

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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

5. Lease Serial No.
NMNM20965

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
RDX FEDERAL 17 16

9. API Well No.
30-015-41089-00-X1

10. Field and Pool, or Exploratory
BRUSHY DRAW

11. County or Parish, and State
EDDY COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
RKI EXPLORATION & PROD LLC
Contact: HEATHER BREHM
E-Mail: hbrehm@rkixp.com

3a. Address
210 PARK AVE SUITE 900
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)
Ph: 405-996-5769
Fx: 405-996-5772

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 17 T26S R30E NWNW 330FNL 460FWL

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
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original APD
	<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.)

RKI RESPECTFULLY REQUESTS TO MAKE THE FOLLOWING CHANGES TO THE RDX FEDERAL 17-16:
CHANGE THE VERTICAL DELAWARE WELL TO A HORIZONTAL WOLFCAMP WELL.
CHANGE THE SHL TO 330 FNL, 600 FWL, LAT: 32.025611N, LON: 103.543630W.
THE REVISED C-102 PLAT, GEO PROG, AND DRILLING PLAN HAVE BEEN ATTACHED.
THIS WELL IS SET TO SPUD IN EARLY JAN 2015.

NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 09 2015

RECEIVED
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APD 1/14/2015
ACCEPTED FOR RECORD
Pool Request P.K. 1/20/15

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #272139 verified by the BLM Well Information System
For RKI EXPLORATION & PROD LLC, sent to the Carlsbad
Committed to AFMSS for processing by CHRISTOPHER WALLS on 01/05/2015 (15CRW0039SE)

Name (Printed/Typed) HEATHER BREHM Title REGULATORY ANALYST

Signature (Electronic Submission) Date 10/20/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

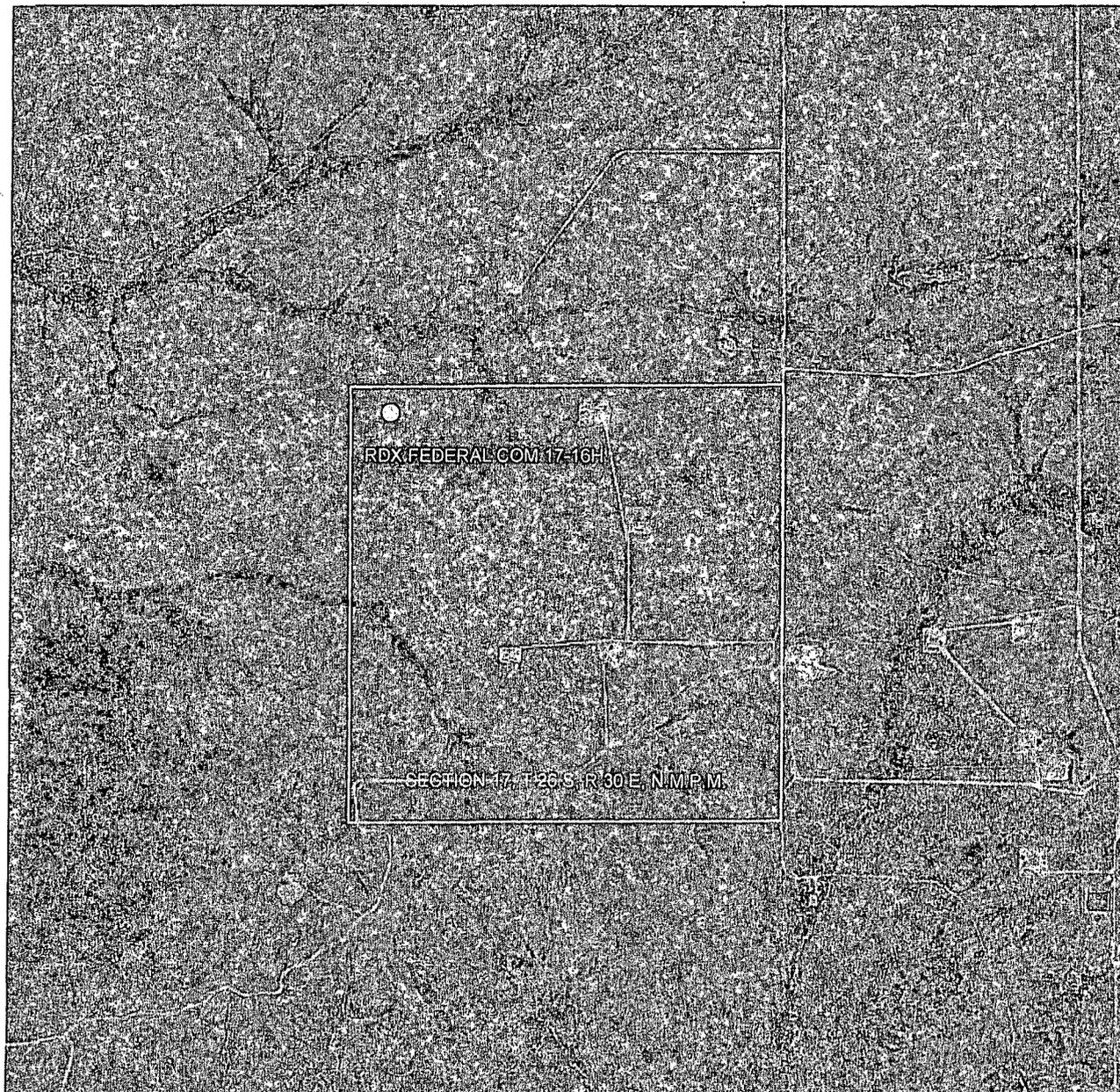
Approved By GEORGE MACDONELL Title ASSOCIATE FIELD MANAGER Date 01/06/2015

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.

Office Carlsbad

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.

AERIAL MAP



0 1000 2000 4000

GRAPHIC SCALE 1" = 2000'

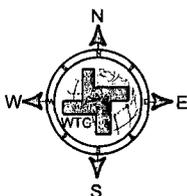
SECTION 17, T 26 S, R 30 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 330' FNL & 600' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-16H



DRIVING DIRECTIONS:

Beginning at US 285 at the Texas-New Mexico State line go Northerly 3.7 miles to CR 725 (Longhorn Road). On CR 725 go East, South & Southeast for approx. 4.1 miles to a "Y". Take the left fork going East on Ross Ln. for approx. 6.1 miles to a lease road right, Go South on lease road for approx. 1.9 miles to a two track road. Go Southerly on two track road for 1.2 miles to a two track road to the right. Go southwesterly on two track road for 0.4 miles. The location flag is 670 feet West.



WTC, INC.

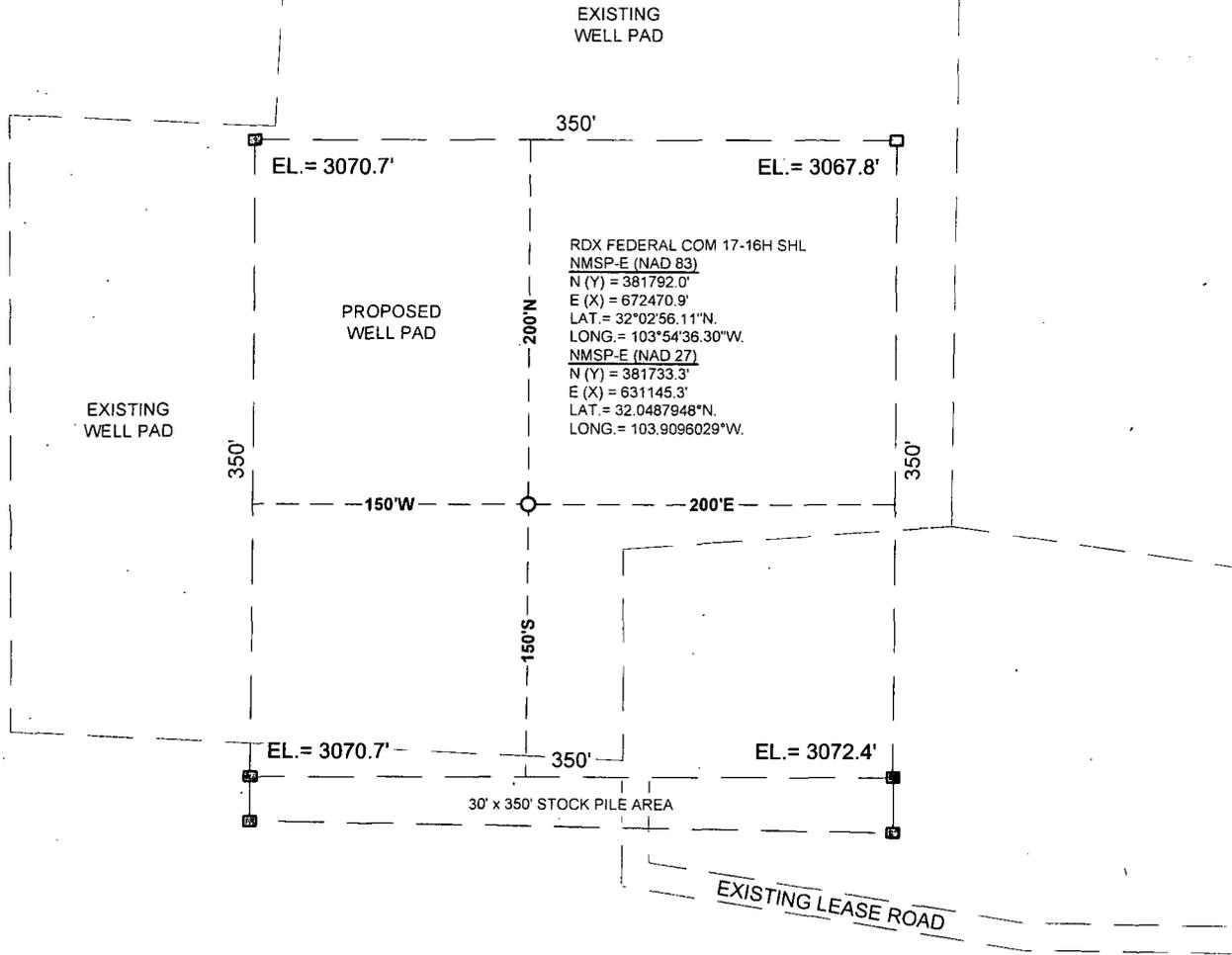
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50224

SITE LOCATION

SEC. 8, T26S, R30E
SEC. 17, T26S, R30E



GRAPHIC SCALE 1" = 200'

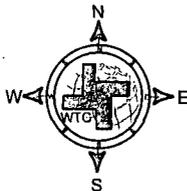
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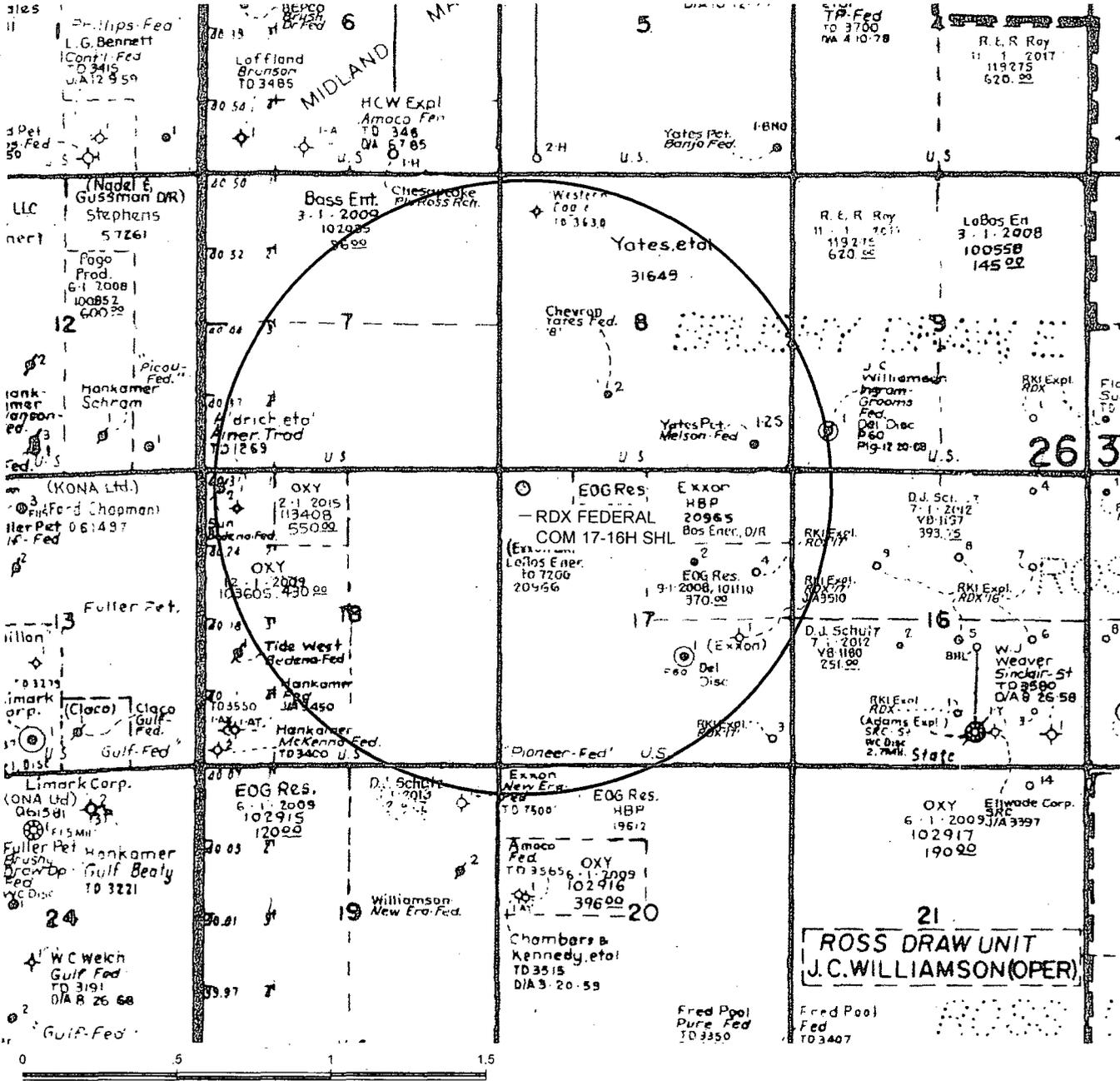
WTC, INC.

405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50224

SURFACE HOLE LOCATION



GRAPHIC SCALE 1" = 1/2 MILE

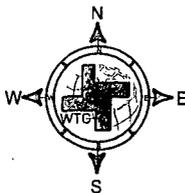
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WTC, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50224

RKI Exploration & Production, LLC

Well RDX Federal Com 17-16H
 Location Surface: 330 FNL 600 FWL Sec. 17-26S-30E
 Bottom Hole: 560 FSL 660 FEL Sec. 17-26S-30E
 County Eddy
 State New Mexico

- 1) The elevation of the unprepared ground is 3,071 feet above sea level.
- 2) The geologic name of the surface formation is Quaternary - Alluvium.
- 3) A rotary rig will be utilized to drill the well to 14,610 feet and run casing and cement. This equipment will then be rigged down and the well will be completed with a workover rig.
- 4) Proposed depth is 14,610 feet MD

5) Estimated tops:

	TVD	MD	
Rustler	800	800	
Salado	1,100	1,100	BHP = .44 psi/ft x depth
Lamar Lime	3,505	3,514	1,542 psi
Cherry Canyon	4,594	4,610	2,021 psi
Bone Spring	7,319	7,337	3,220 psi
Bone Spring 1st Sand	8,200	8,218	3,608 psi
Bone Spring 2nd Sand	8,910	8,928	3,920 psi
Bone Spring 3rd Sand	10,225	10,243	4,499 psi
KOP	10,140	10,158	4,462 psi
Wolfcamp	10,504	10,552	4,622 psi
Landing Point (Wolfcamp)	10,784	11,158	4,745 psi
TD	10,784	14,610	4,745 psi

6) Casing program:

Hole Size	Top	Bottom	OD Csg	Wt/Grade	Connection	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0	1,020	13 3/8"	54.5#/J-55	ST&C	2.52	12.17	9.25
12 1/4"	0	3,505	9 5/8"	40#/J-55	LT&C	1.31	5.12	3.71
8 3/4"	0	10,040	7"	29#/P-110	LT&C	1.41	1.99	3.05
6 1/8"	9,890	14,610	4 1/2"	13.5#/P-110	BTC	1.66	1.28	6.95
Collapse	1.125							
Burst	1.0							
Tension	2.0							

7) Cement program:

Surface 17 1/2" hole
 Pipe OD 13 3/8"
 Setting Depth 1,020 ft
 Annular Volume 0.69462 cf/ft
 Excess 1 100 %
 Lead 810 sx 1.75 cf/sk 9.13 gal/sk 13.5 ppg
 Tail 200 sx 1.33 cf/sk 6.32 gal/sk 14.8 ppg
 Lead: "C" + 4% PF20 (gel) + 2% PF1 (CC) + .125 pps PF29 (CelloFlake) + .4 pps PF46 (antifoam)
 Tail: "C" + 1% PF1 (CC)

Top of cement: Surface

Intermediate 12 1/4" hole
 Pipe OD 9 5/8"
 Setting Depth 3,505 ft
 Annular Volume 0.31318 cf/ft 0.3627 cf/ft
 Excess 0.5 50 %

Lead 758 sx 1.92 cf/sk 9.95 gal/sk 12.6 ppg
 Tail 200 sx 1.33 cf/sk 6.32 gal/sk 14.8 ppg
 Lead: 35/65 Poz "C" + 5% PF44 + 6% PF20 + 1% PF1 _ .125 pps PF29 + .4 pps PF46 + 3 pps PF42
 Tail: "C" + .2% PF13 (retarder)
 Top of cement: Surface

Intermediate 8 3/4" hole
 Pipe OD 7"
 Setting Depth 10,040 ft
 Annular Volume 0.15033 cf/ft 0.1585 cf/ft 500 ft
 Excess 0.35 35 %
 DV Tool Depth 5500 ft
 Stage 1

Lead: 623 sx 1.48 cf/sk 7.58 gal/sk 13.0 ppg
 Lead: PVL + 1.3% PF44 + 5% PF174 + .5% PF606 + .35% PF813 + .1% PF153 + .4 pps PF46
 Top of cement: DV tool

Stage 2

Lead: 148 sx 1.89 cf/sk 10.06 gal/sk 12.9 ppg
 Tail: 175 sx 1.33 cf/sk 6.32 gal/sk 14.8 ppg
 Lead: 35/65 Poz "C" + 5% PF44 + 6% PF20 + .2% PF13 + .125 ps PF29 + .4 pps PF46
 Tail: "C" + .2% PF13
 Top of cement: 3,005 ft

Production 6 1/8" hole
 Pipe OD 4 1/2"
 Setting Depth 14,610 ft
 Annular Volume 0.0942
 Excess 0.32

Lead: 324 sx 1.87 cf/sk 9.52 gal/sk 13.0 ppg
 Lead: AcidSolid PVL + 5% PF174 + .7% PF606 + .2% PF153 + .5% PF13 + 30% PF151 + .4 pps PF46
 Top of cement: 9,740

8) Pressure control equipment:

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram type (5,000 psi WP) preventer, a bag-type annular preventer (5,000 psi WP), and rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and pipe rams (sized to accommodate the drill pipe size being utilized) on bottom. A 13 3/8" SOW x 13 5/8" 5M casing head will be installed on the 13 3/8" casing and utilized until total depth is reached. All BOP and associated equipment will be tested to 5,000 psi and the annular will be tested to 1,500 psi after setting each casing string. The 13 3/8" and 9 5/8" casing will be tested to .22 psi per ft of casing string length or 1,500 psi whichever is greater, but not to exceed 70% of the minimum yield.

Pipe rams will be operated and checked each 24 hour period and each time the drill string is out of the hole. These function test will be documented on the daily driller's log.

A drilling spool or blowout preventer with 2 side outlets (choke side shall be 3" minimum diameter, kill side shall be at least 2" diameter).

2 kill line valves, one of which will be a check valve.

2 chokes on the manifold along with a pressure gauge.

Upper kelly cock valve with handle available.

Safety valve and subs to fit all drill string connections in use.

All BOP equipment connections subjected to pressure will be flanged, welded, or clamped.

Fill up line above the upper most preventer.

9) Mud program:

Top	Bottom	Mud Wt.	Vis	PV	YP	Fluid Loss	Type System
	0	1,020	8.5 to 8.9	32 to 36	1 - 6	NC	Fresh Water
850	1,020	3,505	9.8 to 10.0	28 to 30	1 - 3	NC	Brine
3430	3,505	10,040	8.9 to 9.1	28 to 36	1 - 3	NC	Fresh Water
	10,040	14,610	10.0 to 11.2	50 to 55	20-22	8 - 10	N/A

10) Logging, coring, and testing program:

No drill stem test are planned

KOP to intermediate: CNL, Caliper, GR, DLL,

Intermediate to surface: CNL, GR

No coring is planned

11) Potential hazards:

No abnormal pressure or temperature is expected. No H2S is known to exist in the area.

Lost circulation can occur in, lost circulation will be on location and readily available if needed.

12) Anticipated start date

ASAP

Duration

35 days

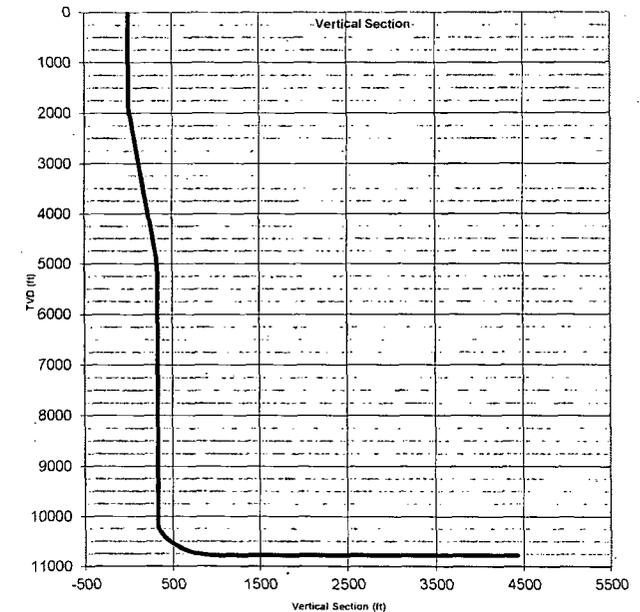
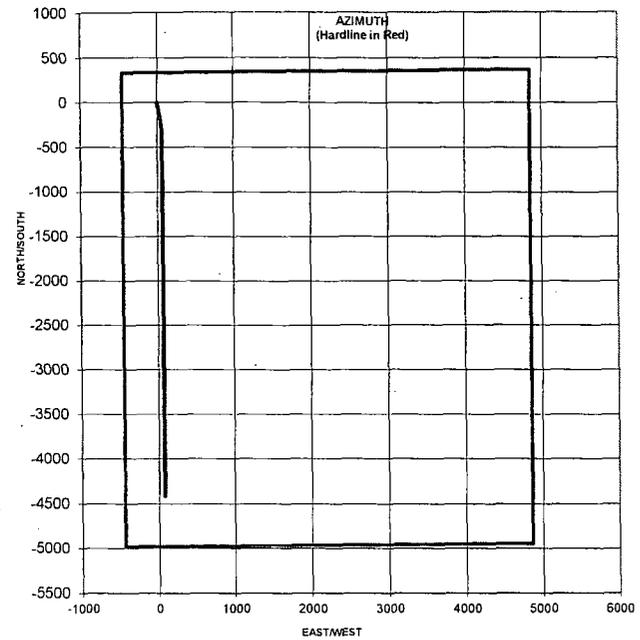
RKI EXPLORATION

RIG:

WELL: RDX Fed Com 17-16H
 LOCATION: 330' FNL & 600' FWL 17-26S-30E
 BHL: 560' FSL & 660' FWL 17-26S-30E

Target Direction: 179.07 deg
 North/South Hard Line: 330
 East/West Hard Line: 2,310

STATION	SURVEY						VERT.	DLS/100
NUMBER	DEPTH	INC	AZMTH	TVD	N-S	E-W	SECTION	
Tie-In								
	1800.0			1800				
	1900.0	3.0	169.50	1900	-3	0	3	3.0
	2000.0	6.0	169.50	2000	-10	2	10	3.0
	2100.0	6.2	169.50	2099	-21	4	21	0.2
	2200.0	6.2	169.50	2198	-31	6	31	
Lamar	3514.0	6.2	169.50	3505	-171	32	172	
Cherry Cnyn	4609.7	6.2	169.50	4594	-288	53	289	
	4800.0	6.2	169.50	4783	-308	57	309	
	4900.0	6.0	169.50	4883	-319	59	320	0.2
	5000.0	3.0	169.50	4982	-327	61	328	3.0
	5100.0		169.50	5082	-329	61	330	3.0
	5200.0			5182	-329	61	330	
BS Lime	7336.8			7319	-329	61	330	
BSpg 1 SS	8217.8			8200	-329	61	330	
BSpg 2 SS	8927.8			8910	-329	61	330	
	8930.0			8912	-329	61	330	
KOP	10157.8		179.85	10140	-329	61	330	
BSpg 3 SS	10243.0	8.52	179.85	10225	-335	61	336	10.0
	10257.8	10.00	179.85	10240	-338	61	339	10.0
	10357.8	20.00	179.85	10336	-364	61	365	10.0
	10457.8	30.00	179.85	10427	-406	61	407	10.0
Wolfcamp	10552.0	39.42	179.85	10504	-459	61	460	10.0
	10557.8	40.00	179.85	10508	-463	61	464	10.0
	10607.8	45.00	179.85	10545	-497	61	498	10.0
	10707.8	45.00	179.85	10616	-568	62	569	
	10757.8	50.00	179.85	10650	-605	62	605	10.0
	10857.8	60.00	179.85	10707	-686	62	687	10.0
	10957.8	70.00	179.85	10749	-777	62	778	10.0
	11057.8	80.00	179.85	10775	-873	62	874	10.0
	11157.8	90.00	179.85	10784	-973	63	974	10.0
	11257.8	90.00	179.85	10784	-1073	63	1074	
	11357.8	90.00	179.85	10784	-1173	63	1174	
	11457.8	90.00	179.85	10784	-1273	63	1274	
	11557.8	90.00	179.85	10784	-1373	64	1374	
	11657.8	90.00	179.85	10784	-1473	64	1474	
	11757.8	90.00	179.85	10784	-1573	64	1574	
	11857.8	90.00	179.85	10784	-1673	65	1674	
	11957.8	90.00	179.85	10784	-1773	65	1774	
	12057.8	90.00	179.85	10784	-1873	65	1874	
	12157.8	90.00	179.85	10784	-1973	65	1974	
	12257.8	90.00	179.85	10784	-2073	66	2074	
	12357.8	90.00	179.85	10784	-2173	66	2174	
	12457.8	90.00	179.85	10784	-2273	66	2274	
	12557.8	90.00	179.85	10784	-2373	66	2374	
	12657.8	90.00	179.85	10784	-2473	67	2474	
	12757.8	90.00	179.85	10784	-2573	67	2574	
	12857.8	90.00	179.85	10784	-2673	67	2674	
	12957.8	90.00	179.85	10784	-2773	67	2774	
	13057.8	90.00	179.85	10784	-2873	68	2874	
	13157.8	90.00	179.85	10784	-2973	68	2974	
	13257.8	90.00	179.85	10784	-3073	68	3074	
TD	14609.5	90.00	179.85	10784	-4424	72	4425	



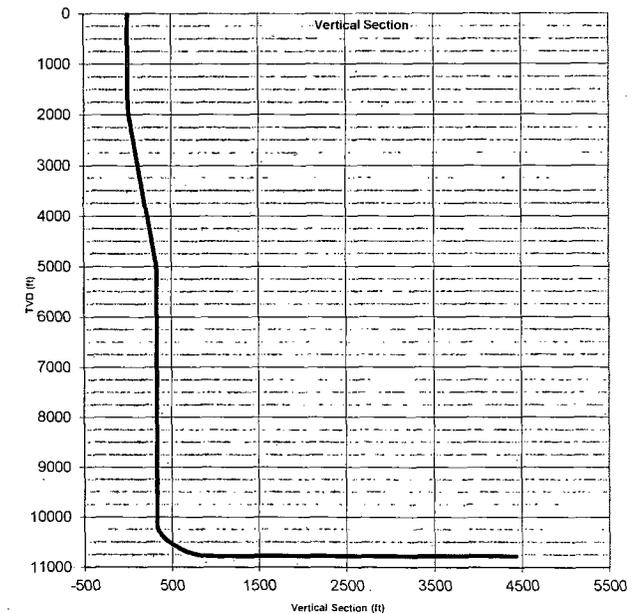
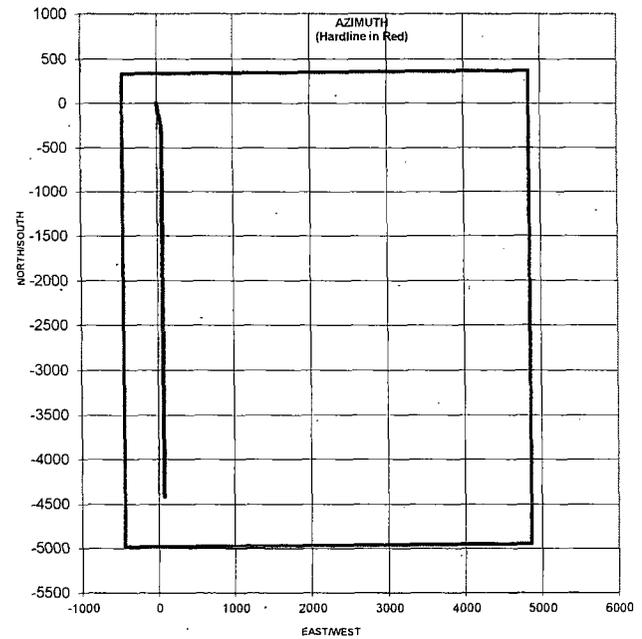
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	2100.0	6.2	169.50	2099	-21	4	21	0.2
	2200.0	6.2	169.50	2198	-31	6	31	
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	10957.8	70.00	179.85	10749	-777	62	778	10.0
	11057.8	80.00	179.85	10775	-873	62	874	10.0
	11157.8	90.00	179.85	10784	-973	63	974	10.0
	11257.8	90.00	179.85	10784	-1073	63	1074	
	11357.8	90.00	179.85	10784	-1173	63	1174	
	11457.8	90.00	179.85	10784	-1273	63	1274	
	11557.8	90.00	179.85	10784	-1373	64	1374	
	11657.8	90.00	179.85	10784	-1473	64	1474	
	11757.8	90.00	179.85	10784	-1573	64	1574	
	11857.8	90.00	179.85	10784	-1673	65	1674	
	11957.8	90.00	179.85	10784	-1773	65	1774	
	12057.8	90.00	179.85	10784	-1873	65	1874	
	12157.8	90.00	179.85	10784	-1973	65	1974	
	12257.8	90.00	179.85	10784	-2073	66	2074	
	12357.8	90.00	179.85	10784	-2173	66	2174	
	12457.8	90.00	179.85	10784	-2273	66	2274	
	12557.8	90.00	179.85	10784	-2373	66	2374	
	12657.8	90.00	179.85	10784	-2473	67	2474	
	12757.8	90.00	179.85	10784	-2573	67	2574	
	12857.8	90.00	179.85	10784	-2673	67	2674	
	12957.8	90.00	179.85	10784	-2773	67	2774	
	13057.8	90.00	179.85	10784	-2873	68	2874	
	13157.8	90.00	179.85	10784	-2973	68	2974	
	13257.8	90.00	179.85	10784	-3073	68	3074	
TD	14609.5	90.00	179.85	10784	-4424	72	4425	



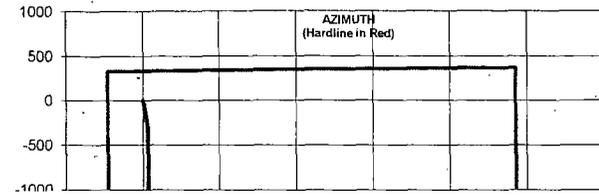
RKI EXPLORATION

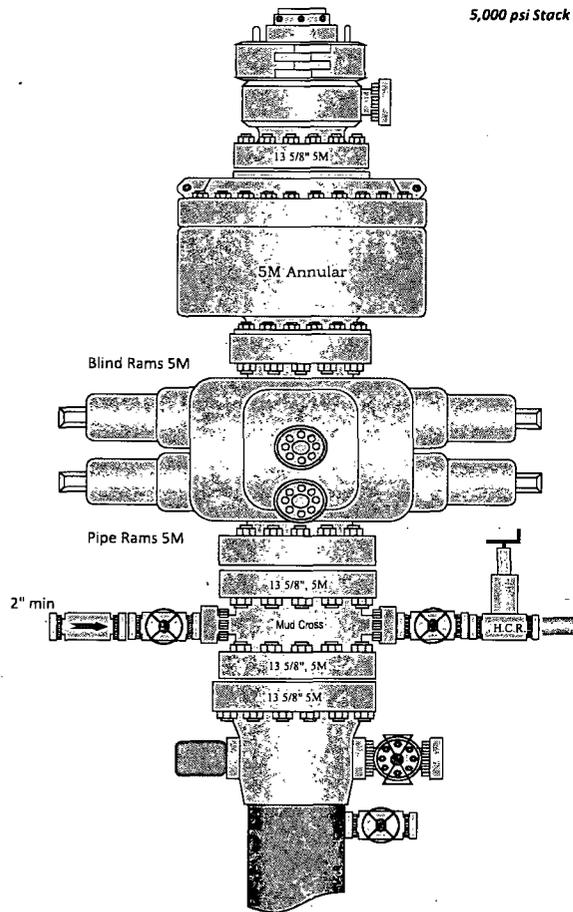
RIG:

WELL: RDX Fed Com 17-16H
LOCATION: 330' FNL & 600' FWL 17-26S-30E
BHL: 560' FSL & 660' FWL 17-26S-30E

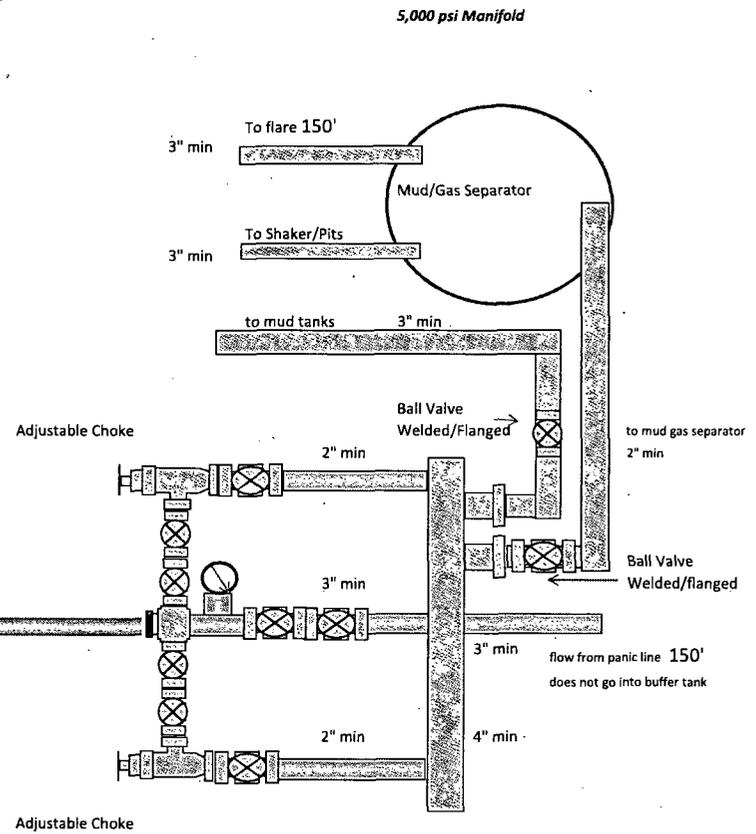
Target Direction: 179.07 deg
 North/South Hard Line: 330
 East/West Hard Line: 2,310

STATION NUMBER	SURVEY DEPTH	INC	AZMTH	TVD	N-S	E-W	VERT. SECTION	DLS/100
110				10784	-4424	72	4425	
111				10784	-4424	72	4425	
112				10784	-4424	72	4425	
113				10784	-4424	72	4425	
114				10784	-4424	72	4425	
115				10784	-4424	72	4425	
116				10784	-4424	72	4425	
117				10784	-4424	72	4425	
118				10784	-4424	72	4425	
119				10784	-4424	72	4425	
120				10784	-4424	72	4425	
121				10784	-4424	72	4425	
122				10784	-4424	72	4425	
123				10784	-4424	72	4425	
124				10784	-4424	72	4425	
125				10784	-4424	72	4425	
126				10784	-4424	72	4425	
127				10784	-4424	72	4425	
128				10784	-4424	72	4425	
129				10784	-4424	72	4425	
130				10784	-4424	72	4425	
131				10784	-4424	72	4425	
132				10784	-4424	72	4425	
133				10784	-4424	72	4425	
134				10784	-4424	72	4425	
135				10784	-4424	72	4425	
136				10784	-4424	72	4425	
137				10784	-4424	72	4425	
138				10784	-4424	72	4425	
139				10784	-4424	72	4425	
140				10784	-4424	72	4425	
141				10784	-4424	72	4425	
142				10784	-4424	72	4425	
143				10784	-4424	72	4425	
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145				10784	-4424	72	4425	
146				10784	-4424	72	4425	
147				10784	-4424	72	4425	
148				10784	-4424	72	4425	
149				10784	-4424	72	4425	
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154				10784	-4424	72	4425	
155				10784	-4424	72	4425	
156				10784	-4424	72	4425	
157				10784	-4424	72	4425	
158				10784	-4424	72	4425	
159				10784	-4424	72	4425	
160				10784	-4424	72	4425	
PTB				10784	-4424	72	4425	





5,000 psi Stack



5,000 psi Manifold

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	RKI Exploration and Production, LLC.
LEASE NO.:	NM-20965
WELL NAME & NO.:	RDX Federal 17-16
SURFACE HOLE FOOTAGE:	330' FNL & 600' FWL
LOCATION:	Section 17, T. 26 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

Eddy County

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

1. **Although there are no measured amounts of Hydrogen Sulfide reported, it is always a potential hazard. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

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

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

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

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

Medium Cave/Karst

**Possibility of water and brine flows in the Salado and Delaware Mountain Groups.
Possibility of lost circulation in the Delaware and Bone Springs 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. If salt is encountered, set casing at least 25 feet above the salt.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
(Ensure casing is set the Lamar Limestone at approximately 3430')

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.

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

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

- a. First stage to DV tool:

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

- b. Second stage above DV tool:

- Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification.

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

- Cement should tie-back to the top of the liner. Operator shall provide method of verification.

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

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
 - g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

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

E. DRILL STEM TEST

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

F. WASTE MATERIAL AND FLUIDS

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

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

CRW 010515