Form 3160-3
(June 2015)

OCD – HOBBS
06/04/2020
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FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM129263

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
HORSESHOE FED COM
501H [327861]

2. Name of Operator
ASCENT ENERGY LLC [325830]

9. API Well No.
30-025-47268

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
WILD CAT/BONE SPRING [97895]

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWNE / 300 FNL / 2025 FEL / LAT 32.470834 / LONG -103.609729
At proposed prod. zone NWNE / 100 FNL / 1980 FEL / LAT 32.48589 / LONG -103.609594

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 19/T21S/R33E/NMP

14. Distance in miles and direction from nearest town or post office*
26 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)
300 feet

16. No of acres in lease
160

17. Spacing Unit dedicated to this well
160.0

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

19. Proposed Depth
10948 feet / 16121 feet

20. BLM/BIA Bond No. in file
FED: NMB001698

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3807 feet

22. Approximate date work will start*
12/01/2019

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: (720) 710-8999	12/06/2019

Title
President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575) 234-5959	05/27/2020

Title	Office
Assistant Field Manager Lands & Minerals	Carlsbad Field Office

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

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

GCP Rec 06/04/2020

SL

APPROVED WITH CONDITIONS

KZ
06/12/2020

Approval Date: 05/27/2020

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

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

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

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Additional Operator Remarks

Location of Well

0. SHL: NWNE / 300 FNL / 2025 FEL / TWSP: 21S / RANGE: 33E / SECTION: 19 / LAT: 32.470834 / LONG: -103.609729 (TVD: 0 feet, MD: 0 feet)

PPP: SWSE / 0 FSL / 2000 FEL / TWSP: 21S / RANGE: 33E / SECTION: 18 / LAT: 32.471674 / LONG: -103.609679 (TVD: 10810 feet, MD: 10830 feet)

PPP: NWNE / 100 FNL / 2031 FEL / TWSP: 21S / RANGE: 33E / SECTION: 19 / LAT: 32.4713816 / LONG: -103.6097484 (TVD: 10578 feet, MD: 10583 feet)

BHL: NWNE / 100 FNL / 1980 FEL / TWSP: 21S / RANGE: 33E / SECTION: 18 / LAT: 32.48589 / LONG: -103.609594 (TVD: 10948 feet, MD: 16121 feet)

BLM Point of Contact

Name: Ciji Methola

Title: GIS Support - Adjudicator

Phone: (575) 234-5924

Email: cmethola@blm.gov

Review and Appeal Rights

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Ascent Energy LLC
WELL NAME & NO.:	Horseshoe Fed Com 501H
SURFACE HOLE FOOTAGE:	300'/N & 2025'/E
BOTTOM HOLE FOOTAGE	50'/N & 2030'/E
LOCATION:	Section 19, T.21 S., R.33 E., NMP
COUNTY:	Lea County, New Mexico
OPERATOR'S NAME:	Ascent Energy LLC
WELL NAME & NO.:	Horseshoe Fed Com 601H
SURFACE HOLE FOOTAGE:	300'/N & 1995'/E
BOTTOM HOLE FOOTAGE	100'/N & 2310'/E
LOCATION:	Section 19, T.21 S., R.33 E., NMP
COUNTY:	Lea County, New Mexico
OPERATOR'S NAME:	Ascent Energy LLC
WELL NAME & NO.:	Horseshoe Fed Com 701H
SURFACE HOLE FOOTAGE:	300'/N & 1965'/E
BOTTOM HOLE FOOTAGE	100'/N & 1650'/E
LOCATION:	Section 19, T.21 S., R.33 E., NMP
COUNTY:	Lea County, New Mexico
OPERATOR'S NAME:	Ascent Energy LLC
WELL NAME & NO.:	Horseshoe Fed Com 502H
SURFACE HOLE FOOTAGE:	300'/N & 705'/E
BOTTOM HOLE FOOTAGE	100'/N & 660'/E
LOCATION:	Section 19, T.21 S., R.33 E., NMP
COUNTY:	Lea County, New Mexico
OPERATOR'S NAME:	Ascent Energy LLC
WELL NAME & NO.:	Horseshoe Fed Com 602H
SURFACE HOLE FOOTAGE:	300'/N & 675'/E
BOTTOM HOLE FOOTAGE	100'/N & 990'/E
LOCATION:	Section 19, T.21 S., R.33 E., NMP
COUNTY:	Lea County, New Mexico
OPERATOR'S NAME:	Ascent Energy LLC
WELL NAME & NO.:	Horseshoe Fed Com 702H
SURFACE HOLE FOOTAGE:	300'/N & 645'/E
BOTTOM HOLE FOOTAGE	100'/N & 330'/E
LOCATION:	Section 19, T.21 S., R.33 E., NMP
COUNTY:	Lea County, New Mexico

Intrepid Potash Waiver Stipulation

Potash waivers were received for the Horseshoe 601H, 602H, 701H, and 702H allowing Ascent to drill these wells with no objection from Intrepid Potash. The Horseshoe 501H and 502H will not be drilled until waivers are received, potash memo is received from Jim Rutley, and approval is received from Jim Rutley (Potash Geologist) or Field Manager at the Bureau of Land Management.

Approval Date: 05/27/2020

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	ASCENT ENERGY LLC
LEASE NO.:	NMNM129263
LOCATION:	SECTION 19, T21S, R33E, NMPM
COUNTY:	LEA

WELL NAME & NO.:	501H – HORSESHOE FED COM
SURFACE HOLE FOOTAGE:	300'/N & 2025'/E
BOTTOM HOLE FOOTAGE	50'/N & 2030'/E

WELL NAME & NO.:	502H – HORSESHOE FED COM
SURFACE HOLE FOOTAGE:	300'/N & 705'/E
BOTTOM HOLE FOOTAGE	50'/N & 660'/E

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 an **unknown formation in the Hat Mesa Pool**. 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:

1. The **13-3/8** inch surface casing shall be set at approximately **1635** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

Approval Date: 05/27/2020

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 **3600** feet**.**The minimum required fill of cement behind the **13-3/8** 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 **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 2nd 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 **7-5/8** inch 3rd intermediate 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.

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

- Cement should tie-back **500 feet** into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2. 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.

NMK03232020

APD ID: 10400048784

Submission Date: 12/06/2019

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM

Well Number: 501H

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
555675	QUATERNARY	3807	0	0	OTHER : Caliche	USEABLE WATER	N
555676	RUSTLER	2186	1621	1621	ANHYDRITE	NONE	N
555677	SALADO	1831	1976	1976	SALT	NONE	N
555678	CASTILE	404	3403	3403	ANHYDRITE	NONE	N
555679	TANSILL	258	3549	3550	DOLOMITE	NONE	N
555680	YATES	88	3719	3720	OTHER : Carbonates	NATURAL GAS, OIL	N
555681	CAPITAN REEF	-237	4044	4045	LIMESTONE	USEABLE WATER	N
555682	DELAWARE	-1457	5264	5267	SANDSTONE	NONE	N
555683	BELL CANYON	-1662	5469	5472	SANDSTONE	NATURAL GAS, OIL	N
555684	CHERRY CANYON	-1968	5775	5779	SANDSTONE	NATURAL GAS, OIL	N
555685	BRUSHY CANYON	-3337	7144	7149	SANDSTONE	NATURAL GAS	N
555686	BONE SPRING	-5084	8891	8896	LIMESTONE	NATURAL GAS, OIL	N
555687	AVALON SAND	-5268	9075	9080	OTHER : Shale - Bone Spring	NATURAL GAS, OIL	N
555688	BONE SPRING 1ST	-6221	10028	10333	SANDSTONE	NATURAL GAS, OIL	N
555689	BONE SPRING 2ND	-6453	10260	10265	OTHER : Carbonate	NATURAL GAS, OIL	N
555690	BONE SPRING 2ND	-6771	10578	10583	SANDSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM **Well Number:** 501H

Pressure Rating (PSI): 10M **Rating Depth:** 12000

Equipment: Minimum 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 always be on the rig floor.

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.

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:

HS_501H_BOP_Choke_20191007153133.pdf

BOP Diagram Attachment:

HS_501H_BOP_Choke_20191007153140.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	1600	0	1600	3807	2207	1600	J-55	54.5	ST&C	1.4	2.89	DRY	2	DRY	1.8
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3600	0	3599	3807	208	3600	J-55	40	LT&C	2.4	1.7	DRY	2	DRY	1.8
3	INTERMEDIATE	8.75	7.625	NEW	API	N	0	5270	0	5267	3807	-1460	5270	HCP-110	29.7	OTHER - EZGO FJ3	3.12	3	DRY	2	DRY	1.8

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM **Well Number:** 501H

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	16121	0	10948	3807	-7141	16121	HCP-110	20	OTHER - EZGO FJ3	2.1	1.2	DRY	2.28	DRY	1.3

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HS_501H_Casing_Design_Assummptions_20191007153414.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HS_501H_Casing_Design_Assummptions_20191007153523.pdf

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM **Well Number:** 501H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HS_501H_Casing_Design_Assummptions_20191007153631.pdf

7.625_EZGO_Casing_Spec_20191007153636.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HS_501H_Casing_Design_Assummptions_20191007153744.pdf

5.5in_EZGO_Casing_Spec_20191007153750.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	1600	905	1.72	13.5	1563	100	Class C HALCEM system	4% bentonite
SURFACE	Tail		0	1600	550	1.33	14.8	733	100	Class C HALCEM system	None
INTERMEDIATE	Lead		0	3600	695	1.72	12.7	1200	100	Class C HALCEM system	4% bentonite

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM **Well Number:** 501H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Tail		0	3600	485	1.33	14.8	646	100	Class C HALCEM system	None
INTERMEDIATE	Lead		0	5270	220	2.03	12.7	448	50	Class C EconoCem HLC	5% salt + 3% Microbond + 3 lb/sk Kol-seal + 0.3% HR-800
INTERMEDIATE	Tail		0	5270	155	1.37	14.8	212	50	Class C HALCEM system	3% Microbond
PRODUCTION	Lead		0	16121	625	2.88	11	1804	50	NeoCem PL	3% Microbond
PRODUCTION	Tail		0	16121	1445	1.47	13.2	2127	50	NeoCem PL	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 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.
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
0	1650	OTHER : Fresh water	8.4	9.6							
1650	3600	OTHER : Brine water	10	10							
3600	5270	OTHER : Fresh water	8.4	8.6							

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM **Well Number:** 501H

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
5270	16121	OTHER : Cut brine/gel	8.5	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:

GAMMA RAY LOG,

Coring operation description for the well:

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

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5033 **Anticipated Surface Pressure:** 2624

Anticipated Bottom Hole Temperature(F): 165

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:

HS_501H_H2S_Plan_20191007154755.pdf

Operator Name: ASCENT ENERGY LLC

Well Name: HORSESHOE FED COM **Well Number:** 501H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HS_501H_Horizontal_Plan_20191007154823.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

HS_501H_Speedhead_Specs_20191007154847.pdf
HS_501H_Anti_Collision_Report_20191007154903.pdf
HS_501H_CoFlex_Certs_20191007154921.pdf
HS_501H_Drill_Plan_20191008082518.pdf
Horseshoe_Well_Control_Plan_20191008082531.pdf

Other Variance attachment:

HS_501H_Casing_Cementing_Variance_20191007154935.pdf
HS_501H_Surface_Rig_Variance_20191007155121.pdf

Ascent Energy, LLC
Horseshoe Fed Com 501H
SHL 300' FNL & 2025' FEL Sec. 19
BHL 50' FNL & 2030' FEL Sec. 18
T. 21 S., R. 33 E., Lea County, NM

fee/fee/Fed

Drilling Program

1. ESTIMATED TOPS

Formation	TVD	MD	Bearing
Quaternary caliche	000'	000'	water
Rustler anhydrite	1621'	1621'	N/A
Salado salt	1976'	1976'	N/A
Castile anhydrite	3403'	3403'	N/A
Tansill dolomite	3549'	3550'	N/A
Yates carbonates	3719'	3720'	hydrocarbons
Capitan Reef limestone	4044'	4045'	water
Delaware sandstone	5264'	5267'	N/A
Bell Canyon sandstone	5469'	5472'	hydrocarbons
Cherry Canyon sandstone	5775'	5779'	hydrocarbons
Brushy Canyon sandstone	7144'	7149'	hydrocarbons
Bone Spring limestone	8891'	8896'	hydrocarbons
Avalon shale of Bone Spring	9075'	9080'	hydrocarbons
1st Bone Spring sandstone	10028'	10333'	hydrocarbons
2nd Bone Spring carbonate	10260'	10265'	hydrocarbons
(KOP	10515'	10520'	hydrocarbons)
2nd Bone Spring sandstone	10578'	10583'	hydrocarbons
TD	10948'	16121'	hydrocarbons

2. NOTABLE ZONES

Second Bone Spring sandstone is the goal. Closest water wells (CP 00794 POD1 and CP 00795 POD1) are 0.95 mile northwest. Depth to water was not reported in the 160' and 170' deep windmills.

3. PRESSURE CONTROL

Minimum 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 always be on the rig floor.

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	SF Collapse	SF Burst	SF Tension
17.5"	0' - 1600'	0' - 1600'	Surface 13.375"	54.5	J-55	STC	1.4	2.89	2.0 body / 1.8 conn
12.25"	0' - 3600'	0' - 3599'	Inter. 1 9.625"	40	J-55	LTC	1.4	1.7	2.0 body / 1.8 conn
8.75"	0' – 5270'	0' – 5267'	Inter. 2 7.625"	29.7	HCP-110	EZGO FJ3	3.12	3.0	2.0 body / 1.8 conn
6.75"	0' - 16121'	0' – 10948'	Product. 5.5"	20	HCP-110	EZGO FJ3	2.1	1.2	2.28 body / 1.3 conn

Variance is requested to waive centralizer requirements for the 7.625" flush joint 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 centralizer requirements for the 5.5" flush joint 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	905	1.728	1563	13.5	Class C HALCEM system + 4% bentonite
	Tail	550	1.332	733	14.8	Class C HALCEM system
TOC = GL		100% Excess				
Intermediate 1	Lead	695	1.728	1200	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	220	2.039	448	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	625	2.887	1804	11.0	NeoCem PL + 3% Microbond
	Tail	1445	1.472	2127	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' - 1650'	8.4 – 9.6	34-38	N/C
brine water	1650' - 3600'	10	28-34	N/C
fresh water	3600' – 5270'	8.4 – 8.6	28-34	N/C
cut brine/gel	5270' - 16121'	8.5 – 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 ≈5033 psig. Expected bottom hole temperature is ≈165˚ 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 ≈1 month to drill and ≈2-3 months to 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.

This is a "fee/fee/Fed" well. Surface owner is the NM State Land Office, P. O. Box 1148, Santa Fe NM 87504; 505 827-4003). First lease penetrated is NM State Land Office lease V0-8700-0001. Ascent is preparing a business lease to file with the NM State Land Office.

total

Project: LEA COUNTY, NEW MEXICO (NAD 83)
Site: NW NE SEC. 19 T21S R33E
Well: HORSESHOE FED COM 501H
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

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: 300ft FNL & 2025ft FEL of Sec 19
3000.00	3000.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (1.5°/100ft BUR)
3199.91	3200.00	3.00	358.38	5.23	-0.15	5.23	5.23	EOB TO 3° INC
6818.09	6823.15	3.00	358.38	194.78	-5.52	194.78	194.86	END OF TANGENT
7018.00	7023.15	0.00	0.00	200.01	-5.67	200.01	200.09	EOD TO VERTICAL
10515.30	10520.45	0.00	0.00	200.01	-5.67	200.01	200.09	KOP (12°/100ft BUR)
10903.81	10974.32	54.48	359.97	400.01	-5.77	400.01	400.10	100ft SETBACK X-OVER POINT
10992.64	11274.70	90.53	359.97	681.79	-5.92	681.79	681.87	HZ LP: 381.79ft FSL & 2030ft FEL of Sec 18
10948.46	16071.03	90.53	359.97	5477.91	-8.52	5477.92	5477.99	100ft SETBACK X-OVER POINT
10948.00	16121.03	90.53	359.97	5527.91	-8.55	5527.91	5527.99	LTP/BHL *NEW*: 50ft FNL & 2030ft FEL of Sec 18

PROPOSED LOCAL COORDINATES:

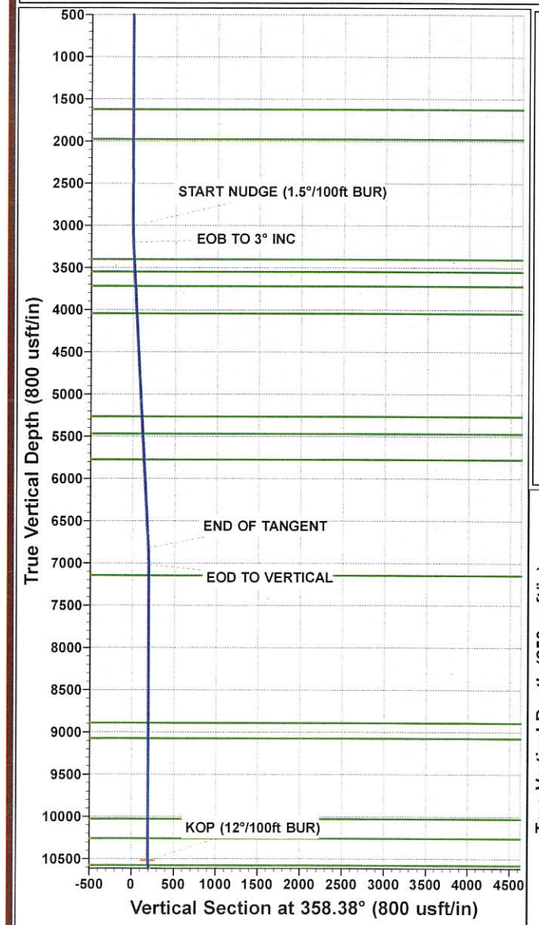
SHL: 300ft FNL & 2025ft FEL Sec 19

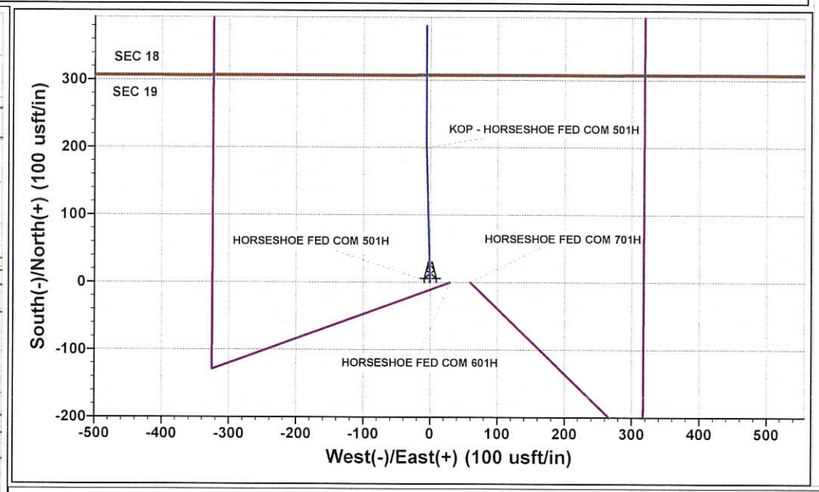
HZ LP: 381.79ft FSL & 2030ft FEL Sec 18

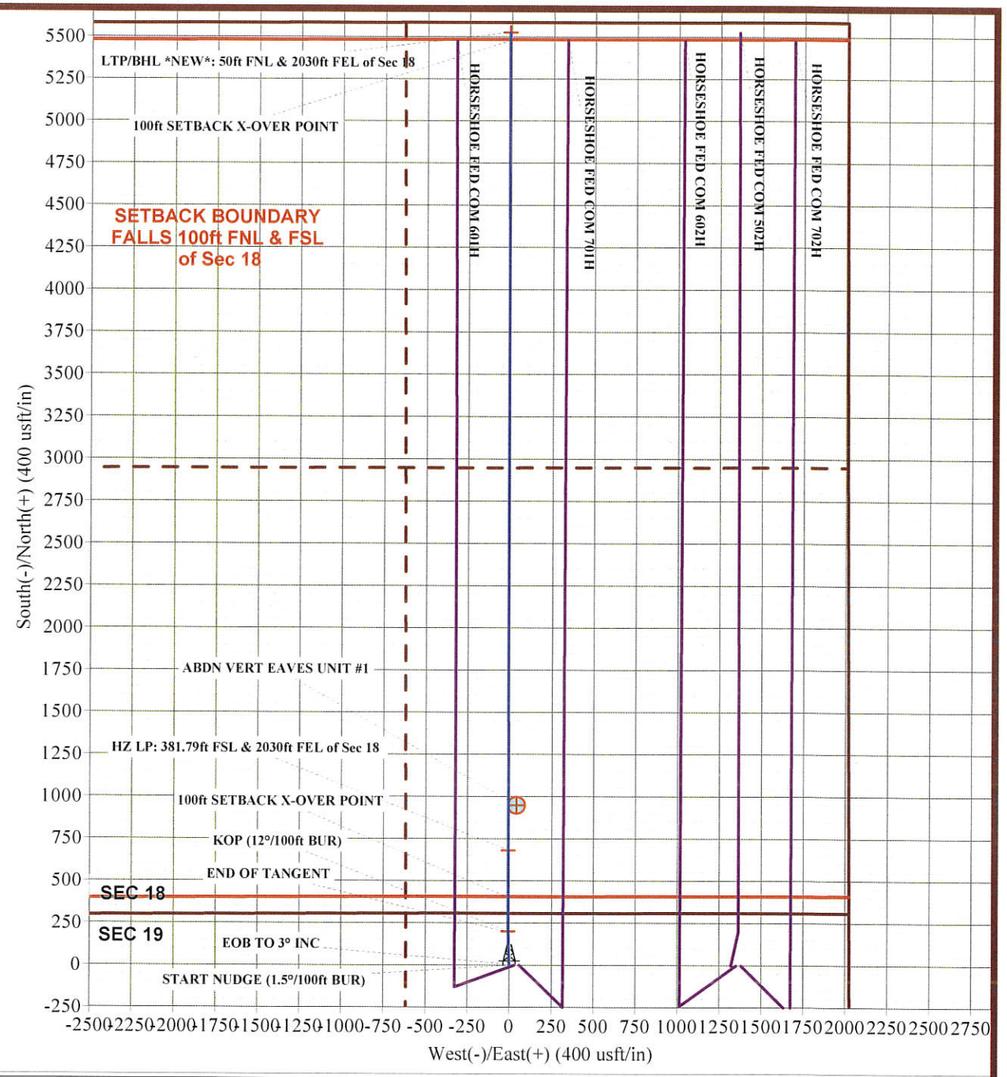
BHL *NEW* : 50ft FNL & 2030ft FEL Sec 18

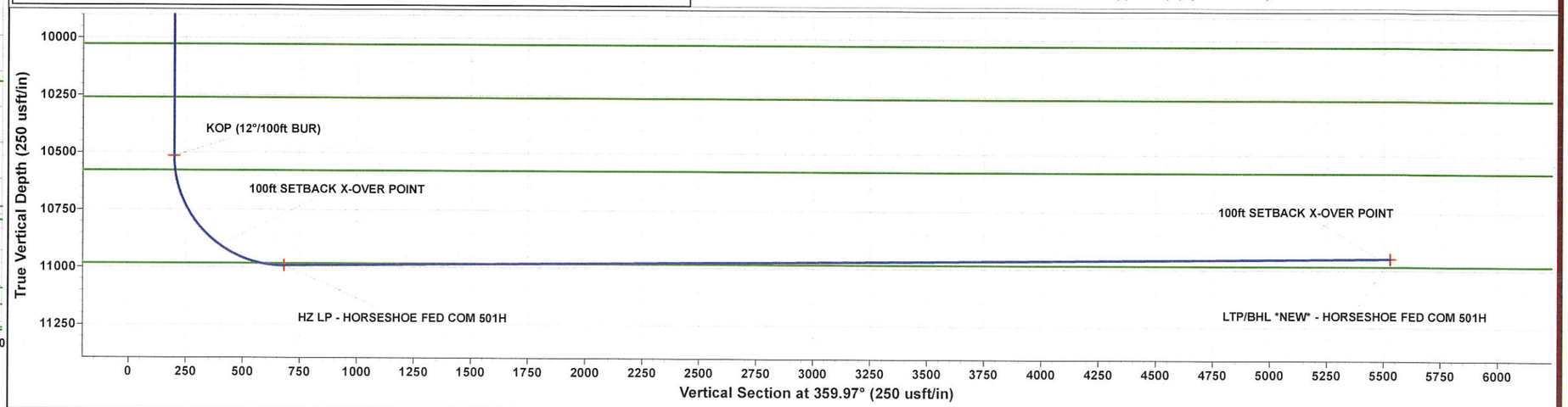
WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - HORSESHOE FED COM 501H	10515.30	200.01	-5.67	32.471384	-103.609747
LTP/BHL *NEW* - HORSESHOE FED COM 501H	10948.00	5527.91	-8.55	32.486028	-103.609756
HZ LP - HORSESHOE FED COM 501H	10992.64	681.79	-5.92	32.472708	-103.609748









Database:	Database 1	**Local Co-ordinate Reference:**	Well HORSESHOE FED COM 501H
Company:	ASCENT ENERGY	**TVD Reference:**	KB 25' @ 3833.00usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB 25' @ 3833.00usft
Site:	NW NE SEC. 19 T21S R33E	**North Reference:**	True
Well:	HORSESHOE FED COM 501H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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 NW NE SEC. 19 T21S R33E

Site Position:		**Northing:**	535,776.82 usft	**Latitude:**	32.470834
From:	Map	**Easting:**	764,495.01 usft	**Longitude:**	-103.609729
Position Uncertainty:	0.00 usft	**Slot Radius:**	1.10 ft	**Grid Convergence:**	0.39 °

Well HORSESHOE FED COM 501H

Well Position	**+N/-S**	0.00 usft	**Northing:**	535,776.82 usft	**Latitude:**	32.470834
	+E/-W	0.00 usft	**Easting:**	764,495.01 usft	**Longitude:**	-103.609729
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,808.00 usft

Wellbore ORIGINAL WELLBORE

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	02/08/2019	6.76	60.25	47,858

Design PROPOSAL #1

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	359.97

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	-3,833.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,000.00	0.00	0.00	3,000.00	-833.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,200.00	3.00	358.38	3,199.91	-633.09	5.23	-0.15	1.50	1.50	0.00	358.38	
6,823.15	3.00	358.38	6,818.09	2,985.09	194.78	-5.52	0.00	0.00	0.00	0.00	
7,023.15	0.00	0.00	7,018.00	3,185.00	200.01	-5.67	1.50	-1.50	0.00	180.00	
10,520.45	0.00	0.00	10,515.30	6,682.30	200.01	-5.67	0.00	0.00	0.00	0.00	KOP - HORSESHO
11,274.70	90.53	359.97	10,992.64	7,159.64	681.79	-5.92	12.00	12.00	0.00	359.97	HZ LP - HORSESH
16,121.03	90.53	359.97	10,948.00	7,115.00	5,527.91	-8.55	0.00	0.00	0.00	-153.31	LTP/BHL *NEW* - I

Database:	Database 1	**Local Co-ordinate Reference:**	Well HORSESHOE FED COM 501H
Company:	ASCENT ENERGY	**TVD Reference:**	KB 25' @ 3833.00usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB 25' @ 3833.00usft
Site:	NW NE SEC. 19 T21S R33E	**North Reference:**	True
Well:	HORSESHOE FED COM 501H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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: 300ft FNL & 2025ft FEL of Sec 19										
0.00	***0.00***	***0.00***	***0.00***	***3,833.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
100.00	0.00	0.00	100.00	3,733.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	3,633.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	3,533.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	3,433.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	3,333.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	3,233.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	3,133.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	3,033.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	2,933.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	2,833.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	2,733.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	2,633.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	2,533.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	2,433.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	2,333.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	2,233.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler										
1,621.00	***0.00***	***0.00***	***1,621.00***	***2,212.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
1,700.00	0.00	0.00	1,700.00	2,133.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	2,033.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	1,933.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado										
1,976.00	***0.00***	***0.00***	***1,976.00***	***1,857.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
2,000.00	0.00	0.00	2,000.00	1,833.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	1,733.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	1,633.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	1,533.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	1,433.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	1,333.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	1,233.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	1,133.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	1,033.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	933.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (1.5°/100ft BUR)										
3,000.00	***0.00***	***0.00***	***3,000.00***	***833.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
3,100.00	1.50	358.38	3,099.99	733.01	1.31	-0.04	1.31	1.50	1.50	0.00
EOB TO 3° INC										
3,200.00	***3.00***	***358.38***	***3,199.91***	***633.09***	***5.23***	***-0.15***	***5.23***	***1.50***	***1.50***	***0.00***
3,300.00	3.00	358.38	3,299.77	533.23	10.46	-0.30	10.46	0.00	0.00	0.00
3,400.00	3.00	358.38	3,399.63	433.37	15.70	-0.44	15.70	0.00	0.00	0.00
Castille										
3,403.37	***3.00***	***358.38***	***3,403.00***	***430.00***	***15.87***	***-0.45***	***15.87***	***0.00***	***0.00***	***0.00***
3,500.00	3.00	358.38	3,499.50	333.50	20.93	-0.59	20.93	0.00	0.00	0.00
Tansil										
3,549.57	***3.00***	***358.38***	***3,549.00***	***284.00***	***23.52***	***-0.67***	***23.52***	***0.00***	***0.00***	***0.00***
3,600.00	3.00	358.38	3,599.36	233.64	26.16	-0.74	26.16	0.00	0.00	0.00
3,700.00	3.00	358.38	3,699.22	133.78	31.39	-0.89	31.39	0.00	0.00	0.00
Yates										
3,719.80	***3.00***	***358.38***	***3,719.00***	***114.00***	***32.43***	***-0.92***	***32.43***	***0.00***	***0.00***	***0.00***
3,800.00	3.00	358.38	3,799.09	33.91	36.62	-1.04	36.62	0.00	0.00	0.00
3,900.00	3.00	358.38	3,898.95	-65.95	41.85	-1.19	41.85	0.00	0.00	0.00

Database:	Database 1	**Local Co-ordinate Reference:**	Well HORSESHOE FED COM 501H
Company:	ASCENT ENERGY	**TVD Reference:**	KB 25' @ 3833.00usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB 25' @ 3833.00usft
Site:	NW NE SEC. 19 T21S R33E	**North Reference:**	True
Well:	HORSESHOE FED COM 501H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
4,000.00	3.00	358.38	3,998.81	-165.81	47.08	-1.33	47.09	0.00	0.00	0.00
Capitan Reef										
4,045.25	***3.00***	***358.38***	***4,044.00***	***-211.00***	***49.45***	***-1.40***	***49.45***	***0.00***	***0.00***	***0.00***
4,100.00	3.00	358.38	4,098.68	-265.68	52.32	-1.48	52.32	0.00	0.00	0.00
4,200.00	3.00	358.38	4,198.54	-365.54	57.55	-1.63	57.55	0.00	0.00	0.00
4,300.00	3.00	358.38	4,298.40	-465.40	62.78	-1.78	62.78	0.00	0.00	0.00
4,400.00	3.00	358.38	4,398.26	-565.26	68.01	-1.93	68.01	0.00	0.00	0.00
4,500.00	3.00	358.38	4,498.13	-665.13	73.24	-2.08	73.24	0.00	0.00	0.00
4,600.00	3.00	358.38	4,597.99	-764.99	78.47	-2.22	78.47	0.00	0.00	0.00
4,700.00	3.00	358.38	4,697.85	-864.85	83.71	-2.37	83.71	0.00	0.00	0.00
4,800.00	3.00	358.38	4,797.72	-964.72	88.94	-2.52	88.94	0.00	0.00	0.00
4,900.00	3.00	358.38	4,897.58	-1,064.58	94.17	-2.67	94.17	0.00	0.00	0.00
5,000.00	3.00	358.38	4,997.44	-1,164.44	99.40	-2.82	99.40	0.00	0.00	0.00
5,100.00	3.00	358.38	5,097.30	-1,264.30	104.63	-2.97	104.63	0.00	0.00	0.00
5,200.00	3.00	358.38	5,197.17	-1,364.17	109.86	-3.11	109.86	0.00	0.00	0.00
Top Delaware Sand										
5,266.92	***3.00***	***358.38***	***5,264.00***	***-1,431.00***	***113.36***	***-3.21***	***113.37***	***0.00***	***0.00***	***0.00***
5,300.00	3.00	358.38	5,297.03	-1,464.03	115.09	-3.26	115.10	0.00	0.00	0.00
5,400.00	3.00	358.38	5,396.89	-1,563.89	120.33	-3.41	120.33	0.00	0.00	0.00
Bell Canyon										
5,472.21	***3.00***	***358.38***	***5,469.00***	***-1,636.00***	***124.10***	***-3.52***	***124.10***	***0.00***	***0.00***	***0.00***
5,500.00	3.00	358.38	5,496.76	-1,663.76	125.56	-3.56	125.56	0.00	0.00	0.00
5,600.00	3.00	358.38	5,596.62	-1,763.62	130.79	-3.71	130.79	0.00	0.00	0.00
5,700.00	3.00	358.38	5,696.48	-1,863.48	136.02	-3.86	136.02	0.00	0.00	0.00
Cherry Canyon										
5,778.63	***3.00***	***358.38***	***5,775.00***	***-1,942.00***	***140.13***	***-3.97***	***140.14***	***0.00***	***0.00***	***0.00***
5,800.00	3.00	358.38	5,796.35	-1,963.35	141.25	-4.00	141.25	0.00	0.00	0.00
5,900.00	3.00	358.38	5,896.21	-2,063.21	146.48	-4.15	146.49	0.00	0.00	0.00
6,000.00	3.00	358.38	5,996.07	-2,163.07	151.71	-4.30	151.72	0.00	0.00	0.00
6,100.00	3.00	358.38	6,095.93	-2,262.93	156.95	-4.45	156.95	0.00	0.00	0.00
6,200.00	3.00	358.38	6,195.80	-2,362.80	162.18	-4.60	162.18	0.00	0.00	0.00
6,300.00	3.00	358.38	6,295.66	-2,462.66	167.41	-4.75	167.41	0.00	0.00	0.00
6,400.00	3.00	358.38	6,395.52	-2,562.52	172.64	-4.89	172.64	0.00	0.00	0.00
6,500.00	3.00	358.38	6,495.39	-2,662.39	177.87	-5.04	177.87	0.00	0.00	0.00
6,600.00	3.00	358.38	6,595.25	-2,762.25	183.10	-5.19	183.11	0.00	0.00	0.00
6,700.00	3.00	358.38	6,695.11	-2,862.11	188.33	-5.34	188.34	0.00	0.00	0.00
6,800.00	3.00	358.38	6,794.97	-2,961.97	193.57	-5.49	193.57	0.00	0.00	0.00
END OF TANGENT										
6,823.15	***3.00***	***358.38***	***6,818.09***	***-2,985.09***	***194.78***	***-5.52***	***194.78***	***0.00***	***0.00***	***0.00***
6,900.00	1.85	358.38	6,894.87	-3,061.87	198.03	-5.61	198.03	1.50	-1.50	0.00
7,000.00	0.35	358.38	6,994.85	-3,161.85	199.94	-5.67	199.94	1.50	-1.50	0.00
EOD TO VERTICAL										
7,023.15	***0.00***	***0.00***	***7,018.00***	***-3,185.00***	***200.01***	***-5.67***	***200.01***	***1.50***	***-1.50***	***7.02***
7,100.00	0.00	0.00	7,094.85	-3,261.85	200.01	-5.67	200.01	0.00	0.00	0.00
Brushy Canyon										
7,149.15	***0.00***	***0.00***	***7,144.00***	***-3,311.00***	***200.01***	***-5.67***	***200.01***	***0.00***	***0.00***	***0.00***
7,200.00	0.00	0.00	7,194.85	-3,361.85	200.01	-5.67	200.01	0.00	0.00	0.00
7,300.00	0.00	0.00	7,294.85	-3,461.85	200.01	-5.67	200.01	0.00	0.00	0.00
7,400.00	0.00	0.00	7,394.85	-3,561.85	200.01	-5.67	200.01	0.00	0.00	0.00
7,500.00	0.00	0.00	7,494.85	-3,661.85	200.01	-5.67	200.01	0.00	0.00	0.00
7,600.00	0.00	0.00	7,594.85	-3,761.85	200.01	-5.67	200.01	0.00	0.00	0.00
7,700.00	0.00	0.00	7,694.85	-3,861.85	200.01	-5.67	200.01	0.00	0.00	0.00
7,800.00	0.00	0.00	7,794.85	-3,961.85	200.01	-5.67	200.01	0.00	0.00	0.00

Database:	Database 1	**Local Co-ordinate Reference:**	Well HORSESHOE FED COM 501H
Company:	ASCENT ENERGY	**TVD Reference:**	KB 25' @ 3833.00usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB 25' @ 3833.00usft
Site:	NW NE SEC. 19 T21S R33E	**North Reference:**	True
Well:	HORSESHOE FED COM 501H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
7,900.00	0.00	0.00	7,894.85	-4,061.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,000.00	0.00	0.00	7,994.85	-4,161.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,100.00	0.00	0.00	8,094.85	-4,261.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,200.00	0.00	0.00	8,194.85	-4,361.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,300.00	0.00	0.00	8,294.85	-4,461.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,400.00	0.00	0.00	8,394.85	-4,561.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,500.00	0.00	0.00	8,494.85	-4,661.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,600.00	0.00	0.00	8,594.85	-4,761.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,700.00	0.00	0.00	8,694.85	-4,861.85	200.01	-5.67	200.01	0.00	0.00	0.00
8,800.00	0.00	0.00	8,794.85	-4,961.85	200.01	-5.67	200.01	0.00	0.00	0.00
Bone Spring Lime										
8,896.15	***0.00***	***0.00***	***8,891.00***	***-5,058.00***	***200.01***	***-5.67***	***200.01***	***0.00***	***0.00***	***0.00***
8,900.00	0.00	0.00	8,894.85	-5,061.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,000.00	0.00	0.00	8,994.85	-5,161.85	200.01	-5.67	200.01	0.00	0.00	0.00
Avalon Sand										
9,080.15	***0.00***	***0.00***	***9,075.00***	***-5,242.00***	***200.01***	***-5.67***	***200.01***	***0.00***	***0.00***	***0.00***
9,100.00	0.00	0.00	9,094.85	-5,261.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,200.00	0.00	0.00	9,194.85	-5,361.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,300.00	0.00	0.00	9,294.85	-5,461.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,400.00	0.00	0.00	9,394.85	-5,561.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,500.00	0.00	0.00	9,494.85	-5,661.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,600.00	0.00	0.00	9,594.85	-5,761.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,700.00	0.00	0.00	9,694.85	-5,861.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,800.00	0.00	0.00	9,794.85	-5,961.85	200.01	-5.67	200.01	0.00	0.00	0.00
9,900.00	0.00	0.00	9,894.85	-6,061.85	200.01	-5.67	200.01	0.00	0.00	0.00
10,000.00	0.00	0.00	9,994.85	-6,161.85	200.01	-5.67	200.01	0.00	0.00	0.00
1st Bone Spring Sand										
10,033.15	***0.00***	***0.00***	***10,028.00***	***-6,195.00***	***200.01***	***-5.67***	***200.01***	***0.00***	***0.00***	***0.00***
10,100.00	0.00	0.00	10,094.85	-6,261.85	200.01	-5.67	200.01	0.00	0.00	0.00
10,200.00	0.00	0.00	10,194.85	-6,361.85	200.01	-5.67	200.01	0.00	0.00	0.00
2nd Bone Spring Carb										
10,265.15	***0.00***	***0.00***	***10,260.00***	***-6,427.00***	***200.01***	***-5.67***	***200.01***	***0.00***	***0.00***	***0.00***
10,300.00	0.00	0.00	10,294.85	-6,461.85	200.01	-5.67	200.01	0.00	0.00	0.00
10,400.00	0.00	0.00	10,394.85	-6,561.85	200.01	-5.67	200.01	0.00	0.00	0.00
10,500.00	0.00	0.00	10,494.85	-6,661.85	200.01	-5.67	200.01	0.00	0.00	0.00
KOP (12°/100ft BUR)										
10,520.45	***0.00***	***0.00***	***10,515.30***	***-6,682.30***	***200.01***	***-5.67***	***200.01***	***0.00***	***0.00***	***0.00***
2nd Bone Spring Sand										
10,583.33	***7.55***	***359.97***	***10,578.00***	***-6,745.00***	***204.15***	***-5.67***	***204.15***	***12.00***	***12.00***	***0.00***
10,600.00	9.55	359.97	10,594.48	-6,761.48	206.62	-5.67	206.63	12.00	12.00	0.00
10,700.00	21.55	359.97	10,690.65	-6,857.65	233.38	-5.69	233.38	12.00	12.00	0.00
10,800.00	33.55	359.97	10,779.14	-6,946.14	279.55	-5.71	279.56	12.00	12.00	0.00
10,900.00	45.56	359.97	10,856.11	-7,023.11	343.12	-5.74	343.12	12.00	12.00	0.00
100ft SETBACK X-OVER POINT										
10,974.32	***54.48***	***359.97***	***10,903.81***	***-7,070.81***	***400.01***	***-5.77***	***400.01***	***12.00***	***12.00***	***0.00***
11,000.00	57.56	359.97	10,918.16	-7,085.16	421.30	-5.78	421.30	12.00	12.00	0.00
11,100.00	69.56	359.97	10,962.61	-7,129.61	510.67	-5.83	510.68	12.00	12.00	0.00
2nd Bone Spring Landing Target top										
11,174.08	***78.45***	***359.97***	***10,983.00***	***-7,150.00***	***581.82***	***-5.87***	***581.82***	***12.00***	***12.00***	***0.00***
11,200.00	81.56	359.97	10,987.50	-7,154.50	607.34	-5.88	607.34	12.00	12.00	0.00
HZ LP: 381.79ft FSL & 2030ft FEL of Sec 18										
11,274.70	***90.53***	***359.97***	***10,992.64***	***-7,159.64***	***681.79***	***-5.92***	***681.79***	***12.00***	***12.00***	***0.00***
11,300.00	90.53	359.97	10,992.41	-7,159.41	707.09	-5.93	707.09	0.00	0.00	0.00

Database:	Database 1	**Local Co-ordinate Reference:**	Well HORSESHOE FED COM 501H
Company:	ASCENT ENERGY	**TVD Reference:**	KB 25' @ 3833.00usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB 25' @ 3833.00usft
Site:	NW NE SEC. 19 T21S R33E	**North Reference:**	True
Well:	HORSESHOE FED COM 501H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
11,400.00	90.53	359.97	10,991.48	-7,158.48	807.08	-5.99	807.08	0.00	0.00	0.00
11,500.00	90.53	359.97	10,990.55	-7,157.55	907.08	-6.04	907.08	0.00	0.00	0.00
11,600.00	90.53	359.97	10,989.63	-7,156.63	1,007.07	-6.09	1,007.08	0.00	0.00	0.00
11,700.00	90.53	359.97	10,988.70	-7,155.70	1,107.07	-6.14	1,107.07	0.00	0.00	0.00
11,800.00	90.53	359.97	10,987.78	-7,154.78	1,207.06	-6.19	1,207.07	0.00	0.00	0.00
11,900.00	90.53	359.97	10,986.85	-7,153.85	1,307.06	-6.25	1,307.06	0.00	0.00	0.00
12,000.00	90.53	359.97	10,985.93	-7,152.93	1,407.05	-6.30	1,407.06	0.00	0.00	0.00
12,100.00	90.53	359.97	10,985.01	-7,152.01	1,507.05	-6.35	1,507.05	0.00	0.00	0.00
12,200.00	90.53	359.97	10,984.08	-7,151.08	1,607.05	-6.40	1,607.05	0.00	0.00	0.00
12,300.00	90.53	359.97	10,983.16	-7,150.16	1,707.04	-6.46	1,707.05	0.00	0.00	0.00
12,400.00	90.53	359.97	10,982.23	-7,149.23	1,807.04	-6.51	1,807.04	0.00	0.00	0.00
12,500.00	90.53	359.97	10,981.31	-7,148.31	1,907.03	-6.56	1,907.04	0.00	0.00	0.00
12,600.00	90.53	359.97	10,980.39	-7,147.39	2,007.03	-6.62	2,007.03	0.00	0.00	0.00
12,700.00	90.53	359.97	10,979.46	-7,146.46	2,107.03	-6.67	2,107.03	0.00	0.00	0.00
12,800.00	90.53	359.97	10,978.54	-7,145.54	2,207.02	-6.72	2,207.02	0.00	0.00	0.00
12,900.00	90.53	359.97	10,977.62	-7,144.62	2,307.02	-6.78	2,307.02	0.00	0.00	0.00
13,000.00	90.53	359.97	10,976.70	-7,143.70	2,407.01	-6.83	2,407.02	0.00	0.00	0.00
13,100.00	90.53	359.97	10,975.77	-7,142.77	2,507.01	-6.88	2,507.01	0.00	0.00	0.00
13,200.00	90.53	359.97	10,974.85	-7,141.85	2,607.00	-6.94	2,607.01	0.00	0.00	0.00
13,300.00	90.53	359.97	10,973.93	-7,140.93	2,707.00	-6.99	2,707.00	0.00	0.00	0.00
13,400.00	90.53	359.97	10,973.01	-7,140.01	2,807.00	-7.04	2,807.00	0.00	0.00	0.00
13,500.00	90.53	359.97	10,972.09	-7,139.09	2,906.99	-7.10	2,906.99	0.00	0.00	0.00
13,600.00	90.53	359.97	10,971.16	-7,138.16	3,006.99	-7.15	3,006.99	0.00	0.00	0.00
13,700.00	90.53	359.97	10,970.24	-7,137.24	3,106.98	-7.21	3,106.99	0.00	0.00	0.00
13,800.00	90.53	359.97	10,969.32	-7,136.32	3,206.98	-7.26	3,206.98	0.00	0.00	0.00
13,900.00	90.53	359.97	10,968.40	-7,135.40	3,306.97	-7.32	3,306.98	0.00	0.00	0.00
14,000.00	90.53	359.97	10,967.48	-7,134.48	3,406.97	-7.37	3,406.97	0.00	0.00	0.00
14,100.00	90.53	359.97	10,966.56	-7,133.56	3,506.97	-7.43	3,506.97	0.00	0.00	0.00
14,200.00	90.53	359.97	10,965.64	-7,132.64	3,606.96	-7.48	3,606.96	0.00	0.00	0.00
14,300.00	90.53	359.97	10,964.72	-7,131.72	3,706.96	-7.53	3,706.96	0.00	0.00	0.00
14,400.00	90.53	359.97	10,963.80	-7,130.80	3,806.95	-7.59	3,806.96	0.00	0.00	0.00
14,500.00	90.53	359.97	10,962.88	-7,129.88	3,906.95	-7.64	3,906.95	0.00	0.00	0.00
14,600.00	90.53	359.97	10,961.96	-7,128.96	4,006.94	-7.70	4,006.95	0.00	0.00	0.00
14,700.00	90.53	359.97	10,961.04	-7,128.04	4,106.94	-7.75	4,106.94	0.00	0.00	0.00
14,800.00	90.53	359.97	10,960.12	-7,127.12	4,206.94	-7.81	4,206.94	0.00	0.00	0.00
14,900.00	90.53	359.97	10,959.20	-7,126.20	4,306.93	-7.87	4,306.93	0.00	0.00	0.00
15,000.00	90.53	359.97	10,958.29	-7,125.29	4,406.93	-7.92	4,406.93	0.00	0.00	0.00
15,100.00	90.53	359.97	10,957.37	-7,124.37	4,506.92	-7.98	4,506.93	0.00	0.00	0.00
15,200.00	90.53	359.97	10,956.45	-7,123.45	4,606.92	-8.03	4,606.92	0.00	0.00	0.00
15,300.00	90.53	359.97	10,955.53	-7,122.53	4,706.91	-8.09	4,706.92	0.00	0.00	0.00
15,400.00	90.53	359.97	10,954.61	-7,121.61	4,806.91	-8.14	4,806.91	0.00	0.00	0.00
15,500.00	90.53	359.97	10,953.69	-7,120.69	4,906.91	-8.20	4,906.91	0.00	0.00	0.00
15,600.00	90.53	359.97	10,952.78	-7,119.78	5,006.90	-8.26	5,006.91	0.00	0.00	0.00
15,700.00	90.53	359.97	10,951.86	-7,118.86	5,106.90	-8.31	5,106.90	0.00	0.00	0.00
15,800.00	90.53	359.97	10,950.94	-7,117.94	5,206.89	-8.37	5,206.90	0.00	0.00	0.00
15,900.00	90.53	359.97	10,950.03	-7,117.03	5,306.89	-8.43	5,306.89	0.00	0.00	0.00
16,000.00	90.53	359.97	10,949.11	-7,116.11	5,406.88	-8.48	5,406.89	0.00	0.00	0.00
100ft SETBACK X-OVER POINT										
16,071.03	***90.53***	***359.97***	***10,948.46***	***-7,115.46***	***5,477.91***	***-8.52***	***5,477.92***	***0.00***	***0.00***	***0.00***
16,100.00	90.53	359.97	10,948.19	-7,115.19	5,506.88	-8.54	5,506.88	0.00	0.00	0.00
LTP/BHL *NEW*: 50ft FNL & 2030ft FEL of Sec 18										
16,121.03	***90.53***	***359.97***	***10,948.00***	***-7,115.00***	***5,527.91***	***-8.55***	***5,527.91***	***0.00***	***0.00***	***0.00***

Database:	Database 1	**Local Co-ordinate Reference:**	Well HORSESHOE FED COM 501H
Company:	ASCENT ENERGY	**TVD Reference:**	KB 25' @ 3833.00usft
Project:	LEA COUNTY, NEW MEXICO (NAD 83)	**MD Reference:**	KB 25' @ 3833.00usft
Site:	NW NE SEC. 19 T21S R33E	**North Reference:**	True
Well:	HORSESHOE FED COM 501H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,621.00	1,621.00	Rustler		0.00	
1,976.00	1,976.00	Salado		0.00	
3,403.37	3,403.00	Castille		0.00	
3,549.57	3,549.00	Tansil		0.00	
3,719.80	3,719.00	Yates		0.00	
4,045.25	4,044.00	Capitan Reef		0.00	
5,266.92	5,264.00	Top Delaware Sand		0.00	
5,472.21	5,469.00	Bell Canyon		0.00	
5,778.63	5,775.00	Cherry Canyon		0.00	
7,149.15	7,144.00	Brushy Canyon		0.00	
8,896.15	8,891.00	Bone Spring Lime		0.00	
9,080.15	9,075.00	Avalon Sand		0.00	
10,033.15	10,028.00	1st Bone Spring Sand		0.00	
10,265.15	10,260.00	2nd Bone Spring Carb		0.00	
10,583.33	10,578.00	2nd Bone Spring Sand		0.00	
11,174.08	10,983.00	2nd Bone Spring Landing Target top		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: 300ft FNL & 2025ft FEL of Sec 19
3,000.00	3,000.00	0.00	0.00	START NUDGE (1.5°/100ft BUR)
3,200.00	3,199.91	5.23	-0.15	EOB TO 3° INC
6,823.15	6,818.09	194.78	-5.52	END OF TANGENT
7,023.15	7,018.00	200.01	-5.67	EOD TO VERTICAL
10,520.45	10,515.30	200.01	-5.67	KOP (12°/100ft BUR)
10,974.32	10,903.81	400.01	-5.77	100ft SETBACK X-OVER POINT
11,274.70	10,992.64	681.79	-5.92	HZ LP: 381.79ft FSL & 2030ft FEL of Sec 18
16,071.03	10,948.46	5,477.91	-8.52	100ft SETBACK X-OVER POINT
16,121.03	10,948.00	5,527.91	-8.55	LTP/BHL *NEW*: 50ft FNL & 2030ft FEL of Sec 18

ASCENT ENERGY

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 site 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

Dean Gimbel, Vice President Completions	Office: (720) 710-8995
	Mobile: (303) 945-1323
Matt Ward, Chief Operations Officer	Mobile: (303) 506-6647
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

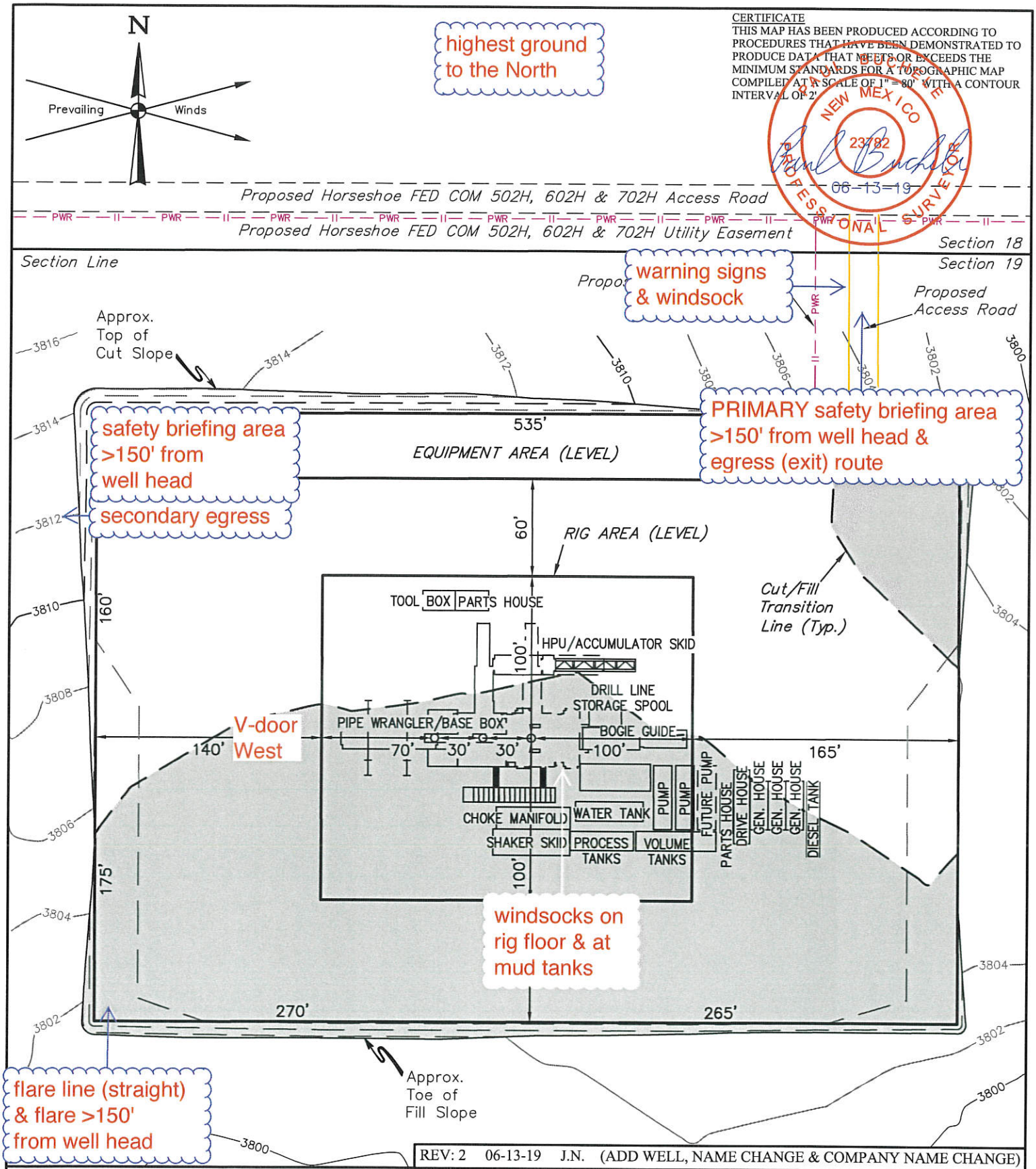
Dal Paso Animal Hospital (Hobbs)	(575) 397-2286
Hobbs Animal Clinic & Pet Care (Hobbs)	(575) 392-5563
Great Plains Veterinary Clinic & Hospital (Hobbs)	(575) 392-5513

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



REV: 2 06-13-19 J.N. (ADD WELL, NAME CHANGE & COMPANY NAME CHANGE)

NOTES:

- Contours shown at 2' intervals.

ASCENT ENERGY

HORSESHOE FED COM 501H, 601H & 701H
NW 1/4 NE 1/4, SECTION 19, T21S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UINTAH ENGINEERING & LAND SURVEYING

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

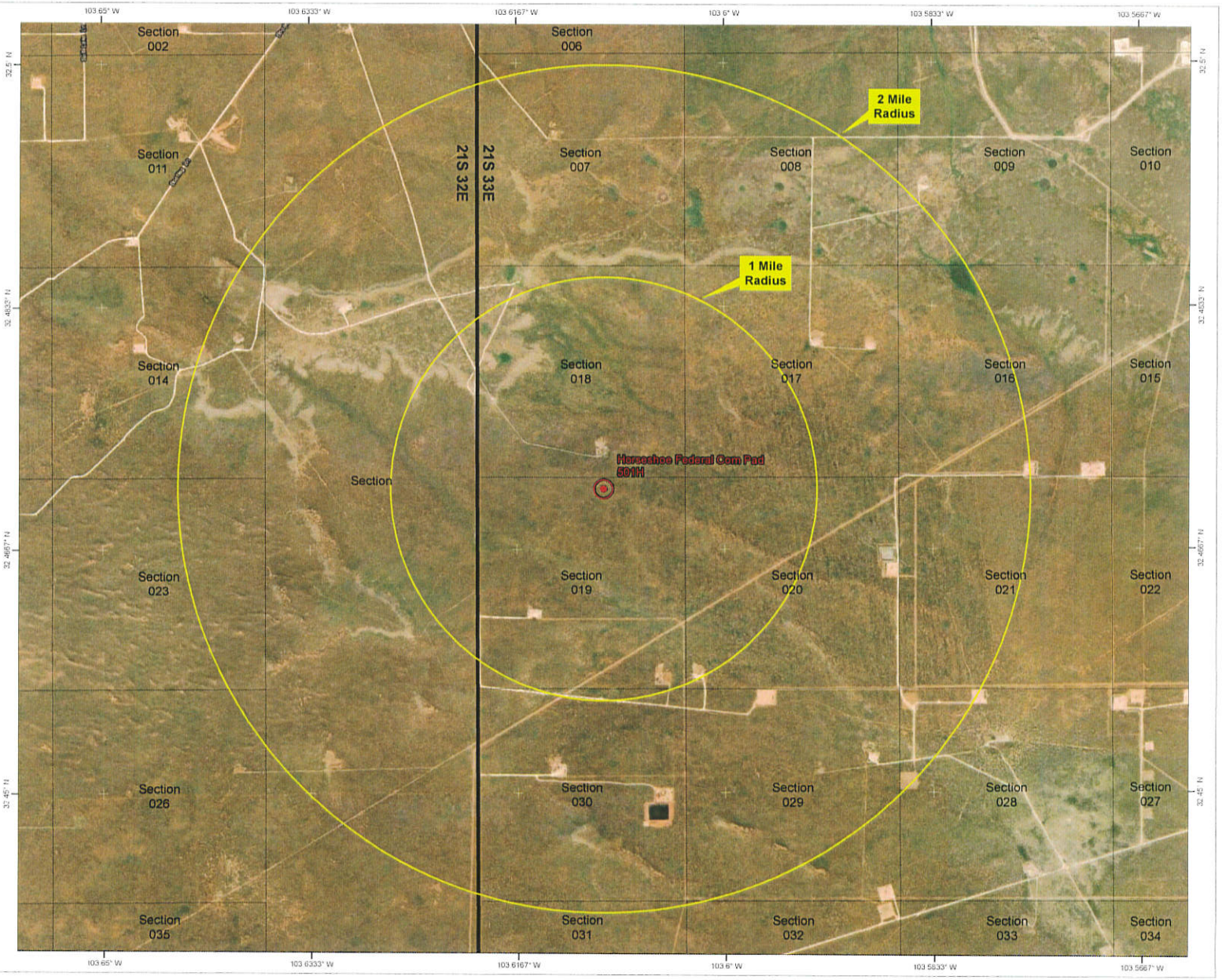
SURVEYED BY	R.C., M.D.	09-06-18	SCALE
DRAWN BY	C.D.	03-28-18	1" = 80'

TYPICAL RIG LAYOUT | **FIGURE #3**

Ascent Energy

Horseshoe Federal Com
501H
H2S Contingency Plan:
Radius Map

Section 19, Township 21S, Range 33E
Lea County, New Mexico



Proposed SHL

1:27,000

0 0.25 0.5 1

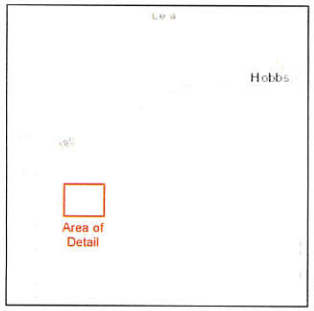
Miles

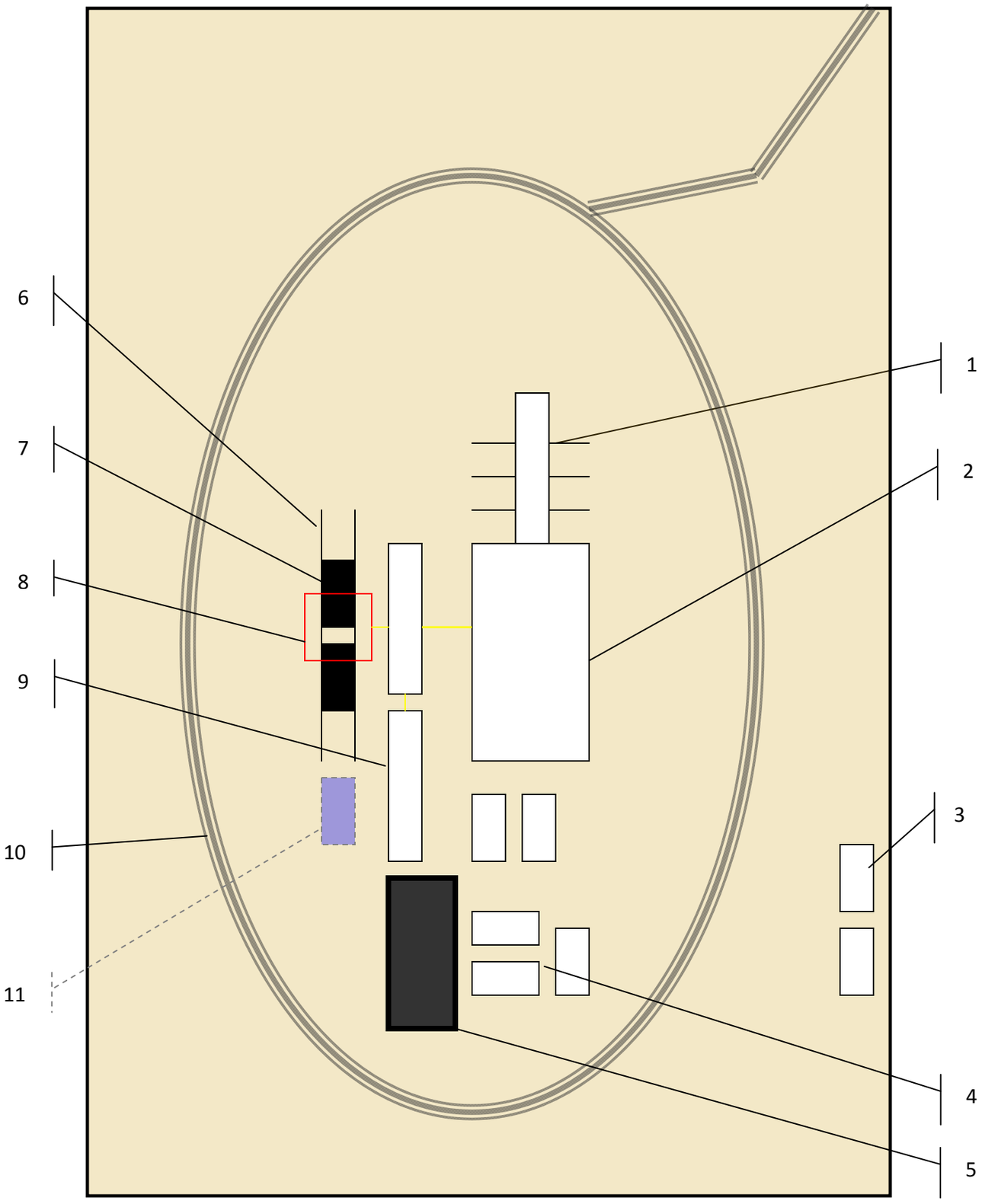
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.

Prepared by Permits West, Inc., September 23, 2019
for Lime Rock Resources





Schematic Closed Loop Drilling Rig*

1. **Pipe Rack**
2. **Drill Rig**
3. **House Trailers/ Offices**
4. **Generator/Fuel/Storage**
5. **Overflow-Frac Tank**
6. **Skids**
7. **Roll Offs**
8. **Hopper or Centrifuge**
9. **Mud Tanks**
10. **Loop Drive**
11. **Generator (only for use with centrifuge)**

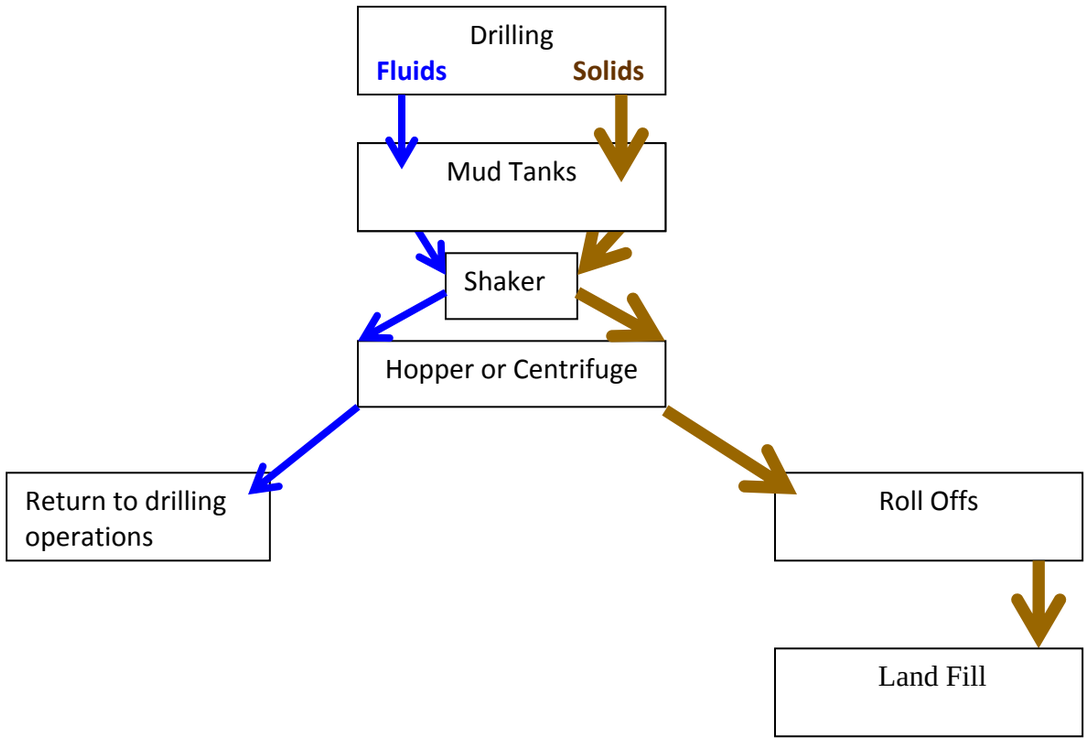
***Not drawn to scale: Closed loop system requires at least 30 feet beyond mud tanks. Ideally 60 feet would be available**

Above: Centrifugal Closed Loop System

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

Closed Loop Drilling System: Mud tanks to right (1)
Hopper in air to settle out solids (2)
Water return pipe (3)
Shaker between hopper and mud tanks (4)
Roll offs on skids (5)

Flow Chart for Drilling Fluids and Solids



Photos Courtesy of Gandy Corporation Oil Field Service

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, NM 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-025-47268	97895	WC-025 G-08 S213304D; BONE SPRING

4 Property Code	5 Property Name	6 Well Number
327861	HORSESHOE FED COM	501H
325830	ASCENT ENERGY, LLC	9 Elevation 3807.1'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	19	21S	33E		300	NORTH	2025	EAST	LEA

11 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
B	18	21S	33E		50	NORTH	2030	EAST	LEA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
160		C	

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.

16

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°28'15.00" (32.470834°)
LONGITUDE = 103°36'35.02" (103.609729°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 535776.82' X: 764495.01'
UTM, NAD 83 (ZONE 13)
Y: 11789599.49' X: 2069052.75'

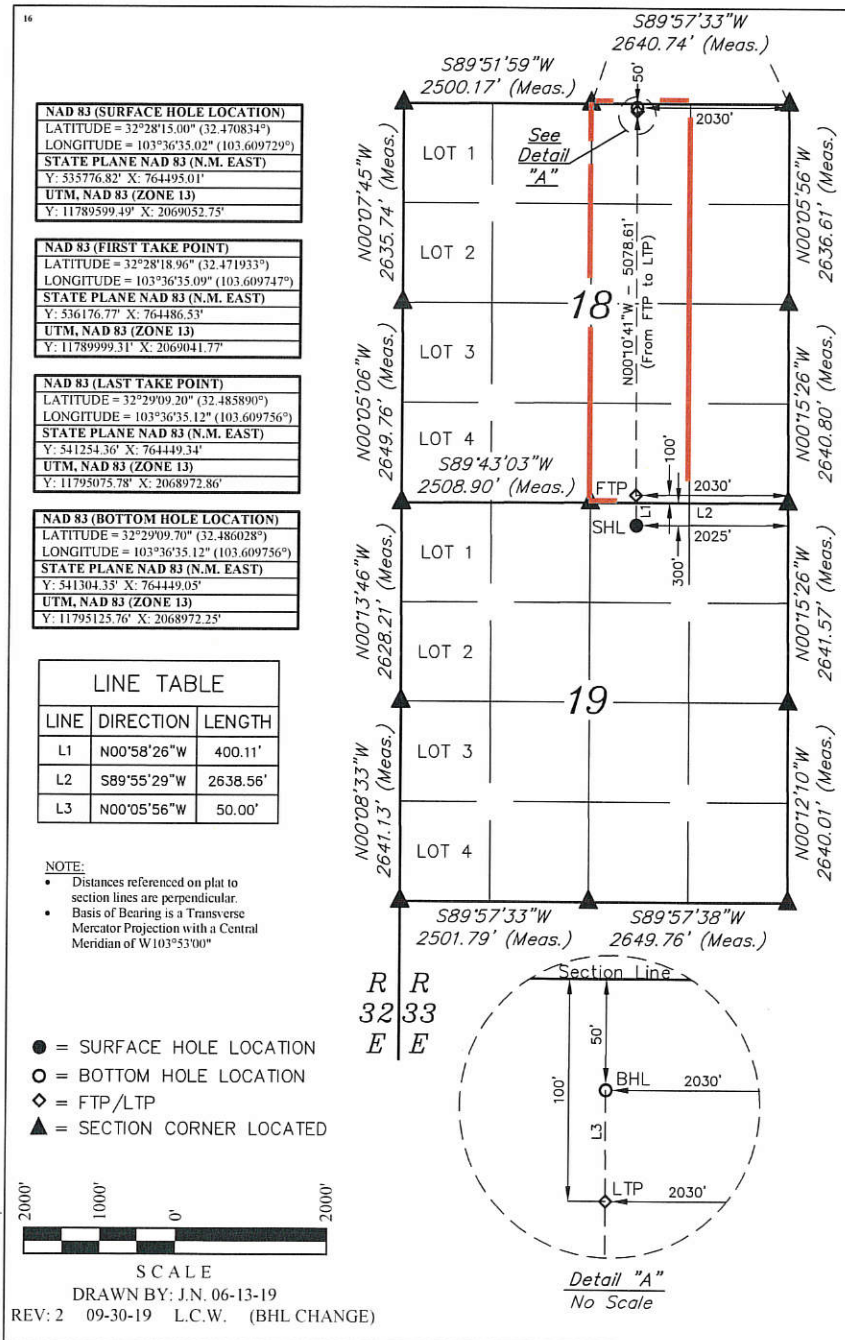
NAD 83 (FIRST TAKE POINT)
LATITUDE = 32°28'18.96" (32.471933°)
LONGITUDE = 103°36'35.09" (103.609747°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 536176.77' X: 764486.53'
UTM, NAD 83 (ZONE 13)
Y: 11789999.31' X: 2069041.77'

NAD 83 (LAST TAKE POINT)
LATITUDE = 32°29'09.20" (32.485890°)
LONGITUDE = 103°36'35.12" (103.609756°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 541254.36' X: 764449.34'
UTM, NAD 83 (ZONE 13)
Y: 11795075.78' X: 2068972.86'

NAD 83 (BOTTOM HOLE LOCATION)
LATITUDE = 32°29'09.70" (32.486028°)
LONGITUDE = 103°36'35.12" (103.609756°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 541304.35' X: 764449.05'
UTM, NAD 83 (ZONE 13)
Y: 11795125.76' X: 2068972.25'

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N00°58'26"W	400.11'
L2	S89°55'29"W	2638.56'
L3	N00°05'56"W	50.00'

NOTE:
- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00"



Detail "A"
No Scale

● = SURFACE HOLE LOCATION
○ = BOTTOM HOLE LOCATION
◇ = FTP/LTP
▲ = SECTION CORNER LOCATED

2000' 1000' 0' 2000'

SCALE

DRAWN BY: J.N. 06-13-19
REV: 2 09-30-19 L.C.W. (BHL CHANGE)

17 OPERATOR CERTIFICATION

I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

10-5-19
Signature Date

Printed Name: Brian Wood

E-mail Address: brian@permitswest.com

(505) 466-8120

18 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.

February 26, 2018
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE NEW MEXICO 23782 PROFESSIONAL SURVEYOR 09-30-19

Certificate Number:

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 9-28-19
X Original
□ Amended - Reason for Amendment:

Operator & OGRID No.: Ascent Energy, LLC (325830)

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	SHL (ULSTR)	SHL Footages	Expected MCF/D	Flared or Vented	Comments
Horseshoe Fed Com 501H	30-025-**47268**	B-19-21s-33e	300' FNL & 2025' FEL	160	≈30 days	flare until well clean, then connect

Gathering System and Pipeline Notification

Well will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. Gas produced from this production facility has not yet been dedicated. One possible outlet is a Versado Gas Processors, LLC (159160) line in K-19-21s-33e, ≈3700' southwest of the Horseshoe pad. Operator will provide (periodically) to Gas Transporter a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Operator and Gas Transporter will have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Gas Transporter Processing Plant at an as yet undetermined location. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system ultimately can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines