

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED
OMB NO. 1004-0137
Expires March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

APR 10 2008

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

Bureau of Land Management
Farmington Field Office

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NM 76832
2. Name of Operator Energen Resources Corporation		6. If Indian, Allottee or Tribe Name
3a. Address 2010 Afton Place, Farmington, NM 87401	3b. Phone No. (include area code) (505) 325-6800	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) SHL: (H) Sec.10, T32N, R5W 820'FNL & 545'FEL BHL: (F) Sec.11, T32N, R5W 900'FNL & 760'FEL		8. Well Name and No. Carracas 11A # 3
		9. API Well No. 30-039-30136
		10. Field and Pool, or Exploratory Area Basin Fruitland Coal
		11. County or Parish, State Rio Arriba 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 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 recompleat 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 recompleat 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 final site is ready for final inspection.)

Energen Resources would like to make the following change to the Carracas 11A #3. The changes will be pertaining to the 8-3/4" wellbore and 7" intermediate casing:

- * Change casing setting measured depth (MD) TD to 4850' MD and cement with 650 sks lead followed by 150 sks tail.
- * Change the TD of the well to 8651' (MD) and run the 4 1/2" liner to this depth with a new liner top of 4800' (MD).
- * Change the bottom hole footage location to 900'FNL 760'FEL

RCVD APR 17 '08

OIL CONS. DIV.
DIST. 3

Attached is a revised directional drilling and operations plan.

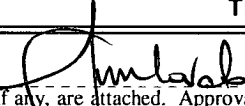
CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

Hold C104

for Directional Survey
and "As Drilled" plat

14. I hereby certify that the foregoing is true and correct Name (Printed/Typed) Jason Kincaid	Title Drilling Engineer
	Date 4/10/2008

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by 	Title Pet. Eng.	Date 4/14/08
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.		

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, makes 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.

NMOCB

COLORADO **NEW MEXICO**

SECTION 1 **SECTION 3** **SECTION 4** **SECTION 10** **SECTION 11**

WELL LOCATIONS:
 CARRACAS 10A #8
 BH LOCATION

BOUNDARY DATA:
 N 89°44'10" W 2643.01' (M)
 N 89°52' W 2639.01' (R)
 N 89°52' W 5289.90' (R)
 T33N
 T32N
 LAT. 36°59'52" N
 LONG. 107°20'33" W
 DATUM (NAD 1983)
 DIRECTIONAL DRILL
 S 88°55'23" E 5074.09'
 N 0°08'08" W 1938.04' (M)
 N 0°01' W 1941.72' (R)
 FND 2" BC GLO 1924
 CALC'D CORNER
 S 0°00'00" W 1938.44' (R)

17

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 a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature

Date

Nathan Smith

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

August 18, 2006

Date of Survey

David R. Russell

Signature and Seal of Professional Surveyor

10201

Original survey recorded and conducted by

Certificate Number

Energen Resources

Carson Nat'l Forest - NE S11, T32N, R5W

Carracas Mesa

Carracas 11 A #3

Final Plan

Plan: Final Plan

Planned Wellpath

10 April, 2008

Project: Carson Nat'l Forest - NE S11, T32N, R5W
Site: Carracas Mesa
Well: Carracas 11 A #3
Wellbore: Final Plan
Plan: Final Plan (Carracas 11 A #3/Final Plan)

PROJECT DETAILS: Carson Nat'l Forest - NE S11, T32N, R5W

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone

System Datum: Mean Sea Level

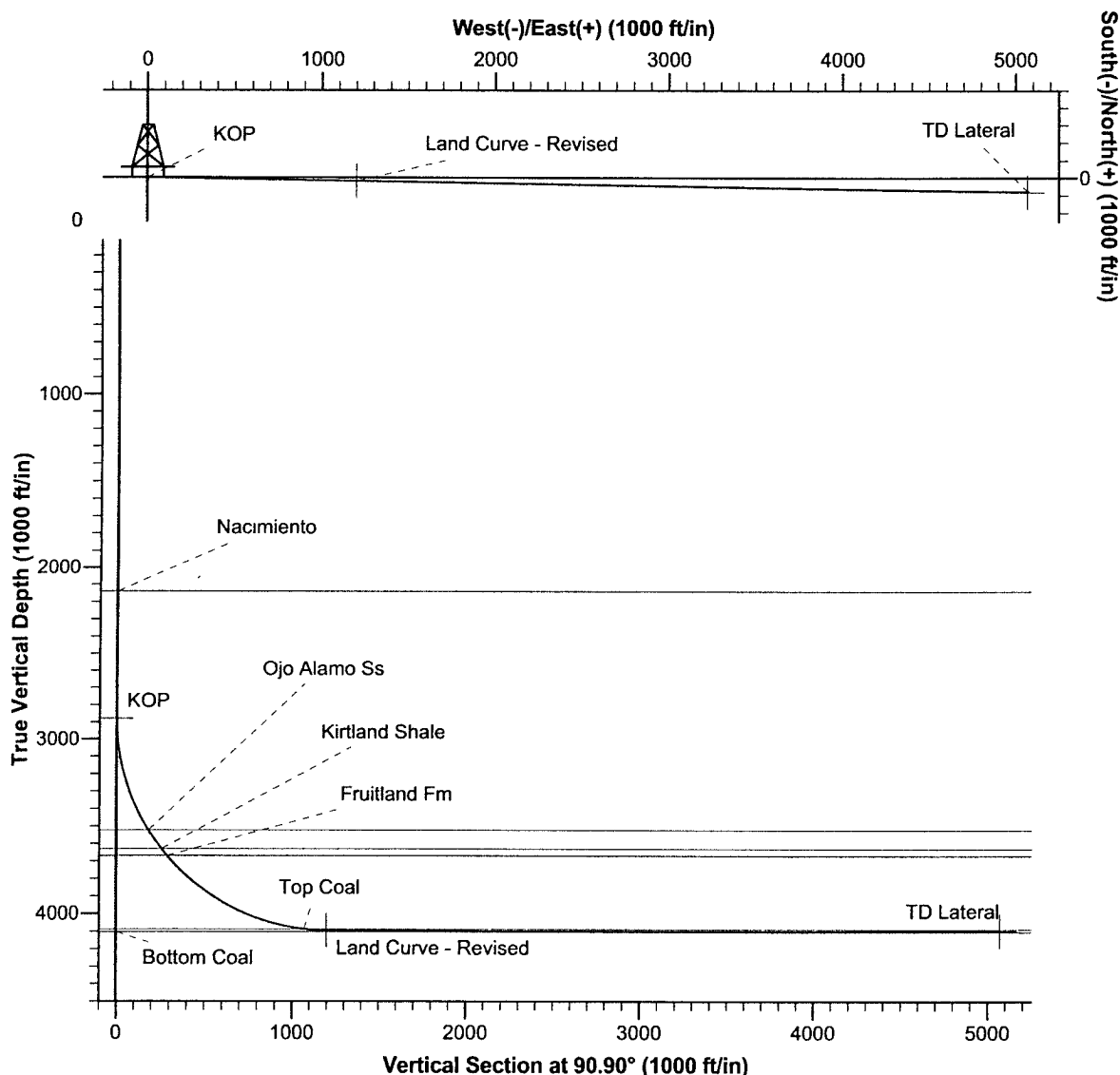


Azimuths to Grid North
True North: -0.29°
Magnetic North: 9.83°

Magnetic Field
Strength: 51269.4snT
Dip Angle: 63.85°
Date: 4/10/2008
Model: IGRF200510

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	2885.0	0.00	0.00	2885.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4781.4	89.72	90.90	4096.0	-19.0	1205.0	4.73	90.90	1205.1	Land Curve - Revised
4	8651.8	90.28	90.90	4096.0	-80.0	5074.9	0.01	-0.06	5075.5	TD Lateral



Energen

Planned Wellpath



Company: Energen Resources
Project: Carson Nat'l Forest - NE S11, T32N, R5W
Site: Carracas Mesa
Well: Carracas 11 A #3
Wellbore: Final Plan
Design: Final Plan

Local Co-ordinate Reference: Well Carracas 11 A #3
TVD Reference: KB @ 7600.0ft (AWS 222)
MD Reference: KB @ 7600.0ft (AWS 222)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Project Carson Nat'l Forest - NE S11, T32N, R5W

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Western Zone

System Datum: Mean Sea Level

Site Carracas Mesa

Site Position:		Northing:	2,182,893.29 ft	Latitude:	36° 59' 52.000 N
From:	Lat/Long	Easting:	2,866,423.65 ft	Longitude:	107° 20' 33.000 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.30 °

Well Carracas 11 A #3

Well Position	+N/-S	0.0 ft	Northing:	2,182,893.29 ft	Latitude:	36° 59' 52.000 N
	+E/-W	0.0 ft	Easting:	2,866,423.65 ft	Longitude:	107° 20' 33.000 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	7,585.0 ft	Ground Level:	7,585.0 ft

Wellbore Final Plan

Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	4/10/2008	10.12	63.85	51,269

Design Final Plan

Audit Notes:

Version: 1 **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	90 90

Survey Tool Program **Date** 4/10/2008

From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.0	8,651.8	Final Plan (Final Plan)	MWD	MWD - Standard

Planned Survey

MD	TVD	Inc	Azi	Build	V. Sec	N/S	E/W
(ft)	(ft)	(°)	(°)	(°/100ft)	(ft)	(ft)	(ft)
0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
San Jose							
100.0	100.0	0.00	0.00	0.00	0.0	0.0	0.0
200.0	200.0	0.00	0.00	0.00	0.0	0.0	0.0
300.0	300.0	0.00	0.00	0.00	0.0	0.0	0.0
400.0	400.0	0.00	0.00	0.00	0.0	0.0	0.0
500.0	500.0	0.00	0.00	0.00	0.0	0.0	0.0
600.0	600.0	0.00	0.00	0.00	0.0	0.0	0.0
700.0	700.0	0.00	0.00	0.00	0.0	0.0	0.0
800.0	800.0	0.00	0.00	0.00	0.0	0.0	0.0
900.0	900.0	0.00	0.00	0.00	0.0	0.0	0.0
1,000.0	1,000.0	0.00	0.00	0.00	0.0	0.0	0.0

Energen

Planned Wellpath



Company: Energen Resources
Project: Carson Nat'l Forest - NE S11, T32N, R5W
Site: Carracas Mesa
Well: Carracas 11 A #3
Wellbore: Final Plan
Design: Final Plan

Local Co-ordinate Reference: Well Carracas 11 A #3
TVD Reference: KB @ 7600.0ft (AWS 222)
MD Reference: KB @ 7600.0ft (AWS 222)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	V. Sec (ft)	N/S (ft)	E/W (ft)
1,100.0	1,100.0	0.00	0.00	0.00	0.0	0.0	0.0
1,200.0	1,200.0	0.00	0.00	0.00	0.0	0.0	0.0
1,300.0	1,300.0	0.00	0.00	0.00	0.0	0.0	0.0
1,400.0	1,400.0	0.00	0.00	0.00	0.0	0.0	0.0
1,500.0	1,500.0	0.00	0.00	0.00	0.0	0.0	0.0
1,600.0	1,600.0	0.00	0.00	0.00	0.0	0.0	0.0
1,700.0	1,700.0	0.00	0.00	0.00	0.0	0.0	0.0
1,800.0	1,800.0	0.00	0.00	0.00	0.0	0.0	0.0
1,900.0	1,900.0	0.00	0.00	0.00	0.0	0.0	0.0
2,000.0	2,000.0	0.00	0.00	0.00	0.0	0.0	0.0
2,100.0	2,100.0	0.00	0.00	0.00	0.0	0.0	0.0
2,141.0	2,141.0	0.00	0.00	0.00	0.0	0.0	0.0
Nacimiento							
2,200.0	2,200.0	0.00	0.00	0.00	0.0	0.0	0.0
2,300.0	2,300.0	0.00	0.00	0.00	0.0	0.0	0.0
2,400.0	2,400.0	0.00	0.00	0.00	0.0	0.0	0.0
2,500.0	2,500.0	0.00	0.00	0.00	0.0	0.0	0.0
2,600.0	2,600.0	0.00	0.00	0.00	0.0	0.0	0.0
2,700.0	2,700.0	0.00	0.00	0.00	0.0	0.0	0.0
2,800.0	2,800.0	0.00	0.00	0.00	0.0	0.0	0.0
2,885.0	2,885.0	0.00	0.00	0.00	0.0	0.0	0.0
KOP							
2,900.0	2,900.0	0.71	90.90	4.73	0.1	0.0	0.1
3,000.0	2,999.8	5.44	90.90	4.73	5.5	-0.1	5.5
3,100.0	3,098.9	10.17	90.90	4.73	19.0	-0.3	19.0
3,200.0	3,196.5	14.90	90.90	4.73	40.7	-0.6	40.7
3,300.0	3,291.9	19.63	90.90	4.73	70.4	-1.1	70.4
3,400.0	3,384.6	24.37	90.90	4.73	107.9	-1.7	107.9
3,500.0	3,473.9	29.10	90.90	4.73	152.8	-2.4	152.8
3,558.1	3,524.0	31.85	90.90	4.73	182.3	-2.9	182.3
Ojo Alamo Ss							
3,600.0	3,559.2	33.83	90.90	4.73	205.0	-3.2	205.0
3,688.7	3,631.0	38.03	90.90	4.73	257.1	-4.1	257.0
Kirtland Shale							
3,700.0	3,639.9	38.56	90.90	4.73	264.0	-4.2	264.0
3,740.4	3,671.0	40.47	90.90	4.73	289.7	-4.6	289.7
Fruitland Fm							
3,800.0	3,715.4	43.29	90.90	4.73	329.5	-5.2	329.5
3,900.0	3,785.3	48.02	90.90	4.73	401.0	-6.3	401.0
4,000.0	3,849.0	52.75	90.90	4.73	478.0	-7.5	478.0
4,100.0	3,906.2	57.48	90.90	4.73	560.1	-8.8	560.0
4,200.0	3,956.4	62.22	90.90	4.73	646.5	-10.2	646.4
4,300.0	3,999.3	66.95	90.90	4.73	736.8	-11.6	736.7
4,400.0	4,034.6	71.68	90.90	4.73	830.3	-13.1	830.2
4,500.0	4,062.1	76.41	90.90	4.73	926.4	-14.6	926.3

Energen

Planned Wellpath



Company: Energen Resources
Project: Carson Nat'l Forest - NE S11, T32N, R5W
Site: Carracas Mesa
Well: Carracas 11 A #3
Wellbore: Final Plan
Design: Final Plan

Local Co-ordinate Reference: Well Carracas 11 A #3
TVD Reference: KB @ 7600.0ft (AWS 222)
MD Reference: KB @ 7600.0ft (AWS 222)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	V. Sec (ft)	N/S (ft)	E/W (ft)
4,600.0	4,081.6	81.14	90.90	4.73	1,024.5	-16.2	1,024.4
4,647.9	4,088.0	83.40	90.90	4.73	1,071.9	-16.9	1,071.8
Top Coal							
4,700.0	4,092.9	85.87	90.90	4.73	1,123.8	-17.7	1,123.7
4,781.4	4,096.0	89.72	90.90	4.73	1,205.1	-19.0	1,205.0
Land Curve - Revised							
4,800.0	4,096.1	89.73	90.90	0.01	1,223.8	-19.3	1,223.6
4,900.0	4,096.6	89.74	90.90	0.01	1,323.8	-20.9	1,323.6
5,000.0	4,097.0	89.75	90.90	0.01	1,423.8	-22.4	1,423.6
5,100.0	4,097.4	89.77	90.90	0.01	1,523.8	-24.0	1,523.6
5,200.0	4,097.8	89.78	90.90	0.01	1,623.8	-25.6	1,623.6
5,300.0	4,098.2	89.80	90.90	0.01	1,723.8	-27.2	1,723.5
5,400.0	4,098.5	89.81	90.90	0.01	1,823.8	-28.8	1,823.5
5,500.0	4,098.8	89.83	90.90	0.01	1,923.8	-30.3	1,923.5
5,600.0	4,099.1	89.84	90.90	0.01	2,023.8	-31.9	2,023.5
5,700.0	4,099.4	89.85	90.90	0.01	2,123.8	-33.5	2,123.5
5,800.0	4,099.6	89.87	90.90	0.01	2,223.8	-35.1	2,223.5
5,900.0	4,099.9	89.88	90.90	0.01	2,323.8	-36.6	2,323.5
6,000.0	4,100.0	89.90	90.90	0.01	2,423.8	-38.2	2,423.4
6,100.0	4,100.2	89.91	90.90	0.01	2,523.8	-39.8	2,523.4
6,200.0	4,100.4	89.93	90.90	0.01	2,623.8	-41.4	2,623.4
6,300.0	4,100.5	89.94	90.90	0.01	2,723.8	-42.9	2,723.4
6,400.0	4,100.6	89.95	90.90	0.01	2,823.8	-44.5	2,823.4
6,500.0	4,100.6	89.97	90.90	0.01	2,923.8	-46.1	2,923.4
6,600.0	4,100.7	89.98	90.90	0.01	3,023.8	-47.7	3,023.4
6,700.0	4,100.7	90.00	90.90	0.01	3,123.8	-49.2	3,123.4
6,800.0	4,100.7	90.01	90.90	0.01	3,223.8	-50.8	3,223.3
6,900.0	4,100.6	90.03	90.90	0.01	3,323.7	-52.4	3,323.3
7,000.0	4,100.6	90.04	90.90	0.01	3,423.7	-54.0	3,423.3
7,100.0	4,100.5	90.05	90.90	0.01	3,523.7	-55.5	3,523.3
7,200.0	4,100.4	90.07	90.90	0.01	3,623.7	-57.1	3,623.3
7,300.0	4,100.3	90.08	90.90	0.01	3,723.7	-58.7	3,723.3
7,400.0	4,100.1	90.10	90.90	0.01	3,823.7	-60.3	3,823.3
7,500.0	4,099.9	90.11	90.90	0.01	3,923.7	-61.9	3,923.3
7,600.0	4,099.7	90.13	90.90	0.01	4,023.7	-63.4	4,023.2
7,700.0	4,099.5	90.14	90.90	0.01	4,123.7	-65.0	4,123.2
7,800.0	4,099.2	90.16	90.90	0.01	4,223.7	-66.6	4,223.2
7,900.0	4,098.9	90.17	90.90	0.01	4,323.7	-68.2	4,323.2
8,000.0	4,098.6	90.18	90.90	0.01	4,423.7	-69.7	4,423.2
8,100.0	4,098.3	90.20	90.90	0.01	4,523.7	-71.3	4,523.2
8,200.0	4,097.9	90.21	90.90	0.01	4,623.7	-72.9	4,623.2
8,300.0	4,097.5	90.23	90.90	0.01	4,723.7	-74.5	4,723.2
8,400.0	4,097.1	90.24	90.90	0.01	4,823.7	-76.0	4,823.1
8,500.0	4,096.7	90.26	90.90	0.01	4,923.7	-77.6	4,923.1
8,600.0	4,096.2	90.27	90.90	0.01	5,023.7	-79.2	5,023.1

Energen

Planned Wellpath



Company: Energen Resources
Project: Carson Nat'l Forest - NE S11, T32N, R5W
Site: Carracas Mesa
Well: Carracas 11 A #3
Wellbore: Final Plan
Design: Final Plan

Local Co-ordinate Reference: Well Carracas 11 A #3
TVD Reference: KB @ 7600.0ft (AWS 222)
MD Reference: KB @ 7600.0ft (AWS 222)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Planned Survey

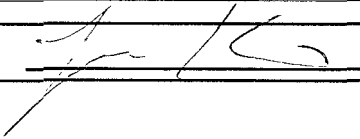
MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	V. Sec (ft)	N/S (ft)	E/W (ft)
8,651.8	4,096.0	90.28	90.90	0.01	5,075.5	-80.0	5,074.9
TD Lateral							

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
Land Curve - Revised - plan hits target - Point	0.00	0.00	4,096.0	-19.0	1,205.0	2,182,874.29	2,867,628.65	36° 59' 51.750 N	107° 20' 18.146 W
KOP - plan hits target - Point	0.00	0.00	2,885.0	0.0	0.0	2,182,893.29	2,866,423.65	36° 59' 52.000 N	107° 20' 33.000 W
TD Lateral - plan hits target - Point	0.00	0.00	4,096.0	-80.0	5,074.9	2,182,813.29	2,871,498.55	36° 59' 50.946 N	107° 19' 30.444 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,141.0	2,141.0	Nacimiento		0.00	
0.0	0.0	San Jose		0.00	
4,647.9	4,088.0	Top Coal		0.00	
3,740.4	3,671.0	Fruitland Fm		0.00	
3,688.7	3,631.0	Kirtland Shale		0.00	
3,558.1	3,524.0	Ojo Alamo Ss		0.00	
	4,103.0	Bottom Coal		0.00	

Checked By: 

Approved By: _____

Date: 4/9/08

Operations Plan

April 10, 2008

Carracas 11 A #3

General Information

Location	820' fnl, 545' fel at surface 900' fnl, 760' fel at bottom S10, T32N, R5W at surface NE S11, T32N, R5W at bottom Rio Arriba County, New Mexico
Elevations	7585' GL
Total Depth	8651' (MD), 4096' (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	2141' (TVD)
Ojo Alamo Ss	3524' (TVD), 3524' (MD)
Kirtland Sh	3631' (TVD), 3688' (MD)
Fruitland Fm	3671' (TVD), 3740' (MD)
Top Coal	4088' (TVD), 4647' (MD)
Bottom Coal	4103' (TVD)
Total Depth	4096' (TVD), 8651' (MD)

Drilling

The 12 ¼" wellbore will be drilled with a fresh water mud system.

The 8 ¾" wellbore will be drilled with a low solids fresh water/polymer mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.9 ppg to 9.5 ppg.

Projected KOP is 2855' TVD with 4.73°/100' doglegs.

The 6 ¼" wellbore will be drilled with a fresh water or brine water system depending on reservoir characteristics. Anticipated BHP can be as high as 1100 psi.

Blowout Control Specifications:

A 2000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. During air drilling operations, a Shaffer Type 50 or equivalent rotating head will be installed on top of the stack. 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.

Logging Program:

Open hole logs: None

Mud logs: From 3598' (TVD), 3600' (MD) to TD.

Surveys: Surface to KOP every 500' and a minimum of every 250' for directional.

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-200'	12 ¼"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	0'-4096' (TVD) 4850' (MD)	8 ¾"	7"	23.0 ppf	J-55 LT&C
Production	4088'-4103' (TVD) 4800'-8651' (MD)	6 ¼"	4 ½"	11.6 ppf	J-55 LT&C
Tubing	0'-4800' (MD)		2 3/8"	4.7 ppf	J-55

Casing Equipment:

Surface Casing: Depending on wellbore conditions, a Texas Pattern Guide Shoe on bottom. Casing centralization with standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: Depending on wellbore conditions, a Cement nose guide shoe with self fill insert float collar on top of bottom joint and casing centralization with standard bow spring and rigid centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

Liner: Bull nose guide shoe on bottom of first joint, H-Latch liner drop off tool on top of last joint.

Wellhead

3000 psi 11" x 9 5/8" casing head. 9 5/8" x 7"x 2 3/8" 3000 psi Flanged Wellhead .

Cementing

Surface Casing: 125 sks Std (class B) with 2.0 % CaCl₂ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk 148 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 600 psi for 30 min.

Intermediate Casing: Before cementing, circulate hole at least 1 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 650 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.96 ft³/sk) and a tail of 150 sks Sks with ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1438 ft³ of slurry, 100 % excess to circulate to surface). Test casing to 1200 psi for 30 min.

Other Information

- 1) This well will be an open hole completion lined with an uncemented pre-drilled liner.
- 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. This gas is dedicated.