

ATS-08-267

Form 3160-3  
(April 2004)

OCD-ARTESIA

S  
421UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTAPPLICATION FOR PERMIT TO DRILL OR REENTER  
MAY 13 2008FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 20075. Lease Serial No.  
NM-1005586. If Indian, Allottee or Tribe Name  
-----7. If Unit or CA Agreement, Name and No.  
-----8. Lease Name and Well No.  
RDX "10" # 19. API Well No.  
30-015-3621010. Field and Pool, or Exploratory  
BRUSHY DRAW DELAWARE-EAST11. Sec., T. R. M. or Blk. and Survey or Area  
SECTION 10 T26S-R30E12. County or Parish  
EDDY CO.13. State  
NEW MEXICO1a. Type of work: ☒ DRILL☐ REENTER

OCD-ARTESIA

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone2. Name of Operator  
RKI EXPLORATION & PRODUCTION, LLC. (405-996-5748)3a. Address 3817 NW EXPRESSWAY  
SUITE 950, OKLAHOMA CITY OK. 73112 (405-996-5748)3b. Phone No. (include area code)  
12 (405-996-5748)

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

At surface 990' FSL &amp; 330' FWL SECTION 10 T26S-R30E

At proposed prod. zone SAME

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

Approximately 17 miles Southeast of Malaga New Mexico

15. Distance from proposed\*  
location to nearest  
property or lease line, ft  
(Also to nearest drng. unit line, if any) 330'16. No. of acres in lease  
96017. Spacing Unit dedicated to this well  
4018. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft 660'19. Proposed Depth  
7576'20. BLM/BIA Bond No. on file  
BLM NMB-00046021. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3110' GL22. Approximate date work will start\*  
WHEN APPROVED23. Estimated duration  
28 days

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

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 shall 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 required by the  
authorized officer.

25. Signature

Joe T. Janica

Name (Printed/Typed)

Joe T. Janica

Date

01/18/08

Title  
Permit Engineer

Approved by (Signature)

/s/ Don Peterson

Name (Printed/Typed)

Date

MAR 7 2008

Title  
FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

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

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC 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)

Carlsbad Controlled Water Basin

If earthen pits are used in  
association with the drilling of thi  
well, an OCD pit permit must be  
obtained prior to pit construction.SEE ATTACHED FOR  
CONDITIONS OF APPROVALApproval Subject to General Requirements  
& Special Stipulations Attached

## DISTRICT I

1825 N. French Dr., Hobbs, NM 88240

## DISTRICT II

1301 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 DepartmentForm C-102  
Revised October 12, 2005Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

## OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number <b>30-015-36210</b>	Pool Code <b>8090</b>	Pool Name <b>BRUSHY DRAW DELAWARE-EAST</b>
Property Code <b>37055</b>	Property Name <b>RDX "10"</b>	Well Number <b>1</b>
OGRID No. <b>246289</b>	Operator Name <b>RKI EXPLORATION &amp; PRODUCTION</b>	Elevation <b>3110'</b>

## Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>M</b>	<b>10</b>	<b>26 S</b>	<b>30 E</b>		<b>990</b>	<b>SOUTH</b>	<b>330</b>	<b>WEST</b>	<b>EDDY</b>

## 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

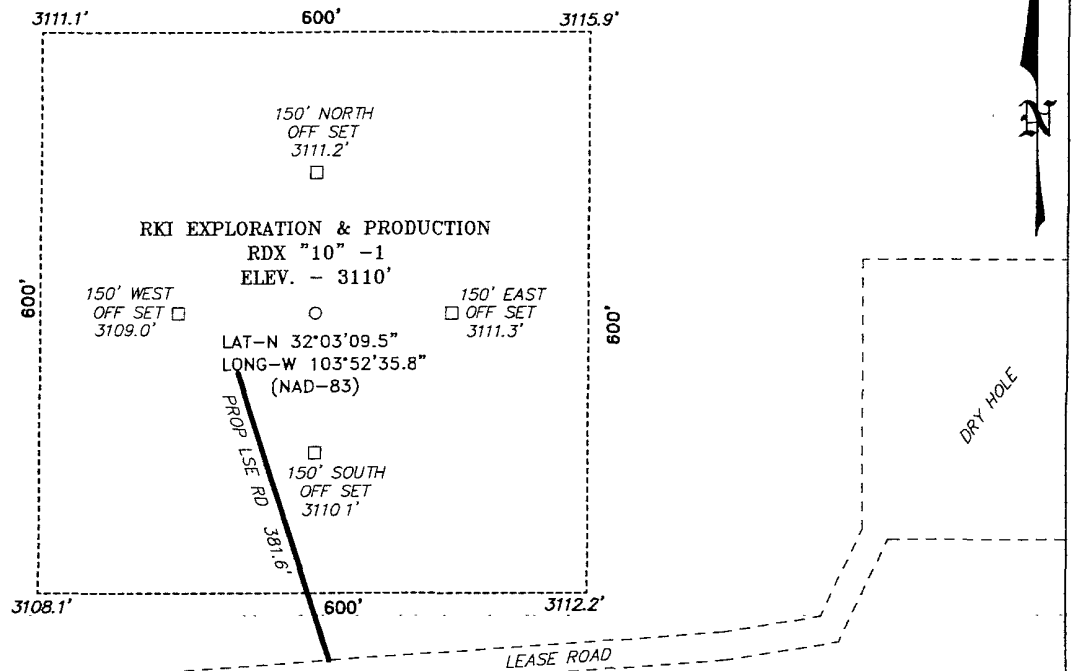
Dedicated Acres <b>40</b>	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<p><b>SURFACE LOCATION</b> LAT N.: 32°03'09.5" LONG W.: 103°52'35.8" N.: 383189.64 E.: 682835.53 (NAD-83)</p> <p>3111.1' 3115.9'</p> <p>330'</p> <p>990'</p> <p>3108.1'</p> <p>3112.2'</p> <p>NM-100558</p>	<p><b>OPERATOR CERTIFICATION</b></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 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><i>Joe T. Janica</i> Signature Date <b>01/18/08</b></p> <p><b>Joe T. Janica</b> Printed Name</p>	
	<p><b>SURVEYOR CERTIFICATION</b></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><b>DECEMBER 27, 2007</b> Date Surveyed</p> <p><i>[Signature]</i> Signature &amp; Seal of Professional Surveyor <b>7977</b></p> <p><b>W.O. No. 18823</b></p> <p>Certificate No. Gary L. Jones 7977</p> <p><b>BASIN SURVEYS</b></p>	

EXHIBIT "A"

SECTION 9, TOWNSHIP 26 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



DIRECTIONS TO LOCATION:

FROM THE JUNCTION ON STATE HWY 18 AND HWY 128; GO WEST TO BUCK JACKSON ROAD, ON BUCK JACKSON, GO SOUTHWESTERLY APPROX. 9.0 MILES TO LEASE ROAD, ON LEASE ROAD GO WEST 5.0 MILES THENCE SOUTH FOR 1.0 MILES TO LEASE ROAD, ON LEASE ROAD GO EAST APPROX 0.9 MILES TO PROPOSED LEASE ROAD.

200 0 200 400 FEET

SCALE: 1" = 200'

**RKI EXPLORATION & PRODUCTION**

REF: RDX "10"-1 / Well Pad Topo

THE RDX "9"-1 LOCATED 990' FROM

THE SOUTH LINE AND 330' FROM THE WEST LINE OF  
SECTION 10, TOWNSHIP 26 SOUTH, RANGE 30 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 18823

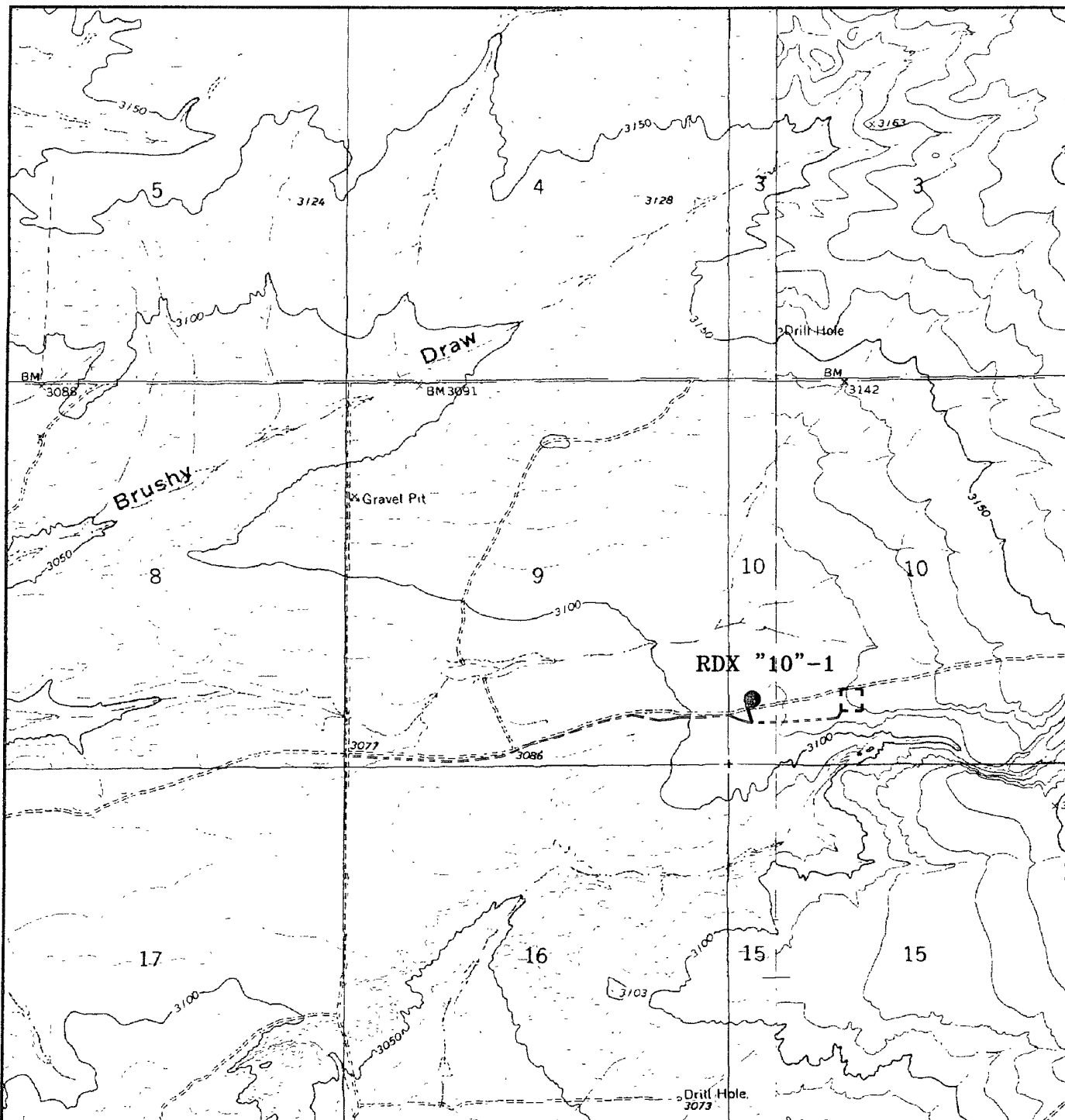
Drawn By: J. M. SMALL

Date: 12-28-2007

Disk: JMS 18823W

Survey Date: 12-27-2007

Sheet 1 of 1 Sheets



### RDX "10" #1

Located at 990' FSL AND 330' FWL  
 Section 9, Township 26 South, Range 30 East,  
 N.M.P.M., Eddy County, New Mexico.

**basin  
surveys**

focused on excellence  
in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
[basinsurveys.com](http://basinsurveys.com)

W.O. Number: 18823T

Survey Date: 12-27-2007

Scale: 1" = 2000'

Date: 12-28-2007

**RKI  
EXPLORATION &  
PRODUCTION**

# APPLICATION TO DRILL

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"

SECTION 10

T26S-R30E

EDDY CO. NM

In response to questions asked under Section II of Bulliten NTL-6, the following information on the above will be provided.

1. LOCATION: 990' FSL & 330' FWL SECTION 10 T26S-R30E EDDY CO. NEW MEXICO
2. ELEVATION ABOVE SEA LEVEL: 3110' GL
3. GEOLOGICAL NAME OF SURFACE FORMATION: Quaternary Aeolian Deposits.
4. DRILLING TOOLS AND ASSOCIATED EQUIPMENT: Conventional rotary drilling rig using drilling mud as a circulating medium for solids removal from hole.
5. PROPOSED DRILLING DEPTH: 7576'
6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:
 

Rustler Anhydrite	765'	Bell Canyon Sand	3628'
Salado	1140'	Cherry Canyon Sand	4702'
Castile	1520'	Brushy Canyon Sand	5734'
Lamar Lime	3395'	Bone Spring Lime	7416'
Base of Lime	3600'	TD	7576'
7. POSSIBLE MINERAL BEARING FORMATIONS:
 

Delaware	Oil
Bone Spring	Oil

## 8. CASING PROGRAM:

HOLE SIZE	INTERVAL	OD OF CASING	WEIGHT	THREAD	COLLAR	GRADE	
26"	0-40	20"	NA	NA	NA	Conductor	New
17½"	0- <del>275'</del> <sup>see</sup> <del>COT</del>	13 3/8"	54.5#	8-R	ST&C	J-55	New
12¼"	0-3425'	9 5/8"	36#	8-R	ST&C	J-55	New
7 7/8"	0-7576'	5½"	17#	8-R	LT&C	J-55	New
Design Factors:	Collapse	1.125	Burst	1.0	Body Yield	1.5	Joint Strength
						8-R	1.8
						Buttress	1.6

January 5, 2008

United States Department of the Interior  
Bureau of Land Management  
Roswell District Office  
2909 West Second Street  
Roswell, New Mexico 88201

Re: Application for Permit to Drill  
RKI Exploration & Production, LLC.  
RDX 10-1  
Eddy County, New Mexico  
Federal Lease NM-100558 and NMB-000460

Gentlemen:

RKI Exploration & Production, LLC. respectfully requests permission to drill our RDX 10-1 located 990' FSL and 330' FWL of Section 10-T26S-R30E, Eddy County, New Mexico, Federal Lease NM-100558 and NMB-000460. The proposed well will be drilled to a TVD of approximately 7,576'. The location and work area have been staked approximately 35 miles Southeast of Carlsbad, New Mexico.

In accordance with requirements stipulated in Federal Onshore Oil and Gas Order No. 1 under 43 CFR 3162.1, our Application for Permission to Drill and supporting evidence is hereby submitted.

1. Application for Permit to Drill:
  1. Form 3160.3, Application for Permit to Drill
  2. Form C-102 Location and Acreage Dedication Plat certified by Gary L. Jones, Registered Land Surveyor No. 7977 in the State of New Mexico dated Dec. 27, 2001.
  3. The elevation of the unprepared ground is 3,110 feet above sea level.
  4. The geologic name of the surface formation is Triassic.
  5. A rotary rig will be utilized to drill the well to 7,576' md. and run casing. This equipment will then be rigged down and the well will be completed with a pulling unit.
  6. Proposed total depth is 7,576' md.

7. Estimated tops of important geologic markers:

Triassic	Surface
Rustler	765' md.
Salado	1,140' md.
Castile	1,520' md.
Lamar Lime	3,395' md.
Delaware	3,600' md.
Brushy Canyon	5,734' md.
Bone Spring	7,416' md.

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

Delaware	Oil	3,600' md.
Bone Spring	Oil	7,416' md.

9. The proposed casing program is as follows:

Surface: 13-3/8" 54.5# J-55 ST&C casing set from 0' - ~~725'~~ <sup>See</sup> ~~COA~~  
Intermediate: 9-5/8" 36# J-55 ST&C casing set from 0' - 3,425'.  
Production: 5-1/2" 17# J-55 LT&C casing set from 0' - 7,576'.

10. Casing setting depth and cementing program:

- a. 13-3/8" surface casing set at ~~725'~~ <sup>See</sup> ~~COA~~ in 17-1/2" hole. Circulate cement to surface with 432 sx. 35:65 Poz:Class C + 6% D20 + 5 pps D24 + 0.125 pps D130 + 3% S1 mixed at 12.7 ppg, Yield – 1.95 cf/sk and 200 sk Class C + 2% S1 + 0.125 pps D130 mixed @ 14.8 ppg, Yield – 1.34 cf/sk.
- b. 9-5/8" 36# casing set at 3,425' in 12-1/4" hole. A fluid caliper will be ran to determine exact cement volume required. Cement will be circulated to surface with 845 sks 35:65 Poz:Class C + 5% D44 (bwow) + 6% D20 + 4 pps D24 + 0.125 pps D130 + 1% S1 mixed at 12.6 ppg, yield – 2.05 cf/sk and 200 sks Class C + 1% S1 + 0.125 pps D130 mixed at 14.8 ppg, yield – 1.33 cf/sk.  
Fluid caliper ran to determine exact volume.
- c. 5-1/2" 17# J-55 casing set at 7,576'. Hole will be logged to determine exact cement volume to bring TOC to 3,125'. A DV tool will be utilized at around 5,100' to assure cement reaches 3,125'.

Cement with:

First stage: 163 sks 40/60 (D961/D124) + 0.2 %bwob D46 + 0.3 % bwob D65 + 1 % bwob D153 + 0.35 % bwob D800 + 0.125 pps D130 mixed @ 10.22 ppg, yield 2.47 and 100 sks TXI Lightweight + 1.33% D44 (bwow) + 0.2% D167 + 0.1% D13 mixed @ 13.0 ppg, yield – 1.40 cf/sk.

Second Stage: 134 sks 35:65 Poz:Class C + 5% D44 (bwow) + 6% D20 + 0.125 pps D130 + 0.1% D13 mixed at 11.9 ppg, yield – 2.47 cf/sk and 100 sks Class C + 0.1% D13 mixed @ 14.8 ppg, yield – 1.32 cf/sk.

11. Pressure Control Equipment

0' - ~~75'~~ <sup>sel</sup> <sub>COF</sub> None  
~~75'~~ - 3,425'

After setting the 13-3/8" casing, 2,000#-rated blowout prevention equipment or greater will be utilized. The blowout prevention equipment will consist of 13-5/8" pipe rams and blind rams. Prior to drillout the surface casing, blowout preventers and related control equipment shall be pressure tested to 1,000 psi. A choke manifold and accumulator with floor and remote operating stations and auxiliary power system. An armored 4" 3,000# (working pressure) hose will be utilized for drilling this interval. The hose itself is rated to 10,000# but the flanged end connections are rated to 3,000#.

A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

3,425' - 7,576' After setting the 9-5/8" casing, 3,000#-rated blowout prevention equipment will be utilized. The blowout preventers and related control equipment shall be pressure tested to 3,000 psi. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test will be recorded in the Driller's Log. The BOP's will be maintained ready for use until drilling operations are completed.

BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties.



APPLICATION TO DRILL

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"

SECTION 10

T26S-R30E

EDDY CO. NM

12. LOGGING, CORING, AND TESTING PROGRAM:

SEE GEOLOGICAL PROGNOSIS

13. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are expected. There is no known presence of H<sup>2</sup>S in this area. If H<sup>2</sup>S 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 3750± PST, and Estimated BHT 165°±.

14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operation and drilling is expected to take 18 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flowlines in order to place well on production.

15. OTHER FACETS OF OPERATIONS:

After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Brushy Canyon formation will be perforated and stimulated in order to establish production. The well will be swab tested and potentialized as an oil well.

APPLICATION TO DRILL

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"

SECTION 10

T26S-R30E

EDDY CO. NM

Page 4  
01/05/08

Accumulatory shall maintain a pressure capacity reserve at all times to provide for the close-open-close sequence of the blind and pipe rams of the hydraulic preventers.

12. Mud Program: CLOSED LOOP MUD SYSTEM, RESERVE PIT NOT REQUIRED.

0' - ~~755'~~ Fresh water/native mud. Lime for pH control (9-10). Paper for seepage. Wt. 8.4 - 9.4 ppg, viscosity 32 - 34 cp.

*see COA*  
~~755'~~ - 3,425' Saturated brine. Sweep as necessary, weight 10.0 ppg.

3,425' - 7,300' Fresh Water/mud, weight 9.0 - 9.3. Sweep as necessary.

7,300' - 7,576' Brine/mud system, weight 9.0 - 9.5 ppg viscosity 30 - 34 cp. Control fluid loss < 15cc.

13. Testing, Logging and Coring Program:

1. Testing program: No drillstem tests are anticipated.
2. Electric logging program: CNL/CAL/GR, DLL/CAL/GR.
3. Coring program: None.

14. Anticipated starting date is February 1, 2008. It should take approximately 24 days to drill the well and another 15 days to complete.

The Multi-Point Surface Use & Operation Plan is attached. If you need additional information to evaluate this application, please call me at (405) 949-2221.

Sincerely,

RKI Exploration & Production, LLC.

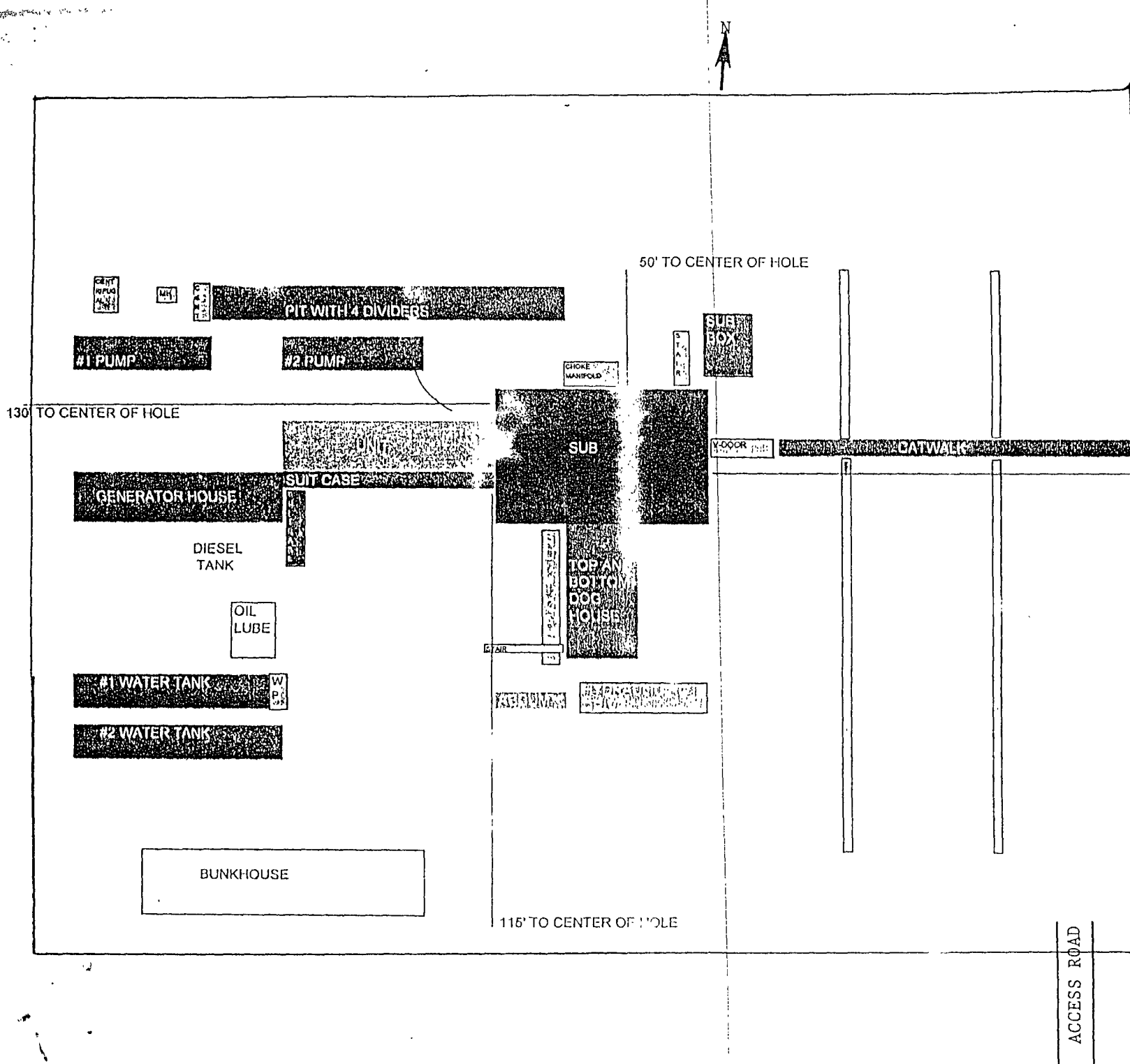


EXHIBIT "D"  
RIG LAY OUT PLAN  
RKL EXPLORATION & PRODUCTION, LLC.  
RDX "10" # 1  
UNIT "M"  
SECTION 10  
T26S-R30E  
EDDY CO. NM

Accumulatory shall maintain a pressure capacity reserve at all times to provide for the close-open-close sequence of the blind and pipe rams of the hydraulic preventers.

12. Mud Program:

- |                 |   |
|-----------------|---|
| 0' - 755'       | Fresh water/native mud. Lime for pH control (9-10). Paper for seepage. Wt. 8.4 - 9.4 ppg, viscosity 32 - 34 cp. |
| 755' - 3,425'   | Saturated brine. Sweep as necessary, weight 10.0 ppg.   |
| 3,425' - 7,300' | Fresh Water/mud, weight 9.0 – 9.3. Sweep as necessary.  |
| 7,300' - 7,576' | Brine/mud system, weight 9.0 – 9.5 ppg viscosity 30 - 34 cp. Control fluid loss < 15cc.                         |

13. Testing, Logging and Coring Program:

1. Testing program: No drillstem tests are anticipated.
2. Electric logging program: CNL/CAL/GR, DLL/CAL/GR.
3. Coring program: None.

14. Anticipated starting date is February 1, 2008. It should take approximately 24 days to drill the well and another 15 days to complete.

The Multi-Point Surface Use & Operation Plan is attached. If you need additional information to evaluate this application, please call me at (405) 949-2221.

Sincerely,

RKI Exploration & Production, LLC.

## GEOLOGICAL PROGNOSIS

Well Name: RDX 10-1

Location: 990 FSL 330 FWL

API #:

Sec. 10-26S-30E

Field: Ross Draw Extension

Eddy Co., NM

Lat/Long: 32.0525093 / -103.8760408

Elevation: GL. Est.: (?) DF. Est.: KB. Est.: (?)

### FORMATION

### DEPTH (TVD)

### SUBSEA

✓ Rustler	765'	()
✓ Salado	1,140'	()
✓ Castile	1,520'	()
✓ Lamar Lime	3,395'	()
✓ Base of Lime	3,600'	()
Delaware Top	3,628'	()
✓ Bell Canyon Sand	3,628'	()
Cherry Canyon Sand	4,702'	()
✓ Brushy Canyon Sand	5,734'	()
Pipeline Shale	7,402'	()
✓ Bone Spring Lime	7,416'	()
TD (includes 50 ft. rat hole)	7,576'	

**Primary Objective(s):** Brushy Canyon

**Secondary Objective(s):** Bell Canyon, Cherry Canyon

**Mud Logger:** No ☐, Yes ☒. Company Name: Morco. Starting Depth: Casing  
Catch 10' Samples from Intermediate Casing to Total Depth.

### **Electric Logging Program: (Schlumberger)**

Laterolog from Intermediate Casing to T.D.

Gamma Ray/Density/Neutron/Caliper Log from Intermediate Casing to T.D.

Magnetic Resonance Tool from Intermediate Casing to T.D.

### **Correlation Logs:**

Sun-Ex Fed Unit #2	Sun '10' Fed #1	Sun-Ex Fed Unit #1
SE SE	SW SW	SE SW
9-26S-30E	10-26S-30E	10-26S-30E

**Remarks:** All tops are based on MD and will be changed when an elevation is supplied.  
Tops are subject to change as drilling continues.

**Date:** 1-04-2008

**Geologist:** Matt Huhnke    Office: (405) 996-5755  
Cell: (405) 476-2355  
E-mail: mhuhnke@rkixp.com  
FAX: (405) 949-2223

**Engineer:** Pat McCollum    Office: (405) 996-5749

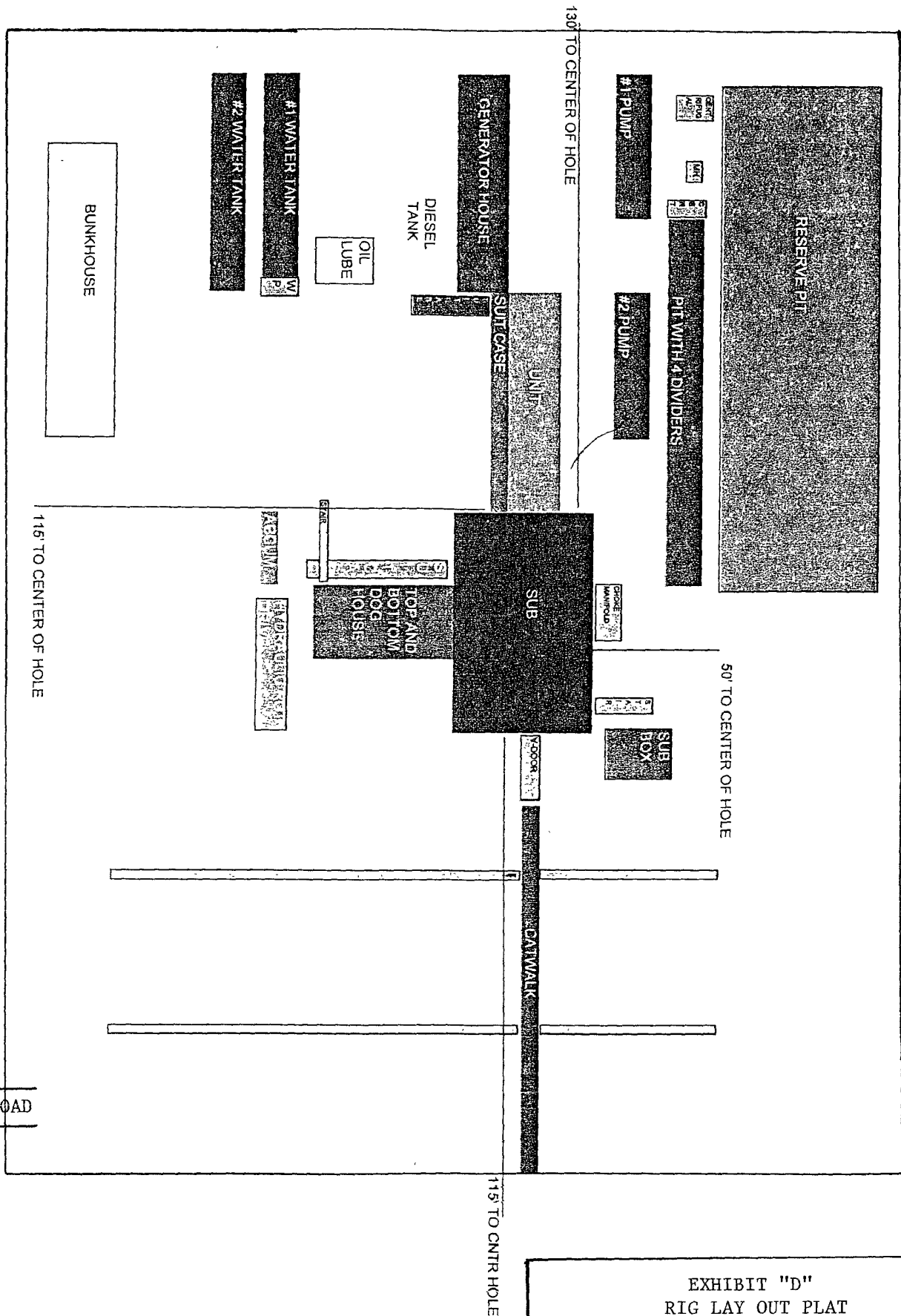
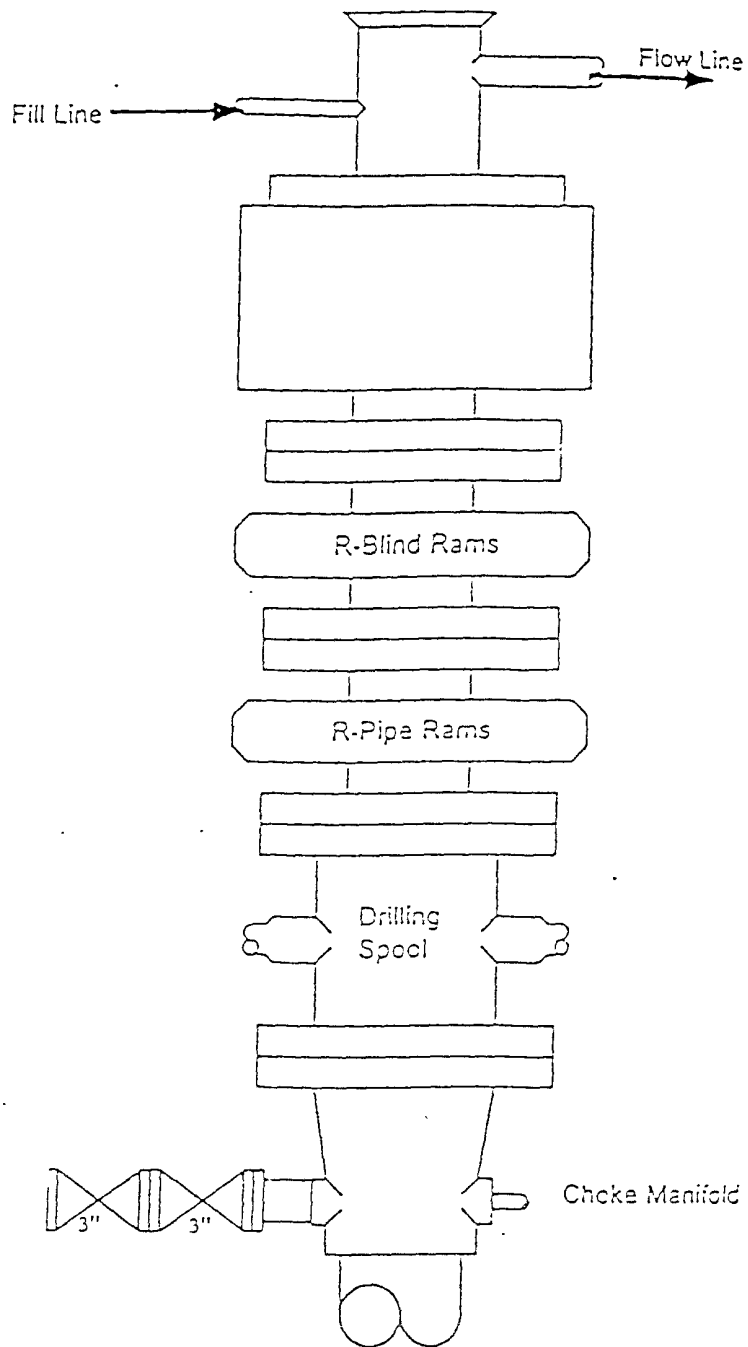


EXHIBIT "D"  
RIG LAY OUT PLAT

RKI EXPLORATION & PRODUCTION, LLC.  
RDX "10" # 1

UNIT "M"  
T26S-R30E

SECTION 10  
EDDY CO. WY



Type 900 Series  
3000 psi WP

EXHIBIT "E"	
SKETCH OF B.O.P. TO BE USED ON	
RKI EXPLORATION & PRODUCTION, LLC.	
RDX "10" # 1	
UNIT "M"	SECTION 10
T268 D207	

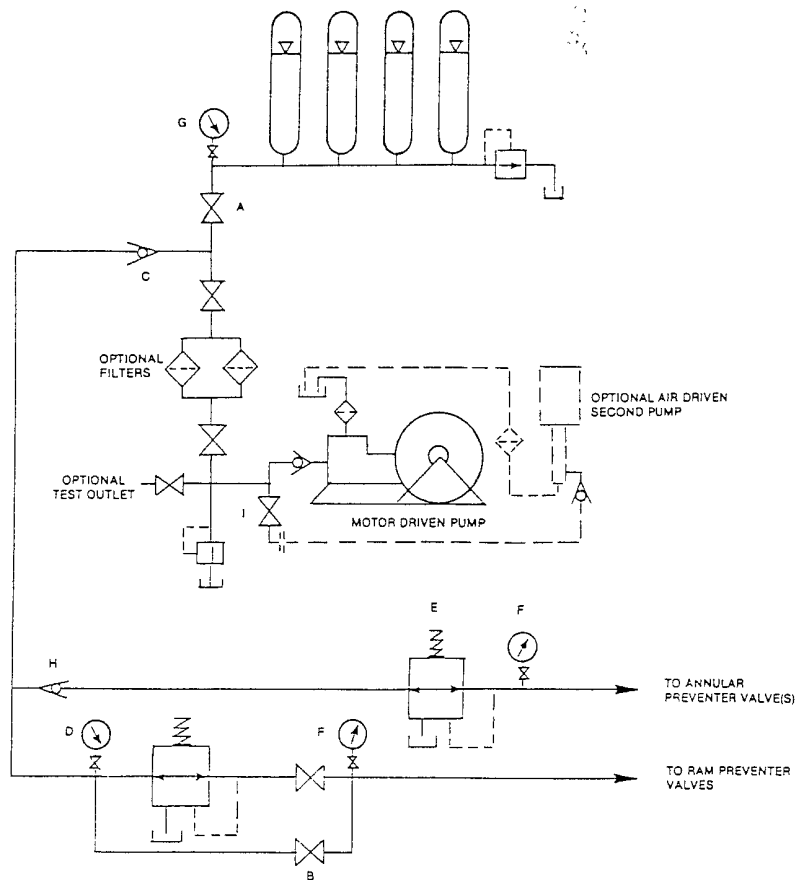


FIGURE K6-1 The schematic sketch of an accumulator system shows required and optional components.

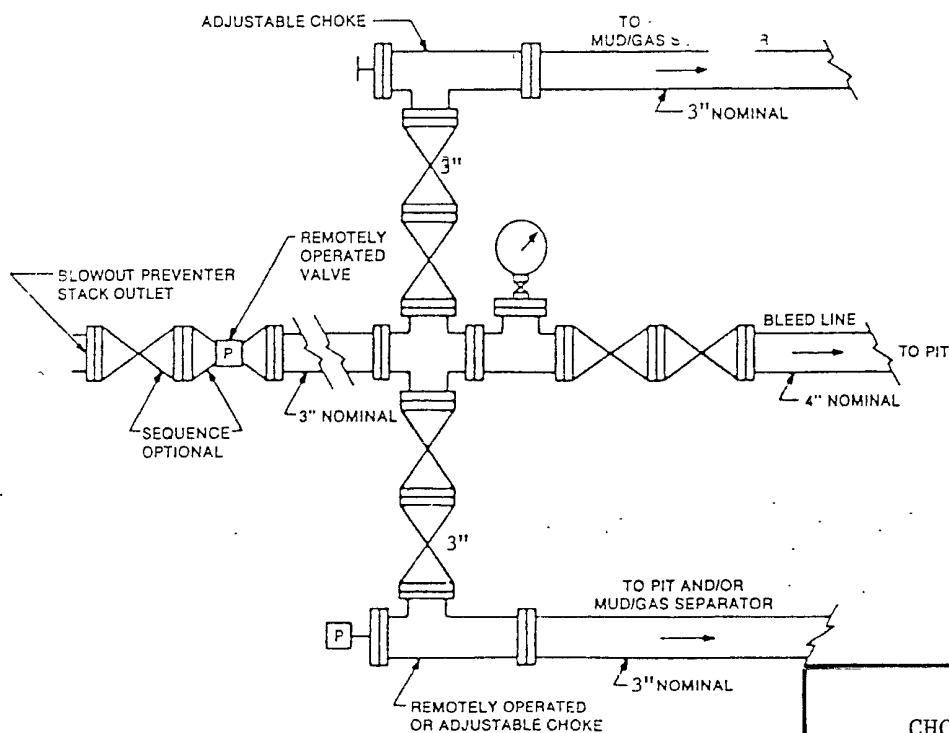


FIGURE K4-2. Typical choke manifold assembly for 5M rated working pressure service — surface installation.

EXHIBIT "E-1"  
CHOKE MANIFOLD & CLOSING UNIT

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"  
T26S-R30E

SECTION 10  
FDDV CO NM



## HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All Company and Contract personnel admitted on location must be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S
  - B. Physical effects and hazards
  - C. Proper use of safety equipment and life support systems.
  - D. Principle and operation of H<sub>2</sub>S detectors, warning system and briefing areas.
  - E. Evacuation procedure, routes and first aid.
  - F. Proper use of 30 minute pressure demand air pack.
2. H<sub>2</sub>S Detection and Alarm Systems
  - A. H<sub>2</sub>S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.
3. Windsock and/or wind streamers
  - A. Windsock at mudpit area should be high enough to be visible.
  - B. Windsock at briefing area should be high enough to be visible.
  - C. There should be a windsock at entrance to location.
4. Condition Flags and Signs
  - A. Warning sign on access road to location.
  - B. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H<sub>2</sub>S present in dangerous concentration. Only emergency personnel admitted to location.
5. Well control equipment
  - A. See exhibit "E"
6. Communication
  - A. While working under masks chalkboards will be used for communication.
  - B. Hand signals will be used where chalk board is inappropriate.
  - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephoned will be available at most drilling foreman's trailer or living quarters.
7. Drillstem Testing
  - A. Exhausts will be watered.
  - B. Flare line will be equipped with an electric ignitor or a propane pilot light in case gas reaches the surface.
  - C. If location is near any dwelling a closed D.S.T. will be performed.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

8. Drilling contractor supervisor will be required to be familiar with the effects  $H_2S$  has on tubular goods and other mechanical equipment.
9. If  $H_2S$  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  $H_2S$  scavengers if necessary.

SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"  
T26S-R30E

SECTION 10  
EDDY CO. NM

1. EXISTING AND PROPOSED ROADS:

- A. Exhibit "B" is a reproduction of a County General Hi-way map showing existing roads. Exhibit "C" is a reproduction of a USGS topographic map showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. All new roads will be constructed to BLM specifications.
- B. Exhibit "A" shows the proposed well site as staked.
- C. Directions to location: From Loving New Mexico take U. S. Hi-way 285 South for 17.1 miles to CR-725, turn Left (East) go 4.2 miles take pipeline road East for 6.5 miles, turn Right (South) go 1 mile, then turn Left (East) follow lease road 1.0 miles and the location is on the North side of lease road.
- D. Exhibit "C" is a topographic map showing location and roads in the area.

2. PLANNED ACCESS ROADS: Approximately 350' of new road will be constructed.

- A. The access roads will be crowned and sitched to a 14' wide travel surface, within a 30' R-O-W.
- B. Gradient of all roads will be less than 5%.
- C. Turn-outs will be constructed where necessary.
- D. If require new access roads will be surface with a minimum of 4-6" of caliche. this material will be obtained from a local source.
- E. Center line for new roads will be flagged, road construction will be done as field conditions require.
- F. Culverts will be placed in the access road as drainage conditions require. Roads will be constructed to use low water crossings for drainage as required by the topographic conditions.

3. LOCATION OF EXISTING WELLS WITHIN A ONE MILE RADIUS: EXHIBIT "A-1"

- A. Water wells - None within 2 miles of location
- B. Disposal wells - None Known
- C. Drilling wells - None Known
- D. Producing wells - as shown on Exhibit "A-1"
- E. Abandoned wells - As shown on Exhibit "A-1"

## SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"

SECTION 10

T26S-R30E

EDDY CO. NM

4. If on completion this well is a producer the operator will lay pipelines and construct powerlines along existing road R-O-W's or other existing R-O-W's. Exhibit "C" shows proposed roads , flowlines and powerlines.

5. LOCATION & TYPE OF WATER SUPPLY:

Water will be purchased locally from a commercial source and trucked over the location access roads or piped to location in flexible lines laid on top of the ground.

6. SOURCE OF CONSTRUCTION MATERIAL:

If possible construction material will be obtained from the excavation of the drill site, if additional material is required it will be obtained from a local source and transported over the location access roads as shown on Exhibit "C".

7. METHODS OF HANDLING WASTE:

- A. All trash, junk and other waste material will be contained in trash cages or trash bins in order to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
- B. Sewage from living quarters will be drained into holding tanks and will be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of well.
- C. Remaining drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry enough to be broken out for further drying. If the drilling fluids do not evaporate in a reasonable time they will be hauled off by transports to a State approved disposal site. Later the pits will be broken out to speed drying. Water produced during completion will be stored in tanks and disposed of in State approved disposal site. Oil and condensate produced during completion will be put in storage tanks and sold.
- D. Drill cuttings will be disposed of in reserve pits or if necessary will be taken to a State approved landfarm and disposed of properly.
- E. Any remaining salts or mud additives will be collected by the supplier and to stock, this includes all broken bags.

8. ANCILLARY FACILITIES:

- A. No camps or air strips will be constructed on location.

## SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"

SECTION 10

T26S-R30E

EDDY CO. NM

### 9. WELL SITE LAYOUT:

- A. Exhibit "D" shows the proposed well site layout.
- B. This Exhibit shows the location of reserve pit, sump pits, and living facilities.
- C. Mud pits in the active circulating system will be steel pits and the reserve pits will be unlined unless subsurface conditions encountered during pit construction indicate that a plastic liner is required to contain lateral migration.
- D. If needed the reserve pits will be lined with polyethelene. The pit liner will be no less than 12 mils thick and the liner will be extended at least 3 feet over the top of the dikes and secured in place to keep edge of liner in place.
- E. The reserve pit will be fenced on three sides and fenced with four strands of barbed wire during drilling and completion phases. The 4th side will be fenced after drilling operations are complete and the drilling rig has moved out. If the well is a producer the mud pits will remain fenced in until the mud has dried up enough to break out the pits and reclaimed according to BLM requirements.

### 10. PLANS FOR RESTORATION OF SURFACE:

Rehabilitation of the location and reserve pits will be allowed to dry properly, fluids may be moved and disposed of in accordance with article 7-E as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any will be reshaped to the original configuration with provisions made to alleviate future erosion. In case of the well completed as a producer the drilling pad will be necessary to construct production facilities. After the area has been shaped and contoured top soil from the spoil pile will be placed over the disturbed area to the extent possible so that revegetation procedures can be accomplished to comply with the BLM specifications.

If the well is a dry hole the pad and road area will be contoured to match the existing terrain. Top soil will be spread to the extent possible and revegetation will be carried out according to the BLM specifications.

Should the well be a producer the previously noted procedures will apply to those areas which are not required for production facilities.

SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "10" # 1

UNIT "M"

SECTION 10

T26S-R30E

EDDY CO. NM

11. OTHER GENERAL INFORMATION:

- A. Topography consists of low lying caliche hills with a gentle dip to the Southwest toward Brushy Creek. Soil is then sandy gray in color and very shallow with caliche base. Vegetation consists of mesquite, native grasses with various cacti.
- B. The surface and minerals are owned by The U. S. Department of Interior and is administered by The Bureau of Land Management. The surface is used to graze livestock.
- C. An Archaeological Survey has been conducted and is on file with The Bureau of Land Management Carlsbad Field Office.
- D. There are no dwellings located within 2 miles of the location.
- E. Production facilities will be constructed on the location in case the well is completed as an oil well.

## CERTIFICATION

I HEREBY CERTIFY THAT I OR PERSONS UNDER MY DIRECT SUPERVISION HAVE INSPECTED THE PROPOSED DRILL SITE AND THE ACCESS ROAD ROUTES, THAT I AM FAMILIAR WITH THE CONDITIONS THAT CURRENTLY EXIST, AND THAT THE STATEMENTS MADE IN THIS PLAN ARE TO THE BEST OF MY KNOWLEDGE ARE TRUE AND CORRECT, AND THAT THE WORK ASSOCIATED WITH THE OPERATIONS PROPOSED HEREIN WILL BE PERFORMED BY RKI EXPLORATION & PRODUCTION, LLC. ITS CONTRACTORS AND/OR ITS SUB-CONTRACTORS AND IS IN CONFORMANCE WITH THIS PLAN AND THE TERMS AND THE CONDITIONS UNDER WHICH IT IS APPROVED. THIS STATEMENT IS SUBJECT TO THE PROVISIONS OF U.S.C. 1001 FOR FILING OF A FALSE REPORT.

### OPERATOR'S REPRESENTATIVES

#### BEFORE CONSTRUCTION

TIERRA EXPLORATION, INC.  
HOBBS, NEW MEXICO 88241  
P. O. BOX 2188  
HOBBS, NEW MEXICO 88241  
JOE T. JANICE  
CELL 505-390-1598  
OFFICE PHONE 505-391-8503

#### DURING & AFTER CONSTRUCTION

RKI EXPLORATION & PROD.  
P. O. BOX 370  
309 SOUTH HALAGUENO STREET  
CARLSBAD, NEW MEXICO 88221-0370  
GENE SIMER  
CELL 505-706-3225  
OFFICE 505-885-1313

NAME:

DATE:

01/18/08

TITLE

Permit Engineer

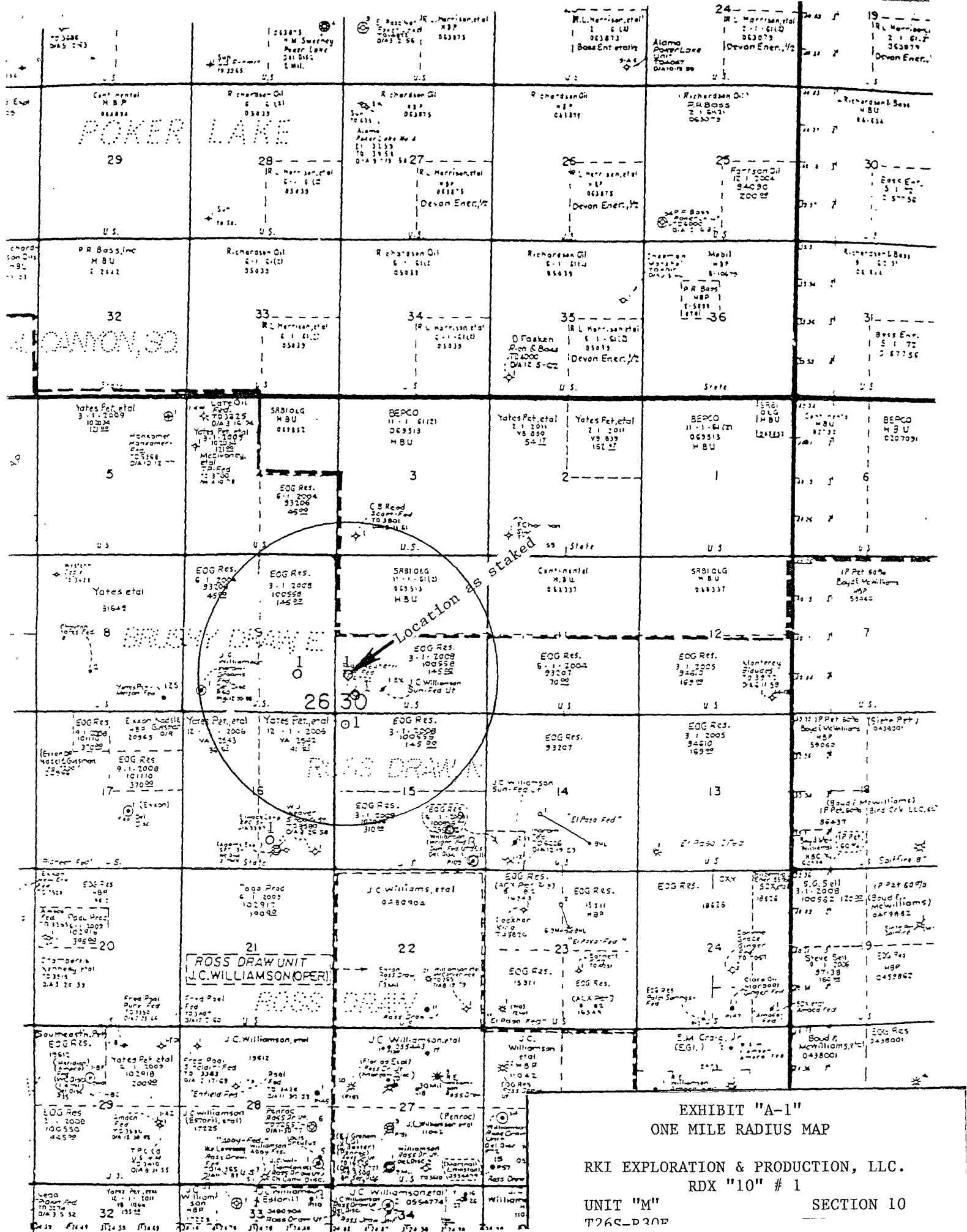
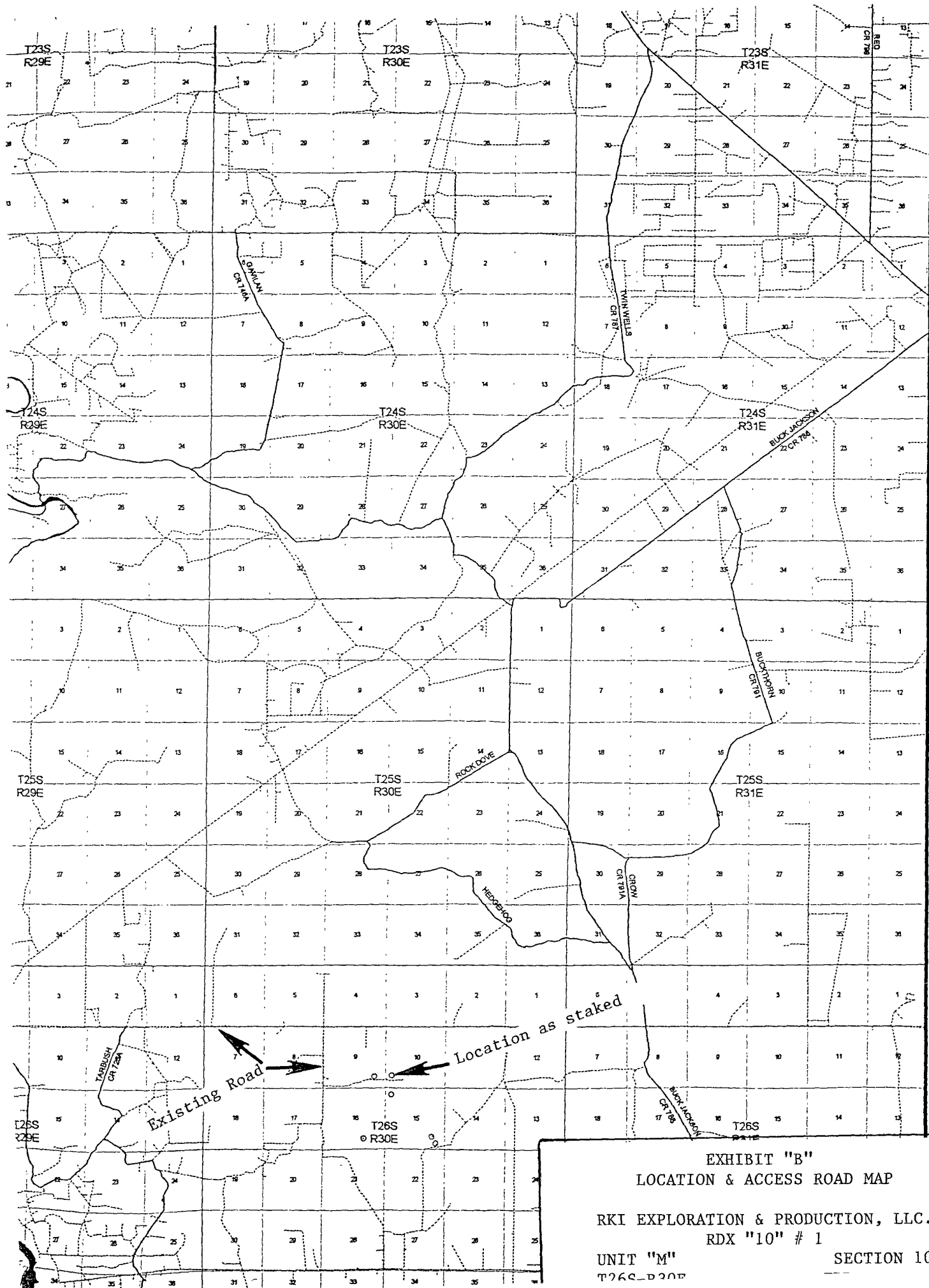


EXHIBIT "A-1"  
ONE MILE RADIUS MAP

RKI EXPLORATION & PRODUCTION, LLC.  
RDX "10" # 1  
UNIT "M" SECTION 10  
T26C-D30P





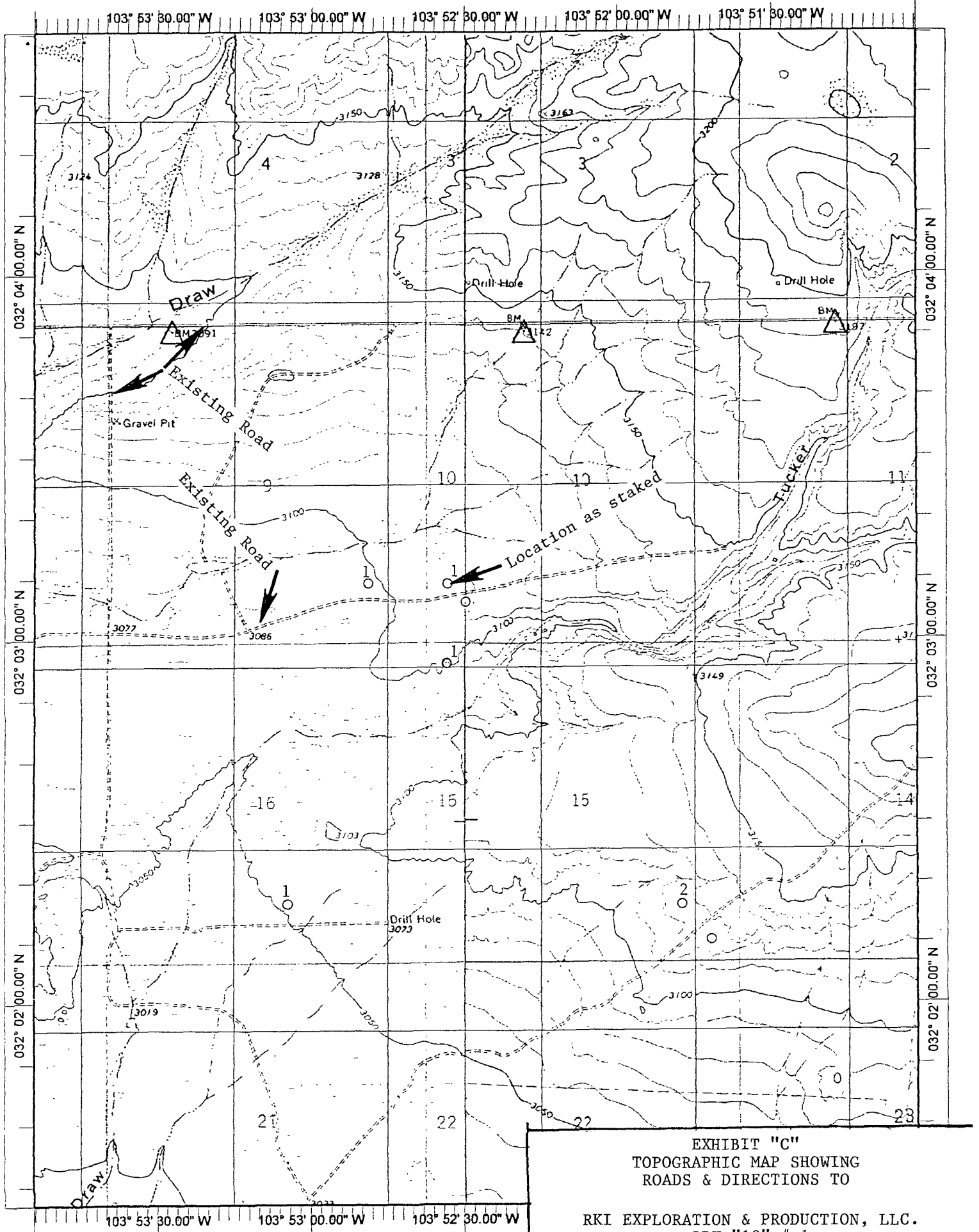


EXHIBIT "C"  
TOPOGRAPHIC MAP SHOWING  
ROADS & DIRECTIONS TO

RKI EXPLORATION & PRODUCTION, LLC.  
RDX "10" # 1

UNIT "M"  
T26S-R30E

SECTION 10  
EDDY CO. NM

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	RKI Exploration & Production, LLC.
LEASE NO.:	NM100558
WELL NAME & NO.:	RDX 10 No. 1
SURFACE HOLE FOOTAGE:	990' FSL & 330' FWL
BOTTOM HOLE FOOTAGE:	
LOCATION:	Section 10, T. 26 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

### TABLE OF CONTENTS

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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Muffled pump jack engines
- ☐ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
- ☐ **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)**

Requested action is located within special management area: Phantom Banks Heronries. All management prescriptions stated in the 1997 CRA RMP Amendment; Appendix 4 (page AP4-121) will be set forth for overall compliance.

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.

## **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 (505) 234-5972 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 stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

### **C. RESERVE PITS**

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**

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (505) 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. 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 thirty (30) 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**

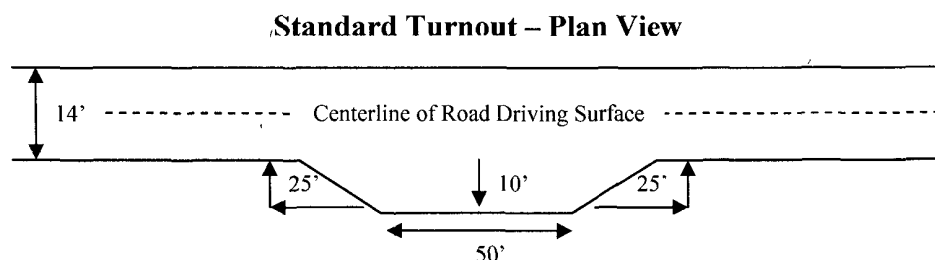
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

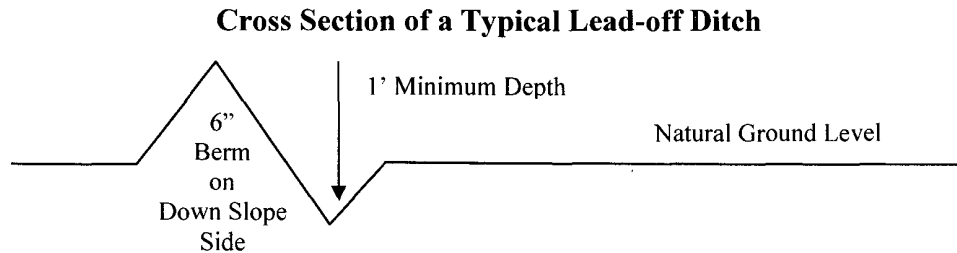
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing 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.



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:

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

#### **Culvert Installations**

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

#### **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations.



A gate shall be constructed and fastened securely to H-braces.

**Fence Requirement**

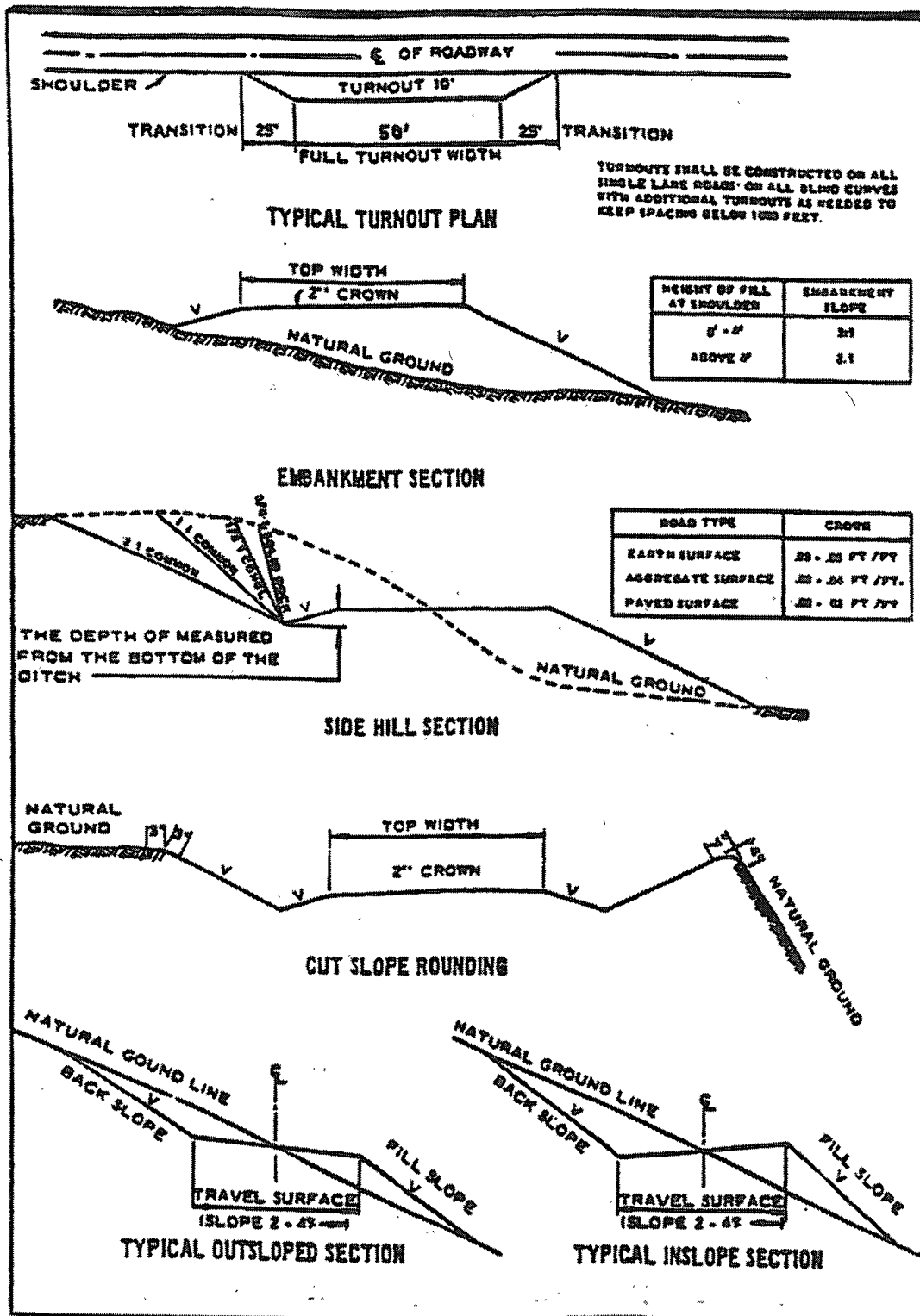
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Public Access**

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



## VII. 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. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts 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.
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.

### B. CASING

1. The **13-3/8 inch** surface casing shall be set **at approximately 850 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **Fresh water mud to be used to setting depth. Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**
  - 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.
  - b. Wait on cement (WOC) time 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. (This is to include the lead cement). **Please provide WOC times to inspector for cement slurries.**

- 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 action will be done prior to drilling out that string.

**Medium cave/karst.**

**Lost circulation in Redbeds, evaporites to base of Castile Group, Delaware and Bone Spring formations.**

- 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-d above. **Please provide WOC times to inspector for cement slurries. Casing to be set into the Lamar Limestone at approximately 3425'.**
- 3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
  - ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **First stage to circulate.**
- 4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

**C. PRESSURE CONTROL**

**NB! Check condition of 4" flexible line from BOP to BOPE, replace if exterior is damaged or if line fails test. Line to be as straight as possible. Flex line connection will be used for 2M and 3M systems. Variance approved for flex line per verbal request by operator.**

- 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. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.

- c. 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.
- d. 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.
- e. A variance to test the surface casing and BOP/BOPE to the reduced pressure of **1000** psi with the rig pumps is approved.

**D. DRILL STEM TEST**

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

**WWI 022908**

## **VIII. 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.

#### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

#### **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, Munsell Soil Color Chart # 5Y 4/2

## **IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE**

### **A. INTERIM RECLAMATION**

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting 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.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions 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 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.

## Seed Mixture 1, for Loamy 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 regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/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:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass ( <i>Eragrostis intermedia</i> )	0.5
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sideoats grama ( <i>Bouteloua curtipendula</i> )	5.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed  
(Insert Seed Mixture Here)



## **X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.