

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 Road, 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 and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised October 25, 2012

RECEIVED NOV 20 2012 NMOCD ARTESIA	AMENDED REPORT
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APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address RKI Exploration & Production, LLC 210 Park Avenue, Suite 900 Oklahoma City, OK 73102		² OGRID Number 246289
⁴ Property Code 39546	³ Property Name Pinnacle State 36	⁵ API Number 30-015-70852 s/s
		⁶ Well No. 30H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
D	36	22S	28E		250	NORTH	785	WEST	EDDY

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
M	36	22S	28E		330	SOUTH	395	WEST	EDDY

9. Pool Information

Culebra Bluff, Bone Spring, South (15011)	
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Additional Well Information

¹¹ Work Type N	¹² Well Type O	¹³ Cable/Rotary R	¹⁴ Lease Type S	¹⁵ Ground Level Elevation 3,125 feet
¹⁶ Multiple No	¹⁷ Proposed Depth 13,004 feet	¹⁸ Formation Bone Spring	¹⁹ Contractor	²⁰ Spud Date ASAP
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

21. Proposed Casing and Cement Program

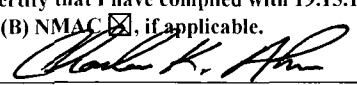
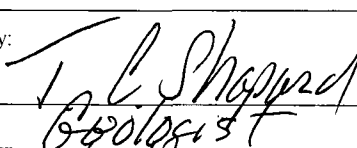
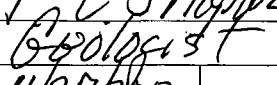
Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
SURFACE	17 1/2 in.	13 3/8 in.	54.5#/I-55	450 feet	706 SKS	SURFACE
INTERMEDIATE	12 1/2 in.	9 5/8 in.	40#/I-55	2,875 feet	740 SKS	SURFACE
PRODUCTION	8 3/4 in.	5 1/2 in.	17#/HCP-110	13,004 feet *	1,736 SKS	3,000 feet

Casing/Cement Program: Additional Comments

REFER TO ATTACHED DRILLING PLAN FOR DETAILED DATA

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
REFER TO ATTACHED DRILLING PLAN FOR DETAIL	3,000 PSI	3,000 PSI	

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ , if applicable. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Charles K. Ahn		Approved By: 	
Title: EH&S/Regulatory Manager		Title: 	
E-mail Address: cahn@rkixp.com		Approved Date: 11/27/2012	Expiration Date: 11/27/2014
Date: 11/20/2012	Phone: 405-996-5771	Conditions of Approval Attached	

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

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NOV 27 2012

NMOC D ARTESIA

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-40852	Pool Code 15011	Pool Name CULEBRA BLUFF; BONE SPRING, SOUTH
Property Code 39546	Property Name PINNACLE STATE 36	Well Number 30H
OGRID No. 246289	Operator Name RKI EXPLORATION & PRODUCTION	Elevation 3125.4'

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	36	22 S	28 E		250	NORTH	785	WEST	EDDY

Bottom Hole Location If Different From Surface

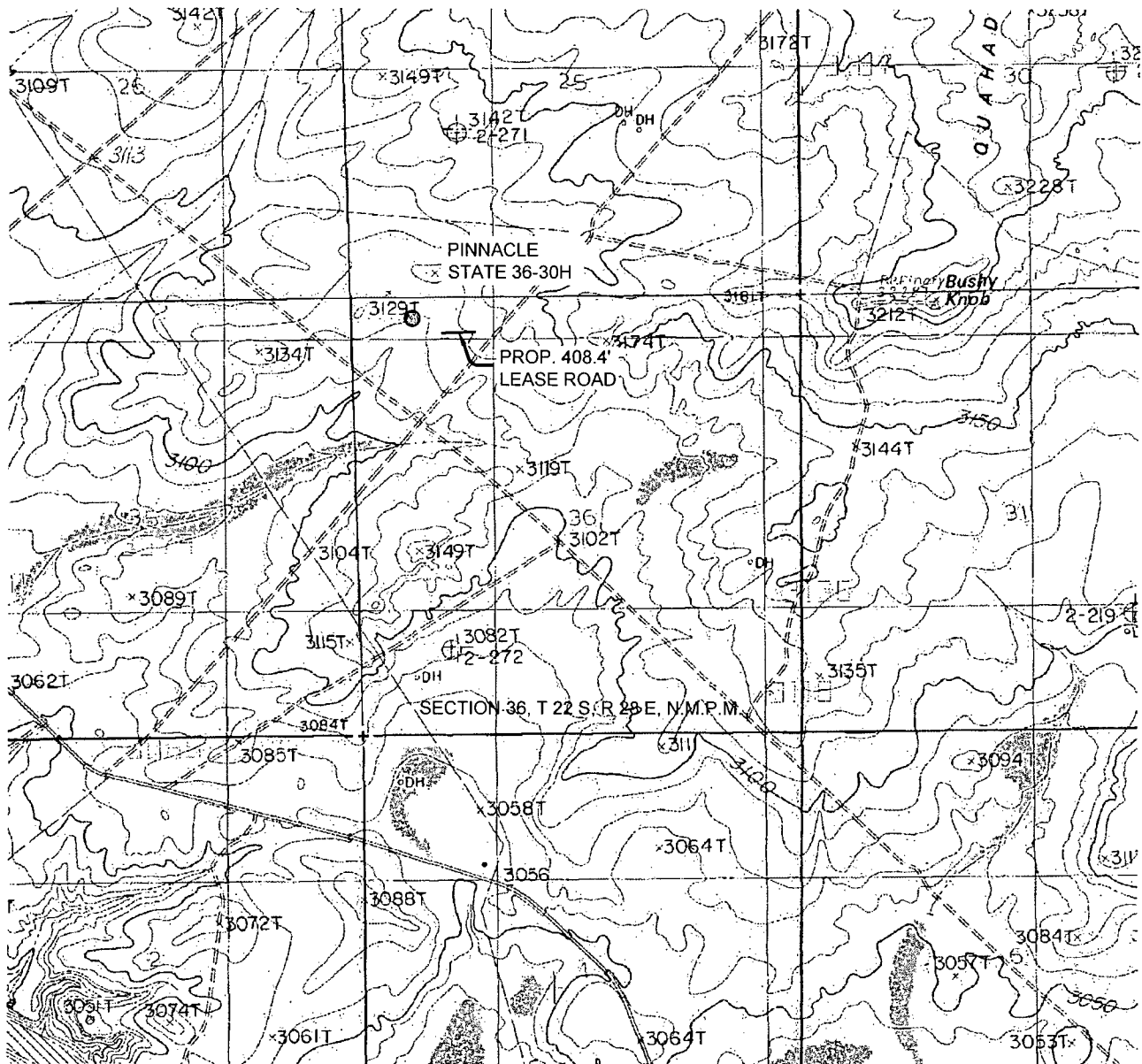
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	36	22 S	28 E		330	SOUTH	395	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
160			

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.

785' 250' 330' (penetration point) PINNACLE STATE 36-30H SHL ELEV. = 3125.4' NMSP-E (NAD 83) Y = 493309.5' N X = 629634.4' E LAT. = N32° 21' 21.08" LONG. = W104° 02' 50.58" 395' 330' PINNACLE STATE 36-30H BHL NMSP-E (NAD 83) Y = 488603.1' N X = 629455.4' E LAT. = N32° 20' 34.51" LONG. = W104° 02' 52.82" SW COR SEC 36 NMSP-E (NAD 83) Y = 488269.4' N X = 629074.8' E LAT. = N32° 20' 31.2" LONG. = W104° 02' 57.26"	NE COR SEC 36 NMSP-E (NAD 83) Y = 493601.4' N X = 634425.0' E LAT. = N32° 21' 23.83" LONG. = W104° 01' 54.72"	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. <i>Charles K. Ahn</i> 11/19/12 Signature _____ Date _____ Charles K. Ahn Print Name _____ cahn@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. Nov. 1, 2012 Date of Survey _____ Signature and Seal of Professional Surveyor _____ JAMES E. TOMPKINS REGISTERED PROFESSIONAL SURVEYOR 14729 Job No.: WTC48742 JAMES E. TOMPKINS 14729 Certificate Number _____
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LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

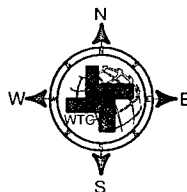
SECTION 36, T 22 S, R 28 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 250' FNL & 785' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: PINNACLE STATE 36-30H



DRIVING DIRECTIONS:

From the intersection of New Mexico State Highway 31 & County Road 605 (US Refinery Road). Go North on County Road 605 for 2.3 miles to lease road right. Go right 1.3 miles and turn left and the location is to the west ±500 feet.

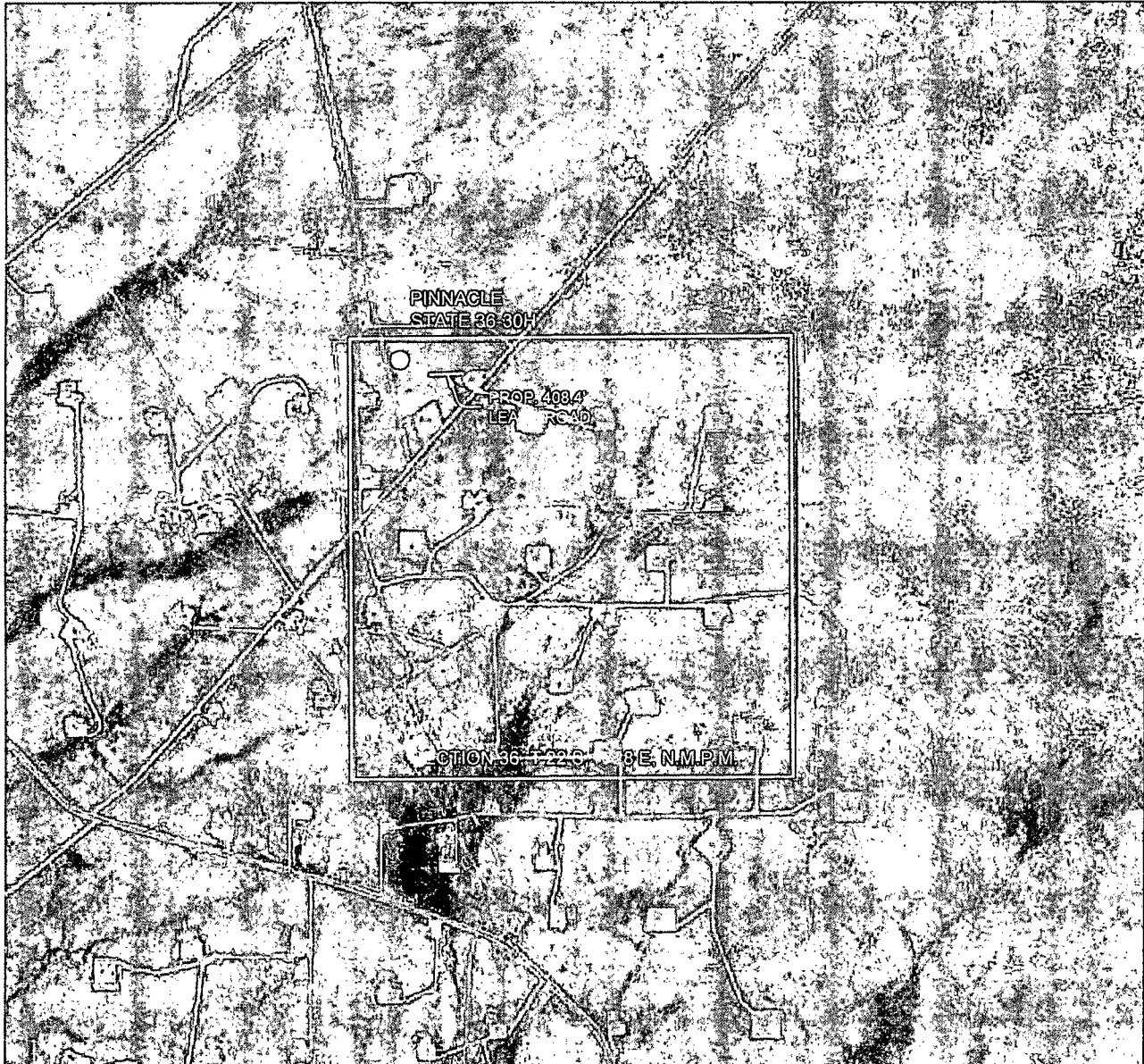


WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st STREET
ANDREWS, TEXAS 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

AERIAL MAP



SCALE: 1" = 2000'

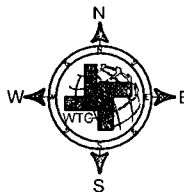
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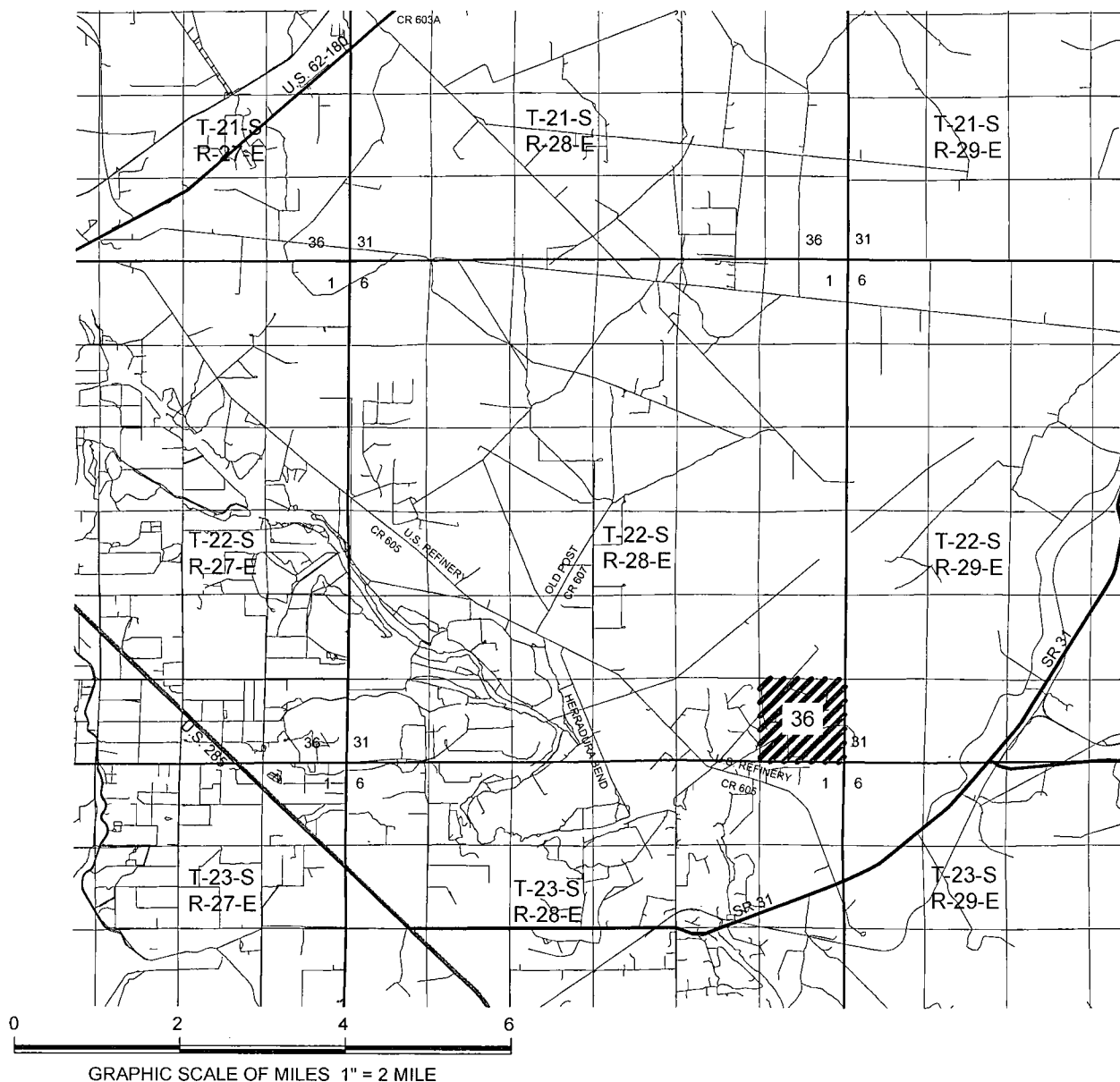


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RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

VICINITY MAP



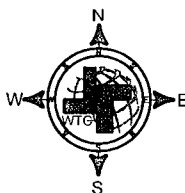
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COUNTY: EDDY STATE: NM

DESCRIPTION: 250' FNL & 785' FWL

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From the intersection of New Mexico State Highway 31 & County Road 605 (US Refinery Road). Go North on County Road 605 for 2.3 miles to lease road right. Go right 1.3 miles and turn left and the location is to the west ±500 feet.

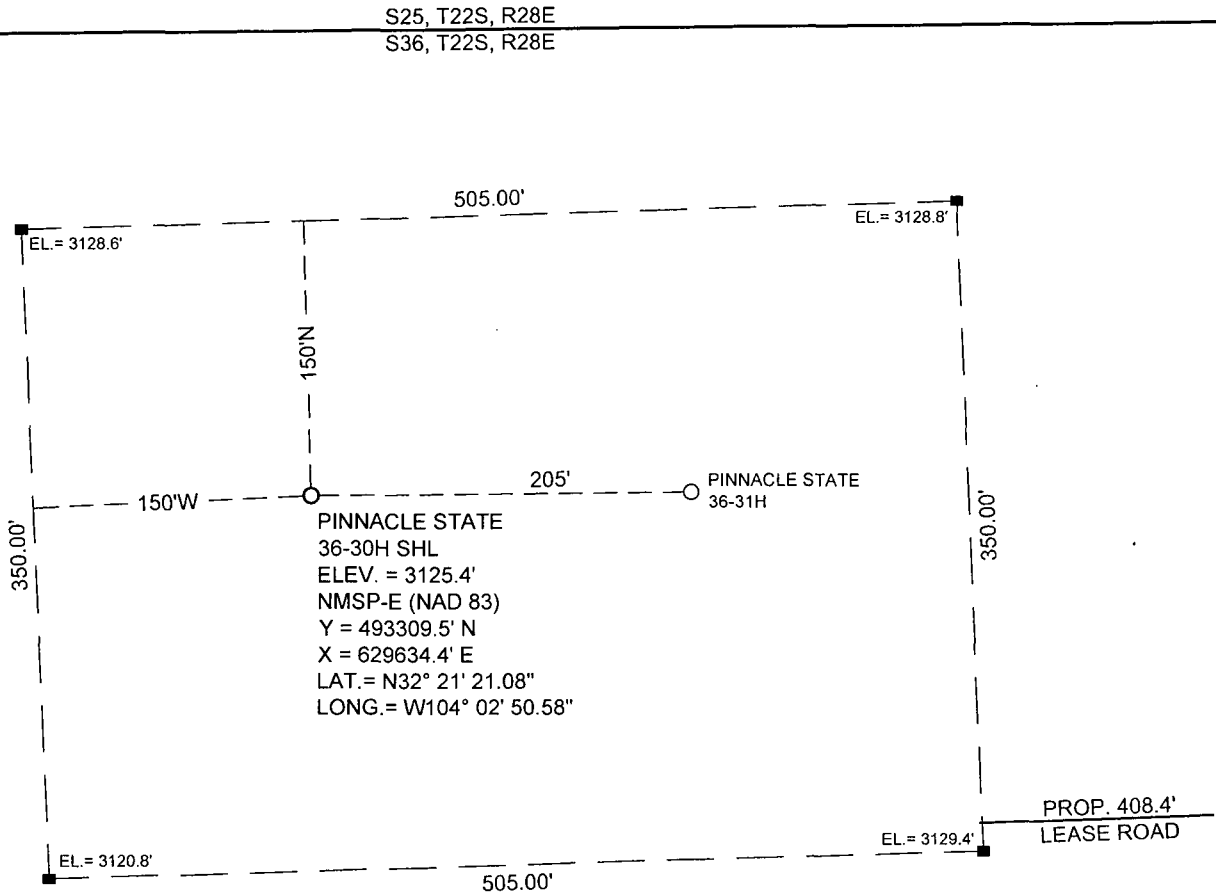


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RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

SITE LOCATION



SCALE: 1" = 100'

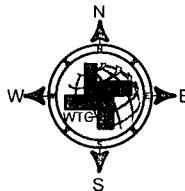
SECTION 36, T 22 S, R 28 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 250' FNL & 785' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: PINNACLE STATE 36-30H



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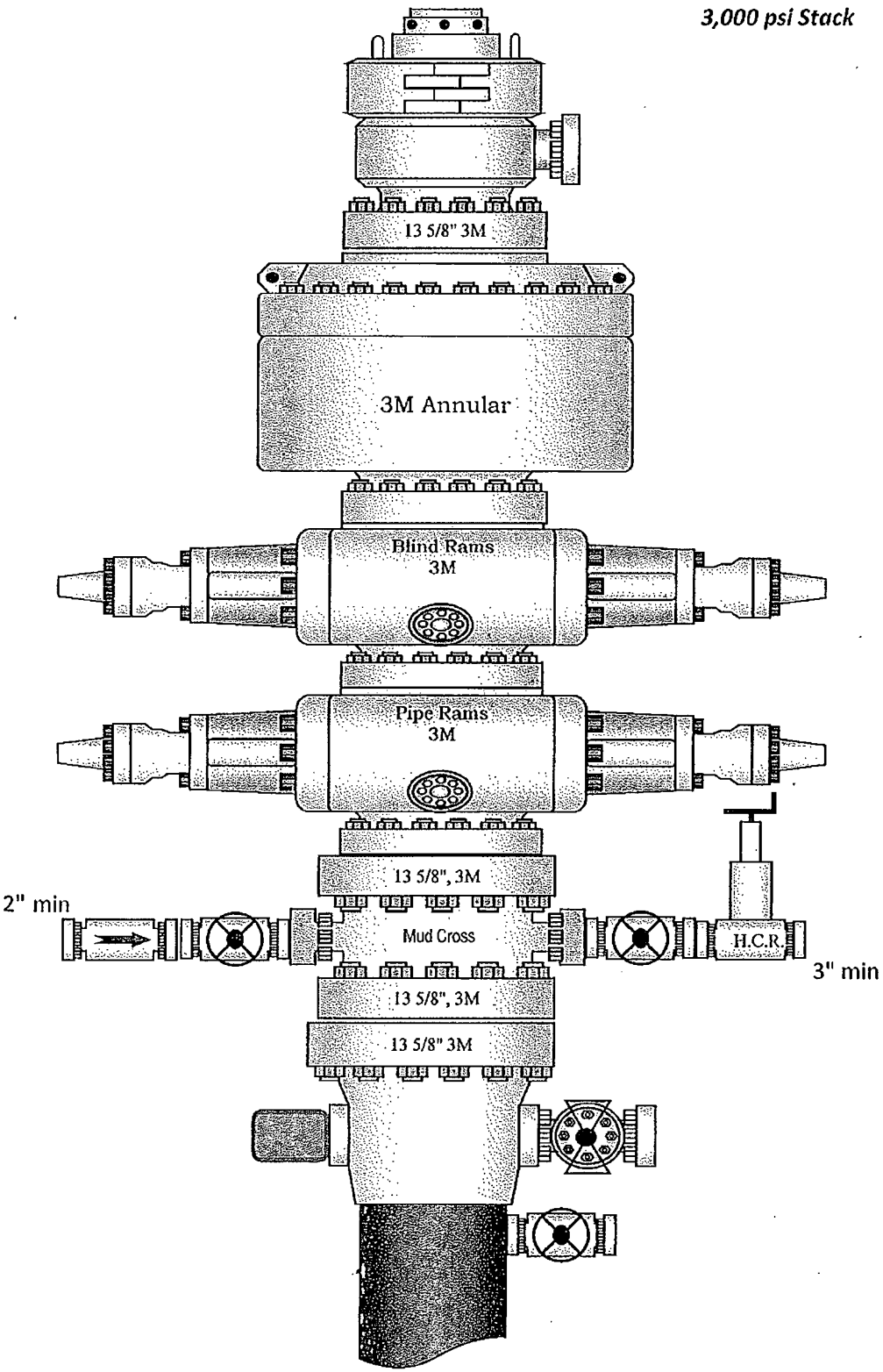


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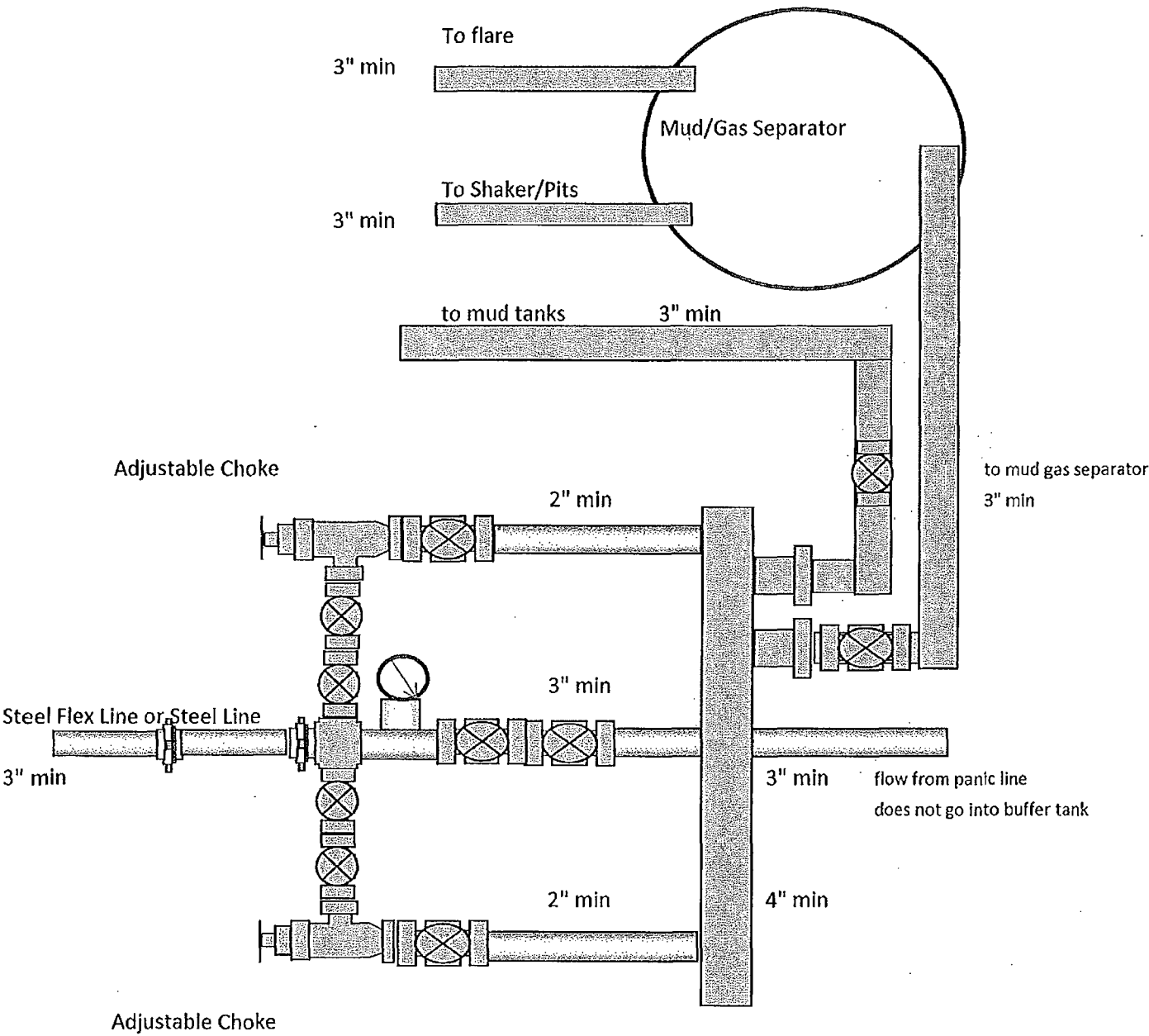
RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

3,000 psi Stack



3,000 psi Manifold



RKI Exploration & Production, LLC

Well Pinnacle State 36-30H
 Location Surface: 250 FNL 785 FWL Sec 36-22S-28E
 Bottom Hole: 330 FSL 395 FWL Sec 36-22S-28E
 County Eddy
 State New Mexico

1) The elevation fo the unprepared ground is 3,125 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 13,004 feet and run casing.
 This equipment will then be rigged down and the well will be completed with a workover rig.

4) Proposed depth is 13,004 feet

5) Estimated tops:

	MD	TVD		
Lamar Lime	2,820	2,820		
Base of Lime	2,860	2,860		
Delaware Top	2,900	2,900		BHP = .44 psi/ft x depth
Bell Canyon Sand	2,900	2,900	Oil	1,276 psi
Cherry Canyon Sand	3,890	3,890	Oil	1,712 psi
Brushy Canyon Sand	4,885	4,885	Oil	2,149 psi
Bone Spring Lime	6,410	6,410		
Avalon Sand	6,515	6,515	Oil	2,867 psi
Bone Spring 1st Sand	7,515	7,515	Oil	3,307 psi
KOP	8,022	8,022		
Bond Spring 2nd Sand	8,465	8,400	Oil	3,696 psi
TD	13,004	8,500		165 Degrees F

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	450	13 3/8"	54.5#/J-55	ST&C	5.71	27.58	20.96
12 1/2"	0	2,875	9 5/8"	40#/J-55	LT&C	1.60	6.25	4.52
8 3/4"	0	13,004	5 1/2"	17#/HCP-110	LT&C	1.50	1.55	5.46
Collapse	1.125							
Burst	1.0							
Tension	2.0							

7) Cement program:

Surface	17 1/2"	hole	
Pipe OD	13 3/8"		
Setting Depth	450	ft	
Annular Volume	0.69462	cf/ft	
Excess	0.5		50 %
Total Annular Volume	590	cf	
With Excess	886	cf	
Lead	506	sx	1.75 cf/sk 13.5 ppg
Tail	200	sx	1.34 cf/sk 14.8 ppg
Lead: "C" + 4% PF20 (bentonite gel) + 2% PF1 (calcium chloride) + .125 pps PF29 (cellophane) + .2% PF46 (antifoam)			
Tail: "C" + 1% PF1 (calcium chloride)			
	Top of cement:	Surface	

Intermediate	12 1/2"	hole	
Pipe OD	9 5/8"		
Setting Depth	2,875	ft	
Annular Volume	0.31318	cf/ft	0.3627 cf/ft
Excess	0.5		50 %
Total Annular Volume	923	cf	
With Excess	1384	cf	
Lead	540	sx	2.07 cf/sk 12.6 ppg
Tail	200	sx	1.33 cf/sk 14.8 ppg
Lead: 35/65 Poz "C" + 5% PF44 (salt) + 6% PF20 bentonite gel) + 3 pps PF42 (KolSeal) + .125 pps PF29 (cellophane) + .2% PF46 + L931% PF1 (calcium chloride)			
Tail: "C" + .2% PF13 (retarder)			
	Top of cement:	Surface	

Production	8 3/4"	hole	
Pipe OD	5 1/2"		
Setting Depth	13,004	ft	
Annular Volume	0.2526	cf/ft	0.26074 cf/ft 300 ft
Excess	0.25		25 %
Total Annular Volume	2,637	cf	
With Excess	3,296	cf	
DV Tool Depth	5500	ft	

Stage 1

Lead:	1,267	sx	1.87 cf/sk 13.0 ppg
Lead: PVL + 30% PF151 (calcium carbonate) + 5% PF174 (expanding cement) + .7% PF606 (gel suppressant) + .2% PF153 (anti settling agent) + .5% PF13			
	Top of cement:	DV tool	

Stage 2

Lead:	294	sx	2.04 cf/sk 12.6 ppg
Tail:	175	sx	1.87 cf/sk 13.0 ppg
Lead: 35/65 Poz "C" + 5% PF44 + 6% PF20 + .2% PF13 + .125 pps PF29 + .25 pps PF46			
Tail: PVL + 30% PF151 (calcium carbonate) + 5% PF174 (expanding cement) + .7% PF606 (gel suppressant) + .2% PF153 (anti settling agent) + .5% PF13			

Top of cement:

2,575 ft

8) Pressure control equipment:

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram type (3,000 psi WP) preventer, a bag-type annular preventer (3,000 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 3,000 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	450	8.5 to 8.9	32 to 36	1 - 6	1 - 6	NC	Fresh Water
	450	2,875	9.8 to 10.0	28 to 30	1 - 3	1 - 3	NC	Brine
	2,875	13,004	8.9 to 9.1	28 to 36	1 - 3	1 - 3	NC	Fresh Water

10) Logging, coring, and testing program:

No drillstem 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 material will be on location and readily available if needed.

12) Anticipated start date

ASAP

Duration

25 days

RKI Exploration & Production

Eddy County (NM83E)

Sec 36-T22S-R28E

Pinnacle State 36-30H

Wellbore #1

Plan: Prelim Plan

Standard Planning Report

08 November, 2012

Wolverine Directional, LLC

Planning Report

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Pinnacle State 36-30H
Company:	RKI Exploration & Production	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 36-T22S-R28E	North Reference:	True
Well:	Pinnacle State 36-30H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim Plan		

Project	Eddy County (NM83E)		
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 36-T22S-R28E		
Site Position:		Northing:	493,309.50ft
From:	Map	Easting:	629,634.40ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	32° 21' 21.075 N
		Longitude:	104° 2' 50.583 W
		Grid Convergence:	0.15 °

Well	Pinnacle State 36-30H		
Well Position	+N/-S	0.0 ft	Northing: 493,309.50 ft
	+E/-W	0.0 ft	Easting: 629,634.40 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	32° 21' 21.075 N
		Longitude:	104° 2' 50.583 W
		Ground Level:	0.0ft

Wellbore	Wellbore #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2012/11/08	7.64	60.19	48,529

Design	Prelim Plan		
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Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	182.33

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,022.5	0.00	0.00	8,022.5	0.0	0.0	0.00	0.00	0.00	0.00	
8,772.5	90.00	182.33	8,500.0	-477.1	-19.4	12.00	12.00	0.00	182.33	
13,004.9	90.00	182.33	8,500.0	-4,705.9	-191.6	0.00	0.00	0.00	0.00	0.00 Pinnacle State 36-3

Wolverine Directional, LLC

Planning Report

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Pinnacle State 36-30H
Company:	RKI Exploration & Production	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 36-T22S-R28E	North Reference:	True
Well:	Pinnacle State 36-30H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Wolverine Directional, LLC

Planning Report

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Pinnacle State 36-30H
Company:	RKI Exploration & Production	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 36-T22S-R28E	North Reference:	True
Well:	Pinnacle State 36-30H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,022.5	0.00	0.00	8,022.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP - 12/100									
8,025.0	0.30	182.33	8,025.0	0.0	0.0	0.0	12.00	12.00	0.00
8,050.0	3.30	182.33	8,050.0	-0.8	0.0	0.8	12.00	12.00	0.00
8,075.0	6.30	182.33	8,074.9	-2.9	-0.1	2.9	12.00	12.00	0.00
8,100.0	9.30	182.33	8,099.7	-6.3	-0.3	6.3	12.00	12.00	0.00
8,125.0	12.30	182.33	8,124.2	-10.9	-0.4	11.0	12.00	12.00	0.00
8,150.0	15.30	182.33	8,148.5	-16.9	-0.7	16.9	12.00	12.00	0.00
8,175.0	18.30	182.33	8,172.4	-24.1	-1.0	24.1	12.00	12.00	0.00
8,200.0	21.30	182.33	8,195.9	-32.6	-1.3	32.6	12.00	12.00	0.00
8,225.0	24.30	182.33	8,219.0	-42.3	-1.7	42.3	12.00	12.00	0.00
8,250.0	27.30	182.33	8,241.5	-53.1	-2.2	53.2	12.00	12.00	0.00
8,275.0	30.30	182.33	8,263.4	-65.2	-2.7	65.2	12.00	12.00	0.00
8,300.0	33.30	182.33	8,284.6	-78.3	-3.2	78.4	12.00	12.00	0.00
8,325.0	36.30	182.33	8,305.2	-92.6	-3.8	92.6	12.00	12.00	0.00
8,350.0	39.30	182.33	8,324.9	-107.9	-4.4	108.0	12.00	12.00	0.00
8,375.0	42.30	182.33	8,343.8	-124.2	-5.1	124.3	12.00	12.00	0.00
8,400.0	45.30	182.33	8,361.9	-141.5	-5.8	141.6	12.00	12.00	0.00
8,425.0	48.30	182.33	8,379.0	-159.7	-6.5	159.8	12.00	12.00	0.00
8,450.0	51.30	182.33	8,395.1	-178.8	-7.3	178.9	12.00	12.00	0.00
8,475.0	54.30	182.33	8,410.3	-198.7	-8.1	198.8	12.00	12.00	0.00
8,500.0	57.30	182.33	8,424.3	-219.3	-8.9	219.5	12.00	12.00	0.00
8,525.0	60.30	182.33	8,437.3	-240.7	-9.8	240.9	12.00	12.00	0.00
8,550.0	63.30	182.33	8,449.1	-262.7	-10.7	262.9	12.00	12.00	0.00
8,575.0	66.30	182.33	8,459.7	-285.3	-11.6	285.5	12.00	12.00	0.00
8,600.0	69.30	182.33	8,469.2	-308.4	-12.6	308.7	12.00	12.00	0.00

Wolverine Directional, LLC

Planning Report

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Pinnacle State 36-30H
Company:	RKI Exploration & Production	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 36-T22S-R28E	North Reference:	True
Well:	Pinnacle State 36-30H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,625.0	72.30	182.33	8,477.4	-332.0	-13.5	332.3	12.00	12.00	0.00
8,650.0	75.30	182.33	8,484.4	-356.0	-14.5	356.3	12.00	12.00	0.00
8,675.0	78.30	182.33	8,490.1	-380.3	-15.5	380.6	12.00	12.00	0.00
8,700.0	81.30	182.33	8,494.5	-404.9	-16.5	405.2	12.00	12.00	0.00
8,725.0	84.30	182.33	8,497.6	-429.7	-17.5	430.0	12.00	12.00	0.00
8,750.0	87.30	182.33	8,499.5	-454.6	-18.5	454.9	12.00	12.00	0.00
8,772.5	90.00	182.33	8,500.0	-477.1	-19.4	477.5	12.00	12.00	0.00
EOC - Hold to TD									
8,800.0	90.00	182.33	8,500.0	-504.5	-20.5	504.9	0.00	0.00	0.00
8,900.0	90.00	182.33	8,500.0	-604.4	-24.6	604.9	0.00	0.00	0.00
9,000.0	90.00	182.33	8,500.0	-704.3	-28.7	704.9	0.00	0.00	0.00
9,100.0	90.00	182.33	8,500.0	-804.3	-32.7	804.9	0.00	0.00	0.00
9,200.0	90.00	182.33	8,500.0	-904.2	-36.8	904.9	0.00	0.00	0.00
9,300.0	90.00	182.33	8,500.0	-1,004.1	-40.9	1,004.9	0.00	0.00	0.00
9,400.0	90.00	182.33	8,500.0	-1,104.0	-44.9	1,104.9	0.00	0.00	0.00
9,500.0	90.00	182.33	8,500.0	-1,203.9	-49.0	1,204.9	0.00	0.00	0.00
9,600.0	90.00	182.33	8,500.0	-1,303.9	-53.1	1,304.9	0.00	0.00	0.00
9,700.0	90.00	182.33	8,500.0	-1,403.8	-57.1	1,404.9	0.00	0.00	0.00
9,800.0	90.00	182.33	8,500.0	-1,503.7	-61.2	1,504.9	0.00	0.00	0.00
9,900.0	90.00	182.33	8,500.0	-1,603.6	-65.3	1,604.9	0.00	0.00	0.00
10,000.0	90.00	182.33	8,500.0	-1,703.5	-69.3	1,704.9	0.00	0.00	0.00
10,100.0	90.00	182.33	8,500.0	-1,803.4	-73.4	1,804.9	0.00	0.00	0.00
10,200.0	90.00	182.33	8,500.0	-1,903.4	-77.5	1,904.9	0.00	0.00	0.00
10,300.0	90.00	182.33	8,500.0	-2,003.3	-81.6	2,004.9	0.00	0.00	0.00
10,400.0	90.00	182.33	8,500.0	-2,103.2	-85.6	2,104.9	0.00	0.00	0.00
10,500.0	90.00	182.33	8,500.0	-2,203.1	-89.7	2,204.9	0.00	0.00	0.00
10,600.0	90.00	182.33	8,500.0	-2,303.0	-93.8	2,304.9	0.00	0.00	0.00
10,700.0	90.00	182.33	8,500.0	-2,402.9	-97.8	2,404.9	0.00	0.00	0.00
10,800.0	90.00	182.33	8,500.0	-2,502.9	-101.9	2,504.9	0.00	0.00	0.00
10,900.0	90.00	182.33	8,500.0	-2,602.8	-106.0	2,604.9	0.00	0.00	0.00
11,000.0	90.00	182.33	8,500.0	-2,702.7	-110.0	2,704.9	0.00	0.00	0.00
11,100.0	90.00	182.33	8,500.0	-2,802.6	-114.1	2,804.9	0.00	0.00	0.00
11,200.0	90.00	182.33	8,500.0	-2,902.5	-118.2	2,904.9	0.00	0.00	0.00
11,300.0	90.00	182.33	8,500.0	-3,002.4	-122.2	3,004.9	0.00	0.00	0.00
11,400.0	90.00	182.33	8,500.0	-3,102.4	-126.3	3,104.9	0.00	0.00	0.00
11,500.0	90.00	182.33	8,500.0	-3,202.3	-130.4	3,204.9	0.00	0.00	0.00
11,600.0	90.00	182.33	8,500.0	-3,302.2	-134.4	3,304.9	0.00	0.00	0.00
11,700.0	90.00	182.33	8,500.0	-3,402.1	-138.5	3,404.9	0.00	0.00	0.00
11,800.0	90.00	182.33	8,500.0	-3,502.0	-142.6	3,504.9	0.00	0.00	0.00
11,900.0	90.00	182.33	8,500.0	-3,601.9	-146.6	3,604.9	0.00	0.00	0.00
12,000.0	90.00	182.33	8,500.0	-3,701.9	-150.7	3,704.9	0.00	0.00	0.00
12,100.0	90.00	182.33	8,500.0	-3,801.8	-154.8	3,804.9	0.00	0.00	0.00
12,200.0	90.00	182.33	8,500.0	-3,901.7	-158.8	3,904.9	0.00	0.00	0.00
12,300.0	90.00	182.33	8,500.0	-4,001.6	-162.9	4,004.9	0.00	0.00	0.00
12,400.0	90.00	182.33	8,500.0	-4,101.5	-167.0	4,104.9	0.00	0.00	0.00
12,500.0	90.00	182.33	8,500.0	-4,201.5	-171.0	4,204.9	0.00	0.00	0.00
12,600.0	90.00	182.33	8,500.0	-4,301.4	-175.1	4,304.9	0.00	0.00	0.00
12,700.0	90.00	182.33	8,500.0	-4,401.3	-179.2	4,404.9	0.00	0.00	0.00
12,800.0	90.00	182.33	8,500.0	-4,501.2	-183.2	4,504.9	0.00	0.00	0.00
12,900.0	90.00	182.33	8,500.0	-4,601.1	-187.3	4,604.9	0.00	0.00	0.00
13,004.9	90.00	182.33	8,500.0	-4,705.9	-191.6	4,709.8	0.00	0.00	0.00
TD at 13004.9 - Pinnacle State 36-30H PBHL									

Wolverine Directional, LLC

Planning Report

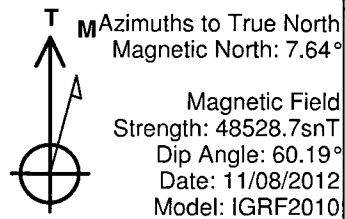
Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Pinnacle State 36-30H
Company:	RKI Exploration & Production	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 36-T22S-R28E	North Reference:	True
Well:	Pinnacle State 36-30H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim Plan		

Targets									
Target Name	hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	
									Latitude Longitude
Pinnacle State 36-30H	- plan hits target	0.00	0.00	8,500.0	-4,705.9	-191.6	488,603.10	629,455.40	32° 20' 34.507 N 104° 2' 52.816 W
	- Point								

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
8,022.5	8,022.5	0.0	0.0	KOP - 12/100
8,772.5	8,500.0	-477.1	-19.4	EOC - Hold to TD
13,004.9	8,500.0	-4,705.9	-191.6	TD at 13004.9

RKI Exploration & Production

Project: Eddy County (NM83E)
 Site: Sec 36-T22S-R28E
 Well: Pinnacle State 36-30H
 Wellbore: Wellbore #1
 Design: Prelim Plan



Wolverine
Directional

WELL DETAILS: Pinnacle State 36-30H

Ground Level: 0.0
 +N/-S +E/-W Northing Easting Latitude Longitude
 0.0 0.0 493309.50 629634.40 32° 21' 21.075 N 104° 2' 50.583 W
 SHL: 250' FNL / 785' FWL
 BHL: 330' FSL / 395' FWL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	8022.5	0.00	0.00	8022.5	0.0	0.0	0.00	0.00	0.0	
3	8772.5	90.00	182.33	8500.0	-477.1	-19.4	12.00	182.33	477.5	
4	13004.9	90.00	182.33	8500.0	-4705.9	-191.6	0.00	0.00	4709.8	Pinnacle State 36-30H PBHL

PROJECT TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S'	+E/-W	Northing	Easting	Shape Point
Pinnacle State 36-30H PBHL	8500.0	-4705.9	-191.6	488603.10	629455.40	

