

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work DRILL	5. Lease Number NMSF0777730 Unit Reporting Number
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 Sunray E 9. Well Number 1B
4. Location of Well 1730' FSL, 1900' FEL Latitude 36° 49.5, Longitude 107° 53.2	10. Field, Pool, Wildcat Blanco Mesaverde/Basin Dakota 11. Sec., Twn, Rge, Mer. (NMPM) J Sec. 9, T-30-N, R-10-W API # 30-045-30913
14. Distance in Miles from Nearest Town 8.2 miles to Int. Hwy 550 & Hwy 173 in Aztec, NM	12. County San Juan 13. State NM
15. Distance from Proposed Location to Nearest Property or Lease Line 1730'	
16. Acres in Lease	17. Acres Assigned to Well 302.46 E/2
18. Distance from Proposed Location to Nearest Well, Drlg, Compl, or Applied for on this Lease 818'	
19. Proposed Depth 7666'	20. Rotary or Cable Tools Rotary
21. Elevations (DF, FT, GR, Etc.) 6438' GR	22. Approx. Date Work will Start
23. Proposed Casing and Cementing Program See Operations Plan attached and appeal pursuant to 43 CFR 3165.4.	
24. Authorized by: <u>[Signature]</u> Regulatory/Compliance Supervisor	Date <u>11-12-01</u>

PERMIT NO.

APPROVAL DATE

12/21/01

APPROVED BY

TITLE

AFM

DATE

12/21/01

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.

DISTRICT I
P.O. Box 1980, Hobbs, N.M. 88241-1980

DISTRICT II
P.O. Drawer DD, Artesia, N.M. 88211-0719

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

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, NM 87504-2088

Form C-102

Revised February 21, 1994

Instructions on back

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045 30913	² Pool Code 72319/71599	³ Pool Name Blanco MesaVerde/Basin Dakota
⁴ Property Code 7567	⁵ Property Name SUNRAY E	⁶ Well Number 1B
⁷ GRID No. 14538	⁸ Operator Name BURLINGTON RESOURCES OIL & GAS INC.	⁹ Elevation 6438

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
J	9	30-N	10-W		1730	SOUTH	1900	EAST	SAN JUAN

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
¹² Dedicated Acres MV-E/302.46 DK-E/302.46		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

16

LOT 4	LOT 3	LOT 2 LBS 2001	LOT 1
LOT 5	LOT 6	LOT 7	LOT 8
LOT 12	LOT 11 LAT: 36°49.5' N. LONG: 107°53.2' W.	LOT 10 668' 793' 617' 1900'	LOT 9
LOT 13	LOT 14	LOT 15 1730'	LOT 16

FD 3 1/4" BLM 1987 BRASS CAP

USA SF-0777730

N 04°46'34" E 5046.83'(M)

S 88°47'11" W 5132.60'(M)

FD 3 1/4" BLM 1987 BRASS CAP

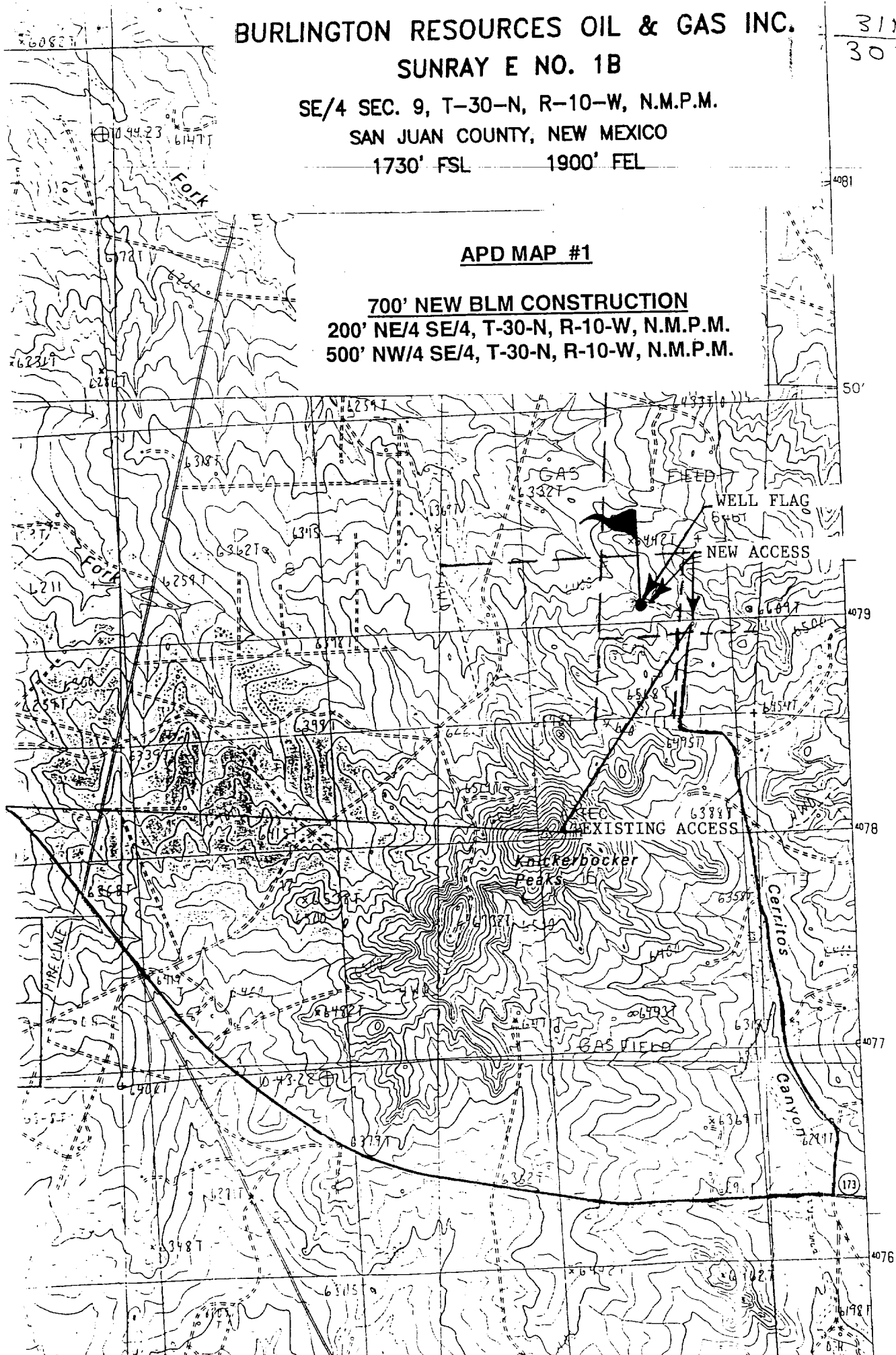
17 OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.
Signature: Peggy Cole
Printed Name: Peggy Cole
Title: Regulatory Supervisor
Date: 11-12-01

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.
Date of Survey: 8-14-01
Signature of Professional Surveyor: [Signature]
Professional Surveyor: ROYA. RUSH
New Mexico: 8894
Certificate Number: 8894

$$\begin{array}{r} 31N \\ \hline 30N \end{array}$$

1730' FSL ----- 1900' FEL

700' NEW BLM CONSTRUCTION
200' NE/4 SE/4, T-30-N, R-10-W, N.M.P.M.
500' NW/4 SE/4, T-30-N, R-10-W, N.M.P.M.



OPERATIONS PLAN

Well Name: Sunray E #1B

Location: 1730' FSL, 1900' FEL, Sec 9, T-30-N, R-10-W
San Juan County, NM

Latitude 36° 49.5, Longitude 107° 53.2

Formation: Blanco Mesaverde/Basin Dakota

Elevation: 6438' GL

<u>Formation Tops:</u>	<u>Top</u>	<u>Bottom</u>	<u>Contents</u>
Surface	San Jose	1711'	
Ojo Alamo	1711'	1841'	aquifer
Kirtland	1841'	2523'	gas
Fruitland	2523'	3079'	gas
Pictured Cliffs	3079'	3225'	gas
Lewis	3225'	3804'	gas
Intermediate TD	3325'		
Mesa Verde	3804'	4113'	gas
Chacra	4113'	4690'	gas
Massive Cliff House	4690'	4865'	gas
Menefee	4865'	5328'	gas
Massive Point Lookout	5328'	5719'	gas
Mancos	5719'	6608'	gas
Gallup	6608'	7345'	gas
Greenhorn	7345'	7395'	gas
Graneros	7395'	7448'	gas
Dakota	7448'		gas
TD	7666'		

Logging Program:

Cased hole - CBL-CCL-GR - TD to surface

Open hole - none

Cores - none

Mud Program:

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Vis.</u>	<u>Fluid Loss</u>
0- 200'	Spud	8.4-9.0	40-50	no control
200- 3325'	LSND	8.4-9.0	30-60	no control
3325- 7666'	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' - 200'	9 5/8"	32.3#	H-40
8 3/4"	0' - 3325'	7"	20.0#	J-55
6 1/4"	3225' - 7666'	4 1/2"	10.5#	J-55

Tubing Program:

0' - 7666' 2 3/8" 4.7# J-55

BOP Specifications, Wellhead and Tests:

Surface to Intermediate TD -

11" 3000 psi minimum double gate BOP stack (Reference Figure #1).
After nipple-up prior to drilling out surface casing, rams and casing will be tested to 600 psi for 30 minutes.

Intermediate TD to Total Depth -

11" 3000 psi minimum double gate BOP stack (Reference Figure #1).
After nipple-up prior to drilling out intermediate casing, rams and casing will be tested to 1500 psi for 30 minutes.

Surface to Total Depth -

2" nominal, 3000 psi minimum choke manifold (Reference Figure #3).

Completion Operations -

- 7 1/16" ~~3000 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 3000 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 159 sx Class "B" cement with 1/4# celloflake/sx and 3% calcium chloride (188 cu.ft. of slurry, 200% excess to circulate to surface). WOC 8 hrs. Test casing to 600 psi for 30 minutes.

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

7" intermediate casing -

Lead w/343 sx 50/50 Class G/TXI lightweight w/2.5% sodium metasilicate, 2% calcium chloride, 10# gilsonite/sx and 1/2# celloflake/sx. Tail w/90 sx 50/50 Class "G" Poz w/2% calcium chloride, 2% gel, 1/4 pps celloflake, 5 pps gilsonite, 0.1% antifoam agent (999 cu.ft. of slurry, 100% excess to circulate to surface.) WOC minimum of 8 hours before drilling out intermediate casing. If cement does not circulate to surface, a CBL will be run during completion operations to determine TOC. Test casing to 1500 psi for 30 minutes.

See attached alternative intermediate lead slurry.

7" intermediate casing alternative two stage: Stage collar at 2423'. First stage: cement with 212 sx 50/50 Class "G" Poz w/2% calcium chloride, 2% gel, 1/4 pps celloflake, 5 pps gilsonite, 0.1% antifoam agent. Second stage: 282 sx 50/50 Class G/TXI lightweight w/2.5% sodium metasilicate, 2% calcium chloride, 10# gilsonite/sx and 1/2# celloflake/sx (999 cu.ft., 100% 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 1841'. Two turbolating centralizers at the base of the Ojo Alamo at 1841'. Bowspring centralizers spaced every fourth joint from the base of the Ojo Alamo to the base of the surface casing.

4 1/2" Production Casing -

Cement to cover minimum of 100' of 4 1/2" x 7" overlap. Lead with 443 sx 50/50 Class "G" Poz with 5% gel, 0.25# celloflake/sx, 5# gilsonite/sx, 0.1% retardant and 0.25% fluid loss additive, 0.15% dispersant, 0.1% antifoam agent (638 cu.ft.), 40% excess to cement 4 1/2" x 7" overlap). WOC a minimum of 18 hrs prior to completing.

4 1/2" production casing alternative: Lead w/183 sx 9.5 PPG Litecrete Blend w/0.11% dispersant, 0.5% fluid loss. Tail w/155 sx Class G 50/50 poz w/5% gel, 0.25 pps celloflake, 5 pps gilsonite, 0.25% fluid loss, 0.15% dispersant, 0.1% retarder, 0.1% antifoam (683 cu.ft., 50% excess to cement 4 1/2" x 7" overlap) - 100' min -

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.