risk
11,500.00	11,483.43	11,506.16	11,482.53	41.08	41.16	-90.32	314.09	-182.69	200.00	117.83	82.17	2.434	Minor Risk
11,600.00	11,583.43	11,606.16	11,582.53	41.44	41.51	-90.32	314.09	-182.69	200.00	117.12	82.88	2.413	Minor Risk
11,700.00	11,683.43	11,706.16	11,682.53	41.79	41.87	-90.32	314.09	-182.69	200.00	116.40	83.59	2.393	Minor Risk
11,800.00	11,783.43	11,806.16	11,782.53	42.15	42.22	-90.32	314.09	-182.69	200.00	115.69	84.31	2.372	Minor Risk
11,900.00	11,883.43	11,906.16	11,882.53	42.51	42.58	-90.32	314.09	-182.69	200.00	114.98	85.02	2.352	Minor Risk
12,000.00	11,983.39	12,006.20	11,982.49	42.86	42.94	-29.30	314.09	-182.69	198.56	112.83	85.73	2.316	Minor Risk
12,100.00	12,082.09	12,092.34	12,081.03	43.21	43.24	-22.63	313.92	-182.69	185.03	98.64	86.39	2.142	Minor Risk
12,200.00	12,180.39	12,188.23	12,176.25	43.54	43.54	16.46	303.59	-182.55	167.82	80.80	87.01	1.929	Minor Risk
12,300.00	12,277.69	12,282.00	12,266.43	43.84	43.80	39.60	278.28	-182.21	152.06	64.59	87.47	1.738	Minor Risk
12,400.00	12,372.14	12,373.45	12,349.26	44.11	44.03	46.68	239.77	-181.70	139.09	51.68	87.41	1.591	Minor Risk
12,500.00	12,461.94	12,462.46	12,423.02	44.36	44.22	45.80	190.10	-181.03	130.40	44.26	86.15	1.514	Minor Risk
12,600.00	12,545.38	12,549.03	12,486.54	44.60	44.38	40.93	131.41	-180.25	127.26	44.29	82.97	1.534	Minor Risk
12,601.84	12,546.85	12,550.60	12,487.61	44.60	44.38	40.82	130.26	-180.23	127.26	44.37	82.89	1.535	Minor Risk
12,700.00	12,620.86	12,633.20	12,539.15	44.82	44.52	34.48	65.80	-179.37	130.17	52.30	77.87	1.672	Minor Risk
12,800.00	12,686.95	12,715.07	12,580.56	45.04	44.66	28.07	-4.72	-178.43	138.58	66.73	71.85	1.929	Minor Risk
12,900.00	12,742.37	12,794.75	12,610.83	45.24	44.79	22.61	-78.35	-177.45	151.24	84.93	66.31	2.281	Minor Risk
13,000.00	12,786.09	12,872.36	12,630.22	45.44	44.91	18.37	-153.44	-176.44	166.73	104.48	62.25	2.678	Alert
13,100.00	12,817.25	12,950.00	12,639.30	45.65	45.03	15.19	-230.48	-175.41	183.83	123.68	60.16	3.056	Alert
13,200.00	12,835.28	13,036.92	12,640.00	45.85	45.18	12.93	-317.38	-174.25	199.38	139.79	59.59	3.346	Alert
13,300.00	12,840.00	13,136.73	12,640.00	46.05	45.38	12.20	-417.18	-172.92	203.71	144.05	59.66	3.414	Alert
13,400.00	12,840.00	13,236.73	12,640.00	46.28	45.63	12.08	-517.17	-171.58	203.61	143.68	59.93	3.397	Alert
13,500.00	12,840.00	13,336.73	12,640.00	46.56	45.92	11.95	-617.16	-170.24	203.51	143.26	60.25	3.378	Alert
13,600.00	12,840.00	13,436.72	12,640.00	46.88	46.26	11.82	-717.15	-168.91	203.42	142.81	60.60	3.356	Alert
13,700.00	12,840.00	13,536.72	12,640.00	47.24	46.64	11.69	-817.14	-167.57	203.32	142.32	61.00	3.333	Alert
13,800.00	12,840.00	13,636.72	12,640.00	47.64	47.06	11.57	-917.13	-166.24	203.23	141.79	61.44	3.308	Alert
13,900.00	12,840.00	13,736.72	12,640.00	48.08	47.53	11.44	-1,017.12	-164.90	203.14	141.21	61.92	3.281	Alert
14,000.00	12,840.00	13,836.72	12,640.00	48.57	48.03	11.31	-1,117.11	-163.56	203.04	140.61	62.44	3.252	Alert
14,100.00	12,840.00	13,936.72	12,640.00	49.09	48.57	11.18	-1,217.10	-162.23	202.95	139.96	62.99	3.222	Alert
14,200.00	12,840.00	14,036.72	12,640.00	49.65	49.15	11.05	-1,317.09	-160.89	202.86	139.28	63.58	3.191	Alert
14,300.00	12,840.00	14,136.72	12,640.00	50.24	49.76	10.92	-1,417.08	-159.55	202.78	138.57	64.20	3.158	Alert
14,400.00	12,840.00	14,236.72	12,640.00	50.87	50.41	10.80	-1,517.07	-158.22	202.69	137.83	64.86	3.125	Alert
14,500.00	12,840.00	14,336.71	12,640.00	51.53	51.09	10.67	-1,617.06	-156.88	202.60	137.05	65.55	3.091	Alert
14,600.00	12,840.00	14,436.71	12,640.00	52.23	51.80	10.54	-1,717.05	-155.54	202.52	136.25	66.27	3.056	Alert
14,700.00	12,840.00	14,536.71	12,640.00	52.95	52.55	10.41	-1,817.04	-154.21	202.43	135.41	67.02	3.020	Alert
14,800.00	12,840.00	14,636.71	12,640.00	53.71	53.32	10.28	-1,917.03	-152.87	202.35	134.55	67.80	2.985	Alert
14,900.00	12,840.00	14,736.71	12,640.00	54.49	54.12	10.15	-2,017.02	-151.54	202.27	133.66	68.60	2.948	Alert
15,000.00	12,840.00	14,836.71	12,640.00	55.30	54.95	10.02	-2,117.01	-150.20	202.19	132.75	69.44	2.912	Alert
15,100.00	12,840.00	14,936.71	12,640.00	56.14	55.81	9.89	-2,217.00	-148.86	202.11	131.81	70.29	2.875	Alert
15,200.00	12,840.00	15,036.71	12,640.00	57.00	56.69	9.76	-2,316.99	-147.53	202.03	130.85	71.18	2.838	Alert
15,300.00	12,840.00	15,136.71	12,640.00	57.89	57.59	9.63	-2,416.98	-146.19	201.95	129.87	72.08	2.802	Alert
15,400.00	12,840.00	15,236.70	12,640.00	58.80	58.51	9.50	-2,516.97	-144.85	201.87	128.86	73.01	2.765	Alert
15,500.00	12,840.00	15,336.70	12,640.00	59.73	59.46	9.37	-2,616.96	-143.52	201.80	127.84	73.96	2.729	Alert
15,600.00	12,840.00	15,436.70	12,640.00	60.68	60.43	9.24	-2,716.95	-142.18	201.72	126.79	74.93	2.692	Alert
15,700.00	12,840.00	15,536.70	12,640.00	61.65	61.41	9.11	-2,816.94	-140.84	201.65	125.73	75.91	2.656	Alert
15,800.00	12,840.00	15,636.70	12,640.00	62.64	62.42	8.98	-2,916.93	-139.51	201.57	124.65	76.92	2.621	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,900.00	12,840.00	15,736.70	12,640.00	63.64	63.44	8.85	-3,016.92	-138.17	201.50	123.56	77.95	2.585	Alert
16,000.00	12,840.00	15,836.70	12,640.00	64.67	64.48	8.72	-3,116.91	-136.84	201.43	122.44	78.99	2.550	Alert
16,100.00	12,840.00	15,936.70	12,640.00	65.71	65.53	8.59	-3,216.90	-135.50	201.36	121.32	80.05	2.516	Alert
16,200.00	12,840.00	16,036.70	12,640.00	66.76	66.60	8.46	-3,316.89	-134.16	201.29	120.17	81.12	2.481	Minor Risk
16,300.00	12,840.00	16,136.70	12,640.00	67.83	67.69	8.33	-3,416.88	-132.83	201.22	119.02	82.21	2.448	Minor Risk
16,400.00	12,840.00	16,236.69	12,640.00	68.92	68.78	8.20	-3,516.87	-131.49	201.16	117.85	83.31	2.415	Minor Risk
16,500.00	12,840.00	16,336.69	12,640.00	70.02	69.89	8.07	-3,616.86	-130.15	201.09	116.67	84.43	2.382	Minor Risk
16,600.00	12,840.00	16,436.69	12,640.00	71.13	71.02	7.94	-3,716.85	-128.82	201.03	115.47	85.55	2.350	Minor Risk
16,700.00	12,840.00	16,536.69	12,640.00	72.25	72.15	7.81	-3,816.84	-127.48	200.96	114.27	86.70	2.318	Minor Risk
16,800.00	12,840.00	16,636.69	12,640.00	73.39	73.30	7.68	-3,916.83	-126.14	200.90	113.05	87.85	2.287	Minor Risk
16,900.00	12,840.00	16,736.69	12,640.00	74.53	74.46	7.54	-4,016.82	-124.81	200.84	111.83	89.01	2.256	Minor Risk
17,000.00	12,840.00	16,836.69	12,640.00	75.69	75.63	7.41	-4,116.81	-123.47	200.78	110.59	90.19	2.226	Minor Risk
17,100.00	12,840.00	16,936.69	12,640.00	76.85	76.81	7.28	-4,216.80	-122.14	200.72	109.35	91.37	2.197	Minor Risk
17,200.00	12,840.00	17,036.69	12,640.00	78.03	77.99	7.15	-4,316.79	-120.80	200.66	108.09	92.57	2.168	Minor Risk
17,300.00	12,840.00	17,136.68	12,640.00	79.22	79.19	7.02	-4,416.78	-119.46	200.60	106.83	93.78	2.139	Minor Risk
17,400.00	12,840.00	17,236.68	12,640.00	80.41	80.39	6.89	-4,516.77	-118.13	200.55	105.56	94.99	2.111	Minor Risk
17,500.00	12,840.00	17,336.68	12,640.00	81.61	81.61	6.76	-4,616.76	-116.79	200.49	104.28	96.21	2.084	Minor Risk
17,600.00	12,840.00	17,436.68	12,640.00	82.82	82.83	6.62	-4,716.75	-115.45	200.44	102.99	97.45	2.057	Minor Risk
17,700.00	12,840.00	17,536.68	12,640.00	84.04	84.06	6.49	-4,816.74	-114.12	200.39	101.70	98.69	2.031	Minor Risk
17,800.00	12,840.00	17,636.68	12,640.00	85.27	85.29	6.36	-4,916.73	-112.78	200.33	100.40	99.93	2.005	Minor Risk
17,900.00	12,840.00	17,736.68	12,640.00	86.50	86.54	6.23	-5,016.72	-111.44	200.28	99.09	101.19	1.979	Minor Risk
18,000.00	12,840.00	17,836.68	12,640.00	87.74	87.79	6.10	-5,116.71	-110.11	200.23	97.78	102.45	1.954	Minor Risk
18,100.00	12,840.00	17,936.68	12,640.00	88.99	89.04	5.97	-5,216.70	-108.77	200.19	96.46	103.72	1.930	Minor Risk
18,200.00	12,840.00	18,036.67	12,640.00	90.24	90.30	5.83	-5,316.69	-107.44	200.14	95.14	105.00	1.906	Minor Risk
18,300.00	12,840.00	18,136.67	12,640.00	91.50	91.57	5.70	-5,416.68	-106.10	200.09	93.81	106.28	1.883	Minor Risk
18,400.00	12,840.00	18,236.67	12,640.00	92.76	92.84	5.57	-5,516.67	-104.76	200.05	92.47	107.57	1.860	Minor Risk
18,500.00	12,840.00	18,336.67	12,640.00	94.03	94.12	5.44	-5,616.66	-103.43	200.00	91.13	108.87	1.837	Minor Risk
18,600.00	12,840.00	18,436.67	12,640.00	95.31	95.41	5.30	-5,716.65	-102.09	199.96	89.79	110.17	1.815	Minor Risk
18,700.00	12,840.00	18,536.67	12,640.00	96.59	96.69	5.17	-5,816.64	-100.75	199.92	88.44	111.48	1.793	Minor Risk
18,800.00	12,840.00	18,636.67	12,640.00	97.88	97.99	5.04	-5,916.63	-99.42	199.87	87.08	112.79	1.772	Minor Risk
18,900.00	12,840.00	18,736.67	12,640.00	99.17	99.29	4.91	-6,016.62	-98.08	199.83	85.72	114.11	1.751	Minor Risk
19,000.00	12,840.00	18,836.67	12,640.00	100.46	100.59	4.78	-6,116.61	-96.74	199.79	84.36	115.43	1.731	Minor Risk
19,100.00	12,840.00	18,936.67	12,640.00	101.76	101.89	4.64	-6,216.60	-95.41	199.76	82.99	116.76	1.711	Minor Risk
19,200.00	12,840.00	19,036.66	12,640.00	103.06	103.21	4.51	-6,316.59	-94.07	199.72	81.62	118.10	1.691	Minor Risk
19,300.00	12,840.00	19,136.66	12,640.00	104.37	104.52	4.38	-6,416.58	-92.74	199.68	80.25	119.44	1.672	Minor Risk
19,400.00	12,840.00	19,236.66	12,640.00	105.68	105.84	4.24	-6,516.57	-91.40	199.65	78.87	120.78	1.653	Minor Risk
19,500.00	12,840.00	19,336.66	12,640.00	106.99	107.16	4.11	-6,616.56	-90.06	199.61	77.49	122.13	1.634	Minor Risk
19,600.00	12,840.00	19,436.66	12,640.00	108.31	108.48	3.98	-6,716.55	-88.73	199.58	76.10	123.48	1.616	Minor Risk
19,700.00	12,840.00	19,536.66	12,640.00	109.63	109.81	3.85	-6,816.54	-87.39	199.55	74.71	124.84	1.598	Minor Risk
19,800.00	12,840.00	19,636.66	12,640.00	110.96	111.14	3.71	-6,916.53	-86.05	199.52	73.32	126.20	1.581	Minor Risk
19,900.00	12,840.00	19,736.66	12,640.00	112.29	112.48	3.58	-7,016.52	-84.72	199.49	71.92	127.57	1.564	Minor Risk
20,000.00	12,840.00	19,836.66	12,640.00	113.62	113.82	3.45	-7,116.51	-83.38	199.46	70.53	128.94	1.547	Minor Risk
20,100.00	12,840.00	19,936.65	12,640.00	114.95	115.16	3.31	-7,216.50	-82.04	199.43	69.12	130.31	1.530	Minor Risk
20,200.00	12,840.00	20,036.65	12,640.00	116.29	116.50	3.18	-7,316.49	-80.71	199.41	67.72	131.69	1.514	Minor Risk
20,300.00	12,840.00	20,136.65	12,640.00	117.63	117.85	3.05	-7,416.48	-79.37	199.38	66.31	133.07	1.498	Major Risk
20,400.00	12,840.00	20,236.65	12,640.00	118.97	119.20	2.92	-7,516.47	-78.04	199.36	64.90	134.46	1.483	Major Risk
20,500.00	12,840.00	20,336.65	12,640.00	120.32	120.55	2.78	-7,616.46	-76.70	199.34	63.49	135.85	1.467	Major Risk
20,600.00	12,840.00	20,436.65	12,640.00	121.66	121.90	2.65	-7,716.45	-75.36	199.31	62.07	137.24	1.452	Major Risk
20,700.00	12,840.00	20,536.65	12,640.00	123.01	123.26	2.52	-7,816.44	-74.03	199.29	60.65	138.64	1.437	Major Risk
20,800.00	12,840.00	20,636.65	12,640.00	124.37	124.62	2.38	-7,916.43	-72.69	199.27	59.23	140.05	1.423	Major Risk
20,900.00	12,840.00	20,736.65	12,640.00	125.72	125.98	2.25	-8,016.42	-71.35	199.25	57.80	141.45	1.409	Major Risk
21,000.00	12,840.00	20,836.64	12,640.00	127.08	127.34	2.12	-8,116.41	-70.02	199.24	56.38	142.86	1.395	Major Risk

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 2H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
21,100.00	12,840.00	20,936.64	12,640.00	128.44	128.70	1.98	-8,216.40	-68.68	199.22	54.94	144.28	1.381	Major Risk
21,200.00	12,840.00	21,036.64	12,640.00	129.80	130.07	1.85	-8,316.39	-67.35	199.20	53.51	145.69	1.367	Major Risk
21,300.00	12,840.00	21,136.64	12,640.00	131.16	131.44	1.72	-8,416.38	-66.01	199.19	52.08	147.11	1.354	Major Risk
21,400.00	12,840.00	21,236.64	12,640.00	132.53	132.81	1.58	-8,516.37	-64.67	199.18	50.64	148.54	1.341	Major Risk
21,500.00	12,840.00	21,336.64	12,640.00	133.89	134.18	1.45	-8,616.36	-63.34	199.16	49.20	149.97	1.328	Major Risk
21,600.00	12,840.00	21,436.64	12,640.00	135.26	135.56	1.32	-8,716.35	-62.00	199.15	47.75	151.40	1.315	Major Risk
21,700.00	12,840.00	21,536.64	12,640.00	136.63	136.93	1.18	-8,816.34	-60.66	199.14	46.31	152.84	1.303	Major Risk
21,800.00	12,840.00	21,636.64	12,640.00	138.01	138.31	1.05	-8,916.33	-59.33	199.13	44.86	154.28	1.291	Major Risk
21,900.00	12,840.00	21,736.64	12,640.00	139.38	139.69	0.92	-9,016.32	-57.99	199.13	43.41	155.72	1.279	Major Risk
22,000.00	12,840.00	21,836.63	12,640.00	140.76	141.07	0.78	-9,116.31	-56.65	199.12	41.95	157.17	1.267	Major Risk
22,100.00	12,840.00	21,936.63	12,640.00	142.13	142.45	0.65	-9,216.30	-55.32	199.11	40.50	158.62	1.255	Major Risk
22,200.00	12,840.00	22,036.63	12,640.00	143.51	143.84	0.52	-9,316.29	-53.98	199.11	39.04	160.07	1.244	Major Risk
22,300.00	12,840.00	22,136.63	12,640.00	144.89	145.22	0.38	-9,416.28	-52.65	199.11	37.57	161.53	1.233	Major Risk
22,400.00	12,840.00	22,236.63	12,640.00	146.27	146.61	0.25	-9,516.27	-51.31	199.10	36.11	162.99	1.222	Major Risk
22,500.00	12,840.00	22,336.63	12,640.00	147.66	148.00	0.12	-9,616.26	-49.97	199.10	34.64	164.46	1.211	Major Risk
22,586.60	12,840.00	22,423.23	12,640.00	148.86	149.20	0.00	-9,702.85	-48.82	199.10	33.37	165.73	1.201	Major Risk
22,600.00	12,840.00	22,436.63	12,640.00	149.04	149.39	-0.02	-9,716.25	-48.64	199.10	33.17	165.93	1.200	Major Risk
22,700.00	12,840.00	22,536.63	12,640.00	150.43	150.78	-0.15	-9,816.24	-47.30	199.10	31.70	167.40	1.189	Major Risk
22,750.85	12,840.00	22,587.48	12,640.00	151.13	151.49	-0.22	-9,867.09	-46.62	199.10	30.95	168.15	1.184	Major Risk, SF

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	1.80	-1.80	0.50	0.50	-90.42	-0.44	-59.98	59.98				
100.00	100.00	101.80	98.20	0.52	0.52	-90.42	-0.44	-59.98	59.98	58.94	1.04	57.829	
200.00	200.00	201.80	198.20	0.70	0.71	-90.42	-0.44	-59.98	59.98	58.57	1.41	42.578	
300.00	300.00	301.80	298.20	0.99	0.99	-90.42	-0.44	-59.98	59.98	58.00	1.98	30.290	
400.00	400.00	401.80	398.20	1.31	1.32	-90.42	-0.44	-59.98	59.98	57.36	2.62	22.858	
500.00	500.00	501.80	498.20	1.65	1.65	-90.42	-0.44	-59.98	59.98	56.68	3.30	18.186	
600.00	600.00	601.80	598.20	1.99	2.00	-90.42	-0.44	-59.98	59.98	55.99	3.99	15.043	
700.00	700.00	701.80	698.20	2.34	2.35	-90.42	-0.44	-59.98	59.98	55.30	4.68	12.803	
800.00	800.00	801.80	798.20	2.69	2.70	-90.42	-0.44	-59.98	59.98	54.59	5.39	11.133	
900.00	900.00	901.80	898.20	3.04	3.05	-90.42	-0.44	-59.98	59.98	53.89	6.09	9.844	
1,000.00	1,000.00	1,001.80	998.20	3.40	3.40	-90.42	-0.44	-59.98	59.98	53.18	6.80	8.819	
1,100.00	1,100.00	1,101.80	1,098.20	3.75	3.76	-90.42	-0.44	-59.98	59.98	52.47	7.51	7.985	
1,200.00	1,200.00	1,201.80	1,198.20	4.11	4.11	-90.42	-0.44	-59.98	59.98	51.76	8.22	7.295	
1,300.00	1,300.00	1,301.80	1,298.20	4.46	4.47	-90.42	-0.44	-59.98	59.98	51.05	8.93	6.713	
1,400.00	1,400.00	1,401.80	1,398.20	4.82	4.83	-90.42	-0.44	-59.98	59.98	50.33	9.65	6.217	
1,500.00	1,500.00	1,501.80	1,498.20	5.18	5.18	-90.42	-0.44	-59.98	59.98	49.62	10.36	5.789	
1,600.00	1,600.00	1,601.80	1,598.20	5.53	5.54	-90.42	-0.44	-59.98	59.98	48.91	11.07	5.416	
1,700.00	1,700.00	1,701.80	1,698.20	5.89	5.90	-90.42	-0.44	-59.98	59.98	48.19	11.79	5.088	
1,800.00	1,800.00	1,801.80	1,798.20	6.25	6.25	-90.42	-0.44	-59.98	59.98	47.48	12.50	4.797	Alert
1,900.00	1,900.00	1,901.80	1,898.20	6.61	6.61	-90.42	-0.44	-59.98	59.98	46.76	13.22	4.538	Alert
2,000.00	2,000.00	2,001.80	1,998.20	6.96	6.97	-90.42	-0.44	-59.98	59.98	46.05	13.93	4.305	Alert
2,100.00	2,100.00	2,101.80	2,098.20	7.32	7.33	-90.42	-0.44	-59.98	59.98	45.33	14.65	4.095	Alert
2,200.00	2,200.00	2,201.80	2,198.20	7.68	7.69	-90.42	-0.44	-59.98	59.98	44.62	15.36	3.904	Alert
2,300.00	2,300.00	2,301.80	2,298.20	8.04	8.04	-90.42	-0.44	-59.98	59.98	43.90	16.08	3.730	Alert
2,400.00	2,400.00	2,401.80	2,398.20	8.39	8.40	-90.42	-0.44	-59.98	59.98	43.19	16.79	3.571	Alert
2,500.00	2,500.00	2,501.80	2,498.20	8.75	8.76	-90.42	-0.44	-59.98	59.98	42.47	17.51	3.425	Alert
2,600.00	2,600.00	2,601.80	2,598.20	9.11	9.12	-90.42	-0.44	-59.98	59.98	41.76	18.23	3.291	Alert
2,700.00	2,700.00	2,701.80	2,698.20	9.47	9.47	-90.42	-0.44	-59.98	59.98	41.04	18.94	3.167	Alert
2,800.00	2,800.00	2,801.80	2,798.20	9.83	9.83	-90.42	-0.44	-59.98	59.98	40.32	19.66	3.051	Alert
2,900.00	2,900.00	2,901.80	2,898.20	10.18	10.19	-90.42	-0.44	-59.98	59.98	39.61	20.37	2.944	Alert
3,000.00	3,000.00	3,001.80	2,998.20	10.54	10.55	-90.42	-0.44	-59.98	59.98	38.89	21.09	2.844	Alert
3,100.00	3,100.00	3,101.80	3,098.20	10.90	10.91	-90.42	-0.44	-59.98	59.98	38.18	21.81	2.751	Alert
3,200.00	3,200.00	3,201.80	3,198.20	11.26	11.26	-90.42	-0.44	-59.98	59.98	37.46	22.52	2.663	Alert
3,300.00	3,300.00	3,301.80	3,298.20	11.62	11.62	-90.42	-0.44	-59.98	59.98	36.74	23.24	2.581	Alert
3,400.00	3,400.00	3,401.80	3,398.20	11.97	11.98	-90.42	-0.44	-59.98	59.98	36.03	23.96	2.504	Alert
3,500.00	3,500.00	3,501.80	3,498.20	12.33	12.34	-90.42	-0.44	-59.98	59.98	35.31	24.67	2.431	Minor Risk
3,600.00	3,600.00	3,601.80	3,598.20	12.69	12.70	-90.42	-0.44	-59.98	59.98	34.59	25.39	2.363	Minor Risk
3,700.00	3,700.00	3,701.80	3,698.20	13.05	13.06	-90.42	-0.44	-59.98	59.98	33.88	26.10	2.298	Minor Risk
3,800.00	3,800.00	3,801.80	3,798.20	13.41	13.41	-90.42	-0.44	-59.98	59.98	33.16	26.82	2.236	Minor Risk
3,900.00	3,900.00	3,901.80	3,898.20	13.77	13.77	-90.42	-0.44	-59.98	59.98	32.44	27.54	2.178	Minor Risk
4,000.00	4,000.00	3,998.20	3,998.20	14.12	14.12	-90.42	-0.44	-59.98	59.98	31.74	28.24	2.124	Minor Risk, CC, ES
4,100.00	4,100.00	4,096.95	4,096.94	14.48	14.46	-90.21	-0.22	-60.98	61.00	32.05	28.94	2.108	Minor Risk
4,200.00	4,200.00	4,195.58	4,195.52	14.84	14.81	-89.60	0.45	-64.06	64.11	34.49	29.62	2.164	Minor Risk
4,300.00	4,300.00	4,294.04	4,293.84	15.20	15.15	-88.70	1.57	-69.19	69.35	39.06	30.29	2.289	Minor Risk
4,400.00	4,400.00	4,392.22	4,391.74	15.56	15.49	-87.65	3.14	-76.37	76.70	45.75	30.95	2.478	Minor Risk
4,500.00	4,500.00	4,490.05	4,489.11	15.92	15.83	-86.56	5.14	-85.55	86.18	54.59	31.59	2.728	Alert
4,600.00	4,600.00	4,587.42	4,585.82	16.27	16.18	-85.52	7.58	-96.70	97.79	65.57	32.22	3.035	Alert
4,700.00	4,700.00	4,684.27	4,681.73	16.63	16.53	-84.57	10.43	-109.79	111.51	78.68	32.83	3.397	Alert
4,800.00	4,800.00	4,780.51	4,776.74	16.99	16.88	-83.73	13.70	-124.75	127.32	93.89	33.42	3.809	Alert
4,900.00	4,900.00	4,876.05	4,870.73	17.35	17.24	-83.01	17.36	-141.52	145.21	111.20	34.01	4.270	Alert
5,000.00	5,000.00	4,970.84	4,963.59	17.71	17.60	-82.38	21.41	-160.05	165.14	130.57	34.57	4.777	Alert
5,100.00	5,099.99	5,067.49	5,057.98	18.06	17.98	-85.06	25.85	-180.39	186.52	151.30	35.22	5.296	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,199.94	5,165.18	5,153.36	18.42	18.38	-85.24	30.35	-201.02	207.82	171.90	35.91	5.786	
5,300.00	5,299.79	5,262.86	5,248.73	18.78	18.77	-85.89	34.85	-221.66	228.97	192.35	36.61	6.254	
5,400.00	5,399.49	5,360.47	5,344.03	19.14	19.18	-86.90	39.36	-242.28	250.05	212.74	37.31	6.702	
5,500.00	5,499.01	5,457.97	5,439.22	19.49	19.59	-88.18	43.85	-262.87	271.16	233.15	38.01	7.134	
5,600.00	5,598.40	5,555.39	5,534.34	19.85	20.01	-89.73	48.34	-283.45	292.44	253.72	38.72	7.553	
5,700.00	5,697.78	5,652.80	5,629.45	20.20	20.43	-91.09	52.84	-304.03	313.89	274.46	39.43	7.961	
5,800.00	5,797.17	5,750.22	5,724.56	20.56	20.86	-92.28	57.33	-324.61	335.49	295.35	40.14	8.358	
5,900.00	5,896.55	5,847.63	5,819.67	20.92	21.29	-93.33	61.82	-345.19	357.22	316.36	40.86	8.744	
6,000.00	5,995.94	5,945.05	5,914.78	21.28	21.73	-94.25	66.31	-365.77	379.05	337.47	41.57	9.117	
6,100.00	6,095.32	6,042.47	6,009.89	21.64	22.17	-95.08	70.81	-386.34	400.96	358.66	42.29	9.480	
6,200.00	6,194.71	6,139.88	6,105.00	22.00	22.62	-95.82	75.30	-406.92	422.94	379.92	43.02	9.832	
6,300.00	6,294.09	6,237.30	6,200.12	22.37	23.07	-96.48	79.79	-427.50	444.98	401.24	43.74	10.172	
6,400.00	6,393.48	6,334.71	6,295.23	22.73	23.52	-97.09	84.28	-448.08	467.07	422.60	44.47	10.502	
6,500.00	6,492.86	6,432.13	6,390.34	23.09	23.98	-97.64	88.78	-468.66	489.21	444.01	45.20	10.822	
6,600.00	6,592.25	6,529.55	6,485.45	23.46	24.44	-98.14	93.27	-489.24	511.39	465.46	45.94	11.132	
6,700.00	6,691.63	6,626.96	6,580.56	23.82	24.90	-98.60	97.76	-509.81	533.61	486.93	46.67	11.433	
6,800.00	6,791.02	6,724.38	6,675.67	24.19	25.36	-99.02	102.25	-530.39	555.85	508.44	47.41	11.725	
6,900.00	6,890.40	6,821.79	6,770.78	24.56	25.83	-99.41	106.74	-550.97	578.12	529.97	48.15	12.007	
7,000.00	6,989.79	6,919.21	6,865.90	24.92	26.30	-99.78	111.24	-571.55	600.41	551.52	48.89	12.281	
7,100.00	7,089.17	7,016.62	6,961.01	25.29	26.78	-100.11	115.73	-592.13	622.73	573.09	49.63	12.547	
7,200.00	7,188.56	7,114.04	7,056.12	25.66	27.25	-100.42	120.22	-612.71	645.06	594.68	50.37	12.805	
7,300.00	7,287.94	7,211.46	7,151.23	26.03	27.73	-100.72	124.71	-633.28	667.41	616.29	51.12	13.056	
7,400.00	7,387.33	7,308.87	7,246.34	26.40	28.21	-100.99	129.21	-653.86	689.77	637.91	51.87	13.299	
7,500.00	7,486.71	7,406.29	7,341.45	26.77	28.69	-101.24	133.70	-674.44	712.15	659.54	52.62	13.535	
7,600.00	7,586.10	7,503.70	7,436.56	27.14	29.18	-101.49	138.19	-695.02	734.55	681.18	53.37	13.764	
7,700.00	7,685.48	7,614.41	7,544.80	27.51	29.72	-101.76	143.15	-717.75	756.43	702.15	54.29	13.934	
7,800.00	7,784.87	7,734.87	7,663.23	27.88	30.29	-102.14	147.84	-739.20	775.71	720.42	55.29	14.029	
7,900.00	7,884.25	7,856.48	7,783.45	28.25	30.82	-102.62	151.75	-757.14	792.12	735.86	56.26	14.079	
8,000.00	7,983.79	7,979.18	7,905.26	28.62	31.34	-103.24	154.87	-771.44	805.32	748.13	57.20	14.080	
8,100.00	8,083.54	8,102.81	8,028.41	28.98	31.82	-103.68	157.17	-781.97	815.00	756.92	58.08	14.033	
8,200.00	8,183.45	8,227.08	8,152.50	29.34	32.27	-103.95	158.63	-788.63	821.09	762.19	58.90	13.940	
8,300.00	8,283.43	8,351.71	8,277.09	29.70	32.68	-104.06	159.22	-791.35	823.56	763.89	59.68	13.801	
8,400.00	8,383.43	8,456.25	8,381.63	30.06	33.02	-100.92	159.24	-791.42	823.62	763.24	60.38	13.640	
8,500.00	8,483.43	8,556.25	8,481.63	30.41	33.34	-100.92	159.24	-791.42	823.62	762.55	61.08	13.485	
8,600.00	8,583.43	8,656.25	8,581.63	30.77	33.66	-100.92	159.24	-791.42	823.62	761.85	61.78	13.332	
8,700.00	8,683.43	8,756.25	8,681.63	31.12	33.98	-100.92	159.24	-791.42	823.62	761.15	62.48	13.183	
8,800.00	8,783.43	8,856.25	8,781.63	31.48	34.30	-100.92	159.24	-791.42	823.62	760.45	63.17	13.037	
8,900.00	8,883.43	8,956.25	8,881.63	31.83	34.63	-100.92	159.24	-791.42	823.62	759.75	63.87	12.895	
9,000.00	8,983.43	9,056.25	8,981.63	32.19	34.95	-100.92	159.24	-791.42	823.62	759.05	64.57	12.755	
9,100.00	9,083.43	9,156.25	9,081.63	32.54	35.27	-100.92	159.24	-791.42	823.62	758.35	65.27	12.618	
9,200.00	9,183.43	9,256.25	9,181.63	32.90	35.60	-100.92	159.24	-791.42	823.62	757.65	65.97	12.484	
9,300.00	9,283.43	9,356.25	9,281.63	33.25	35.92	-100.92	159.24	-791.42	823.62	756.95	66.68	12.353	
9,400.00	9,383.43	9,456.25	9,381.63	33.61	36.25	-100.92	159.24	-791.42	823.62	756.25	67.38	12.224	
9,500.00	9,483.43	9,556.25	9,481.63	33.96	36.58	-100.92	159.24	-791.42	823.62	755.55	68.08	12.098	
9,600.00	9,583.43	9,656.25	9,581.63	34.32	36.90	-100.92	159.24	-791.42	823.62	754.84	68.78	11.975	
9,700.00	9,683.43	9,756.25	9,681.63	34.67	37.23	-100.92	159.24	-791.42	823.62	754.14	69.48	11.854	
9,800.00	9,783.43	9,856.25	9,781.63	35.03	37.56	-100.92	159.24	-791.42	823.62	753.44	70.18	11.735	
9,900.00	9,883.43	9,956.25	9,881.63	35.38	37.89	-100.92	159.24	-791.42	823.62	752.74	70.89	11.619	
10,000.00	9,983.43	10,056.25	9,981.63	35.74	38.22	-100.92	159.24	-791.42	823.62	752.03	71.59	11.505	
10,100.00	10,083.43	10,156.25	10,081.63	36.10	38.55	-100.92	159.24	-791.42	823.62	751.33	72.29	11.393	
10,200.00	10,183.43	10,256.25	10,181.63	36.45	38.88	-100.92	159.24	-791.42	823.62	750.63	73.00	11.283	
10,300.00	10,283.43	10,356.25	10,281.63	36.81	39.21	-100.92	159.24	-791.42	823.62	749.92	73.70	11.175	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,400.00	10,383.43	10,456.25	10,381.63	37.16	39.54	-100.92	159.24	-791.42	823.62	749.22	74.40	11.070	
10,500.00	10,483.43	10,556.25	10,481.63	37.52	39.88	-100.92	159.24	-791.42	823.62	748.52	75.11	10.966	
10,600.00	10,583.43	10,656.25	10,581.63	37.87	40.21	-100.92	159.24	-791.42	823.62	747.81	75.81	10.864	
10,700.00	10,683.43	10,756.25	10,681.63	38.23	40.54	-100.92	159.24	-791.42	823.62	747.11	76.52	10.764	
10,800.00	10,783.43	10,856.25	10,781.63	38.59	40.87	-100.92	159.24	-791.42	823.62	746.40	77.22	10.666	
10,900.00	10,883.43	10,956.25	10,881.63	38.94	41.21	-100.92	159.24	-791.42	823.62	745.70	77.93	10.569	
11,000.00	10,983.43	11,056.25	10,981.63	39.30	41.54	-100.92	159.24	-791.42	823.62	744.99	78.63	10.474	
11,100.00	11,083.43	11,156.25	11,081.63	39.65	41.88	-100.92	159.24	-791.42	823.62	744.29	79.34	10.381	
11,200.00	11,183.43	11,256.25	11,181.63	40.01	42.21	-100.92	159.24	-791.42	823.62	743.58	80.04	10.290	
11,300.00	11,283.43	11,356.25	11,281.63	40.37	42.55	-100.92	159.24	-791.42	823.62	742.87	80.75	10.200	
11,400.00	11,383.43	11,456.25	11,381.63	40.72	42.88	-100.92	159.24	-791.42	823.62	742.17	81.46	10.111	
11,500.00	11,483.43	11,556.25	11,481.63	41.08	43.22	-100.92	159.24	-791.42	823.62	741.46	82.16	10.024	
11,600.00	11,583.43	11,656.25	11,581.63	41.44	43.56	-100.92	159.24	-791.42	823.62	740.75	82.87	9.939	
11,700.00	11,683.43	11,756.25	11,681.63	41.79	43.89	-100.92	159.24	-791.42	823.62	740.05	83.58	9.855	
11,800.00	11,783.43	11,856.25	11,781.63	42.15	44.23	-100.92	159.24	-791.42	823.62	739.34	84.28	9.772	
11,900.00	11,883.43	11,956.25	11,881.63	42.51	44.57	-100.92	159.24	-791.42	823.62	738.63	84.99	9.691	
12,000.00	11,983.39	12,056.21	11,981.59	42.86	44.90	-39.75	159.24	-791.42	822.36	736.66	85.70	9.596	
12,100.00	12,082.09	12,154.92	12,080.29	43.21	45.24	-31.57	159.24	-791.42	810.27	723.85	86.42	9.376	
12,200.00	12,180.39	12,248.58	12,173.95	43.54	45.55	10.98	158.99	-791.42	792.64	705.56	87.08	9.102	
12,300.00	12,277.69	12,325.98	12,250.93	43.84	45.78	39.65	151.49	-791.35	774.30	686.68	87.62	8.837	
12,400.00	12,372.14	12,403.96	12,326.75	44.11	46.00	54.15	133.53	-791.20	756.38	668.32	88.06	8.589	
12,500.00	12,461.94	12,482.62	12,400.05	44.36	46.19	62.43	105.15	-790.96	739.24	650.81	88.43	8.360	
12,600.00	12,545.38	12,562.05	12,469.42	44.60	46.36	67.86	66.60	-790.63	723.22	634.48	88.74	8.150	
12,700.00	12,620.86	12,642.28	12,533.40	44.82	46.51	71.74	18.29	-790.23	708.65	619.63	89.02	7.961	
12,800.00	12,686.95	12,723.34	12,590.56	45.04	46.63	74.66	-39.09	-789.74	695.82	606.53	89.29	7.793	
12,900.00	12,742.37	12,805.20	12,639.48	45.24	46.73	76.88	-104.63	-789.18	685.00	595.41	89.59	7.646	
13,000.00	12,786.09	12,887.80	12,678.88	45.44	46.83	78.54	-177.14	-788.57	676.41	586.47	89.93	7.521	
13,100.00	12,817.25	12,971.03	12,707.63	45.65	46.93	79.70	-255.17	-787.91	670.23	579.89	90.34	7.419	
13,200.00	12,835.28	13,054.75	12,724.84	45.85	47.07	80.40	-337.02	-787.22	666.58	575.77	90.80	7.341	
13,286.11	12,840.83	13,137.14	12,730.00	46.02	47.24	80.57	-408.23	-786.61	665.50	574.22	91.28	7.290	
13,300.00	12,840.00	13,140.12	12,730.00	46.05	47.25	80.64	-422.16	-786.50	665.52	574.19	91.33	7.287	
13,400.00	12,840.00	13,240.12	12,730.00	46.28	47.55	80.64	-522.16	-785.65	665.55	573.59	91.96	7.238	
13,500.00	12,840.00	13,340.12	12,730.00	46.56	47.93	80.64	-622.15	-784.80	665.57	572.88	92.69	7.180	
13,600.00	12,840.00	13,440.12	12,730.00	46.88	48.41	80.64	-722.15	-783.96	665.60	572.05	93.54	7.115	
13,700.00	12,840.00	13,540.12	12,730.00	47.24	48.96	80.64	-822.15	-783.11	665.62	571.12	94.51	7.043	
13,800.00	12,840.00	13,640.12	12,730.00	47.64	49.60	80.65	-922.14	-782.26	665.65	570.07	95.58	6.964	
13,900.00	12,840.00	13,740.12	12,730.00	48.08	50.30	80.65	-1,022.14	-781.42	665.67	568.92	96.75	6.880	
14,000.00	12,840.00	13,840.12	12,730.00	48.57	51.07	80.65	-1,122.14	-780.57	665.70	567.67	98.03	6.791	
14,100.00	12,840.00	13,940.12	12,730.00	49.09	51.90	80.65	-1,222.13	-779.72	665.73	566.32	99.40	6.697	
14,200.00	12,840.00	14,040.12	12,730.00	49.65	52.79	80.65	-1,322.13	-778.88	665.75	564.88	100.87	6.600	
14,300.00	12,840.00	14,140.12	12,730.00	50.24	53.74	80.65	-1,422.13	-778.03	665.78	563.36	102.42	6.500	
14,400.00	12,840.00	14,240.12	12,730.00	50.87	54.74	80.65	-1,522.12	-777.18	665.80	561.74	104.06	6.398	
14,500.00	12,840.00	14,340.12	12,730.00	51.53	55.79	80.65	-1,622.12	-776.34	665.83	560.05	105.78	6.295	
14,600.00	12,840.00	14,440.12	12,730.00	52.23	56.88	80.65	-1,722.11	-775.49	665.85	558.28	107.57	6.190	
14,700.00	12,840.00	14,540.12	12,730.00	52.95	58.02	80.65	-1,822.11	-774.64	665.88	556.44	109.44	6.085	
14,800.00	12,840.00	14,640.12	12,730.00	53.71	59.19	80.65	-1,922.11	-773.80	665.91	554.53	111.37	5.979	
14,900.00	12,840.00	14,740.12	12,730.00	54.49	60.41	80.65	-2,022.10	-772.95	665.93	552.56	113.37	5.874	
15,000.00	12,840.00	14,840.12	12,730.00	55.30	61.66	80.65	-2,122.10	-772.10	665.96	550.52	115.44	5.769	
15,100.00	12,840.00	14,940.12	12,730.00	56.14	62.94	80.65	-2,222.10	-771.26	665.98	548.43	117.56	5.665	
15,200.00	12,840.00	15,040.12	12,730.00	57.00	64.26	80.65	-2,322.09	-770.41	666.01	546.28	119.73	5.563	
15,300.00	12,840.00	15,140.12	12,730.00	57.89	65.61	80.65	-2,422.09	-769.56	666.03	544.08	121.96	5.461	
15,400.00	12,840.00	15,240.12	12,730.00	58.80	66.98	80.65	-2,522.09	-768.72	666.06	541.82	124.24	5.361	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,500.00	12,840.00	15,340.12	12,730.00	59.73	68.38	80.65	-2,622.08	-767.87	666.09	539.53	126.56	5.263	
15,600.00	12,840.00	15,440.12	12,730.00	60.68	69.81	80.65	-2,722.08	-767.03	666.11	537.18	128.93	5.167	
15,700.00	12,840.00	15,540.12	12,730.00	61.65	71.26	80.65	-2,822.07	-766.18	666.14	534.80	131.34	5.072	
15,800.00	12,840.00	15,640.12	12,730.00	62.64	72.73	80.65	-2,922.07	-765.33	666.16	532.37	133.79	4.979	Alert
15,900.00	12,840.00	15,740.12	12,730.00	63.64	74.22	80.65	-3,022.07	-764.49	666.19	529.91	136.28	4.889	Alert
16,000.00	12,840.00	15,840.12	12,730.00	64.67	75.73	80.65	-3,122.06	-763.64	666.21	527.42	138.80	4.800	Alert
16,100.00	12,840.00	15,940.12	12,730.00	65.71	77.25	80.65	-3,222.06	-762.79	666.24	524.89	141.35	4.713	Alert
16,200.00	12,840.00	16,040.12	12,730.00	66.76	78.80	80.65	-3,322.06	-761.95	666.27	522.32	143.94	4.629	Alert
16,300.00	12,840.00	16,140.12	12,730.00	67.83	80.36	80.65	-3,422.05	-761.10	666.29	519.73	146.56	4.546	Alert
16,400.00	12,840.00	16,240.12	12,730.00	68.92	81.94	80.65	-3,522.05	-760.25	666.32	517.11	149.21	4.466	Alert
16,500.00	12,840.00	16,340.12	12,730.00	70.02	83.53	80.65	-3,622.05	-759.41	666.34	514.46	151.88	4.387	Alert
16,600.00	12,840.00	16,440.12	12,730.00	71.13	85.13	80.66	-3,722.04	-758.56	666.37	511.79	154.58	4.311	Alert
16,700.00	12,840.00	16,540.12	12,730.00	72.25	86.75	80.66	-3,822.04	-757.71	666.39	509.09	157.30	4.236	Alert
16,800.00	12,840.00	16,640.12	12,730.00	73.39	88.38	80.66	-3,922.04	-756.87	666.42	506.37	160.05	4.164	Alert
16,900.00	12,840.00	16,740.12	12,730.00	74.53	90.02	80.66	-4,022.03	-756.02	666.45	503.63	162.82	4.093	Alert
17,000.00	12,840.00	16,840.12	12,730.00	75.69	91.67	80.66	-4,122.03	-755.17	666.47	500.87	165.61	4.024	Alert
17,100.00	12,840.00	16,940.12	12,730.00	76.85	93.33	80.66	-4,222.02	-754.33	666.50	498.08	168.41	3.957	Alert
17,200.00	12,840.00	17,040.12	12,730.00	78.03	95.01	80.66	-4,322.02	-753.48	666.52	495.28	171.24	3.892	Alert
17,300.00	12,840.00	17,140.12	12,730.00	79.22	96.69	80.66	-4,422.02	-752.63	666.55	492.46	174.09	3.829	Alert
17,400.00	12,840.00	17,240.12	12,730.00	80.41	98.38	80.66	-4,522.01	-751.79	666.57	489.62	176.95	3.767	Alert
17,500.00	12,840.00	17,340.12	12,730.00	81.61	100.07	80.66	-4,622.01	-750.94	666.60	486.77	179.83	3.707	Alert
17,600.00	12,840.00	17,440.12	12,730.00	82.82	101.78	80.66	-4,722.01	-750.09	666.63	483.90	182.73	3.648	Alert
17,700.00	12,840.00	17,540.12	12,730.00	84.04	103.49	80.66	-4,822.00	-749.25	666.65	481.02	185.63	3.591	Alert
17,800.00	12,840.00	17,640.12	12,730.00	85.27	105.21	80.66	-4,922.00	-748.40	666.68	478.12	188.56	3.536	Alert
17,900.00	12,840.00	17,740.12	12,730.00	86.50	106.94	80.66	-5,022.00	-747.55	666.70	475.21	191.50	3.482	Alert
18,000.00	12,840.00	17,840.12	12,730.00	87.74	108.67	80.66	-5,121.99	-746.71	666.73	472.28	194.45	3.429	Alert
18,100.00	12,840.00	17,940.12	12,730.00	88.99	110.41	80.66	-5,221.99	-745.86	666.75	469.35	197.41	3.378	Alert
18,200.00	12,840.00	18,040.12	12,730.00	90.24	112.16	80.66	-5,321.99	-745.01	666.78	466.40	200.38	3.328	Alert
18,300.00	12,840.00	18,140.12	12,730.00	91.50	113.91	80.66	-5,421.98	-744.17	666.81	463.44	203.37	3.279	Alert
18,400.00	12,840.00	18,240.12	12,730.00	92.76	115.67	80.66	-5,521.98	-743.32	666.83	460.47	206.36	3.231	Alert
18,500.00	12,840.00	18,340.12	12,730.00	94.03	117.43	80.66	-5,621.97	-742.47	666.86	457.49	209.37	3.185	Alert
18,600.00	12,840.00	18,440.12	12,730.00	95.31	119.19	80.66	-5,721.97	-741.63	666.88	454.50	212.39	3.140	Alert
18,700.00	12,840.00	18,540.12	12,730.00	96.59	120.97	80.66	-5,821.97	-740.78	666.91	451.50	215.41	3.096	Alert
18,800.00	12,840.00	18,640.12	12,730.00	97.88	122.74	80.66	-5,921.96	-739.94	666.94	448.49	218.45	3.053	Alert
18,900.00	12,840.00	18,740.12	12,730.00	99.17	124.52	80.66	-6,021.96	-739.09	666.96	445.47	221.49	3.011	Alert
19,000.00	12,840.00	18,840.12	12,730.00	100.46	126.30	80.66	-6,121.96	-738.24	666.99	442.45	224.54	2.970	Alert
19,100.00	12,840.00	18,940.12	12,730.00	101.76	128.09	80.66	-6,221.95	-737.40	667.01	439.41	227.60	2.931	Alert
19,200.00	12,840.00	19,040.12	12,730.00	103.06	129.88	80.66	-6,321.95	-736.55	667.04	436.37	230.67	2.892	Alert
19,300.00	12,840.00	19,140.12	12,730.00	104.37	131.68	80.67	-6,421.95	-735.70	667.06	433.32	233.74	2.854	Alert
19,400.00	12,840.00	19,240.12	12,730.00	105.68	133.48	80.67	-6,521.94	-734.86	667.09	430.26	236.83	2.817	Alert
19,500.00	12,840.00	19,340.12	12,730.00	106.99	135.28	80.67	-6,621.94	-734.01	667.12	427.20	239.91	2.781	Alert
19,600.00	12,840.00	19,440.12	12,730.00	108.31	137.08	80.67	-6,721.94	-733.16	667.14	424.13	243.01	2.745	Alert
19,700.00	12,840.00	19,540.12	12,730.00	109.63	138.89	80.67	-6,821.93	-732.32	667.17	421.05	246.11	2.711	Alert
19,800.00	12,840.00	19,640.12	12,730.00	110.96	140.70	80.67	-6,921.93	-731.47	667.19	417.97	249.22	2.677	Alert
19,900.00	12,840.00	19,740.12	12,730.00	112.29	142.52	80.67	-7,021.92	-730.62	667.22	414.88	252.33	2.644	Alert
20,000.00	12,840.00	19,840.12	12,730.00	113.62	144.33	80.67	-7,121.92	-729.78	667.24	411.79	255.45	2.612	Alert
20,100.00	12,840.00	19,940.12	12,730.00	114.95	146.15	80.67	-7,221.92	-728.93	667.27	408.69	258.58	2.581	Alert
20,200.00	12,840.00	20,040.12	12,730.00	116.29	147.98	80.67	-7,321.91	-728.08	667.30	405.59	261.71	2.550	Alert
20,300.00	12,840.00	20,140.12	12,730.00	117.63	149.80	80.67	-7,421.91	-727.24	667.32	402.48	264.84	2.520	Alert
20,400.00	12,840.00	20,240.12	12,730.00	118.97	151.63	80.67	-7,521.91	-726.39	667.35	399.36	267.98	2.490	Minor Risk
20,500.00	12,840.00	20,340.12	12,730.00	120.32	153.46	80.67	-7,621.90	-725.54	667.37	396.24	271.13	2.461	Minor Risk
20,600.00	12,840.00	20,440.12	12,730.00	121.66	155.29	80.67	-7,721.90	-724.70	667.40	393.12	274.28	2.433	Minor Risk

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 3H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
20,700.00	12,840.00	20,540.12	12,730.00	123.01	157.12	80.67	-7,821.90	-723.85	667.42	389.99	277.43	2.406	Minor Risk
20,800.00	12,840.00	20,640.12	12,730.00	124.37	158.95	80.67	-7,921.89	-723.00	667.45	386.86	280.59	2.379	Minor Risk
20,900.00	12,840.00	20,740.12	12,730.00	125.72	160.79	80.67	-8,021.89	-722.16	667.48	383.72	283.75	2.352	Minor Risk
21,000.00	12,840.00	20,840.12	12,730.00	127.08	162.63	80.67	-8,121.88	-721.31	667.50	380.58	286.92	2.326	Minor Risk
21,100.00	12,840.00	20,940.12	12,730.00	128.44	164.47	80.67	-8,221.88	-720.46	667.53	377.44	290.09	2.301	Minor Risk
21,200.00	12,840.00	21,040.12	12,730.00	129.80	166.31	80.67	-8,321.88	-719.62	667.55	374.29	293.26	2.276	Minor Risk
21,300.00	12,840.00	21,140.12	12,730.00	131.16	168.16	80.67	-8,421.87	-718.77	667.58	371.14	296.44	2.252	Minor Risk
21,400.00	12,840.00	21,240.12	12,730.00	132.53	170.01	80.67	-8,521.87	-717.92	667.60	367.98	299.62	2.228	Minor Risk
21,500.00	12,840.00	21,340.12	12,730.00	133.89	171.85	80.67	-8,621.87	-717.08	667.63	364.82	302.81	2.205	Minor Risk
21,600.00	12,840.00	21,440.12	12,730.00	135.26	173.70	80.67	-8,721.86	-716.23	667.66	361.66	305.99	2.182	Minor Risk
21,700.00	12,840.00	21,540.12	12,730.00	136.63	175.55	80.67	-8,821.86	-715.38	667.68	358.50	309.19	2.159	Minor Risk
21,800.00	12,840.00	21,640.12	12,730.00	138.01	177.41	80.67	-8,921.86	-714.54	667.71	355.33	312.38	2.137	Minor Risk
21,900.00	12,840.00	21,740.12	12,730.00	139.38	179.26	80.67	-9,021.85	-713.69	667.73	352.16	315.58	2.116	Minor Risk
22,000.00	12,840.00	21,840.12	12,730.00	140.76	181.11	80.67	-9,121.85	-712.84	667.76	348.98	318.78	2.095	Minor Risk
22,100.00	12,840.00	21,940.12	12,730.00	142.13	182.97	80.68	-9,221.85	-712.00	667.78	345.80	321.98	2.074	Minor Risk
22,200.00	12,840.00	22,040.12	12,730.00	143.51	184.83	80.68	-9,321.84	-711.15	667.81	342.62	325.19	2.054	Minor Risk
22,300.00	12,840.00	22,140.12	12,730.00	144.89	186.69	80.68	-9,421.84	-710.31	667.84	339.44	328.39	2.034	Minor Risk
22,400.00	12,840.00	22,240.12	12,730.00	146.27	188.55	80.68	-9,521.83	-709.46	667.86	336.26	331.60	2.014	Minor Risk
22,500.00	12,840.00	22,340.12	12,730.00	147.66	190.41	80.68	-9,621.83	-708.61	667.89	333.07	334.82	1.995	Minor Risk
22,600.00	12,840.00	22,440.12	12,730.00	149.04	192.27	80.68	-9,721.83	-707.77	667.91	329.88	338.03	1.976	Minor Risk
22,700.00	12,840.00	22,540.12	12,730.00	150.43	194.13	80.68	-9,821.82	-706.92	667.94	326.69	341.25	1.957	Minor Risk
22,750.85	12,840.00	22,590.98	12,730.00	151.13	195.08	80.68	-9,872.68	-706.49	667.95	325.06	342.89	1.948	Minor Risk, SF

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 4H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	5.10	-5.10	0.50	0.50	-117.03	-152.36	-298.59	335.22				
100.00	100.00	105.10	94.90	0.52	0.52	-117.03	-152.36	-298.59	335.22	334.18	1.04	322.151	
200.00	200.00	205.10	194.90	0.70	0.72	-117.03	-152.36	-298.59	335.22	333.80	1.42	236.541	
300.00	300.00	305.10	294.90	0.99	1.00	-117.03	-152.36	-298.59	335.22	333.23	1.99	168.410	
400.00	400.00	405.10	394.90	1.31	1.33	-117.03	-152.36	-298.59	335.22	332.58	2.64	127.212	
500.00	500.00	505.10	494.90	1.65	1.66	-117.03	-152.36	-298.59	335.22	331.91	3.31	101.286	
600.00	600.00	605.10	594.90	1.99	2.01	-117.03	-152.36	-298.59	335.22	331.22	4.00	83.827	
700.00	700.00	705.10	694.90	2.34	2.36	-117.03	-152.36	-298.59	335.22	330.52	4.70	71.376	
800.00	800.00	805.10	794.90	2.69	2.71	-117.03	-152.36	-298.59	335.22	329.82	5.40	62.087	
900.00	900.00	905.10	894.90	3.04	3.06	-117.03	-152.36	-298.59	335.22	329.11	6.11	54.907	
1,000.00	1,000.00	1,005.10	994.90	3.40	3.42	-117.03	-152.36	-298.59	335.22	328.40	6.81	49.200	
1,100.00	1,100.00	1,105.10	1,094.90	3.75	3.77	-117.03	-152.36	-298.59	335.22	327.69	7.52	44.557	
1,200.00	1,200.00	1,205.10	1,194.90	4.11	4.13	-117.03	-152.36	-298.59	335.22	326.98	8.23	40.709	
1,300.00	1,300.00	1,305.10	1,294.90	4.46	4.48	-117.03	-152.36	-298.59	335.22	326.27	8.95	37.469	
1,400.00	1,400.00	1,405.10	1,394.90	4.82	4.84	-117.03	-152.36	-298.59	335.22	325.56	9.66	34.704	
1,500.00	1,500.00	1,505.10	1,494.90	5.18	5.20	-117.03	-152.36	-298.59	335.22	324.84	10.37	32.317	
1,600.00	1,600.00	1,605.10	1,594.90	5.53	5.55	-117.03	-152.36	-298.59	335.22	324.13	11.09	30.237	
1,700.00	1,700.00	1,705.10	1,694.90	5.89	5.91	-117.03	-152.36	-298.59	335.22	323.42	11.80	28.407	
1,800.00	1,800.00	1,805.10	1,794.90	6.25	6.27	-117.03	-152.36	-298.59	335.22	322.70	12.52	26.785	
1,900.00	1,900.00	1,905.10	1,894.90	6.61	6.62	-117.03	-152.36	-298.59	335.22	321.99	13.23	25.338	
2,000.00	2,000.00	2,005.10	1,994.90	6.96	6.98	-117.03	-152.36	-298.59	335.22	321.27	13.94	24.039	
2,100.00	2,100.00	2,105.10	2,094.90	7.32	7.34	-117.03	-152.36	-298.59	335.22	320.56	14.66	22.866	
2,200.00	2,200.00	2,205.10	2,194.90	7.68	7.70	-117.03	-152.36	-298.59	335.22	319.84	15.38	21.802	
2,300.00	2,300.00	2,305.10	2,294.90	8.04	8.05	-117.03	-152.36	-298.59	335.22	319.13	16.09	20.833	
2,400.00	2,400.00	2,405.10	2,394.90	8.39	8.41	-117.03	-152.36	-298.59	335.22	318.41	16.81	19.946	
2,500.00	2,500.00	2,505.10	2,494.90	8.75	8.77	-117.03	-152.36	-298.59	335.22	317.69	17.52	19.131	
2,600.00	2,600.00	2,605.10	2,594.90	9.11	9.13	-117.03	-152.36	-298.59	335.22	316.98	18.24	18.380	
2,700.00	2,700.00	2,694.90	2,694.90	9.47	9.45	-117.03	-152.36	-298.59	335.22	316.30	18.92	17.720 CC, ES	
2,800.00	2,800.00	2,789.55	2,789.54	9.83	9.78	-116.89	-151.95	-299.60	335.97	316.36	19.61	17.135	
2,900.00	2,900.00	2,883.80	2,883.72	10.18	10.11	-116.44	-150.62	-302.85	338.42	318.13	20.29	16.682	
3,000.00	3,000.00	2,977.80	2,977.53	10.54	10.44	-115.70	-148.38	-308.31	342.60	321.64	20.96	16.347	
3,100.00	3,100.00	3,071.44	3,070.80	10.90	10.77	-114.69	-145.24	-315.97	348.58	326.96	21.62	16.120	
3,200.00	3,200.00	3,164.60	3,163.36	11.26	11.11	-113.44	-141.23	-325.76	356.46	334.17	22.28	15.999	
3,300.00	3,300.00	3,257.58	3,255.44	11.62	11.44	-111.99	-136.34	-337.70	366.31	343.38	22.93	15.975	
3,400.00	3,400.00	3,356.46	3,353.20	11.97	11.81	-110.41	-130.73	-351.38	377.23	353.59	23.63	15.961	
3,500.00	3,500.00	3,455.33	3,450.96	12.33	12.18	-108.92	-125.12	-365.07	388.41	364.07	24.34	15.958 SF	
3,600.00	3,600.00	3,554.21	3,548.73	12.69	12.56	-107.51	-119.51	-378.76	399.84	374.80	25.05	15.964	
3,700.00	3,700.00	3,653.08	3,646.49	13.05	12.94	-106.18	-113.90	-392.45	411.50	385.74	25.76	15.977	
3,800.00	3,800.00	3,751.95	3,744.25	13.41	13.33	-104.93	-108.30	-406.13	423.37	396.90	26.47	15.996	
3,900.00	3,900.00	3,850.83	3,842.01	13.77	13.72	-103.74	-102.69	-419.82	435.42	408.24	27.18	16.021	
4,000.00	4,000.00	3,949.70	3,939.77	14.12	14.11	-102.62	-97.08	-433.51	447.65	419.76	27.89	16.051	
4,100.00	4,100.00	4,048.58	4,037.54	14.48	14.51	-101.56	-91.47	-447.20	460.05	431.44	28.60	16.084	
4,200.00	4,200.00	4,147.45	4,135.30	14.84	14.91	-100.55	-85.86	-460.88	472.59	443.27	29.32	16.120	
4,300.00	4,300.00	4,246.33	4,233.06	15.20	15.31	-99.60	-80.25	-474.57	485.27	455.24	30.03	16.159	
4,400.00	4,400.00	4,345.20	4,330.82	15.56	15.72	-98.69	-74.65	-488.26	498.07	467.33	30.75	16.200	
4,500.00	4,500.00	4,444.08	4,428.58	15.92	16.13	-97.83	-69.04	-501.95	510.99	479.53	31.46	16.242	
4,600.00	4,600.00	4,542.95	4,526.35	16.27	16.53	-97.01	-63.43	-515.63	524.03	491.85	32.18	16.286	
4,700.00	4,700.00	4,641.83	4,624.11	16.63	16.95	-96.23	-57.82	-529.32	537.16	504.27	32.89	16.331	
4,800.00	4,800.00	4,740.70	4,721.87	16.99	17.36	-95.49	-52.21	-543.01	550.38	516.77	33.61	16.377	
4,900.00	4,900.00	4,839.58	4,819.63	17.35	17.78	-94.79	-46.60	-556.70	563.69	529.37	34.32	16.423	
5,000.00	5,000.00	4,938.45	4,917.39	17.71	18.19	-94.11	-41.00	-570.38	577.08	542.05	35.04	16.470	
5,100.00	5,099.99	5,037.37	5,015.20	18.06	18.61	-96.54	-35.39	-584.08	590.68	554.92	35.76	16.519	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 4H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,199.94	5,136.35	5,113.07	18.42	19.03	-96.06	-29.77	-597.78	604.55	568.07	36.48	16.573	
5,300.00	5,299.79	5,235.34	5,210.95	18.78	19.45	-95.80	-24.16	-611.48	618.66	581.46	37.20	16.630	
5,400.00	5,399.49	5,334.30	5,308.79	19.14	19.88	-95.73	-18.54	-625.18	632.99	595.06	37.93	16.690	
5,500.00	5,499.01	5,433.18	5,406.55	19.49	20.30	-95.84	-12.93	-638.87	647.54	608.89	38.66	16.751	
5,600.00	5,598.40	5,531.99	5,504.25	19.85	20.73	-96.23	-7.33	-652.55	662.25	622.86	39.39	16.813	
5,700.00	5,697.78	5,630.80	5,601.95	20.20	21.15	-96.61	-1.73	-666.23	676.99	636.86	40.12	16.873	
5,800.00	5,797.17	5,729.61	5,699.65	20.56	21.58	-96.97	3.88	-679.91	691.75	650.89	40.86	16.930	
5,900.00	5,896.55	5,828.42	5,797.35	20.92	22.01	-97.32	9.48	-693.59	706.55	664.95	41.60	16.986	
6,000.00	5,995.94	5,927.23	5,895.04	21.28	22.43	-97.66	15.09	-707.26	721.36	679.03	42.34	17.039	
6,100.00	6,095.32	6,026.04	5,992.74	21.64	22.86	-97.98	20.69	-720.94	736.20	693.13	43.08	17.090	
6,200.00	6,194.71	6,124.85	6,090.44	22.00	23.29	-98.29	26.30	-734.62	751.07	707.25	43.82	17.140	
6,300.00	6,294.09	6,223.66	6,188.14	22.37	23.72	-98.58	31.90	-748.30	765.95	721.39	44.56	17.188	
6,400.00	6,393.48	6,322.47	6,285.83	22.73	24.15	-98.87	37.51	-761.98	780.85	735.54	45.31	17.234	
6,500.00	6,492.86	6,421.28	6,383.53	23.09	24.59	-99.14	43.11	-775.66	795.77	749.72	46.06	17.278	
6,600.00	6,592.25	6,520.09	6,481.23	23.46	25.02	-99.41	48.72	-789.34	810.71	763.91	46.80	17.321	
6,700.00	6,691.63	6,618.90	6,578.93	23.82	25.45	-99.66	54.32	-803.01	825.67	778.11	47.55	17.363	
6,800.00	6,791.02	6,717.71	6,676.63	24.19	25.89	-99.91	59.93	-816.69	840.64	792.33	48.30	17.403	
6,900.00	6,890.40	6,816.52	6,774.32	24.56	26.32	-100.15	65.53	-830.37	855.62	806.56	49.06	17.442	
7,000.00	6,989.79	6,915.33	6,872.02	24.92	26.76	-100.38	71.13	-844.05	870.62	820.81	49.81	17.479	
7,100.00	7,089.17	7,014.14	6,969.72	25.29	27.19	-100.60	76.74	-857.73	885.63	835.07	50.56	17.516	
7,200.00	7,188.56	7,112.95	7,067.42	25.66	27.63	-100.81	82.34	-871.41	900.65	849.34	51.32	17.551	
7,300.00	7,287.94	7,211.75	7,165.11	26.03	28.06	-101.02	87.95	-885.09	915.69	863.62	52.07	17.585	
7,400.00	7,387.33	7,310.56	7,262.81	26.40	28.50	-101.22	93.55	-898.76	930.74	877.91	52.83	17.618	
7,500.00	7,486.71	7,409.37	7,360.51	26.77	28.94	-101.42	99.16	-912.44	945.80	892.21	53.59	17.650	
7,600.00	7,586.10	7,508.18	7,458.21	27.14	29.37	-101.60	104.76	-926.12	960.86	906.52	54.34	17.681	
7,700.00	7,685.48	7,606.99	7,555.91	27.51	29.81	-101.79	110.37	-939.80	975.94	920.84	55.10	17.711	
7,800.00	7,784.87	7,705.80	7,653.60	27.88	30.25	-101.96	115.97	-953.48	991.03	935.17	55.86	17.740	

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 5H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.50	0.50	0.50	0.50	179.49	-149.94	1.34	149.95				
100.00	100.00	100.50	100.50	0.52	0.52	179.49	-149.94	1.34	149.95	148.91	1.04	144.739	
200.00	200.00	200.50	200.50	0.70	0.70	179.49	-149.94	1.34	149.95	148.54	1.41	106.688	
300.00	300.00	300.50	300.50	0.99	0.99	179.49	-149.94	1.34	149.95	147.97	1.98	75.875	
400.00	400.00	400.50	400.50	1.31	1.31	179.49	-149.94	1.34	149.95	147.33	2.62	57.235	
500.00	500.00	500.50	500.50	1.65	1.65	179.49	-149.94	1.34	149.95	146.65	3.29	45.523	
600.00	600.00	600.50	600.50	1.99	1.99	179.49	-149.94	1.34	149.95	145.96	3.98	37.647	
700.00	700.00	700.50	700.50	2.34	2.34	179.49	-149.94	1.34	149.95	145.27	4.68	32.037	
800.00	800.00	800.50	800.50	2.69	2.69	179.49	-149.94	1.34	149.95	144.56	5.38	27.856	
900.00	900.00	900.50	900.50	3.04	3.05	179.49	-149.94	1.34	149.95	143.86	6.09	24.626	
1,000.00	1,000.00	1,000.50	1,000.50	3.40	3.40	179.49	-149.94	1.34	149.95	143.15	6.80	22.060	
1,100.00	1,100.00	1,100.50	1,100.50	3.75	3.75	179.49	-149.94	1.34	149.95	142.44	7.51	19.974	
1,200.00	1,200.00	1,200.50	1,200.50	4.11	4.11	179.49	-149.94	1.34	149.95	141.73	8.22	18.246	
1,300.00	1,300.00	1,300.50	1,300.50	4.46	4.47	179.49	-149.94	1.34	149.95	141.02	8.93	16.791	
1,400.00	1,400.00	1,400.50	1,400.50	4.82	4.82	179.49	-149.94	1.34	149.95	140.30	9.64	15.550	
1,500.00	1,500.00	1,500.50	1,500.50	5.18	5.18	179.49	-149.94	1.34	149.95	139.59	10.36	14.479	
1,600.00	1,600.00	1,600.50	1,600.50	5.53	5.54	179.49	-149.94	1.34	149.95	138.88	11.07	13.545	
1,700.00	1,700.00	1,700.50	1,700.50	5.89	5.89	179.49	-149.94	1.34	149.95	138.16	11.78	12.724	
1,800.00	1,800.00	1,800.50	1,800.50	6.25	6.25	179.49	-149.94	1.34	149.95	137.45	12.50	11.997	
1,900.00	1,900.00	1,900.50	1,900.50	6.61	6.61	179.49	-149.94	1.34	149.95	136.73	13.21	11.348	
2,000.00	2,000.00	2,000.50	2,000.50	6.96	6.97	179.49	-149.94	1.34	149.95	136.02	13.93	10.765	
2,100.00	2,100.00	2,100.50	2,100.50	7.32	7.32	179.49	-149.94	1.34	149.95	135.30	14.64	10.240	
2,200.00	2,200.00	2,200.50	2,200.50	7.68	7.68	179.49	-149.94	1.34	149.95	134.59	15.36	9.763	
2,300.00	2,300.00	2,300.50	2,300.50	8.04	8.04	179.49	-149.94	1.34	149.95	133.87	16.07	9.328	
2,400.00	2,400.00	2,400.50	2,400.50	8.39	8.40	179.49	-149.94	1.34	149.95	133.16	16.79	8.931	
2,500.00	2,500.00	2,500.50	2,500.50	8.75	8.75	179.49	-149.94	1.34	149.95	132.44	17.51	8.565	
2,600.00	2,600.00	2,600.50	2,600.50	9.11	9.11	179.49	-149.94	1.34	149.95	131.72	18.22	8.229	
2,700.00	2,700.00	2,700.50	2,700.50	9.47	9.47	179.49	-149.94	1.34	149.95	131.01	18.94	7.918	
2,800.00	2,800.00	2,800.50	2,800.50	9.83	9.83	179.49	-149.94	1.34	149.95	130.29	19.65	7.629	
2,900.00	2,900.00	2,900.50	2,900.50	10.18	10.19	179.49	-149.94	1.34	149.95	129.58	20.37	7.361	
3,000.00	3,000.00	3,000.50	3,000.50	10.54	10.54	179.49	-149.94	1.34	149.95	128.86	21.09	7.111	
3,100.00	3,100.00	3,100.50	3,100.50	10.90	10.90	179.49	-149.94	1.34	149.95	128.14	21.80	6.878	
3,200.00	3,200.00	3,200.50	3,200.50	11.26	11.26	179.49	-149.94	1.34	149.95	127.43	22.52	6.659	
3,300.00	3,300.00	3,300.50	3,300.50	11.62	11.62	179.49	-149.94	1.34	149.95	126.71	23.23	6.454	
3,400.00	3,400.00	3,400.50	3,400.50	11.97	11.98	179.49	-149.94	1.34	149.95	126.00	23.95	6.261	
3,500.00	3,500.00	3,500.50	3,500.50	12.33	12.33	179.49	-149.94	1.34	149.95	125.28	24.67	6.079	
3,600.00	3,600.00	3,600.50	3,600.50	12.69	12.69	179.49	-149.94	1.34	149.95	124.56	25.38	5.907	
3,700.00	3,700.00	3,700.50	3,700.50	13.05	13.05	179.49	-149.94	1.34	149.95	123.85	26.10	5.745	
3,800.00	3,800.00	3,800.50	3,800.50	13.41	13.41	179.49	-149.94	1.34	149.95	123.13	26.82	5.592	
3,900.00	3,900.00	3,900.50	3,900.50	13.77	13.77	179.49	-149.94	1.34	149.95	122.41	27.53	5.446	
4,000.00	4,000.00	4,000.50	4,000.50	14.12	14.13	179.49	-149.94	1.34	149.95	121.70	28.25	5.308	
4,100.00	4,100.00	4,100.50	4,100.50	14.48	14.48	179.49	-149.94	1.34	149.95	120.98	28.97	5.177	
4,200.00	4,200.00	4,200.50	4,200.50	14.84	14.84	179.49	-149.94	1.34	149.95	120.26	29.68	5.052	
4,300.00	4,300.00	4,300.50	4,300.50	15.20	15.20	179.49	-149.94	1.34	149.95	119.55	30.40	4.933	Alert
4,400.00	4,400.00	4,400.50	4,400.50	15.56	15.56	179.49	-149.94	1.34	149.95	118.83	31.12	4.819	Alert
4,500.00	4,500.00	4,500.50	4,500.50	15.92	15.92	179.49	-149.94	1.34	149.95	118.11	31.83	4.711	Alert
4,600.00	4,600.00	4,600.50	4,600.50	16.27	16.28	179.49	-149.94	1.34	149.95	117.40	32.55	4.607	Alert
4,700.00	4,700.00	4,700.50	4,700.50	16.63	16.63	179.49	-149.94	1.34	149.95	116.68	33.27	4.508	Alert
4,800.00	4,800.00	4,800.50	4,800.50	16.99	16.99	179.49	-149.94	1.34	149.95	115.96	33.98	4.413	Alert
4,900.00	4,900.00	4,900.50	4,900.50	17.35	17.35	179.49	-149.94	1.34	149.95	115.25	34.70	4.321	Alert
5,000.00	5,000.00	5,000.52	5,000.52	17.71	17.71	179.49	-149.94	1.34	149.95	114.53	35.42	4.234	Alert
5,010.68	5,010.68	5,011.52	5,011.52	17.74	17.75	176.35	-149.93	1.33	149.95	114.45	35.49	4.225	Alert, CC

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 5H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	5,099.99	5,103.63	5,103.62	18.06	18.08	176.54	-148.86	0.88	149.99	113.85	36.14	4.151	Alert
5,200.00	5,199.94	5,206.73	5,206.66	18.42	18.45	177.13	-145.65	-0.48	150.13	113.29	36.84	4.075	Alert
5,300.00	5,299.79	5,309.79	5,309.56	18.78	18.81	178.11	-140.30	-2.74	150.42	112.89	37.54	4.007	Alert
5,400.00	5,399.49	5,412.81	5,412.25	19.14	19.18	179.47	-132.83	-5.89	150.90	112.68	38.22	3.949	Alert
5,500.00	5,499.01	5,515.75	5,514.66	19.49	19.55	-178.80	-123.24	-9.95	151.64	112.75	38.89	3.899	Alert
5,600.00	5,598.40	5,616.85	5,615.03	19.85	19.91	-176.80	-112.12	-14.65	152.16	112.57	39.59	3.844	Alert
5,700.00	5,697.78	5,716.70	5,714.15	20.20	20.27	-174.81	-100.95	-19.37	152.70	112.39	40.31	3.788	Alert, ES
5,800.00	5,797.17	5,816.56	5,813.27	20.56	20.64	-172.84	-89.79	-24.09	153.43	112.39	41.04	3.739	Alert
5,900.00	5,896.55	5,916.42	5,912.39	20.92	21.00	-170.88	-78.62	-28.81	154.34	112.57	41.76	3.696	Alert
6,000.00	5,995.94	6,016.28	6,011.51	21.28	21.37	-168.95	-67.46	-33.53	155.42	112.93	42.49	3.658	Alert
6,100.00	6,095.32	6,116.13	6,110.63	21.64	21.74	-167.05	-56.30	-38.25	156.68	113.46	43.22	3.625	Alert
6,200.00	6,194.71	6,215.99	6,209.75	22.00	22.11	-165.18	-45.13	-42.97	158.12	114.16	43.95	3.597	Alert
6,300.00	6,294.09	6,315.85	6,308.87	22.37	22.48	-163.35	-33.97	-47.69	159.71	115.02	44.69	3.574	Alert
6,400.00	6,393.48	6,415.71	6,407.99	22.73	22.86	-161.55	-22.80	-52.41	161.47	116.04	45.43	3.555	Alert
6,500.00	6,492.86	6,515.56	6,507.11	23.09	23.23	-159.80	-11.64	-57.13	163.38	117.22	46.17	3.539	Alert
6,600.00	6,592.25	6,615.42	6,606.23	23.46	23.61	-158.08	-0.47	-61.85	165.44	118.54	46.91	3.527	Alert
6,700.00	6,691.63	6,715.28	6,705.35	23.82	23.99	-156.42	10.69	-66.57	167.65	120.00	47.65	3.518	Alert
6,800.00	6,791.02	6,815.14	6,804.46	24.19	24.37	-154.79	21.86	-71.30	170.00	121.60	48.40	3.513	Alert
6,900.00	6,890.40	6,914.99	6,903.58	24.56	24.75	-153.21	33.02	-76.02	172.48	123.33	49.14	3.510	Alert
7,000.00	6,989.79	7,014.85	7,002.70	24.92	25.13	-151.68	44.18	-80.74	175.08	125.19	49.89	3.509	Alert
7,100.00	7,089.17	7,114.71	7,101.82	25.29	25.52	-150.19	55.35	-85.46	177.81	127.17	50.64	3.511	Alert
7,200.00	7,188.56	7,214.57	7,200.94	25.66	25.90	-148.75	66.51	-90.18	180.65	129.26	51.40	3.515	Alert
7,300.00	7,287.94	7,314.43	7,300.06	26.03	26.29	-147.35	77.68	-94.90	183.61	131.46	52.15	3.521	Alert
7,400.00	7,387.33	7,414.28	7,399.18	26.40	26.68	-146.00	88.84	-99.62	186.67	133.76	52.91	3.528	Alert
7,500.00	7,486.71	7,514.14	7,498.30	26.77	27.06	-144.69	100.01	-104.34	189.83	136.17	53.67	3.537	Alert
7,600.00	7,586.10	7,614.00	7,597.42	27.14	27.45	-143.43	111.17	-109.06	193.09	138.67	54.43	3.548	Alert
7,700.00	7,685.48	7,713.86	7,696.54	27.51	27.84	-142.21	122.33	-113.78	196.44	141.25	55.19	3.560	Alert
7,800.00	7,784.87	7,813.71	7,795.66	27.88	28.23	-141.03	133.50	-118.50	199.87	143.92	55.95	3.572	Alert
7,900.00	7,884.25	7,912.32	7,893.59	28.25	28.62	-140.01	144.13	-122.99	203.57	146.85	56.71	3.589	Alert
8,000.00	7,983.79	8,010.11	7,990.95	28.62	28.99	-139.40	152.56	-126.56	207.12	149.65	57.46	3.604	Alert
8,100.00	8,083.54	8,107.96	8,088.57	28.98	29.36	-138.96	158.70	-129.15	209.72	151.52	58.20	3.604	Alert
8,200.00	8,183.45	8,205.86	8,186.37	29.34	29.72	-138.70	162.54	-130.78	211.35	152.44	58.92	3.587	Alert
8,300.00	8,283.43	8,303.77	8,284.26	29.70	30.07	-138.60	164.07	-131.42	212.01	152.39	59.62	3.556	Alert
8,400.00	8,383.43	8,403.43	8,383.93	30.06	30.42	-135.45	164.10	-131.43	212.02	151.70	60.32	3.515	Alert
8,500.00	8,483.43	8,503.43	8,483.93	30.41	30.77	-135.45	164.10	-131.43	212.02	151.00	61.03	3.474	Alert
8,600.00	8,583.43	8,603.43	8,583.93	30.77	31.12	-135.45	164.10	-131.43	212.02	150.29	61.74	3.434	Alert
8,700.00	8,683.43	8,703.43	8,683.93	31.12	31.47	-135.45	164.10	-131.43	212.02	149.58	62.44	3.395	Alert
8,800.00	8,783.43	8,803.43	8,783.93	31.48	31.82	-135.45	164.10	-131.43	212.02	148.87	63.15	3.357	Alert
8,900.00	8,883.43	8,903.43	8,883.93	31.83	32.17	-135.45	164.10	-131.43	212.02	148.17	63.86	3.320	Alert
9,000.00	8,983.43	9,003.43	8,983.93	32.19	32.52	-135.45	164.10	-131.43	212.02	147.46	64.57	3.284	Alert
9,100.00	9,083.43	9,103.43	9,083.93	32.54	32.87	-135.45	164.10	-131.43	212.02	146.75	65.28	3.248	Alert
9,200.00	9,183.43	9,203.43	9,183.93	32.90	33.22	-135.45	164.10	-131.43	212.02	146.04	65.99	3.213	Alert
9,300.00	9,283.43	9,303.43	9,283.93	33.25	33.57	-135.45	164.10	-131.43	212.02	145.33	66.69	3.179	Alert
9,400.00	9,383.43	9,403.43	9,383.93	33.61	33.93	-135.45	164.10	-131.43	212.02	144.62	67.40	3.146	Alert
9,500.00	9,483.43	9,503.43	9,483.93	33.96	34.28	-135.45	164.10	-131.43	212.02	143.91	68.11	3.113	Alert
9,600.00	9,583.43	9,603.43	9,583.93	34.32	34.63	-135.45	164.10	-131.43	212.02	143.20	68.82	3.081	Alert
9,700.00	9,683.43	9,703.43	9,683.93	34.67	34.98	-135.45	164.10	-131.43	212.02	142.49	69.53	3.049	Alert
9,800.00	9,783.43	9,803.43	9,783.93	35.03	35.34	-135.45	164.10	-131.43	212.02	141.78	70.24	3.019	Alert
9,900.00	9,883.43	9,903.43	9,883.93	35.38	35.69	-135.45	164.10	-131.43	212.02	141.07	70.95	2.988	Alert
10,000.00	9,983.43	10,003.43	9,983.93	35.74	36.04	-135.45	164.10	-131.43	212.02	140.36	71.66	2.959	Alert
10,100.00	10,083.43	10,103.43	10,083.93	36.10	36.39	-135.45	164.10	-131.43	212.02	139.65	72.37	2.930	Alert
10,200.00	10,183.43	10,203.43	10,183.93	36.45	36.75	-135.45	164.10	-131.43	212.02	138.94	73.08	2.901	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 06-T26S-R34E - Jayhawk 6-7 FED FEE COM 5H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 5.00 ft

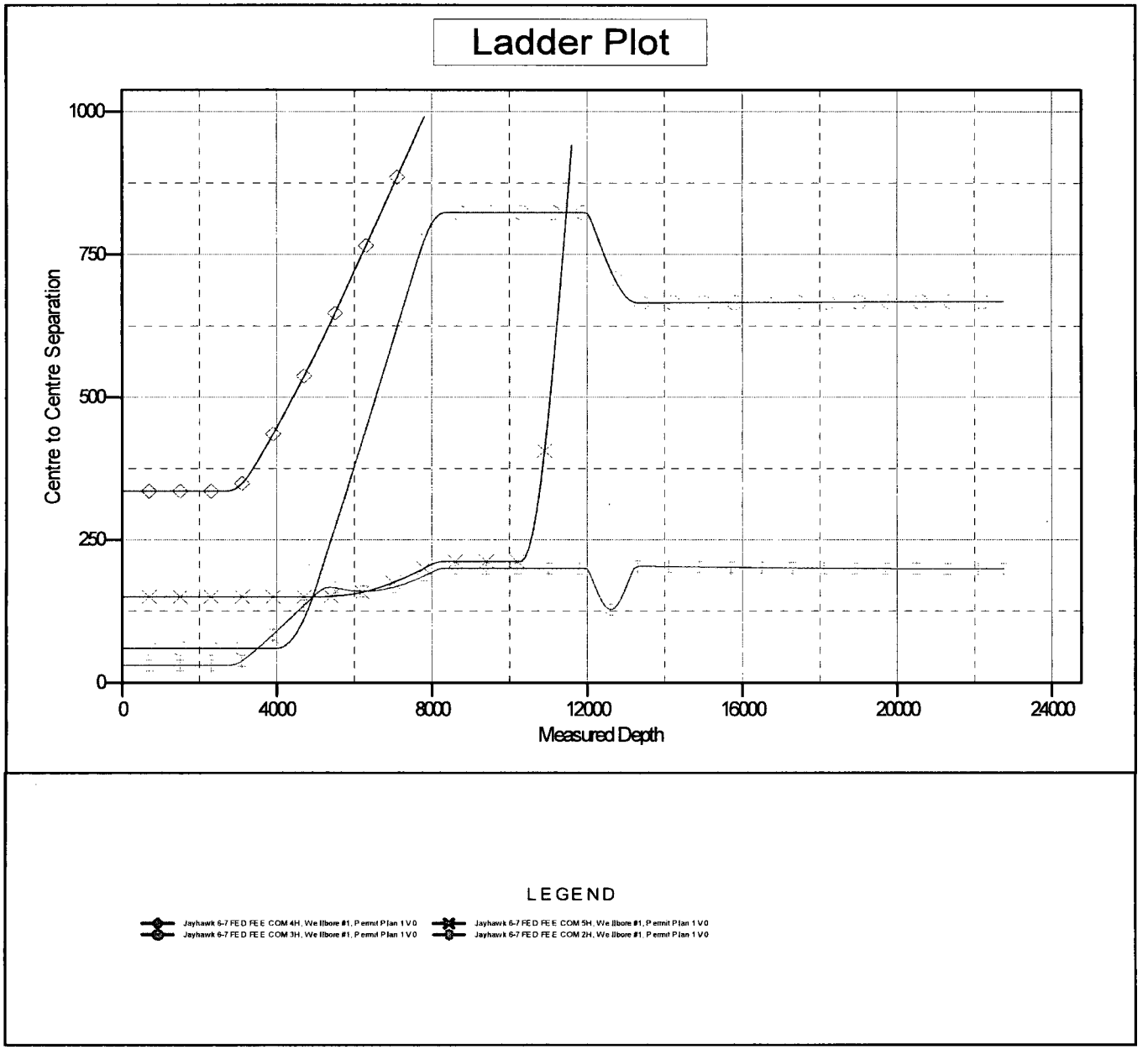
Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,209.73	10,193.16	10,213.16	10,193.66	36.49	36.78	-135.45	164.10	-131.43	212.02	138.87	73.15	2.898	Alert
10,300.00	10,283.43	10,300.00	10,280.49	36.81	37.08	-135.48	163.94	-131.43	212.16	138.41	73.75	2.877	Alert, SF
10,400.00	10,383.43	10,378.41	10,358.51	37.16	37.31	-136.82	156.75	-131.37	218.76	144.86	73.90	2.960	Alert
10,500.00	10,483.43	10,453.57	10,431.71	37.52	37.51	-139.72	139.92	-131.23	235.60	162.22	73.39	3.210	Alert
10,600.00	10,583.43	10,523.28	10,497.10	37.87	37.66	-143.34	115.88	-131.03	263.19	191.03	72.15	3.648	Alert
10,700.00	10,683.43	10,586.30	10,553.30	38.23	37.78	-146.96	87.46	-130.79	301.42	231.11	70.31	4.287	Alert
10,800.00	10,783.43	10,642.24	10,600.32	38.59	37.88	-150.19	57.19	-130.53	349.47	281.36	68.12	5.131	
10,900.00	10,883.43	10,691.35	10,638.99	38.94	37.95	-152.89	26.95	-130.28	406.02	340.19	65.84	6.167	
11,000.00	10,983.43	10,734.20	10,670.52	39.30	38.01	-155.09	-2.05	-130.03	469.66	406.00	63.66	7.378	
11,100.00	11,083.43	10,771.52	10,696.14	39.65	38.06	-156.87	-29.18	-129.80	539.08	477.39	61.69	8.738	
11,200.00	11,183.43	10,800.00	10,714.48	40.01	38.09	-158.14	-50.97	-129.62	613.23	553.47	59.76	10.262	
11,300.00	11,283.43	10,832.50	10,734.05	40.37	38.13	-159.49	-76.91	-129.40	691.11	632.60	58.51	11.812	
11,400.00	11,383.43	10,850.00	10,743.97	40.72	38.16	-160.17	-91.33	-129.28	772.20	715.24	56.97	13.556	
11,500.00	11,483.43	10,879.46	10,759.65	41.08	38.20	-161.26	-116.25	-129.06	855.65	799.39	56.27	15.207	
11,600.00	11,583.43	10,900.00	10,769.83	41.44	38.23	-161.97	-134.10	-128.91	941.28	885.80	55.48	16.967	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 @ 3357.70ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Jayhawk FED FEE COM 1H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.44°

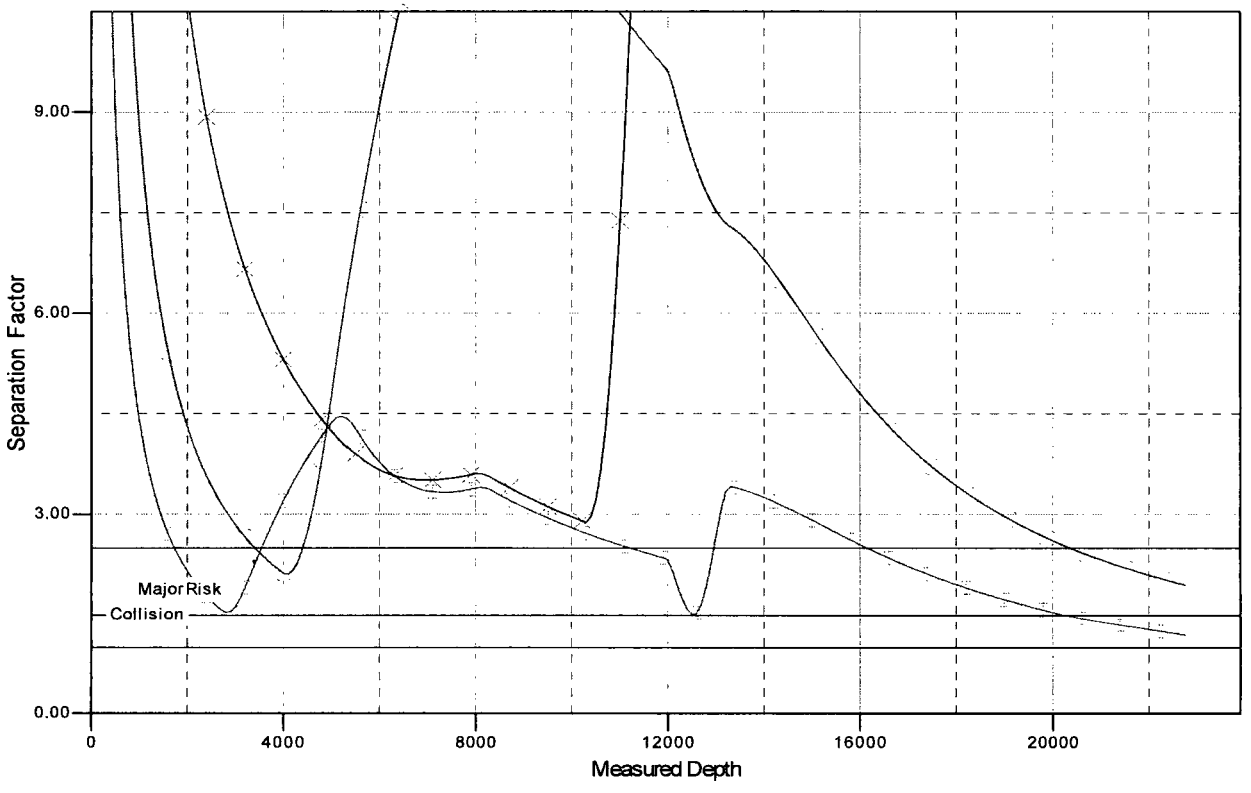


Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Jayhawk FED FEE COM 1H
Project:	Lea County (NAD83 New Mexico East)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 06-T26S-R34E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	5.00 ft	**North Reference:**	Grid
Reference Well:	Jayhawk FED FEE COM 1H	**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 @ 3357.70ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Jayhawk FED FEE COM 1H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.44°

Separation Factor Plot



LEGEND

Jayhawk 6-7 FED FEE COM 4H, Wellbore #1, Permit Plan 1 V0
Jayhawk 6-7 FED FEE COM 3H, Wellbore #1, Permit Plan 1 V0
Jayhawk 6-7 FED FEE COM 5H, Wellbore #1, Permit Plan 1 V0
Jayhawk 6-7 FED FEE COM 2H, Wellbore #1, Permit Plan 1 V0