

State of New Mexico
Energy, Minerals & Natural Resources

Form C-101
June 16, 2008

District I
1625 N French Dr, Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505

Oil Conservation Division
1220 S. St. Francis Dr.
Santa Fe, NM 87505

Submit to appropriate District Office

☐ AMENDED REPORT

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN,
PLUGBACK, OR ADD A ZONE**

¹ Operator Name and Address ENERGEN RESOURCES CORPORATION 2010 Afton Place, Farmington NM 87401		² OGRID Number 162928
⁴ Property Code 30934	⁵ Property Name State Bancos	³ API Number 30-39-306607
⁹ Proposed Pool 1 Mesaverde		⁶ Well No. 1 A
¹⁰ Proposed Pool 2		

⁷ Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
I	31	32N	5W	3	1852'	SOUTH	656'	EAST	Rio Arriba

⁸ Proposed 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
A	32	32N	5W		760'	NORTH	760'	EAST	Rio Arriba

Additional Well Location

¹¹ Work Type Code Drill	¹² Well Type Code Gas	¹³ Cable/Rotary Rotary	¹⁴ Lease Type Code State	¹⁵ Ground Level Elevation 6358'
¹⁶ Multiple NO	¹⁷ Proposed Depth 9968' MD	¹⁸ Formation LEWIS	¹⁹ Contractor	²⁰ Spud Date 4/1/2009

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12-1/4"	9-5/8"	32.3	400	200	SURFACE
8-3/4"	7"	23	6070	1005	SURFACE
6-1/4"	4-1/2"	11.6	9968	NONE	OPEN HOLE COMPL.

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

Hold C104

for Directional Survey
and "As Drilled" plat

RCVD FEB 4 '09
OIL CONS. DIV.

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

**NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT**

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief

Signature: 

Printed name: **JASON KINCAID**

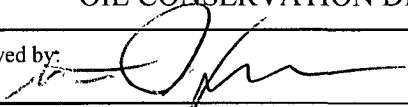
Title: **DRILLING ENGINEER**

E-mail Address: **JKINCAID@ENERGEN.COM**

Date: **1/15/2009**

Phone: **505-325-6800**

OIL CONSERVATION DIVISION

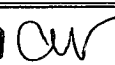
Approved by: 

Title: **DEPUTY OIL & GAS INSPECTOR, DIST. #**

Approval Date: **FEB 12 2009**

Expiration Date: **FEB 12 2011**

Conditions of Approval Attached ☐

 **FEB 12 2009** 

DISTRICT II
1301 W. Grand Avenue, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Artec, N.M. 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT
RCVD FEB 6 '09

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30039-30067		*Pool Code 72319	*Pool Name Blanco - MESAVERDE	OIL CONS. DIV. DIST. 3
*Property Code 30934	*Property Name STATE BANCOS			*Well Number 1 A
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION			*Elevation 6358'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	31	32N	5W	3	1852'	SOUTH	656'	EAST	RIO ARriba

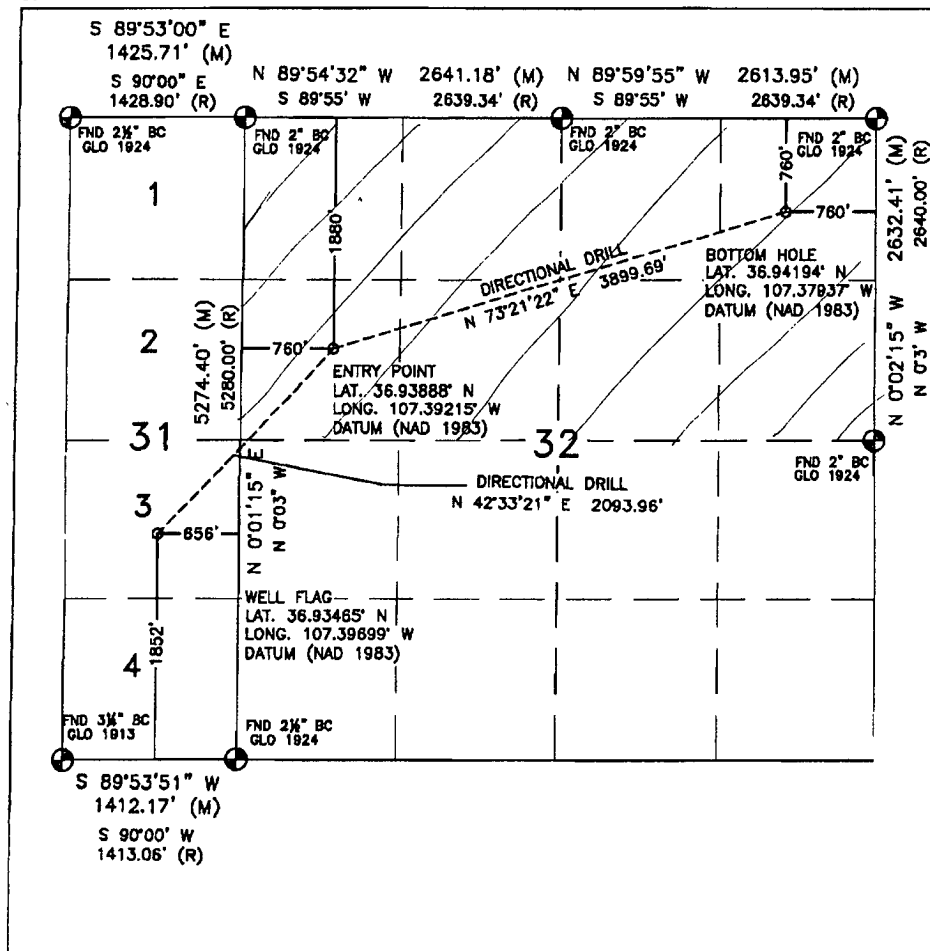
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot idn	Feet from the	North/South line	Feet from the	East/West line	County
A	32	32N	5W		760'	NORTH	760'	EAST	RIO ARriba

13 Dedicated Acres 320 N/2	14 Joint or Infill	15 Consolidation Code	16 Order No.
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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

16



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 or a compulsory pooling order heretofore entered by the division.

10 2-5-09
Signature Date
Jason Kincaid
Printed Name

18 SURVEYOR CERTIFICATION

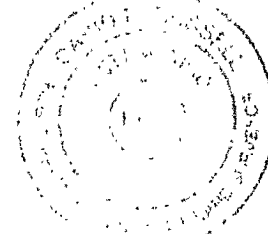
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 22, 2008

Date of Survey _____

Signature and Seal of Professional Surveyor:

For Russell

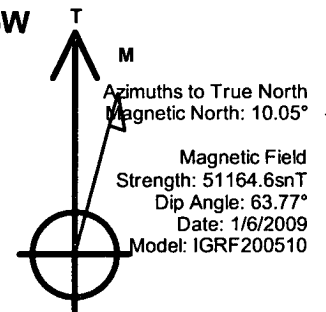


DAVID RUSSELL

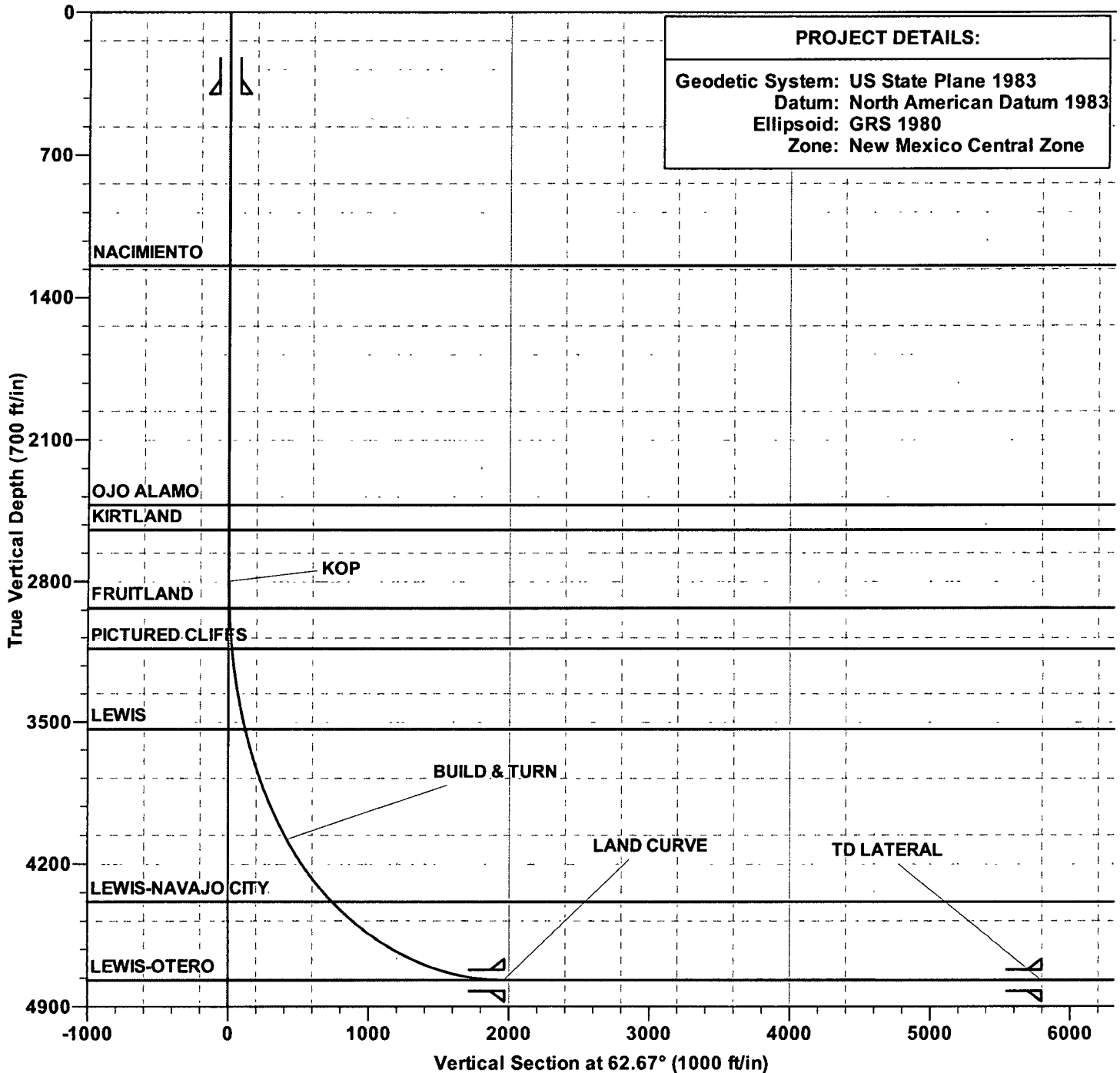
Certificate Number

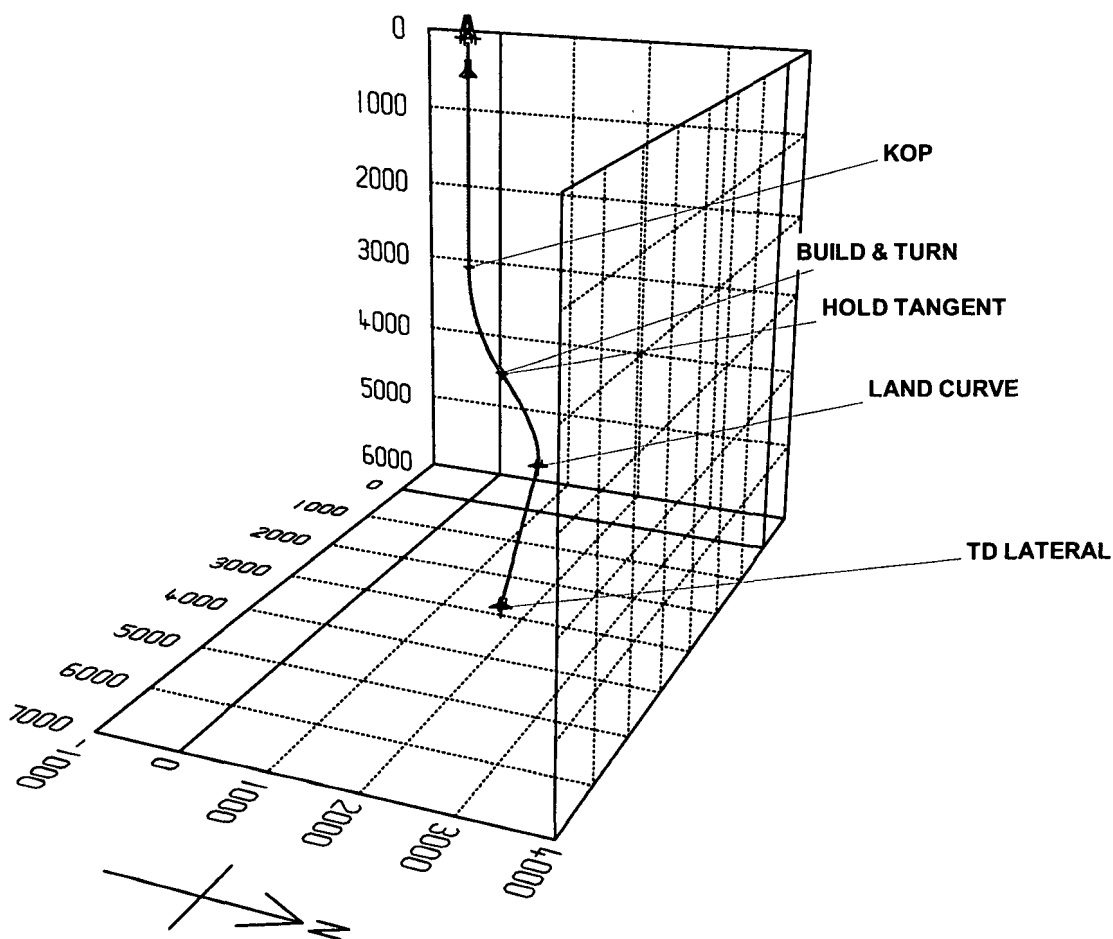
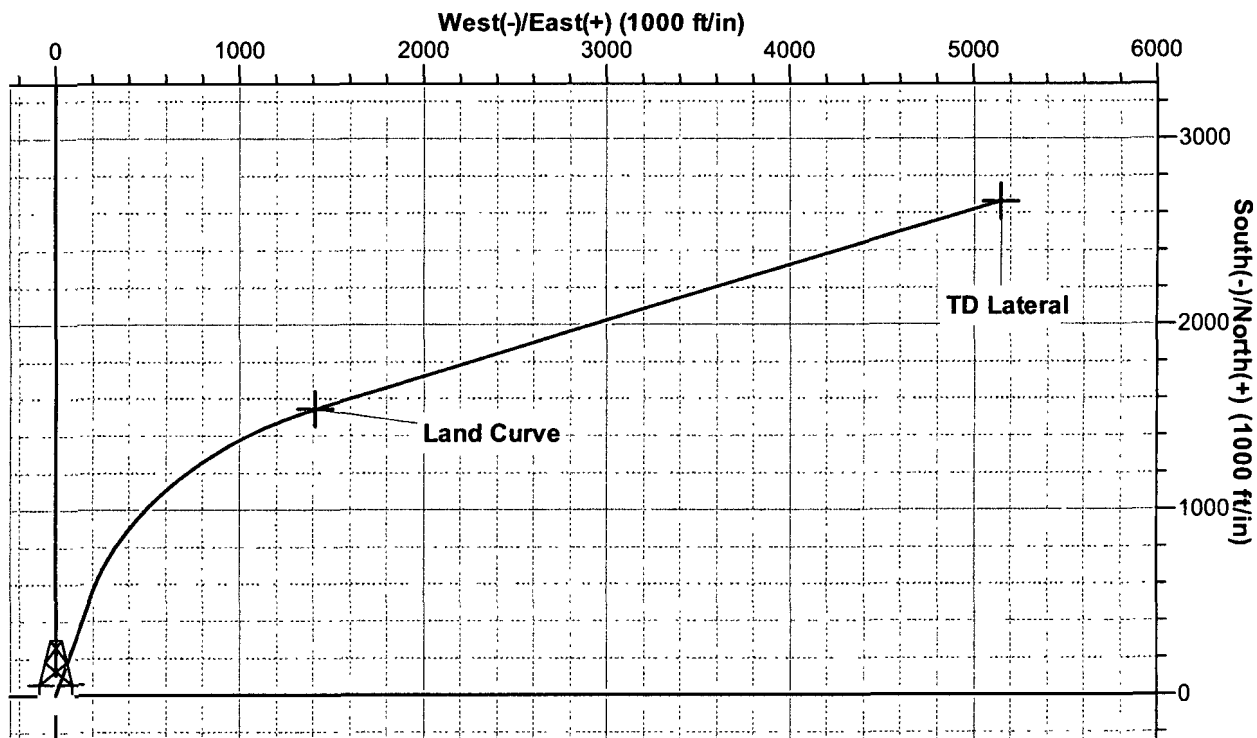
10201

Project: Carson National Forest, Sec. 31, 32N, R05W
Site: 32-5 Unit
Well: State Bancos #1A
Wellbore: Lewis Horizontal Play
Plan: Preliminary Plan #1



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	2800.0	0.00	0.00	2800.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4250.6	47.95	19.88	4087.1	538.3	194.6	3.31	19.88	420.0	BUILD & TURN
4	4269.5	47.81	20.09	4099.8	551.5	199.4	1.13	131.54	430.4	HOLD TANGENT
5	6067.8	90.08	73.10	4773.0	1542.4	1416.0	3.54	63.11	1966.1	Land Curve
6	9967.5	89.92	73.52	4773.0	2662.4	5151.4	0.01	109.60	5798.7	TD Lateral





Company: Energen Resources Corporation
Project: Carson National Forest, Sec. 31, T32N, R05W
Site: 32-5 Unit
Well: State Bancos #1A
Wellbore: Lewis Horizontal Play
Design: Preliminary Plan #1

Local Co-ordinate Reference: Well State Bancos #1A
TVD Reference: KB @ 6370.0ft (Drilling Rig (KB 12'))
MD Reference: KB @ 6370.0ft (Drilling Rig (KB 12'))
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HOLD TANGENT - plan hits target - Point	0.00	0.00	4,099.8	551.5	199.4	2,162,070.55	1,305,405.18	36° 56' 10.193 N	107° 23' 46.708 W
TD Lateral - plan hits target - Point	0.00	0.00	4,773.0	2,662.4	5,151.4	2,164,121.72	1,310,382.22	36° 56' 31.059 N	107° 22' 45.711 W
KOP - plan hits target - Point	0.00	0.00	2,800.0	0.0	0.0	2,161,521.49	1,305,199.16	36° 56' 4.740 N	107° 23' 49.164 W
Land Curve - plan hits target - Point	0.00	0.00	4,773.0	1,542.4	1,416.0	2,163,046.74	1,306,633.61	36° 56' 19.990 N	107° 23' 31.723 W
BUILD & TURN - plan hits target - Point	0.00	0.00	4,087.1	538.3	194.6	2,162,057.41	1,305,400.22	36° 56' 10.062 N	107° 23' 46.767 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
400.0	400.0	SURFACE CASING	9-5/8	12-1/4
6,070.0	4,773.0	INTERMEDIATE CASING	7	8-3/4
9,967.0	4,773.0	PRODUCTION LINER	4-1/2	6-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,742.5	4,390.0	LEWIS-NAVAJO CITY	Shale	0.00	
2,547.0	2,547.0	KIRTLAND	Shale	0.00	
3,138.1	3,136.0	PICTURED CLIFFS		0.00	
1,245.0	1,245.0	NACIMIENTO		0.00	
2,931.1	2,931.0	FRUITLAND	Coal	0.00	
3,560.1	3,536.0	LEWIS	Shale	0.00	
2,423.0	2,423.0	OJO ALAMO	Sandstone	0.00	
6,067.8	4,773.0	LEWIS-OTERO	Shale	0.00	

Checked By: _____ Approved By: _____ Date: _____

1/7/2009



OPERATIONS PLAN

WELL NAME.....State Bancos #1 A
JOB TYPE.....Horizontal Lewis Shale
DEPT.....Drilling and Completions
PREPARED BY.....Jason Kincaid

GENERAL INFORMATION

Surface Location	1852 FSL 656 FEL
S-T-R	(I) Sec.31, T32N, R05W
Bottom Hole Location	760 FNL 760 FEL
S-T-R	(A) Sec.32, T32N, R05W
County, State	Rio Arriba, New Mexico
Elevations	6358' GL
Total Depth	9968' +/- (MD); 4920' (TVD)
Formation Objective	Lewis Shale - Otero

FORMATION TOPS

San Jose	Surface
Nacimiento	1245' (TVD)
Ojo Alamo Ss	2423' (TVD)
Kirtland Sh	2547' (TVD)
Fruitland Fm	2931' (TVD)
Pictured Cliffs	3136' (TVD)
Lewis Shale	3536' (TVD), 3560' (MD)
Huerfanito Bentonite	4186' (TVD), 4400' (MD)
Top of Otero	4640' (TVD), 5300' (MD)
Base of Otero	4920' (TVD)
Total Depth	4773' (TVD), 9968' (MD)

DRILLING

Surface Wellbore: wellbore will be drilled with spud mud.

Intermediate Wellbore: wellbore will be drilled with a Low Solids Non-Dispersed mud with densities expected to range from 8.8 ppg to 9.2 ppg, or Air/Mist as the wellbore dictates.

Production Wellbore: 6 1/4" wellbore will be drilled with Air/Mist.

Projected KOP is 2800' TVD with 3.31°/100' doglegs. Anticipated BHP is 500 psi.

Blowout Control Specifications:

A 3000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. A 2" nominal, 2000 psi minimum choke manifold will also be used. An upper Kelly Cock valve handle and drill string valve should be available to fit each drill string and be available on the rig floor during drilling operations. **Pressure test BOP to 250 psi for 15 min and 2000 psi for 15 min.**

Logging Program:

Open hole logs: FMI (Focused Micro Imaging)

Mudlogs: 4186' TVD, 4400' MD to TD

Surveys: Surface to KOP every 500' and a minimum of every 200' for directional.

1/7/2009

CASING, TUBING & CASING EQUIPMENT

String	Start Depth	End Depth	Wellbore	Size	Wt	Grade
Surface	0	400	12-1/4"	9-5/8"	32.3 lb/ft	H-40 ST&C
Intermediate TVD	0 0	6070 4773	8-3/4"	7"	23 lb/ft	J-55 LT&C
Prod. Liner TVD	5970 4936	9968 4936	6-1/4"	4-1/2"	11.6 lb/ft	L-80 LT&C
Tubing	0	5900	none	2-3/8"	4.7 lb/ft	J-55

Casing Equipment:

Surface Casing: Texas Pattern Guide Shoe on bottom of first joint and an insert float valve on top of first joint. Casing centralization with 3 standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: Self fill float shoe with self fill float collar on bottom and top of first joint. Casing centralization with double bow spring and centralizers to optimize standoff.

Liner: Bull nose guide shoe on bottom of first joint, Packers Plus liner hanger and frac sleeves at frac intervals.

WELLHEAD

11" 3000 x 9 5/8" weld/slip on casing head. 11" 3000 x 7 1/16" Christmas Tree.

CEMENTING

Surface Casing: 200 sks Type V with 2.0 % CaCl₂ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk 236 ft³ of slurry to circulate to surface). WOC 12 hours. Pressure test surface casing to 750 psi for 30 min. Nipple up BOP after WOC. Test BOP to 250 psi low, 1200 psi high for 15 min each. Test choke manifold to 1200 psi for 30 min.

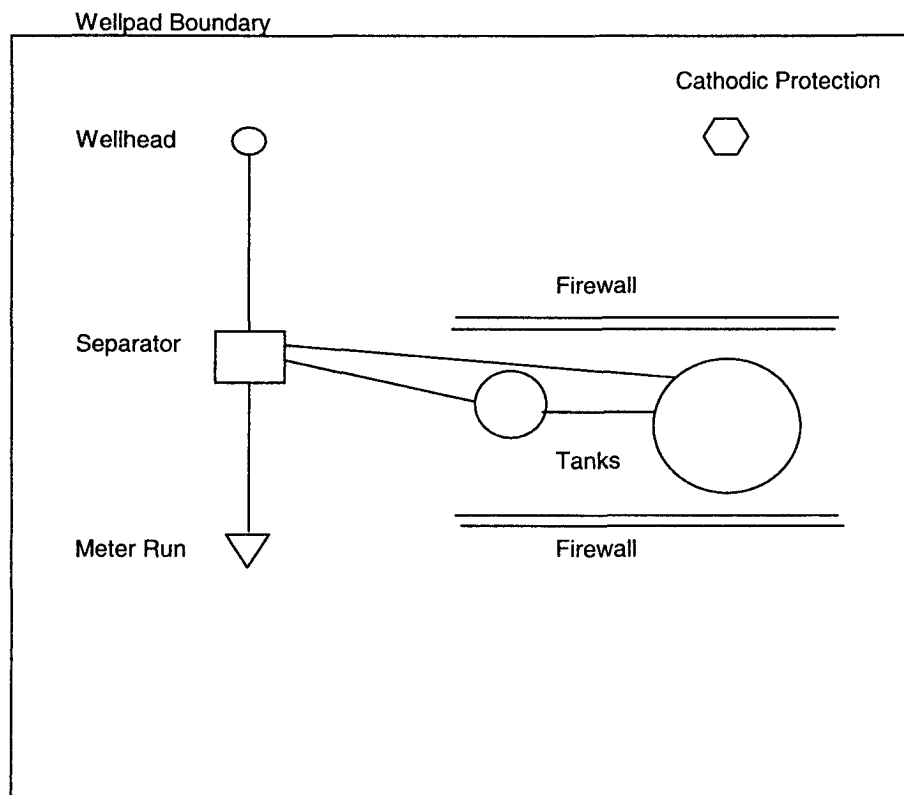
Intermediate Casing: Depending on wellbore conditions, cement may consist of 855 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.93 ft³/sk) and a tail of 150 sks Class G with ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1825 ft³ of slurry to circulate to surface). WOC 12 hours. Test casing to 1200 psi for 30 min. Test BOP to 250 psi low, 1200 psi high for 15 min each. Test choke manifold to 1200 psi for 30 min.

Production Liner: NO CEMENT, Open Hole Completion

****Cement volumes subject to change if caliper logs are ran****
Set slips with full string weight

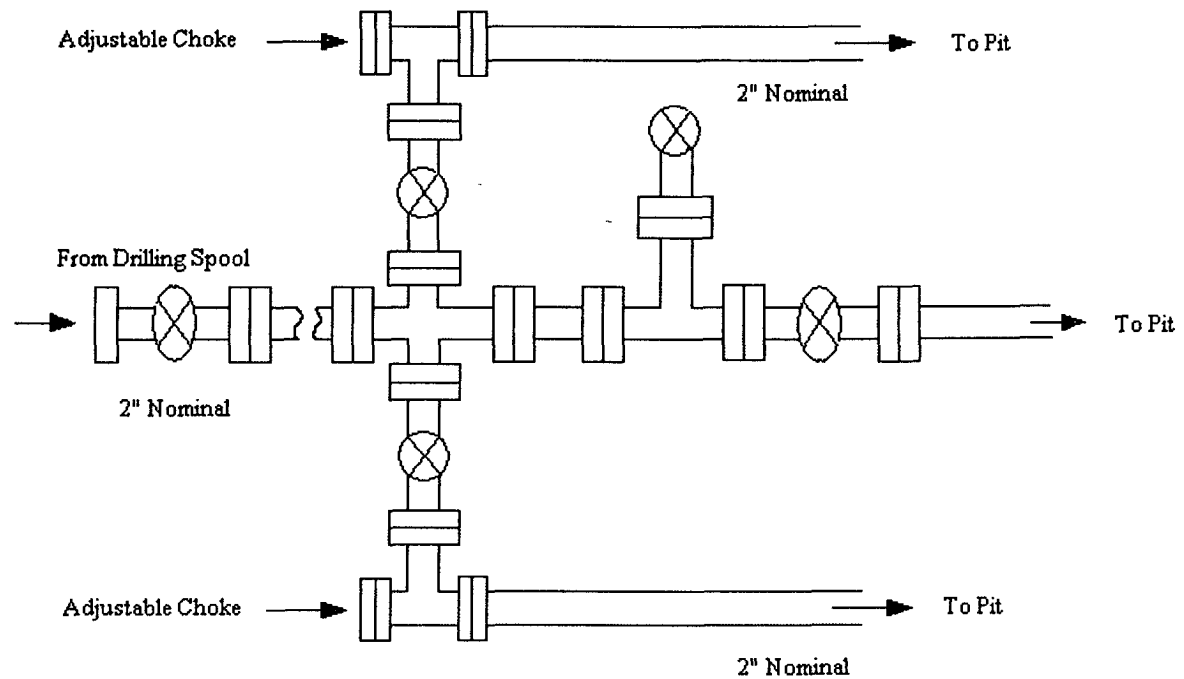
OTHER INFORMATION

- 1) This well will be an open hole completion lined with an uncemented pre-drilled liner. The Otero portion of the Lewis Shale will be fracture stimulated..
- 2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The intermediate string may need to be cemented in multiple stages with a slurry design deviated from that listed above.
- 3) If high reservoir pressures or water flows are encountered slurry design may need to be deviated to from those listed above to satisfy wellbore and formation conditions.
- 4) No abnormal temperatures or pressures are anticipated.
- 5) This gas is dedicated.



Anticipated Production Facilities and Layout for a MV and or DK Well

Energen Resources Corporation
Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD

Energen Resources Corporation

Typical BOP Configuration for Gas Drilling

