Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD
FEB 07 2020
RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM115000

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.
BILLIKEN 7-6 FED COM
8H 327145

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

9. API Well No.
30-025-46861

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory 98117
333 West Sheridan Avenue Oklahoma City OK 73102	(800)583-3866	WC-025 G-09 S263416B / UPPER WOLF

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SESW / 294 FSL / 2221 FWL / LAT 32.051411 / LONG -103.407956
At proposed prod. zone NENW / 20 FNL / 2280 FWL / LAT 32.079581 / LONG -103.40777

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 7 / T26S / R35E / NMP

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

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 2221 feet	16. No of acres in lease 921.45	17. Spacing Unit dedicated to this well 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 392 feet	19. Proposed Depth 12550 feet / 22801 feet	20. BLM/BIA Bond No. in file FED: NMB000801

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3270 feet	02/29/2020	45 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Rebecca Deal / Ph: (405)228-8429	08/20/2019
Title: Regulatory Compliance Professional		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 01/29/2020
Title: Assistant Field Manager Lands & Minerals	Office: 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 02/07/2020

APPROVED WITH CONDITIONS

KR 02/10/2020

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 01/29/2020

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company LP**
LEASE NO.:	**NMNM115000**
WELL NAME & NO.:	Billiken 7-6 FED COM 8H
SURFACE HOLE FOOTAGE:	294'/S & 2221'/W
BOTTOM HOLE FOOTAGE	20'N & 2280'/W
LOCATION:	Section 7, T.26 S., R.35 E., NMP
COUNTY:	Lea County, New Mexico

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **1150 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

completing the cement job.

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

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

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

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **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 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 **1150 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

    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.

    c. 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.

    d. 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.

Operator is approved to drill 10.625" hole instead of 9.875" for intermediate 1 with BTC connection.

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

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 **5000 (5M)** psi.

Option 2:

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

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

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

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

A. CASING

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

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

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

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

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

AFMSS

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

Operator Certification Data Report

02/04/2020

Operator Certification

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

NAME: Rebecca Deal **Signed on:** 08/20/2019

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

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

Phone: (405)228-8429

Email address: Rebecca.Deal@dvn.com

Field Representative

Representative Name:

Street Address: 333 W. Sheridan Ave

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

Phone: (405)552-6556

Email address: blake.richardson@dvn.com

AFMSS

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

Application Data Report

02/04/2020

APD ID: 10400046211 **Submission Date:** 08/20/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

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

[redacted]

Show Final Text

Section 1 - General

APD ID: 10400046211 **Tie to previous NOS?** N **Submission Date:** 08/20/2019

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: NMNM115000 **Lease Acres:** 921.45

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

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

Agreement number:

Agreement name:

Keep application confidential? Y

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

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

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

Operator PO Box:

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

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

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

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

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

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WC-025 G-09 S263416B **Pool Name:** UPPER WOLFCAMP

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

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

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** BILLIKEN 7 WELLPAD **Number:** 2

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:** 392 FT **Distance to lease line:** 2221 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: BILLIKEN_7_6_FED_COM_8H_C_102_20190820155457.pdf

Well work start Date: 02/29/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

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

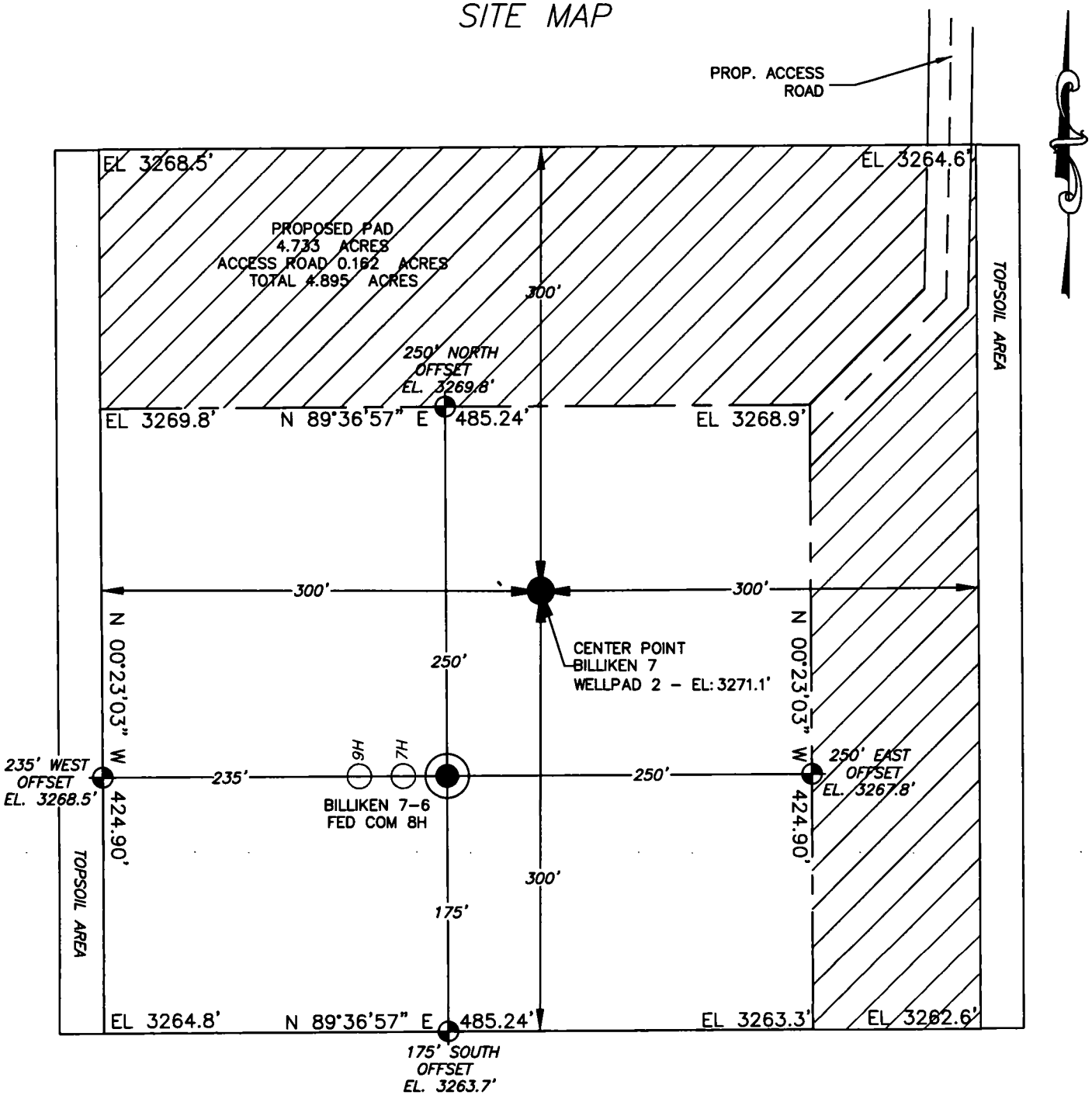
Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	294	FSL	2221	FWL	26S	35E	7	Aliquot SESW	32.051411	-103.407956	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 115000	3270	0	0	Y
KOP Leg #1	50	FSL	2280	FWL	26S	35E	7	Aliquot SESW	32.050739	-103.407773	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 115000	-8707	11981	11977	Y
PPP Leg #1-1	1	FNL	2280	FWL	26S	35E	7	Aliquot NENW	32.065009	-103.407772	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 013647	-9280	17500	12550	Y

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-2	100	FSL	2280	FWL	26S	35E	7	Aliquot SESW	32.050877	-103.407766	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 115000	-8941	12222	12211	Y
EXIT Leg #1	100	FNL	2280	FWL	26S	35E	6	Aliquot NENW	32.079361	-103.40777	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 125401	-9280	21721	12550	Y
BHL Leg #1	20	FNL	2280	FWL	26S	35E	6	Aliquot NENW	32.079581	-103.40777	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 125401	-9280	22801	12550	Y

SECTION 7, 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.
BILLIKEN 7-6 FED COM 8H
LOCATED 294 FT. FROM THE SOUTH LINE AND 2221 FT. FROM THE WEST LINE OF SECTION 7, 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 NORTHWEST ON AN EXISTING LEASE ROAD FOR 3.82 MILES. TURN RIGHT ONTO AN EXISTING LEASE ROAD FOR 0.07 MILES. TURN RIGHT HEADING NORTHEAST ONTO AN EXISTING LEASE ROAD FOR 1.82 MILES. THEN TURN LEFT AND HEAD WEST THROUGH FIELD FOR 246' TO THE NORTH EAST CORNER OF THE PROPOSED BILLIKEN 7 WELLPAD 2.

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by: JEANNIE PERRY

Date: 07/12/2019

Drawn for:

devon

APD ID: 10400046211 **Submission Date:** 08/20/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

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
520080	—	3275	0	0	OTHER : SURFACE	NONE	N
520081	RUSTLER	2245	1030	1030	ANHYDRITE, SANDSTONE	NONE	N
520082	SALADO	1800	1475	1475	ANHYDRITE, SALT	NONE	N
520083	BASE OF SALT	-1805	5080	5080	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
520084	DELAWARE	-2065	5340	5340	SANDSTONE	NATURAL GAS, OIL	N
520085	CHERRY CANYON	-3125	6400	6400	SANDSTONE	NATURAL GAS, OIL	N
520086	BRUSHY CANYON	-4725	8000	8000	SANDSTONE	NATURAL GAS, OIL	N
520087	BONE SPRING	-5975	9250	9250	LIMESTONE, SHALE	NATURAL GAS, NONE, OIL	N
520088	BONE SPRING 1ST	-7100	10375	10375	SANDSTONE	NATURAL GAS, OIL	N
520089	BONE SPRING 2ND	-7675	10950	10950	SANDSTONE	NATURAL GAS, OIL	N
520090	BONE SPRING 3RD	-8775	12050	12050	SANDSTONE	NATURAL GAS, OIL	N
520091	WOLFCAMP	-9175	12450	12450	SANDSTONE, SHALE	NATURAL GAS, OIL	Y
520092	STRAWN	-10725	14000	14000	LIMESTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Pressure Rating (PSI): 10M **Rating Depth:** 12550

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

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

10M_BOPE_CHK_DR_CLS_RKL_20190730112951.pdf

BOP Diagram Attachment:

10M_BOPE_CHK_DR_CLS_RKL_20190730113000.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 12050

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

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

5M_BOPE__CK_20190730113129.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190730113136.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	905	0	905	3270	2365	905	H-40	48	ST&C	1.125	1	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	12050	0	12050	3576	-8780	12050	P-110	29.7	OTHER - FLUSHMAX III	1.125	1	BUOY	1.6	BUOY	1.6
3	PRODUCTION	6.75	5.5	NEW	API	N	0	22802	0	12550	3576	-9280	22802	P-110	20	OTHER - VAM SG	1.125	1	BUOY	1.6	BUOY	1.6

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20190730113310.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20190730113522.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20190730113701.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	905	693.4	1.44	13.2	998.5	50	C	Class C + adds
INTERMEDIATE	Lead		0	8050	766.3	3.27	9	2505.8	30	C	Class C + adds
INTERMEDIATE	Tail		8050	12050	783	1.44	13.2	1127.6	30	C	Class C + adds
PRODUCTION	Lead		9981	11981	62.7	3.27	9	204.9	25	TUNED	Class C + adds

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		11981	22801	690.3	1.44	13.2	994.1	25	H	(50:50) Clas H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	905	WATER-BASED MUD	8.5	9				2			
905	12050	SALT SATURATED	10	10.5				2			
12050	22802	OIL-BASED MUD	10	10.5				12			

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Section 6 - Test, Logging, Coring

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

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

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

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

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6852 **Anticipated Surface Pressure:** 4091

Anticipated Bottom Hole Temperature(F): 176

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Billiken_7_6_Fed_Com_8H__20190820160425.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Billiken_7_6_Fed_Com_8H_Dir_Svy_20190820160447.pdf

Billiken_7_6_Fed_Com_8H_Plot_20190820160447.pdf

Other proposed operations facets description:

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

Other proposed operations facets attachment:

13.375_48_H40_20190730115538.pdf

5.5_17_P_110_BTC_20190730115614.pdf

5.5_20_P110_EC_VAMSG_20190730115304.pdf

7.625_29.70_P110_Flushmax_20190730115303.pdf

8.625_32.00_P110HSCY_TLW_20190730115304.PDF

Billiken_7_WP_2_GCP_Form_20190820143751.pdf

Clsd_Loop_20190730115304.pdf

MB_Verb_10M_20190730115304.pdf

MB_Wellhd_10M_13.375_7.625_5.5__20190730115340.pdf

MB_Wellhd_10M_13.375_8.625_20190730115305.PDF

Spudder_Rig_Info_20190730115304.pdf

Billiken_7_6_Fed_Com_8H_Permit_Plan_1_20190820160512.pdf

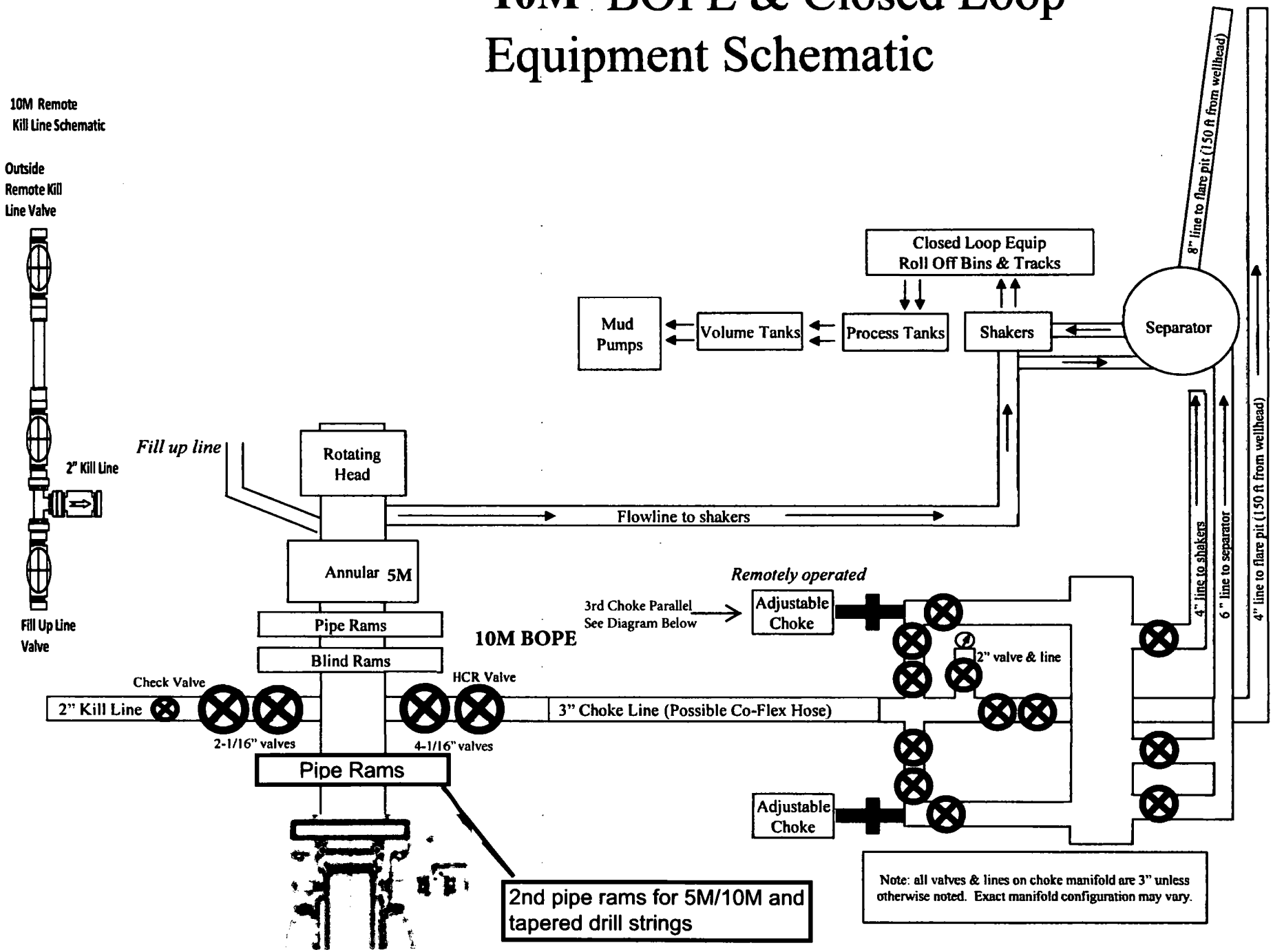
Other Variance attachment:

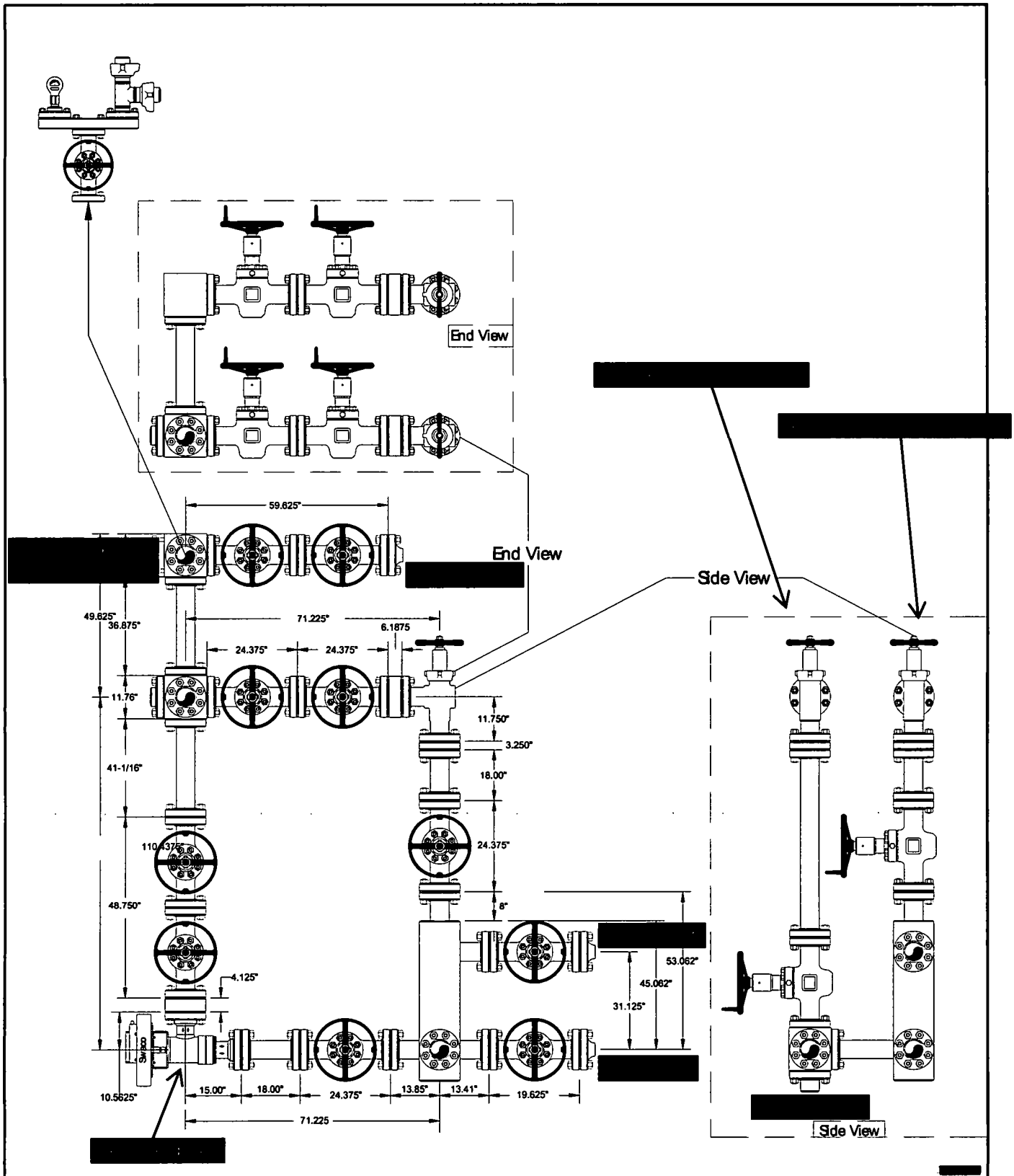
10M_BOPE_CHK_DR_CLS_RKL_20190730115411.pdf

Annular_Variance___Preventer_Summary_20190730115410.pdf

Co_flex_20190730115411.pdf

10M BOPE & Closed Loop Equipment Schematic





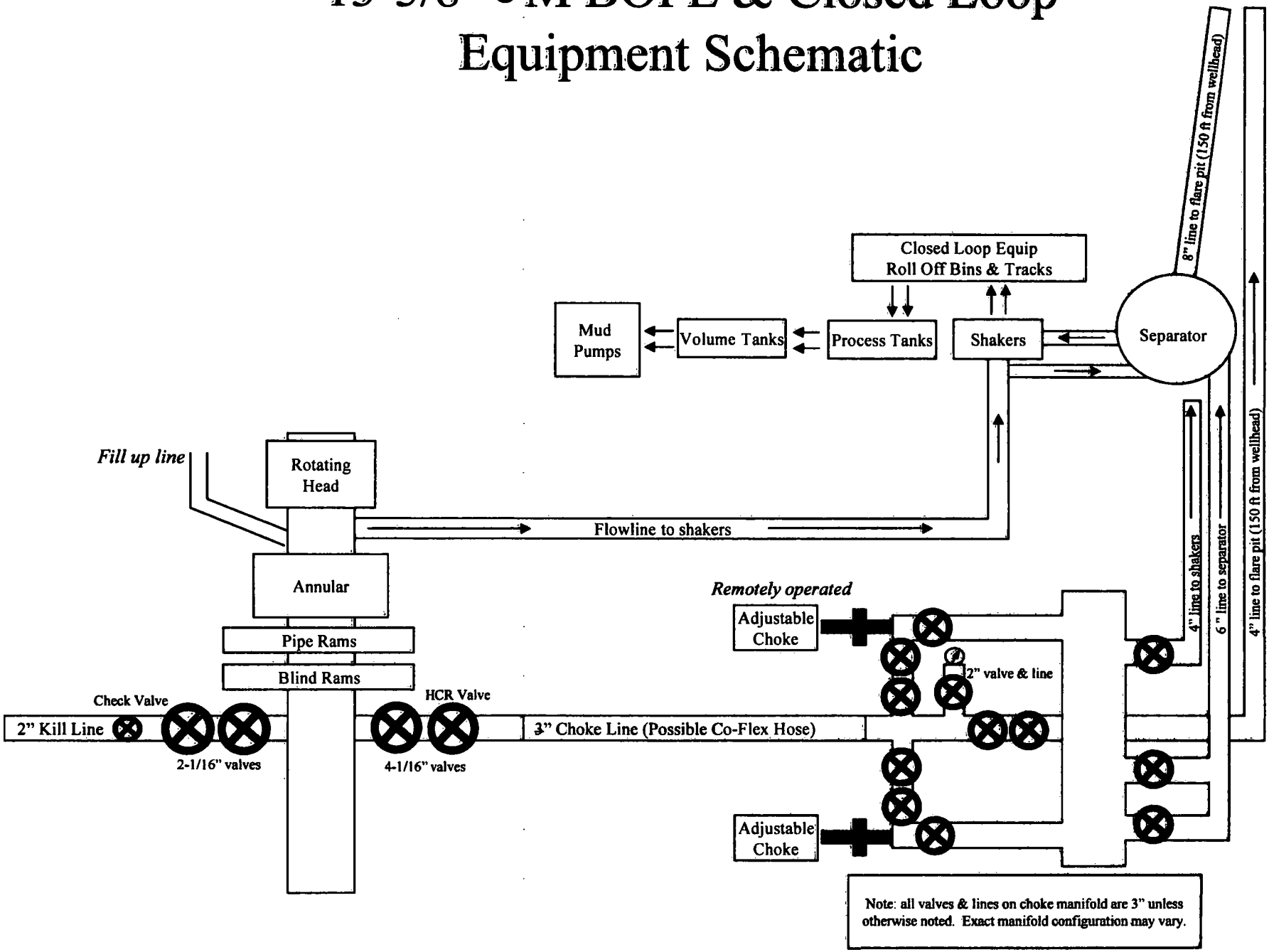
Helmerich & Payne

Flex 3 Rig w/ 3 Chokes

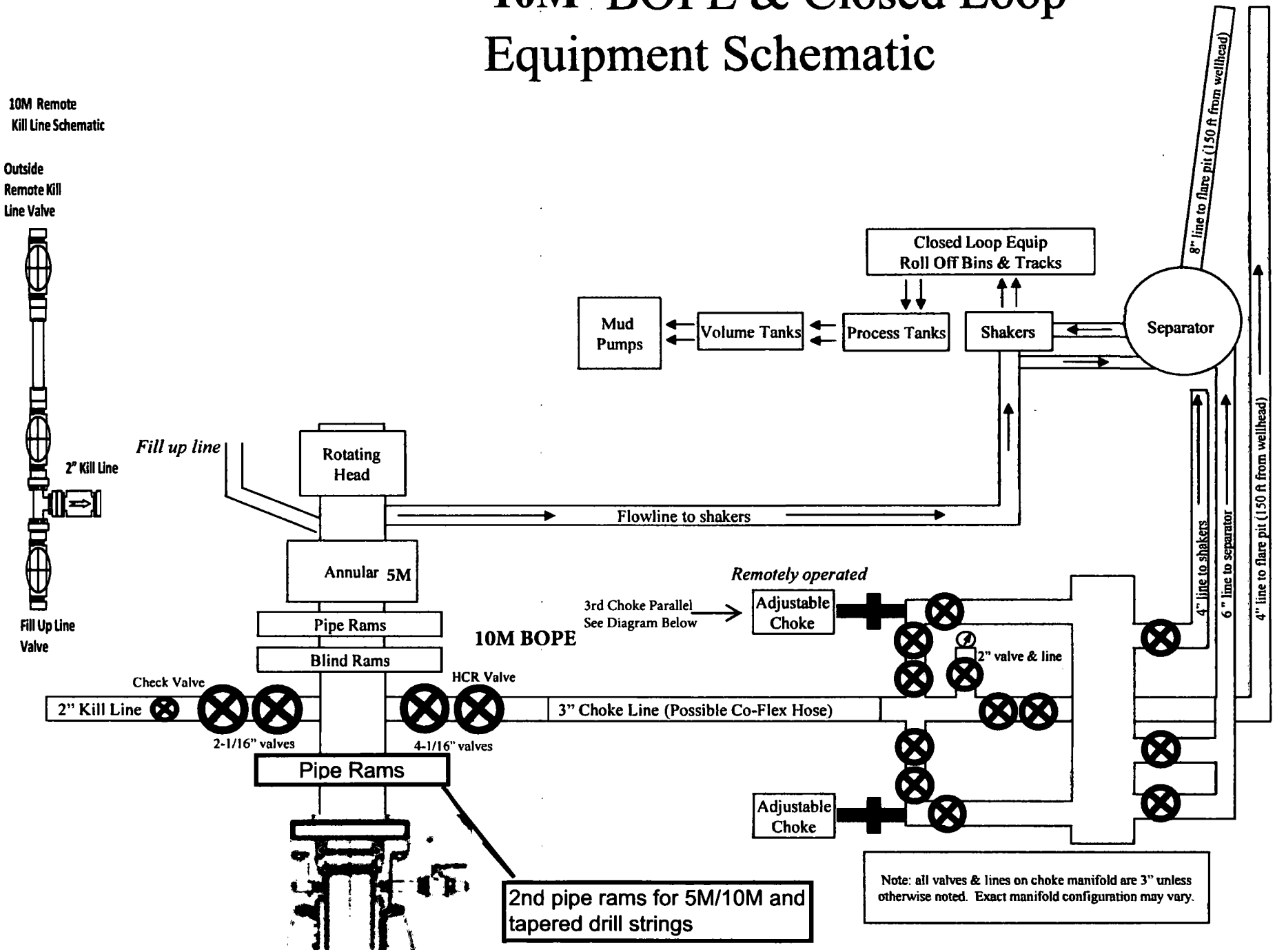
devon

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

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



10M BOPE & Closed Loop Equipment Schematic



devon

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

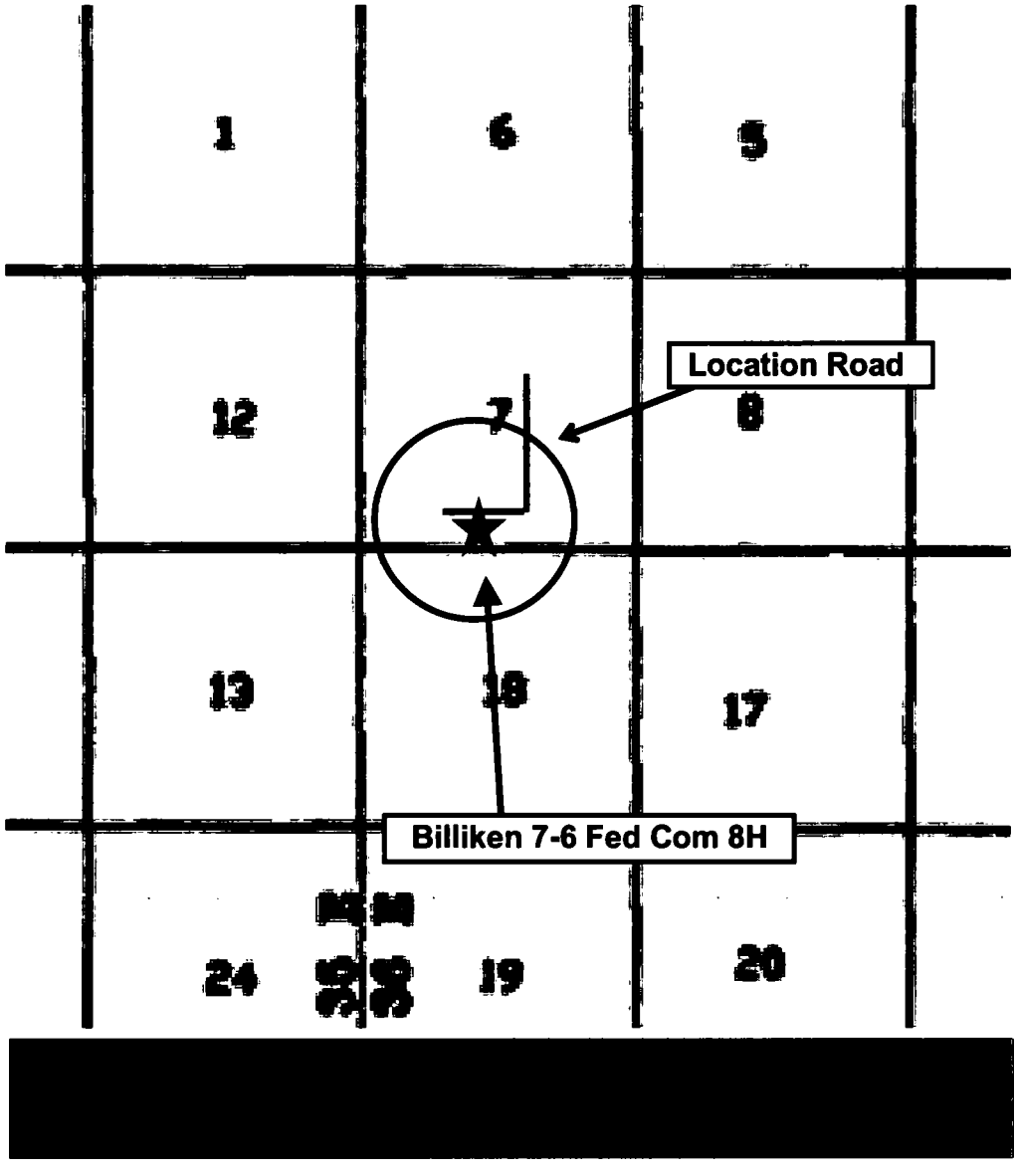
Billiken 7-6 Fed Com 8H

Sec-7 T-26S R-35E
294' FSL & 2221' FWL
LAT. = 32.051411' N (NAD83)
LONG = 103.407956' W

Lea County NM

Billiken 7-6 Fed Com 8H

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



Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H_2S and SO_2

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

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H_2S) TRAINING

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

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

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

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

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

II. HYDROGEN SULFIDE TRAINING

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

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold – Remotely Operated

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

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

   E. Mud/Gas Separator

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

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

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

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

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

   Visual warning systems:

   A. Wind direction indicators as shown on well site diagram

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

4. **Mud program:**

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

5. **Metallurgy:**

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

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

6. **Communication:**

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

   B. Land line (telephone) communications at Office

7. **Well testing:**

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

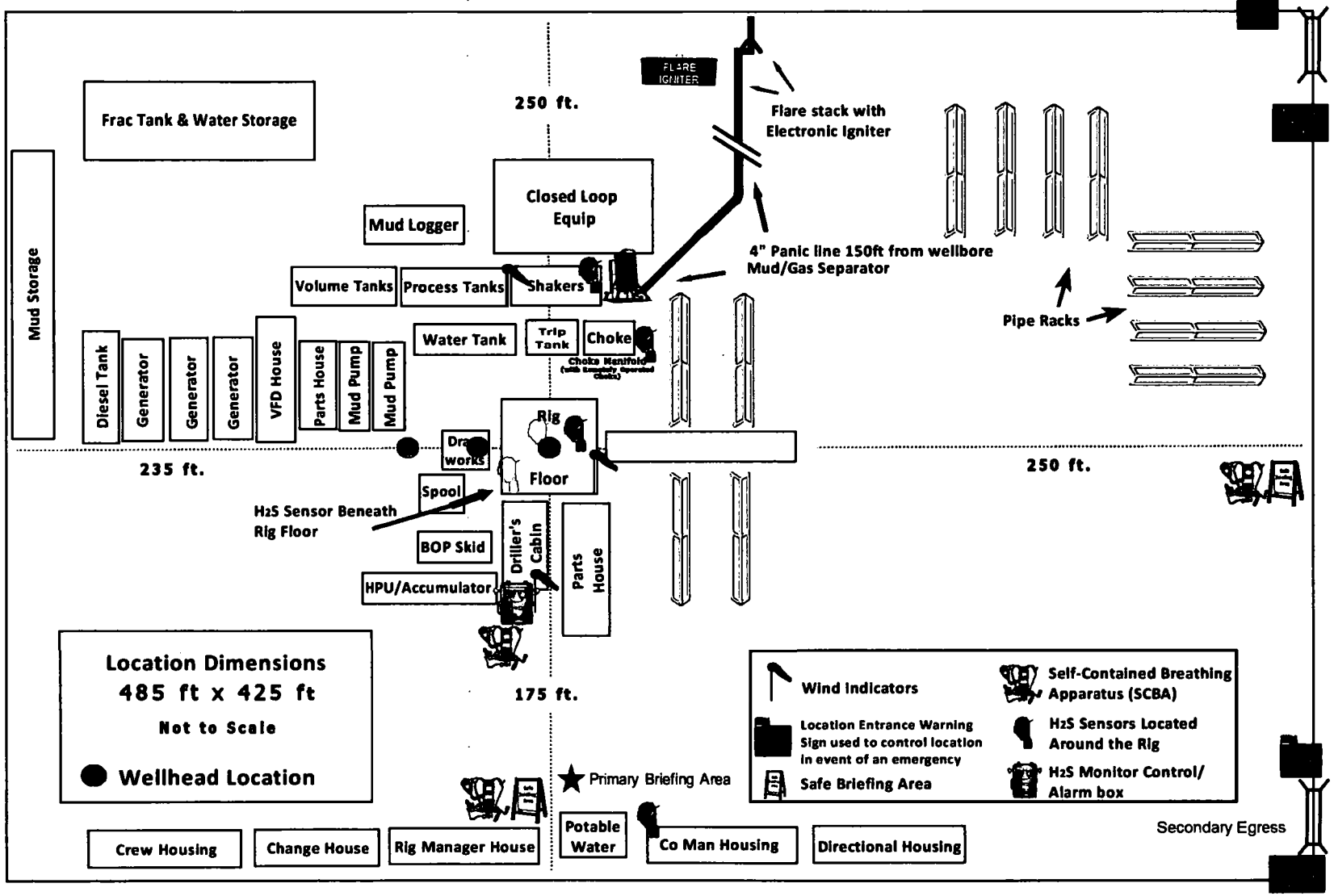
   B. There will be no drill stem testing.

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

Prepared in conjunction with
Dave Small

SHARP
communications and consulting

Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location



WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 07-T26S-R35E
Billiken 7-6 Fed Com 8H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

08 August, 2019

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Billiken 7-6 Fed Com 8H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3295.30ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3295.30ft
Site:	Sec 07-T26S-R35E	**North Reference:**	Grid
Well:	Billiken 7-6 Fed Com 8H	**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 07-T26S-R35E				
Site Position:		**Northing:**	388,642.30 usft	**Latitude:**	32.065131
From:	Map	**Easting:**	825,774.90 usft	**Longitude:**	-103.415126
Position Uncertainty:	5.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.49 °

Well	Billiken 7-6 Fed Com 8H				
Well Position	**+N/-S**	0.00 ft	**Northing:**	383,669.94 usft	**Latitude:**	32.051411
	+E/-W	0.00 ft	**Easting:**	828,038.69 usft	**Longitude:**	-103.407956
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,270.30 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	8/8/2019	6.63	59.90	47,633.69635337

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	359.83

Plan Survey Tool Program **Date** 8/8/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,801.06	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	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,192.56	1.93	166.41	4,192.53	-3.14	0.76	1.00	1.00	0.00	166.41	
11,502.81	1.93	166.41	11,498.65	-241.90	58.49	0.00	0.00	0.00	0.00	
11,631.19	0.00	0.00	11,627.00	-244.00	59.00	1.50	-1.50	0.00	180.00	
11,981.23	0.00	0.00	11,977.04	-244.00	59.00	0.00	0.00	0.00	0.00	
12,881.23	90.00	359.51	12,550.00	328.94	54.13	10.00	10.00	0.00	359.51	PBHL - Billiken 7-6 Fe
22,801.32	90.00	359.51	12,550.00	10,248.67	-30.19	0.00	0.00	0.00	0.00	PBHL - Billiken 7-6 Fe

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Billiken 7-6 Fed Com 8H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3295.30ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3295.30ft
Site:	Sec 07-T26S-R35E	**North Reference:**	Grid
Well:	Billiken 7-6 Fed Com 8H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
100.00	0.00	0.00	100.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
200.00	0.00	0.00	200.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
300.00	0.00	0.00	300.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
400.00	0.00	0.00	400.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
500.00	0.00	0.00	500.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
600.00	0.00	0.00	600.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
700.00	0.00	0.00	700.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
800.00	0.00	0.00	800.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
900.00	0.00	0.00	900.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,000.00	0.00	0.00	1,000.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,100.00	0.00	0.00	1,100.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,200.00	0.00	0.00	1,200.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,300.00	0.00	0.00	1,300.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,400.00	0.00	0.00	1,400.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,500.00	0.00	0.00	1,500.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,600.00	0.00	0.00	1,600.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,700.00	0.00	0.00	1,700.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,800.00	0.00	0.00	1,800.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
1,900.00	0.00	0.00	1,900.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,000.00	0.00	0.00	2,000.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,100.00	0.00	0.00	2,100.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,200.00	0.00	0.00	2,200.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,300.00	0.00	0.00	2,300.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,400.00	0.00	0.00	2,400.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,500.00	0.00	0.00	2,500.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,600.00	0.00	0.00	2,600.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,700.00	0.00	0.00	2,700.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,800.00	0.00	0.00	2,800.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
2,900.00	0.00	0.00	2,900.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,000.00	0.00	0.00	3,000.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,100.00	0.00	0.00	3,100.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,200.00	0.00	0.00	3,200.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,300.00	0.00	0.00	3,300.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,400.00	0.00	0.00	3,400.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,500.00	0.00	0.00	3,500.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,600.00	0.00	0.00	3,600.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,700.00	0.00	0.00	3,700.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,800.00	0.00	0.00	3,800.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
3,900.00	0.00	0.00	3,900.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
4,000.00	0.00	0.00	4,000.00	0.00	0.00	383,669.94	828,038.69	32.051411	-103.407956
4,100.00	1.00	166.41	4,100.00	-0.85	0.21	383,669.09	828,038.89	32.051409	-103.407956
4,192.56	1.93	166.41	4,192.53	-3.14	0.76	383,666.79	828,039.45	32.051402	-103.407954
4,200.00	1.93	166.41	4,199.96	-3.39	0.82	383,666.55	828,039.51	32.051402	-103.407954
4,300.00	1.93	166.41	4,299.90	-6.65	1.61	383,663.28	828,040.30	32.051393	-103.407951
4,400.00	1.93	166.41	4,399.85	-9.92	2.40	383,660.02	828,041.09	32.051384	-103.407949
4,500.00	1.93	166.41	4,499.79	-13.19	3.19	383,656.75	828,041.88	32.051375	-103.407946
4,600.00	1.93	166.41	4,599.73	-16.45	3.98	383,653.49	828,042.67	32.051366	-103.407944
4,700.00	1.93	166.41	4,699.68	-19.72	4.77	383,650.22	828,043.46	32.051357	-103.407942
4,800.00	1.93	166.41	4,799.62	-22.98	5.56	383,646.95	828,044.25	32.051348	-103.407939
4,900.00	1.93	166.41	4,899.56	-26.25	6.35	383,643.69	828,045.04	32.051339	-103.407937
5,000.00	1.93	166.41	4,999.51	-29.52	7.14	383,640.42	828,045.83	32.051330	-103.407934
5,100.00	1.93	166.41	5,099.45	-32.78	7.93	383,637.16	828,046.62	32.051321	-103.407932
5,200.00	1.93	166.41	5,199.39	-36.05	8.72	383,633.89	828,047.41	32.051312	-103.407929
5,300.00	1.93	166.41	5,299.34	-39.31	9.51	383,630.62	828,048.19	32.051303	-103.407927

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Billiken 7-6 Fed Com 8H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3295.30ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3295.30ft
Site:	Sec 07-T26S-R35E	**North Reference:**	Grid
Well:	Billiken 7-6 Fed Com 8H	**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	1.93	166.41	5,399.28	-42.58	10.30	383,627.36	828,048.98	32.051294	-103.407924
5,500.00	1.93	166.41	5,499.23	-45.85	11.09	383,624.09	828,049.77	32.051285	-103.407922
5,600.00	1.93	166.41	5,599.17	-49.11	11.88	383,620.83	828,050.56	32.051276	-103.407919
5,700.00	1.93	166.41	5,699.11	-52.38	12.67	383,617.56	828,051.35	32.051267	-103.407917
5,800.00	1.93	166.41	5,799.06	-55.65	13.46	383,614.29	828,052.14	32.051258	-103.407915
5,900.00	1.93	166.41	5,899.00	-58.91	14.24	383,611.03	828,052.93	32.051249	-103.407912
6,000.00	1.93	166.41	5,998.94	-62.18	15.03	383,607.76	828,053.72	32.051240	-103.407910
6,100.00	1.93	166.41	6,098.89	-65.44	15.82	383,604.50	828,054.51	32.051231	-103.407907
6,200.00	1.93	166.41	6,198.83	-68.71	16.61	383,601.23	828,055.30	32.051222	-103.407905
6,300.00	1.93	166.41	6,298.77	-71.98	17.40	383,597.96	828,056.09	32.051213	-103.407902
6,400.00	1.93	166.41	6,398.72	-75.24	18.19	383,594.70	828,056.88	32.051204	-103.407900
6,500.00	1.93	166.41	6,498.66	-78.51	18.98	383,591.43	828,057.67	32.051195	-103.407897
6,600.00	1.93	166.41	6,598.60	-81.77	19.77	383,588.17	828,058.46	32.051186	-103.407895
6,700.00	1.93	166.41	6,698.55	-85.04	20.56	383,584.90	828,059.25	32.051177	-103.407892
6,800.00	1.93	166.41	6,798.49	-88.31	21.35	383,581.63	828,060.04	32.051168	-103.407890
6,900.00	1.93	166.41	6,898.43	-91.57	22.14	383,578.37	828,060.83	32.051159	-103.407887
7,000.00	1.93	166.41	6,998.38	-94.84	22.93	383,575.10	828,061.62	32.051150	-103.407885
7,100.00	1.93	166.41	7,098.32	-98.10	23.72	383,571.83	828,062.41	32.051141	-103.407883
7,200.00	1.93	166.41	7,198.27	-101.37	24.51	383,568.57	828,063.20	32.051132	-103.407880
7,300.00	1.93	166.41	7,298.21	-104.64	25.30	383,565.30	828,063.99	32.051123	-103.407878
7,400.00	1.93	166.41	7,398.15	-107.90	26.09	383,562.04	828,064.78	32.051114	-103.407875
7,500.00	1.93	166.41	7,498.10	-111.17	26.88	383,558.77	828,065.57	32.051105	-103.407873
7,600.00	1.93	166.41	7,598.04	-114.43	27.67	383,555.50	828,066.36	32.051096	-103.407870
7,700.00	1.93	166.41	7,697.98	-117.70	28.46	383,552.24	828,067.15	32.051087	-103.407868
7,800.00	1.93	166.41	7,797.93	-120.97	29.25	383,548.97	828,067.94	32.051078	-103.407865
7,900.00	1.93	166.41	7,897.87	-124.23	30.04	383,545.71	828,068.73	32.051069	-103.407863
8,000.00	1.93	166.41	7,997.81	-127.50	30.83	383,542.44	828,069.52	32.051060	-103.407860
8,100.00	1.93	166.41	8,097.76	-130.76	31.62	383,539.17	828,070.31	32.051051	-103.407858
8,200.00	1.93	166.41	8,197.70	-134.03	32.41	383,535.91	828,071.10	32.051042	-103.407856
8,300.00	1.93	166.41	8,297.64	-137.30	33.20	383,532.64	828,071.89	32.051033	-103.407853
8,400.00	1.93	166.41	8,397.59	-140.56	33.99	383,529.38	828,072.68	32.051024	-103.407851
8,500.00	1.93	166.41	8,497.53	-143.83	34.78	383,526.11	828,073.47	32.051015	-103.407848
8,600.00	1.93	166.41	8,597.48	-147.10	35.57	383,522.84	828,074.26	32.051006	-103.407846
8,700.00	1.93	166.41	8,697.42	-150.36	36.36	383,519.58	828,075.05	32.050997	-103.407843
8,800.00	1.93	166.41	8,797.36	-153.63	37.15	383,516.31	828,075.84	32.050988	-103.407841
8,900.00	1.93	166.41	8,897.31	-156.89	37.94	383,513.05	828,076.63	32.050979	-103.407838
9,000.00	1.93	166.41	8,997.25	-160.16	38.73	383,509.78	828,077.42	32.050970	-103.407836
9,100.00	1.93	166.41	9,097.19	-163.43	39.52	383,506.51	828,078.21	32.050961	-103.407833
9,200.00	1.93	166.41	9,197.14	-166.69	40.31	383,503.25	828,079.00	32.050952	-103.407831
9,300.00	1.93	166.41	9,297.08	-169.96	41.10	383,499.98	828,079.78	32.050943	-103.407828
9,400.00	1.93	166.41	9,397.02	-173.22	41.89	383,496.72	828,080.57	32.050934	-103.407826
9,500.00	1.93	166.41	9,496.97	-176.49	42.68	383,493.45	828,081.36	32.050925	-103.407824
9,600.00	1.93	166.41	9,596.91	-179.76	43.47	383,490.18	828,082.15	32.050916	-103.407821
9,700.00	1.93	166.41	9,696.85	-183.02	44.26	383,486.92	828,082.94	32.050907	-103.407819
9,800.00	1.93	166.41	9,796.80	-186.29	45.05	383,483.65	828,083.73	32.050898	-103.407816
9,900.00	1.93	166.41	9,896.74	-189.55	45.83	383,480.38	828,084.52	32.050889	-103.407814
10,000.00	1.93	166.41	9,996.68	-192.82	46.62	383,477.12	828,085.31	32.050880	-103.407811
10,100.00	1.93	166.41	10,096.63	-196.09	47.41	383,473.85	828,086.10	32.050871	-103.407809
10,200.00	1.93	166.41	10,196.57	-199.35	48.20	383,470.59	828,086.89	32.050862	-103.407806
10,300.00	1.93	166.41	10,296.52	-202.62	48.99	383,467.32	828,087.68	32.050853	-103.407804
10,400.00	1.93	166.41	10,396.46	-205.88	49.78	383,464.05	828,088.47	32.050844	-103.407801
10,500.00	1.93	166.41	10,496.40	-209.15	50.57	383,460.79	828,089.26	32.050835	-103.407799
10,600.00	1.93	166.41	10,596.35	-212.42	51.36	383,457.52	828,090.05	32.050826	-103.407797
10,700.00	1.93	166.41	10,696.29	-215.68	52.15	383,454.26	828,090.84	32.050817	-103.407794
10,800.00	1.93	166.41	10,796.23	-218.95	52.94	383,450.99	828,091.63	32.050808	-103.407792

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Billiken 7-6 Fed Com 8H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3295.30ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3295.30ft
Site:	Sec 07-T26S-R35E	**North Reference:**	Grid
Well:	Billiken 7-6 Fed Com 8H	**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	1.93	166.41	10,896.18	-222.22	53.73	383,447.72	828,092.42	32.050799	-103.407789
11,000.00	1.93	166.41	10,996.12	-225.48	54.52	383,444.46	828,093.21	32.050790	-103.407787
11,100.00	1.93	166.41	11,096.06	-228.75	55.31	383,441.19	828,094.00	32.050781	-103.407784
11,200.00	1.93	166.41	11,196.01	-232.01	56.10	383,437.93	828,094.79	32.050772	-103.407782
11,300.00	1.93	166.41	11,295.95	-235.28	56.89	383,434.66	828,095.58	32.050763	-103.407779
11,400.00	1.93	166.41	11,395.89	-238.55	57.68	383,431.39	828,096.37	32.050754	-103.407777
11,500.00	1.93	166.41	11,495.84	-241.81	58.47	383,428.13	828,097.16	32.050745	-103.407774
11,502.81	1.93	166.41	11,498.65	-241.90	58.49	383,428.04	828,097.18	32.050745	-103.407774
11,600.00	0.47	166.41	11,595.81	-243.88	58.97	383,426.06	828,097.66	32.050739	-103.407773
11,631.19	0.00	0.00	11,627.00	-244.00	59.00	383,425.94	828,097.69	32.050739	-103.407773
11,700.00	0.00	0.00	11,695.81	-244.00	59.00	383,425.94	828,097.69	32.050739	-103.407773
11,800.00	0.00	0.00	11,795.81	-244.00	59.00	383,425.94	828,097.69	32.050739	-103.407773
11,900.00	0.00	0.00	11,895.81	-244.00	59.00	383,425.94	828,097.69	32.050739	-103.407773
11,981.23	0.00	0.00	11,977.04	-244.00	59.00	383,425.94	828,097.69	32.050739	-103.407773
KOP @ 11981' MD, 50' FSL, 2280' FWL									
12,000.00	1.88	359.51	11,995.81	-243.69	59.00	383,426.25	828,097.69	32.050740	-103.407773
12,100.00	11.88	359.51	12,094.96	-231.73	58.90	383,438.20	828,097.58	32.050773	-103.407773
12,200.00	21.88	359.51	12,190.53	-202.74	58.65	383,467.20	828,097.34	32.050852	-103.407773
12,222.37	24.11	359.51	12,211.13	-194.00	58.58	383,475.94	828,097.26	32.050876	-103.407773
FTP @ 12222' MD, 0' FSL, 2280' FWL									
12,300.00	31.88	359.51	12,279.62	-157.59	58.27	383,512.35	828,096.95	32.050976	-103.407773
12,400.00	41.88	359.51	12,359.51	-97.66	57.76	383,572.28	828,096.44	32.051141	-103.407773
12,500.00	51.88	359.51	12,427.78	-24.77	57.14	383,645.17	828,095.82	32.051341	-103.407773
12,600.00	61.88	359.51	12,482.35	58.87	56.43	383,728.81	828,095.11	32.051571	-103.407773
12,700.00	71.88	359.51	12,521.58	150.72	55.64	383,820.66	828,094.33	32.051824	-103.407773
12,800.00	81.88	359.51	12,544.25	247.98	54.82	383,917.92	828,093.51	32.052091	-103.407773
12,881.23	90.00	359.51	12,550.00	328.94	54.13	383,998.88	828,092.82	32.052314	-103.407773
12,900.00	90.00	359.51	12,550.00	347.71	53.97	384,017.65	828,092.66	32.052365	-103.407773
13,000.00	90.00	359.51	12,550.00	447.70	53.12	384,117.64	828,091.81	32.052640	-103.407773
13,100.00	90.00	359.51	12,550.00	547.70	52.27	384,217.64	828,090.96	32.052915	-103.407773
13,200.00	90.00	359.51	12,550.00	647.70	51.42	384,317.63	828,090.11	32.053190	-103.407773
13,300.00	90.00	359.51	12,550.00	747.69	50.57	384,417.63	828,089.26	32.053465	-103.407773
13,400.00	90.00	359.51	12,550.00	847.69	49.72	384,517.63	828,088.41	32.053740	-103.407773
13,500.00	90.00	359.51	12,550.00	947.69	48.87	384,617.62	828,087.56	32.054015	-103.407772
13,600.00	90.00	359.51	12,550.00	1,047.68	48.02	384,717.62	828,086.71	32.054289	-103.407772
13,700.00	90.00	359.51	12,550.00	1,147.68	47.17	384,817.61	828,085.86	32.054564	-103.407772
13,800.00	90.00	359.51	12,550.00	1,247.67	46.32	384,917.61	828,085.01	32.054839	-103.407772
13,900.00	90.00	359.51	12,550.00	1,347.67	45.47	385,017.61	828,084.16	32.055114	-103.407772
14,000.00	90.00	359.51	12,550.00	1,447.67	44.62	385,117.60	828,083.31	32.055389	-103.407772
14,100.00	90.00	359.51	12,550.00	1,547.66	43.77	385,217.60	828,082.46	32.055664	-103.407772
14,200.00	90.00	359.51	12,550.00	1,647.66	42.92	385,317.60	828,081.61	32.055939	-103.407772
14,300.00	90.00	359.51	12,550.00	1,747.66	42.07	385,417.59	828,080.76	32.056214	-103.407772
14,400.00	90.00	359.51	12,550.00	1,847.65	41.22	385,517.59	828,079.91	32.056488	-103.407772
14,500.00	90.00	359.51	12,550.00	1,947.65	40.37	385,617.58	828,079.06	32.056763	-103.407772
14,600.00	90.00	359.51	12,550.00	2,047.65	39.52	385,717.58	828,078.21	32.057038	-103.407772
14,700.00	90.00	359.51	12,550.00	2,147.64	38.67	385,817.58	828,077.36	32.057313	-103.407772
14,800.00	90.00	359.51	12,550.00	2,247.64	37.82	385,917.57	828,076.51	32.057588	-103.407772
14,900.00	90.00	359.51	12,550.00	2,347.63	36.97	386,017.57	828,075.66	32.057863	-103.407772
15,000.00	90.00	359.51	12,550.00	2,447.63	36.12	386,117.57	828,074.81	32.058138	-103.407772
15,100.00	90.00	359.51	12,550.00	2,547.63	35.27	386,217.56	828,073.96	32.058413	-103.407772
15,200.00	90.00	359.51	12,550.00	2,647.62	34.42	386,317.56	828,073.11	32.058687	-103.407772
15,300.00	90.00	359.51	12,550.00	2,747.62	33.57	386,417.55	828,072.26	32.058962	-103.407772
15,400.00	90.00	359.51	12,550.00	2,847.62	32.72	386,517.55	828,071.41	32.059237	-103.407772
15,500.00	90.00	359.51	12,550.00	2,947.61	31.87	386,617.55	828,070.56	32.059512	-103.407772

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Billiken 7-6 Fed Com 8H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3295.30ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3295.30ft
Site:	Sec 07-T26S-R35E	**North Reference:**	Grid
Well:	Billiken 7-6 Fed Com 8H	**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
15,600.00	90.00	359.51	12,550.00	3,047.61	31.02	386,717.54	828,069.71	32.059787	-103.407772
15,700.00	90.00	359.51	12,550.00	3,147.61	30.17	386,817.54	828,068.86	32.060062	-103.407772
15,800.00	90.00	359.51	12,550.00	3,247.60	29.32	386,917.53	828,068.01	32.060337	-103.407772
15,900.00	90.00	359.51	12,550.00	3,347.60	28.47	387,017.53	828,067.16	32.060611	-103.407772
16,000.00	90.00	359.51	12,550.00	3,447.60	27.62	387,117.53	828,066.31	32.060886	-103.407772
16,100.00	90.00	359.51	12,550.00	3,547.59	26.77	387,217.52	828,065.46	32.061161	-103.407772
16,200.00	90.00	359.51	12,550.00	3,647.59	25.92	387,317.52	828,064.61	32.061436	-103.407772
16,300.00	90.00	359.51	12,550.00	3,747.58	25.07	387,417.52	828,063.76	32.061711	-103.407772
16,400.00	90.00	359.51	12,550.00	3,847.58	24.22	387,517.51	828,062.91	32.061986	-103.407772
16,500.00	90.00	359.51	12,550.00	3,947.58	23.37	387,617.51	828,062.06	32.062261	-103.407772
16,600.00	90.00	359.51	12,550.00	4,047.57	22.52	387,717.50	828,061.21	32.062536	-103.407772
16,700.00	90.00	359.51	12,550.00	4,147.57	21.67	387,817.50	828,060.36	32.062810	-103.407772
16,800.00	90.00	359.51	12,550.00	4,247.57	20.82	387,917.50	828,059.51	32.063085	-103.407772
16,900.00	90.00	359.51	12,550.00	4,347.56	19.97	388,017.49	828,058.66	32.063360	-103.407772
17,000.00	90.00	359.51	12,550.00	4,447.56	19.12	388,117.49	828,057.81	32.063635	-103.407772
17,100.00	90.00	359.51	12,550.00	4,547.56	18.27	388,217.49	828,056.96	32.063910	-103.407772
17,200.00	90.00	359.51	12,550.00	4,647.55	17.42	388,317.48	828,056.11	32.064185	-103.407772
17,300.00	90.00	359.51	12,550.00	4,747.55	16.57	388,417.48	828,055.26	32.064460	-103.407772
17,400.00	90.00	359.51	12,550.00	4,847.54	15.72	388,517.47	828,054.41	32.064735	-103.407772
17,500.00	90.00	359.51	12,550.00	4,947.54	14.87	388,617.47	828,053.56	32.065009	-103.407772
17,538.00	90.00	359.51	12,550.00	4,985.54	14.55	388,655.47	828,053.24	32.065114	-103.407772
Cross section @ 17538' MD, 0' FSL, 2280' FWL									
17,600.00	90.00	359.51	12,550.00	5,047.54	14.02	388,717.47	828,052.71	32.065284	-103.407771
17,700.00	90.00	359.51	12,550.00	5,147.53	13.17	388,817.46	828,051.86	32.065559	-103.407771
17,800.00	90.00	359.51	12,550.00	5,247.53	12.32	388,917.46	828,051.01	32.065834	-103.407771
17,900.00	90.00	359.51	12,550.00	5,347.53	11.47	389,017.45	828,050.16	32.066109	-103.407771
18,000.00	90.00	359.51	12,550.00	5,447.52	10.62	389,117.45	828,049.31	32.066384	-103.407771
18,100.00	90.00	359.51	12,550.00	5,547.52	9.77	389,217.45	828,048.46	32.066659	-103.407771
18,200.00	90.00	359.51	12,550.00	5,647.52	8.92	389,317.44	828,047.61	32.066934	-103.407771
18,300.00	90.00	359.51	12,550.00	5,747.51	8.07	389,417.44	828,046.76	32.067208	-103.407771
18,400.00	90.00	359.51	12,550.00	5,847.51	7.22	389,517.44	828,045.91	32.067483	-103.407771
18,500.00	90.00	359.51	12,550.00	5,947.50	6.37	389,617.43	828,045.06	32.067758	-103.407771
18,600.00	90.00	359.51	12,550.00	6,047.50	5.52	389,717.43	828,044.21	32.068033	-103.407771
18,700.00	90.00	359.51	12,550.00	6,147.50	4.67	389,817.42	828,043.36	32.068308	-103.407771
18,800.00	90.00	359.51	12,550.00	6,247.49	3.82	389,917.42	828,042.51	32.068583	-103.407771
18,900.00	90.00	359.51	12,550.00	6,347.49	2.97	390,017.42	828,041.66	32.068858	-103.407771
19,000.00	90.00	359.51	12,550.00	6,447.49	2.12	390,117.41	828,040.81	32.069133	-103.407771
19,100.00	90.00	359.51	12,550.00	6,547.48	1.27	390,217.41	828,039.96	32.069407	-103.407771
19,200.00	90.00	359.51	12,550.00	6,647.48	0.42	390,317.41	828,039.11	32.069682	-103.407771
19,300.00	90.00	359.51	12,550.00	6,747.48	-0.43	390,417.40	828,038.26	32.069957	-103.407771
19,400.00	90.00	359.51	12,550.00	6,847.47	-1.28	390,517.40	828,037.41	32.070232	-103.407771
19,500.00	90.00	359.51	12,550.00	6,947.47	-2.13	390,617.39	828,036.56	32.070507	-103.407771
19,600.00	90.00	359.51	12,550.00	7,047.47	-2.98	390,717.39	828,035.71	32.070782	-103.407771
19,700.00	90.00	359.51	12,550.00	7,147.46	-3.83	390,817.39	828,034.86	32.071057	-103.407771
19,800.00	90.00	359.51	12,550.00	7,247.46	-4.68	390,917.38	828,034.01	32.071331	-103.407771
19,900.00	90.00	359.51	12,550.00	7,347.45	-5.53	391,017.38	828,033.16	32.071606	-103.407771
20,000.00	90.00	359.51	12,550.00	7,447.45	-6.38	391,117.37	828,032.31	32.071881	-103.407771
20,100.00	90.00	359.51	12,550.00	7,547.45	-7.23	391,217.37	828,031.46	32.072156	-103.407771
20,200.00	90.00	359.51	12,550.00	7,647.44	-8.08	391,317.37	828,030.61	32.072431	-103.407771
20,300.00	90.00	359.51	12,550.00	7,747.44	-8.93	391,417.36	828,029.76	32.072706	-103.407771
20,400.00	90.00	359.51	12,550.00	7,847.44	-9.78	391,517.36	828,028.91	32.072981	-103.407771
20,500.00	90.00	359.51	12,550.00	7,947.43	-10.63	391,617.36	828,028.06	32.073256	-103.407771
20,600.00	90.00	359.51	12,550.00	8,047.43	-11.48	391,717.35	828,027.21	32.073530	-103.407771
20,700.00	90.00	359.51	12,550.00	8,147.43	-12.33	391,817.35	828,026.36	32.073805	-103.407771

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Billiken 7-6 Fed Com 8H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3295.30ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3295.30ft
Site:	Sec 07-T26S-R35E	**North Reference:**	Grid
Well:	Billiken 7-6 Fed Com 8H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,800.00	90.00	359.51	12,550.00	8,247.42	-13.18	391,917.34	828,025.51	32.074080	-103.407771
20,900.00	90.00	359.51	12,550.00	8,347.42	-14.03	392,017.34	828,024.66	32.074355	-103.407771
21,000.00	90.00	359.51	12,550.00	8,447.41	-14.88	392,117.34	828,023.81	32.074630	-103.407771
21,100.00	90.00	359.51	12,550.00	8,547.41	-15.73	392,217.33	828,022.96	32.074905	-103.407771
21,200.00	90.00	359.51	12,550.00	8,647.41	-16.58	392,317.33	828,022.11	32.075180	-103.407771
21,300.00	90.00	359.51	12,550.00	8,747.40	-17.43	392,417.32	828,021.26	32.075455	-103.407771
21,400.00	90.00	359.51	12,550.00	8,847.40	-18.28	392,517.32	828,020.41	32.075729	-103.407771
21,500.00	90.00	359.51	12,550.00	8,947.40	-19.13	392,617.32	828,019.56	32.076004	-103.407771
21,600.00	90.00	359.51	12,550.00	9,047.39	-19.98	392,717.31	828,018.71	32.076279	-103.407770
21,700.00	90.00	359.51	12,550.00	9,147.39	-20.83	392,817.31	828,017.86	32.076554	-103.407770
21,721.32	90.00	359.51	12,550.00	9,168.71	-21.01	392,838.63	828,017.68	32.076613	-103.407770
LTP @ 21721' MD, 100' FNL, 2280' FWL									
21,800.00	90.00	359.51	12,550.00	9,247.39	-21.68	392,917.31	828,017.01	32.076829	-103.407770
21,900.00	90.00	359.51	12,550.00	9,347.38	-22.53	393,017.30	828,016.16	32.077104	-103.407770
22,000.00	90.00	359.51	12,550.00	9,447.38	-23.38	393,117.30	828,015.31	32.077379	-103.407770
22,100.00	90.00	359.51	12,550.00	9,547.38	-24.23	393,217.29	828,014.46	32.077653	-103.407770
22,200.00	90.00	359.51	12,550.00	9,647.37	-25.08	393,317.29	828,013.61	32.077928	-103.407770
22,300.00	90.00	359.51	12,550.00	9,747.37	-25.93	393,417.29	828,012.76	32.078203	-103.407770
22,400.00	90.00	359.51	12,550.00	9,847.36	-26.78	393,517.28	828,011.91	32.078478	-103.407770
22,500.00	90.00	359.51	12,550.00	9,947.36	-27.63	393,617.28	828,011.06	32.078753	-103.407770
22,600.00	90.00	359.51	12,550.00	10,047.36	-28.48	393,717.28	828,010.21	32.079028	-103.407770
22,700.00	90.00	359.51	12,550.00	10,147.35	-29.33	393,817.27	828,009.36	32.079303	-103.407770
22,800.00	90.00	359.51	12,550.00	10,247.35	-30.18	393,917.27	828,008.51	32.079578	-103.407770
22,801.31	90.00	359.51	12,550.00	10,248.66	-30.19	393,918.58	828,008.50	32.079581	-103.407770
PBHL; 20' FNL, 2280' FWL									
22,801.32	90.00	359.51	12,550.00	10,248.67	-30.19	393,918.59	828,008.50	32.079581	-103.407770

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 - Billiken 7-6 Fed	0.00	0.00	0.00	10,248.67	-30.19	393,918.59	828,008.50	32.079581	-103.407770
- plan misses target center by 10248.71ft 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
11,981.23	11,977.04	-244.00	59.00	KOP @ 11981' MD, 50' FSL, 2280' FWL
12,222.37	12,211.13	-194.00	58.58	FTP @ 12222' MD, 0' FSL, 2280' FWL
17,538.00	12,550.00	4,985.54	14.55	Cross section @ 17538' MD, 0' FSL, 2280' FWL
21,721.32	12,550.00	9,168.71	-21.01	LTP @ 21721' MD, 100' FNL, 2280' FWL
22,801.31	12,550.00	10,248.66	-30.19	PBHL; 20' FNL, 2280' FWL

Devon Energy

WELL DETAILS: Billken 7-6 Fed Com 8H

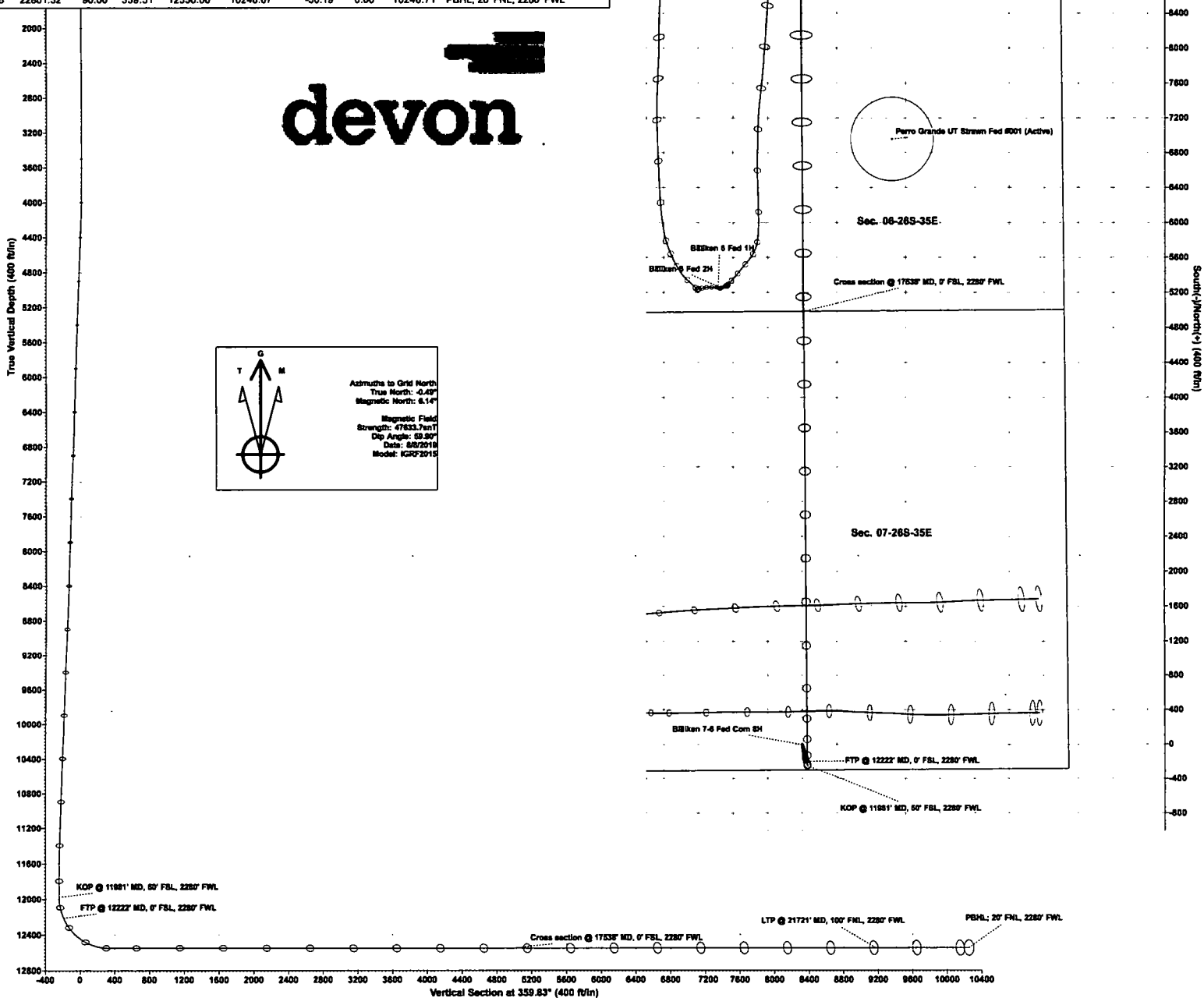
RKB @ 3295.30ft
3270.30

Northing	Easting	Latitude	Longitude
383669.94	828038.89	32.051411	-103.407956

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	
	4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	
	4192.56	1.93	166.41	4192.53	-3.14	0.76	1.00	-3.15	
	11502.81	1.93	166.41	11498.65	-241.90	58.49	0.00	-242.07	
5	11631.19	0.00	0.00	11627.00	-244.00	59.00	1.50	-244.17	
6	11981.23	0.00	0.00	11977.04	-244.00	59.00	0.00	-244.17	KOP @ 11981' MD, 50' FSL, 2280' FWL
7	12881.23	90.00	359.51	12550.00	328.94	54.13	10.00	328.78	
8	22801.32	90.00	359.51	12550.00	10248.67	-30.19	0.00	10248.71	PBHL; 20' FNL, 2280' FWL

devon



U. S. Steel Tubular Products

1/8/2019 12:38:52 PM

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

2/21/2019 8:12:22 AM

5.500" 17.00lbs/ft (0.304" Wall) P110

MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	110,000	--	--	--	psi
Maximum Yield Strength	140,000	--	--	--	psi
Minimum Tensile Strength	125,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	5.500	6.050	6.050	--	in.
Wall Thickness	0.304	--	--	--	in.
Inside Diameter	4.892	4.892	4.892	--	in.
Standard Drift	4.767	4.767	4.767	--	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	17.00	--	--	--	lbs/ft
Plain End Weight	16.89	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	7,480	7,480	7,480	--	psi
Minimum Internal Yield Pressure	10,640	10,640	10,640	--	psi
Minimum Pipe Body Yield Strength	546	--	--	--	1,000 lbs
Joint Strength	--	568	445	--	1,000 lbs
Reference Length	--	22,271	17,449	--	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	4.13	3.50	--	in.
Minimum Make-Up Torque	--	--	3,470	--	ft-lbs
Maximum Make-Up Torque	--	--	5,780	--	ft-lbs

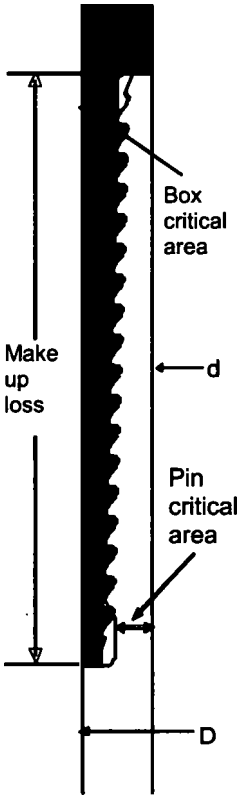
U. S. Steel Tubular Products
460 Wildwood Forest Drive, Suite 300S
Spring, Texas 77380

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

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

[redacted]

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)			

[redacted]

Performance Properties for Pipe Body

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

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

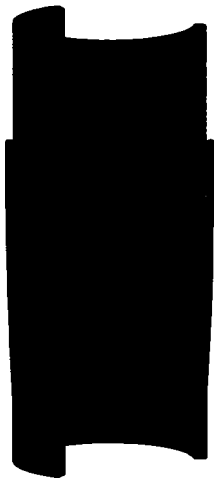
Performance Properties for Connection

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

Recommended Torque

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

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



TEC-LOCK WEDGE

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

Pipe Body Data

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

Connection Data

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

Operational Data

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

Notes

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

HUNTING

Devon Energy Annular Preventer Summary

1. Component and Preventer Compatibility Table

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

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

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

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

2. Well Control Procedures

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

<u>General Procedure While Drilling</u>

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

Devon Energy Annular Preventer Summary

General Procedure While Tripping

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

General Procedure While Running Casing

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

General Procedure With No Pipe In Hole (Open Hole)

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

Devon Energy Annular Preventer Summary

General Procedures While Pulling BHA thru Stack

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

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

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

Continental CONTITECH

Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

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

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

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

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

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

RIG 212

PHOENIX

QUALITY DOCUMENT

PHOENIX RUBBER INDUSTRIAL LTD.

6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax: (3662) 568-738

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

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

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 25 MPa

COUPLINGS

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

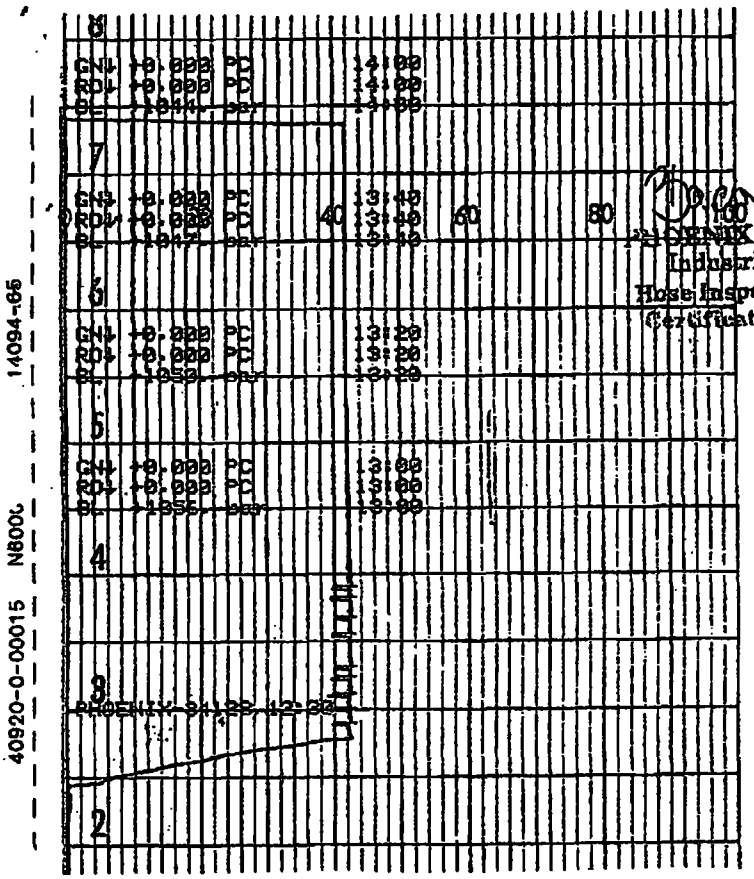
API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

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

Date:	Inspector	Quality Control
29. April. 2002.		PHOENIX RUBBER Industrial Ltd. Hose Inspection and Testing Dept.

CERTIFIED TRUE COPY
PHOENIX RUBBER Q.C.



PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE CO
PHOENIX RUBBER Q.C.

AFMSS

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

PWD Data Report

02/04/2020

APD ID: 10400046211 **Submission Date:** 08/20/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

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

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

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

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

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

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

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

Produced Water Disposal (PWD) Location:

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

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

02/04/2020

APD ID: 10400046211 **Submission Date:** 08/20/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: BILLIKEN 7-6 FED COM **Well Number:** 8H

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

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000801

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: