Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD
Artesia

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.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMNM20965

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
RDX FEDERAL COM 17 40H

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

9. API Well No.
30-015-43634-00-X1

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

3b. Phone No. (include area code)
Ph: 405-996-5769
Fx: 405-949-2223

10. Field and Pool, or Exploratory
~~UNDESIGNATED~~
Ross Draw; wolfcamp Gas)

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 17 T26S R30E NENE 175FNL 1310FEL

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

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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.)

NM OIL CONSERVATION
ARTESIA DISTRICT
APR 26 2016
RECEIVED

RKI RESPECTFULLY REQUESTS TO MAKE THE FOLLOWING CHANGES FOR THE SUBJECT WELL AS FOLLOWS:

?9-5/8? intermediate- Weight, grade, and setting depth
?Additional 7? intermediate casing to be set at base of the curve
?Lateral hole size 6-1/8? and a 4-1/2? production liner will be run & cemented from TD to KOP

ATTACHED IS THE REVISED PLAT & DRILLING PLAN.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #336389 verified by the BLM Well Information System
For RKI EXPLORATION & PROD LLC, sent to the Carlsbad
Committed to AFMSS for processing by JENNIFER SANCHEZ on 04/18/2016 (16JAS1433SE)

Name *(Printed/Typed)* HEATHER BREHM — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 04/13/2016

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ Date APR 18 2016

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 BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

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

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Accepted for record - NMOCD

KJ

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
APR 26 2016
RECEIVED

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-43634	~~84330~~ 97136	Brushy Draw ~~UNDESIGNATED~~ WOLFCAMP

Property Code	Property Name	Well Number
313813	RDX FEDERAL COM 17	40H

OGRID No.	Operator Name	Elevation
246289	RKI EXPLORATION & PRODUCTION	3086'

Surface Location

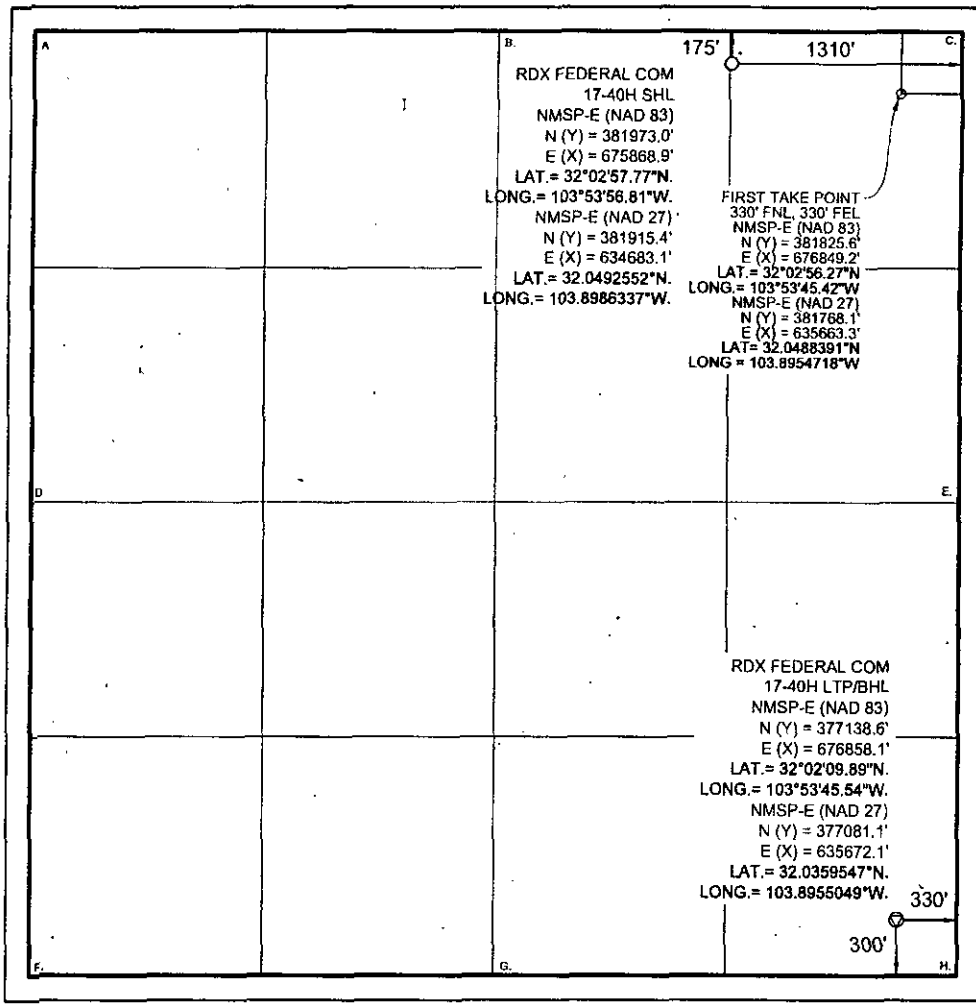
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	17	26 S	30 E		175	NORTH	1310	EAST	EDDY

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
P	17	26 S	30 E		300	SOUTH	330'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
160.0			

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.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Heather Brehm 4.23.2016
Signature Date

Heather Brehm
Print Name

heather.brehm@wpxenergy.com
E-mail Address

SURVEYORS CERTIFICATION

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.

September 11, 2014
Date of Survey

Signature and Seal of Professional Surveyor:

JAMES E. TOMPKINS NEW MEXICO 14729 REGISTERED PROFESSIONAL LAND SURVEYOR

James E. Tompkins

Job No.: WTC50087

JAMES E. TOMPKINS 14729
Certificate Number

SECTION COORDINATES

A.	B.	C.
NW COR SEC 17 NMSP-E (NAD 83) Y= 382117.4' N X= 671870.2' E LAT.: 32°02'59.35" N LONG.: 103°54'43.28" W NMSP-E (NAD 27) N (Y) = 382059.8' E (X) = 630684.4' LAT= 32.0496956°N LONG = 103.9115374°W	N1/4 COR SEC 17 NMSP-E (NAD 83) Y= 382137.7' N X= 674525.3' E LAT.: 32°02'59.45" N LONG.: 103°54'12.41" W NMSP-E (NAD 27) N (Y) = 382080.1' E (X) = 633339.5' LAT= 32.0497225°N LONG = 103.9029680°W	NE COR SEC 17 NMSP-E (NAD 83) Y = 382158.2' N X = 677178.6' E LAT.: 32°02'59.55" N LONG.: 103°53'41.58" W NMSP-E (NAD 27) N (Y) = 382100.6' E (X) = 635992.7' LAT= 32.0497496°N LONG = 103.8944044°
D.		E.
W1/4 CORNER SEC 17 NMSP- E (NAD 83) Y = 379460.3' N E = 671877.8' E LAT.: 32°02'33.06" N LONG.: 103°54'43.30" W NMSP-E (NAD 27) N (Y) = 379402.8' E (X) = 630691.9' LAT= 32.0423914°N LONG = 103.9115468°W		E1/4 COR SEC 17 NMSP-E (NAD 83) Y = 379499.9' N E = 677183.8' E LAT.: 32°02'33.24" N LONG.: 103°53'41.65" W NMSP-E (NAD 27) N (Y) = 379442.4' E (X) = 635997.85' LAT= 32.0424420°N LONG = 103.8944427°W
F.	G.	H.
SW COR SEC 17 NMSP-E (NAD 83) Y = 376803.1' N E = 671884.0' E LAT.: 32°02'06.76" N LONG.: 103°54'43.34"W NMSP-E (NAD 27) N (Y) = 376745.6' E (X) = 630698.0' LAT= 32.0350868°N LONG = 103.9115606°W	S1/4 COR SEC 17 NMSP-E (NAD83) Y = 376822.4' N E = 674535.2' E LAT.: 32°02'06.85" N LONG.: 103°54'12.54" W NMSP-E (NAD 27) N (Y) = 376764.9' E (X) = 633349.2' LAT= 32.0351112°N LONG = 103.9030048°W	SE COR SEC 17 NMSP-E (NAD 83) Y = 376840.9' N X = 677188.7' E LAT.: 32°02'06.93" N LONG.: 103°53'41.72" W NMSP-E (NAD 27) N (Y) = 376783.4' E (X) = 636002.6' LAT= 32.0351326°N LONG = 103.8944421°W

0 100 200 400

GRAPHIC SCALE 1" = 200'

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

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 1310' FEL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-40H

DRIVING DIRECTIONS:

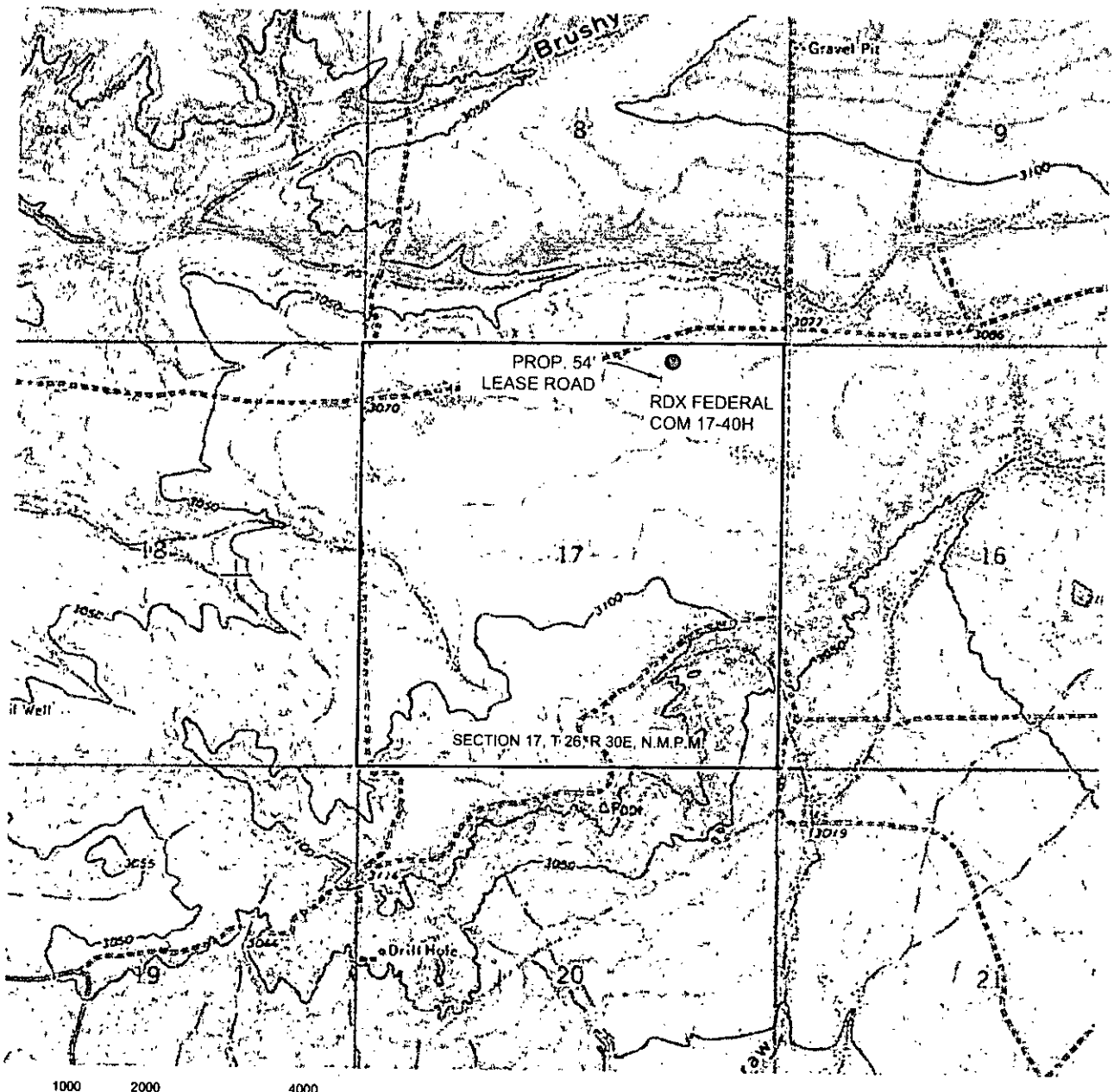
Beginning at US 285 at the Texas-New Mexico State line go Northerly 3.7 miles to CR 725 (Longhorn Road). On CR 725 go East, South & Southeast for approx. 4.1 miles to a "Y". Take the left fork going East on Ross Ln. for approx. 6.1 miles to a lease road right, Go South on lease road for approx. 1.9 miles to a two track road. Go South on lease road for approx. 1.9 miles to a two track road. Go southerly on two track road for 1.6 miles. The location flag is 75 feet East.

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

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

LOCATION VERIFICATION MAP



GRAPHIC SCALE 1" = 2000'

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

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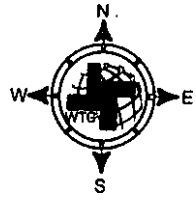
DESCRIPTION: 175' FNL & 1310' FEL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-40H



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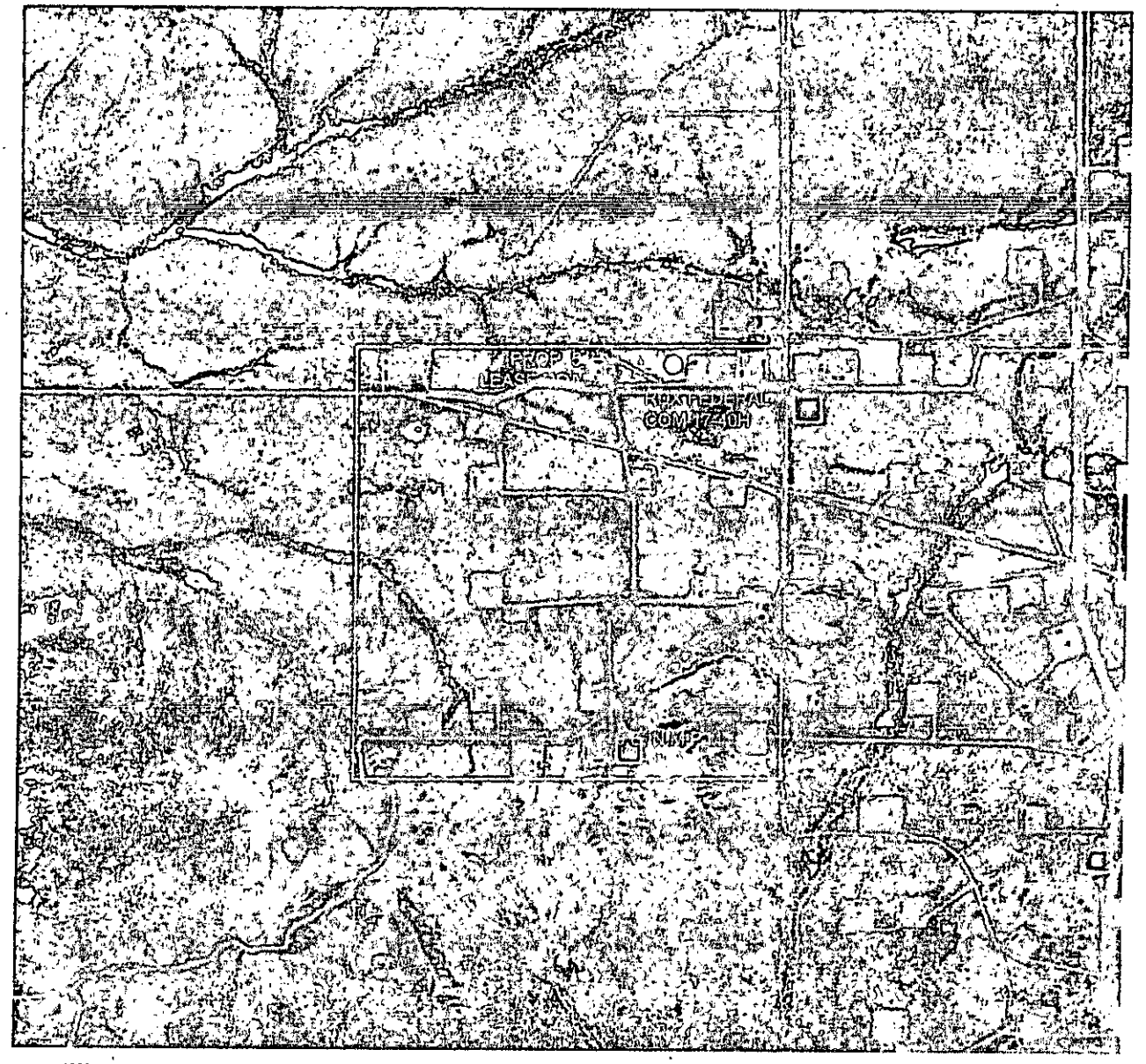
W T C, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

AERIAL MAP



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GRAPHIC SCALE 1" = 2000'

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

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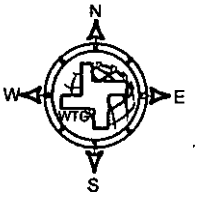
WELL NAME: RDX FEDERAL COM 17-40H



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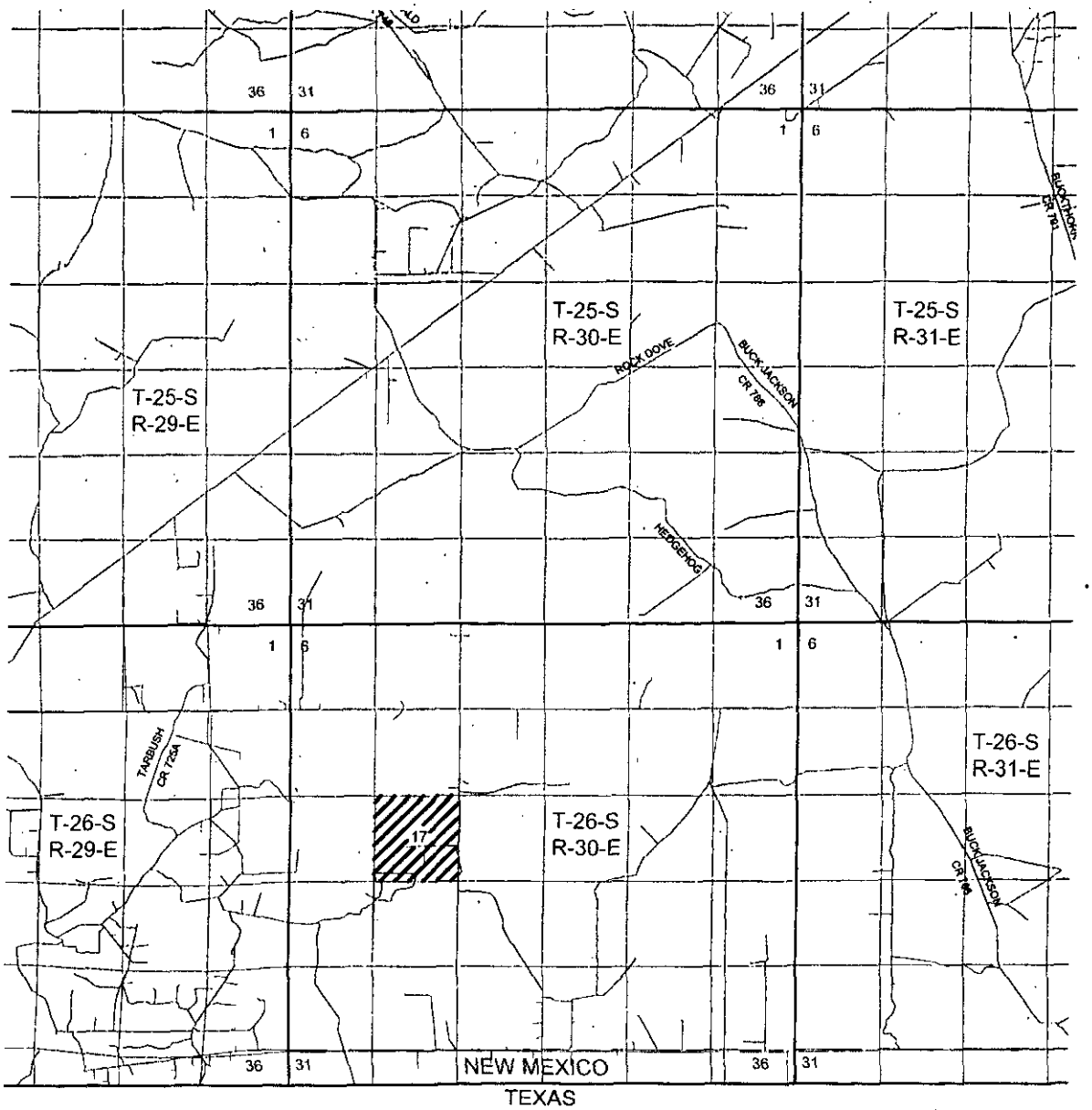
WTC

W T C, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2161

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

VICINITY MAP



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GRAPHIC SCALE 1" = 2 MILES

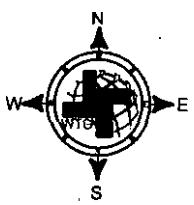
SECTION 17, T 26 S, R 30 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 1310' FEL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-40H



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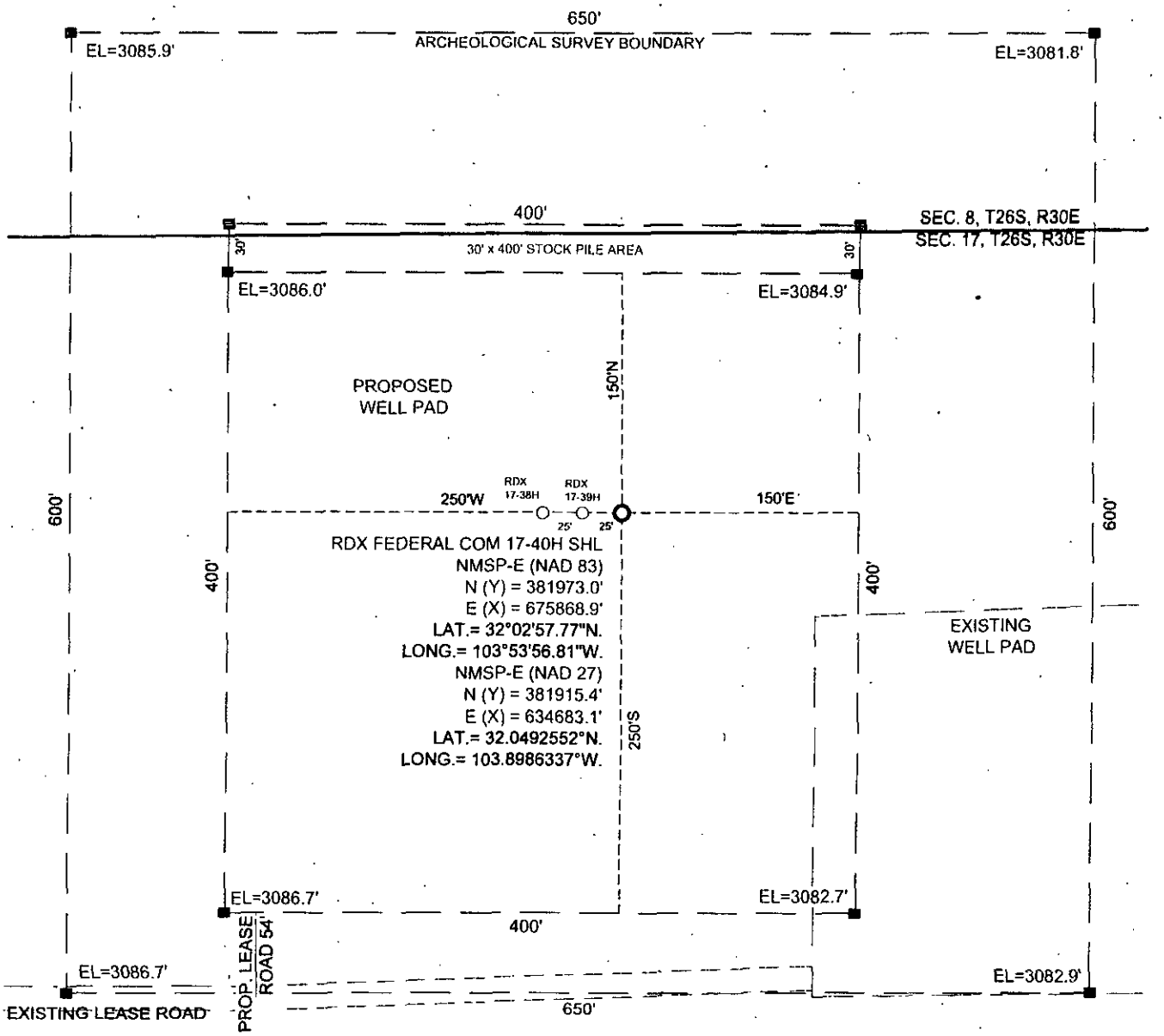
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

SITE LOCATION



0 100 200 400

GRAPHIC SCALE 1" = 200'

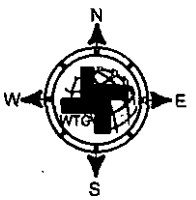
SECTION 17, T 26 S, R 30 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 1310' FEL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-40H



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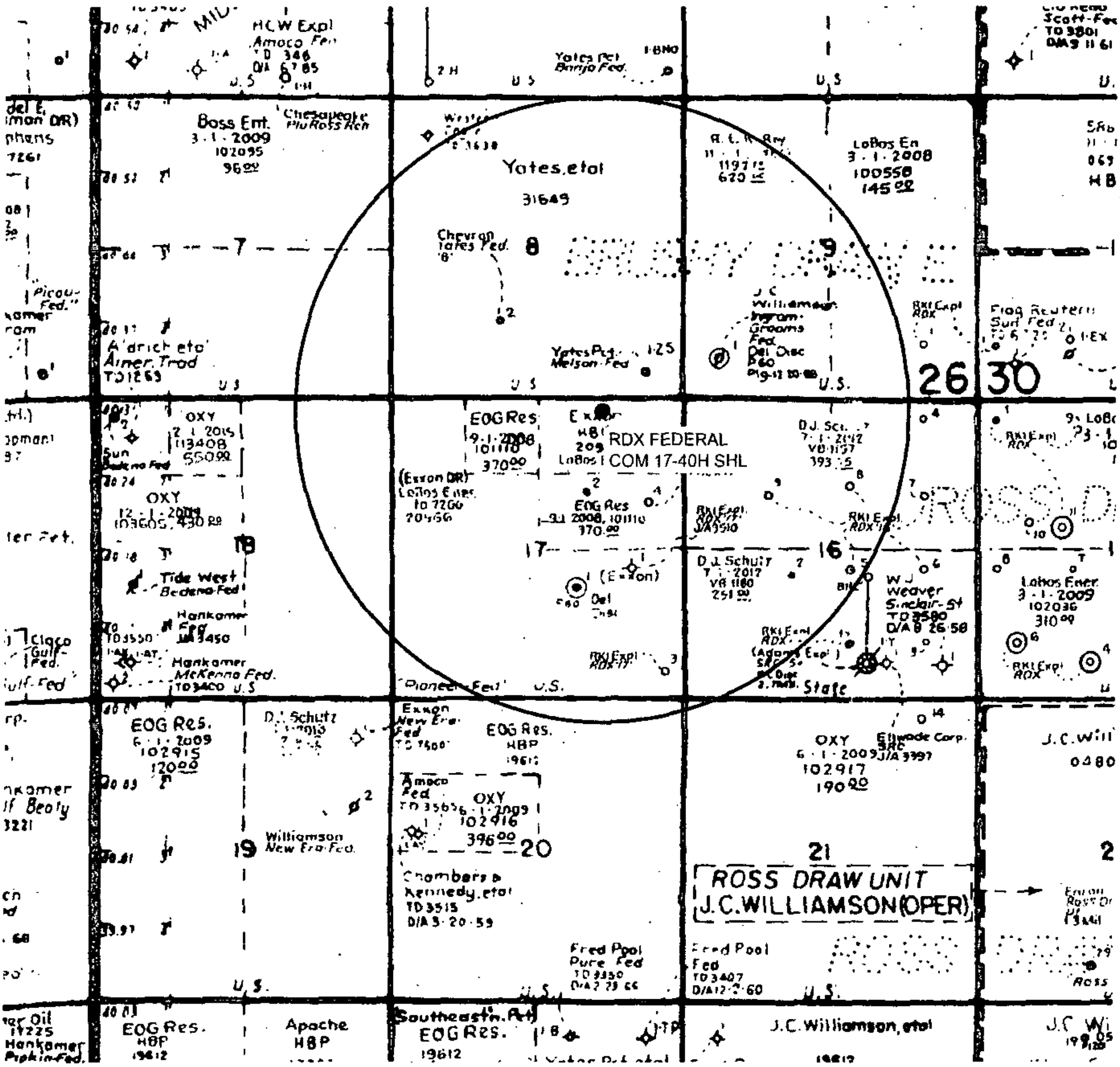
RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

SURFACE HOLE LOCATION



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GRAPHIC SCALE 1" = 1/2 MILE

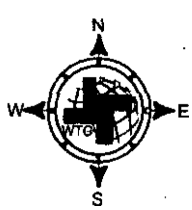
SECTION 17, T 26 S, R 30 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 1310' FEL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-40H



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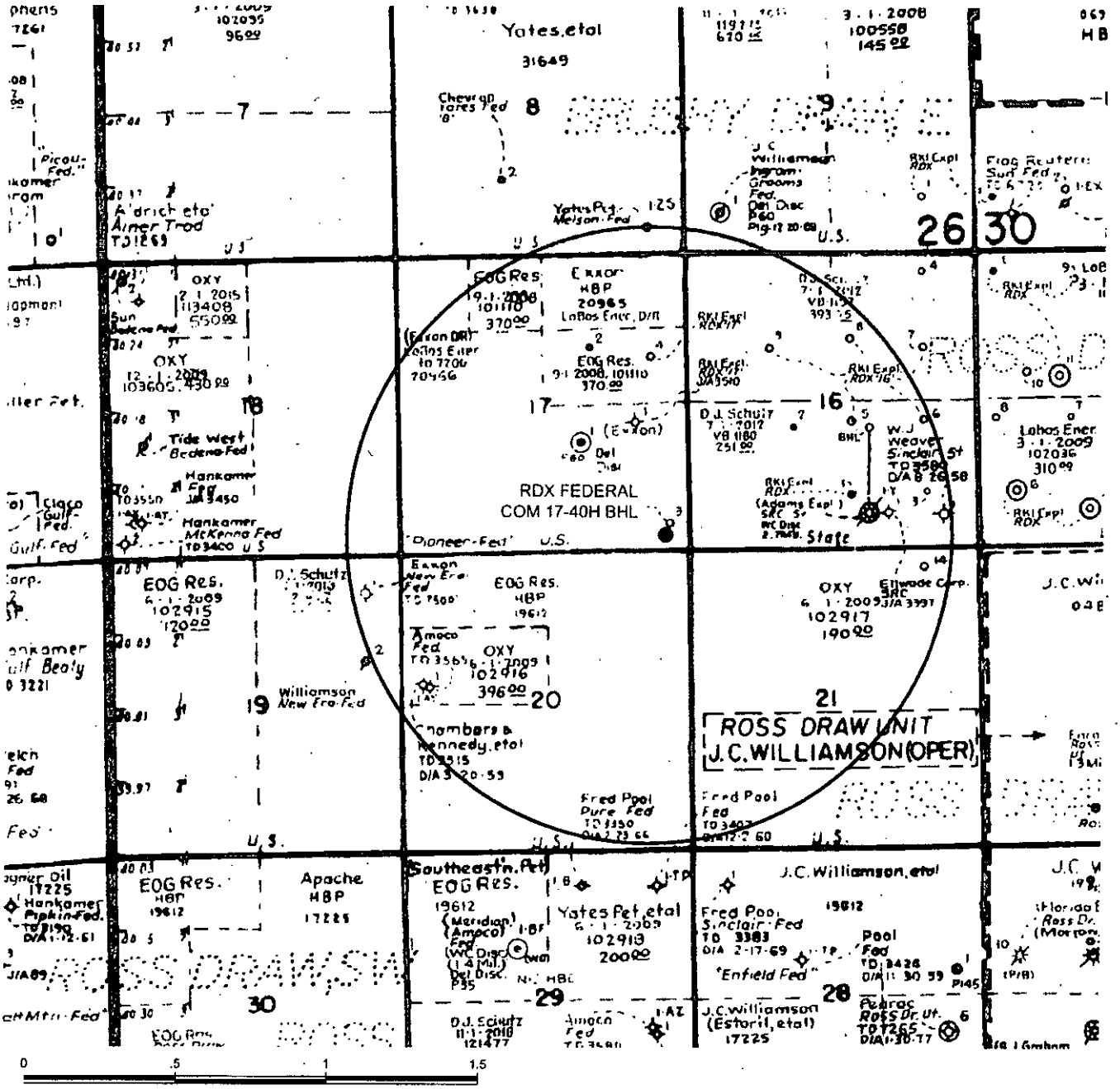
RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

BOTTOM HOLE LOCATION



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GRAPHIC SCALE 1" = 1/2 MILE

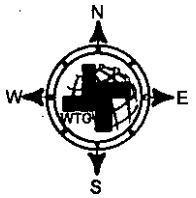
SECTION 17, T 26 S, R 30 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 300' FSL & 330' FEL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: RDX FEDERAL COM 17-40H



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RKI EXPLORATION & PRODUCTION

JOB No.: WTC50087

WPX Energy

Well	RDX Federal 17-40H				
Location	Surface:	175 FNL	1,310 FEL	Sec 17-26S-30E	
	Bottom Hole:	300 FSL	330 FEL	Sec 17-26S-30E	

County Eddy
State New Mexico

1) The elevation of the unprepared ground is 3,086 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 15,648 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 15,648 feet MD

5) Estimated tops:

	MD	TVD		BHP = .44 psi/ft x depth
Rustler	950	950		
Bell Canyon Sand (Base Salt)	3,541	3,541		
Cherry Canyon Sand	4,630	4,616		1,558 psi
Brushy Canyon Sand	5,715	5,687		2,031 psi
Bone Spring Lime	7,420	7,366	Oil	2,502 psi
1st Bone Spring Sand	8,309	8,242	Oil	3,241 psi
2nd Bone Spring Sand	9,135	9,057	Oil	3,626 psi
3rd Bone Spring Sand	10,236	10,157		3,985 psi
KOP	10,354	10,275	Oil	4,469 psi
Wolfcamp	10,606	10,519		4,521 psi
Landing Point (Wolfcamp)	11,354	10,919	Oil	4,628 psi
TD	15,648	10,919		4,804 psi

6) Casing program:

See COA

Hole Size	Top	Bottom	OD Csg	Wt/Grade	Connection	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0	1,000	13 3/8"	54.5#/J-55	ST&C	2.57	12.41	9.43
12 1/4"	0	3475 ~~3,541~~	9 5/8"	40#/J-55	LT&C	1.30	5.07	3.67
8 3/4"	0	11,354	7"	29#/HCP-110	BT&C	1.24	1.99	2.70
6 1/8"	10,354	15,648	4 1/2"	13.5#/HCP-110	CDC-HTC	2.22	1.24	6.20

Collapse	1.125
Burst	1.0
Tension	2.0

7) Cement program:

Surface		17 1/2" hole			
Pipe OD		13 3/8"			
Setting Depth		1,000 ft			
Annular Volume		0.69462 cf/ft			
Excess		1	100 %		
Lead	794 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		3,541 ft			
Annular Volume		0.31318 cf/ft	0.3627 cf/ft		
Excess		0.5	50 %		
Lead	621 sx	2.37 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		11,354 ft			
Annular Volume		0.15033 cf/ft	0.1585 cf/ft	500 ft	
Excess		0.35	35 %		
Stage 2					
Lead:	772 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: 3,041 ft

Production		6 1/8" hole			
Pipe OD (in OH)		4 1/2"			
Setting Depth		15,648 ft			
Annular Volume		0.0942			
Excess		0.50			
Lead:	400 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: 10,354 ft

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 13-3/8" casing string & 7" casing string. The 13 3/8" and 9 5/8" casing will be tested to .22 psi per ft of casing string length or 1500 psi whichever is greater, but not to exceed 70% of the minimum yield.
The 9 5/8" casing will be hung in the casing head and the stack will not be nippled down at this point.
The stack will not be isolated and tested after running the 9 5/8" casing, but will be tested along with the 9 5/8" casing. *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:

See COA

Top	Bottom	Mud Wt.	Vis	PV	YP	Fluid Loss	Type System
0	1,000	8.5 to 8.9	32 to 36	1 - 6	1 - 6	NC	Fresh Water
1,000	~~3,541~~ 3475'	9.8 to 10.0	28 to 30	1 - 3	1 - 3	NC	Brine
~~3,541~~ 3475'	11,354	8.9 to 9.1	28 to 36	1 - 3	1 - 3	NC	Cut Brine
11,354	15,648	10.5 to 12.5	50 to 55	20-22	8 - 10	8 - 10	OBM

10) Logging, coring, and testing program:

No drill stem test are planned
KOP to intermediate: No logs planned
Intermediate to surface: No logs planned
No coring is planned

11) Potential hazards:

See COA

No abnormal pressure or temperature is expected. No H2S is known to exist in the area.
Lost circulation can occur in, lost circulation material will be on location and readily available if needed.

12) Anticipated start date ASAP
Duration 30 days

WPXENERGY

WPX

Eddy County, NM (Nad83NME)
Sec 17-T26S-R30E
RDX Fed Com 17-40H

Wellbore #1

Plan: Design #1

QES Well Planning Report

12 April, 2016

QES
DIRECTIONAL DRILLING

Database:	EDM5002	**Local Co-ordinate Reference:**	Well RDX Fed Com 17-40H
Company:	WPX	**TVD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Project:	Eddy County, NM (Nad83NME)	**MD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Site:	Sec 17-T26S-R30E	**North Reference:**	Grid
Well:	RDX Fed Com 17-40H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project Eddy County, NM (Nad83NME)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Sec 17-T26S-R30E

Site Position:		**Northing:**	381,974.10 usft	**Latitude:**	32° 2' 57.901 N
From:	Map	**Easting:**	672,766.00 usft	**Longitude:**	103° 54' 32.861 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.23 °

Well RDX Fed Com 17-40H

Well Position	**+N/-S**	-1.1 usft	**Northing:**	381,973.00 usft	**Latitude:**	32° 2' 57.768 N
	+E/-W	3,102.9 usft	**Easting:**	675,868.90 usft	**Longitude:**	103° 53' 56.808 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,086.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/12/2016	7.22	59.86	47,922

Design Design #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	168.94

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,541.0	0.00	0.00	3,541.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,869.6	9.86	81.90	3,868.0	4.0	27.9	3.00	3.00	0.00	81.90	
9,026.1	9.86	81.90	8,948.3	128.3	901.9	0.00	0.00	0.00	0.00	
9,354.7	0.00	0.00	9,275.3	132.3	929.8	3.00	-3.00	0.00	180.00	VP RDX Fed Com 17-
10,354.7	0.00	0.00	10,275.3	132.3	929.8	0.00	0.00	0.00	0.00	
10,804.7	45.00	179.89	10,680.4	-35.6	930.1	10.00	10.00	0.00	179.89	
10,904.7	45.00	179.89	10,751.2	-106.3	930.3	0.00	0.00	0.00	0.00	
11,354.7	90.00	179.89	10,919.0	-511.4	931.0	10.00	10.00	0.00	0.00	
15,648.0	90.00	179.89	10,919.0	-4,804.7	939.2	0.00	0.00	0.00	0.00	PBHL RDX Fed Com

Database:	EDM5002	**Local Co-ordinate Reference:**	Well RDX Fed Com 17-40H
Company:	WPX	**TVD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Project:	Eddy County, NM (Nad83NME)	**MD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Site:	Sec 17-T26S-R30E	**North Reference:**	Grid
Well:	RDX Fed Com 17-40H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
Cherry Canyon									
3,416.0	0.00	0.00	3,416.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 3°/100' - Bell Canyon									
3,541.0	0.00	0.00	3,541.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	1.77	81.90	3,600.0	0.1	0.9	0.0	3.00	3.00	0.00
3,700.0	4.77	81.90	3,699.8	0.9	6.5	0.3	3.00	3.00	0.00
3,800.0	7.77	81.90	3,799.2	2.5	17.4	0.9	3.00	3.00	0.00
EOB / 9.86° Inc / 81.9° Azm									
3,869.6	9.86	81.90	3,868.0	4.0	27.9	1.5	3.00	3.00	0.00
3,900.0	9.86	81.90	3,897.9	4.7	33.1	1.7	0.00	0.00	0.00
4,000.0	9.86	81.90	3,996.5	7.1	50.0	2.6	0.00	0.00	0.00
4,100.0	9.86	81.90	4,095.0	9.5	67.0	3.5	0.00	0.00	0.00
4,200.0	9.86	81.90	4,193.5	11.9	83.9	4.4	0.00	0.00	0.00
4,300.0	9.86	81.90	4,292.0	14.3	100.9	5.3	0.00	0.00	0.00
4,400.0	9.86	81.90	4,390.6	16.8	117.8	6.2	0.00	0.00	0.00
4,500.0	9.86	81.90	4,489.1	19.2	134.8	7.0	0.00	0.00	0.00
4,600.0	9.86	81.90	4,587.6	21.6	151.7	7.9	0.00	0.00	0.00

Database:	EDM5002	**Local Co-ordinate Reference:**	Well RDX Fed Com 17-40H
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Project:	Eddy County, NM (Nad83NME)	**MD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Site:	Sec 17-T26S-R30E	**North Reference:**	Grid
Well:	RDX Fed Com 17-40H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.0	9.86	81.90	4,686.1	24.0	168.7	8.8	0.00	0.00	0.00
4,800.0	9.86	81.90	4,784.6	26.4	185.6	9.7	0.00	0.00	0.00
4,900.0	9.86	81.90	4,883.2	28.8	202.6	10.6	0.00	0.00	0.00
5,000.0	9.86	81.90	4,981.7	31.2	219.5	11.5	0.00	0.00	0.00
5,100.0	9.86	81.90	5,080.2	33.6	236.5	12.4	0.00	0.00	0.00
5,200.0	9.86	81.90	5,178.7	36.0	253.4	13.2	0.00	0.00	0.00
5,300.0	9.86	81.90	5,277.3	38.5	270.4	14.1	0.00	0.00	0.00
5,400.0	9.86	81.90	5,375.8	40.9	287.3	15.0	0.00	0.00	0.00
5,500.0	9.86	81.90	5,474.3	43.3	304.3	15.9	0.00	0.00	0.00
5,600.0	9.86	81.90	5,572.8	45.7	321.2	16.8	0.00	0.00	0.00
5,700.0	9.86	81.90	5,671.4	48.1	338.2	17.7	0.00	0.00	0.00
Brushy Canyon									
5,715.9	9.86	81.90	5,687.0	48.5	340.8	17.8	0.00	0.00	0.00
5,800.0	9.86	81.90	5,769.9	50.5	355.1	18.5	0.00	0.00	0.00
5,900.0	9.86	81.90	5,868.4	52.9	372.0	19.4	0.00	0.00	0.00
6,000.0	9.86	81.90	5,966.9	55.3	389.0	20.3	0.00	0.00	0.00
6,100.0	9.86	81.90	6,065.5	57.7	405.9	21.2	0.00	0.00	0.00
6,200.0	9.86	81.90	6,164.0	60.2	422.9	22.1	0.00	0.00	0.00
6,300.0	9.86	81.90	6,262.5	62.6	439.8	23.0	0.00	0.00	0.00
6,400.0	9.86	81.90	6,361.0	65.0	456.8	23.9	0.00	0.00	0.00
6,500.0	9.86	81.90	6,459.5	67.4	473.7	24.7	0.00	0.00	0.00
6,600.0	9.86	81.90	6,558.1	69.8	490.7	25.6	0.00	0.00	0.00
6,700.0	9.86	81.90	6,656.6	72.2	507.6	26.5	0.00	0.00	0.00
6,800.0	9.86	81.90	6,755.1	74.6	524.6	27.4	0.00	0.00	0.00
6,900.0	9.86	81.90	6,853.6	77.0	541.5	28.3	0.00	0.00	0.00
7,000.0	9.86	81.90	6,952.2	79.4	558.5	29.2	0.00	0.00	0.00
7,100.0	9.86	81.90	7,050.7	81.9	575.4	30.1	0.00	0.00	0.00
7,200.0	9.86	81.90	7,149.2	84.3	592.4	30.9	0.00	0.00	0.00
7,300.0	9.86	81.90	7,247.7	86.7	609.3	31.8	0.00	0.00	0.00
7,400.0	9.86	81.90	7,346.3	89.1	626.3	32.7	0.00	0.00	0.00
Bone Spring									
7,420.0	9.86	81.90	7,366.0	89.6	629.7	32.9	0.00	0.00	0.00
7,500.0	9.86	81.90	7,444.8	91.5	643.2	33.6	0.00	0.00	0.00
7,600.0	9.86	81.90	7,543.3	93.9	660.2	34.5	0.00	0.00	0.00
7,700.0	9.86	81.90	7,641.8	96.3	677.1	35.4	0.00	0.00	0.00
7,800.0	9.86	81.90	7,740.4	98.7	694.1	36.3	0.00	0.00	0.00
7,900.0	9.86	81.90	7,838.9	101.1	711.0	37.1	0.00	0.00	0.00
8,000.0	9.86	81.90	7,937.4	103.6	728.0	38.0	0.00	0.00	0.00
8,100.0	9.86	81.90	8,035.9	106.0	744.9	38.9	0.00	0.00	0.00
8,200.0	9.86	81.90	8,134.5	108.4	761.9	39.8	0.00	0.00	0.00
8,300.0	9.86	81.90	8,233.0	110.8	778.8	40.7	0.00	0.00	0.00
1st Bone Spring									
8,309.2	9.86	81.90	8,242.0	111.0	780.4	40.8	0.00	0.00	0.00
8,400.0	9.86	81.90	8,331.5	113.2	795.8	41.6	0.00	0.00	0.00
8,500.0	9.86	81.90	8,430.0	115.6	812.7	42.5	0.00	0.00	0.00
8,600.0	9.86	81.90	8,528.5	118.0	829.7	43.3	0.00	0.00	0.00
8,700.0	9.86	81.90	8,627.1	120.4	846.6	44.2	0.00	0.00	0.00
8,800.0	9.86	81.90	8,725.6	122.8	863.6	45.1	0.00	0.00	0.00
8,900.0	9.86	81.90	8,824.1	125.2	880.5	46.0	0.00	0.00	0.00
9,000.0	9.86	81.90	8,922.6	127.7	897.5	46.9	0.00	0.00	0.00
Drop 3°/100'									
9,026.1	9.86	81.90	8,948.4	128.3	901.9	47.1	0.00	0.00	0.00
9,100.0	7.64	81.90	9,021.4	129.9	913.0	47.7	3.00	-3.00	0.00
2nd Bone Spring									

Database:	EDM5002	**Local Co-ordinate Reference:**	Well RDX Fed Com 17-40H
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Project:	Eddy County, NM (Nad83NME)	**MD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Site:	Sec 17-T26S-R30E	**North Reference:**	Grid
Well:	RDX Fed Com 17-40H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,135.9	6.56	81.90	9,057.0	130.5	917.4	47.9	3.00	-3.00	0.00
9,200.0	4.64	81.90	9,120.8	131.4	923.6	48.2	3.00	-3.00	0.00
9,300.0	1.64	81.90	9,220.6	132.1	929.0	48.5	3.00	-3.00	0.00
EOD @ Vertical									
9,354.7	0.00	0.00	9,275.3	132.3	929.8	48.6	3.00	-3.00	0.00
9,400.0	0.00	0.00	9,320.6	132.3	929.8	48.6	0.00	0.00	0.00
9,500.0	0.00	0.00	9,420.6	132.3	929.8	48.6	0.00	0.00	0.00
9,600.0	0.00	0.00	9,520.6	132.3	929.8	48.6	0.00	0.00	0.00
9,700.0	0.00	0.00	9,620.6	132.3	929.8	48.6	0.00	0.00	0.00
9,800.0	0.00	0.00	9,720.6	132.3	929.8	48.6	0.00	0.00	0.00
9,900.0	0.00	0.00	9,820.6	132.3	929.8	48.6	0.00	0.00	0.00
10,000.0	0.00	0.00	9,920.6	132.3	929.8	48.6	0.00	0.00	0.00
10,100.0	0.00	0.00	10,020.6	132.3	929.8	48.6	0.00	0.00	0.00
10,200.0	0.00	0.00	10,120.6	132.3	929.8	48.6	0.00	0.00	0.00
3rd Bone Spring									
10,236.4	0.00	0.00	10,157.0	132.3	929.8	48.6	0.00	0.00	0.00
10,300.0	0.00	0.00	10,220.6	132.3	929.8	48.6	0.00	0.00	0.00
Build 10°/100'									
10,354.7	0.00	0.00	10,275.3	132.3	929.8	48.6	0.00	0.00	0.00
10,400.0	4.53	179.89	10,320.6	130.5	929.8	50.3	10.01	10.01	0.00
10,500.0	14.53	179.89	10,419.1	113.9	929.8	66.6	10.00	10.00	0.00
10,600.0	24.53	179.89	10,513.2	80.5	929.9	99.4	10.00	10.00	0.00
Wolfcamp									
10,606.4	25.17	179.89	10,519.0	77.8	929.9	102.0	10.00	10.00	0.00
10,700.0	34.53	179.89	10,600.1	31.3	930.0	147.7	10.00	10.00	0.00
10,800.0	44.53	179.89	10,677.1	-32.3	930.1	210.1	10.00	10.00	0.00
EOB / 45° Inc / 179.89° Azm									
10,804.7	45.00	179.89	10,680.5	-35.6	930.1	213.4	9.92	9.92	0.00
Wolfcamp A									
10,819.6	45.00	179.89	10,691.0	-46.1	930.1	223.7	0.00	0.00	0.00
10,900.0	45.00	179.89	10,747.9	-103.0	930.3	279.5	0.00	0.00	0.00
Build 10°/100'									
10,904.7	45.00	179.89	10,751.2	-106.3	930.3	282.8	0.00	0.00	0.00
11,000.0	54.53	179.89	10,812.7	-179.0	930.4	354.1	10.00	10.00	0.00
11,100.0	64.53	179.89	10,863.3	-265.0	930.6	438.6	10.00	10.00	0.00
11,200.0	74.53	179.89	10,898.2	-358.6	930.7	530.5	10.00	10.00	0.00
11,300.0	84.53	179.89	10,916.4	-456.8	930.9	626.9	10.00	10.00	0.00
EOB / 90° Inc / 179.89° Azm / 10919' TVD									
11,354.7	90.00	179.89	10,919.0	-511.4	931.0	680.6	9.99	9.99	0.00
11,400.0	90.00	179.89	10,919.0	-556.7	931.1	725.0	0.00	0.00	0.00
11,500.0	90.00	179.89	10,919.0	-656.7	931.3	823.2	0.00	0.00	0.00
11,600.0	90.00	179.89	10,919.0	-756.7	931.5	921.4	0.00	0.00	0.00
11,700.0	90.00	179.89	10,919.0	-856.7	931.7	1,019.6	0.00	0.00	0.00
11,800.0	90.00	179.89	10,919.0	-956.7	931.9	1,117.7	0.00	0.00	0.00
11,900.0	90.00	179.89	10,919.0	-1,056.7	932.1	1,215.9	0.00	0.00	0.00
12,000.0	90.00	179.89	10,919.0	-1,156.7	932.3	1,314.1	0.00	0.00	0.00
12,100.0	90.00	179.89	10,919.0	-1,256.7	932.4	1,412.3	0.00	0.00	0.00
12,200.0	90.00	179.89	10,919.0	-1,356.7	932.6	1,510.5	0.00	0.00	0.00
12,300.0	90.00	179.89	10,919.0	-1,456.7	932.8	1,608.6	0.00	0.00	0.00
12,400.0	90.00	179.89	10,919.0	-1,556.7	933.0	1,706.8	0.00	0.00	0.00
12,500.0	90.00	179.89	10,919.0	-1,656.7	933.2	1,805.0	0.00	0.00	0.00
12,600.0	90.00	179.89	10,919.0	-1,756.7	933.4	1,903.2	0.00	0.00	0.00
12,700.0	90.00	179.89	10,919.0	-1,856.7	933.6	2,001.4	0.00	0.00	0.00

Database:	EDM5002	**Local Co-ordinate Reference:**	Well RDX Fed Com 17-40H
Company:	WPX	**TVD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Project:	Eddy County, NM (Nad83NME)	**MD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Site:	Sec 17-T26S-R30E	**North Reference:**	Grid
Well:	RDX Fed Com 17-40H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,800.0	90.00	179.89	10,919.0	-1,956.7	933.8	2,099.5	0.00	0.00	0.00
12,900.0	90.00	179.89	10,919.0	-2,056.7	934.0	2,197.7	0.00	0.00	0.00
13,000.0	90.00	179.89	10,919.0	-2,156.7	934.2	2,295.9	0.00	0.00	0.00
13,100.0	90.00	179.89	10,919.0	-2,256.7	934.4	2,394.1	0.00	0.00	0.00
13,200.0	90.00	179.89	10,919.0	-2,356.7	934.5	2,492.3	0.00	0.00	0.00
13,300.0	90.00	179.89	10,919.0	-2,456.7	934.7	2,590.4	0.00	0.00	0.00
13,400.0	90.00	179.89	10,919.0	-2,556.7	934.9	2,688.6	0.00	0.00	0.00
13,500.0	90.00	179.89	10,919.0	-2,656.7	935.1	2,786.8	0.00	0.00	0.00
13,600.0	90.00	179.89	10,919.0	-2,756.7	935.3	2,885.0	0.00	0.00	0.00
13,700.0	90.00	179.89	10,919.0	-2,856.7	935.5	2,983.1	0.00	0.00	0.00
13,800.0	90.00	179.89	10,919.0	-2,956.7	935.7	3,081.3	0.00	0.00	0.00
13,900.0	90.00	179.89	10,919.0	-3,056.7	935.9	3,179.5	0.00	0.00	0.00
14,000.0	90.00	179.89	10,919.0	-3,156.7	936.1	3,277.7	0.00	0.00	0.00
14,100.0	90.00	179.89	10,919.0	-3,256.7	936.3	3,375.9	0.00	0.00	0.00
14,200.0	90.00	179.89	10,919.0	-3,356.7	936.4	3,474.0	0.00	0.00	0.00
14,300.0	90.00	179.89	10,919.0	-3,456.7	936.6	3,572.2	0.00	0.00	0.00
14,400.0	90.00	179.89	10,919.0	-3,556.7	936.8	3,670.4	0.00	0.00	0.00
14,500.0	90.00	179.89	10,919.0	-3,656.7	937.0	3,768.6	0.00	0.00	0.00
14,600.0	90.00	179.89	10,919.0	-3,756.7	937.2	3,866.8	0.00	0.00	0.00
14,700.0	90.00	179.89	10,919.0	-3,856.7	937.4	3,964.9	0.00	0.00	0.00
14,800.0	90.00	179.89	10,919.0	-3,956.7	937.6	4,063.1	0.00	0.00	0.00
14,900.0	90.00	179.89	10,919.0	-4,056.7	937.8	4,161.3	0.00	0.00	0.00
15,000.0	90.00	179.89	10,919.0	-4,156.7	938.0	4,259.5	0.00	0.00	0.00
15,100.0	90.00	179.89	10,919.0	-4,256.7	938.2	4,357.7	0.00	0.00	0.00
15,200.0	90.00	179.89	10,919.0	-4,356.7	938.3	4,455.8	0.00	0.00	0.00
15,300.0	90.00	179.89	10,919.0	-4,456.7	938.5	4,554.0	0.00	0.00	0.00
15,400.0	90.00	179.89	10,919.0	-4,556.7	938.7	4,652.2	0.00	0.00	0.00
15,500.0	90.00	179.89	10,919.0	-4,656.7	938.9	4,750.4	0.00	0.00	0.00
15,600.0	90.00	179.89	10,919.0	-4,756.7	939.1	4,848.5	0.00	0.00	0.00
TD @ 15648' MD / 10919' TVD									
15,648.0	90.00	179.89	10,919.0	-4,804.7	939.2	4,895.7	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP RDX Fed Com 17-4	0.00	0.00	0.0	-147.4	980.3	381,825.60	676,849.20	32° 2' 56.270 N	103° 53' 45.425 W
- plan misses target center by 991.3usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
VP RDX Fed Com 17-40	0.00	0.00	9,275.3	132.3	929.8	382,105.26	676,798.70	32° 2' 59.040 N	103° 53' 45.998 W
- plan hits target center									
- Point									
PBHL RDX Fed Com 17	90.00	179.89	10,919.0	-4,804.7	939.2	377,168.25	676,808.09	32° 2' 10.183 N	103° 53' 46.121 W
- plan hits target center									
- Rectangle (sides W100.0 H30.0 D4,293.4)									

Database:	EDM5002	**Local Co-ordinate Reference:**	Well RDX Fed Com 17-40H
Company:	WPX	**TVD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Project:	Eddy County, NM (Nad83NME)	**MD Reference:**	Well @ 3111.0usft (Orion - Phoenix)
Site:	Sec 17-T26S-R30E	**North Reference:**	Grid
Well:	RDX Fed Com 17-40H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,416.0	3,416.0	Cherry Canyon		0.00	179.89
3,541.0	3,541.0	Bell Canyon		0.00	179.89
5,715.9	5,687.0	Brushy Canyon		0.00	179.89
7,420.0	7,366.0	Bone Spring		0.00	179.89
8,309.2	8,242.0	1st Bone Spring		0.00	179.89
9,135.9	9,057.0	2nd Bone Spring		0.00	179.89
10,236.4	10,157.0	3rd Bone Spring		0.00	179.89
10,606.4	10,519.0	Wolfcamp		0.00	179.89
10,819.6	10,691.0	Wolfcamp A		0.00	179.89

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
3,541.0	3,541.0	0.0	0.0	Build 3°/100'
3,869.6	3,868.0	4.0	27.9	EOB / 9.86° Inc / 81.9° Azm
9,026.1	8,948.4	128.3	901.9	Drop 3°/100'
9,354.7	9,275.3	132.3	929.8	EOD @ Vertical
10,354.7	10,275.3	132.3	929.8	Build 10°/100'
10,804.7	10,680.5	-35.6	930.1	EOB / 45° Inc / 179.89° Azm
10,904.7	10,751.2	-106.3	930.3	Build 10°/100'
11,354.7	10,919.0	-511.4	931.0	EOB / 90° Inc / 179.89° Azm / 10919' TVD
15,648.0	10,919.0	-4,804.7	939.2	TD @ 15648' MD / 10919' TVD

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	RKI Exploration & Prod
LEASE NO.:	NM20965
WELL NAME & NO.:	40H-RDX Federal Com 17
SURFACE HOLE FOOTAGE:	175'/N & 1310'/E
BOTTOM HOLE FOOTAGE	300'/S & 330'/E
LOCATION:	Section 17, T. 26 S., R. 30 E., NMPM
COUNTY:	Eddy County, New Mexico

The original COAs still apply with the following drilling modifications:

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**

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

B. CASING

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

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

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

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

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

Medium Cave/Karst
Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Rustler, Red Beds and Delaware.
Abnormal pressures may be encountered upon penetrating the 3rd Bone Spring Sandstone and all subsequent formations.

1. The **13-3/8** inch surface casing shall be set at approximately **1000** 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.

Formation below the 13-3/8" 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 and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at **3475** feet (**top of Lamar**), is:

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

If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

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

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

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

   ☒ Cement should tie-back at least 500 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 as proposed by operator. 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. **Operator has proposed a multi-bowl wellhead assembly that has a weld on head with no o-ring seals. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.**

   a. **Wellhead manufacturer is supplying the test plug/retrieval tool for the operator's third party tester to use during the BOP/BOPE test. Operator shall use the supplied test plug/retrieval tool.**
   b. **Operator shall install the wear bushing required by the wellhead manufacturer. This wear bushing shall be installed by using the test plug/retrieval tool.**
   c. **Wellhead manufacturer representative shall be on location when the intermediate casing mandrel is landed. Operator shall submit copy of manufacturer's wellsite report with subsequent report.**
   d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
   e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

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**.

   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.

JAM 041816