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
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RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM092187

6. If Indian, Allotee or Tribe Name:

1a. Type of work: [x] DRILL [ ] REENTER

1b. Type of Well: [x] Oil Well [ ] Gas Well [ ] Other

1c. Type of Completion: [ ] Hydraulic Fracturing [x] Single Zone [ ] Multiple Zone

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

8. Lease Name and Well No.: BIG MOOSE FED COM 404H (326331)

2. Name of Operator: ASCENT ENERGY LLC (372870)

9. API Well No.: 30-025-46546

3a. Address: 1621 18th Street, Suite 200 Denver CO 80202

3b. Phone No. *(include area code)*: (720)710-8999

10. Field and Pool, or Exploratory: SALT LAKE / BONE SPRING (53560)

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

At surface: SWSW / 263 FSL / 805 FWL / LAT 32.5013944 / LONG -103.6343001

At proposed prod. zone: NWNW / 990 FNL / 365 FWL / LAT 32.4834336 / LONG -103.6357326

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 1 / T21S / R32E / NMP

14. Distance in miles and direction from nearest town or post office*: 22 miles

12. County or Parish: LEA

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 263 feet

16. No of acres in lease: 440

17. Spacing Unit dedicated to this well: 200

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 30 feet

19. Proposed Depth: 9988 feet / 16258 feet

20. BLM/BIA Bond No. in file: FED: NMB001496

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3764 feet

22. Approximate date work will start*: 07/01/2018

23. Estimated duration: 90 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)	Brian Wood / Ph: (505)466-8120	05/07/2018

Title: President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Christopher Walls / Ph: (575)234-2234	11/22/2019

Title	Office
Petroleum Engineer	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 11/26/19

APPROVED WITH CONDITIONS

Approval Date: 11/22/2019

KZ 11/27/19

(Continued on page 2)

*(Instructions on page 2)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	ASCENT ENERGY LLC
LEASE NO.:	NMNM092187
LOCATION:	SECTION 01, T21S, R32E, NMPM
COUNTY:	LEA COUNTY, NEW MEXICO

WELL NAME & NO.:	BIG MOOSE FED COM 204H
SURFACE HOLE FOOTAGE:	263'/S & 895'/W
BOTTOM HOLE FOOTAGE	900'/N & 365'/W

WELL NAME & NO.:	BIG MOOSE FED COM 307H
SURFACE HOLE FOOTAGE:	263'/S & 865'/W
BOTTOM HOLE FOOTAGE	990'/N & 1015'/W

WELL NAME & NO.:	BIG MOOSE FED COM 404H
SURFACE HOLE FOOTAGE:	263'/S & 805'/W
BOTTOM HOLE FOOTAGE	990'/N & 365'/W

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 **Bone Spring** formation. 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

Casing Design:

Approval Date: 11/22/2019

1. The **13-3/8** inch surface casing shall be set at approximately **1655** 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 **24 hours in the Potash Area** 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.

2. The **9-5/8** inch intermediate casing shall be set at approximately **3193** feet. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

    Option 1 (Single Stage):

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

    Option 2:

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

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

    b. Second stage above DV tool:

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

- ❖ In **R111 Potash Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
- ❖ In **WIPP Areas** cement must come to surface on the first three casing strings.
- ❖ In **Capitan Reef Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
- ❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

  - Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
  - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.

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

Option 1 (Single Stage):

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

Option 2:

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

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 see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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

Option 1 (Single Stage):

- Cement should tie-back at least **50 feet** on top of Capitan Reef top. If cement does not circulate see B.1.a, c-d above.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

Option 2:

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

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

b. Second stage above DV tool:

- Cement should tie-back at least **50 feet** on top of Capitan Reef top. If cement does not circulate see B.1.a, c-d above.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

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

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

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

☒ 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.

NMK10152019

AFMSS

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

Operator Certification Data Report

11/25/2019

Operator Certification

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

NAME: Brian Wood **Signed on:** 05/07/2018

Title: President

Street Address:

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

Phone: (505)466-8120

Email address: afmss@permitswest.com

Field Representative

Representative Name:

Street Address:

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

Phone:

Email address:

AFMSS

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

Application Data Report

11/25/2019

APD ID: 10400030052
Submission Date: 05/07/2018
Operator Name: ASCENT ENERGY LLC
Well Name: BIG MOOSE FED COM
Well Number: 404H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400030052
Tie to previous NOS? N
Submission Date: 05/07/2018
BLM Office: CARLSBAD
User: Brian Wood
Title: President
Federal/Indian APD: FED
Is the first lease penetrated for production Federal or Indian? FED
Lease number: NMNM092187
Lease Acres: 440
Surface access agreement in place?
Allotted?
Reservation:
Agreement in place? NO
Federal or Indian agreement:
Agreement number:
Agreement name:
Keep application confidential? NO
Permitting Agent? YES
APD Operator: ASCENT ENERGY LLC
Operator letter of designation:

Operator Info

Operator Organization Name: ASCENT ENERGY LLC
Operator Address: 1621 18th Street, Suite 200
Zip: 80202
Operator PO Box:
Operator City: Denver
State: CO
Operator Phone: (720)710-8999
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: BIG MOOSE FED COM
Well Number: 404H
Well API Number:
Field/Pool or Exploratory? Field and Pool
Field Name: SALT LAKE
Pool Name: BONE SPRING
Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,CO2,OIL,POTASH

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,CO2,OIL,POTASH

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** BIG MOOSE **Number:** 1

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 22 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 263 FT

Reservoir well spacing assigned acres Measurement: 200 Acres

Well plat: BigMoose_404H_Plat_20180507141400.pdf

Well work start Date: 07/01/2018 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 12797 **Reference Datum:**

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
SHL Leg #1	263	FSL	805	FWL	21S	32E	1	Aliquot SWSW	32.5013944	-103.6343001	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 092187	3764	0	0	
KOP Leg #1	316	FSL	380	FWL	21S	32E	1	Aliquot SWSW	32.501353	-103.63572	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 092187	-5608	9411	9372	
PPP Leg #1-1	0	FNL	378	FWL	21S	32E	13	Aliquot NWNW	32.486142	-103.635734	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 014155	-6224	14376	9988	

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

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
PPP Leg #1-2	0	FNL	622	FWL	21S	32E	12	Aliquot NWNW	32.500696	-103.634912	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 127892	-5036	8998	8800	
PPP Leg #1-3	263	FSL	805	FWL	21S	32E	1	Aliquot SWSW	32.501394	-103.6343001	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 092187	3764	0	0	
EXIT Leg #1	990	FNL	365	FWL	21S	32E	13	Aliquot NWNW	32.483436	-103.6357326	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 014155	-6224	16258	9988	
BHL Leg #1	990	FNL	365	FWL	21S	32E	13	Aliquot NWNW	32.483436	-103.6357326	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 014155	-6224	16258	9988	

APD ID: 10400030052 **Submission Date:** 05/07/2018

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	---	3764	0	0	OTHER,SANDSTONE : Upper Permian	USEABLE WATER	N
2	RUSTLER ANHYDRITE	2194	1570	1570		NONE	N
3	TOP SALT	1896	1868	1868		NONE	N
4	CASTILE	614	3150	3163	ANHYDRITE	NONE	N
5	YATES	482	3282	3300	OTHER : Carbonates	NATURAL GAS,CO2,OIL	N
6	CAPITAN REEF	374	3390	3410	LIMESTONE	USEABLE WATER	N
7	DELAWARE	-1776	5540	5580	OTHER : Mt.Group sandstones	NATURAL GAS,CO2,OIL	N
8	CHERRY CANYON	-1936	5700	5739	SANDSTONE	NATURAL GAS,CO2,OIL	N
9	BRUSHY CANYON	-3065	6829	6868	SANDSTONE	NATURAL GAS,CO2,OIL	N
10	BONE SPRING	-4975	8739	8778	LIMESTONE	NATURAL GAS,CO2,OIL	N
11	BONE SPRING	-5059	8823	8862	SHALE,OTHER : Avalon	NATURAL GAS,CO2,OIL	N
12	BONE SPRING	-5310	9074	9113	LIMESTONE,OTHER : Leonard B	NATURAL GAS,CO2,OIL	N
13	BONE SPRING 1ST	-5885	9649	9700	SANDSTONE	NATURAL GAS,CO2,OIL	Y

Section 2 - Blowout Prevention

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

Pressure Rating (PSI): 10M **Rating Depth:** 10000

Equipment: Blow out preventer equipment (BOPE) will consist of a single ram, mud cross and double ram type (10,000 psi WP) preventer, and an annular preventer (5000 psi WP). Both units will be hydraulically operated. Ram type will be equipped with blind rams on the bottom and drill pipe rams on the top. Auxiliary equipment: A Kelly cock will be kept in the drill string at all times. A full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

Requesting Variance? YES

Variance request: Variance is requested to use a co-flex line between the BOP and choke manifold instead of using a 4" O. D. steel line. Choke and kill line data book is attached. If this hose is unavailable, then a hose of equal or higher rating will be used. Variance is requested to use a speed head (aka, multi-bowl wellhead). Diagram is attached. After running the 13.375" surface casing, a 13.625" BOP/BOPE system with a >5000 psi WP will be installed on the wellhead system. It will be pressure tested to 250 psi low, followed by a test to 5000-psi high. Pressure test will be repeated at least every 30 days as required by Onshore Order 2. Speed head will be installed by the vendor's representative(s). Well head welding will be monitored by the vendor's representative(s).

Testing Procedure: Minimum working pressure of the BOP and related BOPE below the surface casing will be 5000-psi. All BOPE will be tested in accordance with Onshore Order 2. All BOPE will be tested using a conventional test plug – not a cup or J packer. Both surface and intermediate casing will be tested as required by Onshore Order 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. Before drilling out the surface casing: ram type BOP and accessory equipment will be tested to 5000/250 psig annular preventer will be tested to 3500/250 psig surface casing will be tested to 1500 psi for 30 minutes Before drilling out the intermediate casing: ram type BOP and accessory equipment will be tested to 5000/250 psig annular preventer will be tested to 3500/250 psig intermediate casing will be tested to 2000 psi for 30 minutes Intermediate casing will be landed using a mandrel hanger and separate pack off. After installation, the pack off and lower flange will be pressure tested to 5000 psi. A hydraulically operated choke will be installed before drilling out of the intermediate casing shoe. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each TOOH. These checks will be noted on the daily tour sheets.

Choke Diagram Attachment:

Big_Moose_404H_Choke_diagram_20190628091236.pdf

BOP Diagram Attachment:

BigMoose_404H_BOP_20190627154550.pdf

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	1655	0	1655	3764		1655	J-55	54.5	ST&C	1.125	1.125	DRY	1.6	DRY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3200	0	3185	3764		3200	J-55	36	LT&C	1.125	1.125	DRY	1.6	DRY	1.6
3	INTERMEDIATE	8.75	7.625	NEW	API	N	0	5450	0	5410	3764		5450	HCP-110	29.7	OTHER - Flush Max III	1.125	1.125	DRY	1.6	DRY	1.6

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

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
4	PRODUCTION	6.75	5.5	NEW	API	N	0	16258	0	9988	3764		16258	P-110	20	OTHER - GEOCONN	1.125	1.125	DRY	1.6	DRY	1.6

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BigMoose_404H_Casing_Design_Assumptions_20180507142418.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BigMoose_404H_Casing_Design_Assumptions_20180507142439.pdf

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BigMoose_404H_Casing_Design_Assumptions_20180507142545.pdf

BigMoose_404H_7.625Flushmax_Casing_Spec_20180507144612.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BigMoose_404H_Casing_Design_Assumptions_20180507142629.pdf

BigMoose_404H_5.5GEOCONN_Casing_Spec_20180507144558.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	1655	685	1.73	13.5	1183	100	Class C HALCEM system	4% bentonite
SURFACE	Tail		0	1655	420	1.33	14.8	559	100	Class C HALCEM system	none
INTERMEDIATE	Lead		0	3200	500	1.73	12.7	864	100	Class C HALCEM system	4% bentonite

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Tail		0	3200	485	1.33	14.8	646	100	Class C HALCEM system	none
INTERMEDIATE	Lead		0	5450	245	2.04	12.7	500	50	Class C EconoCem HLC	5% salt + 3% Microbond + 3 lb/sk Kol-seal + 0.3% HR-800
INTERMEDIATE	Tail		0	5450	155	1.37	14.8	212	50	Class C HALCEM system	3% Microbond
PRODUCTION	Lead		0	16258	610	2.89	11	1761	50	NeoCem PL	3% Microbond
PRODUCTION	Tail		0	16258	1475	1.47	13.2	2171	50	NeoCem PT	3% Microbond

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: All necessary additivess (e. g., barite, bentonite, LCM) to maintain mud properties and meet minimum lost circulation and weight increase needs will be on site at all times. Mud program may change due to hole conditions.
Describe the mud monitoring system utilized: An electronic pit volume totalizer (PVT) will be used to monitor volume, flow rate, pump pressure, and stroke rate.

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
5450	16258	OTHER : Cut brine/gel	8.8	9.2							
0	1655	OTHER : Fresh water	8.6	9							
1655	3200	OTHER : Brine water	9	9.6							

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

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
3200	5450	OTHER : Fresh water	8.6	9.2							

Section 6 - Test, Logging, Coring

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

GR-CCL will be run in cased hole during completion phase of operations.

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

GR

Coring operation description for the well:

No core, drill stem test, or open hole log is planned.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4518 **Anticipated Surface Pressure:** 2320.64

Anticipated Bottom Hole Temperature(F): 162

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:

BigMoose_404H_H2S_Plan_20180507144719.pdf

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

BigMoose_404H_Horizontal_Drill_Plan_20180507144810.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

BigMoose_404H_General_Drill_Plan_20180507144822.pdf

BigMoose_404H_Speedhead_Specs_20180507144834.pdf

Other Variance attachment:

BigMoose_404H_Casing_Cementing_Variance_20180507144843.pdf

H_2S Drilling Operations Plan

a. All personnel will be trained in H_2S working conditions as required by Onshore Order 6 before drilling out of the surface casing.

b. Two briefing areas will be established. Each briefing area will be ≥150' from the wellhead, perpendicular from one another, and easily entered and exited. See H_2S page 5 for more details.

c. H_2S Safety Equipment/Systems:

i. Well Control Equipment

- Flare line will be ≥150' from the wellhead and ignited by a flare gun.
- Beware of SO_2 created by flaring.
- Choke manifold will have a remotely operated choke.
- Mud gas separator

ii. Protective Equipment for Personnel

- Every person on site will wear a personal H_2S and SO_2 monitor at all times while on site. Monitors will not be worn on hard hats. Monitors will be worn on the front of the waist or chest.
- One self-contained breathing apparatus (SCBA) 30-minute rescue pack will be at each briefing area. Two 30-minute SCBA packs will be stored in the safety trailer.
- Four work/escape packs will be on the rig floor. Each pack will have a sufficiently long hose to allow unimpaired work activity.
- Four emergency escape packs will be in the doghouse for emergency evacuation.
- Hand signals will be used when wearing protective breathing apparatus.
- Stokes litter or stretcher
- Two full OSHA compliant body harnesses
- A 100' long x 5/8" OSHA compliant rope
- One 20-pound ABC fire extinguisher

iii. H_2S Detection & Monitoring Equipment

- Every person on site will wear a personal H_2S and SO_2 monitor at all times while on site. Monitors will not be worn on hard hats. Monitors will be worn on the front of the waist or chest.
- A stationary detector with three sensors will be in the doghouse.

- Sensors will be installed on the rig floor, bell nipple, and at the end of the flow line or where drilling fluids are discharged.
- Visual alarm will be triggered at 10 ppm.
- Audible alarm will be triggered at 10 ppm.
- Calibration will occur at least every 30 days. Gas sample tubes will be kept in the safety trailer.

iv. Visual Warning System

- A color-coded H_2S condition sign will be set at each pad entrance.
- Color-coded condition flag will be installed to indicate current H_2S conditions.
- Two wind socks will be installed that will be visible from all sides.

v. Mud Program

- A water based mud with a pH of $\geq$10 will be maintained to control corrosion, H_2S gas returns to the surface, and minimize sulfide stress cracking and embrittlement.
- Drilling mud containing H_2S gas will be degassed at an optimum location for the rig configuration.
- This gas will be piped into the flare system.
- Enough mud additives will be on location to scavenge and/or neutralize H_2S where formation pressures are unknown.

vi. Metallurgy

- All equipment that has the potential to be exposed to H_2S will be suitable for H_2S service.
- Equipment that will meet these metallurgical standards include the drill string, casing, wellhead, BOP assembly, casing head and spool, rotating head, kill lines, choke, choke manifold and lines, valves, mud-gas separators, DST tools, test units, tubing, flanges, and other related equipment (elastomer packings and seals).

vii. Communication from well site

- Cell phones and/or two-way radios will be used to communicate from the well site.

d. A remote-controlled choke, mud-gas separator, and a rotating head will be installed before drilling or testing any formation expected to contain H_2S.

Company Personnel to be Notified

Jody Robins, Vice President, Drilling	Office: (720) 710-8999
	Mobile: (303) 905-1858
Matt Ward, Chief Operations Officer	Mobile: (303) 506-6647
Dean Gimbel, Vice President Completions	Mobile: (303) 945-1323
Ascent Emergency Contact Number	(303) 281-9951

Local & County Agencies

Monument Fire Department	911 or (575) 393-4339
Hobbs Fire Marshal	(575) 391-8185
Lea County Sheriff (Lovington)	911 or (575) 396-3611
Lea County Emergency Management (Lovington)	(575) 396-8602
Lea Regional Medical Center Hospital (Hobbs)	(575) 492-5000

State Agencies

NM State Police (Hobbs)	(575) 392-5588
NM Oil Conservation (Hobbs)	(575) 370-3186
NM Oil Conservation (Santa Fe)	(505) 476-3440
NM Dept. of Transportation (Roswell)	(575) 637-7201

Federal Agencies

BLM Carlsbad Field Office	(575) 234-5972
BLM Hobbs Field Station	(575) 393-3612
National Response Center	(800) 424-8802

US EPA Region 6 (Dallas)	(800) 887-6063
	(214) 665-6444

Veterinarians

Dal Paso Animal Hospital (Hobbs)	(575) 397-2286
Hobbs Animal Clinic & Pet Care (Hobbs)	(575) 392-5563
Great Plains Veterinary Clinic & Hospital (Hobbs)	(575) 392-5513

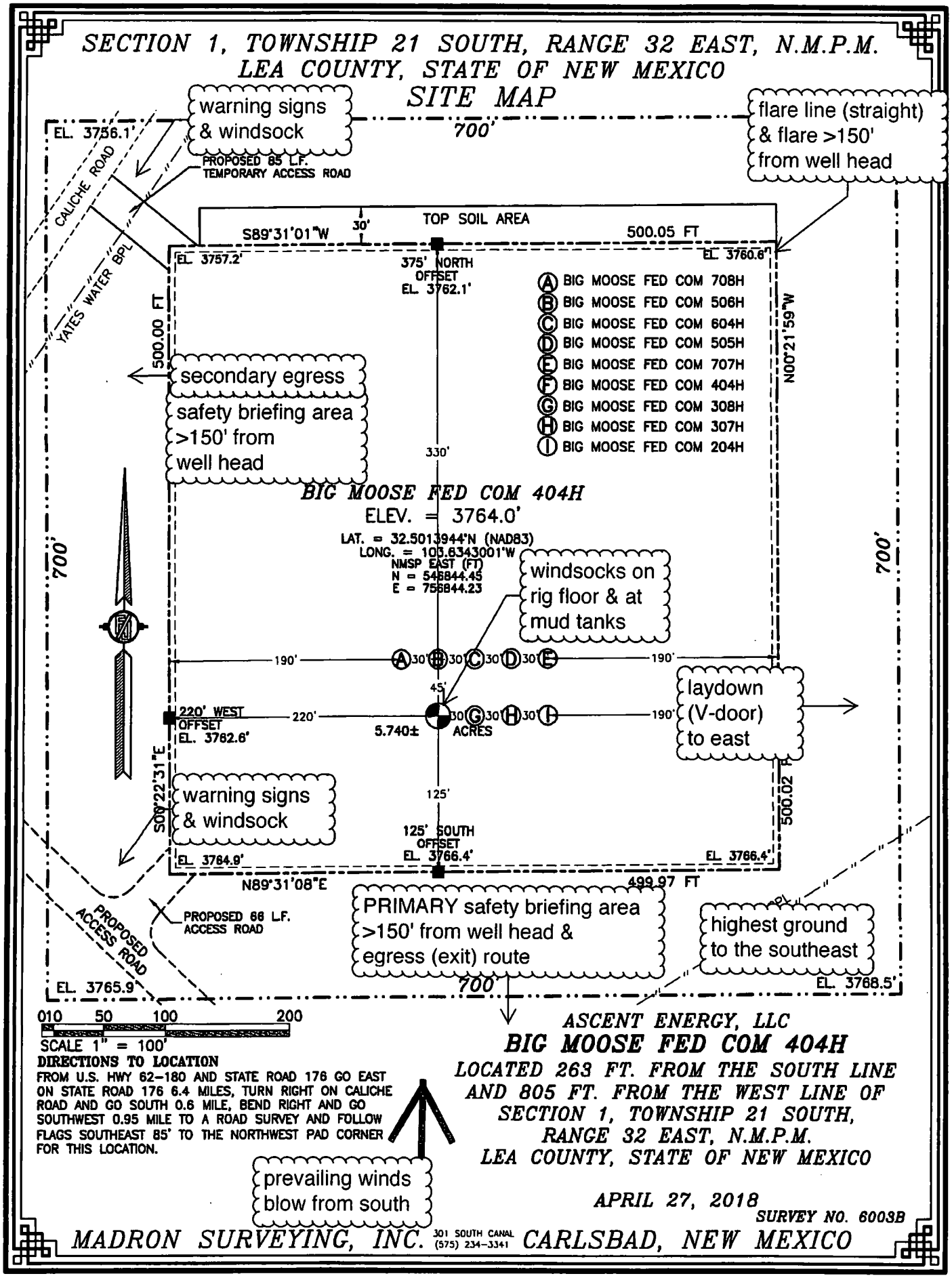
Residents within 2 miles

No residents are within 2 miles.

Air Evacuation

Med Flight Air Ambulance (Albuquerque)	(800) 842-4431
Lifeguard (Albuquerque)	(888) 866-7256

SECTION 1, TOWNSHIP 21 SOUTH, RANGE 32 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
SITE MAP



DIRECTIONS TO LOCATION

FROM U.S. HWY 62-180 AND STATE ROAD 176 GO EAST ON STATE ROAD 176 6.4 MILES, TURN RIGHT ON CALICHE ROAD AND GO SOUTH 0.6 MILE, BEND RIGHT AND GO SOUTHWEST 0.95 MILE TO A ROAD SURVEY AND FOLLOW FLAGS SOUTHEAST 85' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

prevailing winds blow from south

ASCENT ENERGY, LLC

BIG MOOSE FED COM 404H

LOCATED 263 FT. FROM THE SOUTH LINE AND 805 FT. FROM THE WEST LINE OF SECTION 1, TOWNSHIP 21 SOUTH, RANGE 32 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO

APRIL 27, 2018

SURVEY NO. 6003B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

Ascent Energy, LLC

Big Moose Fed Com #404H
H_2S Contingency Plan:
2 Mile Radius Map

Section 1, Township 21S, Range 32E
Lea County, New Mexico

Surface Hole Location

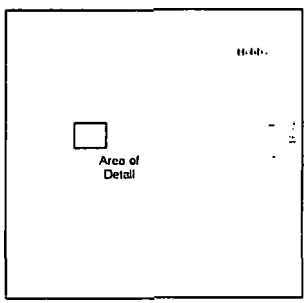
1:27,000
0 0.25 0.5 1
Miles

N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.

Prepared by Permits West, Inc., April 27, 2018
for Ascent Energy LLC



ASCENT ENERGY

Project: LEA COUNTY, NEW MEXICO (NAD 83)
Site: SEC. 1 T21S R32E N.M.PM.
Well: BIG MOOSE FED COM 404H
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 308ft FSL & 775ft FWL of Sec 1
2100.00	2100.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
2695.62	2700.00	12.00	261.68	-9.06	-61.94	12.91	62.60	EOB TO 12° INC
4054.61	4089.25	12.00	261.68	-50.86	-347.74	72.47	351.44	END OF TANGENT
4850.14	4889.25	0.00	0.00	-59.92	-409.69	85.38	414.04	EOD TO VERTICAL
9371.56	9410.67	0.00	0.00	-59.92	-409.69	85.38	414.04	KOP (10°/100ft BUR)
9944.50	10306.68	89.69	180.02	-628.79	-409.88	653.15	982.91	HZ LP: 320ft FNL & 365ft FWL of Sec 12
9987.50	16257.56	89.58	180.01	-6579.61	-411.58	6592.47	6933.74	BHL: 990ft FNL & 365ft FWL of Sec 13

PROPOSED LOCAL COORDINATES:

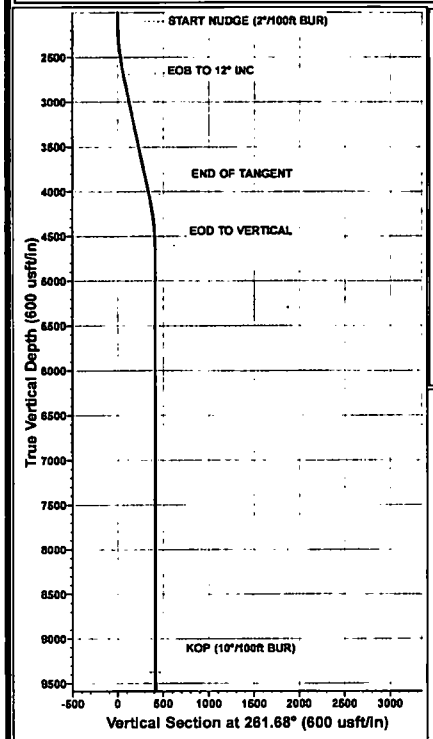
SHL: 308ft FSL & 775ft FWL Sec 1

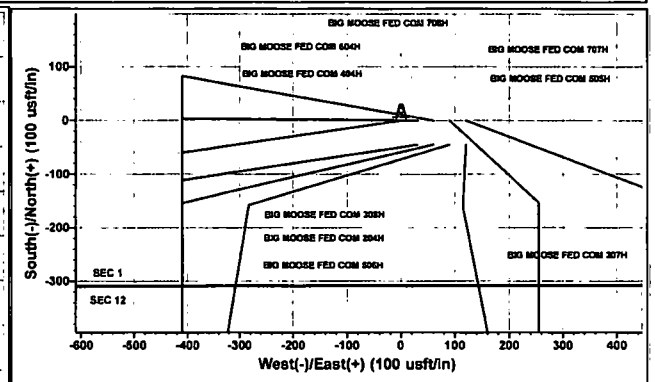
HZ LP: 320ft FNL & 365ft FWL of Sec 12

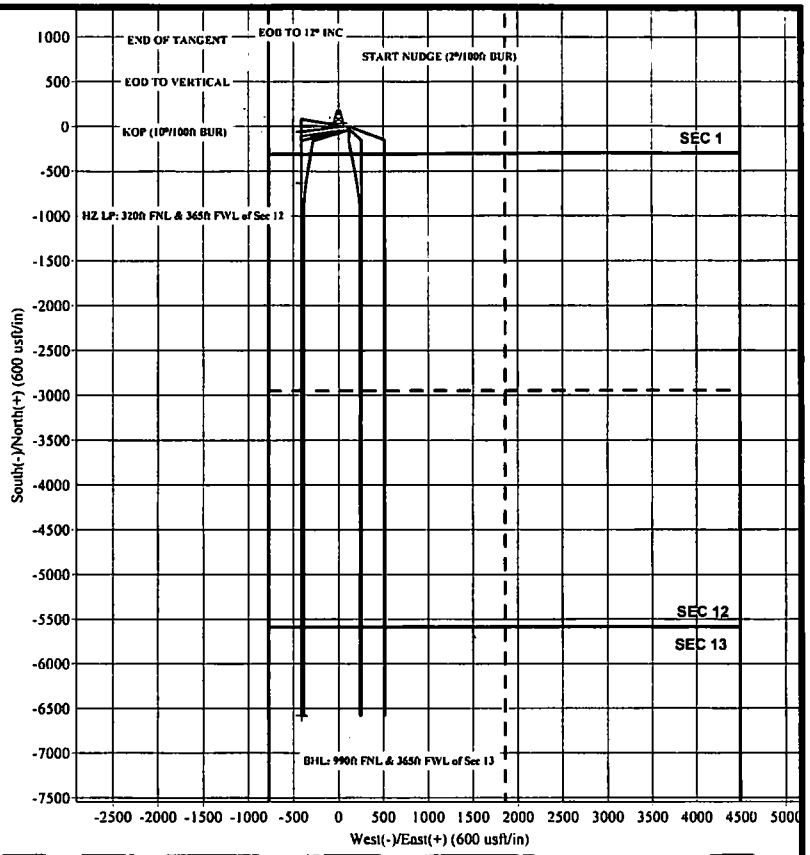
BHL : 990ft FNL & 365ft FWL Sec 13

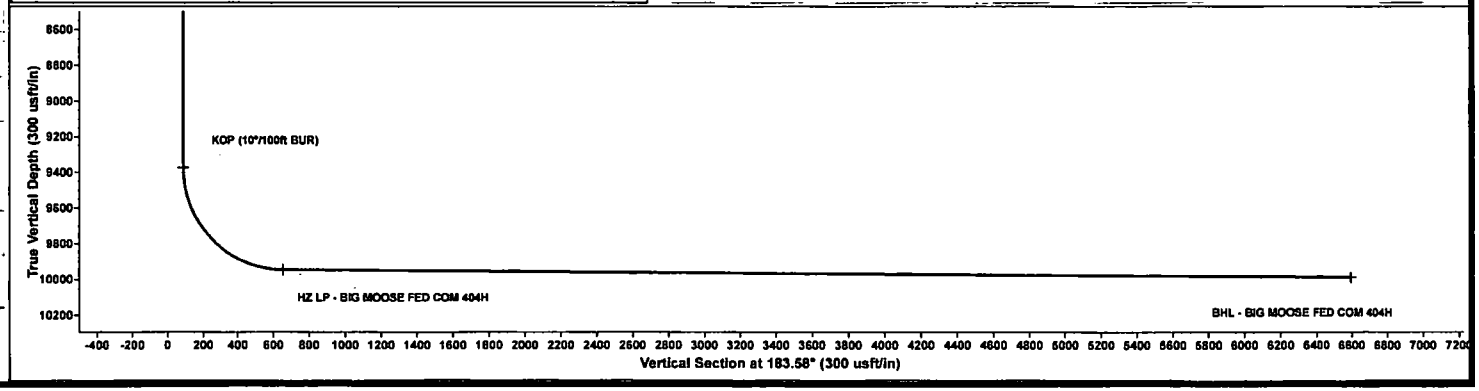
WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - BIG MOOSE FED COM 404H	9371.56	-59.92	-409.69	32.501353	-103.635727
HZ LP - BIG MOOSE FED COM 404H	9944.50	-628.78	-409.88	32.499790	-103.635727
BHL - BIG MOOSE FED COM 404H	9987.50	-6579.61	-411.58	32.483434	-103.635733









Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well BIG MOOSE FED COM 404H
Company:	ASCENT ENERGY	**TVD Reference:**	KB EST @ 3788.50usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB EST @ 3788.50usft
Site:	SEC. 1 T21S R32E N.M.PM.	**North Reference:**	True
Well:	BIG MOOSE FED COM 404H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Project	LEA COUNTY, NEW MEXICO (NAD 83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	SEC. 1 T21S R32E N.M.PM.				
Site Position:		**Northing:**	546,845.25 usft	**Latitude:**	32.501395
From:	Lat/Long	**Easting:**	756,934.17 usft	**Longitude:**	-103.634008
Position Uncertainty:	0.00 usft	**Slot Radius:**	1.10000 ft	**Grid Convergence:**	0.38 °

Well	BIG MOOSE FED COM 404H				
Well Position	**+N/-S** 44.73 usft	**Northing:**	546,889.19 usft	**Latitude:**	32.501518
	+E/-W -120.12 usft	**Easting:**	756,813.77 usft	**Longitude:**	-103.634398
Position Uncertainty	0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,763.50 usft

Wellbore	ORIGINAL WELLBORE			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	09/02/2018	6.93	60.30	48,027

Design	PROPOSAL #2			
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	183.58

Plan Sections

MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf	Build Rate (°/100usf	Turn Rate (°/100usf	TFO (°)	Target
0.00	0.00	0.00	0.00	-3,788.50	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	-1,688.50	0.00	0.00	0.00	0.00	0.00	0.00	
2,700.00	12.00	261.68	2,695.62	-1,092.88	-9.06	-61.94	2.00	2.00	0.00	261.68	
4,089.24	12.00	261.68	4,054.51	266.01	-50.86	-347.74	0.00	0.00	0.00	0.00	
4,689.24	0.00	0.00	4,650.13	861.63	-59.92	-409.69	2.00	-2.00	0.00	180.00	
9,410.67	0.00	0.00	9,371.56	5,583.06	-59.92	-409.69	0.00	0.00	0.00	0.00	KOP - BIG MOOSE
10,306.57	89.59	180.02	9,944.50	6,156.00	-628.78	-409.88	10.00	10.00	-20.09	180.02	HZ LP - BIG MOOS
16,257.56	89.58	180.01	9,987.50	6,199.00	-6,579.61	-411.58	0.00	0.00	0.00	-143.17	BHL - BIG MOOSE

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well BIG MOOSE FED COM 404H
Company:	ASCENT ENERGY	**TVD Reference:**	KB EST @ 3788.50usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB EST @ 3788.50usft
Site:	SEC. 1 T21S R32E N.M.PM.	**North Reference:**	True
Well:	BIG MOOSE FED COM 404H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 308ft FSL & 775ft FWL of Sec 1										
0.00	***0.00***	***0.00***	***0.00***	***3,788.50***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
100.00	0.00	0.00	100.00	3,688.50	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	3,588.50	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	3,488.50	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	3,388.50	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	3,288.50	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	3,188.50	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	3,088.50	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	2,988.50	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	2,888.50	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	2,788.50	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	2,688.50	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	2,588.50	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	2,488.50	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	2,388.50	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	2,288.50	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	2,188.50	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	2,088.50	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	1,988.50	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	1,888.50	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	1,788.50	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
2,100.00	***0.00***	***0.00***	***2,100.00***	***1,688.50***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
2,200.00	2.00	261.68	2,199.98	1,588.52	-0.25	-1.73	0.36	2.00	2.00	0.00
2,300.00	4.00	261.68	2,299.84	1,488.66	-1.01	-6.91	1.44	2.00	2.00	0.00
2,400.00	6.00	261.68	2,399.45	1,389.05	-2.27	-15.53	3.24	2.00	2.00	0.00
2,500.00	8.00	261.68	2,498.70	1,289.80	-4.03	-27.59	5.75	2.00	2.00	0.00
2,600.00	10.00	261.68	2,597.47	1,191.03	-6.30	-43.06	8.97	2.00	2.00	0.00
EOB TO 12° INC										
2,700.00	***12.00***	***261.68***	***2,695.62***	***1,092.88***	***-9.06***	***-61.94***	***12.91***	***2.00***	***2.00***	***0.00***
2,800.00	12.00	261.68	2,793.44	995.06	-12.07	-82.52	17.20	0.00	0.00	0.00
2,900.00	12.00	261.68	2,891.25	897.25	-15.08	-103.09	21.48	0.00	0.00	0.00
3,000.00	12.00	261.68	2,989.07	799.43	-18.09	-123.66	25.77	0.00	0.00	0.00
3,100.00	12.00	261.68	3,086.88	701.62	-21.09	-144.23	30.06	0.00	0.00	0.00
3,200.00	12.00	261.68	3,184.70	603.80	-24.10	-164.81	34.35	0.00	0.00	0.00
3,300.00	12.00	261.68	3,282.51	505.99	-27.11	-185.38	38.63	0.00	0.00	0.00
3,400.00	12.00	261.68	3,380.33	408.17	-30.12	-205.95	42.92	0.00	0.00	0.00
3,500.00	12.00	261.68	3,478.14	310.36	-33.13	-226.52	47.21	0.00	0.00	0.00
3,600.00	12.00	261.68	3,575.96	212.54	-36.14	-247.09	51.49	0.00	0.00	0.00
3,700.00	12.00	261.68	3,673.77	114.73	-39.15	-267.67	55.78	0.00	0.00	0.00
3,800.00	12.00	261.68	3,771.59	16.91	-42.16	-288.24	60.07	0.00	0.00	0.00
3,900.00	12.00	261.68	3,869.40	-80.90	-45.17	-308.81	64.36	0.00	0.00	0.00
4,000.00	12.00	261.68	3,967.22	-178.72	-48.17	-329.38	68.64	0.00	0.00	0.00
4,089.24	12.00	261.68	4,054.51	-266.01	-50.86	-347.74	72.47	0.00	0.00	0.00
END OF TANGENT										
4,089.25	***12.00***	***261.68***	***4,054.51***	***-266.01***	***-50.86***	***-347.74***	***72.47***	***0.00***	***0.00***	***0.00***
4,100.00	11.78	261.68	4,065.03	-276.53	-51.18	-349.94	72.93	2.00	-2.00	0.00
4,200.00	9.78	261.68	4,163.26	-374.76	-53.89	-368.45	76.79	2.00	-2.00	0.00
4,300.00	7.78	261.68	4,262.08	-473.58	-56.10	-383.56	79.94	2.00	-2.00	0.00
4,400.00	5.78	261.68	4,361.38	-572.88	-57.81	-395.25	82.37	2.00	-2.00	0.00
4,500.00	3.78	261.68	4,461.03	-672.53	-59.01	-403.50	84.09	2.00	-2.00	0.00
4,600.00	1.78	261.68	4,560.90	-772.40	-59.72	-408.31	85.09	2.00	-2.00	0.00
4,689.24	0.00	0.00	4,650.13	-861.63	-59.92	-409.69	85.38	2.00	-2.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well BIG MOOSE FED COM 404H
Company:	ASCENT ENERGY	**TVD Reference:**	KB EST @ 3788.50usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB EST @ 3788.50usft
Site:	SEC. 1 T21S R32E N.M.PM.	**North Reference:**	True
Well:	BIG MOOSE FED COM 404H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
EOD TO VERTICAL										
4,689.25	***0.00***	***0.00***	***4,650.14***	***-861.64***	***-59.92***	***-409.69***	***85.38***	***0.00***	***0.00***	***0.00***
4,700.00	0.00	0.00	4,660.89	-872.39	-59.92	-409.69	85.38	0.00	0.00	0.00
4,800.00	0.00	0.00	4,760.89	-972.39	-59.92	-409.69	85.38	0.00	0.00	0.00
4,900.00	0.00	0.00	4,860.89	-1,072.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,000.00	0.00	0.00	4,960.89	-1,172.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,100.00	0.00	0.00	5,060.89	-1,272.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,200.00	0.00	0.00	5,160.89	-1,372.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,300.00	0.00	0.00	5,260.89	-1,472.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,400.00	0.00	0.00	5,360.89	-1,572.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,500.00	0.00	0.00	5,460.89	-1,672.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,600.00	0.00	0.00	5,560.89	-1,772.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,700.00	0.00	0.00	5,660.89	-1,872.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,800.00	0.00	0.00	5,760.89	-1,972.39	-59.92	-409.69	85.38	0.00	0.00	0.00
5,900.00	0.00	0.00	5,860.89	-2,072.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,000.00	0.00	0.00	5,960.89	-2,172.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,100.00	0.00	0.00	6,060.89	-2,272.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,200.00	0.00	0.00	6,160.89	-2,372.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,300.00	0.00	0.00	6,260.89	-2,472.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,400.00	0.00	0.00	6,360.89	-2,572.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,500.00	0.00	0.00	6,460.89	-2,672.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,600.00	0.00	0.00	6,560.89	-2,772.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,700.00	0.00	0.00	6,660.89	-2,872.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,800.00	0.00	0.00	6,760.89	-2,972.39	-59.92	-409.69	85.38	0.00	0.00	0.00
6,900.00	0.00	0.00	6,860.89	-3,072.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,000.00	0.00	0.00	6,960.89	-3,172.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,100.00	0.00	0.00	7,060.89	-3,272.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,200.00	0.00	0.00	7,160.89	-3,372.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,300.00	0.00	0.00	7,260.89	-3,472.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,400.00	0.00	0.00	7,360.89	-3,572.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,500.00	0.00	0.00	7,460.89	-3,672.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,600.00	0.00	0.00	7,560.89	-3,772.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,700.00	0.00	0.00	7,660.89	-3,872.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,800.00	0.00	0.00	7,760.89	-3,972.39	-59.92	-409.69	85.38	0.00	0.00	0.00
7,900.00	0.00	0.00	7,860.89	-4,072.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,000.00	0.00	0.00	7,960.89	-4,172.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,100.00	0.00	0.00	8,060.89	-4,272.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,200.00	0.00	0.00	8,160.89	-4,372.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,300.00	0.00	0.00	8,260.89	-4,472.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,400.00	0.00	0.00	8,360.89	-4,572.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,500.00	0.00	0.00	8,460.89	-4,672.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,600.00	0.00	0.00	8,560.89	-4,772.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,700.00	0.00	0.00	8,660.89	-4,872.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,800.00	0.00	0.00	8,760.89	-4,972.39	-59.92	-409.69	85.38	0.00	0.00	0.00
8,900.00	0.00	0.00	8,860.89	-5,072.39	-59.92	-409.69	85.38	0.00	0.00	0.00
9,000.00	0.00	0.00	8,960.89	-5,172.39	-59.92	-409.69	85.38	0.00	0.00	0.00
9,100.00	0.00	0.00	9,060.89	-5,272.39	-59.92	-409.69	85.38	0.00	0.00	0.00
9,200.00	0.00	0.00	9,160.89	-5,372.39	-59.92	-409.69	85.38	0.00	0.00	0.00
9,300.00	0.00	0.00	9,260.89	-5,472.39	-59.92	-409.69	85.38	0.00	0.00	0.00
9,400.00	0.00	0.00	9,360.89	-5,572.39	-59.92	-409.69	85.38	0.00	0.00	0.00
KOP (10°/100ft BUR)										
9,410.67	***0.00***	***0.00***	***9,371.56***	***-5,583.06***	***-59.92***	***-409.69***	***85.38***	***0.00***	***0.00***	***0.00***
9,500.00	8.93	180.02	9,460.53	-5,672.03	-66.87	-409.69	92.32	10.00	10.00	0.00

Database:	EDM 5000.1 Single User Db	***Local Co-ordinate Reference:***	Well BIG MOOSE FED COM 404H
Company:	ASCENT ENERGY	**TVD Reference:**	KB EST @ 3788.50usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB EST @ 3788.50usft
Site:	SEC. 1 T21S R32E N.M.PM.	**North Reference:**	True
Well:	BIG MOOSE FED COM 404H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,600.00	18.93	180.02	9,557.46	-5,768.96	-90.92	-409.70	116.32	10.00	10.00	0.00
9,700.00	28.93	180.02	9,648.75	-5,860.25	-131.43	-409.71	156.75	10.00	10.00	0.00
9,800.00	38.93	180.02	9,731.61	-5,943.11	-187.18	-409.73	212.40	10.00	10.00	0.00
9,900.00	48.93	180.02	9,803.53	-6,015.03	-256.48	-409.75	281.56	10.00	10.00	0.00
10,000.00	58.93	180.02	9,862.33	-6,073.83	-337.21	-409.78	362.13	10.00	10.00	0.00
10,100.00	68.93	180.02	9,906.22	-6,117.72	-426.92	-409.81	451.67	10.00	10.00	0.00
10,200.00	78.93	180.02	9,933.86	-6,145.36	-522.89	-409.85	547.46	10.00	10.00	0.00
10,300.00	88.93	180.02	9,944.42	-6,155.92	-622.21	-409.88	646.58	10.00	10.00	0.00
10,306.57	89.59	180.02	9,944.50	-6,156.00	-628.78	-409.88	653.14	10.00	10.00	0.00
HZ LP: 320ft FNL & 365ft FWL of Sec 12										
10,306.58	***89.59***	***180.02***	***9,944.50***	***-6,156.00***	***-628.79***	***-409.88***	***653.15***	***0.00***	***0.00***	***0.00***
10,400.00	89.59	180.02	9,945.17	-6,156.67	-722.20	-409.92	746.39	0.00	0.00	0.00
10,500.00	89.59	180.02	9,945.88	-6,157.38	-822.20	-409.95	846.19	0.00	0.00	0.00
10,600.00	89.59	180.02	9,946.60	-6,158.10	-922.20	-409.98	946.00	0.00	0.00	0.00
10,700.00	89.59	180.02	9,947.31	-6,158.81	-1,022.20	-410.02	1,045.80	0.00	0.00	0.00
10,800.00	89.59	180.02	9,948.03	-6,159.53	-1,122.19	-410.05	1,145.61	0.00	0.00	0.00
10,900.00	89.59	180.02	9,948.74	-6,160.24	-1,222.19	-410.09	1,245.41	0.00	0.00	0.00
11,000.00	89.59	180.02	9,949.46	-6,160.96	-1,322.19	-410.12	1,345.21	0.00	0.00	0.00
11,100.00	89.59	180.02	9,950.18	-6,161.68	-1,422.19	-410.15	1,445.02	0.00	0.00	0.00
11,200.00	89.59	180.02	9,950.89	-6,162.39	-1,522.18	-410.19	1,544.82	0.00	0.00	0.00
11,300.00	89.59	180.02	9,951.61	-6,163.11	-1,622.18	-410.22	1,644.63	0.00	0.00	0.00
11,400.00	89.59	180.02	9,952.33	-6,163.83	-1,722.18	-410.25	1,744.43	0.00	0.00	0.00
11,500.00	89.59	180.02	9,953.04	-6,164.54	-1,822.18	-410.28	1,844.24	0.00	0.00	0.00
11,600.00	89.59	180.02	9,953.76	-6,165.26	-1,922.17	-410.31	1,944.04	0.00	0.00	0.00
11,700.00	89.59	180.02	9,954.48	-6,165.98	-2,022.17	-410.35	2,043.84	0.00	0.00	0.00
11,800.00	89.59	180.02	9,955.20	-6,166.70	-2,122.17	-410.38	2,143.65	0.00	0.00	0.00
11,900.00	89.59	180.02	9,955.92	-6,167.42	-2,222.17	-410.41	2,243.45	0.00	0.00	0.00
12,000.00	89.59	180.02	9,956.63	-6,168.13	-2,322.16	-410.44	2,343.26	0.00	0.00	0.00
12,100.00	89.59	180.02	9,957.35	-6,168.85	-2,422.16	-410.47	2,443.06	0.00	0.00	0.00
12,200.00	89.59	180.02	9,958.07	-6,169.57	-2,522.16	-410.50	2,542.87	0.00	0.00	0.00
12,300.00	89.59	180.02	9,958.79	-6,170.29	-2,622.16	-410.53	2,642.67	0.00	0.00	0.00
12,400.00	89.59	180.02	9,959.51	-6,171.01	-2,722.15	-410.56	2,742.47	0.00	0.00	0.00
12,500.00	89.59	180.02	9,960.23	-6,171.73	-2,822.15	-410.59	2,842.28	0.00	0.00	0.00
12,600.00	89.59	180.02	9,960.95	-6,172.45	-2,922.15	-410.62	2,942.08	0.00	0.00	0.00
12,700.00	89.59	180.02	9,961.67	-6,173.17	-3,022.15	-410.65	3,041.89	0.00	0.00	0.00
12,800.00	89.59	180.02	9,962.40	-6,173.90	-3,122.14	-410.68	3,141.69	0.00	0.00	0.00
12,900.00	89.59	180.02	9,963.12	-6,174.62	-3,222.14	-410.71	3,241.50	0.00	0.00	0.00
13,000.00	89.59	180.02	9,963.84	-6,175.34	-3,322.14	-410.74	3,341.30	0.00	0.00	0.00
13,100.00	89.59	180.02	9,964.56	-6,176.06	-3,422.13	-410.77	3,441.10	0.00	0.00	0.00
13,200.00	89.59	180.02	9,965.28	-6,176.78	-3,522.13	-410.80	3,540.91	0.00	0.00	0.00
13,300.00	89.59	180.02	9,966.00	-6,177.50	-3,622.13	-410.83	3,640.71	0.00	0.00	0.00
13,400.00	89.59	180.02	9,966.73	-6,178.23	-3,722.13	-410.86	3,740.52	0.00	0.00	0.00
13,500.00	89.59	180.02	9,967.45	-6,178.95	-3,822.12	-410.88	3,840.32	0.00	0.00	0.00
13,600.00	89.59	180.02	9,968.17	-6,179.67	-3,922.12	-410.91	3,940.12	0.00	0.00	0.00
13,700.00	89.59	180.02	9,968.90	-6,180.40	-4,022.12	-410.94	4,039.93	0.00	0.00	0.00
13,800.00	89.59	180.02	9,969.62	-6,181.12	-4,122.12	-410.97	4,139.73	0.00	0.00	0.00
13,900.00	89.58	180.02	9,970.35	-6,181.85	-4,222.11	-410.99	4,239.54	0.00	0.00	0.00
14,000.00	89.58	180.02	9,971.07	-6,182.57	-4,322.11	-411.02	4,339.34	0.00	0.00	0.00
14,100.00	89.58	180.02	9,971.79	-6,183.29	-4,422.11	-411.05	4,439.14	0.00	0.00	0.00
14,200.00	89.58	180.02	9,972.52	-6,184.02	-4,522.11	-411.08	4,538.95	0.00	0.00	0.00
14,300.00	89.58	180.02	9,973.25	-6,184.75	-4,622.10	-411.10	4,638.75	0.00	0.00	0.00
14,400.00	89.58	180.01	9,973.97	-6,185.47	-4,722.10	-411.13	4,738.56	0.00	0.00	0.00
14,500.00	89.58	180.01	9,974.70	-6,186.20	-4,822.10	-411.15	4,838.36	0.00	0.00	0.00
14,600.00	89.58	180.01	9,975.42	-6,186.92	-4,922.10	-411.18	4,938.16	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well BIG MOOSE FED COM 404H
Company:	ASCENT ENERGY	**TVD Reference:**	KB EST @ 3788.50usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB EST @ 3788.50usft
Site:	SEC. 1 T21S R32E N.M.PM.	**North Reference:**	True
Well:	BIG MOOSE FED COM 404H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,700.00	89.58	180.01	9,976.15	-6,187.65	-5,022.09	-411.21	5,037.97	0.00	0.00	0.00
14,800.00	89.58	180.01	9,976.88	-6,188.38	-5,122.09	-411.23	5,137.77	0.00	0.00	0.00
14,900.00	89.58	180.01	9,977.60	-6,189.10	-5,222.09	-411.26	5,237.58	0.00	0.00	0.00
15,000.00	89.58	180.01	9,978.33	-6,189.83	-5,322.08	-411.28	5,337.38	0.00	0.00	0.00
15,100.00	89.58	180.01	9,979.06	-6,190.56	-5,422.08	-411.31	5,437.18	0.00	0.00	0.00
15,200.00	89.58	180.01	9,979.79	-6,191.29	-5,522.08	-411.33	5,536.99	0.00	0.00	0.00
15,300.00	89.58	180.01	9,980.51	-6,192.01	-5,622.08	-411.35	5,636.79	0.00	0.00	0.00
15,400.00	89.58	180.01	9,981.24	-6,192.74	-5,722.07	-411.38	5,736.59	0.00	0.00	0.00
15,500.00	89.58	180.01	9,981.97	-6,193.47	-5,822.07	-411.40	5,836.40	0.00	0.00	0.00
15,600.00	89.58	180.01	9,982.70	-6,194.20	-5,922.07	-411.43	5,936.20	0.00	0.00	0.00
15,700.00	89.58	180.01	9,983.43	-6,194.93	-6,022.07	-411.45	6,036.01	0.00	0.00	0.00
15,800.00	89.58	180.01	9,984.16	-6,195.66	-6,122.06	-411.47	6,135.81	0.00	0.00	0.00
15,900.00	89.58	180.01	9,984.89	-6,196.39	-6,222.06	-411.50	6,235.61	0.00	0.00	0.00
16,000.00	89.58	180.01	9,985.62	-6,197.12	-6,322.06	-411.52	6,335.42	0.00	0.00	0.00
16,100.00	89.58	180.01	9,986.35	-6,197.85	-6,422.06	-411.54	6,435.22	0.00	0.00	0.00
16,200.00	89.58	180.01	9,987.08	-6,198.58	-6,522.05	-411.56	6,535.02	0.00	0.00	0.00
BHL: 990ft FNL & 365ft FWL of Sec 13										
16,257.56	***89.58***	***180.01***	***9,987.50***	***-6,199.00***	***-6,579.61***	***-411.58***	***6,592.47***	***0.00***	***0.00***	***0.00***

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
0.00	0.00	0.00	0.00	SHL: 308ft FSL & 775ft FWL of Sec 1
2,100.00	2,100.00	0.00	0.00	START NUDGE (2°/100ft BUR)
2,700.00	2,695.62	-9.06	-61.94	EOB TO 12° INC
4,089.25	4,054.51	-50.86	-347.74	END OF TANGENT
4,689.25	4,650.14	-59.92	-409.69	EOD TO VERTICAL
9,410.67	9,371.56	-59.92	-409.69	KOP (10°/100ft BUR)
10,306.58	9,944.50	-628.79	-409.88	HZ LP: 320ft FNL & 365ft FWL of Sec 12
16,257.56	9,987.50	-6,579.61	-411.58	BHL: 990ft FNL & 365ft FWL of Sec 13

Drilling Program

1. ESTIMATED TOPS

Formation	TVD	MD	Bearing
Upper Permian sandstone	000'	000'	water
Rustler anhydrite	1570'	1570'	N/A
Top salt	1868'	1868'	N/A
Castile anhydrite	3150'	3163'	N/A
Yates carbonates	3282'	3300'	hydrocarbons
Capitan Reef limestone	3390'	3410'	water
Delaware Mt. Group sandstones	5540'	5580'	hydrocarbons
Cherry Canyon sandstone	5700'	5739'	hydrocarbons
Brushy Canyon sandstone	6829'	6868'	hydrocarbons
Bone Spring limestone	8739'	8778'	hydrocarbons
Avalon shale of Bone Spring	8823'	8862'	hydrocarbons
Leonard B limestone of Bone Spring	9074'	9113'	hydrocarbons
(KOP	9372'	9411'	hydrocarbons)
First Bone Spring sandstone (goal)	9649'	9700'	hydrocarbons
TD	9988'	16258'	hydrocarbons

2. NOTABLE ZONES

First Bone Spring sandstone is the goal. Closest water well (CP 00793 POD1) is 5146' NNE. Depth to water was not reported in the 1,000' deep well. Two windmills 1.6 miles southeast are 160' to 170' deep.

3. PRESSURE CONTROL

Blow out preventer equipment (BOPE) will consist of a single ram, mud cross and double ram type (10,000 psi WP) preventer, and an annular preventer

(5000 psi WP). Both units will be hydraulically operated. Ram type will be equipped with blind rams on the bottom and drill pipe rams on the top.

Auxiliary equipment:
A Kelly cock will be kept in the drill string at all times.
A full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

Minimum working pressure of the BOP and related BOPE below the surface casing will be 5000-psi.

All BOPE will be tested in accordance with Onshore Order 2. All BOPE will be tested using a conventional test plug – not a cup or J packer. Both surface and intermediate casing will be tested as required by Onshore Order 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

Before drilling out the surface casing:
ram type BOP and accessory equipment will be tested to 5000/250 psig
annular preventer will be tested to 3500/250 psig
surface casing will be tested to 1500 psi for 30 minutes

Before drilling out the intermediate casing:
ram type BOP and accessory equipment will be tested to 5000/250 psig
annular preventer will be tested to 3500/250 psig
intermediate casing will be tested to 2000 psi for 30 minutes

Intermediate casing will be landed using a mandrel hanger and separate pack off. After installation, the pack off and lower flange will be pressure tested to 5000 psi. A hydraulically operated choke will be installed before drilling out of the intermediate casing shoe.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each TOOH. These checks will be noted on the daily tour sheets.

Variance is requested to use a co-flex line between the BOP and choke manifold instead of using a 4" O. D. steel line. Choke and kill line data book is attached. If this hose is unavailable, then a hose of equal or higher rating will be used.

Variance is requested to use a speed head (aka, multi-bowl wellhead). Diagram is attached. After running the 13.375" surface casing, a 13.625" BOP/BOPE system with a ≥5000 psi WP will be installed on the wellhead system. It will be pressure tested to 250 psi low, followed by a test to 5000-psi high. Pressure test will be repeated at least every 30 days as required by Onshore Order 2.

Speed head will be installed by the vendor's representative(s). Well head welding will be monitored by the vendor's representative.

4. CASING & CEMENT

All casing will be API and new. See attached casing assumption worksheet.

Hole O. D.	Set MD	Set TVD	Casing O. D.	Weight (lb/ft)	Grade	Joint	Collapse	Burst	Tension
17.5"	0' - 1655'	0' - 1655'	Surface 13.375"	54.5	J-55	STC	1.125	1.125	1.6
12.25"	0' - 3200'	0' - 3185'	Inter. 1 9.625"	36	J-55	LTC	1.125	1.125	1.6
8.75"	0' – 5450'	0' – 5410'	Inter. 2 7.625"	29.7	HCP-110	Flush Max III	1.125	1.125	1.6
6.75"	0' - 16258'	0' – 9988'	Product. 5.5"	20	P-110 EC	GEOCONN	1.125	1.125	1.6

Variance is requested to waive centralizer requirements for the 7.625" casing. An expansion additive will be used in the cement slurry for the entire length of the 8.75" hole to maximize cement bond and zone isolation.

Variance is also requested to waive centralizers requirements for the 5.5" casing. An expansion additive will be used in the cement slurry for the entire length of the 6.75" hole to maximize cement bond and zone isolation.

Name	Type	Sacks	Yield	Cu. Ft.	Weight	Blend
Surface	Lead	685	1.728	1183	13.5	Class C HALCEM system + 4% bentonite
	Tail	420	1.332	559	14.8	Class C HALCEM system
TOC = GL		100% Excess				
Intermediate 1	Lead	500	1.728	864	12.7	Class C HALCEM system + 4% bentonite
	Tail	485	1.332	646	14.8	Class C HALCEM system
TOC = GL		100% Excess				
Intermediate 2	Lead	245	2.039	500	12.7	Class C EconoCem HLC + 5% salt + 3% Microbond + 3 lb/sk Kol-seal + 0.3% HR-800
	Tail	155	1.368	212	14.8	Class C HALCEM system + 3% Microbond
TOC = GL		50% Excess				
Production	Lead	610	2.887	1761	11.0	NeoCem PL + 3% Microbond
	Tail	1475	1.472	2171	13.2	NeoCem PT + 3% Microbond
TOC = GL		50% Excess				

5. MUD PROGRAM

An electronic pit volume totalizer (PVT) will be used to monitor volume, flow rate, pump pressure, and stroke rate. All necessary additives (e. g., barite, bentonite, LCM) to maintain mud properties and meet minimum lost circulation and weight increase needs will be on site at all times. Mud program may change due to hole conditions. A closed loop system will be used.

Type	Interval (MD)	lb/gal	Viscosity	Fluid Loss
fresh water	0' - 1655'	8.6 – 9.0	28-34	N/C
brine water	1655' - 3200'	9.0 – 9.6	28-34	N/C
fresh water	3200' – 5450'	8.6 - 9.2	28-34	N/C
cut brine/gel	5450' - 16258'	8.8 – 9.2	28-34	N/C

6. CORES, TESTS, & LOGS

No core, drill stem test, or open hole log is planned.

GR-CCL will be run in cased hole during completion phase of operations.

7. DOWN HOLE CONDITIONS

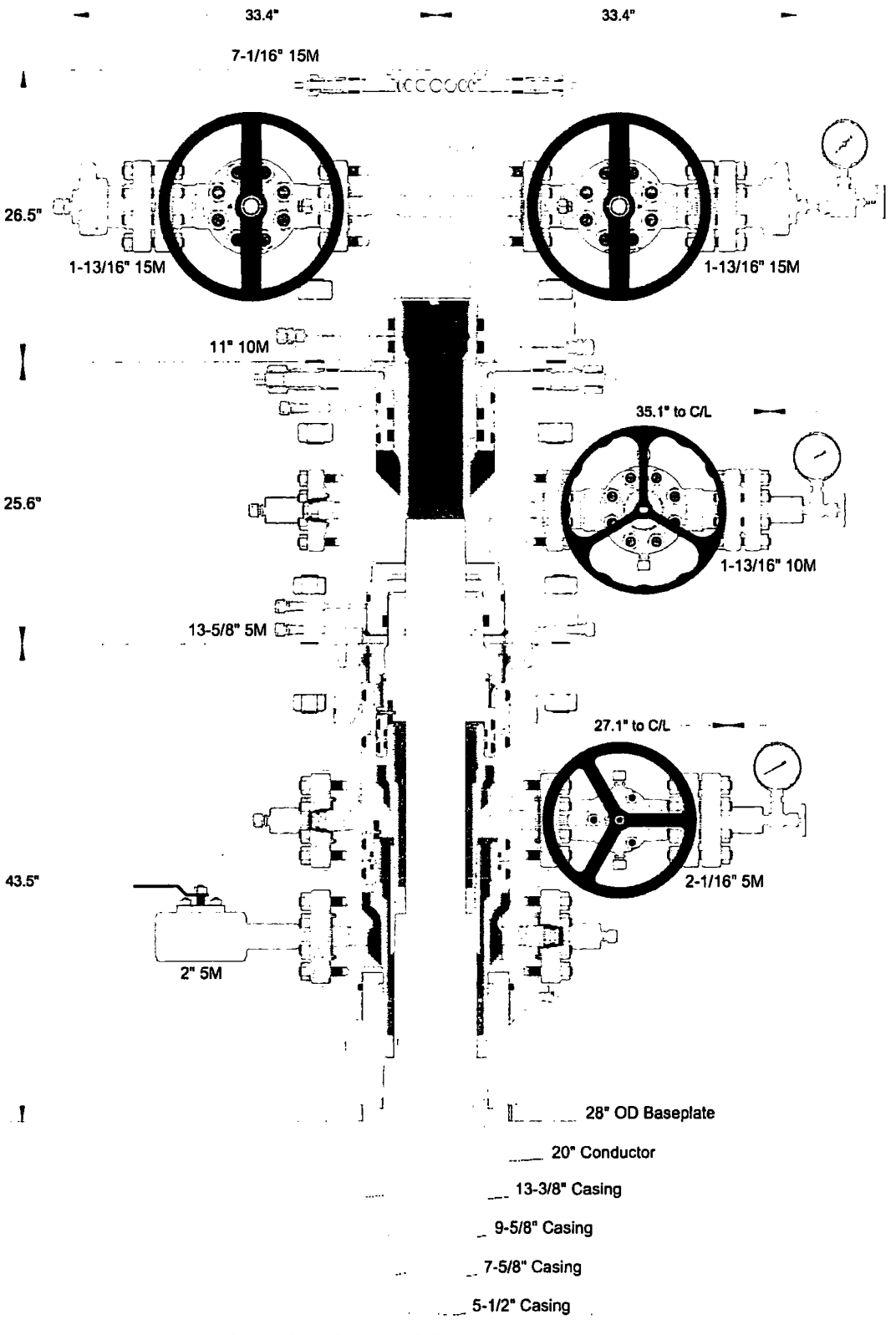
No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈4518 psig. Expected bottom hole temperature is ≈162° F.

H2S monitoring and detection equipment will be used from surface casing point to TD.

8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈3 months to drill and complete the well.

Variance is requested for the option to contract a surface rig to drill surface hole, set surface casing, and cement the surface casing. If the timing between rigs is such that Ascent would not be able to preset the surface casing, then the primary rig will MIRU and drill the well in its entirety.



CACTUS WELLHEAD LLC

13-3/8" x 9-5/8" x 7-5/8" x 5-1/2" 5M MBU-3T Wellhead System
With 13-5/8" 5M x 11" 10M CTH-P-HPS-F Tubing Spool
And 11" 10M x 7-1/16" 15M CTH-DBLHPS-SB Tubing Head

ASCENT ENERGY, LLC
DELAWARE BASIN

DRAWN	DLE	06APR18
APPRV		

DRAWING NO. ODE0002219

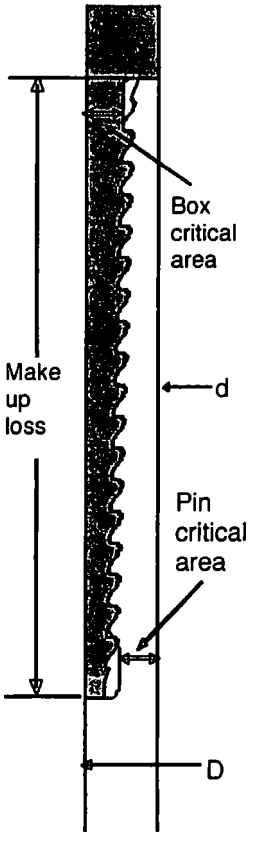
Metal One Corp. *Metal One*	**FLUSHMAX-III** **Connection Data Sheet**	Page	44-O
		Date	25-Jan-17
		Rev.	N - 1

FLUSHMAX-III

Geometry

Pipe Body

	Imperial		S.I.	
Grade	P110		P110	
Pipe OD (D)	7 5/8	in	193.68	mm
Weight	29.70	lb/ft	44.20	kg/m
Actual weight	29.04		43.21	kg/m
Wall Thickness (t)	0.375	in	9.53	mm
Pipe ID (d)	6.875	in	174.63	mm
Pipe body cross section	8.537	in^2	5,508	mm^2
Drift Dia.	6.750	in	171.45	mm



Connection

Box OD (W)	7.625	in	193.68	mm
PIN ID	6.875	in	174.63	mm
Make up Loss	3.040	in	77.22	mm
Box Critical Area	4.424	in^2	2854	mm^2
Joint load efficiency	60	%	60	%
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			

Performance

Performance Properties for Pipe Body

S.M.Y.S.	**939**	**kips**	**4,177**	**kN**
M.I.Y.P.	9,470	psi	65.31	MPa
Collapse Strength	**5,350**	**psi**	**36.90**	**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

Tensile Yield load	**563 kips (60% of S.M.Y.S.)**
Min. Compression Yield	563 kips (60% of S.M.Y.S.)
Internal Pressure	**7,580 psi (80% of M.I.Y.P.)**
External Pressure	100% of Collapse Strength
Max. DLS (deg. /100ft)	**25**

Recommended Torque

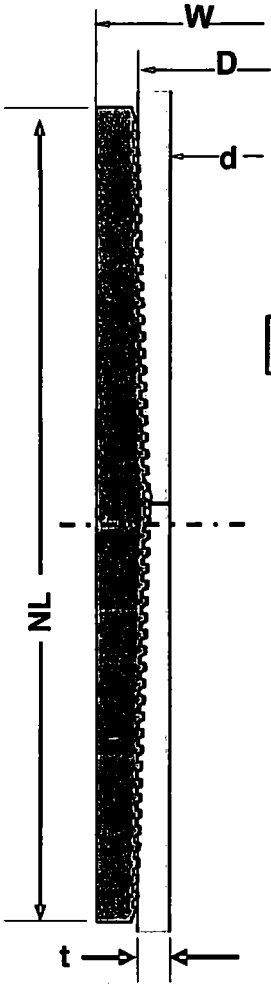
Min.	**15,500**	**ft-lb**	**21,000**	**N-m**
Opti.	17,200	ft-lb	23,300	N-m
Max.	**18,900**	**ft-lb**	**25,600**	**N-m**
Operational Max.	23,600	ft-lb	32,000	N-m

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

Metal One Corp.	GEOCONN	Page	32 - R
Metal One	**Connection Data Sheet**	Date	5-Oct-16
		Rev.	N-0

Geometry

GEOCONN



	Imperial		S.I.	
Pipe Body				
Grade	P110		P110	
Pipe OD (D)	5 1/2	in	139.70	mm
Weight	20.00	lb/ft	29.76	kg/m
Wall Thickness (t)	0.361	in	9.17	mm
Pipe ID (d)	4.778	in	121.36	mm
Drift Dia.	4.653	in	118.19	mm
Connection				
Coupling OD (W)	6.050	in	153.67	mm
Coupling Length (NL)	8.350	in	212.09	mm
Make up Loss	4.125	in	104.78	mm
Pipe Critical Area	5.83	in^2	3,758	mm^2
Box Critical Area	6.10	in^2	3,935	mm^2
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			

Performance

Performance Properties for Pipe Body

S.M.Y.S.	**641**	**kips**	**2,850**	**kN**
M.I.Y.P.	12,640	psi	87.17	MPa
Collapse Strength	**11,100**	**psi**	**76.55**	**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. Connection Joint Strength	**100% of S.M.Y.S.**
Min. Compression Yield	100% of S.M.Y.S.
Internal Pressure	**100% of M.I.Y.P.**
External Pressure	100% of Collapse Strength
Max. DLS (deg. /100ft)	**>90**

Recommended Torque

Min.	**14,600**	**ft-lb**	**19,700**	**N-m**
Opti.	16,200	ft-lb	21,900	N-m
Max.	**17,800**	**ft-lb**	**24,100**	**N-m**
Operational Max.	19,500	ft-lb	26,400	N-m

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

Connection Yield Torque	22,900	ft-lb	31,000	N-m

Big Moose 308H

Variance is requested to waive centralizer requirements for the 7.625" casing. An expansion additive will be used in the cement slurry for the entire length of the 8.75" hole to maximize cement bond and zone isolation.

Variance is also requested to waive centralizers requirements for the 5.5" casing. An expansion additive will be used in the cement slurry for the entire length of the 6.75" hole to maximize cement bond and zone isolation.

AFMSS

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

PWD Data Report

11/25/2019

APD ID: 10400030052 **Submission Date:** 05/07/2018

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

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? NO

Produced Water Disposal (PWD) Location:

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

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD 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: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

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

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

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

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

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM **Well Number:** 404H

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

11/25/2019

APD ID: 10400030052

Submission Date: 05/07/2018

Operator Name: ASCENT ENERGY LLC

Well Name: BIG MOOSE FED COM

Well Number: 404H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001496

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: