

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work DRILL	5. Lease Number NMSF080781 Unit Reporting Number 970 Farmington, NM
1b. Type of Well GAS	6. If Indian, All. or Tribe
2. Operator BURLINGTON RESOURCES Oil & Gas Company	7. Unit Agreement Name
3. Address & Phone No. of Operator PO Box 4289, Farmington, NM 87499 (505) 326-9700	8. Farm or Lease Name Cain 9. Well Number 22M
4. Location of Well 1180' FNL, 1700' FEL Latitude 36° 41.2', Longitude 107° 49.2'	10. Field, Pool, Wildcat Otero Chacra/Blanco Mesaverde/Basin Dakota 11. Sec., Twn, Rge, Mer. (NMPM) B Sec. 31, T-29-N, R-9-W API # 30-045- 31685
14. Distance in Miles from Nearest Town 3 miles from Blanco	12. County San Juan 13. State NM
15. Distance from Proposed Location to Nearest Property or Lease Line 1180'	
16. Acres in Lease	17. Acres Assigned to Well Cha: NE/152.74 MV/DK: N/251.72
18. Distance from Proposed Location to Nearest Well, Drlg, Compl, or Applied for on this Lease 50'	
19. Proposed Depth 6810'	20. Rotary or Cable Tools Rotary
21. Elevations (DF, FT, GR, Etc.) 5776' GR	22. Approx. Date Work will Start
23. Proposed Casing and Cementing Program See Operations Plan attached	
24. Authorized by: <u>[Signature]</u> Regulatory/Compliance Supervisor	Date <u>3-11-03</u>

PERMIT NO. _____ APPROVAL DATE _____
APPROVED BY /s/ David J. Markiewicz TITLE _____ DATE JUL 25 2003

Archaeological Report to be submitted

Threatened and Endangered Species Report to be submitted

NOTE: This format is issued in lieu of U.S. BLM Form 3160-3

Title 18 U.S.C. Section 1001, 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 presentations as to any matter within its jurisdiction.

DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS".

NMOC

This action is subject to technical and
procedural review pursuant to 43 CFR 3165.3
and appeal pursuant to 43 CFR 3165.4

District I
PO Box 1980, Hobbs, NM 88241-1980

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised February 21, 1994

District II
PO Drawer 00, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

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

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
PO Box 2088, Santa Fe, NM 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-045-31685		Pool Code 72319/71599/82329		Pool Name Blanco Mesaverde/Basin Dakota/Otero Chacra	
Property Code 18487		Property Name CAIN			Well Number 22M
OGRID No. 14538		Operator Name BURLINGTON RESOURCES OIL & GAS COMPANY			Elevation 5776'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Ion	Feet from the	North/South line	Feet from the	East/West line	County
B	31	29N	9W		1180	NORTH	1700	EAST	SAN JUAN

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ion	Feet from the	North/South line	Feet from the	East/West line	County
12 Dedicated Acres Cha: NE/152.74 MV/DK: N/251.72		13 Joint or Infill		14 Consolidation Code		15 Order No.			

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

398.64' 1306.14' 2612.28'				17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
8 7 6 5				Signature <i>Peggy Case</i>	
1180' 1700'				Printed Name Peggy Bradfield	
NMSF-080781				Title Regulatory Administrator	
9 10 11				Date 3-13-03	
31				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.	
5076.06' 16 15 14				Date of Survey JULY 21, 1998	
17 18 19 20				Signature and Seal of Professional Surveyor <i>Neale C. Edwards</i>	
372.24' 1305.48' 2612.94'				Certificate Number 6857	

OPERATIONS PLAN

Well Name: Cain #22M
Location: 1180' FNL, 1700' FEL, Sec 31, T-29-N, R-9-W
San Juan County, NM
Latitude 36° 41.2', Longitude 107° 49.2'
Formation: Otero Chacra/Blanco Mesaverde/Basin Dakota
Elevation: 5776' GL

<u>Formation Tops:</u>	<u>Top</u>	<u>Bottom</u>	<u>Contents</u>
Surface	San Jose	968'	
Ojo Alamo	968'	1123'	aquifer
Kirtland	1123'	1853'	gas
Fruitland	1853'	2098'	gas
Pictured Cliffs	2098'	2198'	gas
Lewis	2198'	2718'	gas
Intermediate TD	2298'		
Huerfanito Bentonite	2718'	3078'	gas
Chacra	3078'	3763'	gas
Massive Cliff House	3763'	3788'	gas
Menefee	3788'	4388'	gas
Massive Point Lookout	4388'	4748'	gas
Mancos	4748'	5568'	
Gallup	5568'	6343'	gas
Greenhorn	6343'	6403'	
Graneros	6403'	6468'	
Dakota	6468'	6771'	gas
Morrison	6771'		
TD	6810'		

Logging Program:

Cased hole - CBL/CCL/GR - TD to surface
Open hole - Platform Express: DIL/GR - TD to surface casing,
Density/Neutron/Porosity w/RT - TD to 6240'; 4700' to 3660',
Bulk Density/Correction, Microlog - TD to 6240'; 4700' to 3660'
Mudlog from 6500' to TD
Cores - none

Mud Program:

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Vis.</u>	<u>Fluid Loss</u>
0- 120'	Spud	8.4-9.0	40-50	no control
120- 2298'	LSND	8.4-9.0	30-60	no control
2298- 6810'	Air/N2	n/a	n/a	n/a

Pit levels will be visually monitored to detect gain or loss of fluid control.

Casing Program (as listed, the equivalent, or better):

<u>Hole Size</u>	<u>Depth Interval</u>	<u>Csg. Size</u>	<u>Wt.</u>	<u>Grade</u>
12 1/4"	0' - 120'	9 5/8"	32.3#	H-40
8 3/4"	0' - 2298'	7"	20#	J55
6 1/4"	2198' - 6810'	4 1/2"	10.5#	J-55

Tubing Program:

0' - 6810' 2 3/8" 4.7# J-55

BOP Specifications, Wellhead and Tests:

Surface to Intermediate TD -

11" 2000 psi minimum double gate BOP stack (Reference Figure #1).
After nipple-up prior to drilling out surface casing, BOPE and casing will be tested to 600 psi for 30 minutes.

Intermediate TD to Total Depth -

11" 2000 psi minimum double gate BOP stack (Reference Figure #1).
After nipple-up prior to drilling out intermediate casing, BOPE and casing will be tested to 1500 psi for 30 minutes.

Surface to Total Depth -

2" nominal, 2000 psi minimum choke manifold (Reference Figure #3).

Completion Operations -

7 1/16" 2000 psi double gate BOP stack (Reference Figure #2). After nipple-up prior to completion, pipe rams, casing and liner top will be tested to 2000 psi for 15 minutes.

Wellhead -

9 5/8" x 7" x 2 3/8" x 2000 psi tree assembly.

General -

- Pipe rams will be actuated once each day and blind rams will be actuated once each trip to test proper functioning.
- An upper kelly cock valve with handle available and drill string valves to fit each drill string will be available on the rig floors at all times.
- BOP pit level drill will be conducted weekly for each drilling crew.
- All BOP tests and drills will be recorded in daily drilling reports.
- Blind and pipe rams will be equipped with extension hand wheels.

Cementing:

9-5/8" surface casing - cement with 32 sxs Class A, B Portland Type I, II cement (38 cu.ft. of slurry, bring cement to surface through 3/4" line) or equivalent. WOC 24 hours for pre-set holes or 8 hours for conventionally set holes before pressure testing or drilling out from under surface casing.

Saw tooth guide shoe on bottom. Bowspring centralizers will be run in accordance with Onshore Order #2.

7" intermediate casing -

Lead w/187 sx Premium Lite with 3% calcium chloride, 0.25 pps celloflake, 5 pps LCM-1, 0.4% fluid loss, 0.4% sodium metasilicate. Tail with 90 sx Type III cmt w/1% calcium chloride, 0.25 pps celloflake, 0.2% fluid loss (523 cu.ft. of slurry, 50% excess to circulate to surface). WOC minimum of 8 hours before drilling out intermediate casing. If cement does not circulate to surface, a CBL or temperature survey will be run to determine TOC. Test casing to 1500 psi for 30 minutes.

7" intermediate casing alternative two stage: Stage collar at 1753'. First stage: Tail w/90 sx Type III cmt w/1% calcium chloride, 0.25 pps celloflake, 0.2% fluid loss. Second stage: w/187 sx Premium Lite with 3% calcium chloride, 0.25 pps celloflake, 5 pps LCM-1, 0.4% fluid loss, 0.4% sodium metasilicate. (523 cu.ft. of slurry, 50% excess to circulate to surface).

Cement nose guide shoe on bottom with float collar spaced on top of shoe joint. Bowspring centralizers spaced every other joint off bottom, to the base of the Ojo Alamo at 1123'. Two turbolating centralizers at the base of the Ojo Alamo at 1123'. Bowspring centralizers spaced every fourth joint from the base of the Ojo Alamo to the base of the surface casing.

4 1/2" Production Liner -

Pump 312 sxs Premium Lite HS FM w/0.25 pps celloflake, 0.3% CD-32, 6.25 pps LCM-1, 1% fluid loss, 6% gel, 7 pps CSE (628 cu.ft., 30% excess to circulate liner). WOC a minimum of 18 hrs prior to completing.

Note: If open hole logs are run, cement volumes will be based on 25% excess over caliper volumes.

Cement float shoe on bottom with float collar spaced on top of float shoe.

Note: To facilitate higher hydraulic stimulation completion work, no liner hanger will be used. In its place, a long string of 4 1/2" casing will be run and cemented with a minimum of 100' of cement overlap between the 4 1/2" x 7" casing strings. After completion of the well, a 4 1/2" retrievable bridge plug will be set below the top of cement in the 4 1/2" x 7" overlap. The 4 1/2" casing will then be backed off above the top of cement in the 4 1/2" x 7" overlap and laid down. The 4 1/2" bridge plug will then be retrieved and the production tubing will be run to produce the well.

- If hole conditions permit, an adequate water spacer will be pumped ahead of each cement job to prevent cement/ mud contamination or cement hydration.

Special Drilling Operations (Gas/Mist Drilling):

The following equipment will be operational while gas/mist drilling:

- An anchored blooie line will be utilized to discharge all cuttings and circulating medium to the blow pit a minimum of 100' from the wellhead.
- The blooie line will be equipped with an automatic igniter or pilot light.
- Compressors will be located a minimum of 100' from the wellhead in the opposite direction from the blooie line.
- Engines will have spark arresters or water cooled exhaust.
- Deduster equipment will be utilized.
- The rotating head will be properly lubricated and maintained.
- A float valve will be utilized above the bit.
- Mud circulating equipment, water, and mud materials will be sufficient to maintain control of the well.

Additional Information:

- The Chacra, Dakota, and Mesa Verde formations will be completed and commingled.
- No abnormal temperatures or hazards are anticipated.
- Anticipated pore pressures are as follows:

Fruitland Coal	300 psi
Pictured Cliffs	600 psi
Mesa Verde	700 psi
Dakota	1000 psi
- Sufficient LCM will be added to the mud system to maintain well control, if lost circulation is encountered.
- The northeast quarter is dedicated to the Chacra and the north half of Section 13 is dedicated to the Mesa Verde and Dakota in this well.
- This gas is dedicated.

Sean Corvijo
Drilling Engineer

April 9, 2003