Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 11 2015
OCD Artesia
RECEIVED

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.
NMNM54290

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.
NORTH BRUSHY DRAW FEDERAL 35 6H

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

9. API Well No.
30-015-42293-00-X1

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

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

10. Field and Pool, or Exploratory
CORRAL CANYON (98145)
WC-015 G-06 S252935B; Upper Wolfcamp

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 35 T25S R29E NWNE 175FNL 2290FEL
32.053509 N Lat, 103.571390 W Lon

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.)

RKI REQUESTS A FORMATION CHANGE AND DRILLING CHANGES LISTED BELOW.

Formation Change:
Proposed formation is the Wolfcamp, with proposed MD of 15,000 ft and TVD of 10,400 ft and BHL of 230 ft FSL and 1910 ft FEL.

Drilling Change:
Surface casing will be set at ~~600'~~ 650 with 17 1/2" hole and 13 3/8" csg
Intermediate casing will be set at ~~6800'~~ 8950 with 12 1/4" hole and 9 5/8" csg
Production casing will be set at ~~15000~~ 15945 with 8 3/4" hole and 5 1/2" csg
See revised drilling plan and plat attached.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Accepted for record
NMOCD 6/12/15

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

Electronic Submission #302976 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 06/03/2015 (15CRW0070SE)

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

Signature (Electronic Submission) — Date 05/27/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED
JUN 4 2015
/s/ Chris Walls
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Approved By _____ Title _____ Date

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

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
JUN 11 2015
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
30-015-42293	~~13354~~ 98145	UNDESIGNATED WOLFCAMP

Property Code	Property Name	Well Number
38962	NORTH BRUSHY DRAW FEDERAL 35	6H

OGRID No.	Operator Name	Elevation
246289	RKI EXPLORATION AND PRODUCTION	3014'

Surface Location

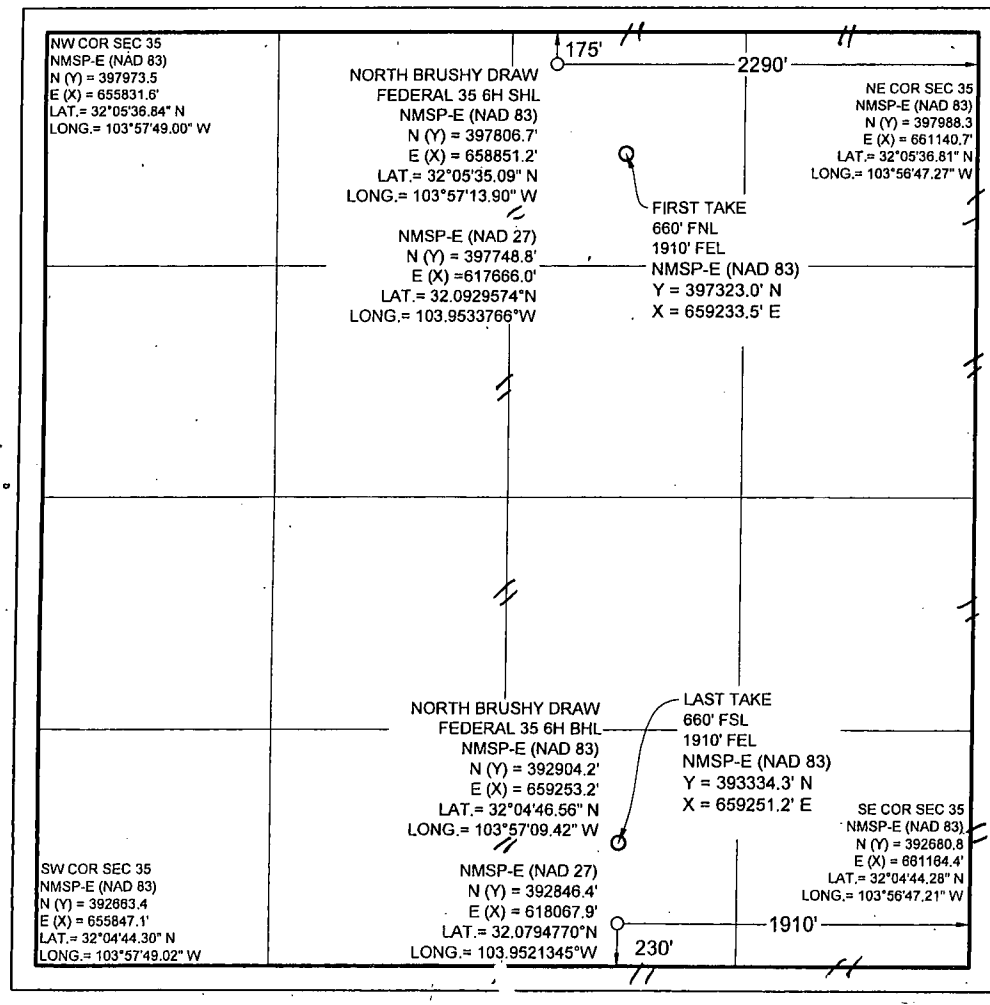
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	35	25 S	29 E		175	NORTH	2290	EAST	EDDY

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
O	35	25 S	29 E		230	SOUTH	1910	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
320			

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 06.03.15
Signature Date

Heather Brehm
Print Name

hbrehm@rkixp.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.

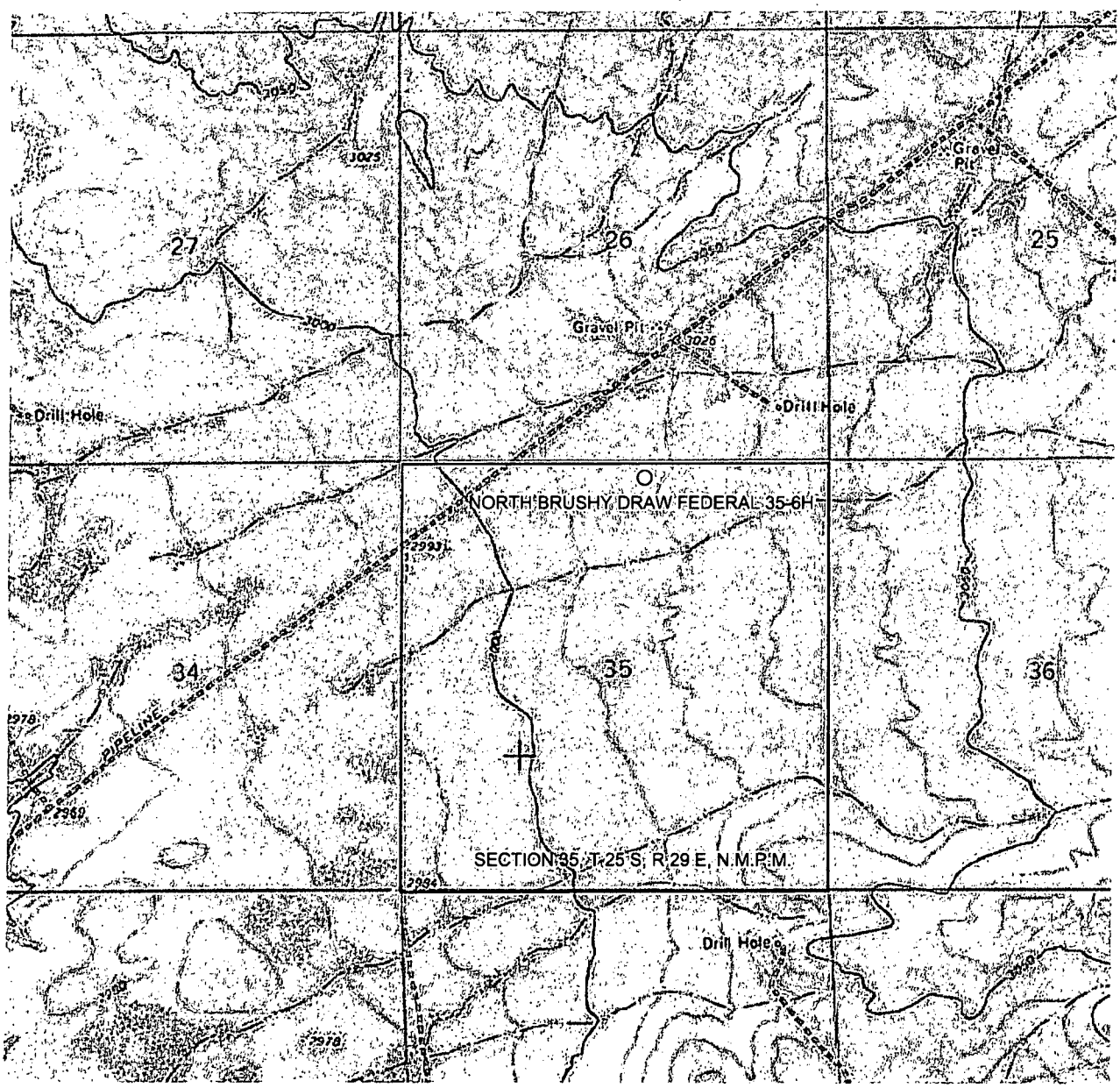
December 29, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

JAMES E. TOMPKINS
NEW MEXICO
14729
REGISTERED PROFESSIONAL LAND SURVEYOR

Job No.: WTC49483
JAMES E. TOMPKINS 14729
Certificate Number

LOCATION VERIFICATION MAP



0 1000 2000 4000

GRAPHIC SCALE 1" = 2000'

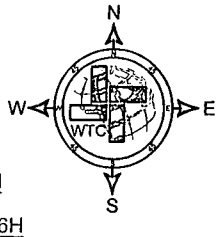
SECTION 35, T 25 S, R 29 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 2290' FEL

OPERATOR: RKI EXPLORATION AND PRODUCTION

WELL NAME: NORTH BRUSHY DRAW FEDERAL 35-6H



DRIVING DIRECTIONS:

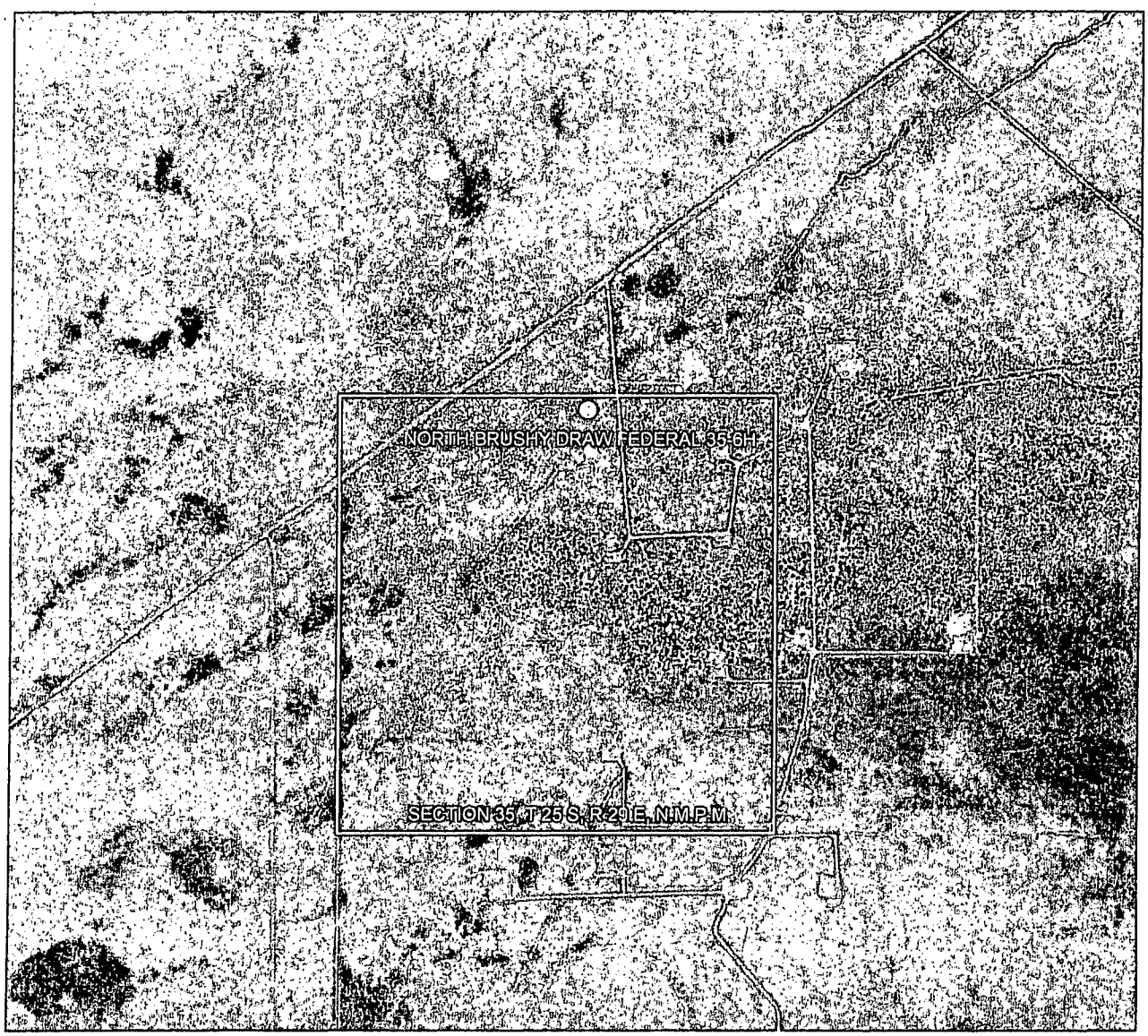
From the intersection of 285 and Longhorn County Road 725 go on 725 for 4.3 miles to a Lease Road. Go Northeast 3.7 miles to another Lease Road. Go South 0.2 mile to the Fed 35 1H Well location and a point 395' East of location.

W T C, INC.
405 S.W. 1st. STREET
ANDREWS, TEXAS 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC49483

AERIAL MAP



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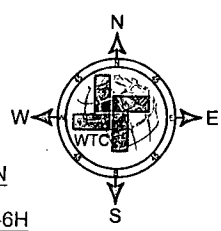

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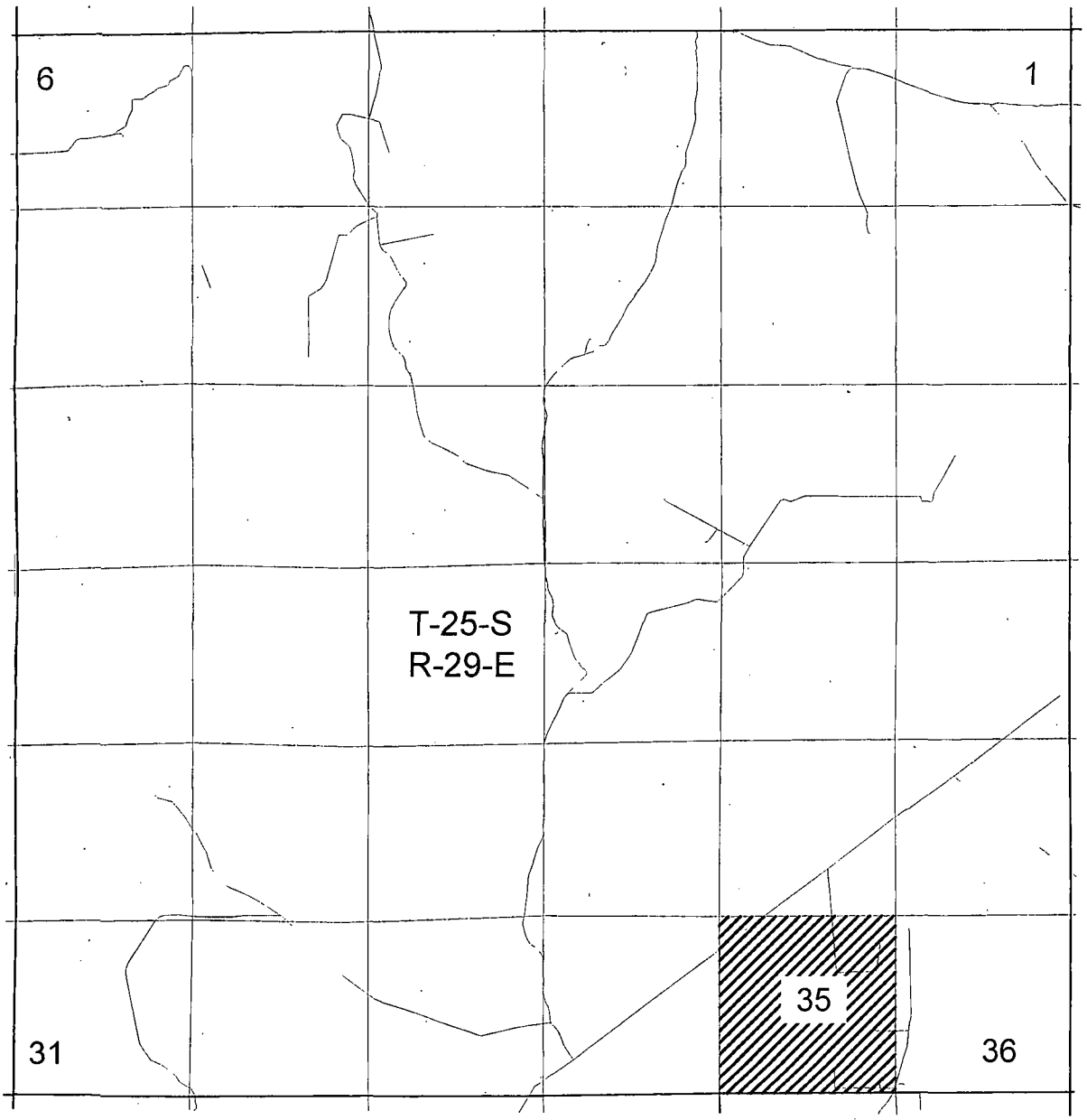
WTC, INC.
405 S.W. 1st. STREET
ANDREWS, TEXAS 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC49483

VICINITY MAP



0 1 2 3

GRAPHIC SCALE 1" = 1 MILE

SECTION 35, T 25 S, R 29 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 2290' FEL

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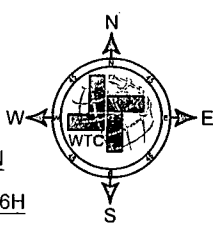

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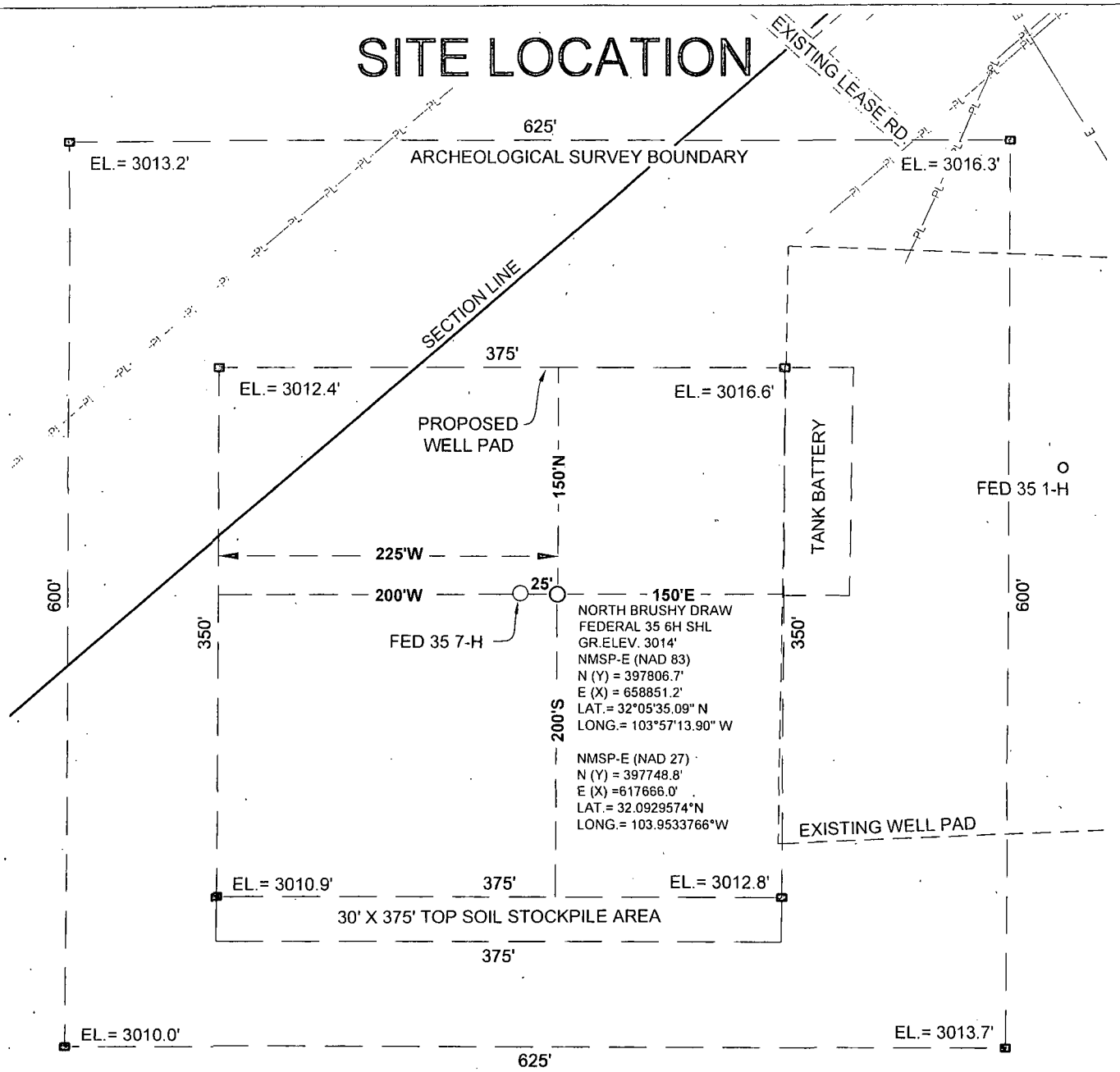
SITE LOCATION



0 50 100 200

GRAPHIC SCALE 1" = 100'

SECTION 35, T 25 S, R 29 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 175' FNL & 2290' FEL

OPERATOR: RKI EXPLORATION AND PRODUCTION

WELL NAME: NORTH BRUSHY DRAW FEDERAL 35-6H

DRIVING DIRECTIONS:

From the intersection of 285 and Longhorn County Road 725 go on 725 for 4.3 miles to a Lease Road. Go Northeast 3.7 miles to another Lease Road. Go South 0.2 mile to the Fed 35 1H Well location and a point 395' East of location.

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ANDREWS, TEXAS 79714
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RKI EXPLORATION & PRODUCTION

JOB No.: WTC49483

RKI Exploration & Production, LLC
Drilling Program

Well North Brushy Draw 35-6H
Location Surface: 175 FSL 2,290 FEL Sec. 35-25S-29E
Bottom Hole: 230 FSL 1,910 FEL Sec. 35-25S-29E

County Eddy
State New Mexico

1) The elevation of the unprepared ground is 3,014 feet above sea level.
18 KB 3,032
2) A rotary rig will be utilized to drill the well to 14,945 feet and run casing.
This equipment will then be rigged down and the well will be completed with a workover rig

3) Proposed depth is 14,945 feet measured depth

4) Estimated tops:

	MD	TVD	Thickness	Fluid		
Rustler	800	800		Freshwater		
Salado	1,100	1,100				
Base Lamar Lime	3,132	3,125				
Delaware Top	3,423	3,415		Oil	BHP	
Cherry Canyon Sand	4,220	4,209		Oil	1,852	psi
Kingrea	5,930	5,930		Oil		
Bone Spring Lime	6,950	6,933		Oil	3,051	psi
Bone Spring 1st SS	7,858	7,841		Oil		
Bone Spring 2nd SS	8,718	8,701		Oil	3,828	psi
Bone Spring 3rd SS	9,762	9,745		Oil	4,288	psi
KOP	9,840	9,823		Oil	4,322	psi
Wolfcamp	10,209	10,167		Oil	4,473	psi
Wolfcamp Target Top	10,841	10,467		Oil	4,605	psi
Landing Point	10,841	10,467			4,605	psi
					-	psi
Total Depth	14,945	10,467			230	Degrees F
Lateral Length	4,104 MD					

*Note: All mineral resources encountered will be protected by running casing and raising cement across all encountered resources

5) Casing program:

See COA

Hole Size	Top	Bottom	OD Csg	Weight	Grade	Connection	Burst	Pressure Max	Burst SF
17 1/2"	0	~~1,000~~ 650	13 3/8"	54.5	J-55	STC	2730	468	5.83
12 1/4"	0	6,950	9 5/8"	40	HCL-80	LTC	5750	3614	1.59
8 3/4"	0	14,945	5 1/2"	20	P-110	BTC	12630	10000	1.26

*Burst SF = Burst / Pmax

Hole Size	Top	Bottom	OD Csg	Weight	Grade	Connection	Collapse	Mud Weight	Collapse SF
17 1/2"	0	~~1,000~~ 650	13 3/8"	54.5	J-55	STC	1580	9.0	3.38
12 1/4"	0	6,950	9 5/8"	40	HCL-80	LTC	4230	10.0	1.17
8 3/4"	0	14,945	5 1/2"	20	P-110	BTC	12100	11.5	1.35

*Collapse SF = [Collapse/(mw x 0.052 x Depth)]

Hole Size	Top	Bottom	OD Csg	Weight	Grade	Connection	Tension	Tension Load	Tension SF
17 1/2"	0	~~1,000~~ 650	13 3/8"	54.5	J-55	STC	420000	54500	7.71
12 1/4"	0	6,950	9 5/8"	40	HCL-80	LTC	936000	278000	3.37
8 3/4"	0	14,945	5 1/2"	20	P-110	BTC	641000	298900	2.14

*All casing load assumptions are based on Air Wt. Burst design assumes Max Frac Pressure (10K), & Collapse design assumes evacuated & max Mud Weight during interval.

Minimum Design Standards

Collapse	1.1
Burst	1
Tension	1.9

All casing will be new
Casing design subject to revision based on geologic conditions encountered

Cement program:

6) **Surface** 17 1/2" hole

Pipe OD	13 3/8"				
Setting Depth	1,000 ft				
Annular Volume	0.6947 cf/ft				
Tail	200				
Shoe Joint	36.5				
Excess	1			100 %	
				383 ft	
Lead	642 sx	1.75 cf/sk	13.5 ppg		9.13 gal/sk
Tail	200 sx	1.33 cf/sk	14.8 ppg		6.32 gal/sk

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

3 centralizers on bottom 3 jts 1 per jt, then 1 every other jt

Intermediate 12 1/4" hole

Pipe OD	9 5/8"				
Setting Depth	6,950 ft				
Annular Volume	0.3132 cf/ft	0.323 cf/ft			
DV Tool	5,500 ft				
Excess 1st Stage	0.6			60 %	
2nd Stage	1.6			160 %	

Stage 1:

Lead	491 sx	1.48 cf/sk	13 ppg	7.609 gal/sk

Lead: PVL + 1.3% PF44 + 5% PF174 + .5% PF606 + .4% PF13 + .1% PF153 + .4 pps PF45

Top of cement: 5,500 ft DV tool: 5,500 ft

1 per joint bottom 3 joints, then 1 every 3th jt

Stage 2:

Lead	1308 sx	2.87 cf/sk	11.6 ppg	16.793 gal/sk
Tail	175 sx	1.33 cf/sk	14.8 ppg	6.331 gal/sk

Lead: 35/65 Poz "C" + 5% PF44 + 6% PF20 + .2% PF13 + .125 ps PF29 + .4 pps PF46

Tail: "C" + .2% PF13

Top of cement: SURFACE - ft

1 per joint bottom 3 joints, then 1 every 3th jt

Production 8 3/4" hole

Pipe OD (in OH)	5 1/2"				
Setting Depth	14,945 ft				
Annular Volume	0.2526 cf/ft	0.2526 cf/ft			
Excess	0.35			35 %	
Lead	690 sx	1.47 cf/sk	13 ppg		gal/sk
Tail	921 sx	1.89 cf/sk	13 ppg		9.632 gal/sk

Lead: PVL +1.3% PF44 + 5% PF174 + .5% PF606 + .3% PF 813 + .1% PF153 +.4pps PF45

Tail: AcidSolid PVL + 5% PF174 + .7% PF606 + .2% PF153 + .5% PF13 + 30% PF151 + .4 pps PF47

Top of cement: 6,650 ft

1 per joint bottom 3 joints, then every 3rd joint to top of cement

*NOTE: A cement bond log will be ran across 9 5/8" Intermediate casing

7) Pressure control equipment:

The blowout preventer equipment will be 5,000 psi rated as shown in the attached BOP diagram and consist of the following
Annular preventer
Pipe rams
Blind rams
Pipe rams
Drilling spool or blowout preventer with 2 side outlets (choke side shall be a 3" minimum diameter, kill side shall be at least 2" diamete
Choke line shall be 3" minimum diameter
2 choke line valves, 3" minimum diameter
2 chokes with 1 remotely controlled from the rig floor
Kill line, 2" minimum diameter
2 kill line valves and a check valve, 2" minimum diameter
Upper and lower kelly cock valves with handles readily available
Safety valves and subs to fit all drill string connections in use shall be readily available
Inside BOP or float available
Pressure gauge on choke manifold
All BOPE subjected to pressure shall be flanged, welded, or clamped
Fill-up line above uppermost preventer

A 13 3/8" SOW x 13 5/8" 5M multi-bowl casing head will be installed and utilized until Total Depth is reached.
The 9 5/8" casing will be landed in the head on a casing mandrel, and the stack will not be broker
until total depth has been reached. Before drilling out the 9 5/8" casing will be tested to .22 psi/ft of casing setting
depth or 1,500 psi whichever is greater, but not exceeding 70% of the burst rating of the pipe.
After drilling approximately 10 feet of new formation an EMW test of11.0 ppg will be performed.
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.

8) Mud program:

Top	Bottom	Mud Wt.	Vis	PV	YP	Fluid Loss	Type System
0	1,000	8.3 to 8.5	28 to 30	1 - 6	1 - 6	NC	Fresh Water ND
850 1,000	6,950	9.8 to 10	28 to 30	1 - 10	1 - 12	NC	Brine
6,950	9,840	8.8 to 9.3	35 to 40	8 - 10	10 - 12	NC	Cut Brine
9,840	14,945	9.3 to 10.5	45 to 55	8 - 12	6 - 10	10 to 15	Cut Brine

*Enough Barite will be stored on location to weight up mud system to an 11.5 ppg mud weight if needed (2751 sx from 9.3 ppg to 11.5 ppg - 2000 bbl system). Formula: Barite Required (lbs) = [(35.05 x (Wf-Wi))/(35.05-Wf)] x Mud Volume (gals).
*Pason PVT equipment will monitor all pit levels at all times, in the event an influx occurred

9) Logging, coring, and testing program:

No drill stem test or cores are planned
Neutron/Density, Resistivity, Gamma Ray, Caliper will be run at Pilot Hole Total Depth
Neutron, Gamma Ray, Caliper will be run from TD to surface

10) Potential hazards:

No H2S is known to exist in the area.
Lost circulation can occur, lost circulation material will be readily available if needed

11) Anticipated start date ASAP
Duration 35 days

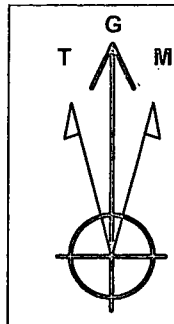
WELL DETAILS: North Brushy Draw 35-6H

Ground Level: 3014.0

Northing	Easting	Latittude	Longitude
397806.70	658851.20	32° 5' 35.094 N	103° 57' 13.895 W

35-6H SHL 175' FNL 2290' FEL 35-25S-29E

35-6H BHL 230' FSL 1910' FEL 35-25S-29E



Azimuths to Grid North
True North: -0.20°
Magnetic North: 7.71°

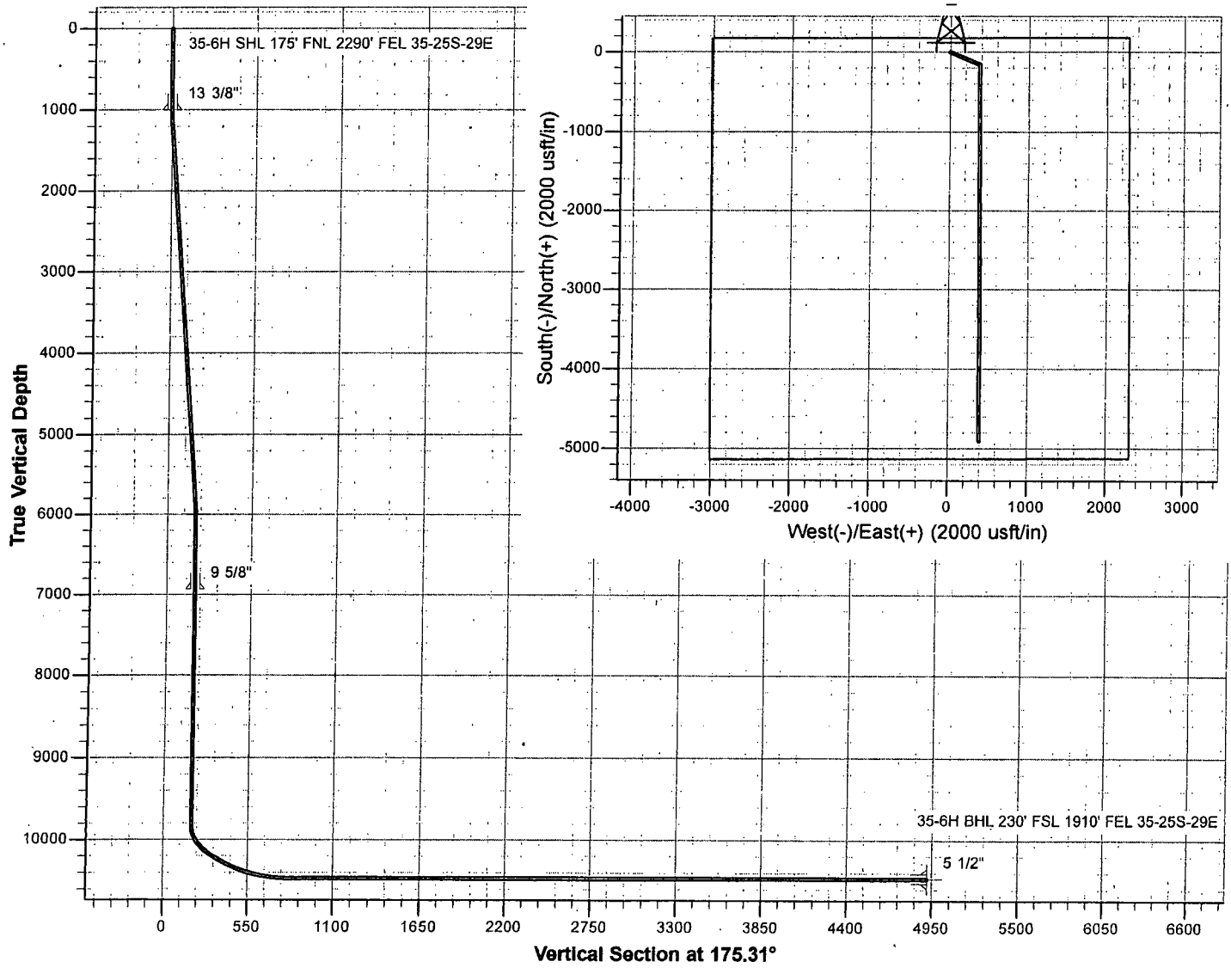
Magnetic Field
Strength: 48673.8snT
Dip Angle: 60.05°
Date: 12/31/2009
Model: IGRF200510

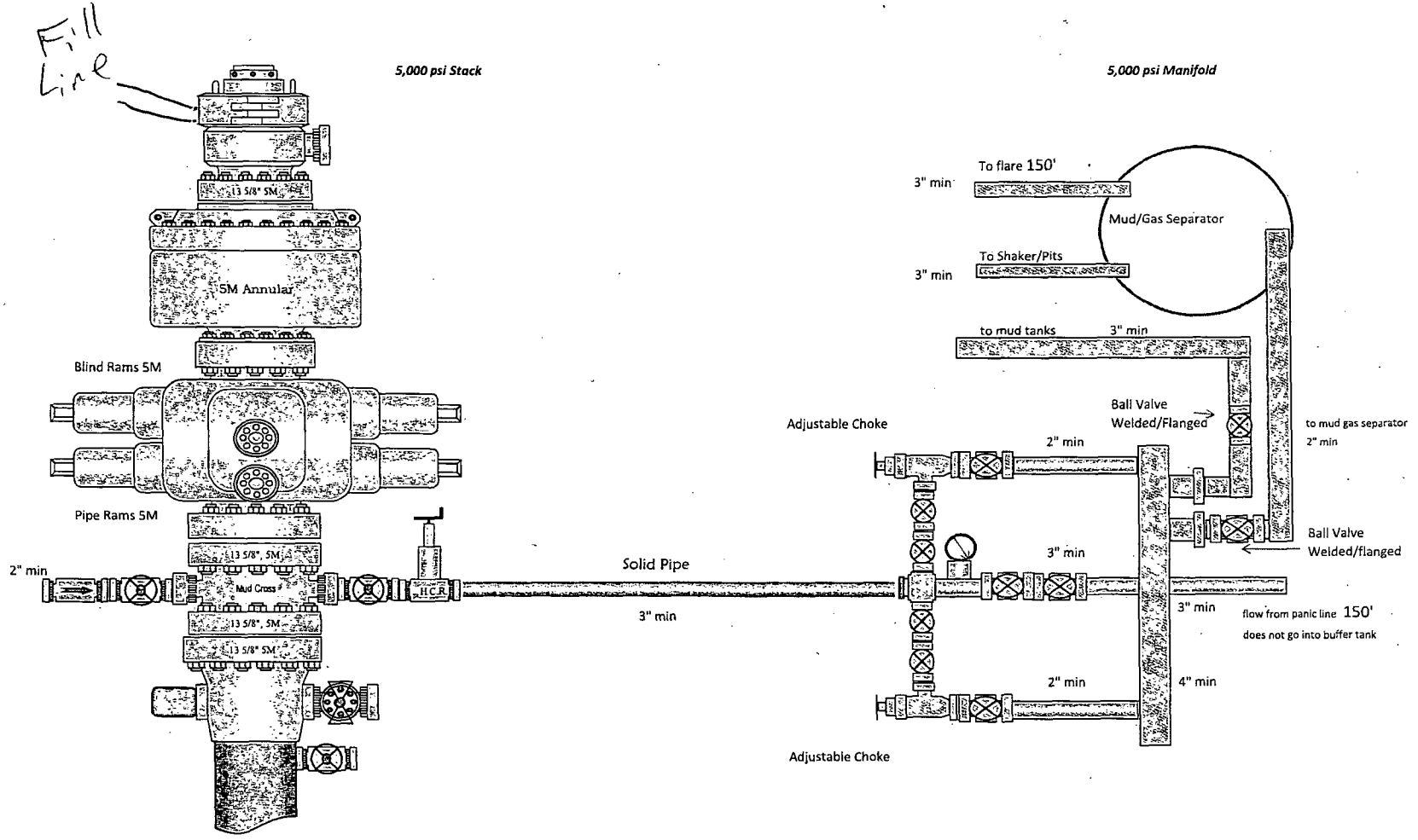
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.0
1161.5	4.84	112.16	1161.3	-2.6	6.3	3.00	3.1
5855.7	4.84	112.16	5838.7	-152.1	373.5	0.00	182.1
6017.2	0.00	0.00	6000.0	-154.7	379.8	3.00	185.2
9840.5	0.00	0.00	9823.3	-154.7	379.8	0.00	185.2
10290.5	45.00	179.73	10228.5	-322.5	380.6	10.00	352.5
10390.5	45.00	179.73	10299.2	-393.2	380.9	0.00	423.0
10840.5	90.00	179.73	10467.0	-798.4	382.8	10.00	827.0
14944.7	90.00	179.73	10467.0	-4902.5	402.0	0.00	4919.0

FORMATION TOP DETAILS

TVD	MD	Formation
3125.0	3132.2	Base Lamar
3415.0	3423.3	Delaware
4209.0	4220.1	Cherry Canyon
5913.0	5930.1	Kingrea
6933.0	6950.2	BS Lime
7841.0	7858.2	BS 1 SS
8701.0	8718.2	BS 2 SS
9745.0	9762.2	BS 3 SS
10167.0	10209.1	Wolfcamp
10467.0	10840.5	Wolfcamp TT




Fill Line
5,000 psi Stack
5,000 psi Manifold
13 5/8" 5M
5M Annular
Blind Rams 5M
Pipe Rams 5M
13 5/8", 5M
Mud Cross
HCR
2" min
Solid Pipe
3" min
Adjustable Choke
To flare 150'
3" min
Mud/Gas Separator
To Shaker/Pits
3" min
to mud tanks
3" min
Ball Valve
Welded/Flanged
to mud gas separator
2" min
2" min
3" min
Ball Valve
Welded/flanged
3" min
flow from panic line 150'
does not go into buffer tank
2" min
4" min
Adjustable Choke

CONDITIONS OF APPROVAL

OPERATOR'S NAME: RKI EXPLORATION & PRODUCTION LLC
LEASE NO.: NM054290
WELL NAME & NO.: North Brusy Draw Federal 35 - 6H
SURFACE HOLE FOOTAGE: [175] ' F [N] L [2290] ' F [E] L
BOTTOM HOLE FOOTAGE: [230] ' F [S] L [1910] ' F [E] L
LOCATION: Section 035, T025. S., R 029 E., NMPM
COUNTY: Eddy County, New Mexico

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. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, 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. **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. 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) 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.

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

High Cave/Karst
Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **650** 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:

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 approved top of cement on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

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.

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

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 **5-1/2** inch production casing is:

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

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. **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.**

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.

D. DRILL STEM TEST

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

E. 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 060315