

# PECOS DISTRICT

## DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	ConocoPhillips Company
<b>LEASE NO.:</b>	NMLC064149
<b>WELL NAME &amp; NO.:</b>	Peridot 8 Federal 12H
<b>SURFACE HOLE FOOTAGE:</b>	1035'/S & 2600'/E
<b>BOTTOM HOLE FOOTAGE:</b>	990'/S & 330'/W
<b>LOCATION:</b>	Section 8, T.17 S., R.32 E., NMPM
<b>COUNTY:</b>	Lea County, New Mexico

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input checked="" type="radio"/> Conventional	<input type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

### A. Hydrogen Sulfide

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Grayburg** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

**Operator is approved to use either BTC/ LTC connection with intermediate and production casing and STC/LTC connection with surface casing.**

### B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **885** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours

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

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above.
3. The minimum required fill of cement behind the **7 x 5 ½** inch production casing is:
  - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

**OPERATOR PROPOSED A CONTINGENCY PLAN TO USE AN OPEN HOLE SLIDING SLEEVES COMPELETION WITH A DV TOOL PER CONTINGENCY PLAN. OPERATOR SHALL NOTIFY THE APPROPRIATE BLM OFFICE BEFORE IMPLEMENTING CONTINGENCY PLAN.**

#### **CONTINGENCY PLAN**

4. The **13-3/8** inch surface casing shall be set at approximately **885** feet (a minimum of 25 feet 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.
5. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above.

6. The minimum required fill of cement behind the 7 x 5 ½ inch production casing is: 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 not required – using packer and sleeves.
- b. Second stage above DV tool: Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.  
**Additional cement maybe required. Excess calculates to 20%.**

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

## 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)

☒ 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 2<sup>nd</sup> 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 integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

#### B. 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. 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.
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. The results of the test shall be reported to the appropriate BLM office.
  - 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. 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.
  - f. 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. This test shall be performed prior to the test at full stack pressure.

- g. 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.

#### **Waste Minimization Plan (WMP)**

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

**ZS 021518**

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

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WELL NAME & NO.:	Peridot 8 Federal 12H
SURFACE HOLE FOOTAGE:	1035'/S & 2600'/E
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COUNTY:	Lea County, New Mexico

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## **I. GENERAL PROVISIONS**

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

## **II. PERMIT EXPIRATION**

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

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

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

## **IV. NOXIOUS WEEDS**

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

## **V. SPECIAL REQUIREMENT(S)**

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

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

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

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

**Ground-level Abandoned Well Marker to avoid raptor perching:** Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

### **Dunes Sagebrush Lizard Trench Stipulation**

- Pre-construction contact with a BLM wildlife biologist is required within 5 days before any ground disturbing activities associated with the project occurs.
- Successful completion of the BLM Trench Stipulation Workshop is required for a non-agency person to be approved as a monitor.
- Any trench left open for (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, an agency approved monitor shall walk the entire length of the open trench and remove all trapped vertebrates. The bottom surface of the trench will be disturbed a minimum of 2 inches in order to arouse any buried vertebrates. All vertebrates will be released a minimum of 100 yards from the trench.
- For trenches left open for eight (8) hours or more the following requirements apply:
  - Earthen escape ramps and/or structures (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench. Metal structures will not be authorized. Options will be discussed in detail at the required Trench Stipulation Workshop.
  - One approved monitor shall be required to survey up to three miles of trench between the hours of 11 AM-2 PM. A daily report (consolidate if there is more than one monitor) on the vertebrates found and removed from the trench shall be provided to the BLM (email/fax is acceptable) the following morning.
  - Prior to backfilling of the trench all structures used as escape ramps will be removed and the bottom surface of the trench will be disturbed a

minimum of 2 inches in order to arouse any buried vertebrates. All vertebrates will be released a minimum of 100 yards from the trench.

- This stipulation shall apply to the entire length of the project in the DSL habitat polygon regardless of land ownership or CCA/CCAA enrollment status.
- A project closeout will be required within three business days of the completion of the project.

**Tank Battery:**

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 producing volume, 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.

**Pipelines:**

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, siting 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.

## **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**

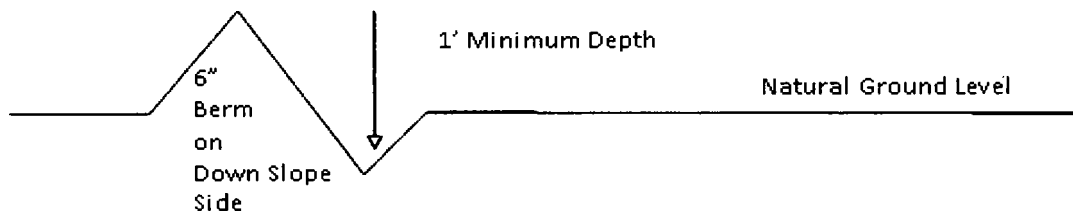
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

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

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

#### **Cross Section of a Typical Lead-off Ditch**



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

#### **Formula for Spacing Interval of Lead-off Ditches**

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

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

#### **Cattle guards**

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

#### **Fence Requirement**

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

#### **Public Access**

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

### Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

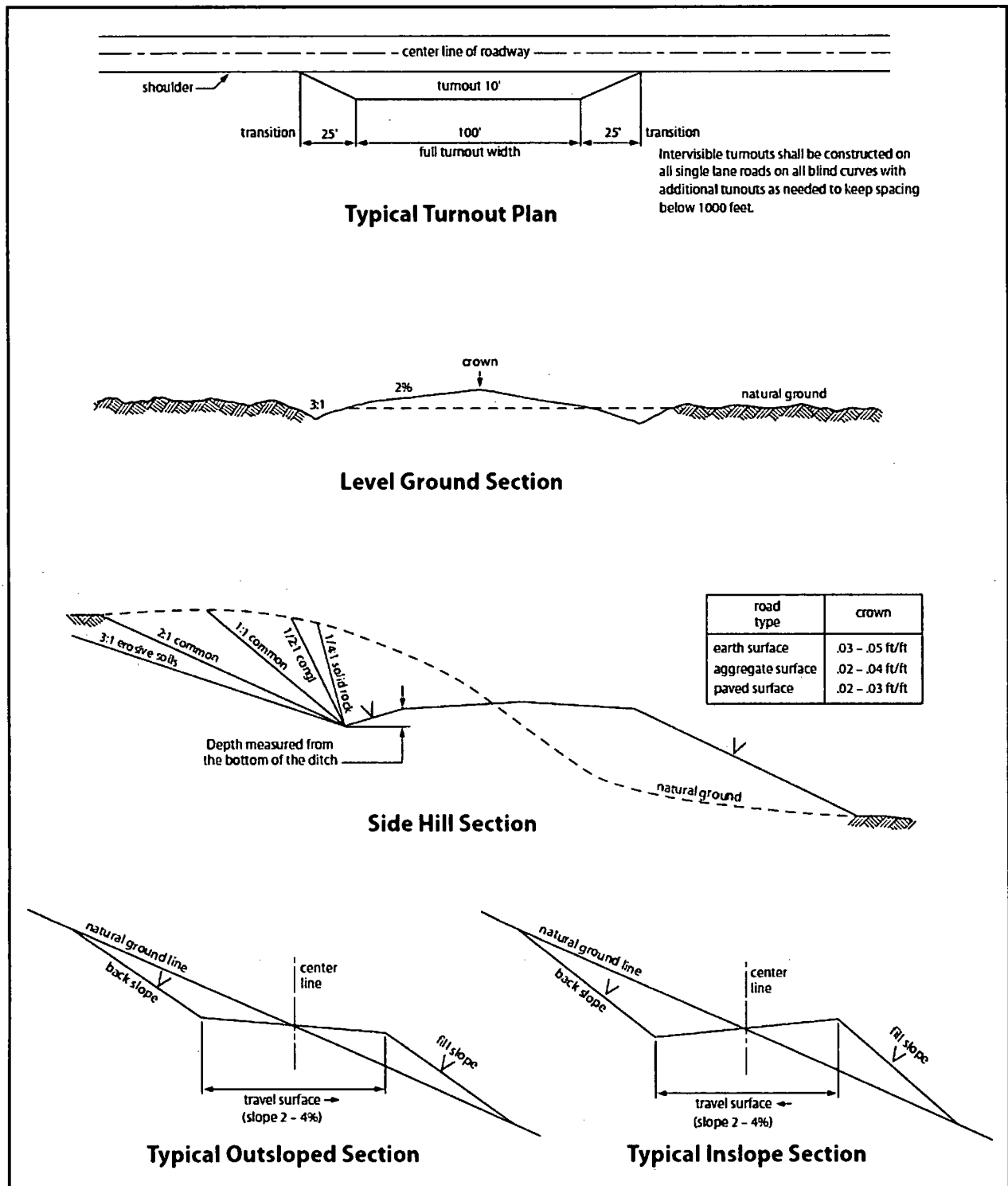


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## **VII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

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

#### **Exclosure Netting (Open-top Tanks)**

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

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

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

#### **Open-Vent Exhaust Stack Exclosures**

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

#### **Containment Structures**



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

#### **Painting Requirement**

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

### **B. PIPELINES**

#### **BURIED PIPELINE STIPULATIONS**

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

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

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of

the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

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

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

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

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

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

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

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the

passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

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

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> seed mixture 1                | <input type="checkbox"/> seed mixture 3          |
| <input type="checkbox"/> seed mixture 2                | <input type="checkbox"/> seed mixture 4          |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> 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:

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. 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.

#### STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

**A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review 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. 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. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard 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 in particular, 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. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

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

c. Acts of God.

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

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

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of 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/she 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 Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline

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

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

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

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

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

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

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

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

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

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

### **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.

#### **D. Freshwater Frac Pond**

##### **FRAC POND CONDITIONS OF APPROVAL**

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

Holder agrees to comply with the following conditions of approval 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 permit.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated.

3. Required Standard Conditions of Approval:

##### **a. Notification**

Contact the Supervisory Environmental Protection Specialist, Jim Amos, at 575-234-5909 at least 24 hours prior to starting construction.

**b. Freshwater Only**

The frac pond will only be authorized to contain freshwater and testing of water quality is required. Additives are not allowed without consent of the authorized officer in writing.

**c. Contamination**

If at any time the water in the frac pond becomes polluted with salts or other contaminants, use of the frac pond will cease and desist, and all liquids will be removed from the frac pond and disposed of properly. The operator will preclude releases of oil into open pits. The operator must remove any accumulation of oil, condensate, or contaminant in a pit within 48 hours of discovery.

**d. Authorized Disturbance**

Confine all construction and maintenance activity to the approved authorized area applied for in the application.

**e. Facilities**

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations. Grey-water, sewage, and trash shall be removed from the site and disposed of properly at a state approved facility.

**f. Escape Ramps**

The operator will construct and maintain frac ponds 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 frac ponds. Escape ramps must be installed at every corner of the frac pond and in the center of each side if that side exceeds 100 feet in length. Escape ramps must be in contact with the side of the frac pond, bottom of the frac pond, and the top of the frac pond berm. Escape ramps cannot be made of metal and cannot be steeper than a 3:1 slope (Horizontal Distance: Vertical Distance) or 30% slope. (*Examples of escape ramps: 12" wide wooden planks wrapped in matting, felt lining, etc.*)

**g. Frac Pond Pipelines**

Temporary pipelines flowing from the frac pond to the target well will be laid along existing roadways unless an exception has been granted by the authorized officer in writing.

**h. Mineral Material from Excavation**

Mineral materials extracted during construction of the frac pond will be stored on-location and/or used for constructing the frac pond.

**i. Frac Pond Liner**

The frac pond will be lined with at least a 20 mil. plastic liner.

**j. Topsoil Stockpile**

The operator shall strip at least the top 6 inches of soil (root zone) from the entire frac pond area and stockpile the topsoil approximately 25 feet outside the bermed

perimeter of the pond in a low profile manner, reasonably protected from wind and water erosion. Topsoil shall not be used for constructing the frac pond. The topsoil will be used for final reclamation purposes only.

**k. Frac Pond Fence**

The operator will install and maintain enclosure fencing on all sides of the frac pond to prevent access to public, livestock, and large forms of wildlife. The fence shall be installed at the base of the berm and never on top of the berm.

Construction of the fence shall consist of steel and/or wooden posts set firmly into natural ground. Hog panel or chain-link fencing must be used as the fence and tied securely to the fence posts. Barbed-wire fencing or electric fences shall not be used. The fence height shall not be shorter than six (6) feet. The erected fence shall be maintained in adequate condition until the frac pond is reclaimed.

**l. Erosion Prevention**

Install earthen erosion-control structures as are suitable for the specific terrain and soil conditions.

**m. Reclamation Start**

- I. Reclamation efforts will commence immediately after the frac pond is no longer needed for the purpose of completing wells.
- II. Within 3 months of completion of frac operations on associated wells, all earthwork and final reclamation must be completed. This includes reclaiming and/or removal of:
  - i. Any roads approved for use with the pond
  - ii. Surface water lines
  - iii. Tanks, pumps, fencing etc.

**Requirements for Operations and Final Reclamation:**

4. If, during any phase of the construction, operation, maintenance, or termination of the frac pond, any pollutant should be released from the contaminated frac pond, the control and total removal, disposal, and cleaning up of such 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, or to repair all damages resulting there-from, 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. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf 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.

6. 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.

7. After all disturbed areas have been satisfactorily contoured and prepared for seeding the location needs to be revegetated with the seed mixture provided. Seeding may need to be repeated until revegetation is successful. Operators shall contact Jim Amos, Supervisor, Environmental Protection – (575)234-5909, **prior** to beginning surface reclamation operations.

8. Seeding is required: Use the following seed mix.

- |   |  |
|---|--|
| <input type="checkbox"/> seed mixture 1         | <input type="checkbox"/> seed mixture 3      |
| <input type="checkbox"/> seed mixture 2         | <input type="checkbox"/> seed mixture 4      |
| <input checked="" type="checkbox"/> LPC mixture | <input type="checkbox"/> Aplomado Falcon mix |

### **VIII. INTERIM RECLAMATION**

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

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

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored

interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

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

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

## **IX. FINAL ABANDONMENT & RECLAMATION**

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

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

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

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

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

## Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

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

\*Pounds of pure live seed:

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



**H<sub>2</sub>S Contingency Plan**  
November 2016

H<sub>2</sub>S Contingency Plan Holders:

Attached is an H<sub>2</sub>S Contingency Plan for COPC Permian Drilling working in the West Texas and Southeastern New Mexico areas operated by ConocoPhillips Company.

If you have any question regarding this plan, please call Matt Oster (830) 583-1297, or Ryan Vacarella (985) 217-7594.

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H2S Safety Equipment and Monitoring Systems

#### **V. Emergency Call List**

#### **VI. Public/Media Relations**

#### **VII. Public Notification/Evacuation**

#### **VIII. Forms/Reports**





# **HYDROGEN SULFIDE (H<sub>2</sub>S) OPERATIONS**

**Contingency Plan  
For  
Permian Drilling Operations**

**ConocoPhillips Company  
Mid-Continent Business Unit  
Permian Asset Area**

**I. PURPOSE**

The purpose of this Contingency Plan is to provide an organized plan of action for alerting and protecting the public following the release of a potentially hazardous volume of hydrogen sulfide. This plan prescribes mandatory safety procedures to be followed in the event of a release of H<sub>2</sub>S into the atmosphere from exploration and production operations included in the scope of this plan. The extent of action taken will be determined by the supervisor and will depend on the severity and extent of H<sub>2</sub>S release. Release of H<sub>2</sub>S must be reported to the Drilling Superintendent and documented on the IADC and in Wellview.

**II. SCOPE**

This Contingency plan shall cover the West Texas and Southeastern New Mexico areas, which contain H<sub>2</sub>S gas and could result in a release where the R.O.E. is greater than 100 ppm at 50' and less than 3000' and does not include a public area and 500 ppm R.O.E. does not include a public road. Radius of exposure is defined as the maximum distance from the source of release that a specified calculated average concentration of H<sub>2</sub>S could exist under specific weather conditions.

### **III. PROCEDURES**

#### **First Employee on Scene**

- \_\_\_\_\_ Assess the incident and ensure your own safety.

Note the following:

- \_\_\_\_\_ Location of the incident.
  - \_\_\_\_\_ Nature of the incident.
  - \_\_\_\_\_ Wind direction and weather conditions.
  - \_\_\_\_\_ Other assistance that may be needed.
- 
- \_\_\_\_\_ Call local supervisory personnel (refer to Section V: Emergency Call List) until personal contact is made with a person on the list.
  - \_\_\_\_\_ Perform emergency assessment and response as needed. The response may include rescue and/or evacuation of personnel, shutting in a system and/or notification of nearby residents/public (refer to Section VII: Public Notification/Evacuation).
  - \_\_\_\_\_ Secure the site.
  - \_\_\_\_\_ Follow the direction of the On-scene Incident Commander (first ConocoPhillips supervisor arriving on-scene).

#### **First Supervisor on Scene (ConocoPhillips On-scene Incident Commander)**

- \_\_\_\_\_ Becomes ConocoPhillips' On-scene Incident Commander upon arrival to location.
- \_\_\_\_\_ Follow the principles of the **D.E.C.I.D.E.** process below to assess the incident. (Note wind direction and weather conditions and ensure everyone's safety).

**DETECT** the problem  
**ESTIMATE** likely harm without intervention  
**CHOOSE** response objectives  
**IDENTIFY** action options  
**DO** the best option  
**EVALUATE** the progress

- \_\_\_\_\_ Complete the Preliminary Emergency Information Sheet  
(refer to Section VIII: Forms/Reports).
  
- \_\_\_\_\_ Call your supervisor (refer to Section V: Emergency Call List).
  
- \_\_\_\_\_ Perform emergency response as necessary. (This may include notification & evacuation of all personnel and/or nearby residents/public (refer to Section VII: Public Notification/Evacuation), requesting assistance from ConocoPhillips personnel or outside agencies (refer to Section V: Emergency Call List) and obtaining any safety equipment that may be required (refer to Section IV: Emergency Equipment and Maintenance).
  
- \_\_\_\_\_ Notify appropriate local emergency response agencies of the incident as needed. Also notify the appropriate regulatory agencies. (refer to Section V: Emergency Call List).
  
- \_\_\_\_\_ Ensure site security.
  - \_\_\_\_\_ Set barricades and /or warning signs at or beyond the calculated 100 ppm H<sub>2</sub>S radius of exposure (ROE). All manned barricades must be equipped with an H<sub>2</sub>S monitor and a 2-way radio.
  - \_\_\_\_\_ Set roadblocks and staging area as determined.
  
- \_\_\_\_\_ Establish the Incident Command Structure by designating appropriate on-scene response personnel as follows:
 

Recording Secretary	_____
Public Information Officer	_____
Safety/Medical Officer	_____
Decontamination Officer	_____
  
- \_\_\_\_\_ Have the "Recording Secretary" begin documenting the incident on the "Incident Log" (refer to Section VIII: Forms/Reports).
  
- \_\_\_\_\_ If needed, request radio silence on all channels that use your radio tower stating that, until further notice, the channels should be used for emergency communications only.
  
- \_\_\_\_\_ Perform a Site Characterization and designate the following:
 

Hot Zone	--	Hazardous Area
Warm Zone	--	Preparation & Decontamination Area
Cold Zone	--	Safe Area

AND

On-Scene Incident Command Post	(Cold Zone)
Public Relations Briefing Area	(Cold Zone)
Staging Area	(Cold Zone)
Triage Area	(Cold Zone)
Decontamination Area	(Warm Zone)

- \_\_\_\_\_ Refer all media personnel to ConocoPhillips' On-Scene Public Information Officer (refer to Section VI: Public Media Relations).
- \_\_\_\_\_ Coordinate the attempt to stop the release of H<sub>2</sub>S. You should consider closing upstream and downstream valves to shut-off gas supply sources, and/or plugging or clamping leaks. Igniting escaping gas to reduce the toxicity hazard should be used **ONLY AS A LAST RESORT**. (It must first be determined if the gas can be safely ignited, taking into consideration if there is a possibility of a widespread flammable atmosphere.)
- \_\_\_\_\_ Once the emergency is over, return the situation to normal by:
  - Confirming the absence of H<sub>2</sub>S and combustible gas throughout the area,
  - Discontinuing the radio silence on all channels, stating that the emergency incident is over,
  - Removing all barricades and warning signs,
  - Allowing evacuees to return to the area, and
  - Advising all parties previously notified that the emergency has ended.
- \_\_\_\_\_ Ensure the proper regulatory authorities/agencies are notified of the incident (refer to Section V: Emergency Call List).
- \_\_\_\_\_ Clean up the site. (Be sure all contractor crews have had appropriate HAZWOPER training.)

- \_\_\_\_\_ Report completion of the cleanup to the Asset Environmentalist.  
(Environmentalist will report this to the proper State and/or Federal agencies.)
- \_\_\_\_\_ Fill out all required incident reports and send originals to the Safety Department. (Keep a copy for your records.)
  - Company employee receiving occupational injury or illnesses.
  - Company employee involved in a vehicle accident while driving a company vehicle.
  - Company property that is damaged or lost.
  - Accident involving the public or a contractor; includes personal injuries, vehicle accidents, and property damage. Also includes any situation, which could result in a claim against the Company.
  - Hazardous Material Spill/Release Report Form
  - Emergency Drill Report
- \_\_\_\_\_ Assist the Safety Department in the investigation of the incident. Review the factors that caused or allowed the incident to occur, and modify operating, maintenance, and/or surveillance procedures as needed. Make appropriate repairs and train or retrain employees in the use and operation of the system.
- \_\_\_\_\_ If this incident was simulated for practice in emergency response, complete the Emergency Drill Report found in Section VIII: Forms/Reports and submit a copy to the Drilling Manager. (Keep one copy in area files to document exercising of the plan.)

## **Emergency Procedures Responsibility**

In the event of a release of potentially hazardous amounts of H<sub>2</sub>S, all personnel will immediately proceed upwind/ crosswind to the nearest designated briefing area. The COPC Drilling Rep. will immediately, upon assessing the situation, set this into action by taking the proper procedures to contain the gas and notify appropriate people and agencies.

1. In an emergency situation, the Drilling Rep. on duty will have complete responsibility and will take whatever action is deemed necessary in an emergency situation to insure the personnel's safety, to protect the well and to prevent property damage.
2. The Toolpusher will assume all responsibilities of the Drilling Rep. in an emergency situation in the event the Drilling Rep. becomes incapacitated.
3. Advise each contractor, service company, and all others entering the site that H<sub>2</sub>S may be encountered and the potential hazards that may exist.
4. Authorize the evacuation of local residents if H<sub>2</sub>S threatens their safety.
5. Keep the number of persons on location to a minimum during hazardous operations.
6. Direct corrective actions to control the flow of gas.
7. Has full responsibility for igniting escaping gas to reduce the toxicity hazard.

This should be used **ONLY AS A LAST RESORT.**

## **IV. EMERGENCY EQUIPMENT and MAINTENANCE**

### **Emergency Equipment Suppliers**

#### **DXP/ Safety International – Odessa, Tx.**

H <sub>2</sub> S monitors	432.580.3770
Breathing air includes cascade systems	
First aid and medical supplies	
Safety equipment	
H <sub>2</sub> S Specialist	

#### **Total Safety US Odessa, Tx/ Hobbs, NM**

H <sub>2</sub> S monitors	432.561.5049 Odessa
Breathing air includes cascade systems	575.392.2973 Hobbs
First aid and medical supplies	
Safety equipment	

#### **DXP/ Indian Fire & Safety – Hobbs, NM**

H <sub>2</sub> S monitors	575.393.3093
Breathing air including cascade systems trailer mounted	
30 minute air packs	
Safety Equipment	

#### **TC Safety – Odessa, Tx.**

H <sub>2</sub> S monitors	432.413.8240
Cascade systems trailer mounted	
30 minute air packs	
Safety Equipment	
H <sub>2</sub> S Specialist	

#### **Secorp Industries – Odessa, Tx.**

H <sub>2</sub> S Monitor Systems	432.614.2565
Cascade Systems	
H <sub>2</sub> S Specialist	
H <sub>2</sub> S, CPR, First Aid Training	



## **Emergency Equipment and Maintenance (continued)**

### **General Information**

Materials used for repair should be suitable for use where H<sub>2</sub>S concentrations exceed 100 ppm. In general, carbon steels having low-yield strengths and a hardness below RC-22 are suitable. The engineering staff should be consulted if any doubt exists on material specifications.

Appropriate signs should be maintained in good condition at location entrance and other locations as specified in Texas Rule 36 and NMOCD Rule 118.

All notification lists should be kept current with changes in names, telephone numbers, etc.

All shutdown devices, alarms, monitors, breathing air systems, etc., should be maintained in accordance with applicable regulations.

All personnel working in H<sub>2</sub>S areas shall have received training on the hazards, characteristics, and properties of H<sub>2</sub>S, and on procedures and safety equipment applicable for use in H<sub>2</sub>S areas.

## **H2S Safety Equipment and Monitoring Systems**

An H2S emergency response package will be maintained at locations requiring H2S monitoring. The package will contain at a minimum the following:

3 – Fixed H2S sensors located as follows:

- 1 – on the rig floor
- 1 – at the Bell Nipple
- 1 – at the Shale Shaker or Flowline

1 – Entrance Warning Sign located at the main entrance to the location, with warning signs and colored flags to determine the current status for entry into the location.

2 – Windsocks that are clearly visible.

1 – Audible warning system located on rig floor

2 – Visual warning systems (Beacon Lights)

- 1 – Located at the rig floor
- 1 – Located in the mud mixing room

**Note: All alarms (audible and visual) should be set to alarm at 10 ppm.**

2 - Briefing areas clearly marked

- 2 - SCBA's at each briefing area
- 1- SCBA located at the Drilling Reps office

**Note:**

- 1. All SCBA's must be positive pressure type only!!!**
- 2. All SCBA's must either be Scott or Drager brand.**
- 3. All SCBA's face pieces should be size large, unless otherwise specified by the Drilling Supervisor.**

5 – Emergency Escape Paks located at Top Doghouse.

Note: Ensure provisions are included for any personnel working above rig floor in derrick.

1 – Tri or Quad gas monitor located at the Drilling Reps office. This will be used to determine if the work area is safe to re-enter prior to returning to work following any alarm.

**V. EMERGENCY CALL LIST:**

The following is a priority list of personnel to contact in an emergency situation.

<b>Supervisory Personnel</b>	<b>Office No.</b>	<b>Cellphone</b>
Drilling Supt. (Unconventional) <b>Scott Nicholson</b>	432.688.9065	432.230.8010
Field Superintendents: <b>Clint Case.</b>	432.688.6878	940.231.2839
Safety Support: <b>Matt Oster</b> <b>Ryan Vaccarella</b>	830.583.1245 985.217.7594	601.540.6988 NA
Supt Operations-SEMN/Shale Mike Neuschafer	432.688.6834	713.419.9919
MCBU Safety Coordinator <b>James Buzan</b>	432.688.6860	832.630.4320
Manger GCBU/MCBU D & C <b>Seth Crissman</b>	832.486.6191	832.513.9308

**EMERGENCY CALL LIST: State Officials****Regulatory Agencies**

**Texas Railroad Commission (District 8)**  
Midland, Texas

Office: 432.684.5581

**New Mexico Oil Conservation Commission**  
P. O. Box 1980  
Hobbs, New Mexico 88240-1980

Office: 575.393.6161

**Bureau of Land Mngt.**  
Carlsbad Field Office  
620 E. Greene St.  
Carlsbad, NM 88220

Office: 575.234.5972  
Fax: 575.885.9264

## **EMERGENCY CALL LIST: Local Officials**

Refer to the Location Information Sheet

**Note:** The LIS should include any area residents (i.e. rancher's house, etc)

### **VI. Public Media Relations**

The **Public Information Officer** becomes the ConocoPhillips on-scene contact (once designated by the Phillips On-Scene Incident Commander).

Confers with Houston Office's Human Relations Representative, who is responsible for assisting in the coordination of local public relations duties.

Answer media questions honestly and **only with facts**, do not speculate about the cause, amount of damage, or the potential impact of the incident of the community, company, employees, or environment. (This information will be formally determined in the incident investigation.)

If you are comfortable answering a question or if you are unsure of the answer, use terms such as the following:

- "I do not know. I will try to find out."
- "I am not qualified to answer that question, but I will try to find someone who can."
- "It is under investigation."

**Note:**

**Do Not Say "No Comment."** (This implies a cover-up.)

**Do Not Disclose Names of Injured or Dead!** Confer with the Houston Office's Human Relations Representative, who is responsible for providing that information.

## **VII. Public Notification/Evacuation**

### **Alert and/or Evacuate People within the Exposure Area**

1. **Public Notification** – If the escape of gas could result in a hazard to area residents, the general public, or employees, the person **first** observing the leak should take **immediate** steps to cause notification of any nearby residents. The avoidance of injury or loss of life should be of prime consideration and given top priority in all cases. If the incident is of such magnitude, or at such location as to create a hazardous situation, local authorities will be requested to assist in the evacuation and roadblocks of the designated area until the situation can be returned to normal.

Note: Bilingual employees may be needed to assist in notification of residents.

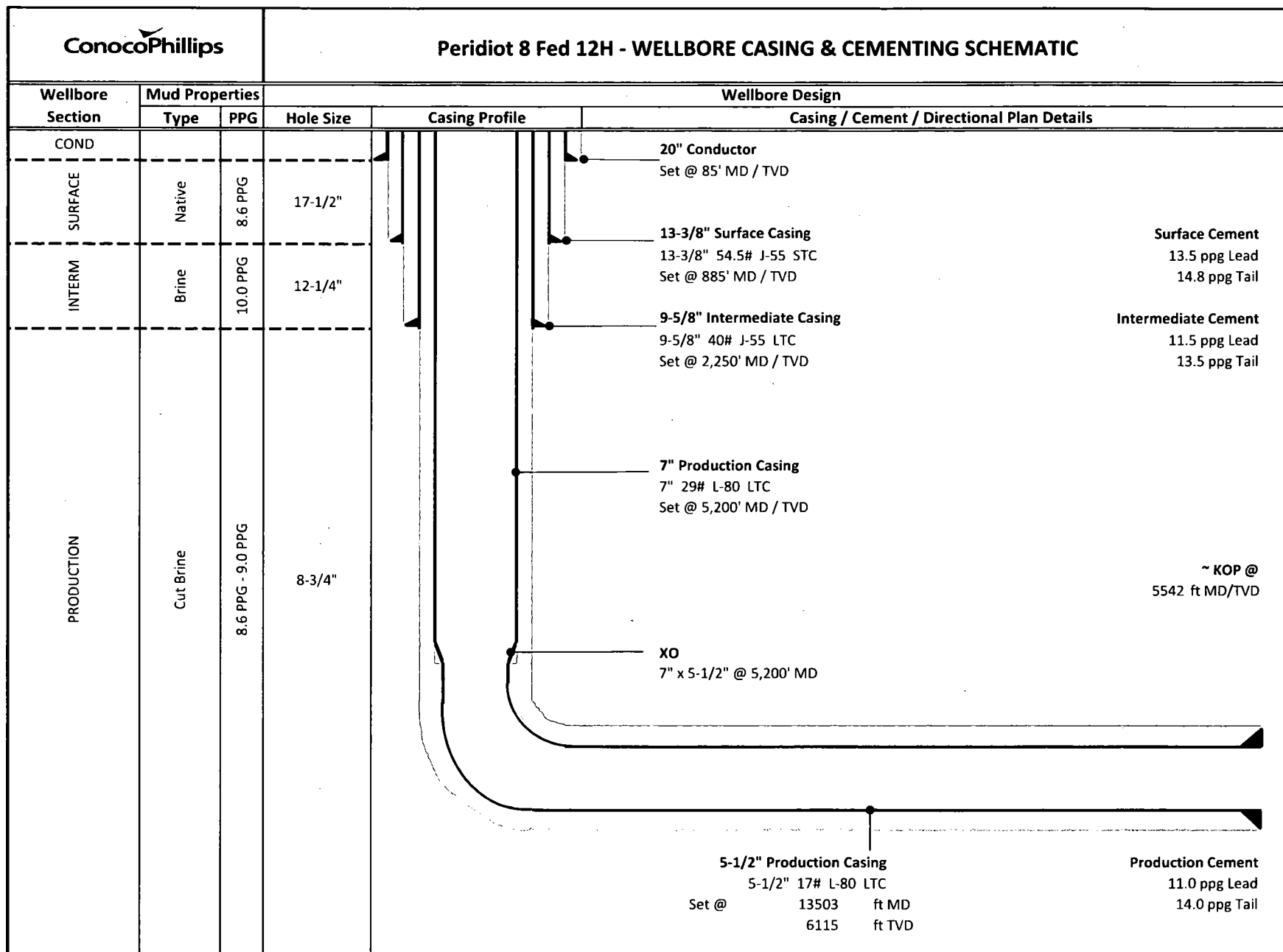
2. **Evacuation Procedures** – Evacuation will proceed upwind from the source of the release of H<sub>2</sub>S. Extreme caution should be exercised in order to avoid any depressions or low-lying areas in the terrain. The public area within the radius of exposure should be evacuated in a southwesterly and southeasterly direction so as to avoid the prevailing southern wind direction.

Roadblocks and the staging area should be established as necessary for current wind conditions.

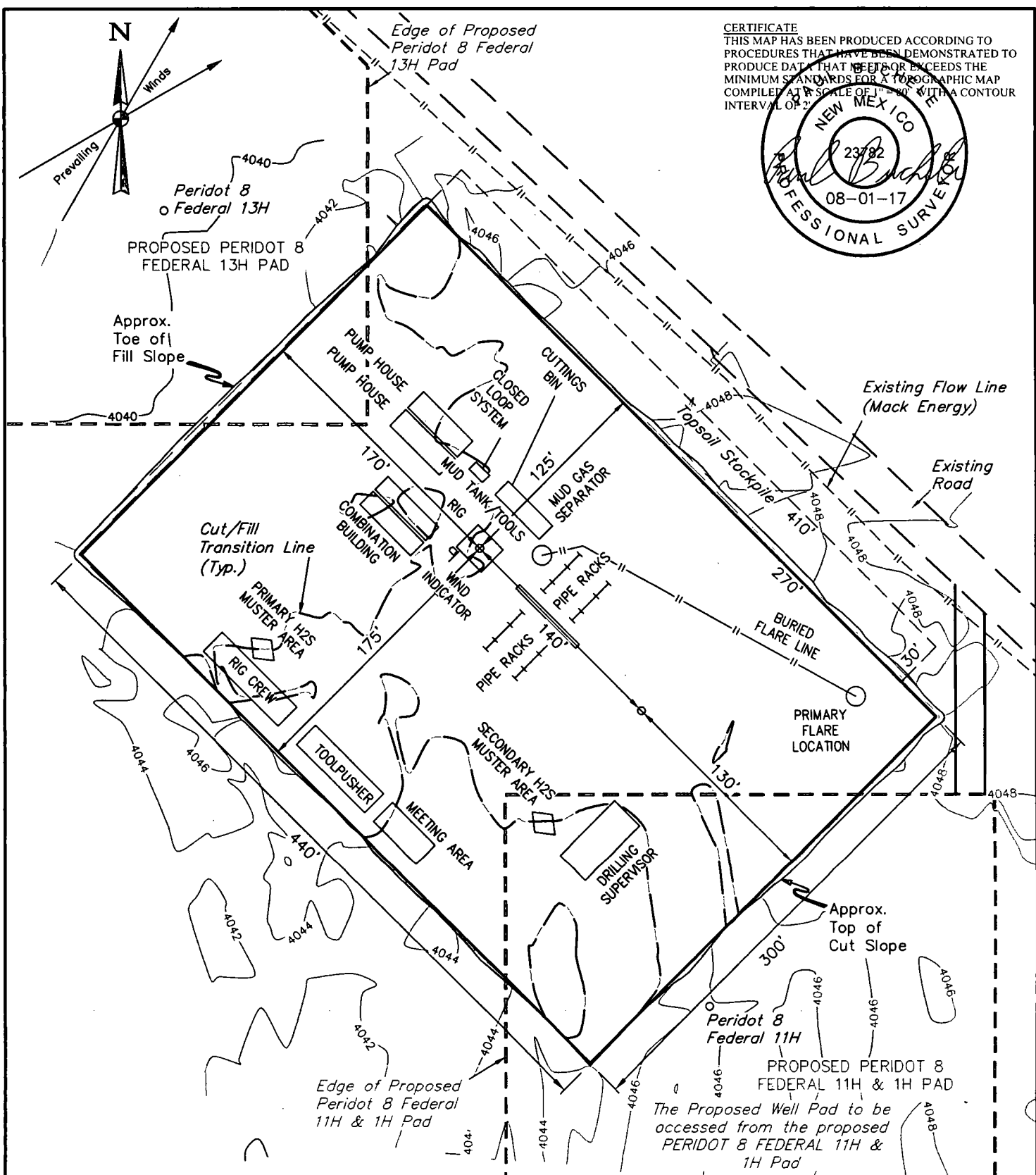
**Note:** In all situations, consideration should be given to wind direction and weather conditions. H<sub>2</sub>S is heavier than air and can settle in low spots. Shifts in wind direction can also change the location of possible hazardous areas.

## **VIII. FORMS & REPORTS**

- I. Incident Log
- II. Preliminary Emergency Information Sheet
- III. Emergency Drill Report
- IV. Onshore Hazardous Material Spill/Release Report Form
- V. Immediate Report of Occupational Injury or Illness
  - Report of Accident-Public Contractor
  - Report of Loss or Damage to Company Property
  - Report of Automotive Incident



**CERTIFICATE**  
THIS MAP HAS BEEN PRODUCED ACCORDING TO PROCEDURES THAT HAVE BEEN DEMONSTRATED TO PRODUCE DATA THAT MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR A TOPOGRAPHIC MAP COMPILED AT A SCALE OF 1" = 80' WITH A CONTOUR INTERVAL OF 2'



**NOTES:**

- Contours shown at 2' intervals.
- May have different number of pump houses and combination buildings.

**ConocoPhillips Company**

**PERIDOT 8 FEDERAL 12H & 2H**  
**SW 1/4 SE 1/4, SECTION 8, T17S, R32E, N.M.P.M.**  
**LEA COUNTY, NEW MEXICO**

SURVEYED BY	J.A.V., R.D.	06-23-17	SCALE
DRAWN BY	S.S.	07-27-17	1" = 80'
TYPICAL RIG LAYOUT			FIGURE #3



**UELS, LLC**  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017



# **ConocoPhillips MCBU - Permian-Panhandle Gold Data**

**Planning - NM East State Zone - 3001**

**PERIDOT 8 FEDERAL 12H**

**Peridot 8 Federal 12H**

**Peridot 8 Federal 12H**

**Plan: PS Design 2**

## **Standard Planning Report**

**15 August, 2017**

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Peridot 8 Federal 12H
<b>Company:</b>	ConocoPhillips MCBU - Permian-Panhandle Gold Data	<b>TVD Reference:</b>	RKB @ 4072.50usft (Trinidad 417)
<b>Project:</b>	Planning - NM East State Zone - 3001	<b>MD Reference:</b>	RKB @ 4072.50usft (Trinidad 417)
<b>Site:</b>	PERIDOT 8 FEDERAL 12H	<b>North Reference:</b>	Grid
<b>Well:</b>	Peridot 8 Federal 12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Peridot 8 Federal 12H		
<b>Design:</b>	PS Design 2		

<b>Project</b>	Planning - NM East State Zone - 3001, Permian Basin - New Mexico - East/South East, Planning Project for Permian wells in NM Zone 3001		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		Using geodetic scale factor

<b>Site</b>	PERIDOT 8 FEDERAL 12H, Sec 8 and Sec 7		
<b>Site Position:</b>		<b>Northing:</b>	671,424.97 usft
<b>From:</b>	Map	<b>Easting:</b>	667,479.94 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16"
		<b>Latitude:</b>	32° 50' 40.72 N
		<b>Longitude:</b>	103° 47' 16.842 W
		<b>Grid Convergence:</b>	0.30 °

<b>Well</b>	Peridot 8 Federal 12H		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 671,424.97 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 667,479.94 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	32° 50' 40.72 N
		<b>Longitude:</b>	103° 47' 16.842 W
		<b>Ground Level:</b>	4,055.00 usft

<b>Wellbore</b>	Peridot 8 Federal 12H		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>
			(°)
	BGGM2017	8/9/2017	7.12
			Dip Angle (°)
			60.61
			Field Strength (nT)
			48,334.27565961

<b>Design</b>	PS Design 2		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b> 0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°)
			269.82

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,009.80	0.15	0.00	1,009.80	0.01	0.00	1.50	1.50	0.00	0.00	
5,332.33	0.15	0.00	5,332.31	11.10	0.00	0.00	0.00	0.00	0.00	
5,342.12	0.00	0.00	5,342.11	11.11	0.00	1.50	-1.50	0.00	180.00	
5,542.12	0.00	0.00	5,542.11	11.11	0.00	0.00	0.00	0.00	0.00	New_12H_KOP
6,451.47	90.93	269.74	6,114.99	8.46	-582.30	10.00	10.00	-9.93	269.74	
13,502.81	90.93	269.74	6,000.00	-23.57	-7,632.63	0.00	0.00	0.00	0.00	New_12H_BHL

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Peridot 8 Federal 12H
<b>Company:</b>	ConocoPhillips MCBU - Permian-Panhandle Gold Data	<b>TVD Reference:</b>	RKB @ 4072.50usft (Trinidad 417)
<b>Project:</b>	Planning - NM East State Zone - 3001	<b>MD Reference:</b>	RKB @ 4072.50usft (Trinidad 417)
<b>Site:</b>	PERIDOT 8 FEDERAL 12H	<b>North Reference:</b>	Grid
<b>Well:</b>	Peridot 8 Federal 12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Peridot 8 Federal 12H		
<b>Design:</b>	PS Design 2		

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
820.00	0.00	0.00	820.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Rustler</b>									
870.00	0.00	0.00	870.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>13 3/8"</b>									
965.00	0.00	0.00	965.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Salado</b>									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,009.80	0.15	0.00	1,009.80	0.01	0.00	0.00	1.50	1.50	0.00
2,040.00	0.15	0.00	2,040.00	2.65	0.00	-0.01	0.00	0.00	0.00
<b>Tansil</b>									
2,180.00	0.15	0.00	2,180.00	3.01	0.00	-0.01	0.00	0.00	0.00
<b>Yates</b>									
2,490.00	0.15	0.00	2,490.00	3.81	0.00	-0.01	0.00	0.00	0.00
<b>Seven Rivers</b>									
3,110.01	0.15	0.00	3,110.00	5.40	0.00	-0.02	0.00	0.00	0.00
<b>Queen</b>									
3,530.01	0.15	0.00	3,530.00	6.48	0.00	-0.02	0.00	0.00	0.00
<b>Grayburg</b>									
3,850.01	0.15	0.00	3,850.00	7.30	0.00	-0.02	0.00	0.00	0.00
<b>San Andres</b>									
5,332.33	0.15	0.00	5,332.31	11.10	0.00	-0.03	0.00	0.00	0.00
5,342.12	0.00	0.00	5,342.11	11.11	0.00	-0.03	1.50	-1.50	0.00
5,370.01	0.00	0.00	5,370.00	11.11	0.00	-0.03	0.00	0.00	0.00
<b>Glorieta</b>									
5,460.01	0.00	0.00	5,460.00	11.11	0.00	-0.03	0.00	0.00	0.00
<b>Paddock</b>									
5,542.12	0.00	0.00	5,542.11	11.11	0.00	-0.03	0.00	0.00	0.00
5,781.96	23.98	269.74	5,775.00	10.89	-49.47	49.43	10.00	10.00	0.00
<b>Blinberry</b>									
6,451.47	90.93	269.74	6,114.99	8.46	-582.30	582.27	10.00	10.00	0.00
13,502.81	90.93	269.74	6,000.00	-23.57	-7,632.63	7,632.67	0.00	0.00	0.00

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
New_12H_KOP	0.00	0.00	5,542.11	11.11	0.00	671,436.08	667,479.94	32° 50' 40.83 N	103° 47' 16.841 W
- plan hits target center									
- Point									
New_12H_BHL	0.00	0.00	6,000.00	-23.57	-7,632.63	671,401.40	659,847.76	32° 50' 40.87 N	103° 48' 46.302 W
- plan hits target center									
- Point									
Peridot8_12H_BHL	0.00	0.00	6,115.00	-73.57	-7,652.59	671,351.40	659,827.80	32° 50' 40.37 N	103° 48' 46.539 W
- plan misses target center by 126.98usft at 13502.81usft MD (6000.00 TVD, -23.57 N, -7632.63 E)									
- Point									

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Peridot 8 Federal 12H
<b>Company:</b>	ConocoPhillips MCBU - Permian-Panhandle Gold Data	<b>TVD Reference:</b>	RKB @ 4072.50usft (Trinidad 417)
<b>Project:</b>	Planning - NM East State Zone - 3001	<b>MD Reference:</b>	RKB @ 4072.50usft (Trinidad 417)
<b>Site:</b>	PERIDOT 8 FEDERAL 12H	<b>North Reference:</b>	Grid
<b>Well:</b>	Peridot 8 Federal 12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Peridot 8 Federal 12H		
<b>Design:</b>	PS Design 2		

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
870.00	870.00	13 3/8"	13-3/8	17-1/2

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,040.00	2,040.00	Tansil		0.00		
5,460.01	5,460.00	Paddock		0.00		
5,370.01	5,370.00	Glorieta		0.00		
5,781.96	5,775.00	Blinbry		0.00		
2,490.00	2,490.00	Seven Rivers		0.00		
820.00	820.00	Rustler				
3,110.01	3,110.00	Queen		0.00		
2,180.00	2,180.00	Yates				
3,850.01	3,850.00	San Andres				
3,530.01	3,530.00	Grayburg				
965.00	965.00	Salado		0.00		



ConocoPhillips MCBU - Permian-Panhandle Gold Data

Planning - NM East State Zone - 3001

PERIDOT 8 FEDERAL 12H

Peridot 8 Federal 12H

Peridot 8 Federal 12H

Plan: PS Design 2 (Peridot 8 Federal 12H/Peridot 8 Federal 12H)

RKB @ 4072.50usft (Trinidad 417)

US State Plane 1927 (Exact solution)

NAD 1927 (NADCON CONUS)

Clarke 1866

New Mexico East 3001



Azimuths to Grid North  
True North: -0.30°  
Magnetic North: 6.83°

Magnetic Field  
Strength: 48334.3nT  
Dip Angle: 60.61°  
Date: 8/9/2017  
Model: BGGM2017

