Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM088134

6. If Indian, Allotee or Tribe Name
326251

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

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

8. Lease Name and Well No.
MR. POTATO HEAD 11-14 FED COM
622H

2. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP

9. API Well No.
30-015-46721

3a. Address
333 West Sheridan Avenue Oklahoma City OK 73102

3b. Phone No. *(include area code)*
(800)583-3866

10. Field and Pool, or Exploratory
PURPLE SAGE-WOLFCAMP / WOLFCAI

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWNW / 350 FNL / 1135 FWL / LAT 32.2384593 / LONG -103.9601124
At proposed prod. zone SESW / 20 FSL / 1870 FWL / LAT 32.2103029 / LONG -103.9577038

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 11 / T24S / R29E / NMP

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

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
350 feet

16. No of acres in lease
560

17. Spacing Unit dedicated to this well
640

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
1690 feet

19. Proposed Depth
10260 feet / 20601 feet

20. BLM/BIA Bond No. in file
FED: NMB000801

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3052 feet

22. Approximate date work will start*
03/01/2020

23. Estimated duration
45 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Erin Workman / Ph: (405)552-7970	06/04/2019

Title
Regulatory Compliance Professional

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	01/29/2020

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS

Approval Date: 01/29/2020

KS 2-11-20

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*(Instructions on page 2)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
LEASE NO.:	NMNM088134
WELL NAME & NO.:	Mr. Potato Head 11-14 Fed Com 622H
SURFACE HOLE FOOTAGE:	350'/N & 1135'/W
BOTTOM HOLE FOOTAGE	20'/S & 1870'/W
LOCATION:	Section 11, T.24 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **400 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

Option 1 (Single Stage):

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

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator has proposed to pump down 13-3/8" X 7-5/8" annulus. Operator must run a CBL from TD of the 7-5/8" casing to surface. Submit results to BLM.

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

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

Alternate Casing Design:

4. The **13-3/8** inch surface casing shall be set at approximately **400 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    e. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    f. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    g. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
    h. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

    Option 1 (Single Stage):

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

    Option 2:

    Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

    c. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

d. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

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

Operator is ONLY approved to drill 10.625" hole instead of 9.875" for intermediate 1 with a BTC connection if cement excess is greater than 24% excess. Does not have enough cement to surface (-19.28%).

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

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

C. PRESSURE CONTROL

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

2.

Option 1:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the

blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

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

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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

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

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

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

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

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

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

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
WELL NAME & NO.:	Mr. Potato Head 11-14 Fed Com 622H
SURFACE HOLE FOOTAGE:	350'/N & 1135'/W
BOTTOM HOLE FOOTAGE	20'/S & 1870'/W
LOCATION:	Section 11, T.24 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

Approval Date: 01/29/2020

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)

Sub Pad and Final Pad Stipulations / Conditions of Approval
Devon will only build and grade the 400'x400' surface sub pad. The 600'x'600' pad will not be graded or built. To extend the 400'x400' sub pad, an additional APD must be submitted and approved before the additional 200' extension can be graded and built.

Hydrology Stipulations / Conditions of Approval
The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

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

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

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

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

Range Stipulations / Conditions of Approval

Cattleguards

Where a permanent cattlegaurd is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway 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

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action

Potash Minerals

Measures to minimize impacts to potash mineral reserves have been considered during the BLM's planning process by establishment of the Twin Wells Drill Island. No additional special mitigation or requirements have been identified by the BLM.

Karst Stipulations / Conditions of Approval

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:

- 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 values 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.

Special Status Plans Species Stipulations

For projects with potential for direct impacts but not direct displacement

No blading would be authorized within proposed project. Occupied habitat areas at high risk for habitat degradation and/or displacement of special status plant species individuals would be barricaded from project-related activities, as specified in the Conditions of Approval or by a BLM Authorized Officer. All surface disturbance within 50 meters of known special status plant species locations will be mulched after construction, as specified in the Conditions of Approval or by a BLM Authorized Officer.

To prevent direct impacts to the Tharp's Blue Star individuals that were observed during field surveys, the individuals will be visibly marked and barricaded to impede accidental pedestrian, vehicle or equipment travel over the individual. Project participants will be briefed about the avoidance area and trained in Tharp's Blue Star identification prior to initiating any ground disturbing activities, including vehicle travel. Upon project completion, the barricade and visible markings will be removed, and the condition of the individual will be documented and reported to the Authorized Officer and BLM Botanist.

To limit any impacts to vegetation and to protect any special status plant species that were not observed during field surveys, vehicles and equipment would be kept on existing roads and approved surfaces and would avoid travel across undisturbed surfaces; workers would be instructed not to park off roads or in undisturbed areas more than 20 meters from fenceline.

Blading of vegetation within undisturbed areas will not be allowed: maximum width of blading operations will not exceed 0 feet. The fenceline is included in this area. (Blading is defined as the complete removal of brush and ground vegetation).

BLM special status plant surveys would be required for subsequent actions tiered from this analysis when the impacts effects zones of the proposed actions intersect SSPS potential habitat that has not been surveyed within three years prior to the notice of application for the proposed action. If occupied habitat is observed within the impacts effects zones for the proposed action(s), the proposed action(s) would avoid occupied habitat and mitigate anticipated impacts as determined appropriate for the conservation of the species by the Authorized Officer in coordination with a BLM biologist.

Vehicles and equipment will be kept on existing roads and approved surfaces only, and will avoid travel across undisturbed surfaces; workers will be instructed not to park off the roads or in undisturbed areas. Alterations to project design and additions of project components will require SSPS surveys and re-analysis of impacts if those project elements intersect SSPS suitable habitat.

SEISMIC MITIGATION MEASURES

Tharp's Blue Star:

- Project field participants will be trained in identification of the relevant BLM special status plant species, and any suspected observations of the relevant species will be avoided and reported (via an e-mail including an image and GPS coordinates for each observation) to the Authorized Officer as soon as possible.

- Vibroseis equipment will only travel along pre-surveyed, pre-approved routes. Devon shall be responsible for identifying and maintaining these restrictions. If any alteration of travel routes occurs, Devon will immediately request authorization from the BLM. Devon will be responsible for any remediation, including impact monitoring, which becomes necessary as a result of any damage to special status species and their occupied habitats caused by geophysical activities.

    - Vibroseis equipment will be assisted by an onboard GPS navigation system to help keep the equipment on the predetermined route between source points.

    - Vibroseis equipment will be equipped by an onboard GPS data collection system to document actual travel routes.

    - Devon will provide the BLM with a GIS line feature class of actual source line routes traveled during operations. This data will be provided to the BLM within 5 business days of notification of project completion.

- Vibroseis equipment will only emit signals at pre-surveyed, pre-approved locations. Devon shall be responsible for identifying and maintaining these restrictions. If any alteration of source signal locations occurs, Devon will immediately request authorization from the BLM. Devon will be responsible for any remediation, including impact monitoring, which becomes necessary as a result of any damage to special status species and their occupied habitats caused by geophysical activities.

    - Vibroseis equipment will be assisted by an onboard GPS navigation system to help navigate the equipment to the predetermined source points.

    - Vibroseis equipment will be equipped by an onboard GPS data collection system to document actual source emission locations.

    - Devon will provide the BLM with a GIS points feature class of actual source line travel turn-around locations and actual seismic source emission

locations. This data will be provided to the BLM within 5 business days of notification of project completion.

- All frequent vehicle travel routes (routed expected to be traversed by any wheeled and/or motorized vehicle greater than 2 times) will utilize existing roads, trails, and existing disturbance whenever available. This shall include, but not be limited to, buggies, ATV/OHVs, pickup trucks, and other vehicles.
    - All frequent vehicle travel routes (routed expected to be traversed by any wheeled and/or motorized vehicle greater than 2 times) that do not utilize existing roads, trails, and existing disturbance shall follow pre-surveyed, pre-approved locations. This shall include, but not be limited to, buggies, ATV/OHVs, pickup trucks, and other vehicles.
    - Devon shall be responsible for identifying and maintaining these restrictions. If vehicles deviate from approved routes, Devon will immediately notify the BLM. Devon will be responsible for any remediation, including impact monitoring, which becomes necessary as a result of any damage to special status species and their occupied habitats caused by geophysical activities.

Prior to beginning operations in an area, Devon will survey all source and off-road frequent vehicle travel routes for any occurrences of Tharp's Blue Star; any occurrences will be documented and mapped for avoidance, and survey results will be reported to the BLM. Any occurrences will be avoided by a 20 meter buffer, and vehicle travel of any kind will not be allowed within these buffer areas unless explicitly authorized. If any damage occurs, Devon will immediately notify the BLM. Devon will be responsible for any remediation, including impact monitoring, which becomes necessary as a result of any damage to special status species and their occupied habitats caused by geophysical activities.

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.

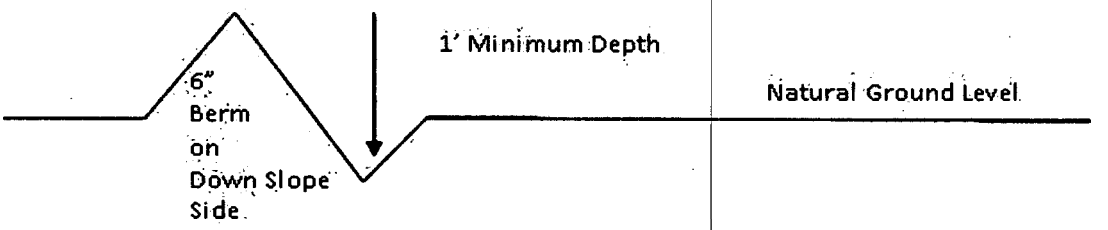
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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:

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

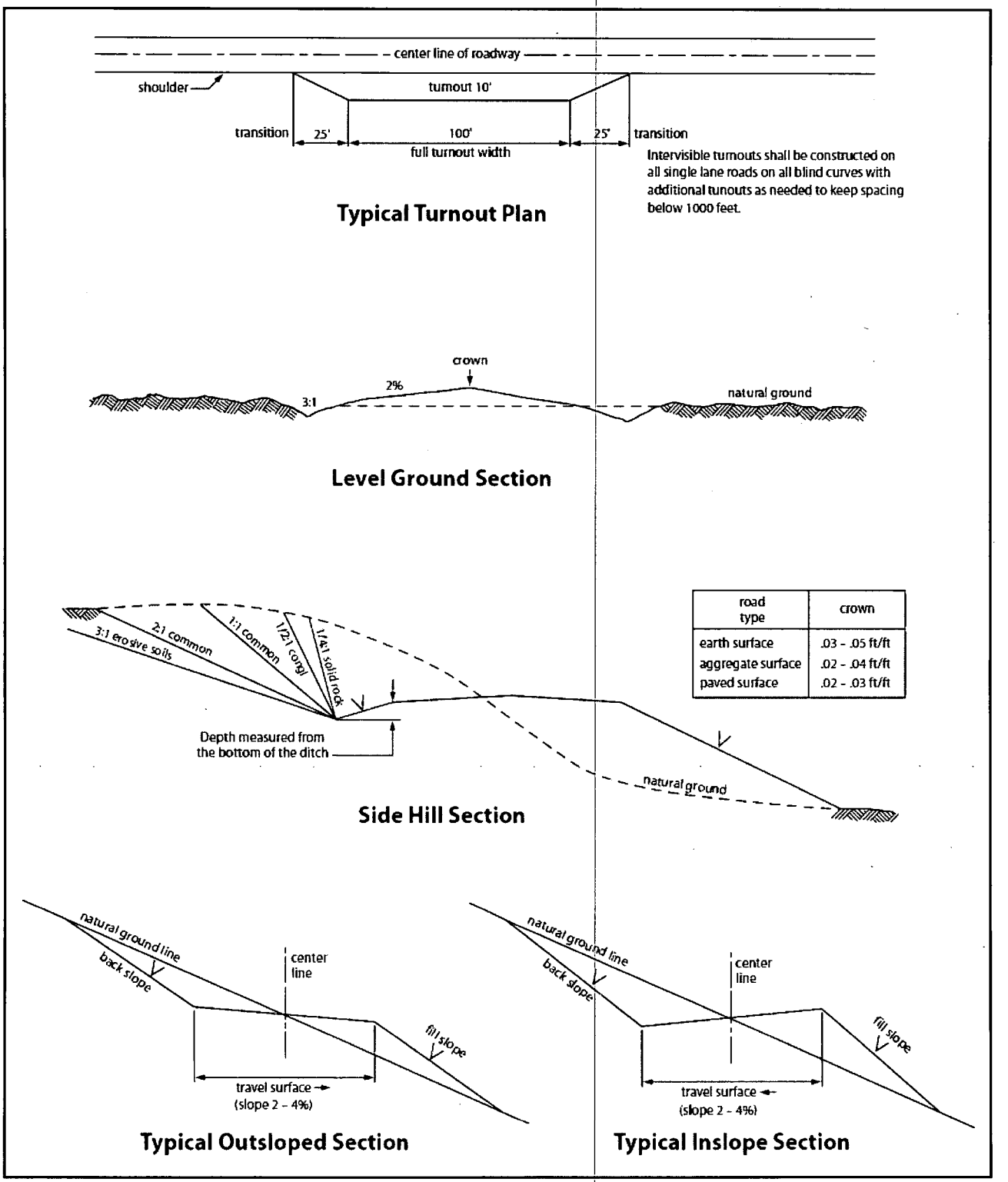


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures

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

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

B. PIPELINES

BURIED PIPELINE STIPULATIONS

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

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

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

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

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

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

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

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

( ) seed mixture 1	( ) seed mixture 3
(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.

19. Special Stipulations:

SPECIAL STATUS PLANT SPECIES (SSPS) HABITAT

Blading of vegetation within any undisturbed area **will not be allowed:** maximum width of blading operations will not exceed **0 feet**. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

Hydrology Stipulations / Conditions of Approval

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

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

Karst Stipulations / Conditions of Approval

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 values 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.

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.

SPECIAL STATUS PLANT SPECIES (SSPS) HABITAT

Vehicles and equipment will be kept on existing roads and approved surfaces only, and will avoid travel across undisturbed surfaces; workers will be instructed not to park off the roads or in undisturbed areas. Alterations to project design and additions of project components will require SSPS surveys and re-analysis of impacts if those design project elements intersect SSPS suitable habitat. Blading, mowing, and chemical control of vegetation within any undisturbed area will not be allowed.

Hydrology Stipulations / Conditions of Approval

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

Karst Stipulations / Conditions of Approval

MITIGATING MEASURES FOR POWERLINES:

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

D. OIL AND GAS RELATED SITES

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.

19. Special Stipulations:

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be corrected within two weeks and proper measures will be taken to prevent future erosion.

SPECIAL STATUS PLANT SPECIES (SSPS) HABITAT

Vehicles and equipment will be kept on existing roads and approved surfaces only, and will avoid travel across undisturbed surfaces; workers will be instructed not to park off

the roads or in undisturbed areas. Alterations to project design and additions of project components will require SSPS surveys and re-analysis of impacts if those design project elements intersect SSPS suitable habitat. Blading, mowing, and chemical control of vegetation within undisturbed areas will not be allowed.

Sub Pad and Final Pad Stipulations / Conditions of Approval

Only the sub pad will be built for beginning production. The 400'x400' sub pad may be extended to the full 600'x600' length when needed to advance production. Only the 400'x400' sub pad may be graded until the additional 200' expansion is needed to advance production.

Hydrology Stipulations / Conditions of Approval

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

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

Karst Stipulations / Conditions of Approval

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.

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

02/03/2020

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: Curtis Johnson **Signed on:** 09/17/2018

Title:

Street Address: 111

City: 111 **State:** CO **Zip:** 11222

Phone: (111)222-3333

Email address: cejohnson@blm.gov

Field Representative

Representative Name:

Street Address: 333 WEST SHERIDAN AVENUE

City: OKC **State:** OK **Zip:** 73102

Phone: (405)552-4643

Email address: Travis.phibbs@dvn.com

AFMSS

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

Application Data Report

02/03/2020

APD ID: 10400041957 **Submission Date:** 06/04/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400041957 **Tie to previous NOS?** **Submission Date:** 06/04/2019

BLM Office: CARLSBAD **User:** Curtis Johnson **Title:**

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM088134 **Lease Acres:** 560

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue **Zip:** 73102

Operator PO Box:

Operator City: Oklahoma City **State:** OK

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING **Master Development Plan name:** Potato Basin MDP 1

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** PURPLE SAGE-WOLFCAMP **Pool Name:** WOLFCAMP

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

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

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** MR. POTATO HEAD 11 PAD **Number:** 2

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: **Distance to nearest well:** 1690 FT **Distance to lease line:** 350 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: MR_POTATO_HEAD_11_14_F_C_622H_SIGNATURE_20190529124021.pdf

Well work start Date: 03/01/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **Reference Datum:**

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	350	FNL	1135	FWL	24S	29E	11	Aliquot NWNW	32.2384593	-103.9601124	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 088134	3052	0	0	
KOP Leg #1	50	FNL	1870	FWL	24S	29E	11	Aliquot NENW	32.239277	-103.957732	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 088134	-6635	9734	9687	
PPP Leg #1-1	1320	FSL	1870	FWL	24S	29E	11	Aliquot SESW	32.228528	-103.357721	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 085892	-7208	13971	10260	

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-2	120	FNL	1870	FWL	24S	29E	11	Aliquot NENW	32.2390937	-103.9577368	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 088134	-6909	10020	9961	
PPP Leg #1-3	120	FNL	1870	FWL	24S	29E	11	Aliquot NENW	32.2390937	-103.9577368	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 088134	-6909	10020	9961	
EXIT Leg #1	1320	FSL	1870	FWL	24S	29E	14	Aliquot SESW	32.228528	-103.957721	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 085892	-7208	13971	10260	
BHL Leg #1	20	FSL	1870	FWL	24S	29E	14	Aliquot SESW	32.2103029	-103.9577038	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 096222	-7208	20601	10260	

Drilling Plan Data Report
02/03/2020

APD ID: 10400041957 **Submission Date:** 06/04/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
459530	UNKNOWN	3052	0	0	ALLUVIUM	NONE	N
459531	TOP SALT	2533	511	511	SALT	NONE	N
459532	BASE OF SALT	-67	3111	3111	SALT	NONE	N
459533	BELL CANYON	-98	3142	3142	SANDSTONE	NATURAL GAS, OIL	N
459534	CHERRY CANYON	-956	4000	4000	SANDSTONE	NATURAL GAS, OIL	N
459535	BRUSHY CANYON	-2521	5565	5565	SANDSTONE	NATURAL GAS, OIL	N
459536	BONE SPRING	-4819	7863	7863	SANDSTONE	NATURAL GAS, OIL	N
459537	WOLFCAMP	-7092	10136	10136	SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 9791

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested..
Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.
Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.
Choke Diagram Attachment:

5M_BOPE__CK_20190522125234.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190522125256.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

5M_BOPE__CK_20190522125234.pdf

5M_BOPE__CK_20190522125256.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 10260

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

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.
Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.
Choke Diagram Attachment:

5M_BOPE__CK_20190522125152.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190522125200.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	400	0	400			400	H-40	48	ST&C	1.125	1	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	9791	0	9791			9791	P-110	29.7	OTHER - Flushmax III	1.125	1	BUOY	1.6	BUOY	1.6
3	PRODUCTION	6.75	5.5	NEW	API	N	0	20601	0	10260			20601	P-110	20	OTHER - VAM SG	1.125	1	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20190522125424.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20190522125437.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20190522125450.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	400	328	1.44	13.2	472.3	50	Class C	Class C + adds
INTERMEDIATE	Lead		0	5791	529.3	3.27	9	1730.9	30	C	Class C + adds
INTERMEDIATE	Tail		5791	9791	783	1.44	13.2	1127.6	30	C	Class C + adds
PRODUCTION	Lead		7734	9734	62.6	3.27	9	204.8	10	Tuned	Class C + adds
PRODUCTION	Tail		9734	20601	693.3	1.44	13.2	998.4	10	H	(50:50) Clas H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	400	WATER-BASED MUD	8.5	9							

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
400	9791	SALT SATURATED	10	10.5							
9791	20601	OIL-BASED MUD	10	10.5							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Logs (or some combination thereof depending on whether in vertical or horizontal section) will be run TD to surface; stated logs will be in the Completion Report and submitted to the BLM.

List of open and cased hole logs run in the well:

CBL,DS,GR,MWD

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5602 **Anticipated Surface Pressure:** 3344.8

Anticipated Bottom Hole Temperature(F): 144

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

MR_POTATO_HEAD_11_14_FC_622H_H2S_20190521080223.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: MR. POTATO HEAD 11-14 FED COM **Well Number:** 622H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Mr._Potatohead_11_14_Fed_Com_622H_Permit_Plan_1_20190521080320.pdf
Devon_Mr._Potatohead_11_14_Fed_Com_622H_Permit_Plan_1_AC_Report_20190521080321.pdf
Devon_Mr._Potatohead_11_14_Fed_Com_622H_Permit_Plan_1_Plot_20190521080322.pdf

Other proposed operations facets description:

5.5 17# P-110 BTC
5.5 X 20 VAM-SG
7.625 29.70 P110 FLUSHMAX
8.625 32 P110 TLW
13.375 48 H40
5m BOPE CK
MB Wellhead 5M- 13.38 X 7 5.8 X 5 1/2
MB Wellhead 5M- 13.38 X 8.625
DRILLING PLAN
CLOSED LOOP
GAS CAPTURE FORM
MULTI-BOWL VERBIAGE 5M
SPUDDER RIG INFORMATION

Other proposed operations facets attachment:

5.5_17__P_110_BTC_20190521082937.pdf
5.5_20_P110_EC_VAMSG_20190521082938.pdf
5M_BOPE__CK_20190521082939.pdf
7.625_29.70_P110_Flushmax_20190521082939.pdf
8.625_32.00_P110HSCY_TLW_20190521082940.PDF
13.375_48__H40_20190521082941.pdf
Clsd_Loop_20190521082942.pdf
MB_Verb_5M_20190521082943.pdf
MB_Wellhd_5M_13.375_8.625_20190521082944.pdf
Mr._Potato_Head_11_CTB_1_GCP2_09_06_18_20190521082945.rtf
Mr._Potato_Head_11_14_Fed_Com_622H_DRILL_PLAN_1_20190521083017.pdf
Spudder_Rig_Info_20190521083018.pdf
MB_Wellhd_5M___WC_10.75_7.625_20190521083846.pdf

Other Variance attachment:

Co_flex_20190521083934.pdf

Casing Assumptions and Load Cases

Intermediate

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

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

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

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

Casing Assumptions and Load Cases

Surface

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

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

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

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

Casing Assumptions and Load Cases

Production

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

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

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

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Casing Assumptions and Load Cases

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Casing Assumptions and Load Cases

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Casing Assumptions and Load Cases

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Pressure Test	Formation Pore Pressure	Fluid in hole (water or produced water) + test psi
Tubing Leak	Formation Pore Pressure	Packer @ KOP, leak below surface 8.6 ppg packer fluid
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Cementing	Wet cement weight	Water (8.33ppg)

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

Casing Assumptions and Load Cases

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

devon

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

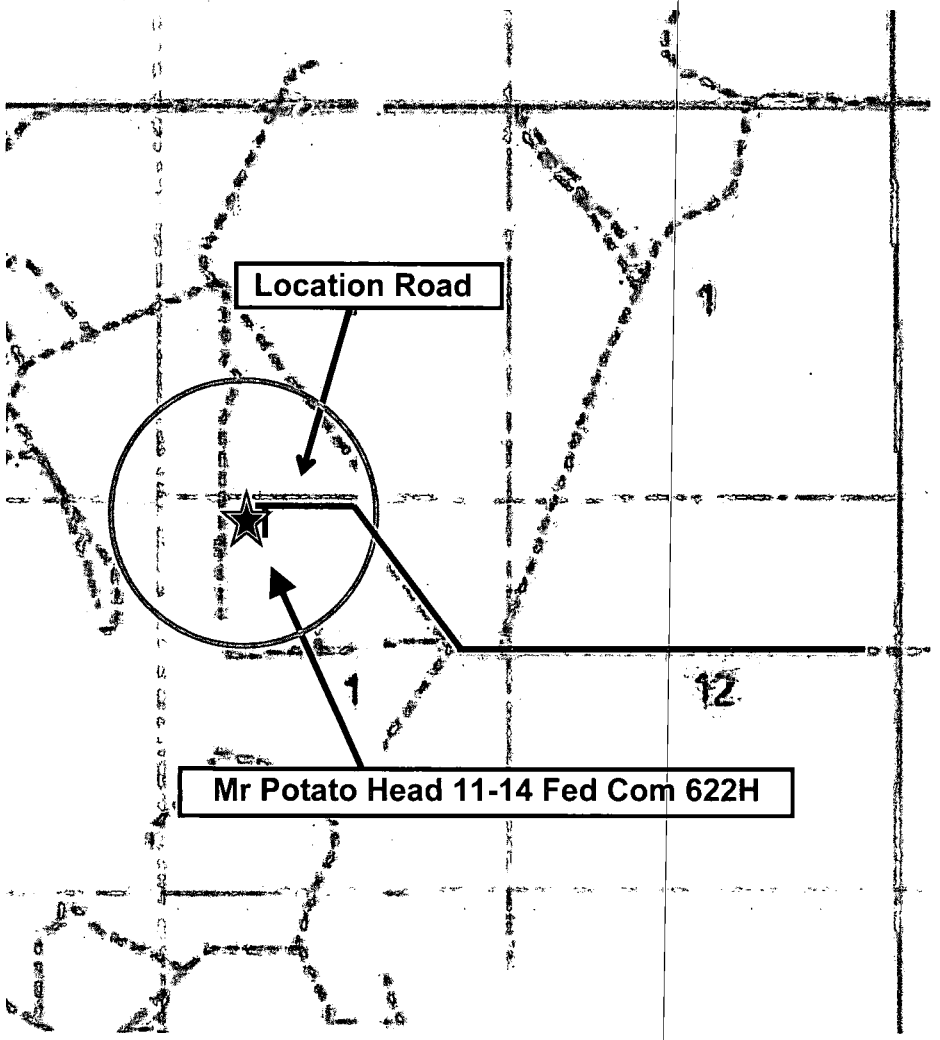
Mr Potato Head 11-14 Fed Com 622H

Sec-11 T-24S R-29E
350' FNL & 1135' FWL
LAT. = 32.2384593' N (NAD83)
LONG = 103.9601124' W

Eddy County NM

Mr Potato Head 11-14 Fed Com 622H

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:**

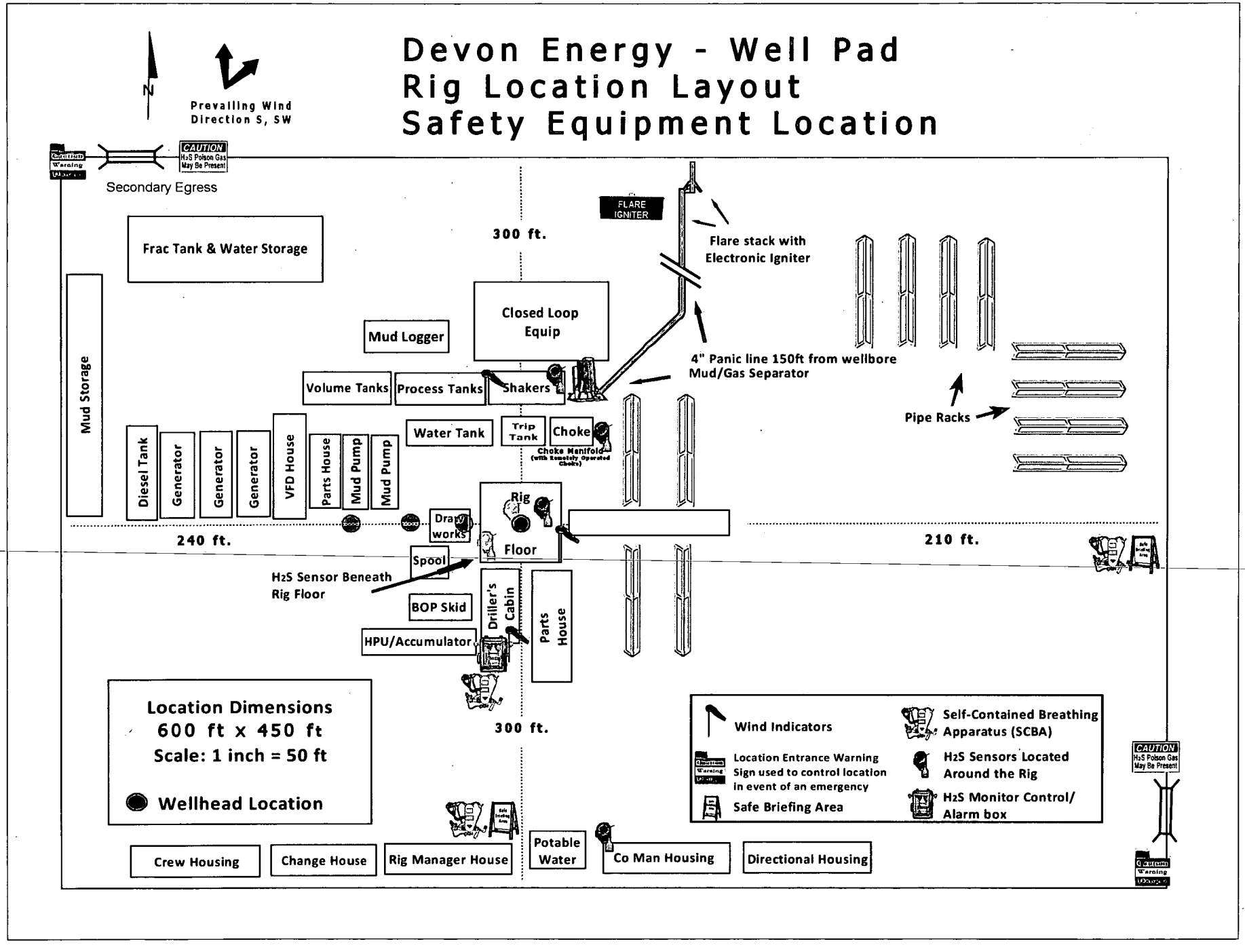
   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing 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 (TX & NM)	(800) 642-7828
	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 and consulting


Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location
N
Prevailing Wind
Direction S, SW
CAUTION
H2S Poison Gas
May Be Present
Secondary Egress
FLARE
IGNITER
Flare stack with
Electronic Igniter
300 ft.
Frac Tank & Water Storage
Closed Loop
Equip
Mud Logger
4" Panic line 150ft from wellbore
Mud/Gas Separator
Mud Storage
Volume Tanks
Process Tanks
Shakers
Pipe Racks
Water Tank
Trip
Tank
Choke
Choke Manifold
(with Remotely Operated
Chokes)
Diesel Tank
Generator
Generator
Generator
VFD House
Parts House
Mud Pump
Mud Pump
Rig
Floor
Draw
works
240 ft.
210 ft.
Spool
H2S Sensor Beneath
Rig Floor
BOP Skid
Driller's
Cabin
Parts
House
HPU/Accumulator
Location Dimensions
600 ft x 450 ft
Scale: 1 inch = 50 ft
Wellhead Location
300 ft.
Wind Indicators
Location Entrance Warning
Sign used to control location
in event of an emergency
Safe Briefing Area
Self-Contained Breathing
Apparatus (SCBA)
H2S Sensors Located
Around the Rig
H2S Monitor Control/
Alarm box
Crew Housing
Change House
Rig Manager House
Potable
Water
Co Man Housing
Directional Housing

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)
Sec 11-T24S-R29E
Mr. Potato Head 11-14 Fed Com 622H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

04 April, 2019

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Mr. Potato Head 11-14 Fed Com 622H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3077.30ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3077.30ft
Site:	Sec 11-T24S-R29E	**North Reference:**	Grid
Well:	Mr. Potato Head 11-14 Fed Com 622H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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

Site	Sec 11-T24S-R29E				
Site Position:		**Northing:**	451,030.14 usft	**Latitude:**	32.239417
From:	Map	**Easting:**	655,595.01 usft	**Longitude:**	-103.963784
Position Uncertainty:	5.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.20 °

Well	Mr. Potato Head 11-14 Fed Com 622H				
Well Position	**+N/-S**	0.00 ft	**Northing:**	450,685.52 usft	**Latitude:** 32.238459
	+E/-W	0.00 ft	**Easting:**	656,731.47 usft	**Longitude:** -103.960113
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:** 3,052.30 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	4/3/2019	6.94	59.99	47,723.91820789

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	175.64

Plan Survey Tool Program **Date** 4/4/2019

	Depth From (ft)	**Depth To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Remarks**
1	0.00	20,600.92	Permit Plan 1 (Wellbore #1)	MWD+IFR1 OWSG MWD + IFR1	

Plan Sections

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**	**TFO (°)**	**Target**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,889.87	6.90	67.80	2,888.21	15.68	38.41	1.00	1.00	0.00	67.80	
8,923.55	6.90	67.80	8,878.20	289.55	709.40	0.00	0.00	0.00	0.00	
9,383.46	0.00	0.00	9,337.00	300.00	735.00	1.50	-1.50	0.00	180.00	
9,733.50	0.00	0.00	9,687.04	300.00	735.00	0.00	0.00	0.00	0.00	
10,633.50	90.00	179.75	10,260.00	-272.95	737.47	10.00	10.00	0.00	179.75	PBHL - Mr. Potato He
20,600.92	90.00	179.75	10,260.00	-10,240.28	780.50	0.00	0.00	0.00	0.00	PBHL - Mr. Potato He

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Mr. Potato Head 11-14 Fed Com 622H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3077.30ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3077.30ft
Site:	Sec 11-T24S-R29E	**North Reference:**	Grid
Well:	Mr. Potato Head 11-14 Fed Com 622H	**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	450,685.52	656,731.47	32.238459	-103.960113
100.00	0.00	0.00	100.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
200.00	0.00	0.00	200.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
300.00	0.00	0.00	300.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
400.00	0.00	0.00	400.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
500.00	0.00	0.00	500.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
600.00	0.00	0.00	600.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
700.00	0.00	0.00	700.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
800.00	0.00	0.00	800.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
900.00	0.00	0.00	900.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,000.00	0.00	0.00	1,000.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,100.00	0.00	0.00	1,100.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,200.00	0.00	0.00	1,200.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,300.00	0.00	0.00	1,300.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,400.00	0.00	0.00	1,400.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,500.00	0.00	0.00	1,500.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,600.00	0.00	0.00	1,600.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,700.00	0.00	0.00	1,700.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,800.00	0.00	0.00	1,800.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
1,900.00	0.00	0.00	1,900.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
2,000.00	0.00	0.00	2,000.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
2,100.00	0.00	0.00	2,100.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
2,200.00	0.00	0.00	2,200.00	0.00	0.00	450,685.52	656,731.47	32.238459	-103.960113
2,300.00	1.00	67.80	2,299.99	0.33	0.81	450,685.85	656,732.28	32.238460	-103.960110
2,400.00	2.00	67.80	2,399.96	1.32	3.23	450,686.84	656,734.71	32.238463	-103.960102
2,500.00	3.00	67.80	2,499.86	2.97	7.27	450,688.49	656,738.74	32.238467	-103.960089
2,600.00	4.00	67.80	2,599.68	5.27	12.92	450,690.79	656,744.40	32.238474	-103.960071
2,700.00	5.00	67.80	2,699.37	8.24	20.19	450,693.76	656,751.66	32.238482	-103.960047
2,800.00	6.00	67.80	2,798.90	11.86	29.06	450,697.38	656,760.53	32.238492	-103.960019
2,889.87	6.90	67.80	2,888.21	15.68	38.41	450,701.20	656,769.88	32.238502	-103.959988
2,900.00	6.90	67.80	2,898.26	16.14	39.53	450,701.66	656,771.01	32.238503	-103.959985
3,000.00	6.90	67.80	2,997.54	20.67	50.65	450,706.19	656,782.13	32.238516	-103.959949
3,100.00	6.90	67.80	3,096.81	25.21	61.77	450,710.73	656,793.25	32.238528	-103.959913
3,200.00	6.90	67.80	3,196.09	29.75	72.89	450,715.27	656,804.37	32.238540	-103.959877
3,300.00	6.90	67.80	3,295.37	34.29	84.02	450,719.81	656,815.49	32.238553	-103.959841
3,400.00	6.90	67.80	3,394.64	38.83	95.14	450,724.35	656,826.61	32.238565	-103.959805
3,500.00	6.90	67.80	3,493.92	43.37	106.26	450,728.89	656,837.73	32.238578	-103.959768
3,600.00	6.90	67.80	3,593.19	47.91	117.38	450,733.43	656,848.85	32.238590	-103.959732
3,700.00	6.90	67.80	3,692.47	52.45	128.50	450,737.97	656,859.97	32.238602	-103.959696
3,800.00	6.90	67.80	3,791.75	56.99	139.62	450,742.51	656,871.09	32.238615	-103.959660
3,900.00	6.90	67.80	3,891.02	61.53	150.74	450,747.05	656,882.21	32.238627	-103.959624
4,000.00	6.90	67.80	3,990.30	66.07	161.86	450,751.59	656,893.33	32.238639	-103.959588
4,100.00	6.90	67.80	4,089.57	70.60	172.98	450,756.12	656,904.46	32.238652	-103.959552
4,200.00	6.90	67.80	4,188.85	75.14	184.10	450,760.66	656,915.58	32.238664	-103.959516
4,300.00	6.90	67.80	4,288.13	79.68	195.22	450,765.20	656,926.70	32.238677	-103.959480
4,400.00	6.90	67.80	4,387.40	84.22	206.34	450,769.74	656,937.82	32.238689	-103.959444
4,500.00	6.90	67.80	4,486.68	88.76	217.46	450,774.28	656,948.94	32.238701	-103.959408
4,600.00	6.90	67.80	4,585.95	93.30	228.59	450,778.82	656,960.06	32.238714	-103.959372
4,700.00	6.90	67.80	4,685.23	97.84	239.71	450,783.36	656,971.18	32.238726	-103.959336
4,800.00	6.90	67.80	4,784.51	102.38	250.83	450,787.90	656,982.30	32.238738	-103.959300
4,900.00	6.90	67.80	4,883.78	106.92	261.95	450,792.44	656,993.42	32.238751	-103.959264
5,000.00	6.90	67.80	4,983.06	111.46	273.07	450,796.98	657,004.54	32.238763	-103.959228
5,100.00	6.90	67.80	5,082.33	116.00	284.19	450,801.52	657,015.66	32.238775	-103.959192
5,200.00	6.90	67.80	5,181.61	120.53	295.31	450,806.05	657,026.78	32.238788	-103.959156
5,300.00	6.90	67.80	5,280.89	125.07	306.43	450,810.59	657,037.90	32.238800	-103.959120

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Mr. Potato Head 11-14 Fed Com 622H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3077.30ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3077.30ft
Site:	Sec 11-T24S-R29E	**North Reference:**	Grid
Well:	Mr. Potato Head 11-14 Fed Com 622H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	6.90	67.80	5,380.16	129.61	317.55	450,815.13	657,049.03	32.238813	-103.959084
5,500.00	6.90	67.80	5,479.44	134.15	328.67	450,819.67	657,060.15	32.238825	-103.959048
5,600.00	6.90	67.80	5,578.71	138.69	339.79	450,824.21	657,071.27	32.238837	-103.959012
5,700.00	6.90	67.80	5,677.99	143.23	350.91	450,828.75	657,082.39	32.238850	-103.958976
5,800.00	6.90	67.80	5,777.27	147.77	362.03	450,833.29	657,093.51	32.238862	-103.958940
5,900.00	6.90	67.80	5,876.54	152.31	373.15	450,837.83	657,104.63	32.238874	-103.958904
6,000.00	6.90	67.80	5,975.82	156.85	384.28	450,842.37	657,115.75	32.238887	-103.958868
6,100.00	6.90	67.80	6,075.09	161.39	395.40	450,846.91	657,126.87	32.238899	-103.958832
6,200.00	6.90	67.80	6,174.37	165.93	406.52	450,851.45	657,137.99	32.238912	-103.958796
6,300.00	6.90	67.80	6,273.65	170.46	417.64	450,855.98	657,149.11	32.238924	-103.958760
6,400.00	6.90	67.80	6,372.92	175.00	428.76	450,860.52	657,160.23	32.238936	-103.958724
6,500.00	6.90	67.80	6,472.20	179.54	439.88	450,865.06	657,171.35	32.238949	-103.958688
6,600.00	6.90	67.80	6,571.47	184.08	451.00	450,869.60	657,182.47	32.238961	-103.958652
6,700.00	6.90	67.80	6,670.75	188.62	462.12	450,874.14	657,193.59	32.238973	-103.958616
6,800.00	6.90	67.80	6,770.03	193.16	473.24	450,878.68	657,204.72	32.238986	-103.958580
6,900.00	6.90	67.80	6,869.30	197.70	484.36	450,883.22	657,215.84	32.238998	-103.958544
7,000.00	6.90	67.80	6,968.58	202.24	495.48	450,887.76	657,226.96	32.239011	-103.958508
7,100.00	6.90	67.80	7,067.85	206.78	506.60	450,892.30	657,238.08	32.239023	-103.958472
7,200.00	6.90	67.80	7,167.13	211.32	517.72	450,896.84	657,249.20	32.239035	-103.958436
7,300.00	6.90	67.80	7,266.41	215.86	528.85	450,901.37	657,260.32	32.239048	-103.958400
7,400.00	6.90	67.80	7,365.68	220.39	539.97	450,905.91	657,271.44	32.239060	-103.958364
7,500.00	6.90	67.80	7,464.96	224.93	551.09	450,910.45	657,282.56	32.239072	-103.958328
7,600.00	6.90	67.80	7,564.23	229.47	562.21	450,914.99	657,293.68	32.239085	-103.958292
7,700.00	6.90	67.80	7,663.51	234.01	573.33	450,919.53	657,304.80	32.239097	-103.958256
7,800.00	6.90	67.80	7,762.79	238.55	584.45	450,924.07	657,315.92	32.239109	-103.958220
7,900.00	6.90	67.80	7,862.06	243.09	595.57	450,928.61	657,327.04	32.239122	-103.958184
8,000.00	6.90	67.80	7,961.34	247.63	606.69	450,933.15	657,338.16	32.239134	-103.958148
8,100.00	6.90	67.80	8,060.61	252.17	617.81	450,937.69	657,349.29	32.239147	-103.958112
8,200.00	6.90	67.80	8,159.89	256.71	628.93	450,942.23	657,360.41	32.239159	-103.958076
8,300.00	6.90	67.80	8,259.17	261.25	640.05	450,946.77	657,371.53	32.239171	-103.958040
8,400.00	6.90	67.80	8,358.44	265.79	651.17	450,951.30	657,382.65	32.239184	-103.958004
8,500.00	6.90	67.80	8,457.72	270.32	662.29	450,955.84	657,393.77	32.239196	-103.957968
8,600.00	6.90	67.80	8,556.99	274.86	673.42	450,960.38	657,404.89	32.239208	-103.957932
8,700.00	6.90	67.80	8,656.27	279.40	684.54	450,964.92	657,416.01	32.239221	-103.957896
8,800.00	6.90	67.80	8,755.55	283.94	695.66	450,969.46	657,427.13	32.239233	-103.957859
8,900.00	6.90	67.80	8,854.82	288.48	706.78	450,974.00	657,438.25	32.239246	-103.957823
8,923.55	6.90	67.80	8,878.20	289.55	709.40	450,975.07	657,440.87	32.239248	-103.957815
9,000.00	5.75	67.80	8,954.18	292.73	717.19	450,978.25	657,448.67	32.239257	-103.957790
9,100.00	4.25	67.80	9,053.80	296.03	725.27	450,981.55	657,456.74	32.239266	-103.957764
9,200.00	2.75	67.80	9,153.61	298.34	730.92	450,983.85	657,462.39	32.239272	-103.957745
9,300.00	1.25	67.80	9,253.55	299.66	734.16	450,985.17	657,465.63	32.239276	-103.957735
9,383.46	0.00	0.00	9,337.00	300.00	735.00	450,985.52	657,466.47	32.239277	-103.957732
9,400.00	0.00	0.00	9,353.54	300.00	735.00	450,985.52	657,466.47	32.239277	-103.957732
9,500.00	0.00	0.00	9,453.54	300.00	735.00	450,985.52	657,466.47	32.239277	-103.957732
9,600.00	0.00	0.00	9,553.54	300.00	735.00	450,985.52	657,466.47	32.239277	-103.957732
9,700.00	0.00	0.00	9,653.54	300.00	735.00	450,985.52	657,466.47	32.239277	-103.957732
9,733.50	0.00	0.00	9,687.04	300.00	735.00	450,985.52	657,466.47	32.239277	-103.957732
KOP @ 9734' MD, 50' FNL, 1870' FWL									
9,800.00	6.65	179.75	9,753.39	296.15	735.02	450,981.66	657,466.49	32.239266	-103.957732
9,900.00	16.65	179.75	9,851.21	275.98	735.10	450,961.50	657,466.58	32.239211	-103.957732
10,000.00	26.65	179.75	9,944.03	239.13	735.26	450,924.65	657,466.74	32.239110	-103.957732
10,019.69	28.62	179.75	9,961.48	230.00	735.30	450,915.52	657,466.78	32.239085	-103.957732
FTP @ 10020' MD, 120' FNL, 1870' FWL									
10,100.00	36.65	179.75	10,029.05	186.73	735.49	450,872.25	657,466.96	32.238966	-103.957732

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Mr. Potato Head 11-14 Fed Com 622H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3077.30ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3077.30ft
Site:	Sec 11-T24S-R29E	**North Reference:**	Grid
Well:	Mr. Potato Head 11-14 Fed Com 622H	**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
10,200.00	46.65	179.75	10,103.68	120.35	735.78	450,805.87	657,467.25	32.238783	-103.957732
10,300.00	56.65	179.75	10,165.65	42.03	736.11	450,727.55	657,467.59	32.238568	-103.957731
10,400.00	66.65	179.75	10,213.07	-45.86	736.49	450,639.66	657,467.97	32.238326	-103.957731
10,500.00	76.65	179.75	10,244.52	-140.66	736.90	450,544.86	657,468.38	32.238066	-103.957731
10,600.00	86.65	179.75	10,259.02	-239.47	737.33	450,446.05	657,468.80	32.237794	-103.957731
10,633.50	90.00	179.75	10,260.00	-272.95	737.47	450,412.57	657,468.95	32.237702	-103.957731
10,700.00	90.00	179.75	10,260.00	-339.45	737.76	450,346.07	657,469.23	32.237519	-103.957730
10,800.00	90.00	179.75	10,260.00	-439.45	738.19	450,246.07	657,469.67	32.237244	-103.957730
10,900.00	90.00	179.75	10,260.00	-539.45	738.62	450,146.07	657,470.10	32.236969	-103.957730
11,000.00	90.00	179.75	10,260.00	-639.45	739.06	450,046.07	657,470.53	32.236695	-103.957730
11,100.00	90.00	179.75	10,260.00	-739.45	739.49	449,946.07	657,470.96	32.236420	-103.957729
11,200.00	90.00	179.75	10,260.00	-839.45	739.92	449,846.07	657,471.39	32.236145	-103.957729
11,300.00	90.00	179.75	10,260.00	-939.45	740.35	449,746.08	657,471.82	32.235870	-103.957729
11,400.00	90.00	179.75	10,260.00	-1,039.45	740.78	449,646.08	657,472.26	32.235595	-103.957729
11,500.00	90.00	179.75	10,260.00	-1,139.44	741.21	449,546.08	657,472.69	32.235320	-103.957728
11,600.00	90.00	179.75	10,260.00	-1,239.44	741.65	449,446.08	657,473.12	32.235045	-103.957728
11,700.00	90.00	179.75	10,260.00	-1,339.44	742.08	449,346.08	657,473.55	32.234770	-103.957728
11,800.00	90.00	179.75	10,260.00	-1,439.44	742.51	449,246.08	657,473.98	32.234495	-103.957727
11,900.00	90.00	179.75	10,260.00	-1,539.44	742.94	449,146.08	657,474.41	32.234221	-103.957727
12,000.00	90.00	179.75	10,260.00	-1,639.44	743.37	449,046.08	657,474.85	32.233946	-103.957727
12,100.00	90.00	179.75	10,260.00	-1,739.44	743.80	448,946.08	657,475.28	32.233671	-103.957727
12,200.00	90.00	179.75	10,260.00	-1,839.44	744.24	448,846.09	657,475.71	32.233396	-103.957726
12,300.00	90.00	179.75	10,260.00	-1,939.44	744.67	448,746.09	657,476.14	32.233121	-103.957726
12,400.00	90.00	179.75	10,260.00	-2,039.44	745.10	448,646.09	657,476.57	32.232846	-103.957726
12,500.00	90.00	179.75	10,260.00	-2,139.43	745.53	448,546.09	657,477.00	32.232571	-103.957726
12,600.00	90.00	179.75	10,260.00	-2,239.43	745.96	448,446.09	657,477.44	32.232296	-103.957725
12,700.00	90.00	179.75	10,260.00	-2,339.43	746.39	448,346.09	657,477.87	32.232021	-103.957725
12,800.00	90.00	179.75	10,260.00	-2,439.43	746.83	448,246.09	657,478.30	32.231747	-103.957725
12,900.00	90.00	179.75	10,260.00	-2,539.43	747.26	448,146.09	657,478.73	32.231472	-103.957725
13,000.00	90.00	179.75	10,260.00	-2,639.43	747.69	448,046.10	657,479.16	32.231197	-103.957724
13,100.00	90.00	179.75	10,260.00	-2,739.43	748.12	447,946.10	657,479.59	32.230922	-103.957724
13,200.00	90.00	179.75	10,260.00	-2,839.43	748.55	447,846.10	657,480.03	32.230647	-103.957724
13,300.00	90.00	179.75	10,260.00	-2,939.43	748.98	447,746.10	657,480.46	32.230372	-103.957723
13,400.00	90.00	179.75	10,260.00	-3,039.43	749.42	447,646.10	657,480.89	32.230097	-103.957723
13,500.00	90.00	179.75	10,260.00	-3,139.43	749.85	447,546.10	657,481.32	32.229822	-103.957723
13,600.00	90.00	179.75	10,260.00	-3,239.42	750.28	447,446.10	657,481.75	32.229548	-103.957723
13,700.00	90.00	179.75	10,260.00	-3,339.42	750.71	447,346.10	657,482.18	32.229273	-103.957722
13,800.00	90.00	179.75	10,260.00	-3,439.42	751.14	447,246.10	657,482.62	32.228998	-103.957722
13,900.00	90.00	179.75	10,260.00	-3,539.42	751.57	447,146.11	657,483.05	32.228723	-103.957722
14,000.00	90.00	179.75	10,260.00	-3,639.42	752.01	447,046.11	657,483.48	32.228448	-103.957722
14,100.00	90.00	179.75	10,260.00	-3,739.42	752.44	446,946.11	657,483.91	32.228173	-103.957721
14,200.00	90.00	179.75	10,260.00	-3,839.42	752.87	446,846.11	657,484.34	32.227898	-103.957721
14,300.00	90.00	179.75	10,260.00	-3,939.42	753.30	446,746.11	657,484.77	32.227623	-103.957721
14,400.00	90.00	179.75	10,260.00	-4,039.42	753.73	446,646.11	657,485.21	32.227348	-103.957721
14,500.00	90.00	179.75	10,260.00	-4,139.42	754.16	446,546.11	657,485.64	32.227074	-103.957720
14,600.00	90.00	179.75	10,260.00	-4,239.42	754.60	446,446.11	657,486.07	32.226799	-103.957720
14,700.00	90.00	179.75	10,260.00	-4,339.41	755.03	446,346.11	657,486.50	32.226524	-103.957720
14,800.00	90.00	179.75	10,260.00	-4,439.41	755.46	446,246.12	657,486.93	32.226249	-103.957719
14,900.00	90.00	179.75	10,260.00	-4,539.41	755.89	446,146.12	657,487.36	32.225974	-103.957719
15,000.00	90.00	179.75	10,260.00	-4,639.41	756.32	446,046.12	657,487.80	32.225699	-103.957719
15,100.00	90.00	179.75	10,260.00	-4,739.41	756.75	445,946.12	657,488.23	32.225424	-103.957719
15,200.00	90.00	179.75	10,260.00	-4,839.41	757.19	445,846.12	657,488.66	32.225149	-103.957718
15,291.00	90.00	179.75	10,260.00	-4,930.41	757.58	445,755.12	657,489.05	32.224899	-103.957718
Cross Section @ 15291' MD, 0' FNL, 1870' FWL									

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Mr. Potato Head 11-14 Fed Com 622H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3077.30ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3077.30ft
Site:	Sec 11-T24S-R29E	**North Reference:**	Grid
Well:	Mr. Potato Head 11-14 Fed Com 622H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,300.00	90.00	179.75	10,260.00	-4,939.41	757.62	445,746.12	657,489.09	32.224874	-103.957718
15,400.00	90.00	179.75	10,260.00	-5,039.41	758.05	445,646.12	657,489.52	32.224600	-103.957718
15,500.00	90.00	179.75	10,260.00	-5,139.41	758.48	445,546.12	657,489.95	32.224325	-103.957718
15,600.00	90.00	179.75	10,260.00	-5,239.41	758.91	445,446.12	657,490.39	32.224050	-103.957717
15,700.00	90.00	179.75	10,260.00	-5,339.41	759.34	445,346.13	657,490.82	32.223775	-103.957717
15,800.00	90.00	179.75	10,260.00	-5,439.40	759.78	445,246.13	657,491.25	32.223500	-103.957717
15,900.00	90.00	179.75	10,260.00	-5,539.40	760.21	445,146.13	657,491.68	32.223225	-103.957717
16,000.00	90.00	179.75	10,260.00	-5,639.40	760.64	445,046.13	657,492.11	32.222950	-103.957716
16,100.00	90.00	179.75	10,260.00	-5,739.40	761.07	444,946.13	657,492.54	32.222675	-103.957716
16,200.00	90.00	179.75	10,260.00	-5,839.40	761.50	444,846.13	657,492.98	32.222400	-103.957716
16,300.00	90.00	179.75	10,260.00	-5,939.40	761.94	444,746.13	657,493.41	32.222126	-103.957716
16,400.00	90.00	179.75	10,260.00	-6,039.40	762.37	444,646.13	657,493.84	32.221851	-103.957715
16,500.00	90.00	179.75	10,260.00	-6,139.40	762.80	444,546.13	657,494.27	32.221576	-103.957715
16,600.00	90.00	179.75	10,260.00	-6,239.40	763.23	444,446.14	657,494.70	32.221301	-103.957715
16,700.00	90.00	179.75	10,260.00	-6,339.40	763.66	444,346.14	657,495.13	32.221026	-103.957714
16,800.00	90.00	179.75	10,260.00	-6,439.39	764.09	444,246.14	657,495.57	32.220751	-103.957714
16,900.00	90.00	179.75	10,260.00	-6,539.39	764.53	444,146.14	657,496.00	32.220476	-103.957714
17,000.00	90.00	179.75	10,260.00	-6,639.39	764.96	444,046.14	657,496.43	32.220201	-103.957714
17,100.00	90.00	179.75	10,260.00	-6,739.39	765.39	443,946.14	657,496.86	32.219927	-103.957713
17,200.00	90.00	179.75	10,260.00	-6,839.39	765.82	443,846.14	657,497.29	32.219652	-103.957713
17,300.00	90.00	179.75	10,260.00	-6,939.39	766.25	443,746.14	657,497.73	32.219377	-103.957713
17,400.00	90.00	179.75	10,260.00	-7,039.39	766.68	443,646.14	657,498.16	32.219102	-103.957713
17,500.00	90.00	179.75	10,260.00	-7,139.39	767.12	443,546.15	657,498.59	32.218827	-103.957712
17,600.00	90.00	179.75	10,260.00	-7,239.39	767.55	443,446.15	657,499.02	32.218552	-103.957712
17,700.00	90.00	179.75	10,260.00	-7,339.39	767.98	443,346.15	657,499.45	32.218277	-103.957712
17,800.00	90.00	179.75	10,260.00	-7,439.39	768.41	443,246.15	657,499.88	32.218002	-103.957712
17,900.00	90.00	179.75	10,260.00	-7,539.38	768.84	443,146.15	657,500.32	32.217727	-103.957711
18,000.00	90.00	179.75	10,260.00	-7,639.38	769.27	443,046.15	657,500.75	32.217453	-103.957711
18,100.00	90.00	179.75	10,260.00	-7,739.38	769.71	442,946.15	657,501.18	32.217178	-103.957711
18,200.00	90.00	179.75	10,260.00	-7,839.38	770.14	442,846.15	657,501.61	32.216903	-103.957710
18,300.00	90.00	179.75	10,260.00	-7,939.38	770.57	442,746.15	657,502.04	32.216628	-103.957710
18,400.00	90.00	179.75	10,260.00	-8,039.38	771.00	442,646.16	657,502.47	32.216353	-103.957710
18,500.00	90.00	179.75	10,260.00	-8,139.38	771.43	442,546.16	657,502.91	32.216078	-103.957710
18,600.00	90.00	179.75	10,260.00	-8,239.38	771.86	442,446.16	657,503.34	32.215803	-103.957709
18,700.00	90.00	179.75	10,260.00	-8,339.38	772.30	442,346.16	657,503.77	32.215528	-103.957709
18,800.00	90.00	179.75	10,260.00	-8,439.38	772.73	442,246.16	657,504.20	32.215253	-103.957709
18,900.00	90.00	179.75	10,260.00	-8,539.38	773.16	442,146.16	657,504.63	32.214979	-103.957709
19,000.00	90.00	179.75	10,260.00	-8,639.37	773.59	442,046.16	657,505.06	32.214704	-103.957708
19,100.00	90.00	179.75	10,260.00	-8,739.37	774.02	441,946.16	657,505.50	32.214429	-103.957708
19,200.00	90.00	179.75	10,260.00	-8,839.37	774.45	441,846.17	657,505.93	32.214154	-103.957708
19,300.00	90.00	179.75	10,260.00	-8,939.37	774.89	441,746.17	657,506.36	32.213879	-103.957708
19,400.00	90.00	179.75	10,260.00	-9,039.37	775.32	441,646.17	657,506.79	32.213604	-103.957707
19,500.00	90.00	179.75	10,260.00	-9,139.37	775.75	441,546.17	657,507.22	32.213329	-103.957707
19,600.00	90.00	179.75	10,260.00	-9,239.37	776.18	441,446.17	657,507.65	32.213054	-103.957707
19,700.00	90.00	179.75	10,260.00	-9,339.37	776.61	441,346.17	657,508.09	32.212779	-103.957706
19,800.00	90.00	179.75	10,260.00	-9,439.37	777.04	441,246.17	657,508.52	32.212505	-103.957706
19,900.00	90.00	179.75	10,260.00	-9,539.37	777.48	441,146.17	657,508.95	32.212230	-103.957706
20,000.00	90.00	179.75	10,260.00	-9,639.37	777.91	441,046.17	657,509.38	32.211955	-103.957706
20,100.00	90.00	179.75	10,260.00	-9,739.36	778.34	440,946.18	657,509.81	32.211680	-103.957705
20,200.00	90.00	179.75	10,260.00	-9,839.36	778.77	440,846.18	657,510.24	32.211405	-103.957705
20,300.00	90.00	179.75	10,260.00	-9,939.36	779.20	440,746.18	657,510.68	32.211130	-103.957705
20,400.00	90.00	179.75	10,260.00	-10,039.36	779.63	440,646.18	657,511.11	32.210855	-103.957705
20,500.00	90.00	179.75	10,260.00	-10,139.36	780.07	440,546.18	657,511.54	32.210580	-103.957704

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Mr. Potato Head 11-14 Fed Com 622H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3077.30ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3077.30ft
Site:	Sec 11-T24S-R29E	**North Reference:**	Grid
Well:	Mr. Potato Head 11-14 Fed Com 622H	**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
20,500.92	90.00	179.75	10,260.00	-10,140.28	780.07	440,545.26	657,511.54	32.210578	-103.957704
LTP @ 20501' MD, 120' FSL, 1870' FWL									
20,600.00	90.00	179.75	10,260.00	-10,239.36	780.50	440,446.18	657,511.97	32.210305	-103.957704
20,600.91	90.00	179.75	10,260.00	-10,240.27	780.50	440,445.27	657,511.97	32.210303	-103.957704
PBHL; 20' FSL, 1870' FWL									
20,600.92	90.00	179.75	10,260.00	-10,240.28	780.50	440,445.26	657,511.97	32.210303	-103.957704

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 - Mr. Potato Head	0.00	0.01	0.00	-10,240.28	780.50	440,445.26	657,511.97	32.210303	-103.957704
- plan misses target center by 10260.00ft at 20600.92ft MD (10260.00 TVD, -10240.28 N, 780.50 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
9,733.50	9,687.04	300.00	735.00	KOP @ 9734' MD, 50' FNL, 1870' FWL
10,019.69	9,961.48	230.00	735.30	FTP @ 10020' MD, 120' FNL, 1870' FWL
15,291.00	10,260.00	-4,930.41	757.58	Cross Section @ 15291' MD, 0' FNL, 1870' FWL
20,500.92	10,260.00	-10,140.28	780.07	LTP @ 20501' MD, 120' FSL, 1870' FWL
20,600.91	10,260.00	-10,240.27	780.50	PBHL; 20' FSL, 1870' FWL

1. Geologic Formations

TVD of target	10260	Pilot hole depth	N/A
MD at TD:	20601	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	375		
Top Salt	500		
Base of Salt	2700		
Delaware	2600		
Lamar	3106		
Bell Canyon	3157		
Brushy Canyon	5230		
Bone Spring Lime	6812		
1st BSPG Sand	7872		
Bone Spring 2nd	8716		
Bone Spring 3rd	9791		
Wolfcamp	10133		
Wolfcamp XY	10164		
Wolfcamp 100	10268		

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

2. Casing Program (Primary Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17 1/2	0	400 TVD	13 3/8	48.0	H40	STC	1.125	1.25	1.6
9 7/8	0	9791 TVD	7 5/8	29.7	P110	Flushmax III	1.125	1.25	1.6
6 3/4	0	TD	5 1/2	20.0	P110	Vam SG	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for continengcy casing.
• Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
• A variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing.

• Int casing shoe will be selected based on drilling data/gamma, setting depth with be revised accordingly if needed.

• A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.

• A variance is requested to set intermediate casing in the curve if hole conditions dictate that a higher shoe strength is required.

Casing Program (Alternative Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17 1/2	0	400 TVD	13 3/8	48.0	H40	STC	1.125	1.25	1.6
9 7/8	0	9791 TVD	8 5/8	32.0	P110	TLW	1.125	1.25	1.6
7 7/8	0	TD	5 1/2	17.0	P110	BTC	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for continengcy casing.
• Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
• A variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing.
• Int casing shoe will be selected based on drilling data/gamma, setting depth with be revised accordingly if needed.
• A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.
•Variance requested to drill 10.625" hole instead of 9.875" for intermediate 1, the 8.625" connection will change from TLW to BTC.
• A variance is requested to set intermediate casing in the curve if hole conditions dictate that a higher shoe strength is required.

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

3. Cementing Program (Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	328	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	529	Surf	9	3.27	Lead: Class C Cement + additives
	783	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Int 1 Two Stage w/ DV @ TVD of Delaware	763	Surf	9	3.27	1st stage Lead: Class C Cement + additives
	93	500' above shoe	13.2	1.44	1st stage Tail: Class H / C + additives
	209	Surf	9	3.27	2nd stage Lead: Class C Cement + additives
	93	500' above DV	13.2	1.44	2nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	9	1.44	Squeeze Lead: Class C Cement + additives
	529	Surf	9	3.27	Lead: Class C Cement + additives
	783	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Production	63	7734	9.0	3.3	Lead: Class H /C + additives
	693	9734	13.2	1.4	Tail: Class H / C + additives

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

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

3. Cementing Program (Alternative Design)

Casing	# Sks	TOC	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	328	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	329	Surf	9	3.27	Lead: Class C Cement + additives
	465	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	448	Surf	9	3.27	1st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.44	1st stage Tail: Class H / C + additives
	140	Surf	9	3.27	2nd stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.44	2nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.44	Squeeze Lead: Class C Cement + additives
	329	Surf	9	3.27	Lead: Class C Cement + additives
	465	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Production	117	7734	9.0	3.3	Lead: Class H /C + additives
	1438	9734	13.2	1.4	Tail: Class H / C + additives

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

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-58"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	5M	Annular (5M)	X	100% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular (5M)		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
Y	A variance is requested to run a 5 M annular on a 10M system

5. Mud Program (Three String Design)

Section	Type	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	DBE / Cut Brine	10-10.5
Production	OBM	10-10.5

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

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

6. Logging and Testing Procedures

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

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

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	5602
Abnormal temperature	No

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

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

8. Other facets of operation

Is this a walking operation? Potentially

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

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

Will be pre-setting casing? Potentially

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

Attachments

X Directional Plan
_____ Other, describe

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. SUMMARY OF Variance:

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

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

2. Description of Operations

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