

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

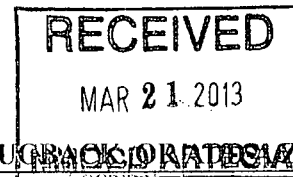
Oil Conservation Division

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-101
Revised October 25, 2012

☐ AMENDED REPORT



APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUG/BACK OR ABANDON WELL

Operator Name and Address: RKI Exploration & Production, LLC 210 Park Avenue, Suite 900 Oklahoma City, OK 73102		CERID Number 246289
Property Code 303271		API Number 30-015-41223
Property Name Pinnacle State		Well No. 33H

7. Surface Location									
UL - Lot C	Section 36	Township 22S	Range 28E	Lot 1dn	Feet from 300	N/S Line NORTH	Feet From 2310	E/W Line WEST	County EDDY

8. Proposed Bottom Hole Location									
UL - Lot N	Section 36	Township 22S	Range 28E	Lot 1dn	Feet from 330	N/S Line SOUTH	Feet From 2245	E/W Line WEST	County EDDY

9. Pool Information	
Culebra Bluff, Bone Spring, South (15011)	

Additional Well Information				
11. Work Type N	12. Well Type O	13. Cable/Rotary R	14. Lease Type S	15. Ground Level Elevation 3,149 feet
16. Multiple No	17. Proposed Depth 12,054 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 1/2 H-55	450 feet	706 SKS	SURFACE
INTERMEDIATE	12 1/2 in.	9 5/8 in.	40 H-55	2,875 feet	740 SKS	SURFACE
PRODUCTION	8 3/4 in.	5 1/2 in.	17 1/2 HCP-110	12,054 feet	1,576 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: <i>Charles K. Ahn</i> Printed name: Charles K. Ahn Title: EH&S/Regulatory Manager E-mail Address: cahn@rkixp.com Date: 3/18/2013		OIL CONSERVATION DIVISION Approved By: <i>T. C. Shepard</i> Title: <i>Geologist</i> Approved Date: <i>3/20/2013</i> Expiration Date: <i>3/21/2015</i> Conditions of Approval Attached	
Phone: 405-996-5771			

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DISTRICT III
1050 Rio Hondo Rd., Artesia, NM 88210
Phone: (505) 331-6178 Fax: (505) 331-6170

DISTRICT IV
1220 S. So. French Dr., Santa Fe, NM 87505
Phone: (505) 476-3300 Fax: (505) 476-5452

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-41223	Pool Code 15011	Pool Name UNDESIGNATED BONE SPRING
Property Code 303271	Property Name Pinnacle State 36	Well Number 33H
OGRID No. 246289	Operator Name RKI EXPLORATION & PRODUCTION	Elevation 3148.6'

Surface Location									
UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	36	22 S	28 E		300	NORTH	2310	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
N	36	22 S	28 E		330	SOUTH	2245	WEST	EDDY
Dedicated Acres		Joint or Infill		Consolidated Code		Order No.			
40 / 60									

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.

NW COR SEC 36 NMSP-E (NAD 83) Y = 493552.8' N X = 628838.2' E LAT. = N32° 21' 23.50" LONG. = W104° 02' 59.86"	Pinnacle State 36-33H SHL ELEV. = 3148.6' NMSP-E (NAD 83) Y = 493272.1' N X = 631161.6' E LAT. = N32° 21' 20.66" LONG. = W104° 02' 32.78"	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> 3-18-13 Signature Date Charles K. Ahn Print Name cahn@rkixp.com E-mail Address
SW COR SEC 36 NMSP-E (NAD 83) Y = 488269.4' N X = 629074.8' E LAT. = N32° 20' 31.21" LONG. = W104° 02' 57.26"	Pinnacle State 36-33H BHL NMSP-E (NAD 83) Y = 488620.7' N X = 631306.4' E LAT. = N32° 20' 34.63" LONG. = W104° 02' 31.24"	SE COR SEC 36 NMSP-E (NAD 83) Y = 488298.7' N X = 634415.67' E LAT. = N32° 20' 31.37" LONG. = W104° 01' 55.01"	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. 5, 2012 Date of Survey Signature and Seal of Professional Surveyor <i>James E. Tompkins</i> Job No. WTC48742 JAMES E. TOMPKINS 14729 Certificate Number

Submit amended property name

RKI Exploration & Production, LLC

Well Pinnacle State 36-33H

Location Surface: 300 FNL 2,310 FWL Sec 36-22S-28E

Bottom Hole: 330 FSL 2,245 FEL Sec 36-22S-28E

County Eddy

State New Mexico

1) The elevation for the unprepared ground is 3,149 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 12,054 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 12,054 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
KOP	7,022	7,022		
Bone Spring 1st Sand	7,550	7,450	Oil	3,278 psi
TD	12,054	7,500		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	12,054	5 1/2"	17#/HCP-110	LT&C	1.62	1.55	5.89
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 12,054 ft
 Annular Volume 0.2526 cf/ft 0.26074 cf/ft 300 ft
 Excess 0.25 25 %
 Total Annular Volume 2,397 cf
 With Excess 2,996 cf
 DV Tool Depth 5500 ft

Stage 1

Lead: 1,107 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	12,054	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, lost circulation materials will be on location and readily available if needed.

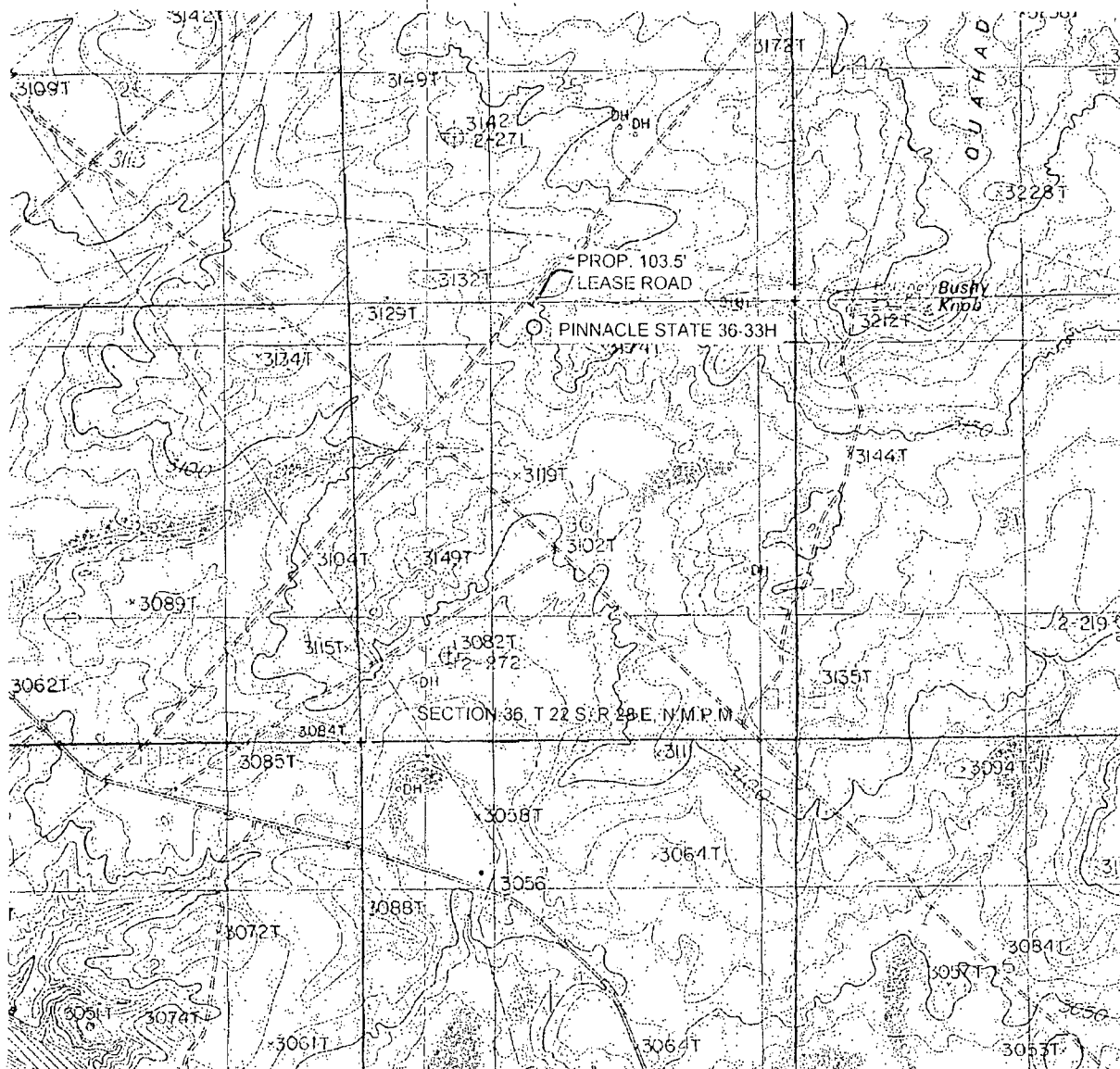
12) Anticipated start date

ASAP

Duration

25 days

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

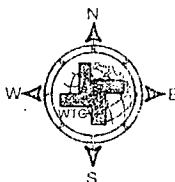
SECTION 36, T 22 S, R 28 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 300' FNL & 2310' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: PINNACLE STATE 36-33H



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 for 1.3 miles and the location is on the right.



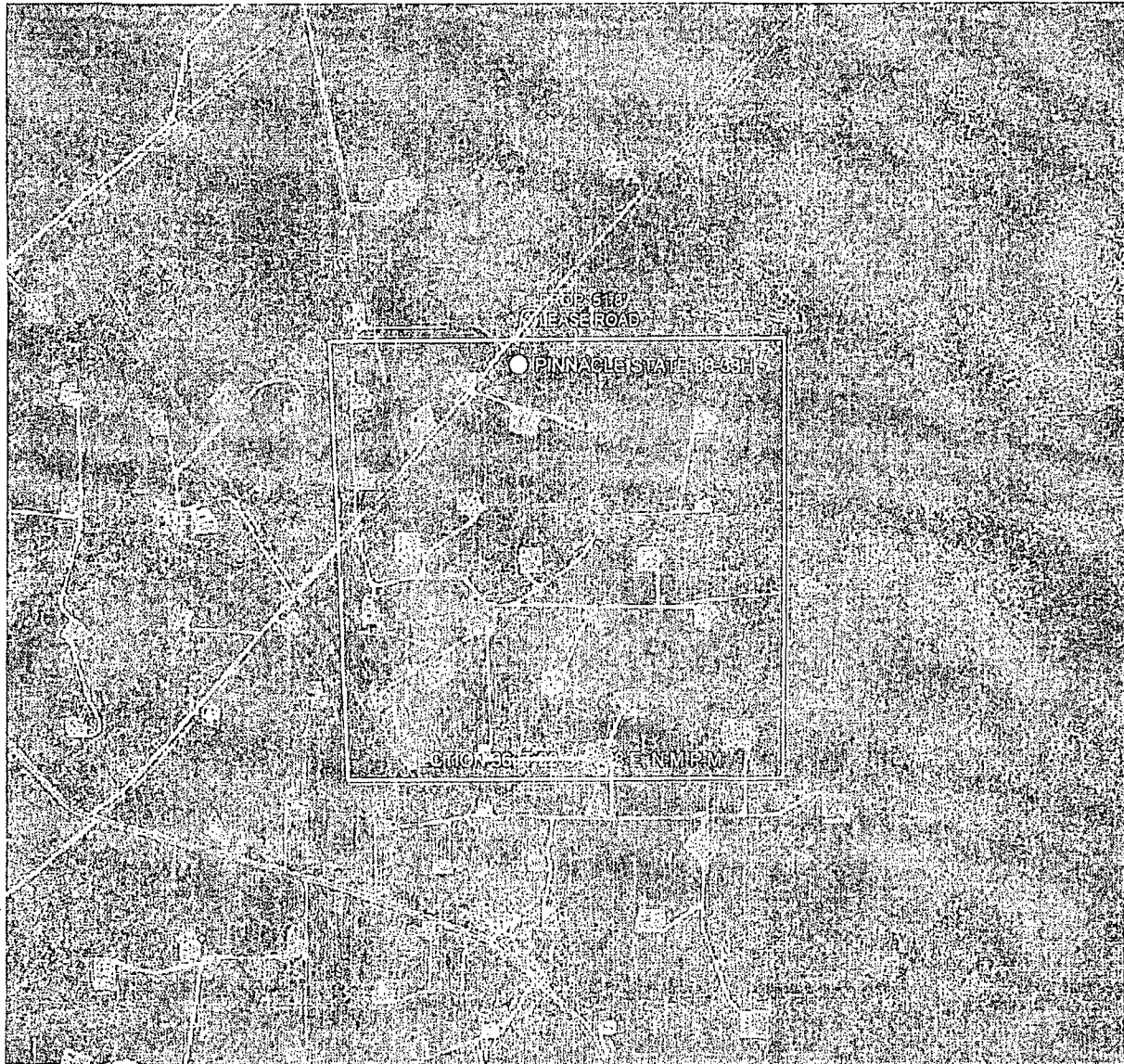
WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st STREET
ANDREWS, TEXAS 79714
(432) 523-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

PINNACLE STATE 36-33H - PINNACLE STATE 36-33H

AERIAL MAP



SCALE: 1" = 2000'

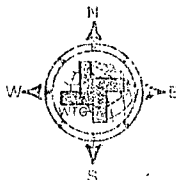
SECTION 36, T 22 S, R 28 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 300' FNL & 2310' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

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WEST TEXAS CONSULTANTS, INC.

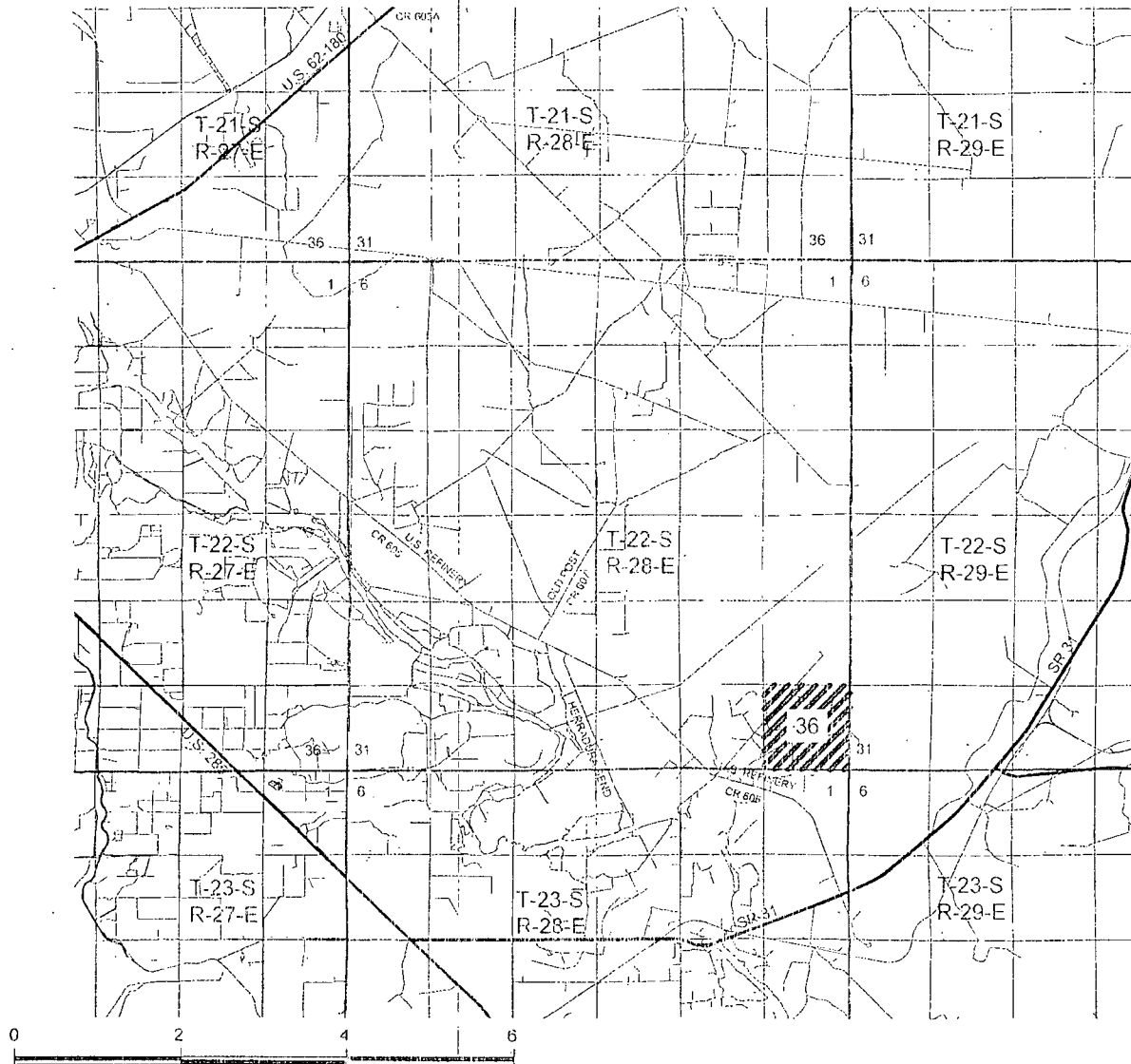
ENGINEERS PLANNERS SURVEYORS

405 S.W. 1st STREET
ANDREWS, TEXAS 79714
(432) 623-2181

RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

VICINITY MAP



GRAPHIC SCALE OF MILES 1" = 2 MILE

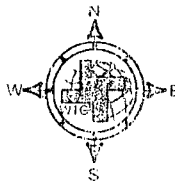
SECTION 36, T 22 S, R 28 E, N.M.P.M.

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DESCRIPTION: 300' FNL & 2310' FWL.

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: PINNACLE STATE 36-33H



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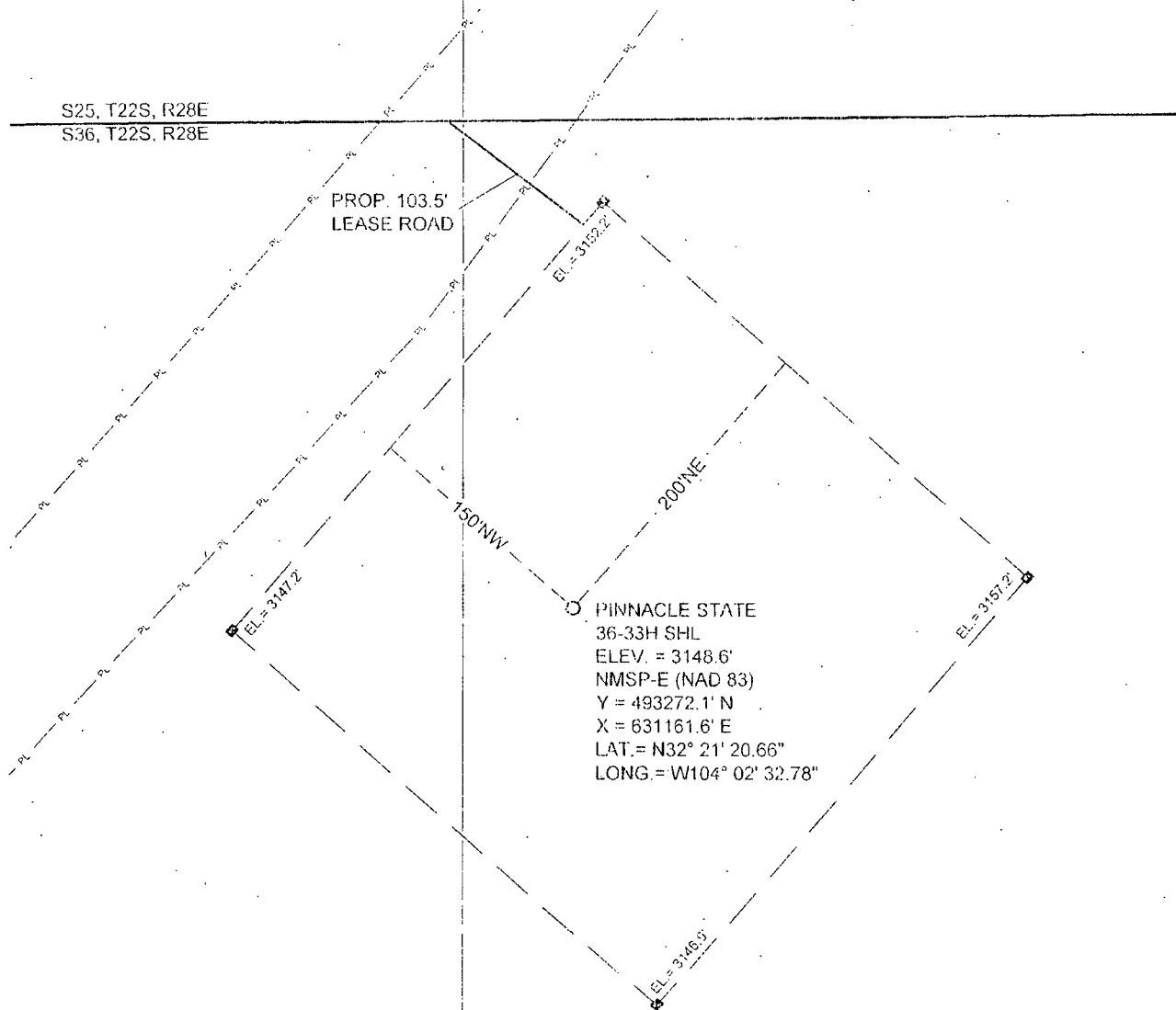
WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st. STREET
ANDREWS, TEXAS 79714
(432) 523-2101

RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

1. $\mathcal{H}$ is a Hilbert space.

SITE LOCATION



SCALE: 1" = 100'

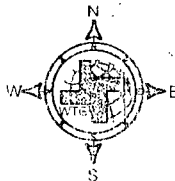
SECTION 36, T 22 S, R 28 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 300' FNL & 2310' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: PINNACLE STATE 36-33H



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 for 1.3 miles and the location is on the right.



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

RKI EXPLORATION & PRODUCTION

JOB No.: WTC48742

RKI Exploration & Production

Eddy County (NM83E)

Sec 36-T22S-R28E

Pinnacle State 36-33H

Wellbore #1

Plan: Prelim Plan

Standard Planning Report

18 March, 2013

Wolverine Directional, LLC

Planning Report

Database:	EDM/2003.21/Single User Db	Local Co-ordinate Reference:	Well Pinnacle State 36-33H
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 36-33H	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 36-33H					
Well Position	+N/-S	-41.5 ft	Northing:	493,272.10 ft	Latitude:	32° 21' 20.664 N
	+E/-W	1,527.1 ft	Easting:	631,161.60 ft	Longitude:	104° 2' 32.780 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	0.0 ft	

Wellbore:	Wellbore #1
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/18/13	7.60	60.18	48,494

Design:	Prelim Plan			
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	178.37

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	
	6,927.0	0.00	0.00	6,927.0	0.0	0.0	0.00	0.00	0.00	0.00	
	7,827.0	90.00	178.37	7,500.0	-572.7	16.3	10.00	10.00	0.00	178.37	
	11,907.7	90.00	178.37	7,500.0	-4,651.8	132.2	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 36-33H
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 36-33H	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
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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
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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 36-33H
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 36-33H	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
6,927.0	0.00	0.00	6,927.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP: 10/100									
6,950.0	2.30	178.37	6,950.0	-0.5	0.0	0.5	10.00	10.00	0.00
7,000.0	7.30	178.37	6,999.8	-4.6	3.1	4.6	10.00	10.00	0.00
7,050.0	12.30	178.37	7,049.1	-13.1	9.4	13.1	10.00	10.00	0.00
7,100.0	17.30	178.37	7,097.4	-25.9	0.7	25.9	10.00	10.00	0.00
7,150.0	22.30	178.37	7,144.4	-42.8	1.2	42.8	10.00	10.00	0.00
7,200.0	27.30	178.37	7,189.8	-63.8	1.8	63.8	10.00	10.00	0.00
7,250.0	32.30	178.37	7,233.2	-88.6	2.5	88.6	10.00	10.00	0.00
7,300.0	37.30	178.37	7,274.2	-117.1	3.3	117.2	10.00	10.00	0.00
7,350.0	42.30	178.37	7,312.6	-149.1	4.2	149.2	10.00	10.00	0.00
7,400.0	47.30	178.37	7,348.1	-184.3	5.2	184.4	10.00	10.00	0.00
7,450.0	52.30	178.37	7,380.4	-222.5	6.3	222.5	10.00	10.00	0.00
7,500.0	57.30	178.37	7,409.2	-263.3	7.5	263.4	10.00	10.00	0.00
7,550.0	62.30	178.37	7,434.3	-306.5	8.7	306.6	10.00	10.00	0.00
7,600.0	67.30	178.37	7,455.6	-351.7	10.0	351.8	10.00	10.00	0.00
7,650.0	72.30	178.37	7,472.9	-398.6	11.3	398.7	10.00	10.00	0.00
7,700.0	77.30	178.37	7,486.0	-446.8	12.7	447.0	10.00	10.00	0.00
7,750.0	82.30	178.37	7,494.8	-495.9	14.1	496.1	10.00	10.00	0.00
7,800.0	87.30	178.37	7,499.4	-545.7	15.5	545.9	10.00	10.00	0.00
7,827.0	90.00	178.37	7,500.0	-572.7	16.3	573.0	10.00	10.00	0.00
EOC: Hold to TD									
7,900.0	90.00	178.37	7,500.0	-645.7	18.3	645.9	0.00	0.00	0.00
8,000.0	90.00	178.37	7,500.0	-745.6	21.2	745.9	0.00	0.00	0.00
8,100.0	90.00	178.37	7,500.0	-845.6	24.0	845.9	0.00	0.00	0.00
8,200.0	90.00	178.37	7,500.0	-945.5	26.9	945.9	0.00	0.00	0.00
8,300.0	90.00	178.37	7,500.0	-1,045.5	29.7	1,045.9	0.00	0.00	0.00
8,400.0	90.00	178.37	7,500.0	-1,145.5	32.5	1,145.9	0.00	0.00	0.00
8,500.0	90.00	178.37	7,500.0	-1,245.4	35.4	1,245.9	0.00	0.00	0.00
8,600.0	90.00	178.37	7,500.0	-1,345.4	38.2	1,345.9	0.00	0.00	0.00
8,700.0	90.00	178.37	7,500.0	-1,445.3	41.1	1,445.9	0.00	0.00	0.00
8,800.0	90.00	178.37	7,500.0	-1,545.3	43.9	1,545.9	0.00	0.00	0.00
8,900.0	90.00	178.37	7,500.0	-1,645.3	46.7	1,645.9	0.00	0.00	0.00
9,000.0	90.00	178.37	7,500.0	-1,745.2	49.6	1,745.9	0.00	0.00	0.00
9,100.0	90.00	178.37	7,500.0	-1,845.2	52.4	1,845.9	0.00	0.00	0.00
9,200.0	90.00	178.37	7,500.0	-1,945.1	55.3	1,945.9	0.00	0.00	0.00
9,300.0	90.00	178.37	7,500.0	-2,045.1	58.1	2,045.9	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 36-33H
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 36-33H	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)	
9,400.0	90.00	178.37	7,500.0	-2,145.1	60.9	2,145.9	0.00	0.00	0.00	
9,500.0	90.00	178.37	7,500.0	-2,245.0	63.8	2,245.9	0.00	0.00	0.00	
9,600.0	90.00	178.37	7,500.0	-2,345.0	66.6	2,345.9	0.00	0.00	0.00	
9,700.0	90.00	178.37	7,500.0	-2,444.9	69.5	2,445.9	0.00	0.00	0.00	
9,800.0	90.00	178.37	7,500.0	-2,544.9	72.3	2,545.9	0.00	0.00	0.00	
9,900.0	90.00	178.37	7,500.0	-2,644.8	75.1	2,645.9	0.00	0.00	0.00	
10,000.0	90.00	178.37	7,500.0	-2,744.8	78.0	2,745.9	0.00	0.00	0.00	
10,100.0	90.00	178.37	7,500.0	-2,844.8	80.8	2,845.9	0.00	0.00	0.00	
10,200.0	90.00	178.37	7,500.0	-2,944.7	83.7	2,945.9	0.00	0.00	0.00	
10,300.0	90.00	178.37	7,500.0	-3,044.7	86.5	3,045.9	0.00	0.00	0.00	
10,400.0	90.00	178.37	7,500.0	-3,144.6	89.3	3,145.9	0.00	0.00	0.00	
10,500.0	90.00	178.37	7,500.0	-3,244.6	92.2	3,245.9	0.00	0.00	0.00	
10,600.0	90.00	178.37	7,500.0	-3,344.6	95.0	3,345.9	0.00	0.00	0.00	
10,700.0	90.00	178.37	7,500.0	-3,444.5	97.9	3,445.9	0.00	0.00	0.00	
10,800.0	90.00	178.37	7,500.0	-3,544.5	100.7	3,545.9	0.00	0.00	0.00	
10,900.0	90.00	178.37	7,500.0	-3,644.4	103.5	3,645.9	0.00	0.00	0.00	
11,000.0	90.00	178.37	7,500.0	-3,744.4	106.4	3,745.9	0.00	0.00	0.00	
11,100.0	90.00	178.37	7,500.0	-3,844.4	109.2	3,845.9	0.00	0.00	0.00	
11,200.0	90.00	178.37	7,500.0	-3,944.3	112.1	3,945.9	0.00	0.00	0.00	
11,300.0	90.00	178.37	7,500.0	-4,044.3	114.9	4,045.9	0.00	0.00	0.00	
11,400.0	90.00	178.37	7,500.0	-4,144.2	117.7	4,145.9	0.00	0.00	0.00	
11,500.0	90.00	178.37	7,500.0	-4,244.2	120.6	4,245.9	0.00	0.00	0.00	
11,600.0	90.00	178.37	7,500.0	-4,344.2	123.4	4,345.9	0.00	0.00	0.00	
11,700.0	90.00	178.37	7,500.0	-4,444.1	126.3	4,445.9	0.00	0.00	0.00	
11,800.0	90.00	178.37	7,500.0	-4,544.1	129.1	4,545.9	0.00	0.00	0.00	
11,907.7	90.00	178.37	7,500.0	-4,651.8	132.2	4,653.7	0.00	0.00	0.00	
TD at 11907.7 - Pinnacle State 36-33H PBH										

Targets										
Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Pinnacle State 36-33H	- plan hits target - Point	0.00	0.00	7,500.0	-4,651.8	132.2	488,620.70	631,306.40	32° 20' 34.631 N	104° 2' 31.239 W

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
6,927.0	6,927.0	0.0	0.0	KOP - 10/100	
7,827.0	7,500.0	-572.7	16.3	EOC - Hold to TD	
11,907.7	7,500.0	-4,651.8	132.2	TD at 11907.7	

RKI Exploration & Production

Project: Eddy County (NM83E)
Site: Sec 36-T22S-R28E
Well: Pinnacle State 36-33H
Wellbore: Wellbore #1
Design: Prelim Plan



M Azimuths to True North
Magnetic North: 7.60°

Magnetic Field
Strength: 48493.8snT
Dip Angle: 60.18°
Date: 03/18/2013
Model: IGRF2010

Wolverine
Directional

WELL DETAILS: Pinnacle State 36-33H

Ground Level: 0.0
+N/-S +E/-W Northing Easting Latitude Longitude
0.0 0.0 493272.10 631161.60 32° 21' 20.664 N 104° 2' 32.780 W
SHL: 300' FNL / 2310' FWL
BHL: 330' FSL / 2245' FWL

SECTION DETAILS

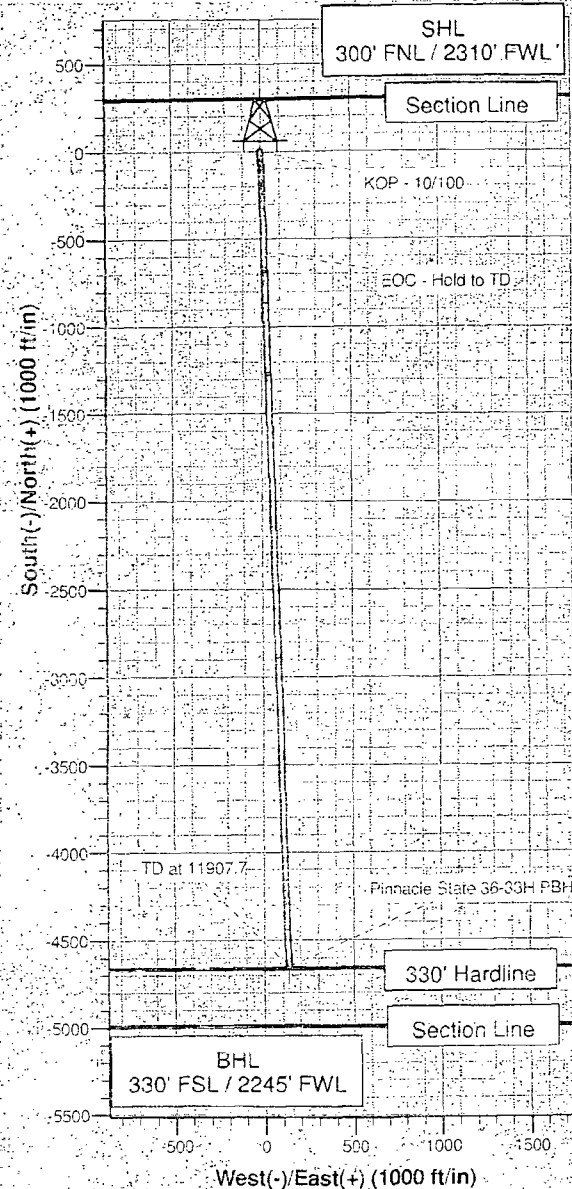
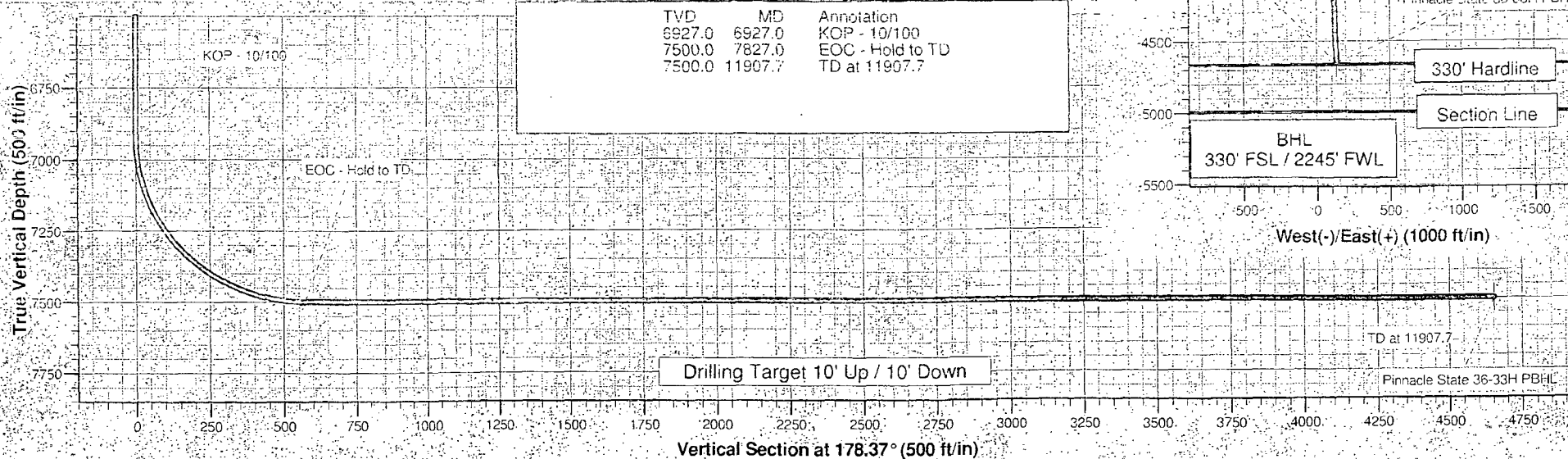
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	6927.0	0.00	0.00	6927.0	0.0	0.0	0.00	0.00	0.0	
3	7827.0	90.00	178.37	7500.0	-572.7	16.3	10.00	178.37	573.0	
4	11907.7	90.00	178.37	7500.0	-4651.8	132.2	0.00	0.00	4653.7	Pinnacle State 36-33H PBHL

PROJECT TARGET DETAILS (MAP CO-ORDINATES)

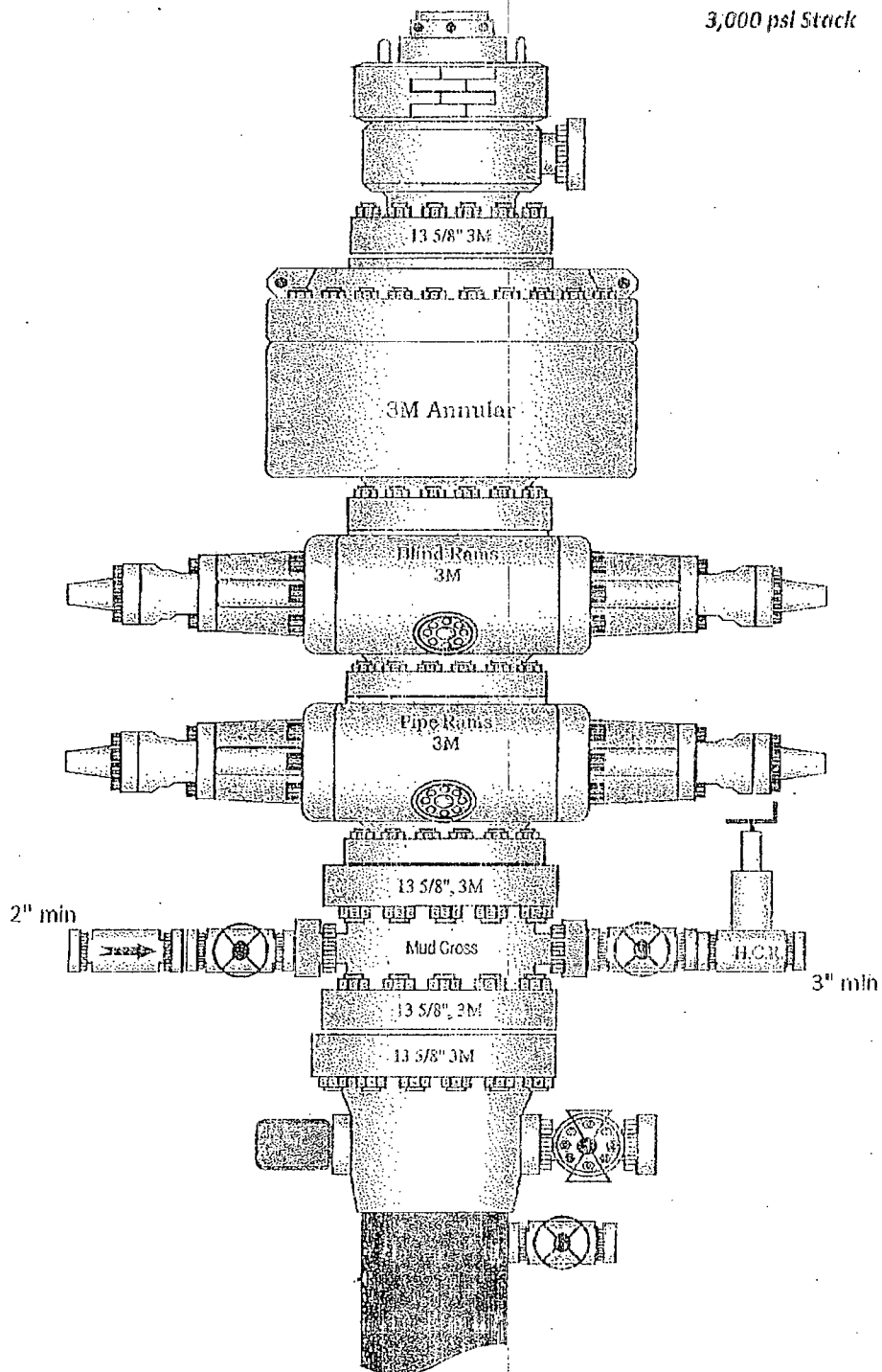
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Pinnacle State 36-33H PBHL	7500.0	-4651.8	132.2	488620.70	631306.40	Point

Annotations

TVD	MD	Annotation
6927.0	6927.0	KOP - 10/100
7500.0	7827.0	EOC - Hold to TD
7500.0	11907.7	TD at 11907.7



3,000 psi Stack



3,000 psl Manifold

