F/P
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Form 3160-3
(June 2015)

HOBBS OCD

AUG 14 2019

RECEIVED

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.
NMNM120914

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.
PINE STRAW FED COM 25 36 05 101H (326034)

2. Name of Operator
AMEREDEV OPERATING LLC (372224)

9. API Well No.
30-025-46286

3a. Address
5707 Southwest Parkway, Building 1, Suite 275 Austin TX

3b. Phone No. *(include area code)*
(737)300-4700

10. Field and Pool, or Exploratory
JAL / 3RD BONE SPRING (33813)

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

At surface LOT 4 / 233 FNL / 230 FWL / LAT 32.16604 / LONG -103.29475

At proposed prod. zone LOT M / 50 FSL / 200 FWL / LAT 32.13782 / LONG -103.29504

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 5 / T25S / R36E / NMP

14. Distance in miles and direction from nearest town or post office*
6 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)
230 feet

16. No of acres in lease
640

17. Spacing Unit dedicated to this well
640.96

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
11616 feet

19. Proposed Depth
11495 feet / 22241 feet

20. BLM/BIA Bond No. in file
FED: NMB001478

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3241 feet

22. Approximate date work will start*
06/01/2019

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)	Christie Hanna / Ph: (737)300-4723	07/27/2018

Title
Senior Engineering Technician

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	08/12/2019

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

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

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

GCP Rec 08/14/19

APPROVED WITH CONDITIONS

KZ 08/14/19

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 08/12/2019

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

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

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

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: LOT 4 / 233 FNL / 230 FWL / TWSP: 25S / RANGE: 36E / SECTION: 5 / LAT: 32.16604 / LONG: -103.29475 (TVD: 0 feet, MD: 0 feet)
   PPP: NWNW / 0 FNL / 220 FWL / TWSP: 25S / RANGE: 36E / SECTION: 8 / LAT: 32.15218 / LONG: -103.29494 (TVD: 11495 feet, MD: 17019 feet)
   PPP: NWNW / 100 FNL / 200 FWL / TWSP: 25S / RANGE: 36E / SECTION: 5 / LAT: 32.16641 / LONG: -103.29485 (TVD: 11495 feet, MD: 11839 feet)
   BHL: LOT M / 50 FSL / 200 FWL / TWSP: 25S / RANGE: 36E / SECTION: 8 / LAT: 32.13782 / LONG: -103.29504 (TVD: 11495 feet, MD: 22241 feet)

BLM Point of Contact

Name: Ciji Methola
Title: GIS Support - Adjudicator
Phone: 5752345924
Email: cmethola@blm.gov

Approval Date: 08/12/2019

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.

AFMSS

U.S. Department of the Interior
Bureau of Land Management

Application for Permit to Drill

APD Package Report

Date Printed: 08/12/2019 04:21 PM

APD ID: 10400032526	Well Status: AAPD
APD Received Date: 07/27/2018 02:18 PM	Well Name: PINE STRAW FED COM 25 3(
Operator: AMEREDEV OPERATING LLC	Well Number: 101H

APD Package Report Contents

- Form 3160-3

- Operator Certification Report

- Application Report
- Application Attachments
  -- Well Plat: 6 file(s)

- Drilling Plan Report
- Drilling Plan Attachments
  -- Blowout Prevention Choke Diagram Attachment: 1 file(s)
  -- Blowout Prevention BOP Diagram Attachment: 4 file(s)
  -- Casing Design Assumptions and Worksheet(s): 6 file(s)
  -- Hydrogen sulfide drilling operations plan: 1 file(s)
  -- Proposed horizontal/directional/multi-lateral plan submission: 4 file(s)
  -- Other Facets: 1 file(s)
  -- Other Variances: 2 file(s)

- SUPO Report
- SUPO Attachments
  -- Existing Road Map: 1 file(s)
  -- New Road Map: 2 file(s)
  -- Attach Well map: 1 file(s)
  -- Production Facilities map: 5 file(s)
  -- Water source and transportation map: 2 file(s)
  -- Construction Materials source location attachment: 1 file(s)
  -- Well Site Layout Diagram: 1 file(s)
  -- Recontouring attachment: 1 file(s)
  -- Other SUPO Attachment: 2 file(s)

- PWD Report
- PWD Attachments
  -- None

- Bond Report
- Bond Attachments
  -- None

PECOS DISTRICT DRILLING
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Ameredev Operating, LLC**
LEASE NO.:	**NMNM-120914**
WELL NAME & NO.:	**Pine Straw Fed Com 25 36 05 91H**
SURFACE HOLE FOOTAGE:	**0233' FNL & 0230' FWL**
BOTTOM HOLE FOOTAGE	**0050' FSL & 0200' FWL Sec. 08, T. 25 S., R 36 E.**
LOCATION:	**Section 05, T. 25 S., R 36 E., NMPM**
COUNTY:	**County, New Mexico**

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.

A. DRILLING OPERATIONS 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)

☐ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 3933612

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**

2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. **Alternative when using skid/walking rig**
   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 wells.

4. Option – Setting surface casing with Surface Rig

   a. Notify the BLM when removing the Surface Services Rig.

   b. Notify the BLM when moving in the H&P Flex Rig. Rig to be moved in within 60 days of notification that Surface Rig has left the location. Failure to notify or have rig on location within 60 days will result in an Incident of Non-Compliance.

   c. Once the H&P Flex Rig is on location, it shall not be removed from over the hole without prior approval unless the production casing has been run and cemented or the well has been properly plugged. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

   d. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as H&P Flex Rig is rigged up on well. CIT for the surface casing shall be performed and results recorded on subsequent sundry – pressure to be 1200 psi.

5. 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 is located, this does not include the dog house or stairway area.

6. **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.**

B. CASING

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

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

Wait on cement (WOC) for 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.

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.

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

Capitan Reef
Possible water flows in the Castile, Salado, and Capitan Reef.
Possible lost circulation in the Rustler, Red Beds, and Delaware.

Abnormal pressures may be encountered within the 3rd Bone Spring and Wolfcamp Formations.

CASING DESIGN OPTION #1 (IF LOSS CIRCULATION OF 50% OR GREATER OCCURS ON THE 12-1/4" HOLE, OPERATOR WILL SWITCH TO THEIR CONTINGENCY FOUR STRING DESIGN):

1. The **13-3/8** inch surface casing shall be set at approximately **1359** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

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

    b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

9-5/8" Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

IF LOSS CIRCULATION OF 50% OR GREATER OCCURS ON THE 12-1/4" HOLE, OPERATOR WILL SWITCH TO THEIR CONTINGENCY FOUR

STRING DESIGN

Special Capitan Reef requirements:

If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following in addition to switching to their four string contingency design:

- **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.**

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at **10,785** feet, is:

Operator has proposed DV tool at depth of 5171', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:___

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage. **Excess calculates to 14% - Additional cement may be required**

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 Capitan Reef.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required through the curve and a minimum of one every other joint.

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

☐ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 3906'). Operator shall provide method of verification.

CONTINGENCY CASING DESIGN OPTION #2 (IF LOSS CIRCULATION OF 50% OR GREATER OCCURS ON THE 12-1/4" HOLE, OPERATOR WILL SWITCH TO THIS FOUR STRING DESING):

1. The **13-3/8** inch surface casing shall be set at approximately **1359** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

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

six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at **5275** feet, is:

Operator has proposed DV tool at depth of 3262', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:___

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

b. Second stage 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 Capitan Reef.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

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

☐ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 15% - Additional cement may be required**

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office

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

☐ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 3906'). Operator shall provide method of verification.

5. 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.

C. 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 53.

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

straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **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 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. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **Operator shall perform the 9-5/8" and 7-5/8" casing integrity tests to 70% of the casing burst. This will test the multi-bowl seals.**
    f. **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.**

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)

10M 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. The appropriate BLM office shall be notified a minimum of 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).

a. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

b. 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.

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

d. 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.**

e. 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.

f. 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.

D. 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.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

F. 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.

JAM 050919

AFMSS

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

Operator Certification Data Report

08/12/2019

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: Christie Hanna **Signed on:** 04/30/2019

Title: Senior Engineering Technician

Street Address: 5707 Southwest Parkway, Building 1, Suite 275

City: Austin **State:** TX **Zip:** 78735

Phone: (737)300-4723

Email address: channa@ameredev.com

Field Representative

Representative Name: ZACHARY BOYD

Street Address: 5707 SOUTHWEST PARKWAY, BLDG 1, STE. 275

City: AUSTIN **State:** TX **Zip:** 78735

Phone: (737)300-4700

Email address: zboyd@ameredev.com

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

Application Data Report

08/12/2019

APD ID: 10400032526 **Submission Date:** 07/27/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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

[redacted]

Show Final Text

Section 1 - General

APD ID: 10400032526 **Tie to previous NOS?** Y **Submission Date:** 07/27/2018

BLM Office: CARLSBAD **User:** Christie Hanna **Title:** Senior Engineering Technician

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

Lease number: NMNM120914 **Lease Acres:** 640

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

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

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO **APD Operator:** AMEREDEV OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: AMEREDEV OPERATING LLC

Operator Address: 5707 Southwest Parkway, Building 1, Suite 275 **Zip:** 78735

Operator PO Box:

Operator City: Austin **State:** TX

Operator Phone: (737)300-4700

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: PINE STRAW FED COM 25 36 05 **Well Number:** 101H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** JAL **Pool Name:** 3RD BONE SPRING

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

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** PS **Number:** 1S

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: 6 Miles **Distance to nearest well:** 11616 FT **Distance to lease line:** 230 FT

Reservoir well spacing assigned acres Measurement: 640.96 Acres

Well plat: JEFF_20190326132513.pdf

PINE_STRAW_FED_COM_25_36_05_101H___BLM_LEASES_20190326132607.pdf

PINE_STRAW_FED_COM_25_36_05_101H___C_102_REV_SIG_20190325_20190326132608.pdf

PINE_STRAW_FED_COM_25_36_05_101H___EXHIBIT_2A_2B_20190326132609.pdf

PINE_STRAW_FED_COM_25_36_05_101H___VICINITY_MAP_20190326132610.pdf

GAS_CAPTURE_PLAN_20190326132624.pdf

Well work start Date: 06/01/2019 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

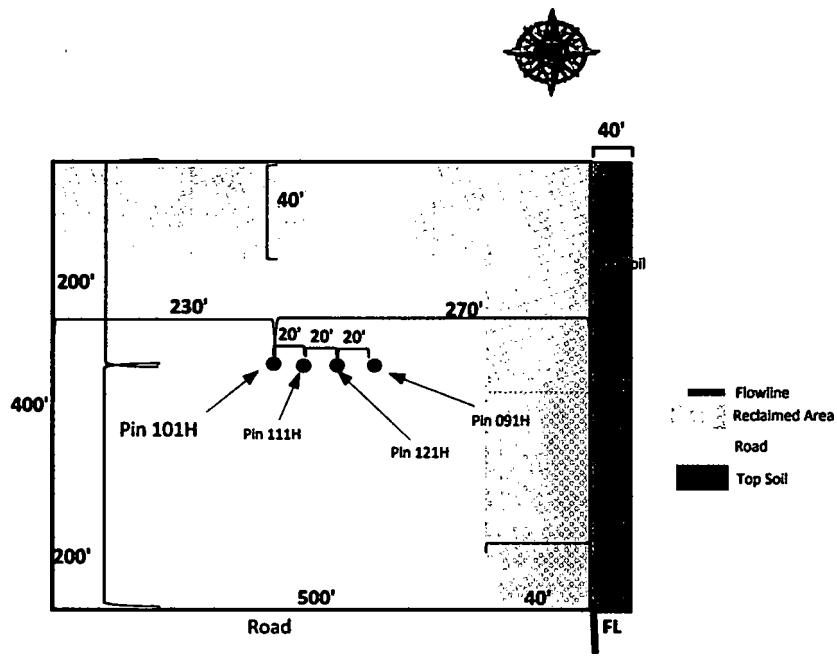
Survey number: 11401 **Reference Datum:**

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	233	FNL	230	FWL	25S	36E	5	Lot 4	[redacted]	[redacted]	LEA	NEW MEXICO	NEW MEXICO		NMNM 127447	3241	0	0

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

	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
KOP Leg #1								Aliquot SWSW							STATE			
PPP Leg #1								Aliquot NWNW							NMNM 127447			
PPP Leg #1								Aliquot NWNW							NMNM 120914			
EXIT Leg #1								Lot M							NMNM 120914			
BHL Leg #1								Lot M							NMNM 120914			



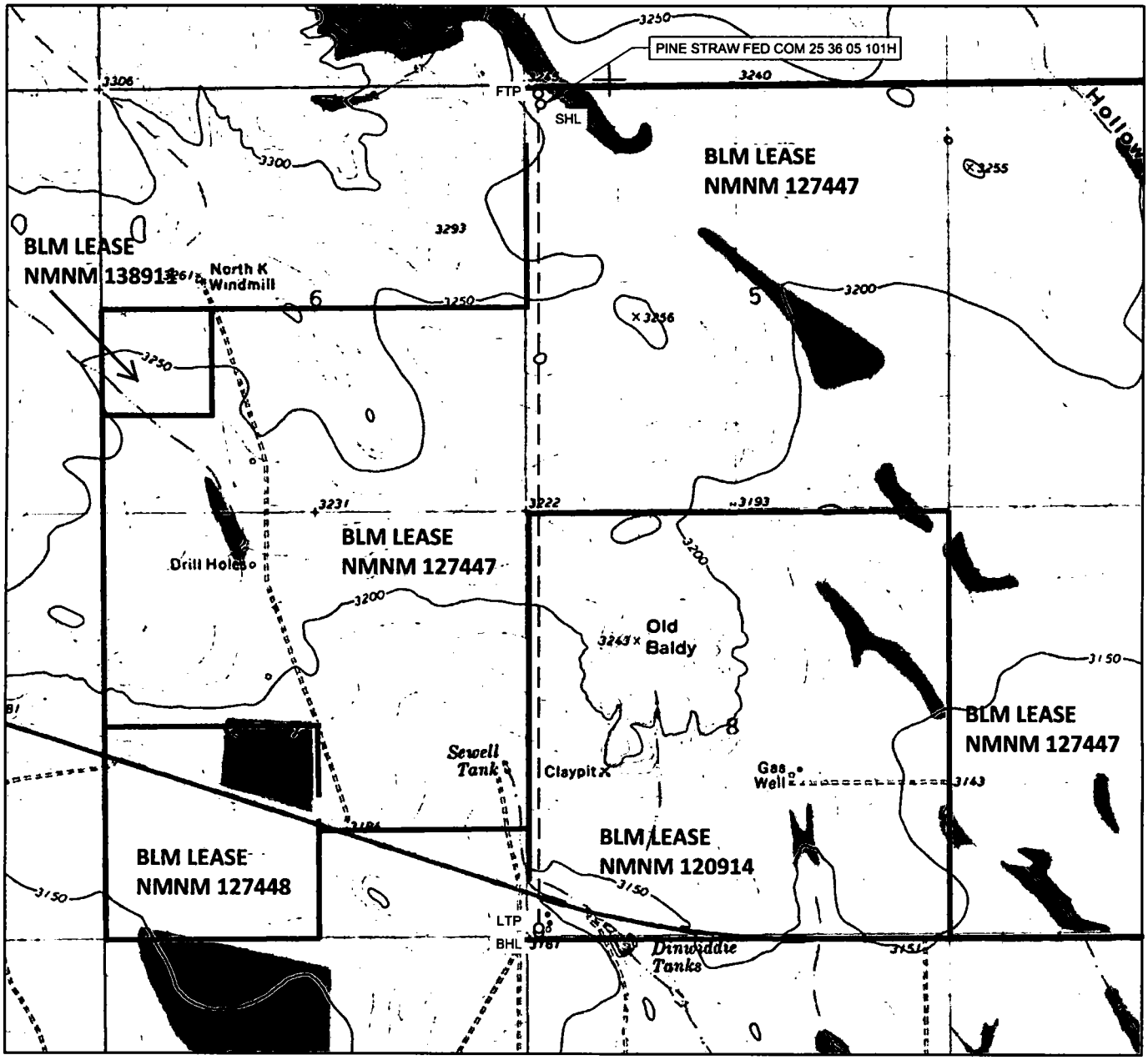
Pine Straw Fed Com 25 36 05 101H SHL: 25S 36E 233' FNL 230' FWL

Pine Straw Fed Com 25 36 05 111H SHL: 25S 36E 233' FNL 250' FWL

Pine Straw Fed Com 25 36 05 121H SHL: 25S 36E 233' FNL 270' FWL

Pine Straw Fed Com 25 36 05 091H SHL: 25S 36E 233' FNL 290' FWL

LOCATION & ELEVATION VERIFICATION MAP



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LEASE NAME & WELL NO.: PINE STRAW FED COM 25 36 05 101H

SECTION 5 TWP 25-S RGE 36-E SURVEY N.M.P.M.
COUNTY LEA STATE NM ELEVATION 3241'
DESCRIPTION 233' FNL & 230' FWL

LATITUDE N 32.1660499 LONGITUDE W 103.2947586

-N-

SCALE: 1" = 2000'
0' 1000' 2000'

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY AMEREDEV OPERATING LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET

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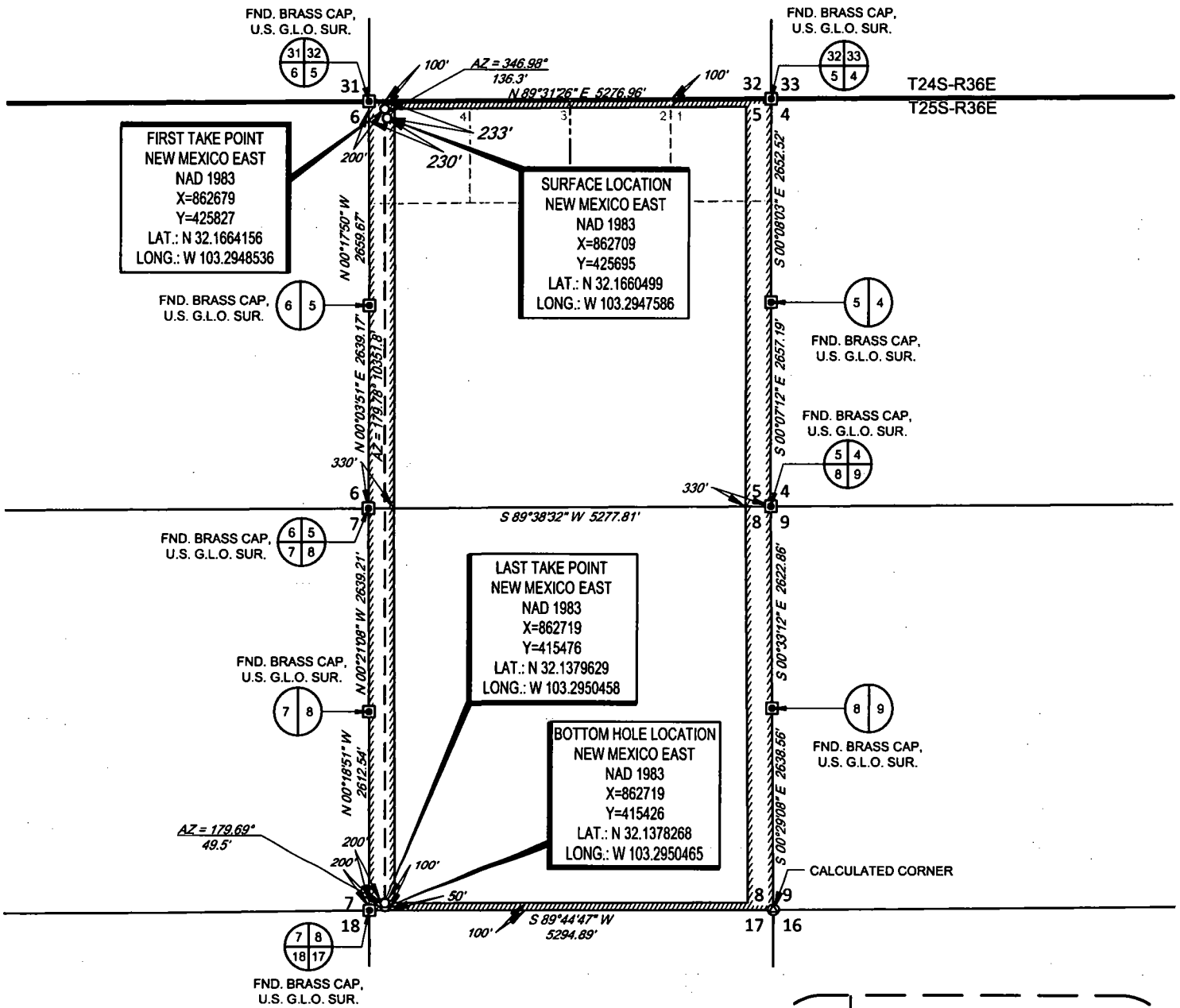
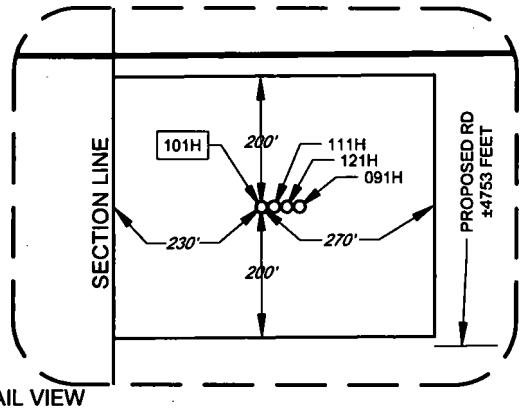
EXHIBIT 2A

SECTION 5, TOWNSHIP 25-S, RANGE 36-E, N.M.P.M.
LEA COUNTY, NEW MEXICO





DETAIL VIEW
SCALE: 1" = 300'

SCALE: 1" = 2000'

0' 1000' 2000'

FASE NAME & WELL NO: PINE STRAW FED COM 25 36 05 101H

TREVOR CAR

EXHIBIT 2B

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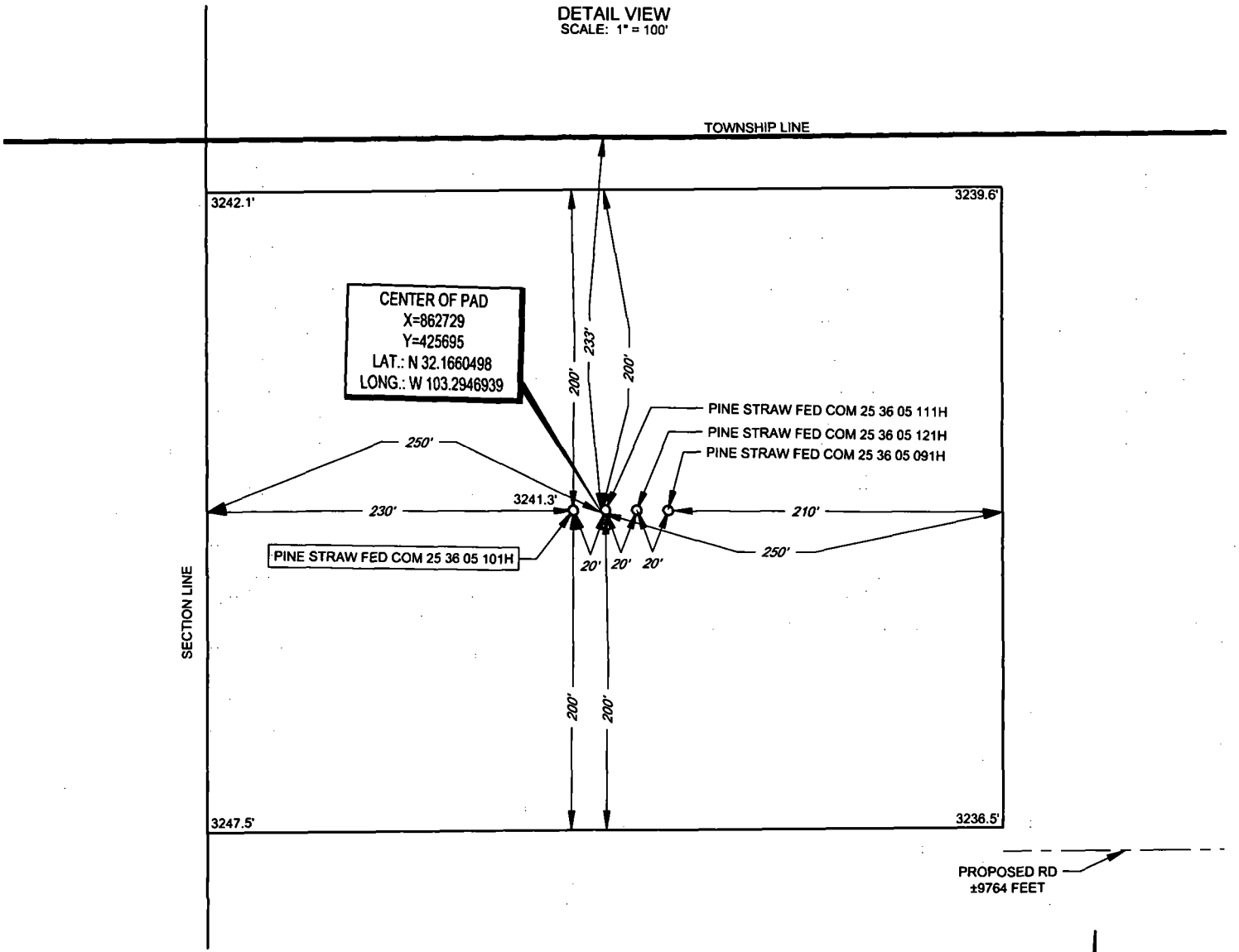
SECTION 5, TOWNSHIP 25-S, RANGE 36-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: PINE STRAW FED COM 25 36 05 101H

101H LATITUDE N 32.1660499 101H LONGITUDE W 103.2947586

CENTER OF PAD IS 233' FNL & 250' FWL

N

SCALE: 1" = 100'

0' 50' 100'

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY AMEREDEV OPERATING LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

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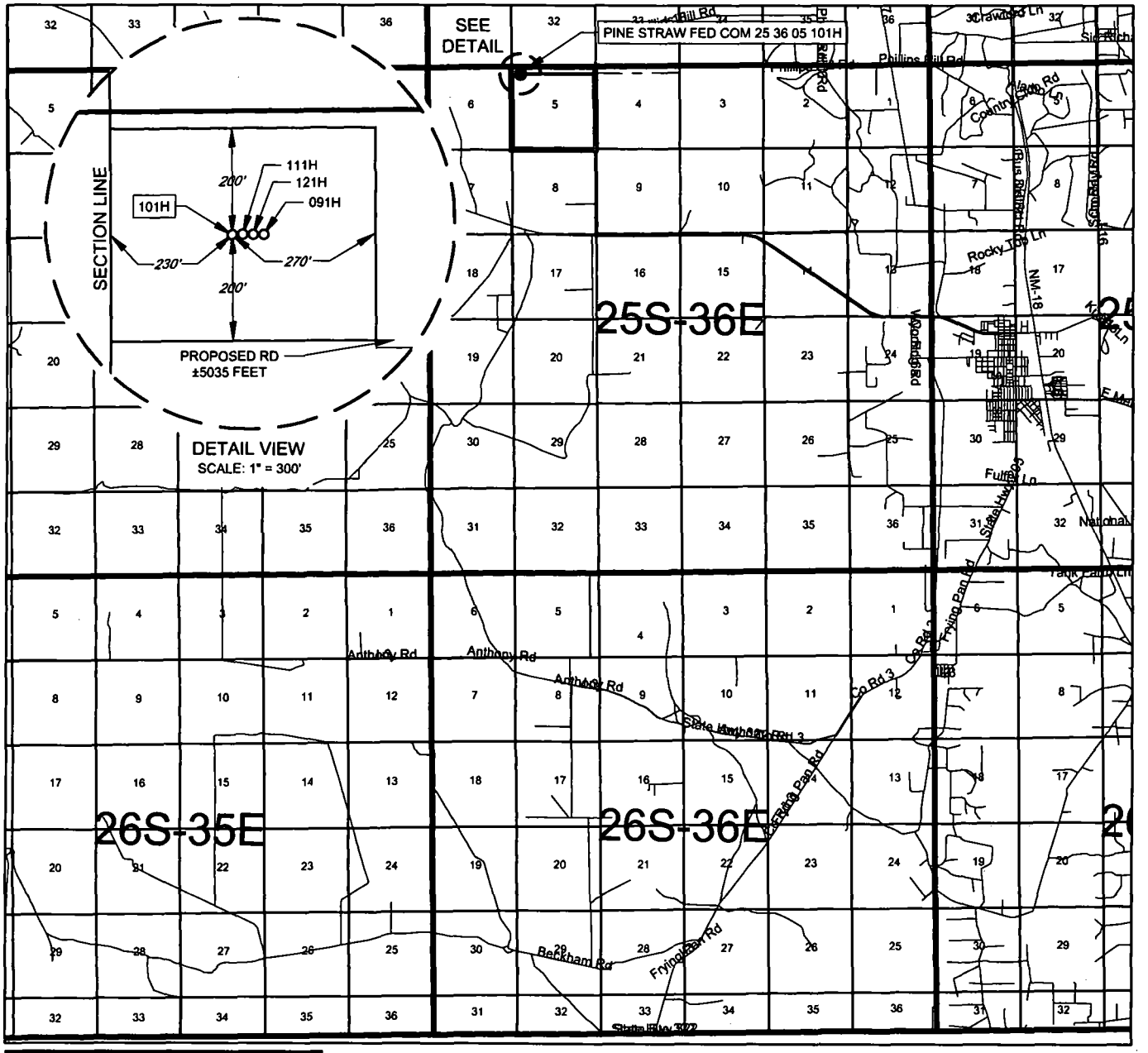
ORIGINAL DOCUMENT SIZE: 8.5" X 11"

EXHIBIT 2

VICINITY MAP



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LEASE NAME & WELL NO.: PINE STRAW FED COM 25 36 05 101H

SECTION 5 TWP 25-S RGE 36-E SURVEY N.M.P.M.

COUNTY LEA STATE NM

DESCRIPTION 233' FNL & 230' FWL

DISTANCE & DIRECTION

FROM INT. OF 3RD ST./NM-205/FRYING PAN RD. & NM-128, HEAD WEST ON NM-128. ±5.3 MILES, THENCE NORTHEAST (RIGHT) ON A LEASE RD. ±2.0 MILES, THENCE NORTHWEST (LEFT) ON A PROPOSED RD. ±4753 FEET TO A POINT ±345 FEET SOUTHEAST OF THE LOCATION.

-N-

SCALE: 1" = 10000'

0' 5000' 10000'

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY AMEREDEV OPERATING LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

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BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

08/12/2019

APD ID: 10400032526 **Submission Date:** 07/27/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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

[redacted]

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER ANHYDRITE	3241	1234	1234	ANHYDRITE	NONE	N
2	SALADO	1381	1772	1772	SALT	NONE	N
3	TANSILL	-267	3420	3420	LIMESTONE	NONE	N
4	CAPITAN REEF	-778	4019	4019	LIMESTONE	USEABLE WATER	N
5	LAMAR	-1968	5121	5121	LIMESTONE	NONE	N
6	BELL CANYON	-2147	5300	5300	SANDSTONE	NONE	N
7	BRUSHY CANYON	-3843	6996	6996	SANDSTONE	NATURAL GAS,OIL	N
8	BONE SPRING LIME	-5067	8220	8220	LIMESTONE	NATURAL GAS,OIL	N
9	BONE SPRING 1ST	-6374	9527	9527	SANDSTONE	NONE	N
10	BONE SPRING 2ND	-6770	9923	9923	SANDSTONE	NATURAL GAS,OIL	N
11	BONE SPRING 3RD	-7524	10677	10677	LIMESTONE	NATURAL GAS,OIL	N
12	BONE SPRING 3RD	-7985	11138	11138	SANDSTONE	NATURAL GAS,OIL	N
13	WOLFCAMP	-8292	11445	11445	SHALE	NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Pressure Rating (PSI): 10M **Rating Depth:** 15000

Equipment: 10M BOPE SYSTEM WILL BE USED AFTER THE SURFACE CASING IS SET. A KELLY COCK WILL BE KEPT IN THE DRILL STRING AT ALL TIMES. A FULL OPENING DRILL PIPE STABBING VALVE WITH PROPER DRILL PIPE CONNECTIONS WILL BE ON THE RIG FLOOR AT ALL TIMES.
Requesting Variance? YES

Variance request: Co-Flex Choke Line, 5M Annular Preventer

Testing Procedure: See attachment

Choke Diagram Attachment:

10M_Choke_Manifold_REV_20190327075729.pdf

BOP Diagram Attachment:

5M_Annular_Preventer_Variance_and_Well_Control_Plan_20190327075804.pdf

5M_BOP_System_20190327075804.pdf

Pressure_Control_Plan_Single_Well_MB4_3String_Big_Hole_BLM_20190327075805.pdf

4_String_MB_Ameredev_Wellhead_Drawing_net_REV_20190327075920.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	1359	0	1359	3241		1359	J-55	68	OTHER - BTC	6.75	0.65	DRY	9.9	DRY	11.57
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	10802	0	10802	3241		10802	HCL-80	40	OTHER - BTC	1.27	1.27	DRY	2.17	DRY	2.18
3	PRODUCTION	8.5	5.5	NEW	API	N	0	22241	0	11495	3241		22241	P-110	20	OTHER - BTC	1.8	1.92	DRY	2.85	DRY	3.17

Casing Attachments

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Pine_Straw_Fed_Com_25_36_05_101H___Wellbore_Diagram_and_CDA_20190327100043.pdf

13.375_68.00__J55_BTC_20190327100105.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

9.625_40_SeAH80HC_4100_Collapse_20190327100239.pdf

Pine_Straw_Fed_Com_25_36_05_101H___Wellbore_Diagram_and_CDA_20190327100249.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Pine_Straw_Fed_Com_25_36_05_101H___Wellbore_Diagram_and_CDA_20190327100417.pdf

5.5_20_P110HP_Eagle_SFH_20190327100427.pdf

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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	973	652	1.76	13.5	1146.88	50	CLASS C	Bentonite, Accelerator, Kolseal, Defoamer, Celloflake
SURFACE	Tail		973	1359	200	1.34	14.8	268	100	CLASS C	Salt
INTERMEDIATE	Lead	5171	0	4321	711	2.47	11.9	1756.74	25	Class C	Salt, Bentonite, Kolseal, Defoamer, Celloflake, Anti-settling Expansion Additive
INTERMEDIATE	Tail		4321	5171	200	1.33	14.8	266	25	Class C	Retarder
INTERMEDIATE	Lead	5171	0	9546	1552	2.47	11.9	3832.42	25	CLASS H	Bentonite, Salt, Kolseal, Defoamer, Celloflake, Retarder, Anti-settling Expansion Additive
INTERMEDIATE	Tail		9546	10802	300	1.24	14.5	371.1	25	CLASS H	Salt, Bentonite, Retarder, Dispersant, Fluid Loss
PRODUCTION	Lead		0	22241	4749	1.34	14.2	6363.45	25	CLASS H	Salt, Bentonite, Fluid Loss, Dispersant, Retarder, Defoamer

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 supplies (e.g. bentonite, cedar bark) for fluid control will be on site.

Describe the mud monitoring system utilized: An electronic pit volume totalizer (PVT) will be utilized on the circulating system to monitor pit volume, flow rate, pump pressure, and pump rate.

Circulating Medium Table

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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	1359	WATER-BASED MUD	8.4	8.6							
1359	10802	OTHER : DIESEL BRINE EMULSION	8.5	9.4							
10802	11495	OIL-BASED MUD	10.5	12.5							

Section 6 - Test, Logging, Coring

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

A directional survey, measurement while drilling and a mudlog/geologic lithology log will all be run from surface to TD.

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

DS,MWD,MUDLOG

Coring operation description for the well:

No coring will be done on this well.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5000 **Anticipated Surface Pressure:** 2471.1

Anticipated Bottom Hole Temperature(F): 160

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:

H2S_Plan_20180727130524.pdf

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

PS101_DR_20190327101118.pdf

PS101_LLR_20190327101118.pdf

5M_Annular_Preventer_Variance_and_Well_Control_Plan_20190327101149.pdf

Pressure_Control_Plan_Single_Well_MB4_3String_Big_Hole_BLM_20190327101149.pdf

Other proposed operations facets description:

4-STRING CONTINGENCY PLAN ATTACHED

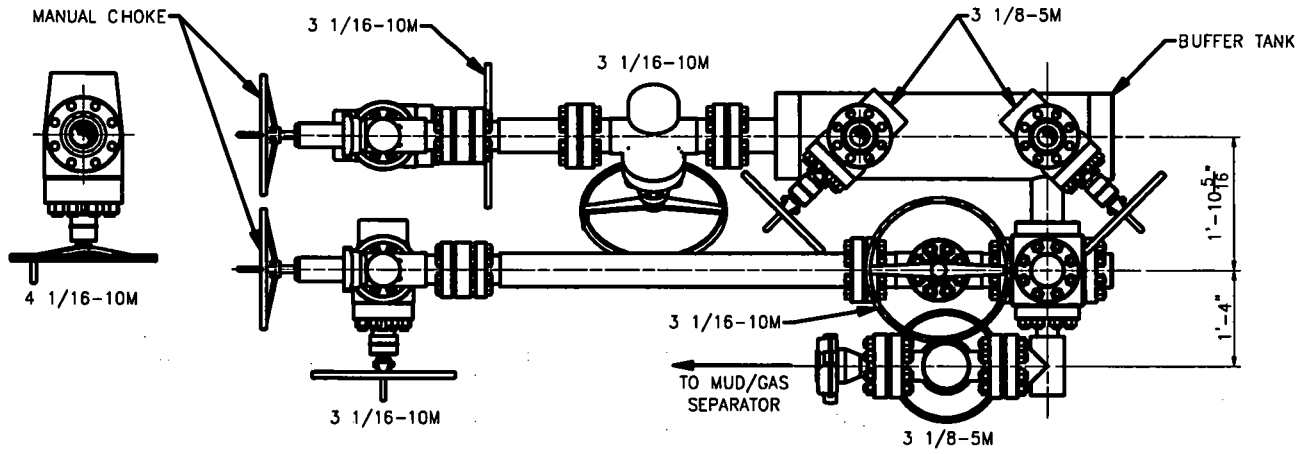
Other proposed operations facets attachment:

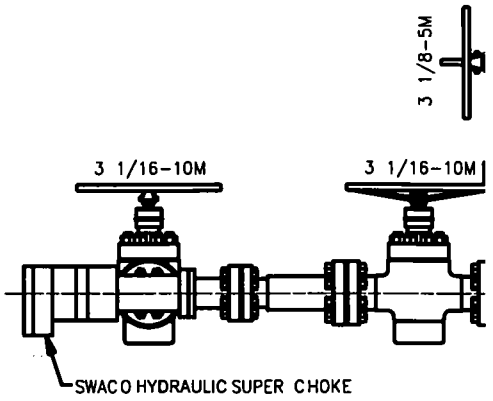
CAPITAN_PROTECTION_CONTINGENCY_PLAN_20190327101248.pdf

Other Variance attachment:

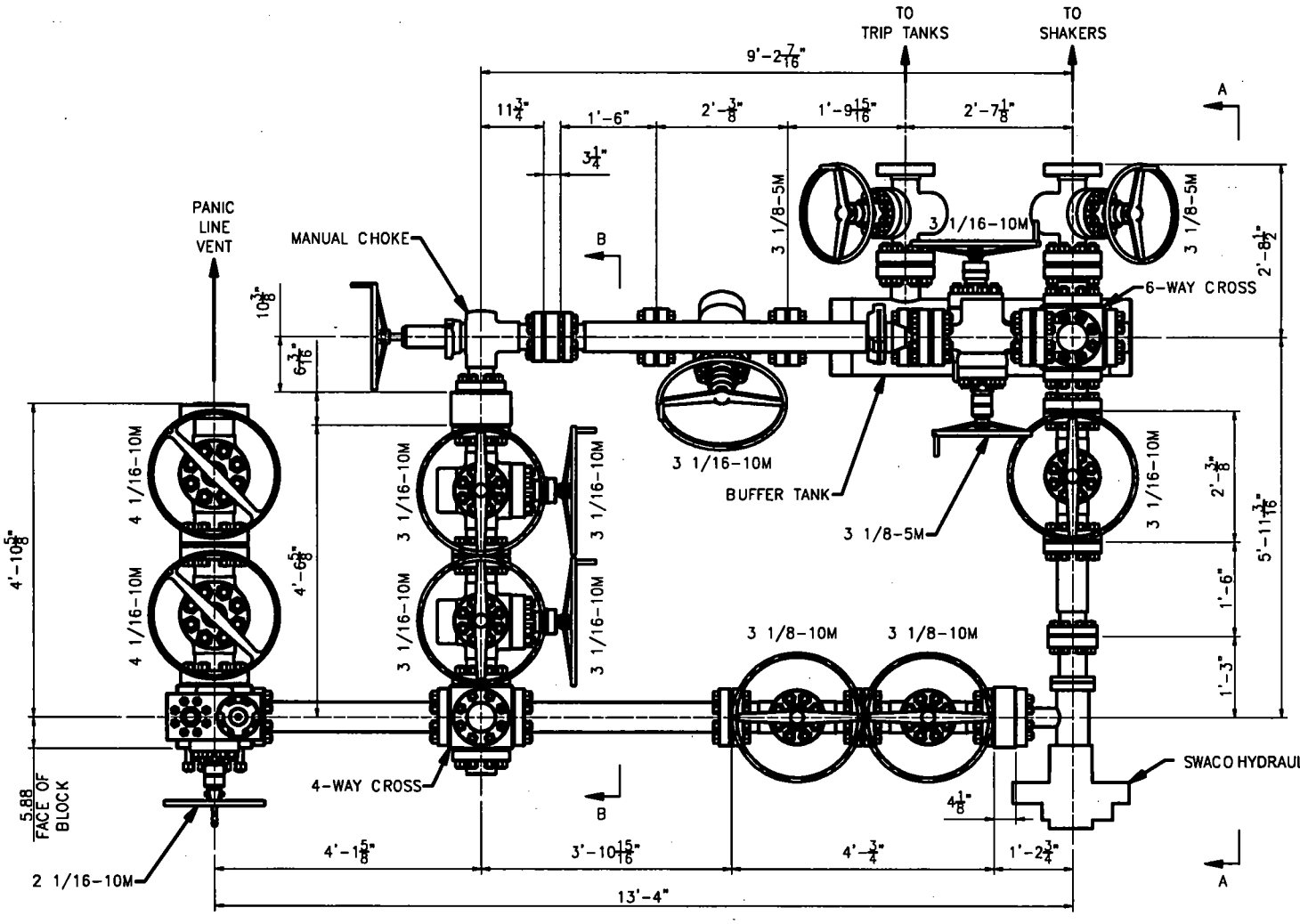
R616___CoC_for_hoses_12_18_17_20190327101316.pdf

Requested_Exceptions___3_String_Revised_03252019_20190327101317.pdf

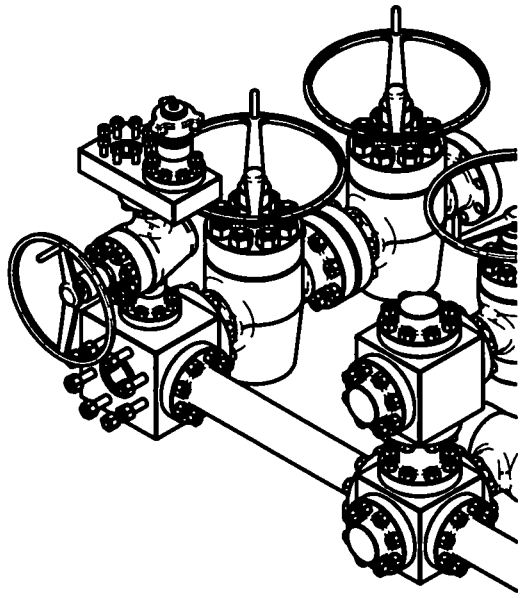




VIEW A-A



PLAN VIEW



3 1/16-10M

AMEREDEV

5M Annular Preventer Variance Request and Well Control Procedures

Note: A copy of the Well Control Plan must be available at multiple locations on the rig for review by rig personnel, as well as review by the BLM PET/PE, and a copy must be maintained on the rig floor.

Dual Isolation Design for 5M Annular Exception

Ameredev will utilize 13-5/8" 10M (5M Annular) BOPE System consisting of:

- 13-5/8" 5M Annular
- 13-5/8" 10M Upper Pipe Rams
  - 3-1/2" – 5-1/2" Variable Bore Ram
- 13-5/8" 10M Blind Rams
- 13-5/8" 10M Drilling Spool /w 2 - 4" 10M Outlets Double 10M Isolation Valves
- 13-5/8" 10M Lower Blind Rams
  - 3-1/2" – 5-1/2" Variable Bore Ram

All drilling components and casing associated to exposure > 5000 psi BHP requiring a 10M system will have a double isolation (secondary barrier) below the 5M Annular that would provide a barrier to flow. The mud system will always be primary barrier, it will be maintained by adjusting values based on tourly mud tests and monitoring a PVT System to maintain static wellbore conditions, displacement procedures will be followed and recorded on daily drilling reports during tripping operations. Surge and swab pressure values will be calculated and maintained and static flow check will be monitored at previous casing shoe and verified static well conditions prior to tripping out of hole and again prior to pulling last joint of drill pipe through BOPE. The below table, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Drill Components	Size	Primary Barrier	Secondary Barrier	Third Barrier
Drillpipe	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams
HWDP Drillpipe	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams
Drill Collars	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams
Production Casing	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams

Well Control Procedures

Proper well control procedures are dependent to differentiating well conditions, to cover the basic well control operations there are will be standard drilling ahead, tripping pipe, tripping BHA, running casing, and pipe out of the hole/open hole scenarios that will be defined by procedures below. Initial Shut In Pressure can be taken against the Uppermost BOPE component the 5M Annular, pressure control can be transferred from the lesser 5M Annular to the 10M Upper Pipe Rams if needed. Shut In Pressures may be equal to or less than the Rated Working Pressure but at no time will the pressure on the annular preventer exceed the Rated Working Pressure of the annular. The annular will be tested to 5,000 psi. This will be the Rated Working Pressure of the annular preventer. All scenarios will be written such as shut in will be performed by closing the 10,000 psi Upper Pipe Rams for faster Accumulator pressure recovery to allow safer reaction to controlling wellbore pressure.

Shutting In While Drilling

1. Sound alarm signaling well control event to Rig Crew
2. Space out drill string to allow FOSV installation
3. Shut down pumps
4. Shut in Upper Pipe Rams and open HCR against Open Chokes and Valves Open to working pressure gauge
5. Install open, full open safety valve and close valve, Close Chokes
6. Verify well is shut-in and flow has stopped
7. Notify supervisory personnel
8. Record data (SIDP, SICP, Pit Gain, and Time)
9. Hold pre-job safety meeting and discuss kill procedure

Shutting In While Tripping

1. Sound alarm signaling well control event to Rig Crew
2. Space out drill string to allow FOSV installation
3. Shut in Upper Pipe Rams and open HCR against Open Chokes and Valves Open to working pressure gauge
4. Install open, full open safety valve and close valve, Close Chokes
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)

Shutting In While Running Casing

1. Sound alarm signaling well control event to Rig Crew
2. Space out casing to allow circulating swedge installation
3. Shut in Upper Pipe Rams and open HCR against Open Chokes and Valves Open to working pressure gauge
4. Install circulating swedge, Close high pressure, low torque valves, Close Chokes
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold Pre-job safety meeting and discuss kill procedure

Shutting in while out of hole

1. Sound alarm signaling well control event to Rig Crew
2. Shut-in well: close blind rams and open HCR against Open Chokes and Valves Open to working pressure gauge
3. Close Chokes, Verify well is shut-in and monitor pressures
4. Notify supervisory personnel
5. Record data (SIDP, SICP, Pit Gain, and Time)
6. Hold Pre-job safety meeting and discuss kill procedure

Shutting in prior to pulling BHA through stack

Prior to pulling last joint of drill pipe thru the stack space out and check flow
If flowing see steps below.

1. Sound alarm signaling well control event to Rig Crew
2. Shut in upper pipe ram and open HCR against Open Chokes and Valves Open to working pressure gauge
3. Install open, full open safety valve and close valve, Close Chokes
4. Verify well is shut-in and flow has stopped
5. Notify supervisory personnel
6. Record data (SIDP, SICP, Pit Gain, and Time)
7. Hold pre-job safety meeting and discuss kill procedure

Shutting in while BHA is in the stack and ram preventer and combo immediately available

1. Sound alarm signaling well control event to Rig Crew
2. Space out BHA with upset just beneath the compatible pipe ram
3. Shut in upper compatible pipe ram and open HCR against Open Chokes and Valves Open to working pressure gauge
4. Install open, full open safety valve and close valve, Close Chokes
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold pre-job safety meeting and discuss kill procedure

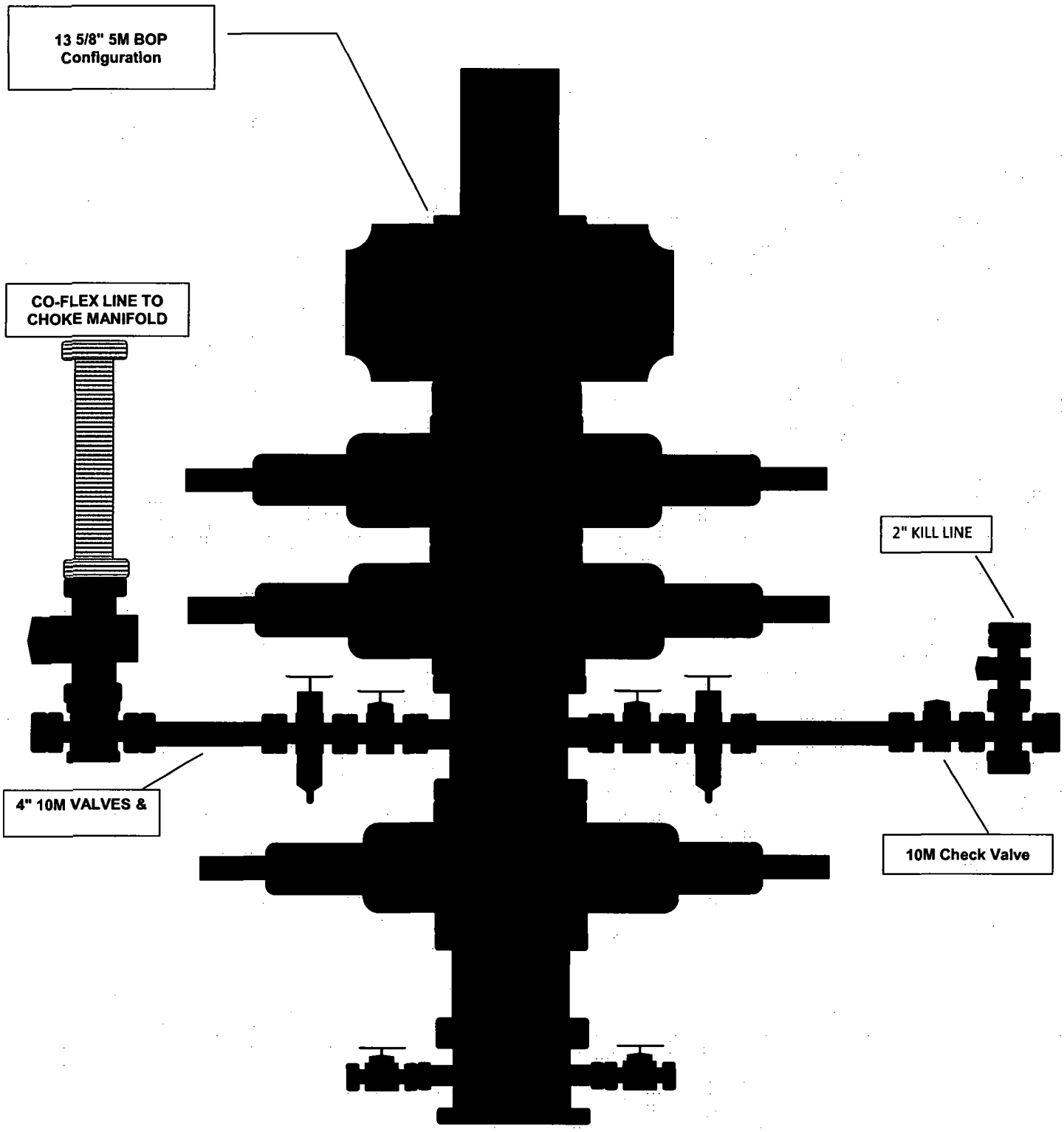
*FOSV will be on rig floor in open position with operating handle for each type of connection utilized and tested to 10,000 psi

Shutting in while BHA is in the stack and no ram preventer or combo immediately available

1. Sound alarm signaling well control event to Rig Crew
2. If possible pick up high enough, to pull string clear and follow "Open Hole" scenario

If not possible to pick up high enough:

3. Stab Crossover, make up one joint/stand of drill pipe, and install open, full open safety valve (Leave Open)
4. Space out drill string with upset just beneath the compatible pipe ram.
5. Shut in upper compatible pipe ram and open HCR against Open Chokes and Valves Open to working pressure gauge
6. Close FOSV, Close Chokes, Verify well is shut-in and flow has stopped
7. Notify supervisory personnel
8. Record data (SIDP, SICP, Pit Gain, and Time)
9. Hold pre-job safety meeting and discuss kill procedure


13 5/8" 5M BOP
Configuration
CO-FLEX LINE TO
CHOKE MANIFOLD
2" KILL LINE
4" 10M VALVES &
10M Check Valve

AMEREDEV

Pressure Control Plan

Pressure Control Equipment

- Following setting of 13-3/8" Surface Casing Ameredev will install 13-5/8 MB4 Multi Bowl Casing Head by welding on a 13-5/8 SOW x 13-5/8" 5M in combination with 13-5/8 5M x 13-5/8 10M B-Sec to Land Intm #1 and a 13-5/8 10M x 13-5/8 10M shouldered to land C-Sec to Land Intm #2 (Installation procedure witnessed and verified by a manufacturer's representative).

- Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- Ameredev will install a 5M System Blowout Preventer (BOPE) with a 5M Annular Preventer and related equipment (BOPE). Full testing will be performed utilizing a full isolation test plug and limited to 5,000 psi MOP of MB4 Multi Bowl Casing Head. Pressure will be held for 10 min or until provisions of test are met on all valves and rams. The 5M Annular Preventer will be tested to 50% of approved working pressure (2,500 psi). Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- Setting of 9-5/8" Intermediate will be done by landing a wellhead hanger in the 13-5/8" 5M Bowl, Cementing and setting Well Head Packing seals and testing same. (Installation procedure witnessed and verified by a manufacturer's representative) Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- Full testing will be performed utilizing a full isolation test plug to 10,000 psi MOP of MB4 Multi Bowl B-Section. Pressure will be held for 10 min or until provisions of test are met on all valves and rams. The 5M Annular Preventer will be tested to 100% of approved working pressure (5,000 psi).

- Before drilling >20ft of new formation under the 9-5/8" Casing Shoe a pressure integrity test of the Casing Shoe will be performed to minimum of the MWE anticipated to control formation pressure to the next casing depth.

- Following setting of 5-1/2" Production Casing and adequate WOC time Ameredev will break 10M System Blowout Preventer (BOP) from 10M DOL-2 Casing Head, install annulus casing slips and test same (Installation procedure witnessed and verified by a manufacturer's representative) and install 11" 10M x 5-1/8" 15M Tubing Head (Installation procedure witnessed and verified by a manufacturer's representative). Ameredev will test head to 70% casing design and install Dry Hole cap with needle valve and pressure gauge to monitor well awaiting completion.

AMEREDEV

Pressure Control Plan

- Slow pump speeds will be taken daily by each crew and recorded on Daily Drilling Report after mudding up.

- A choke manifold and accumulator with floor and remote operating stations will be functional and in place after installation of BOPE, as well as full functioning mud gas separator.

- Weekly BOPE pit level drills will be conducted by each crew and recorded on Daily Drilling Report.

- BOP will be fully operated when out of hole and will be documented on the daily drilling log.

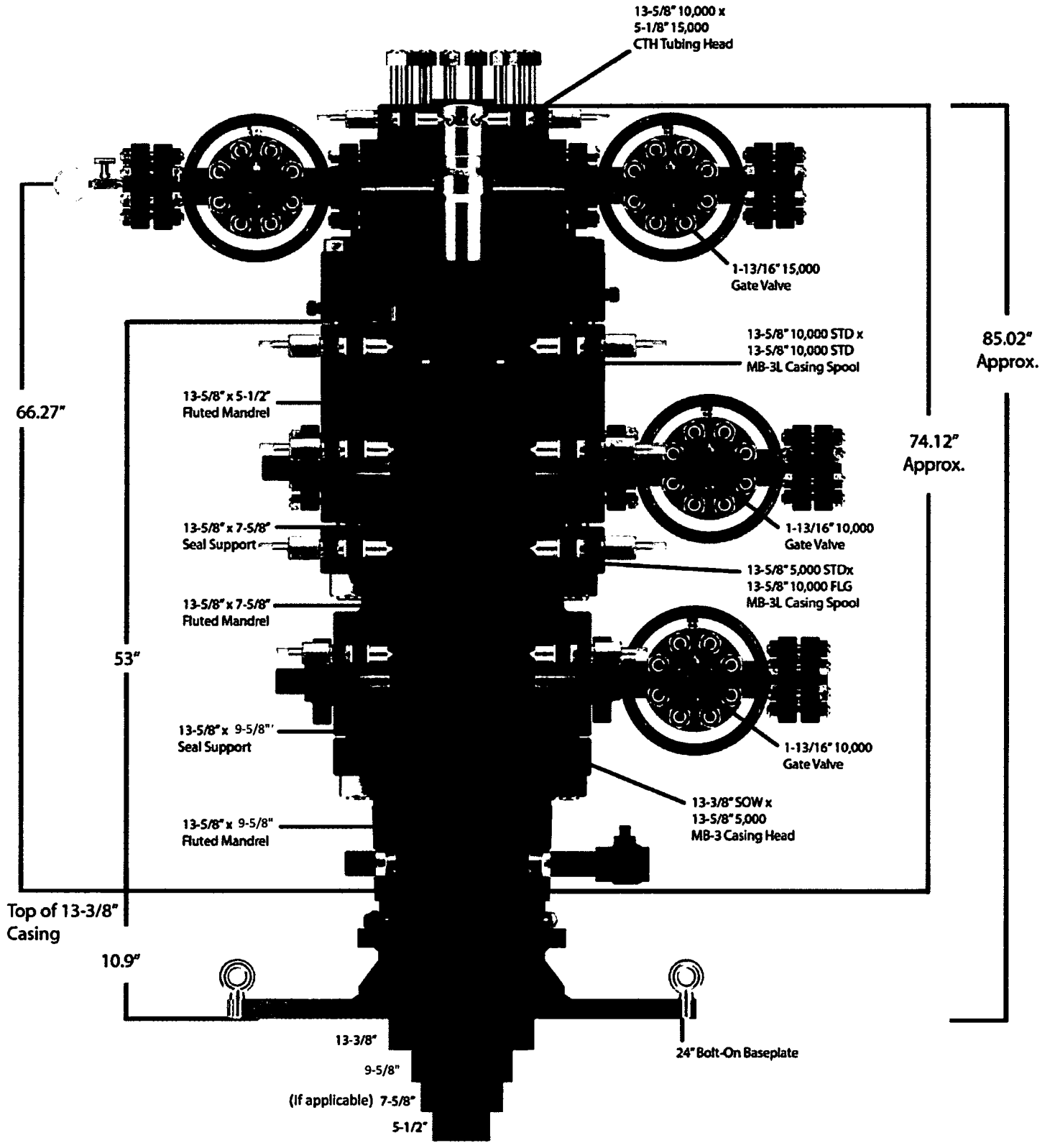
- All B.O.P.s and associated equipment will be tested in accordance with Onshore Order #2

- All B.O.P. testing will be done by an independent service company.

- The B.O.P. will be tested within 21 days of the original test if drilling takes more time than planned.

- Ameredev requests a variance to connect the B.O.P. choke outlet to the choke manifold using a co-flex hose with a 10,000 psi working pressure that has been tested to 15,000psi and is built to API Spec 16C. Once the flex line is installed it will be tied down with safety clamps. (certifications will be sent to Carlsbad BLM Office prior to install)

- Ameredev requests a variance to install a 5M Annular Preventer on the 10M System to drill the Production Hole below the 9-5/8" Intermediate Section. 5M Annular will be tested to 100% working pressure (5,000 psi). A full well control procedure will be included to isolate well bore.



Quotation

Downing Wellhead Equipment

Oklahoma City,
Oklahoma - USA

Reference Data:

16925 AMEREDEV

Proprietary and Confidential

TITLE:

AMEREDEV

DRAWN			SIZE	DWG. NO.	REV.
CHECKED			A		
APPROVED			Scale:	Weight:	Sheet:

AMEREDEV

Wellbore Schematic

Well:	Pine Straw Fed Com 25-36-05 101H	**Co. Well ID:**	xxxxxx
SHL:	Sec. 05 25S-36E 233' FNL & 230' FWL	**AFE No.:**	xxxx-xxx
BHL:	Sec. 08 25S-36E 50' FSL & 200' FWL	**API No.:**	xxxxxxxxxxx
	Lea, NM	**GL:**	3,241'
Wellhead:	A - 13-5/8" 10M x 13-5/8" SOW	**Field:**	Delaware
	B - 13-5/8" 10M x 13-5/8" 10M	**Objective:**	Wolfcamp A
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,495'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,241'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD **KB:** 27'
Tubing:	2-7/8" L-80 6.5# 8rd EUE	**E-Mail:**	Wellsite2@ameredev.com

Hole Size	Formation Tops		Logs	Cement	Mud Weight
17.5"	Rustler	1,234'		852 Sacks TOC 0' 100% Excess	8.4-8.6 ppg WBM
	13.375" 68# J-55 BTC	**1,359'**			
12.25"	Salado	1,772'		911 Sacks TOC 0' 50% Excess	8.5 - 9.4 ppg Diesel Brine Emulsion
	Tansill	3,420'			
	Capitan Reef	4,019'			
	Lamar	5,121'			
	DV Tool	**5,171'**			
	Bell Canyon	5,300'		1,723 Sacks TOC 0' 50% Excess	
	Brushy Canyon	6,996'			
	Bone Spring Lime	8,220'			
	First Bone Spring	9,527'			
	Second Bone Spring	9,923'			
	Third Bone Spring Upper	10,677'			
	9.625" 40# L-80HC BTC	**10,802'**			
8.5" 12° Build @ 10,934' MD thru 11,839' MD	Third Bone Spring	11,138'		4,749 Sacks TOC 0' 25% Excess	10.5 - 12.5 ppg OBM
	Wolfcamp A	11,445'			
	5.5" 20# P-110CYHP BTC	**22,241'**			

Target Wolfcamp A 11495 TVD // 22241 MD

Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
Surface	17.5	1,359'	13.375	68	J-55	BTC
Intermediate	12.25	10,802'	9.625	40	HCL-80	BTC
Prod Segment A	8.5	10,934'	5.5	20	CYHP-110	BTC
Prod Segment B	8.5	22,241'	5.5	20	CYHP-110	BTC

Check Surface Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
14.375	1,069	915	4,100	3,450
Safety Factors				
1.56	11.57	9.90	6.75	0.65
Check Intermediate Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
7.625	940	558	6700	9460
Safety Factors				
2.31	2.18	2.17	1.27	1.27
Check Prod Casing, Segment A				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
1.36	3.17	2.85	1.80	1.92
Check Prod Casing, Segment B				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
1.36	64.88	58.38	1.71	1.92

U. S. Steel Tubular Products

5 1/2 20.00 lb (0.361) P110 HP

USS-EAGLE SFH™

	PIPE	CONNECTION	
MECHANICAL PROPERTIES			
Minimum Yield Strength	**125,000**	**125,000**	*psi*
Maximum Yield Strength	**140,000**	**140,000**	*psi*
Minimum Tensile Strength	**130,000**	**130,000**	*psi*
DIMENSIONS			
Outside Diameter	**5.500**	**5.830**	*in.*
Wall Thickness	0.361		*in.*
Inside Diameter	4.778	4.693	*in.*
Drift - API	4.653	4.653	*in.*
Nominal Linear Weight, T&C	**19.83**		*lbs/ft*
Plain End Weight	19.83	19.83	*lbs/ft*
SECTION AREA			
Cross Sectional Area | Critical Area	5.828	5.054	*sq. in.*
Joint Efficiency		86.25	%
PERFORMANCE			
Minimum Collapse Pressure	13,150	13,150	*psi*
External Pressure Leak Resistance		10,000	*psi*
Minimum Internal Yield Pressure	14,360	14,360	*psi*
Minimum Pipe Body Yield Strength	729,000		*lbs*
Joint Strength		631,750	*lbs*
Compression Rating		631,750	*lbs*
Reference Length		21,240	*ft*
Maximum Uniaxial Bend Rating		89.9	*deg/100 ft*
Minimum Make-Up Torque		14,000	*ft-lbs*
Maximum Make-Up Torque		16,900	*ft-lbs*
Maximum Operating Torque		25,000	*ft-lbs*
Make-Up Loss		5.92	*in.*

Notes:

1) Other than proprietary collapse and connection values, performance properties have been calculated using standard equations defined by API 5C3 and do not incorporate any additional design or safety factors. Calculations assume nominal pipe OD, nominal wall thickness, and Specified Minimum Yield Strength (SMYS).
2) Compressive & Tensile Connection Efficiencies are calculated by dividing the connection critical area by the pipe body area.
3) Uniaxial bending rating shown is structural only, and equal to compression efficiency.
4) Torques have been calculated assuming a thread compound friction factor of 1.0 and are recommended only. Field make-up torques may require adjustment based on actual field conditions (e.g. make-up speed, temperature, thread compound, etc.).
5) Reference length is calculated by joint strength divided by plain end weight with 1.5 safety factor.
6) Connection external pressure resistance has been verified to 10,000 psi (Application specific testing).

U. S. Steel Tubular Products
10343 Sam Houston Park Dr., #120
Houston, TX 77064
1-877-893-9461
connections@uss.com
www.usstubular.com

SĕAH

9.625" 40# .395" SEAH-80 HIGH COLLAPSE

(SEAH-80 IS A NON HEAT TREATED PRODUCT)

Dimensions (Nominal)

Outside Diameter	**9.625**	**in.**
Wall	**0.395**	**in.**
Inside Diameter	**8.835**	**in.**
Drift	**8.750**	**in.**
Weight, T&C	**40.000**	**lbs./ft.**
Weight, PE	**38.970**	**lbs./ft.**

Performance Properties

Collapse	**4100**	**psi**
Internal Yield Pressure at Minimum Yield		
PE	**5750**	**psi**
LTC	**5750**	**psi**
BTC	**5750**	**psi**
Yield Strength, Pipe Body	**916**	**1000 lbs.**
Joint Strength		
LTC	**717**	**1000 lbs.**
BTC	**915**	**1000 lbs.**

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Wellbore Schematic

Well:	Pine Straw Fed Com 25-36-05 101H	**Co. Well ID:**	xxxxxx
SHL:	Sec. 05 25S-36E 233' FNL & 230' FWL	**AFE No.:**	xxxx-xxx
BHL:	Sec. 08 25S-36E 50' FSL & 200' FWL	**API No.:**	xxxxxxxxxx
	Lea, NM	**GL:**	3,241'
Wellhead:	A - 13-5/8" 10M x 13-5/8" SOW	**Field:**	Delaware
	B - 13-5/8" 10M x 13-5/8" 10M	**Objective:**	Wolfcamp A
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,495'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,241'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD **KB:** 27'
Tubing:	2-7/8" L-80 6.5# 8rd EUE	**E-Mail:**	Wellsite2@ameredev.com

Hole Size	Formation Tops		Logs	Cement	Mud Weight
17.5"	Rustler	1,234'		852 Sacks TOC 0' 100% Excess	8.4-8.6 ppg WBM
	13.375" 68# J-55 BTC	**1,359'**			
12.25"	Salado	1,772'		911 Sacks TOC 0' 50% Excess	8.5 - 9.4 ppg Diesel Brine Emulsion
	Tansill	3,420'			
	Capitan Reef	4,019'			
	Lamar	5,121'			
	DV Tool	**5,171'**			
	Bell Canyon	5,300'		1,723 Sacks TOC 0' 50% Excess	
	Brushy Canyon	6,996'			
	Bone Spring Lime	8,220'			
	First Bone Spring	9,527'			
	Second Bone Spring	9,923'			
	Third Bone Spring Upper	10,677'			
	9.625" 40# L-80HC BTC	**10,802'**			
8.5" 12° Build @ 10,934' MD thru 11,839' MD	Third Bone Spring	11,138'		4,749 Sacks TOC 0' 25% Excess	10.5 - 12.5 ppg OBM
	Wolfcamp A	11,445'			
	5.5" 20# P-110CYHP BTC	**22,241'**			
	Target Wolfcamp A 11495 TVD // 22241 MD				

Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
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Check Surface Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
14.375	1,069	915	4,100	3,450
Safety Factors				
1.56	11.57	9.90	6.75	0.65
Check Intermediate Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
7.625	940	558	6700	9460
Safety Factors				
2.31	2.18	2.17	1.27	1.27
Check Prod Casing, Segment A				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
1.36	3.17	2.85	1.80	1.92
Check Prod Casing, Segment B				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
1.36	64.88	58.38	1.71	1.92

AMEREDEV

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	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,241'
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	Third Bone Spring Upper	10,677'			
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	Wolfcamp A	11,445'			
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	Target Wolfcamp A 11495 TVD // 22241 MD				

Casing Design and Safety Factor Check

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OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
1.36	64.88	58.38	1.71	1.92

PERFORMANCE DATA

API BTC **13.375 in** **68.00 lbs/ft** **J-55**
Technical Data Sheet

Tubular Parameters

Size	13.375	in	Minimum Yield	55,000	psi
Nominal Weight	68.00	lbs/ft	Minimum Tensile	75,000	psi
Grade	J-55		Yield Load	1,069,000	lbs
PE Weight	66.10	lbs/ft	Tensile Load	1,458,000	lbs
Wall Thickness	0.480	in	Min. Internal Yield Pressure	3,500	psi
Nominal ID	12.415	in	Collapse Pressure	1,950	psi
Drift Diameter	12.259	in			
Nom. Pipe Body Area	19.445	in²			

Connection Parameters

Connection OD	14.375	in
Coupling Length	10.625	in
Threads Per Inch	5.000	in
Standoff Thread Turns	1.000	
Make-Up Loss	4.513	in
Yield Load In Tension	---	lbs
Min. Internal Yield Pressure	3,500	psi

Printed on: February-13-2015

IPSCO

AMEREDEV

H_2S Drilling Operation Plan

1. **All Company and Contract personnel admitted on location must be trained by a qualified H_2S safety instructor to the following:**
    a. Characteristics of H_2S
    b. Physical effects and hazards
    c. Principal and operation of H_2s detectors, warning system and briefing areas
    d. Evacuation procedure, routes and first aid
    e. Proper use of safety equipment and life support systems
    f. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.

2. **Briefing Area:**
    a. Two perpendicular areas will be designated by signs and readily accessible.
    b. Upon location entry there will be a designated area to establish all safety compliance criteria (1.) has been met.

3. **H_2S Detection and Alarm Systems:**
    a. H_2S sensors/detectors shall be located on the drilling rig floor, in the base of the sub structure/cellar area, and on the mud pits in the shale shaker area. Additional H_2S detectors may be placed as deemed necessary. All detectors will be set to initiate visual alarm at 10 ppm and visual with audible at 14 ppm and all equipment will be calibrated every 30 days or as needed.
    b. An audio alarm will be installed on the derrick floor and in the top doghouse.

4. **Protective Equipment for Essential Personnel:**
    a. **Breathing Apparatus:**
        i. Rescue Packs (SCBA) - 1 Unit shall be placed at each briefing area.
        ii. Two (SCBA) Units will be stored in safety trailer on location.
        iii. Work/Escape packs - 1 Unit will be available on rig floor in doghouse for emergency evacuation for driller.
    b. **Auxiliary Rescue Equipment:**
        i. Stretcher
        ii. 2 - OSHA full body harnesses
        iii. 100 ft. 5/8" OSHA approved rope
        iv. 1 - 20# class ABC fire extinguisher

5. **Windsock and/or Wind Streamers:**
    a. Windsock at mud pit area should be high enough to be visible.
    b. Windsock on the rig floor should be high enough to be visible.

6. **Communication:**
    a. While working under mask scripting boards will be used for communication where applicable.
    b. Hand signals will be used when script boards are not applicable.

c. Two way radios will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at Drilling Foreman's Office.

7. **Drill Stem Testing:** - No Planned DST at this time.

8. **Mud program:**
   a. If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

9. **Metallurgy:**

   a. All drill strings, casing, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H_2S service.
   b. Drilling Contractor supervisor will be required to be familiar with the effect H_2S has on tubular goods and other mechanical equipment provided through contractor.

AMEREDEV

H_2S Contingency Plan

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H_2S and SO_2

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

Contacting Authorities

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

AMEREDEV

H_2S Contingency Plan

Ameredev Operating LLC – Emergency Phone 737-300-4799			
Key Personnel:			
Name	Title	Office	Mobile
Floyd Hammond	Chief Operating officer	737-300-4724	512-783-6810
Zachary Boyd	Operations Superintendent	737-300-4725	432-385-6996
Blake Estrada	Construction Foreman		432-385-5831

Artesia	
Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283
Carlsbad	
Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544
Santa Fe	
New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635
National	
National Emergency Response Center (Washington, D.C.)	800-424-8802
Medical	
Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
.'SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

AMEREDEV

Ameredev Operating, LLC.

PIN/DOG
PINDOG #1S
Pine Straw 101H

Wellbore #1

Plan: Design #1

Standard Planning Report

26 March, 2019

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Company:	Ameredev Operating, LLC.	**TVD Reference:**	KB @ 3268.0usft
Project:	PIN/DOG	**MD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**North Reference:**	Grid
Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	PIN/DOG		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	PINDOG #1S				
Site Position:		**Northing:**	425,695.22 usft	**Latitude:**	32° 9' 57.779 N
From:	Lat/Long	**Easting:**	862,769.39 usft	**Longitude:**	103° 17' 40.433 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.55 °

Well	Pine Straw 101H					
Well Position	**+N/-S**	-0.5 usft	**Northing:**	425,694.72 usft	**Latitude:**	32° 9' 57.780 N
	+E/-W	-60.0 usft	**Easting:**	862,709.39 usft	**Longitude:**	103° 17' 41.131 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,241.0 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	3/26/2019	6.63	60.03	47,751.36440690

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	179.94	

Plan Survey Tool Program **Date** 3/26/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	22,240.6	Design #1 (Wellbore #1)	MWD	
				OWSG MWD - Standard	

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Pine Straw 101H
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Site:	PINDOG #1S	**North Reference:**	Grid
Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,300.0	6.00	340.00	2,299.5	14.7	-5.4	2.00	2.00	0.00	340.00	
6,724.8	6.00	340.00	6,700.0	449.4	-163.6	0.00	0.00	0.00	0.00	
7,024.8	0.00	0.00	6,999.5	464.1	-168.9	2.00	-2.00	0.00	180.00	
8,525.3	0.00	0.00	8,500.0	464.1	-168.9	0.00	0.00	0.00	0.00	
8,825.3	6.00	340.00	8,799.5	478.9	-174.3	2.00	2.00	0.00	340.00	
10,133.0	6.00	340.00	10,100.0	607.3	-221.0	0.00	0.00	0.00	0.00	
10,433.0	0.00	0.00	10,399.5	622.1	-226.4	2.00	-2.00	0.00	180.00	
10,933.6	0.00	0.00	10,900.0	622.1	-226.4	0.00	0.00	0.00	0.00	
11,115.4	21.51	101.84	11,077.6	615.1	-193.4	11.83	11.83	0.00	101.84	
11,839.2	90.00	179.78	11,495.0	132.8	-30.7	11.83	9.46	10.77	78.75	PS101 FTP
22,240.6	90.00	179.78	11,495.0	-10,268.5	9.9	0.00	0.00	0.00	0.00	PS101 BHL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Company:	Ameredev Operating, LLC.	**TVD Reference:**	KB @ 3268.0usft
Project:	PIN/DOG	**MD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**North Reference:**	Grid
Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	2.00	340.00	2,100.0	1.6	-0.6	-1.6	2.00	2.00	0.00
2,200.0	4.00	340.00	2,199.8	6.6	-2.4	-6.6	2.00	2.00	0.00
2,300.0	6.00	340.00	2,299.5	14.7	-5.4	-14.8	2.00	2.00	0.00
2,400.0	6.00	340.00	2,398.9	24.6	-8.9	-24.6	0.00	0.00	0.00
2,500.0	6.00	340.00	2,498.4	34.4	-12.5	-34.4	0.00	0.00	0.00
2,600.0	6.00	340.00	2,597.8	44.2	-16.1	-44.2	0.00	0.00	0.00
2,700.0	6.00	340.00	2,697.3	54.0	-19.7	-54.1	0.00	0.00	0.00
2,800.0	6.00	340.00	2,796.7	63.9	-23.2	-63.9	0.00	0.00	0.00
2,900.0	6.00	340.00	2,896.2	73.7	-26.8	-73.7	0.00	0.00	0.00
3,000.0	6.00	340.00	2,995.6	83.5	-30.4	-83.5	0.00	0.00	0.00
3,100.0	6.00	340.00	3,095.1	93.3	-34.0	-93.4	0.00	0.00	0.00
3,200.0	6.00	340.00	3,194.5	103.1	-37.5	-103.2	0.00	0.00	0.00
3,300.0	6.00	340.00	3,294.0	113.0	-41.1	-113.0	0.00	0.00	0.00
3,400.0	6.00	340.00	3,393.4	122.8	-44.7	-122.8	0.00	0.00	0.00
3,500.0	6.00	340.00	3,492.9	132.6	-48.3	-132.7	0.00	0.00	0.00
3,600.0	6.00	340.00	3,592.3	142.4	-51.8	-142.5	0.00	0.00	0.00
3,700.0	6.00	340.00	3,691.8	152.3	-55.4	-152.3	0.00	0.00	0.00
3,800.0	6.00	340.00	3,791.2	162.1	-59.0	-162.1	0.00	0.00	0.00
3,900.0	6.00	340.00	3,890.7	171.9	-62.6	-172.0	0.00	0.00	0.00
4,000.0	6.00	340.00	3,990.1	181.7	-66.1	-181.8	0.00	0.00	0.00
4,100.0	6.00	340.00	4,089.6	191.6	-69.7	-191.6	0.00	0.00	0.00
4,200.0	6.00	340.00	4,189.0	201.4	-73.3	-201.4	0.00	0.00	0.00
4,300.0	6.00	340.00	4,288.5	211.2	-76.9	-211.3	0.00	0.00	0.00
4,400.0	6.00	340.00	4,387.9	221.0	-80.4	-221.1	0.00	0.00	0.00
4,500.0	6.00	340.00	4,487.4	230.8	-84.0	-230.9	0.00	0.00	0.00
4,600.0	6.00	340.00	4,586.9	240.7	-87.6	-240.7	0.00	0.00	0.00
4,700.0	6.00	340.00	4,686.3	250.5	-91.2	-250.6	0.00	0.00	0.00
4,800.0	6.00	340.00	4,785.8	260.3	-94.7	-260.4	0.00	0.00	0.00
4,900.0	6.00	340.00	4,885.2	270.1	-98.3	-270.2	0.00	0.00	0.00
5,000.0	6.00	340.00	4,984.7	280.0	-101.9	-280.1	0.00	0.00	0.00
5,100.0	6.00	340.00	5,084.1	289.8	-105.5	-289.9	0.00	0.00	0.00
5,200.0	6.00	340.00	5,183.6	299.6	-109.0	-299.7	0.00	0.00	0.00
5,300.0	6.00	340.00	5,283.0	309.4	-112.6	-309.5	0.00	0.00	0.00

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Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	6.00	340.00	5,382.5	319.2	-116.2	-319.4	0.00	0.00	0.00
5,500.0	6.00	340.00	5,481.9	329.1	-119.8	-329.2	0.00	0.00	0.00
5,600.0	6.00	340.00	5,581.4	338.9	-123.3	-339.0	0.00	0.00	0.00
5,700.0	6.00	340.00	5,680.8	348.7	-126.9	-348.8	0.00	0.00	0.00
5,800.0	6.00	340.00	5,780.3	358.5	-130.5	-358.7	0.00	0.00	0.00
5,900.0	6.00	340.00	5,879.7	368.4	-134.1	-368.5	0.00	0.00	0.00
6,000.0	6.00	340.00	5,979.2	378.2	-137.6	-378.3	0.00	0.00	0.00
6,100.0	6.00	340.00	6,078.6	388.0	-141.2	-388.1	0.00	0.00	0.00
6,200.0	6.00	340.00	6,178.1	397.8	-144.8	-398.0	0.00	0.00	0.00
6,300.0	6.00	340.00	6,277.5	407.6	-148.4	-407.8	0.00	0.00	0.00
6,400.0	6.00	340.00	6,377.0	417.5	-151.9	-417.6	0.00	0.00	0.00
6,500.0	6.00	340.00	6,476.4	427.3	-155.5	-427.4	0.00	0.00	0.00
6,600.0	6.00	340.00	6,575.9	437.1	-159.1	-437.3	0.00	0.00	0.00
6,700.0	6.00	340.00	6,675.3	446.9	-162.7	-447.1	0.00	0.00	0.00
6,724.8	6.00	340.00	6,700.0	449.4	-163.6	-449.5	0.00	0.00	0.00
6,800.0	4.50	340.00	6,774.9	455.8	-165.9	-456.0	2.00	-2.00	0.00
6,900.0	2.50	340.00	6,874.7	461.6	-168.0	-461.7	2.00	-2.00	0.00
7,000.0	0.50	340.00	6,974.7	464.0	-168.9	-464.2	2.00	-2.00	0.00
7,024.8	0.00	0.00	6,999.5	464.1	-168.9	-464.3	2.00	-2.00	0.00
7,100.0	0.00	0.00	7,074.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,200.0	0.00	0.00	7,174.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,300.0	0.00	0.00	7,274.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,400.0	0.00	0.00	7,374.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,500.0	0.00	0.00	7,474.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,600.0	0.00	0.00	7,574.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,700.0	0.00	0.00	7,674.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,800.0	0.00	0.00	7,774.7	464.1	-168.9	-464.3	0.00	0.00	0.00
7,900.0	0.00	0.00	7,874.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,000.0	0.00	0.00	7,974.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,100.0	0.00	0.00	8,074.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,200.0	0.00	0.00	8,174.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,300.0	0.00	0.00	8,274.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,400.0	0.00	0.00	8,374.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,500.0	0.00	0.00	8,474.7	464.1	-168.9	-464.3	0.00	0.00	0.00
8,525.3	0.00	0.00	8,500.0	464.1	-168.9	-464.3	0.00	0.00	0.00
8,600.0	1.49	340.00	8,574.7	465.0	-169.3	-465.2	2.00	2.00	0.00
8,700.0	3.49	340.00	8,674.6	469.1	-170.7	-469.3	2.00	2.00	0.00
8,800.0	5.49	340.00	8,774.2	476.5	-173.4	-476.6	2.00	2.00	0.00
8,825.3	6.00	340.00	8,799.5	478.9	-174.3	-479.0	2.00	2.00	0.00
8,900.0	6.00	340.00	8,873.7	486.2	-177.0	-486.4	0.00	0.00	0.00
9,000.0	6.00	340.00	8,973.2	496.0	-180.5	-496.2	0.00	0.00	0.00
9,100.0	6.00	340.00	9,072.6	505.8	-184.1	-506.0	0.00	0.00	0.00
9,200.0	6.00	340.00	9,172.1	515.7	-187.7	-515.8	0.00	0.00	0.00
9,300.0	6.00	340.00	9,271.5	525.5	-191.3	-525.7	0.00	0.00	0.00
9,400.0	6.00	340.00	9,371.0	535.3	-194.8	-535.5	0.00	0.00	0.00
9,500.0	6.00	340.00	9,470.4	545.1	-198.4	-545.3	0.00	0.00	0.00
9,600.0	6.00	340.00	9,569.9	555.0	-202.0	-555.2	0.00	0.00	0.00
9,700.0	6.00	340.00	9,669.3	564.8	-205.6	-565.0	0.00	0.00	0.00
9,800.0	6.00	340.00	9,768.8	574.6	-209.1	-574.8	0.00	0.00	0.00
9,900.0	6.00	340.00	9,868.2	584.4	-212.7	-584.6	0.00	0.00	0.00
10,000.0	6.00	340.00	9,967.7	594.2	-216.3	-594.5	0.00	0.00	0.00
10,100.0	6.00	340.00	10,067.1	604.1	-219.9	-604.3	0.00	0.00	0.00
10,133.0	6.00	340.00	10,100.0	607.3	-221.0	-607.5	0.00	0.00	0.00
10,200.0	4.66	340.00	10,166.7	613.2	-223.2	-613.4	2.00	-2.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Company:	Ameredev Operating, LLC.	**TVD Reference:**	KB @ 3268.0usft
Project:	PIN/DOG	**MD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**North Reference:**	Grid
Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,300.0	2.66	340.00	10,266.5	619.2	-225.4	-619.4	2.00	-2.00	0.00
10,400.0	0.66	340.00	10,366.4	621.9	-226.3	-622.1	2.00	-2.00	0.00
10,433.0	0.00	0.00	10,399.5	622.1	-226.4	-622.3	2.00	-2.00	0.00
10,500.0	0.00	0.00	10,466.4	622.1	-226.4	-622.3	0.00	0.00	0.00
10,600.0	0.00	0.00	10,566.4	622.1	-226.4	-622.3	0.00	0.00	0.00
10,700.0	0.00	0.00	10,666.4	622.1	-226.4	-622.3	0.00	0.00	0.00
10,800.0	0.00	0.00	10,766.4	622.1	-226.4	-622.3	0.00	0.00	0.00
10,900.0	0.00	0.00	10,866.4	622.1	-226.4	-622.3	0.00	0.00	0.00
10,933.6	0.00	0.00	10,900.0	622.1	-226.4	-622.3	0.00	0.00	0.00
PS101 KOP									
11,000.0	7.85	101.84	10,966.2	621.1	-222.0	-621.3	11.83	11.83	0.00
11,100.0	19.68	101.84	11,063.2	616.3	-198.7	-616.4	11.83	11.83	0.00
11,115.4	21.51	101.84	11,077.6	615.1	-193.4	-615.3	11.83	11.83	0.00
11,200.0	25.33	125.30	11,155.4	601.5	-163.4	-601.6	11.83	4.53	27.74
11,300.0	33.17	143.65	11,242.7	567.0	-129.6	-567.1	11.83	7.83	18.35
11,400.0	42.71	155.10	11,321.6	514.0	-99.0	-514.1	11.83	9.54	11.45
11,500.0	53.04	162.92	11,388.6	444.8	-72.9	-444.8	11.83	10.33	7.82
11,600.0	63.75	168.82	11,441.0	362.3	-52.4	-362.4	11.83	10.71	5.90
11,700.0	74.66	173.71	11,476.5	270.1	-38.4	-270.1	11.83	10.91	4.89
11,800.0	85.67	178.10	11,493.5	171.9	-31.4	-172.0	11.83	11.01	4.40
11,839.2	90.00	179.78	11,495.0	132.8	-30.7	-132.8	11.83	11.03	4.26
PS101 FTP									
11,900.0	90.00	179.78	11,495.0	72.0	-30.4	-72.0	0.00	0.00	0.00
12,000.0	90.00	179.78	11,495.0	-28.0	-30.1	28.0	0.00	0.00	0.00
12,100.0	90.00	179.78	11,495.0	-128.0	-29.7	128.0	0.00	0.00	0.00
12,200.0	90.00	179.78	11,495.0	-228.0	-29.3	228.0	0.00	0.00	0.00
12,300.0	90.00	179.78	11,495.0	-328.0	-28.9	328.0	0.00	0.00	0.00
12,400.0	90.00	179.78	11,495.0	-428.0	-28.5	428.0	0.00	0.00	0.00
12,500.0	90.00	179.78	11,495.0	-528.0	-28.1	528.0	0.00	0.00	0.00
12,600.0	90.00	179.78	11,495.0	-628.0	-27.7	628.0	0.00	0.00	0.00
12,700.0	90.00	179.78	11,495.0	-728.0	-27.3	728.0	0.00	0.00	0.00
12,800.0	90.00	179.78	11,495.0	-828.0	-26.9	828.0	0.00	0.00	0.00
12,900.0	90.00	179.78	11,495.0	-928.0	-26.5	928.0	0.00	0.00	0.00
13,000.0	90.00	179.78	11,495.0	-1,028.0	-26.1	1,028.0	0.00	0.00	0.00
13,100.0	90.00	179.78	11,495.0	-1,128.0	-25.8	1,128.0	0.00	0.00	0.00
13,200.0	90.00	179.78	11,495.0	-1,228.0	-25.4	1,228.0	0.00	0.00	0.00
13,300.0	90.00	179.78	11,495.0	-1,328.0	-25.0	1,328.0	0.00	0.00	0.00
13,400.0	90.00	179.78	11,495.0	-1,428.0	-24.6	1,428.0	0.00	0.00	0.00
13,500.0	90.00	179.78	11,495.0	-1,528.0	-24.2	1,528.0	0.00	0.00	0.00
13,600.0	90.00	179.78	11,495.0	-1,628.0	-23.8	1,628.0	0.00	0.00	0.00
13,700.0	90.00	179.78	11,495.0	-1,728.0	-23.4	1,728.0	0.00	0.00	0.00
13,800.0	90.00	179.78	11,495.0	-1,828.0	-23.0	1,828.0	0.00	0.00	0.00
13,900.0	90.00	179.78	11,495.0	-1,928.0	-22.6	1,928.0	0.00	0.00	0.00
14,000.0	90.00	179.78	11,495.0	-2,028.0	-22.2	2,028.0	0.00	0.00	0.00
14,100.0	90.00	179.78	11,495.0	-2,128.0	-21.9	2,128.0	0.00	0.00	0.00
14,200.0	90.00	179.78	11,495.0	-2,228.0	-21.5	2,228.0	0.00	0.00	0.00
14,300.0	90.00	179.78	11,495.0	-2,328.0	-21.1	2,328.0	0.00	0.00	0.00
14,400.0	90.00	179.78	11,495.0	-2,428.0	-20.7	2,428.0	0.00	0.00	0.00
14,500.0	90.00	179.78	11,495.0	-2,528.0	-20.3	2,528.0	0.00	0.00	0.00
14,600.0	90.00	179.78	11,495.0	-2,628.0	-19.9	2,628.0	0.00	0.00	0.00
14,700.0	90.00	179.78	11,495.0	-2,728.0	-19.5	2,728.0	0.00	0.00	0.00
14,800.0	90.00	179.78	11,495.0	-2,828.0	-19.1	2,828.0	0.00	0.00	0.00
14,900.0	90.00	179.78	11,495.0	-2,928.0	-18.7	2,928.0	0.00	0.00	0.00
15,000.0	90.00	179.78	11,495.0	-3,028.0	-18.3	3,028.0	0.00	0.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Company:	Ameredev Operating, LLC.	**TVD Reference:**	KB @ 3268.0usft
Project:	PIN/DOG	**MD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**North Reference:**	Grid
Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,100.0	90.00	179.78	11,495.0	-3,128.0	-17.9	3,128.0	0.00	0.00	0.00
15,200.0	90.00	179.78	11,495.0	-3,228.0	-17.6	3,228.0	0.00	0.00	0.00
15,300.0	90.00	179.78	11,495.0	-3,328.0	-17.2	3,328.0	0.00	0.00	0.00
15,400.0	90.00	179.78	11,495.0	-3,428.0	-16.8	3,428.0	0.00	0.00	0.00
15,500.0	90.00	179.78	11,495.0	-3,528.0	-16.4	3,528.0	0.00	0.00	0.00
15,600.0	90.00	179.78	11,495.0	-3,628.0	-16.0	3,628.0	0.00	0.00	0.00
15,700.0	90.00	179.78	11,495.0	-3,728.0	-15.6	3,728.0	0.00	0.00	0.00
15,800.0	90.00	179.78	11,495.0	-3,828.0	-15.2	3,828.0	0.00	0.00	0.00
15,900.0	90.00	179.78	11,495.0	-3,928.0	-14.8	3,928.0	0.00	0.00	0.00
16,000.0	90.00	179.78	11,495.0	-4,028.0	-14.4	4,028.0	0.00	0.00	0.00
16,100.0	90.00	179.78	11,495.0	-4,128.0	-14.0	4,128.0	0.00	0.00	0.00
16,200.0	90.00	179.78	11,495.0	-4,228.0	-13.7	4,228.0	0.00	0.00	0.00
16,300.0	90.00	179.78	11,495.0	-4,328.0	-13.3	4,328.0	0.00	0.00	0.00
16,400.0	90.00	179.78	11,495.0	-4,428.0	-12.9	4,428.0	0.00	0.00	0.00
16,500.0	90.00	179.78	11,495.0	-4,528.0	-12.5	4,528.0	0.00	0.00	0.00
16,600.0	90.00	179.78	11,495.0	-4,628.0	-12.1	4,628.0	0.00	0.00	0.00
16,700.0	90.00	179.78	11,495.0	-4,728.0	-11.7	4,728.0	0.00	0.00	0.00
16,800.0	90.00	179.78	11,495.0	-4,828.0	-11.3	4,828.0	0.00	0.00	0.00
16,900.0	90.00	179.78	11,495.0	-4,928.0	-10.9	4,928.0	0.00	0.00	0.00
17,000.0	90.00	179.78	11,495.0	-5,028.0	-10.5	5,028.0	0.00	0.00	0.00
17,018.5	90.00	179.78	11,495.0	-5,046.5	-10.5	5,046.5	0.00	0.00	0.00
PS101 into NMNM120914									
17,100.0	90.00	179.78	11,495.0	-5,128.0	-10.1	5,128.0	0.00	0.00	0.00
17,200.0	90.00	179.78	11,495.0	-5,228.0	-9.7	5,228.0	0.00	0.00	0.00
17,300.0	90.00	179.78	11,495.0	-5,328.0	-9.4	5,328.0	0.00	0.00	0.00
17,400.0	90.00	179.78	11,495.0	-5,428.0	-9.0	5,428.0	0.00	0.00	0.00
17,500.0	90.00	179.78	11,495.0	-5,528.0	-8.6	5,528.0	0.00	0.00	0.00
17,600.0	90.00	179.78	11,495.0	-5,628.0	-8.2	5,628.0	0.00	0.00	0.00
17,700.0	90.00	179.78	11,495.0	-5,728.0	-7.8	5,728.0	0.00	0.00	0.00
17,800.0	90.00	179.78	11,495.0	-5,828.0	-7.4	5,828.0	0.00	0.00	0.00
17,900.0	90.00	179.78	11,495.0	-5,928.0	-7.0	5,928.0	0.00	0.00	0.00
18,000.0	90.00	179.78	11,495.0	-6,028.0	-6.6	6,028.0	0.00	0.00	0.00
18,100.0	90.00	179.78	11,495.0	-6,128.0	-6.2	6,128.0	0.00	0.00	0.00
18,200.0	90.00	179.78	11,495.0	-6,228.0	-5.8	6,228.0	0.00	0.00	0.00
18,300.0	90.00	179.78	11,495.0	-6,328.0	-5.5	6,328.0	0.00	0.00	0.00
18,400.0	90.00	179.78	11,495.0	-6,428.0	-5.1	6,428.0	0.00	0.00	0.00
18,500.0	90.00	179.78	11,495.0	-6,528.0	-4.7	6,528.0	0.00	0.00	0.00
18,600.0	90.00	179.78	11,495.0	-6,628.0	-4.3	6,628.0	0.00	0.00	0.00
18,700.0	90.00	179.78	11,495.0	-6,728.0	-3.9	6,728.0	0.00	0.00	0.00
18,800.0	90.00	179.78	11,495.0	-6,828.0	-3.5	6,828.0	0.00	0.00	0.00
18,900.0	90.00	179.78	11,495.0	-6,928.0	-3.1	6,928.0	0.00	0.00	0.00
19,000.0	90.00	179.78	11,495.0	-7,028.0	-2.7	7,028.0	0.00	0.00	0.00
19,100.0	90.00	179.78	11,495.0	-7,128.0	-2.3	7,128.0	0.00	0.00	0.00
19,200.0	90.00	179.78	11,495.0	-7,228.0	-1.9	7,228.0	0.00	0.00	0.00
19,300.0	90.00	179.78	11,495.0	-7,328.0	-1.5	7,327.9	0.00	0.00	0.00
19,400.0	90.00	179.78	11,495.0	-7,428.0	-1.2	7,427.9	0.00	0.00	0.00
19,500.0	90.00	179.78	11,495.0	-7,528.0	-0.8	7,527.9	0.00	0.00	0.00
19,600.0	90.00	179.78	11,495.0	-7,628.0	-0.4	7,627.9	0.00	0.00	0.00
19,700.0	90.00	179.78	11,495.0	-7,728.0	0.0	7,727.9	0.00	0.00	0.00
19,800.0	90.00	179.78	11,495.0	-7,828.0	0.4	7,827.9	0.00	0.00	0.00
19,900.0	90.00	179.78	11,495.0	-7,928.0	0.8	7,927.9	0.00	0.00	0.00
20,000.0	90.00	179.78	11,495.0	-8,027.9	1.2	8,027.9	0.00	0.00	0.00
20,100.0	90.00	179.78	11,495.0	-8,127.9	1.6	8,127.9	0.00	0.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Company:	Ameredev Operating, LLC.	**TVD Reference:**	KB @ 3268.0usft
Project:	PIN/DOG	**MD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**North Reference:**	Grid
Well:	Pine Straw 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20,200.0	90.00	179.78	11,495.0	-8,227.9	2.0	8,227.9	0.00	0.00	0.00
20,300.0	90.00	179.78	11,495.0	-8,327.9	2.4	8,327.9	0.00	0.00	0.00
20,400.0	90.00	179.78	11,495.0	-8,427.9	2.8	8,427.9	0.00	0.00	0.00
20,500.0	90.00	179.78	11,495.0	-8,527.9	3.1	8,527.9	0.00	0.00	0.00
20,600.0	90.00	179.78	11,495.0	-8,627.9	3.5	8,627.9	0.00	0.00	0.00
20,700.0	90.00	179.78	11,495.0	-8,727.9	3.9	8,727.9	0.00	0.00	0.00
20,800.0	90.00	179.78	11,495.0	-8,827.9	4.3	8,827.9	0.00	0.00	0.00
20,900.0	90.00	179.78	11,495.0	-8,927.9	4.7	8,927.9	0.00	0.00	0.00
21,000.0	90.00	179.78	11,495.0	-9,027.9	5.1	9,027.9	0.00	0.00	0.00
21,100.0	90.00	179.78	11,495.0	-9,127.9	5.5	9,127.9	0.00	0.00	0.00
21,200.0	90.00	179.78	11,495.0	-9,227.9	5.9	9,227.9	0.00	0.00	0.00
21,300.0	90.00	179.78	11,495.0	-9,327.9	6.3	9,327.9	0.00	0.00	0.00
21,400.0	90.00	179.78	11,495.0	-9,427.9	6.7	9,427.9	0.00	0.00	0.00
21,500.0	90.00	179.78	11,495.0	-9,527.9	7.0	9,527.9	0.00	0.00	0.00
21,600.0	90.00	179.78	11,495.0	-9,627.9	7.4	9,627.9	0.00	0.00	0.00
21,700.0	90.00	179.78	11,495.0	-9,727.9	7.8	9,727.9	0.00	0.00	0.00
21,800.0	90.00	179.78	11,495.0	-9,827.9	8.2	9,827.9	0.00	0.00	0.00
21,900.0	90.00	179.78	11,495.0	-9,927.9	8.6	9,927.9	0.00	0.00	0.00
22,000.0	90.00	179.78	11,495.0	-10,027.9	9.0	10,027.9	0.00	0.00	0.00
22,100.0	90.00	179.78	11,495.0	-10,127.9	9.4	10,127.9	0.00	0.00	0.00
22,191.1	90.00	179.78	11,495.0	-10,219.0	9.7	10,219.0	0.00	0.00	0.00
PS101 LTP									
22,200.0	90.00	179.78	11,495.0	-10,227.9	9.8	10,227.9	0.00	0.00	0.00
22,240.6	90.00	179.78	11,495.0	-10,268.5	9.9	10,268.5	0.00	0.00	0.00
PS101 BHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PS101 KOP - plan hits target center - Point	0.00	0.00	10,900.0	622.1	-226.4	426,316.78	862,482.98	32° 10' 3.956 N	103° 17' 43.695 W
PS101 BHL - plan hits target center - Point	0.00	0.00	11,495.0	-10,268.5	9.9	415,426.21	862,719.33	32° 8' 16.176 N	103° 17' 42.167 W
PS101 FTP - plan hits target center - Point	0.00	0.00	11,495.0	132.8	-30.7	425,827.48	862,678.71	32° 9' 59.096 N	103° 17' 41.473 W
PS101 LTP - plan misses target center by 0.1usft at 22191.1usft MD (11495.0 TVD, -10219.0 N, 9.7 E) - Point	0.00	0.00	11,495.0	-10,219.0	9.7	415,475.73	862,719.07	32° 8' 16.666 N	103° 17' 42.165 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
17,018.5	11,495.0	-5,046.5	-10.5	PS101 into NMNM120914

AMEREDEV

Ameredev Operating, LLC.

PIN/DOG
PINDOG #1S
Pine Straw 101H
Wellbore #1

Plan: Design #1

Lease Penetration Section Line Foot

26 March, 2019

AMEREDEV

Ameredev Operating, LLC

Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM5000

Project	PIN/DOG		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	PINDOG #1S				
Site Position:		**Northing:**	425,695.22 usft	**Latitude:**	32° 9' 57.779 N
From:	Lat/Long	**Easting:**	862,769.39 usft	**Longitude:**	103° 17' 40.433 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.55 °

Well	Pine Straw 101H					
Well Position	**+N/-S**	0.0 usft	**Northing:**	425,694.72 usft	**Latitude:**	32° 9' 57.780 N
	+E/-W	0.0 usft	**Easting:**	862,709.39 usft	**Longitude:**	103° 17' 41.131 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,241.0 usft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	3/26/2019	6.63	60.03	47,751.36440690

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	179.94	

Survey Tool Program **Date** 3/26/2019

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
0.0	22,240.6	Design #1 (Wellbore #1)	MWD	OWSG MWD - Standard

Planned Survey

MD (usft)	**Inc (°)**	**Azi (azimuth) (°)**	**TVD (usft)**	**+FSL/-FNL (usft)**	**+FWL/-FEL (usft)**	**Latitude**	**Longitude**
0.0	0.00	0.00	0.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
100.0	0.00	0.00	100.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
200.0	0.00	0.00	200.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
300.0	0.00	0.00	300.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
400.0	0.00	0.00	400.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
500.0	0.00	0.00	500.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
600.0	0.00	0.00	600.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
700.0	0.00	0.00	700.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
800.0	0.00	0.00	800.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
900.0	0.00	0.00	900.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,000.0	0.00	0.00	1,000.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,100.0	0.00	0.00	1,100.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	*Wellbore #1*	***Survey Calculation Method:***	*Minimum Curvature*
Design:	Design #1	**Database:**	EDM5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
1,200.0	0.00	0.00	1,200.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,300.0	0.00	0.00	1,300.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,400.0	0.00	0.00	1,400.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,500.0	0.00	0.00	1,500.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,600.0	0.00	0.00	1,600.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,700.0	0.00	0.00	1,700.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,800.0	0.00	0.00	1,800.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
1,900.0	0.00	0.00	1,900.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
2,000.0	0.00	0.00	2,000.0	-233.5	230.0	32° 9' 57.780 N	103° 17' 41.131 W
2,100.0	2.00	340.00	2,100.0	-231.9	229.4	32° 9' 57.796 N	103° 17' 41.138 W
2,200.0	4.00	340.00	2,199.8	-226.9	227.6	32° 9' 57.845 N	103° 17' 41.158 W
2,300.0	6.00	340.00	2,299.5	-218.8	224.6	32° 9' 57.926 N	103° 17' 41.192 W
2,400.0	6.00	340.00	2,398.9	-208.9	221.1	32° 9' 58.024 N	103° 17' 41.232 W
2,500.0	6.00	340.00	2,498.4	-199.1	217.5	32° 9' 58.121 N	103° 17' 41.273 W
2,600.0	6.00	340.00	2,597.8	-189.3	213.9	32° 9' 58.219 N	103° 17' 41.313 W
2,700.0	6.00	340.00	2,697.3	-179.5	210.3	32° 9' 58.316 N	103° 17' 41.354 W
2,800.0	6.00	340.00	2,796.7	-169.6	206.8	32° 9' 58.414 N	103° 17' 41.394 W
2,900.0	6.00	340.00	2,896.2	-159.8	203.2	32° 9' 58.511 N	103° 17' 41.435 W
3,000.0	6.00	340.00	2,995.6	-150.0	199.6	32° 9' 58.609 N	103° 17' 41.475 W
3,100.0	6.00	340.00	3,095.1	-140.2	196.0	32° 9' 58.706 N	103° 17' 41.516 W
3,200.0	6.00	340.00	3,194.5	-130.4	192.5	32° 9' 58.804 N	103° 17' 41.556 W
3,300.0	6.00	340.00	3,294.0	-120.5	188.9	32° 9' 58.901 N	103° 17' 41.597 W
3,400.0	6.00	340.00	3,393.4	-110.7	185.3	32° 9' 58.999 N	103° 17' 41.637 W
3,500.0	6.00	340.00	3,492.9	-100.9	181.7	32° 9' 59.096 N	103° 17' 41.678 W
3,600.0	6.00	340.00	3,592.3	-91.1	178.2	32° 9' 59.194 N	103° 17' 41.718 W
3,700.0	6.00	340.00	3,691.8	-81.2	174.6	32° 9' 59.291 N	103° 17' 41.759 W
3,800.0	6.00	340.00	3,791.2	-71.4	171.0	32° 9' 59.389 N	103° 17' 41.799 W
3,900.0	6.00	340.00	3,890.7	-61.6	167.4	32° 9' 59.487 N	103° 17' 41.839 W
4,000.0	6.00	340.00	3,990.1	-51.8	163.9	32° 9' 59.584 N	103° 17' 41.880 W
4,100.0	6.00	340.00	4,089.6	-42.0	160.3	32° 9' 59.682 N	103° 17' 41.920 W
4,200.0	6.00	340.00	4,189.0	-32.1	156.7	32° 9' 59.779 N	103° 17' 41.961 W
4,300.0	6.00	340.00	4,288.5	-22.3	153.1	32° 9' 59.877 N	103° 17' 42.001 W
4,400.0	6.00	340.00	4,387.9	-12.5	149.6	32° 9' 59.974 N	103° 17' 42.042 W
4,500.0	6.00	340.00	4,487.4	-2.7	146.0	32° 10' 0.072 N	103° 17' 42.082 W
4,600.0	6.00	340.00	4,586.9	7.2	142.4	32° 10' 0.169 N	103° 17' 42.123 W
4,700.0	6.00	340.00	4,686.3	17.0	138.8	32° 10' 0.267 N	103° 17' 42.163 W
4,800.0	6.00	340.00	4,785.8	26.8	135.3	32° 10' 0.364 N	103° 17' 42.204 W
4,900.0	6.00	340.00	4,885.2	36.6	131.7	32° 10' 0.462 N	103° 17' 42.244 W
5,000.0	6.00	340.00	4,984.7	46.4	128.1	32° 10' 0.559 N	103° 17' 42.285 W
5,100.0	6.00	340.00	5,084.1	56.3	124.5	32° 10' 0.657 N	103° 17' 42.325 W
5,200.0	6.00	340.00	5,183.6	66.1	121.0	32° 10' 0.754 N	103° 17' 42.366 W
5,300.0	6.00	340.00	5,283.0	75.9	117.4	32° 10' 0.852 N	103° 17' 42.406 W
5,400.0	6.00	340.00	5,382.5	85.7	113.8	32° 10' 0.949 N	103° 17' 42.447 W
5,500.0	6.00	340.00	5,481.9	95.6	110.2	32° 10' 1.047 N	103° 17' 42.487 W

AMEREDEV

Ameredev Operating, LLC

Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
5,600.0	6.00	340.00	5,581.4	105.4	106.7	32° 10' 1.145 N	103° 17' 42.528 W
5,700.0	6.00	340.00	5,680.8	115.2	103.1	32° 10' 1.242 N	103° 17' 42.568 W
5,800.0	6.00	340.00	5,780.3	125.0	99.5	32° 10' 1.340 N	103° 17' 42.609 W
5,900.0	6.00	340.00	5,879.7	134.8	95.9	32° 10' 1.437 N	103° 17' 42.649 W
6,000.0	6.00	340.00	5,979.2	144.7	92.4	32° 10' 1.535 N	103° 17' 42.690 W
6,100.0	6.00	340.00	6,078.6	154.5	88.8	32° 10' 1.632 N	103° 17' 42.730 W
6,200.0	6.00	340.00	6,178.1	164.3	85.2	32° 10' 1.730 N	103° 17' 42.771 W
6,300.0	6.00	340.00	6,277.5	174.1	81.6	32° 10' 1.827 N	103° 17' 42.811 W
6,400.0	6.00	340.00	6,377.0	184.0	78.1	32° 10' 1.925 N	103° 17' 42.852 W
6,500.0	6.00	340.00	6,476.4	193.8	74.5	32° 10' 2.022 N	103° 17' 42.892 W
6,600.0	6.00	340.00	6,575.9	203.6	70.9	32° 10' 2.120 N	103° 17' 42.933 W
6,700.0	6.00	340.00	6,675.3	213.4	67.3	32° 10' 2.217 N	103° 17' 42.973 W
6,724.8	6.00	340.00	6,700.0	215.9	66.4	32° 10' 2.242 N	103° 17' 42.983 W
6,800.0	4.50	340.00	6,774.9	222.3	64.1	32° 10' 2.306 N	103° 17' 43.010 W
6,900.0	2.50	340.00	6,874.7	228.1	62.0	32° 10' 2.363 N	103° 17' 43.033 W
7,000.0	0.50	340.00	6,974.7	230.5	61.1	32° 10' 2.387 N	103° 17' 43.043 W
7,024.8	0.00	0.00	6,999.5	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,100.0	0.00	0.00	7,074.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,200.0	0.00	0.00	7,174.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,300.0	0.00	0.00	7,274.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,400.0	0.00	0.00	7,374.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,500.0	0.00	0.00	7,474.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,600.0	0.00	0.00	7,574.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,700.0	0.00	0.00	7,674.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,800.0	0.00	0.00	7,774.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
7,900.0	0.00	0.00	7,874.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,000.0	0.00	0.00	7,974.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,100.0	0.00	0.00	8,074.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,200.0	0.00	0.00	8,174.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,300.0	0.00	0.00	8,274.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,400.0	0.00	0.00	8,374.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,500.0	0.00	0.00	8,474.7	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,525.3	0.00	0.00	8,500.0	230.6	61.1	32° 10' 2.388 N	103° 17' 43.044 W
8,600.0	1.49	340.00	8,574.7	231.5	60.7	32° 10' 2.397 N	103° 17' 43.048 W
8,700.0	3.49	340.00	8,674.6	235.6	59.3	32° 10' 2.438 N	103° 17' 43.065 W
8,800.0	5.49	340.00	8,774.2	243.0	56.6	32° 10' 2.511 N	103° 17' 43.095 W
8,825.3	6.00	340.00	8,799.5	245.4	55.7	32° 10' 2.534 N	103° 17' 43.105 W
8,900.0	6.00	340.00	8,873.7	252.7	53.0	32° 10' 2.607 N	103° 17' 43.135 W
9,000.0	6.00	340.00	8,973.2	262.5	49.5	32° 10' 2.705 N	103° 17' 43.175 W
9,100.0	6.00	340.00	9,072.6	272.3	45.9	32° 10' 2.802 N	103° 17' 43.216 W
9,200.0	6.00	340.00	9,172.1	282.2	42.3	32° 10' 2.900 N	103° 17' 43.256 W
9,300.0	6.00	340.00	9,271.5	292.0	38.7	32° 10' 2.997 N	103° 17' 43.297 W
9,400.0	6.00	340.00	9,371.0	301.8	35.2	32° 10' 3.095 N	103° 17' 43.337 W
9,500.0	6.00	340.00	9,470.4	311.6	31.6	32° 10' 3.192 N	103° 17' 43.378 W

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
9,600.0	6.00	340.00	9,569.9	321.4	28.0	32° 10' 3.290 N	103° 17' 43.418 W
9,700.0	6.00	340.00	9,669.3	331.3	24.4	32° 10' 3.387 N	103° 17' 43.459 W
9,800.0	6.00	340.00	9,768.8	341.1	20.9	32° 10' 3.485 N	103° 17' 43.499 W
9,900.0	6.00	340.00	9,868.2	350.9	17.3	32° 10' 3.583 N	103° 17' 43.540 W
10,000.0	6.00	340.00	9,967.7	360.7	13.7	32° 10' 3.680 N	103° 17' 43.580 W
10,100.0	6.00	340.00	10,067.1	370.6	10.1	32° 10' 3.778 N	103° 17' 43.621 W
10,133.0	6.00	340.00	10,100.0	373.8	9.0	32° 10' 3.810 N	103° 17' 43.634 W
10,200.0	4.66	340.00	10,166.7	379.7	6.8	32° 10' 3.868 N	103° 17' 43.658 W
10,300.0	2.66	340.00	10,266.5	385.7	4.6	32° 10' 3.927 N	103° 17' 43.683 W
10,400.0	0.66	340.00	10,366.4	388.4	3.7	32° 10' 3.954 N	103° 17' 43.694 W
10,433.0	0.00	0.00	10,399.5	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
10,500.0	0.00	0.00	10,466.4	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
10,600.0	0.00	0.00	10,566.4	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
10,700.0	0.00	0.00	10,666.4	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
10,800.0	0.00	0.00	10,766.4	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
10,900.0	0.00	0.00	10,866.4	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
10,933.6	0.00	0.00	10,900.0	388.6	3.6	32° 10' 3.956 N	103° 17' 43.695 W
PS101 KOP							
11,000.0	7.85	101.84	10,966.2	387.6	8.0	32° 10' 3.947 N	103° 17' 43.643 W
11,100.0	19.68	101.84	11,063.2	382.7	31.3	32° 10' 3.896 N	103° 17' 43.373 W
11,115.4	21.51	101.84	11,077.6	381.6	36.6	32° 10' 3.885 N	103° 17' 43.312 W
11,200.0	25.33	125.30	11,155.4	368.0	66.6	32° 10' 3.747 N	103° 17' 42.964 W
11,300.0	33.17	143.65	11,242.7	333.4	100.4	32° 10' 3.402 N	103° 17' 42.575 W
11,400.0	42.71	155.10	11,321.6	280.5	131.0	32° 10' 2.875 N	103° 17' 42.225 W
11,500.0	53.04	162.92	11,388.6	211.3	157.1	32° 10' 2.187 N	103° 17' 41.929 W
11,600.0	63.75	168.82	11,441.0	128.8	177.6	32° 10' 1.369 N	103° 17' 41.700 W
11,700.0	74.66	173.71	11,476.5	36.5	191.6	32° 10' 0.455 N	103° 17' 41.547 W
11,800.0	85.67	178.10	11,493.5	-61.6	198.6	32° 9' 59.484 N	103° 17' 41.477 W
11,839.2	90.00	179.78	11,495.0	-100.7	199.3	32° 9' 59.096 N	103° 17' 41.473 W
PS101 FTP							
11,900.0	90.00	179.78	11,495.0	-161.5	199.6	32° 9' 58.495 N	103° 17' 41.477 W
12,000.0	90.00	179.78	11,495.0	-261.5	199.9	32° 9' 57.505 N	103° 17' 41.484 W
12,100.0	90.00	179.78	11,495.0	-361.5	200.3	32° 9' 56.516 N	103° 17' 41.490 W
12,200.0	90.00	179.78	11,495.0	-461.5	200.7	32° 9' 55.526 N	103° 17' 41.497 W
12,300.0	90.00	179.78	11,495.0	-561.5	201.1	32° 9' 54.537 N	103° 17' 41.504 W
12,400.0	90.00	179.78	11,495.0	-661.5	201.5	32° 9' 53.547 N	103° 17' 41.510 W
12,500.0	90.00	179.78	11,495.0	-761.5	201.9	32° 9' 52.558 N	103° 17' 41.517 W
12,600.0	90.00	179.78	11,495.0	-861.5	202.3	32° 9' 51.568 N	103° 17' 41.524 W
12,700.0	90.00	179.78	11,495.0	-961.5	202.7	32° 9' 50.579 N	103° 17' 41.530 W
12,800.0	90.00	179.78	11,495.0	-1,061.5	203.1	32° 9' 49.589 N	103° 17' 41.537 W
12,900.0	90.00	179.78	11,495.0	-1,161.5	203.5	32° 9' 48.600 N	103° 17' 41.544 W
13,000.0	90.00	179.78	11,495.0	-1,261.5	203.8	32° 9' 47.611 N	103° 17' 41.551 W
13,100.0	90.00	179.78	11,495.0	-1,361.5	204.2	32° 9' 46.621 N	103° 17' 41.557 W
13,200.0	90.00	179.78	11,495.0	-1,461.5	204.6	32° 9' 45.632 N	103° 17' 41.564 W
13,300.0	90.00	179.78	11,495.0	-1,561.5	205.0	32° 9' 44.642 N	103° 17' 41.571 W

AMEREDEV

Ameredev Operating, LLC

Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
13,400.0	90.00	179.78	11,495.0	-1,661.5	205.4	32° 9' 43.653 N	103° 17' 41.577 W
13,500.0	90.00	179.78	11,495.0	-1,761.5	205.8	32° 9' 42.663 N	103° 17' 41.584 W
13,600.0	90.00	179.78	11,495.0	-1,861.5	206.2	32° 9' 41.674 N	103° 17' 41.591 W
13,700.0	90.00	179.78	11,495.0	-1,961.5	206.6	32° 9' 40.684 N	103° 17' 41.597 W
13,800.0	90.00	179.78	11,495.0	-2,061.5	207.0	32° 9' 39.695 N	103° 17' 41.604 W
13,900.0	90.00	179.78	11,495.0	-2,161.5	207.4	32° 9' 38.705 N	103° 17' 41.611 W
14,000.0	90.00	179.78	11,495.0	-2,261.5	207.8	32° 9' 37.716 N	103° 17' 41.617 W
14,100.0	90.00	179.78	11,495.0	-2,361.5	208.1	32° 9' 36.726 N	103° 17' 41.624 W
14,200.0	90.00	179.78	11,495.0	-2,461.5	208.5	32° 9' 35.737 N	103° 17' 41.631 W
14,300.0	90.00	179.78	11,495.0	-2,561.5	208.9	32° 9' 34.747 N	103° 17' 41.637 W
14,400.0	90.00	179.78	11,495.0	-2,661.5	209.3	32° 9' 33.758 N	103° 17' 41.644 W
14,500.0	90.00	179.78	11,495.0	-2,761.5	209.7	32° 9' 32.768 N	103° 17' 41.651 W
14,600.0	90.00	179.78	11,495.0	-2,861.5	210.1	32° 9' 31.779 N	103° 17' 41.657 W
14,700.0	90.00	179.78	11,495.0	-2,961.5	210.5	32° 9' 30.789 N	103° 17' 41.664 W
14,800.0	90.00	179.78	11,495.0	-3,061.5	210.9	32° 9' 29.800 N	103° 17' 41.671 W
14,900.0	90.00	179.78	11,495.0	-3,161.5	211.3	32° 9' 28.810 N	103° 17' 41.677 W
15,000.0	90.00	179.78	11,495.0	-3,261.5	211.7	32° 9' 27.821 N	103° 17' 41.684 W
15,100.0	90.00	179.78	11,495.0	-3,361.5	212.0	32° 9' 26.831 N	103° 17' 41.691 W
15,200.0	90.00	179.78	11,495.0	-3,461.5	212.4	32° 9' 25.842 N	103° 17' 41.697 W
15,300.0	90.00	179.78	11,495.0	-3,561.5	212.8	32° 9' 24.852 N	103° 17' 41.704 W
15,400.0	90.00	179.78	11,495.0	-3,661.5	213.2	32° 9' 23.863 N	103° 17' 41.711 W
15,500.0	90.00	179.78	11,495.0	-3,761.5	213.6	32° 9' 22.873 N	103° 17' 41.718 W
15,600.0	90.00	179.78	11,495.0	-3,861.5	214.0	32° 9' 21.884 N	103° 17' 41.724 W
15,700.0	90.00	179.78	11,495.0	-3,961.5	214.4	32° 9' 20.894 N	103° 17' 41.731 W
15,800.0	90.00	179.78	11,495.0	-4,061.5	214.8	32° 9' 19.905 N	103° 17' 41.738 W
15,900.0	90.00	179.78	11,495.0	-4,161.5	215.2	32° 9' 18.916 N	103° 17' 41.744 W
16,000.0	90.00	179.78	11,495.0	-4,261.5	215.6	32° 9' 17.926 N	103° 17' 41.751 W
16,100.0	90.00	179.78	11,495.0	-4,361.5	216.0	32° 9' 16.937 N	103° 17' 41.758 W
16,200.0	90.00	179.78	11,495.0	-4,461.5	216.3	32° 9' 15.947 N	103° 17' 41.764 W
16,300.0	90.00	179.78	11,495.0	-4,561.5	216.7	32° 9' 14.958 N	103° 17' 41.771 W
16,400.0	90.00	179.78	11,495.0	-4,661.5	217.1	32° 9' 13.968 N	103° 17' 41.778 W
16,500.0	90.00	179.78	11,495.0	-4,761.5	217.5	32° 9' 12.979 N	103° 17' 41.784 W
16,600.0	90.00	179.78	11,495.0	-4,861.5	217.9	32° 9' 11.989 N	103° 17' 41.791 W
16,700.0	90.00	179.78	11,495.0	-4,961.5	218.3	32° 9' 11.000 N	103° 17' 41.798 W
16,800.0	90.00	179.78	11,495.0	-5,061.5	218.7	32° 9' 10.010 N	103° 17' 41.804 W
16,900.0	90.00	179.78	11,495.0	-5,161.5	219.1	32° 9' 9.021 N	103° 17' 41.811 W
17,000.0	90.00	179.78	11,495.0	-5,261.5	219.5	32° 9' 8.031 N	103° 17' 41.818 W
17,018.5	90.00	179.78	11,495.0	-5,280.0	219.5	32° 9' 7.848 N	103° 17' 41.819 W
PS101 into NMNM120914							
17,100.0	90.00	179.78	11,495.0	-5,361.5	219.9	32° 9' 7.042 N	103° 17' 41.824 W
17,200.0	90.00	179.78	11,495.0	-5,461.5	220.3	32° 9' 6.052 N	103° 17' 41.831 W
17,300.0	90.00	179.78	11,495.0	-5,561.5	220.6	32° 9' 5.063 N	103° 17' 41.838 W
17,400.0	90.00	179.78	11,495.0	-5,661.5	221.0	32° 9' 4.073 N	103° 17' 41.844 W
17,500.0	90.00	179.78	11,495.0	-5,761.5	221.4	32° 9' 3.084 N	103° 17' 41.851 W

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
17,600.0	90.00	179.78	11,495.0	-5,861.5	221.8	32° 9' 2.094 N	103° 17' 41.858 W
17,700.0	90.00	179.78	11,495.0	-5,961.5	222.2	32° 9' 1.105 N	103° 17' 41.864 W
17,800.0	90.00	179.78	11,495.0	-6,061.5	222.6	32° 9' 0.115 N	103° 17' 41.871 W
17,900.0	90.00	179.78	11,495.0	-6,161.5	223.0	32° 8' 59.126 N	103° 17' 41.878 W
18,000.0	90.00	179.78	11,495.0	-6,261.5	223.4	32° 8' 58.136 N	103° 17' 41.884 W
18,100.0	90.00	179.78	11,495.0	-6,361.5	223.8	32° 8' 57.147 N	103° 17' 41.891 W
18,200.0	90.00	179.78	11,495.0	-6,461.5	224.2	32° 8' 56.157 N	103° 17' 41.898 W
18,300.0	90.00	179.78	11,495.0	-6,561.5	224.5	32° 8' 55.168 N	103° 17' 41.904 W
18,400.0	90.00	179.78	11,495.0	-6,661.5	224.9	32° 8' 54.178 N	103° 17' 41.911 W
18,500.0	90.00	179.78	11,495.0	-6,761.5	225.3	32° 8' 53.189 N	103° 17' 41.918 W
18,600.0	90.00	179.78	11,495.0	-6,861.5	225.7	32° 8' 52.199 N	103° 17' 41.924 W
18,700.0	90.00	179.78	11,495.0	-6,961.5	226.1	32° 8' 51.210 N	103° 17' 41.931 W
18,800.0	90.00	179.78	11,495.0	-7,061.5	226.5	32° 8' 50.220 N	103° 17' 41.938 W
18,900.0	90.00	179.78	11,495.0	-7,161.5	226.9	32° 8' 49.231 N	103° 17' 41.945 W
19,000.0	90.00	179.78	11,495.0	-7,261.5	227.3	32° 8' 48.241 N	103° 17' 41.951 W
19,100.0	90.00	179.78	11,495.0	-7,361.5	227.7	32° 8' 47.252 N	103° 17' 41.958 W
19,200.0	90.00	179.78	11,495.0	-7,461.5	228.1	32° 8' 46.263 N	103° 17' 41.965 W
19,300.0	90.00	179.78	11,495.0	-7,561.5	228.5	32° 8' 45.273 N	103° 17' 41.971 W
19,400.0	90.00	179.78	11,495.0	-7,661.5	228.8	32° 8' 44.284 N	103° 17' 41.978 W
19,500.0	90.00	179.78	11,495.0	-7,761.5	229.2	32° 8' 43.294 N	103° 17' 41.985 W
19,600.0	90.00	179.78	11,495.0	-7,861.5	229.6	32° 8' 42.305 N	103° 17' 41.991 W
19,700.0	90.00	179.78	11,495.0	-7,961.5	230.0	32° 8' 41.315 N	103° 17' 41.998 W
19,800.0	90.00	179.78	11,495.0	-8,061.5	230.4	32° 8' 40.326 N	103° 17' 42.005 W
19,900.0	90.00	179.78	11,495.0	-8,161.5	230.8	32° 8' 39.336 N	103° 17' 42.011 W
20,000.0	90.00	179.78	11,495.0	-8,261.5	231.2	32° 8' 38.347 N	103° 17' 42.018 W
20,100.0	90.00	179.78	11,495.0	-8,361.5	231.6	32° 8' 37.357 N	103° 17' 42.025 W
20,200.0	90.00	179.78	11,495.0	-8,461.5	232.0	32° 8' 36.368 N	103° 17' 42.031 W
20,300.0	90.00	179.78	11,495.0	-8,561.5	232.4	32° 8' 35.378 N	103° 17' 42.038 W
20,400.0	90.00	179.78	11,495.0	-8,661.5	232.7	32° 8' 34.389 N	103° 17' 42.045 W
20,500.0	90.00	179.78	11,495.0	-8,761.5	233.1	32° 8' 33.399 N	103° 17' 42.051 W
20,600.0	90.00	179.78	11,495.0	-8,861.5	233.5	32° 8' 32.410 N	103° 17' 42.058 W
20,700.0	90.00	179.78	11,495.0	-8,961.5	233.9	32° 8' 31.420 N	103° 17' 42.065 W
20,800.0	90.00	179.78	11,495.0	-9,061.4	234.3	32° 8' 30.431 N	103° 17' 42.071 W
20,900.0	90.00	179.78	11,495.0	-9,161.4	234.7	32° 8' 29.441 N	103° 17' 42.078 W
21,000.0	90.00	179.78	11,495.0	-9,261.4	235.1	32° 8' 28.452 N	103° 17' 42.085 W
21,100.0	90.00	179.78	11,495.0	-9,361.4	235.5	32° 8' 27.462 N	103° 17' 42.091 W
21,200.0	90.00	179.78	11,495.0	-9,461.4	235.9	32° 8' 26.473 N	103° 17' 42.098 W
21,300.0	90.00	179.78	11,495.0	-9,561.4	236.3	32° 8' 25.483 N	103° 17' 42.105 W
21,400.0	90.00	179.78	11,495.0	-9,661.4	236.7	32° 8' 24.494 N	103° 17' 42.111 W
21,500.0	90.00	179.78	11,495.0	-9,761.4	237.0	32° 8' 23.504 N	103° 17' 42.118 W
21,600.0	90.00	179.78	11,495.0	-9,861.4	237.4	32° 8' 22.515 N	103° 17' 42.125 W
21,700.0	90.00	179.78	11,495.0	-9,961.4	237.8	32° 8' 21.525 N	103° 17' 42.131 W
21,800.0	90.00	179.78	11,495.0	-10,061.4	238.2	32° 8' 20.536 N	103° 17' 42.138 W
21,900.0	90.00	179.78	11,495.0	-10,161.4	238.6	32° 8' 19.546 N	103° 17' 42.145 W

AMEREDEV

Ameredev Operating, LLC

Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	**Local Co-ordinate Reference:**	Well Pine Straw 101H
Project:	PIN/DOG	**TVD Reference:**	KB @ 3268.0usft
Site:	PINDOG #1S	**MD Reference:**	KB @ 3268.0usft
Well:	Pine Straw 101H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
22,000.0	90.00	179.78	11,495.0	-10,261.4	239.0	32° 8' 18.557 N	103° 17' 42.151 W
22,100.0	90.00	179.78	11,495.0	-10,361.4	239.4	32° 8' 17.567 N	103° 17' 42.158 W
22,191.1	90.00	179.78	11,495.0	-10,452.5	239.7	32° 8' 16.666 N	103° 17' 42.164 W
PS101 LTP							
22,200.0	90.00	179.78	11,495.0	-10,461.4	239.8	32° 8' 16.578 N	103° 17' 42.165 W
22,240.6	90.00	179.78	11,495.0	-10,502.0	239.9	32° 8' 16.176 N	103° 17' 42.167 W
PS101 BHL							

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
17,018.5	11,495.0	-5,046.5	-10.5	PS101 into NMNM120914

Checked By: _____ Approved By: _____ Date: _____

AMEREDEV

5M Annular Preventer Variance Request and Well Control Procedures

Note: A copy of the Well Control Plan must be available at multiple locations on the rig for review by rig personnel, as well as review by the BLM PET/PE, and a copy must be maintained on the rig floor.

Dual Isolation Design for 5M Annular Exception

Ameredev will utilize 13-5/8" 10M (5M Annular) BOPE System consisting of:

- 13-5/8" 5M Annular
- 13-5/8" 10M Upper Pipe Rams
  - 3-1/2" – 5-1/2" Variable Bore Ram
- 13-5/8" 10M Blind Rams
- 13-5/8" 10M Drilling Spool /w 2 - 4" 10M Outlets Double 10M Isolation Valves
- 13-5/8" 10M Lower Blind Rams
  - 3-1/2" – 5-1/2" Variable Bore Ram

All drilling components and casing associated to exposure > 5000 psi BHP requiring a 10M system will have a double isolation (secondary barrier) below the 5M Annular that would provide a barrier to flow. The mud system will always be primary barrier, it will be maintained by adjusting values based on tourly mud tests and monitoring a PVT System to maintain static wellbore conditions, displacement procedures will be followed and recorded on daily drilling reports during tripping operations. Surge and swab pressure values will be calculated and maintained and static flow check will be monitored at previous casing shoe and verified static well conditions prior to tripping out of hole and again prior to pulling last joint of drill pipe through BOPE. The below table, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Drill Components	Size	Primary Barrier	Secondary Barrier	Third Barrier
Drillpipe	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams
HWDP Drillpipe	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams
Drill Collars	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams
Production Casing	3-1/2"-5-1/2"	Drilling Fluid	Upper Pipe Rams	Lower Pipe Rams

Well Control Procedures

Proper well control procedures are dependent to differentiating well conditions, to cover the basic well control operations there are will be standard drilling ahead, tripping pipe, tripping BHA, running casing, and pipe out of the hole/open hole scenarios that will be defined by procedures below. Initial Shut In Pressure can be taken against the Uppermost BOPE component the 5M Annular, pressure control can be transferred from the lesser 5M Annular to the 10M Upper Pipe Rams if needed. Shut In Pressures may be equal to or less than the Rated Working Pressure but at no time will the pressure on the annular preventer exceed the Rated Working Pressure of the annular. The annular will be tested to 5,000 psi. This will be the Rated Working Pressure of the annular preventer. All scenarios will be written such as shut in will be performed by closing the 10,000 psi Upper Pipe Rams for faster Accumulator pressure recovery to allow safer reaction to controlling wellbore pressure.

Shutting In While Drilling

1. Sound alarm signaling well control event to Rig Crew
2. Space out drill string to allow FOSV installation
3. Shut down pumps
4. Shut in Upper Pipe Rams and open HCR against Open Chokes and Valves Open to working pressure gauge
5. Install open, full open safety valve and close valve, Close Chokes
6. Verify well is shut-in and flow has stopped
7. Notify supervisory personnel
8. Record data (SIDP, SICP, Pit Gain, and Time)
9. Hold pre-job safety meeting and discuss kill procedure

Shutting In While Tripping

1. Sound alarm signaling well control event to Rig Crew
2. Space out drill string to allow FOSV installation
3. Shut in Upper Pipe Rams and open HCR against Open Chokes and Valves Open to working pressure gauge
4. Install open, full open safety valve and close valve, Close Chokes
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)

Shutting In While Running Casing

1. Sound alarm signaling well control event to Rig Crew
2. Space out casing to allow circulating swedge installation
3. Shut in Upper Pipe Rams and open HCR against Open Chokes and Valves Open to working pressure gauge
4. Install circulating swedge, Close high pressure, low torque valves, Close Chokes
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold Pre-job safety meeting and discuss kill procedure

Shutting in while out of hole

1. Sound alarm signaling well control event to Rig Crew
2. Shut-in well: close blind rams and open HCR against Open Chokes and Valves Open to working pressure gauge
3. Close Chokes, Verify well is shut-in and monitor pressures
4. Notify supervisory personnel
5. Record data (SIDP, SICP, Pit Gain, and Time)
6. Hold Pre-job safety meeting and discuss kill procedure

Shutting in prior to pulling BHA through stack

Prior to pulling last joint of drill pipe thru the stack space out and check flow
If flowing see steps below.

1. Sound alarm signaling well control event to Rig Crew
2. Shut in upper pipe ram and open HCR against Open Chokes and Valves Open to working pressure gauge
3. Install open, full open safety valve and close valve, Close Chokes
4. Verify well is shut-in and flow has stopped
5. Notify supervisory personnel
6. Record data (SIDP, SICP, Pit Gain, and Time)
7. Hold pre-job safety meeting and discuss kill procedure

Shutting in while BHA is in the stack and ram preventer and combo immediately available

1. Sound alarm signaling well control event to Rig Crew
2. Space out BHA with upset just beneath the compatible pipe ram
3. Shut in upper compatible pipe ram and open HCR against Open Chokes and Valves Open to working pressure gauge
4. Install open, full open safety valve and close valve, Close Chokes
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold pre-job safety meeting and discuss kill procedure

*FOSV will be on rig floor in open position with operating handle for each type of connection utilized and tested to 10,000 psi

Shutting in while BHA is in the stack and no ram preventer or combo immediately available

1. Sound alarm signaling well control event to Rig Crew
2. If possible pick up high enough, to pull string clear and follow "Open Hole" scenario

If not possible to pick up high enough:

3. Stab Crossover, make up one joint/stand of drill pipe, and install open, full open safety valve (Leave Open)
4. Space out drill string with upset just beneath the compatible pipe ram.
5. Shut in upper compatible pipe ram and open HCR against Open Chokes and Valves Open to working pressure gauge
6. Close FOSV, Close Chokes, Verify well is shut-in and flow has stopped
7. Notify supervisory personnel
8. Record data (SIDP, SICP, Pit Gain, and Time)
9. Hold pre-job safety meeting and discuss kill procedure

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Pressure Control Plan

Pressure Control Equipment

- Following setting of 13-3/8" Surface Casing Ameredev will install 13-5/8 MB4 Multi Bowl Casing Head by welding on a 13-5/8 SOW x 13-5/8" 5M in combination with 13-5/8 5M x 13-5/8 10M B-Sec to Land Intm #1 and a 13-5/8 10M x 13-5/8 10M shouldered to land C-Sec to Land Intm #2 (Installation procedure witnessed and verified by a manufacturer's representative).

- Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- Ameredev will install a 5M System Blowout Preventer (BOPE) with a 5M Annular Preventer and related equipment (BOPE). Full testing will be performed utilizing a full isolation test plug and limited to 5,000 psi MOP of MB4 Multi Bowl Casing Head. Pressure will be held for 10 min or until provisions of test are met on all valves and rams. The 5M Annular Preventer will be tested to 50% of approved working pressure (2,500 psi). Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- Setting of 9-5/8" Intermediate will be done by landing a wellhead hanger in the 13-5/8" 5M Bowl, Cementing and setting Well Head Packing seals and testing same. (Installation procedure witnessed and verified by a manufacturer's representative) Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- Full testing will be performed utilizing a full isolation test plug to 10,000 psi MOP of MB4 Multi Bowl B-Section. Pressure will be held for 10 min or until provisions of test are met on all valves and rams. The 5M Annular Preventer will be tested to 100% of approved working pressure (5,000 psi).

- Before drilling >20ft of new formation under the 9-5/8" Casing Shoe a pressure integrity test of the Casing Shoe will be performed to minimum of the MWE anticipated to control formation pressure to the next casing depth.

- Following setting of 5-1/2" Production Casing and adequate WOC time Ameredev will break 10M System Blowout Preventer (BOP) from 10M DOL-2 Casing Head, install annulus casing slips and test same (Installation procedure witnessed and verified by a manufacturer's representative) and install 11" 10M x 5-1/8" 15M Tubing Head (Installation procedure witnessed and verified by a manufacturer's representative). Ameredev will test head to 70% casing design and install Dry Hole cap with needle valve and pressure gauge to monitor well awaiting completion.

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Pressure Control Plan

- Slow pump speeds will be taken daily by each crew and recorded on Daily Drilling Report after mudding up.
- A choke manifold and accumulator with floor and remote operating stations will be functional and in place after installation of BOPE, as well as full functioning mud gas separator.
- Weekly BOPE pit level drills will be conducted by each crew and recorded on Daily Drilling Report.
- BOP will be fully operated when out of hole and will be documented on the daily drilling log.
- All B.O.P.s and associated equipment will be tested in accordance with Onshore Order #2
- All B.O.P. testing will be done by an independent service company.
- The B.O.P. will be tested within 21 days of the original test if drilling takes more time than planned.
- Ameredev requests a variance to connect the B.O.P. choke outlet to the choke manifold using a co-flex hose with a 10,000 psi working pressure that has been tested to 15,000psi and is built to API Spec 16C. Once the flex line is installed it will be tied down with safety clamps. (certifications will be sent to Carlsbad BLM Office prior to install)
- Ameredev requests a variance to install a 5M Annular Preventer on the 10M System to drill the Production Hole below the 9-5/8" Intermediate Section. 5M Annular will be tested to 100% working pressure (5,000 psi). A full well control procedure will be included to isolate well bore.

Ameredev Drilling Plan: 3 String with 4 String Contingency

- Contingency Plan If Losses Exceed 50% in Intermediate Interval
  - We will utilize a MB4 wellhead that will enable us to convert a 3 string design to a 4 string design. (Schematic Attached)
  - We will displace well with FW and drill or condition to run 9-5/8" Casing at the Lamar Limestone, we will utilize DV Tool w/ ACP @ the Tansill to Isolate Capitan Reef and cement to surface.
  - Casing will be tested to 1500 psi or .22 psi/ft whichever is greater for 30 minutes with <10% leak off, but will not exceed 70% of the burst rating per Onshore Order No. 2.

- 7.625 Casing will be Additional 4th String
  - Drill remaining hole section to 10,670'
  - Run 7.625 29.7# HCL80 FJM Casing

AMEREDEV

4-String Contingency Wellbore Schematic

Well:	(Well Name)	**Co. Well ID:**	xxxxxx
SHL:	(SHL)	**AFE No.:**	xxxx-xxx
BHL:	(BHL)	**API No.:**	xxxxxxxxxxx
	Lea, NM	**GL:**	(Elevation)'
Wellhead:	A - 13-5/8" 10M x 13-5/8" SOW	**Field:**	Delaware
	B - 13-5/8" 10M x 13-5/8" 10M	**Objective:**	Wolfcamp B
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	(TVD)'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	(MD)'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD **KB** 27'
Tubing:	2-7/8" L-80 6.5# 8rd EUE	**E-Mail:**	Wellsite2@ameredev.com

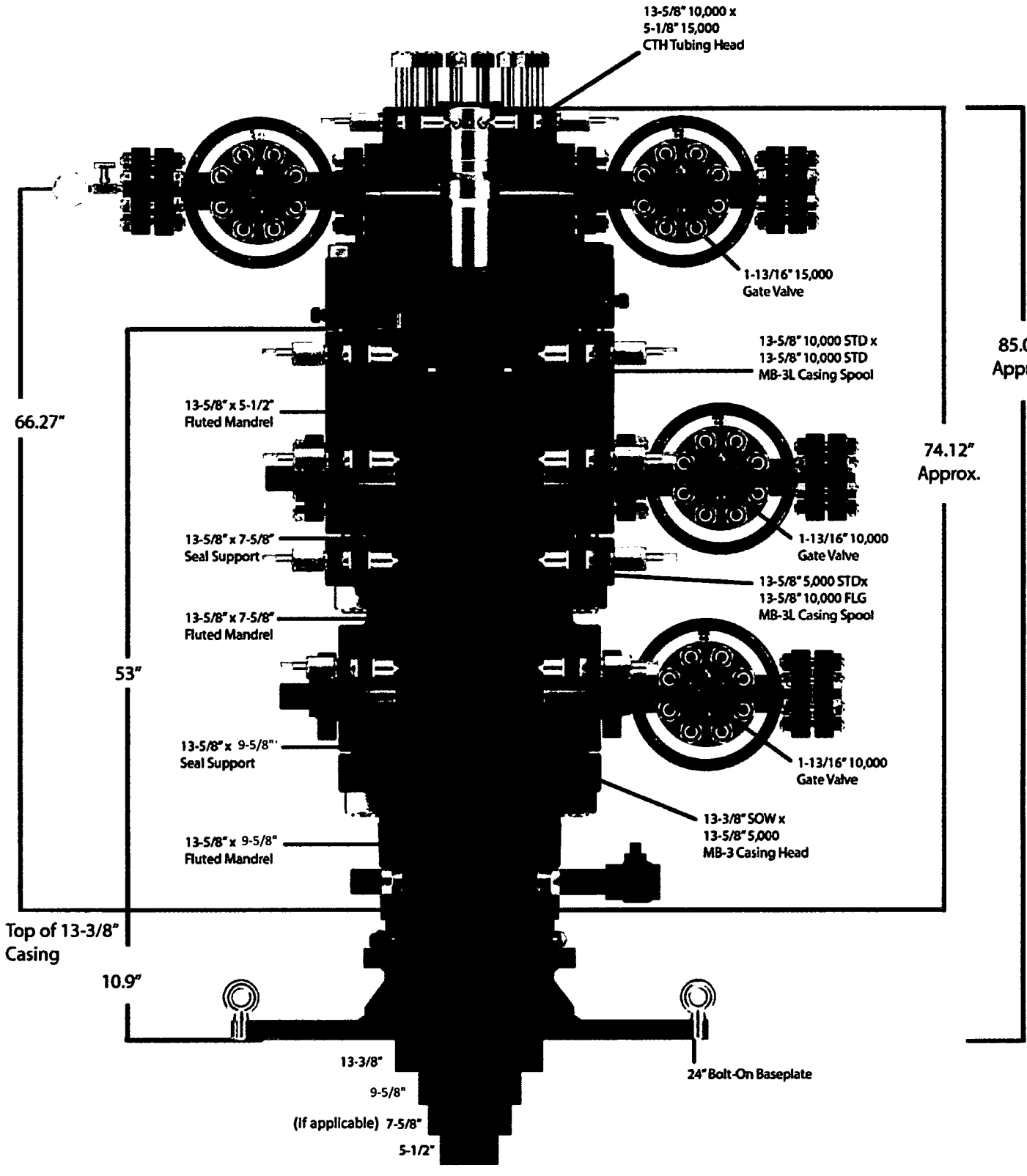
Hole Size	Formation Tops		Logs	Cement	Mud Weight
17.5"	Rustler	125' below Rustler		TOC 0' 100% Excess	8.4-8.6 ppg WBM
	13.375" 54.5# J-55 BTC				
12.25"	Salado			TOC 0' 50% Excess	8.3-10.2 Fresh Water
	DV Tool with ACP	At Tansill			
	Tansill			TOC 0' 50% Excess	
	Capitan Reef				
	Lamar	50' below Lamar			
	9.625" 40# L-80HC BTC				
8.75"	Bell Canyon			TOC 0' 25% Excess	8.5-9.4 Diesel Brine Emulsion
	Brushy Canyon				
	Bone Spring Lime				
	First Bone Spring				
	Second Bone Spring				
	Third Bone Spring Upper	125' below TBSG Upper			
	7.625" 29.7# L-80HC FJM				
6.75" 12° Build @ KOP	Third Bone Spring			TOC 0' 25% Excess	10.5-14 ppg OBM
	Wolfcamp				
	Wolfcamp B (If Applicable)				
	5.5" 20# P-110CYHP TMK UP SF TORQ	**(MD)**			
	Target Wolfcamp B	**TVD // MD**			

EXAMPLE ONLY - NOT FOR CONSTRUCTION

Contingency Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
Surface	17.5	1,888'	13.375	54.5	J-55	BTC
Int #1	12.25	5,013'	9.625	40	HCL-80	BTC
Int #2	8.75	11,147'	7.625	29.7	HCL-80	FJM
Prod Segment A	6.75	11,147'	5.5	20	CYHP-110	TMK UPSF
Prod Segment B	6.75	22,496'	5.5	20	CYHP-110	TMK UPSF

Check Surface Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
14.38	853	909	1,130	2,730
Safety Factors				
1.56	8.29	8.83	1.15	0.91
Check Int #1 Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
10.625	916	1042	4230	5750
Safety Factors				
0.81	4.57	5.20	1.41	0.95
Check Int #2 Casing				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
7.625	940	558	6700	9460
Safety Factors				
0.56	2.84	1.96	1.10	1.24
Check Prod Casing, Segment A				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
0.49	3.11	2.79	1.77	1.89
Check Prod Casing, Segment B				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
5.777	728	655	12780	14360
Safety Factors				
0.49	63.53	57.16	1.68	1.89



Quotation

Downing Wellhead Equipment

Oklahoma City,
Oklahoma - USA

Reference Data:

16925 AMEREDEV

Proprietary and Confidential

TITLE:

AMEREDEV

DRAWN			SIZE	DWG. NO.	REV.
CHECKED			A		
APPROVED			Scale:	Weight:	Sheet:

EXAMPLE ONLY - NOT FOR CONSTRUCTION

Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
17.5	13.375	1888	[redacted]	1.76	13.5

Bbl/Sk	0.31372549
bbls	419.402246
Stage Tool Depth	N/A
Top MD of Segment	0
Bottom MD of Segment	1502
Cement Type	C
Additves	Bentonite, Accelerator, Kolseal, Defoamer, Celloflake
Quantity (sks)	1,337
Yield (cu ft/sk)	1.76
Density (lbs/gal)	13.5
Volume (cu ft)	2,352.85
Percent Excess	100%
Column Height	3,389.88

Target % 100% [redacted]

Target TOC	0			
Calc TOC	-1888	bbl	25% Excess	100%
calc vol	0.12372195	233.587041	291.9838012	467.174082

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
17.5	13.375	1888	[redacted]	1.34	14.8

Bbl/Sk	0.23885918
bbls	47.77183601
Top MD of Segment	1502
Bottom MD of Segment	1888
Cement Type	C
Additives	
Quantity (sks)	200
Yield (cu ft/sk)	1.34
Density (lbs/gal)	14.8
Volume (cu ft)	268
Percent Excess	100%
Column Height	386.1225606

SURFACE CEMENT

EXAMPLE ONLY - NOT FOR CONSTRUCTION

Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	5013	[redacted]	3.5	9

Bbl/Sk	0.623885918
bbls	372.0365733
Stage Tool Depth	N/A
Top MD of Segment	0
Bottom MD of Segment	4163
Cement Type	C
Additves	Bentonite,Salt,Kolseal,Defoamer,Celloclake
Quantity (sks)	596
Yield (cu ft/sk)	3.5
Density (lbs/gal)	9
Volume (cu ft)	2,087.13
Percent Excess	50%
Column Height	6,669.49

Target % 50% [redacted]

Target TOC	0			
Calc TOC	-2506.5	bbl	25% Excess	50%
calc vol	0.055781888	279.6346021	349.5432526	419.4519031

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	5013	[redacted]	1.33	14.8

Bbl/Sk	0.237076649
bbls	47.41532977
Top MD of Segment	4163
Bottom MD of Segment	5013
Cement Type	C
Additives	
Quantity (sks)	200
Yield (cu ft/sk)	1.33
Density (lbs/gal)	14.8
Volume (cu ft)	266
Percent Excess	25%
Column Height	850.013004

INTERMEDIATE 1 CEMENT - STAGE 1

EXAMPLE ONLY - NOT FOR CONSTRUCTION

Stage 2 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	3262	[redacted]	3.5	9

Bbl/Sk	0.623885918
bbls	225.5254458
Stage Tool Depth	N/A
Top MD of Segment	0
Bottom MD of Segment	2412
Cement Type	C
Additves	Bentonite,Salt,Kolseal,Defoamer,Cellocl[redacted]
Quantity (sks)	361
Yield (cu ft/sk)	3.5
Density (lbs/gal)	9
Volume (cu ft)	1,265.20
Percent Excess	50%
Column Height	4,042.99

Target % 50%[redacted]

Target TOC	0			
Calc TOC	-1631	bbl	25% Excess	50%
calc vol	0.055781888	181.960517	227.4506463	272.9407756

Stage 2 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	3262	[redacted]	1.33	14.8

Bbl/Sk	0.237076649
bbls	47.41532977
Top MD of Segment	2412
Bottom MD of Segment	3262
Cement Type	C
Additives	
Quantity (sks)	200
Yield (cu ft/sk)	1.33
Density (lbs/gal)	14.8
Volume (cu ft)	266
Percent Excess	25%
Column Height	850.013004

INTERMEDIATE 1 CEMENT - STAGE 2

EXAMPLE ONLY - NOT FOR CONSTRUCTION

Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
8.75	7.625	10670	[redacted]	2.47	9

Bbl/Sk	0.440285205
bbls	168.6309595
Stage Tool Depth	N/A
Top MD of Segment	0
Bottom MD of Segment	6755
Cement Type	H
Additves	Bentonite,Retarder,Kolseal,Defoamer,Celloflake, Anti-Settling
Expansion Additive	
Quantity (sks)	383
Yield (cu ft/sk)	2.47
Density (lbs/gal)	9
Volume (cu ft)	946.02
Percent Excess	25%
Column Height	9,422.97

Target % 25% [redacted]

Target TOC	0			
Calc TOC	-2667.5	bbl	25% Excess	25%
calc vol	0.01789574	190.9475483	238.6844354	238.6844354

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
8.75	7.625	10670	[redacted]	1.31	14.2

Bbl/Sk	0.233511586
bbls	70.05347594
Top MD of Segment	6755
Bottom MD of Segment	10670
Cement Type	H
Additves	Salt,Bentonite,Retarder,Dispersant,Fluid Loss
Quantity (sks)	300
Yield (cu ft/sk)	1.31
Density (lbs/gal)	14.2
Volume (cu ft)	393
Percent Excess	25%
Column Height	3914.533571

INTERMEDIATE 2 CEMENT

EXAMPLE ONLY - NOT FOR CONSTRUCTION

Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
6.75	5.5	22496	[redacted]	1.34	14.2

Bbl/Sk		0.23885918	
bbls		418.2897805	
Stage Tool Depth		N/A	
Top MD of Segment		0	
Bottom MD of Segment		22496	
Cement Type		H	
Additves	Salt, Bentonite, Fluid Loss, Dispersant, Retarder, Defoamer		
Quantity (sks)		1,751	
Yield (cu ft/sk)		1.34	
Density (lbs/gal)		14.2	
Volume (cu ft)		2,346.61	
Percent Excess		25%	Target % 25%
Column Height		28,120.00	

Target TOC	0			
Calc TOC	-5624	bbl	25% Excess	25%
calc vol	0.01487517	334.6318244	418.2897805	418.2897805

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
6.75	5.5	22496	0	0	0

Bbl/Sk	0
bbls	0
Top MD of Segment	22496
Bottom MD of Segment	22496
Cement Type	H
Additives	
Quantity (sks)	0
Yield (cu ft/sk)	0
Density (lbs/gal)	0
Volume (cu ft)	0
Percent Excess	
Column Height	0

PRODUCTION CEMENT

HALLIBURTON

Permian Basin, Ft Stockton

Lab Results- Lead

Job Information

Request/Slurry	2488456/2	**Rig Name**		**Date**	18/DEC/2018
Submitted By	Dillon Briers	**Job Type**	Intermediate Casing	**Bulk Plant**	
Customer	Ameredev	**Location**	Lea	**Well**	

Well Information

Casing/Liner Size	7.625 in	**Depth MD**	5013 ft	**BHST**	165°F
Hole Size	8.75 in	**Depth TVD**	5013 ft	**BHCT**	130°F

Cement Information - Lead Design

Conc	UOM	Cement/Additive
100	% BWOC	NeoCem
14.68	gal/sack	Heated Fresh Water

Cement Properties

Slurry Density	9	lbm/gal
Slurry Yield	3.5	ft3/sack
Water Requirement	14.68	gal/sack

Pilot Test Results Request ID 2488456/1

API Rheology, Request Test ID:35665340

Temp (degF)	300	200	100	60	30	6	3	Cond Time (min)
80 (up)	82	67	49	42	39	36	28	0
80 (down)	82	59	35	26	18	10	9	0
80 (avg.)	82	63	42	34	29	23	19	0

PV (cP) & YP (lbs/100ft2): 61.73 22.32 (Least-squares method)

PV (cP) & YP (lbs/100ft2): 60 22 (Traditional method (300 & 100 rpm based))

Generalized Herschel-Bulkley 4: YP(lbf/100ft2)=20.33 MuInf(cP)=52.39 m=0.81 n=0.81

API Rheology, Request Test ID:35665341

Temp (degF)	300	200	100	60	30	6	3	Cond Time (min)	Cond Temp (degF)
134 (up)	63	47	29	21	15	7	6	30	134
134 (down)	63	46	29	21	14	7	4	30	134
134 (avg.)	63	47	29	21	15	7	5	30	134

PV (cP) & YP (lbs/100ft2): 57.12 7.98 (Least-squares method)

PV (cP) & YP (lbs/100ft2): 51 12 (Traditional method (300 & 100 rpm based))

Generalized Herschel-Bulkley 4: YP(lbf/100ft2)=2.26 MuInf(cP)=30.64 m=0.41 n=0.41

API Fluid Loss, Request Test ID:35665342

Test Temp (degF)	Test Pressure (psi)	Test Time (min)	Meas. Vol.	Calculated FL (<30 min)	Conditioning time (min)	Conditioning Temp (degF)
134	1000	9.12	52	189	30	134

Free Fluid API 10B-2, Request Test ID:35665343

Con. Temp (degF)	Cond. Time (min)	Static T. (F)	Static time (min)	Incl. (deg)	% Fluid
134	30	80	120	0	0

Pilot Test Results Request ID 2504116/5

Thickening Time - ON-OFF-ON, Request Test ID:35852392

Test Temp (degF)	Pressure (psi)	Reached in (min)	70 Bc (hh:min)	Start Bc
126	5800	40	6:18	16

UCA Comp. Strength, Request Test ID:35852394

End Temp (degF)	Pressure (psi)	50 psi (hh:mm)	500 psi (hh:mm)	12 hr CS (psi)	24 hr CS (psi)	48 hr CS (psi)
159	4000	8:55	12:23	456	749	681

AFMSS

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

SUPO Data Report

08/12/2019

APD ID: 10400032526 **Submission Date:** 07/27/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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

[redacted]

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

PINE_STRAW_FED_COM_25_36_05_101H___SITE_ACCESS_20190327120635.pdf

Existing Road Purpose: ACCESS **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Expand existing 2-track road to 20' wide road per BLM Gold Book Standards.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

PINE_STRAW_FED_COM_25_36_05_101H___SITE_ACCESS_20190327121202.pdf
EP_PINE_STRAW_ROADS_20190327121220.pdf

New road type: RESOURCE

Length: 5276 Feet **Width (ft.):** 30

Max slope (%): 2 **Max grade (%):** 2

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: Crowned and Ditched

New road access plan or profile prepared? NO

New road access plan attachment:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Access road engineering design? NO

Access road engineering design attachment:

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: CALICHE

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: GRADER

Access other construction information: NM One Call (811) will be notified before construction start.

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: Crowned and Ditched

Road Drainage Control Structures (DCS) description: Crowned and Ditched

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

PINE_STRAW_FED_COM_25_36_05_101H___1_MI_RADIUS_WELLS_20190327121331.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: Production from the proposed well will be transported to a new production facility named Pine Straw CTB, southeast of the well pad. A buried 4" poly flowline (700 psi maximum) will be run approximately 2,068' from the Pine Straw Fed Com 25 36 05 101H to the Pine Straw CTB. Approximately 10,802' of buried 12" poly water line will be

run parallel to the water line and connect into Xcel Energy. The power line will be approximately 12,298'. The Pine Straw CTB will be 500'x525' and will include a separator, heat exchanger, VRU, VRT, meter run and a tank battery. The new production facility will have a secondary containment structure that is constructed to hold the capacity of 1-1/2 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.
Production Facilities map:

BO_PINE_STRAW_BATTERY_SITE_REV3_S_20190327121508.pdf
EP_PINE_STRAW_ELECTRICAL_20190327121510.pdf
EP_PINE_STRAW_FLOW_LINES_20190327121510.pdf
EP_PINE_STRAW_WATER_20190327121511.pdf
BO_PINE_STRAW_1N_PAD_SITE_REV2_S_20190327122138.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING
Water source type: GW WELL
Describe type:
Source longitude:
Source latitude:
Source datum:
Water source permit type: PRIVATE CONTRACT
Source land ownership: PRIVATE
Water source transport method: PIPELINE,TRUCKING
Source transportation land ownership: FEDERAL
Water source volume (barrels): 20000
Source volume (acre-feet): 2.577862
Source volume (gal): 840000

Water source and transportation map:

PINE_STRAW_FED_COM_25_36_05_101H___WATER_WELLS_LIST_20190327122412.pdf
PINE_STRAW_FED_COM_25_36_05_101H___WATER_WELL_MAP_20190327132300.pdf
Water source comments: Water will be trucked or surface piped from existing water wells on private land. See attached list of available wells.
New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**
Well target aquifer:
Est. depth to top of aquifer(ft): **Est thickness of aquifer:**
Aquifer comments:
Aquifer documentation:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: NM One Call (811) will be notified before construction start. Top 6" of soil and brush will be stockpiled east of the pad. Closed loop drilling system will be used. Caliche will be hauled from an existing caliche pit on private (Dinwiddie Cattle Company) land in W2 08-25S-36E or an existing caliche pit on private (Dinwiddie Cattle Company) land in E2 17-25S-36E.

Construction Materials source location attachment:

PINE_STRAW_FED_COM_25_36_05_101H___CALICHE_MAP_20190327132618.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttings, mud, salts, and other chemicals

Amount of waste: 2000 barrels

Waste disposal frequency : Daily

Safe containment description: Steel tanks

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: R360's state approved (NM-01-0006) disposal site at Halfway, NM

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Description of cuttings location Steel tanks on pad

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

PINE_STRAW_FED_COM_25_36_05_101H___WELL_SITE_DIAGRAM_20190327132748.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** PS

Multiple Well Pad Number: 1S

Recontouring attachment:

PINE_STRAW_FED_COM_25_36_05_101H___WELL_SITE_DIAGRAM_20190327132811.pdf

Drainage/Erosion control construction: Crowned and ditched

Drainage/Erosion control reclamation: Harrowed on the contour

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Wellpad long term disturbance (acres): 3.8

Wellpad short term disturbance (acres): 0.79

Access road long term disturbance (acres): 3.6

Access road short term disturbance (acres): 0

Pipeline long term disturbance (acres): 1.42

Pipeline short term disturbance (acres): 0

Other long term disturbance (acres): 6.02

Other short term disturbance (acres): 0

Total long term disturbance: 23.31

Total short term disturbance: 0.79

Disturbance Comments:

Reconstruction method: If circumstances allow, interim reclamation and/or final reclamation actions will be completed no later than 6 months from when the final well on location has been completed or plugged. Ameredev will gain written permission from the BLM if more time is needed. Interim reclamation will consist of shrinking the pad 17% (.79 acre) by removing caliche and reclaiming 40' wide swaths on the north and east sides of the pad. This will leave 3.8 acres for producing three wells, with tractor-trailer turn around. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas and harrowed on the contour. Disturbed areas will be seeded in accordance with the surface owner's requirements. All topsoil for the battery will be reseeded in place for the life of the battery.
Topsoil redistribution: Enough stockpiled topsoil will be retained to cover the remainder of the pad when the well is plugged. New road will be similarly reclaimed within 6 months of plugging. Noxious weeds will be controlled.
Soil treatment: None

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary	
Seed Type	Pounds/Acre

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Zachary **Last Name:** Boyd

Phone: (580)940-5054 **Email:** zboyd@ameredev.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: To BLM standards

Weed treatment plan attachment:

Monitoring plan description: To BLM standards

Monitoring plan attachment:

Success standards: To BLM satisfaction

Pit closure description: No pit

Pit closure attachment:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Fee Owner: Dinwiddie Cattle Company **Fee Owner Address:**

Phone: (575)631-0385 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Ameredev and Dinwiddie have a Surface Use Agreement (SUA) in place for this location.

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Disturbance type: WELL PAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Fee Owner: Dinwiddie Cattle Company **Fee Owner Address:**

Phone: (575)631-0385 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Ameredev and Dinwiddie have a Surface Use Agreement (SUA) in place for this location.

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Disturbance type: PIPELINE

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Fee Owner: Dinwiddie Cattle Company **Fee Owner Address:**

Phone: (575)631-0385 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Ameredev and Dinwiddie have a Surface Use Agreement (SUA) in place for this location.

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Disturbance type: OTHER

Describe: POWERLINE

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Fee Owner: Dinwiddie Cattle Company **Fee Owner Address:**

Phone: (575)631-0385 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Ameredev and Dinwiddie have a Surface Use Agreement (SUA) in place for this location.

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? YES

Previous Onsite information: An on-site meeting for Ameredev's Pine Straw Fed Com 25 36 05 101H well was held on March 14, 2019. Attendees included Jeff Robertson (BLM), Shane McNeely (Ameredev), and Ged Adams (Topographic). Ameredev made a donation with the MOU fund in lieu of an archaeology report.

Other SUPO Attachment

PINE_STRAW_FED_COM_25_36_05_101H___SURFACE_USE_PLAN_REV_20190327134920.pdf

PINE_STRAW_FED_COM_25_36_05_101H___OWNER_AGREEMENT_LETTER_20190327135330.pdf

Ameredev Operating, LLC
Pine Straw Fed Com 25 36 05 101H
Section 05, Township 25S, Range 36E
Lea County, New Mexico

Surface Use Plan of Operations

Introduction

The following Surface Use Plan of Operations will be implemented by Ameredev Operating, LLC (Ameredev), after APD approval. No disturbance will be created other than those described in this surface use plan. If any additional surface disturbance becomes necessary after APD approval, the appropriate BLM approved sundry notice or right of way application will be acquired prior to such disturbance. This Surface Use Plan includes Ameredev's well pad, battery site, electrical, water and flow lines, and access roads.

Before any surface disturbance is created, stakes or flagging will be installed to mark boundaries of permitted areas of disturbance, including soil storage areas. As necessary, slope, grade, and other construction control stakes will be placed to ensure construction is in accordance with the surface use plan. All boundary markers will be maintained in place until final construction cleanup is completed. If disturbance boundary markers are displaced, they will be replaced before construction proceeds. Adjacent operators will be contacted before construction starts to mark adjacent pipelines.

Directions to proposed pad:

At the intersection of NM-205 & 3rd St/NM-128/Frying Pan Rd, head west on NM-128 approximately 5.3 miles. Turn northeast (right) on lease road about 2 miles. Head northwest (left) on proposed road and proceed approximately 4,753 feet to the southeast of the location.

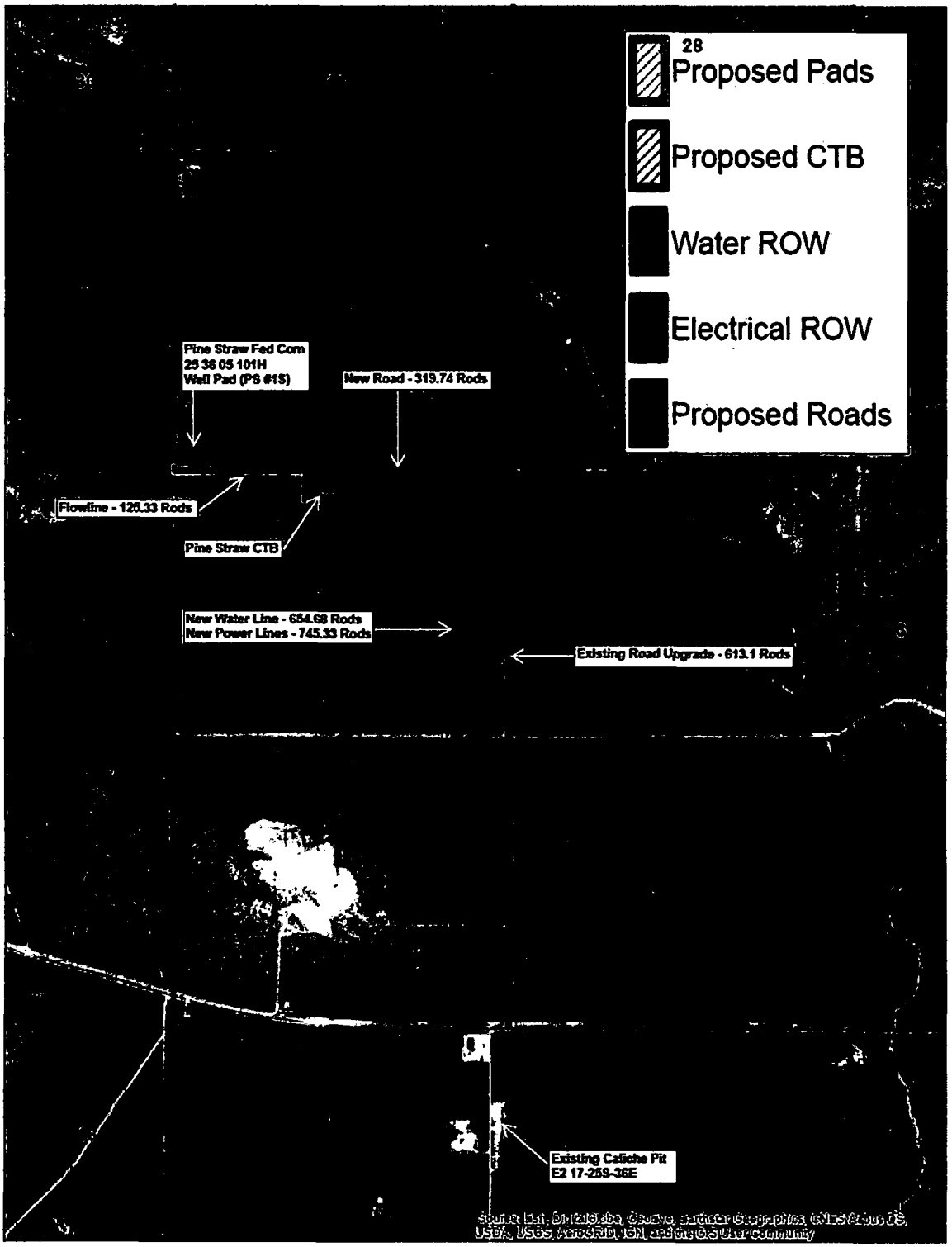


Exhibit 1 – Well Pad Access

Section 1 – Existing Roads

A. The existing access road route to the proposed project is depicted on *Exhibit 1 – Well Pad Access*. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done, unless otherwise noted in the New or Reconstructed Access Roads section of this surface use plan.

B. Right-Of-Way will be acquired before construction begins.

C. The operator will improve or maintain existing roads in a condition the same as or better than before operations begin. The operator will repair pot holes, clear ditches, repair the crown, etc. All existing structures on the entire access route such as cattle guards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use.

D. Operator will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. BLM written approval will be acquired before application of surfactants, binding agents, or other dust suppression chemicals on roadways.

Section 2 – New or Reconstructed Access Roads

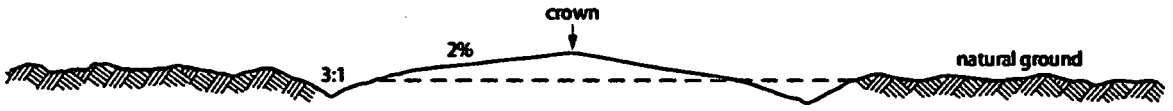
A. A section of new access road will be needed for this proposed project. See *Exhibit 1 – Well Pad Access*, for locations.

B. The length of new access road needed to be constructed for this proposed project is approximately 5,276 feet.

C. New access road will be constructed with 6 inches of compacted caliche.

D. The maximum driving width of the access road will be 20 feet. The maximum width of surface disturbance when constructing the access road will not exceed 30 feet. All areas outside of the driving surface will be revegetated.

E. When the road travels on fairly level ground, the road will be crowned and ditched with a maximum 2% slope from the tip of the road crown to the edge of the driving surface. Ditches will be constructed on each side of the road. The ditches will be 3 feet wide with 3:1 slopes. See road cross section diagram below:



F. No turnouts will be constructed on the new portions of access road.

G. No cattle guards will be installed on the new portions of access road.

H. Right-Of-Way will be acquired before construction begins.

I. No culverts or low water crossings will be constructed for the new portions of access road.

J. Since the access road is on level ground, no lead-off ditches will be constructed for the new portions of access road.

K. Any sharp turns in the in the new road will be rounded to facilitate turning by trucks.

L. Newly constructed or reconstructed roads, on surface under the jurisdiction of the Bureau of Land Management, will be constructed as outlined in the BLM "Gold Book" and to meet the standards of the anticipated traffic flow and all anticipated weather requirements as needed. Construction will include ditching, draining, crowning and capping or sloping and dipping the roadbed as necessary to provide a well-constructed and safe road.

M. All topsoil and fragmented rock removed in excavation will be used as directed in approved plan.

Section 3 – Location of Existing Wells

Exhibit 2 – One Mile Radius Existing Wells depicts all known wells within a one mile radius of the Pine Straw Fed Com 25 36 05 101H. There are no known existing wells within 1 mile of this proposed well.

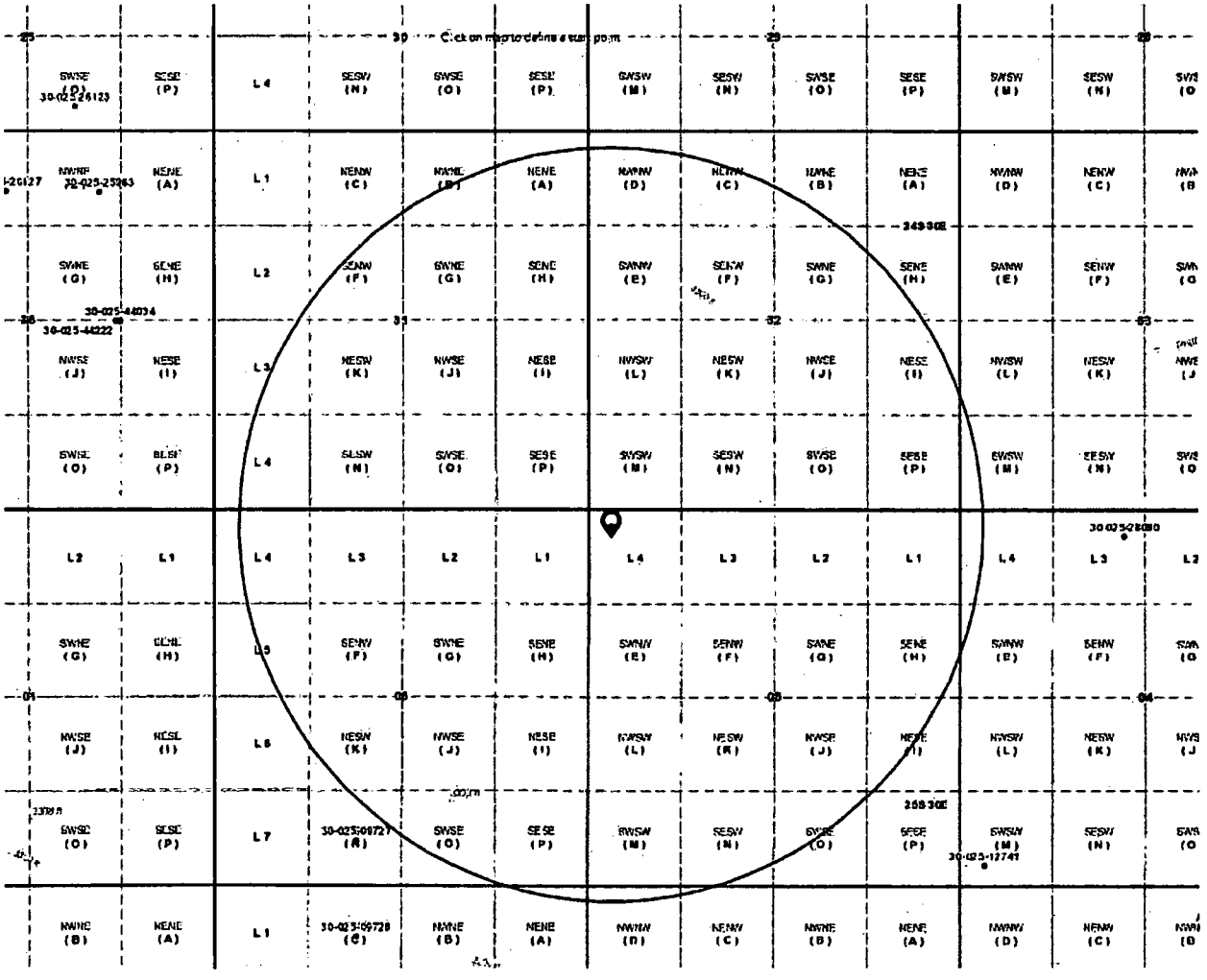


Exhibit 2 – One Mile Radius Existing Wells

Section 4 - Location of Existing and/or Proposed Production Facilities

A. The multiple well pad will be located on Section 5, and will measure 400'x500'. Should any type of production facilities be located on the well pad, they will be strategically placed to allow for maximum interim reclamation, re-contouring, and revegetation of the well location.

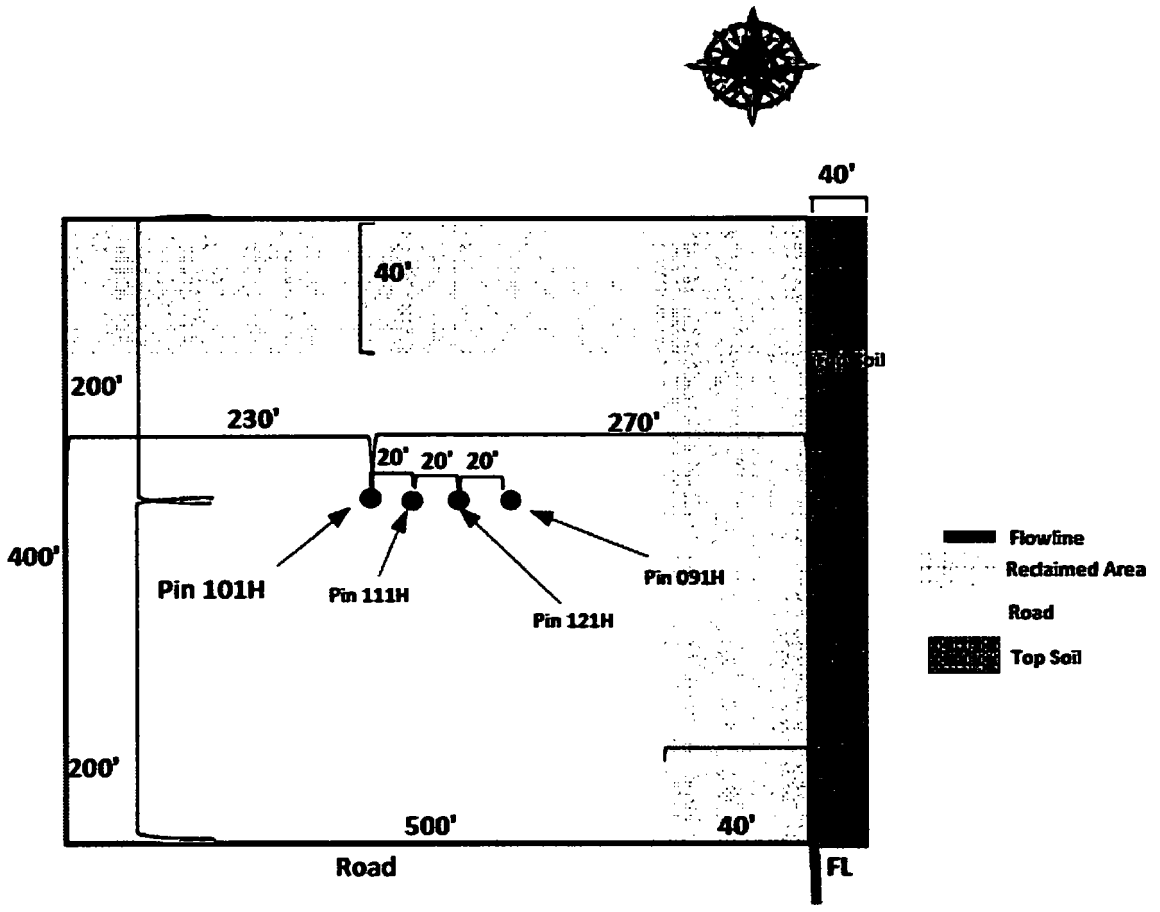
B. Production from the proposed well will be transported to a new production facility named Pine Straw CTB, southeast of the well pad.

C. A buried 4" poly flowline (700 psi maximum) will be run approximately 2,068' from the Pine Straw Fed Com 25 36 05 101H to the Pine Straw CTB. Approximately 10,802' of buried 12" poly water line will be run from the Pine Straw CTB to an existing line connecting to an existing water system. A new overhead power line will be run parallel to the water line and connect into Xcel Energy. The power line will be approximately 12,298'. The Pine Straw CTB will be 500'x525' and will include a separator, heat exchanger, VRU, VRT, meter run and a tank battery.

D. The new production facility will have a secondary containment structure that is constructed to hold the capacity of 1-1/2 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

E. All permanent (lasting more than six months) above ground structures including but not limited to pump jacks, storage tanks, barrels, pipeline risers, meter housing, etc., that are not subject to safety requirements will be painted a non-reflective paint color, Shale Green, from the BLM Standard Environmental Colors chart, unless another color is required in the APD Conditions of Approval.

F. If any plans change regarding the production facility or other infrastructure (pipeline, electrical lines, etc.), Ameredev will submit a sundry notice or right-of-way (if applicable) prior to installation or construction.



Pine Straw Fed Com 25 36 05 101H SHL: 25S 36E 233' FNL 230' FWL

Pine Straw Fed Com 25 36 05 111H SHL: 25S 36E 233' FNL 250' FWL

Pine Straw Fed Com 25 36 05 121H SHL: 25S 36E 233' FNL 270' FWL

Pine Straw Fed Com 25 36 05 091H SHL: 25S 36E 233' FNL 290' FWL

Exhibit 3 – Well Site Diagram

Section 5 - Location and Types of Water Supply

A. This location will be drilled using a combination of water and mud systems (outlined in the Drilling Program). The water will be obtained from preexisting water wells, by running a pump directly to the drilling rig. See *Exhibit 4 - Water Wells*, for a list of available water wells. In cases where a polyline is used to transport water for drilling or completion purposes, the existing and proposed roads into location will be utilized.

Permit #	Well Name	Location (Lat/Lon)
CP 1049 POD 2	Bennett	32°04'14.32" N, 103°12'32.30" W
CP 1378	S. Eppenour	32°05'40.62" N, 103°13' 35.26" W
CP 1285	Sec. 5	32°03'56.50" N, 103°17'37.04" W
CP 857	Capped	32°04'39.70" N, 103°16'51.13" W
C 2287	#1	32°03'59.0" N, 103°33'16.8" W
C 2286	#2	32°03'59.2" N, 103°33'15.2" W
C 2290	#3	32°04'1.0" N, 103°33' 12.6" W
C 2285	#4	32°04'3.7" N, 103°33'9.7" W
C 2288	#5	32°04'0.5" N, 103°33'8.4" W
C 2294	Garden	32°03'3.2" N, 103°32'38.1" W
C 2293	House	32°03'2.3" N, 103°32'36.8" W
J-11-S-3	Farm Well #2	32°03'08.4" N, 103°16'35.2" W
J-11-S-2	Farm Well #3	32°03'11.5" N, 103°17'02.0" W
J-11-S	Farm Well #4	32°03'24.6" N, 103°17'02.1" W
CP 1170 POD 1	CB 1	32°03'57.2" N, 103°18'45.3" W
CP 1170 POD 5		32°07'17.1" N, 103°17'48.0" W
CP 1263 POD 5	CB 2	32°03'56.27" N, 103°18'27.4" W
CP 1263 POD 3	CB 3	32°03'54.90" N, 103°18'16.74" W
CP 1351 POD 1	CB 4	32°03'57.16" N, 103°17'45.13" W
CP 1351 POD 2	CB 5	32°03'30.70" N, 103°17'45.70" W
J 26	Ryan	32°01'20.41" N, 103°15'49.46" W
J 3		32°02'41.5" N, 103°18'55.8" W

Exhibit 4 – Water Wells

Section 6 – Construction/Construction Materials

A. Caliche will be obtained from the caliche pit located at Lat: 32° 6'28.78"N, Long: 103°16'58.77"W, the caliche pit at Lat: 32° 6'33.14"N, Long: 103°18'44.16"W, or the caliche pit at Lat: 32° 3'8.30"N, Long: 103°13'57.00"W.

B. Caliche utilized for the drilling pad will be obtained either from the locations listed above, an existing approved mineral pit, or by benching into a hill, which will allow the pad to be level with existing caliche from the cut, or extracted by "flipping" the well location. A mineral material permit will be obtained from the BLM prior to excavating any caliche on Federal Lands. Amount will vary for each pad. The procedure for "flipping" a well location is as follows:

1. An adequate amount of topsoil/root zone (usually top 6 inches of soil) will be stripped from the proposed well location and stockpiled along the side of the well location as depicted on the *Exhibit 3 - Well Site Diagram*.
2. An area will be used within the proposed well site dimensions to excavate caliche.
3. Subsoil will be removed and stockpiled within the surveyed well pad dimensions.
4. Once caliche/surfacing mineral is found, the mineral material will be excavated and stock piled within the approved drilling pad dimensions.
5. Subsoil will then be pushed back in the excavated hole and caliche will be spread accordingly across the entire well pad and road (if available).
6. Neither caliche, nor subsoil will be stockpiled outside of the well pad dimensions. Topsoil will be stockpiled along the edge of the pad as depicted in *Exhibit 3 – Well Site Diagram.*
7. In the event that no caliche is found onsite, caliche will be hauled in from a BLM approved caliche pit or other established mineral pit. A BLM mineral material permit will be acquired prior to obtaining any mineral material from BLM pits or federal land.

Section 7 - Methods of Handling Waste

A. Drill cuttings, mud, salts and other chemicals will be properly disposed of into steel tanks on site and hauled to a State approved commercial disposal facility.

B. Garbage and trash produced during drilling and completion operations will be collected in a portable metal trash container and disposed of properly at a state approved disposal facility. All trash on and around the well site will be collected for disposal.

C. Human waste and grey water will be properly contained and disposed of properly at a state approved disposal facility.

D. After drilling and completion operations, trash, chemicals, salts, frac sand and other waste material will be removed and disposed of properly at a state approved disposal facility.

Section 8 - Ancillary Facilities

A. No ancillary facilities will be needed for the proposed project.

Section 9 - Well Site Layout

A. See *Exhibit 3 - Well Site Diagram.* The following information is presented:
   1. Reasonable scale
   2. Well pad dimensions/orientation
   3. Topsoil stockpile

B. The proposed drilling pad was staked and surveyed by a professional surveyor. The attached survey plat of the well site depicts the drilling pad layout as staked.

C. Topsoil salvaging
   1. Grass, forbs, and small woody vegetation such as mesquite will be excavated as the topsoil is removed. Large woody vegetation will be stripped and stored separately and re-spread evenly on the site following topsoil re-spreading. Topsoil depth is defined as the top layer of soil that contains 80% of the roots. In areas to be heavily disturbed, the top 6 inches of soil material will be stripped and stockpiled on the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. Contaminated soil will not be stockpiled, but properly treated and handled prior to topsoil salvaging.

Section 10 - Plans for Final Surface Reclamation

Reclamation Objectives

A. The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil, to control erosion, and to minimize habitat and forage loss, visual impact, and weed infestation during the life of the well or facilities.

B. The long-term objective of final reclamation is to return the land to a condition similar to what existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

C. The BLM will be notified at least 3 days prior to the commencement of any reclamation procedures.

D. If circumstances allow, interim reclamation and/or final reclamation actions will be completed no later than 6 months from when the final well on location has been completed or plugged. Ameredev will gain written permission from the BLM if more time is needed.

E. Interim reclamation will performed on the well site after the well is drilled and completed. *Exhibit 3 – Well Site Diagram* depicts the location and dimension of the planned interim reclamation for the well site.

Interim Reclamation Procedures (if performed)

A. Within 30 days of well completion, the well location and surrounding areas will be cleared of, and maintained free of, all materials, trash, and equipment not required for production.
B. In areas planned for interim reclamation, all the surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.
C. The areas planned for interim reclamation will then be contoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 Ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be re-contoured to the above ratios during interim reclamation.
D. Topsoil will be evenly re-spread and aggressively revegetated over the entire disturbed area not needed for all-weather operations, including cuts and fills. To seed the area, the proper BLM mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting, in order to break the soil crust and create seed germination micro-sites.
E. Proper erosion control methods will be used on the area to control erosion, runoff, and siltation of the surrounding area.
F. The interim reclamation will be monitored periodically to ensure that vegetation has reestablished and that erosion is controlled.

Final Reclamation Procedures (well pad, buried pipelines, etc.)

A. Prior to final reclamation procedures, the well pad, road, and surrounding area will be cleared of material, trash, and equipment.
B. All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.
C. All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be re-contoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to re-contouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.
D. After all the disturbed areas have been properly prepared, the areas will be seeded with the proper BLM seed mixture, free of noxious weeds. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting, in order to break the soil crust and create seed germination micro-sites.
E. Proper erosion control methods will be used on the area to control erosion, runoff, and siltation of the surrounding area.

F. All unused equipment and structures including pipelines, electric line poles, tanks, etc. that serviced the well will be removed.
G. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not re-disturbed, and that erosion is controlled.

Section 11 - Surface Ownership

A. Dinwiddie Cattle Company has surface ownership for the proposed project area. Ameredev and Dinwiddie have a Surface Use Agreement (SUA) in place for this location. Dinwiddie contact: Tommy Dinwiddie P.O. Box 963 Capitan, NM 88354 (575) 631-0385

Section 12 - Other Information

A. There are no dwellings within 1 mile of this location.
B. An on-site meeting for Ameredev's Pine Straw Fed Com 25 36 05 101H well was held on March 14, 2019. Attendees included Jeff Robertson (BLM), Shane McNeely (Ameredev), and Ged Adams (Topographic).
C. The well pad described in this document – Pine Straw (PS #1S) - will contain 4 wells that produce into a central tank battery (CTB) located southeast of the well pad. The wells share a common pad access road, and the four flowlines from the individual wells will share a common corridor that will terminate into the CTB. The wells that share the pad are:
    - Pine Straw Fed Com 25 36 05 091H, APD ID# 10400032595
    - Pine Straw Fed Com 25 36 05 101H, APD ID# 10400032526
    - Pine Straw Fed Com 25 36 05 111H
    - Pine Straw Fed Com 25 36 05 121H

Ameredev field representative:

Zac Boyd, Operations Supervisor

Cell: (432) 385-6996

Email: zboyd@ameredev.com

Ameredev office contact:

Christie Hanna, Regulatory Coordinator

Direct: (737) 300-4723

Email: channa@ameredev.com

Ameredev Operating, LLC Address: 5707 Southwest Parkway Building 1, Suite 275 Austin, Texas 78735

AMEREDEV

March 27, 2019

To whom it may concern:

Ameredev Operating, LLC has negotiated a private Surface Use Agreement (SUA) with Tommy Dinwiddie of Dinwiddie Cattle Co. (PO Box 963, Capitan, NM 88354; 575-631-0385) for a power line, flowline, saltwater disposal line, roads, central production facility, and pad for the Pine Straw Fed Com 25 36 05 101H well in sections 5 and 8 of T25S, R36E.

Thank you,

Christie Hanna
Regulatory Coordinator

AFMSS

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

PWD Data Report

08/12/2019

APD ID: 10400032526 **Submission Date:** 07/27/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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):**

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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

08/12/2019

APD ID: 10400032526 **Submission Date:** 07/27/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: PINE STRAW FED COM 25 36 05 **Well Number:** 101H

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

[redacted]

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Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001478

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: