

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELL**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.**Carlsbad Field Office**
OCD Artesia5. Lease Serial No.
NIN 10043857
6. If Indian, Allottee or Tribe Name**SUBMIT IN TRIPLICATE - Other instructions on page 2**

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

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.

NASH UNIT 46H

2. Name of Operator

XTO ENERGY, INC

Contact: STEPHANIE RABADUE

E-Mail: stephanie_rabadue@xtoenergy.com

9. API Well No.

30-015-43081

3a. Address

500 W. ILLINOIS ST STE 100
MIDLAND, TX 79701

3b. Phone No. (include area code)

Ph: 432-620-6714

10. Field and Pool or Exploratory Area

NASH DRAW; DELAWARE BS-AV

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

Sec 18 T23S R30E Mer NMP NENE 700FNL 1880FWL

11. County or Parish, State

EDDY COUNTY, NM

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

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

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

XTO Energy, Inc respectfully requests to change the approved APD in the following ways:

1. Change well name from Nash Unit Fed Com #105H to Nash Unit #46H. An updated C-102 is attached.
2. Well hole, casing and cement design. An updated drilling program is attached.
3. Change the flex hose variance to XTO Rig. Flex hose specs are attached.
4. Change the BOP and Choke Manifold to 3M. Updated schematics are attached.
5. Change of TD/MD associated with the well. New BHL & TP information. An updated C-102 and directional drill survey is attached.

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 30 2017

SEE ATTACHED FOR
CONDITIONS OF APPROVAL
RECEIVED

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

Electronic Submission #358779 verified by the BLM Well Information System
For XTO ENERGY, INC, sent to the Carlsbad
Committed to AFMSS for processing by MUSTAFA HAQUE on 12/13/2016 ()

Name (Printed/Typed) STEPHANIE RABADUE

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 11/22/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUETitle EngineerDate 1/10/2017

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

Office CFO

JAN 10 2017

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

(Instructions on page 2)

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

Additional data for EC transaction #358779 that would not fit on the form

32. Additional remarks, continued

6. Change Facility & Electrical Information to the Following:

Production from an active well will be located at the existing Nash Unit 42H battery. No more than 5280' of 4", 125psi poly flowline will be run on the surface in approved and existing lease road corridors back to the Nash Unit 42H facility. Electrical for the well will be 12,740 volt and will also follow existing proposed and approved lease road corridors connecting from the Nash Unit #45H well to the Nash Unit #46H well. No more than 3 poles are anticipated to make this connection. No additional surface disturbance than what was permitted by Murchison is anticipated.

→ Operator shall submit a separate survey for the "Facility Change" mentioned in bullet point #6

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Energy Inc
LEASE NO.:	NMNM0556857
WELL NAME & NO.:	46H-Nash Unit
SURFACE HOLE FOOTAGE:	700'/N & 1880'/W
BOTTOM HOLE FOOTAGE	200'/N & 1395'/E, sec. 6
LOCATION:	Section 18, T. 23 S., R. 30 E., NMPM
COUNTY:	Eddy County, New Mexico

All previous COAs still apply except for the following:

A. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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.

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

R-111-P-Potash

High Cave/Karst

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Rustler, Delaware and Bone Spring.

1. The 13-3/8 inch surface casing shall be set at approximately 200 feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
 - 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 is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing, is:
 - ☒ Cement to surface. If cement does not circulate see A.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst and potash.**
3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

Option 1:

- ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash. Excess calculates to -2% - Additional cement will be required.**

Option 2:

- a. First stage to 4400':
 - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage Pump down 5 1/2" x 8 3/4" annulus:

- ☒ Cement to surface. If cement does not circulate see A.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave karst and potash. Excess calculates to -13% - Additional cement will be required.**

Operator must run a CBL from TD of the 5 1/2" casing to surface. Submit results to the BLM.

4. 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.
5. 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. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. 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.
- b. 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 (18 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).
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. 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.**
 - f. 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.

MHH 12152016

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

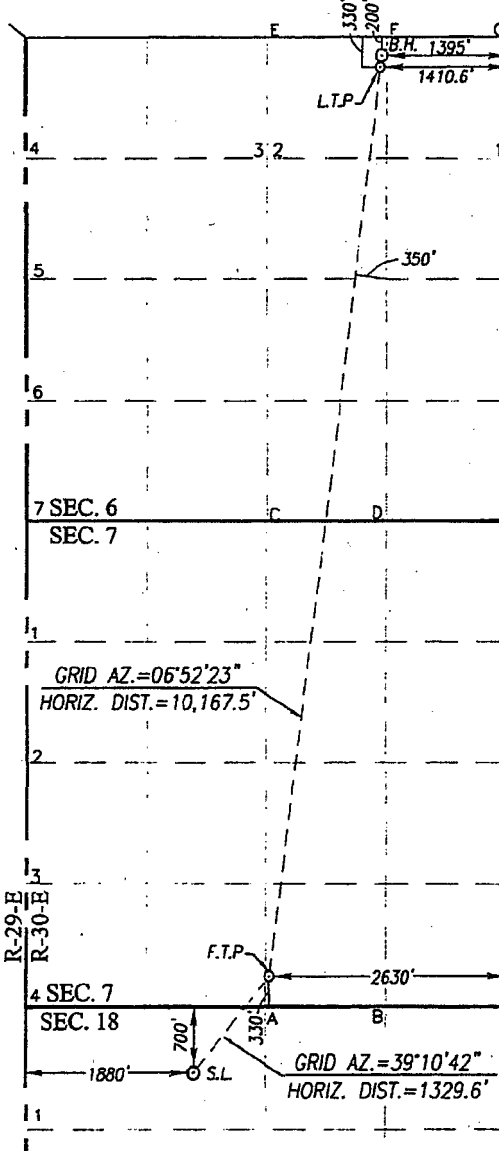
API Number 30-015-43081	Pool Code 47545	Pool Name Nash Draw; Delaune; BS AV
Property Code 303152	Property Name NASH UNIT	Well Number 46H
OGRID No. 005380	Operator Name XTO ENERGY	Elevation 3020'

Surface Location									
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	18	23-S	30-E		700	NORTH	1880	WEST	EDDY

Bottom Hole Location If Different From Surface									
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	6	23-S	30-E		200	NORTH	1395	EAST	EDDY

Dedicated Acres 3.30.15	Joint or Infill	Consolidation Code	Order No. Unit Agreement: NMN470992X
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



SCALE: 1"=2000'

BOTTOM HOLE LOCATION	BOTTOM HOLE LOCATION
NAD 83 NME	NAD 27 NME
Y= 488019.0 N	Y= 487959.0 N
X= 669985.9 E	X= 628803.1 E
LAT.=32.340948° N	LAT.=32.340826° N
LONG.=103.916775° W	LONG.=103.916284° W
LAST TAKE POINT	LAST TAKE POINT
NAD 83 NME	NAD 27 NME
Y= 487889.0 N	Y= 487829.1 N
X= 669970.2 E	X= 628787.5 E
LAT.=32.340591° N	LAT.=32.340469° N
LONG.=103.916828° W	LONG.=103.916336° W

CORNER COORDINATES TABLE

NAD 27 NME

A - Y= 477537.1 N, X= 627542.8 E
B - Y= 477538.4 N, X= 628880.0 E
C - Y= 482846.5 N, X= 627519.8 E
D - Y= 482846.1 N, X= 628857.6 E
E - Y= 488156.7 N, X= 627522.2 E
F - Y= 488158.9 N, X= 628860.0 E
G - Y= 488161.0 N, X= 630197.9 E

CORNER COORDINATES TABLE

NAD 83 NME

A - Y= 477596.7 N, X= 668725.8 E
B - Y= 477598.1 N, X= 670063.0 E
C - Y= 482906.3 N, X= 668702.6 E
D - Y= 482905.9 N, X= 670040.5 E
E - Y= 488216.7 N, X= 668704.9 E
F - Y= 488218.8 N, X= 670042.8 E
G - Y= 488221.0 N, X= 671380.6 E

FIRST TAKE POINT

NAD 83 NME

Y= 477926.7 N
X= 668769.4 E
LAT.=32.313219° N
LONG.=103.920840° W

FIRST TAKE POINT

NAD 27 NME

Y= 477867.0 N
X= 627586.3 E
LAT.=32.313097° N
LONG.=103.920349° W

GEODETIC COORDINATES

NAD 83 NME

SURFACE LOCATION
Y= 476896.3 N
X= 667929.6 E
LAT.=32.310396° N
LONG.=103.923571° W

GEODETIC COORDINATES

NAD 27 NME

SURFACE LOCATION
Y= 476836.6 N
X= 626746.5 E
LAT.=32.310273° N
LONG.=103.923081° W

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Stephanie Rabinovich 11/20/16
Signature Date

Stephanie Rabinovich
Printed Name

Stephanie Rabinovich
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 1, 2016

Date of Survey
Signature & Seal of Professional Surveyor

Ronald J. Eidson 11/07/2016
Certificate Number

Ronald J. Eidson 11/07/2016
Certificate Number

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Certificate Number

Ronald J. Eidson 11/07/2016
Certificate Number

ACK REV. 11/4/06 REL. W.O.: 14111317 JWSC W.O.: 16110876

DRILLING PLAN: BLM COMPLIANCE
(Supplement to BLM 3160-3)

XTO Energy Inc.
Nash Unit #46

Projected TD: 18115' MD / 6985' TVD
SHL: 700' FNL & 1880' FWL, SECTION 18, T23S, R30E
BHL: 200' FNL & 1395' FEL, SECTION 6, T23S, R30E
Eddy County, NM

1. GEOLOGIC NAME OF SURFACE FORMATION:

A. Salado

2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Formation	Well Depth (TVD)	Water / Oil / Gas
Rustler	30'	Water
Top of Salt	368'	
Base of Salt	3033'	
Delaware	3258'	Water
Cherry Canyon	4143'	Water
Brushy Canyon Top	5721'	Water/Oil/Gas
Brushy Canyon E5 Zone	6960'	Water/Oil/Gas
Target/Land Curve	6985'	Water/Oil/Gas
Bone Spring	7047'	Water/Oil/Gas

*** Hydrocarbons @ Brushy Canyon
*** Groundwater depth 50'.

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8" casing @ 325' (43' above the salt) and circulating cement back to surface. Potash/fresh water sands will be protected by setting 9-5/8" casing at 3150' and circulating cement to surface. A 8-3/4" vertical & curve will be drilled to landing point, then an 8-1/2" lateral to MD/TD and 5-1/2" casing with sliding frac sleeves will be run and cemented for completion.

3. CASING PROGRAM: ~~PSEE~~ CoA

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
17-1/2"	0' - 325' 200'	13-3/8"	48#	STC	H-40	New	6.92	4.98	20.64
12-1/4"	0' - 3150'	9-5/8"	36#	LTC	J-55	New	2.76	1.21	3.99
8-3/4" x 8-1/2"	0' - 18115'	5-1/2"	17#	BTC	CYP-110	New	1.33	2.23	1.77

WELLHEAD:

- A. Starting Head: 13-5/8" 5,000 psi top flange x 13-3/8" SOW bottom
- B. Tubing Head: 13-5/8" 5,000 psi bottom flange x 7-1/16" 10,000 psi top flange

4. CEMENT PROGRAM:

- A. **Surface Casing:** 13-3/8", 48#, NEW H-40, STC casing to be set at ± 200 ²⁰⁰/₃₂₅'.

335 sx HalCem-C + 2% CaCl (mixed at 14.80 ppg, 1.35 cu ft/sx, 6.39 gal/sx wtr)

*** 100% open hole excess. Cement to surface.

In the event that loss circulation is encountered while drilling the surface hole (i.e. Nash #39H, #40H, #41H), an alternate cementing procedure will be to pump 150 sx Thixotropic + 10 pps CalSeal + 10 pps Gilsonite + 2% CaCl (14 ppg, 1.7 cu ft/sx) Compr Strengths 12 hr – 468 psi 24 hr – 739 psi followed by 200 sx HalCem C + 2% CaCl (properties above) Run temp survey to locate top of cement, top out with 1" to surface with the required amount of "Thixotropic" cement. This procedure to be coordinated and communicated with the designated BLM representative.

- B. **Intermediate Casing:** 9-5/8", 36#, NEW J-55, LTC casing to be set at ± 3150 '.

Lead: 20 bbls FW, then 883 sx EconoCem + 5% salt + 5% Kol-Seal (mixed at 12.8 ppg, 1.92 ft³/sk, 9.96 gal/sx wtr)

Tail: 235 sx HalCem-C (mixed at 14.8 ppg, 1.33 ft³/sk, 6.34 gal/sx wtr)

*** 100% open hole excess. Cement to surface.

- C. **Production Casing:** 5-1/2", 17#, NEW CYP-110, BTC casing to be set at ± 18115 '.

Primary Cement Job

Lead: 340 sx NeoCem (mixed at 11ppg, 2.808 cuft/sx, 17.37 gal/sx wtr)

Low Cement
- SEE COA

Tail (Csg Shoe Cmt): 2800 sx HalCem-H + 0.5% LAP-1 + 0.25% CFR-3 + 5 pps Kol-Seal + 0.25 pps D-air 5000 (13.2 ppg, 1.4 cuft/sx, 6.83 gal/sx wtr)

*** 50% open hole excess. Cement to ~~2650' (500' within previous shoe)~~ surface.

Contingency Cement Job

In the event of a water flow after the primary cement job, cement to be pumped down the 5-1/2" x 8-3/4" annulus to eliminate and isolate the water flow area – cement to fill from 4400' to surface.

Low Cement
- SEE COA

Lead: 500 sx EconoCem + 5% Salt (mixed at 12.8 ppg, 1.89 cuft/sx, 10.17 gal/sx wtr)

Tail: 50 sx HalCem (mixed at 14.8 ppg, 1.33 cuft/sx, 6.34 gal/sx wtr)

5. PRESSURE CONTROL EQUIPMENT: ~~DSEE~~ COA

The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 3M Hydril and a 13-5/8" minimum 3M Double Ram BOP. Max bottom hole pressure should not exceed 3342 psi.

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up, the BOP test will be limited to 3,000psi. All BOP tests will include a low pressure test as per BLM regulations. The 3M BOP diagram is attached. Blind rams will be function tested each trip, pipe rams will be function tested each day.

SEE
COA
A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors.

6. PROPOSED MUD CIRCULATION SYSTEM:

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 325' 200'	17-1/2"	FW/Native	8.5 - 8.8	35 - 40	NC
325' to 3150'	12-1/4"	Brine/Gel Sweeps	9.8 - 10.2	30 - 32	NC
3150' to 18115'	8-3/4" x 8-1/2"	Cut Brine/ Poly-Sweeps	8.7-9.4	29 - 32	NC - 30

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Spud with fresh water/native mud. Drill out from under 13-3/8" surface casing with brine solution. A 9.8ppg - 10.2ppg brine mud will be used while drilling through the salt formation. Cut brine will be used to drill the 8-3/4" hole sections. Polymer-water will be used to drill the 8-1/2" lateral. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Solids control equipment will be used to operate as a closed loop system.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

- A. A Kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
- C. H2S monitors will be on location when drilling below the 13-3/8" casing.

8. LOGGING, CORING AND TESTING PROGRAM:

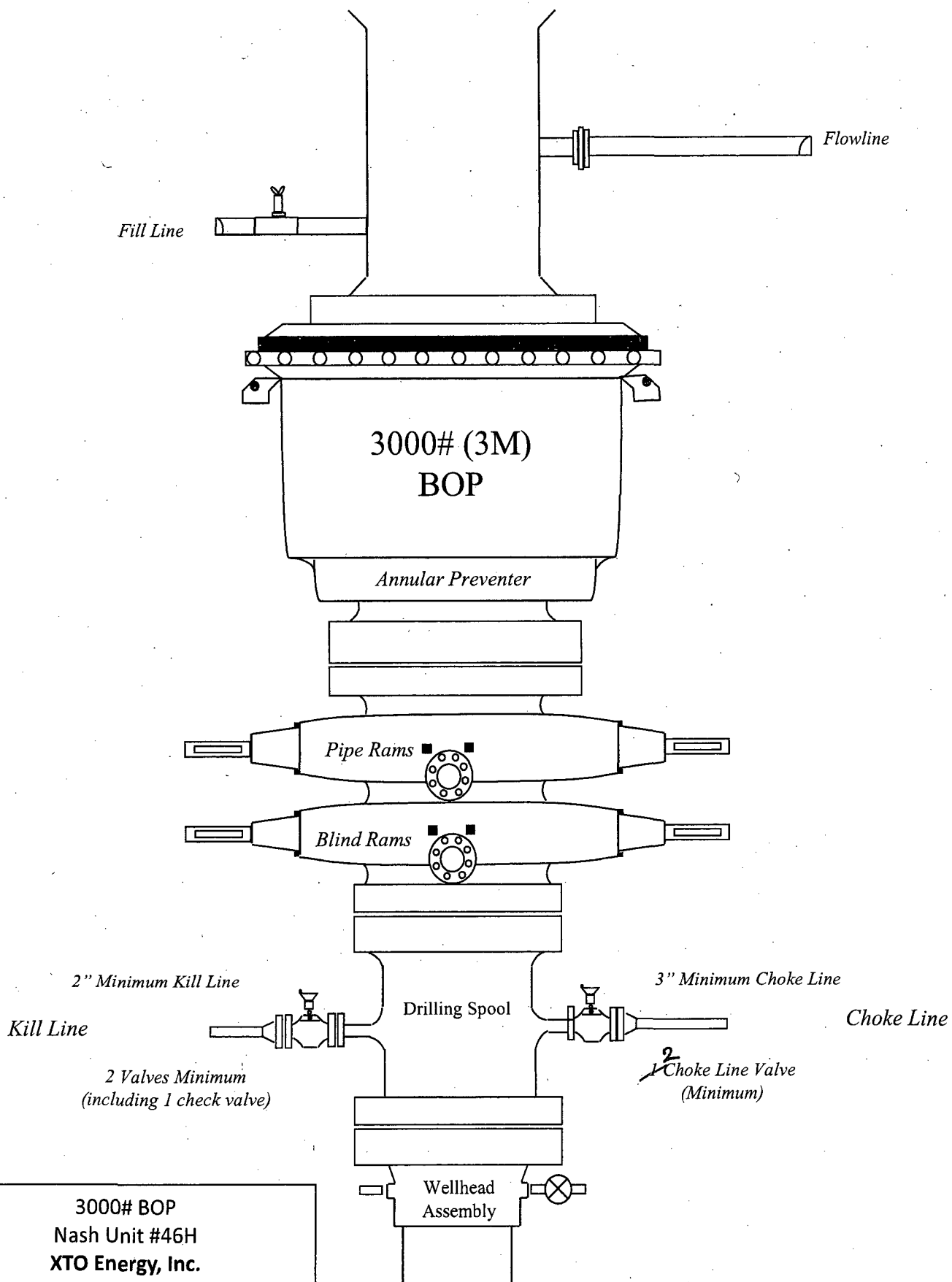
Mud Logger: Mud Logging Unit (2 man) on below intermediate casing.

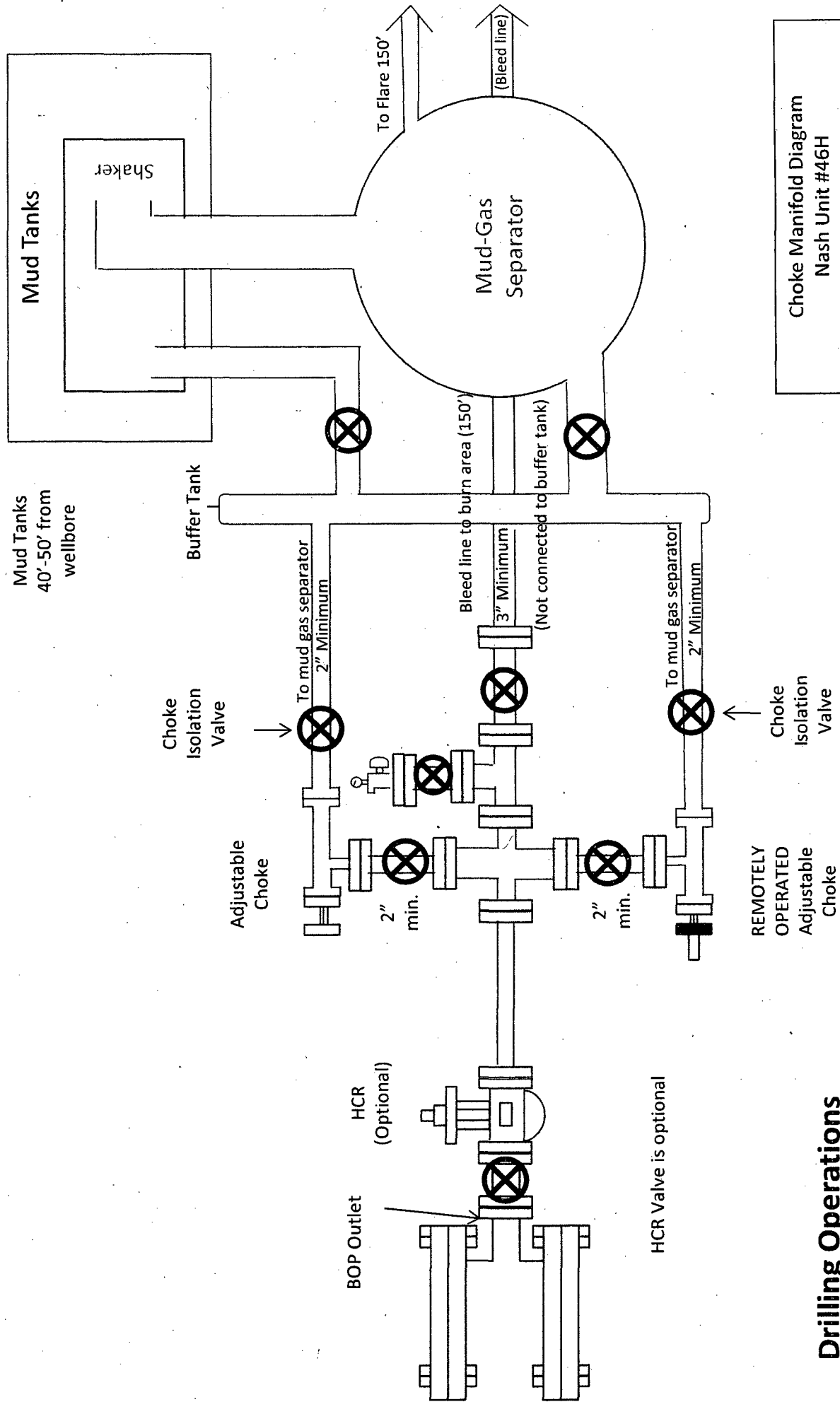
9. ABNORMAL PRESSURES AND TEMPERATURES / POTENTIAL HAZARDS:

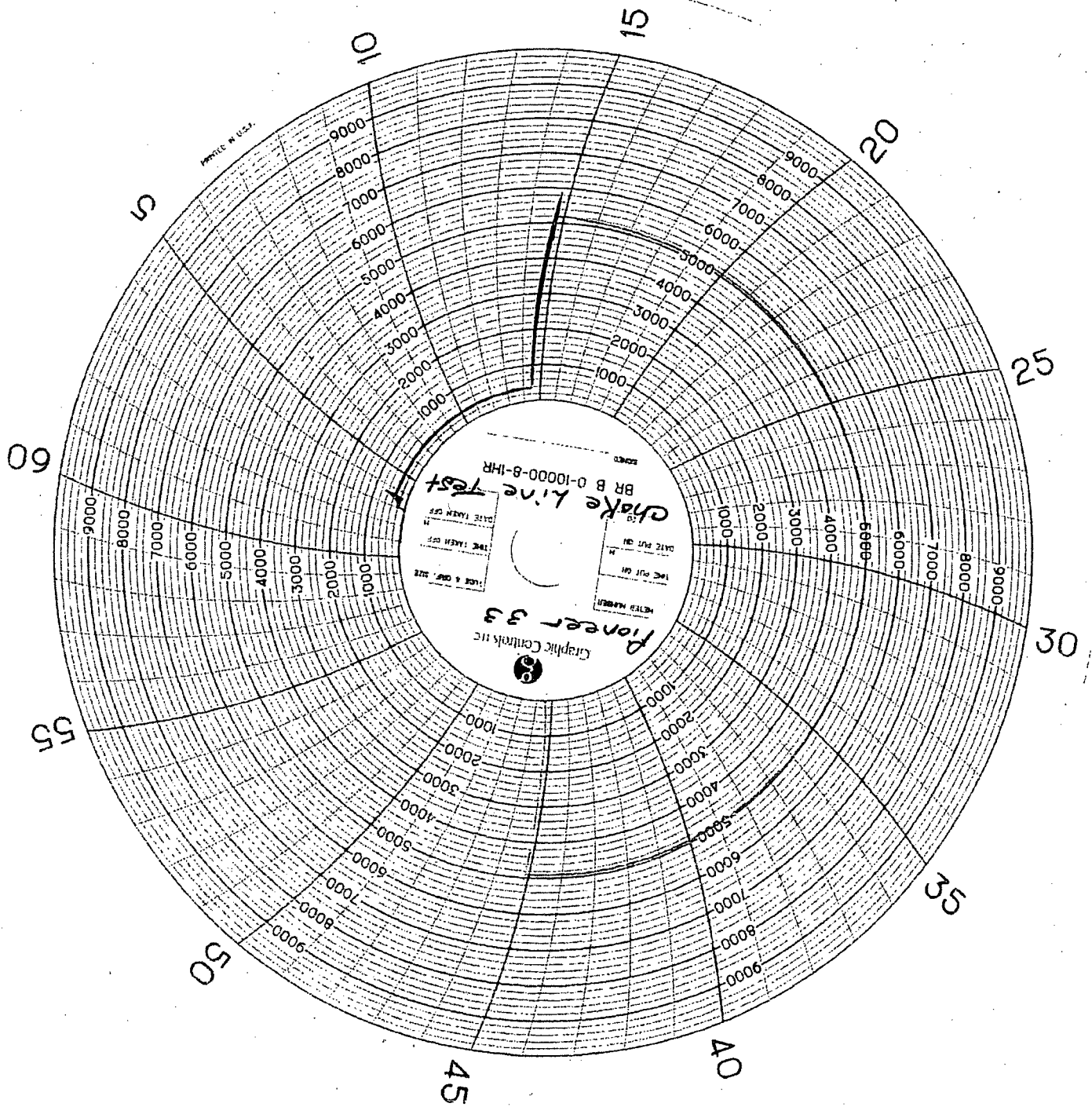
None anticipated. BHT of 175 F is anticipated. H2S can be present from 4600 – TD. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid.

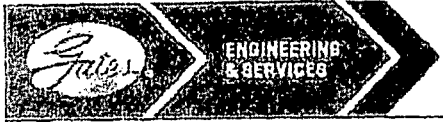
10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin after Santa Fe and BLM have approved the APD. Anticipated spud date will be as soon after Santa Fe and BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 40 days. If production casing is run, an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.









GATES E & S NORTH AMERICA, INC
DU-TEX
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

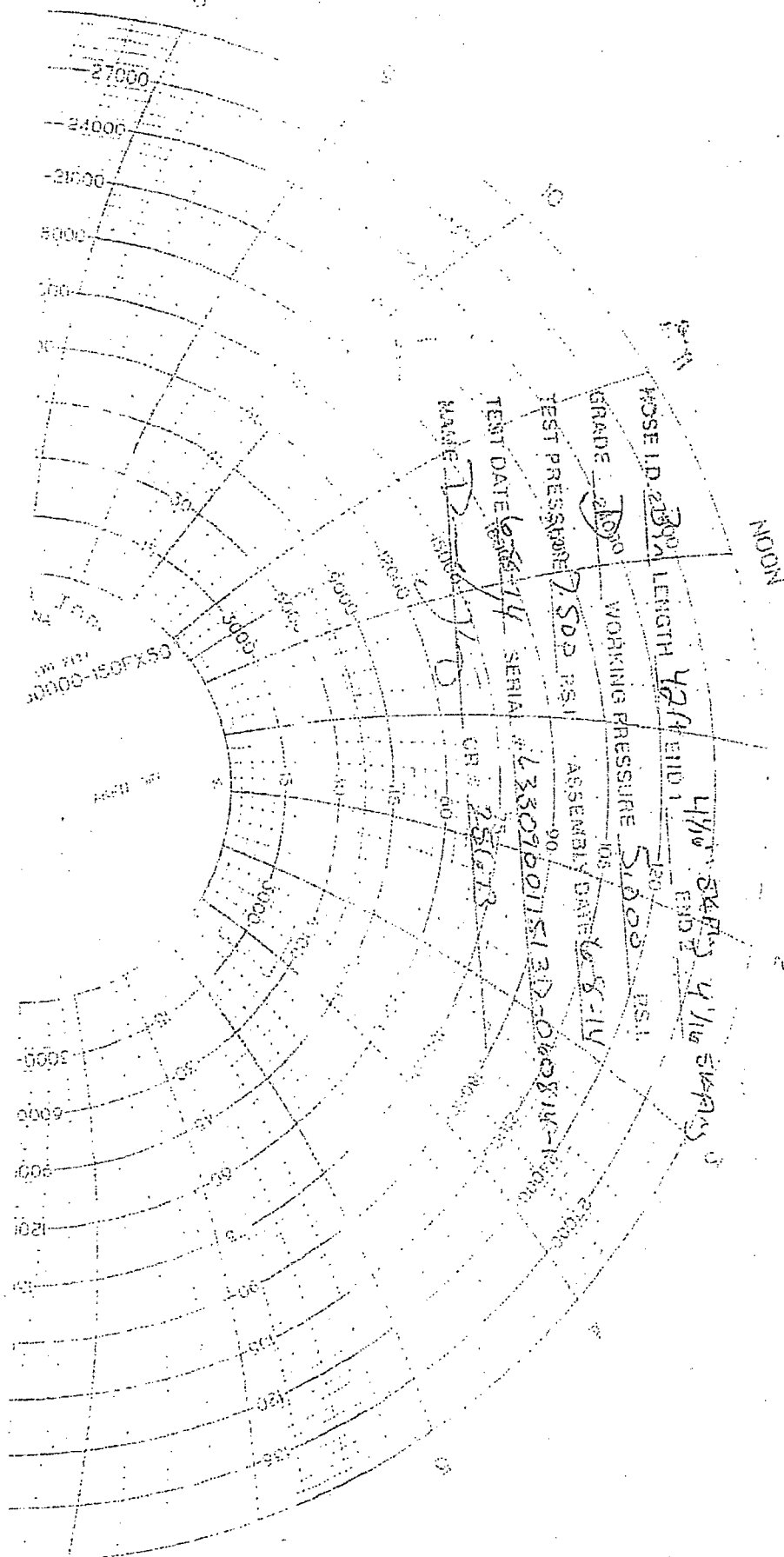
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe@s@gates.com
WEB: www.gates.com

GRADE D PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	6/8/2014
Customer Ref. :	PENDING	Hose Serial No.:	D-060814-1
Invoice No. :	201709	Created By:	NORMA
Product Description:	FD3.042.0R41/16.5KFLGE/E LE		
End Fitting 1 :	4 1/16 in.5K FLG	End Fitting 2 :	4 1/16 in.5K FLG
Gates Part No. :	4774-6001	Assembly Code :	L33090011513D-060814-1
Working Pressure :	5,000 PSI	Test Pressure :	7,500 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 7,500 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality:	QUALITY	Technical Supervisor :	PRODUCTION
Date :	6/8/2014	Date :	6/8/2014
Signature :		Signature :	



30000-150FX50

100 1100

ASSEMBLY DATE 6-8-14

20000-15000

20000

20000

20000



Company: XTO Energy
Site: Nash Unit
Well: 46H
Project: Eddy County, New Mexico (NAD 27)
Rig: Noram 25

MS Energy Services.
WWW.MSENERGYSERVICES.COM



Azimuths to Grid North
True North: -0.22°
Magnetic North: 7.00°

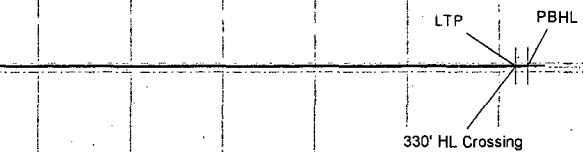
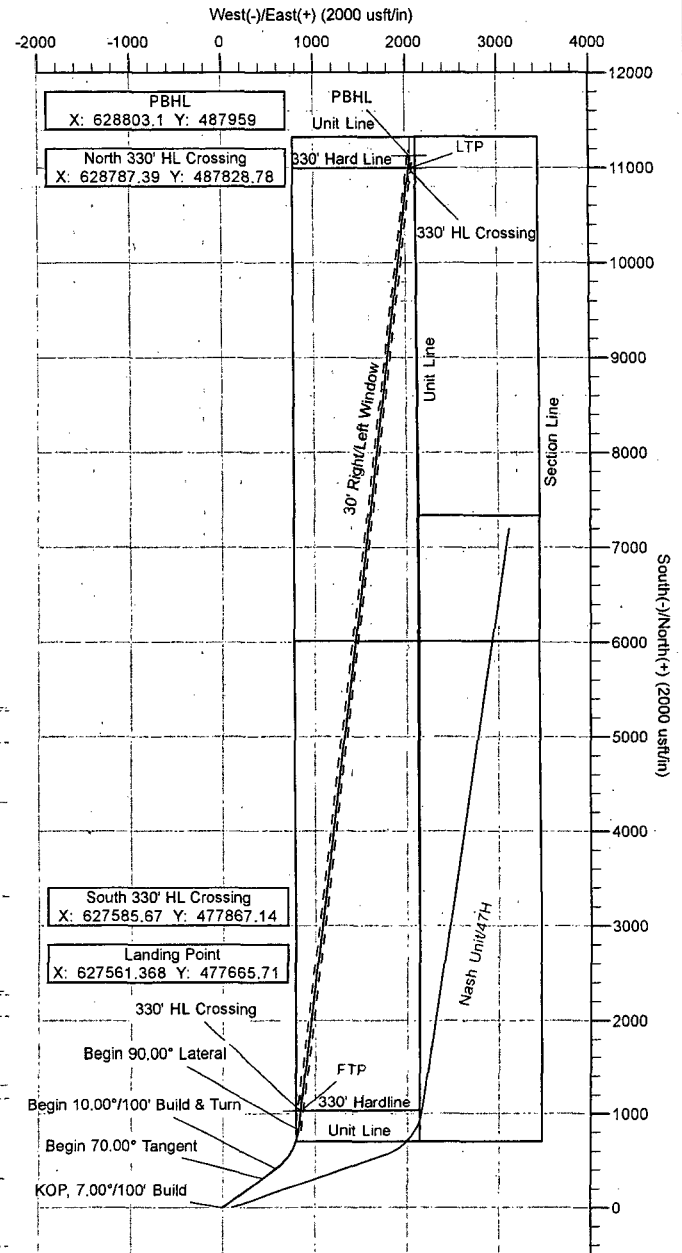
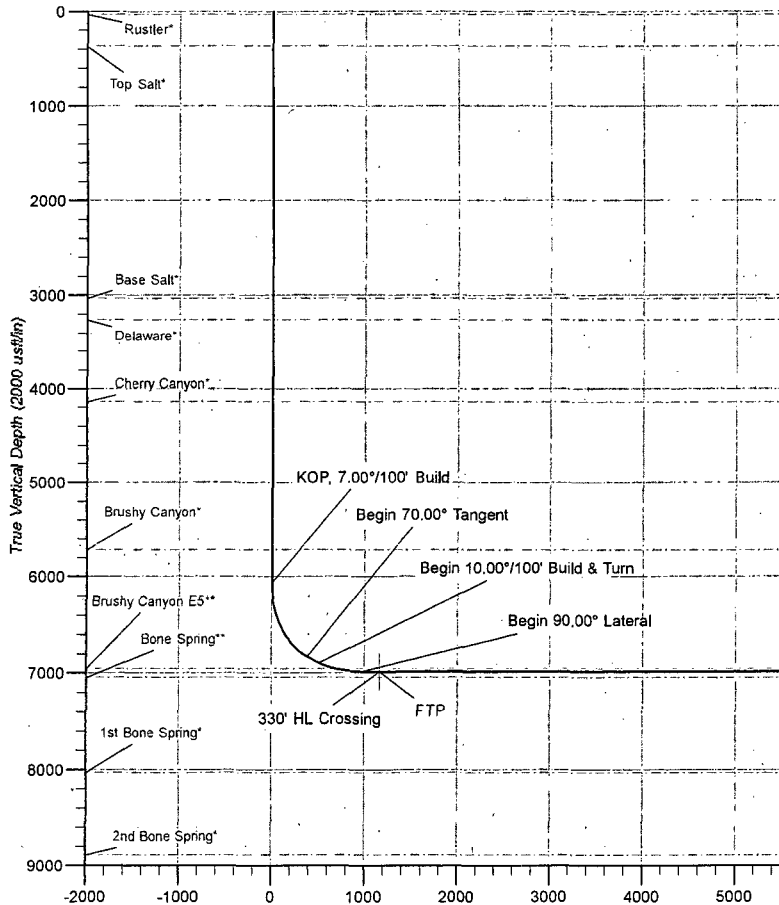
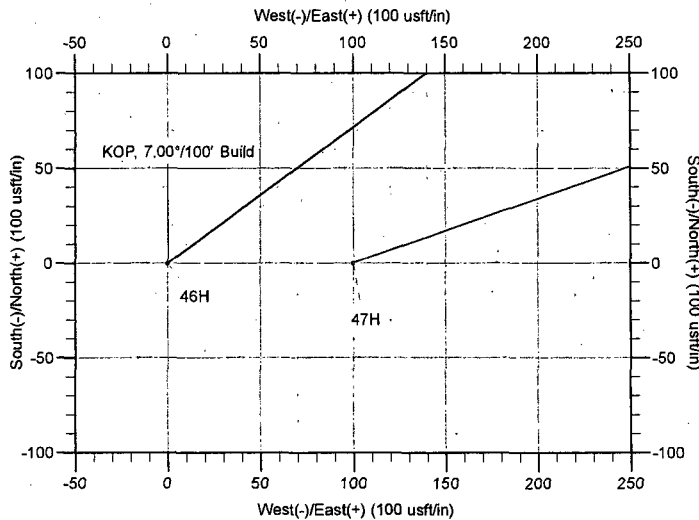
Magnetic Field
Strength: 48084.2snT
Dip Angle: 60.09°
Date: 1/2/2017
Model: BGGM2016

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
6061.63	0.00	0.00	6061.63	0.00	0.00	0.00	0.00	KOP, 7.00°/100' Build
7061.63	70.00	54.40	6830.78	313.51	437.91	387.91	538.56	Begin 70.00° Tangent
7241.63	70.00	54.40	6892.34	411.97	575.44	509.73	707.71	Begin 10.00°/100' Build & Turn
7747.73	90.00	6.88	6985.00	829.11	814.87	963.45	1202.59	Begin 90.00° Lateral
18115.65	90.00	6.88	6985.00	11122.40	2056.60	11310.94	11570.51	PBHL

US State Plane 1927 (Exact solution)
New Mexico East 3001

Created By: VLS
Date: 16:13, November 15 2016
Plan: Design #1



Vertical Section at 10.48° (2000 usf/in)

The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented.
Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



XTO Energy

Eddy County, New Mexico (NAD 27)

Nash Unit

46H

Wellbore #1

Plan: Design #1

Standard Planning Report

15 November, 2016



MS Energy Services Planning Report



Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well 46H
Company:	XTO Energy	TVD Reference:	Well @ 3045.00usft (Noram 25)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	Well @ 3045.00usft (Noram 25)
Site:	Nash Unit	North Reference:	Grid
Well:	46H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project:	Eddy County, New Mexico (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Well:	46H						
Well Position	+N/-S	476,836.60 usft	Northing:	476,836.60 usft	Latitude:	32° 18' 36.984 N	
	+E/-W	626,746.50 usft	Easting:	626,746.50 usft	Longitude:	103° 55' 23.090 W	
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	3,020.00 usft	

Wellbore:	Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	BGGM2016	1/2/2017	7.22	60.09	48,084	

Design:	Design #1					
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Audit Notes:

Version: Phase: PROTOTYPE Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	10.48

Plan Survey Tool Program	Date 11/15/2016				
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,115.64	Design #1 (Wellbore #1)	MWD	
OWSG MWD - Standard					

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
6,061.63	0.00	0.00	6,061.63	0.00	0.00	0.00	0.00	0.00	0.00	
7,061.63	70.00	54.40	6,830.78	313.51	437.91	7.00	7.00	0.00	54.40	
7,241.63	70.00	54.40	6,892.34	411.97	575.44	0.00	0.00	0.00	0.00	
7,747.74	90.00	6.88	6,985.00	829.11	814.87	10.00	3.95	-9.39	-72.61	
18,115.65	90.00	6.88	6,985.00	11,122.40	2,056.60	0.00	0.00	0.00	0.00	PBHL v1 - Nash Un



MS Energy Services
Planning Report



Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well 46H
Company:	XTO Energy	TVD Reference:	Well @ 3045.00usft (Noram 25)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	Well @ 3045.00usft (Noram 25)
Site:	Nash Unit	North Reference:	Grid
Well:	46H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler*									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
368.00	0.00	0.00	368.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt*									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,033.00	0.00	0.00	3,033.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Salt*									
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,258.00	0.00	0.00	3,258.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware*									
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	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
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,143.00	0.00	0.00	4,143.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon*									
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00



MS Energy Services
Planning Report



Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well 46H
Company:	XTO Energy	TVD Reference:	Well @ 3045.00usft (Noram 25)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	Well @ 3045.00usft (Noram 25)
Site:	Nash Unit	North Reference:	Grid
Well:	46H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,721.00	0.00	0.00	5,721.00	0.00	0.00	0.00	0.00	0.00	0.00
Brushy Canyon*									
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,061.63	0.00	0.00	6,061.63	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 7.00°/100' Build									
6,100.00	2.69	54.40	6,099.99	0.52	0.73	0.65	7.00	7.00	0.00
6,150.00	6.19	54.40	6,149.83	2.77	3.88	3.43	7.00	7.00	0.00
6,200.00	9.69	54.40	6,199.34	6.79	9.49	8.40	7.00	7.00	0.00
6,250.00	13.19	54.40	6,248.34	12.56	17.55	15.54	7.00	7.00	0.00
6,300.00	16.69	54.40	6,296.64	20.06	28.02	24.82	7.00	7.00	0.00
6,350.00	20.19	54.40	6,344.07	29.27	40.88	36.21	7.00	7.00	0.00
6,400.00	23.69	54.40	6,390.44	40.14	56.06	49.66	7.00	7.00	0.00
6,450.00	27.19	54.40	6,435.59	52.64	73.52	65.13	7.00	7.00	0.00
6,500.00	30.69	54.40	6,479.34	66.72	93.19	82.55	7.00	7.00	0.00
6,550.00	34.19	54.40	6,521.54	82.33	114.99	101.86	7.00	7.00	0.00
6,600.00	37.69	54.40	6,562.01	99.40	138.85	122.99	7.00	7.00	0.00
6,650.00	41.19	54.40	6,600.62	117.89	164.67	145.87	7.00	7.00	0.00
6,700.00	44.69	54.40	6,637.22	137.71	192.36	170.39	7.00	7.00	0.00
6,750.00	48.19	54.40	6,671.68	158.80	221.81	196.48	7.00	7.00	0.00
6,800.00	51.69	54.40	6,703.85	181.07	252.92	224.04	7.00	7.00	0.00
6,850.00	55.19	54.40	6,733.63	204.45	285.57	252.96	7.00	7.00	0.00
6,900.00	58.69	54.40	6,760.91	228.84	319.64	283.14	7.00	7.00	0.00
6,950.00	62.19	54.40	6,785.58	254.15	354.99	314.46	7.00	7.00	0.00
7,000.00	65.69	54.40	6,807.54	280.29	391.51	346.80	7.00	7.00	0.00
7,050.00	69.19	54.40	6,826.72	307.17	429.04	380.06	7.00	7.00	0.00
7,061.63	70.00	54.40	6,830.78	313.51	437.91	387.91	7.00	7.00	0.00
Begin 70.00° Tangent									
7,100.00	70.00	54.40	6,843.90	334.50	467.22	413.88	0.00	0.00	0.00
7,200.00	70.00	54.40	6,878.10	389.20	543.63	481.56	0.00	0.00	0.00
7,241.63	70.00	54.40	6,892.34	411.97	575.44	509.73	0.00	0.00	0.00
Begin 10.00°/100' Build & Turn									
7,250.00	70.25	53.55	6,895.19	416.60	581.80	515.44	10.00	3.01	-10.14
7,300.00	71.84	48.54	6,911.44	446.33	618.56	551.36	10.00	3.17	-10.03
7,350.00	73.55	43.62	6,926.32	479.44	652.92	590.16	10.00	3.43	-9.84
7,400.00	75.38	38.79	6,939.71	515.68	684.63	631.56	10.00	3.65	-9.66
7,450.00	77.31	34.04	6,951.52	554.77	713.46	675.24	10.00	3.85	-9.50
7,491.19	78.95	30.18	6,960.00	588.90	734.87	712.70	10.00	4.00	-9.36



MS Energy Services
Planning Report



Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well 46H
Company:	XTO Energy	TVD Reference:	Well @ 3045.00usft (Noram 25)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	Well @ 3045.00usft (Noram 25)
Site:	Nash Unit	North Reference:	Grid
Well:	46H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Brushy Canyon E5**									
7,500.00	79.31	29.36	6,961.66	596.41	739.17	720.87	10.00	4.08	-9.30
7,550.00	81.39	24.75	6,970.05	640.30	761.58	768.10	10.00	4.15	-9.23
7,600.00	83.52	20.18	6,976.61	686.09	780.51	816.57	10.00	4.26	-9.13
7,650.00	85.69	15.66	6,981.32	733.44	795.82	865.91	10.00	4.34	-9.05
7,700.00	87.89	11.16	6,984.12	781.99	807.39	915.76	10.00	4.40	-9.00
7,747.74	90.00	6.88	6,985.00	829.11	814.87	963.45	10.00	4.42	-8.97
Begin 90.00° Lateral									
7,800.00	90.00	6.88	6,985.00	881.00	821.13	1,015.61	0.00	0.00	0.00
7,900.00	90.00	6.88	6,985.00	980.28	833.10	1,115.42	0.00	0.00	0.00
8,000.00	90.00	6.88	6,985.00	1,079.56	845.08	1,215.22	0.00	0.00	0.00
8,100.00	90.00	6.88	6,985.00	1,178.84	857.06	1,315.02	0.00	0.00	0.00
8,200.00	90.00	6.88	6,985.00	1,278.12	869.03	1,414.83	0.00	0.00	0.00
8,300.00	90.00	6.88	6,985.00	1,377.40	881.01	1,514.63	0.00	0.00	0.00
8,400.00	90.00	6.88	6,985.00	1,476.68	892.99	1,614.43	0.00	0.00	0.00
8,500.00	90.00	6.88	6,985.00	1,575.96	904.96	1,714.24	0.00	0.00	0.00
8,600.00	90.00	6.88	6,985.00	1,675.24	916.94	1,814.04	0.00	0.00	0.00
8,700.00	90.00	6.88	6,985.00	1,774.52	928.92	1,913.84	0.00	0.00	0.00
8,800.00	90.00	6.88	6,985.00	1,873.80	940.89	2,013.64	0.00	0.00	0.00
8,900.00	90.00	6.88	6,985.00	1,973.08	952.87	2,113.45	0.00	0.00	0.00
9,000.00	90.00	6.88	6,985.00	2,072.36	964.85	2,213.25	0.00	0.00	0.00
9,100.00	90.00	6.88	6,985.00	2,171.64	976.82	2,313.05	0.00	0.00	0.00
9,200.00	90.00	6.88	6,985.00	2,270.92	988.80	2,412.86	0.00	0.00	0.00
9,300.00	90.00	6.88	6,985.00	2,370.20	1,000.78	2,512.66	0.00	0.00	0.00
9,400.00	90.00	6.88	6,985.00	2,469.48	1,012.75	2,612.46	0.00	0.00	0.00
9,500.00	90.00	6.88	6,985.00	2,568.76	1,024.73	2,712.27	0.00	0.00	0.00
9,600.00	90.00	6.88	6,985.00	2,668.04	1,036.71	2,812.07	0.00	0.00	0.00
9,700.00	90.00	6.88	6,985.00	2,767.32	1,048.68	2,911.87	0.00	0.00	0.00
9,800.00	90.00	6.88	6,985.00	2,866.60	1,060.66	3,011.67	0.00	0.00	0.00
9,900.00	90.00	6.88	6,985.00	2,965.88	1,072.64	3,111.48	0.00	0.00	0.00
10,000.00	90.00	6.88	6,985.00	3,065.16	1,084.61	3,211.28	0.00	0.00	0.00
10,100.00	90.00	6.88	6,985.00	3,164.44	1,096.59	3,311.08	0.00	0.00	0.00
10,200.00	90.00	6.88	6,985.00	3,263.72	1,108.57	3,410.89	0.00	0.00	0.00
10,300.00	90.00	6.88	6,985.00	3,363.00	1,120.54	3,510.69	0.00	0.00	0.00
10,400.00	90.00	6.88	6,985.00	3,462.28	1,132.52	3,610.49	0.00	0.00	0.00
10,500.00	90.00	6.88	6,985.00	3,561.56	1,144.50	3,710.29	0.00	0.00	0.00
10,600.00	90.00	6.88	6,985.00	3,660.85	1,156.47	3,810.10	0.00	0.00	0.00
10,700.00	90.00	6.88	6,985.00	3,760.13	1,168.45	3,909.90	0.00	0.00	0.00
10,800.00	90.00	6.88	6,985.00	3,859.41	1,180.43	4,009.70	0.00	0.00	0.00
10,900.00	90.00	6.88	6,985.00	3,958.69	1,192.40	4,109.51	0.00	0.00	0.00
11,000.00	90.00	6.88	6,985.00	4,057.97	1,204.38	4,209.31	0.00	0.00	0.00
11,100.00	90.00	6.88	6,985.00	4,157.25	1,216.36	4,309.11	0.00	0.00	0.00
11,200.00	90.00	6.88	6,985.00	4,256.53	1,228.33	4,408.92	0.00	0.00	0.00
11,300.00	90.00	6.88	6,985.00	4,355.81	1,240.31	4,508.72	0.00	0.00	0.00
11,400.00	90.00	6.88	6,985.00	4,455.09	1,252.29	4,608.52	0.00	0.00	0.00
11,500.00	90.00	6.88	6,985.00	4,554.37	1,264.26	4,708.32	0.00	0.00	0.00
11,600.00	90.00	6.88	6,985.00	4,653.65	1,276.24	4,808.13	0.00	0.00	0.00
11,700.00	90.00	6.88	6,985.00	4,752.93	1,288.22	4,907.93	0.00	0.00	0.00
11,800.00	90.00	6.88	6,985.00	4,852.21	1,300.19	5,007.73	0.00	0.00	0.00
11,900.00	90.00	6.88	6,985.00	4,951.49	1,312.17	5,107.54	0.00	0.00	0.00
12,000.00	90.00	6.88	6,985.00	5,050.77	1,324.15	5,207.34	0.00	0.00	0.00
12,100.00	90.00	6.88	6,985.00	5,150.05	1,336.12	5,307.14	0.00	0.00	0.00
12,200.00	90.00	6.88	6,985.00	5,249.33	1,348.10	5,406.95	0.00	0.00	0.00
12,300.00	90.00	6.88	6,985.00	5,348.61	1,360.08	5,506.75	0.00	0.00	0.00



MS Energy Services
Planning Report



Database: 5000.1 Conroe DB
Company: XTO Energy
Project: Eddy County, New Mexico (NAD 27)
Site: Nash Unit
Well: 46H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well 46H
TVD Reference: Well @ 3045.00usft (Noram 25)
MD Reference: Well @ 3045.00usft (Noram 25)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,400.00	90.00	6.88	6,985.00	5,447.89	1,372.06	5,606.55	0.00	0.00	0.00
12,500.00	90.00	6.88	6,985.00	5,547.17	1,384.03	5,706.35	0.00	0.00	0.00
12,600.00	90.00	6.88	6,985.00	5,646.45	1,396.01	5,806.16	0.00	0.00	0.00
12,700.00	90.00	6.88	6,985.00	5,745.73	1,407.99	5,905.96	0.00	0.00	0.00
12,800.00	90.00	6.88	6,985.00	5,845.01	1,419.96	6,005.76	0.00	0.00	0.00
12,900.00	90.00	6.88	6,985.00	5,944.29	1,431.94	6,105.57	0.00	0.00	0.00
13,000.00	90.00	6.88	6,985.00	6,043.57	1,443.92	6,205.37	0.00	0.00	0.00
13,100.00	90.00	6.88	6,985.00	6,142.85	1,455.89	6,305.17	0.00	0.00	0.00
13,200.00	90.00	6.88	6,985.00	6,242.13	1,467.87	6,404.97	0.00	0.00	0.00
13,300.00	90.00	6.88	6,985.00	6,341.41	1,479.85	6,504.78	0.00	0.00	0.00
13,400.00	90.00	6.88	6,985.00	6,440.69	1,491.82	6,604.58	0.00	0.00	0.00
13,500.00	90.00	6.88	6,985.00	6,539.97	1,503.80	6,704.38	0.00	0.00	0.00
13,600.00	90.00	6.88	6,985.00	6,639.25	1,515.78	6,804.19	0.00	0.00	0.00
13,700.00	90.00	6.88	6,985.00	6,738.53	1,527.75	6,903.99	0.00	0.00	0.00
13,800.00	90.00	6.88	6,985.00	6,837.81	1,539.73	7,003.79	0.00	0.00	0.00
13,900.00	90.00	6.88	6,985.00	6,937.09	1,551.71	7,103.60	0.00	0.00	0.00
14,000.00	90.00	6.88	6,985.00	7,036.37	1,563.68	7,203.40	0.00	0.00	0.00
14,100.00	90.00	6.88	6,985.00	7,135.65	1,575.66	7,303.20	0.00	0.00	0.00
14,200.00	90.00	6.88	6,985.00	7,234.93	1,587.64	7,403.00	0.00	0.00	0.00
14,300.00	90.00	6.88	6,985.00	7,334.21	1,599.61	7,502.81	0.00	0.00	0.00
14,400.00	90.00	6.88	6,985.00	7,433.49	1,611.59	7,602.61	0.00	0.00	0.00
14,500.00	90.00	6.88	6,985.00	7,532.77	1,623.57	7,702.41	0.00	0.00	0.00
14,600.00	90.00	6.88	6,985.00	7,632.05	1,635.54	7,802.22	0.00	0.00	0.00
14,700.00	90.00	6.88	6,985.00	7,731.33	1,647.52	7,902.02	0.00	0.00	0.00
14,800.00	90.00	6.88	6,985.00	7,830.61	1,659.50	8,001.82	0.00	0.00	0.00
14,900.00	90.00	6.88	6,985.00	7,929.89	1,671.47	8,101.63	0.00	0.00	0.00
15,000.00	90.00	6.88	6,985.00	8,029.17	1,683.45	8,201.43	0.00	0.00	0.00
15,100.00	90.00	6.88	6,985.00	8,128.45	1,695.43	8,301.23	0.00	0.00	0.00
15,200.00	90.00	6.88	6,985.00	8,227.73	1,707.40	8,401.03	0.00	0.00	0.00
15,300.00	90.00	6.88	6,985.00	8,327.01	1,719.38	8,500.84	0.00	0.00	0.00
15,400.00	90.00	6.88	6,985.00	8,426.30	1,731.36	8,600.64	0.00	0.00	0.00
15,500.00	90.00	6.88	6,985.00	8,525.58	1,743.33	8,700.44	0.00	0.00	0.00
15,600.00	90.00	6.88	6,985.00	8,624.86	1,755.31	8,800.25	0.00	0.00	0.00
15,700.00	90.00	6.88	6,985.00	8,724.14	1,767.29	8,900.05	0.00	0.00	0.00
15,800.00	90.00	6.88	6,985.00	8,823.42	1,779.26	8,999.85	0.00	0.00	0.00
15,900.00	90.00	6.88	6,985.00	8,922.70	1,791.24	9,099.65	0.00	0.00	0.00
16,000.00	90.00	6.88	6,985.00	9,021.98	1,803.22	9,199.46	0.00	0.00	0.00
16,100.00	90.00	6.88	6,985.00	9,121.26	1,815.19	9,299.26	0.00	0.00	0.00
16,200.00	90.00	6.88	6,985.00	9,220.54	1,827.17	9,399.06	0.00	0.00	0.00
16,300.00	90.00	6.88	6,985.00	9,319.82	1,839.15	9,498.87	0.00	0.00	0.00
16,400.00	90.00	6.88	6,985.00	9,419.10	1,851.12	9,598.67	0.00	0.00	0.00
16,500.00	90.00	6.88	6,985.00	9,518.38	1,863.10	9,698.47	0.00	0.00	0.00
16,600.00	90.00	6.88	6,985.00	9,617.66	1,875.08	9,798.28	0.00	0.00	0.00
16,700.00	90.00	6.88	6,985.00	9,716.94	1,887.05	9,898.08	0.00	0.00	0.00
16,800.00	90.00	6.88	6,985.00	9,816.22	1,899.03	9,997.88	0.00	0.00	0.00
16,900.00	90.00	6.88	6,985.00	9,915.50	1,911.01	10,097.68	0.00	0.00	0.00
17,000.00	90.00	6.88	6,985.00	10,014.78	1,922.98	10,197.49	0.00	0.00	0.00
17,100.00	90.00	6.88	6,985.00	10,114.06	1,934.96	10,297.29	0.00	0.00	0.00
17,200.00	90.00	6.88	6,985.00	10,213.34	1,946.94	10,397.09	0.00	0.00	0.00
17,300.00	90.00	6.88	6,985.00	10,312.62	1,958.91	10,496.90	0.00	0.00	0.00
17,400.00	90.00	6.88	6,985.00	10,411.90	1,970.89	10,596.70	0.00	0.00	0.00
17,500.00	90.00	6.88	6,985.00	10,511.18	1,982.87	10,696.50	0.00	0.00	0.00
17,600.00	90.00	6.88	6,985.00	10,610.46	1,994.84	10,796.31	0.00	0.00	0.00
17,700.00	90.00	6.88	6,985.00	10,709.74	2,006.82	10,896.11	0.00	0.00	0.00



MS Energy Services Planning Report



Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well 46H
Company:	XTO Energy	TVD Reference:	Well @ 3045.00usft (Noram 25)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	Well @ 3045.00usft (Noram 25)
Site:	Nash Unit	North Reference:	Grid
Well:	46H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
17,800.00	90.00	6.88	6,985.00	10,809.02	2,018.80	10,995.91	0.00	0.00	0.00	
17,900.00	90.00	6.88	6,985.00	10,908.30	2,030.77	11,095.71	0.00	0.00	0.00	
18,000.00	90.00	6.88	6,985.00	11,007.58	2,042.75	11,195.52	0.00	0.00	0.00	
18,100.00	90.00	6.88	6,985.00	11,106.86	2,054.73	11,295.32	0.00	0.00	0.00	
18,115.65	90.00	6.88	6,985.00	11,122.40	2,056.60	11,310.94	0.00	0.00	0.00	
PBHL										

Design Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP v1 - Nash Unit 46	- plan misses target center by 0.64usft at 7950.56usft MD (6985.00 TVD, 1030.48 N, 839.16 E)	0.00	0.00	6,985.00	1,030.40	839.80	477,867.00	627,586.30	32° 18' 47.149 N	103° 55' 13.259 W
- Point										
PBHL v1 - Nash Unit	- plan hits target center	0.00	0.00	6,985.00	11,122.40	2,056.60	487,959.00	628,803.10	32° 20' 26.973 N	103° 54' 58.622 W
- Point										
LTP v1 - Nash Unit 46	- plan misses target center by 0.07usft at 17984.82usft MD (6985.00 TVD, 10992.51 N, 2040.93 E)	0.00	0.00	6,985.00	10,992.50	2,041.00	487,829.10	628,787.50	32° 20' 25.688 N	103° 54' 58.810 W
- Point										
330' HL Crossing - N:	- plan hits target center	0.00	0.00	6,985.00	10,992.18	2,040.89	487,828.78	628,787.39	32° 20' 25.685 N	103° 54' 58.811 W
- Point										
330' HL Crossing - Na	- plan hits target center	0.00	0.00	6,985.00	1,030.54	839.17	477,867.14	627,585.67	32° 18' 47.151 N	103° 55' 13.266 W
- Point										

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction
30.00	30.00	Rustler*			
368.00	368.00	Top Salt*			
3,033.00	3,033.00	Base Salt*			
3,258.00	3,258.00	Delaware*			
4,143.00	4,143.00	Cherry Canyon*			
5,721.00	5,721.00	Brushy Canyon*			
7,491.19	6,960.00	Brushy Canyon E5**			



MS Energy Services
Planning Report

Database: 5000.1 Conroe DB
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Project: Eddy County, New Mexico (NAD 27)
Site: Nash Unit
Well: 46H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well 46H
TVD Reference: Well @ 3045.00usft (Noram 25)
MD Reference: Well @ 3045.00usft (Noram 25)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,061.63	6,061.63	0.00	0.00	KOP, 7.00°/100' Build
7,061.63	6,830.78	313.51	437.91	Begin 70.00° Tangent
7,241.63	6,892.34	411.97	575.44	Begin 10.00°/100' Build & Turn
7,747.74	6,985.00	829.11	814.87	Begin 90.00° Lateral
18,115.65	6,985.00	11,122.40	2,056.60	PBHL



Haque, Mustafa <mhaque@blm.gov>

ASAP Request: Sundry Approval

Rabadue, Stephanie <Stephanie_Rabadue@xtoenergy.com>
To: "Haque, Mustafa" <mhaque@blm.gov>

Thu, Nov 3, 2016 at 12:25 PM

Hello again!

The casing specs for 5-1/2" 17# BTC CYP-110 are as follows:

Inside Diameter: 4.892

Collapse Resistance: 7,460

Internal Yield Psi: 10,640

Joint Strength: 620

If there's more that's needed, please let me know!

Thank you!

Stephanie Rabadue

Regulatory Analyst – Permian Division

432-620-6714

stephanie_rabadue@xtoenergy.com

From: Haque, Mustafa [mailto:mhaque@blm.gov]
Sent: Thursday, November 03, 2016 1:16 PM
To: Rabadue, Stephanie
Subject: Re: FW: ASAP Request: Sundry Approval

Also, can you please email me the casing spec for 5 1/2" 17# BTC CYP-110

[Quoted text hidden]