Form 3160-3
(June 2015)

HOBBS OCD

JUN 04 2019

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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.
NMNM096256

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.
ARENA ROJA FED UNIT 15-10 9H (325736)

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

9. API Well No.
30-025-46153

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
WC-025 G-09 S263504N / WOLFCAMP (98117)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface SENW / 2488 FNL / 2455 FWL / LAT 32.043693 / LONG -103.355962

At proposed prod. zone NWNE / 20 FNL / 1710 FEL / LAT 32.065001 / LONG -103.352374

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 15 / T26S / R35E / 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)
2455 feet

16. No of acres in lease
640

17. Spacing Unit dedicated to this well
240

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
4529 feet

19. Proposed Depth
12360 feet / 20254 feet

20. BLM/BIA Bond No. in file
FED: CO1104

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3112 feet

22. Approximate date work will start*
04/20/2020

23. Estimated duration
45 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Rebecca Deal / Ph: (405)228-8429	01/18/2019

Title
Regulatory Compliance Professional

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	05/24/2019

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 06/24/19

APPROVED WITH CONDITIONS

KZ 06/24/19

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 05/24/2019

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.

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PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION LLC.
LEASE NO.:	NMNM096256
WELL NAME & NO.:	9H – ARENA ROJA FED UNIT 15-10
SURFACE HOLE FOOTAGE:	2488'/N & 2455'/W
BOTTOM HOLE FOOTAGE	20'/N & 1710'/W
LOCATION:	SECTION 15, T26S, R35E, 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 **1075 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 **1075 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.

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)

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

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 COMPNAY LP
LEASE NO.:	
WELL NAME & NO.:	9H – ARENA ROJA FED UNIT 15-10
SURFACE HOLE FOOTAGE:	2488'/N & 2455'/W
BOTTOM HOLE FOOTAGE	20'/N & 1710'/W
LOCATION:	SECTION 15, T26S, R35E, 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.

Approval Date: 05/24/2019

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 Sub pad only, No grading big pad just sub pad.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

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

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

Power line Avian Protection

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.

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.

Fence 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. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Livestock Watering Requirement

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

The operator must contact the allotment holder prior to construction to identify the location of the pipeline. The operator must take measures to protect the pipeline from compression or other damages. If the pipeline is damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipeline immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock

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. The operator 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. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent 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.

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.

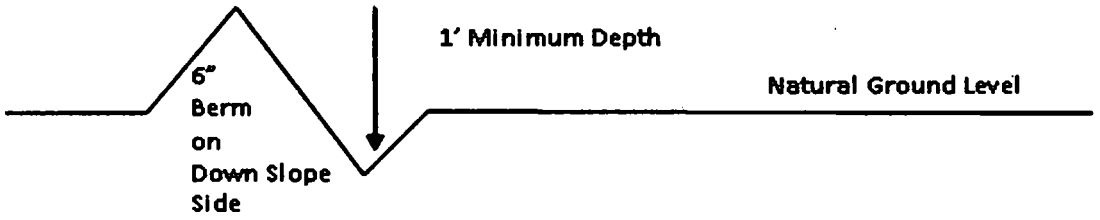
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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.

Livestock Watering Requirement

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

-OR-

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

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

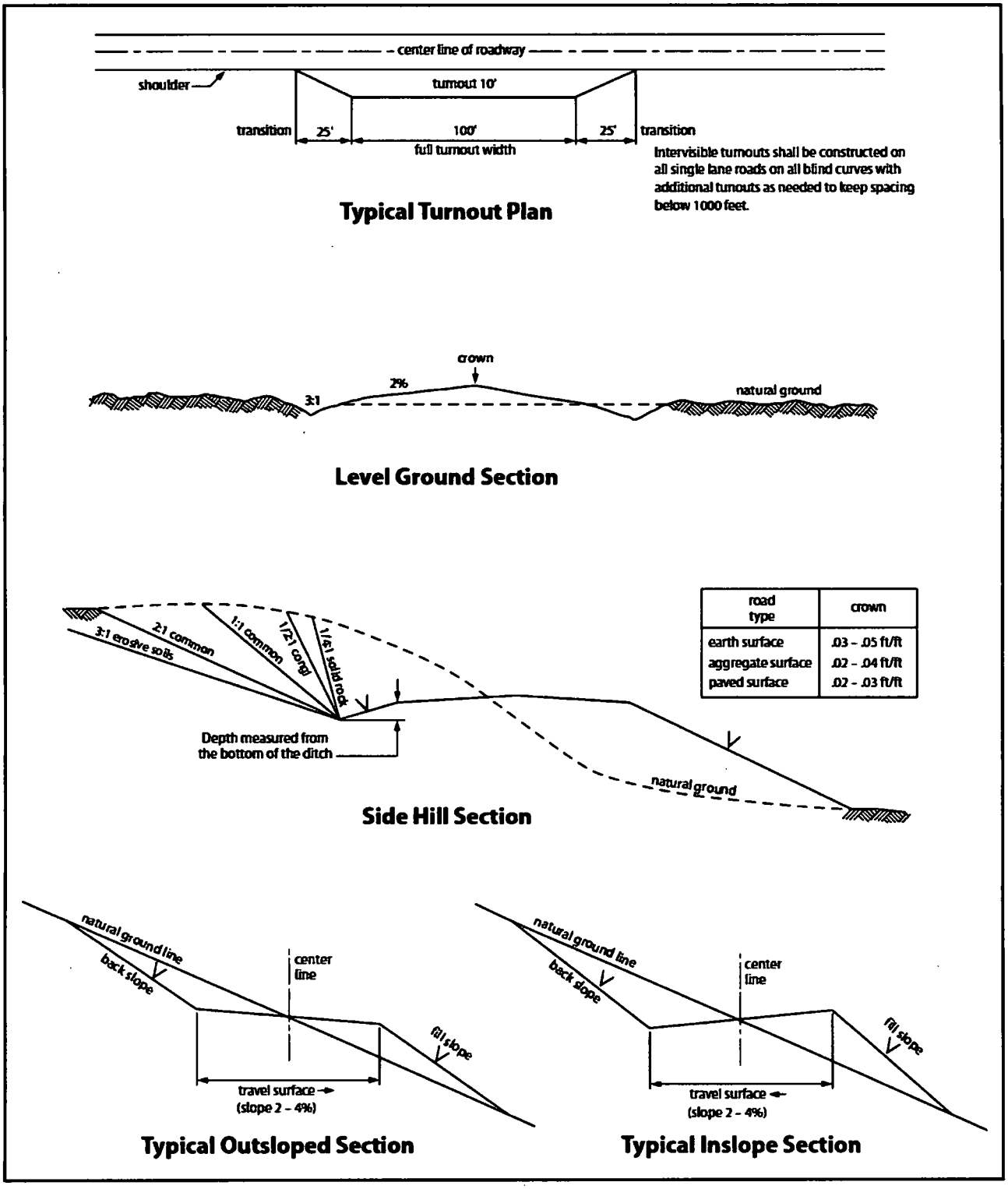


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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
( ) seed mixture 2	( ) seed mixture 4
(X) 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:

c. 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.
d. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

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.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

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).

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

Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

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

*Pounds of pure live seed:

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

AFMSS

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

Operator Certification Data Report

05/28/2019

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:** 01/18/2019

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

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

Phone: (405)228-8429

Email address: Rebecca.Deal@dvn.com

Field Representative

Representative Name: TRAVIS PHIBBS

Street Address: 333 W SHERIDAN AVE

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

Phone: (575)748-9929

Email address: TRAVIS.PHIBBS@DVN.COM

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

Application Data Report

05/28/2019

APD ID: 10400037996 **Submission Date:** 01/18/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

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

[redacted]

Show Final Text

Section 1 - General

APD ID: 10400037996 **Tie to previous NOS?** **Submission Date:** 01/18/2019

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

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

Lease number: NMNM096256 **Lease Acres:** 640

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? NO **Master Development Plan name:**

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

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

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WC-025 G-09 S263504N **Pool Name:** WOLFCAMP

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

Is the proposed well in an area containing other mineral resources? USEABLE WATER

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:** ARENA ROJA 15 WELLPAD **Number:** 3

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:** 4529 FT **Distance to lease line:** 2455 FT

Reservoir well spacing assigned acres Measurement: 240 Acres

Well plat: ARENA_ROJA_FED_UNIT_15_10_9H_C_102_SIGNED_20190115071711.pdf

Well work start Date: 04/20/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

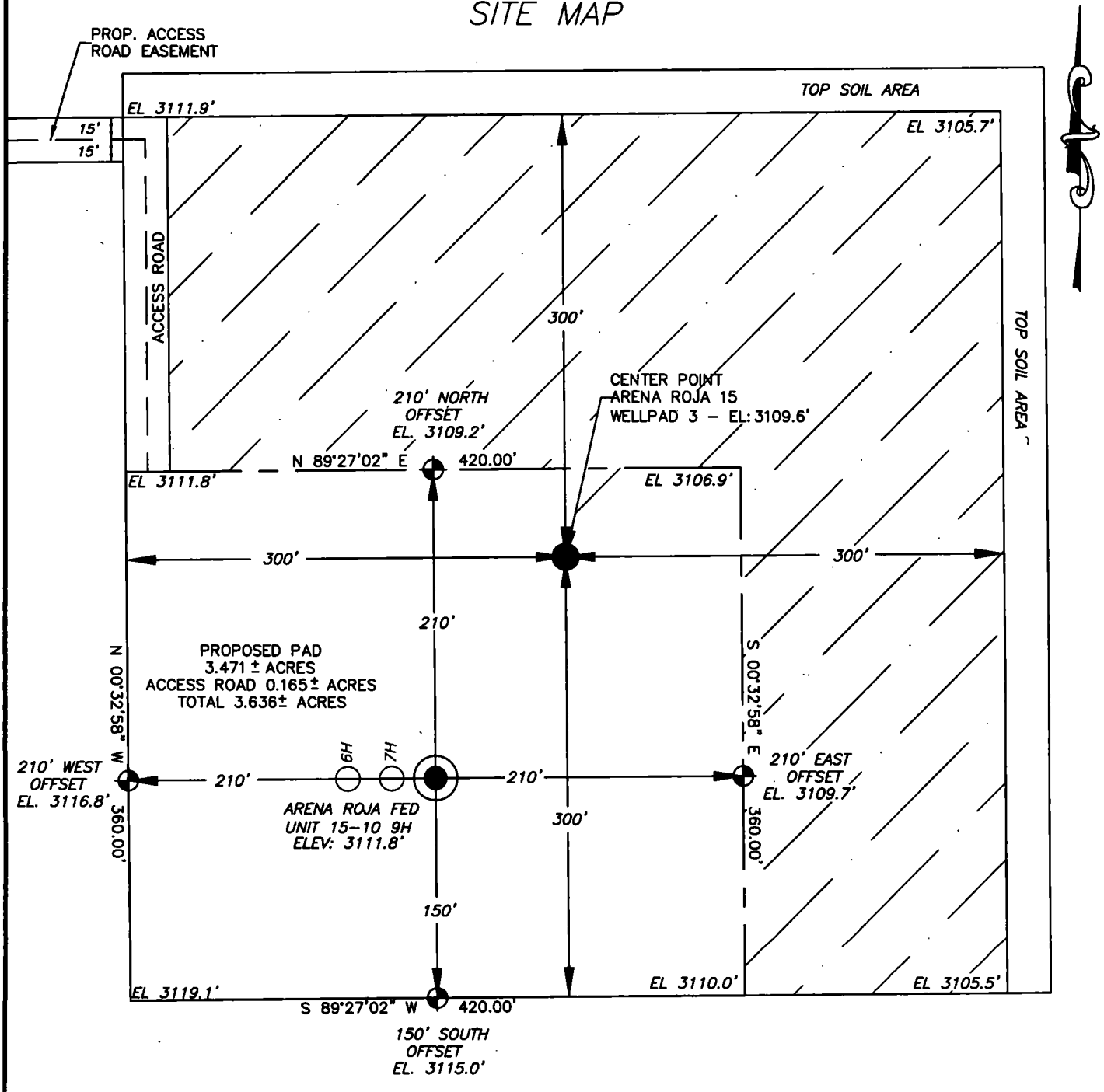
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2488	FNL	2455	FWL	26S	35E	15	Aliquot SENW	32.043693	-103.355962	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 096256	3112	0	0
KOP Leg #1	2788	FNL	1710	FEL	26S	35E	15	Aliquot SWNE	32.04284	-103.352373	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 096256	-8675	11865	11787
PPP Leg #1	2542	FNL	1710	FEL	26S	35E	15	Aliquot SWNE	32.043541	-103.352352	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 096256	-9124	12381	12236

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

	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	FNL	2300	FEL	26S	35E	10	Aliquot NWNE	32.064781	-103.352374	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 096254	-9248	20174	12360
BHL Leg #1	20	FNL	1710	FEL	26S	35E	10	Aliquot NWNE	32.065001	-103.352374	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 096254	-9248	20254	12360

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
SITE MAP



Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

DEVON ENERGY PRODUCTION COMPANY, L.P.
ARENA ROJA FED UNIT 15–10 9H
LOCATED 2488 FT. FROM THE NORTH LINE
AND 2455 FT. FROM THE WEST LINE OF
SECTION 15, TOWNSHIP 26 SOUTH,
RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

0 100 200

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF J-3 (FRYING PAN ROAD) AND BECKHAM ROAD HEAD WEST FOR 5.37 MILES. TURN RIGHT AND CONTINUE NORTH ON AN EXISTING LEASE ROAD FOR 0.97 MILES. TURN RIGHT ONTO A PROPOSED ACCESS ROAD AND HEAD NORTH FOR 1.50 MILES AND THEN TURN RIGHT AND HEAD EAST FOR 110' FEET TO THE NORTHWEST CORNER OF THE PROPOSED ARENA ROJA 15 WELLPAD 3.

HORIZON ROW LLC

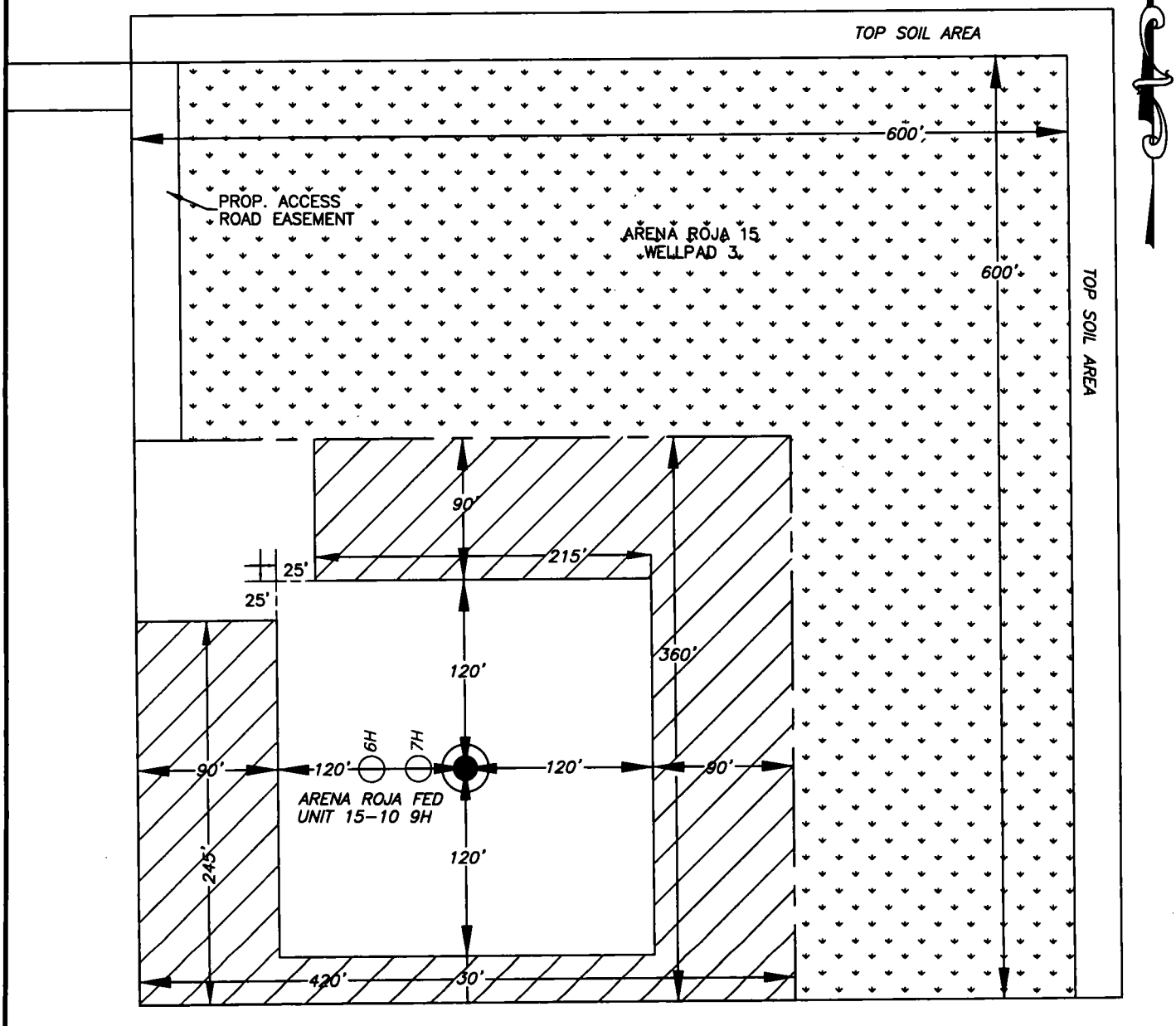
DEVON ENERGY PRODUCTION CO., L.P.

Drawn by: CHRIS MAAS

Date: 12/19/2018

Drawn for: devon

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



DENOTES INTERIM PAD RECLAMATION AREA

DENOTES GRADING SITE RECLAMATION AREA

1.860± ACRES INTERIM PAD RECLAMATION AREA
4.628± ACRES GRADING SITE RECLAMATION AREA
1.776± ACRES NON-RECLAIMED AREA
8.264± ACRES GRADING SITE RECLAMATION AREA

0 100 200

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LEA COUNTY, STATE OF NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

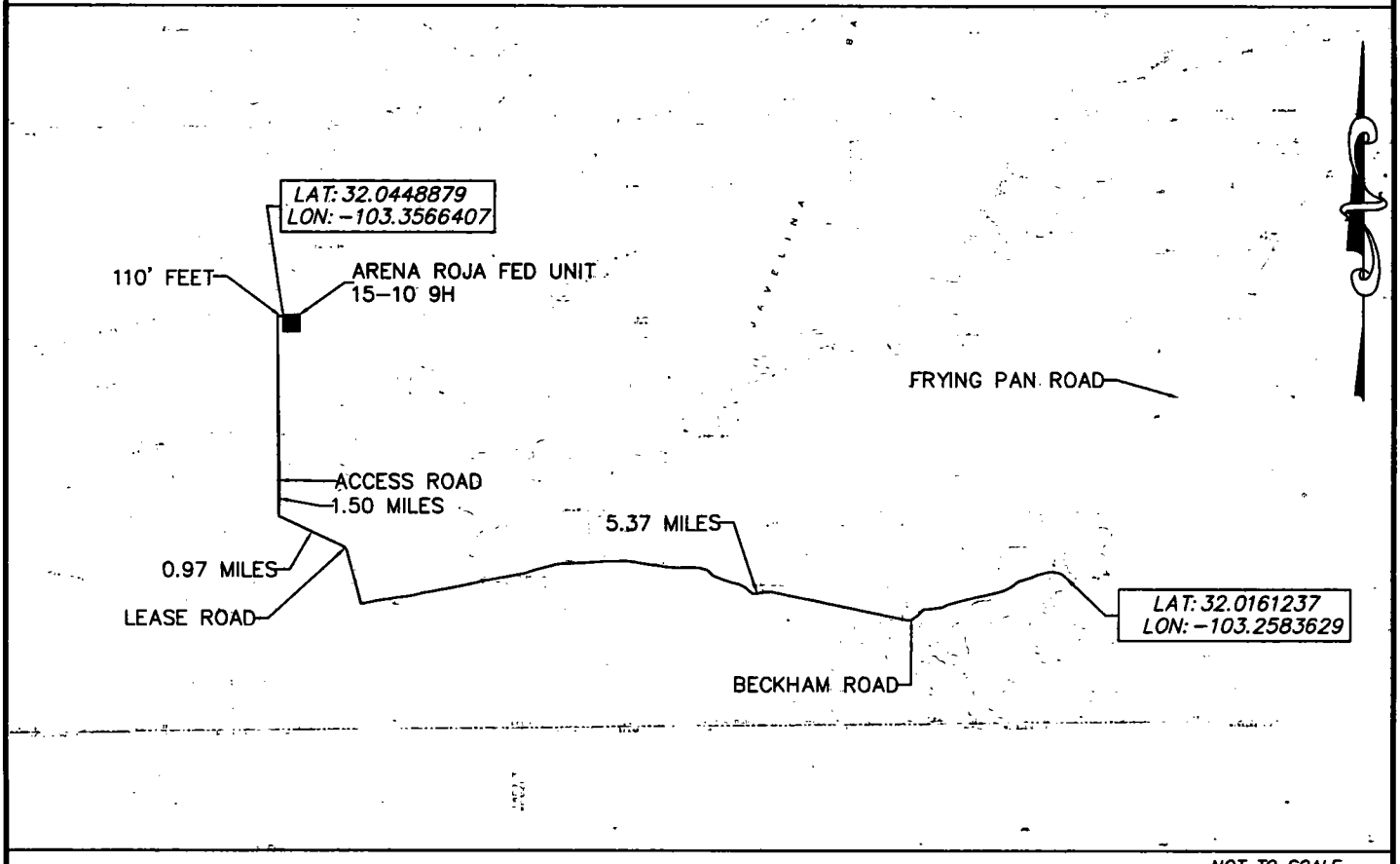
Drawn by: CHRIS MAAS

Date: 12/20/2018

Drawn for:

devon

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
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LOCATED 2488 FT. FROM THE NORTH LINE
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SECTION 15, TOWNSHIP 26 SOUTH,
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LEA COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

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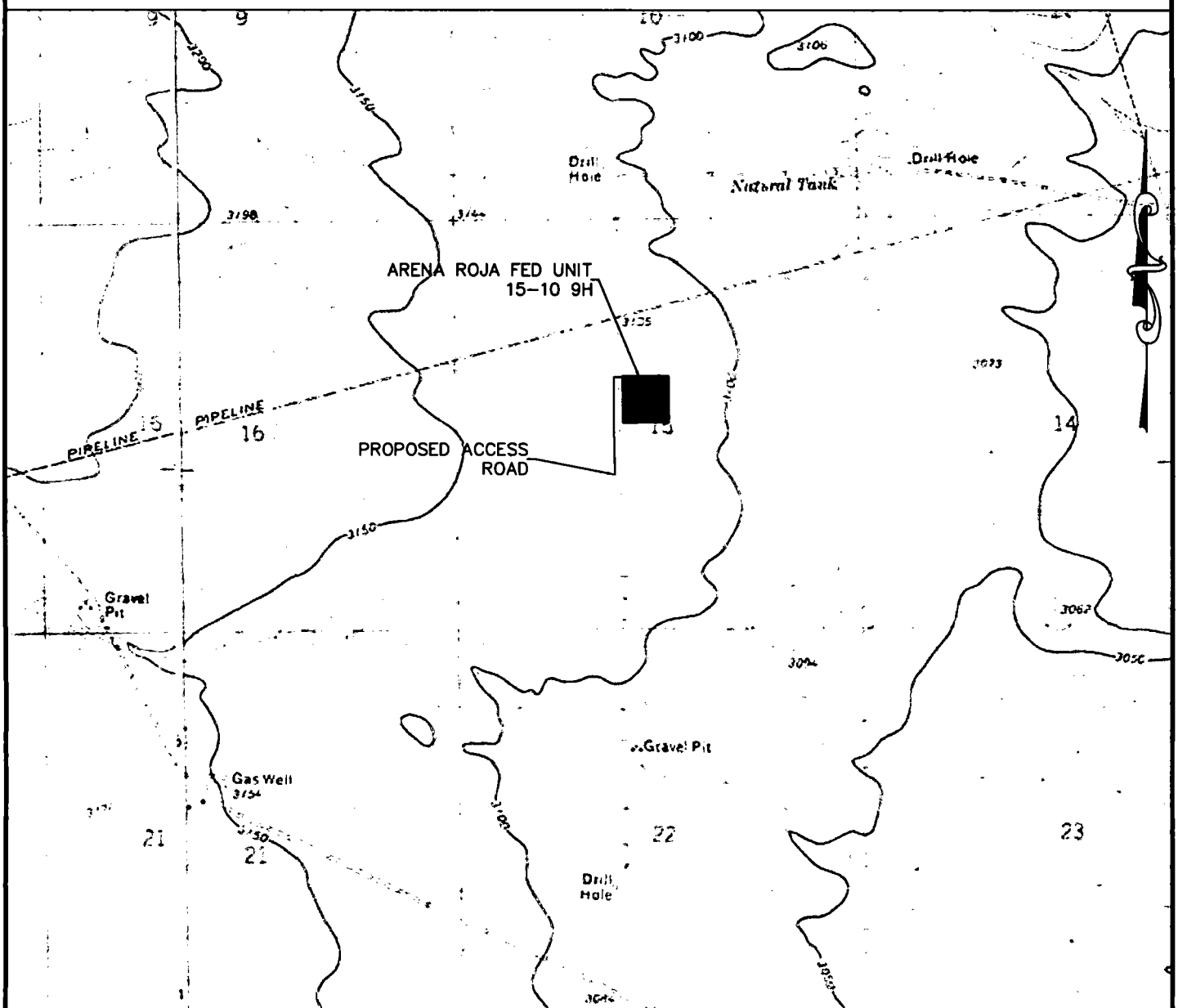
HORIZON ROW LLC		Drawn for: devon
DEVON ENERGY PRODUCTION CO., L.P.		
Drawn by: CHRIS MAAS	Date: 12/20/2018	

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP

DEVON ENERGY PRODUCTION COMPANY, L.P.
ARENA ROJA FED UNIT 15-10 9H
LOCATED 2488 FT. FROM THE NORTH LINE
AND 2455 FT. FROM THE WEST LINE OF
SECTION 15, TOWNSHIP 26 SOUTH,
RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

0 2000 4000

HORIZON ROW LLC

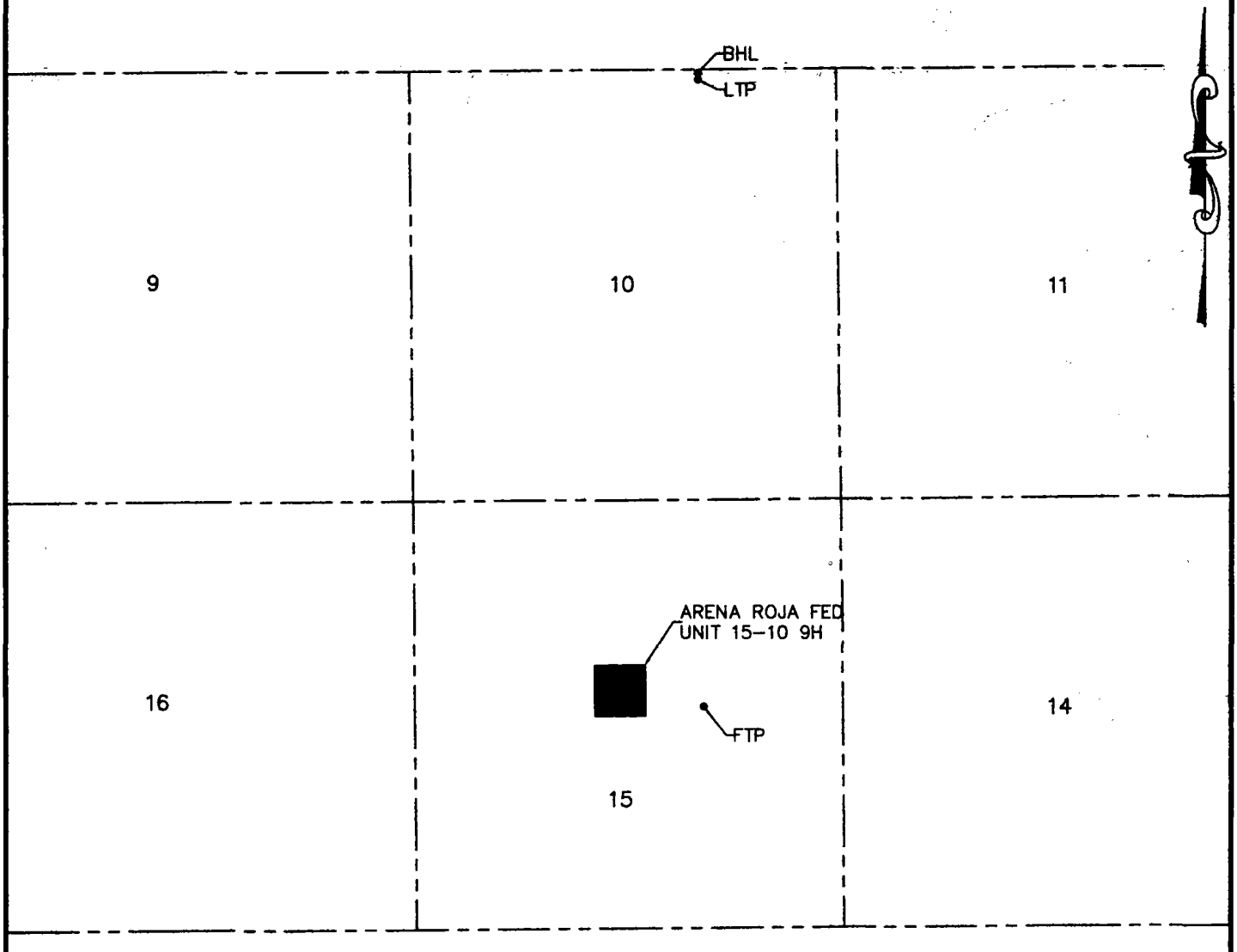
DEVON ENERGY PRODUCTION CO., L.P.

Drawn by: CHRIS MAAS

Date: 12/20/2018

Drawn for: devon

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



DEVON ENERGY PRODUCTION COMPANY, L.P.
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SECTION 15, TOWNSHIP 26 SOUTH,
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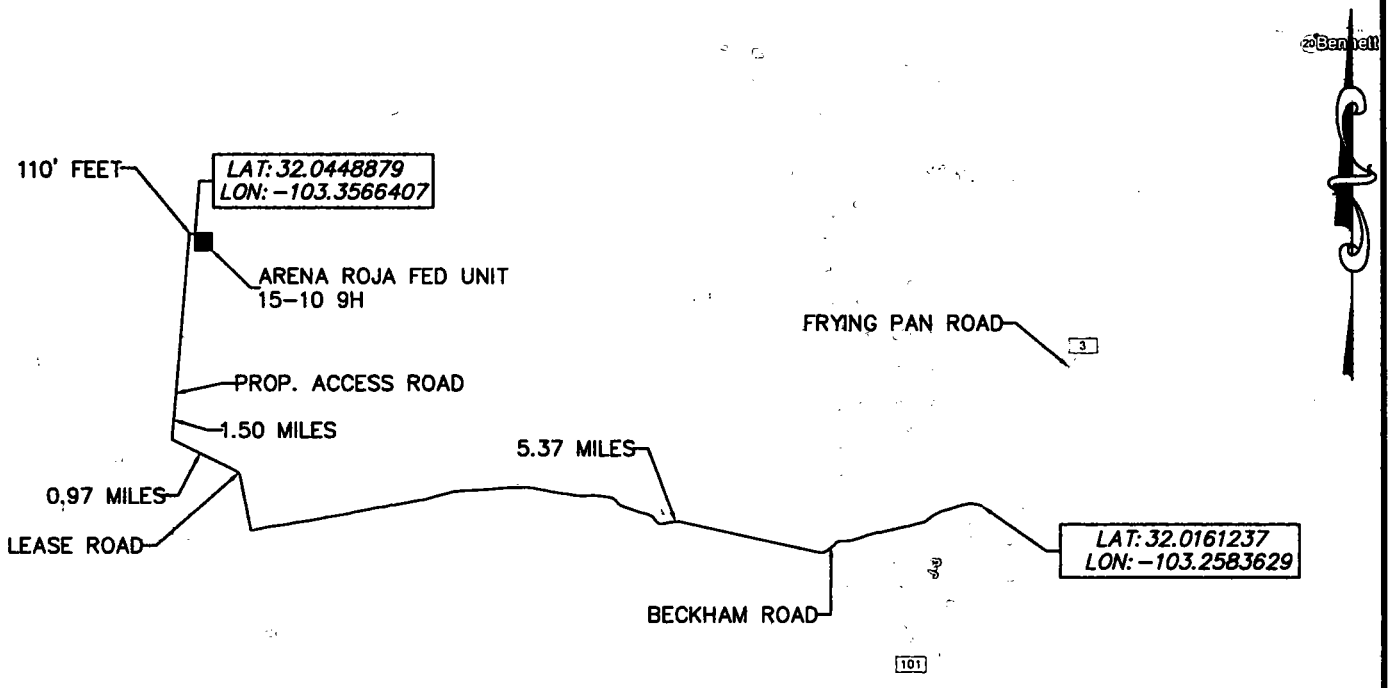
LEA COUNTY, STATE OF NEW MEXICO

0 2000 4000

HORIZON ROW LLC		Drawn for: devon
DEVON ENERGY PRODUCTION CO., L.P.		
Drawn by: CHRIS MAAS	Date: 12/20/2018	

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
AERIAL ACCESS ROUTE MAP

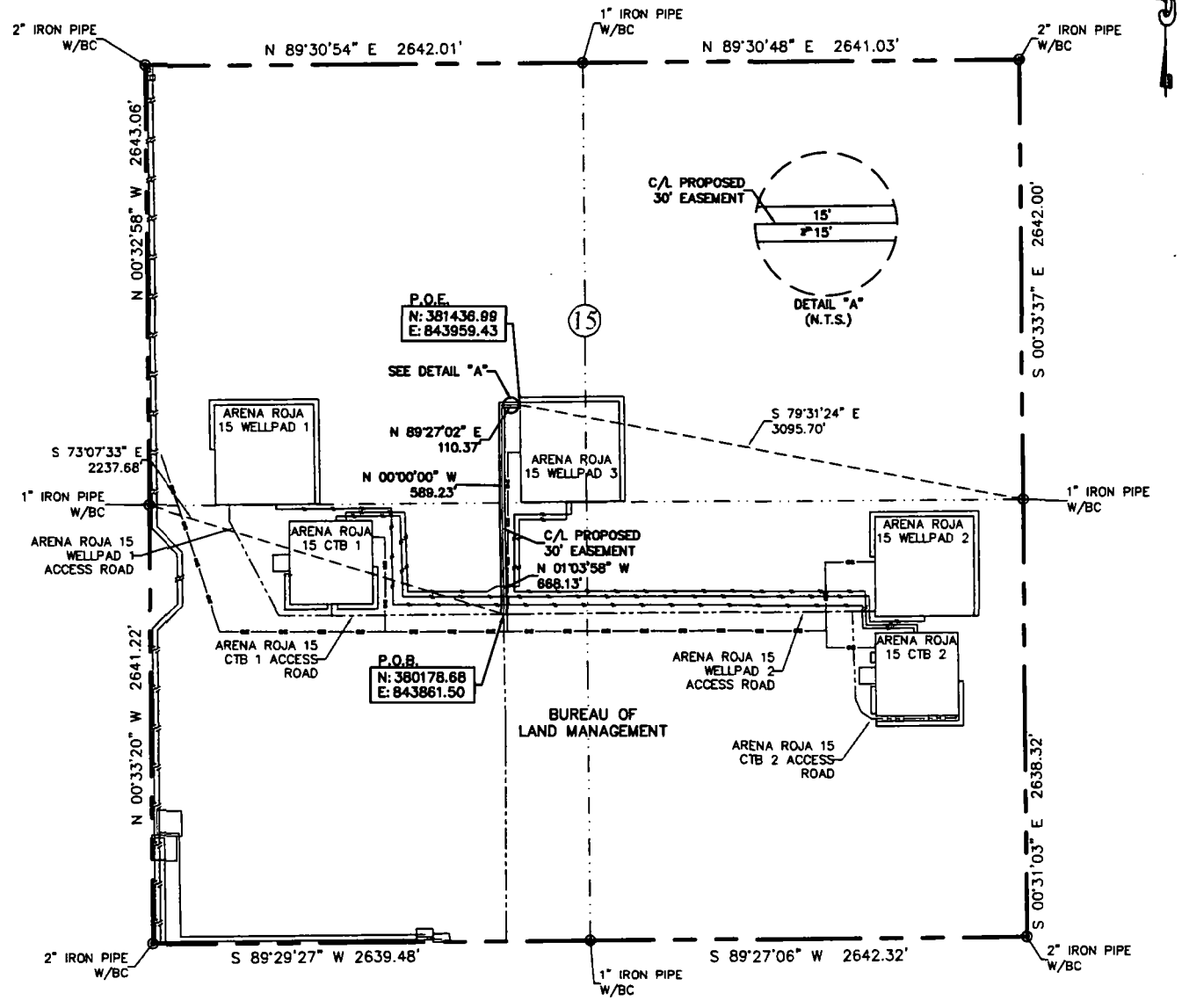


NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
ARENA ROJA FED UNIT 15-10 9H
LOCATED 2488 FT. FROM THE NORTH LINE
AND 2455 FT. FROM THE WEST LINE OF
SECTION 15, TOWNSHIP 26 SOUTH,
RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

HORIZON ROW LLC		Drawn for: devon
DEVON ENERGY PRODUCTION CO., L.P.		
Drawn by: CHRIS MAAS	Date: 12/20/2018	

EXHIBIT "A"
ACCESS ROAD PLAT
SECTION 15, T26S–R35E, N.M.P.M.
LEA COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.942 ACRE(S)
1367.73 FEET OR 82.89 RODS

0+00.0 P.O.B
0+56.2 ARENA ROJA 15 WP 1 TO ARENA ROJA 15 CTB 2 FLOWLINE
1+05.9 ARENA ROJA 15 WP 2 TO ARENA ROJA 15 CTB 1 FLOWLINE
13+67.8 P.O.E./ARENA ROJA 15 WELLPAD 3

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 12-21-2018
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC

0 1000 2000

HORIZON ROW LLC Drawn for: devon	DEVON ENERGY PRODUCTION COMPANY, L.P. ARENA ROJA 15 WELLPAD 3 ACCESS ROAD	LINE NUMBER: WBS NUMBER: SCALE: 1" = 1000'
Drawn by: CHRIS MAAS Date: 10/05/2018	PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 15, T26S–R35E, N.M.P.M.	REVISIONS: DATE OF SURVEY: 10/5/18

SECTION 15, T26S-R35E, N.M.P.M.,
LEA COUNTY, NEW MEXICO

ACCESS ROAD PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the southwest quarter (SW ¼) and the northwest quarter (NW ¼) of Section 15, Township 26 South, Range 35 East, N.M.P.M., Lea County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/BC for the west quarter corner of Section 15, T26S-R35E, N.M.P.M., Lea County, New Mexico;

Thence S 73°07'33" E a distance of 2237.68' to the **Point of Beginning** of this easement having coordinates of Northing=380178.68, Easting=843861.50 feet and continuing the following courses;

Thence N 01°03'58" W a distance of 668.13' to an angle point;

Thence N 00°00'00" W a distance of 589.23' to an angle point;

Thence N 89°27'02" E a distance of 110.37' to the **Point of Ending** having coordinates of Northing=381436.99, Easting=843959.43 feet from said point a 1" iron pipe w/BC for the east quarter corner of Section 15, T26S-R35E bears S 79°31'24" E a distance of 3095.70', covering **1367.73' or 82.89 rods** and having an area of **0.942 acres**.

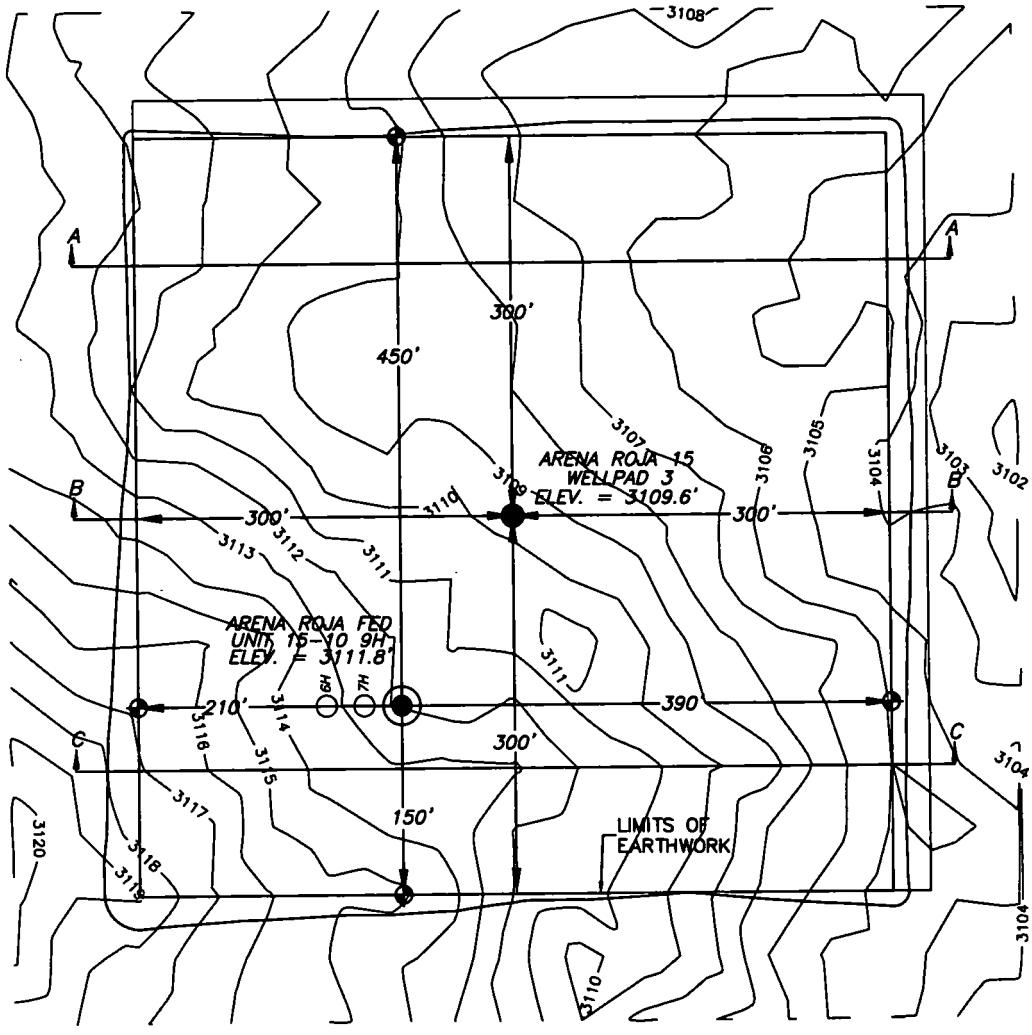
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 12/21/2018
Horizon Row, LLC
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizon Row, LLC

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
PLAN VIEW



DEVON ENERGY PRODUCTION COMPANY, L.P.
ARENA ROJA FED UNIT 15-10 9H
LOCATED 2488 FT. FROM THE NORTH LINE AND 2455 FT. FROM THE WEST LINE OF SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

0 150 300

EARTHWORK QUANTITIES FOR
ARENA ROJA 15 WELLPAD 3

CUT	FILL	NET
18,844 CY	18,844 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

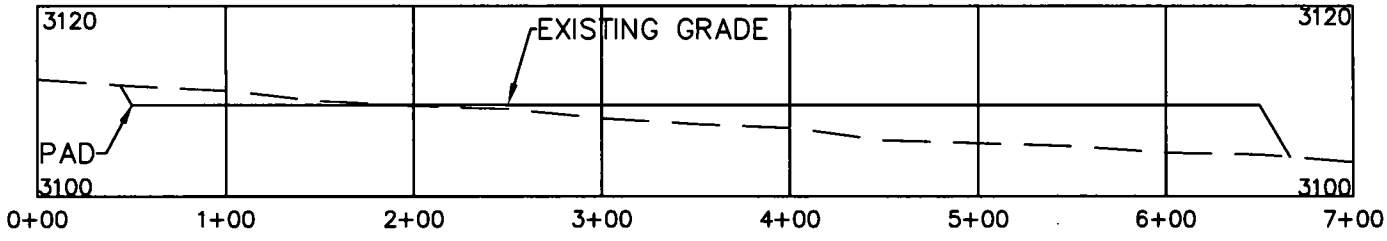
Drawn by: CHRIS MAAS

Date: 12/20/2018

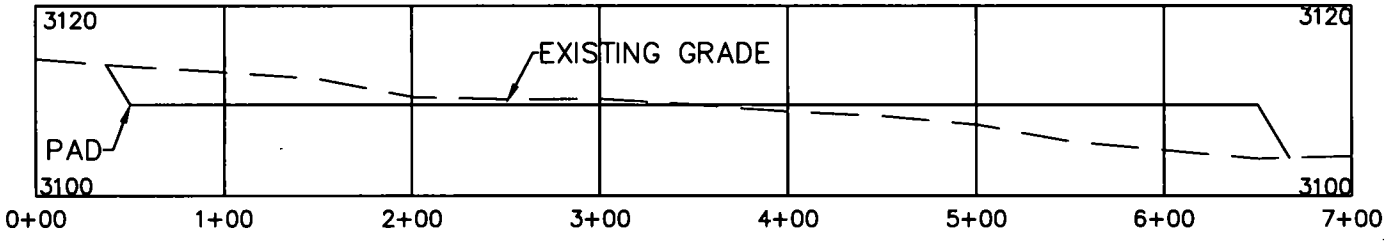
Drawn for: devon

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
CROSS SECTIONS

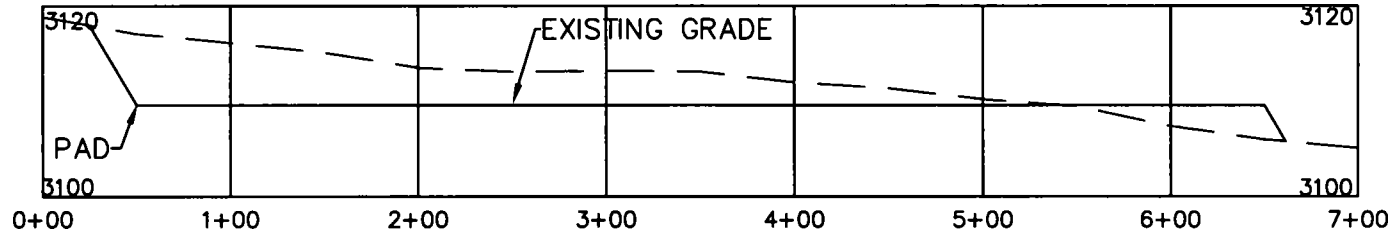
SECTION A–A



SECTION B–B



SECTION C–C



DEVON ENERGY PRODUCTION COMPANY, L.P.
ARENA ROJA FED UNIT 15–10 9H
LOCATED 2488 FT. FROM THE NORTH LINE
AND 2455 FT. FROM THE WEST LINE OF
SECTION 15, TOWNSHIP 26 SOUTH,
RANGE 35 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

SCALE 1" = 100' HORIZONTAL
SCALE 1" = 20' VERTICAL

EARTHWORK QUANTITIES FOR
ARENA ROJA 15 WELLPAD 3

CUT	FILL	NET
18,844 CY	18,844 CY	0 CY

EARTHWORK QUANTITIES ARE ESTIMATED

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by: CHRIS MAAS

Date: 12/20/2018

Drawn for: devon

APD ID: 10400037996 **Submission Date:** 01/18/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

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	---	3113	0	0	OTHER : Surface	NONE	No
2	RUSTLER	-1065	1065	1065	SANDSTONE	NONE	No
3	TOP SALT	-1585	1585	1585	SALT	NONE	No
4	BASE OF SALT	-4990	4990	4990	LIMESTONE	NONE	No
5	BELL CANYON	-5345	5345	5345	SANDSTONE	OIL	No
6	CHERRY CANYON	-6310	6310	6310	SANDSTONE	OIL	No
7	BRUSHY CANYON	-7920	7920	7920	SANDSTONE	OIL	No
8	BONE SPRING	-9225	9225	9225	SHALE	OIL	No
9	BONE SPRING 1ST	-10435	10435	10435	SANDSTONE	OIL	No
10	BONE SPRING 2ND	-10855	10855	10855	SANDSTONE	OIL	No
11	BONE SPRING 3RD	-12130	12130	12130	SANDSTONE	OIL	No
12	WOLFCAMP	-12445	12445	12445	SHALE	OIL	Yes
13	STRAWN	-14245	14245	14245	LIMESTONE	OIL	No

Section 2 - Blowout Prevention

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

Pressure Rating (PSI): 10M **Rating Depth:** 12360

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

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart. Devon requests a variance to run a 5M annular on a 10M BOP system. See separately attached variance request and support documents in AFMSS.
Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. 5M annular on 10M system will be tested to 100% of rated working pressure.

Choke Diagram Attachment:

10M_BOPE_DR_CLS_RKL_20190115072815.pdf

BOP Diagram Attachment:

10M_BOPE_DR_CLS_RKL_20190115072823.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 12360

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

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

Choke Diagram Attachment:

5M_BOPE_CK_20181109074341.pdf

BOP Diagram Attachment:

5M_BOPE_CK_20181109074349.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

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	1043	0	1043			1043	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	11865	0	11787			11865	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	11865	12765	11787	12360			900	P-110	29.7	OTHER - Flushmax III	1.125	1.25	BUOY	1.6	BUOY	1.6
4	PRODUCTION	6.75	5.5	NEW	API	N	0	20254	0	12360			20254	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_20181109074509.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181109074522.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181109074556.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20181109074621.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

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		N/A	0
SURFACE	Lead		0	1043	649	1.34	14.8	870	50	Class C	1% Calcium Chloride
INTERMEDIATE	Lead		0	8765	748	3.27	9	2445	30	Tuned	Tuned Light
INTERMEDIATE	Tail		8765	12765	614	1.6	13.2	982	30	Class H	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		12565	20254	603.05	1.33	13.2	802	25	CLASS H	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: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1043	SPUD MUD	8.33	9				2			
1043	12765	SALT SATURATED	9	10				2			
1043	12765	SALT SATURATED	9	10				2			
12765	20245	OIL-BASED MUD	10	12				12			

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: 7713 **Anticipated Surface Pressure:** 4993.8

Anticipated Bottom Hole Temperature(F): 185

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:

Arena_Roja_Fed_Unit_15_10_9H__H2S_20190115073507.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: ARENA ROJA FED UNIT 15-10 **Well Number:** 9H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Arena_Roja_Fed_Unit_15_10_9H_Dir_Svy_20190115074252.pdf

Arena_Roja_Fed_Unit_15_10_9H_Plot_20190115074357.pdf

Other proposed operations facets description:

DIRECTIONAL SURVEY
PLOT
DRILLING PLAN
ANNULAR EXCEPTION REQUEST SUMMARY DOC
MB VERB
MB WELLHEAD DIAGRAM
SPUDDER RIG REQUEST DOC
4 SPEC SHEETS
GCP FORM

Other proposed operations facets attachment:

Clsd_Loop_20181109075525.pdf

7.625_29.70_P110_Flushmax_20181109083004.pdf

MB_Wellhd_10M_20181109075528.pdf

Spudder_Rig_Info_20181109075528.pdf

MB_Wellhd_10M_2_20181109083410.PDF

8.625_32__P110EC___7.875_SD_20181109083004.pdf

8.625_32__P110EC_VAM_FJL_NA_7.875_SD_20181109083005.PDF

5.5_x_20_P110_EC_VAMSG_20181109083003.PDF

13.375_48__H40_20190115074242.pdf

10.750_40.50__J55_USS_20190115074447.PDF

MB_Verb_10M_20190115074946.pdf

Arena_Roja_15_10_GCP_Form_20190115075422.pdf

8.625_32.00_P110HSCY_TLW_20190115123521.PDF

Arena_Roja_Fed_Unit_15_10_9H_Drilling_Document_R1_20190507124131.pdf

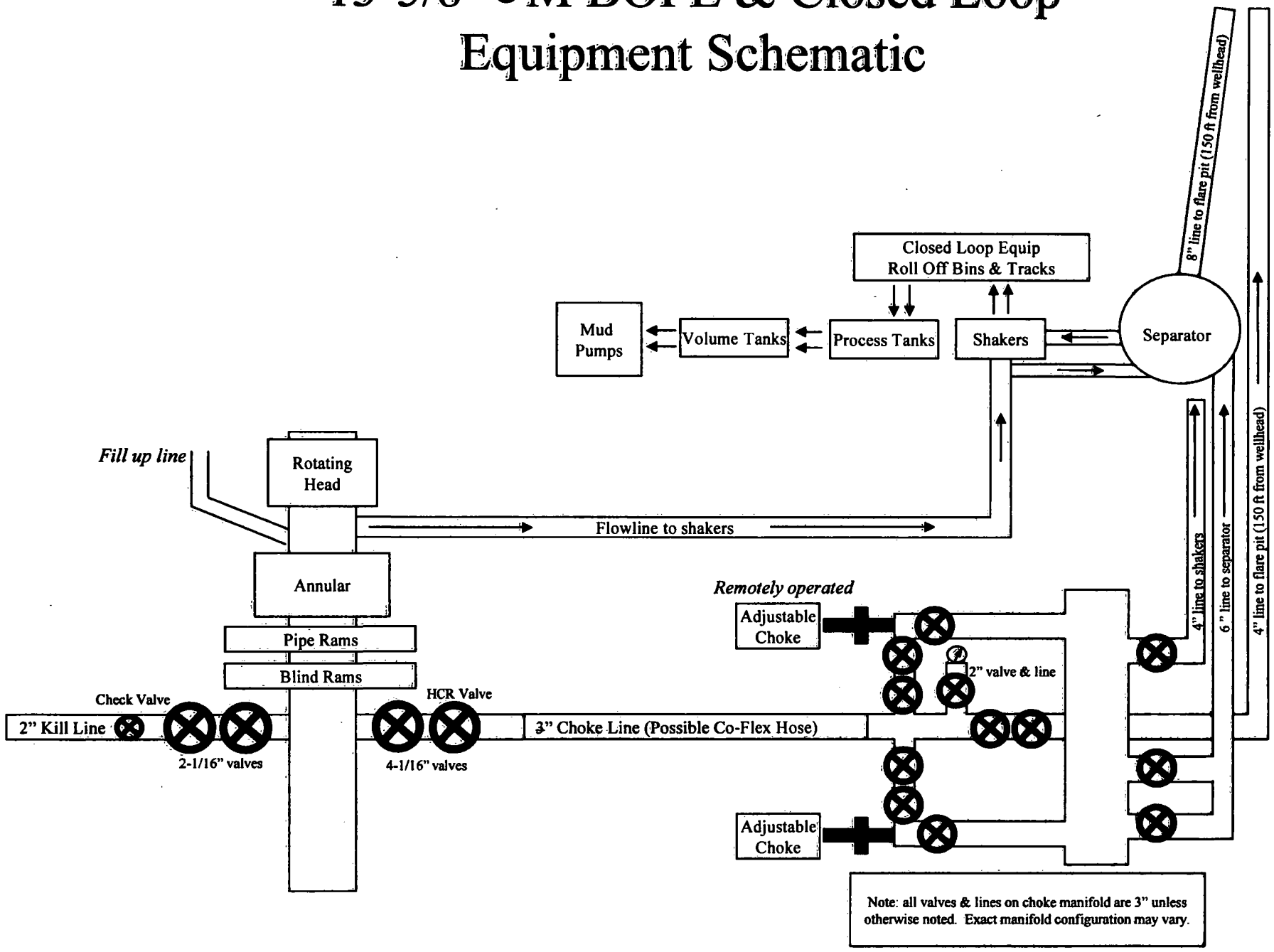
Other Variance attachment:

Co_flex_20181109075126.pdf

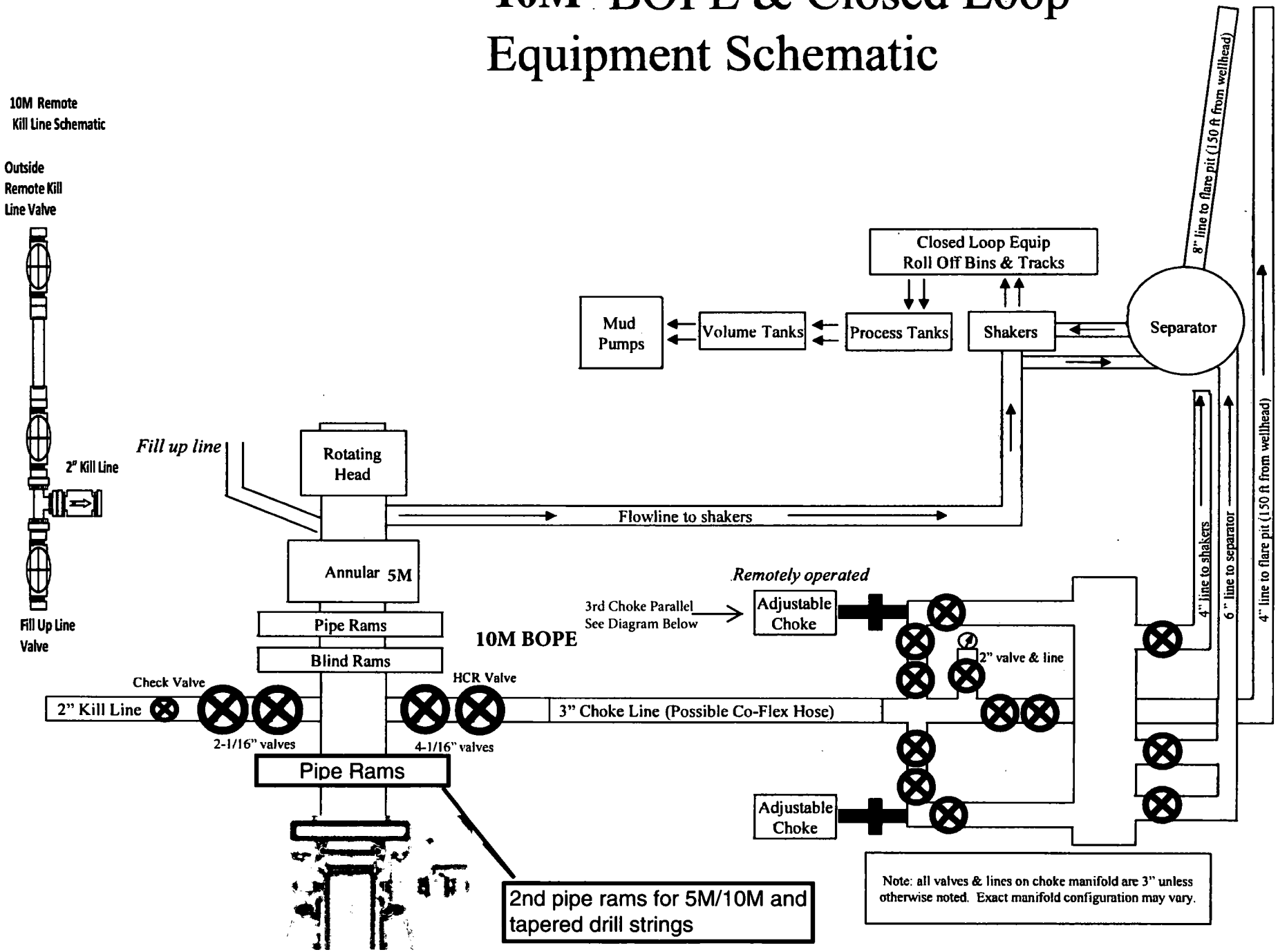
10M_BOPE_DR_CLS_RKL_20190115074925.pdf

Annular_Variance_Request_20190115074926.pdf

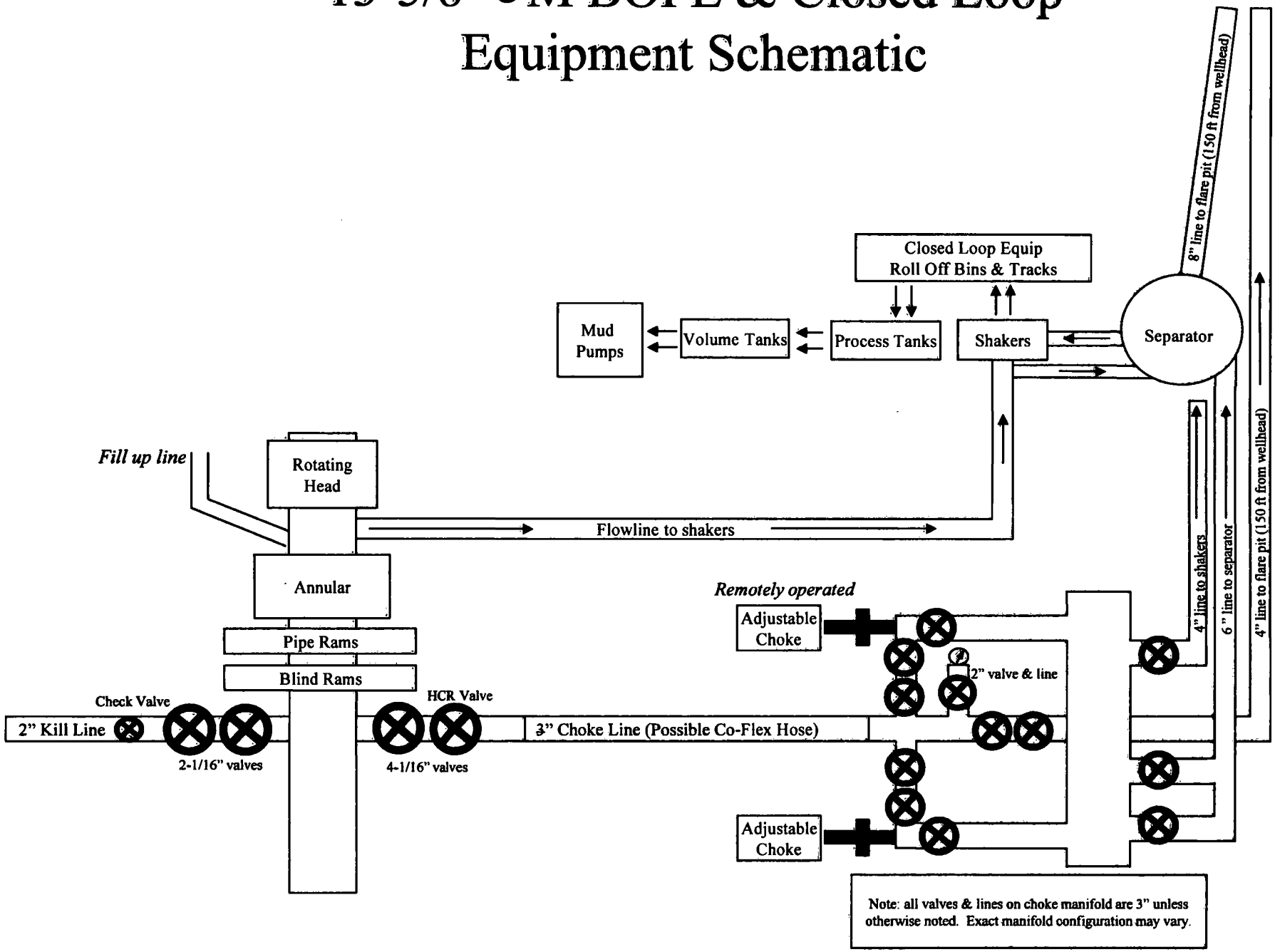
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



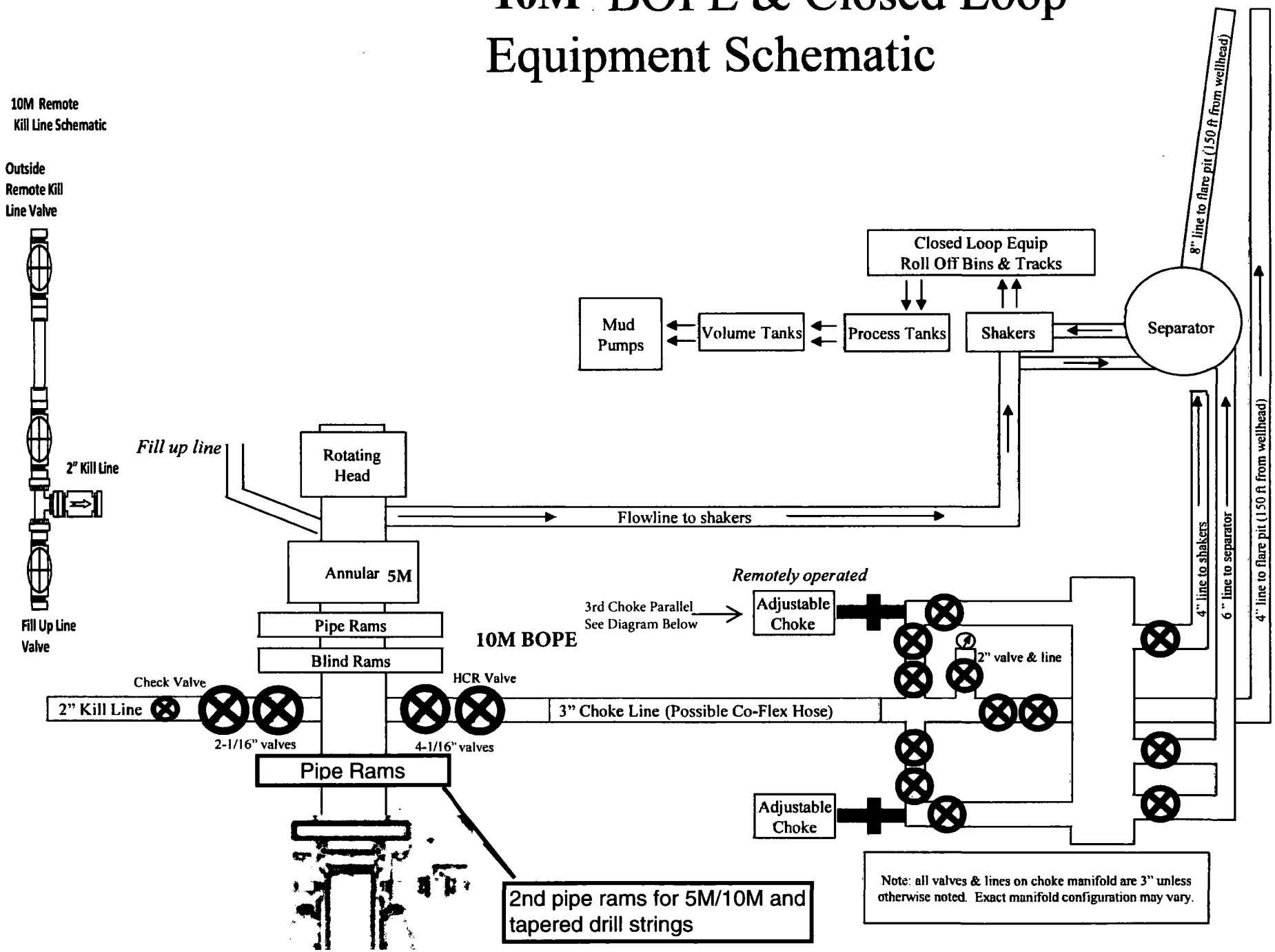
10M BOPE & Closed Loop Equipment Schematic

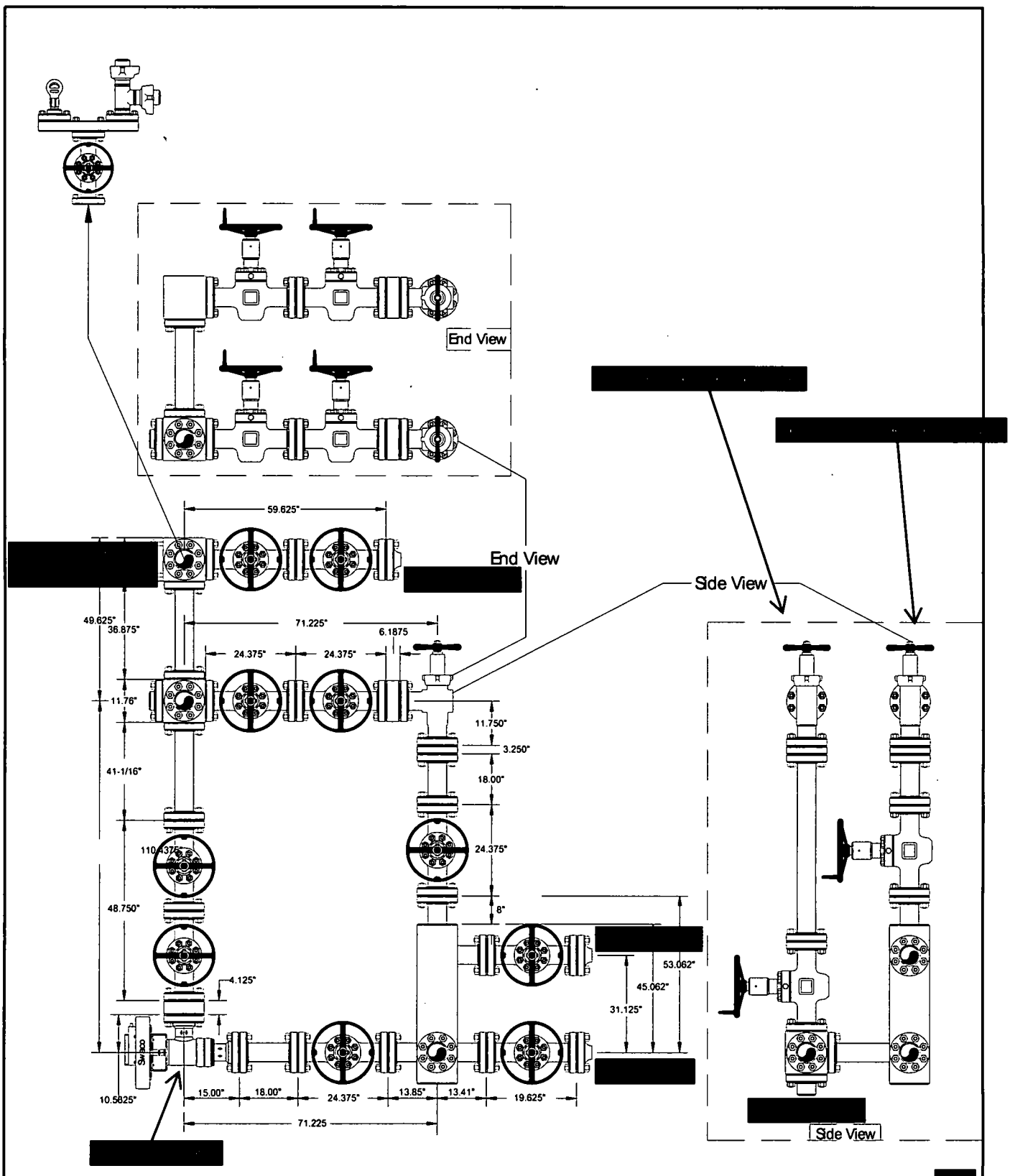


13-5/8" 5M BOPE & Closed Loop Equipment Schematic



10M BOPE & Closed Loop Equipment Schematic



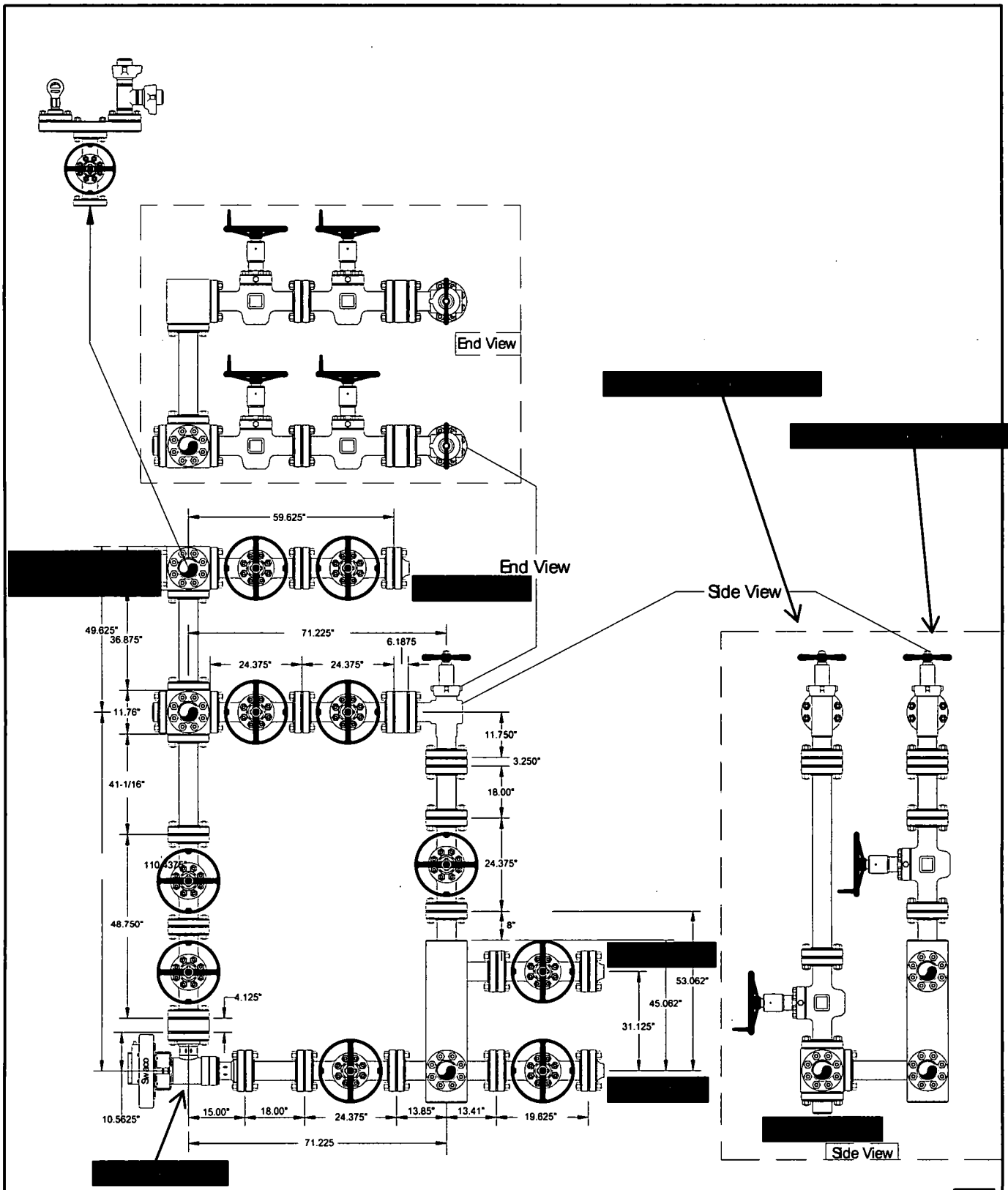


Helmerich & Payne

Flex 3 Rig w/ 3 Chokes

devon

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



[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Helmerich & Payne

Flex 3 Rig w/ 3 Chokes

devon

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

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 Ahĕad	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

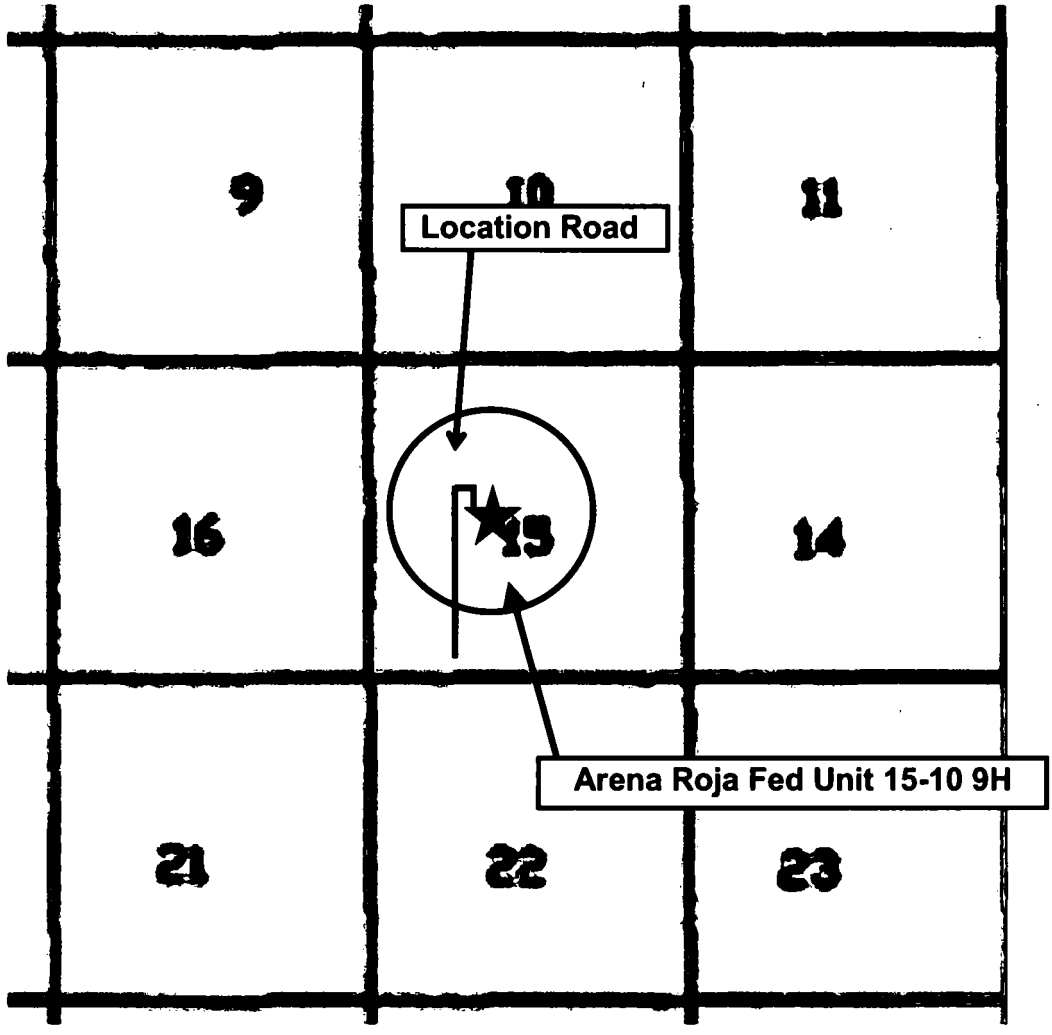
Arena Roja Fed Unit 15-10 9H

Sec-15 T-26S R-35E
2488' FNL & 2455' FWL
LAT. = 32.043693' N (NAD83)
LONG = 103.355962' W

Lea County NM

Arena Roja Fed Unit 15-10 9H

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.

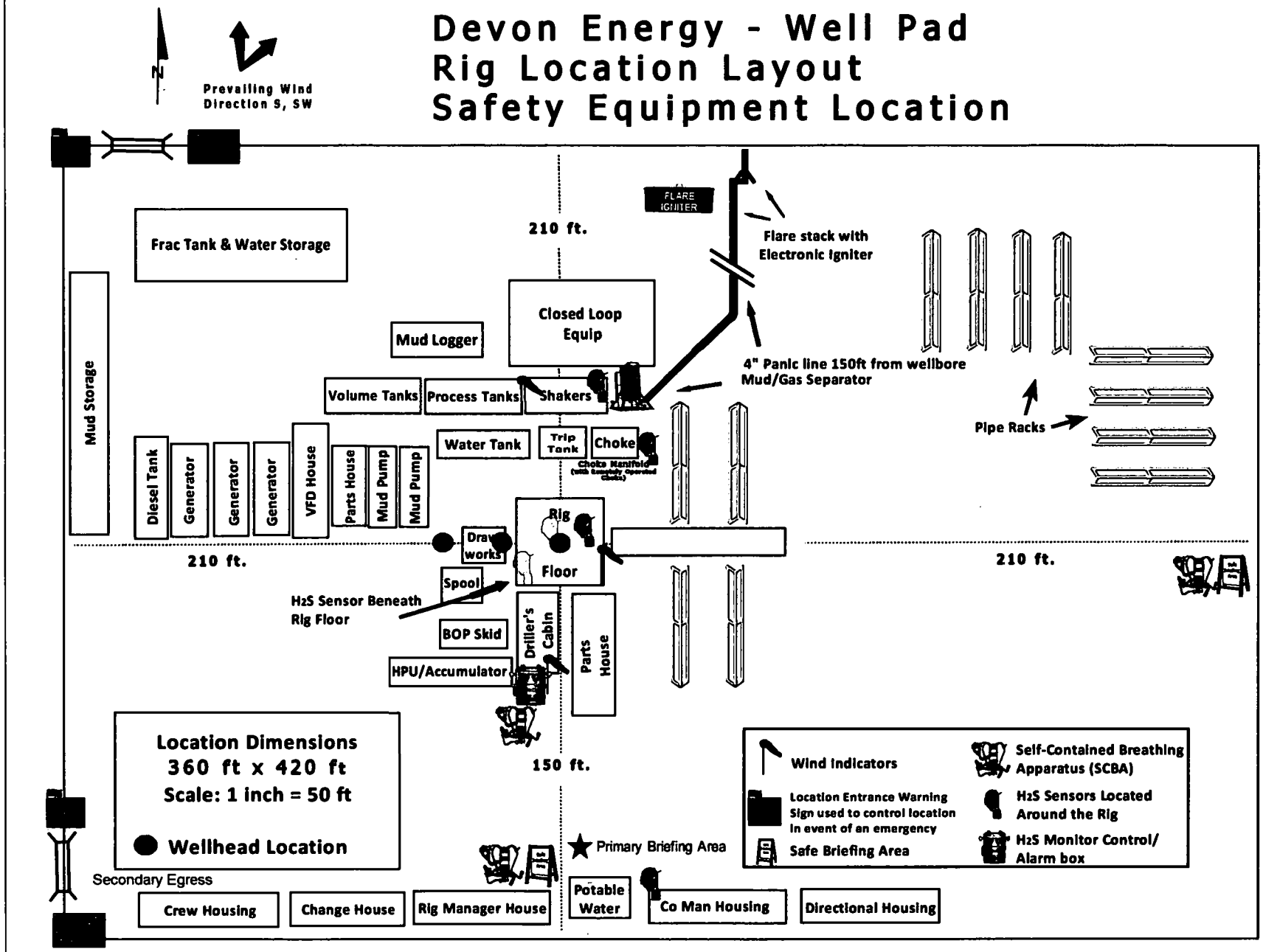
   B. There will be no drill stem testing.

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 15-T26S-R35E
Arena Roja Fed Unit 15-10 9H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

10 January, 2019

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Arena Roja Fed Unit 15-10 9H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3136.80ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3136.80ft
Site:	Sec 15-T26S-R35E	**North Reference:**	Grid
Well:	Arena Roja Fed Unit 15-10 9H	**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 15-T26S-R35E				
Site Position:		**Northing:**	383,471.16 usft	**Latitude:**	32.050535
From:	Map	**Easting:**	841,694.82 usft	**Longitude:**	-103.363890
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.51 °

Well	Arena Roja Fed Unit 15-10 9H				
Well Position	**+N/-S**	0.00 ft	**Northing:**	381,004.06 usft	**Latitude:**	32.043693
	+E/-W	0.00 ft	**Easting:**	844,173.59 usft	**Longitude:**	-103.355962
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,111.80 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	1/10/2019	6.67	59.91	47,694.68704232

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	7.64	

Plan Survey Tool Program **Date** 1/10/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,254.30	Permit Plan 1 (Wellbore #1)	MWD+HDGM OWSG MWD + HDGM	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,294.46	7.94	105.06	3,291.91	-14.29	53.10	1.00	1.00	0.00	105.06	
10,985.42	7.94	105.06	10,909.06	-290.47	1,079.60	0.00	0.00	0.00	0.00	
11,515.05	0.00	0.00	11,437.00	-300.00	1,115.00	1.50	-1.50	0.00	180.00	
11,865.09	0.00	0.00	11,787.04	-300.00	1,115.00	0.00	0.00	0.00	0.00	
12,765.10	90.00	359.48	12,360.00	272.94	1,109.77	10.00	10.00	0.00	359.48	PBHL - Arena Roja Fe
20,254.30	90.00	359.48	12,360.00	7,761.83	1,041.34	0.00	0.00	0.00	0.00	PBHL - Arena Roja Fe

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Arena Roja Fed Unit 15-10 9H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3136.80ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3136.80ft
Site:	Sec 15-T26S-R35E	**North Reference:**	Grid
Well:	Arena Roja Fed Unit 15-10 9H	**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	381,004.06	844,173.59	32.043693	-103.355962
100.00	0.00	0.00	100.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
200.00	0.00	0.00	200.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
300.00	0.00	0.00	300.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
400.00	0.00	0.00	400.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
500.00	0.00	0.00	500.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
600.00	0.00	0.00	600.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
700.00	0.00	0.00	700.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
800.00	0.00	0.00	800.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
900.00	0.00	0.00	900.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,000.00	0.00	0.00	1,000.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,100.00	0.00	0.00	1,100.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,200.00	0.00	0.00	1,200.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,300.00	0.00	0.00	1,300.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,400.00	0.00	0.00	1,400.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,500.00	0.00	0.00	1,500.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,600.00	0.00	0.00	1,600.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,700.00	0.00	0.00	1,700.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,800.00	0.00	0.00	1,800.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
1,900.00	0.00	0.00	1,900.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,000.00	0.00	0.00	2,000.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,100.00	0.00	0.00	2,100.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,200.00	0.00	0.00	2,200.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,300.00	0.00	0.00	2,300.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,400.00	0.00	0.00	2,400.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,500.00	0.00	0.00	2,500.00	0.00	0.00	381,004.06	844,173.59	32.043693	-103.355962
2,600.00	1.00	105.06	2,599.99	-0.23	0.84	381,003.83	844,174.43	32.043692	-103.355960
2,700.00	2.00	105.06	2,699.96	-0.91	3.37	381,003.15	844,176.96	32.043690	-103.355952
2,800.00	3.00	105.06	2,799.86	-2.04	7.58	381,002.02	844,181.17	32.043687	-103.355938
2,900.00	4.00	105.06	2,899.68	-3.63	13.48	381,000.43	844,187.07	32.043682	-103.355919
3,000.00	5.00	105.06	2,999.37	-5.66	21.05	380,998.39	844,194.64	32.043677	-103.355895
3,100.00	6.00	105.06	3,098.90	-8.15	30.31	380,995.90	844,203.90	32.043670	-103.355865
3,200.00	7.00	105.06	3,198.26	-11.10	41.24	380,992.96	844,214.83	32.043661	-103.355830
3,294.46	7.94	105.06	3,291.91	-14.29	53.10	380,989.77	844,226.69	32.043652	-103.355792
3,300.00	7.94	105.06	3,297.40	-14.49	53.84	380,989.57	844,227.43	32.043652	-103.355789
3,400.00	7.94	105.06	3,396.44	-18.08	67.19	380,985.98	844,240.78	32.043641	-103.355746
3,500.00	7.94	105.06	3,495.48	-21.67	80.54	380,982.39	844,254.12	32.043631	-103.355703
3,600.00	7.94	105.06	3,594.52	-25.26	93.88	380,978.80	844,267.47	32.043621	-103.355660
3,700.00	7.94	105.06	3,693.56	-28.85	107.23	380,975.21	844,280.82	32.043611	-103.355617
3,800.00	7.94	105.06	3,792.60	-32.44	120.58	380,971.62	844,294.16	32.043601	-103.355574
3,900.00	7.94	105.06	3,891.64	-36.03	133.92	380,968.03	844,307.51	32.043590	-103.355531
4,000.00	7.94	105.06	3,990.69	-39.62	147.27	380,964.43	844,320.86	32.043580	-103.355488
4,100.00	7.94	105.06	4,089.73	-43.22	160.62	380,960.84	844,334.21	32.043570	-103.355445
4,200.00	7.94	105.06	4,188.77	-46.81	173.96	380,957.25	844,347.55	32.043560	-103.355402
4,300.00	7.94	105.06	4,287.81	-50.40	187.31	380,953.66	844,360.90	32.043549	-103.355360
4,400.00	7.94	105.06	4,386.85	-53.99	200.66	380,950.07	844,374.25	32.043539	-103.355317
4,500.00	7.94	105.06	4,485.89	-57.58	214.00	380,946.48	844,387.59	32.043529	-103.355274
4,600.00	7.94	105.06	4,584.93	-61.17	227.35	380,942.89	844,400.94	32.043519	-103.355231
4,700.00	7.94	105.06	4,683.97	-64.76	240.70	380,939.30	844,414.29	32.043509	-103.355188
4,800.00	7.94	105.06	4,783.01	-68.35	254.04	380,935.71	844,427.63	32.043498	-103.355145
4,900.00	7.94	105.06	4,882.05	-71.94	267.39	380,932.11	844,440.98	32.043488	-103.355102
5,000.00	7.94	105.06	4,981.09	-75.53	280.74	380,928.52	844,454.33	32.043478	-103.355059
5,100.00	7.94	105.06	5,080.13	-79.13	294.08	380,924.93	844,467.67	32.043468	-103.355016
5,200.00	7.94	105.06	5,179.17	-82.72	307.43	380,921.34	844,481.02	32.043458	-103.354973
5,300.00	7.94	105.06	5,278.21	-86.31	320.78	380,917.75	844,494.37	32.043447	-103.354930

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Arena Roja Fed Unit 15-10 9H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3136.80ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3136.80ft
Site:	Sec 15-T26S-R35E	**North Reference:**	Grid
Well:	Arena Roja Fed Unit 15-10 9H	**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	7.94	105.06	5,377.25	-89.90	334.12	380,914.16	844,507.71	32.043437	-103.354887
5,500.00	7.94	105.06	5,476.29	-93.49	347.47	380,910.57	844,521.06	32.043427	-103.354844
5,600.00	7.94	105.06	5,575.33	-97.08	360.82	380,906.98	844,534.41	32.043417	-103.354801
5,700.00	7.94	105.06	5,674.37	-100.67	374.17	380,903.39	844,547.75	32.043407	-103.354758
5,800.00	7.94	105.06	5,773.41	-104.26	387.51	380,899.80	844,561.10	32.043396	-103.354715
5,900.00	7.94	105.06	5,872.45	-107.85	400.86	380,896.20	844,574.45	32.043386	-103.354672
6,000.00	7.94	105.06	5,971.49	-111.45	414.21	380,892.61	844,587.79	32.043376	-103.354629
6,100.00	7.94	105.06	6,070.53	-115.04	427.55	380,889.02	844,601.14	32.043366	-103.354586
6,200.00	7.94	105.06	6,169.57	-118.63	440.90	380,885.43	844,614.49	32.043356	-103.354543
6,300.00	7.94	105.06	6,268.61	-122.22	454.25	380,881.84	844,627.83	32.043345	-103.354500
6,400.00	7.94	105.06	6,367.65	-125.81	467.59	380,878.25	844,641.18	32.043335	-103.354457
6,500.00	7.94	105.06	6,466.69	-129.40	480.94	380,874.66	844,654.53	32.043325	-103.354414
6,600.00	7.94	105.06	6,565.73	-132.99	494.29	380,871.07	844,667.87	32.043315	-103.354371
6,700.00	7.94	105.06	6,664.77	-136.58	507.63	380,867.48	844,681.22	32.043305	-103.354328
6,800.00	7.94	105.06	6,763.81	-140.17	520.98	380,863.88	844,694.57	32.043294	-103.354285
6,900.00	7.94	105.06	6,862.85	-143.77	534.33	380,860.29	844,707.91	32.043284	-103.354242
7,000.00	7.94	105.06	6,961.89	-147.36	547.67	380,856.70	844,721.26	32.043274	-103.354199
7,100.00	7.94	105.06	7,060.93	-150.95	561.02	380,853.11	844,734.61	32.043264	-103.354156
7,200.00	7.94	105.06	7,159.97	-154.54	574.37	380,849.52	844,747.95	32.043254	-103.354114
7,300.00	7.94	105.06	7,259.01	-158.13	587.71	380,845.93	844,761.30	32.043243	-103.354071
7,400.00	7.94	105.06	7,358.05	-161.72	601.06	380,842.34	844,774.65	32.043233	-103.354028
7,500.00	7.94	105.06	7,457.09	-165.31	614.41	380,838.75	844,787.99	32.043223	-103.353985
7,600.00	7.94	105.06	7,556.13	-168.90	627.75	380,835.16	844,801.34	32.043213	-103.353942
7,700.00	7.94	105.06	7,655.17	-172.49	641.10	380,831.57	844,814.69	32.043203	-103.353899
7,800.00	7.94	105.06	7,754.21	-176.08	654.45	380,827.97	844,828.04	32.043192	-103.353856
7,900.00	7.94	105.06	7,853.25	-179.68	667.79	380,824.38	844,841.38	32.043182	-103.353813
8,000.00	7.94	105.06	7,952.29	-183.27	681.14	380,820.79	844,854.73	32.043172	-103.353770
8,100.00	7.94	105.06	8,051.33	-186.86	694.49	380,817.20	844,868.08	32.043162	-103.353727
8,200.00	7.94	105.06	8,150.38	-190.45	707.83	380,813.61	844,881.42	32.043152	-103.353684
8,300.00	7.94	105.06	8,249.42	-194.04	721.18	380,810.02	844,894.77	32.043141	-103.353641
8,400.00	7.94	105.06	8,348.46	-197.63	734.53	380,806.43	844,908.12	32.043131	-103.353598
8,500.00	7.94	105.06	8,447.50	-201.22	747.88	380,802.84	844,921.46	32.043121	-103.353555
8,600.00	7.94	105.06	8,546.54	-204.81	761.22	380,799.25	844,934.81	32.043111	-103.353512
8,700.00	7.94	105.06	8,645.58	-208.40	774.57	380,795.65	844,948.16	32.043101	-103.353469
8,800.00	7.94	105.06	8,744.62	-212.00	787.92	380,792.06	844,961.50	32.043090	-103.353426
8,900.00	7.94	105.06	8,843.66	-215.59	801.26	380,788.47	844,974.85	32.043080	-103.353383
9,000.00	7.94	105.06	8,942.70	-219.18	814.61	380,784.88	844,988.20	32.043070	-103.353340
9,100.00	7.94	105.06	9,041.74	-222.77	827.96	380,781.29	845,001.54	32.043060	-103.353297
9,200.00	7.94	105.06	9,140.78	-226.36	841.30	380,777.70	845,014.89	32.043050	-103.353254
9,300.00	7.94	105.06	9,239.82	-229.95	854.65	380,774.11	845,028.24	32.043039	-103.353211
9,400.00	7.94	105.06	9,338.86	-233.54	868.00	380,770.52	845,041.58	32.043029	-103.353168
9,500.00	7.94	105.06	9,437.90	-237.13	881.34	380,766.93	845,054.93	32.043019	-103.353125
9,600.00	7.94	105.06	9,536.94	-240.72	894.69	380,763.34	845,068.28	32.043009	-103.353082
9,700.00	7.94	105.06	9,635.98	-244.31	908.04	380,759.74	845,081.62	32.042999	-103.353039
9,800.00	7.94	105.06	9,735.02	-247.91	921.38	380,756.15	845,094.97	32.042988	-103.352996
9,900.00	7.94	105.06	9,834.06	-251.50	934.73	380,752.56	845,108.32	32.042978	-103.352953
10,000.00	7.94	105.06	9,933.10	-255.09	948.08	380,748.97	845,121.66	32.042968	-103.352911
10,100.00	7.94	105.06	10,032.14	-258.68	961.42	380,745.38	845,135.01	32.042958	-103.352868
10,200.00	7.94	105.06	10,131.18	-262.27	974.77	380,741.79	845,148.36	32.042948	-103.352825
10,300.00	7.94	105.06	10,230.22	-265.86	988.12	380,738.20	845,161.70	32.042937	-103.352782
10,400.00	7.94	105.06	10,329.26	-269.45	1,001.46	380,734.61	845,175.05	32.042927	-103.352739
10,500.00	7.94	105.06	10,428.30	-273.04	1,014.81	380,731.02	845,188.40	32.042917	-103.352696
10,600.00	7.94	105.06	10,527.34	-276.63	1,028.16	380,727.42	845,201.74	32.042907	-103.352653
10,700.00	7.94	105.06	10,626.38	-280.23	1,041.50	380,723.83	845,215.09	32.042897	-103.352610
10,800.00	7.94	105.06	10,725.42	-283.82	1,054.85	380,720.24	845,228.44	32.042886	-103.352567

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Arena Roja Fed Unit 15-10 9H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3136.80ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3136.80ft
Site:	Sec 15-T26S-R35E	**North Reference:**	Grid
Well:	Arena Roja Fed Unit 15-10 9H	**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	7.94	105.06	10,824.46	-287.41	1,068.20	380,716.65	845,241.78	32.042876	-103.352524
10,985.42	7.94	105.06	10,909.06	-290.47	1,079.60	380,713.58	845,253.19	32.042867	-103.352487
11,000.00	7.73	105.06	10,923.51	-290.99	1,081.52	380,713.07	845,255.10	32.042866	-103.352481
11,100.00	6.23	105.06	11,022.76	-294.15	1,093.25	380,709.91	845,266.83	32.042857	-103.352443
11,200.00	4.73	105.06	11,122.30	-296.63	1,102.46	380,707.43	845,276.05	32.042850	-103.352414
11,300.00	3.23	105.06	11,222.06	-298.43	1,109.16	380,705.63	845,282.74	32.042845	-103.352392
11,400.00	1.73	105.06	11,321.96	-299.55	1,113.33	380,704.51	845,286.91	32.042842	-103.352379
11,500.00	0.23	105.06	11,421.95	-299.99	1,114.97	380,704.07	845,288.56	32.042840	-103.352373
11,515.05	0.00	0.00	11,437.00	-300.00	1,115.00	380,704.06	845,288.59	32.042840	-103.352373
11,600.00	0.00	0.00	11,521.95	-300.00	1,115.00	380,704.06	845,288.59	32.042840	-103.352373
11,700.00	0.00	0.00	11,621.95	-300.00	1,115.00	380,704.06	845,288.59	32.042840	-103.352373
11,800.00	0.00	0.00	11,721.95	-300.00	1,115.00	380,704.06	845,288.59	32.042840	-103.352373
11,865.09	0.00	0.00	11,787.04	-300.00	1,115.00	380,704.06	845,288.59	32.042840	-103.352373
KOP @ 11865' MD, 2788' FNL, 1710' FEL									
11,900.00	3.49	359.48	11,821.92	-298.94	1,114.99	380,705.12	845,288.58	32.042843	-103.352373
12,000.00	13.49	359.48	11,920.70	-284.19	1,114.86	380,719.87	845,288.44	32.042884	-103.352373
12,100.00	23.49	359.48	12,015.42	-252.52	1,114.57	380,751.54	845,288.15	32.042971	-103.352373
12,200.00	33.49	359.48	12,103.20	-204.88	1,114.13	380,799.18	845,287.72	32.043102	-103.352373
12,300.00	43.49	359.48	12,181.37	-142.72	1,113.56	380,861.34	845,287.15	32.043273	-103.352373
12,380.51	51.54	359.48	12,235.70	-83.40	1,113.02	380,920.66	845,286.61	32.043436	-103.352373
FTP @ 12381' MD, 2542' FNL, 1710' FEL									
12,400.00	53.49	359.48	12,247.56	-67.94	1,112.88	380,936.12	845,286.47	32.043478	-103.352373
12,500.00	63.49	359.48	12,299.76	17.21	1,112.10	381,021.27	845,285.69	32.043712	-103.352373
12,600.00	73.49	359.48	12,336.38	110.12	1,111.25	381,114.18	845,284.84	32.043968	-103.352373
12,700.00	83.49	359.48	12,356.31	207.98	1,110.36	381,212.04	845,283.95	32.044237	-103.352373
12,765.10	90.00	359.48	12,360.00	272.94	1,109.77	381,276.99	845,283.35	32.044415	-103.352373
12,800.00	90.00	359.48	12,360.00	307.84	1,109.45	381,311.90	845,283.03	32.044511	-103.352373
12,900.00	90.00	359.48	12,360.00	407.83	1,108.53	381,411.89	845,282.12	32.044786	-103.352373
13,000.00	90.00	359.48	12,360.00	507.83	1,107.62	381,511.89	845,281.21	32.045061	-103.352373
13,100.00	90.00	359.48	12,360.00	607.83	1,106.71	381,611.88	845,280.29	32.045336	-103.352373
13,200.00	90.00	359.48	12,360.00	707.82	1,105.79	381,711.88	845,279.38	32.045611	-103.352373
13,300.00	90.00	359.48	12,360.00	807.82	1,104.88	381,811.87	845,278.46	32.045885	-103.352373
13,400.00	90.00	359.48	12,360.00	907.81	1,103.96	381,911.87	845,277.55	32.046160	-103.352373
13,500.00	90.00	359.48	12,360.00	1,007.81	1,103.05	382,011.86	845,276.64	32.046435	-103.352373
13,600.00	90.00	359.48	12,360.00	1,107.80	1,102.14	382,111.86	845,275.72	32.046710	-103.352373
13,700.00	90.00	359.48	12,360.00	1,207.80	1,101.22	382,211.86	845,274.81	32.046985	-103.352373
13,800.00	90.00	359.48	12,360.00	1,307.80	1,100.31	382,311.85	845,273.90	32.047260	-103.352373
13,900.00	90.00	359.48	12,360.00	1,407.79	1,099.40	382,411.85	845,272.98	32.047535	-103.352373
14,000.00	90.00	359.48	12,360.00	1,507.79	1,098.48	382,511.84	845,272.07	32.047810	-103.352373
14,100.00	90.00	359.48	12,360.00	1,607.78	1,097.57	382,611.84	845,271.16	32.048084	-103.352374
14,200.00	90.00	359.48	12,360.00	1,707.78	1,096.66	382,711.83	845,270.24	32.048359	-103.352374
14,300.00	90.00	359.48	12,360.00	1,807.78	1,095.74	382,811.83	845,269.33	32.048634	-103.352374
14,400.00	90.00	359.48	12,360.00	1,907.77	1,094.83	382,911.83	845,268.42	32.048909	-103.352374
14,500.00	90.00	359.48	12,360.00	2,007.77	1,093.91	383,011.82	845,267.50	32.049184	-103.352374
14,600.00	90.00	359.48	12,360.00	2,107.76	1,093.00	383,111.82	845,266.59	32.049459	-103.352374
14,700.00	90.00	359.48	12,360.00	2,207.76	1,092.09	383,211.81	845,265.67	32.049734	-103.352374
14,800.00	90.00	359.48	12,360.00	2,307.75	1,091.17	383,311.81	845,264.76	32.050009	-103.352374
14,900.00	90.00	359.48	12,360.00	2,407.75	1,090.26	383,411.80	845,263.85	32.050283	-103.352374
14,944.00	90.00	359.48	12,360.00	2,451.75	1,089.86	383,455.80	845,263.45	32.050404	-103.352374
Cross Secton @ 14944' MD, 0' FSL, 1710' FEL									
15,000.00	90.00	359.48	12,360.00	2,507.75	1,089.35	383,511.80	845,262.93	32.050558	-103.352374
15,100.00	90.00	359.48	12,360.00	2,607.74	1,088.43	383,611.79	845,262.02	32.050833	-103.352374
15,200.00	90.00	359.48	12,360.00	2,707.74	1,087.52	383,711.79	845,261.11	32.051108	-103.352374
15,300.00	90.00	359.48	12,360.00	2,807.73	1,086.61	383,811.79	845,260.19	32.051383	-103.352374

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Arena Roja Fed Unit 15-10 9H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3136.80ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3136.80ft
Site:	Sec 15-T26S-R35E	**North Reference:**	Grid
Well:	Arena Roja Fed Unit 15-10 9H	**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
15,400.00	90.00	359.48	12,360.00	2,907.73	1,085.69	383,911.78	845,259.28	32.051658	-103.352374
15,500.00	90.00	359.48	12,360.00	3,007.72	1,084.78	384,011.78	845,258.37	32.051933	-103.352374
15,600.00	90.00	359.48	12,360.00	3,107.72	1,083.86	384,111.77	845,257.45	32.052207	-103.352374
15,700.00	90.00	359.48	12,360.00	3,207.72	1,082.95	384,211.77	845,256.54	32.052482	-103.352374
15,800.00	90.00	359.48	12,360.00	3,307.71	1,082.04	384,311.76	845,255.62	32.052757	-103.352374
15,900.00	90.00	359.48	12,360.00	3,407.71	1,081.12	384,411.76	845,254.71	32.053032	-103.352374
16,000.00	90.00	359.48	12,360.00	3,507.70	1,080.21	384,511.76	845,253.80	32.053307	-103.352374
16,100.00	90.00	359.48	12,360.00	3,607.70	1,079.30	384,611.75	845,252.88	32.053582	-103.352374
16,200.00	90.00	359.48	12,360.00	3,707.70	1,078.38	384,711.75	845,251.97	32.053857	-103.352374
16,300.00	90.00	359.48	12,360.00	3,807.69	1,077.47	384,811.74	845,251.06	32.054132	-103.352374
16,400.00	90.00	359.48	12,360.00	3,907.69	1,076.56	384,911.74	845,250.14	32.054406	-103.352374
16,500.00	90.00	359.48	12,360.00	4,007.68	1,075.64	385,011.73	845,249.23	32.054681	-103.352374
16,600.00	90.00	359.48	12,360.00	4,107.68	1,074.73	385,111.73	845,248.32	32.054956	-103.352374
16,700.00	90.00	359.48	12,360.00	4,207.67	1,073.82	385,211.73	845,247.40	32.055231	-103.352374
16,800.00	90.00	359.48	12,360.00	4,307.67	1,072.90	385,311.72	845,246.49	32.055506	-103.352374
16,900.00	90.00	359.48	12,360.00	4,407.67	1,071.99	385,411.72	845,245.57	32.055781	-103.352374
17,000.00	90.00	359.48	12,360.00	4,507.66	1,071.07	385,511.71	845,244.66	32.056056	-103.352374
17,100.00	90.00	359.48	12,360.00	4,607.66	1,070.16	385,611.71	845,243.75	32.056330	-103.352374
17,200.00	90.00	359.48	12,360.00	4,707.65	1,069.25	385,711.70	845,242.83	32.056605	-103.352374
17,300.00	90.00	359.48	12,360.00	4,807.65	1,068.33	385,811.70	845,241.92	32.056880	-103.352374
17,400.00	90.00	359.48	12,360.00	4,907.65	1,067.42	385,911.69	845,241.01	32.057155	-103.352374
17,500.00	90.00	359.48	12,360.00	5,007.64	1,066.51	386,011.69	845,240.09	32.057430	-103.352374
17,600.00	90.00	359.48	12,360.00	5,107.64	1,065.59	386,111.69	845,239.18	32.057705	-103.352374
17,700.00	90.00	359.48	12,360.00	5,207.63	1,064.68	386,211.68	845,238.27	32.057980	-103.352374
17,800.00	90.00	359.48	12,360.00	5,307.63	1,063.77	386,311.68	845,237.35	32.058255	-103.352374
17,900.00	90.00	359.48	12,360.00	5,407.62	1,062.85	386,411.67	845,236.44	32.058529	-103.352374
18,000.00	90.00	359.48	12,360.00	5,507.62	1,061.94	386,511.67	845,235.52	32.058804	-103.352374
18,100.00	90.00	359.48	12,360.00	5,607.62	1,061.02	386,611.66	845,234.61	32.059079	-103.352374
18,200.00	90.00	359.48	12,360.00	5,707.61	1,060.11	386,711.66	845,233.70	32.059354	-103.352374
18,300.00	90.00	359.48	12,360.00	5,807.61	1,059.20	386,811.66	845,232.78	32.059629	-103.352374
18,400.00	90.00	359.48	12,360.00	5,907.60	1,058.28	386,911.65	845,231.87	32.059904	-103.352374
18,500.00	90.00	359.48	12,360.00	6,007.60	1,057.37	387,011.65	845,230.96	32.060179	-103.352374
18,600.00	90.00	359.48	12,360.00	6,107.60	1,056.46	387,111.64	845,230.04	32.060454	-103.352374
18,700.00	90.00	359.48	12,360.00	6,207.59	1,055.54	387,211.64	845,229.13	32.060728	-103.352374
18,800.00	90.00	359.48	12,360.00	6,307.59	1,054.63	387,311.63	845,228.22	32.061003	-103.352374
18,900.00	90.00	359.48	12,360.00	6,407.58	1,053.72	387,411.63	845,227.30	32.061278	-103.352374
19,000.00	90.00	359.48	12,360.00	6,507.58	1,052.80	387,511.62	845,226.39	32.061553	-103.352374
19,100.00	90.00	359.48	12,360.00	6,607.57	1,051.89	387,611.62	845,225.47	32.061828	-103.352374
19,200.00	90.00	359.48	12,360.00	6,707.57	1,050.97	387,711.62	845,224.56	32.062103	-103.352374
19,300.00	90.00	359.48	12,360.00	6,807.57	1,050.06	387,811.61	845,223.65	32.062378	-103.352374
19,400.00	90.00	359.48	12,360.00	6,907.56	1,049.15	387,911.61	845,222.73	32.062652	-103.352374
19,500.00	90.00	359.48	12,360.00	7,007.56	1,048.23	388,011.60	845,221.82	32.062927	-103.352374
19,600.00	90.00	359.48	12,360.00	7,107.55	1,047.32	388,111.60	845,220.91	32.063202	-103.352374
19,700.00	90.00	359.48	12,360.00	7,207.55	1,046.41	388,211.59	845,219.99	32.063477	-103.352374
19,800.00	90.00	359.48	12,360.00	7,307.55	1,045.49	388,311.59	845,219.08	32.063752	-103.352374
19,900.00	90.00	359.48	12,360.00	7,407.54	1,044.58	388,411.59	845,218.17	32.064027	-103.352374
20,000.00	90.00	359.48	12,360.00	7,507.54	1,043.67	388,511.58	845,217.25	32.064302	-103.352374
20,100.00	90.00	359.48	12,360.00	7,607.53	1,042.75	388,611.58	845,216.34	32.064577	-103.352374
20,174.29	90.00	359.48	12,360.00	7,681.82	1,042.07	388,685.86	845,215.66	32.064781	-103.352374
LTP @ 20174' MD, 100' FNL, 1710' FEL									
20,200.00	90.00	359.48	12,360.00	7,707.53	1,041.84	388,711.57	845,215.42	32.064851	-103.352374
20,254.29	90.00	359.48	12,360.00	7,761.82	1,041.34	388,765.86	845,214.93	32.065001	-103.352374
PBHL; 20' FNL, 1710' FEL									
20,254.30	90.00	359.48	12,360.00	7,761.83	1,041.34	388,765.87	845,214.93	32.065001	-103.352374

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Arena Roja Fed Unit 15-10 9H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3136.80ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3136.80ft
Site:	Sec 15-T26S-R35E	**North Reference:**	Grid
Well:	Arena Roja Fed Unit 15-10 9H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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 - Arena Roja Fed	0.00	0.00	0.00	7,761.83	1,041.34	388,765.87	845,214.93	32.065001	-103.352374
- plan misses target center by 7831.37ft 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
11,865.09	11,787.04	-300.00	1,115.00	KOP @ 11865' MD, 2788' FNL, 1710' FEL
12,380.51	12,235.70	-83.40	1,113.02	FTP @ 12381' MD, 2542' FNL, 1710' FEL
14,944.00	12,360.00	2,451.75	1,089.86	Cross Secton @ 14944' MD, 0' FSL, 1710' FEL
20,174.29	12,360.00	7,681.82	1,042.07	LTP @ 20174' MD, 100' FNL, 1710' FEL
20,254.29	12,360.00	7,761.82	1,041.34	PBHL; 20' FNL, 1710' FEL

WCDSC Permian NM

WELL DETAILS: Arena Roja Fed Unit 15-10 9H

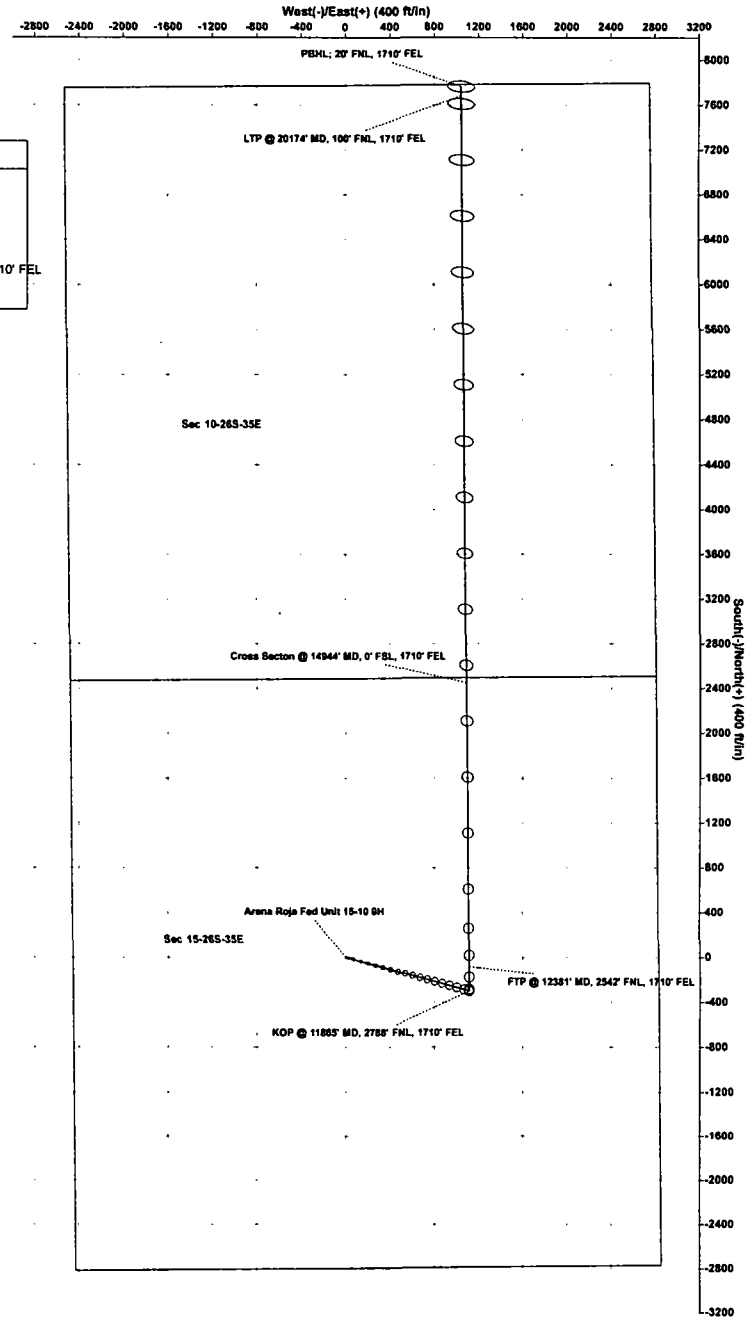
RKB @ 3136.80ft
3111.80

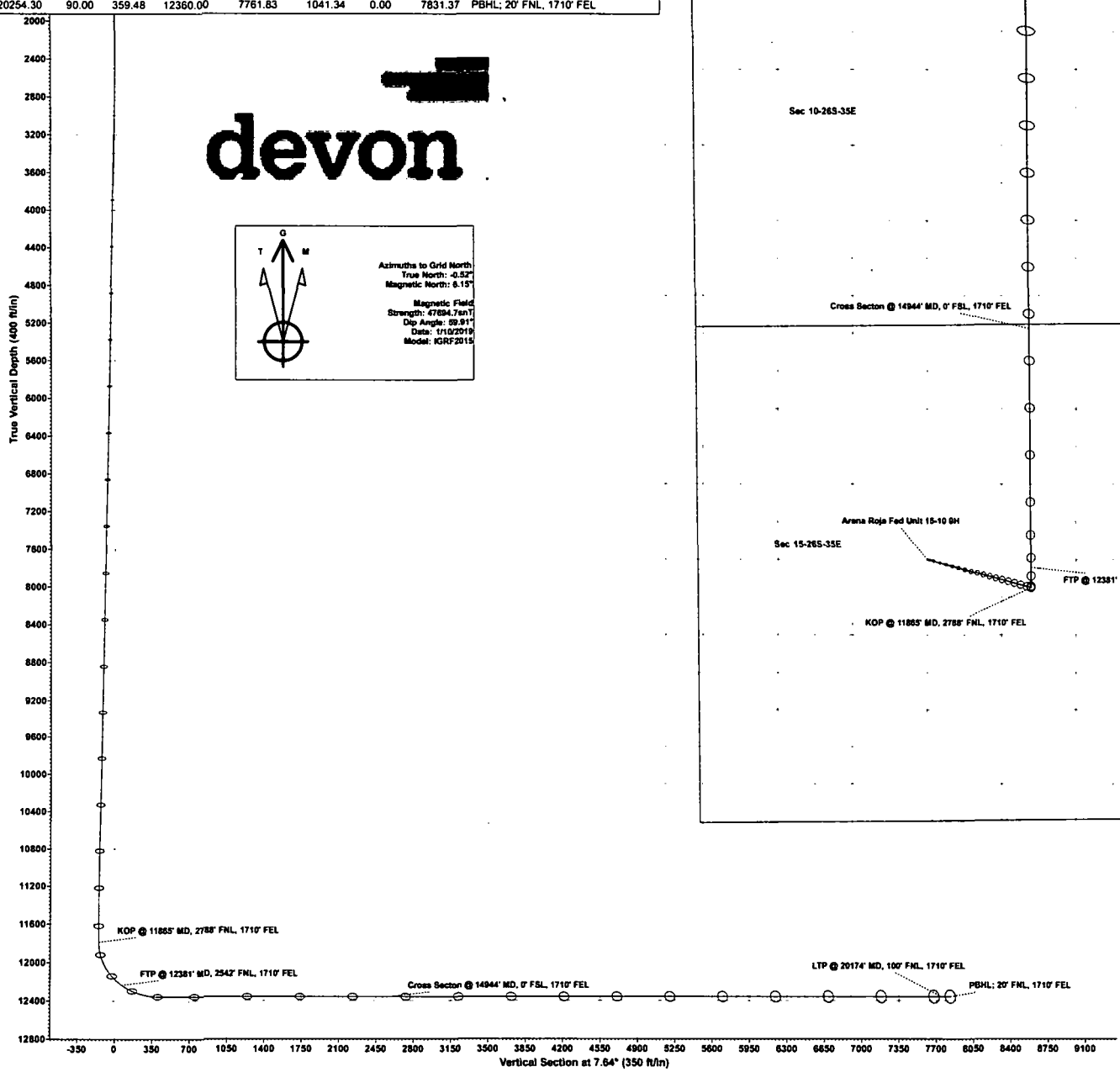
Northing	Easting	Latitude	Longitude
381004.06	844173.59	32.043693	-103.355962

SECTION DETAILS Permit Plan 1

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
	3294.46	7.94	105.06	3291.91	-14.29	53.10	1.00	-7.10	
	10985.42	7.94	105.06	10909.06	-290.47	1079.60	0.00	-144.34	
5	11515.05	0.00	0.00	11437.00	-300.00	1115.00	1.50	-149.07	
6	11865.09	0.00	0.00	11787.04	-300.00	1115.00	0.00	-149.07	KOP @ 11865' MD, 2788' FNL, 1710' FEL
7	12765.10	90.00	359.48	12360.00	272.94	1109.77	10.00	418.08	
8	20254.30	90.00	359.48	12360.00	7761.83	1041.34	0.00	7831.37	PBHL; 20' FNL, 1710' FEL

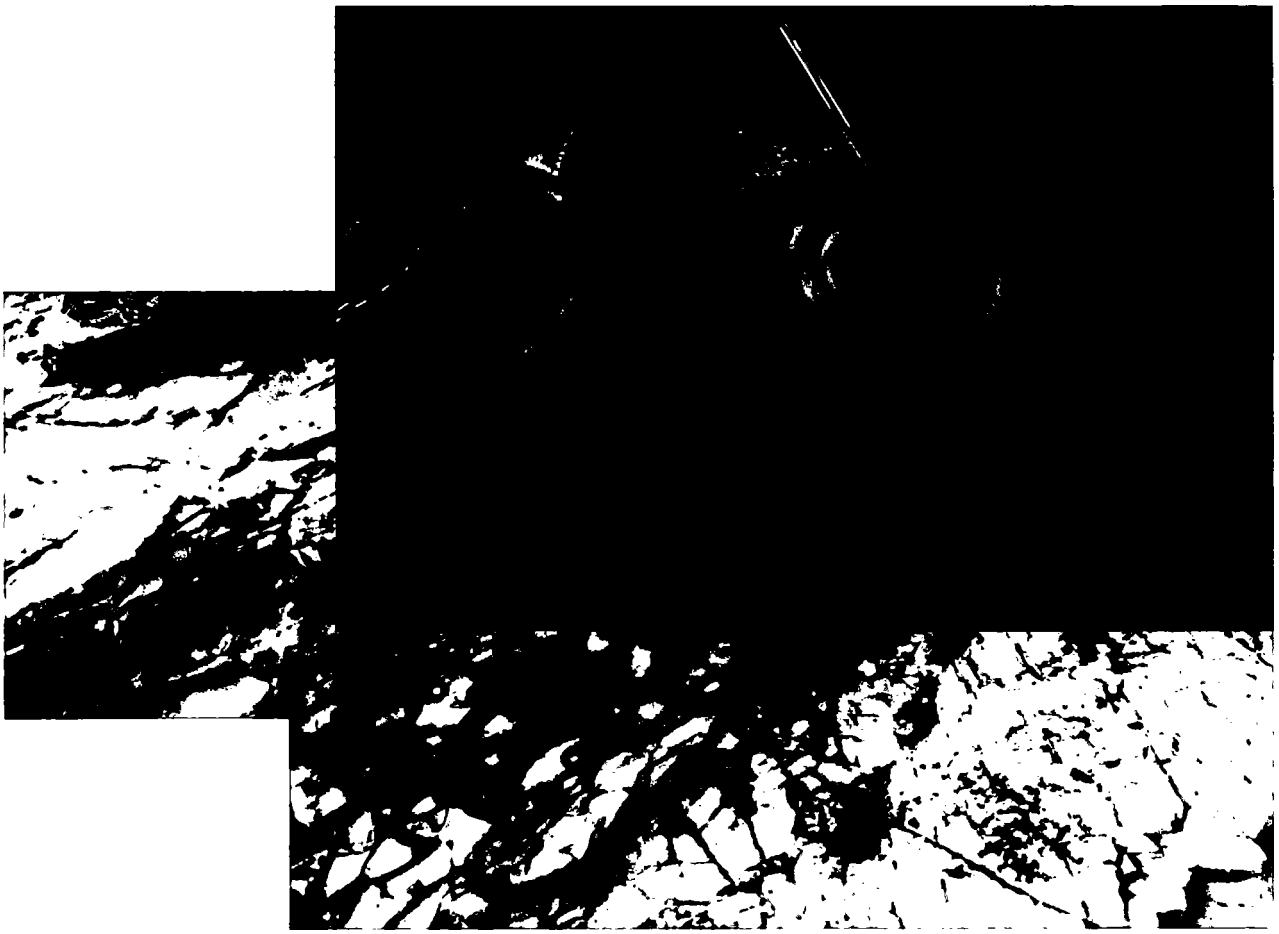
devon





devon

Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
June 2010

I. Design Plan

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

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

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

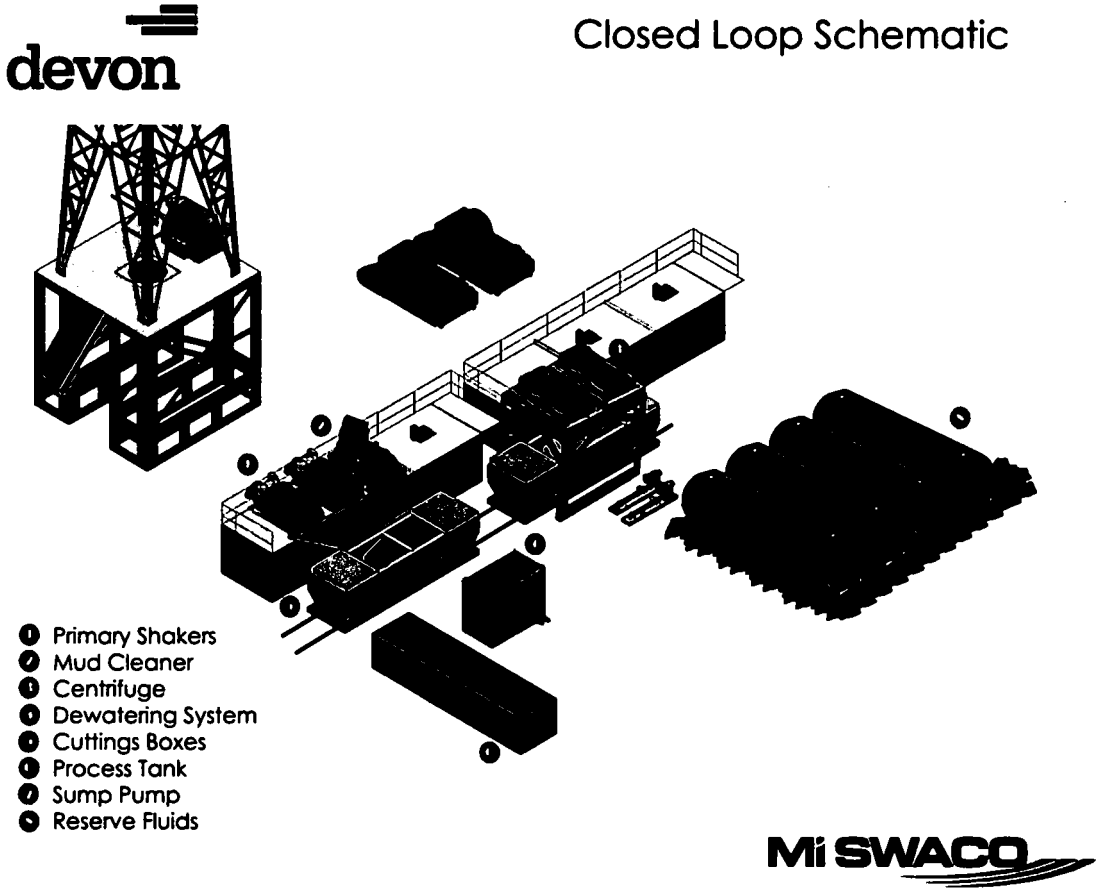
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

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

II. Operations and Maintenance Plan

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

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



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

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

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

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

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

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

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

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

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

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

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

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

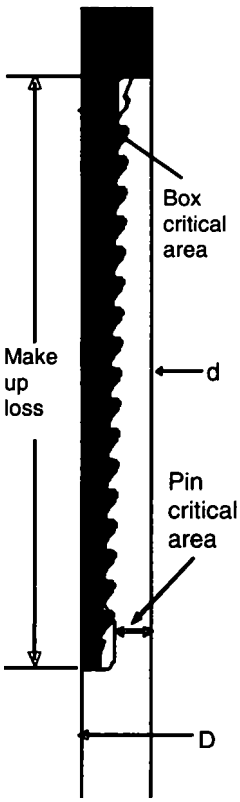
A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

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

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

FLUSHMAX-III



	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)			

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

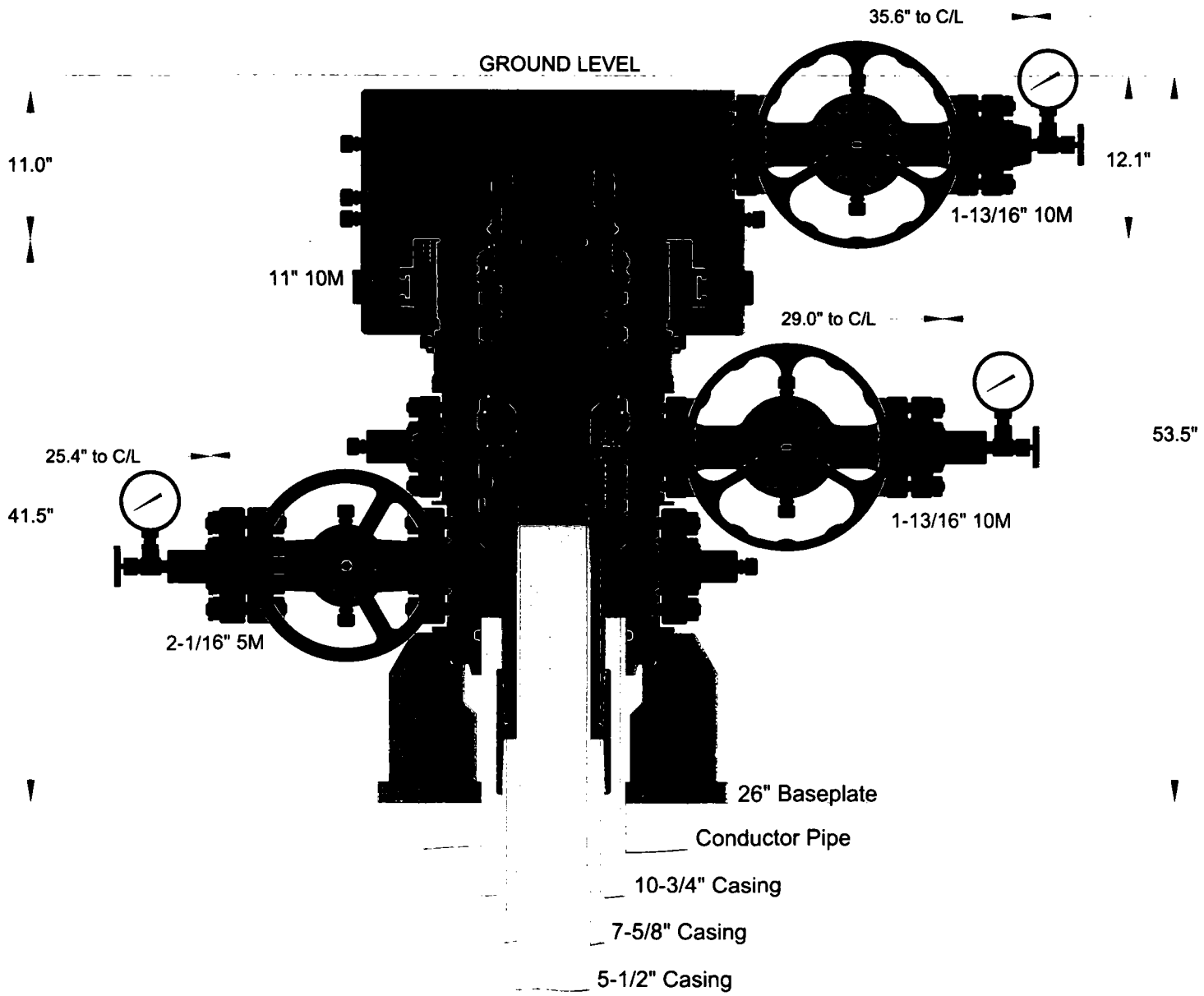
Performance Properties for Connection

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

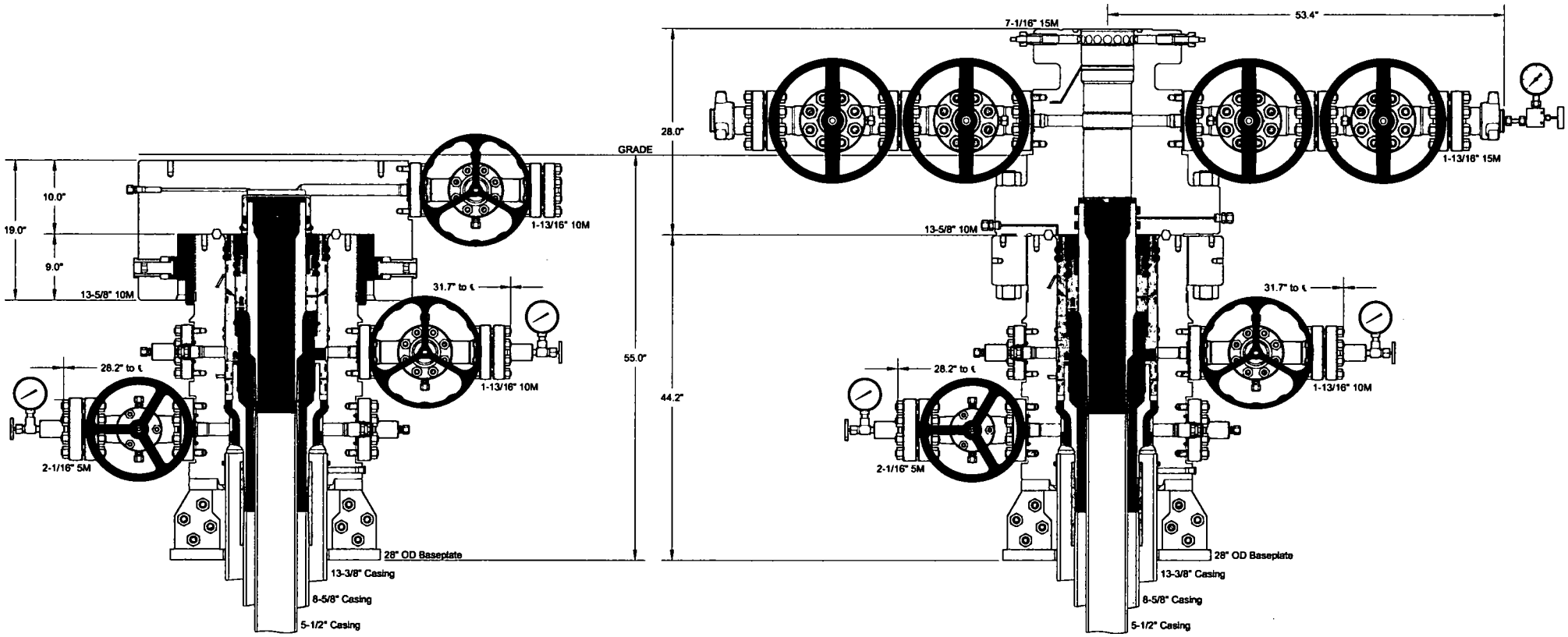
1. SUMMARY OF Variance:

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	

CASING PERFORMANCE Data Sheet

vallourec

O.D.	PE LB/FT	T&C LB/FT	GRADE
8.625	31.13	32.00	P110EC

Grade - Material Properties

Minimum Yield Strength:	125	ksi
Maximum Yield Strength:	140	ksi
Minimum Tensile Strength:	135	ksi

Pipe Body Data (PE)

Geometry

Nominal ID:	7.921	inch
Wall:	0.352	inch
Min. Wall % (API = 87.5%):	87.5	%
API Drift:	7.796	inch
Special Drift*:	7.875	inch

Performance

Pipe Body Yield Strength:	1,144	kips
Collapse Resistance:	3,470	psi
Internal Yield Pressure (*API Historical*):	8,930	psi

API Connection Data

SC Internal Pressure:	8,930	psi
SC Joint Strength:	793	kips
LC Internal Pressure:	8,930	psi
LC Joint Strength:	887	kips
BC Internal Pressure:	8,930	psi
BC Joint Strength:	1,121	kips

SC Torque (ft-lbs)

minimum:	5,950	optimum:	7,933	maximum:	9,916

LC Torque (ft-lbs)

minimum:	6,651	optimum:	8,868	maximum:	11,085

*Special drift must be ordered or API drift will be used for actual drifting of product.

**If above API connections do not suit your needs, VAM® premium connections are available up to 100% of pipe body ratings.

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

U. S. Steel Tubular Products

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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

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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.