Form 3160-3
(June 2015)

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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.
NMNM114991

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.
GREEN WAVE 20-32 FED STATE COM 10H (317785)

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

9. API Well No.
30-025-46052

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

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

10. Field and Pool, or Exploratory
BOBCAT DRAW / UPPER WOLFCAMP (98094)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NESE / 2424 FSL / 299 FEL / LAT 32.0283305 / LONG -103.4843193
At proposed prod. zone SENE / 20 FSL / 360 FEL / LAT 32.0003255 / LONG -103.4844936

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 20 / T26S / R34E / NMP

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

12. County or Parish
LEA

13. State
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
299 feet	1880	318.04
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**
238 feet	12805 feet / 22751 feet	FED: CO1104
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3343 feet	01/30/2020	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	10/18/2018
Title		
Regulatory Compliance Professional		
Approved by *(Signature)*	**Name *(Printed/Typed)***	**Date**
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	03/22/2019
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 05/30/19

APPROVED WITH CONDITIONS

KZ 06/03/19

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 03/22/2019

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: NESE / 2424 FSL / 299 FEL / TWSP: 26S / RANGE: 34E / SECTION: 20 / LAT: 32.0283305 / LONG: -103.4843193 (TVD: 0 feet, MD: 0 feet)
   PPP: NESE / 2424 FSL / 349 FEL / TWSP: 26S / RANGE: 34E / SECTION: 20 / LAT: 32.028332 / LONG: -103.4484481 (TVD: 12240 feet, MD: 12240 feet)
   BHL: SENE / 20 FSL / 360 FEL / TWSP: 26S / RANGE: 34E / SECTION: 32 / LAT: 32.0003255 / LONG: -103.4844936 (TVD: 12805 feet, MD: 22751 feet)

BLM Point of Contact

Name: Tenille Ortiz

Title: Legal Instruments Examiner

Phone: 5752342224

Email: tortiz@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMNM114991
WELL NAME & NO.:	10H – GREEN WAVE 20-32 FED STATE COM
SURFACE HOLE FOOTAGE:	2424'/S & 299'/E
BOTTOM HOLE FOOTAGE	20'/S & 360'/E
LOCATION:	SECTION 20, T26S, R34E, NMPM
COUNTY:	LEA

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
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 **10-3/4** inch surface casing shall be set at approximately **800 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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

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.

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.

Operator has proposed to pump down 10-3/4" X 7-5/8" annulus. Operator must run a CBL from TD of the 7-5/8" casing to surface. Submit results to BLM.

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

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

Alternate Casing Design:

4. The **13-3/8** inch surface casing shall be set at approximately **800 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

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

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

    Option 1 (Single Stage):

    - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Cement excess is less than 25%, more cement might be required.**

    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.
      Cement excess is less than 25%, more cement might be required.

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.

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

    - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
      Cement excess is less than 25%, more cement might be required.

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 **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 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 **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 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)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ 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.

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.

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: 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.

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMNM
WELL NAME & NO.:	10H – GREEN WAVE 20-32 FED STATE COM
SURFACE HOLE FOOTAGE:	2424'/S & 299'/E
BOTTOM HOLE FOOTAGE	20'/S & 360'/E
LOCATION:	SECTION 20, T26S, R34E, NMPM
COUNTY:	LEA

TABLE OF CONTENTS

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

☐ **General Provisions**
☐ **Permit Expiration**
☐ **Archaeology, Paleontology, and Historical Sites**
☐ **Noxious Weeds**
☒ **Special Requirements**
- Ground-level Abandoned Well Marker
- Range

☐ **Construction**
- Notification
- Topsoil
- Closed Loop System
- Federal Mineral Material Pits
- Well Pads
- Roads

☐ **Road Section Diagram**
☒ **Production (Post Drilling)**
- Well Structures & Facilities
- Pipelines
- Electric Lines

☐ **Interim Reclamation**
☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Build as you go pads No grading outside of the subpad.

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. Devon shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. Devon shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. Devon shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

During construction, Devon shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. Devon is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

Devon would adhere to the following stipulations:

- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.
- Devon would need to construct and maintain escape ramps according to the following criteria:
    - Earthen escape ramps would be required to be constructed to sufficiently support livestock at no more than a 30-degree slope and spaced no more than 500 feet apart.
    - If trench is left open under an 8-hour time period, it would not be required to have an escape ramp; however, before the trench is backfilled, Lucid would inspect the trench for wildlife and remove any species that are trapped at a distance of at least 100 yards away from the trench.

- Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

- A BLM Wildlife Biologist must be contacted by Devon prior to construction activities to determine if the raptor nest is active. Raptors nest on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

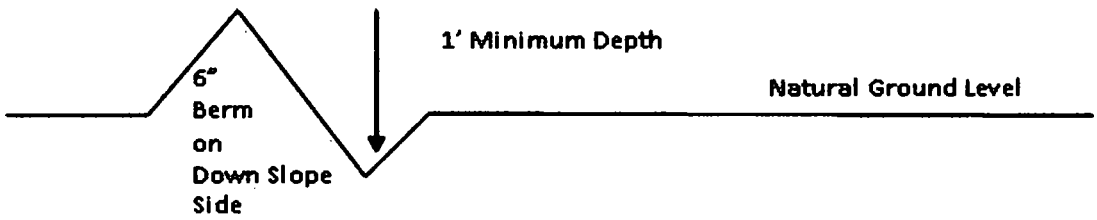
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

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

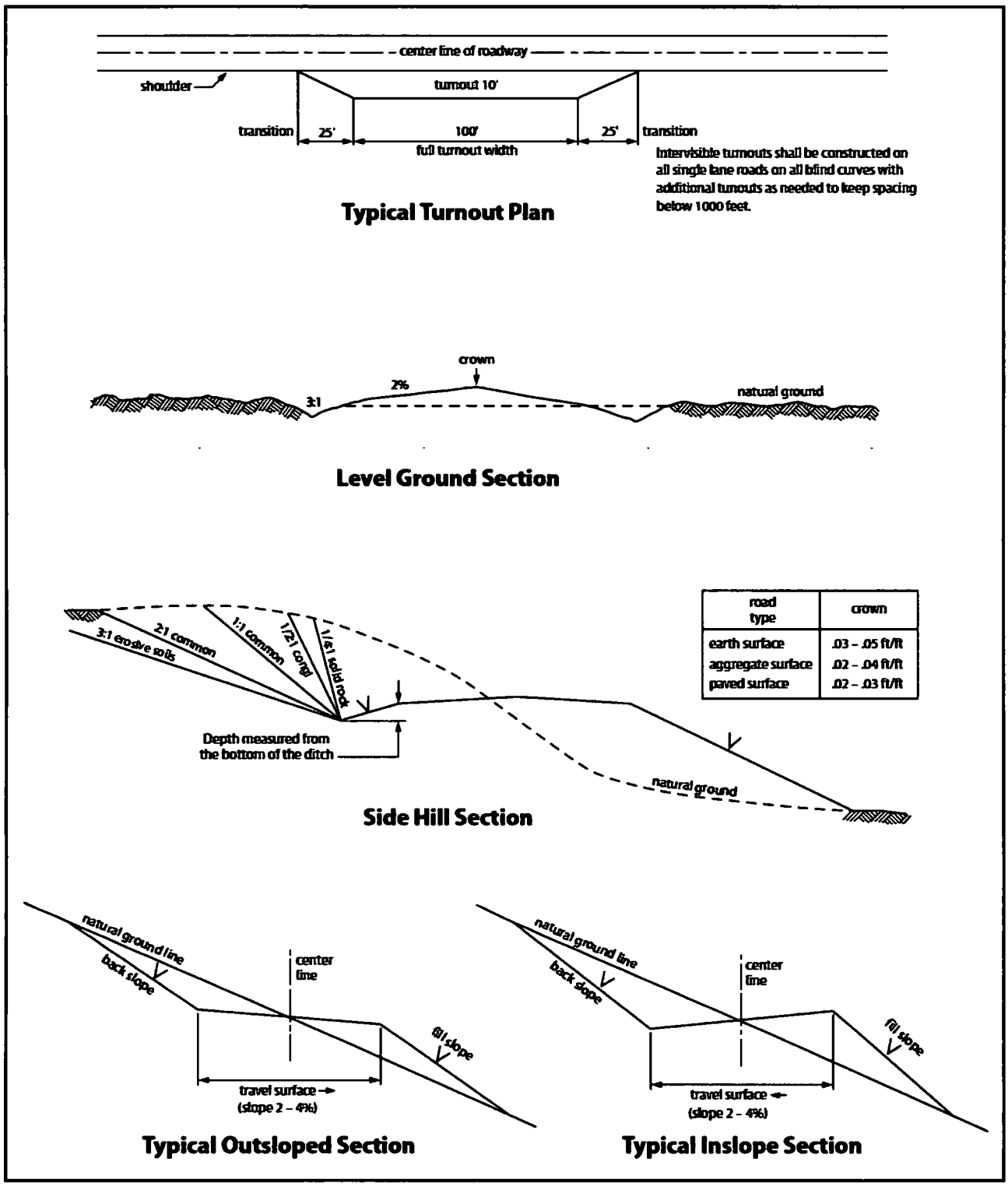


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures

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

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

B. PIPELINES

BURIED PIPELINE STIPULATIONS

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

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

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

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

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

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

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

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

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

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

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

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

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately ___6___ inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

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

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

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

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

( ) seed mixture 1	( ) seed mixture 3
(X) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

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

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

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

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

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

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

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

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

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

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

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

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the

Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:
    - For reclamation remove poles, lines, transformer, etc. and dispose of properly.
    - Fill in any holes from the poles removed.

VIII. INTERIM RECLAMATION

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

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

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

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

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

IX. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

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

Seed Mixture 2, for Sandy Sites

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

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

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

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

*Pounds of pure live seed:

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

Approval Date: 03/22/2019

AFMSS

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

Operator Certification Data Report

03/25/2019

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:** 10/17/2018

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

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

Phone: (405)228-8429

Email address: Rebecca.Deal@dvn.com

Field Representative

Representative Name: Travis Phibbs

Street Address: 333 W SHERIDAN AVE

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

Phone: (575)748-9929

Email address: travis.phibbs@dvn.com

AFMSS

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

Application Data Report
03/25/2019

APD ID: 10400035297 **Submission Date:** 10/18/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

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

[redacted]

Show Final Text

Section 1 - General

APD ID: 10400035297 **Tie to previous NOS?** **Submission Date:** 10/18/2018

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: NMNM114991 **Lease Acres:** 1880

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

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

Agreement number:

Agreement name:

Keep application confidential? YES

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

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

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

Operator PO Box:

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

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING **Mater Development Plan name:** RATTLESNAKE 2 MDP

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

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

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** BOBCAT DRAW **Pool Name:** UPPER WOLFCAMP

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

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

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** RATTLESNAKE MDP 1 PAD **Number:** 20-10

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:** 238 FT **Distance to lease line:** 299 FT

Reservoir well spacing assigned acres Measurement: 316.04 Acres

Well plat: Green_Wave_20_32_Fed_State_Com_10H_C_102_20181017083105.pdf

Well work start Date: 01/30/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

	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
SHL Leg #1	2424	FSL	299	FEL	26S	34E	20	Aliquot NESE	32.0283305	-103.4843193	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 114991	3343	0	0
KOP Leg #1	2424	FSL	349	FEL	26S	34E	20	Aliquot NESE	32.028332	-103.484481	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 114991	-8897	12240	12240
PPP Leg #1	2424	FSL	349	FEL	26S	34E	20	Aliquot NESE	32.028332	-103.4484481	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 114991	-8897	12240	12240

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

	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
EXIT Leg #1	100	FSL	360	FEL	26S	34E	32	Aliquot SENE	32.000546	-103.484506	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-9462	22671	12805
BHL Leg #1	20	FSL	360	FEL	26S	34E	32	Aliquot SENE	32.000325 5	-103.4844936	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-9462	22751	12805

APD ID: 10400035297 **Submission Date:** 10/18/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

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
1	---	3348	0	0	SANDSTONE,OTHER : SURFACE	NONE	No
2	RUSTLER	2650	697	697	SANDSTONE	NONE	No
3	TOP SALT	2279	1068	1068	SALT	NONE	No
4	BASE OF SALT	-1738	5085	5085	OTHER	NONE	No
5	BELL CANYON	-2005	5352	5352	SANDSTONE	NATURAL GAS,OIL	No
6	CHERRY CANYON	-3083	6430	6430	SANDSTONE	NATURAL GAS,OIL	No
7	BRUSHY CANYON	-4711	8058	8058	SANDSTONE	NATURAL GAS,OIL	No
8	BONE SPRINGS	-6278	9625	9625	SANDSTONE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-7248	10595	10595	SANDSTONE	NATURAL GAS,OIL	No
10	BONE SPRING 2ND	-7795	11142	11142	SANDSTONE	NATURAL GAS,OIL	No
11	BONE SPRING 3RD	-8867	12214	12214	SANDSTONE	NATURAL GAS,OIL	No
12	WOLFCAMP	-9285	12632	12632	SHALE	NATURAL GAS,OIL	Yes
13	STRAWN	-11661	15008	15008	LIMESTONE	NATURAL GAS,OIL	No

Section 2 - Blowout Prevention

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Pressure Rating (PSI): 10M **Rating Depth:** 12805

[redacted]

Requesting Variance? YES

[redacted]

Choke Diagram Attachment:

10M_BOPE_CHK_DR_CLS_RKL_20190305073832.pdf

BOP Diagram Attachment:

10M_BOPE_CHK_DR_CLS_RKL_20190305073843.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 12805

[redacted]

Requesting Variance? YES

[redacted]

Choke Diagram Attachment:

5M_BOPE_CK_20181009072557.pdf

BOP Diagram Attachment:

5M_BOPE_CK_20181009072606.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

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	14.75	10.75	NEW	API	N	0	725	0	725			725	J-55	40.5	STC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	12240	0	12240			12240	P-110	29.7	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
3	INTERMEDIATE	8.75	7.625	NEW	API	N	12240	13125	12240	12805			885	P-110	29.7	OTHER - FLUSHMAX	1.125	1.25	BUOY	1.6	BUOY	1.6
4	PRODUCTION	6.75	5.5	NEW	API	N	0	22751	0	12805			22751	P-110	20	OTHER - VAM SG	1.125	1.25	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_20181009072657.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181009072743.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181009073352.pdf

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20181009101033.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	0	0	0	0	0			0
SURFACE	Lead		0	725	451	1.34	14.8	605	50		1% Calcium Chloride
INTERMEDIATE	Lead		0	9125	749	3.27	9	2448	30		TUNED LIGHT
INTERMEDIATE	Tail		9125	13125	592	1.6	13.2	947	30	H	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		12925	22751	770.65	1.33	13.2	1025	25		0.125 lbs/sack Poly-E-Flake

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

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
13125	22751	OIL-BASED MUD	10	12				12			
0	725	SPUD MUD	8.33	9				2			
725	13125	SALT SATURATED	9	10				2			
725	13125	SALT SATURATED	9	10				2			

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,CBL,DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7000 **Anticipated Surface Pressure:** 4182.89

Anticipated Bottom Hole Temperature(F): 180

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:

Green_Wave_20_32_Fed_State_Com_10H_H2S_PLAN_20181017084009.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Green_Wave_20_32_Fed_State_Com_10H_DIR_SVY_20181017084031.pdf

Green_Wave_20_32_Fed_State_Com_10H_Plot_20181017084031.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

7.625_29.70_P110_Flushmax_20180823120159.pdf

MB_Wellhd_10M_20180823120206.pdf

Spudder_Rig_Info_20180823120206.pdf

5.5_x_20_P110_EC_VAMSG_20180823120158.PDF

MB_Wellhd_10M_2_20180823120321.PDF

Clsd_Loop_20180823120203.pdf

Green_Wave_20_32_Fed_WP20_10_GCP_Form_20181017084104.pdf

8.625_32.00_P110HSCY_TLW_20190305074100.PDF

10.750_40.50__J55_USS_20190305074100.PDF

13.375_48__H40_20190305074101.pdf

MB_Verb_10M_20190305074128.pdf

Green_Wave_20_32_Fed_State_Com_10H_Drilling_Document_R1_20190305075041.pdf

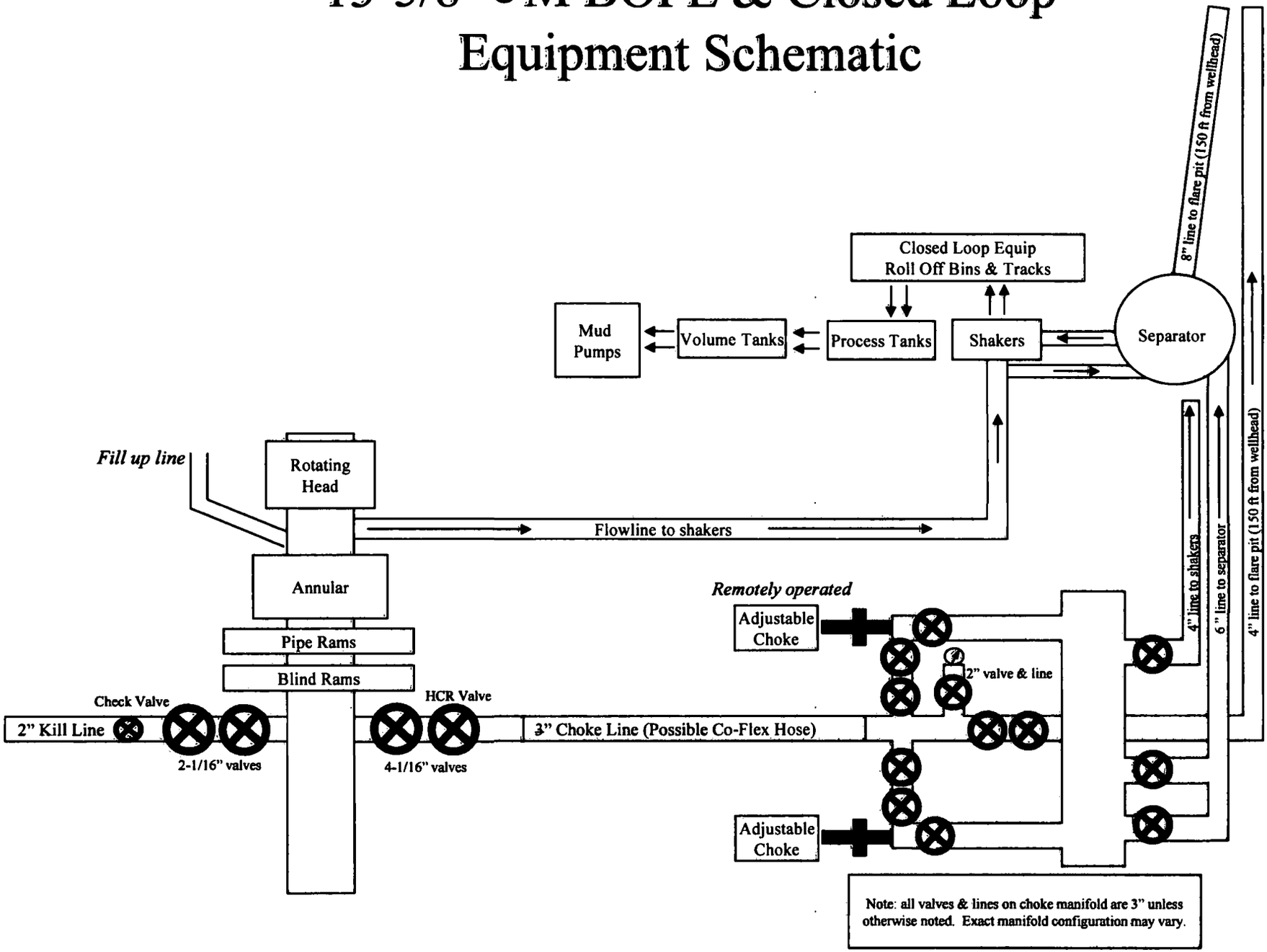
Other Variance attachment:

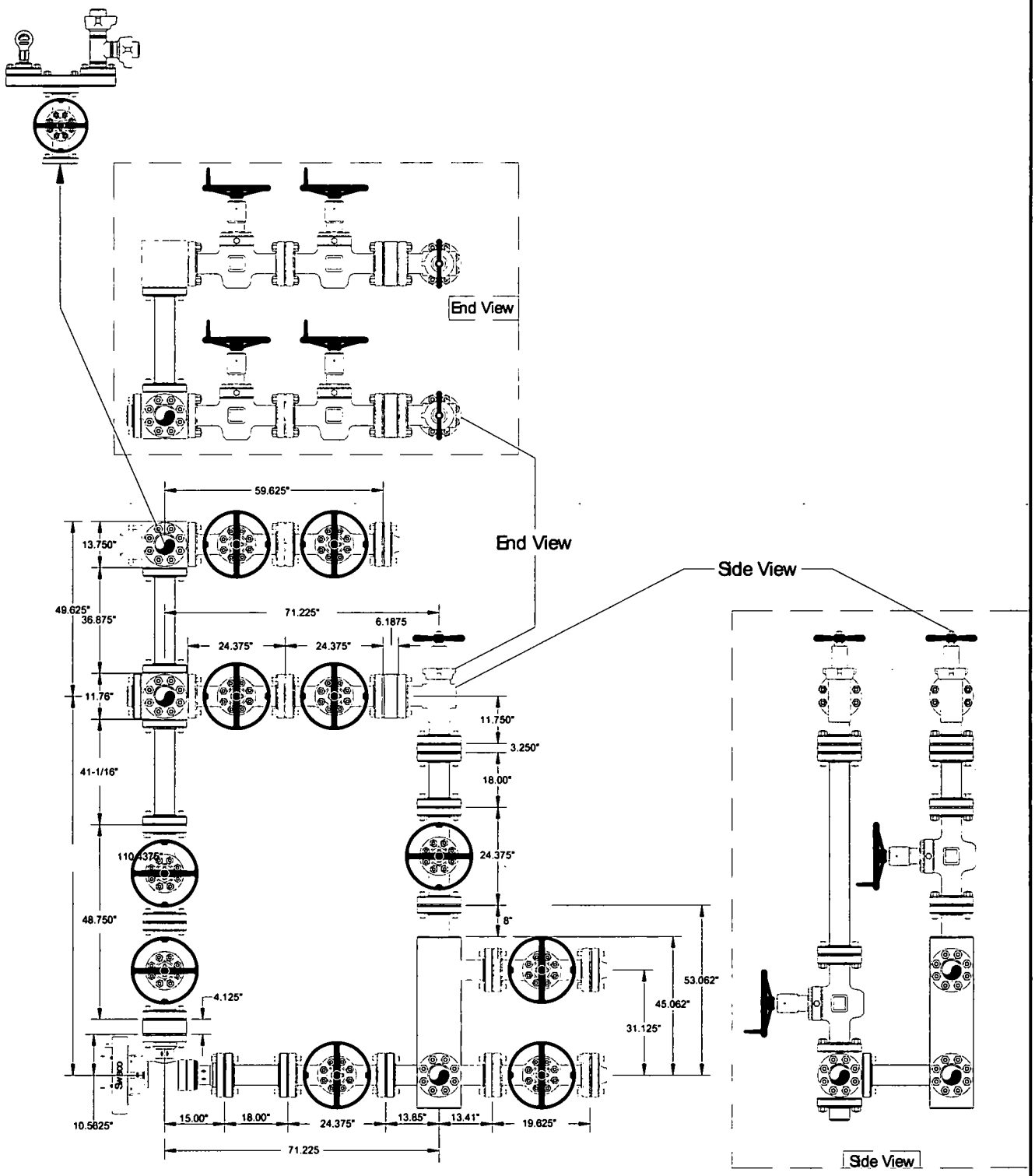
Co_flex_20180823120220.pdf

10M_BOPE_CHK_DR_CLS_RKL_20190305074010.pdf

Annular_Preventer_Summary_20190305074011.pdf

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





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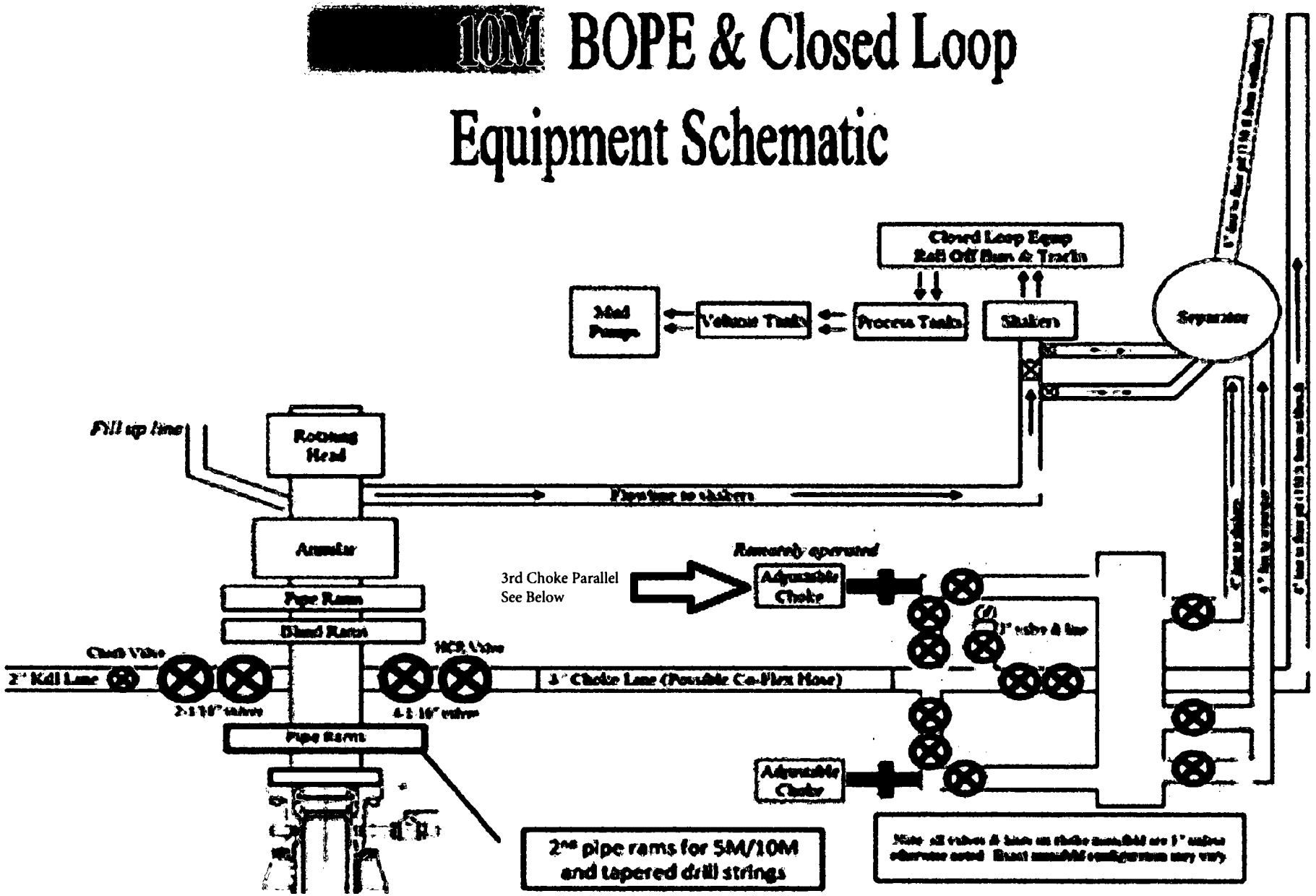
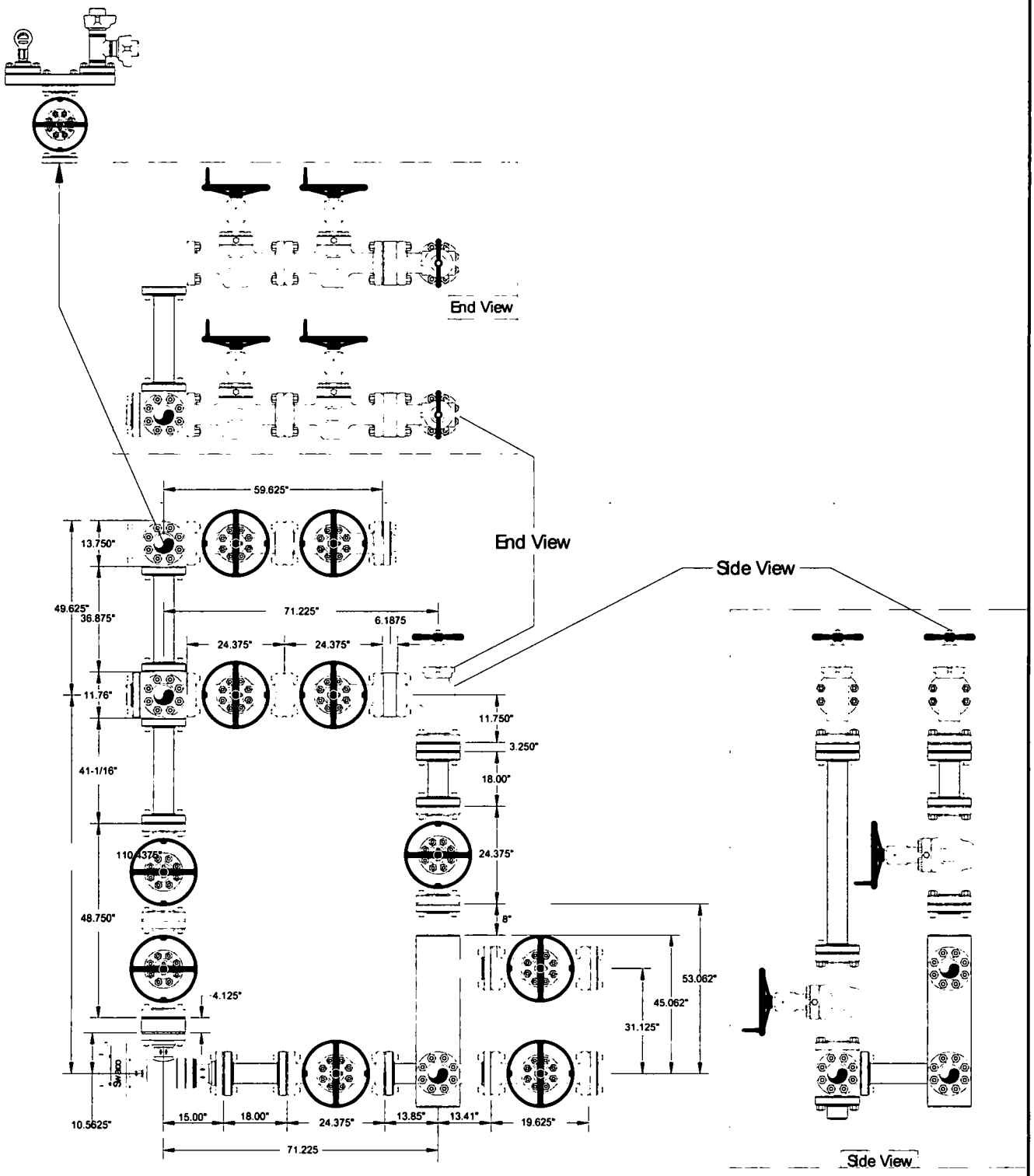
Rig 282

CAMERON

Name: Jeanette	Date 7-19-06	Working Pressure	#	J-5132-E

[redacted] 10M BOPE & Closed Loop Equipment Schematic





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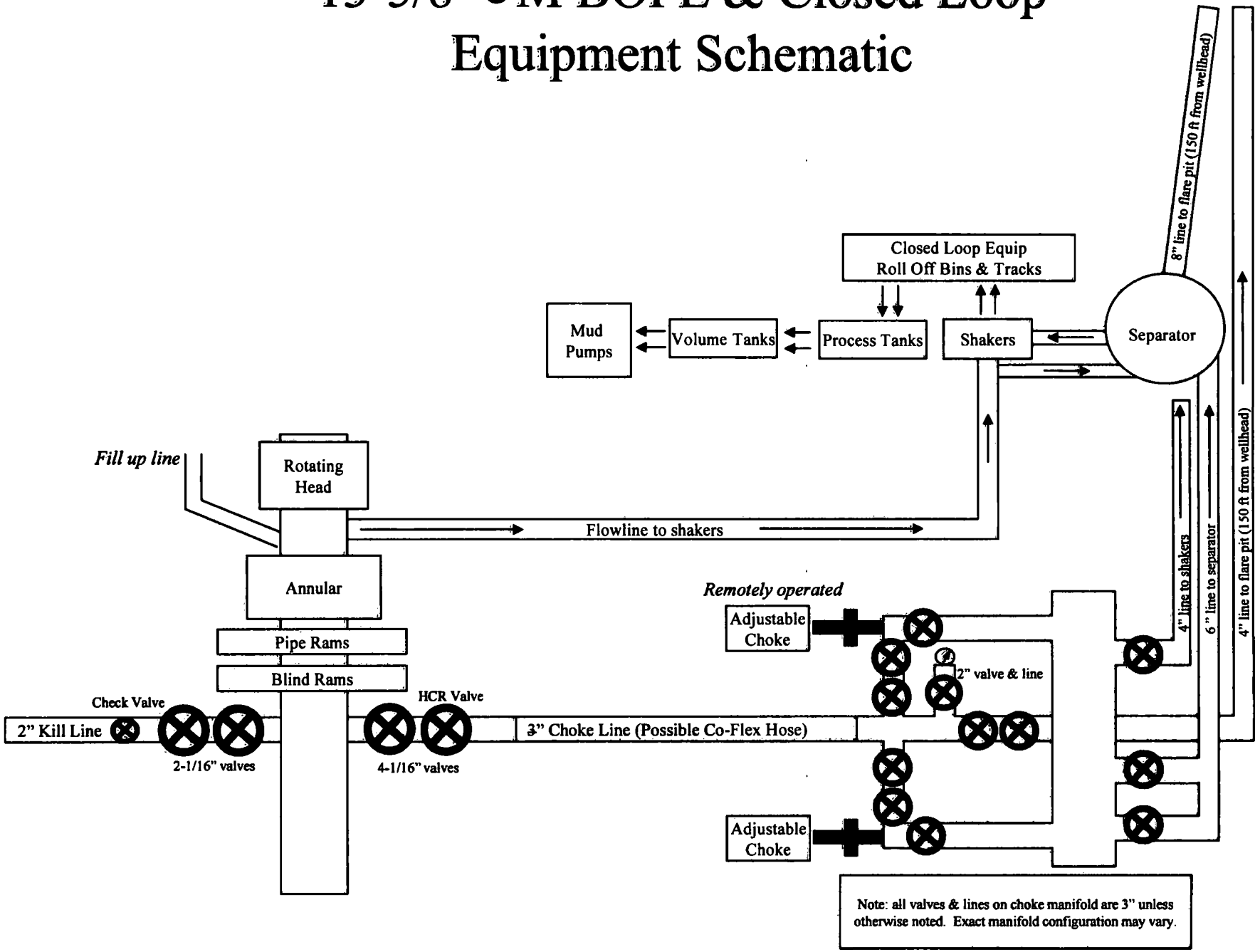
Rig 282

CAMERON

Name: Jeanette	Date: 7-19-06	Working Pressure	# J-5132-E

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



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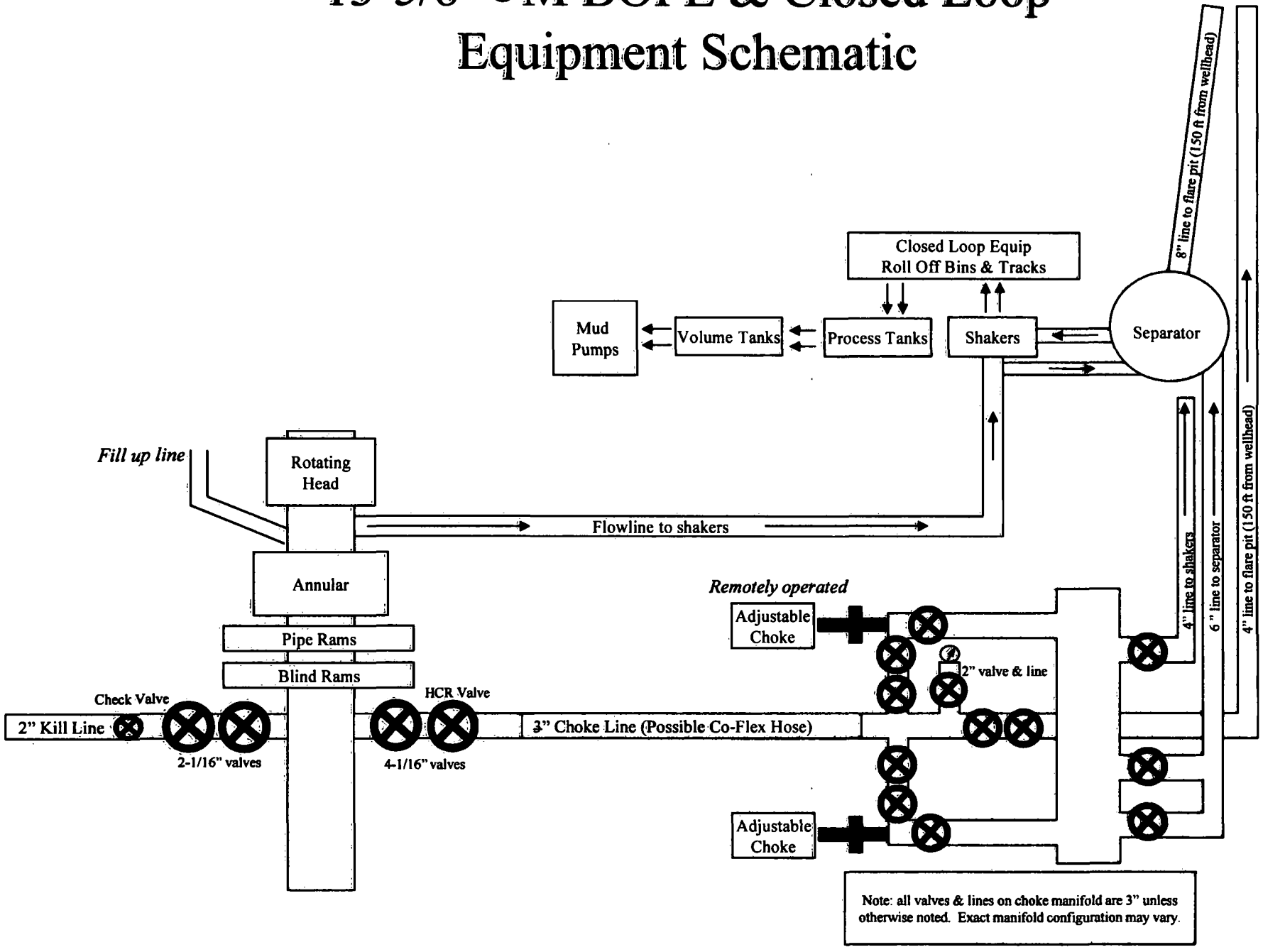
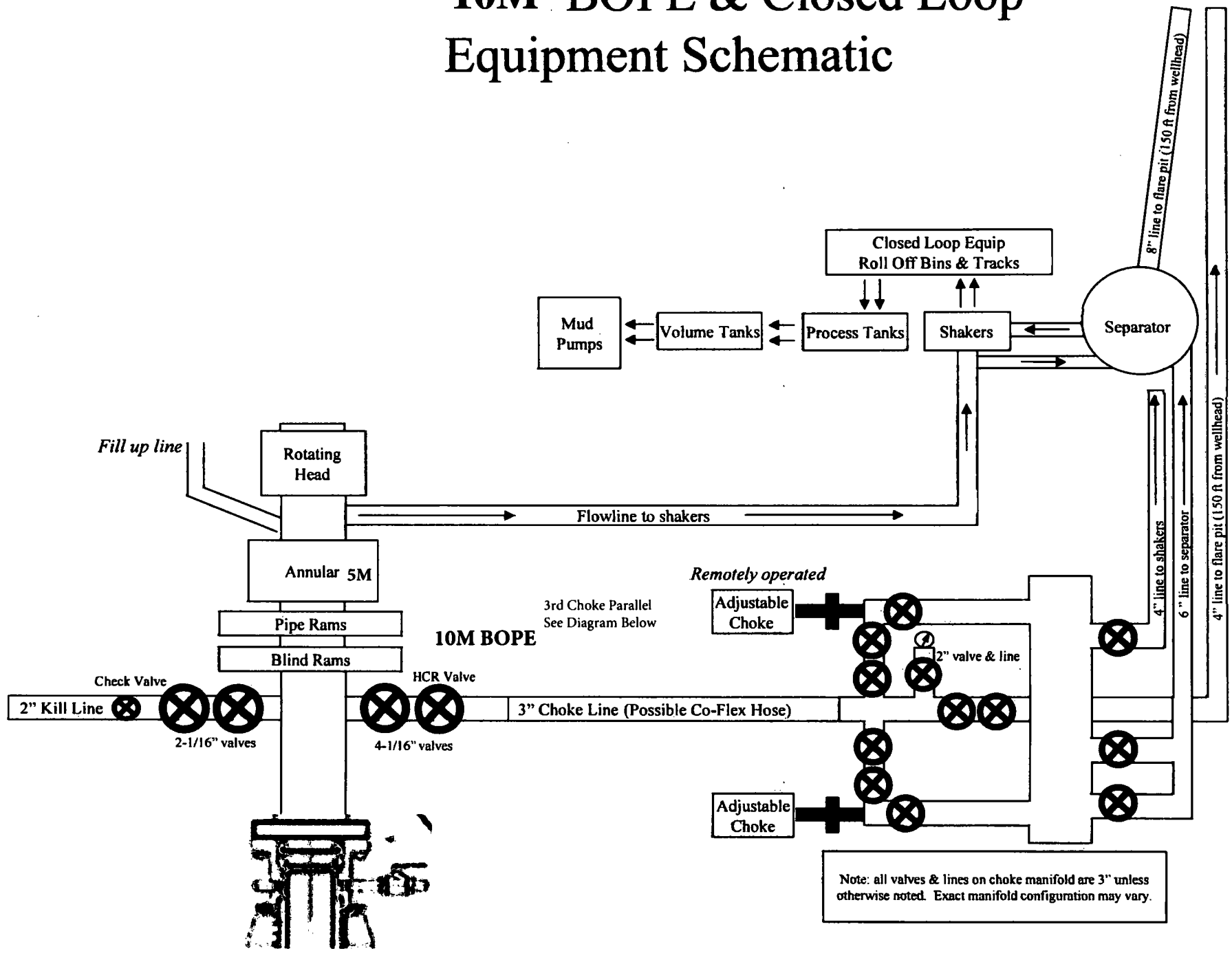
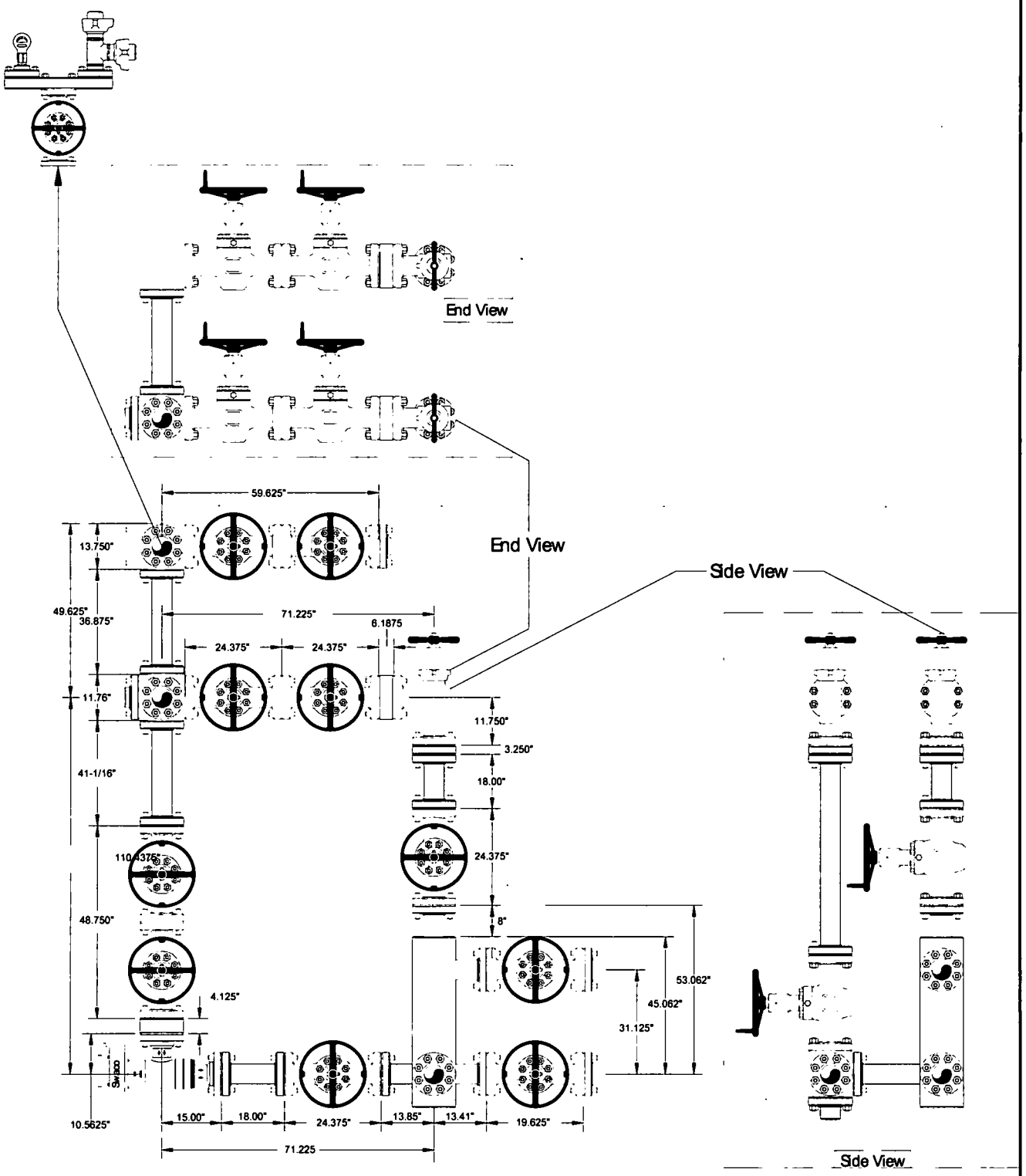


10M BOPE & Closed Loop Equipment Schematic





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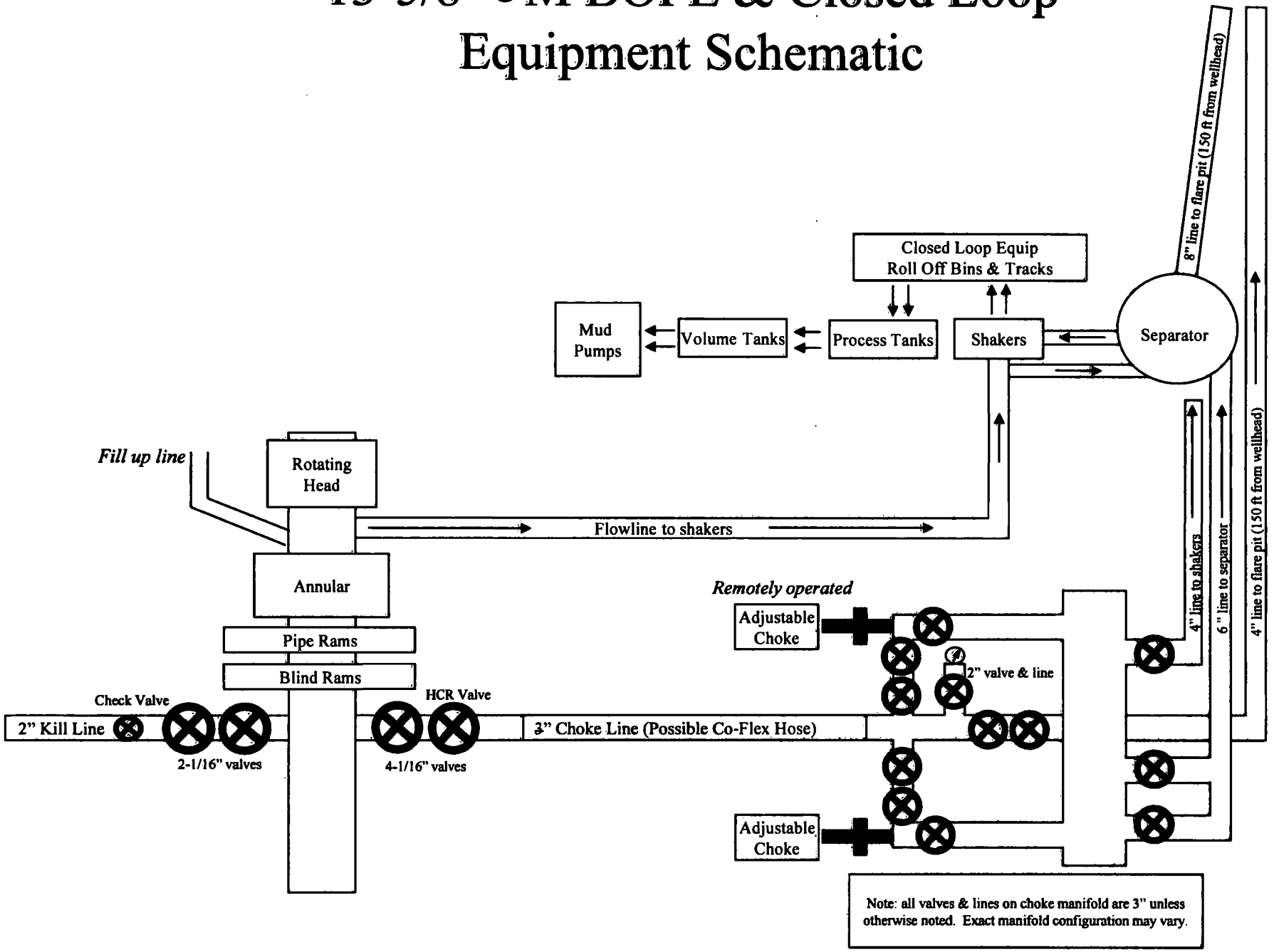
CAMERON

Name	Jeanette	Date	7-19-06	Working Pressure	#	J-5132-E

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



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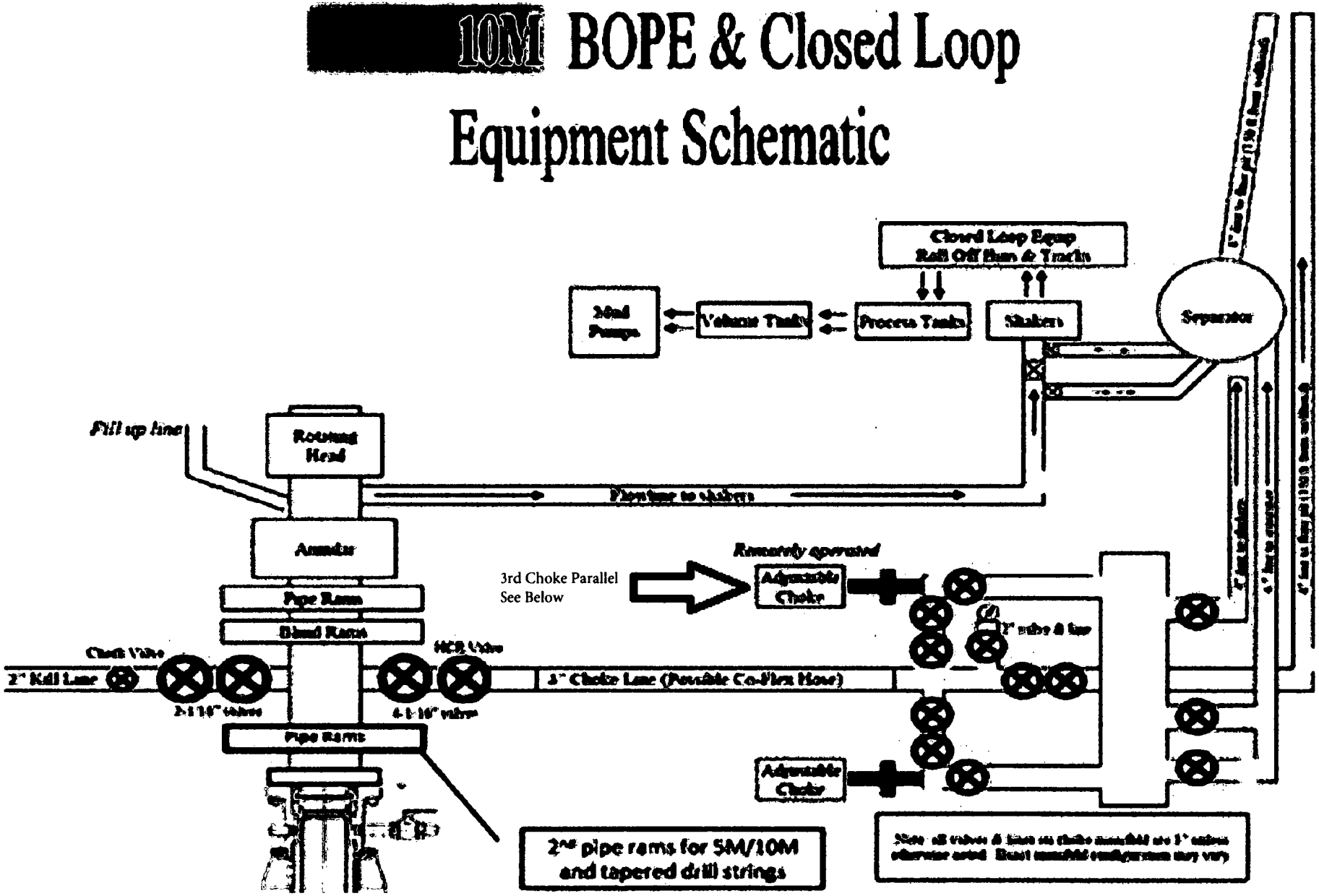

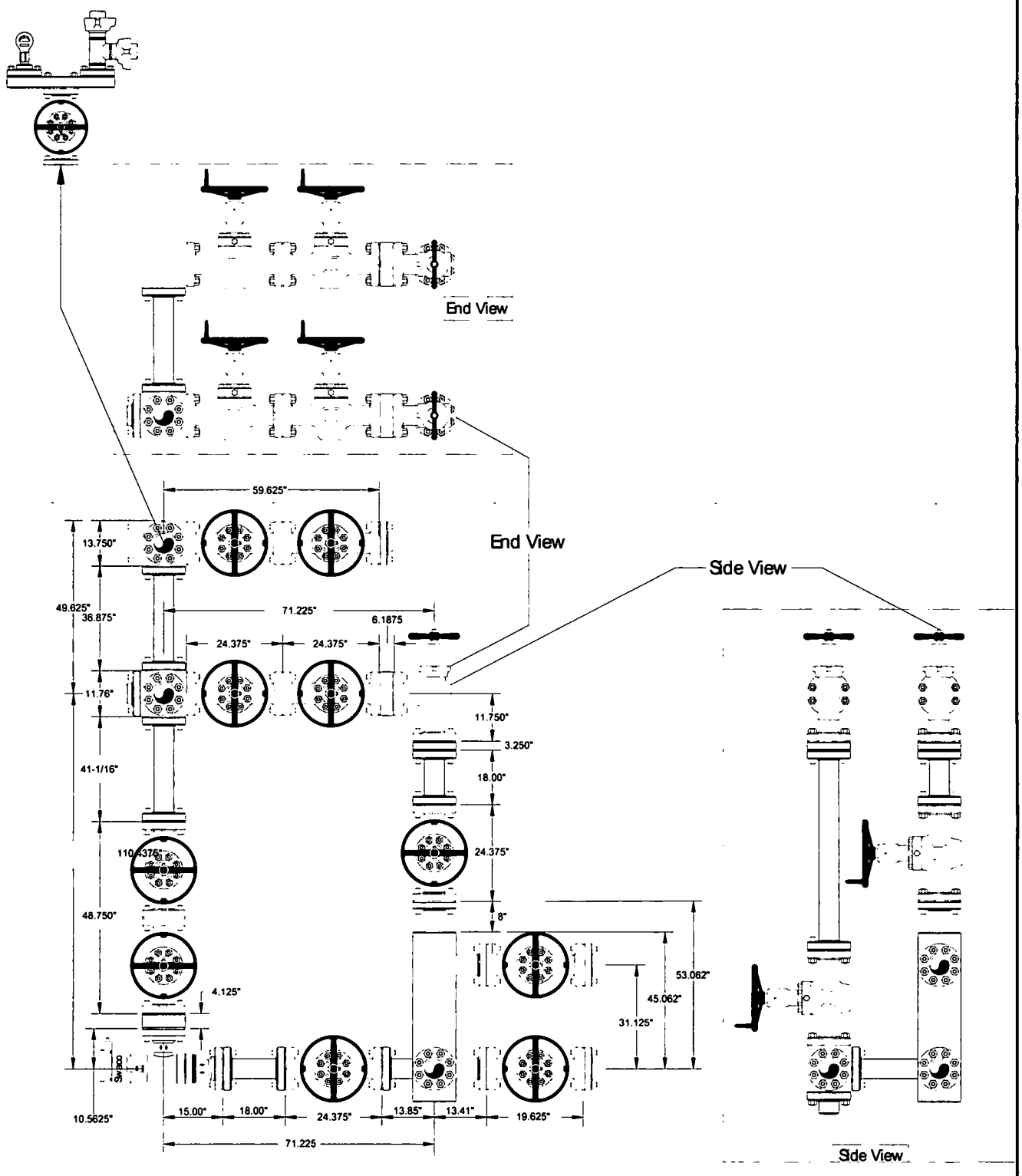

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Name	Jeanette	Date	7-19-06	Working Pressure	#	J-5132-E

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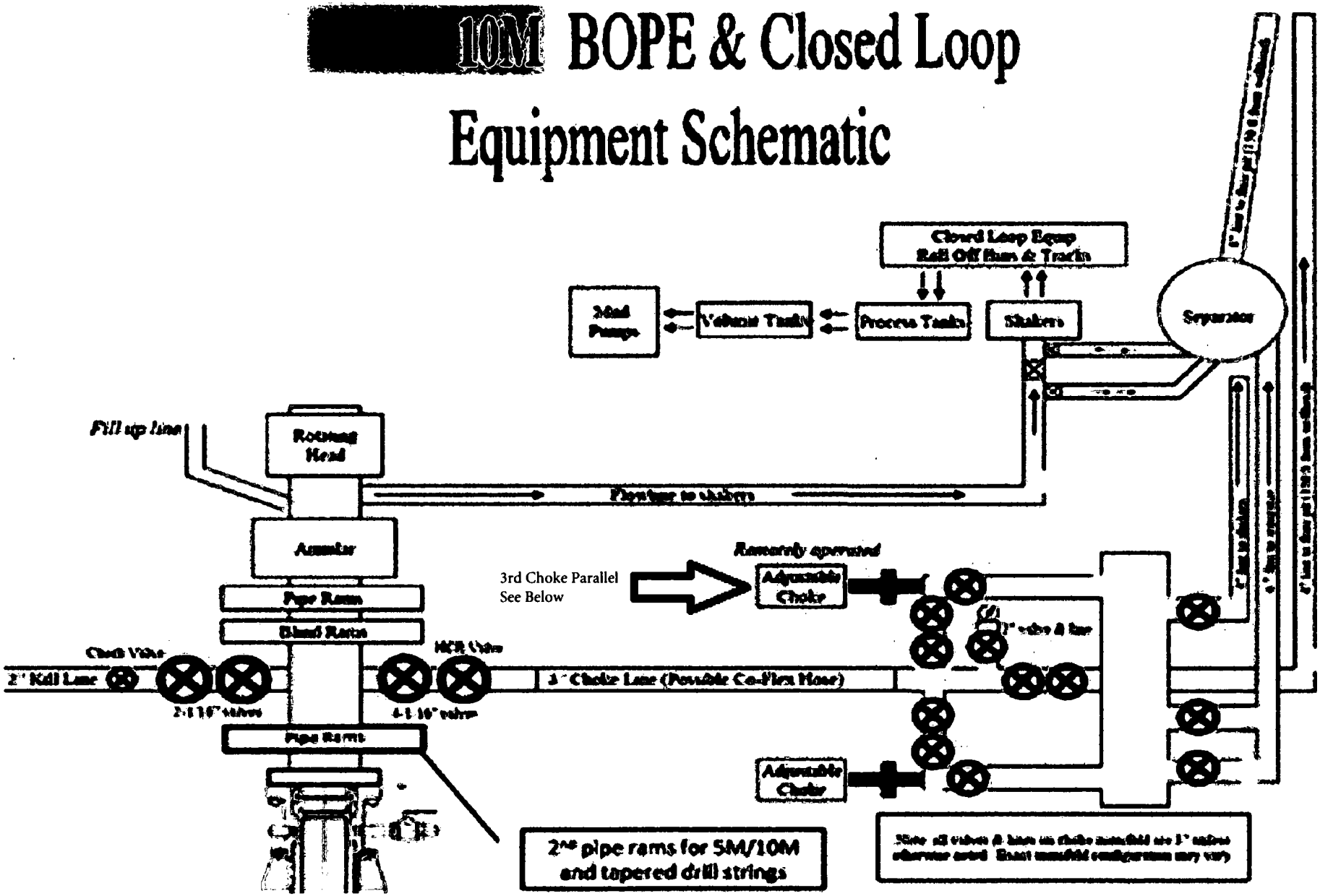

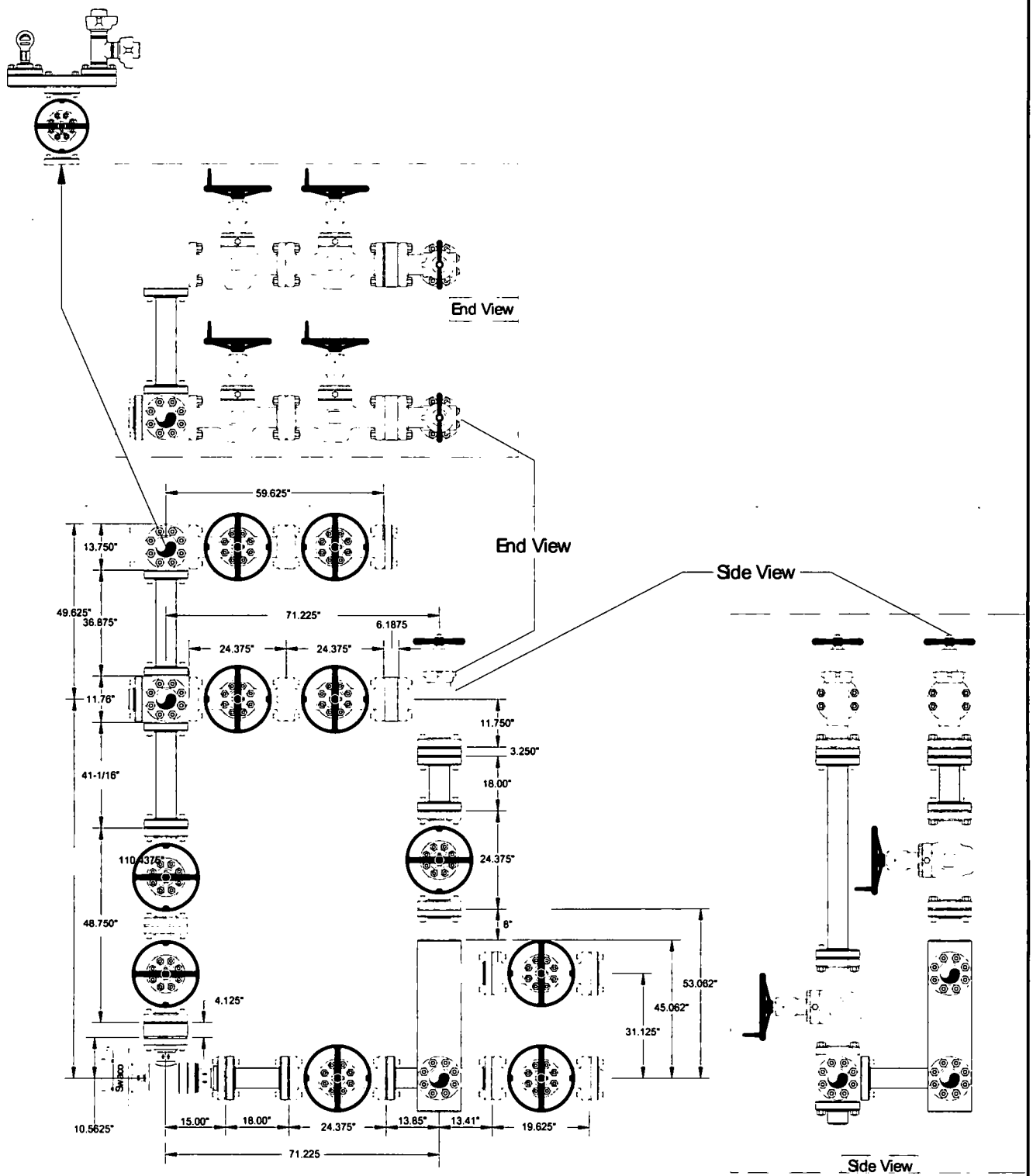

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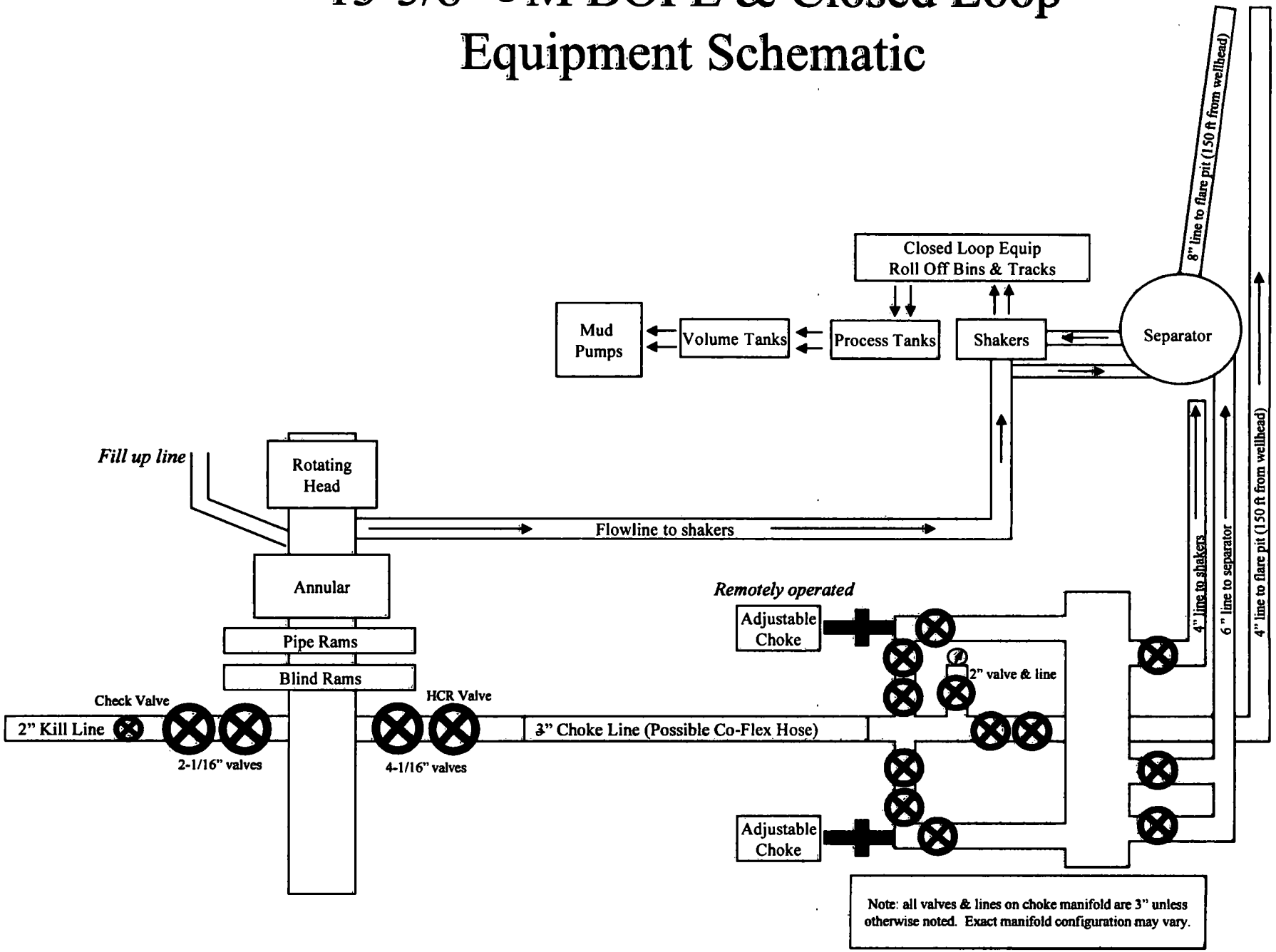
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



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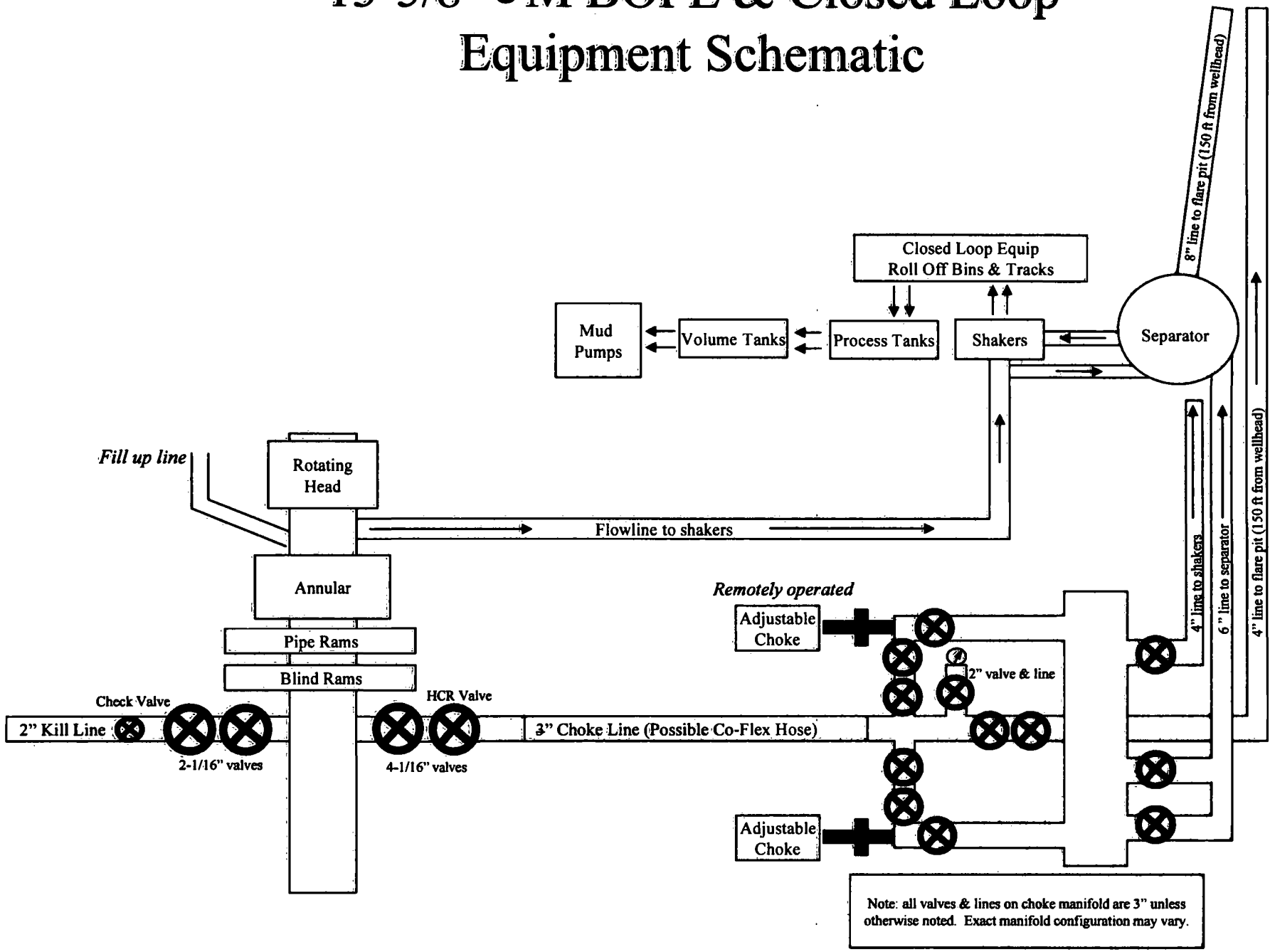
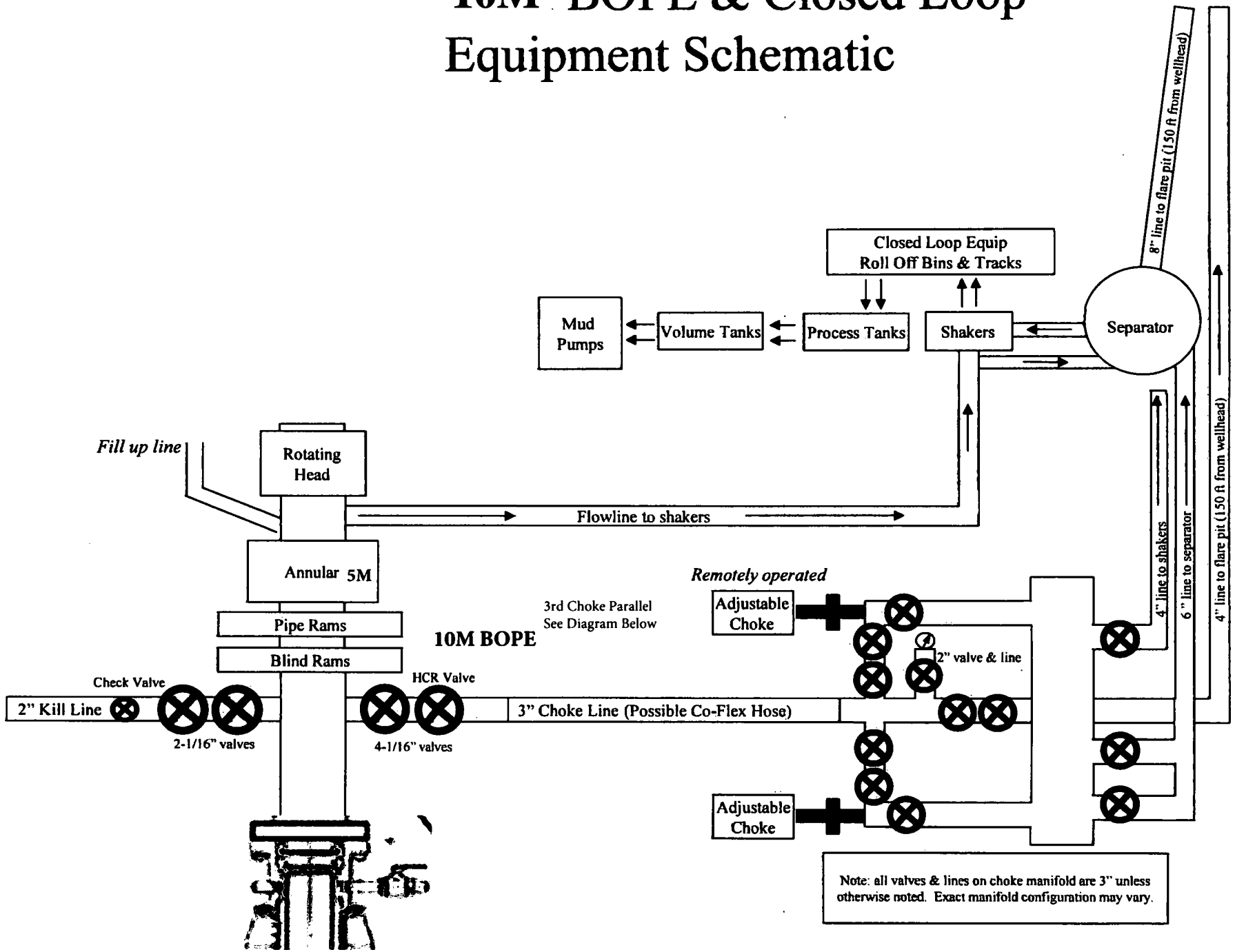
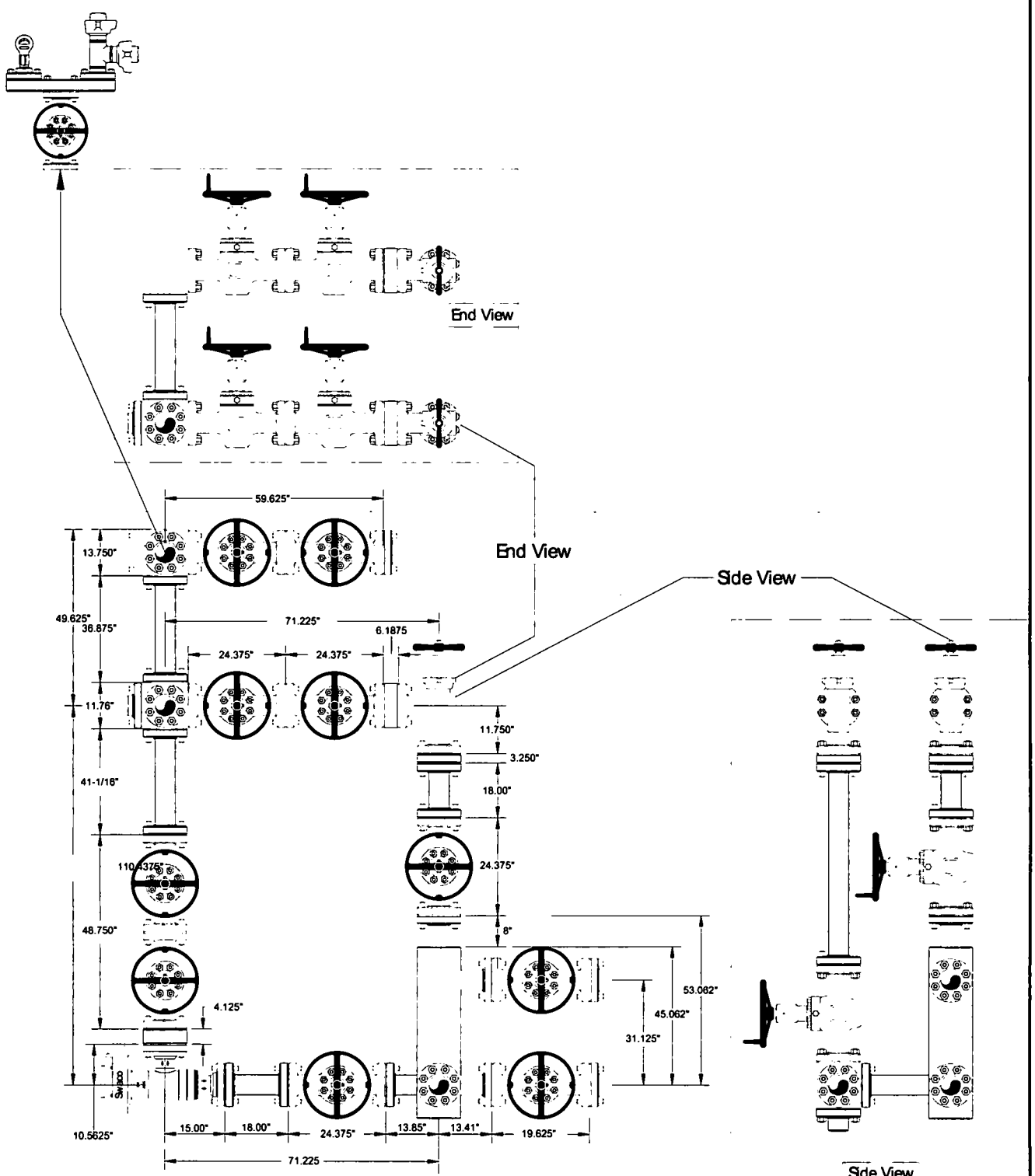


10M BOPE & Closed Loop Equipment Schematic





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CAMERON

Name	Jeanette	Date	7-19-06	Working Pressure	#	J-5132-E

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

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

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

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

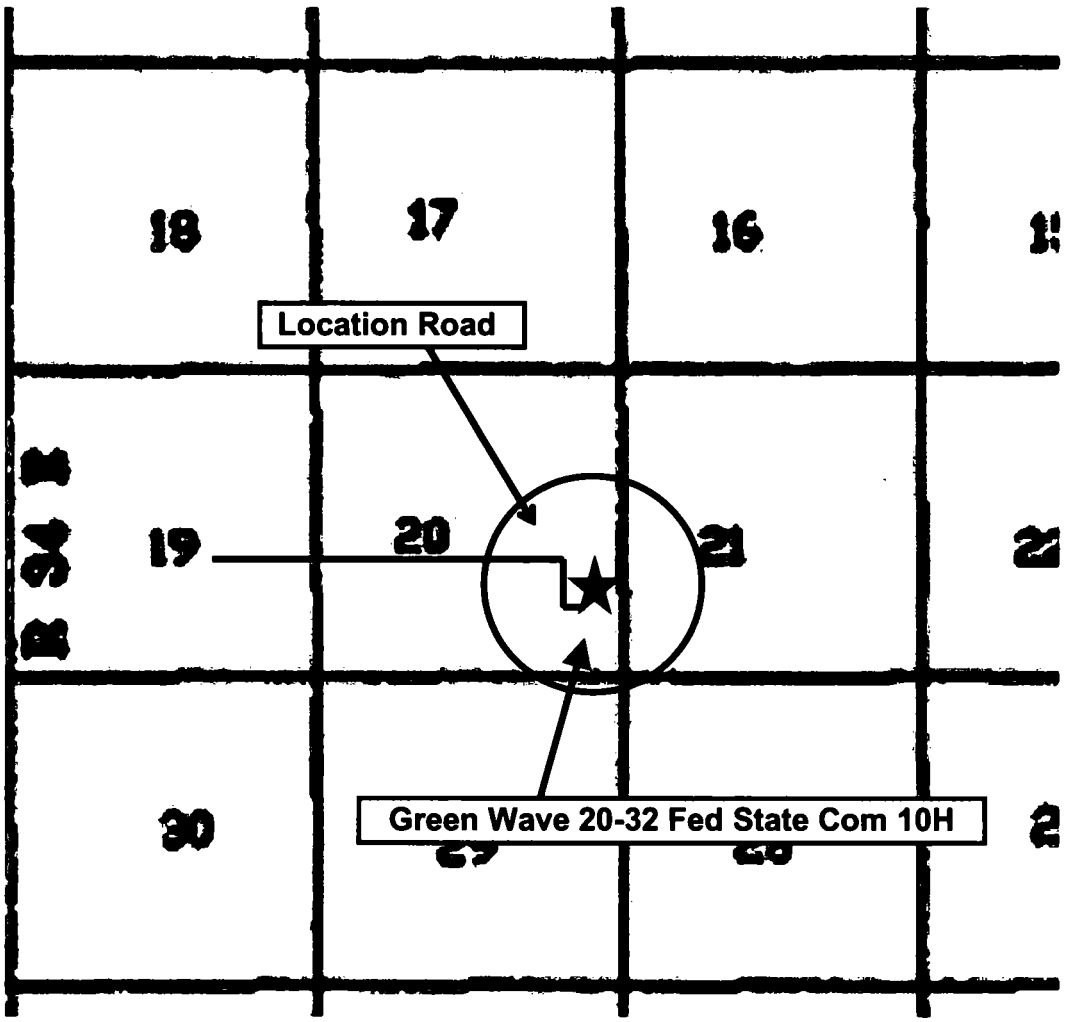
Green Wave 20-32 Fed State Com 10H

Sec-20 T-26S R-34E
2424' FSL & 299' FEL
LAT. = 32.0283305' N (NAD83)
LONG = 103.4843193' W

Lea County NM

Green Wave 20-32 Fed State Com 10H

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



Assumed 100 ppm ROE = **3000'** (Radius of Exposure)
100 ppm H2S concentration shall trigger activation of this plan.

Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H_2S and SO_2

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

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H_2S) TRAINING

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

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

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

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

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

II. HYDROGEN SULFIDE TRAINING

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

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold – Remotely Operated

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

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

   E. Mud/Gas Separator

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

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

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

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

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

   Visual warning systems:

   A. Wind direction indicators as shown on well site diagram

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

4. **Mud program:**

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

5. **Metallurgy:**

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

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

6. **Communication:**

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

   B. Land line (telephone) communications at Office

7. **Well testing:**

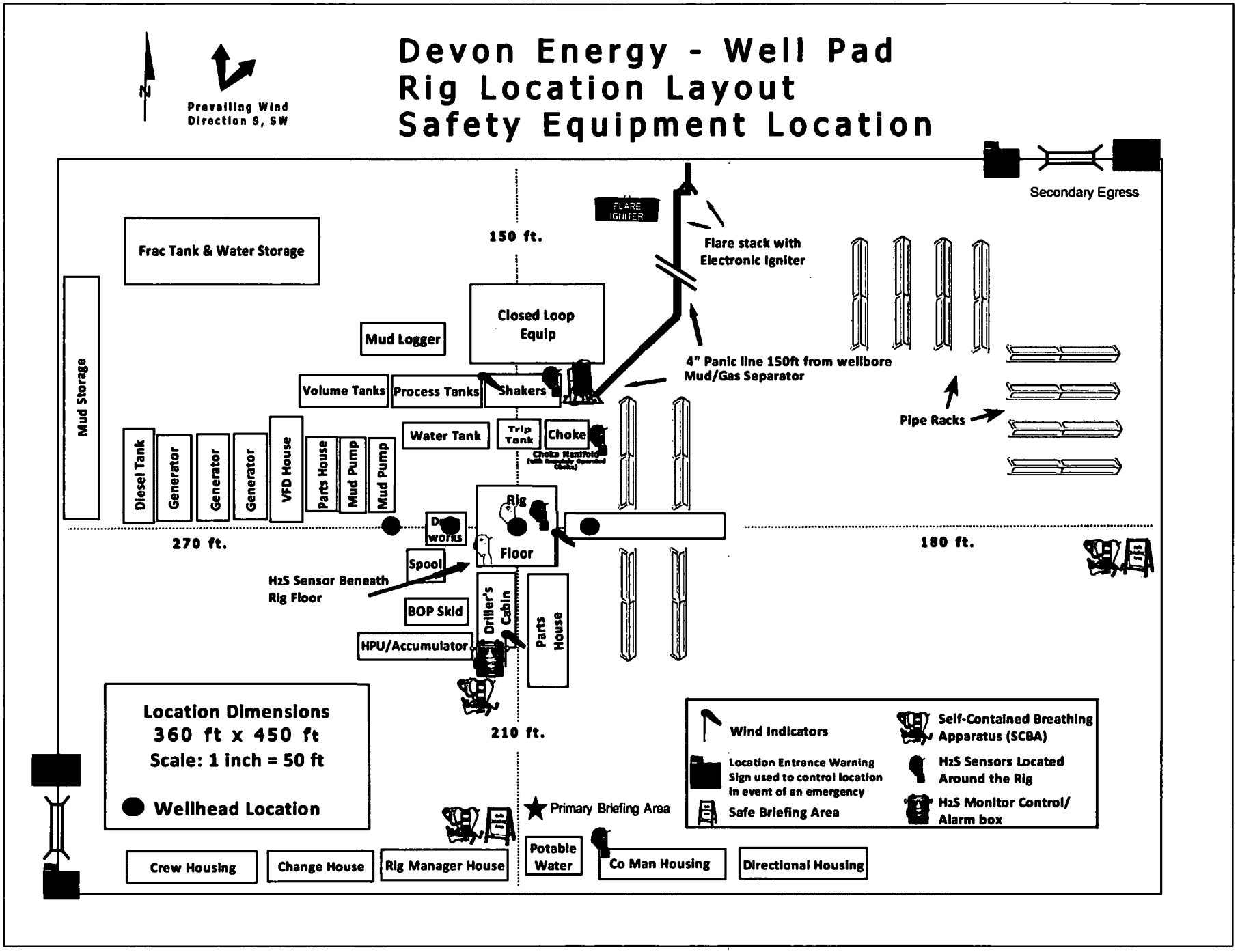
   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing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

   B. There will be no drill stem testing.

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

Prepared in conjunction with
Dave Small SHARP communications and consulting

Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location



WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 20-T26S-R34E
Green Wave 20-32 Fed State Com 10H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

26 September, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Green Wave 20-32 Fed State Com 10H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3368.10ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3368.10ft
Site:	Sec 20-T26S-R34E	**North Reference:**	Grid
Well:	Green Wave 20-32 Fed State Com 10H	**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 20-T26S-R34E

Site Position:		**Northing:**	375,305.15 usft	**Latitude:**	32.028952
From:	Map	**Easting:**	804,412.02 usft	**Longitude:**	-103.484420
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.45 °

Well Green Wave 20-32 Fed State Com 10H

Well Position	**+N/-S**	0.00 ft	**Northing:**	375,079.16 usft	**Latitude:**	32.028331
	+E/-W	0.00 ft	**Easting:**	804,444.99 usft	**Longitude:**	-103.484320
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,343.10 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/25/2018	6.76	59.88	47,700.74059341

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	179.88

Plan Survey Tool Program Date 9/26/2018

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,751.37	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	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,831.61	0.32	270.00	2,831.61	0.00	-0.09	1.00	1.00	0.00	270.00	
11,869.07	0.32	270.00	11,868.93	0.00	-49.94	0.00	0.00	0.00	0.00	
11,890.14	0.00	0.00	11,890.00	0.00	-50.00	1.50	-1.50	0.00	180.00	
12,240.18	0.00	0.00	12,240.04	0.00	-50.00	0.00	0.00	0.00	0.00	
13,127.98	90.04	181.01	12,805.00	-565.24	-59.93	10.14	10.14	0.00	181.01	
13,142.75	90.00	179.51	12,805.00	-580.00	-60.00	10.14	-0.25	-10.14	-91.39	
22,751.40	90.00	179.51	12,805.00	-10,188.30	22.17	0.00	0.00	0.00	0.00	PBHL - Green Wave 2

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Green Wave 20-32 Fed State Com 10H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3368.10ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3368.10ft
Site:	Sec 20-T26S-R34E	**North Reference:**	Grid
Well:	Green Wave 20-32 Fed State Com 10H	**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	375,079.16	804,444.99	32.028331	-103.484320
100.00	0.00	0.00	100.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
200.00	0.00	0.00	200.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
300.00	0.00	0.00	300.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
400.00	0.00	0.00	400.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
500.00	0.00	0.00	500.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
600.00	0.00	0.00	600.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
700.00	0.00	0.00	700.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
800.00	0.00	0.00	800.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
900.00	0.00	0.00	900.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,000.00	0.00	0.00	1,000.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,100.00	0.00	0.00	1,100.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,200.00	0.00	0.00	1,200.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,300.00	0.00	0.00	1,300.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,400.00	0.00	0.00	1,400.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,500.00	0.00	0.00	1,500.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,600.00	0.00	0.00	1,600.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,700.00	0.00	0.00	1,700.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,800.00	0.00	0.00	1,800.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
1,900.00	0.00	0.00	1,900.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,000.00	0.00	0.00	2,000.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,100.00	0.00	0.00	2,100.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,200.00	0.00	0.00	2,200.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,300.00	0.00	0.00	2,300.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,400.00	0.00	0.00	2,400.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,500.00	0.00	0.00	2,500.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,600.00	0.00	0.00	2,600.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,700.00	0.00	0.00	2,700.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,800.00	0.00	0.00	2,800.00	0.00	0.00	375,079.16	804,444.99	32.028331	-103.484320
2,831.61	0.32	270.00	2,831.61	0.00	-0.09	375,079.16	804,444.90	32.028331	-103.484320
2,900.00	0.32	270.00	2,900.00	0.00	-0.46	375,079.16	804,444.52	32.028331	-103.484321
3,000.00	0.32	270.00	3,000.00	0.00	-1.02	375,079.16	804,443.97	32.028331	-103.484323
3,100.00	0.32	270.00	3,100.00	0.00	-1.57	375,079.16	804,443.42	32.028331	-103.484325
3,200.00	0.32	270.00	3,199.99	0.00	-2.12	375,079.16	804,442.87	32.028331	-103.484326
3,300.00	0.32	270.00	3,299.99	0.00	-2.67	375,079.16	804,442.32	32.028331	-103.484328
3,400.00	0.32	270.00	3,399.99	0.00	-3.22	375,079.16	804,441.77	32.028331	-103.484330
3,500.00	0.32	270.00	3,499.99	0.00	-3.77	375,079.16	804,441.21	32.028331	-103.484332
3,600.00	0.32	270.00	3,599.99	0.00	-4.33	375,079.16	804,440.66	32.028331	-103.484334
3,700.00	0.32	270.00	3,699.99	0.00	-4.88	375,079.16	804,440.11	32.028331	-103.484335
3,800.00	0.32	270.00	3,799.99	0.00	-5.43	375,079.16	804,439.56	32.028331	-103.484337
3,900.00	0.32	270.00	3,899.98	0.00	-5.98	375,079.16	804,439.01	32.028331	-103.484339
4,000.00	0.32	270.00	3,999.98	0.00	-6.53	375,079.16	804,438.46	32.028331	-103.484341
4,100.00	0.32	270.00	4,099.98	0.00	-7.08	375,079.16	804,437.90	32.028331	-103.484342
4,200.00	0.32	270.00	4,199.98	0.00	-7.64	375,079.16	804,437.35	32.028331	-103.484344
4,300.00	0.32	270.00	4,299.98	0.00	-8.19	375,079.16	804,436.80	32.028331	-103.484346
4,400.00	0.32	270.00	4,399.98	0.00	-8.74	375,079.16	804,436.25	32.028331	-103.484348
4,500.00	0.32	270.00	4,499.97	0.00	-9.29	375,079.16	804,435.70	32.028331	-103.484350
4,600.00	0.32	270.00	4,599.97	0.00	-9.84	375,079.16	804,435.15	32.028331	-103.484351
4,700.00	0.32	270.00	4,699.97	0.00	-10.39	375,079.16	804,434.59	32.028331	-103.484353
4,800.00	0.32	270.00	4,799.97	0.00	-10.95	375,079.16	804,434.04	32.028331	-103.484355
4,900.00	0.32	270.00	4,899.97	0.00	-11.50	375,079.16	804,433.49	32.028331	-103.484357
5,000.00	0.32	270.00	4,999.97	0.00	-12.05	375,079.16	804,432.94	32.028331	-103.484358
5,100.00	0.32	270.00	5,099.97	0.00	-12.60	375,079.16	804,432.39	32.028331	-103.484360
5,200.00	0.32	270.00	5,199.96	0.00	-13.15	375,079.16	804,431.84	32.028331	-103.484362
5,300.00	0.32	270.00	5,299.96	0.00	-13.70	375,079.16	804,431.28	32.028331	-103.484364

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Green Wave 20-32 Fed State Com 10H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3368.10ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3368.10ft
Site:	Sec 20-T26S-R34E	**North Reference:**	Grid
Well:	Green Wave 20-32 Fed State Com 10H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	0.32	270.00	5,399.96	0.00	-14.26	375,079.16	804,430.73	32.028331	-103.484366
5,500.00	0.32	270.00	5,499.96	0.00	-14.81	375,079.16	804,430.18	32.028331	-103.484367
5,600.00	0.32	270.00	5,599.96	0.00	-15.36	375,079.16	804,429.63	32.028331	-103.484369
5,700.00	0.32	270.00	5,699.96	0.00	-15.91	375,079.16	804,429.08	32.028331	-103.484371
5,800.00	0.32	270.00	5,799.95	0.00	-16.46	375,079.16	804,428.53	32.028331	-103.484373
5,900.00	0.32	270.00	5,899.95	0.00	-17.01	375,079.16	804,427.97	32.028331	-103.484375
6,000.00	0.32	270.00	5,999.95	0.00	-17.57	375,079.16	804,427.42	32.028331	-103.484376
6,100.00	0.32	270.00	6,099.95	0.00	-18.12	375,079.16	804,426.87	32.028331	-103.484378
6,200.00	0.32	270.00	6,199.95	0.00	-18.67	375,079.16	804,426.32	32.028331	-103.484380
6,300.00	0.32	270.00	6,299.95	0.00	-19.22	375,079.16	804,425.77	32.028331	-103.484382
6,400.00	0.32	270.00	6,399.95	0.00	-19.77	375,079.16	804,425.22	32.028331	-103.484383
6,500.00	0.32	270.00	6,499.94	0.00	-20.32	375,079.16	804,424.66	32.028331	-103.484385
6,600.00	0.32	270.00	6,599.94	0.00	-20.88	375,079.16	804,424.11	32.028331	-103.484387
6,700.00	0.32	270.00	6,699.94	0.00	-21.43	375,079.16	804,423.56	32.028331	-103.484389
6,800.00	0.32	270.00	6,799.94	0.00	-21.98	375,079.16	804,423.01	32.028331	-103.484391
6,900.00	0.32	270.00	6,899.94	0.00	-22.53	375,079.16	804,422.46	32.028331	-103.484392
7,000.00	0.32	270.00	6,999.94	0.00	-23.08	375,079.16	804,421.91	32.028331	-103.484394
7,100.00	0.32	270.00	7,099.94	0.00	-23.63	375,079.16	804,421.35	32.028331	-103.484396
7,200.00	0.32	270.00	7,199.93	0.00	-24.19	375,079.16	804,420.80	32.028331	-103.484398
7,300.00	0.32	270.00	7,299.93	0.00	-24.74	375,079.16	804,420.25	32.028331	-103.484399
7,400.00	0.32	270.00	7,399.93	0.00	-25.29	375,079.16	804,419.70	32.028331	-103.484401
7,500.00	0.32	270.00	7,499.93	0.00	-25.84	375,079.16	804,419.15	32.028331	-103.484403
7,600.00	0.32	270.00	7,599.93	0.00	-26.39	375,079.16	804,418.60	32.028331	-103.484405
7,700.00	0.32	270.00	7,699.93	0.00	-26.94	375,079.16	804,418.04	32.028331	-103.484407
7,800.00	0.32	270.00	7,799.92	0.00	-27.50	375,079.16	804,417.49	32.028331	-103.484408
7,900.00	0.32	270.00	7,899.92	0.00	-28.05	375,079.16	804,416.94	32.028331	-103.484410
8,000.00	0.32	270.00	7,999.92	0.00	-28.60	375,079.16	804,416.39	32.028331	-103.484412
8,100.00	0.32	270.00	8,099.92	0.00	-29.15	375,079.16	804,415.84	32.028331	-103.484414
8,200.00	0.32	270.00	8,199.92	0.00	-29.70	375,079.16	804,415.29	32.028331	-103.484415
8,300.00	0.32	270.00	8,299.92	0.00	-30.25	375,079.16	804,414.73	32.028331	-103.484417
8,400.00	0.32	270.00	8,399.92	0.00	-30.80	375,079.16	804,414.18	32.028331	-103.484419
8,500.00	0.32	270.00	8,499.91	0.00	-31.36	375,079.16	804,413.63	32.028331	-103.484421
8,600.00	0.32	270.00	8,599.91	0.00	-31.91	375,079.16	804,413.08	32.028331	-103.484423
8,700.00	0.32	270.00	8,699.91	0.00	-32.46	375,079.16	804,412.53	32.028331	-103.484424
8,800.00	0.32	270.00	8,799.91	0.00	-33.01	375,079.16	804,411.98	32.028331	-103.484426
8,900.00	0.32	270.00	8,899.91	0.00	-33.56	375,079.16	804,411.42	32.028331	-103.484428
9,000.00	0.32	270.00	8,999.91	0.00	-34.11	375,079.16	804,410.87	32.028331	-103.484430
9,100.00	0.32	270.00	9,099.90	0.00	-34.67	375,079.16	804,410.32	32.028331	-103.484431
9,200.00	0.32	270.00	9,199.90	0.00	-35.22	375,079.16	804,409.77	32.028331	-103.484433
9,300.00	0.32	270.00	9,299.90	0.00	-35.77	375,079.16	804,409.22	32.028331	-103.484435
9,400.00	0.32	270.00	9,399.90	0.00	-36.32	375,079.16	804,408.67	32.028331	-103.484437
9,500.00	0.32	270.00	9,499.90	0.00	-36.87	375,079.16	804,408.12	32.028331	-103.484439
9,600.00	0.32	270.00	9,599.90	0.00	-37.42	375,079.16	804,407.56	32.028331	-103.484440
9,700.00	0.32	270.00	9,699.90	0.00	-37.98	375,079.16	804,407.01	32.028331	-103.484442
9,800.00	0.32	270.00	9,799.89	0.00	-38.53	375,079.16	804,406.46	32.028331	-103.484444
9,900.00	0.32	270.00	9,899.89	0.00	-39.08	375,079.16	804,405.91	32.028331	-103.484446
10,000.00	0.32	270.00	9,999.89	0.00	-39.63	375,079.16	804,405.36	32.028331	-103.484447
10,100.00	0.32	270.00	10,099.89	0.00	-40.18	375,079.16	804,404.81	32.028331	-103.484449
10,200.00	0.32	270.00	10,199.89	0.00	-40.73	375,079.16	804,404.25	32.028331	-103.484451
10,300.00	0.32	270.00	10,299.89	0.00	-41.29	375,079.16	804,403.70	32.028331	-103.484453
10,400.00	0.32	270.00	10,399.88	0.00	-41.84	375,079.16	804,403.15	32.028331	-103.484455
10,500.00	0.32	270.00	10,499.88	0.00	-42.39	375,079.16	804,402.60	32.028331	-103.484456
10,600.00	0.32	270.00	10,599.88	0.00	-42.94	375,079.16	804,402.05	32.028332	-103.484458
10,700.00	0.32	270.00	10,699.88	0.00	-43.49	375,079.16	804,401.50	32.028332	-103.484460
10,800.00	0.32	270.00	10,799.88	0.00	-44.04	375,079.16	804,400.94	32.028332	-103.484462

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Green Wave 20-32 Fed State Com 10H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3368.10ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3368.10ft
Site:	Sec 20-T26S-R34E	**North Reference:**	Grid
Well:	Green Wave 20-32 Fed State Com 10H	**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
10,900.00	0.32	270.00	10,899.88	0.00	-44.60	375,079.16	804,400.39	32.028332	-103.484464
11,000.00	0.32	270.00	10,999.88	0.00	-45.15	375,079.16	804,399.84	32.028332	-103.484465
11,100.00	0.32	270.00	11,099.87	0.00	-45.70	375,079.16	804,399.29	32.028332	-103.484467
11,200.00	0.32	270.00	11,199.87	0.00	-46.25	375,079.16	804,398.74	32.028332	-103.484469
11,300.00	0.32	270.00	11,299.87	0.00	-46.80	375,079.16	804,398.19	32.028332	-103.484471
11,400.00	0.32	270.00	11,399.87	0.00	-47.35	375,079.16	804,397.63	32.028332	-103.484472
11,500.00	0.32	270.00	11,499.87	0.00	-47.91	375,079.16	804,397.08	32.028332	-103.484474
11,600.00	0.32	270.00	11,599.87	0.00	-48.46	375,079.16	804,396.53	32.028332	-103.484476
11,700.00	0.32	270.00	11,699.87	0.00	-49.01	375,079.16	804,395.98	32.028332	-103.484478
11,800.00	0.32	270.00	11,799.86	0.00	-49.56	375,079.16	804,395.43	32.028332	-103.484480
11,869.07	0.32	270.00	11,868.93	0.00	-49.94	375,079.16	804,395.05	32.028332	-103.484481
11,890.14	0.00	0.00	11,890.00	0.00	-50.00	375,079.16	804,394.99	32.028332	-103.484481
11,900.00	0.00	0.00	11,899.86	0.00	-50.00	375,079.16	804,394.99	32.028332	-103.484481
12,000.00	0.00	0.00	11,999.86	0.00	-50.00	375,079.16	804,394.99	32.028332	-103.484481
12,100.00	0.00	0.00	12,099.86	0.00	-50.00	375,079.16	804,394.99	32.028332	-103.484481
12,200.00	0.00	0.00	12,199.86	0.00	-50.00	375,079.16	804,394.99	32.028332	-103.484481
12,240.18	0.00	0.00	12,240.04	0.00	-50.00	375,079.16	804,394.99	32.028332	-103.484481
KOP @ FTP @ 12240' MD, 2424' FSL, 349' FEL									
12,300.00	6.07	181.01	12,299.75	-3.16	-50.06	375,075.99	804,394.93	32.028323	-103.484481
12,400.00	16.21	181.01	12,397.74	-22.45	-50.39	375,056.71	804,394.59	32.028270	-103.484483
12,500.00	26.35	181.01	12,490.80	-58.69	-51.03	375,020.47	804,393.96	32.028170	-103.484486
12,600.00	36.49	181.01	12,576.03	-110.75	-51.95	374,968.41	804,393.04	32.028027	-103.484490
12,700.00	46.63	181.01	12,650.75	-176.99	-53.11	374,902.17	804,391.88	32.027845	-103.484495
12,800.00	56.77	181.01	12,712.64	-255.36	-54.49	374,823.80	804,390.50	32.027630	-103.484502
12,900.00	66.92	181.01	12,759.77	-343.40	-56.03	374,735.76	804,388.95	32.027388	-103.484509
13,000.00	77.06	181.01	12,790.65	-438.36	-57.70	374,640.80	804,387.28	32.027127	-103.484517
13,100.00	87.20	181.01	12,804.33	-537.27	-59.44	374,541.89	804,385.55	32.026855	-103.484525
13,127.98	90.04	181.01	12,805.00	-565.24	-59.93	374,513.92	804,385.05	32.026778	-103.484527
13,142.75	90.00	179.51	12,805.00	-580.00	-60.00	374,499.16	804,384.99	32.026738	-103.484528
13,200.00	90.00	179.51	12,805.00	-637.25	-59.51	374,441.91	804,385.48	32.026580	-103.484528
13,300.00	90.00	179.51	12,805.00	-737.25	-58.66	374,341.91	804,386.33	32.026305	-103.484528
13,400.00	90.00	179.51	12,805.00	-837.25	-57.80	374,241.91	804,387.19	32.026031	-103.484527
13,500.00	90.00	179.51	12,805.00	-937.24	-56.94	374,141.92	804,388.04	32.025756	-103.484527
13,600.00	90.00	179.51	12,805.00	-1,037.24	-56.09	374,041.92	804,388.90	32.025481	-103.484527
13,700.00	90.00	179.51	12,805.00	-1,137.23	-55.23	373,941.93	804,389.75	32.025206	-103.484527
13,800.00	90.00	179.51	12,805.00	-1,237.23	-54.38	373,841.93	804,390.61	32.024931	-103.484526
13,900.00	90.00	179.51	12,805.00	-1,337.23	-53.52	373,741.93	804,391.46	32.024656	-103.484526
14,000.00	90.00	179.51	12,805.00	-1,437.22	-52.67	373,641.94	804,392.32	32.024381	-103.484526
14,100.00	90.00	179.51	12,805.00	-1,537.22	-51.81	373,541.94	804,393.17	32.024106	-103.484526
14,200.00	90.00	179.51	12,805.00	-1,637.22	-50.96	373,441.95	804,394.03	32.023831	-103.484526
14,300.00	90.00	179.51	12,805.00	-1,737.21	-50.10	373,341.95	804,394.88	32.023557	-103.484525
14,400.00	90.00	179.51	12,805.00	-1,837.21	-49.25	373,241.95	804,395.74	32.023282	-103.484525
14,500.00	90.00	179.51	12,805.00	-1,937.20	-48.39	373,141.96	804,396.60	32.023007	-103.484525
14,600.00	90.00	179.51	12,805.00	-2,037.20	-47.54	373,041.96	804,397.45	32.022732	-103.484525
14,700.00	90.00	179.51	12,805.00	-2,137.20	-46.68	372,941.97	804,398.31	32.022457	-103.484524
14,800.00	90.00	179.51	12,805.00	-2,237.19	-45.83	372,841.97	804,399.16	32.022182	-103.484524
14,900.00	90.00	179.51	12,805.00	-2,337.19	-44.97	372,741.97	804,400.02	32.021907	-103.484524
14,987.00	90.00	179.51	12,805.00	-2,424.19	-44.23	372,654.98	804,400.76	32.021668	-103.484524
Cross Section @ 14987' MD, 0' FNL, 360' FEL									
15,000.00	90.00	179.51	12,805.00	-2,437.19	-44.12	372,641.98	804,400.87	32.021632	-103.484524
15,100.00	90.00	179.51	12,805.00	-2,537.18	-43.26	372,541.98	804,401.73	32.021358	-103.484524
15,200.00	90.00	179.51	12,805.00	-2,637.18	-42.41	372,441.98	804,402.58	32.021083	-103.484523
15,300.00	90.00	179.51	12,805.00	-2,737.18	-41.55	372,341.99	804,403.44	32.020808	-103.484523
15,400.00	90.00	179.51	12,805.00	-2,837.17	-40.70	372,241.99	804,404.29	32.020533	-103.484523

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Green Wave 20-32 Fed State Com 10H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3368.10ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3368.10ft
Site:	Sec 20-T26S-R34E	**North Reference:**	Grid
Well:	Green Wave 20-32 Fed State Com 10H	**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
15,500.00	90.00	179.51	12,805.00	-2,937.17	-39.84	372,142.00	804,405.15	32.020258	-103.484523
15,600.00	90.00	179.51	12,805.00	-3,037.16	-38.99	372,042.00	804,406.00	32.019983	-103.484522
15,700.00	90.00	179.51	12,805.00	-3,137.16	-38.13	371,942.00	804,406.86	32.019708	-103.484522
15,800.00	90.00	179.51	12,805.00	-3,237.16	-37.28	371,842.01	804,407.71	32.019433	-103.484522
15,900.00	90.00	179.51	12,805.00	-3,337.15	-36.42	371,742.01	804,408.57	32.019159	-103.484522
16,000.00	90.00	179.51	12,805.00	-3,437.15	-35.56	371,642.02	804,409.42	32.018884	-103.484521
16,100.00	90.00	179.51	12,805.00	-3,537.15	-34.71	371,542.02	804,410.28	32.018609	-103.484521
16,200.00	90.00	179.51	12,805.00	-3,637.14	-33.85	371,442.02	804,411.13	32.018334	-103.484521
16,300.00	90.00	179.51	12,805.00	-3,737.14	-33.00	371,342.03	804,411.99	32.018059	-103.484521
16,400.00	90.00	179.51	12,805.00	-3,837.14	-32.14	371,242.03	804,412.84	32.017784	-103.484521
16,500.00	90.00	179.51	12,805.00	-3,937.13	-31.29	371,142.03	804,413.70	32.017509	-103.484520
16,600.00	90.00	179.51	12,805.00	-4,037.13	-30.43	371,042.04	804,414.55	32.017234	-103.484520
16,700.00	90.00	179.51	12,805.00	-4,137.12	-29.58	370,942.04	804,415.41	32.016960	-103.484520
16,800.00	90.00	179.51	12,805.00	-4,237.12	-28.72	370,842.05	804,416.26	32.016685	-103.484520
16,900.00	90.00	179.51	12,805.00	-4,337.12	-27.87	370,742.05	804,417.12	32.016410	-103.484519
17,000.00	90.00	179.51	12,805.00	-4,437.11	-27.01	370,642.05	804,417.98	32.016135	-103.484519
17,100.00	90.00	179.51	12,805.00	-4,537.11	-26.16	370,542.06	804,418.83	32.015860	-103.484519
17,200.00	90.00	179.51	12,805.00	-4,637.11	-25.30	370,442.06	804,419.69	32.015585	-103.484519
17,300.00	90.00	179.51	12,805.00	-4,737.10	-24.45	370,342.07	804,420.54	32.015310	-103.484519
17,400.00	90.00	179.51	12,805.00	-4,837.10	-23.59	370,242.07	804,421.40	32.015035	-103.484518
17,500.00	90.00	179.51	12,805.00	-4,937.10	-22.74	370,142.07	804,422.25	32.014761	-103.484518
17,600.00	90.00	179.51	12,805.00	-5,037.09	-21.88	370,042.08	804,423.11	32.014486	-103.484518
17,700.00	90.00	179.51	12,805.00	-5,137.09	-21.03	369,942.08	804,423.96	32.014211	-103.484518
17,800.00	90.00	179.51	12,805.00	-5,237.08	-20.17	369,842.08	804,424.82	32.013936	-103.484517
17,900.00	90.00	179.51	12,805.00	-5,337.08	-19.32	369,742.09	804,425.67	32.013661	-103.484517
18,000.00	90.00	179.51	12,805.00	-5,437.08	-18.46	369,642.09	804,426.53	32.013386	-103.484517
18,100.00	90.00	179.51	12,805.00	-5,537.07	-17.61	369,542.10	804,427.38	32.013111	-103.484517
18,200.00	90.00	179.51	12,805.00	-5,637.07	-16.75	369,442.10	804,428.24	32.012836	-103.484517
18,300.00	90.00	179.51	12,805.00	-5,737.07	-15.90	369,342.10	804,429.09	32.012562	-103.484516
18,400.00	90.00	179.51	12,805.00	-5,837.06	-15.04	369,242.11	804,429.95	32.012287	-103.484516
18,500.00	90.00	179.51	12,805.00	-5,937.06	-14.18	369,142.11	804,430.80	32.012012	-103.484516
18,600.00	90.00	179.51	12,805.00	-6,037.06	-13.33	369,042.12	804,431.66	32.011737	-103.484516
18,700.00	90.00	179.51	12,805.00	-6,137.05	-12.47	368,942.12	804,432.51	32.011462	-103.484515
18,800.00	90.00	179.51	12,805.00	-6,237.05	-11.62	368,842.12	804,433.37	32.011187	-103.484515
18,900.00	90.00	179.51	12,805.00	-6,337.04	-10.76	368,742.13	804,434.22	32.010912	-103.484515
19,000.00	90.00	179.51	12,805.00	-6,437.04	-9.91	368,642.13	804,435.08	32.010637	-103.484515
19,100.00	90.00	179.51	12,805.00	-6,537.04	-9.05	368,542.13	804,435.93	32.010363	-103.484515
19,200.00	90.00	179.51	12,805.00	-6,637.03	-8.20	368,442.14	804,436.79	32.010088	-103.484514
19,300.00	90.00	179.51	12,805.00	-6,737.03	-7.34	368,342.14	804,437.64	32.009813	-103.484514
19,400.00	90.00	179.51	12,805.00	-6,837.03	-6.49	368,242.15	804,438.50	32.009538	-103.484514
19,500.00	90.00	179.51	12,805.00	-6,937.02	-5.63	368,142.15	804,439.36	32.009263	-103.484514
19,600.00	90.00	179.51	12,805.00	-7,037.02	-4.78	368,042.15	804,440.21	32.008988	-103.484513
19,700.00	90.00	179.51	12,805.00	-7,137.01	-3.92	367,942.16	804,441.07	32.008713	-103.484513
19,800.00	90.00	179.51	12,805.00	-7,237.01	-3.07	367,842.16	804,441.92	32.008438	-103.484513
19,900.00	90.00	179.51	12,805.00	-7,337.01	-2.21	367,742.17	804,442.78	32.008163	-103.484513
20,000.00	90.00	179.51	12,805.00	-7,437.00	-1.36	367,642.17	804,443.63	32.007889	-103.484512
20,100.00	90.00	179.51	12,805.00	-7,537.00	-0.50	367,542.17	804,444.49	32.007614	-103.484512
20,200.00	90.00	179.51	12,805.00	-7,637.00	0.35	367,442.18	804,445.34	32.007339	-103.484512
20,266.00	90.00	179.51	12,805.00	-7,702.99	0.92	367,376.18	804,445.91	32.007157	-103.484512
Cross Section @ 20266' MD, 0' FNL, 360' FEL									
20,300.00	90.00	179.51	12,805.00	-7,736.99	1.21	367,342.18	804,446.20	32.007064	-103.484512
20,400.00	90.00	179.51	12,805.00	-7,836.99	2.06	367,242.18	804,447.05	32.006789	-103.484512
20,500.00	90.00	179.51	12,805.00	-7,936.99	2.92	367,142.19	804,447.91	32.006514	-103.484511
20,600.00	90.00	179.51	12,805.00	-8,036.98	3.77	367,042.19	804,448.76	32.006239	-103.484511

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Green Wave 20-32 Fed State Com 10H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3368.10ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3368.10ft
Site:	Sec 20-T26S-R34E	**North Reference:**	Grid
Well:	Green Wave 20-32 Fed State Com 10H	**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
20,700.00	90.00	179.51	12,805.00	-8,136.98	4.63	366,942.20	804,449.62	32.005964	-103.484511
20,800.00	90.00	179.51	12,805.00	-8,236.97	5.48	366,842.20	804,450.47	32.005690	-103.484511
20,900.00	90.00	179.51	12,805.00	-8,336.97	6.34	366,742.20	804,451.33	32.005415	-103.484510
21,000.00	90.00	179.51	12,805.00	-8,436.97	7.20	366,642.21	804,452.18	32.005140	-103.484510
21,100.00	90.00	179.51	12,805.00	-8,536.96	8.05	366,542.21	804,453.04	32.004865	-103.484510
21,200.00	90.00	179.51	12,805.00	-8,636.96	8.91	366,442.22	804,453.89	32.004590	-103.484510
21,300.00	90.00	179.51	12,805.00	-8,736.96	9.76	366,342.22	804,454.75	32.004315	-103.484510
21,400.00	90.00	179.51	12,805.00	-8,836.95	10.62	366,242.22	804,455.60	32.004040	-103.484509
21,500.00	90.00	179.51	12,805.00	-8,936.95	11.47	366,142.23	804,456.46	32.003765	-103.484509
21,600.00	90.00	179.51	12,805.00	-9,036.95	12.33	366,042.23	804,457.31	32.003491	-103.484509
21,700.00	90.00	179.51	12,805.00	-9,136.94	13.18	365,942.23	804,458.17	32.003216	-103.484509
21,800.00	90.00	179.51	12,805.00	-9,236.94	14.04	365,842.24	804,459.02	32.002941	-103.484508
21,900.00	90.00	179.51	12,805.00	-9,336.93	14.89	365,742.24	804,459.88	32.002666	-103.484508
22,000.00	90.00	179.51	12,805.00	-9,436.93	15.75	365,642.25	804,460.74	32.002391	-103.484508
22,100.00	90.00	179.51	12,805.00	-9,536.93	16.60	365,542.25	804,461.59	32.002116	-103.484508
22,200.00	90.00	179.51	12,805.00	-9,636.92	17.46	365,442.25	804,462.45	32.001841	-103.484508
22,300.00	90.00	179.51	12,805.00	-9,736.92	18.31	365,342.26	804,463.30	32.001566	-103.484507
22,400.00	90.00	179.51	12,805.00	-9,836.92	19.17	365,242.26	804,464.16	32.001292	-103.484507
22,500.00	90.00	179.51	12,805.00	-9,936.91	20.02	365,142.27	804,465.01	32.001017	-103.484507
22,600.00	90.00	179.51	12,805.00	-10,036.91	20.88	365,042.27	804,465.87	32.000742	-103.484507
22,671.30	90.00	179.51	12,805.00	-10,108.21	21.49	364,970.97	804,466.48	32.000546	-103.484506
LTP @ 22671' MD, 2405' FNL, 360' FEL									
22,700.00	90.00	179.51	12,805.00	-10,136.91	21.73	364,942.27	804,466.72	32.000467	-103.484506
22,751.30	90.00	179.51	12,805.00	-10,188.20	22.17	364,890.98	804,467.16	32.000326	-103.484506
PBHL; 2485' FNL, 360' FEL									
22,751.40	90.00	179.51	12,805.00	-10,188.30	22.17	364,890.88	804,467.16	32.000326	-103.484506

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 - Green Wave 20-	0.00	0.00	0.00	-10,188.29	26.02	364,890.89	804,471.01	32.000326	-103.484494
- plan misses target center by 10188.32ft 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
12,240.18	12,240.04	0.00	-50.00	KOP @ FTP @ 12240' MD, 2424' FSL, 349' FEL
14,987.00	12,805.00	-2,424.19	-44.23	Cross Section @ 14987' MD, 0' FNL, 360' FEL
20,266.00	12,805.00	-7,702.99	0.92	Cross Section @ 20266' MD, 0' FNL, 360' FEL
22,671.30	12,805.00	-10,108.21	21.49	LTP @ 22671' MD, 2405' FNL, 360' FEL
22,751.30	12,805.00	-10,188.20	22.17	PBHL; 2485' FNL, 360' FEL

Devon Energy

WELL DETAILS: Green Wave 20-32 Fed State Com 10H

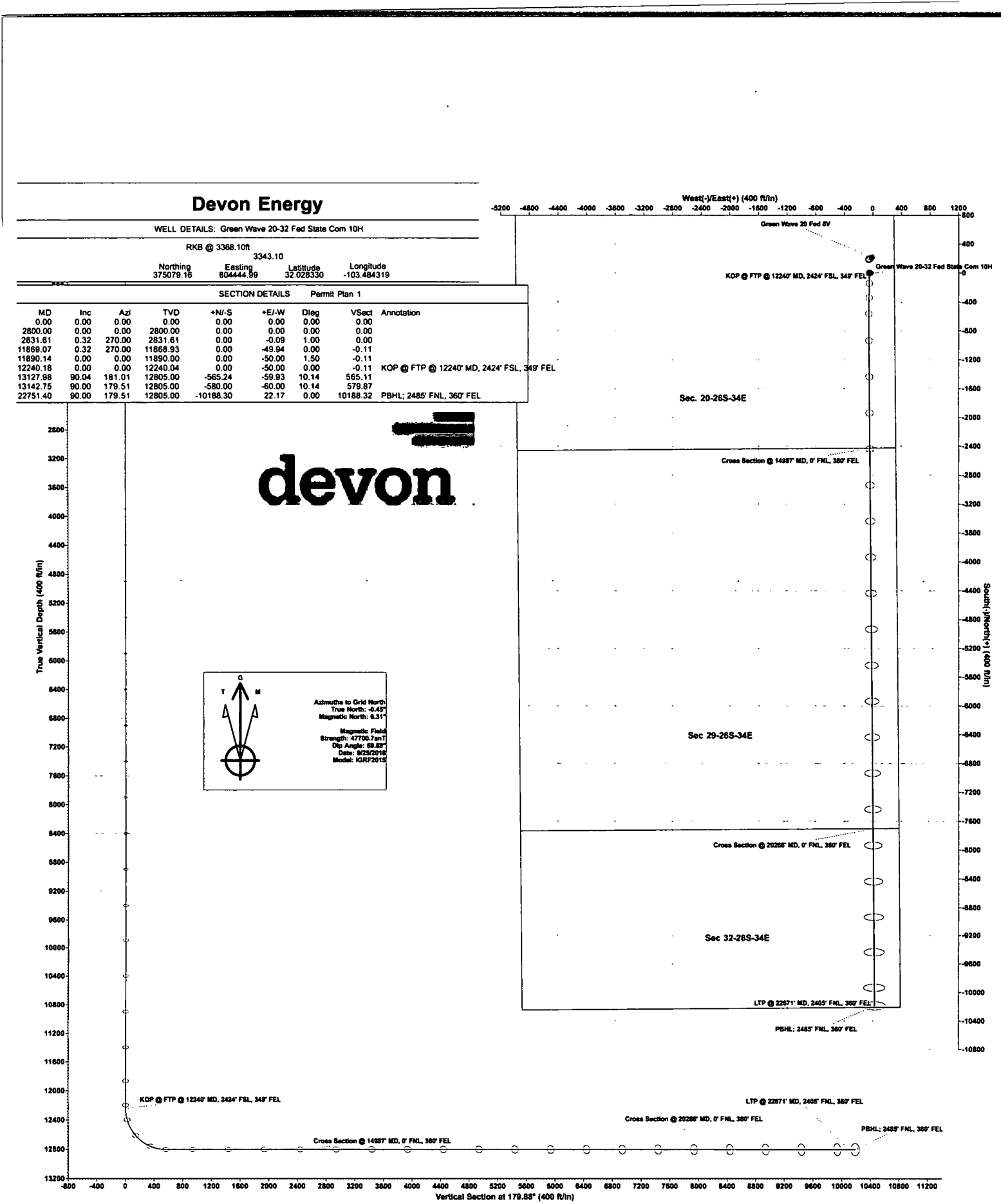
RKB @ 3368.10ft

3343.10

Northing	Easting	Latitude	Longitude
375079.16	804444.99	32.028330	-103.484319

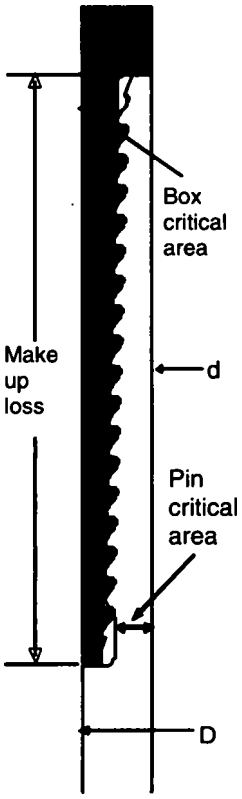
SECTION DETAILS Permit Plan 1

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	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	
2831.61	0.32	270.00	2831.61	0.00	-0.09	1.00	0.00	
11869.07	0.32	270.00	11868.93	0.00	-49.94	0.00	-0.11	
11890.14	0.00	0.00	11890.00	0.00	-50.00	1.50	-0.11	
12240.18	0.00	0.00	12240.04	0.00	-50.00	0.00	-0.11	KOP @ FTP @ 12240' MD, 2424' FSL, 349' FEL
13127.98	90.04	181.01	12805.00	-565.24	-59.93	10.14	565.11	
13142.75	90.00	179.51	12805.00	-580.00	-60.00	10.14	579.87	
22751.40	90.00	179.51	12805.00	-10188.30	22.17	0.00	10188.32	PBHL; 2485' FNL, 360' FEL



Metal One Corp.	FLUSHMAX-III	Page	44-O
Metal One	Connection Data Sheet	Date	25-Jan-17
		Rev.	N - 1

FLUSHMAX-III



[redacted]

	Imperial		S.I.	
Pipe Body				
Pipe OD (D)	7 5/8	in	193.68	mm
Actual weight	29.04		43.21	kg/m
Pipe ID (d)	6.875	in	174.63	mm
Drift Dia.	6.750	in	171.45	mm

Connection				
PIN ID	6.875	in	174.63	mm
Thread Taper	1 / 16 (3/4" per ft)			

[redacted]

Performance Properties for Pipe Body

M.I.Y.P.	9,470	psi	65.31	MPa

Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body
M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body

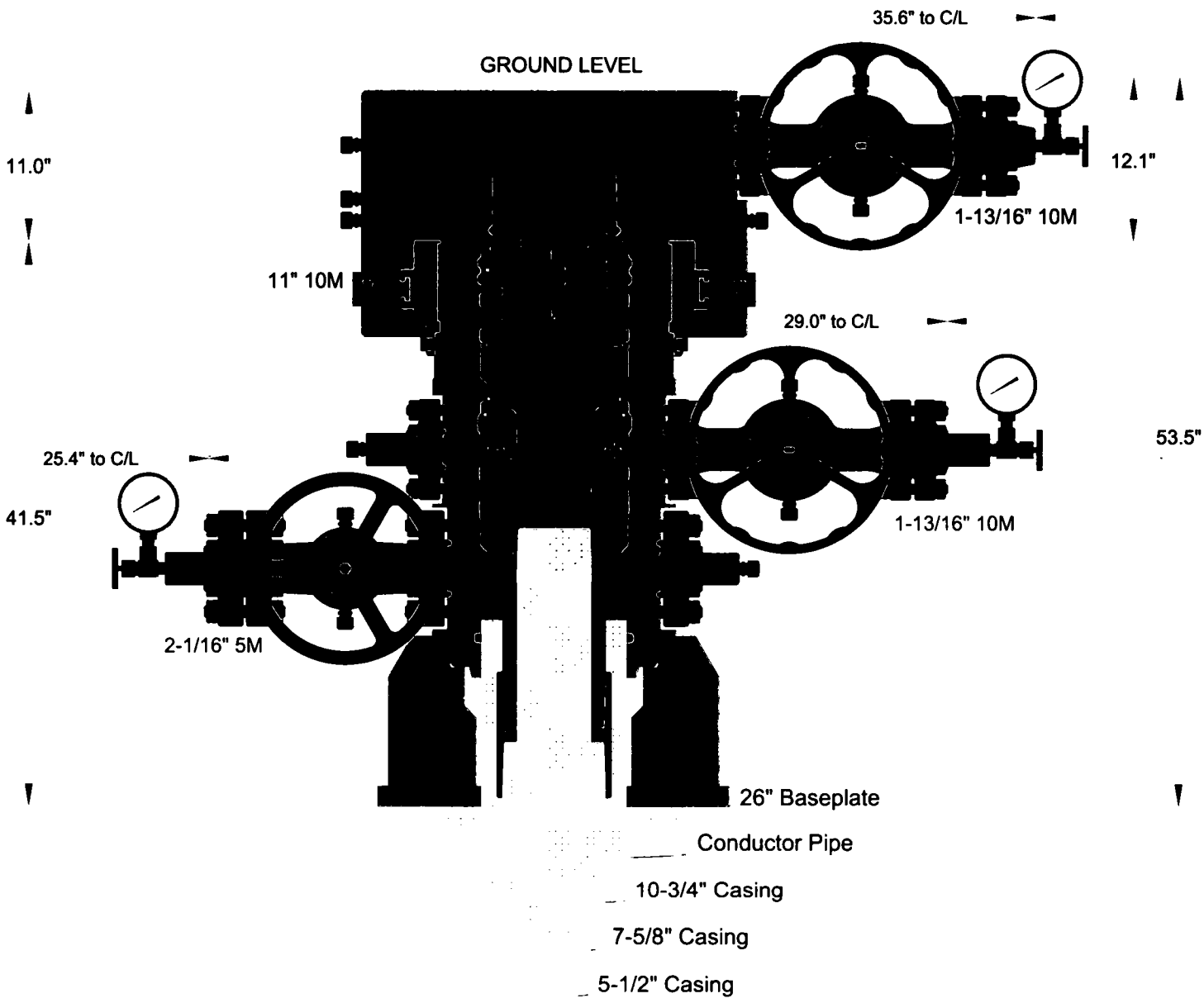
Performance Properties for Connection

Min. Compression Yield	563 kips (60% of S.M.Y.S.)
External Pressure	100% of Collapse Strength

Recommended Torque

Opti.	17,200	ft-lb	23,300	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application



CACTUS WELLHEAD LLC	DEVON ENERGY CORPORATION		
16" x 11-7/8" x 7-5/8" MBU-T Wellhead Assembly With 7-5/8" & 5-1/2" Pin Bottom Mandrel Casing Hangers And 11" 10M MBU-T-HPS-F TA Cap	DRAWN	DLE	29NOV17
	APPRV		
	DRAWING NO.	OKE0001764	

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

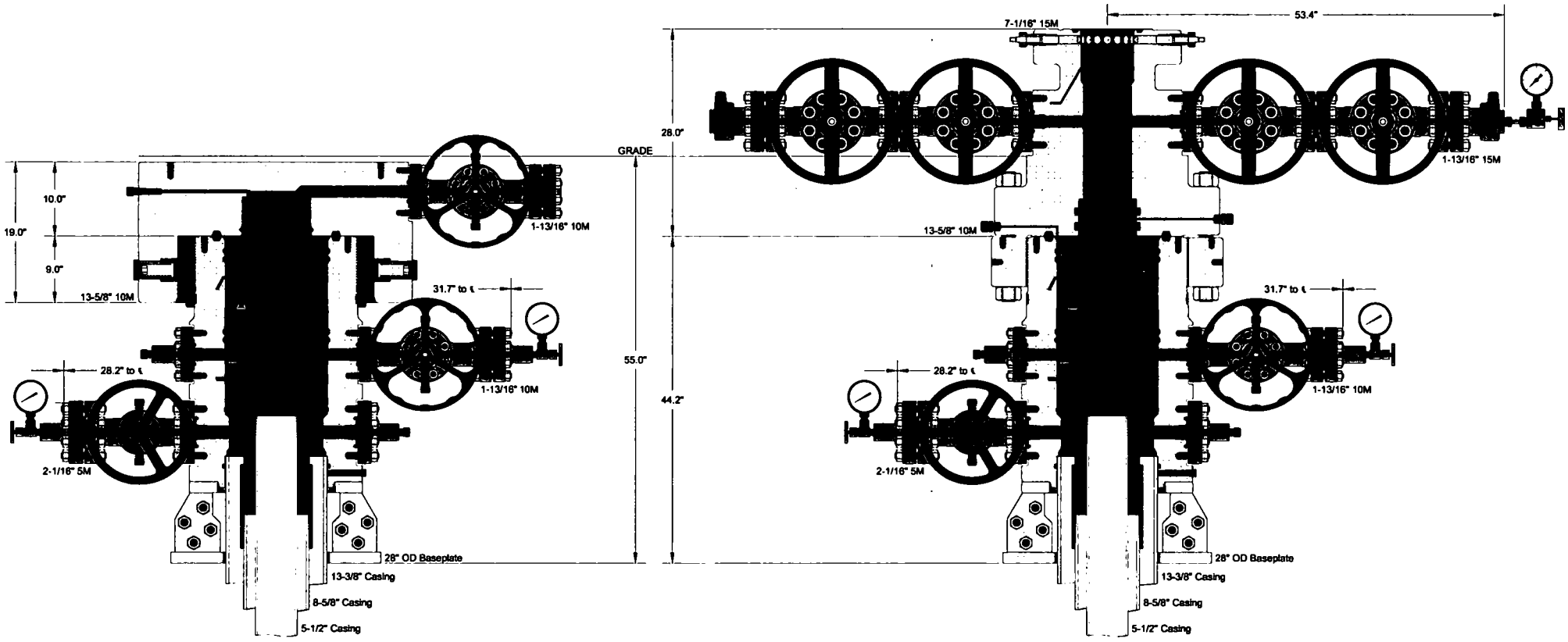
1. SUMMARY OF Variance:

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.

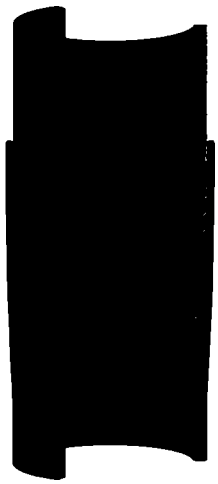


CACTUS WELLHEAD LLC

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	



TEC-LOCK WEDGE

8.625" 32.00 LB/FT (.352" Wall)
BORUSAN MANNESMANNP110 HSCY

Pipe Body Data

Nominal OD:	8.625	in
Nominal Wall:	.352	in
Nominal Weight:	32.00	lb/ft
Plain End Weight:	31.13	lb/ft
Material Grade:	P110 HSCY	
Mill/Specification:	BORUSAN MANNESMANN	
Yield Strength:	125,000	psi
Tensile Strength:	125,000	psi
Nominal ID:	7.921	in
API Drift Diameter:	7.796	in
Special Drift Diameter:	7.875	in
RBW:	87.5 %	
Body Yield:	1,144,000	lbf
Burst:	8,930	psi
Collapse:	4,230	psi

Connection Data

Standard OD:	9.000	in
Pin Bored ID:	7.921	in
Critical Section Area:	8.61433	in^2
Tensile Efficiency:	94.2 %	
Compressive Efficiency:	100.0 %	
Longitudinal Yield Strength:	1,077,000	lbf
Compressive Limit:	1,144,000	lbf
Internal Pressure Rating:	8,930	psi
External Pressure Rating:	4,230	psi
Maximum Bend:	62.6	°/100

Operational Data

Minimum Makeup Torque:	29,900	ft*lbf
Optimum Makeup Torque:	37,375	ft*lbf
Maximum Makeup Torque:	80,900	ft*lbf
Minimum Yield:	89,900	ft*lbf
Makeup Loss:	5.97	in

Notes

Operational Torque is equivalent to the Maximum Make-Up Torque.

HUNTING

U. S. Steel Tubular Products

10.75 40.5/0.35 J55

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MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	55,000	--	--	--	psi
Maximum Yield Strength	80,000	--	--	--	psi
Minimum Tensile Strength	75,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	10.750	11.750	--	11.750	in.
Wall Thickness	0.350	--	--	--	in.
Inside Diameter	10.050	10.050	--	10.050	in.
Standard Drift	9.894	9.894	--	9.894	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	40.50	--	--	--	lbs/ft
Plain End Weight	38.91	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	1,580	1,580	--	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	--	3,130	psi
Minimum Pipe Body Yield Strength	629,000	--	--	--	lbs
Joint Strength	--	700	--	420	lbs
Reference Length	--	11,522	--	6,915	ft
Make-Up Loss	--	4.81	--	3.50	in.
Minimum Make-Up Torque	--	--	--	3,150	ft-lbs
Maximum Make-Up Torque	--	--	--	5,250	ft-lbs

U. S. Steel Tubular Products
10343 Sam Houston Park Dr., #120
Houston, TX 77064

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

U. S. Steel Tubular Products

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

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

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.

1. Geologic Formations

TVD of target	12,805'	Pilot hole depth	N/A
MD at TD:	22,751'	Deepest expected fresh water:	675'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
RUSTLER	675		
TOP SALT	1050		
Base of Salt	5330		
Delaware	5330		
Lwr Brushy Marker	9414		
1BSLM	9620		
WOLFCAMP	12500		

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

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
14.75"	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
9.875"	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
8.75"	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
6.75"	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

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 to wave the centralizer requirement for the 7-5/8" flush casing in the 8-3/4" hole and the 5-1/2" SF/Flush casing in the 6-3/4" hole.

Casing Program (Alternate Design)

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	725' TVD/MD	13.375"	48	H-40	STC	1.125	1.25	1.6
9.875"	0	12,240' TVD/MD	8.625"	32	P110EC	TLW	1.125	1.25	1.6
7.875"	0	TD	5.5"	20	P110	Vam SG	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

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 to wave the centralizer requirement for the 8-5/8" casing in the 9-7/8" hole and the 5-1/2" casing in the 7-7/8" hole.

8-5/8" Intermediate casing will be kept fluid filled to 100%.

	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 specification 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	Wt. lb/ gal	H_2O gal/sk	Yld ft3/ sack	Slurry Description
Surface	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Int	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Intermediate Two-Stage (Bradenhead)	1000	14.8	6.32	1.33	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	609	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Production	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
Intermediate	0'	30%
Production Casing	200' Tie-Back to intermediate	25%

Cementing Program (Alternate Design)

Casing	# Sks	Wt. lb/ gal	H_2O gal/sk	Yld ft3/ sack	Slurry Description
Surface	569	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
Int	436	9	13.5	3.27	Lead: Tuned Light® Cement
	482	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Intermediate Two-Stage (Bradenhead)	1000	14.8	6.32	1.33	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	482	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Production	1600	14.8	6.32	1.33	Class H Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
Intermediate	0'	30%
Production Casing	200' Tie-Back to intermediate	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

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

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

Devon requests a variance to run a 5M annular on a 10M BOP system. See separately attached variance request and support documents in AFMSS.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	725'	FW Gel	See AFMSS	See AFMSS	See AFMSS
725'	13,125'	OBM/Cut Brine	See AFMSS	See AFMSS	See AFMSS
13,125'	TD	Oil Based Mud	See AFMSS	See AFMSS	See AFMSS

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 fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted 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

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

Hydrogen 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. In the event the spudder rig is unable to drill the surface holes the 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 with either OBM or cut brine 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 drill surface hole.
    a. Rig will utilize fresh water based mud to drill 14 ¾" 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 10-3/4" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
    a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

_x_ Directional Plan

___ Other, describe

Continental CONTITECH

Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly It is good practice to use lifting & safety equipment but not mandatory

Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com

RIG 212

PHOENIX

QUALITY DOCUMENT

PHOENIX RUBBER INDUSTRIAL LTD.

6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax: (3662) 566-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 · Fax: (361) 217-2972, 456-4273 · www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE					CERT. N°: 552
PURCHASER: Phoenix Beattie Co.					P.O. N°: 1519FA-871
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID		Choke and Kill Hose	
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH:		11,43 m	
W.P. 68,96 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration: 60	min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 25 MPa

COUPLINGS

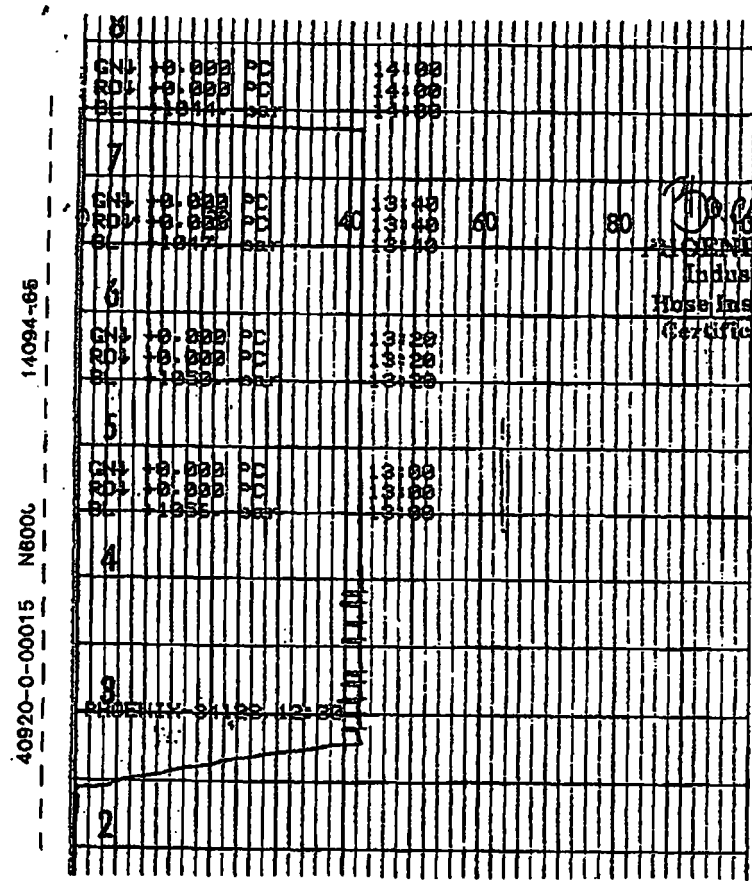
Type	Serial N°	Quality	Heat N°
3" coupling with	720 719	AISI 4130	C7626
4 1/16" Flange end		AISI 4130	47357

API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

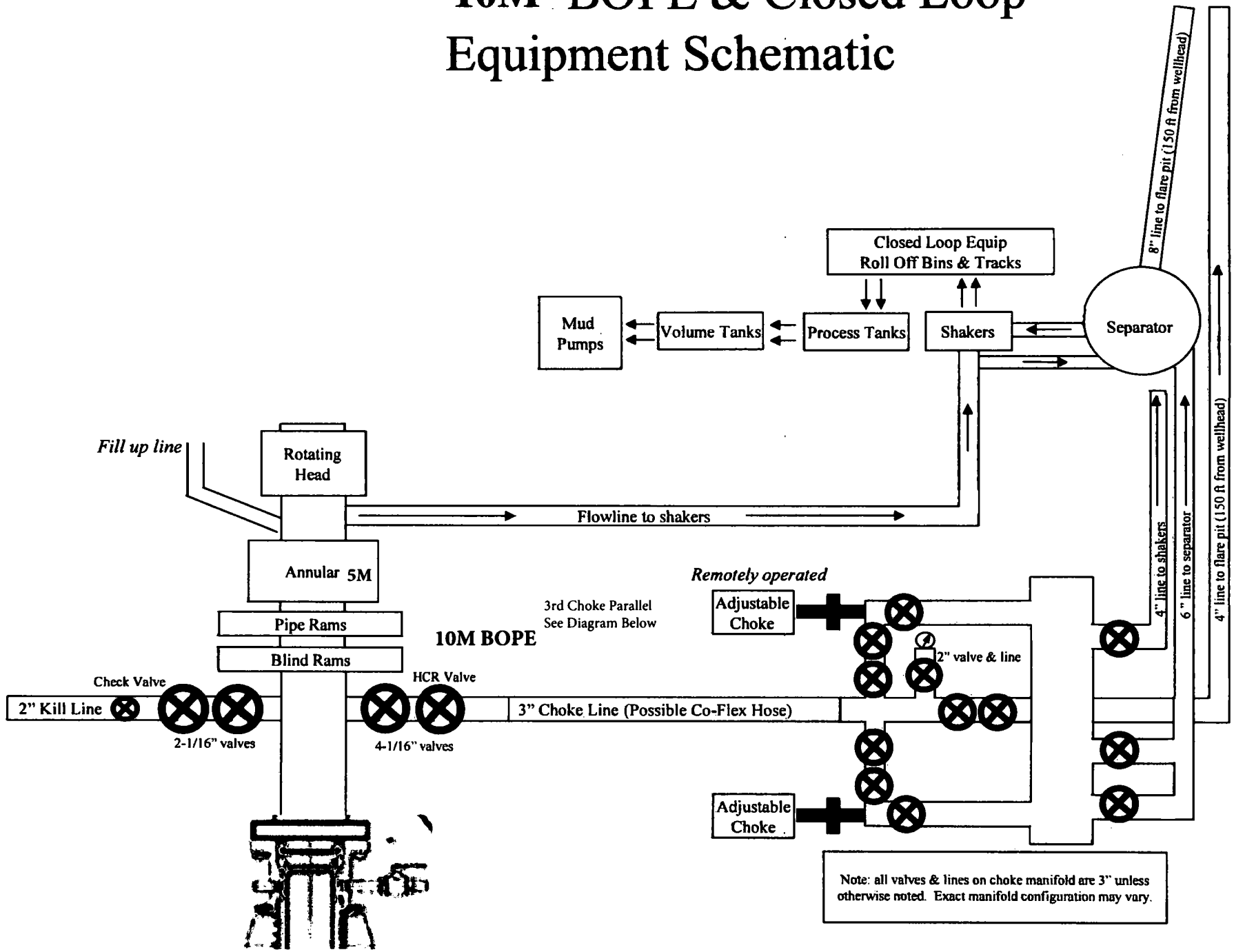
Date:	Inspector	Quality Control
29. April. 2002.		PHOENIX RUBBER Industrial Ltd. Hose Inspection and Certification Dept. CERTIFIED TRUE COPY PHOENIX RUBBER Q.C.

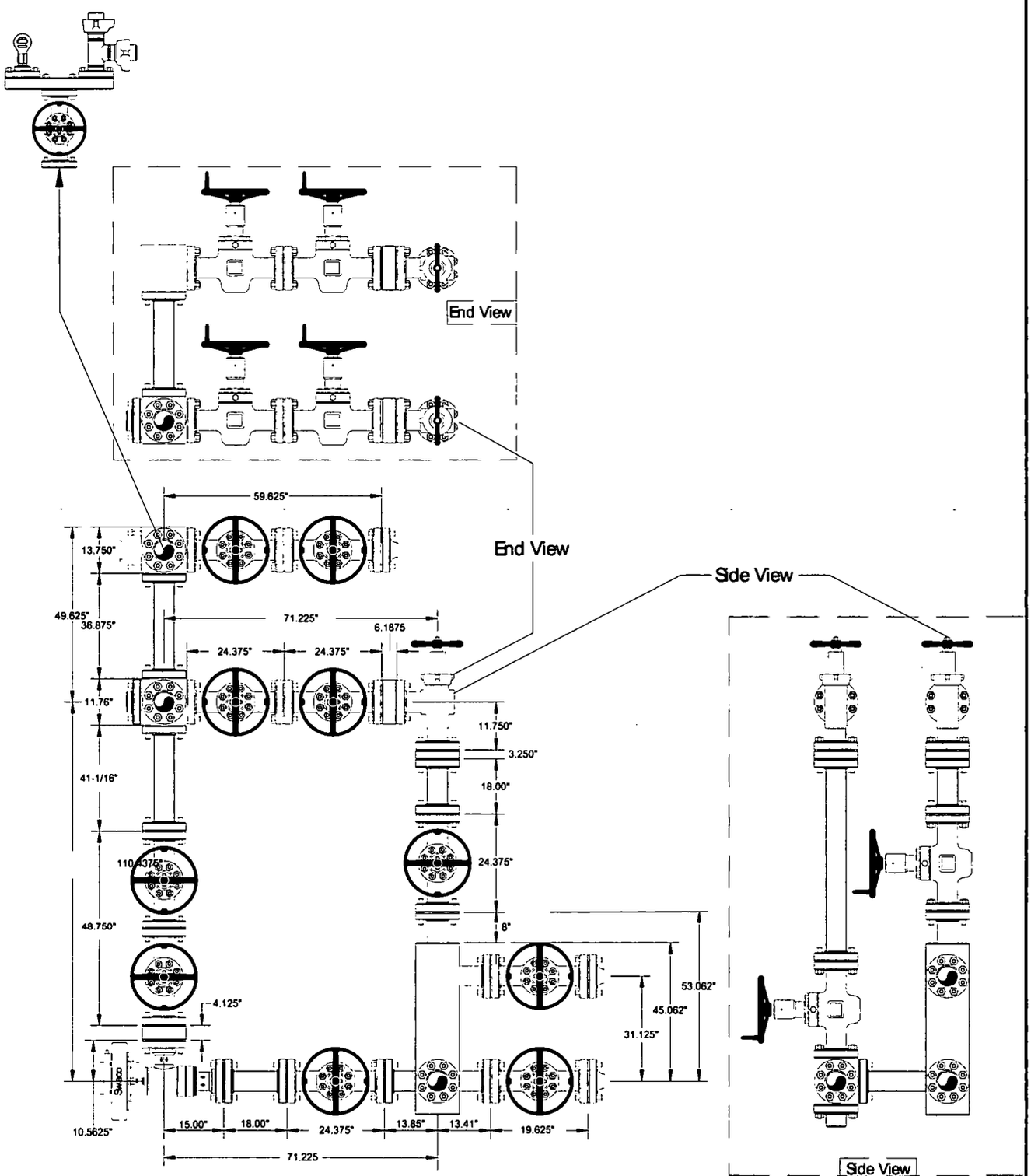


PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE COPY
PHOENIX RUBBER Q.C.

10M BOPE & Closed Loop Equipment Schematic





Helmerich & Payne
Rig 282

CAMERON

Name	Jeanette	Date	7-19-06	Working Pressure	#	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

APD ID: 10400035297 **Submission Date:** 10/18/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

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

[redacted]

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Green_Wave_20_32_Fed_State_Com_10H_ACCESS_RD_20181017084256.pdf

Existing Road Purpose: ACCESS **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Improve road to accommodate Drilling and Completion operations.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Green_Wave_20_32_Fed_State_Com_RS_MDP_20_PADS_CTBS_ACC_RDS2_20181017075647.pdf
Green_Wave_20_32_Fed_State_Com_RS_MDP_20_PADS_CTBS_ACC_RDS1_20181017075638.pdf
Green_Wave_20_32_Fed_State_Com_10H_NEW_ACCESS_RD_20181017084320.pdf

New road type: LOCAL

Length: 3388 Feet **Width (ft.):** 30

Max slope (%): 6 **Max grade (%):** 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Water Drainage Ditch

New road access plan or profile prepared? YES

New road access plan attachment:

Green_Wave_20_32_Fed_State_Com_RS_MDP_20_PADS_CTBS_ACC_RDS2_20181017075739.pdf
Green_Wave_20_32_Fed_State_Com_RS_MDP_20_PADS_CTBS_ACC_RDS1_20181017075730.pdf
Green_Wave_20_32_Fed_State_Com_10H_NEW_ACCESS_RD_20181017084335.pdf

Access road engineering design? YES

Access road engineering design attachment:

Green_Wave_20_32_Fed_State_Com_RS_MDP_20_PADS_CTBS_ACC_RDS1_20181017075801.pdf
Green_Wave_20_32_Fed_State_Com_RS_MDP_20_PADS_CTBS_ACC_RDS2_20181017075809.pdf
Green_Wave_20_32_Fed_State_Com_10H_NEW_ACCESS_RD_20181017084344.pdf

Access surfacing type: NONE

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: See attached Interim reclamation diagram.

Access other construction information:

Access miscellaneous information: Attached road map for well pad and a plat with the overall proposed MDP road system.

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: N/A

Road Drainage Control Structures (DCS) description: N/A

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Green_Wave_20_32_Fed_State_Com_10H_OneMileBuffer_20181017084400.pdf

Existing Wells description:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: PART OF RATTLESNAKE 2 MDP. SIX PLATS ATTACHED - 3 ELECTRIC, CTB 20-9 PAD PLAT, WELLPAD PLAT, FLOWLINE PLAT. ROADS AND POWER APPROVED IN EXISTING EASEMENTS - ROADS - NM138036, ELECTRIC - NM138037. CONNECTS HANDLED BY THIRD PARTY

Production Facilities map:

Green_Wave_20_32_Fed_State_Com_CTB_20_9_PAD_20181017080019.pdf

Green_Wave_20_32_Fed_State_Com_RS_MDP2_20_9_CTB_ELE_20181017080024.PDF

Green_Wave_20_32_Fed_State_Com_S_LAT_ELE_20181017080032.PDF

Green_Wave_20_32_Fed_State_Com_RS_MDP1_WP_20_10_20181017080022.pdf

Green_Wave_20_32_Fed_State_Com_RS_MDP2_20_10_WP_ELE_20181017080027.PDF

Green_Wave_20_32_Fed_State_Com_RS_WP_20_10_RS_CTB_20_9_FLOWLINE_20181017080030.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: STIMULATION

Water source type: RECYCLED

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: OTHER

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 225000

Source volume (acre-feet): 29.000946

Source volume (gal): 9450000

Water source and transportation map:

GREEN_WAVE_20_32_FED_STATE_COM_WP_20_10_WATER_MAP_20181018093010.pdf

Water source comments: The attached Water Transfer Map is a proposal only and the final route and documentation will be provided by a Devon contractor prior to installation. When available Devon will always follow existing disturbance.

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Part of Rattlesnake 2 MDP. Dirt fill and caliche will be used to construct well pad. See attached map.
Construction Materials source location attachment:

RS_MDP_1_Pad_20_10_Caliche_Map_20181017080329.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Water Based and Oil Based Cuttings

Amount of waste: 1740 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
Disposal type description:

Disposal location description: All cuttings will disposed of at R360, Sundance, or equivalent.

Waste type: COMPLETIONS/STIMULATION

Waste content description: Flow back water during completion operations.

Amount of waste: 3000 barrels

Waste disposal frequency : One Time Only

Safe containment description: n/a

Safe containmant attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: Various disposal locations in Lea and Eddy counties.

Waste type: PRODUCED WATER

Waste content description: Average produced BWPD over the first year of production.

Amount of waste: 4100 barrels

Waste disposal frequency : Daily

Safe containment description: n/a

Safe containmant attachment:

Waste disposal type: OFF-LEASE INJECTION **Disposal location ownership:** STATE

Disposal type description:

Disposal location description: Produced water will be primarily disposed of at our Rattlesnake 16 SWD. Portions of this water will be recycled and used for stimulations (recycle facility co-located with SWD). Surplus produced water will be sent to third party suppliers for disposal.

Waste type: FLOWBACK

Waste content description: Average produced BWPD over the flowback period (first 30 days of production).

Amount of waste: 11500 barrels

Waste disposal frequency : Daily

Safe containment description: n/a

Safe containmant attachment:

Waste disposal type: OFF-LEASE INJECTION **Disposal location ownership:** STATE

Disposal type description:

Disposal location description: Produced water will be primarily disposed of at our Rattlesnake 16 SWD. Portions of this water will be recycled and used for stimulations (recycle facility co-located with SWD). Surplus produced water will be sent to third party suppliers for disposal.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Green_Wave_20_32_Fed_State_Com_10H_WELL_LAYOUT_20181017103236.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** RATTLESNAKE MDP 1 PAD

Multiple Well Pad Number: 20-10

Recontouring attachment:

Green_Wave_20_32_Fed_State_Com_10H_INTERIM_RECL_20181017103249.pdf

Drainage/Erosion control construction: n/a

Drainage/Erosion control reclamation: n/a

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Well pad proposed disturbance (acres): 8.282
Road proposed disturbance (acres): 2.333
Powerline proposed disturbance (acres): 5.035
Pipeline proposed disturbance (acres): 1.183
Other proposed disturbance (acres): 0
Total proposed disturbance: 16.833

Well pad interim reclamation (acres): 5.619
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 5.619

Well pad long term disturbance (acres): 2.663
Road long term disturbance (acres): 2.333
Powerline long term disturbance (acres): 5.035
Pipeline long term disturbance (acres): 1.183
Other long term disturbance (acres): 0
Total long term disturbance: 11.214

Disturbance Comments:

Reconstruction method: Operator will use Best Management Practices"BMP" to mechanically recontour to obtain the desired outcome.
Topsoil redistribution: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
Soil treatment: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
Existing Vegetation at the well pad: Shinnery, yucca, grasses and mesquite.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: TRAVIS **Last Name:** PHIBBS

Phone: (575)748-9929 **Email:** TRAVIS.PHIBBS@DVN.COM

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Maintain weeds on an as need basis.

Weed treatment plan attachment:

Monitoring plan description: Monitor as needed.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: GREEN WAVE 20-32 FED STATE COM **Well Number:** 10H

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? YES **Use APD as ROW?** YES

ROW Type(s): 281001 ROW - ROADS,288100 ROW – O&G Pipeline,FLPMA (Powerline),Other

ROW Applications

SUPO Additional Information: PART OF RATTLESNAKE MDP 2. SEE SEC. 4 FOR FACILITY, ELECTRIC AND FLOWLINE PLATS.

Use a previously conducted onsite? YES

Previous Onsite Information: CONDUCTED 1/27/2017

Other SUPO Attachment

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BUREAU OF LAND MANAGEMENT

PWD Data Report

03/25/2019

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? NO

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:

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? NO

Produced Water Disposal (PWD) Location:

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

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?

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? NO

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? NO

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? NO

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

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BUREAU OF LAND MANAGEMENT

Bond Info Data Report

03/25/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

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: