Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD
OCT 03 2019
RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM137469

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.
NANDINA FED COM 25 36 31
095H (322647)

2. Name of Operator
AMEREDEV OPERATING LLC (372224)

9. API Well No.
30-025-46425

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 (97088)
WC-~~025 G-08 S263620C~~ / ~~LWR~~ BONE SI

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface LOT O / 230 FNL / 1950 FEL / LAT 32.078945 / LONG -103.3019693
At proposed prod. zone LOT B / 200 FNL / 1980 FEL / LAT 32.1080669 / LONG -103.3020755

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 6 / T26S / R36E / NMP

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

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
200 feet	600.28	320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. in file**
2883 feet	11650 feet / 22059 feet	FED: NMB001478
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3011 feet	06/04/2020	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)	Julia Steger / Ph: (737)300-4733	08/28/2018
Title		
Engineer		
Approved by *(Signature)*	**Name *(Printed/Typed)***	**Date**
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	09/27/2019
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'd 10/03/19

KZ 10/11/19

SL

APPROVED WITH CONDITIONS

Approval Date: 09/27/2019

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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AMEREDEV

October 1, 2019

ATTN: Paul Kautz
NMOCD
1625 N. French Drive
Hobbs, NM 88240
(575) 393-6161 ext. 104

Paul,

Enclosed is a copy of the BLM approved APD COA packet for the Nandina Fed Com 25 36 31 095H well, for your review and approval. Please let me know if you have any questions.

Best regards,

Christie Hanna
Regulatory Coordinator

AFMSS

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

Application for Permit to Drill

APD Package Report

Date Printed: 09/30/2019 04:01 PM

APD ID: 10400032975	Well Status: AAPD
APD Received Date: 08/28/2018 03:48 PM	Well Name: NANDINA FED COM 25 36 3
Operator: AMEREDEV OPERATING LLC	Well Number: 095H

APD Package Report Contents

- Form 3160-3

- Operator Certification Report

- Application Report
- Application Attachments
  -- Well Plat: 5 file(s)

- Drilling Plan Report
- Drilling Plan Attachments
  -- Blowout Prevention Choke Diagram Attachment: 1 file(s)
  -- Blowout Prevention BOP Diagram Attachment: 3 file(s)
  -- Casing Design Assumptions and Worksheet(s): 12 file(s)
  -- Hydrogen sulfide drilling operations plan: 1 file(s)
  -- Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
  -- Other Variances: 3 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: 2 file(s)
  -- Well Site Layout Diagram: 1 file(s)
  -- Recontouring attachment: 1 file(s)
  -- Other SUPO Attachment: 1 file(s)

- PWD Report
- PWD Attachments
  -- None

- Bond Report
- Bond Attachments
  -- None

Additional Operator Remarks

Location of Well

1. SHL: LOT O / 230 FNL / 1950 FEL / TWSP: 26S / RANGE: 36E / SECTION: 6 / LAT: 32.078945 / LONG: -103.3019693 (TVD: 0 feet, MD: 0 feet)
   PPP: LOT O / 230 FNL / 1950 FEL / TWSP: 26S / RANGE: 36E / SECTION: 6 / LAT: 32.078945 / LONG: -103.3019693 (TVD: 0 feet, MD: 0 feet)
   PPP: NWNE / 0 FNL / 1895 FEL / TWSP: 26S / RANGE: 36E / SECTION: 6 / LAT: 32.0795774 / LONG: -103.3017953 (TVD: 11570 feet, MD: 11674 feet)
   PPP: SWNE / 2640 FSL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 31 / LAT: 32.0868337 / LONG: -103.3020672 (TVD: 11650 feet, MD: 14334 feet)
   PPP: NWNE / 0 FNL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 31 / LAT: 32.0940874 / LONG: -103.3020706 (TVD: 11650 feet, MD: 16973 feet)
   PPP: SWSE / 1320 FSL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 30 / LAT: 32.0977156 / LONG: -103.3020722 (TVD: 11650 feet, MD: 18293 feet)
   PPP: NWSE / 2640 FSL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 31 / LAT: 32.0868337 / LONG: -103.3020672 (TVD: 11650 feet, MD: 14334 feet)
   PPP: SWSE / 0 FSL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 30 / LAT: 32.0940874 / LONG: -103.3020706 (TVD: 11650 feet, MD: 16973 feet)
   PPP: SWSE / 0 FSL / 1895 FEL / TWSP: 25S / RANGE: 36E / SECTION: 31 / LAT: 32.0795774 / LONG: -103.3017953 (TVD: 11570 feet, MD: 11674 feet)
   PPP: NWSE / 1320 FSL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 31 / LAT: 32.0832055 / LONG: -103.3020656 (TVD: 11650 feet, MD: 13014 feet)
   PPP: SWSE / 1320 FSL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 31 / LAT: 32.0832055 / LONG: -103.3020656 (TVD: 11650 feet, MD: 13014 feet)
   BHL: LOT B / 200 FNL / 1980 FEL / TWSP: 25S / RANGE: 36E / SECTION: 30 / LAT: 32.1080669 / LONG: -103.3020755 (TVD: 11650 feet, MD: 22059 feet)

BLM Point of Contact

Name: Tanja Baca
Title: Admin Support Assistant
Phone: 5752345940
Email: tabaca@blm.gov

Approval Date: 09/27/2019

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.

26366O APD Nandina Fed Com 25 36 31 95H 30015 NMNM137469 Ameredev 12-55
06232019 NMK_ContingencyPlan

Cap

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	54.50	J 55	BUTT	14.23	1.98	0.9	1,100	59,950
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,431			Tail Cmt	does not	circ to sfc.		Totals: 1,100	59,950

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	939	1663	818	103	10.00	1919	2M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

9 5/8	casing inside the	13 3/8			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	40.00	HCL 80	BUTT	4.51	1.39	0.95	5,084	203,360
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	5,084	203,360
The cement volume(s) are intended to achieve a top of			0	ft from surface or a			1100	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	1380	2385	1665	43	11.50	3606	5M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.13, b, c, d
All > 0.70, OK.

7 5/8	casing inside the	9 5/8	A Buoyant		Design Factors		INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	29.70	HCL 80	FJM	1.96	1.11	1.25	11,079	329,046
"B"			FJM				0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,437						Totals:	11,079	329,046
The cement volume(s) are intended to achieve a top of			3688	ft from surface or a			1396	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1005	382	928	765	21	10.50	5002	10M	0.56

Class 'H' tail cmt yld > 1.20 MASP is within 10% of 5000psig, need exrta equip?

Alt Collapse = 1.67 > 1.125

Tail cmt

5 1/2	casing inside the	7 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	20.00	CYHP 110	TMK UPSF	1.28	1.63	1.9	11,147	222,940
"B"	20.00	CYHP 110	TMK UPSF	65.11	1.69	1.9	10,913	218,250
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,452						Totals:	22,060	441,190
A egment Design Factors would be:				2.81	1.77	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	22060	11650	11650	11100	90	10	11979.8

The cement volume(s) are intended to achieve a top of 10579 ft from surface or a 500 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	980	1196	969	23	12.50			0.49

Class 'H' tail cmt yld > 1.20 MASP is within 10% of 5000psig, need exrta equip?

Carlsbad Field Office 6/24/2019

Approval Date: 09/27/2019

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	AMERIDEV OPERATING LLC
LEASE NO.:	NMNM137469
WELL NAME & NO.:	095H – NANDINA FED COM 25 36 31
SURFACE HOLE FOOTAGE:	230'/S & 1950'/E
BOTTOM HOLE FOOTAGE	200'/N & 1980'/E
LOCATION:	SECTION 31, T25S, R36E, NMPM
COUNTY:	LEA

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☑ Capitan Reef	☐ WIPP

A. HYDROGEN SULFIDE

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.

B. CASING

Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **1109** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

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

❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

- Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.

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

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

2. The minimum required fill of cement behind the **9-5/8** inch **1st intermediate** casing is:

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

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

   b. Second stage above DV tool:

      - Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 23% - additional cement might be required.**

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

   - Cement should tie-back at least **50** feet on top of Capitan Reef Top. Operator shall provide method of verification. **Excess calculates to 17% - additional cement might be required.**

Alternate Casing Design:

2nd Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

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

    - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Excess calculates to 21% - additional cement might be required.**

    In the case of lost circulation, operator has proposed to pump down 9 5/8" X 7 5/8" annulus. Operator must run a CBL from TD of the 7 5/8" casing to surface. Submit results to the BLM.

    Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 200' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug. Note plug tops on subsequent drilling report.

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

    - Cement should tie-back at least **50** feet on top of Capitan Reef Top. Operator shall provide method of verification. **Excess calculates to 17% - additional cement might be required.**

C. PRESSURE CONTROL

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

2.

Option 1:

Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi.

Option 2:

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

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

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

D. SPECIAL REQUIREMENT(S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall

be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

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

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

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

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

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

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

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

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

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

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

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

c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

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

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

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

NMK6242019

AMEREDEV

Wellbore Schematic

Well:	Nandina Fed Com 25-36-31 095H	**Co. Well ID:**	xxxxxx
SHL:	Sec. 06 26S-36E 230' FNL & 1950' FEL	**AFE No.:**	xxxx-xxx
BHL:	Sec. 30 25S-36E 50' FNL & 1980' FEL	**API No.:**	xxxxxxxxxx
	Lea, NM	**GL:**	3,011'
Wellhead:	A - 13-5/8" 10M x 13-5/8" SOW	**Field:**	Delaware
	B - 13-5/8" 10M x 13-5/8" 10M	**Objective:**	Third Bone Spring
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,650'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,060'
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	1,068'		753 Sacks TOC 0' 100% Excess	8.4-8.6 ppg WBM
	13.375" 68# J-55 BTC	**1,193'**			
12.25"	Salado	1,508'		897 Sacks TOC 0' 50% Excess	8.5 - 9.4 ppg Diesel Brine Emulsion
	Tansill	3,234'			
	Capitan Reef	3,738'			
	Lamar	5,034'			
	DV Tool	**5,084'**			
	Bell Canyon	5,069'		1,723 Sacks TOC 0' 50% Excess	
	Brushy Canyon	7,109'			
	Bone Spring Lime	8,335'			
	First Bone Spring	9,711'			
	Second Bone Spring	10,269'			
	Third Bone Spring Upper	10,855'			
	9.625" 40# L-80HC BTC	**11,080'**			
8.5" 12° Build @ 11,080' MD thru 12,439' MD	Third Bone Spring	11,454'		4,710 Sacks TOC 0' 25% Excess	10.5 - 12.5 ppg OBM
	5.5" 20# P-110CYHP BTC	**22,060'**			
	Target Third Bone Spring 11650 TVD // 22060 MD				

Approval Date: 09/27/2019

Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
Surface	17.5	1,193'	13.375	68	J-55	BTC
Intermediate	12.25	11,080'	9.625	40	HCL-80	BTC
Prod Segment A	8.5	11,080'	5.5	20	CYHP-110	BTC
Prod Segment B	8.5	22,060'	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	13.18	11.28	7.69	0.64
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	2.12	2.16	1.24	1.25
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	3.12	2.81	1.78	1.90
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	63.86	57.46	1.69	1.90

Approval Date: 09/27/2019

Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
17.5	13.375	1193	[redacted]	1.76	13.5

Bbl/Sk		0.31372549	
bbls		173.6285929	
Stage Tool Depth		N/A	
Top MD of Segment		0	
Bottom MD of Segment		807	
Cement Type		C	
Additves	Bentonite, Accelerator, Kolseal, Defoamer, Celloflake		
Quantity (sks)		553	
Yield (cu ft/sk)		1.76	
Density (lbs/gal)		13.5	
Volume (cu ft)		974.06	
Percent Excess		50%	Target % 50% [redacted]
Column Height		1,403.38	

Target TOC	0				
Calc TOC	-596.5	bbl	25% Excess	50%	
calc vol	0.12372195	147.600286	184.5003575	221.400429	

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
17.5	13.375	1193	[redacted]	1.34	14.8

Bbl/Sk		0.23885918
bbls		47.77183601
Top MD of Segment		807
Bottom MD of Segment		1193
Cement Type		C
Additives	Salt	
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

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Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	11080	[redacted]	2.47	11.9

Bbl/Sk		0.440285205	
bbls		702.525666	
Stage Tool Depth		5084	
Top MD of Segment		0	
Bottom MD of Segment		9824	
Cement Type		H	
Additves	Bentonite, Salt, Kolseal, Defoamer, Celloflake, Retarder,		
Anti-Settling			
Quantity (sks)		1,596	
Yield (cu ft/sk)		2.47	
Density (lbs/gal)		11.9	
Volume (cu ft)		3,941.17	
Percent Excess		25%	Target % 25% [redacted]
Column Height		12,594.15	

Target TOC	0			
Calc TOC	-2770	bbl	25% Excess	25%
calc vol	0.055781888	618.0633136	772.579142	772.579142

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	11080	[redacted]	1.31	14.2

Bbl/Sk		0.233511586
bbls		70.05347594
Top MD of Segment		9824
Bottom MD of Segment		11080
Cement Type		H
Additives	Salt, Bentonite, Retarder, Dispersant, Fluid Loss	
Quantity (sks)		300
Yield (cu ft/sk)		1.237
Density (lbs/gal)		14.5
Volume (cu ft)		371.1
Percent Excess		25%
Column Height		1255.84628

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Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	5084	[redacted]	2.47	11.9

Bbl/Sk		0.440285205	
bbls		307.0785653	
Stage Tool Depth		5084	
Top MD of Segment		0	
Bottom MD of Segment		4234	
Cement Type		C	
Additves	Salt, Bentonite, Kolseal, Defoamer, Celloflake, Anti-Settling		
Expansion Additive			
Quantity (sks)		697	
Yield (cu ft/sk)		2.47	
Density (lbs/gal)		11.9	
Volume (cu ft)		1,722.71	
Percent Excess		25%	Target % 25% [redacted]
Column Height		5,504.99	

Target TOC	0			
Calc TOC	-1271	bbl	25% Excess	25%
calc vol	0.055781888	283.5951161	354.4938951	354.4938951

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
12.25	9.625	5084	[redacted]	1.33	14.8

Bbl/Sk		0.237076649
bbls		47.41532977
Top MD of Segment		4234
Bottom MD of Segment		5084
Cement Type		C
Additves	Retarder	
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

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Stage 1 Lead

Hole Size	Casing Size	Depth	Sacks	Yield	Density
8.5	5.5	22060	[redacted]	1.34	14.2

Bbl/Sk		0.23885918	
bbls		1125.072858	
Stage Tool Depth		N/A	
Top MD of Segment		0	
Bottom MD of Segment		22060	
Cement Type		H	
Additves	Salt, Bentonite, Fluid Loss, Dispersant, Retarder, Defoamer		
Quantity (sks)		4,710	
Yield (cu ft/sk)		1.34	
Density (lbs/gal)		14.2	
Volume (cu ft)		6,311.66	
Percent Excess		25%	Target % 25%
Column Height		27,575.00	

Target TOC	0			
Calc TOC	-5515	bbl	25% Excess	25%
calc vol	0.040800466	900.0582864	1125.072858	1125.072858

Stage 1 Tail

Hole Size	Casing Size	Depth	Sacks	Yield	Density
8.5	5.5	22060	0	0	0

Bbl/Sk	0
bbls	0
Top MD of Segment	22060
Bottom MD of Segment	22060
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

Approval Date: 09/27/2019

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

Approval Date: 09/27/2019

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.**

U.S. Steel Tubular Products

Product Information
5.5 in. 20 lb/ft (0.361 in. wall) P-110 HC Casing
STAR SEAL - CDC™

Grade(s)	P-110 HC		
MECHANICAL PROPERTIES			
	Yield Strength		
	Minimum	110	ksi
	Maximum	140	ksi
	Tensile Strength		
	Minimum	125	ksi
PIPE PROPERTIES			
Dimensions, Nominal	Pipe Outside Diameter	5.500	in.
	Wall	0.361	in.
	Pipe Inside Diameter	4.778	in.
	Pipe Drift		
	API	4.653	in.
	Special (If Applicable)	N/A	in.
	Weight, T&C	20.00	lbs/ft
	Weight, Plain End	19.83	lbs/ft
	Pipe Cross Sectional Area	5.828	sq. in.
Performance Properties	Minimum Pipe Body Yield Strength	641	1,000 lbs
	Minimum Collapse Pressure	12,200	psi
	Minimum Internal Yield Pressure	12,640	psi
CONNECTION PROPERTIES			
Dimensions, Nominal	Connection Outside Diameter	6.050	in.
	Connection Inside Diameter	4.778	in.
	Connection Drift		
	API	4.653	in.
	Special (If Applicable)	N/A	in.
	Makeup Loss	4.63	in.
	Critical Area	5.828	in.
	Joint Efficiency	100	%
Performance Properties	Joint Strength	667	1,000 lbs
	Compression Rating	400	1,000 lbs
	API Collapse Pressure Rating	12,200	psi
	API Internal Pressure Resistance	12,360	psi
	Maximum Uniaxial Bend Rating	57.2	deg/100 ft
Recommended Torque Values	Minimum Shoulder Torque	5,000	ft-lbs
	Maximum Shoulder Torque	7,500	ft-lbs
	Connection Yield Torque	16,100	ft-lbs

* STAR SEAL - CDC (Casing Drilling Connection) is a Modified API Buttress threaded and coupled connection designed for field proven in drilling with casing applications. Star Seal is a registered trademark of U. S. Steel Corporation.

U.S. Steel Tubular Products, Inc.
600 Grant Street
Pittsburgh, PA 15219

6/9/2009

Approval Date: 09/27/2019

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

26366O APD Nandina Fed Com 25 36 31 95H 30015 NMNM137469 Ameredev 12-55 06232019 NMK

Cap

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	68.00	J 55	BUTT	14.30	3.97	0.64	1,100	74,800
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500			Tail Cmt	does not	circ to sfc.	Totals:	1,100	74,800

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	753	1241	817	52	8.60	2973	3M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK. Alternate Burst = 1.16 > 0.7

9 5/8	casing inside the	13 3/8			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	40.00	HCL 80	BUTT	2.07	0.78	0.76	11,080	443,200
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	11,080	443,200

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 1100 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	look ↘	0	3513		9.40	5002	10M	0.81
D V Tool(s):			5084				sum of sx	Σ CuFt	Σ%excess
t by stage % :		127	23				2793	6302	79

Class 'H' tail cmt yld > 1.20 MASP is within 10% of 5000psig, need

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.52, b, c, d <0.70 a Problem!! Alternate Burst = 1.15 > 1 & Alt Collapse = 1.17 > 1.125

Tail cmt

5 1/2	casing inside the	9 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	20.00	HCP 110	BUTT	2.75	1.54	1.63	11,100	222,000
"B"	20.00	HCP 110	BUTT	7.83	1.36	1.63	10,960	219,190
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,442						Totals:	22,060	441,190

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 11080 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 1/2	0.2291	4710	6311	5410	17	12.50			1.23

Class 'H' tail cmt yld > 1.20

0		5 1/2			Design Factors			
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"							0	0
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	0	0

Cmt vol calc below includes this csg, TOC intended 0 ft from surface or a 22060 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
0			0	0					

Carlsbad Field Office

6/24/2019

Approval Date: 09/27/2019

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

Nandina Fed Com 25 36 31 075H:
Surface Hole Location: 230' FNL & 1930' FEL, Section 6, T. 26 S., R. 36 E.
Bottom Hole Location: 200' FEL & 1980' FEL, Section 30, T. 25 S., R. 36 E.

Nandina Fed Com 25 36 31 095H:
Surface Hole Location: 230' FNL & 1950' FEL, Section 6, T. 26 S., R. 36 E.
Bottom Hole Location: 200' FNL & 1980' FEL, Section 30, T. 25 S., R. 36 E.

Nandina Fed Com 25 36 31 085H:
Surface Hole Location: 230' FNL & 1970' FEL, Section 6, T. 26 S., R. 36 E.
Bottom Hole Location: 200' FSL & 1980' FEL, Section 30, T. 25 S., R. 36 E.

Goldenbell Fed Com 26 36 06 075H:
Surface Hole Location: 230' FNL & 2030' FEL, Section 6, T. 26 S., R. 36 E.
Bottom Hole Location: 200' FSL & 1980' FEL, Section 7, T. 26 S., R. 36 E.

Goldenbell Fed Com 26 36 06 085H:
Surface Hole Location: 200' FNL & 2010' FEL, Section 6, T. 26 S., R. 36 E.
Bottom Hole Location: 200' FSL & 1980' FEL, Section 7, T. 26 S., R. 36 E.

Goldenbell Fed Com 26 36 06 095H:
Surface Hole Location: 230' FNL & 1990' FEL, Section 6, T. 26 S., R. 36 E.
Bottom Hole Location: 200' FSL & 1980' FEL, Section 7, T. 26 S., R. 36 E.

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

Well Pads
Roads

☐ **Road Section Diagram**

☐ **Production (Post Drilling)**

Well Structures & Facilities
Pipelines

☐ **Interim Reclamation**

☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Timing Limitation Exceptions:
The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Hydrology:
The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

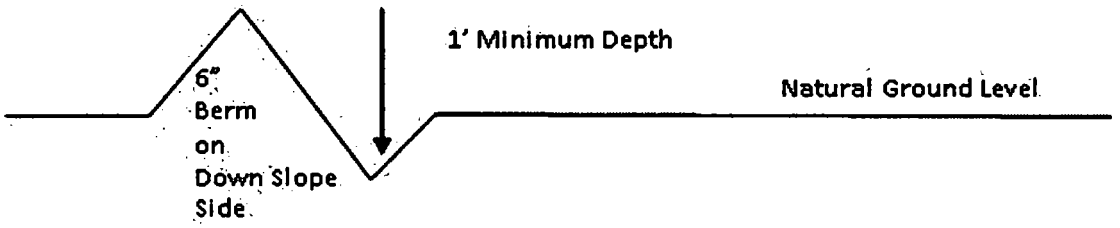
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps 1. Salvage topsoil 3. Redistribute topsoil
2. Construct road 4. Revegetate slopes

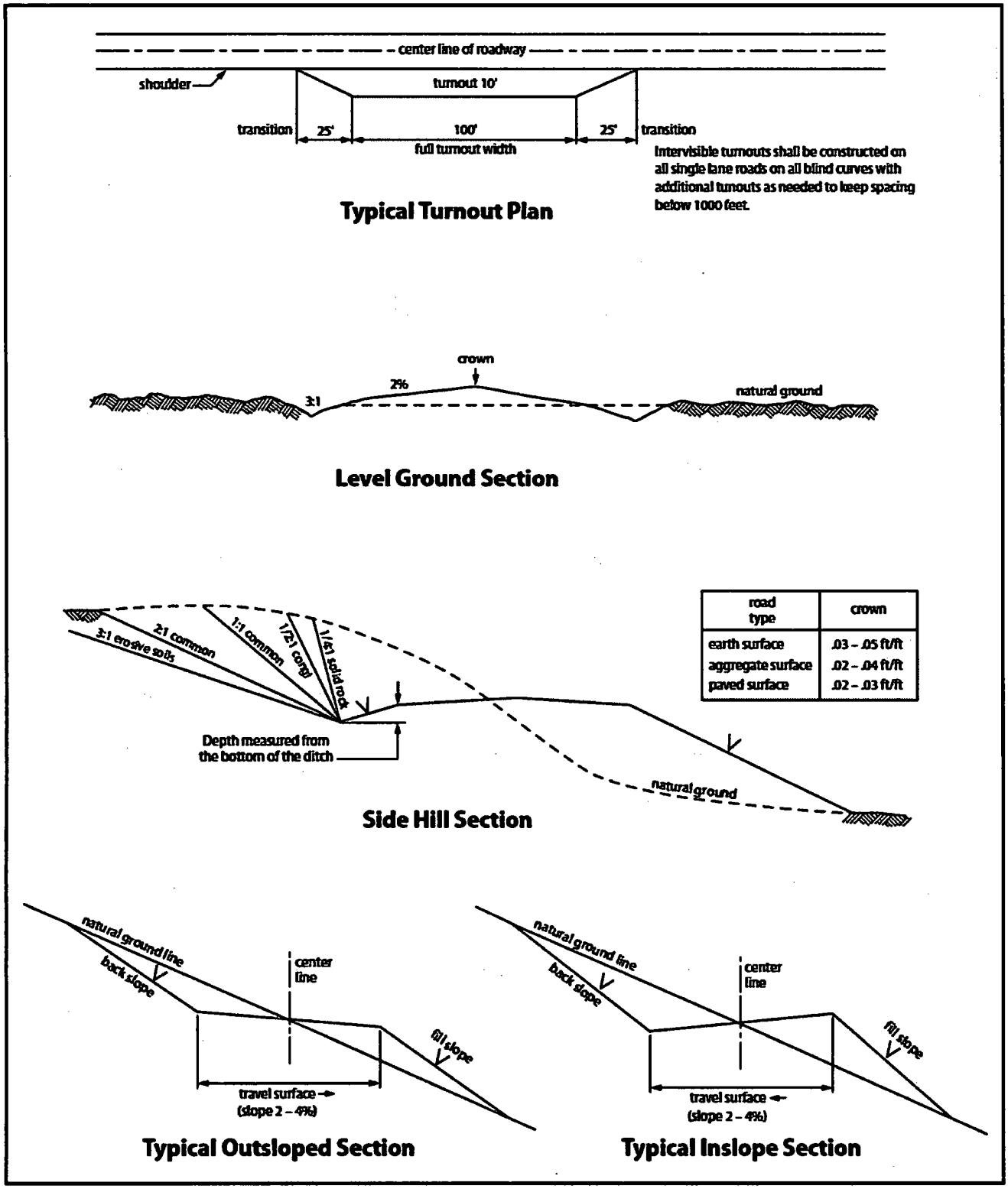


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other

pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **30** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	( ) seed mixture 4
(X) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

AFMSS

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

Operator Certification Data Report

09/30/2019

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: Julia Steger **Signed on:** 08/10/2018

Title: Engineer

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

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

Phone: (737)300-4733

Email address: jsteger@ameredev.com

Field Representative

Representative Name:

Street Address:

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

Phone:

Email address:

AFMSS

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

Application Data Report

09/30/2019

APD ID: 10400032975 **Submission Date:** 08/28/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

[redacted]

Show Final Text

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

Section 1 - General

APD ID: 10400032975 **Tie to previous NOS?** Y **Submission Date:** 08/28/2018

BLM Office: CARLSBAD **User:** Julia Steger **Title:** Engineer

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

Lease number: NMNM137469 **Lease Acres:** 600.28

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: NANDINA FED COM 25 36 31 **Well Number:** 095H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WC-025 G-08 S263620C **Pool Name:** LWR 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: NANDINA FED COM 25 36 31 **Well Number:** 095H

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

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:** NANDINA **Number:** 095H

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: 6.5 Miles **Distance to nearest well:** 2883 FT **Distance to lease line:** 200 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: NANDINA_FED_COM_25_36_31_095H___C102_SIGNED_20180809161508.pdf

NANDINA_FED_COM_25_36_31_095H___BLM_LEASES_20180809161540.pdf

NANDINA_FED_COM_25_36_31_095H___GAS_CAPTURE_PLAN_20180809161548.pdf

NANDINA_FED_COM_25_36_31_095H___EXHIBIT_2A___2B_20180827071301.pdf

NANDINA_FED_COM_25_36_31_095H___VICINITY_MAP_20180827071314.pdf

Well work start Date: 06/04/2020 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 19642 **Reference Datum:**

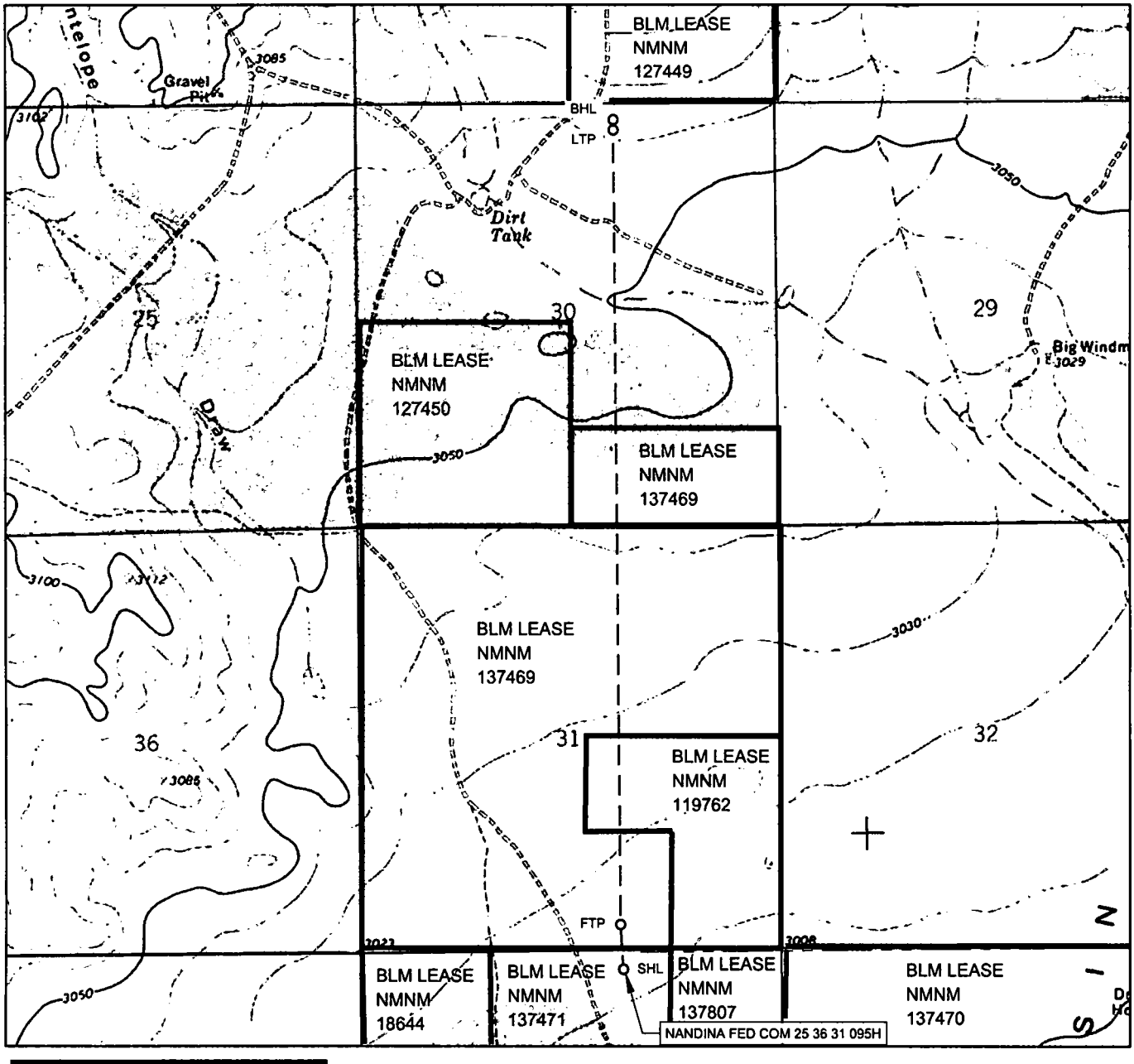
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	230	FNL	1950	FEL	26S	36E	6	Lot O	32.078945	-103.3019693	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137471	3011	0	0

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

	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	276	FNL	1851	FEL	26S	36E	6	Aliquot NWNE	32.0788134	-103.30165	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137471	-8066	11079	11077
PPP Leg #1	0	FSL	1895	FEL	25S	36E	31	Aliquot SWSE	32.0795774	-103.3017953	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137469	-8559	11674	11570
PPP Leg #1	0	FSL	1980	FEL	25S	36E	30	Aliquot SWSE	32.0940874	-103.3020706	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137469	-8639	16973	11650
PPP Leg #1	1320	FSL	1980	FEL	25S	36E	31	Aliquot NWSE	32.0832055	-103.3020656	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 119762	-8639	13014	11650
PPP Leg #1	1320	FSL	1980	FEL	25S	36E	31	Aliquot SWSE	32.0832055	-103.3020656	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137469	-8639	13014	11650
PPP Leg #1	2640	FSL	1980	FEL	25S	36E	31	Aliquot NWSE	32.0868337	-103.3020672	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 119762	-8639	14334	11650
PPP Leg #1	230	FNL	1950	FEL	26S	36E	6	Lot O	32.078945	-103.3019693	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137471	3011	0	0
PPP Leg #1	1320	FSL	1980	FEL	25S	36E	30	Aliquot SWSE	32.0977156	-103.3020722	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137469	-8639	18293	11650
PPP Leg #1	0	FNL	1980	FEL	25S	36E	31	Aliquot NWNE	32.0940874	-103.3020706	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137469	-8639	16973	11650
PPP Leg #1	2640	FSL	1980	FEL	25S	36E	31	Aliquot SWNE	32.0868337	-103.3020672	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137469	-8639	14334	11650
PPP Leg #1	0	FNL	1895	FEL	26S	36E	6	Aliquot NWNE	32.0795774	-103.3017953	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137471	-8559	11674	11570
EXIT Leg #1	1320	FSL	1980	FEL	25S	36E	30	Aliquot NWSE	32.0977156	-103.3020722	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-8639	18293	11650
BHL Leg #1	200	FNL	1980	FEL	25S	36E	30	Lot B	32.1080669	-103.3020755	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-8639	22059	11650

LOCATION & ELEVATION VERIFICATION MAP



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LEASE NAME & WELL NO.: NANDINA FED COM 25 36 31 095H

SECTION 6 TWP 26-S RGE 36-E SURVEY N.M.P.M.
COUNTY LEA STATE NM ELEVATION 3011'
DESCRIPTION 230' FNL & 1950' FEL

LATITUDE N 32.0789450 LONGITUDE W 103.3019693

-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 STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET.

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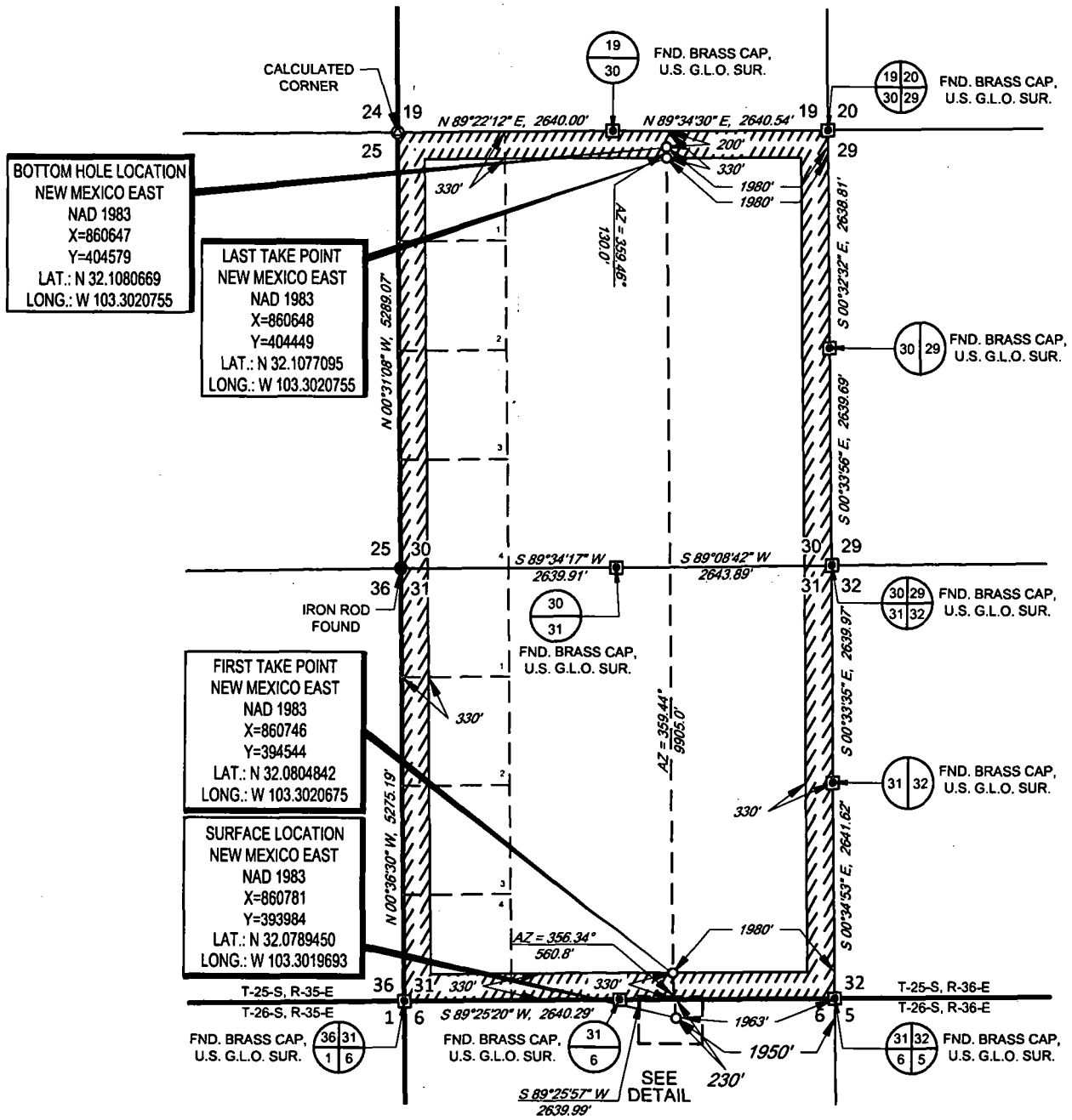
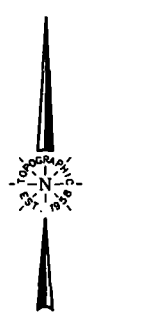
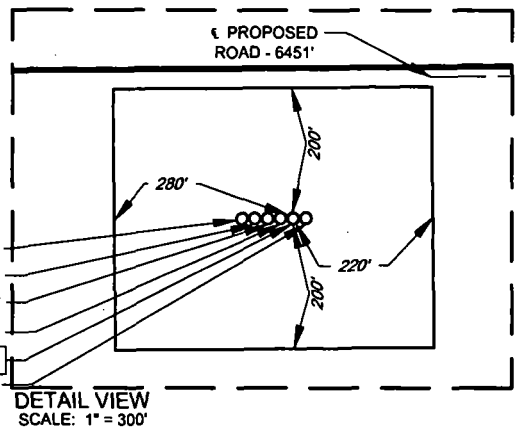
EXHIBIT 2A

SECTION 6, TOWNSHIP 26-S, RANGE 36-E, N.M.P.M.
LEA COUNTY, NEW MEXICO







LEASE NAME & WELL NO.: NANDINA FED COM 25 36 31 095H

EXHIBIT 2B

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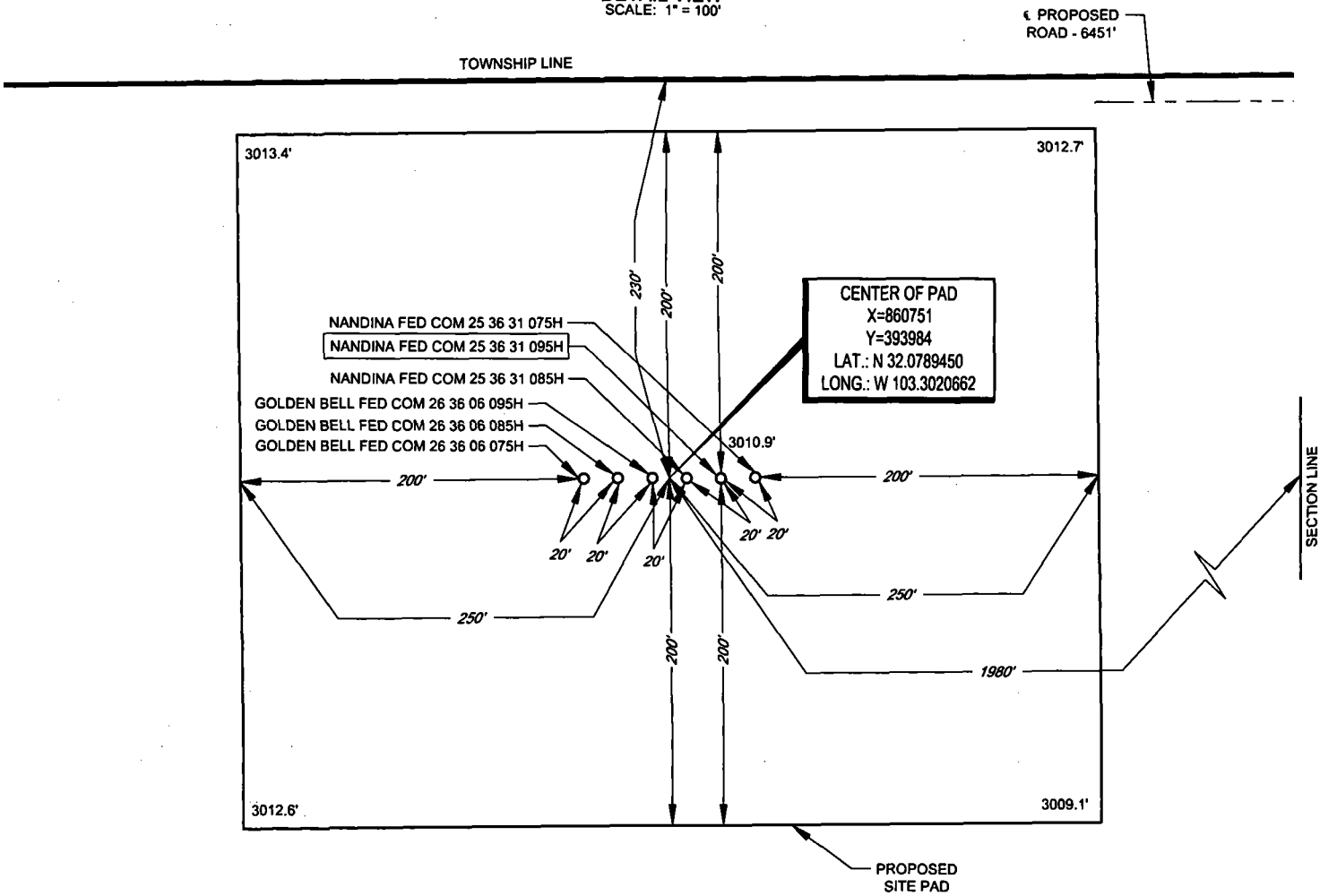
SECTION 6, TOWNSHIP 26-S, RANGE 36-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: NANDINA FED COM 25 36 31 095H

095H LATITUDE N 32.0789450 095H LONGITUDE W 103.3019693

CENTER OF PAD IS 230' FNL 1980' FEL

-N-

SCALE: 1" = 100'

0' 50' 100'

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, 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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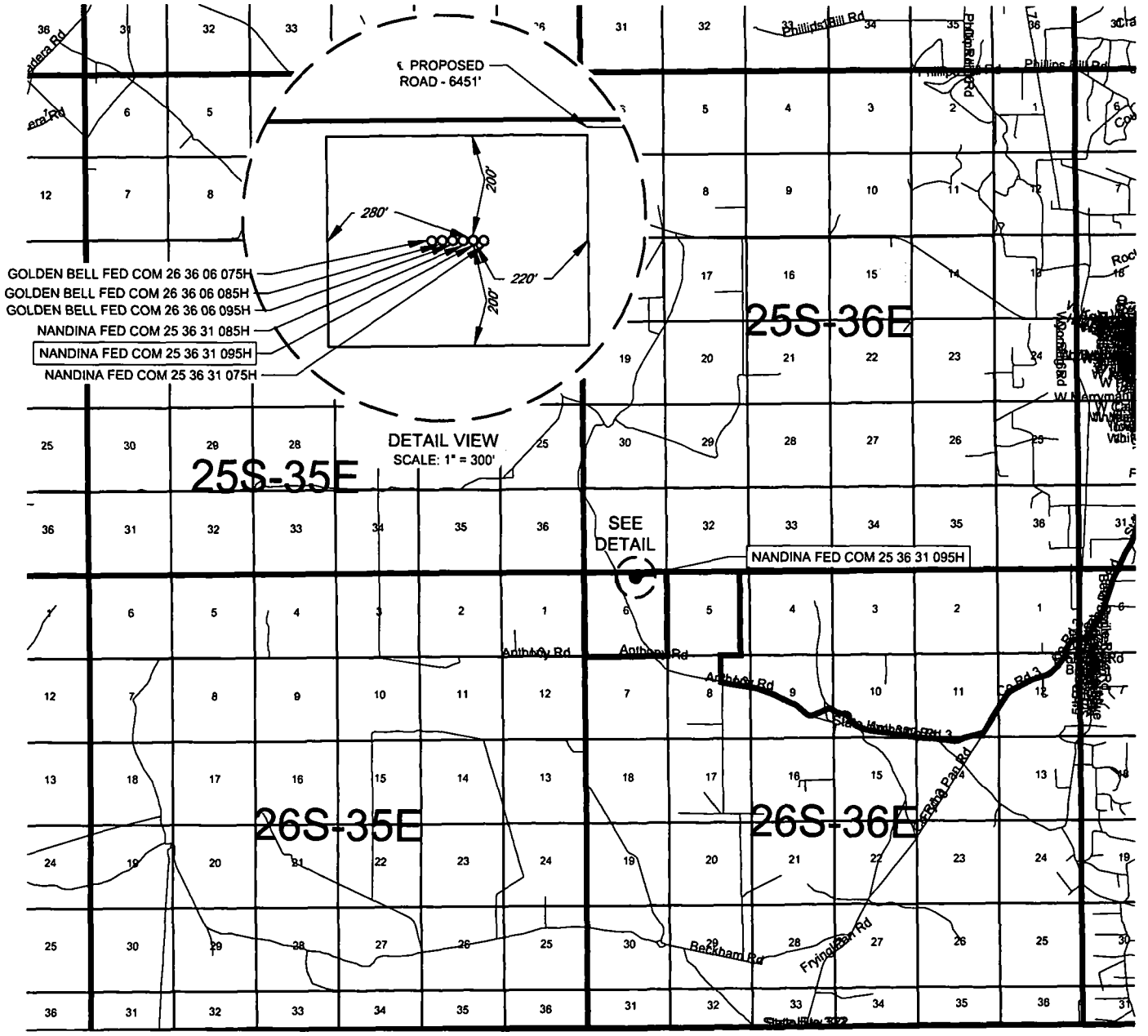
ORIGINAL DOCUMENT SIZE: 8.5" X 11"

EXHIBIT 2

VICINITY MAP



AMEREDEV

AMEREDEV OPERATING, LLC

LEASE NAME & WELL NO.: NANDINA FED COM 25 36 31 095H

SECTION 6 TWP 26-S RGE 36-E SURVEY N.M.P.M.

COUNTY LEA STATE NM

DESCRIPTION 230' FNL & 1950' FEL

DISTANCE & DIRECTION

FROM INT. OF 3RD ST./NM-205/FRYING PAN RD. & NM-128, HEAD SOUTH ON 3RD ST./NM-205/FRYING PAN RD. ±5.6 MILES, THENCE WEST (RIGHT) ON ANTHONY RD. ±3.4 MILES, THENCE NORTH (RIGHT) TO CONTINUE ON ANTHONY RD. ±0.3 MILES, THENCE EAST (RIGHT) ON PIPELINE RD. ±0.3 MILES, THENCE NORTH (LEFT) ON A LEASE RD. ±1.0 MILES, THENCE WEST (LEFT) ON A LEASE RD. ±6451 FEET TO A POINT ±310 FEET NORTHEAST 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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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

09/30/2019

APD ID: 10400032975 **Submission Date:** 08/28/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

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	1946	1068	1068	ANHYDRITE	NONE	N
2	SALADO	438	1508	1508	SALT	NONE	N
3	TANSILL	-1286	3234	3234	LIMESTONE	NONE	N
4	CAPITAN REEF	-1792	3738	3738	LIMESTONE	USEABLE WATER	N
5	LAMAR	-3088	5034	5034	LIMESTONE	NONE	N
6	BELL CANYON	-3123	5069	5069	SANDSTONE	NATURAL GAS,OIL	N
7	BRUSHY CANYON	-5163	7109	7109	SANDSTONE	NATURAL GAS,OIL	N
8	BONE SPRING LIME	-6389	8335	8335	LIMESTONE	NONE	N
9	BONE SPRING 1ST	-7765	9711	9711	SANDSTONE	NATURAL GAS,OIL	N
10	BONE SPRING 2ND	-8323	10269	10269	SANDSTONE	NATURAL GAS,OIL	N
11	BONE SPRING 3RD	-8909	10855	10855	LIMESTONE	NATURAL GAS,OIL	N
12	BONE SPRING 3RD	-9508	11454	11454	SANDSTONE	NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 15000

Equipment: A 5M BOPE system will be used after setting surface casing. A Kelly cock will be kept in the drilling string at all times. A full opening drill pipe stabbing valve with proper drill pipe connections will always be on the rig floor.
Requesting Variance? YES

Variance request: Utilize 5M System to TD // Co-Flex Choke Line

Testing Procedure: See attachment

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

10M_Choke_Manifold_20180828153650.pdf

BOP Diagram Attachment:

5M_BOP_System_20180809131923.pdf

4_String_MB_Ameredev_Wellhead_Drawing_net_REV_20180809131943.pdf

Pressure_Control_Plan_Pad_Well_MB4_Preset_20180809131932.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	1193	0	1193	3011		1193	J-55	54.5	OTHER - BTC	1.82	0.9	DRY	13.98	DRY	13.12
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5084	0	5084			5084	HCL-80	40	OTHER - BTC	1.39	0.95	DRY	5.12	DRY	4.51
3	INTERMEDIATE	8.75	7.625	NEW	API	N	0	11079	0	11077			11079	HCP-110	29.7	OTHER - FJM	1.11	1.25	DRY	1.96	DRY	2.86
4	PRODUCTION	6.75	5.5	NEW	API	N	0	22059	0	11650			22059	OTHER	20	OTHER - TMK UP SF TORQ	1.78	1.9	DRY	2.81	DRY	3.12

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

NANDINA_FED_COM_25_36_31_095H___CASING_DESIGN_ASSUMPTIONS_20180810083550.pdf

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

Casing Attachments

13.375_54.50_J55_SEAH_20180810091409.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

NANDINA_FED_COM_25_36_31_095H___WELLBORE_SCHEMATIC_20180810083641.pdf

NANDINA_FED_COM_25_36_31_095H___CASING_DESIGN_ASSUMPTIONS_20180810083650.pdf

9625_40_SeAH80HC_4100_Collapse_20180810091428.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

NANDINA_FED_COM_25_36_31_095H___CASING_DESIGN_ASSUMPTIONS_20180810083730.pdf

NANDINA_FED_COM_25_36_31_095H___WELLBORE_SCHEMATIC_20180810083740.pdf

7.625_29.70_P110HC_LIBERTY_FJM_20180810091439.pdf

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

NANDINA_FED_COM_25_36_31_095H___WELLBORE_SCHEMATIC_20180810083840.pdf

NANDINA_FED_COM_25_36_31_095H___CASING_DESIGN_ASSUMPTIONS_20180810083935.pdf

TMK_UP_SF_TORQ____5.500in_x_20.00__P_110_CYHP_20180810091452.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	809	735	1.89	12.9	1390.62	100	Class C	Bentonite, Retarder, Kolseal, Defoamer, Celloflake
SURFACE	Tail		809	1193	200	1.33	14.8	266.4	100	Class C	None
INTERMEDIATE	Lead		0	3464	1000	1.88	12.9	1878	50	Class C	Bentonite, Salt, Kolseal, Defoamer, Celloflake
INTERMEDIATE	Tail		3464	5084	380	1.33	14.8	506.92	50	Class C	None
INTERMEDIATE	Lead		3688	9847	282	2.85	11	802.29	25	Class H	Bentonite, Retarder, Kolseal, Defoamer, Celloflake, Anti-Settling, Expansion Additive
INTERMEDIATE	Tail		9847	11079	100	1.24	14.5	123.7	25	Class H	Bentonite, Retarder, Dispersant, Fluid Loss
PRODUCTION	Lead		10579	22059	980	1.22	14.5	1198.54	25	Class H	Retarder, Kolseal, Defoamer, Celloflake, Expansion Additive

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

Section 5 - Circulating Medium

Mud System Type: Semi-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

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
1193	5084	SALT SATURATED	10	11.5							
0	1193	WATER-BASED MUD	8.6	10							
11077	11650	OIL-BASED MUD	11.5	12.5							
5084	11077	OTHER : Cut Brine	8.9	10.5							

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.

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5000 **Anticipated Surface Pressure:** 2437

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_20180809142040.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Nandina_Fed_Com_25_36_31__095H___Plan_1_20180810084429.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

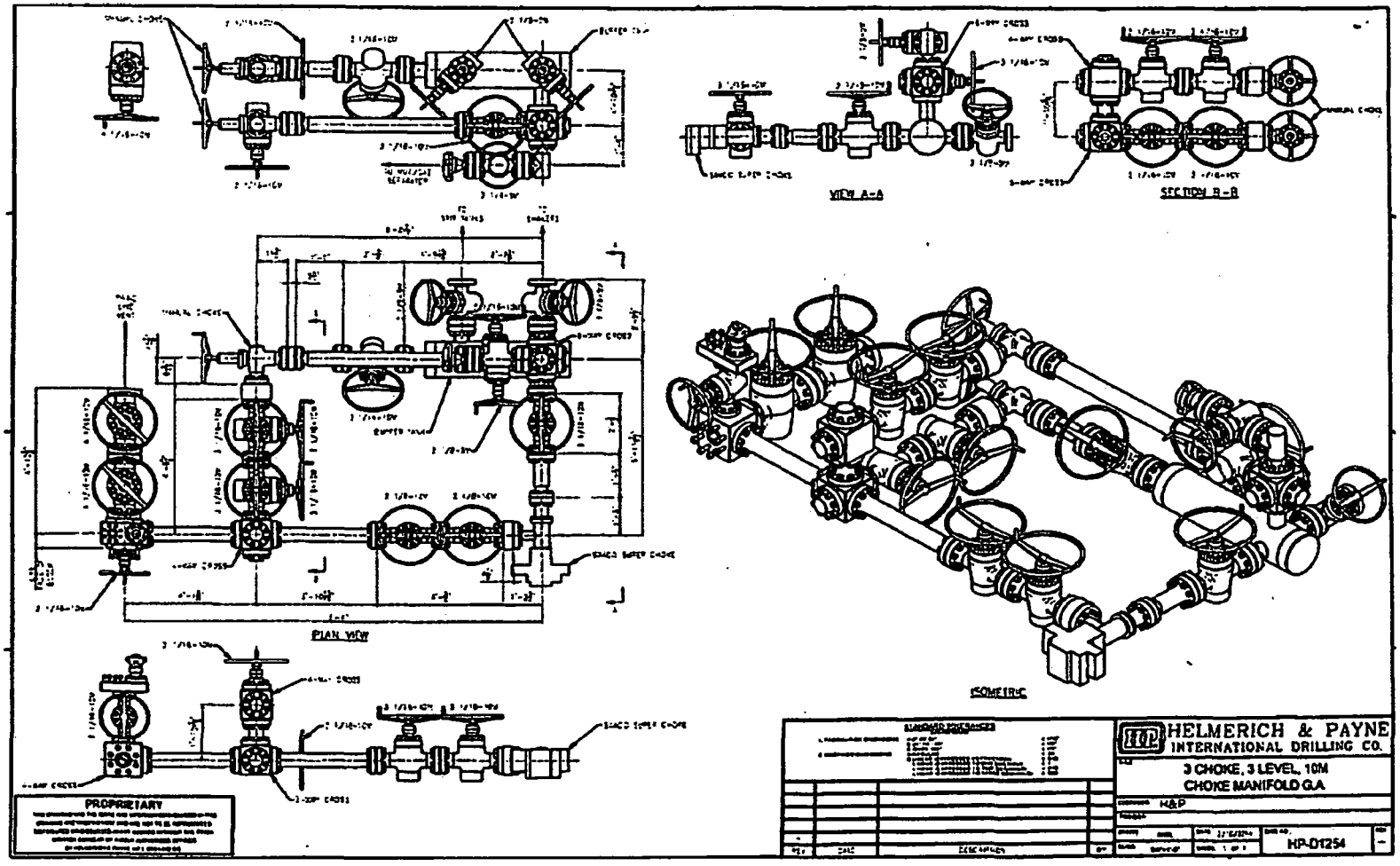
Requested_Exceptions___4_String_20180809142116.pdf

5M_Exception_BLM_Well_Control_Plan_20180809142154.pdf

R616___CoC_for_hoses_12_18_17_20180809142146.pdf

10M Choke Manifold

10M Choke Manifold



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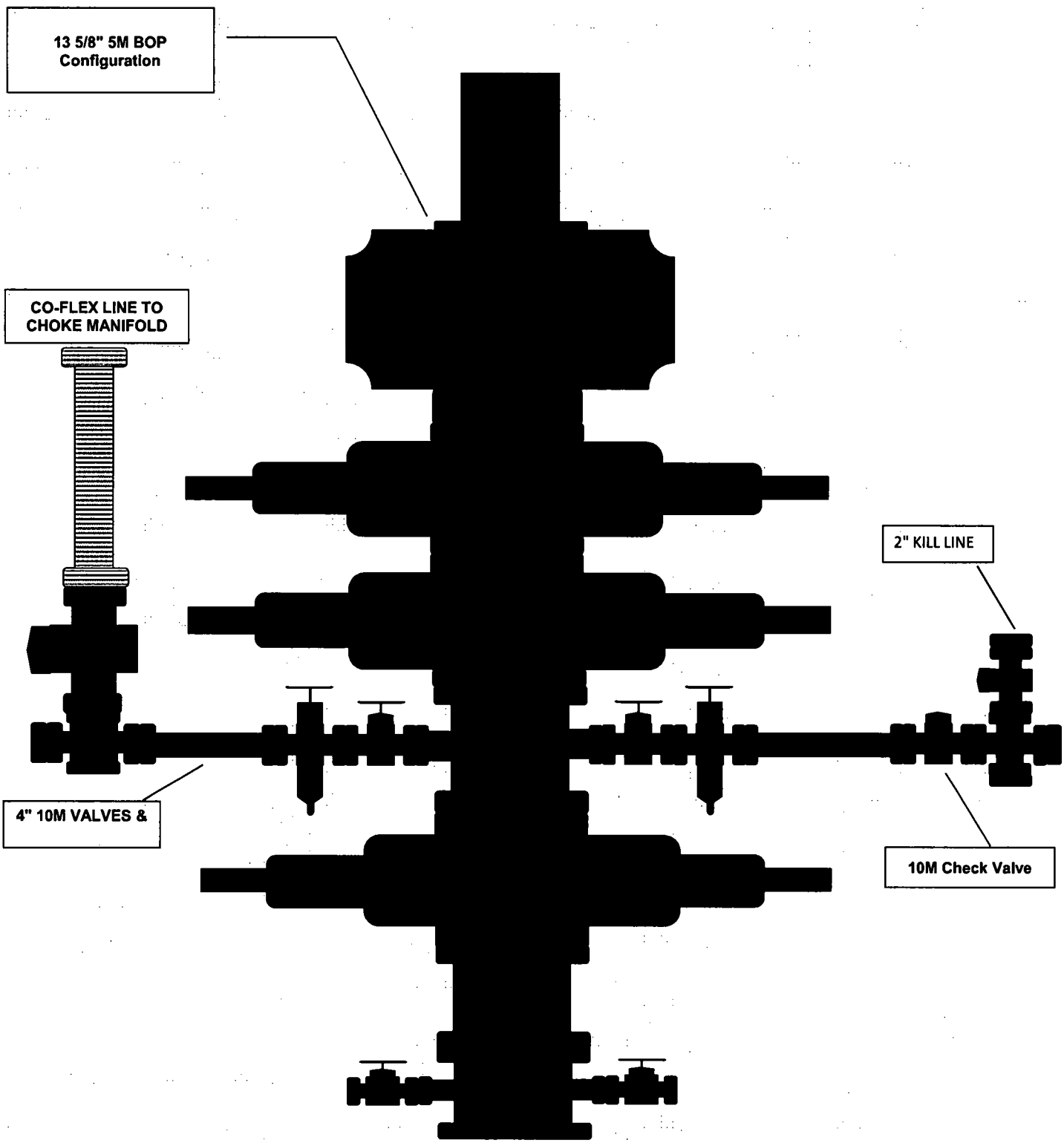
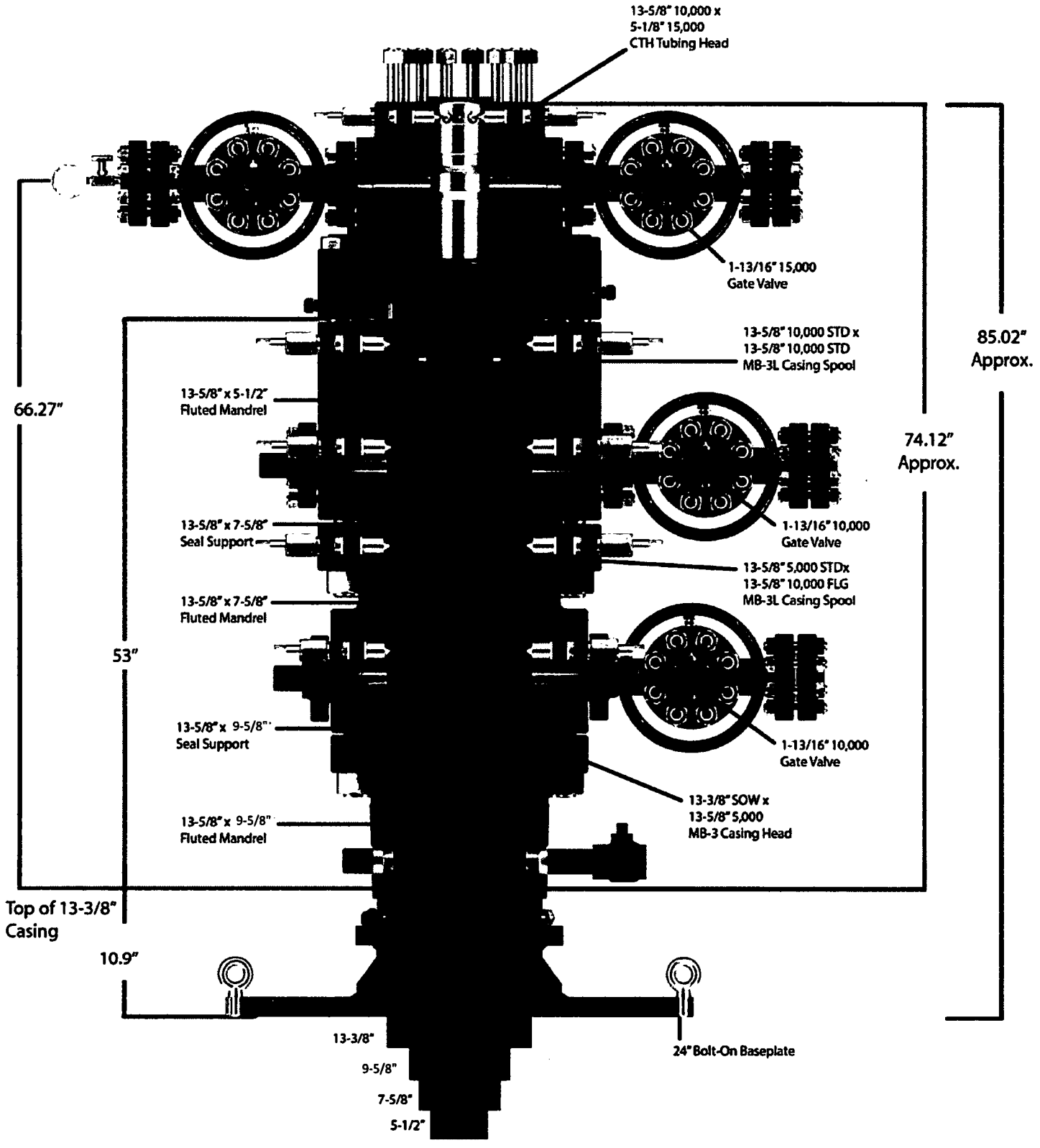

13 5/8" 5M BOP
Configuration
CO-FLEX LINE TO
CHOKE MANIFOLD
2" KILL LINE
4" 10M VALVES &
10M Check Valve



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

Pressure Control Plan

Pressure Control Equipment

- Ameredev will utilize a drilling rig not capable of drilling to TD to preset Surface Casing.

- 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 1500psi 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 Dry Hole Cap and install Pressure gauges to monitor. Ameredev will Suspend Operations to Mob to Adjacent Wells and Drill Surface

    - Camellia Fed Com 26-36-21 114H

- Ameredev will Mobilize Rig capable of drilling to TD.(Rig Capable of Drilling to TD will not Mobilize until all wells on Drilling Pad have reached TD and Tubing Head installed and Tested) 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 5,000psi 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 (2,500psi). Casing will be tested to 1500psi 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 #1 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 1500psi 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 Dry Hole Cap and install Pressure gauges to monitor. Ameredev will Suspend Operations to Mob to Adjacent Wells and Drill Intm #1

    - Camellia Fed Com 26-36-21 114H

AMEREDEV

Pressure Control Plan

- Ameredev will Skid Rig capable of drilling to TD.(Rig Capable of Drilling to TD will not Mobilize until all wells on Drilling Pad have reached TD and Tubing Head installed and Tested) 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 5,000psi 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 (2,500psi). Casing will be tested to 1500psi 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.

- 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.

- Setting of 7-5/8" Intermediate #2 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 1500psi 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 Dry Hole Cap and install Pressure gauges to monitor. Ameredev will Suspend Operations to Mob to Adjacent Wells and Drill Intm #1

    - Camellia Fed Com 26-36-21 114H

- Ameredev will Skid Rig capable of drilling to TD.(Rig Capable of Drilling to TD will not Mobilize until all wells on Drilling Pad have reached TD and Tubing Head installed and Tested) 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 10,000psi 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 (2,500psi). Casing will be tested to 1500psi 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.

[redacted]

- Before drilling >20ft of new formation under the 7-5/8" 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 5M 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.

- 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)
    - The minimum blowout preventer equipment (BOPE) shown in 5M BOPE System Attachment will consist of annular preventer, pipe ram, blind ram, drilling spool (with two outlets, choke side minimum 3" and kill side minimum 2"), 2 choke line valves, kill line, 2 chokes with one remotely controlled from the rig floor, 2 kill line valves and a check valve, upper kelly cock valve with handle available, lower kelly cock valve with handle available, safety valves to fit all drill string connections, inside BOP, pressure gauge on choke manifold, fill up line above the upper most preventer. All BOPE will be tested in accordance with Onshore Order No. 2.
        - [redacted]

AMEREDEV

Wellbore Schematic

Well:	Nandina Fed Com 25 36 31 095H	**Co. Well ID:**	40763
SHL:	Sec. 6 26S-36E 230' FNL & 1950' FEL	**AFE No.:**	2018-025
BHL:	Sec. 30 25S-36E 200' FNL & 1980' FEL	**API No.:**	xxxxxxxxxx
	Lea, NM	**GL:**	3,011'
Wellhead:	A - 13-5/8" 5M x 13-5/8" SOW	**Field:**	Delaware_TBSG
	B - 13-5/8" 5M x 13-5/8" 10M	**Objective:**	Third Bone Spring
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,650'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,059'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD
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	1,068' TVD		935 Sacks TOC 0' 100% Excess	8.6 - 10 ppg WBM
	13.375" 54.5# J-55 BTC	**1,193' MD/TVD**			
12.25"	Salado	1,508' TVD		1380 Sacks TOC 0' 50% Excess	10 - 11.5 ppg Brine
	Tansill	3,234' TVD			
	Capitan	3,738' TVD			
	Lamar	5,034' TVD			
	Bell Canyon	5,069' TVD			
	9.625" 40# L-80HC BTC	**5,084' MD/TVD**			
8.75"	Brushy Canyon	7,109' TVD	Triple Combo	344 Sacks TOC 4584' 25% Excess	8.9 - 10.5 Cut Brine
	Bone Spring Lime	8,335' TVD			
	First Bone Spring	9,711' TVD			
	Second Bone Spring	10,269' TVD			
	Third Bone Spring Upper	10,855' TVD			
	7.625" 29.7#P-110HC FJM	**11,079' MD**			
10° Build KOP 11,079' MD // 11,077' TVD	Third Bone Spring	11,454' TVD	Triple Combo	1570 Sacks TOC 3688' 25% Excess	11.5 - 12.5 ppg OBM
	5.5" 20# P-110CYHP TMK UP SF TORQ	**22,059' MD**			
	Target Third Bone Spring 11650' TVD // 22059' MD				
6.75"					

Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
Surface	17.5	1,193'	13.375	54.5	J-55	BTC
Int #1	12.25	5,084'	9.625	40	HCL-80	BTC
Int #2	8.75	11,079'	7.625	29.7	HCP-110	FJM
Prod Segment A	6.75	11,079'	5.5	20	CYHP-110	TMK UPSF
Prod Segment B	6.75	22,059'	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	13.12	13.98	1.82	0.90
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	4.51	5.12	1.39	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	2.86	1.96	1.11	1.25
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	3.12	2.81	1.78	1.90
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	63.75	57.36	1.69	1.90

PERFORMANCE DATA

TMK UP SF TORQ™ **5.500 in** **20.00 lbs/ft** **P-110 CYHP**
Technical Data Sheet

Tubular Parameters

Size	5.500	in	Minimum Yield	125,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	135,000	psi
Grade	P-110 CYHP		Yield Load	728,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	786,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	14,360	psi
Nominal ID	4.778	in	Collapse Pressure	12,780	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in²			

Connection Parameters

Connection OD	5.777	in
Connection ID	4.734	in
Make-Up Loss	5.823	in
Critical Section Area	5.875	in²
Tension Efficiency	90.0	%
Compression Efficiency	90.0	%
Yield Load In Tension	655,000	lbs
Min. Internal Yield Pressure	14,360	psi
Collapse Pressure	12,780	psi
Uniaxial Bending	93.8	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	15,700	ft-lbs
Opt. Make-Up Torque	19,600	ft-lbs
Max. Make-Up Torque	21,600	ft-lbs
Operating Torque	29,000	ft-lbs
Yield Torque	37,000	ft-lbs

Printed on: January-10-2018

IPSCO

Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
Surface	17.5	1,193'	13.375	54.5	J-55	BTC
Int #1	12.25	5,084'	9.625	40	HCL-80	BTC
Int #2	8.75	11,079'	7.625	29.7	HCP-110	FJM
Prod Segment A	6.75	11,079'	5.5	20	CYHP-110	TMK UPSF
Prod Segment B	6.75	22,059'	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	13.12	13.98	1.82	0.90
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	4.51	5.12	1.39	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	2.86	1.96	1.11	1.25
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	3.12	2.81	1.78	1.90
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	63.75	57.36	1.69	1.90

AMEREDEV

Wellbore Schematic

Well:	Nandina Fed Com 25 36 31 095H	**Co. Well ID:**	40763
SHL:	Sec. 6 26S-36E 230' FNL & 1950' FEL	**AFE No.:**	2018-025
BHL:	Sec. 30 25S-36E 200' FNL & 1980' FEL	**API No.:**	xxxxxxxxxx
	Lea, NM	**GL:**	3,011'
Wellhead:	A - 13-5/8" 5M x 13-5/8" SOW	**Field:**	Delaware_TBSG
	B - 13-5/8" 5M x 13-5/8" 10M	**Objective:**	Third Bone Spring
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,650'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,059'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD
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	1,068' TVD		935 Sacks TOC 0' 100% Excess	8.6 - 10 ppg WBM
	13.375" 54.5# J-55 BTC	**1,193' MD/TVD**			
12.25"	Salado	1,508' TVD		1380 Sacks TOC 0' 50% Excess	10 - 11.5 ppg Brine
	Tansill	3,234' TVD			
	Capitan	3,738' TVD			
	Lamar	5,034' TVD			
	Bell Canyon	5,069' TVD			
	9.625" 40# L-80HC BTC	**5,084' MD/TVD**			
8.75"	Brushy Canyon	7,109' TVD	Triple Combo	344 Sacks TOC 4584' 25% Excess	8.9 - 10.5 Cut Brine
	Bone Spring Lime	8,335' TVD			
	First Bone Spring	9,711' TVD			
	Second Bone Spring	10,269' TVD			
	Third Bone Spring Upper	10,855' TVD			
	7.625" 29.7#P-110HC FJM	**11,079' MD**			
10° Build KOP 11,079' MD // 11,077' TVD	Third Bone Spring	11,454' TVD	Triple Combo	1570 Sacks TOC 3688' 25% Excess	11.5 - 12.5 ppg OBM
	5.5" 20# P-110CYHP TMK UP SF TORQ	**22,059' MD**			
	Target Third Bone Spring 11650' TVD // 22059' MD				
6.75"					

SěAH

13-3/8" 54.50# .380 J-55

Dimensions (Nominal)

Outside Diameter	13.375	**in.**
Wall	0.380	**in.**
Inside Diameter	12.615	**in.**
Drift	12.459	**in.**
Weight, T&C	54.500	**lbs/ft**
Weight, PE	52.790	**lbs/ft**

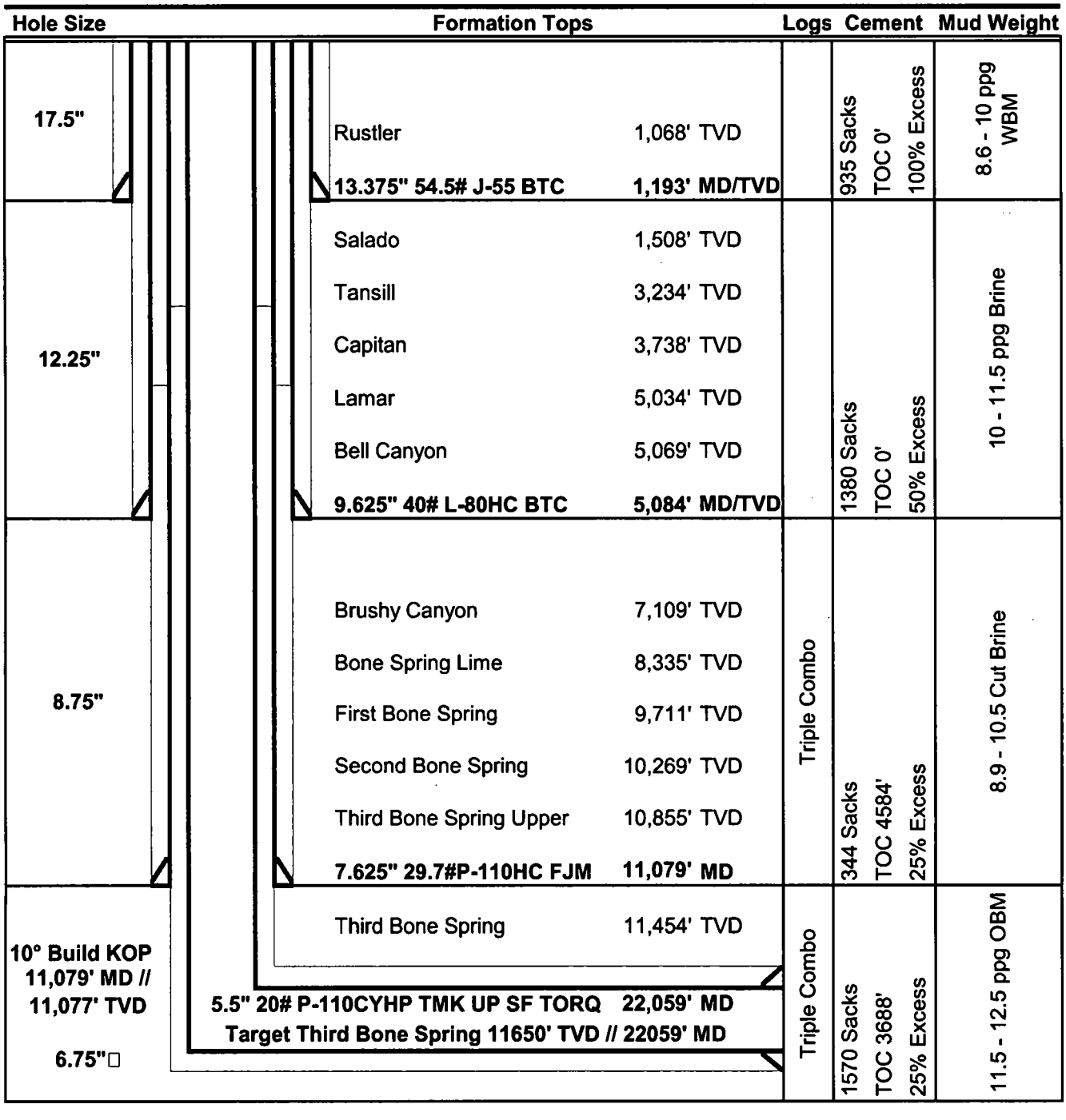
Performance Ratings, Minimum

Collapse, PE	**1130**	**psi**
Internal Yields Pressure		
PE	**2730**	**psi**
STC	**2730**	**PSI**
BTC	**2730**	**psi**
Yield Strength, Pipe Body	**853**	**1000 lbs**
Joint Strength, STC	**514**	**1000 lbs**
Joint Strength, BTC	**909**	**1000 lbs**

AMEREDEV

Wellbore Schematic

Well:	Nandina Fed Com 25 36 31 095H	**Co. Well ID:**	40763
SHL:	Sec. 6 26S-36E 230' FNL & 1950' FEL	**AFE No.:**	2018-025
BHL:	Sec. 30 25S-36E 200' FNL & 1980' FEL	**API No.:**	xxxxxxxxxxx
	Lea, NM	**GL:**	3,011'
Wellhead:	A - 13-5/8" 5M x 13-5/8" SOW	**Field:**	Delaware_TBSG
	B - 13-5/8" 5M x 13-5/8" 10M	**Objective:**	Third Bone Spring
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,650'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,059'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD
Tubing:	2-7/8" L-80 6.5# 8rd EUE	**E-Mail:**	Wellsite2@ameredev.com



Casing Design and Safety Factor Check

Casing Specifications						
Segment	**Hole ID**	**Depth**	**OD**	**Weight**	**Grade**	**Coupling**
Surface	17.5	1,193'	13.375	54.5	J-55	BTC
Int #1	12.25	5,084'	9.625	40	HCL-80	BTC
Int #2	8.75	11,079'	7.625	29.7	HCP-110	FJM
Prod Segment A	6.75	11,079'	5.5	20	CYHP-110	TMK UPSF
Prod Segment B	6.75	22,059'	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	13.12	13.98	1.82	0.90
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	4.51	5.12	1.39	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	2.86	1.96	1.11	1.25
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	3.12	2.81	1.78	1.90
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	63.75	57.36	1.69	1.90

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.**

Casing Design and Safety Factor Check

Casing Specifications						
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OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
7.625	940	558	6700	9460
Safety Factors				
0.56	2.86	1.96	1.11	1.25
Check Prod Casing, Segment A				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
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Safety Factors				
0.49	3.12	2.81	1.78	1.90
Check Prod Casing, Segment B				
OD Cplg	Body	Joint	Collapse	Burst
inches	*1000 lbs*	*1000 lbs*	*psi*	*psi*
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AMEREDEV

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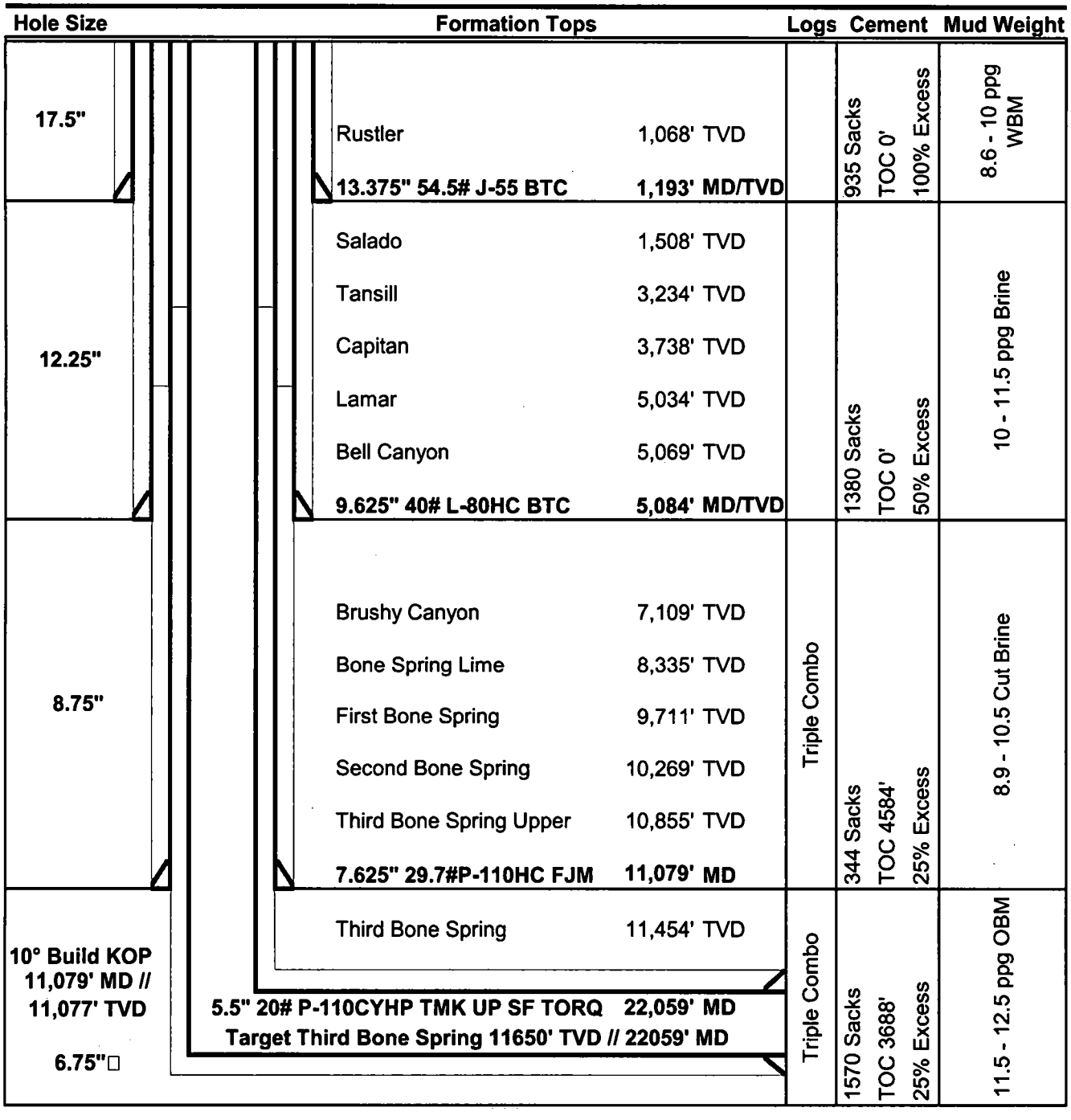
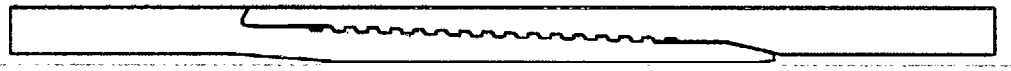
	B - 13-5/8" 5M x 13-5/8" 10M	**Objective:**	Third Bone Spring
	C - 13-5/8" 10M x 13-5/8" 10M	**TVD:**	11,650'
	Tubing Spool - 5-1/8" 15M x 13-3/8" 10M	**MD:**	22,059'
Xmas Tree:	2-9/16" 10M	**Rig:**	TBD
Tubing:	2-7/8" L-80 6.5# 8rd EUE	**E-Mail:**	Wellsite2@ameredev.com



U. S. Steel Tubular Products

6/6/2017 6:18:53 PM

7.625" 29.70lbs/ft (0.375" Wall) P110 HC USS-LIBERTY FJM®



MECHANICAL PROPERTIES	Pipe	USS-LIBERTY FJM®	
Minimum Yield Strength	110,000	--	psi
Maximum Yield Strength	140,000	--	psi
Minimum Tensile Strength	125,000	--	psi
DIMENSIONS	**Pipe**	**USS-LIBERTY FJM®**	
Outside Diameter	7.625	7.625	in.
Wall Thickness	0.375	--	in.
Inside Diameter	6.875	6.789	in.
Standard Drift	6.750	6.750	in.
Alternate Drift	--	--	in.
Nominal Linear Weight, T&C	29.70	--	lbs/ft
Plain End Weight	29.06	--	lbs/ft
SECTION AREA	**Pipe**	**USS-LIBERTY FJM®**	
Critical Area	8.541	5.074	sq. in.
Joint Efficiency	--	59.4	%
PERFORMANCE	**Pipe**	**USS-LIBERTY FJM®**	
Minimum Collapse Pressure	6,700	6,700	psi
Minimum Internal Yield Pressure	9,460	9,460	psi
Minimum Pipe Body Yield Strength	940,000	--	lbs
Joint Strength	--	558,000	lbs
Compression Rating	--	558,000	lbs
Reference Length	--	12,810	ft
Maximum Uniaxial Bend Rating	--	39.3	deg/100 ft
Make-Up Loss	--	3.92	in.
Minimum Make-Up Torque	--	10,800	ft-lbs
Maximum Make-Up Torque	--	15,250	ft-lbs

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. USS-LIBERTY FJM™ connections are optimized for each combination of OD and wall thickness and cannot be interchanged.
5. 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.).
6. Reference length is calculated by joint strength divided by nominal plain end weight with 1.5 safety factor.
7. Connection external pressure leak resistance has been verified to 100% API pipe body collapse pressure following the guidelines of API 5C5 Cal III.

U. S. Steel Tubular Products
10343 Sam Houston Park Dr., #120
Houston, TX 77064

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

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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.

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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)

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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

Lea County, NM (NAD83 NME)
(Nandina Fed) Sec-31_T-25-S_R-36-E
Nandina Fed Com 25-36-31 #095H

OWB

Plan: Plan #1

Standard Planning Report

02 July, 2018

INTREPID

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	(Nandina Fed) Sec-31_T-25-S_R-36-E				
Site Position:		**Northing:**	394,412.00 usft	**Latitude:**	32.0801272
From:	Map	**Easting:**	860,517.00 usft	**Longitude:**	-103.3028096
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.55 °

Well	Nandina Fed Com 25-36-31 #095H				
Well Position	**+N/-S**	-428.0 usft	**Northing:**	393,984.00 usft	**Latitude:**	32.0789439
	+E/-W	264.0 usft	**Easting:**	860,781.00 usft	**Longitude:**	-103.3019705
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,011.0 usft

Wellbore	OWB				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	2018/06/28	6.70	59.96	47,777.07109783

Design	Plan #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	359.27	

Plan Survey Tool Program **Date** 2018/07/02

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	22,059.1	Plan #1 (OWB)	MWD	
				MWD - Standard	

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,650.0	3.00	115.00	2,649.9	-1.7	3.6	2.00	2.00	0.00	115.00	
4,602.7	3.00	115.00	4,600.0	-44.9	96.2	0.00	0.00	0.00	0.00	
4,752.7	0.00	0.00	4,749.9	-46.5	99.7	2.00	-2.00	-76.67	-180.00	
11,079.8	0.00	0.00	11,077.0	-46.5	99.7	0.00	0.00	0.00	0.00	
11,979.8	90.00	350.25	11,650.0	518.2	2.7	10.00	10.00	0.00	350.25	
12,438.8	90.00	359.43	11,650.0	974.8	-38.5	2.00	0.00	2.00	90.00	
21,929.5	90.00	359.43	11,650.0	10,465.0	-133.0	0.00	0.00	0.00	0.00	LTP (Nandina Fed (
22,059.5	90.00	359.43	11,650.0	10,595.0	-134.3	0.00	0.00	0.00	0.00	PBHL (Nandina Fe(

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #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
1,068.0	0.00	0.00	1,068.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
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
1,508.0	0.00	0.00	1,508.0	0.0	0.0	0.0	0.00	0.00	0.00
Salado									
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	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
BUILD - 2.00									
2,600.0	2.00	115.00	2,600.0	-0.7	1.6	-0.8	2.00	2.00	0.00
2,650.0	3.00	115.00	2,649.9	-1.7	3.6	-1.7	2.00	2.00	0.00
HOLD - 1952.7 at 2650.0 MD									
2,700.0	3.00	115.00	2,699.9	-2.8	5.9	-2.8	0.00	0.00	0.00
2,800.0	3.00	115.00	2,799.7	-5.0	10.7	-5.1	0.00	0.00	0.00
2,900.0	3.00	115.00	2,899.6	-7.2	15.4	-7.4	0.00	0.00	0.00
3,000.0	3.00	115.00	2,999.5	-9.4	20.2	-9.7	0.00	0.00	0.00
3,100.0	3.00	115.00	3,099.3	-11.6	24.9	-11.9	0.00	0.00	0.00
3,200.0	3.00	115.00	3,199.2	-13.8	29.6	-14.2	0.00	0.00	0.00
3,234.9	3.00	115.00	3,234.0	-14.6	31.3	-15.0	0.00	0.00	0.00
Tansill									
3,300.0	3.00	115.00	3,299.0	-16.0	34.4	-16.5	0.00	0.00	0.00
3,400.0	3.00	115.00	3,398.9	-18.2	39.1	-18.7	0.00	0.00	0.00
3,500.0	3.00	115.00	3,498.8	-20.5	43.9	-21.0	0.00	0.00	0.00
3,600.0	3.00	115.00	3,598.6	-22.7	48.6	-23.3	0.00	0.00	0.00
3,700.0	3.00	115.00	3,698.5	-24.9	53.4	-25.6	0.00	0.00	0.00
3,800.0	3.00	115.00	3,798.4	-27.1	58.1	-27.8	0.00	0.00	0.00
3,900.0	3.00	115.00	3,898.2	-29.3	62.8	-30.1	0.00	0.00	0.00
4,000.0	3.00	115.00	3,998.1	-31.5	67.6	-32.4	0.00	0.00	0.00
4,100.0	3.00	115.00	4,097.9	-33.7	72.3	-34.6	0.00	0.00	0.00
4,200.0	3.00	115.00	4,197.8	-35.9	77.1	-36.9	0.00	0.00	0.00
4,300.0	3.00	115.00	4,297.7	-38.2	81.8	-39.2	0.00	0.00	0.00
4,400.0	3.00	115.00	4,397.5	-40.4	86.6	-41.5	0.00	0.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	3.00	115.00	4,497.4	-42.6	91.3	-43.7	0.00	0.00	0.00
4,602.7	3.00	115.00	4,600.0	-44.9	96.2	-46.1	0.00	0.00	0.00
DROP - DLS 2.00 TFO -180.00									
4,700.0	1.05	115.00	4,697.2	-46.3	99.3	-47.6	2.00	-2.00	0.00
4,752.7	0.00	0.00	4,749.9	-46.5	99.7	-47.8	2.00	-2.00	-218.03
HOLD - 6327.1 at 4752.7 MD									
4,800.0	0.00	0.00	4,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
4,900.0	0.00	0.00	4,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,000.0	0.00	0.00	4,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,036.8	0.00	0.00	5,034.0	-46.5	99.7	-47.8	0.00	0.00	0.00
Lamar									
5,071.8	0.00	0.00	5,069.0	-46.5	99.7	-47.8	0.00	0.00	0.00
Bell Canyon									
5,086.8	0.00	0.00	5,084.0	-46.5	99.7	-47.8	0.00	0.00	0.00
9.625"									
5,100.0	0.00	0.00	5,097.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,197.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,297.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,397.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,497.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,597.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,697.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,097.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,197.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,300.0	0.00	0.00	6,297.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,400.0	0.00	0.00	6,397.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,500.0	0.00	0.00	6,497.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,597.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,700.0	0.00	0.00	6,697.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
6,900.0	0.00	0.00	6,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,100.0	0.00	0.00	7,097.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,111.8	0.00	0.00	7,109.0	-46.5	99.7	-47.8	0.00	0.00	0.00
Brushy Canyon									
7,200.0	0.00	0.00	7,197.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,300.0	0.00	0.00	7,297.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,397.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,500.0	0.00	0.00	7,497.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,597.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,700.0	0.00	0.00	7,697.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
7,900.0	0.00	0.00	7,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,100.0	0.00	0.00	8,097.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,200.0	0.00	0.00	8,197.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,300.0	0.00	0.00	8,297.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,337.8	0.00	0.00	8,335.0	-46.5	99.7	-47.8	0.00	0.00	0.00
Bone Spring Lime									
8,400.0	0.00	0.00	8,397.2	-46.5	99.7	-47.8	0.00	0.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #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)
8,500.0	0.00	0.00	8,497.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,597.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,697.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
8,900.0	0.00	0.00	8,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,000.0	0.00	0.00	8,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,100.0	0.00	0.00	9,097.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,200.0	0.00	0.00	9,197.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,300.0	0.00	0.00	9,297.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,400.0	0.00	0.00	9,397.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,500.0	0.00	0.00	9,497.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,600.0	0.00	0.00	9,597.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,700.0	0.00	0.00	9,697.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,713.8	0.00	0.00	9,711.0	-46.5	99.7	-47.8	0.00	0.00	0.00
First Bone Spring									
9,800.0	0.00	0.00	9,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
9,900.0	0.00	0.00	9,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,000.0	0.00	0.00	9,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,100.0	0.00	0.00	10,097.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,200.0	0.00	0.00	10,197.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,271.8	0.00	0.00	10,269.0	-46.5	99.7	-47.8	0.00	0.00	0.00
Second Bone Spring									
10,300.0	0.00	0.00	10,297.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,400.0	0.00	0.00	10,397.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,500.0	0.00	0.00	10,497.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,600.0	0.00	0.00	10,597.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,700.0	0.00	0.00	10,697.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,800.0	0.00	0.00	10,797.2	-46.5	99.7	-47.8	0.00	0.00	0.00
10,857.8	0.00	0.00	10,855.0	-46.5	99.7	-47.8	0.00	0.00	0.00
Third Bone Spring Upper									
10,900.0	0.00	0.00	10,897.2	-46.5	99.7	-47.8	0.00	0.00	0.00
11,000.0	0.00	0.00	10,997.2	-46.5	99.7	-47.8	0.00	0.00	0.00
11,079.8	0.00	0.00	11,077.0	-46.5	99.7	-47.8	0.00	0.00	0.00
KOP - Build 10.00 -10842' FNL, 1851' FEL - 7.625"									
11,100.0	2.02	350.25	11,097.2	-46.2	99.7	-47.4	10.00	10.00	-48.30
11,150.0	7.02	350.25	11,147.0	-42.3	99.0	-43.5	10.00	10.00	0.00
11,200.0	12.02	350.25	11,196.3	-34.1	97.6	-35.4	10.00	10.00	0.00
11,250.0	17.02	350.25	11,244.7	-21.8	95.5	-23.0	10.00	10.00	0.00
11,300.0	22.02	350.25	11,291.8	-5.3	92.7	-6.5	10.00	10.00	0.00
11,350.0	27.02	350.25	11,337.3	15.1	89.2	14.0	10.00	10.00	0.00
11,400.0	32.02	350.25	11,380.8	39.4	85.0	38.3	10.00	10.00	0.00
11,450.0	37.02	350.25	11,422.0	67.3	80.2	66.3	10.00	10.00	0.00
11,491.3	41.15	350.25	11,454.0	93.0	75.8	92.0	10.00	10.00	0.00
Third Bone Spring									
11,500.0	42.02	350.25	11,460.5	98.7	74.8	97.7	10.00	10.00	0.00
11,550.0	47.02	350.25	11,496.2	133.2	68.9	132.3	10.00	10.00	0.00
11,600.0	52.02	350.25	11,528.6	170.7	62.4	169.9	10.00	10.00	0.00
11,650.0	57.02	350.25	11,557.6	210.8	55.5	210.1	10.00	10.00	0.00
11,674.1	59.43	350.25	11,570.3	231.0	52.1	230.3	10.00	10.00	0.00
Sec 31 & 6 Cross -10565' FNL, 1895' FEL									
11,700.0	62.02	350.25	11,583.0	253.2	48.2	252.6	10.00	10.00	0.00
11,750.0	67.02	350.25	11,604.5	297.7	40.6	297.2	10.00	10.00	0.00
11,800.0	72.02	350.25	11,622.0	343.9	32.7	343.4	10.00	10.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #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)
11,850.0	77.02	350.25	11,635.3	391.3	24.5	391.0	10.00	10.00	0.00
11,900.0	82.02	350.25	11,644.4	439.8	16.2	439.5	10.00	10.00	0.00
11,950.0	87.02	350.25	11,649.2	488.8	7.8	488.7	10.00	10.00	0.00
11,979.8	90.00	350.25	11,650.0	518.2	2.7	518.1	10.00	10.00	0.00
EOC/TURN - DLS 2.00 TFO 90.00									
12,000.0	90.00	350.65	11,650.0	538.1	-0.6	538.0	2.00	0.00	2.00
12,026.7	90.00	351.19	11,650.0	564.4	-4.8	564.4	2.00	0.00	2.00
FTP (Nandina Fed Com 25-36-31 #095H)									
12,100.0	90.00	352.65	11,650.0	637.0	-15.2	637.2	2.00	0.00	2.00
12,200.0	90.00	354.65	11,650.0	736.4	-26.2	736.7	2.00	0.00	2.00
12,300.0	90.00	356.65	11,650.0	836.1	-33.8	836.5	2.00	0.00	2.00
12,400.0	90.00	358.65	11,650.0	936.0	-37.9	936.4	2.00	0.00	2.00
12,438.8	90.00	359.43	11,650.0	974.8	-38.5	975.2	2.00	0.00	2.00
HOLD - 9490.7 at 12438.8 MD									
12,500.0	90.00	359.43	11,650.0	1,036.0	-39.1	1,036.4	0.00	0.00	0.00
12,600.0	90.00	359.43	11,650.0	1,136.0	-40.1	1,136.4	0.00	0.00	0.00
12,700.0	90.00	359.43	11,650.0	1,236.0	-41.1	1,236.4	0.00	0.00	0.00
12,800.0	90.00	359.43	11,650.0	1,336.0	-42.1	1,336.4	0.00	0.00	0.00
12,900.0	90.00	359.43	11,650.0	1,436.0	-43.1	1,436.4	0.00	0.00	0.00
13,000.0	90.00	359.43	11,650.0	1,536.0	-44.1	1,536.4	0.00	0.00	0.00
13,014.1	90.00	359.43	11,650.0	1,550.1	-44.3	1,550.5	0.00	0.00	0.00
Sec 31 1320' FSL - 9245' FNL, 1980' FEL									
13,100.0	90.00	359.43	11,650.0	1,636.0	-45.1	1,636.4	0.00	0.00	0.00
13,200.0	90.00	359.43	11,650.0	1,736.0	-46.1	1,736.4	0.00	0.00	0.00
13,300.0	90.00	359.43	11,650.0	1,836.0	-47.1	1,836.4	0.00	0.00	0.00
13,400.0	90.00	359.43	11,650.0	1,936.0	-48.1	1,936.4	0.00	0.00	0.00
13,500.0	90.00	359.43	11,650.0	2,036.0	-49.1	2,036.4	0.00	0.00	0.00
13,600.0	90.00	359.43	11,650.0	2,136.0	-50.1	2,136.4	0.00	0.00	0.00
13,700.0	90.00	359.43	11,650.0	2,235.9	-51.1	2,236.4	0.00	0.00	0.00
13,800.0	90.00	359.43	11,650.0	2,335.9	-52.1	2,336.4	0.00	0.00	0.00
13,900.0	90.00	359.43	11,650.0	2,435.9	-53.1	2,436.4	0.00	0.00	0.00
14,000.0	90.00	359.43	11,650.0	2,535.9	-54.1	2,536.4	0.00	0.00	0.00
14,100.0	90.00	359.43	11,650.0	2,635.9	-55.1	2,636.4	0.00	0.00	0.00
14,200.0	90.00	359.43	11,650.0	2,735.9	-56.1	2,736.4	0.00	0.00	0.00
14,300.0	90.00	359.43	11,650.0	2,835.9	-57.1	2,836.4	0.00	0.00	0.00
14,334.1	90.00	359.43	11,650.0	2,870.0	-57.4	2,870.5	0.00	0.00	0.00
Sec 31 2640' FSL -7925' FNL, 1980' FEL									
14,400.0	90.00	359.43	11,650.0	2,935.9	-58.0	2,936.4	0.00	0.00	0.00
14,500.0	90.00	359.43	11,650.0	3,035.9	-59.0	3,036.4	0.00	0.00	0.00
14,600.0	90.00	359.43	11,650.0	3,135.9	-60.0	3,136.4	0.00	0.00	0.00
14,700.0	90.00	359.43	11,650.0	3,235.9	-61.0	3,236.4	0.00	0.00	0.00
14,800.0	90.00	359.43	11,650.0	3,335.9	-62.0	3,336.4	0.00	0.00	0.00
14,900.0	90.00	359.43	11,650.0	3,435.9	-63.0	3,436.4	0.00	0.00	0.00
15,000.0	90.00	359.43	11,650.0	3,535.9	-64.0	3,536.4	0.00	0.00	0.00
15,100.0	90.00	359.43	11,650.0	3,635.9	-65.0	3,636.4	0.00	0.00	0.00
15,200.0	90.00	359.43	11,650.0	3,735.9	-66.0	3,736.4	0.00	0.00	0.00
15,300.0	90.00	359.43	11,650.0	3,835.9	-67.0	3,836.4	0.00	0.00	0.00
15,400.0	90.00	359.43	11,650.0	3,935.9	-68.0	3,936.4	0.00	0.00	0.00
15,500.0	90.00	359.43	11,650.0	4,035.9	-69.0	4,036.4	0.00	0.00	0.00
15,600.0	90.00	359.43	11,650.0	4,135.9	-70.0	4,136.4	0.00	0.00	0.00
15,700.0	90.00	359.43	11,650.0	4,235.8	-71.0	4,236.4	0.00	0.00	0.00
15,800.0	90.00	359.43	11,650.0	4,335.8	-72.0	4,336.4	0.00	0.00	0.00
15,900.0	90.00	359.43	11,650.0	4,435.8	-73.0	4,436.4	0.00	0.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #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)
16,000.0	90.00	359.43	11,650.0	4,535.8	-74.0	4,536.4	0.00	0.00	0.00
16,100.0	90.00	359.43	11,650.0	4,635.8	-75.0	4,636.4	0.00	0.00	0.00
16,200.0	90.00	359.43	11,650.0	4,735.8	-76.0	4,736.4	0.00	0.00	0.00
16,300.0	90.00	359.43	11,650.0	4,835.8	-77.0	4,836.4	0.00	0.00	0.00
16,400.0	90.00	359.43	11,650.0	4,935.8	-78.0	4,936.4	0.00	0.00	0.00
16,500.0	90.00	359.43	11,650.0	5,035.8	-79.0	5,036.4	0.00	0.00	0.00
16,600.0	90.00	359.43	11,650.0	5,135.8	-79.9	5,136.4	0.00	0.00	0.00
16,700.0	90.00	359.43	11,650.0	5,235.8	-80.9	5,236.4	0.00	0.00	0.00
16,800.0	90.00	359.43	11,650.0	5,335.8	-81.9	5,336.4	0.00	0.00	0.00
16,900.0	90.00	359.43	11,650.0	5,435.8	-82.9	5,436.4	0.00	0.00	0.00
16,973.1	90.00	359.43	11,650.0	5,508.9	-83.7	5,509.5	0.00	0.00	0.00
Sec 31 & 30 Cross -5286' FNL, 1980' FEL									
17,000.0	90.00	359.43	11,650.0	5,535.8	-83.9	5,536.4	0.00	0.00	0.00
17,100.0	90.00	359.43	11,650.0	5,635.8	-84.9	5,636.4	0.00	0.00	0.00
17,200.0	90.00	359.43	11,650.0	5,735.8	-85.9	5,736.4	0.00	0.00	0.00
17,300.0	90.00	359.43	11,650.0	5,835.8	-86.9	5,836.4	0.00	0.00	0.00
17,400.0	90.00	359.43	11,650.0	5,935.8	-87.9	5,936.4	0.00	0.00	0.00
17,500.0	90.00	359.43	11,650.0	6,035.8	-88.9	6,036.4	0.00	0.00	0.00
17,600.0	90.00	359.43	11,650.0	6,135.8	-89.9	6,136.4	0.00	0.00	0.00
17,700.0	90.00	359.43	11,650.0	6,235.7	-90.9	6,236.4	0.00	0.00	0.00
17,800.0	90.00	359.43	11,650.0	6,335.7	-91.9	6,336.4	0.00	0.00	0.00
17,900.0	90.00	359.43	11,650.0	6,435.7	-92.9	6,436.4	0.00	0.00	0.00
18,000.0	90.00	359.43	11,650.0	6,535.7	-93.9	6,536.4	0.00	0.00	0.00
18,100.0	90.00	359.43	11,650.0	6,635.7	-94.9	6,636.4	0.00	0.00	0.00
18,200.0	90.00	359.43	11,650.0	6,735.7	-95.9	6,736.4	0.00	0.00	0.00
18,293.1	90.00	359.43	11,650.0	6,828.8	-96.8	6,829.5	0.00	0.00	0.00
Sec 30 1320' FSL -3966' FNL, 1980' FEL									
18,300.0	90.00	359.43	11,650.0	6,835.7	-96.9	6,836.4	0.00	0.00	0.00
18,400.0	90.00	359.43	11,650.0	6,935.7	-97.9	6,936.4	0.00	0.00	0.00
18,500.0	90.00	359.43	11,650.0	7,035.7	-98.9	7,036.4	0.00	0.00	0.00
18,600.0	90.00	359.43	11,650.0	7,135.7	-99.9	7,136.4	0.00	0.00	0.00
18,700.0	90.00	359.43	11,650.0	7,235.7	-100.9	7,236.4	0.00	0.00	0.00
18,800.0	90.00	359.43	11,650.0	7,335.7	-101.8	7,336.4	0.00	0.00	0.00
18,900.0	90.00	359.43	11,650.0	7,435.7	-102.8	7,436.4	0.00	0.00	0.00
19,000.0	90.00	359.43	11,650.0	7,535.7	-103.8	7,536.4	0.00	0.00	0.00
19,100.0	90.00	359.43	11,650.0	7,635.7	-104.8	7,636.4	0.00	0.00	0.00
19,200.0	90.00	359.43	11,650.0	7,735.7	-105.8	7,736.4	0.00	0.00	0.00
19,300.0	90.00	359.43	11,650.0	7,835.7	-106.8	7,836.4	0.00	0.00	0.00
19,400.0	90.00	359.43	11,650.0	7,935.7	-107.8	7,936.4	0.00	0.00	0.00
19,500.0	90.00	359.43	11,650.0	8,035.7	-108.8	8,036.4	0.00	0.00	0.00
19,600.0	90.00	359.43	11,650.0	8,135.7	-109.8	8,136.4	0.00	0.00	0.00
19,700.0	90.00	359.43	11,650.0	8,235.7	-110.8	8,236.4	0.00	0.00	0.00
19,800.0	90.00	359.43	11,650.0	8,335.6	-111.8	8,336.4	0.00	0.00	0.00
19,900.0	90.00	359.43	11,650.0	8,435.6	-112.8	8,436.4	0.00	0.00	0.00
20,000.0	90.00	359.43	11,650.0	8,535.6	-113.8	8,536.4	0.00	0.00	0.00
20,100.0	90.00	359.43	11,650.0	8,635.6	-114.8	8,636.4	0.00	0.00	0.00
20,200.0	90.00	359.43	11,650.0	8,735.6	-115.8	8,736.4	0.00	0.00	0.00
20,300.0	90.00	359.43	11,650.0	8,835.6	-116.8	8,836.4	0.00	0.00	0.00
20,400.0	90.00	359.43	11,650.0	8,935.6	-117.8	8,936.4	0.00	0.00	0.00
20,500.0	90.00	359.43	11,650.0	9,035.6	-118.8	9,036.4	0.00	0.00	0.00
20,600.0	90.00	359.43	11,650.0	9,135.6	-119.8	9,136.4	0.00	0.00	0.00
20,700.0	90.00	359.43	11,650.0	9,235.6	-120.8	9,236.4	0.00	0.00	0.00
20,800.0	90.00	359.43	11,650.0	9,335.6	-121.8	9,336.4	0.00	0.00	0.00
20,900.0	90.00	359.43	11,650.0	9,435.6	-122.8	9,436.4	0.00	0.00	0.00

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #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)
21,000.0	90.00	359.43	11,650.0	9,535.6	-123.7	9,536.4	0.00	0.00	0.00
21,100.0	90.00	359.43	11,650.0	9,635.6	-124.7	9,636.4	0.00	0.00	0.00
21,200.0	90.00	359.43	11,650.0	9,735.6	-125.7	9,736.4	0.00	0.00	0.00
21,300.0	90.00	359.43	11,650.0	9,835.6	-126.7	9,836.4	0.00	0.00	0.00
21,400.0	90.00	359.43	11,650.0	9,935.6	-127.7	9,936.4	0.00	0.00	0.00
21,500.0	90.00	359.43	11,650.0	10,035.6	-128.7	10,036.4	0.00	0.00	0.00
21,600.0	90.00	359.43	11,650.0	10,135.6	-129.7	10,136.4	0.00	0.00	0.00
21,700.0	90.00	359.43	11,650.0	10,235.6	-130.7	10,236.4	0.00	0.00	0.00
21,800.0	90.00	359.43	11,650.0	10,335.5	-131.7	10,336.4	0.00	0.00	0.00
21,900.0	90.00	359.43	11,650.0	10,435.5	-132.7	10,436.4	0.00	0.00	0.00
21,929.5	90.00	359.43	11,650.0	10,465.0	-133.0	10,465.8	0.00	0.00	0.00
LTP - LTP (Nandina Fed Com 25-36-31 #095H)									
22,000.0	90.00	359.43	11,650.0	10,535.5	-133.7	10,536.4	0.00	0.00	0.00
22,059.5	90.00	359.43	11,650.0	10,595.0	-134.3	10,595.8	0.00	0.00	0.00
PBHL - 200' FNL, 1980' FEL - PBHL (Nandina Fed Com 25-36-31 #095H)									

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
PBHL (Nandina Fed C	0.00	0.00	11,650.0	10,595.0	-134.0	404,579.00	860,647.00	32.1080680	-103.3020760
- plan misses target center by 0.3usft at 22059.5usft MD (11650.0 TVD, 10595.0 N, -134.3 E)									
- Point									
FTP (Nandina Fed Cc	0.00	0.00	11,650.0	560.0	-35.0	394,544.00	860,746.00	32.0804840	-103.3020662
- plan misses target center by 30.5usft at 12026.7usft MD (11650.0 TVD, 564.4 N, -4.8 E)									
- Point									
LTP (Nandina Fed Co	0.00	0.00	11,650.0	10,465.0	-133.0	404,449.00	860,648.00	32.1077106	-103.3020768
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,086.8	5,084.0	9.625"	9-5/8	12-1/4
11,079.8	11,077.0	7.625"	7-5/8	8-3/4
22,059.5	11,650.0	5.5"	5-1/2	6-3/4

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Nandina Fed Com 25-36-31 #095H
Company:	Ameredev Operating, LLC	**TVD Reference:**	KB @ 3038.0usft (Rig)
Project:	Lea County, NM (NAD83 NME)	**MD Reference:**	KB @ 3038.0usft (Rig)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	**North Reference:**	Grid
Well:	Nandina Fed Com 25-36-31 #095H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,068.0	1,068.0	Rustler			
1,508.0	1,508.0	Salado			
3,234.9	3,234.0	Tansill			
5,036.8	5,034.0	Lamar			
5,071.8	5,069.0	Bell Canyon			
7,111.8	7,109.0	Brushy Canyon			
8,337.8	8,335.0	Bone Spring Lime			
9,713.8	9,711.0	First Bone Spring			
10,271.8	10,269.0	Second Bone Spring			
10,857.8	10,855.0	Third Bone Spring Upper			
11,491.3	11,454.0	Third Bone Spring			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,500.0	2,500.0	0.0	0.0	BUILD - 2.00
2,650.0	2,649.9	-1.7	3.6	HOLD - 1952.7 at 2650.0 MD
4,602.7	4,600.0	-44.9	96.2	DROP - DLS 2.00 TFO -180.00
4,752.7	4,749.9	-46.5	99.7	HOLD - 6327.1 at 4752.7 MD
11,079.8	11,077.0	-46.5	99.7	KOP - Build 10.00 -10842' FNL, 1851' FEL
11,674.1	11,570.3	231.0	52.1	Sec 31 & 6 Cross -10565' FNL, 1895' FEL
11,979.8	11,650.0	518.2	2.7	EOC/TURN - DLS 2.00 TFO 90.00
12,438.8	11,650.0	974.8	-38.5	HOLD - 9490.7 at 12438.8 MD
13,014.1	11,650.0	1,550.1	-44.3	Sec 31 1320' FSL - 9245' FNL, 1980' FEL
14,334.1	11,650.0	2,870.0	-57.4	Sec 31 2640' FSL -7925' FNL, 1980' FEL
16,973.1	11,650.0	5,508.9	-83.7	Sec 31 & 30 Cross -5286' FNL, 1980' FEL
18,293.1	11,650.0	6,828.8	-96.8	Sec 30 1320' FSL -3966' FNL, 1980' FEL
21,929.5	11,650.0	10,465.0	-133.0	LTP
22,059.5	11,650.0	10,595.0	-134.3	PBHL - 200' FNL, 1980' FEL

AMEREDEV

Requested Exceptions

- Variance is requested to connect the BOP choke outlet to the choke manifold using a co-flex line (instead of using a 4" OD steel line) with a 10,000 psi working pressure that has been tested to 15,000 psi and is built to API Spec 16C. Once the flex line is installed it will be tied down with safety clamps.

- Variance is requested to allow Option of rig not capable of reaching TD presetting Surface

- Variance is requested to allow operation below the 7-5/8 casing point through a 5M BOPE System

- Variance is requested to wave any centralizer requirements on the 5-1/2 Casing. Ameredev will utilize cement expansion additives in the cement slurry to maximize cement bond and zonal isolation.

- Variance is requested to wave any centralizer requirements on the 7-5/8 Casing. Ameredev will utilize cement expansion additives in the cement slurry to maximize cement bond and zonal isolation.

- Variance is requested to allow Temporary Postponement of Operations on well to Skid to adjacent well.

- Variance is requested to Allow use of Multi Bowl Well Head System

- Variance is requested to Allow adjustment of Casing Design Safety Factor on conditions that Ameredev keeps minimum of 1/3 casing capacity filled with OMW drilling fluids

- Variance is requested to Drill Surface Casing to Base Salt with >100K Chlorides on the conditions that 50% Returns will be maintained

- Ameredev requests a variance to utilize a 5M Choke Manifold with 2 Adj. Chokes (Ameredev will rig up 2 remote operated Chokes in place of 10M 3- Choke Manifold)

AFMSS

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

PWD Data Report

09/30/2019

APD ID: 10400032975 **Submission Date:** 08/28/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31 **Well Number:** 095H

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: NANDINA FED COM 25 36 31 **Well Number:** 095H

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: NANDINA FED COM 25 36 31 **Well Number:** 095H

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: NANDINA FED COM 25 36 31 **Well Number:** 095H

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

09/30/2019

APD ID: 10400032975

Submission Date: 08/28/2018

Operator Name: AMEREDEV OPERATING LLC

Well Name: NANDINA FED COM 25 36 31

Well Number: 095H

Show Final Text

Well Type: OIL WELL

Well Work Type: Drill

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: