

DEC 10 2008

OCD-ARTESIA

OCD-ARTESIA

S

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 20105. Lease Serial No.  
NM-100558  
6. If Indian, Allottee or Tribe Name  
\_\_\_\_\_7. If Unit or CA Agreement, Name and No.  
\_\_\_\_\_1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator

RKI EXPLORATION &amp; PRODUCTION, LLC. (PAT McCOLLOM 405-996-5748)

8. Lease Name and Well No.  
RDX "15" # 13

9. API Well No.

30-015-36834

3a. Address 3817 NW EXPRESSWAY SUITE 950  
OKLAHOMA CITY, OKLAHOMA 731123b. Phone No. (include area code)  
405-996-574810. Field and Pool, or Exploratory  
WILDCAT-BONE SPRING

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

At surface

1800' FNL & 2310' FEL SECTION 15 T26S-R30E EDDY CO.  
1950' Per-SN Carlsbad Controlled Water Basin  
At proposed prod. zone SAME11. Sec., T. R. M. or Blk. and Survey or Area  
SECTION 15 T26S-R30E

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

Approximately 18 miles Southeast of Malaga New Mexico

12. County or Parish  
EDDY CO.13. State  
NM15. Distance from proposed\*  
location to nearest  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)

840'

16. No. of acres in lease  
32017. Spacing Unit dedicated to this well  
4018. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft.

1320'

19. Proposed Depth  
7654'20. BLM/BIA Bond No. on file  
BLM NMB-00046021. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3129' 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, must 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 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 required by the BLM.

25. Signature

Joe T. Janica

Name (Printed/Typed)

Joe T. Janica

Date

10/07/08

Title

Permit Eng.

Approved by (Signature)

/s/ James Stovall

Name (Printed/Typed)

/s/ James Stovall

Date

DEC 5 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 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.

(Continued on page 2)

\*(Instructions on page 2)

SEE ATTACHED FOR  
CONDITIONS OF APPROVALENTERED  
12-12-08APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

FORM APPROVED  
OMB No. 1004-0137  
Expires: March 31, 2007

## 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.

**SUBMIT IN TRIPLICATE- Other instructions on reverse side.**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other	5. Lease Serial No. NM-100558
2. Name of Operator RKI EXPLORATION & PRODUCTION, LLC. (PAT McCOLLOM)	6. If Indian, Allottee or Tribe Name -----
3a. Address 3817 NW EXPRESSWAY SUITE 950 OKLAHOMA CITY OK. 73112	7. If Unit or CA/Agreement, Name and/or No. -----
3b. Phone No. (include area code) 405-996-5748	8. Well Name and No. RDX "15" # 13
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 1950' FNL & 2310' FEL SECTION 15 T26S-R30E EDDY CO. NM	9. API Well No. -----
	10. Field and Pool, or Exploratory Area WILDCAT-BONE SPRING
	11. County or Parish, State EDDY CO. NEW MEXICO


## 12. CHECK 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>Move location</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

1. RKI EXPLORATION & PRODUCTION, LLC. Requests the approval to move the location of their RDX "15" # 13 well from: 1800' FNL & 2310' FEL SECTION 15 T26S-R30E  
To: 1950' FNL & 2310' FEL SECTION 15 T26S-R30E

The reason for this request is that the BUREAU OF LAND MANAGEMENT suggested this move because of surface drainage in the area.

14. I hereby certify that the foregoing is true and correct Name (Printed/Typed) Joe T. Janica		Title Permit Eng.
Signature 		Date 11/09/08
<b>THIS SPACE FOR FEDERAL OR STATE OFFICE USE</b>		
Approved by /s/ James Stovall		FIELD MANAGER Title
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.		Date DEC 5 2008
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.		Office CARLSBAD FIELD OFFICE

(Instructions on page 2)

DISTRICT I  
1625 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 Department

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

Form C-102  
Revised October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number <b>30-015-36834</b>	Pool Code <b>96403</b>	Pool Name <b>WILDCAT BONE SPRING</b>
Property Code <b>36878</b>	Property Name <b>RDX "15"</b>	Well Number <b>13</b>
GRID No. <b>246289</b>	Operator Name <b>RKI EXPLORATION &amp; PRODUCTION</b>	Elevation <b>3127'</b>

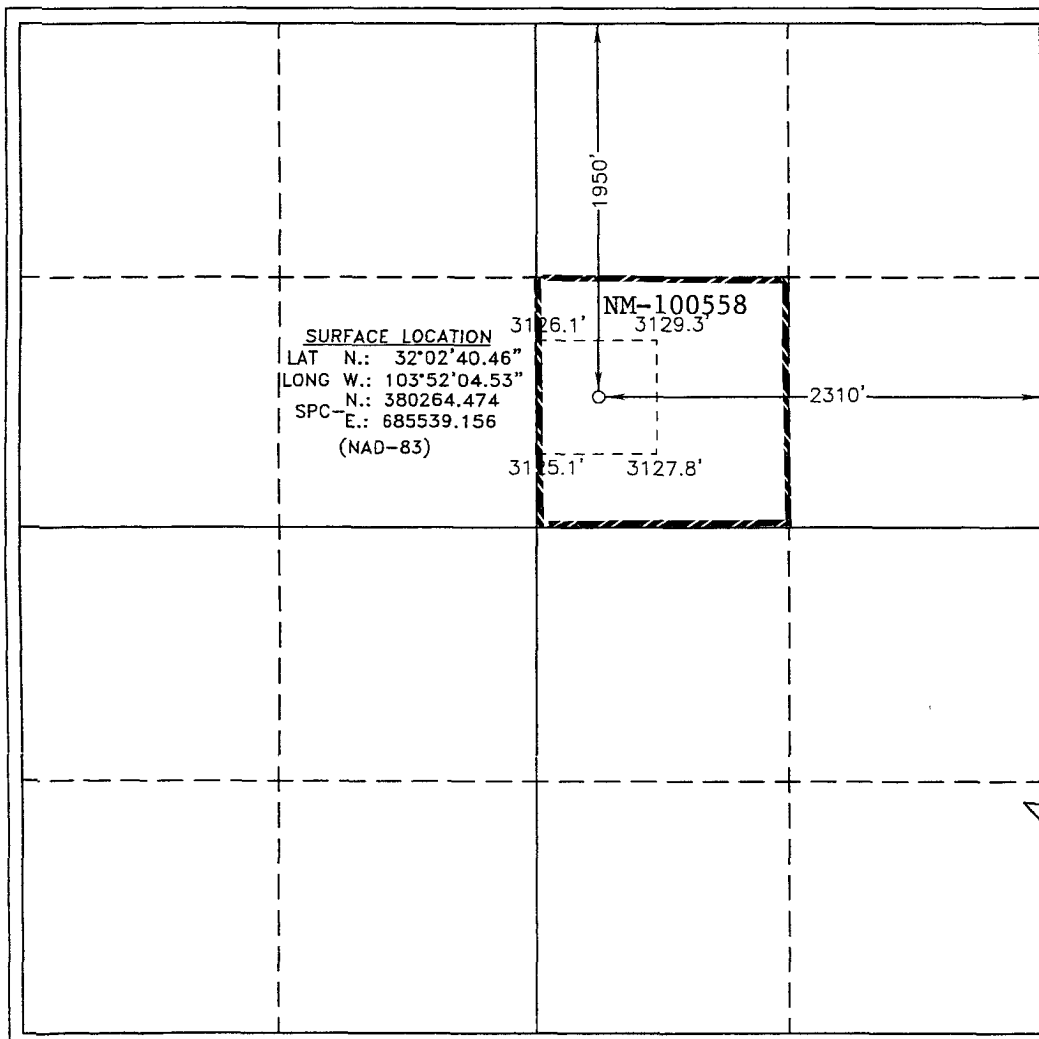
Surface Location

UL or lot No. <b>G</b>	Section <b>15</b>	Township <b>26 S</b>	Range <b>30 E</b>	Lot Idn	Feet from the <b>1950</b>	North/South line <b>NORTH</b>	Feet from the <b>2310</b>	East/West line <b>EAST</b>	County <b>EDDY</b>
---------------------------	----------------------	-------------------------	----------------------	---------	------------------------------	----------------------------------	------------------------------	-------------------------------	-----------------------

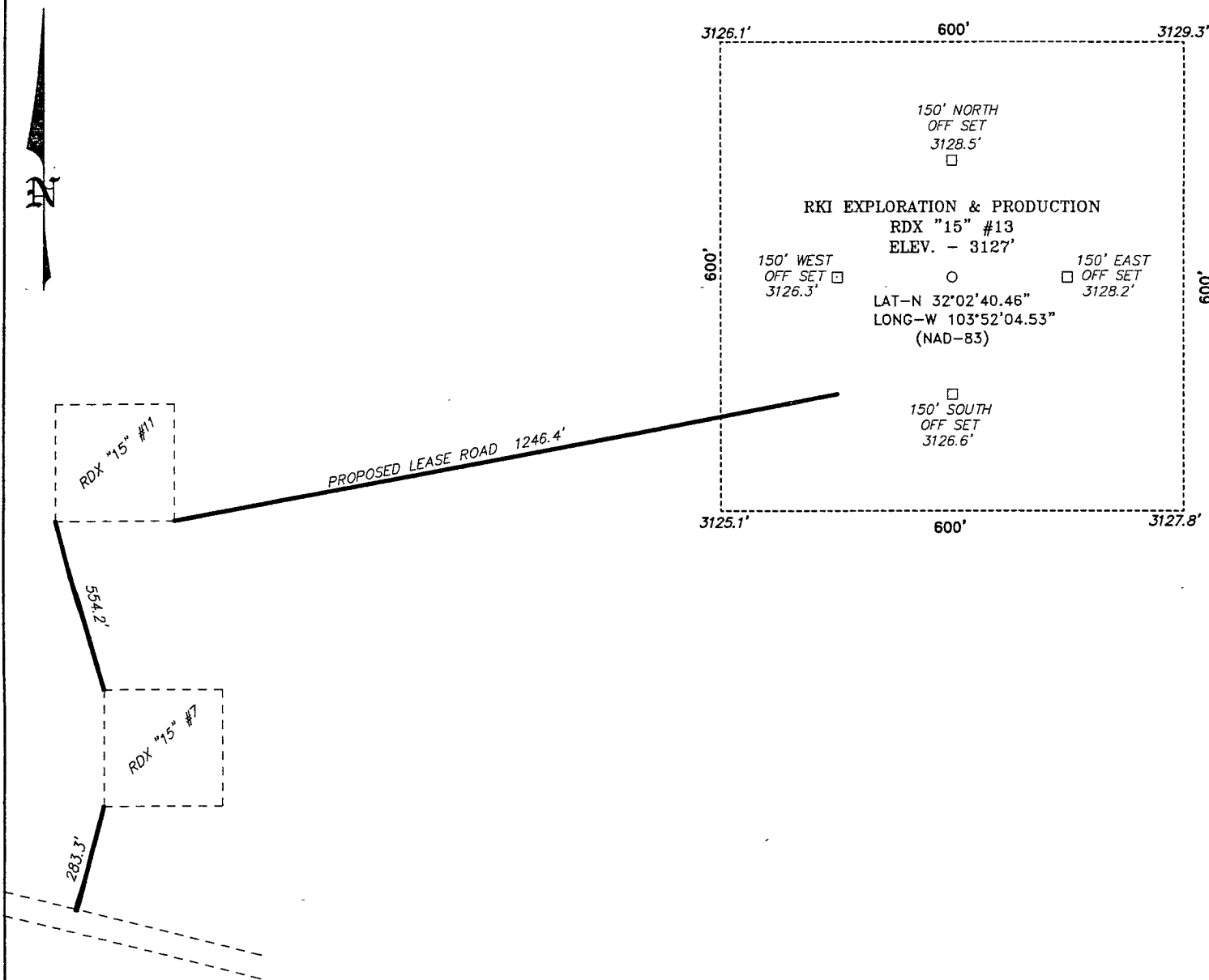
Bottom Hole Location If Different From Surface

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.						

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>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 Joe T. Janica Printed Name</p> <p>Date 11/09/08</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>NOVEMBER 13, 2008 Date Surveyed</p> <p><i>[Signature]</i> Signature &amp; Seal of Professional Surveyor 7977</p> <p>Certificate No. <i>20845</i> Surveyor E. Jones 7977</p> <p>BASIN SURVEYS</p>

SECTION 15, TOWNSHIP 26 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF HWY 285 AND LONGHORN,  
GO EAST 3.9 MILES TO SECOND ROAD ON RIGHT  
PAST A LOW WATER CROSSING, GO EAST 5.9 MILES  
TO LEAS ROAD, ON LEASE ROAD GO SOUTH 1.2  
MILES TO 2-TRACK, GO EAST TO PROPOSED  
LOCATION.

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

W.O. Number: 20743

Drawn By: J. M. SMALL

Date: 11-04-2008

Disk: JMS 20743

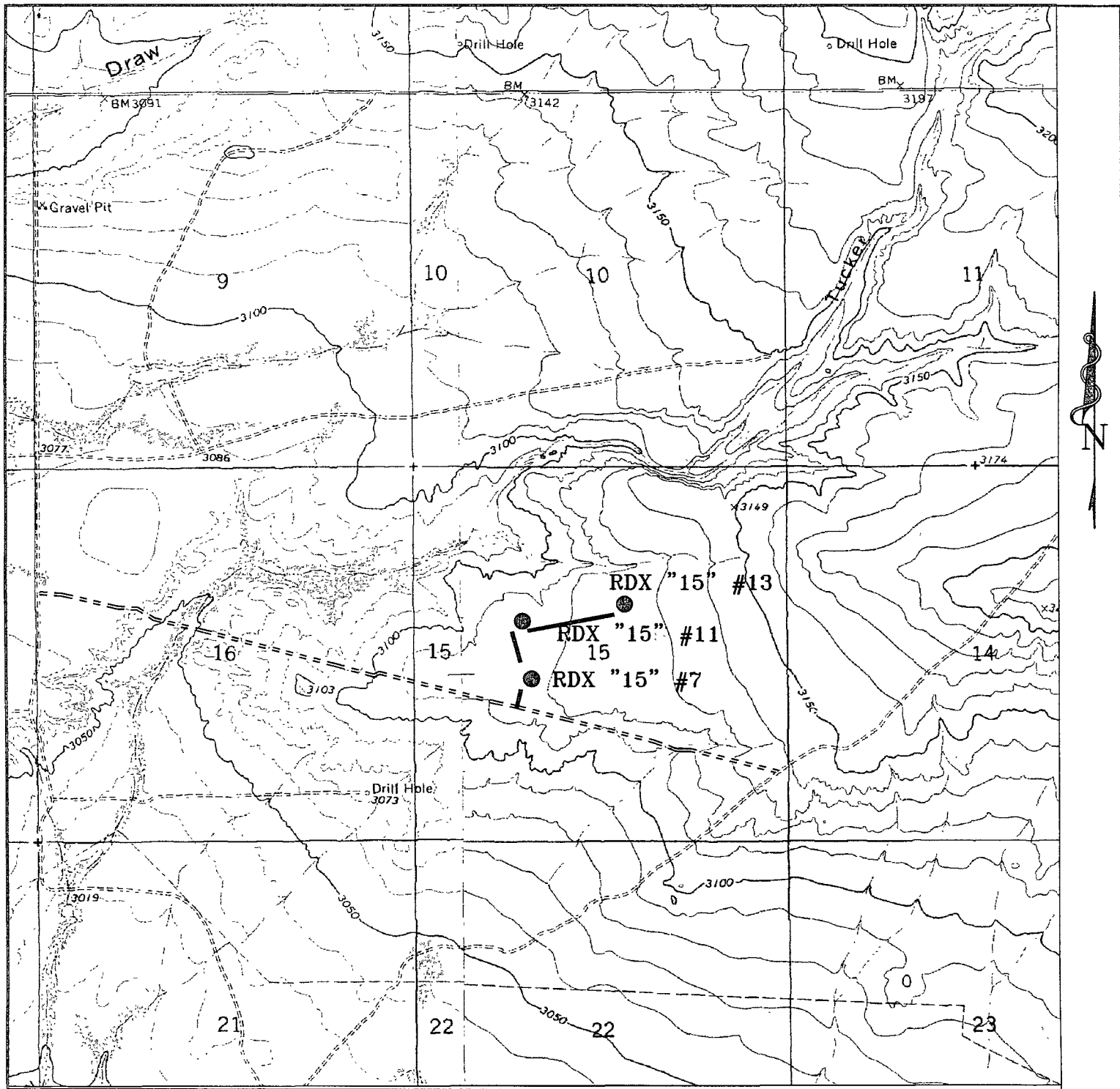
**RKI EXPLORATION & PRODUCTION**

REF: RDX "15" #13 / Well Pad Topo

THE RDX "15" #13 LOCATED 1950' FROM  
THE NORTH LINE AND 2310' FROM THE EAST LINE OF  
SECTION 15, TOWNSHIP 26 SOUTH, RANGE 30 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 11-03-2008

Sheet 1 of 1 Sheets



### RDX "15" #13

Located at 1950' FNL AND 2310' FEL  
Section 15, Township 26 South, Range 30 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

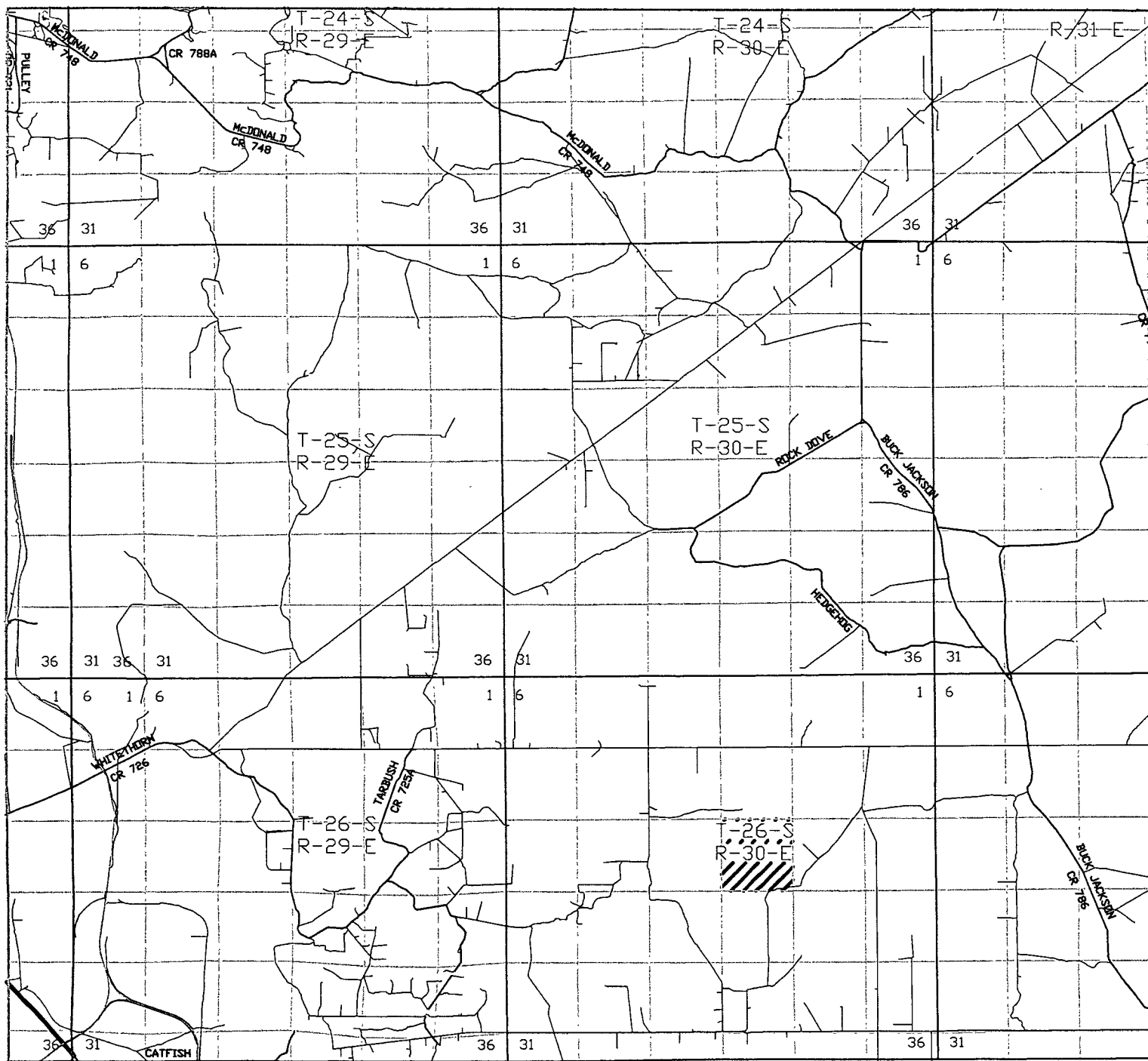
W.O. Number: 20743

Survey Date: 11-03-2008

Scale: 1" = 2000'

Date: 11-04-2008

RKI  
EXPLORATION &  
PRODUCTION



RDX "15" #13

Located at 1950' FNL AND 2310' FEL  
Section 15, 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  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

W.O. Number: 20743

Survey Date: 11-03-2008

Scale: 1" = 2000'

Date: 11-04-2008

*RKI*  
**EXPLORATION &  
PRODUCTION**

# APPLICATION TO DRILL

RKI EXPLORATION & PRODUCTION, LLC.  
RDX "15" #13  
UNIT "G" SECTION 15  
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: 1800' FNL & 2310' FEL SECTION 15 T26S-R30E EDDY CO. NM
2. ELEVATION ABOVE SEA LEVEL: 3129' 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: 7654'
6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:

Rustler Anhydrite	791'	Bell Canyon	3651'
Salado Salt	1176'	Cherry Canyon	4738'
Castile	1778'	Brushy Canyon	5803'
Lamar Lime	3405'	Bone Spring Lime	7504'
Base of Lime	3609'	TD	7654'

## 7. POSSIBLE MINERAL BEARING FORMATIONS:

Bell Canyon	Oil	Brushy Canyon	Oil
Cherry Canyon	Oil	Bone Spring	Oil

## 8. CASING PROGRAM:

HOLE SIZE	INTERVAL	OD OF CASING	WEIGHT	THREAD	COLLAR	GRADE	CONDITION
26"	0-40'	20"	NA	NA	NA	Conductor	New
17½"	0-816' <i>see log</i>	13 3/8"	54.5#	8-R	ST&C	J-55	New
11"	0-3430' <i>see log</i>	8 5/8"	32#	8-R	ST&C	J-55	New
7 7/8"	0-7654'	5½"	17#	8-R	LT&C	J-55	New

### Casing Design Factors;

Collapse 1.125 Burst 1.0 Body Yield 1.5

### Joint Strength:

8-R 1.8  
Buttress 1.6

APPLICATION TO DRILL

RKI EXPLORATION & PRODUCTION, LLC.

RDx "15" #13

UNIT "G"  
T26S-R30E

SECTION 15  
EDDY CO. NM

9. CASING CEMENTING & SETTING DEPTHS:

*see  
COA*

1. Drill 26" hole to 40'. Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
2. Drill 17½" hole to 816'. Run and set 816' of 13 3/8" 54.5# J-55 ST&C casing. Cement with 459 Sx. of 35/65 Class "C" POZ cement + 6% D-20, + 3#/Sx D-42, + 0.125#/Sx. D-130, + 3% S-1, Yield 1.95, tail in with 200 Sx. of Class "C" cement + 0.125#/Sx of D-130, + 2% S-1, Yield 1.34. Circulate cement to surface.
3. Drill 11" hole to 3430'. Run and set 3430' of 8 5/8" 32# J-55 ST&C casing. Cement with 558 Sx. of 35/65 Class "C" POZ cement + 6% D-20, + 2#/Sx. of D-42, + 0.125#/Sx. of D-130 + 1% S-1, Yield 1.97, tail in with 200 Sx. of Class "C" cement + 1% S-1, + 0.125#/Sx. of D-130, Yield 1.33, circulate cement to surface.
4. Drill 7 7/8" hole to 7654'. Run and set 7654' of 5½" 17# J-55 LT&C casing. Cement in two stages with DV Tool at 5543±'. Cement first stage with 227 Sx. of 35/65 Class "C" POZ cement + 5% D-44, + 6% D-20, + 0.125#?Sx. D-130, + 1% S-1, Yield 2.04, tail in with 200 Sx. of Class "C" cement + 0.125#/Sx. of D-130, + 0.2% D-13, Yield 1.32, cement 2nd stage with 110 Sx. of 35/65 Class "C" POZ cement + 5% D-44, + 0.2% D-167, + 0.1% D-13, + 0.125#/Sx. of D-130, Yield 1.93, tail in with 200 Sx. of Class "C" cement + 0.125#/Sx. of D-130, + 0.2% D-13, Yield 1.4, estimated top of cement 3230' from the surface.

11. PRESSURE CONTROL EQUIPMENT:

Exhibit "E" shows a 900 Series 3000 PSI working pressure B. O. P. consisting of an annular bag type preventor with middle blind rams and bottom pipe rams. The B.O.P. will be nipped up on the 13 3/8" casing and tested to API specifications. The B.O.P. will be operated at least once in each 24 hour period and the blind rams will be operated when the drill pipe is out of the hole on trips. Full opening stabbing valve and upper kelly cock will be available at all times in case of need. Exhibit "E-1" shows a hydraulically operated closing unit and a 3" 5000 PSI working pressure choke manifold with dual adjustable chokes. No abnormal pressures or abnormal temperatures are expected during the drilling of this well.



## APPLICATION TO DRILL

RKI EXPLORATION &amp; PRODUCTION, LLC.

RDX "15" #13

UNIT "G"

SECTION 15

T26S-R30E

EDDY CO. NM

11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD Wt.	VISC	FLUID LOSS	TYPE MUD
40-816' <i>see cda</i>	8.4-8.9	29-38	NC	Fresh water spud mud add paper as needed in order to control seepage, use Soda Ash to maintain pH at 9.
816-3430'	10.0-10.2	28-32	NC	Brine water add paper to control seepage, use high viscosity sweeps to clean hole. Use lime to maintain pH at $\pm 10$ .
3430-5500'	9.0-9.3	28-32	NC	Cat. brine continue to use paper to control seepage, use high viscosity sweeps to clean hole maintain pH at $\pm 10$ with Caustic Soda.
5500-TD	9.0-9.4	30-34	12cc or less	Same as above but to control use White Starch/impermex to control water loss.

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run open hole logs, casing or other operations the mud system may have to be altered to meet these needs.

APPLICATION TO DRILL

RKI EXPLORATION & PRODUCTION, LLC.

RDX "15" #13

UNIT "G"  
T26S-R30E

SECTION 15  
EDDY CO. NM

12. LOGGING, CORING, AND TESTING PROGRAM:

- A. Open hole logs: Dual Laterolog, SNP, LDT, Density, Gamma Ray, Caliper from TD Back to the Intermediate casing shoe.
- B. Cased hole logs: Gamma Ray, Neutron from intermediate casing shoe back to surface.
- C. Rig up mud logger on the hole at approximately 2800'.
- D. No cores or DST's are planned at this time.

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 4200 PSI, and Estimated BHT 160°.

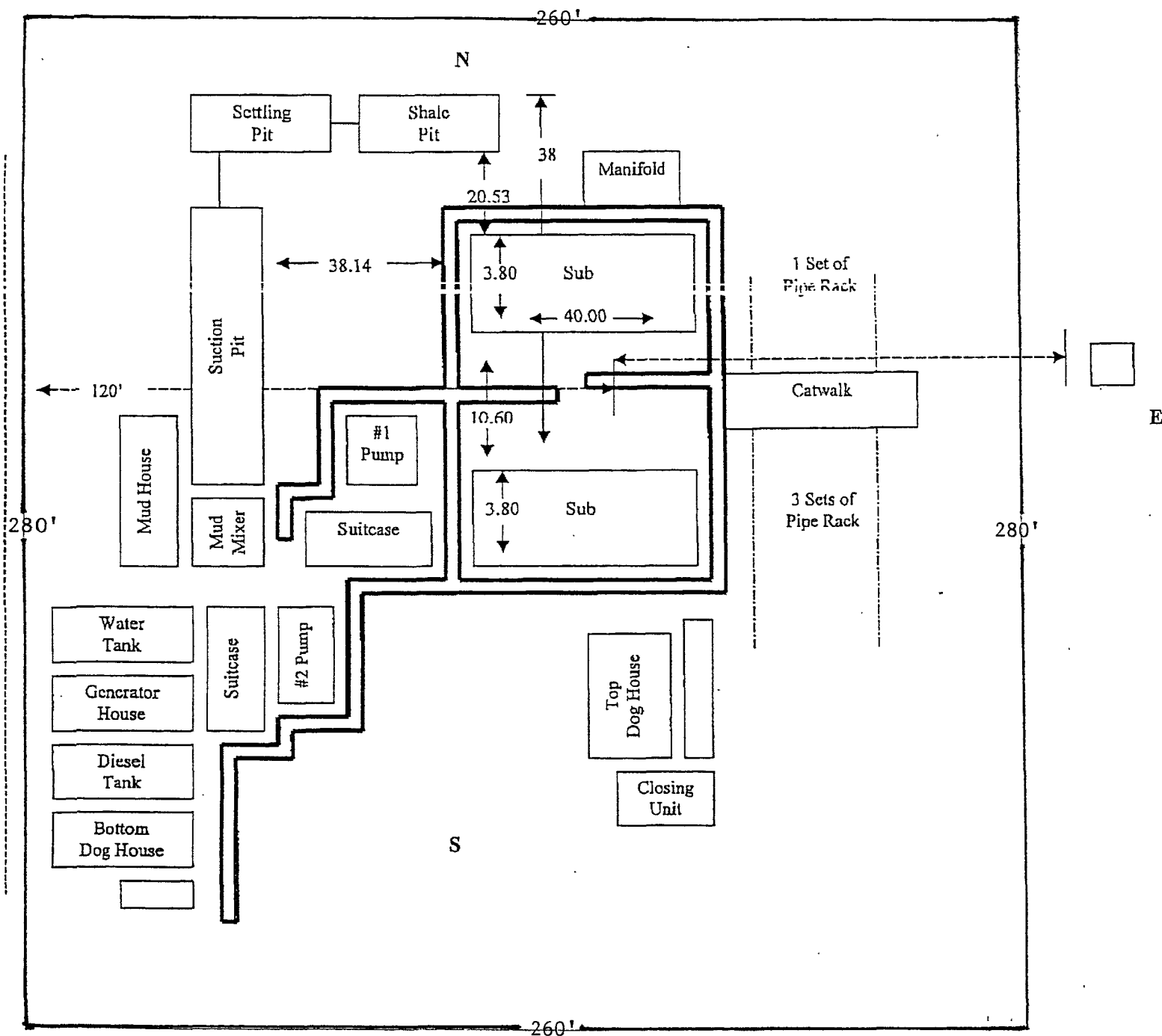
14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

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 28 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 Bone Spring formation will be perforated and stimulated in order to establish production. The well will be swab tested and potentialized as an oil well.

# Plat for Closed Loop Sys



## EXHIBIT "D" RIG LAY OUR PLAT

RKI EXPLORATION & PRODUCTION, LLC.

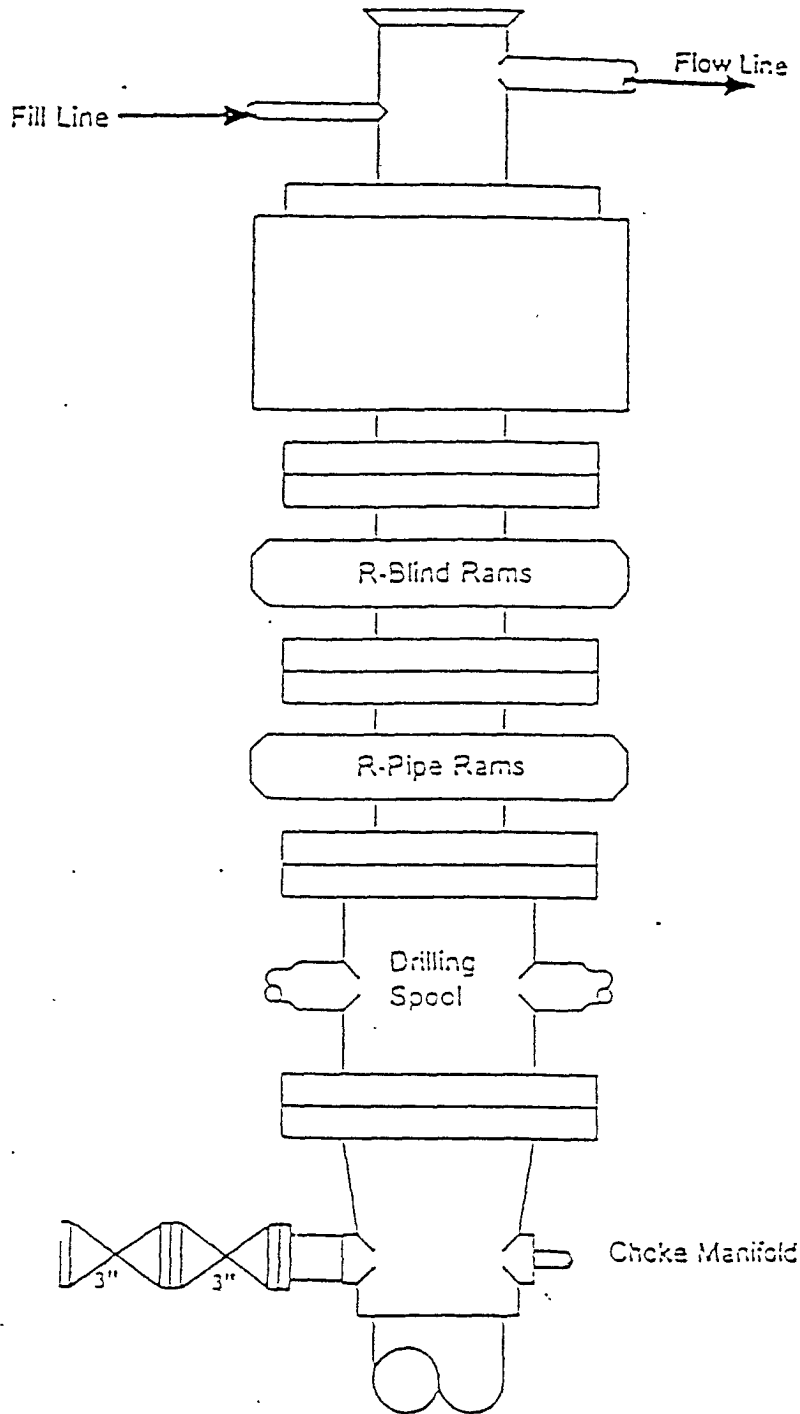
RDx "15" #13

UNIT "G"

T26S-R30E

SECTION 15

EDDY CO. NM



Type 900 Series  
3000 psi WP

EXHIBIT "E"  
SKETCH OF B.O.P. TO BE USED ON

RKI EXPLORATION & PRODUCTION, LLC.

RDX "15" #13

UNIT "G"  
T26S-R30E

SECTION 15  
EDDY CO. NM

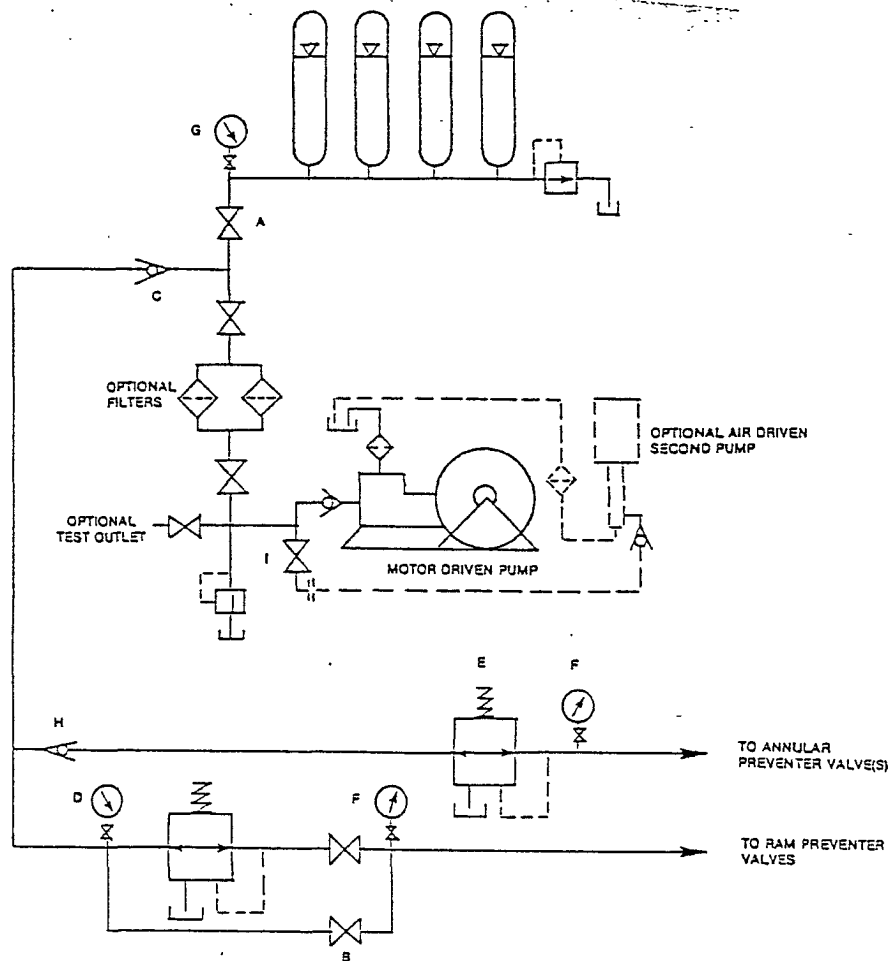


FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.

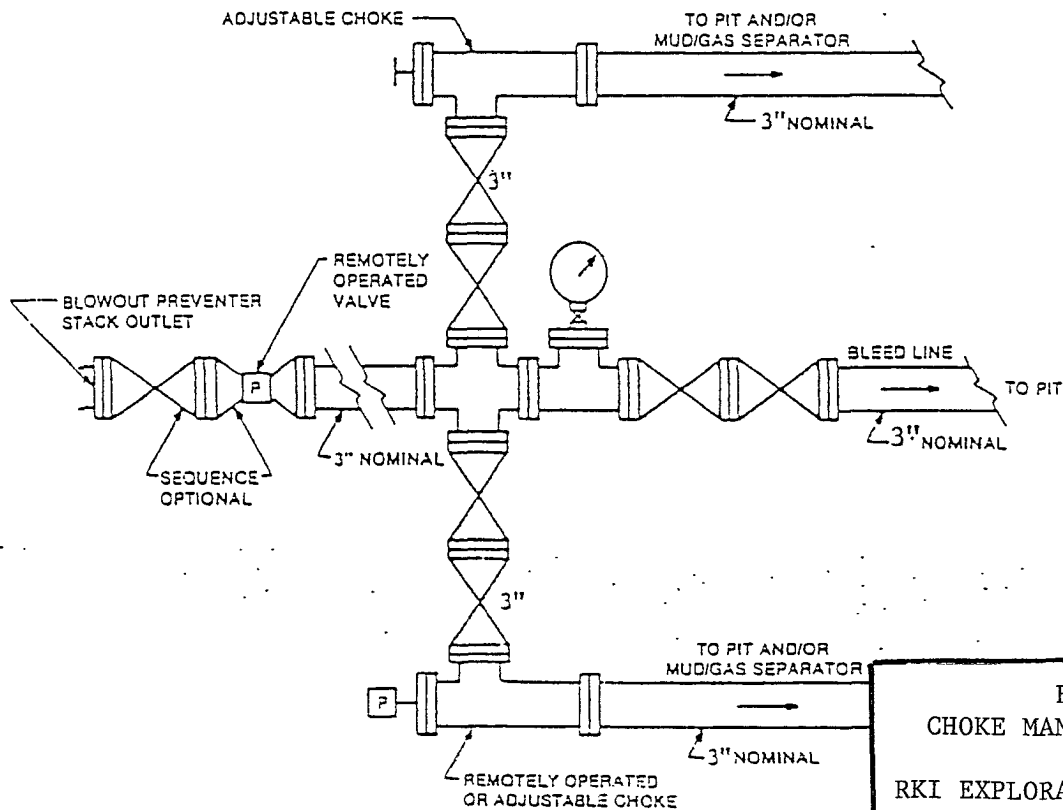


FIGURE K4-2. Typical choke manifold assembly for 5M rated working pressure service — surface installation.

EXHIBIT "E-1"  
CHOKE MANIFOLD & CLOSING UNIT

RKI EXPLORATION & PRODUCTION, LLC.  
RDX "15" #13

UNIT "G"  
T26S-R30E

SECTION 15  
EDDY CO. NM

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

This well and its anticipated facility are not expected to have Hydrogen Sulfide releases. However, there may be Hydrogen Sulfide production in the nearby area. There are no private Residences in the area but a contingency plan has been orchestrated. RKI Exploration and Production will have a Company Representative available to rig personnel through out drilling or production operations. If hydrogen sulfide is detected or suspected, monitoring equipment will be acquired for monitoring and/or testing.

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

**TABLE OF CONTENTS**

<b>COVER PAGE AND REASONING</b>	<b>Page 1</b>
<b>GENERAL EMERGENCY PLAN</b>	<b>Page 3</b>
<b>EMERGENCY PROCEDURE FOR UNCONTROLLED RELEASES OF H<sub>2</sub>S</b>	<b>Page 3-4</b>
<b>EMERGENCY NUMBERS</b>	<b>Page 4-5</b>
<b>PRODUCTION OF THE GENERAL RADIUS OF EXPOSURE RADIUS OF EXPOSURE (ROE)</b>	<b>Page 6</b>
<b>PUBLIC EVACUATION PLAN</b>	<b>Page 6-7</b>
<b>PROCEDURE FOR IGNITING AN UNCONTROLLABLE:</b>	
<b>PROCEDURE FOR IGNITION</b>	<b>Page 7</b>
<b>REQUIRED EMERGENCY EQUIPMENT</b>	<b>Page 8</b>
<b>USING SELF CONTAINED BREATHING AIR EQUIPMENT (SCBA)</b>	<b>Page 9</b>
<b>RESCUE &amp; FIRST AID FOR VICTIMS OF HYDROGEN SULFIDE (H<sub>2</sub>S) POISONING</b>	<b>Page 9-10</b>
<b>H<sub>2</sub>S TOXIC EFFECTS</b>	<b>Page 11</b>
<b>H<sub>2</sub>S PHYSICAL EFFECTS</b>	<b>Page 11</b>

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

**General H2S Emergency Actions:**

1. All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (Self Contained Breathing Apparatus).
3. Always use the "buddy system"
4. Isolate the well/problem if possible
5. Account for all personnel
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the Company personnel as soon as possible if not at the location (use the enclosed call list as instructed)

**At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of the emergency response agencies and nearby residents.**

**EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S**

1. All personnel will don the self contained breathing apparatus
2. Remove all personnel to the "safe area" (always use the buddy system)
3. Contact company personnel if not on location]
4. Set in motion the steps to protect and or remove the general public to and upwind "safe area" Maintain strict security & safety procedures while dealing with the source.
5. No entry to any unauthorized personnel
6. Notify the appropriate agencies:     City Police – City Street(s)  
   State Police – State Rd.  
   County Sheriff – County Rd.
7. Call the NMOCD



## **RKI Exploration & Production LLC**

### **Hydrogen Sulfide Contingency Plan For Drilling/Workover/Facility**

If at this time the supervising person determines the release of H<sub>2</sub>S cannot be contained to the site location and the general public is in harms way he will take the necessary steps to protect the workers and the public.

EMERGENCY CALL LIST: (Start and continue until ONE of these people has been contacted)

	OFFICE	MOBILE	HOME
RKI E&P	1-800-667-6958		
Gene Simer	575-885-1313	575-706-3225	575-885-6302
Pat McCollom	405-996-5748	405-833-0332	405-277-3699
Tim Haddican	405-949-2329	405-823-2872	405-348-5515

#### EMERGENCY RESPONSE NUMBERS:

State Police	Eddy County		575 -748-9718
State Police	Lea County		575-392-5588
Sheriff	Eddy County		575-746-2701
Sheriff	Lea County		
Emergency Medical Service (Ambulance)	Eddy County		911 or 505-746-2701
	Lea County	Eunice	911 or 505-394-3258
Emergency Response	Eddy County SERC		575--476-9620
	Lea County		
Artesia Police Dept			575--746-5001
Artesia Fire Dept			575--746-5001
Carlsbad Police Dept			575-885-2111
Carlsbad Fire Dept			575--885-3125

**EMERGENCY CALL LIST (CONT.)**

Loco Hills Police Dept		575- 677-2349
Jal Police Dept		575--395-2501
Jal Fire Dept		575--395-2221
Jal Ambulance		575--395-2221
Eunice Police Dept		575- 394-0112
Eunice Fire Dept		575--394-3258
Eunice Ambulance		575--394-3258
Hobbs Police Dept		575- 397-3365
Hobbs Fire Dept		575--397-9308
NMOCD	District 1 (Lea, Roosevelt, Curry)	575- 393-6161
	District 2 (Eddy, Chavez)	575--748-1283
Lea County Information		575--393-8203
Callaway Safety	Eddy/Lea Counties	575--392-2973
BJ Services	Artesia	575--746-3140
	Hobbs	575--392-5556
Halliburton	Artesia	1-800-523-2482
	Hobbs	1-800-523-2482
Wild Well Control	Midland	432-550-6202
	Mobile	432-553-1166

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

**PROTECTION OF THE GENERAL PUBLIC (ROE)**

- 100 ppm at any public area (any place not associated with this site)
- 500 ppm at any public road (any road with the general public may travel)
- 100 ppm radius of ¼ mile in New Mexico will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H<sub>2</sub>S could be present in concentrations greater than 100 ppm in the gas mixture

**CALCULATIONS FOR THE 100 PPM (ROE) "PASQUILL-GIFFORD EQUATION"**

**X = [(1.589) (mole fraction) (Q-volume in std cu ft)] to the power of (0.6258)**

**CALCULATION FOR THE 500 PPM ROE:**

**X = [(0.4546) (mole fraction) (Q – volume in std cu ft)] to the power of (0.6258)**

**Example:**

If a well/facility has been determined to have 150 / 500 ppm H<sub>2</sub>S in the gas mixture and the well/facility is producing at a gas rate of 100 MCFPD then:

**150 ppm X = [(1.589) (.00015) (100,000 cfd)] to the power of (.6258)**  
**X = 7 ft.**

**500 ppm X = [(0.4546) (.0005) (100,000 cfd)] to the power of (.6258)**  
**X = 3.3 ft.**

**(These calculations will be forwarded to the appropriate District NMOC office when Applicable)**

**PUBLIC EVACUATION PLAN:**

- Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
- A trained person in H<sub>2</sub>S safety shall monitor with detection equipment the H<sub>2</sub>S concentration, wind and area exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. (All monitoring equipment shall be UL approved, for use in class 1 groups A, B, C & D, Division 1, hazardous locations. All monitor will have a minimum capability of measuring H<sub>2</sub>S, oxygen and flammable values.)

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

- Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
- The company supervising personnel shall stay in communication with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

**PROCEDURE FOR IGNITING AN UNCONTROLABLE CONDITION:**

1. Human life and/or property are in danger.
2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

**INSTRUCTION FOR IGNITION:**

1. Two people are required. They must be equipped with positive pressure, self contained breathing apparatus and a "D" ring style full body, OSHA approved safety harness. Non flammable rope will be attached.
2. One of the people will be qualified safety person who will test the atmosphere for H<sub>2</sub>S, oxygen and LFL. The other person will be the company supervisor; he is responsible for igniting the well.
3. Ignite up wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25 mm flare gun shall be used, with a  $\pm$  500 ft. range to ignite the gas.
4. Prior to ignition, make a final check with combustible gases.
5. Following ignition, continue with the emergency actions & procedures as before.

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

**REQUIRED EMERGENCY EQUIPMENT:**

**1. Breathing apparatus:**

- Rescue packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity
- Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

**2. Signage & Flagging:**

- One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
- A colored conditioned flag will be on display, reflecting the condition at the site at the time.

**3. Briefing Area:**

- Two perpendicular areas will be designated by signs and readily accessible.

**4. Wind Socks:**

- Two windsocks will be placed in strategic locations, visible from all angles.

**5. H2S Detectors & Alarms:**

- The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible at 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer)
  - Rig Floor
  - Bell Nipple
  - End of flow line or where well bore fluid are being discharged.

**6. Auxiliary Rescue Equipment:**

- Stretcher
- Two OSHA full body harness
- 100 ft. 5/8 inch OSHA approved rope.
- 1 – 20# class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location.

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

**USING SELF CONTAINED BREATHING AIR EQUIPMENT (SCBA):**

- (SCBA) SHOULD BE WORN WHEN ANY OF THE FOLLOWING ARE PERFORMED:
  - Working near the top or on the top of a tank
  - Disconnecting any line where H<sub>2</sub>S can reasonably be expected
  - Sampling air in the area to determine if toxic concentration of H<sub>2</sub>S can exist.
  - Working in areas where over 10 ppm on H<sub>2</sub>S has been detected.
  - At any time there is a doubt as the level of H<sub>2</sub>S in the area.
- All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
- Facial hair and standard eyeglasses are not allowed with SCBA.
- Contact lenses are never allowed with SCBA.
- Air quality shall be continuously checked during the entire operation.
- After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
- All SCBA shall be inspected monthly.

**RESCUE AND FIRST AID FOR VICTIMS OF HYDROGEN SULFIDE (H<sub>2</sub>S) POISONING:**

- Do not panic
- Remain calm and think
- Get on the breathing apparatus

**RKI Exploration & Production**  
**Hydrogen Sulfide Contingency Plan**  
**For Drilling/Workover/Facility**

- Remove the victim to the safe breathing area as quickly as possible. Up wind and uphill from source or cross wind to achieve upwind.
- Notify emergency response personnel.
- Provide artificial respiration and or CPR, as necessary.
- Remove all contaminated clothing to avoid further exposure.
- A minimum of two personnel on location shall be trained in CPR and First Aid.

## RKI Exploration & Production

### Hydrogen Sulfide Contingency Plan For Drilling/Workover/Facility

H<sub>2</sub>S is extremely toxic. The acceptable ceiling for eight hours of exposure is 10 ppm, which is .001% by volume. H<sub>2</sub>S is approximately 20% heavier than air (Sp. Gr = 1.19) (Air = 1) and colorless. It forms an explosive mixture with air between 4.3% and 46%. By volume hydrogen sulfide is almost as toxic as hydrogen cyanide and is 5-6 times more toxic than carbon monoxide.

COMMON NAME	CHEMICAL ABBREV.	SPECIFIC GRVTY.	THRESHOLD LIMITS	HAZARDOUS LIMITS	LETHAL CONCENTRATIONS
Hydrogen Sulfide	H <sub>2</sub> S	1.19	10 ppm 15 ppm	100 ppm/hr	600ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21	2 ppm	N/A	1000 ppm
Chlorine	Cl <sub>2</sub>	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO <sub>2</sub>	1.52	5000 ppm	5%	10%
Methane	CH <sub>4</sub>	0.55	90,000	Combustible @ 5%	N/A

**Threshold Limit:** Concentrations at which it is believed that all workers may be repeatedly exposed, day after day without adverse effects.

**Hazardous Limit:** Concentrations that may cause death.

**Concentrations:** Concentrations that will cause death with short term exposure.

**Threshold Limit:** NIOSH guide to chemical hazards  
(10 ppm)

#### PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

<u>CONCENTRATION</u>	<u>PHYSICAL EFFECTS</u>
.001% 10 ppm	Obvious and unpleasant odor. Safe for 8 hr. exposure
.005% 50 ppm	Can cause some flu like symptoms and can cause pneumonia.
.01% 100 ppm	Kills the sense of smell in 3-15 minutes. May irritate the eyes and throat.
.02% 200 ppm	Kills the sense of smell rapidly. Severely irritates the eyes and throat. Severe flu-like symptoms after 4 or more hours. May cause lung damage and or death.
.06% 600 ppm	Loss of consciousness quickly, death will result if not rescued promptly.



## SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "15" #13

UNIT "G"  
T26S-R30E

SECTION 15  
EDDY CO. NM

1. EXISTING ROADS: Area maps, Exhibit "B" is a reproduction of a County General Hi-way Map. Exhibit "C" is a reproduction of a USGS topographic map showing existing roads and proposed new roads. All existing roads will be maintained in a condition equal to or better than current conditions. All new roads will be constructed according to Bureau of Land Management specifications.
  - A. Exhibit "A" shows the location as staked.
  - B. Directions to location: From Loving New Mexico take U. S. Hi-way 285 South go 17 miles to CR-725, turn Left (East) go 4.2 miles to pipeline road, follow pipeline road East for 9.1 miles, turn Right (South) go 1 mile bear Right (Southwest) go 1.4 miles, turn Right on lease road go .7 miles, turn Right (North) go 300±' to well location #7, continue 650±' to well location # 11, turn Right (East) go .3 miles to well location #13.
  - C. Exhibit "C" shows a topographic map indication existing roads, proposed roads and proposed flowlines to tank battery.
2. PLANNED ACCESS ROADS: Approximately .5 miles of new roads will be required depending on which wells are drilled first.
  - A. Access roads will be crowned and ditched to a 12' wide travel surface within a 40' Right-of-Way.
  - B. Gradient of all roads will be less than 5.00%
  - C. Turnouts will be constructed where necessary.
  - D. If necessary the new roads will be surfaced with a minimum of 4" of caliche. This material will be obtained from the nearest local source.
  - E. The centerline of the new road will be flagged. The earthwork will be done as required by the field conditions.
  - F. Culverts will not be used unless they are necessary, the roads will be constructed to utilize low water crossings as dictated by the topography.
3. Exhibit "A-1" shows existing well in the area and those within a 1 mile radius.
  - A. Water wells - None within 2 miles of location
  - B. Disposal wells - None known
  - C. Drilling wells - None known
  - D. Abandoned wells - As shown on Exhibit "A-1"
  - E. Producing wells - As shown on Exhibit "A-1"

## SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "15" #13

UNIT "G"  
T26S-R30E

SECTION 15  
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. Where a closed loop mud system is used to drill a well the drilling fluid that remains after the drilling and casing is run or the well is Plugged and abandoned will be removed from the location and in some cases may be used on another well or transported to a State approved disposal site. The drilling cuttings that result from drilling the well will likewise be transported to a State approved disposal site.
- D. All water produced while completing this well and completion fluids will be treated in the same procedure as the drilling fluids.
- E. Any remaining salts or mud additive that was not used will be removed by the supplier, this includes all broken sacks and containers.

### 8. ANCILLARY FACILITIES:

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

SURFACE USE PLAN

RKI EXPLORATION & PRODUCTION, LLC.

RDX "15" #13

UNIT "G"

SECTION 15

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 21 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 "15" #13

UNIT "G"

SECTION 15

T26S-R30E

EDDY CO. NM

11. ADDITIONAL INFORMATION:

- A. This project area is located along a broad ridgeline that running in an East/West trend. The surface consists of sandy loams, mixed with alluvial gravel deposits. Drainage is in a generally Southwest direction toward the Pecos River. Vegetation consists of Broom weed, Prickley Pear, Mesquite, Creosote and various native grasses
- B. The surface and the 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 and for the production of oil & gas.
- C. An archaeological survey has been done or in the process of being done and filed with The Bureau of Land Management in the Carlsbad Field Office.
- D. There are no dwellings located within 2 miles of location. The nearest water well is approximately 2 miles Northwest of location.

## CERTIFICATION

I HEREBY CERTIFY THAT I OR PERSONS UNDER MY 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., IT'S ..CONTRACTORS OR ITS SUB-CONTRACTORS 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 THE FILING OF A FALSE STATEMENT.

### OPERATORS REPRESENTATIVES

#### BEFORE CONSTRUCTION

JOE T. JANICA

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

#### DURING AND AFTER CONSTRUCTION

GENE SIMER

RKI EXPLORATION & PRODUCTION, LLC.  
P. O. 370  
309 SOUTH HALAGUENO STREET  
CARLSBAD, NEW MEXICO 88221-0370  
OFFICE PHONE 575-885-1313  
CELL 575-706-3225

NAME; JOE JANICA

TITLE; PERMIT ENGINEER

DATE; 10/07/08

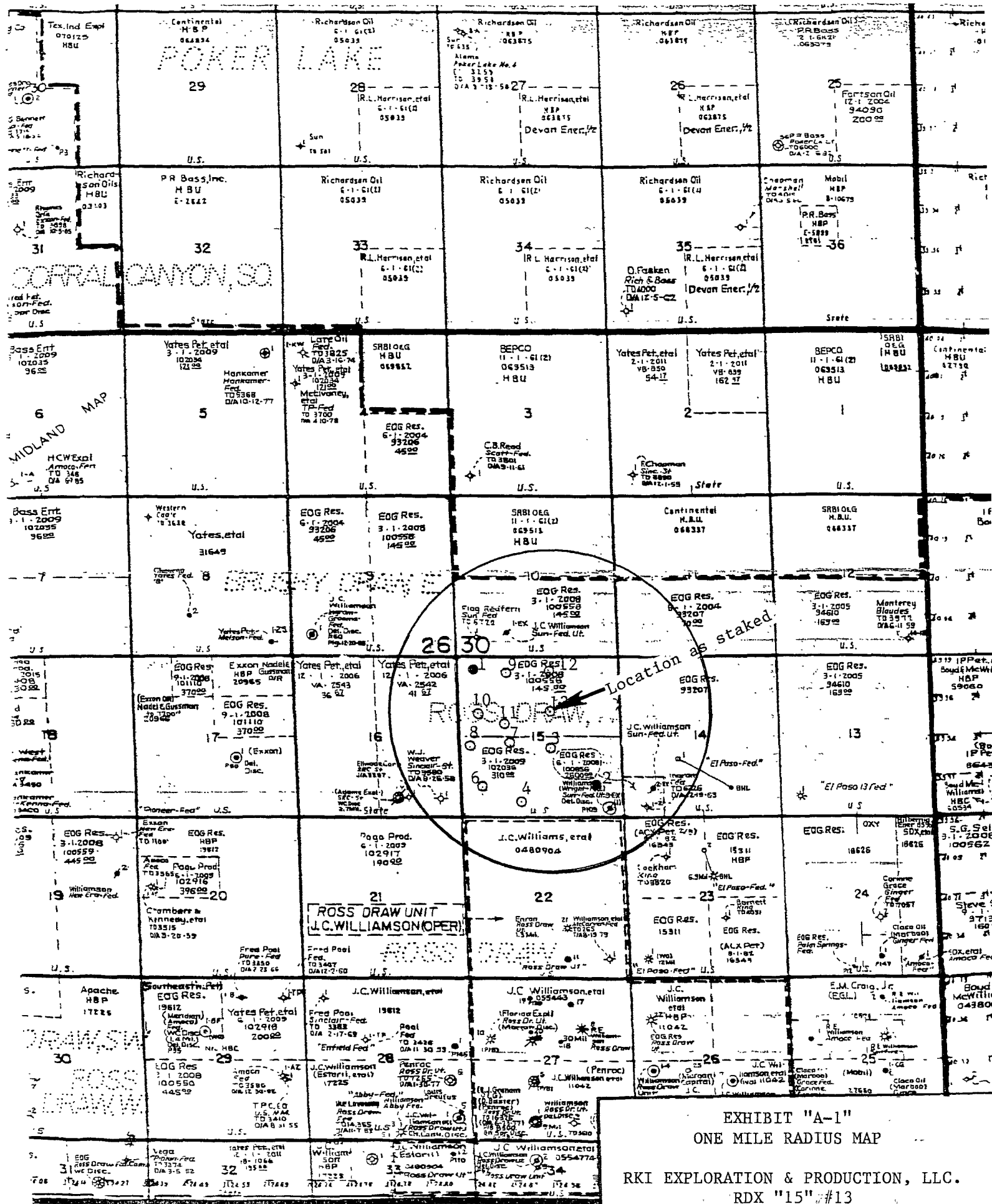


EXHIBIT "A-1"  
ONE MILE RADIUS MAP  
RKI EXPLORATION & PRODUCTION, LLC.  
RDY "15"/#13  
UNIT "G"  
T26S-R30E  
SECTION 15  
EDDY CO. NM

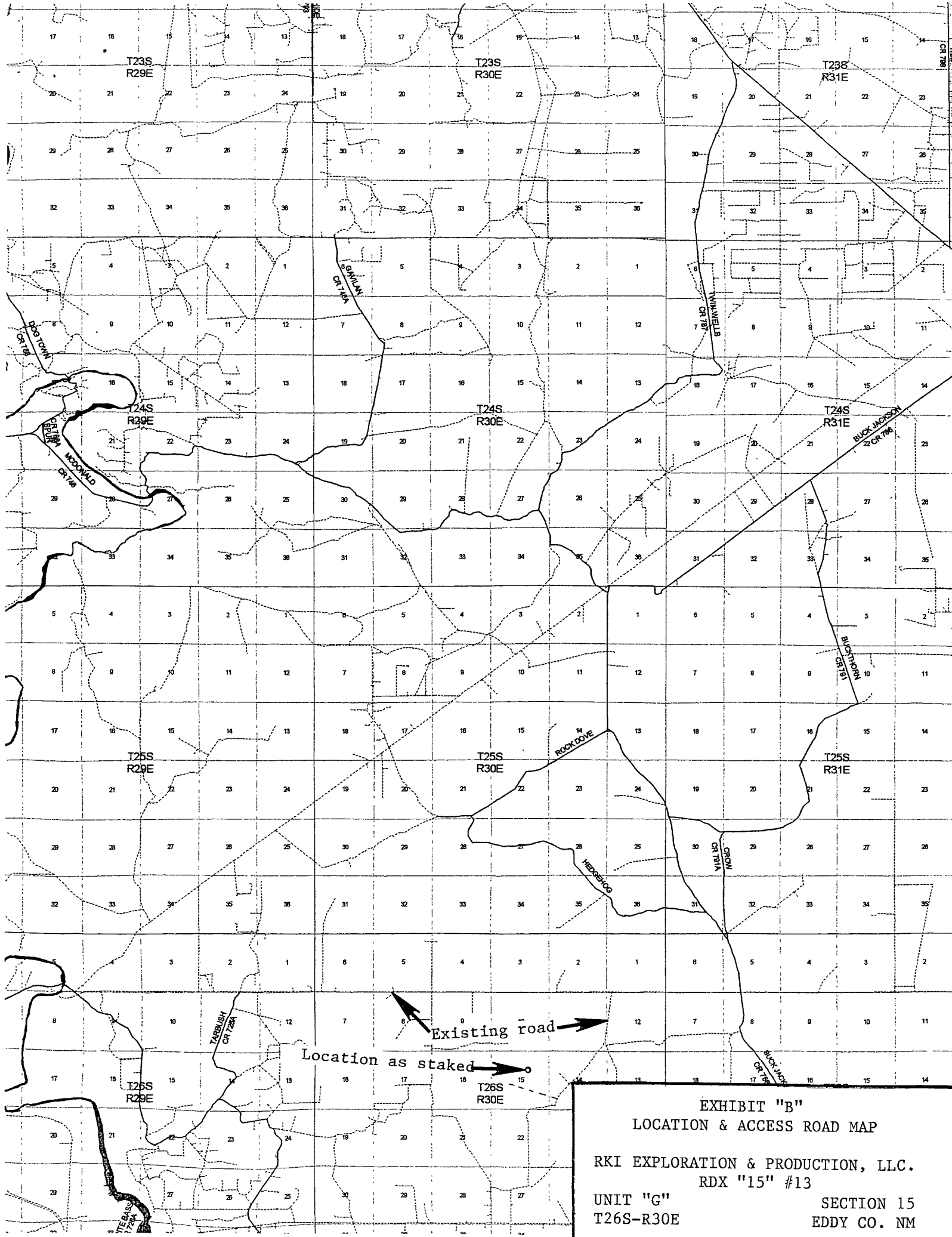
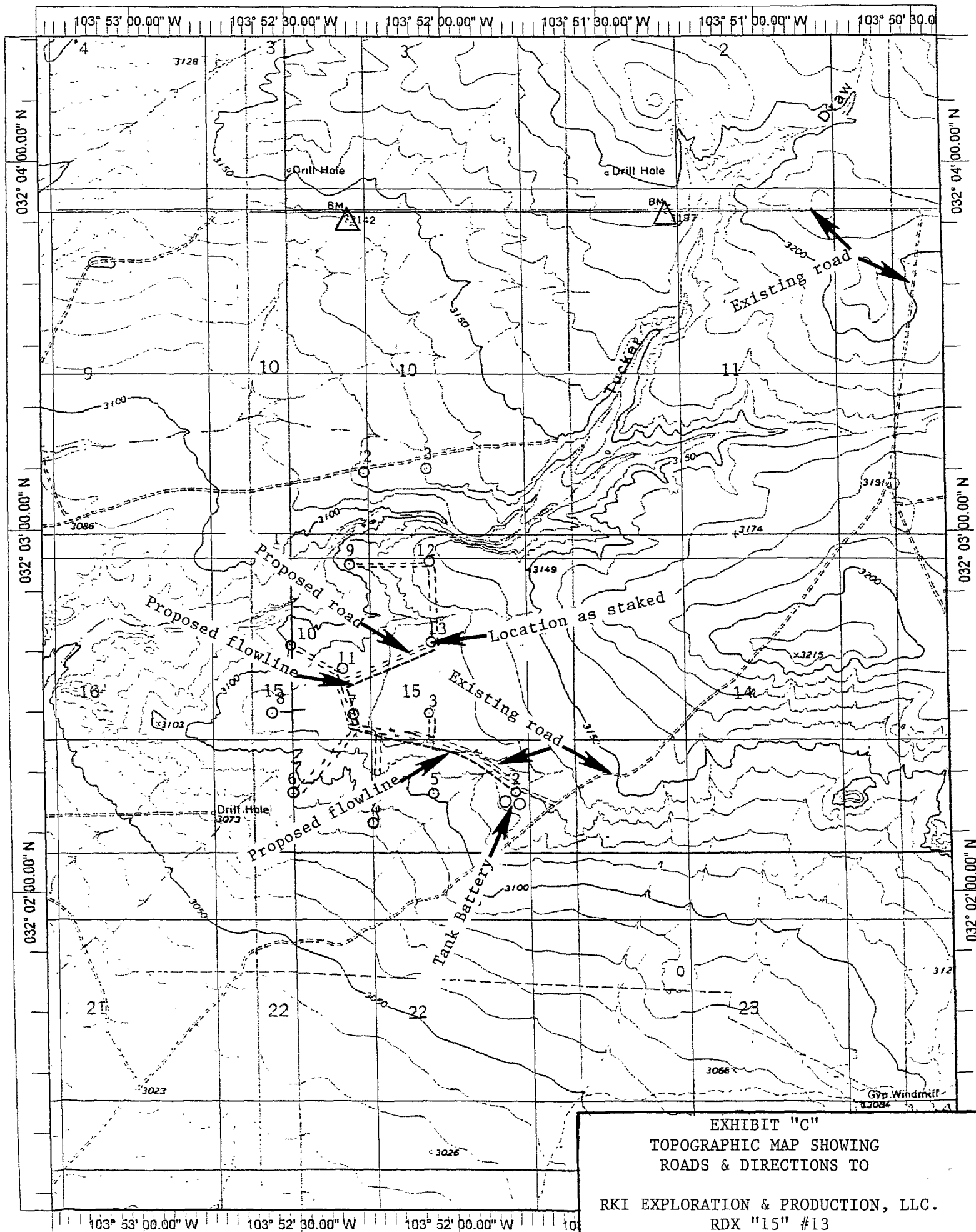


EXHIBIT "B"  
LOCATION & ACCESS ROAD MAP  
RKI EXPLORATION & PRODUCTION, LLC.  
RDX "15" #13  
UNIT "G"  
T26S-R30E  
SECTION 15  
EDDY CO. NM



Datum: NAD27

Copyright (C) 1999, Maptech, Inc.

EXHIBIT "C"  
 TOPOGRAPHIC MAP SHOWING  
 ROADS & DIRECTIONS TO  
 RKI EXPLORATION & PRODUCTION, LLC.  
 RDX "15" #13  
 UNIT "G"  
 T26S-R30E  
 SECTION 15  
 EDDY CO. NM



## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	RKI Exploration & Production LLC
LEASE NO.:	NM100558
WELL NAME & NO.:	RDX 15 No 13
SURFACE HOLE FOOTAGE:	1950' FNL & 2310' FEL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 15, 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**
  - Phantom Banks Heronries
  - Berming
- ☐ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **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)**

Stipulations/Condition of Approval for Phantom Banks Heronries: Surface disturbance will not be allowed within up to 200 meters of active heronries or by delaying activity for up to 120 days, or a combination of both. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

The well pad and any collection facilities that are needed will be bermed to contain any spills that may occur.

## **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) 234-5972 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 (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. 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.

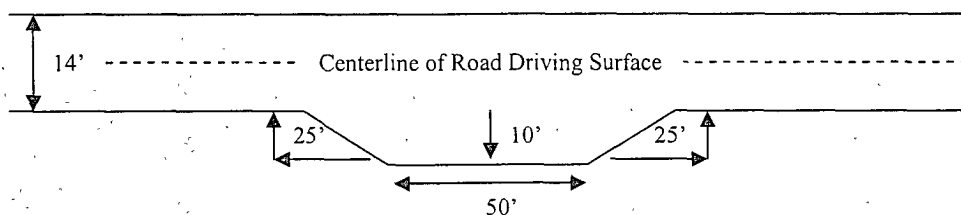
### **Ditching**

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:

**Standard Turnout – Plan View**

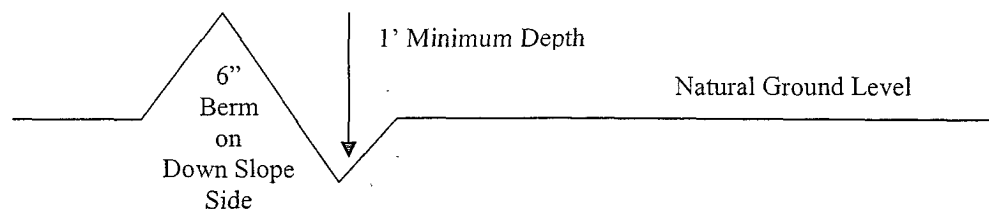


### **Drainage**

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:

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

#### **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**

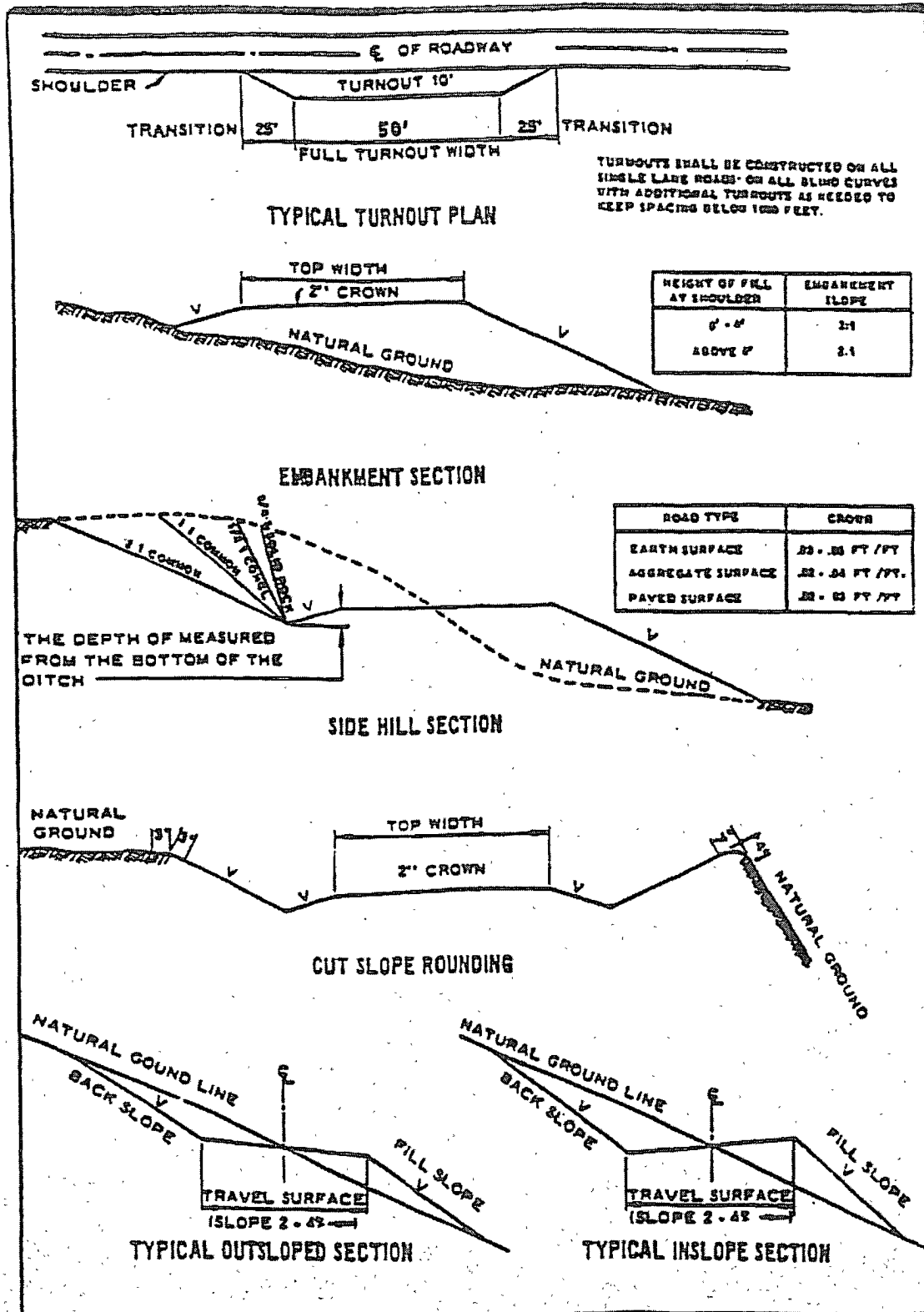
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 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.
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

**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 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. 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.**

**Medium cave/karst.**

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

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

**If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.**

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

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Casing to be set into the Lamar Limestone or Fletcher Anhydrite at approximately 3430'. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst concerns.**

**Formation below the 8-5/8" 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 5-1/2 inch production casing is:
  - a. First stage to DV tool, cement shall:
    - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.
  - b. Second stage above DV tool, cement shall:
    - ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
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**

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.

#### **D. DRILL STEM TEST**

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

**WWI 102408**

## **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

### **B. PIPELINES**

#### **STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES**

**A copy of the APD and attachments, including stipulations, 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 activity of 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. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, 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, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the 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 the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. 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.

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. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. 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. Signs will be maintained in a legible condition for the life of the pipeline.

14. 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. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (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 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.

## **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 3, for Shallow 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:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass ( <i>Setaria magrostachya</i> )	1.0
Green Spangletop ( <i>Leptochloa dubia</i> )	2.0
Side oats 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.