OCD – REC'D 8/26/2020

Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

## SUNDRY NOTICES AND REPORTS ON WELLS

***Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***

***SUBMIT IN TRIPLICATE - Other instructions on page 2***

5. Lease Serial No.
NMNM0533177A

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
GALAPAGOS 14-26 FED COM 216H

2. Name of Operator
DEVON ENERGY PRODUCTION COM LP
Contact: JENNIFER HARMS
E-Mail: jennifer.harms@dvn.com

9. API Well No.
30-015-47288-00-X1

3a. Address
333 WEST SHERIDAN AVENUE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)
Ph: 405-552-6560

10. Field and Pool or Exploratory Area
JAMES RANCH

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*

Sec 14 T23S R31E NENE 250FNL 731FEL
32.311020 N Lat, 103.742393 W Lon

11. County or Parish, State

EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | | |
|---|---|---|---|---|
| ☒ Notice of Intent | ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| ☐ Subsequent Report | ☐ Alter Casing | ☐ Hydraulic Fracturing | ☐ Reclamation | ☐ Well Integrity |
| ☐ Final Abandonment Notice | ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☒ Other Change to Original A PD |
| | ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | |
| | ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Devon Energy Production Co., L.P. (Devon) respectfully requests to have the option to increase their Intermediate casing size to 10-3/4" and to add a second Intermediate hole size (Intermediate 1) of 9-7/8" and casing string of 8-5/8" down to 8300' due to the close proximity of depletion from multiple active Delaware producers. The offset wells have perforations varying from 6,688' to 8,300'. Adding a second intermediate string deeper will allow for us to case off potential loss zones. This will allow us to increase mud weight as necessary for well conditions in the production hole, allowing us to better handle any well control issues that may arise while drilling the lateral. With the intermediate 1 string added, the production hole size will change to 7-7/8", with production casing to remain the same at 5-1/2". This is a contingency plan based on final drilling results. Drilling also requests the option to change the production hole mud program to OBM. The change in mud program will increase the likelihood of successfully drilling a 3-mile lateral by decreasing the friction experienced in the lateral. Please see

OCD Accepted for Record 8/28/2020 - JAG

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #525877 verified by the BLM Well Information System**
**For DEVON ENERGY PRODUCTION COM LP, sent to the Carlsbad**
**Committed to AFMSS for processing by PRISCILLA PEREZ on 08/17/2020 (20PP3760SE)**

Name *(Printed/Typed)* JENNIFER HARMS — Title REGULATORY COMPLIANCE ANALYST

Signature (Electronic Submission) — Date 08/17/2020

### THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By LONG VO — Title PETROLEUM ENGINEER — Date 08/19/2020

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

Office Carlsbad

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

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

## Additional data for EC transaction #525877 that would not fit on the form

### 32. Additional remarks, continued

attachments.

## Revisions to Operator-Submitted EC Data for Sundry Notice #525877

| | Operator Submitted | BLM Revised (AFMSS) |
|---|---|---|
| Sundry Type: | APDCH<br>NOI | APDCH<br>NOI |
| Lease: | NMNM0533177A | NMNM0533177A |
| Agreement: | | |
| Operator: | DEVON ENERGY PRODUCTION COMPAN<br>333 W SHERIDAN AVE<br>OKLAHOMA CITY, OK 73102<br>Ph: 405-552-6560 | DEVON ENERGY PRODUCTION COM LP<br>333 WEST SHERIDAN AVENUE<br>OKLAHOMA CITY, OK 73102<br>Ph: 405 552 6571 |
| Admin Contact: | JENNIFER HARMS<br>REGULATORY COMPLIANCE ANALYST<br>E-Mail: jennifer.harms@dvn.com<br><br>Ph: 405-552-6560 | JENNIFER HARMS<br>REGULATORY COMPLIANCE ANALYST<br>E-Mail: jennifer.harms@dvn.com<br><br>Ph: 405-552-6560 |
| Tech Contact: | JENNIFER HARMS<br>REGULATORY COMPLIANCE ANALYST<br>E-Mail: jennifer.harms@dvn.com<br><br>Ph: 405-552-6560 | JENNIFER HARMS<br>REGULATORY COMPLIANCE ANALYST<br>E-Mail: jennifer.harms@dvn.com<br><br>Ph: 405-552-6560 |
| Location: | | |
| State: | NM | NM |
| County: | EDDY | EDDY |
| Field/Pool: | JAMES RANCH BONE SPRING,E | JAMES RANCH |
| Well/Facility: | GALAPAGOS 14-26 FED COM 216H<br>Sec 14 T23S R31E NENE 250FNL 731FEL | GALAPAGOS 14-26 FED COM 216H<br>Sec 14 T23S R31E NENE 250FNL 731FEL<br>32.311020 N Lat, 103.742393 W Lon |

# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Devon Energy Production Company LP** |
| **LEASE NO.:** | **NMNM0533177A** |
| **LOCATION:** | Section 14, T.23 S., R.31 E., NMPM |
| **COUNTY:** | Eddy County, New Mexico |

| | |
|---|---|
| **WELL NAME & NO.:** | Galapagos 14-26 Fed Com 211H |
| **SURFACE HOLE FOOTAGE:** | 450'/N & 509'/W |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 550'/W |

| | |
|---|---|
| **WELL NAME & NO.:** | Galapagos 14-26 Fed Com 212H |
| **SURFACE HOLE FOOTAGE:** | 450'/N & 539'/W |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 1430'/W |

| | |
|---|---|
| **WELL NAME & NO.:** | Galapagos 14-26 Fed Com 213H |
| **SURFACE HOLE FOOTAGE:** | 250'/N & 2551'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 2310'/W |

| | |
|---|---|
| **WELL NAME & NO.:** | Galapagos 14-26 Fed Com 214H |
| **SURFACE HOLE FOOTAGE:** | 250'/N & 2521'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 2090'/E |

| | |
|---|---|
| **WELL NAME & NO.:** | Galapagos 14-26 Fed Com 215H |
| **SURFACE HOLE FOOTAGE:** | 250'/N & 761'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 1210'/E |

| | |
|---|---|
| **WELL NAME & NO.:** | Galapagos 14-26 Fed Com 216H |
| **SURFACE HOLE FOOTAGE:** | 250'/N & 731'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 330'/E |

COA

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

## A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Triste Draw/Sand Dune** 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.

## B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **832 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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

2. The minimum required fill of cement behind the **10-3/4** inch intermediate casing shall be set at approximately **4399 feet** is:

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

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

3. The minimum required fill of cement behind the **9-5/8** inch intermediate casing shall be set at approximately **8300 feet** is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
      **Cement excess is less than 25%, more cement might be required.**

❖ In R111 Potash Areas if cement does not circulate to surface on the first two salt protection casing strings, the cement on the 3rd casing string must come to surface.

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

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

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

## C. PRESSURE CONTROL

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

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

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

## D. SPECIAL REQUIREMENT (S)

**<u>Communitization Agreement</u>**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. <u>When the Communitization Agreement number is known, it shall also be on the sign.</u>

# GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

A. CASING

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

## 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 10464 | Pilot hole depth | N/A |
| MD at TD: | 26001 | Deepest expected fresh water | |

**Basin**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone? | Hazards* |
|---|---|---|---|
| Rustler | 807 | | |
| Salt | 1147 | | |
| Base of Salt | 4154 | | |
| Delaware | 4424 | | |
| Cherry Canyon | 5360 | | |
| Brushy Canyon | 6599 | | |
| Bone Spring 1st | 9365 | | |
| Bone Spring 2nd | 9409 | | |
| | | | |
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| | | | |
| | | | |

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

**2. Casing Program**

| Hole Size | Casing Interval | | Csg. Size | Wt (PPF) | Grade | Conn | Min SF Collapse | Min SF Burst | Min SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | | |
| 17 1/2 | 0 | 832 TVD | 13 3/8 | 48.0 | H40 | STC | 1.125 | 1.25 | 1.6 |
| 12 1/4 | 0 | 4399 TVD | 10 3/4 | 45.5 | HCL80 | BTC | 1.125 | 1.25 | 1.6 |
| 9 7/8 | 0 | 8300 TVD | 8 5/8 | 32.0 | P110 | TLW | 1.125 | 1.25 | 1.6 |
| 7 7/8 | 0 | TD | 5 1/2 | 17.0 | P110 | BTC | 1.125 | 1.25 | 1.6 |
| | | | | BLM Minimum Safety Factor | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet |

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for continengcy casing.
• Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
• A variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing.
• Int casing shoe will be selected based on drilling data, gamma, and flows experienced while drilling. Setting depth with be revised accordingly if needed.
• A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.

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

**3. Cementing Program (3-String Primary Design)**

| Casing | # Sks | TOC | Wt. (lb/gal) | Yld (ft3/sack) | Slurry Description |
|---|---|---|---|---|---|
| Surface | 641 | Surf | 13.2 | 1.4 | Lead: Class C Cement + additives |
| Int | 293 | Surf | 9.0 | 3.3 | Lead: Class C Cement + additives |
| | 101 | 500' above shoe | 13.2 | 1.4 | Tail: Class H / C + additives |
| Int 1 | 337 | Surf | 9.0 | 3.3 | Lead: Class C Cement + additives |
| | 67 | 500' above shoe | 13.2 | 1.4 | Tail: Class H / C + additives |
| Int 1 Intermediate Squeeze | As Needed | Surf | 9.0 | 3.3 | Squeeze Lead: Class C Cement + additives |
| | 293 | Surf | 9.0 | 3.3 | Lead: Class C Cement + additives |
| | 101 | 500' above shoe | 13.2 | 1.4 | Tail: Class H / C + additives |
| Production | 672 | 500' above shoe | 9.0 | 3.3 | Lead: Class H /C + additives |
| | 1916 | KOP | 13.2 | 1.4 | Tail: Class H / C + additives |

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

| Casing String | % Excess |
|---|---|
| Surface | 50% |
| Intermediate and Intermediate 1 | 30% |
| Production | 10% |

**4. Pressure Control Equipment (Four String Design)**

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

**5. Mud Program (Four String Design)**

| Section | Type | Weight (ppg) |
|---|---|---|
| Surface | FW Gel | 8.5-9 |
| Intermediate | Brine | 10-10.5 |
| Intermediate 1 | WBM | 8.5 - 9.0 |
| Production | OBM | 9.0 - 9.5 |

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

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

**6. Logging and Testing Procedures**

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

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

**7. Drilling Conditions**

| Condition | Specfiy what type and where? |
|---|---|
| BH pressure at deepest TVD | 4897 |
| Abnormal temperature | No |

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

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

**8. Other facets of operation**

Is this a walking operation? Potentially

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

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

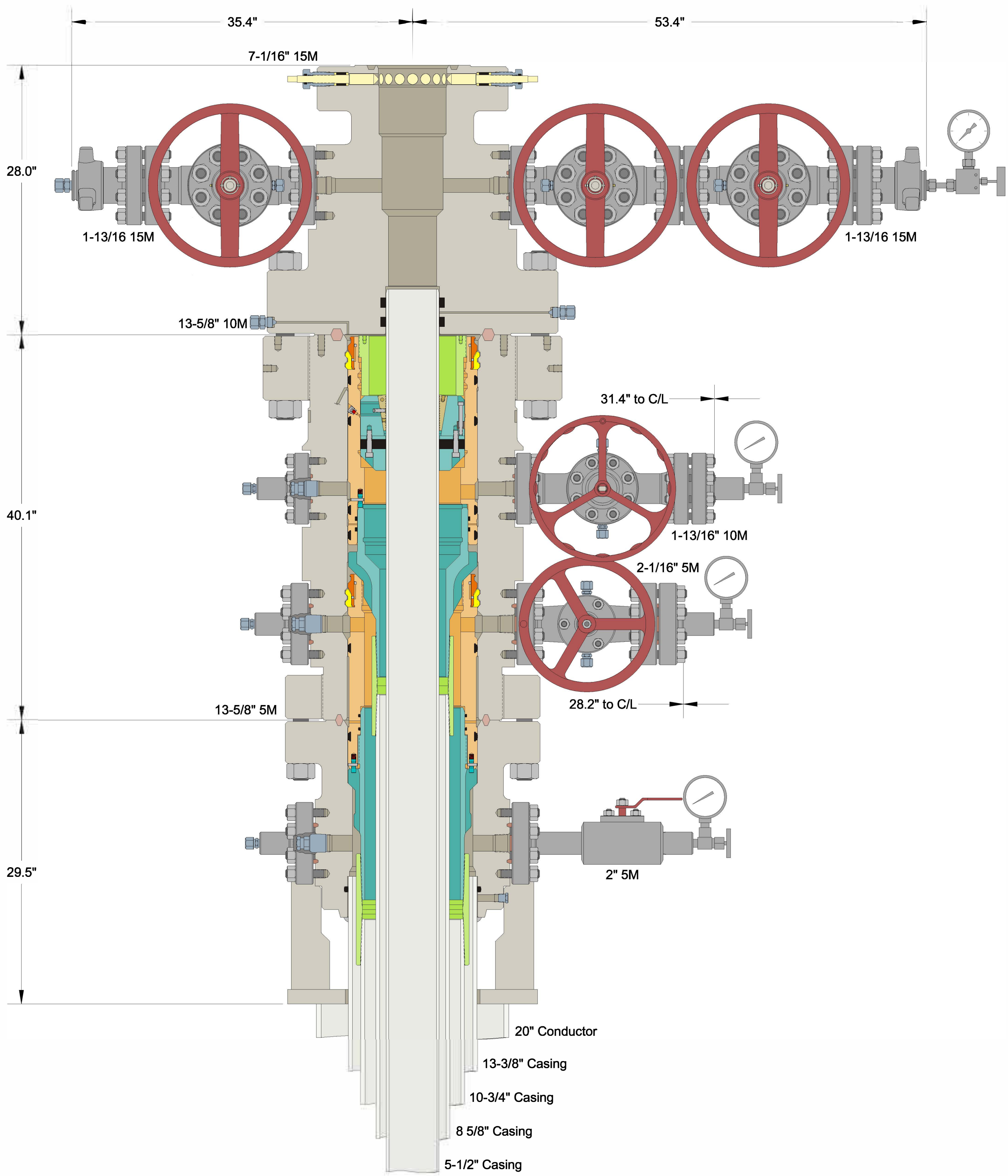
Will be pre-setting casing? Potentially

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

Attachments

X ________ Directional Plan

__________ Other, describe






ALL DIMENSIONS APPROXIMATE

| | | | |
|---|---|---|---|
| CACTUS WELLHEAD LLC | MATADOR RESOURCES<br>WOLFCAMP A WELLS (TEXAS) | | |
| 20" x 13-3/8" x 10-3/4" x 8-5/8" x 5-1/2" MBU-4T-SOW Wellhead<br>With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head,<br>10-3/4" & 8-5/8" Mandrel Hangers And 5-1/2" Slip Casing Hanger | DRAWN | DLE | 09AUG19 |
| | APPRV | | |
| | DRAWING NO. | HBE0000156 | |

# API 5CT 10.750" 45.50lb/ft HCL80 Casing Performance Data Sheet

Manufactured to specifications of API 5CT 9th edition and bears the API monogram.

| | |
|---|---|
| Grade | HCL80 |
| | **Pipe Body Mechanical Properties** |
| Minimum Yield Strength | 80,000 psi |
| Maximum Yield Strength | 95,000 psi |
| Minimum Tensile Strength | 95,000 psi |
| Maximum Hardness | 23.0 HRC |
| | **Sizes** |
| OD | 10 3/4 |
| Nominal Wall Thickness | .400 in |
| Nominal Weight, T&C | 45.50 lb/ft |
| Nominal Weight, PE | 44.26 lb/ft |
| Nominal ID | 9.950 in |
| Standard Drift | 9.794 in |
| Alternate Drift | 9.875 in |
| **Coupling Special Clearance** | **Size** |
| OD | 11.25 in |
| Min. Length | 10.625 in |
| Diameter of Counter Bore | 10.890 in |
| Width of bearing face | .375 in |
| | **Minimum Performance** |
| Collapse Pressure | 2,940 psi |
| Internal Pressure Yield | 5,210 psi |
| Pipe body Tension Yield | 1,040,000 lbs |
| Joint Strength STC | 692,000 lbs |
| Joint Strength LTC | N/A |
| Joint Strength BTC | 1,063,000 lbs |
| | **Inspection and Testing** |
| Visual | OD Longitidunal and independent 3rd party SEA |
| NDT | Independent 3rd party full body EMI and End Area Inspection after hydrotest<br>Calibration notch sensitivity: 10% of specified wall thickness |
| | **Color code** |
| Pipe ends | One red, one brown and one blue band |
| Couplings | Red with one brown band |