HOBBS OCD

JAN 29 2020

RECEIVED

Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM0448921A

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
TALCO 16-21 STATE FED COM 1H (327071)

2. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP (6137)

9. API Well No.
30-025-46811

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory (98117)
333 West Sheridan Avenue Oklahoma City OK 73102	(800)583-3866	WC-025 G-06 S253201M / UPPER BONE

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWNW / 301 FNL / 1194 FWL / LAT 32.04972 / LONG -103.37709
At proposed prod. zone SWSW / 20 FSL / 330 FWL / LAT 32.021558 / LONG -103.379845

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 16 / T26S / R35E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
	LEA	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
301 feet	520	320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
3411 feet	12590 feet / 22894 feet	FED: NMB000801

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3201 feet	04/30/2020	45 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Rebecca Deal / Ph: (405)228-8429	09/30/2019

Title
Regulatory Compliance Professional

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	01/27/2020

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

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

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

GCP Rec 01/29/2020

KA 01/01/2020

APPROVED WITH CONDITIONS

Approval Date: 01/27/2020

SL

(Continued on page 2)

*(Instructions on page 2)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
LEASE NO.:	NMNM0448921A
WELL NAME & NO.:	Talco 16-21 State Fed Com 1H
SURFACE HOLE FOOTAGE:	301'/N & 1194'/W
BOTTOM HOLE FOOTAGE	20'/N & 330'/W
LOCATION:	Section 16, T.26 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately 1085 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

completing the cement job.

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

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

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

Option 1 (Single Stage):

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

Option 2:

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

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

b. Second stage above DV tool:

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

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

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

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

Alternate Casing Design

1. The **13-3/8** inch surface casing shall be set at approximately 1085 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

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

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

    Option 1 (Single Stage):

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

    Option 2:

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

    a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
    b. Second stage above DV tool:
        - Cement to surface. If cement does not circulate, contact the appropriate BLM office.
          Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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

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

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

C. PRESSURE CONTROL

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

2.

Option 1:

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

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
    e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

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

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

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

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.

- Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
- BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.

c. Manufacturer representative shall install the test plug for the initial BOP test.
d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

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

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

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

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

Operator Certification Data Report

01/28/2020

Operator Certification

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

NAME: Rebecca Deal **Signed on:** 09/30/2019

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City **State:** OK **Zip:** 73102

Phone: (405)228-8429

Email address: Rebecca.Deal@dvn.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone: (405)552-6556

Email address: rebecca.deal@dvn.com

AFMSS

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

Application Data Report

01/28/2020

APD ID: 10400048221 **Submission Date:** 09/30/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

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

[redacted]

Show Final Text

Section 1 - General

APD ID: 10400048221 **Tie to previous NOS?** **Submission Date:** 09/30/2019

BLM Office: CARLSBAD **User:** Rebecca Deal **Title:** Regulatory Compliance Professional

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

Lease number: NMNM0448921A **Lease Acres:** 520

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

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

Agreement number:

Agreement name:

Keep application confidential? Y

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

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

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

Operator PO Box:

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

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

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

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

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

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WC-025 G-06 S253201M **Pool Name:** UPPER BONE SPRING

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

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

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** Talco 16 Wellpad **Number:** 1

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: **Distance to nearest well:** 3411 FT **Distance to lease line:** 301 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: TALCO_16_21_ST_FED_COM_1H_C_102_SEC_16_REV_20190815153909.pdf

TALCO_16_21_ST_FED_COM_1H_C_102_SEC_21_REV_20190815153905.pdf

Well work start Date: 04/30/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	301	FNL	1194	FWL	26S	35E	16	Aliquot NWNW	32.04972	-103.37709	LEA	NEW MEXICO	NEW MEXICO	S	STATE	3201	0	0	Y
KOP Leg #1	50	FNL	330	FWL	26S	35E	16	Aliquot NWNW	32.050431	-103.379872	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8816	12063	12017	Y

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	100	FNL	330	FWL	26S	35E	16	Aliquot NWNW	32.050293	-103.379871	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-9050	12304	12251	Y
EXIT Leg #1	100	FSL	330	FWL	26S	35E	21	Aliquot SWSW	32.021778	-103.379845	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 044892 1A	-9389	22814	12590	Y
BHL Leg #1	20	FSL	330	FWL	26S	35E	21	Aliquot SWSW	32.021558	-103.379845	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 044892 1A	-9389	22894	12590	Y

APD ID: 10400048221 **Submission Date:** 09/30/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

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

[redacted]

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
549801	---	3201	0	0	OTHER : SURFACE	NONE	N
549802	RUSTLER	2183	1018	1018	ANHYDRITE, SANDSTONE	NONE	N
549803	SALADO	1617	1584	1584	SALT	NONE	N
549804	BASE OF SALT	-1791	4992	4992	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
549805	BELL CANYON	-2103	5304	5304	SANDSTONE	NATURAL GAS, OIL	N
549806	CHERRY CANYON	-3116	6317	6317	SANDSTONE	NATURAL GAS, OIL	N
549807	BRUSHY CANYON	-4719	7920	7920	SANDSTONE	NATURAL GAS, OIL	N
549808	BONE SPRING	-6026	9227	9227	LIMESTONE, SHALE	NATURAL GAS, NONE, OIL	N
549809	BONE SPRING 1ST	-7233	10434	10434	SANDSTONE	NATURAL GAS, OIL	N
549810	BONE SPRING 2ND	-7656	10857	10857	SANDSTONE	NATURAL GAS	N
549811	BONE SPRING 3RD	-8933	12134	12134	SANDSTONE	NATURAL GAS, OIL	N
549812	WOLFCAMP	-9245	12446	12446	SANDSTONE, SHALE	NATURAL GAS, OIL	Y
549813	STRAWN	-11029	14230	14230	LIMESTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Pressure Rating (PSI): 10M **Rating Depth:** 12590

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermediate casing, a 13-5/8" BOP/BOPE system with a minimum rating of 10M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart. Devon requests a variance to run a 5M annular on a 10M BOP system. See separately attached variance request and support documents in AFMSS.

Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. 5M annular on 10M system will be tested to 100% of rated working pressure.

Choke Diagram Attachment:

10M_BOPE_CHK_DR_CLS_RKL_20190730112951.pdf

BOP Diagram Attachment:

10M_BOPE_CHK_DR_CLS_RKL_20190730113000.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 12100

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

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

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

Choke Diagram Attachment:

5M_BOPE__CK_20190730113129.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190730113136.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1085	0	1085	3201	2116	1085	H-40	48	ST&C	1.125	1	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	12100	0	12100	3576	-8899	12100	P-110	29.7	OTHER - FLUSHMAX III	1.125	1	BUOY	1.6	BUOY	1.6
3	PRODUCTION	6.75	5.5	NEW	API	N	0	22894	0	12590	3576	-9389	22894	P-110	20	OTHER - VAM SG	1.125	1	BUOY	1.6	BUOY	1.6

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20190730113310.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20190730113522.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20190730113701.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead					1.44					
INTERMEDIATE	Lead					3.27					
INTERMEDIATE	Tail										
PRODUCTION	Lead					3.27					

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		[redacted]								

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1085	WATER-BASED MUD	8.5	9				2			
1085	12100	SALT SATURATED	10	10.5				2			
12100	22894	OIL-BASED MUD	10	10.5				12			

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Section 6 - Test, Logging, Coring

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

Will run GRMWD from TD to from KOP. Cement bond logs will be run in vertical to determine top of cement. Stated logs run will be in the Completion Report and submitted to the BLM.

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

CALIPER,CEMENT BOND LOG,DIRECTIONAL SURVEY,GAMMA RAY LOG,MUD LOG/GEOLOGICAL LITHOLOGY LOG,

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6874 **Anticipated Surface Pressure:** 4104

Anticipated Bottom Hole Temperature(F): 176

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Talco_16_21_State_Fed_Com_1H_H2S_PLAN_20190816082929.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Talco_16_21_State_Fed_Com_1H_Plot_Permit_Plan_1_20190816083151.pdf

Talco_16_21_State_Fed_Com_1H_Dir_Svy_20190816083104.pdf

Other proposed operations facets description:

DIRECTIONAL SURVEY
PLOT
DRILLING PLAN
SPEC SHEETS
MB WELLHEAD
MB VERBIAGE
CLOSED LOOP DOC
SPUDDER RIG REQUEST
GAS CAPTURE PLAN
ANNULAR VARIANCE REQUEST DOC
COFLEX DOC

Other proposed operations facets attachment:

13.375_48_H40_20190730115538.pdf

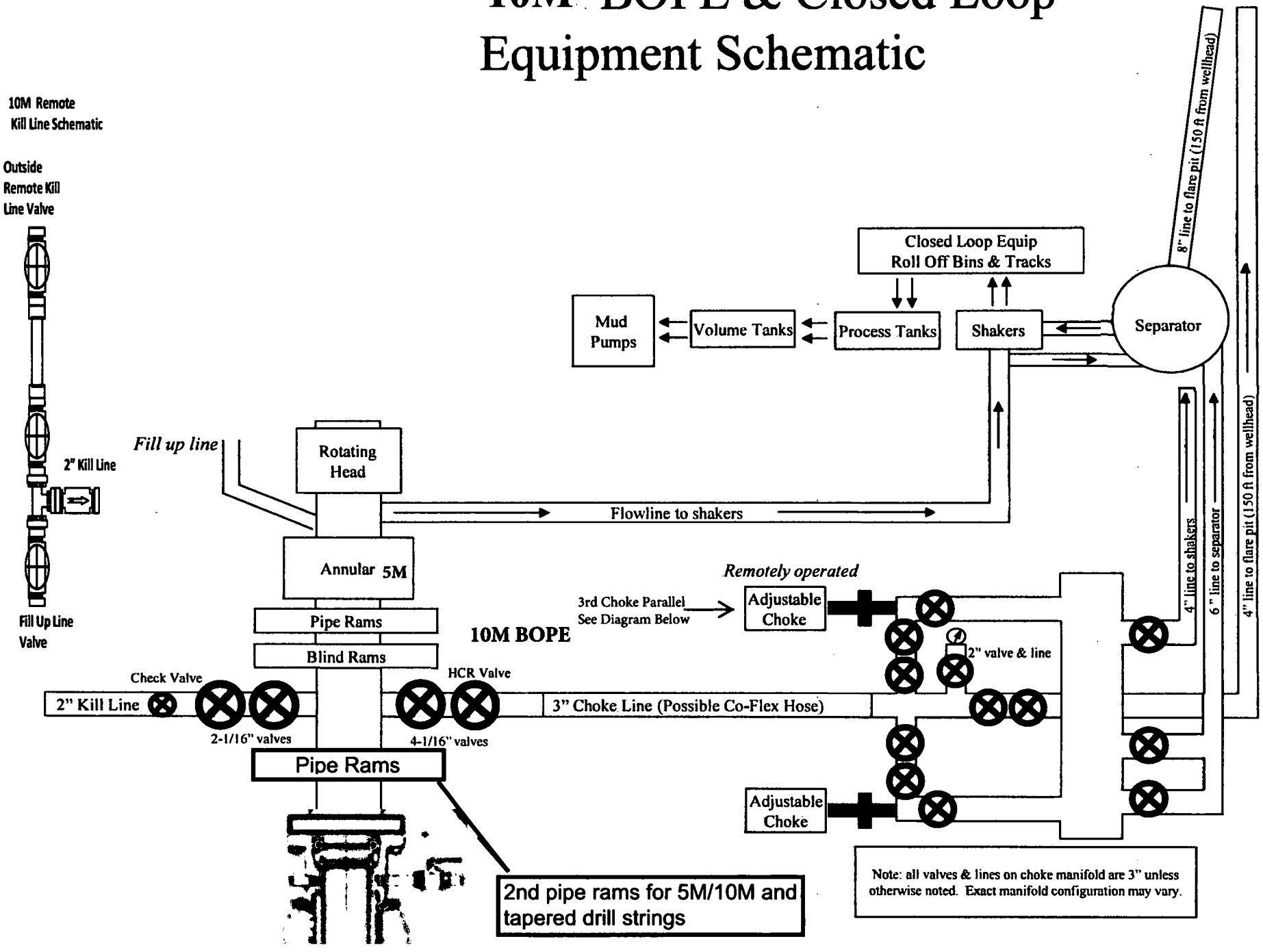
5.5_17_P_110_BTC_20190730115614.pdf

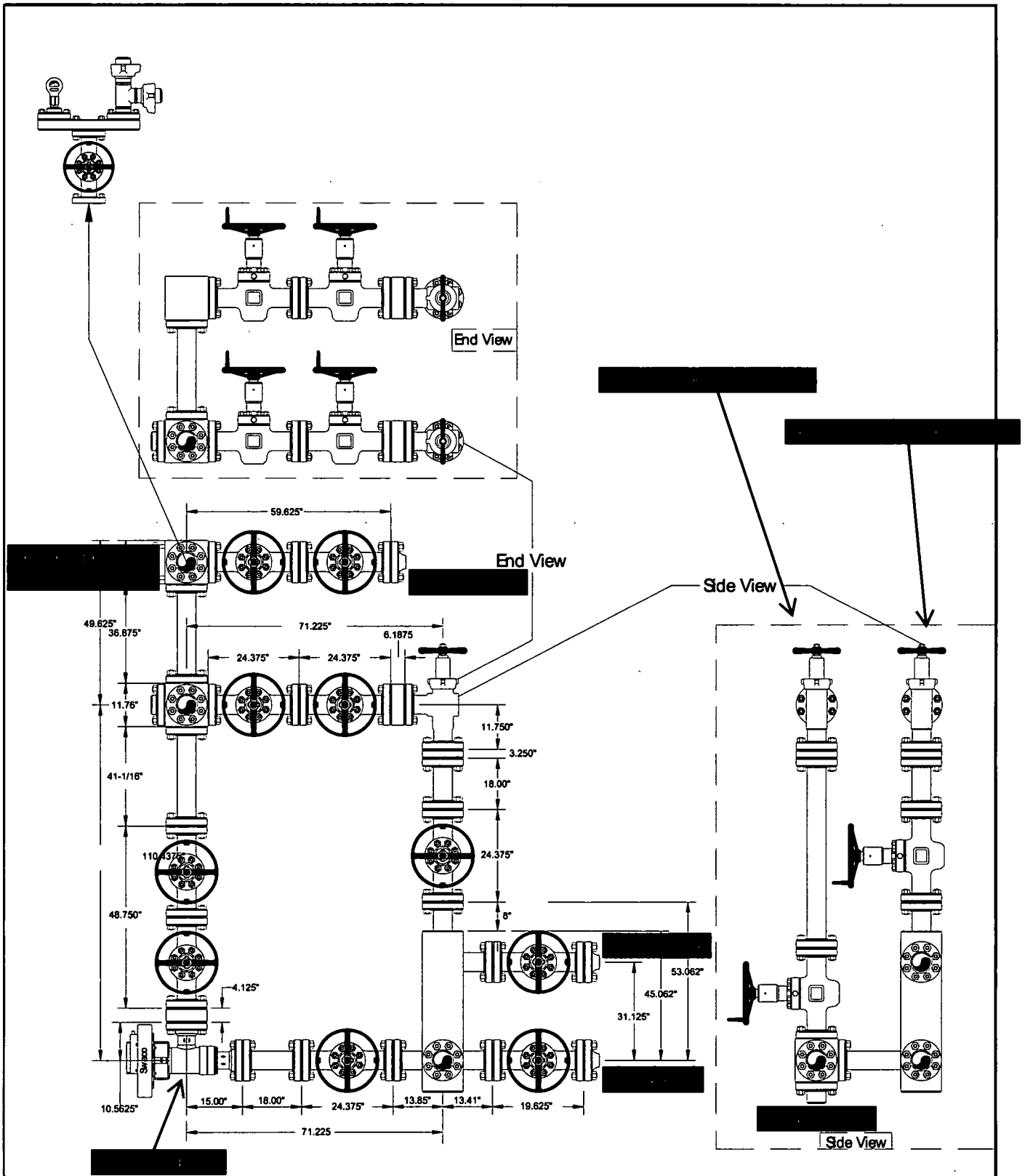
5.5_20_P110_EC_VAMSG_20190730115304.pdf
7.625_29.70_P110_Flushmax_20190730115303.pdf
8.625_32.00_P110HSCY_TLW_20190730115304.PDF
Clsd_Loop_20190730115304.pdf
MB_Verb_10M_20190730115304.pdf
MB_Wellhd_10M_13.375_7.625_5.5__20190730115340.pdf
MB_Wellhd_10M_13.375_8.625_20190730115305.PDF
Spudder_Rig_Info_20190730115304.pdf
Talco_16_21_State_Fed_Com_1H_Drlg_Plan_20190816083138.pdf
Talco_16_WP1_GCP_20190816083138.pdf

Other Variance attachment:

10M_BOPE_CHK_DR_CLS_RKL_20190730115411.pdf
Annular_Variance___Preventer_Summary_20190730115410.pdf
Co_flex_20190730115411.pdf

10M BOPE & Closed Loop Equipment Schematic





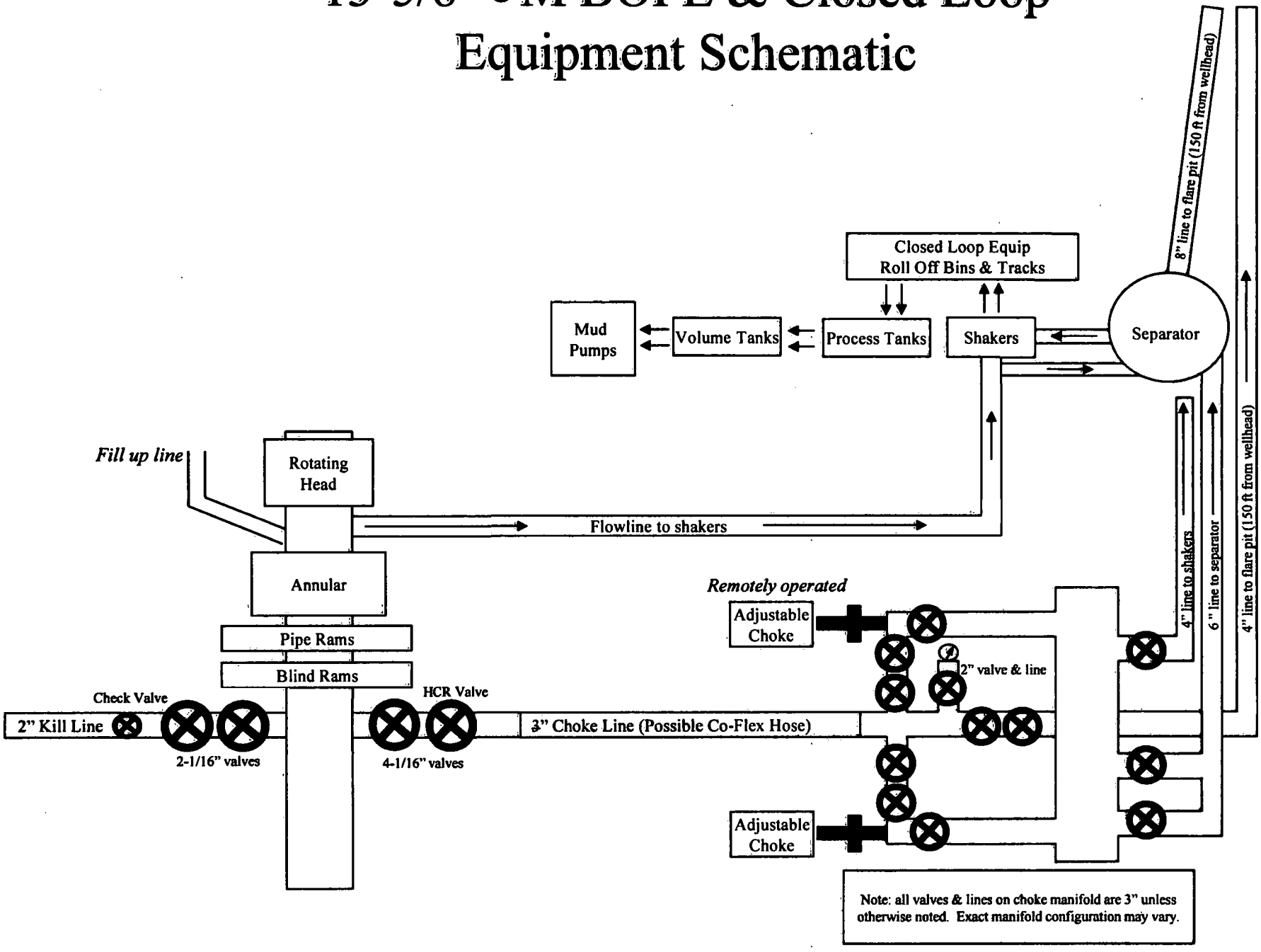
Helmerich & Payne

Flex 3 Rig w/ 3 Chokes

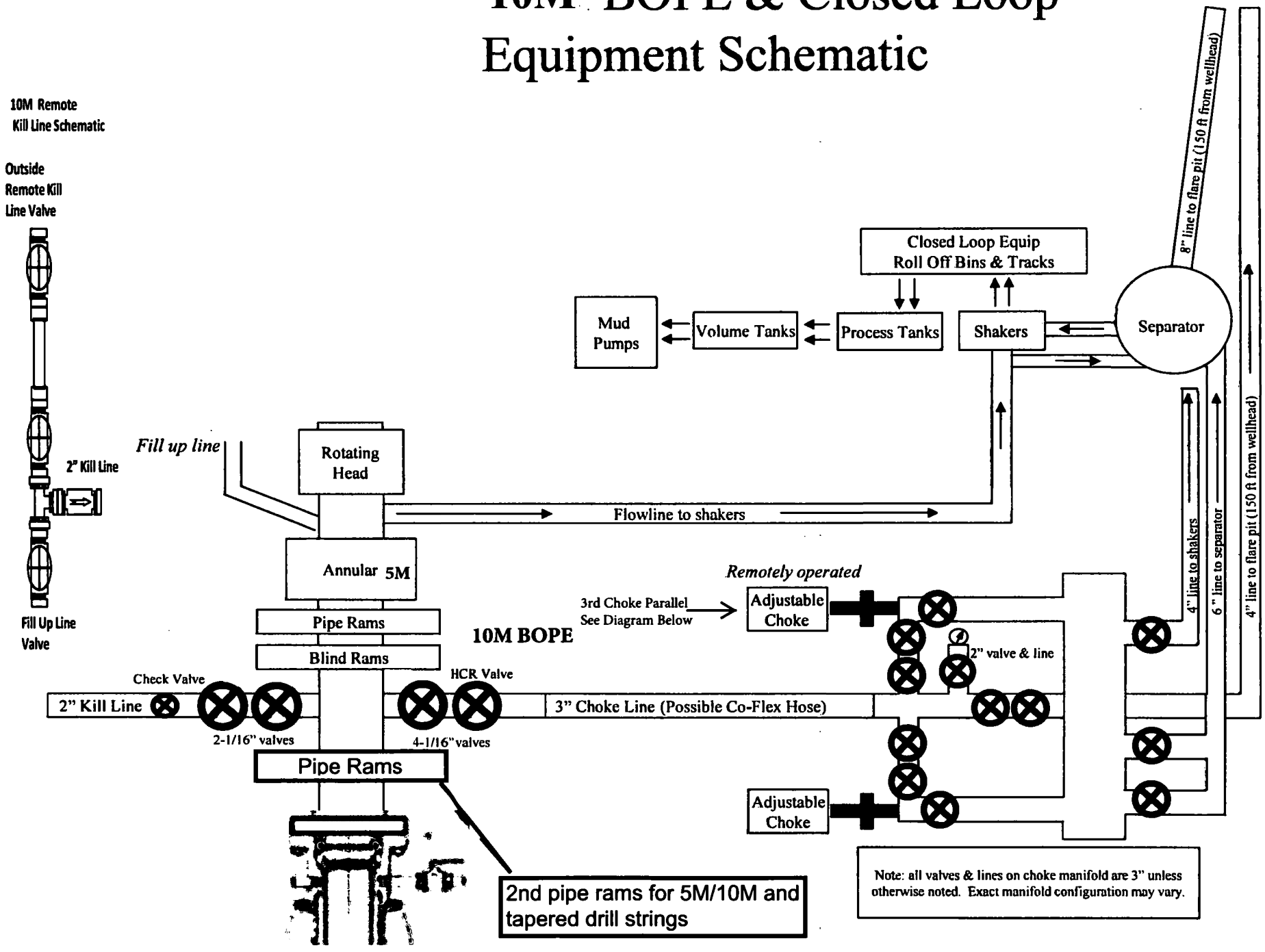
devon

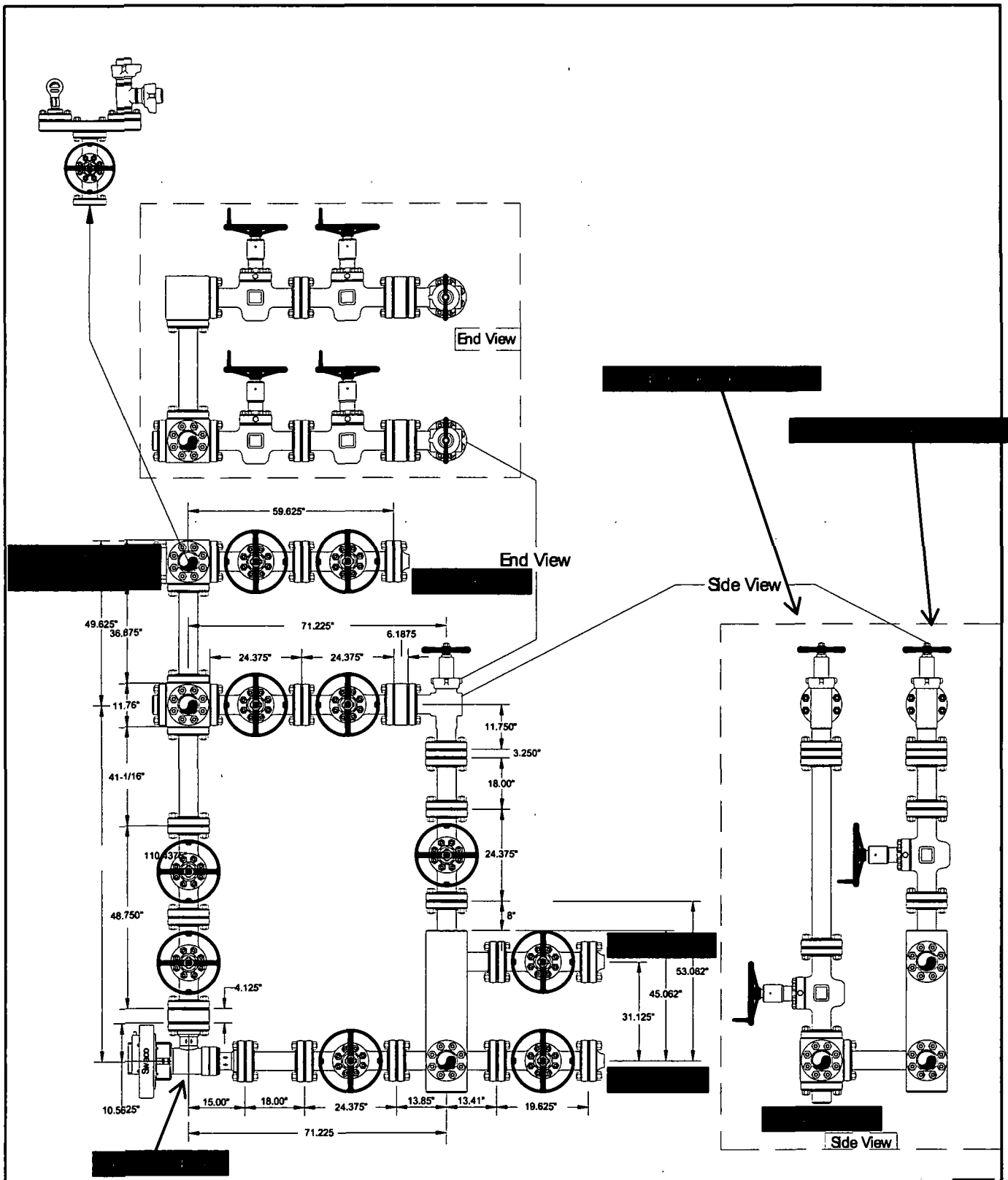
Name: Mike Potts	Date: 6-23-2010	Working Pressure: 10M	J-5132-E

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



10M BOPE & Closed Loop Equipment Schematic





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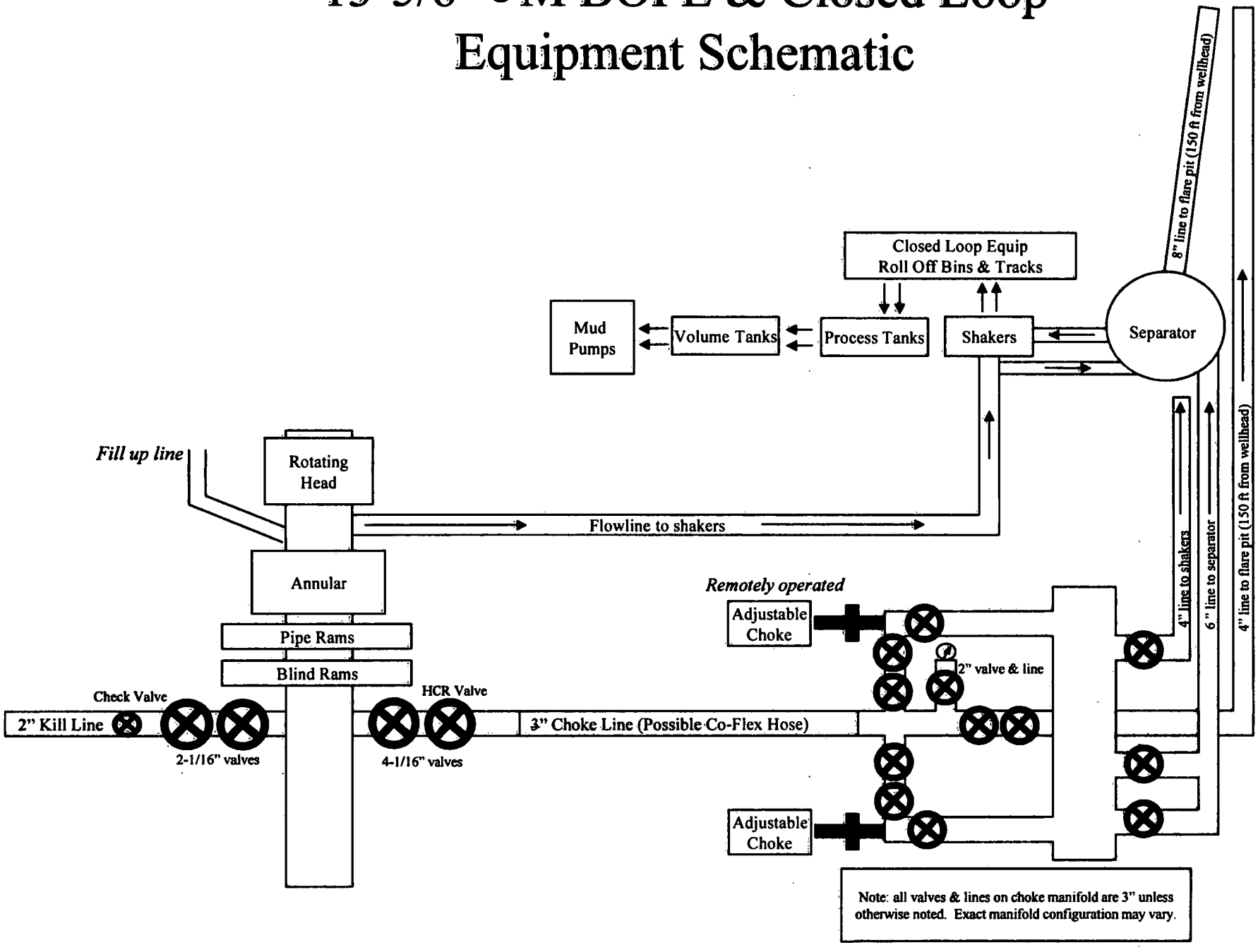


Casing Assumptions and Load Cases

Surface

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

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

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

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

Casing Assumptions and Load Cases

Intermediate

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

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

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

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

Casing Assumptions and Load Cases

Production

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

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

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

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

devon

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

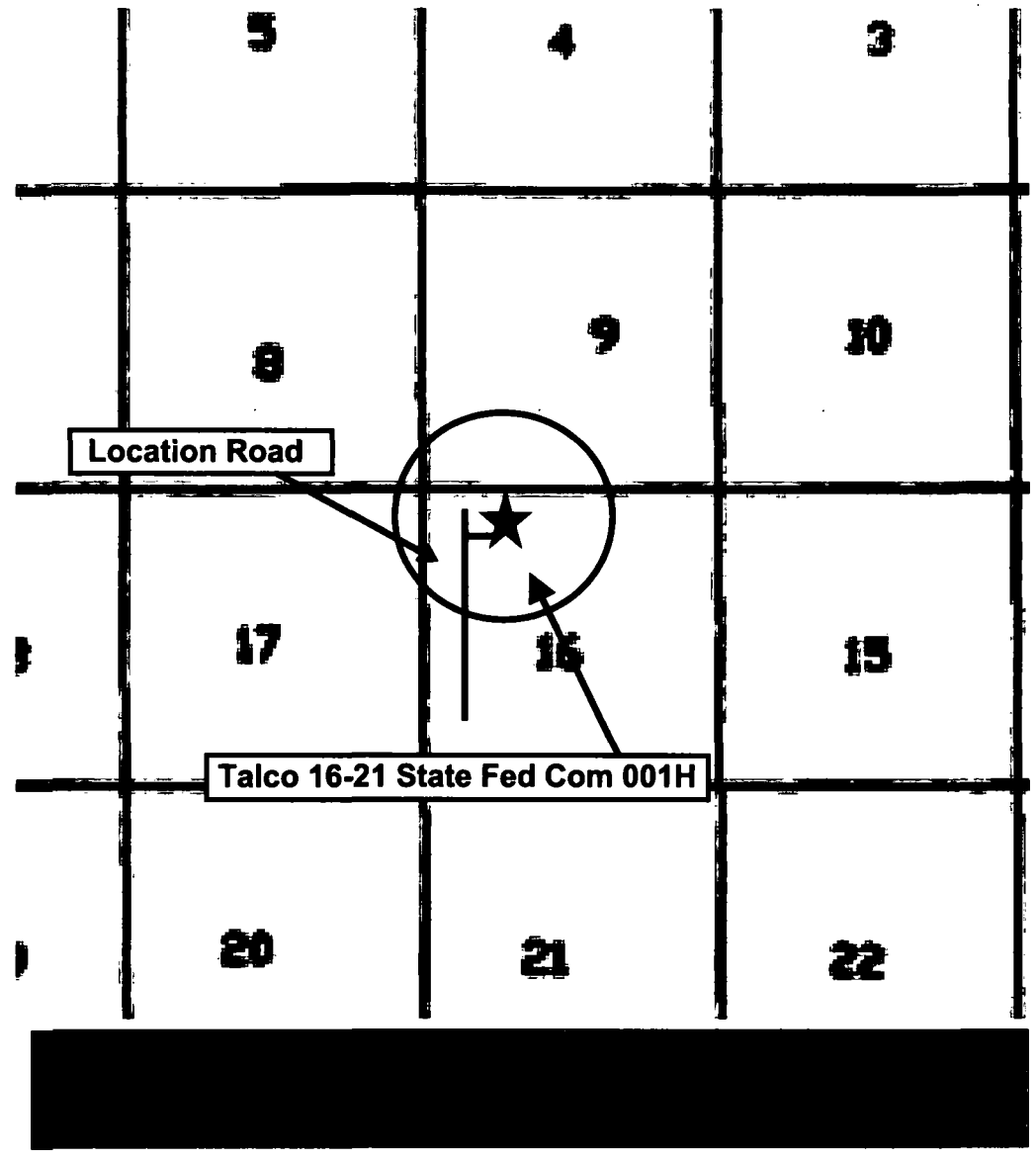
Talco 16-21 State Fed Com 001H

Sec-16 T-26S R-35E
301' FNL & 1194 FWL
LAT. = 32.049720' N (NAD83)
LONG = 103.377090' W

Lea County NM

Talco 16-21 State Fed Com 001H

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



Escape

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

Assumed 100 ppm ROE = 3000'
100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with H_2S monitors and air packs in order to control the release.**
- **Use the "buddy system" to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of H_2S, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

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

the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H_2S) TRAINING

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

1. The hazards and characteristics of hydrogen sulfide (H_2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

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

1. The effects of H_2S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H_2S Drilling Operations Plan and Public Protection Plan.

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

II. HYDROGEN SULFIDE TRAINING

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S.

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold – Remotely Operated

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

   D. Auxiliary equipment may include if applicable: annular preventer and rotating head.

   E. Mud/Gas Separator

2. **Protective equipment for essential personnel:**

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

3. **H_2S detection and monitoring equipment:**

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

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

   Visual warning systems:

   A. Wind direction indicators as shown on well site diagram

   B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. **Mud program:**

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

5. **Metallurgy:**

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

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

6. **Communication:**

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

   B. Land line (telephone) communications at Office

7. **Well testing:**

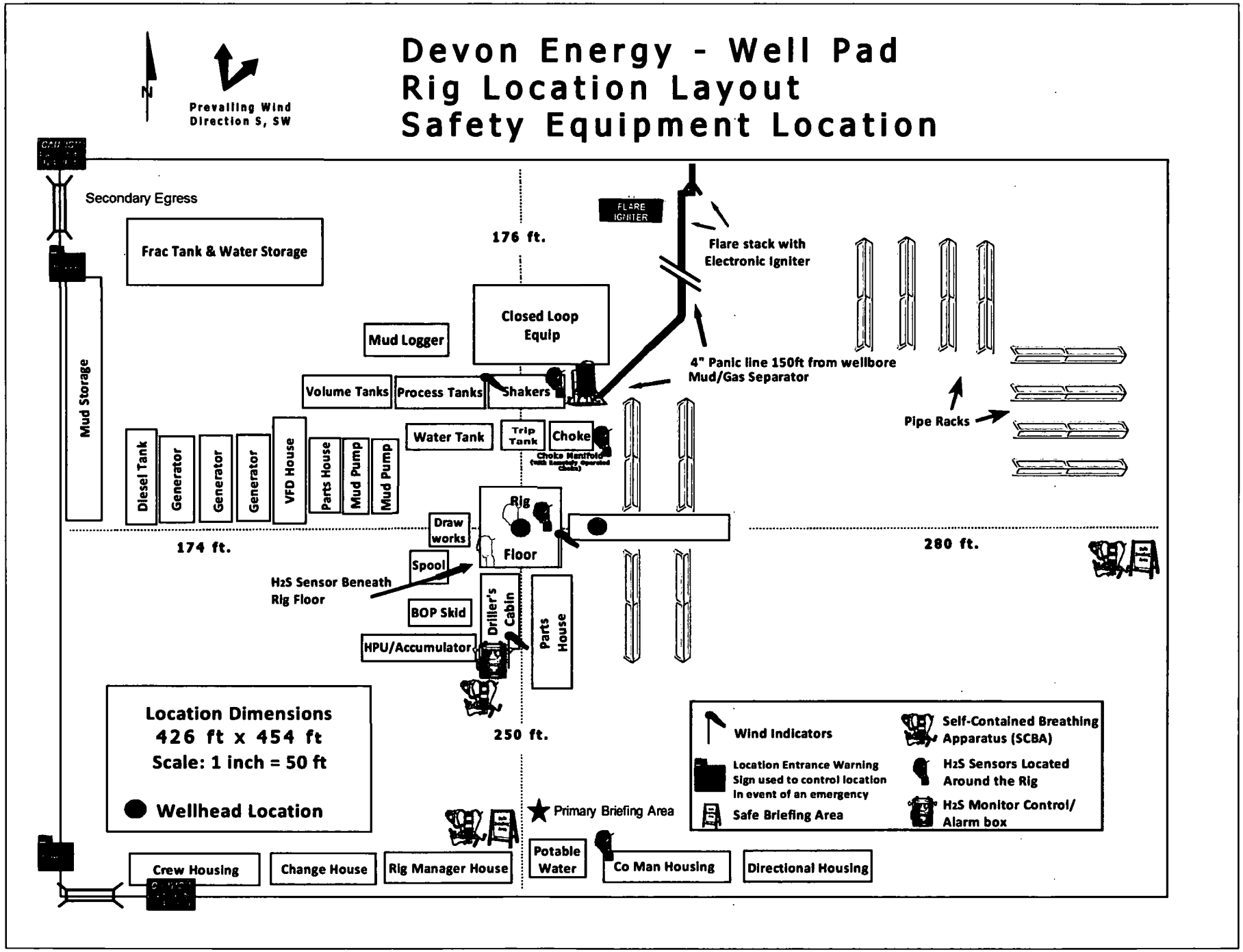
   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing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

   B. There will be no drill stem testing.

Devon Energy Corp. Company Call List		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
EHS Professional – Laura Wright		405-439-8129
Agency Call List		
Lea County (575)	**Hobbs**	
	Lea County Communication Authority	393-3981
	State Police	392-5588
	City Police	397-9265
	Sheriff's Office	393-2515
	Ambulance	**911**
	Fire Department	397-9308
	LEPC (Local Emergency Planning Committee)	393-2870
	NMOCD	393-6161
	US Bureau of Land Management	393-3612
Eddy County (575)	**Carlsbad**	
	State Police	885-3137
	City Police	885-2111
	Sheriff's Office	887-7551
	Ambulance	**911**
	Fire Department	885-3125
	LEPC (Local Emergency Planning Committee)	887-3798
	US Bureau of Land Management	887-6544
	NM Emergency Response Commission (Santa Fe)	(505) 476-9600
	24 HR	(505) 827-9126
	National Emergency Response Center	(800) 424-8802
	National Pollution Control Center: Direct	(703) 872-6000
	For Oil Spills	(800) 280-7118
	Emergency Services	
	Wild Well Control	(281) 784-4700
	Cudd Pressure Control (915) 699-0139	(915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services	(575) 746-3569
Give GPS position:	Native Air – Emergency Helicopter – Hobbs (TX & NM)	(800) 642-7828
	Flight For Life - Lubbock, TX	(806) 743-9911
	Aerocare - Lubbock, TX	(806) 747-8923
	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(800) 222-1222
	Poison Control (24/7)	(575) 272-3115
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - www.nhc.noaa.gov	

Prepared in conjunction with
Dave Small

SHARP
communications and consulting


Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location
N
Prevailing Wind
Direction S, SW
Secondary Egress
Frac Tank & Water Storage
Mud Storage
176 ft.
FLARE IGNITER
Flare stack with
Electronic Igniter
Closed Loop
Equip
Mud Logger
4" Panic line 150ft from wellbore
Mud/Gas Separator
Volume Tanks
Process Tanks
Shakers
Pipe Racks
Water Tank
Trip Tank
Choke
Choke Manifold
Diesel Tank
Generator
Generator
Generator
VFD House
Parts House
Mud Pump
Mud Pump
Rig
Draw works
Floor
174 ft.
280 ft.
Spool
H2S Sensor Beneath
Rig Floor
BOP Skid
Driller's Cabin
Parts House
HPU/Accumulator
Location Dimensions
426 ft x 454 ft
Scale: 1 inch = 50 ft
Wellhead Location
250 ft.
Primary Briefing Area
Wind Indicators
Location Entrance Warning
Sign used to control location
In event of an emergency
Safe Briefing Area
Self-Contained Breathing
Apparatus (SCBA)
H2S Sensors Located
Around the Rig
H2S Monitor Control/
Alarm box
Crew Housing
Change House
Rig Manager House
Potable
Water
Co Man Housing
Directional Housing

Devon Energy

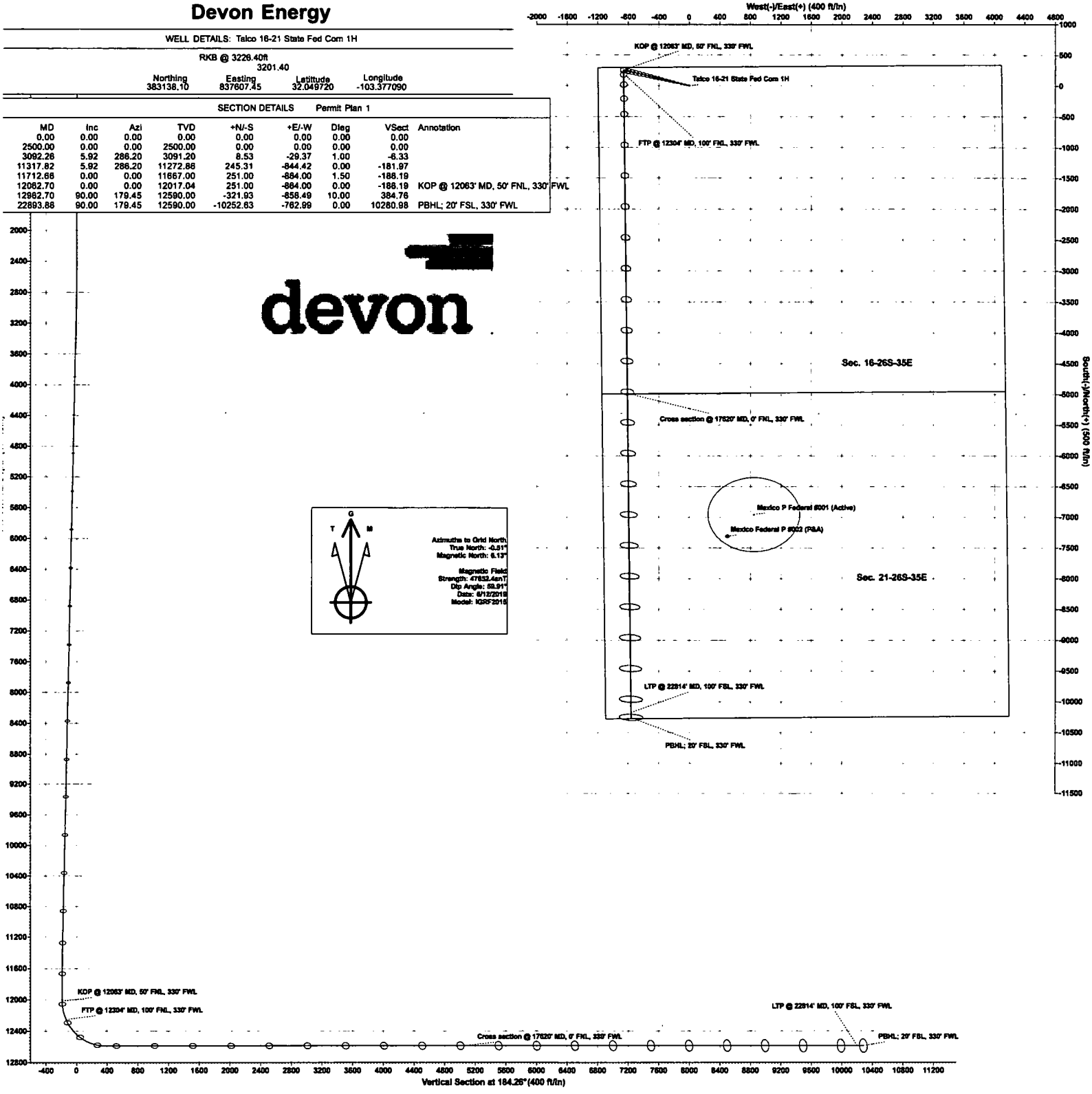
WELL DETAILS: Talco 16-21 State Fed Com 1H

RKB @ 3226.40ft
3201.40

Northing	Easting	Latitude	Longitude
383138.10	837607.45	32.049720	-103.377090

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
3092.26	5.92	286.20	3091.20	8.53	-29.37	1.00	-6.33	
11317.82	5.92	286.20	11272.86	245.31	-844.42	0.00	-181.97	
11712.66	0.00	0.00	11667.00	251.00	-864.00	1.50	-188.19	
12062.70	0.00	0.00	12017.04	251.00	-864.00	0.00	-188.19	KOP @ 12063' MD, 50' FNL, 330' FWL
12982.70	90.00	179.45	12590.00	-321.93	-858.49	10.00	384.76	
22893.88	90.00	179.45	12590.00	-10252.63	-762.99	0.00	10280.98	PBHL; 20' FSL, 330' FWL



WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 16-T26S-R35E
Talco 16-21 State Fed Com 1H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

12 June, 2019

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Talco 16-21 State Fed Com 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3226.40ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3226.40ft
Site:	Sec 16-T26S-R35E	**North Reference:**	Grid
Well:	Talco 16-21 State Fed Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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

Site	Sec 16-T26S-R35E				
Site Position:		**Northing:**	383,429.49 usft	**Latitude:**	32.050550
From:	Map	**Easting:**	836,410.37 usft	**Longitude:**	-103.380945
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.51 °

Well	Talco 16-21 State Fed Com 1H				
Well Position	**+N/-S**	0.00 ft	**Northing:**	383,138.10 usft	**Latitude:**	32.049720
	+E/-W	0.00 ft	**Easting:**	837,607.45 usft	**Longitude:**	-103.377090
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,201.40 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	6/12/2019	6.63	59.91	47,652.39051060

Design	Permit Plan 1			
Audit Notes:				
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	184.26

Plan Survey Tool Program **Date** 6/12/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,893.86	Permit Plan 1 (Wellbore #1)	MWD+HDGM OWSG MWD + HDGM	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,092.26	5.92	286.20	3,091.20	8.53	-29.37	1.00	1.00	0.00	286.20	
11,317.82	5.92	286.20	11,272.86	245.31	-844.42	0.00	0.00	0.00	0.00	
11,712.66	0.00	0.00	11,667.00	251.00	-864.00	1.50	-1.50	0.00	180.00	
12,062.70	0.00	0.00	12,017.04	251.00	-864.00	0.00	0.00	0.00	0.00	
12,962.70	90.00	179.45	12,590.00	-321.93	-858.49	10.00	10.00	0.00	179.45	PBHL - Talco 16-21 S
22,893.86	90.00	179.45	12,590.00	-10,252.63	-762.99	0.00	0.00	0.00	0.00	PBHL - Talco 16-21 S

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Talco 16-21 State Fed Com 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3226.40ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3226.40ft
Site:	Sec 16-T26S-R35E	**North Reference:**	Grid
Well:	Talco 16-21 State Fed Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
100.00	0.00	0.00	100.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
200.00	0.00	0.00	200.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
300.00	0.00	0.00	300.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
400.00	0.00	0.00	400.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
500.00	0.00	0.00	500.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
600.00	0.00	0.00	600.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
700.00	0.00	0.00	700.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
800.00	0.00	0.00	800.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
900.00	0.00	0.00	900.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,000.00	0.00	0.00	1,000.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,100.00	0.00	0.00	1,100.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,200.00	0.00	0.00	1,200.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,300.00	0.00	0.00	1,300.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,400.00	0.00	0.00	1,400.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,500.00	0.00	0.00	1,500.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,600.00	0.00	0.00	1,600.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,700.00	0.00	0.00	1,700.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,800.00	0.00	0.00	1,800.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
1,900.00	0.00	0.00	1,900.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,000.00	0.00	0.00	2,000.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,100.00	0.00	0.00	2,100.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,200.00	0.00	0.00	2,200.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,300.00	0.00	0.00	2,300.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,400.00	0.00	0.00	2,400.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,500.00	0.00	0.00	2,500.00	0.00	0.00	383,138.10	837,607.45	32.049720	-103.377090
2,600.00	1.00	286.20	2,599.99	0.24	-0.84	383,138.34	837,606.61	32.049721	-103.377093
2,700.00	2.00	286.20	2,699.96	0.97	-3.35	383,139.07	837,604.10	32.049723	-103.377101
2,800.00	3.00	286.20	2,799.86	2.19	-7.54	383,140.29	837,599.91	32.049726	-103.377115
2,900.00	4.00	286.20	2,899.68	3.89	-13.40	383,141.99	837,594.05	32.049731	-103.377134
3,000.00	5.00	286.20	2,999.37	6.08	-20.94	383,144.18	837,586.51	32.049737	-103.377158
3,092.26	5.92	286.20	3,091.20	8.53	-29.37	383,146.63	837,578.08	32.049744	-103.377185
3,100.00	5.92	286.20	3,098.90	8.75	-30.14	383,146.85	837,577.31	32.049745	-103.377187
3,200.00	5.92	286.20	3,198.37	11.63	-40.04	383,149.73	837,567.40	32.049753	-103.377219
3,300.00	5.92	286.20	3,297.84	14.51	-49.95	383,152.61	837,557.50	32.049761	-103.377251
3,400.00	5.92	286.20	3,397.30	17.39	-59.86	383,155.49	837,547.59	32.049769	-103.377283
3,500.00	5.92	286.20	3,496.77	20.27	-69.77	383,158.37	837,537.68	32.049777	-103.377315
3,600.00	5.92	286.20	3,596.24	23.15	-79.68	383,161.25	837,527.77	32.049785	-103.377347
3,700.00	5.92	286.20	3,695.70	26.03	-89.59	383,164.12	837,517.86	32.049794	-103.377379
3,800.00	5.92	286.20	3,795.17	28.90	-99.50	383,167.00	837,507.95	32.049802	-103.377411
3,900.00	5.92	286.20	3,894.63	31.78	-109.41	383,169.88	837,498.04	32.049810	-103.377443
4,000.00	5.92	286.20	3,994.10	34.66	-119.31	383,172.76	837,488.13	32.049818	-103.377475
4,100.00	5.92	286.20	4,093.57	37.54	-129.22	383,175.64	837,478.23	32.049826	-103.377506
4,200.00	5.92	286.20	4,193.03	40.42	-139.13	383,178.52	837,468.32	32.049834	-103.377538
4,300.00	5.92	286.20	4,292.50	43.30	-149.04	383,181.40	837,458.41	32.049843	-103.377570
4,400.00	5.92	286.20	4,391.97	46.18	-158.95	383,184.27	837,448.50	32.049851	-103.377602
4,500.00	5.92	286.20	4,491.43	49.06	-168.86	383,187.15	837,438.59	32.049859	-103.377634
4,600.00	5.92	286.20	4,590.90	51.93	-178.77	383,190.03	837,428.68	32.049867	-103.377666
4,700.00	5.92	286.20	4,690.36	54.81	-188.68	383,192.91	837,418.77	32.049875	-103.377698
4,800.00	5.92	286.20	4,789.83	57.69	-198.59	383,195.79	837,408.86	32.049883	-103.377730
4,900.00	5.92	286.20	4,889.30	60.57	-208.49	383,198.67	837,398.96	32.049891	-103.377762
5,000.00	5.92	286.20	4,988.76	63.45	-218.40	383,201.55	837,389.05	32.049900	-103.377793
5,100.00	5.92	286.20	5,088.23	66.33	-228.31	383,204.42	837,379.14	32.049908	-103.377825
5,200.00	5.92	286.20	5,187.70	69.21	-238.22	383,207.30	837,369.23	32.049916	-103.377857

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Talco 16-21 State Fed Com 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3226.40ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3226.40ft
Site:	Sec 16-T26S-R35E	**North Reference:**	Grid
Well:	Talco 16-21 State Fed Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,300.00	5.92	286.20	5,287.16	72.08	-248.13	383,210.18	837,359.32	32.049924	-103.377889
5,400.00	5.92	286.20	5,386.63	74.96	-258.04	383,213.06	837,349.41	32.049932	-103.377921
5,500.00	5.92	286.20	5,486.09	77.84	-267.95	383,215.94	837,339.50	32.049940	-103.377953
5,600.00	5.92	286.20	5,585.56	80.72	-277.86	383,218.82	837,329.59	32.049949	-103.377985
5,700.00	5.92	286.20	5,685.03	83.60	-287.76	383,221.70	837,319.69	32.049957	-103.378017
5,800.00	5.92	286.20	5,784.49	86.48	-297.67	383,224.58	837,309.78	32.049965	-103.378049
5,900.00	5.92	286.20	5,883.96	89.36	-307.58	383,227.45	837,299.87	32.049973	-103.378081
6,000.00	5.92	286.20	5,983.43	92.23	-317.49	383,230.33	837,289.96	32.049981	-103.378112
6,100.00	5.92	286.20	6,082.89	95.11	-327.40	383,233.21	837,280.05	32.049989	-103.378144
6,200.00	5.92	286.20	6,182.36	97.99	-337.31	383,236.09	837,270.14	32.049997	-103.378176
6,300.00	5.92	286.20	6,281.82	100.87	-347.22	383,238.97	837,260.23	32.050006	-103.378208
6,400.00	5.92	286.20	6,381.29	103.75	-357.13	383,241.85	837,250.32	32.050014	-103.378240
6,500.00	5.92	286.20	6,480.76	106.63	-367.03	383,244.73	837,240.42	32.050022	-103.378272
6,600.00	5.92	286.20	6,580.22	109.51	-376.94	383,247.60	837,230.51	32.050030	-103.378304
6,700.00	5.92	286.20	6,679.69	112.38	-386.85	383,250.48	837,220.60	32.050038	-103.378336
6,800.00	5.92	286.20	6,779.16	115.26	-396.76	383,253.36	837,210.69	32.050046	-103.378368
6,900.00	5.92	286.20	6,878.62	118.14	-406.67	383,256.24	837,200.78	32.050055	-103.378399
7,000.00	5.92	286.20	6,978.09	121.02	-416.58	383,259.12	837,190.87	32.050063	-103.378431
7,100.00	5.92	286.20	7,077.55	123.90	-426.49	383,262.00	837,180.96	32.050071	-103.378463
7,200.00	5.92	286.20	7,177.02	126.78	-436.40	383,264.88	837,171.05	32.050079	-103.378495
7,300.00	5.92	286.20	7,276.49	129.66	-446.30	383,267.75	837,161.15	32.050087	-103.378527
7,400.00	5.92	286.20	7,375.95	132.53	-456.21	383,270.63	837,151.24	32.050095	-103.378559
7,500.00	5.92	286.20	7,475.42	135.41	-466.12	383,273.51	837,141.33	32.050103	-103.378591
7,600.00	5.92	286.20	7,574.88	138.29	-476.03	383,276.39	837,131.42	32.050112	-103.378623
7,700.00	5.92	286.20	7,674.35	141.17	-485.94	383,279.27	837,121.51	32.050120	-103.378655
7,800.00	5.92	286.20	7,773.82	144.05	-495.85	383,282.15	837,111.60	32.050128	-103.378687
7,900.00	5.92	286.20	7,873.28	146.93	-505.76	383,285.03	837,101.69	32.050136	-103.378718
8,000.00	5.92	286.20	7,972.75	149.81	-515.67	383,287.90	837,091.78	32.050144	-103.378750
8,100.00	5.92	286.20	8,072.22	152.68	-525.57	383,290.78	837,081.88	32.050152	-103.378782
8,200.00	5.92	286.20	8,171.68	155.56	-535.48	383,293.66	837,071.97	32.050160	-103.378814
8,300.00	5.92	286.20	8,271.15	158.44	-545.39	383,296.54	837,062.06	32.050169	-103.378846
8,400.00	5.92	286.20	8,370.61	161.32	-555.30	383,299.42	837,052.15	32.050177	-103.378878
8,500.00	5.92	286.20	8,470.08	164.20	-565.21	383,302.30	837,042.24	32.050185	-103.378910
8,600.00	5.92	286.20	8,569.55	167.08	-575.12	383,305.18	837,032.33	32.050193	-103.378942
8,700.00	5.92	286.20	8,669.01	169.96	-585.03	383,308.05	837,022.42	32.050201	-103.378974
8,800.00	5.92	286.20	8,768.48	172.83	-594.94	383,310.93	837,012.51	32.050209	-103.379005
8,900.00	5.92	286.20	8,867.95	175.71	-604.84	383,313.81	837,002.61	32.050218	-103.379037
9,000.00	5.92	286.20	8,967.41	178.59	-614.75	383,316.69	836,992.70	32.050226	-103.379069
9,100.00	5.92	286.20	9,066.88	181.47	-624.66	383,319.57	836,982.79	32.050234	-103.379101
9,200.00	5.92	286.20	9,166.34	184.35	-634.57	383,322.45	836,972.88	32.050242	-103.379133
9,300.00	5.92	286.20	9,265.81	187.23	-644.48	383,325.33	836,962.97	32.050250	-103.379165
9,400.00	5.92	286.20	9,365.28	190.11	-654.39	383,328.20	836,953.06	32.050258	-103.379197
9,500.00	5.92	286.20	9,464.74	192.98	-664.30	383,331.08	836,943.15	32.050266	-103.379229
9,600.00	5.92	286.20	9,564.21	195.86	-674.21	383,333.96	836,933.24	32.050275	-103.379261
9,700.00	5.92	286.20	9,663.68	198.74	-684.11	383,336.84	836,923.34	32.050283	-103.379293
9,800.00	5.92	286.20	9,763.14	201.62	-694.02	383,339.72	836,913.43	32.050291	-103.379324
9,900.00	5.92	286.20	9,862.61	204.50	-703.93	383,342.60	836,903.52	32.050299	-103.379356
10,000.00	5.92	286.20	9,962.07	207.38	-713.84	383,345.48	836,893.61	32.050307	-103.379388
10,100.00	5.92	286.20	10,061.54	210.26	-723.75	383,348.35	836,883.70	32.050315	-103.379420
10,200.00	5.92	286.20	10,161.01	213.13	-733.66	383,351.23	836,873.79	32.050324	-103.379452
10,300.00	5.92	286.20	10,260.47	216.01	-743.57	383,354.11	836,863.88	32.050332	-103.379484
10,400.00	5.92	286.20	10,359.94	218.89	-753.48	383,356.99	836,853.97	32.050340	-103.379516
10,500.00	5.92	286.20	10,459.41	221.77	-763.38	383,359.87	836,844.07	32.050348	-103.379548
10,600.00	5.92	286.20	10,558.87	224.65	-773.29	383,362.75	836,834.16	32.050356	-103.379580

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Talco 16-21 State Fed Com 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3226.40ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3226.40ft
Site:	Sec 16-T26S-R35E	**North Reference:**	Grid
Well:	Talco 16-21 State Fed Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,700.00	5.92	286.20	10,658.34	227.53	-783.20	383,365.63	836,824.25	32.050364	-103.379612
10,800.00	5.92	286.20	10,757.80	230.41	-793.11	383,368.50	836,814.34	32.050372	-103.379643
10,900.00	5.92	286.20	10,857.27	233.28	-803.02	383,371.38	836,804.43	32.050381	-103.379675
11,000.00	5.92	286.20	10,956.74	236.16	-812.93	383,374.26	836,794.52	32.050389	-103.379707
11,100.00	5.92	286.20	11,056.20	239.04	-822.84	383,377.14	836,784.61	32.050397	-103.379739
11,200.00	5.92	286.20	11,155.67	241.92	-832.75	383,380.02	836,774.70	32.050405	-103.379771
11,300.00	5.92	286.20	11,255.14	244.80	-842.65	383,382.90	836,764.80	32.050413	-103.379803
11,317.82	5.92	286.20	11,272.86	245.31	-844.42	383,383.41	836,763.03	32.050415	-103.379809
11,400.00	4.69	286.20	11,354.69	247.43	-851.72	383,385.53	836,755.73	32.050421	-103.379832
11,500.00	3.19	286.20	11,454.45	249.35	-858.32	383,387.45	836,749.13	32.050426	-103.379853
11,600.00	1.69	286.20	11,554.35	250.54	-862.40	383,388.63	836,745.05	32.050429	-103.379866
11,700.00	0.19	286.20	11,654.34	250.99	-863.98	383,389.09	836,743.47	32.050431	-103.379872
11,712.66	0.00	0.00	11,667.00	251.00	-864.00	383,389.10	836,743.45	32.050431	-103.379872
11,800.00	0.00	0.00	11,754.34	251.00	-864.00	383,389.10	836,743.45	32.050431	-103.379872
11,900.00	0.00	0.00	11,854.34	251.00	-864.00	383,389.10	836,743.45	32.050431	-103.379872
12,000.00	0.00	0.00	11,954.34	251.00	-864.00	383,389.10	836,743.45	32.050431	-103.379872
12,062.70	0.00	0.00	12,017.04	251.00	-864.00	383,389.10	836,743.45	32.050431	-103.379872
KOP @ 12063' MD, 50' FNL, 330' FWL									
12,100.00	3.73	179.45	12,054.31	249.79	-863.99	383,387.88	836,743.46	32.050427	-103.379872
12,200.00	13.73	179.45	12,153.03	234.63	-863.84	383,372.73	836,743.61	32.050386	-103.379872
12,300.00	23.73	179.45	12,247.61	202.56	-863.53	383,340.66	836,743.92	32.050298	-103.379871
12,303.85	24.11	179.45	12,251.13	201.00	-863.52	383,339.10	836,743.93	32.050293	-103.379871
FTP @ 12304' MD, 100' FNL, 330' FWL									
12,400.00	33.73	179.45	12,335.19	154.56	-863.07	383,292.65	836,744.38	32.050166	-103.379871
12,500.00	43.73	179.45	12,413.10	92.07	-862.47	383,230.17	836,744.98	32.049994	-103.379871
12,600.00	53.73	179.45	12,478.98	17.01	-861.75	383,155.11	836,745.70	32.049788	-103.379871
12,700.00	63.73	179.45	12,530.82	-68.35	-860.93	383,069.75	836,746.52	32.049553	-103.379871
12,800.00	73.73	179.45	12,567.05	-161.41	-860.03	382,976.69	836,747.42	32.049297	-103.379871
12,900.00	83.73	179.45	12,586.57	-259.36	-859.09	382,878.74	836,748.36	32.049028	-103.379870
12,962.70	90.00	179.45	12,590.00	-321.93	-858.49	382,816.17	836,748.96	32.048856	-103.379870
13,000.00	90.00	179.45	12,590.00	-359.23	-858.13	382,778.87	836,749.32	32.048753	-103.379870
13,100.00	90.00	179.45	12,590.00	-459.22	-857.17	382,678.88	836,750.28	32.048479	-103.379870
13,200.00	90.00	179.45	12,590.00	-559.22	-856.21	382,578.88	836,751.24	32.048204	-103.379870
13,300.00	90.00	179.45	12,590.00	-659.21	-855.25	382,478.89	836,752.20	32.047929	-103.379869
13,400.00	90.00	179.45	12,590.00	-759.21	-854.29	382,378.89	836,753.17	32.047654	-103.379869
13,500.00	90.00	179.45	12,590.00	-859.20	-853.32	382,278.90	836,754.13	32.047379	-103.379869
13,600.00	90.00	179.45	12,590.00	-959.20	-852.36	382,178.90	836,755.09	32.047104	-103.379869
13,700.00	90.00	179.45	12,590.00	-1,059.19	-851.40	382,078.91	836,756.05	32.046829	-103.379868
13,800.00	90.00	179.45	12,590.00	-1,159.19	-850.44	381,978.91	836,757.01	32.046554	-103.379868
13,900.00	90.00	179.45	12,590.00	-1,259.18	-849.48	381,878.92	836,757.97	32.046280	-103.379868
14,000.00	90.00	179.45	12,590.00	-1,359.18	-848.52	381,778.92	836,758.93	32.046005	-103.379868
14,100.00	90.00	179.45	12,590.00	-1,459.18	-847.55	381,678.93	836,759.90	32.045730	-103.379867
14,200.00	90.00	179.45	12,590.00	-1,559.17	-846.59	381,578.93	836,760.86	32.045455	-103.379867
14,300.00	90.00	179.45	12,590.00	-1,659.17	-845.63	381,478.94	836,761.82	32.045180	-103.379867
14,400.00	90.00	179.45	12,590.00	-1,759.16	-844.67	381,378.94	836,762.78	32.044905	-103.379867
14,500.00	90.00	179.45	12,590.00	-1,859.16	-843.71	381,278.95	836,763.74	32.044630	-103.379866
14,600.00	90.00	179.45	12,590.00	-1,959.15	-842.75	381,178.95	836,764.70	32.044355	-103.379866
14,700.00	90.00	179.45	12,590.00	-2,059.15	-841.78	381,078.96	836,765.67	32.044081	-103.379866
14,800.00	90.00	179.45	12,590.00	-2,159.14	-840.82	380,978.96	836,766.63	32.043806	-103.379865
14,900.00	90.00	179.45	12,590.00	-2,259.14	-839.86	380,878.96	836,767.59	32.043531	-103.379865
15,000.00	90.00	179.45	12,590.00	-2,359.13	-838.90	380,778.97	836,768.55	32.043256	-103.379865
15,100.00	90.00	179.45	12,590.00	-2,459.13	-837.94	380,678.97	836,769.51	32.042981	-103.379865
15,200.00	90.00	179.45	12,590.00	-2,559.12	-836.98	380,578.98	836,770.47	32.042706	-103.379864

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Talco 16-21 State Fed Com 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3226.40ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3226.40ft
Site:	Sec 16-T26S-R35E	**North Reference:**	Grid
Well:	Talco 16-21 State Fed Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,300.00	90.00	179.45	12,590.00	-2,659.12	-836.01	380,478.98	836,771.44	32.042431	-103.379864
15,400.00	90.00	179.45	12,590.00	-2,759.12	-835.05	380,378.99	836,772.40	32.042156	-103.379864
15,500.00	90.00	179.45	12,590.00	-2,859.11	-834.09	380,278.99	836,773.36	32.041882	-103.379864
15,600.00	90.00	179.45	12,590.00	-2,959.11	-833.13	380,179.00	836,774.32	32.041607	-103.379863
15,700.00	90.00	179.45	12,590.00	-3,059.10	-832.17	380,079.00	836,775.28	32.041332	-103.379863
15,800.00	90.00	179.45	12,590.00	-3,159.10	-831.21	379,979.01	836,776.24	32.041057	-103.379863
15,900.00	90.00	179.45	12,590.00	-3,259.09	-830.25	379,879.01	836,777.21	32.040782	-103.379863
16,000.00	90.00	179.45	12,590.00	-3,359.09	-829.28	379,779.02	836,778.17	32.040507	-103.379862
16,100.00	90.00	179.45	12,590.00	-3,459.08	-828.32	379,679.02	836,779.13	32.040232	-103.379862
16,200.00	90.00	179.45	12,590.00	-3,559.08	-827.36	379,579.03	836,780.09	32.039958	-103.379862
16,300.00	90.00	179.45	12,590.00	-3,659.07	-826.40	379,479.03	836,781.05	32.039683	-103.379862
16,400.00	90.00	179.45	12,590.00	-3,759.07	-825.44	379,379.04	836,782.01	32.039408	-103.379861
16,500.00	90.00	179.45	12,590.00	-3,859.06	-824.48	379,279.04	836,782.97	32.039133	-103.379861
16,600.00	90.00	179.45	12,590.00	-3,959.06	-823.51	379,179.05	836,783.94	32.038858	-103.379861
16,700.00	90.00	179.45	12,590.00	-4,059.06	-822.55	379,079.05	836,784.90	32.038583	-103.379861
16,800.00	90.00	179.45	12,590.00	-4,159.05	-821.59	378,979.06	836,785.86	32.038308	-103.379860
16,900.00	90.00	179.45	12,590.00	-4,259.05	-820.63	378,879.06	836,786.82	32.038033	-103.379860
17,000.00	90.00	179.45	12,590.00	-4,359.04	-819.67	378,779.07	836,787.78	32.037759	-103.379860
17,100.00	90.00	179.45	12,590.00	-4,459.04	-818.71	378,679.07	836,788.74	32.037484	-103.379860
17,200.00	90.00	179.45	12,590.00	-4,559.03	-817.74	378,579.08	836,789.71	32.037209	-103.379859
17,300.00	90.00	179.45	12,590.00	-4,659.03	-816.78	378,479.08	836,790.67	32.036934	-103.379859
17,400.00	90.00	179.45	12,590.00	-4,759.02	-815.82	378,379.09	836,791.63	32.036659	-103.379859
17,500.00	90.00	179.45	12,590.00	-4,859.02	-814.86	378,279.09	836,792.59	32.036384	-103.379859
17,600.00	90.00	179.45	12,590.00	-4,959.01	-813.90	378,179.09	836,793.55	32.036109	-103.379858
17,620.00	90.00	179.45	12,590.00	-4,979.01	-813.71	378,159.10	836,793.74	32.036054	-103.379858
Cross section @ 17620' MD, 0' FNL, 330' FWL									
17,700.00	90.00	179.45	12,590.00	-5,059.01	-812.94	378,079.10	836,794.51	32.035834	-103.379858
17,800.00	90.00	179.45	12,590.00	-5,159.00	-811.97	377,979.10	836,795.48	32.035560	-103.379858
17,900.00	90.00	179.45	12,590.00	-5,259.00	-811.01	377,879.11	836,796.44	32.035285	-103.379858
18,000.00	90.00	179.45	12,590.00	-5,359.00	-810.05	377,779.11	836,797.40	32.035010	-103.379857
18,100.00	90.00	179.45	12,590.00	-5,458.99	-809.09	377,679.12	836,798.36	32.034735	-103.379857
18,200.00	90.00	179.45	12,590.00	-5,558.99	-808.13	377,579.12	836,799.32	32.034460	-103.379857
18,300.00	90.00	179.45	12,590.00	-5,658.98	-807.17	377,479.13	836,800.28	32.034185	-103.379857
18,400.00	90.00	179.45	12,590.00	-5,758.98	-806.20	377,379.13	836,801.25	32.033910	-103.379856
18,500.00	90.00	179.45	12,590.00	-5,858.97	-805.24	377,279.14	836,802.21	32.033636	-103.379856
18,600.00	90.00	179.45	12,590.00	-5,958.97	-804.28	377,179.14	836,803.17	32.033361	-103.379856
18,700.00	90.00	179.45	12,590.00	-6,058.96	-803.32	377,079.15	836,804.13	32.033086	-103.379856
18,800.00	90.00	179.45	12,590.00	-6,158.96	-802.36	376,979.15	836,805.09	32.032811	-103.379855
18,900.00	90.00	179.45	12,590.00	-6,258.95	-801.40	376,879.16	836,806.05	32.032536	-103.379855
19,000.00	90.00	179.45	12,590.00	-6,358.95	-800.44	376,779.16	836,807.02	32.032261	-103.379855
19,100.00	90.00	179.45	12,590.00	-6,458.94	-799.47	376,679.17	836,807.98	32.031986	-103.379855
19,200.00	90.00	179.45	12,590.00	-6,558.94	-798.51	376,579.17	836,808.94	32.031711	-103.379854
19,300.00	90.00	179.45	12,590.00	-6,658.93	-797.55	376,479.18	836,809.90	32.031437	-103.379854
19,400.00	90.00	179.45	12,590.00	-6,758.93	-796.59	376,379.18	836,810.86	32.031162	-103.379854
19,500.00	90.00	179.45	12,590.00	-6,858.93	-795.63	376,279.19	836,811.82	32.030887	-103.379854
19,600.00	90.00	179.45	12,590.00	-6,958.92	-794.67	376,179.19	836,812.78	32.030612	-103.379853
19,700.00	90.00	179.45	12,590.00	-7,058.92	-793.70	376,079.20	836,813.75	32.030337	-103.379853
19,800.00	90.00	179.45	12,590.00	-7,158.91	-792.74	375,979.20	836,814.71	32.030062	-103.379853
19,900.00	90.00	179.45	12,590.00	-7,258.91	-791.78	375,879.21	836,815.67	32.029787	-103.379853
20,000.00	90.00	179.45	12,590.00	-7,358.90	-790.82	375,779.21	836,816.63	32.029512	-103.379852
20,100.00	90.00	179.45	12,590.00	-7,458.90	-789.86	375,679.22	836,817.59	32.029238	-103.379852
20,200.00	90.00	179.45	12,590.00	-7,558.89	-788.90	375,579.22	836,818.55	32.028963	-103.379852
20,300.00	90.00	179.45	12,590.00	-7,658.89	-787.93	375,479.23	836,819.52	32.028688	-103.379852
20,400.00	90.00	179.45	12,590.00	-7,758.88	-786.97	375,379.23	836,820.48	32.028413	-103.379851

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Talco 16-21 State Fed Com 1H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3226.40ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3226.40ft
Site:	Sec 16-T26S-R35E	**North Reference:**	Grid
Well:	Talco 16-21 State Fed Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,500.00	90.00	179.45	12,590.00	-7,858.88	-786.01	375,279.23	836,821.44	32.028138	-103.379851
20,600.00	90.00	179.45	12,590.00	-7,958.87	-785.05	375,179.24	836,822.40	32.027863	-103.379851
20,700.00	90.00	179.45	12,590.00	-8,058.87	-784.09	375,079.24	836,823.36	32.027588	-103.379850
20,800.00	90.00	179.45	12,590.00	-8,158.87	-783.13	374,979.25	836,824.32	32.027313	-103.379850
20,900.00	90.00	179.45	12,590.00	-8,258.86	-782.16	374,879.25	836,825.29	32.027039	-103.379850
21,000.00	90.00	179.45	12,590.00	-8,358.86	-781.20	374,779.26	836,826.25	32.026764	-103.379850
21,100.00	90.00	179.45	12,590.00	-8,458.85	-780.24	374,679.26	836,827.21	32.026489	-103.379849
21,200.00	90.00	179.45	12,590.00	-8,558.85	-779.28	374,579.27	836,828.17	32.026214	-103.379849
21,300.00	90.00	179.45	12,590.00	-8,658.84	-778.32	374,479.27	836,829.13	32.025939	-103.379849
21,400.00	90.00	179.45	12,590.00	-8,758.84	-777.36	374,379.28	836,830.09	32.025664	-103.379849
21,500.00	90.00	179.45	12,590.00	-8,858.83	-776.40	374,279.28	836,831.06	32.025389	-103.379848
21,600.00	90.00	179.45	12,590.00	-8,958.83	-775.43	374,179.29	836,832.02	32.025114	-103.379848
21,700.00	90.00	179.45	12,590.00	-9,058.82	-774.47	374,079.29	836,832.98	32.024840	-103.379848
21,800.00	90.00	179.45	12,590.00	-9,158.82	-773.51	373,979.30	836,833.94	32.024565	-103.379848
21,900.00	90.00	179.45	12,590.00	-9,258.81	-772.55	373,879.30	836,834.90	32.024290	-103.379847
22,000.00	90.00	179.45	12,590.00	-9,358.81	-771.59	373,779.31	836,835.86	32.024015	-103.379847
22,100.00	90.00	179.45	12,590.00	-9,458.81	-770.63	373,679.31	836,836.82	32.023740	-103.379847
22,200.00	90.00	179.45	12,590.00	-9,558.80	-769.66	373,579.32	836,837.79	32.023465	-103.379847
22,300.00	90.00	179.45	12,590.00	-9,658.80	-768.70	373,479.32	836,838.75	32.023190	-103.379846
22,400.00	90.00	179.45	12,590.00	-9,758.79	-767.74	373,379.33	836,839.71	32.022916	-103.379846
22,500.00	90.00	179.45	12,590.00	-9,858.79	-766.78	373,279.33	836,840.67	32.022641	-103.379846
22,600.00	90.00	179.45	12,590.00	-9,958.78	-765.82	373,179.34	836,841.63	32.022366	-103.379846
22,700.00	90.00	179.45	12,590.00	-10,058.78	-764.86	373,079.34	836,842.59	32.022091	-103.379845
22,800.00	90.00	179.45	12,590.00	-10,158.77	-763.89	372,979.35	836,843.56	32.021816	-103.379845
22,813.86	90.00	179.45	12,590.00	-10,172.63	-763.76	372,965.49	836,843.69	32.021778	-103.379845
LTP @ 22814' MD, 100' FSL, 330' FWL									
22,893.85	90.00	179.45	12,590.00	-10,252.62	-762.99	372,885.50	836,844.46	32.021558	-103.379845
PBHL; 20' FSL, 330' FWL									
22,893.86	90.00	179.45	12,590.00	-10,252.63	-762.99	372,885.49	836,844.46	32.021558	-103.379845

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Talco 16-21 Stat	0.00	0.00	0.00	-10,252.63	-762.99	372,885.49	836,844.46	32.021558	-103.379845
- plan misses target center by 10280.98ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
12,062.70	12,017.04	251.00	-864.00	KOP @ 12063' MD, 50' FNL, 330' FWL
12,303.85	12,251.13	201.00	-863.52	FTP @ 12304' MD, 100' FNL, 330' FWL
17,620.00	12,590.00	-4,979.01	-813.71	Cross section @ 17620' MD, 0' FNL, 330' FWL
22,813.86	12,590.00	-10,172.63	-763.76	LTP @ 22814' MD, 100' FSL, 330' FWL
22,893.85	12,590.00	-10,252.62	-762.99	PBHL; 20' FSL, 330' FWL

U. S. Steel Tubular Products

13.375" 48.00lbs/ft (0.330" Wall) H40

1/8/2019 12:38:52 PM

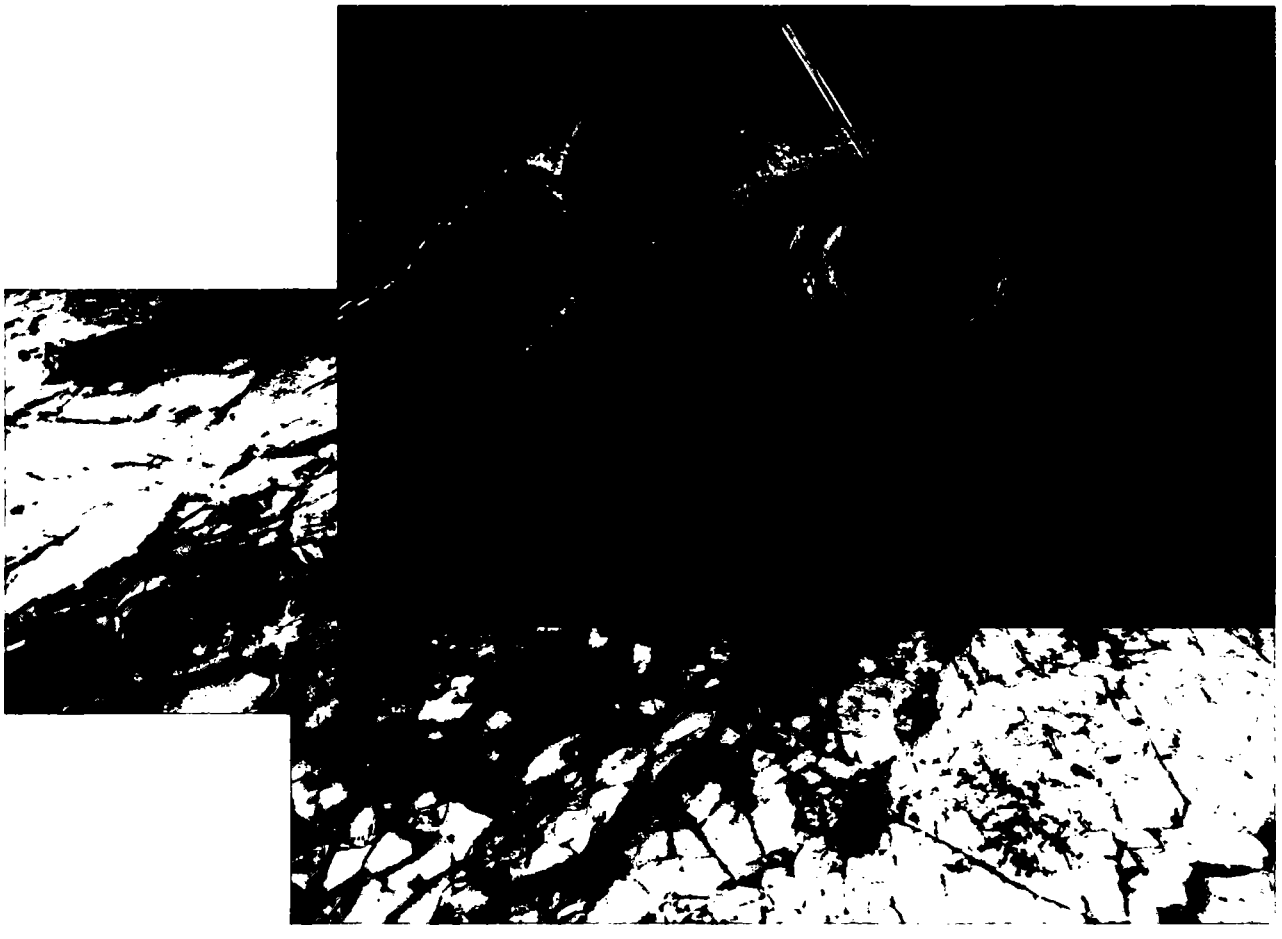
MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	40,000	--	--	--	psi
Maximum Yield Strength	80,000	--	--	--	psi
Minimum Tensile Strength	60,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	13.375	--	--	14.375	in.
Wall Thickness	0.330	--	--	--	in.
Inside Diameter	12.715	--	--	12.715	in.
Standard Drift	12.559	12.559	--	12.559	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	48.00	--	--	--	lbs/ft
Plain End Weight	46.02	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	740	740	--	740	psi
Minimum Internal Yield Pressure	1,730	1,730	--	1,730	psi
Minimum Pipe Body Yield Strength	541	--	--	--	1,000 lbs
Joint Strength	--	--	--	322	1,000 lbs
Reference Length	--	--	--	4,473	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	--	--	3.50	in.
Minimum Make-Up Torque	--	--	--	2,420	ft-lbs
Maximum Make-Up Torque	--	--	--	4,030	ft-lbs

U. S. Steel Tubular Products
460 Wildwood Forest Drive, Suite 300S
Spring, Texas 77380

1-877-893-9461
connections@uss.com
www.usstubular.com

devon

Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
June 2010

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

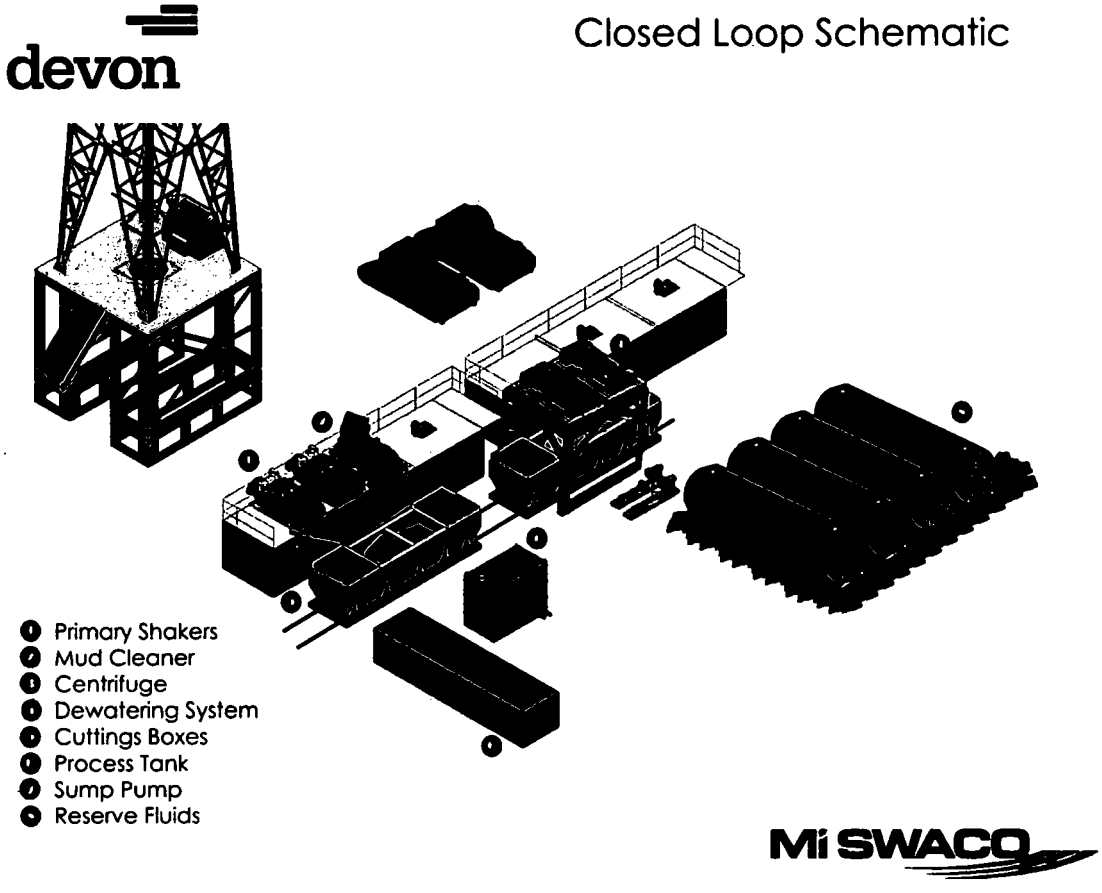
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

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

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

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

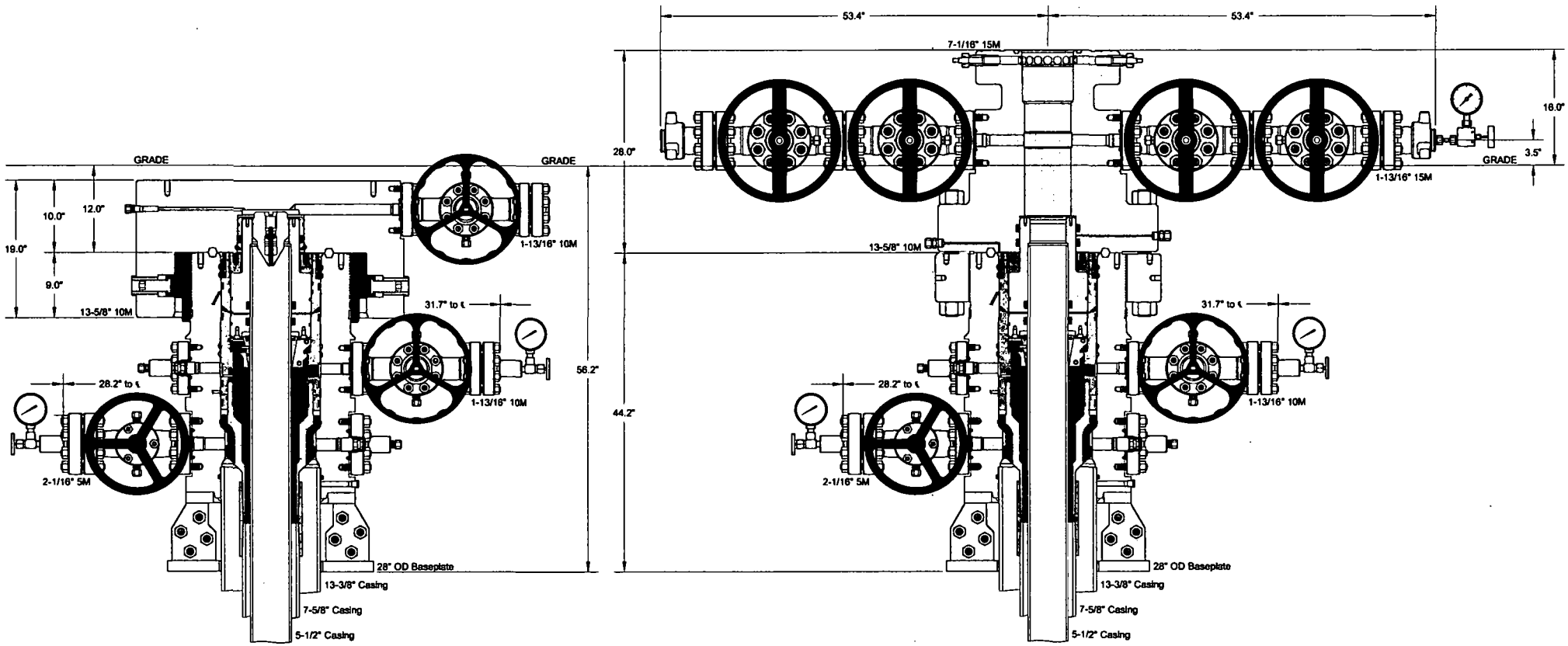
After running the surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of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

After running the intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 10M will be installed and tested, with 5M annular being tested to 100% of rated working pressure.

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

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

LUSITANO 27-34 FED COM 718H
ICD 217



CACTUS WELLHEAD LLC	DEVON ENERGY CORPORATION		
13-3/8" x 7-5/8" x 5-1/2" 5M MBU-3T Wellhead System With 7-5/8" Mandrel Hanger, 5-1/2" Emergency Slips And 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head	DRAWN	DLE	15DEC17
	APPRV		
	DRAWING NO.	ODE0001902	

Cactus Wellhead

Quotation

OKLAHOMA CITY, OK
5517 SW 29th St.
OKLAHOMA CITY OK 73179
Phone: 405-708-7200

Quote Number : ODE0001902

Date: 12/15/2017

Valid For 30 Days

Bill To: 7323

DEVON ENERGY CORPORATION
PO BOX 3198
OKLAHOMA CITY OK 73101-3198
US

Ship To: 0

DEVON ENERGY CORPORATION
PO BOX 3198
OKLAHOMA CITY OK 73101-3198
US

	Quantity	Price	Ext Price

13-3/8" X 7-5/8" X 5-1/2" - 10K

DEVON ENERGY

DELAWARE BASIN

MBU-3T ASSEMBLY
13-3/8" X 7-5/8" X 5-1/2"

QUOTATION SUMMARY:

- MBU-3T ASSEMBLY - $16,613.92
- MANDREL HANGERS & PACKOFFS - $14,795.84
- TUBING HEAD ASSEMBLY - $22,671.55
- CACTUS MBU-3T RENTAL TOOLS = $2,250.00 PER WELL FOR 45 DAYS; $75.00 PER DAY THEREAFTER
- CACTUS QUICK CONNECT PACKAGE = $2,050.00 PER WELL FOR 45 DAYS; $75.00 PER DAY THEREAFTER
- CACTUS QUICK CONNECT TA CAP = $1,200.00 PER WELL FOR 90 DAYS; $20.00 PER DAY THEREAFTER

CACTUS CONTACT:
DEREK DONNELL
MOBILE: 405-388-6662
EMAIL: derek.donnell@cactuswellhead.com

NOTE: PRICES ARE F.O.B. CACTUS BOSSIER CITY, LA. THE FOLLOWING QUOTATION DOES NOT INCLUDE PRO RATA FREIGHT AND OTHER APPLICABLE MILEAGE AND SERVICES THAT WILL BE CHARGED AT TIME OF INVOICING.

		Quantity	Price	Ext Price
	MBU-3T ASSEMBLY			
1	117357 HSG,CW,MBU-3T,13-5/8 10M X 13-3/8 SOW,W/2 1-13/16 10M FP UPR & 2 2-1/16 5M FP LWR,W/ORING,6A-PU-AA-1-2	1.00	10,697.00	10,697.00
2	610003 VLV,CW1,2-1/16 3/5M FE AA/DD-NL (API 6A LU AA/DD-NL PSL1 PR2)	1.00	759.00	759.00
3	VR2 VR PLUG,CW,1-1/2 (1.900) SHARP VEE X 1-1/4 HEX,API 6A-DD-NL	1.00	39.12	39.12
4	200002 FLG,COMP,CW,2-1/16 5M X 2 LP,6A-KU-EE-NL-1	2.00	73.60	147.20
5	BP2T BULL PLUG,CW,2 LP X 1/2 LP,API 6A DD-NL	2.00	25.04	50.08
6	FTG1 FTG,GRS,VENTED CAP,1/2 NPT,ALLOY NON-NACE	1.00	6.85	6.85
7	R24 RING GASKET,R24,2-1/16 3/5M	3.00	5.48	16.44
8	780067 STUD,ALL-THD W/2 NUTS,BLK,7/8-9UNC X 6-1/2,A193 GR B7/A194 GR 2H,NO PLATING	8.00	2.35	18.80
9	107412 VLV,CW,SB100,1-13/16 10M FE BB/EE-0,5 (API 6A LU BB/EE-0,5 PSL3 PR2) QPQ TRIM, API 6A PR2 ANNEX F	1.00	1,650.00	1,650.00
10	VR1 VR PLUG,CW,1-1/4 (1.660) LP X 1-1/4 HEX,API 6A-DD-NL	1.00	39.12	39.12
11	200010 FLG,COMP,1-13/16 10M X 2 LP,5000 PSI MAX WP,4130 60K,6A-KU-EE-NL-1	2.00	74.33	148.66
12	BP2T BULL PLUG,CW,2 LP X 1/2 LP,API 6A DD-NL	2.00	25.04	50.08
13	FTG1 FTG,GRS,VENTED CAP,1/2 NPT,ALLOY NON-NACE	1.00	6.85	6.85
14	BX151 RING GASKET,BX151,1-13/16 10/15/20M	3.00	6.26	18.78
15	780080 STUD,ALL-THD W/2 NUTS,BLK,3/4-10UNC X 5-1/2,A193 GR B7/A194 GR 2H,NO PLATING	8.00	1.96	15.68
16	NVA NEEDLE VALVE,MFA,1/2 10M	2.00	47.25	94.50
17	PG5M PRESSURE GAUGE,5M,4-1/2 FACE,LIQUID FILLED,1/2 NPT	1.00	47.88	47.88

		Quantity	Price	Ext Price
18	PG10M	1.00	47.88	47.88
	PRESSURE GAUGE,10M,4-1/2 FACE, LIQUID FILLED,1/2 NPT			
19	104718T	1.00	2,760.00	2,760.00
	BASEPLATE KIT,SPLIT,28 OD X 14.0 ID X 11.0 LG,F/13-3/8 SOW & 15.0 NOSEW/2 4 X 4 GROUT SLOTS & FOUR 5/8-11UNC-2B LIFT THREADS ON TOP RING,A/F 20 CONDUCTOR (CONTACT ENGINEERING FOR LOAD CAPACITY)			
				16,613.92
	HANGERS & PACKOFFS			
20	121569	1.00	6,368.00	6,368.00
	CSGHGR,CW,MBU-3T-LWR-TP4,FLUTED,13-5/8 X 7-5/8 (29.7#) BC PIN BTM X 10.250-4 STUB ACME-2G R.H BOX TOP,W/11-1/2 OD NECK,6A-U-AA-1-2			
21	117152	1.00	2,534.24	2,534.24
	PACKOFF,CW,MBU-3T,MANDREL,13-5/8 NESTED X 11,W/11.250-4 STUB ACME-2G LH BOX TOP,6A-U-AA-1-1			
22	108211	1.00	2,976.00	2,976.00
	CSGHGR,CW,MBU-2LR,UPR,11 X 5-1/2,6A-PU-DD-3-1			
23	117298	1.00	1,887.60	1,887.60
	PACKOFF,CW,MBU-3T,INNER,EMERG,NESTED,11 X 5-1/2,W/7-5/8 SEAL NECK,5 HBPV THDS & 4.93 MIN BORE,A/F HOLD DOWN RING,6A-PU-DD-NL-1-1			
24	116161	1.00	1,030.00	1,030.00
	HOLD DOWN,RING,F/22 CSGHGR 11 X 4-1/2,A/F PACKOFF MBU-LR,13-5/8 10M,W/11.250-4 STUB ACME-2G LH PIN X 8.00 ID X 2.62 LG,4140 110K			
25	BPV5T	0.00	2,950.00	0.00
	BPV,H,5 ONE WAY,4130,HYDRO TESTED & API 6A MONOGRAM			
	OPTIONAL RENTAL ITEM $ 90.00 PER DAY			
				14,795.84
	TUBING HEAD ASSEMBLY			
26	115302	1.00	12,979.00	12,979.00
	TBGHD,CW,CTH-DBLHPS,7-5/8,13-5/8 10M X 7-1/16 15M,W/2 1-13/16 15M FP,W/6.375 MIN BORE,17-4PH LDS,6A-PU-EE-0,5-3-2			
27	104700	4.00	1,877.90	7,511.60
	VLV,DSG-22,1-13/16 15M FE EE-0,5 (6A PU EE-0,5 PSL3 PR1),QPQ TRIM			
28	100203	2.00	550.00	1,100.00
	ADPT,TS,FH,1-13/16 15M X 2 FIG 1502 X 9/16 AUTOCLAVE,NON-NACE (INCLUDES SEAL RING) FH25099462-3			
29	BX151	6.00	6.26	37.56
	RING GASKET,BX151,1-13/16 10/15/20M			
30	105477	32.00	3.99	127.68
	STUD,ALL-THD W/2 NUTS,BLK,7/8-9UNC X 6,A193 GR B7/A194 GR 2H,NO PLATING			

		Quantity	Price	Ext Price
31	BX160 RING GASKET,BX160,13-5/8 5M	1.00	78.30	78.30
32	BX158 RING GASKET,BX158,11 10/15/20M	1.00	91.35	91.35
33	810023 NEEDLE VALVE,2 WAY ANGLE,9/16,20KSI,SOUR SERVICE,W/O COLLARS & GLANDS	1.00	422.53	422.53
34	106012 ADPT,AUTOCLAVE,HIGH PRESSURE, 9/16 MALE TO 9/16 MALE,316SS	1.00	93.49	93.49
35	PG15M PRESSURE GAUGE,15M,9/16 AUTOCLAVE,LIQUID FILLED	1.00	230.04	230.04
				22,671.55

CONTINGENCY EQUIPMENT

36	120918 CSGHGR,CW,MBU-3T-LWR,EMERG,13-5/8 X 7-5/8,6A-PU-DD-3-1	0.00	3,325.00	0.00
37	120920 PACKOFF,CW,MBU-3T,EMERG,13-5/8 NESTED X 11 X 7-5/8,W/11.250-4 STUB ACME-2G LH BOX TOP W/RUPTURE DISK,6A-U-AA-1-1	0.00	10,057.00	0.00
				0.00

RENTAL TOOLS

38	AR4	Advance Rental Charge 45 Day	1.00	2,250.00	2,250.00

MBU-3T RENTAL TOOLS = $2,250.00 PER WELL FOR 45 DAYS; $75.00 PER DAY THEREAFTER

RENTAL TOOLS INCLUDE THE FOLLOWING ITEMS:

PN 104467: COMB TEST PLUG/RET TOOL,CW,13-5/8 X 4-1/2 IF (NC50) BOX BTM & TOP,W/1-1/4 LP BYPASS & SPRING LOADED DOGS

PN 116974: WBUSH,CW,MBU-3T,LWR,13-5/8 X 12.31 ID X 27.0 LG,W/3/8 UPR ORING

PN 121602: RUN TOOL,CW,CSGHGR,MBU-3T-LR-TP,13-5/8 X 7-5/8 BC BOX

PN 118906: TORQUE COLLAR,CW,F/USE W RUN TOOL,TP,10.250-4 STUB

PN 117323: WASH TOOL,CW,MBU-3T-LWR,FLUTED,13-5/8 X 4-1/2 IF (NC50) BOX TOP THD,W/BRUSHES

PN 117310: RUN TOOL,CW,PACKOFF,MBU-3T-UPR,13-5/8 NESTED,W/11.250-4 STUB ACME-2G LEFT HAND PIN BTM X 4-1/2 IF (NC50) BOX TOP,W/SEAL SLEEVE & BALL BEARINGS

PN 117158: WBUSH,CW,MBU-3T,UPR,NESTED,13-5/8 X 11 X 9.00 ID X 20.0 LG,A/F 13-5/8 RET TOOL

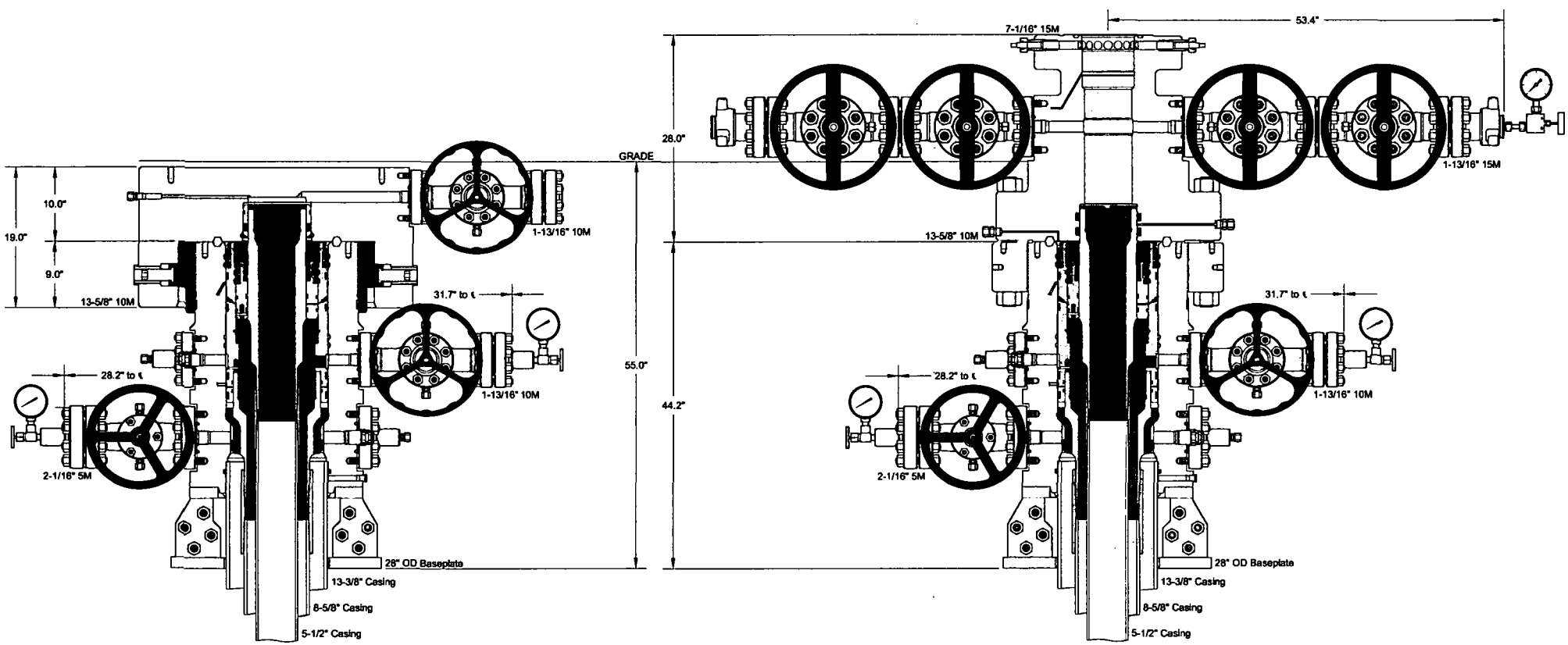
PN 108848: TEST PLUG,CW,MBU-2LR INNER,11 X 4-1/2 IF (NC50) BOX BTM & TOP,W/1-1/4 LP BYPASS

NOTE: CUSTOMER IS RESPONSIBLE FOR LOST, DAMAGED OR BEYOND REPAIR RENTAL TOOLS. RENTAL

			Quantity	Price	Ext Price
	CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT.				**2,250.00**
	RENTAL CQC EQUIPMENT				
39	AR4	Advance Rental Charge 45 Day	1.00	2,050.00	2,050.00
	CACTUS QUICK CONNECT RENTAL PACKAGE = $2,050.00 PER WELL FOR 45 DAYS - $75.00 PER DAY THEREAFTER RENTAL TOOLS CONSIST OF THE FOLLOWING ITEMS: PN 116966: ADPT,DRLG,CW,MBU-3T,13-5/8 10M QUICK CONNECT BTM X 13-5/8 10M STD TOP,TEMP RATING PU ($1,900.00;$65.00) PN 116992: HUB,CW,THD,MBU-3T,13-5/8 10M,W/21.750-2 STUB ACME-2G L.H. BOX THD ($150.00;$10.00) NOTE: CUSTOMER IS RESPONSIBLE FOR LOST, DAMAGED OR BEYOND REPAIR RENTAL TOOLS. RENTAL CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT.				
40	AR9	Advance Rental Charge 90 Day	1.00	1,200.00	1,200.00
	CACTUS QUICK CONNECT TA CAP - $1,200.00 PER WELL FOR 90 DAYS; $20.00 PER DAY THEREAFTER PN 117347: TA CAP,CW,MBU-3T-HPS,9,13-5/8 10M QUICK CONNECT,W/ONE 1-13/16 10M FP,VR THD & 1/2 NPT PORT,6A-U-AA-1-1 PN108466: SECSEAL,CW,TA-HPS,9 X 7-5/8 X 4.31 LG,W/7.731 MIN BORE,6A-U-AA-1-1 (INCLUDED) NOTE: CUSTOMER IS RESPONSIBLE FOR LOST, DAMAGED OR BEYOND REPAIR TA CAPS. RENTAL CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT.				**3,250.00**

For Acceptance of this Quotation
Please Contact Ph: 713-626-8800
sales@cactuswellhead.com

Matl:	54,081.31
Labor:	0.00
Misc:	5,500.00
Sales Tax:	0.00
Total:	59,581.31



CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION

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

DRAWN	DLE	10MAY18
APPRV		
DRAWING NO.	ODE0002309	

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. SUMMARY OF Variance:

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

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

2. Description of Operations

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

1. Geologic Formations

TVD of target	12590	Pilot hole depth	N/A
MD at TD:	22894	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	1060		
Salt	1500		
Base of Salt	5275		
Delaware	5330		
Bone Spring	9250		
Bone Spring 1st SS	10450		
Bone Spring 2nd	10850		
Bone Spring 3rd	12100		
Wolfcamp	12450		

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

2. Casing Program (Primary Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17 1/2	0	1085 TVD	13 3/8	48.0	H40	STC	1.125	1.25	1.6
9 7/8	0	12100 TVD	7 5/8	29.7	P110	Flushmax III	1.125	1.25	1.6
6 3/4	0	TD	5 1/2	20.0	P110	Vam SG	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

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

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

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

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

Casing Program (Alternative Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17 1/2	0	1085 TVD	13 3/8	48.0	H40	STC	1.125	1.25	1.6
9 7/8	0	12100 TVD	8 5/8	32.0	P110	TLW	1.125	1.25	1.6
7 7/8	0	TD	5 1/2	17.0	P110	BTC	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

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

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

3. Cementing Program (Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	824	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	786	Surf	9	3.27	Lead: Class C Cement + additives
	783	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Int 1 Two Stage w/ DV @ TVD of Delaware	952	Surf	9	3.27	1st stage Lead: Class C Cement + additives
	93	500' above shoe	13.2	1.44	1st stage Tail: Class H / C + additives
	495	Surf	9	3.27	2nd stage Lead: Class C Cement + additives
	93	500' above DV	13.2	1.44	2nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	9	1.44	Squeeze Lead: Class C Cement + additives
	786	Surf	9	3.27	Lead: Class C Cement + additives
	783	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Production	63	10063	9.0	3.3	Lead: Class H /C + additives
	691	12063	13.2	1.4	Tail: Class H / C + additives

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

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

3. Cementing Program (Alternative Design)

Casing	# Sks	TOC	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	824	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	510	Surf	9	3.27	Lead: Class C Cement + additives
	465	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	559	Surf	9	3.27	1st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.44	1st stage Tail: Class H / C + additives
	338	Surf	9	3.27	2nd stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.44	2nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.44	Squeeze Lead: Class C Cement + additives
	510	Surf	9	3.27	Lead: Class C Cement + additives
	465	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Int 1 (10.625" Hole Size)	744	Surf	9	3.27	Lead: Class C Cement + additives
	768	4000' above shoe	13.2	1.44	Tail: Class H / C + additives
Production	117	10063	9.0	3.3	Lead: Class H /C + additives
	1433	12063	13.2	1.4	Tail: Class H / C + additives

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

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

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✔	Tested to:
Int 1	13-58"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	10M	Annular (5M)	X	100% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular (5M)		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

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

5. Mud Program (Three String Design)

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

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

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

6. Logging and Testing Procedures

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

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

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	6874
Abnormal temperature	No

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

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

8. Other facets of operation

Is this a walking operation? Potentially

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

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

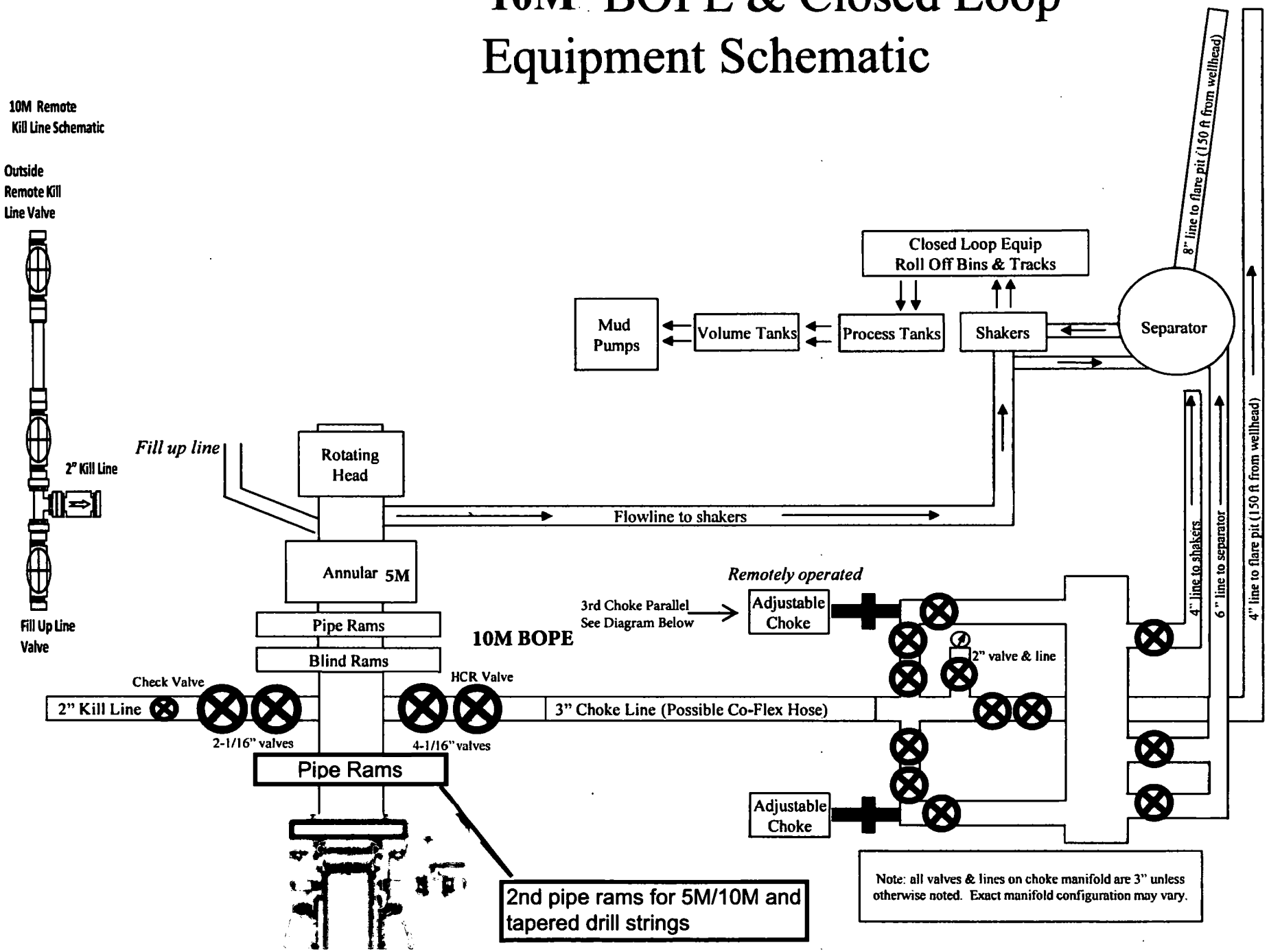
Will be pre-setting casing? Potentially

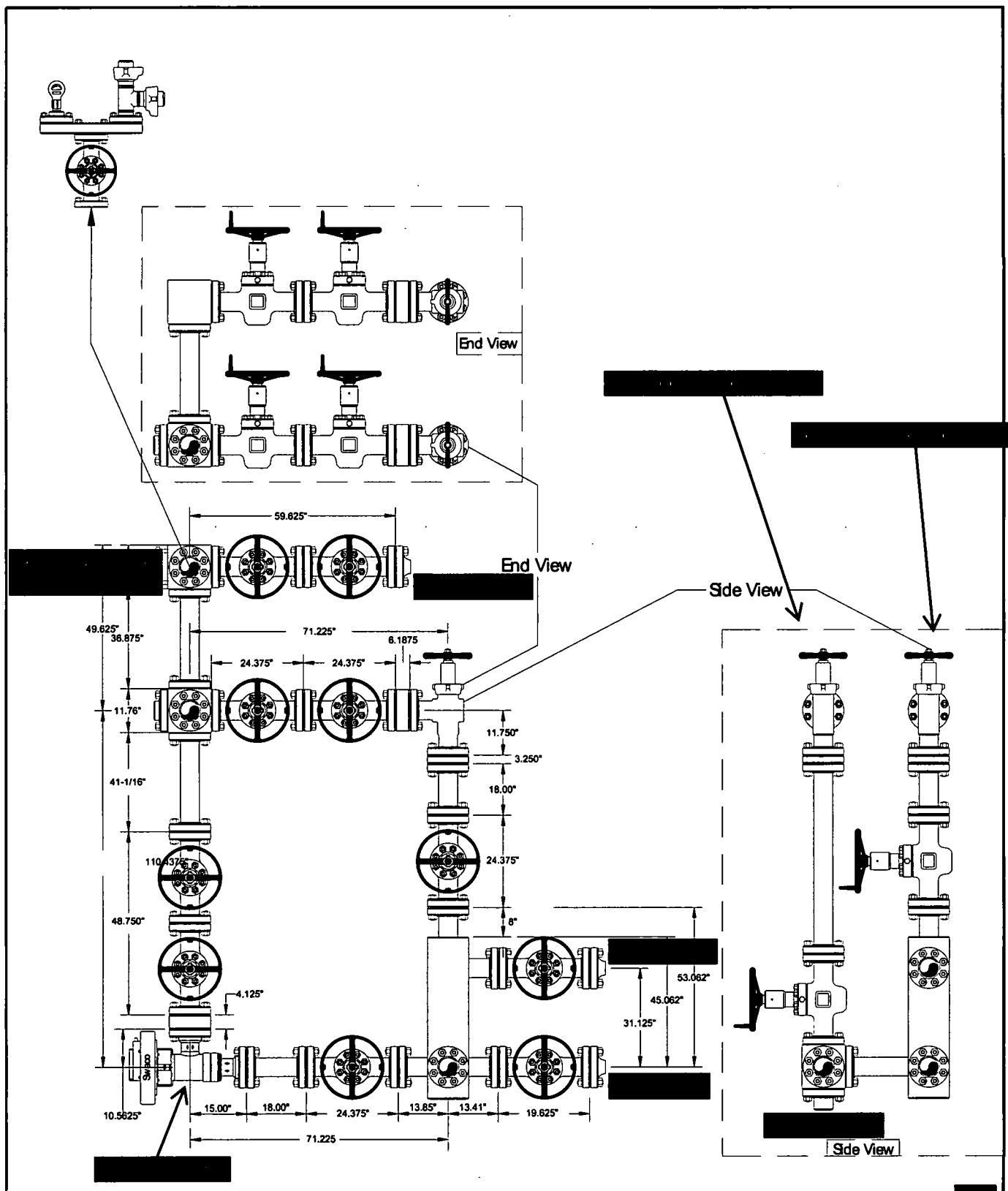
1 Spudder rig will move in and batch drill surface hole.
    a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.,
2 After drilling the surface hole section, the spudder rig will run casing and cement following all of the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

Attachments

X Directional Plan
_____ Other, describe

10M BOPE & Closed Loop Equipment Schematic





Helmerich & Payne

Flex 3 Rig w/ 3 Chokes

devon

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

Devon Energy Annular Preventer Summary

1. Component and Preventer Compatibility Table

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

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

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

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

2. Well Control Procedures

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

General Procedure While Drilling

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

Devon Energy Annular Preventer Summary

General Procedure While Tripping

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

General Procedure While Running Casing

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

General Procedure With No Pipe In Hole (Open Hole)

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

Devon Energy Annular Preventer Summary

General Procedures While Pulling BHA thru Stack

1. PRIOR to pulling last joint of drillpipe thru the stack.
    a. Perform flowcheck, if flowing:
    b. Sound alarm (alert crew)
    c. Stab full opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper pipe ram.
    e. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan

2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
    a. Sound alarm (alert crew)
    b. Stab crossover and full opening safety valve and close
    c. Space out drill string with upset just beneath the compatible pipe ram.
    d. Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
    h. Regroup and identify forward plan

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

AFMSS

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

PWD Data Report

01/28/2020

APD ID: 10400048221 **Submission Date:** 09/30/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

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

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD disturbance (acres): **PWD surface owner:**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

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

Bond Info Data Report

01/28/2020

APD ID: 10400048221 **Submission Date:** 09/30/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TALCO 16-21 STATE FED COM **Well Number:** 1H

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

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000801

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: