

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB No 1004-0137
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No.
NM-61349

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
RKI EXPLORATION & PRODUCTION, LLC.

3a. Address
3817 NW EXPRESSWAY, SUITE 950
OKLAHOMA CITY, OK 73112

3b. Phone No. (include area code)
405-996-5750 (Bill Aubrey)

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

8. Well Name and No.
Longview Deep Federal 31-31

9. API Well No.
30-015-37604

10. Field and Pool or Exploratory Area
Undesignated Morrow

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1880 FSL & 775 FWL, Section 31, T. 22 S., R. 29 E.

11. Country or Parish, State
Eddy, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <u>Deepen to Morrow,</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<u>Change name, Move</u>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	<u>well to standard location</u>

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

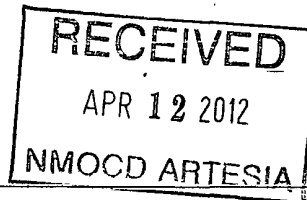
RKI EXPLORATION & PRODUCTION LLC., proposes to change the following:

- Change from a 80 acre Bone Spring to a stand up (west half) 320 acre dedicated Morrow (TD of 13,500'). (See attached drilling plan & BOP)
- Move well location 80 ft. south to an orthodox or standard location for a gas well. Access road, V-Door West and interim reclamation to west and south will remain the same. (See attached map for change in redirecting of drainages and plat for new pad size).
- Change name of well from the Longview Federal 31-31 to Longview Deep Federal 31-31.

Jim Rutley with BLM has reviewed and allowed the plans for drilling a Morrow well in this Potash area.
Becky Hill (Boone Archaeological Services) has cleared the additional move to the south to ensure avoidance to the site to the southwest.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

Accepted for record
NMOCD



14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

BARRY W. HUNT

Title PERMIT AGENT FOR RKI EXPLORATION & PRODUCTION LLC.

Signature

Date

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

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

CARLSBAD FIELD OFFICE

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

(Instructions on page 2)

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
7301 W. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised July 18, 2010

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name UNDESIGNATED MORROW
Property Code	Property Name LONGVIEW FEDERAL "31"	Well Number 31
OGRID No. 246289	Operator Name RKI EXPLORATION & PRODUCTION LLC	Elevation 3141'

Surface Location

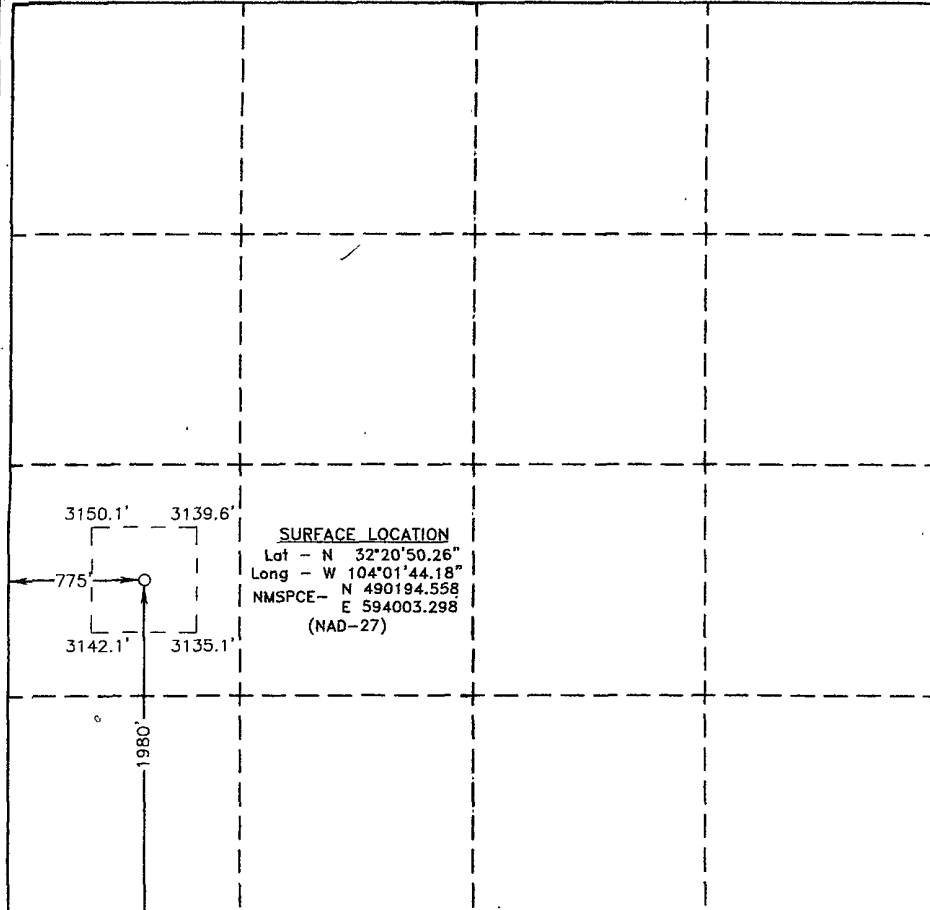
UL or lot No. L	Section 31	Township 22 S	Range 29 E	Lot Idn	Feet from the 1980	North/South line SOUTH	Feet from the 775	East/West line WEST	County EDDY
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Bottom Hole Location If Different From Surface

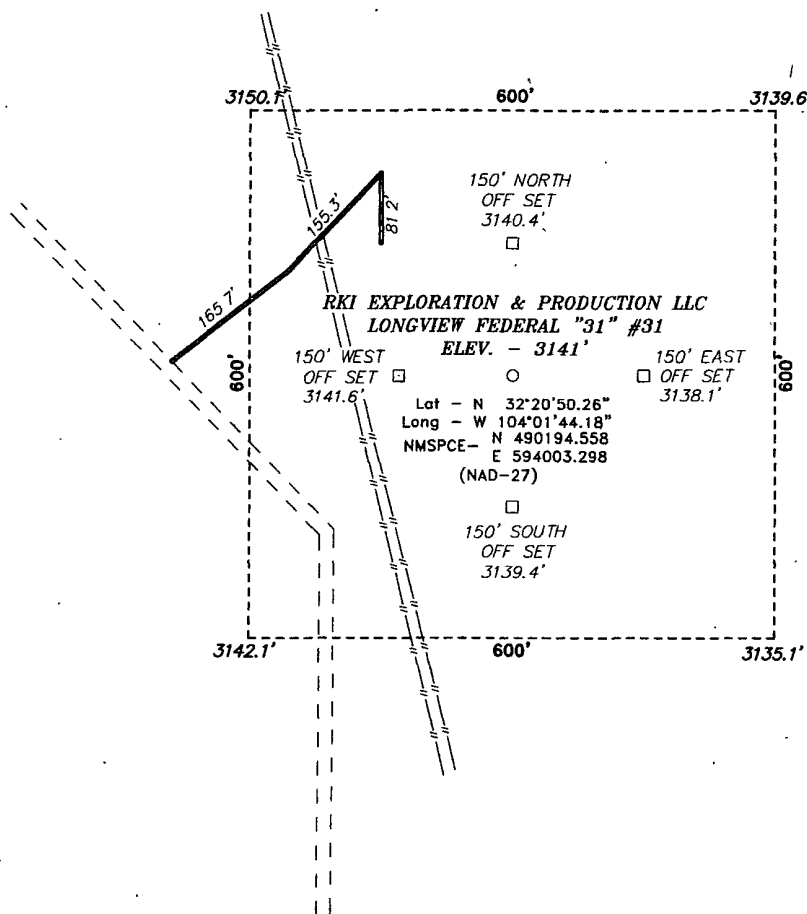
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

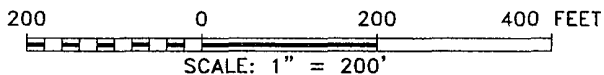
	<p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature: <u>Barry W. Hunt</u> Date: <u>12/7/11</u></p> <p>Printed Name: <u>Barry W. Hunt</u></p> <p>Email Address: _____</p> <p>SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>Date Surveyed: <u>12/7/11</u></p> <p>Signature & Seal of Professional Surveyor: <u>Gary L. Jones</u></p> <p>Certificate No. <u>Gary L. Jones 7977</u></p> <p>BASIN SURVEYS 25564</p>
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SECTION 31, TOWNSHIP 22 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF HWY 31 AND US REFINERY
ROAD, GO NORTHWEST 1.6 MILES TO LEASE ROAD, ON
LEASE ROAD GO NORTHEASTERLY 1.6 MILES TO
PROPOSED LEASE ROAD.



RKI EXPLORATION & PRODUCTION LLC

REF: LONGVIEW FEDERAL "31" #31 / WELL PAD TOPO

THE LONGVIEW FEDERAL "31" #31 LOCATED 1980'

FROM THE SOUTH LINE AND 775' FROM THE WEST LINE OF

SECTION 31, TOWNSHIP 22 SOUTH, RANGE 29 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 25564

Drawn By: J. SMALL

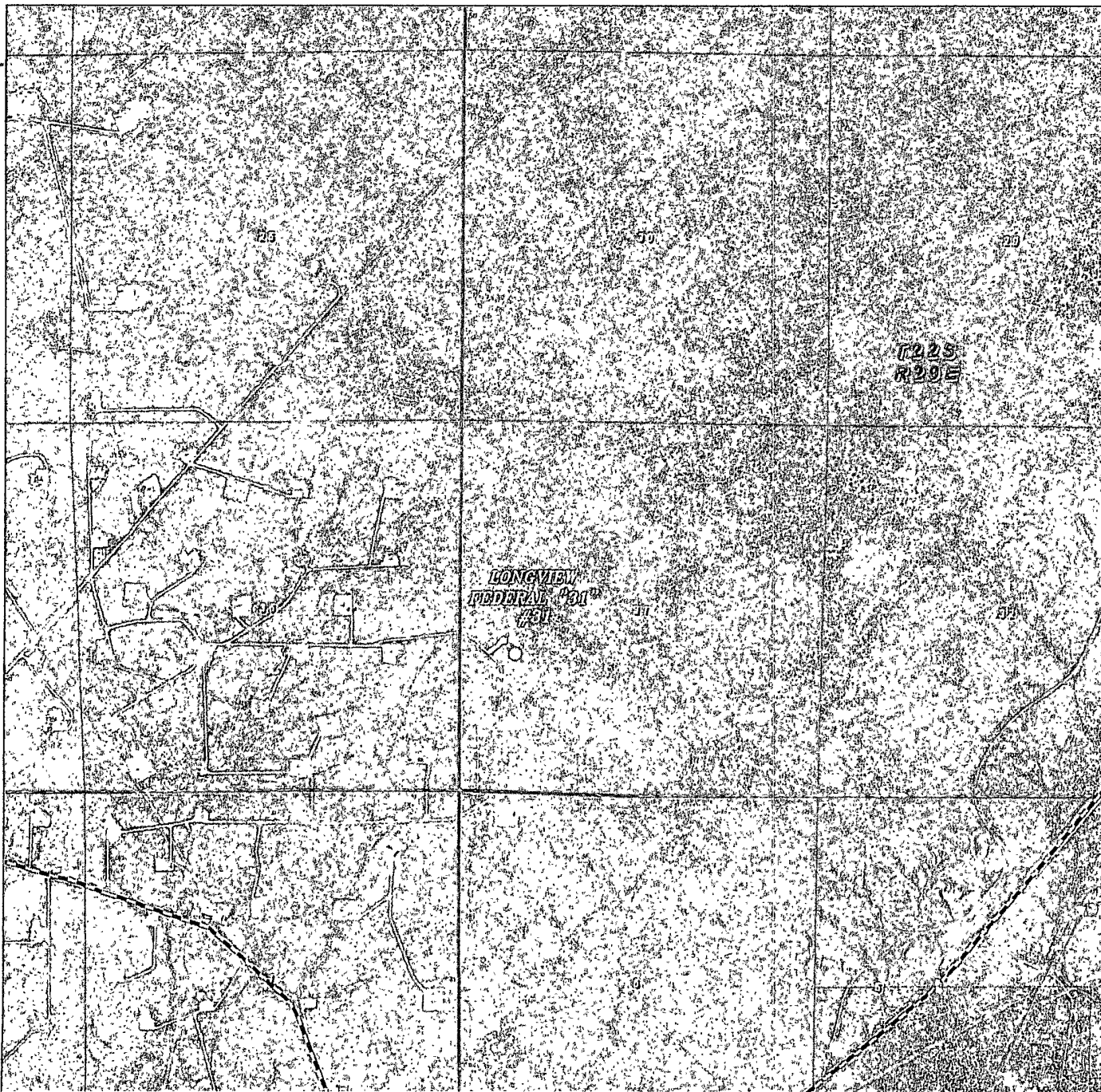
Date: 11-01-2011

Disk: JMS 25564

Survey Date: 10-26-2011

Sheet 1 of 1 Sheets

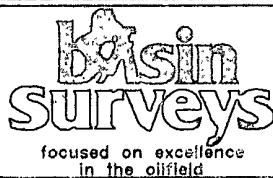
RKI EXPLORATION
& PRODUCTION
LLC



LONGVIEW FEDERAL "31" #31

Located 1980' FSL and 775' FWL

Section 31, Township 22 South, Range 29 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 25564

Scale: 1" = 2000'

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

**RKI EXPLORATION
& PRODUCTION
LLC**

RKI EXPLORATION & PRODUCTION, LLC.

Longview Deep Fed 31-31
1980 FSL & 775 FWL
Section 31-22S-29E
EDDY CO., NM

1. The elevation of the unprepared ground is 3,141 feet above sea level.
2. The geologic name of the surface formation is Quaternary - Alluvium.
3. A rotary rig will be utilized to drill the well to 13,500' and run casing. This equipment will then be rigged down and the well will be completed with a workover rig.
4. Proposed total depth is 13,500'
5. Estimated tops of important geologic markers:

Quaternary - Alluvium	Surface*
Base of Salt	2,555'
Base of Lime	2,775'
Delaware Top	2,820'
Bone Spring	6,355'
Wolfcamp	9,680'
Strawn	11,405'
Atoka	11,770'
Morrow	12,240'
Lower Morrow	12,725'
Barnett	12,885'
TD	13,500'

*Water possible above Rustler (203')

6. Estimated depths at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

Bone Spring	6,355'	(125 degrees F, 2,750 psi)
Wolfcamp	9,750'	(145 degrees F, 4,256 psi)
Strawn	11,405'	(160 degrees F, 4,936 psi)
Atoka	11,770'	(176 degrees F, 5,100 psi)
Morrow	12,240'	(183 degrees F, 6,683 psi)

7. The proposed casing program is as follows:

Surface: 13-3/8" 54.5# J-55 ST&C casing set from 0' - ~~235'~~ ^{260'}
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

Intermediate: 9-5/8" 40# J-55 LT&C casing set from 0' - ~~2,600'~~ ^{2900'}
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

Production: 7" 26# HCP-110 LT&C casing set from 0' - 9,700'
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

Liner: 4-1/2" 13.5# P-110 LT&C casing set from 9,300' - 13,500'
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

8. Casing setting depth and cementing program:

a. 13-3/8" surface casing set at ~~235'~~ ^{260' see COA} in 17-1/2" hole. Circulate cement to surface with 275 sx "C" with .13 pps D130, 1% CaCl₂ mixed at 14.8 ppg (1.34 cf/sk), excess - 100%.

b. 9-5/8" intermediate casing set at ~~2,600'~~ ^{2900' see COA} in 12-1/4" hole. Circulate cement to surface with 750 sx "C" with 5% D44, 27.5 pps D132, 6% D20, .2% D46, .124 pps D130, 2 pps D42, .1% D201 mixed at 12.6 ppg (2.05 cf/sk) followed by 200 sx "C" with .2% D201 mixed at 14.8 ppg (1.33 cf/sk), excess - 25%.

c. 7" intermediate casing set at 9,700' in 8-3/4" hole. Hole will be callipered to determine cement volume to bring TOC to surface. The well will be cemented in two stages as follows: **Stage 1:** 865 sx "C" with 1.3% D44, 2% D174, .2% D46, .3% D167, .4% D13 mixed at 13.0 ppg (1.44 cf/sk), excess - 25%. **Stage 2:** 200 sx "C" with 5% D44, 27.5 pps D132, 6% D20, .2% D46, 2 pps D42, .124 pps D130 mixed at 12.6 ppg (2.05 cf/sk) followed by 200 sx "C" with .3% D201 mixed at 14.8 ppg (1.33 cf/sk), excess - 25%. DV tool at approximately 5000'

d. 4-1/2" production liner set at 13,500' in 6 1/8" hole. ^{9300'} Hole will be callipered to determine cement volume to bring TOC to 9,700' with 375 sx PVL cement plus 1.3% D44, .2% D46, .2% D167, .5% D800, .2% D65 mixed at 13.0 ppg (1.41 cf/sk).

calculates
to -13%

see
COA

9. Pressure Control Equipment

BOP diagram marked to agree

*see
COA*

After setting the 13 3/8" casing a 3,000 psi casing head will be installed along with 5,000 psi BOP equipment. The 13 3/8" casing will be tested to 1,500 psi before drilling out. After setting the 9 5/8" casing a 5,000 psi casing head will be installed along with 5,000 psi BOP equipment. The 9 5/8" casing will be tested to 1,500 psi before drilling out. After setting the 7" casing a 5,000 psi tubing head will be installed along with 5,000 psi BOP equipment. The 7" casing will be pressure tested to .22 psi/ft of setting depth. After drilling approximately 10' of new formation the shoe will be tested to an 11.5 ppg EMW. BOP equipment will be tested to 250 psi low and 3,000/5,000 psi high (based on casing head). The annular preventer will be tested to 1,500 psi. BOP equipment will consist of the following:

- Annular preventers
- Double ram with blind rams and pipe rams
- Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter)
- Kill line (2 inch minimum)
- A minimum of 2 choke line valves (3 inch minimum)
- 3 inch diameter choke line
- 2 kill line valves, one of which shall be a check valve (2 inch minimum)
- 2 chokes
- Pressure gauge on choke manifold
- Upper kelly cock valve with handle available
- Safety valve and subs to fit all drill string connections in use
- All BOPE connections subjected to well pressure shall be flanged, welded, or clamped
- Fill-up line above the uppermost preventer.

10. Mud Program:

0' - 235'	Bentonite/Lime mud. Paper for losses and seepage. 8.5 to 9.0 ppg, 32 to 34 vis, PV 3 to 5, YP 5 to 7, WL NC.
235' - 2,600'	Brine. As needed LCM for losses and seepage. 10.0 to 10.2 ppg, 28 to 29 vis, PV 1, YP 1, WL NC.
2,600' - 9,700'	Drill out with cut brine/fresh water. 8.4 to 8.6 ppg, 28 to 29 vis, PV 1, YP 1, WL NC.
11,700 9,700' - 13,500'	Brine. 10.0 to 11.0 ppg, 36 to 50 vis, PV 9 to 15, YP 12 to 20, WL < 8.

11. Testing, Logging and Coring Program:

See COA

Testing program: No drillstem tests are anticipated.

Electric logging program: CNL/CAL/GR, DLL/CAL/GR (7-5/8" and 6-1/2" hole Sections). Coring program: None.

12. Potential Hazards:

No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 6683 psi and estimated BHT 183 degrees.

RKI EXPLORATION & PRODUCTION, LLC.

Longview Deep Fed 31-31
1980 FSL & 775 FWL
Section 31-22S-29E
EDDY CO., NM

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*Water possible above Rustler (203')

6. Estimated depths at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

Bone Spring	6,355'	(125 degrees F, 2,750 psi)
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7. The proposed casing program is as follows:

Surface: 13-3/8" 54.5# J-55 ST&C casing set from 0' - 235' *See COA*
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

Intermediate: 9-5/8" 40# J-55 LT&C casing set from 0' - 2,600'
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

Production: 7" 26# HCP-110 LT&C casing set from 0' - 11,700'
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

Liner: 4-1/2" 13.5# P-110 LT&C casing set from 0' - 13,500'
Tension SF 2.0, Collapse SF 1.125, Burst SF 1.8.

8. Casing setting depth and cementing program:

- 260' See COA*
- a. 13-3/8" surface casing set at 235' in 17-1/2" hole. Circulate cement to surface with 275 sx "C" with .13 pps D130, 1% CaCl₂ mixed at 14.8 ppg (1.34 cf/sk), excess - 100%.
- 2700' See COA*
- b. 9-5/8" intermediate casing set at 2,600' in 12-1/4" hole. Circulate cement to surface with 750 sx "C" with 5% D44, 27.5 pps D132, 6% D20, .2% D46, .124 pps D130, 2 pps D42, .1% D201 mixed at 12.6 ppg (2.05 cf/sk) followed by 200 sx "C" with .2% D201 mixed at 14.8 ppg (1.33 cf/sk), excess - 25%.
- c. 7" intermediate casing set at 11,700' in 8-3/4" hole. Hole will be callipered to determine cement volume to bring TOC to surface. The well will be cemented in two stages as follows: **Stage 1:** 865 sx "C" with 1.3% D44, 2% D174, .2% D46, .3% D167, .4% D13 mixed at 13.0 ppg (1.44 cf/sk), excess - 25%. **Stage 2:** 200 sx "C" with 5% D44, 27.5 pps D132, 6% D20, .2% D46, 2 pps D42, .124 pps D130 mixed at 12.6 ppg (2.05 cf/sk) followed by 200 sx "C" with .3% D201 mixed at 14.8 ppg (1.33 cf/sk), excess - 25%. DV tool at approximately 5000'
- d. 4-1/2" production casing set at 13,500' in 6 1/8" hole. Hole will be callipered to determine cement volume to bring TOC to 11,300' with PVL cement plus 1.3% D44, .2% D46, .2% D167, .5% D800, .2% D65 mixed at 13.0 ppg (1.41 cf/sk).

LONGVIEW DEEP FED 31-31

FILL LINE →

KB elev = 3158

KB-Grd = 17.0'

30"

109"

46"

13" x 5000#

21"

52 1/2"

19.5"

23 1/2"

CHECK VALVE

8"

13" x 5M

Blind

13" x 5M

4 1/2" Pipe

Mud Cross

13", 5M

11, 3M x 13", 5M

11", 3M

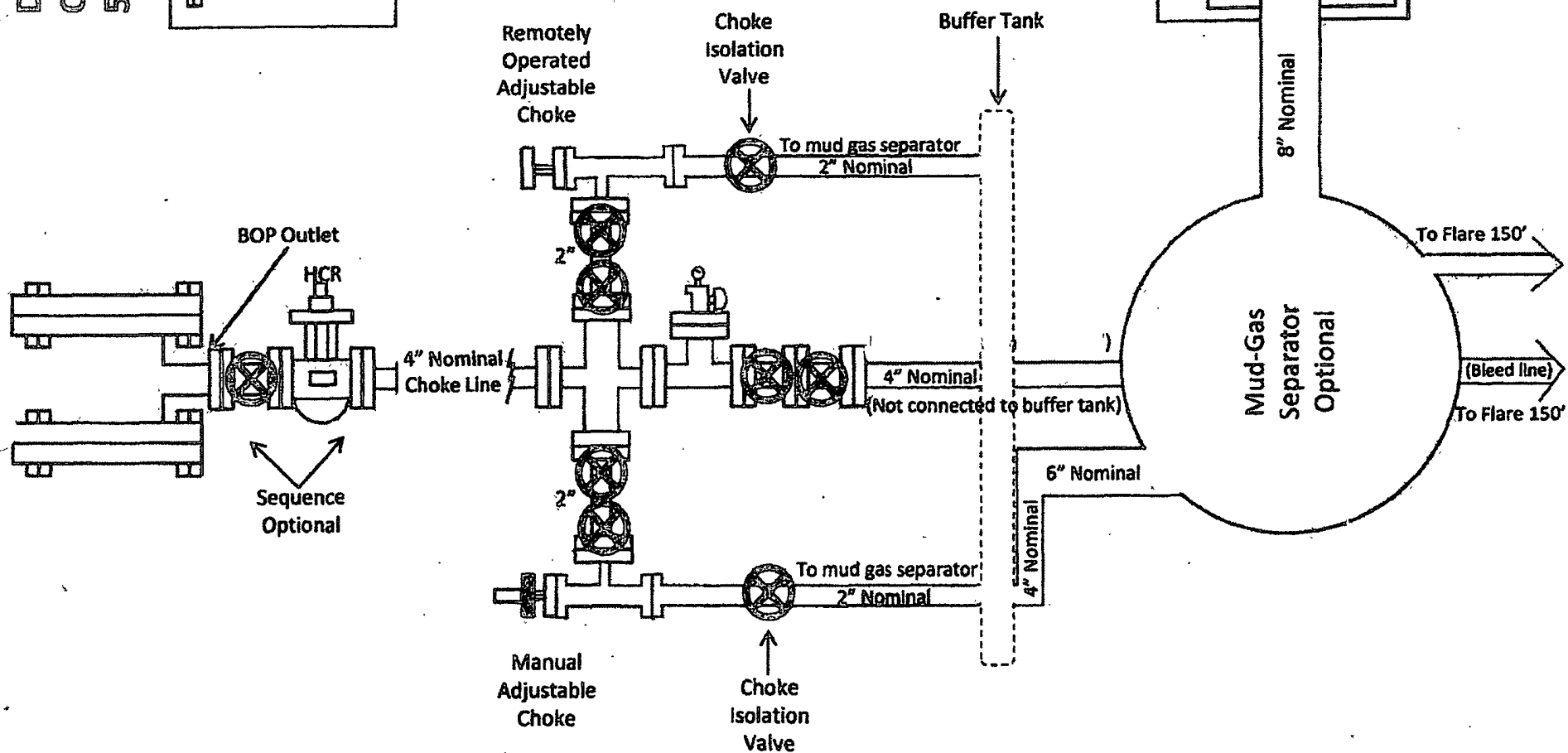
WG,
W2BP

Grd. Elev. = 3141

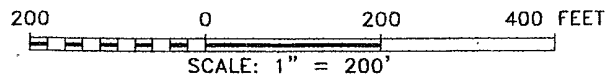
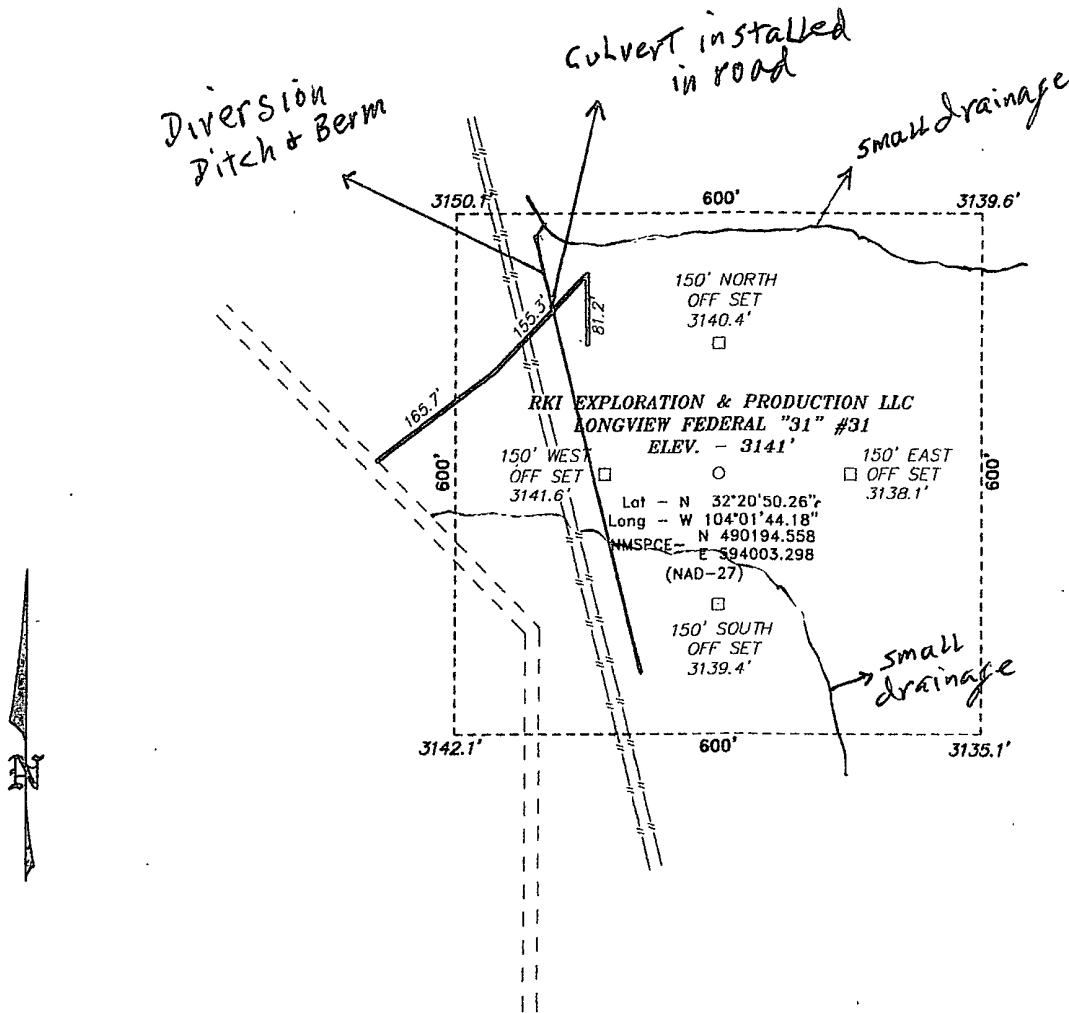
← 3M per description

← 5M per description

Exhibit E-1 – Choke Manifold Diagram



SECTION 31, TOWNSHIP 22 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF HWY 31 AND US REFINERY ROAD, GO NORTHWEST 1.6 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTHEASTERLY 1.6 MILES TO PROPOSED LEASE ROAD.

RKI EXPLORATION & PRODUCTION LLC

REF: LONGVIEW FEDERAL "31" #31 / WELL PAD TOPO

THE LONGVIEW FEDERAL "31" #31 LOCATED 1980'

FROM THE SOUTH LINE AND 775' FROM THE WEST LINE OF

SECTION 31, TOWNSHIP 22 SOUTH, RANGE 29 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

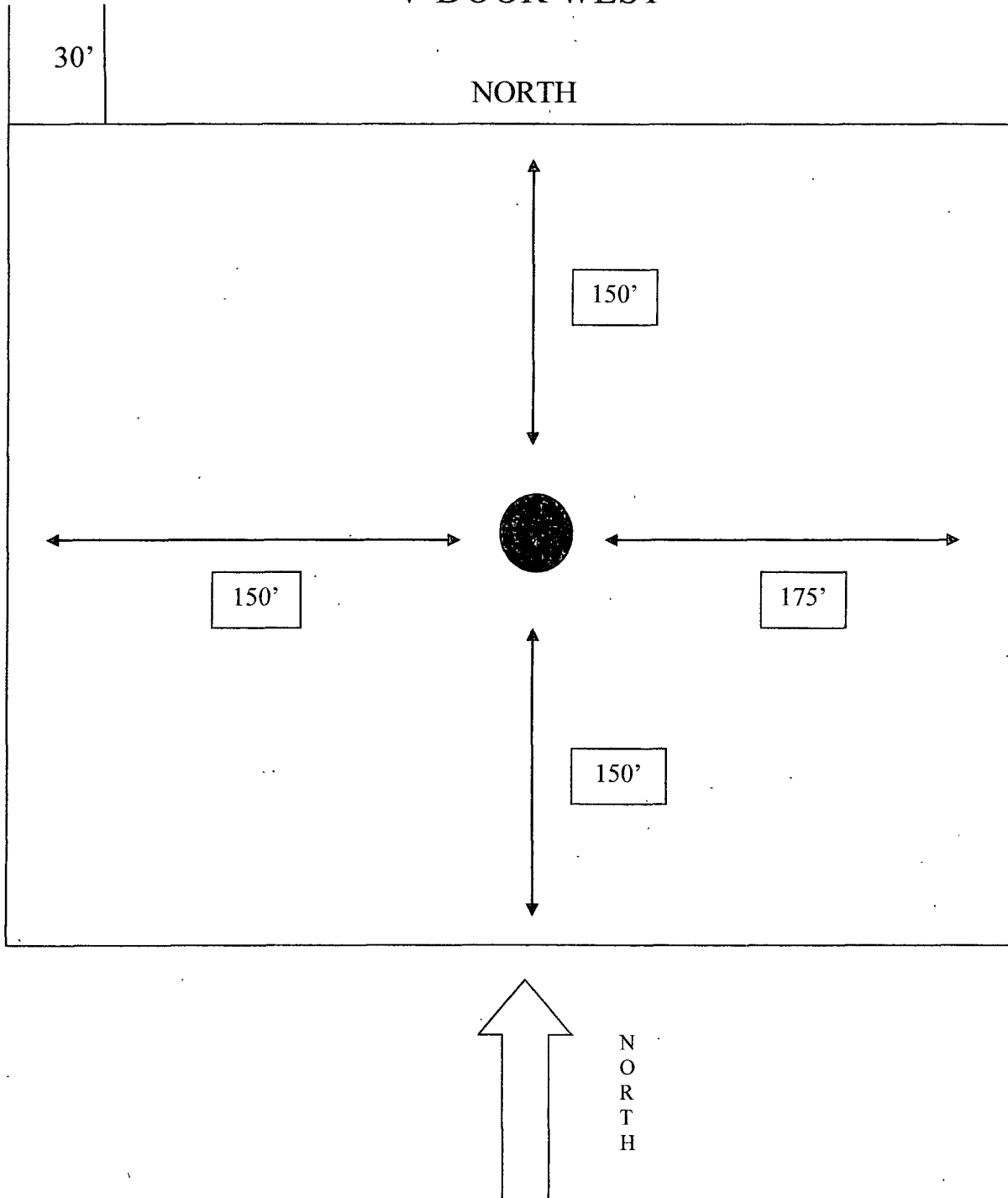
W.O. Number: 25564. Drawn By: J. SMALL

Date: 11-01-2011 Disk: JMS 25564

Survey Date: 10-26-2011 Sheet 1 of 1 Sheets

EXHIBIT 'A'

LONGVIEW DEEP FEDERAL
31-31
V-DOOR WEST



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	RKI Exploration & Prod.
LEASE NO.:	NM91078
WELL NAME & NO.:	31 Longview Deep 31
SURFACE HOLE FOOTAGE:	1980' FSL & 0775' FWL
BOTTOM HOLE FOOTAGE:	' F L & ' F L
LOCATION:	Section 31, T. 22 S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. **Due to recent H2S encounters in the salt formation, it is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide prior to drilling out the surface shoe. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. 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.

4. The record of the drilling rate along with the GR/N well log run from TD to surface shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. **DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.** Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

R-111-P Potash

Medium Cave/Karst

Possible lost circulation in the Delaware.

High pressure potential in the Wolfcamp.

1. The 13-3/8 inch surface casing shall be set at **approximately 260 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. If salt is penetrated, set casing shoe 25 feet above the salt.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst and potash. Set casing, 100' to 600' below the base of Salt, in Lamar Limestone at approximately 2900 feet.

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

3. The minimum required fill of cement behind the 7 inch production casing is:

- a. First stage to DV tool:
 - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.
- b. Second stage above DV tool, cement shall:
 - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash. Excess cement calculates to a negative 13%.**

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

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

- ☒ Cement to circulate to top of liner. Operator shall provide method of verification.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
6. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi**.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8 inch** intermediate casing shoe shall be **5000 (5M) psi**. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - c. The results of the test shall be reported to the appropriate BLM office.
 - d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

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

D. DRILLING MUD

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

Proposed mud weight may not be adequate for drilling through Wolfcamp.

E. DRILL STEM TEST

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

F. WASTE MATERIAL AND FLUIDS

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

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

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