

# Sample Confidential Filing

## UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

### APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work DRILL	07 JUL 28 PM 2:10 070 FARMINGTON, NM	5. Lease Number SF-079050C Unit Reporting Number 891001051B - Dk 8910010510 - MV
1b. Type of Well GAS	<b>CONFIDENTIAL</b>	6. If Indian, All. or Tribe
2. Operator <b>BURLINGTON RESOURCES</b> Oil & Gas Company		7. Unit Agreement Name San Juan 28-6 Unit
3. Address & Phone No. of Operator PO Box 4289, Farmington, NM 87499  (505) 326-9700		8. Farm or Lease Name San Juan 28-6 Unit 9. Well Number 155M
4. Location of Well 1010' FNL, 1780' FWL  Latitude 36° 38.2, Longitude 107° 26.5		10. Field, Pool, Wildcat Blanco Mesa Verde Basin Dakota 11. Sec., Twn, Rge, Mer. (NMPM) Sec 28, T-28-N, R-6-W API # 30-039-
14. Distance in Miles from Nearest Town 7 miles to Gobernador		12. County Rio Arriba
		13. State NM
15. Distance from Proposed Location to Nearest Property or Lease Line 1010'		
16. Acres in Lease		17. Acres Assigned to Well 320 W/2
18. Distance from Proposed Location to Nearest Well, Drig, Compl, or Applied for on this Lease 1500'		
19. Proposed Depth 7648'	This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4.	20. Rotary or Cable Tools Rotary
21. Elevations (DF, FT, GR, Etc.) 6361' GR		22. Approx. Date Work will Start
23. Proposed Casing and Cementing Program See Operations Plan attached		DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"
24. Authorized by: <u><i>Peggy Shadfield</i></u> Regulatory/Compliance Administrator		<u>7-3-97</u> Date

PERMIT NO. \_\_\_\_\_

APPROVAL DATE

SEP 04 1997

APPROVED BY *Dean Sp*

TITLE

Team Lead

DATE 9/4/97

Archaeological Report to be submitted

Threatened and Endangered Species Report to be submitted

**OPERATOR**

**FOR PUBLIC RECORD**

# WELL LOCATION AND ACREAGE DEDICATION PLAT

### **<sup>10</sup> Surface Location**

11 Bottom Hole Location If Different From Surface

**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**

**FOR PUBLIC RECORD**

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Page 1

July 3, 1997

## OPERATIONS PLAN

**Well Name:** San Juan 28-6 Unit #155M  
**Location:** 1010' FNL, 1780' FWL Sec 28, T-28-N, R-6-W  
Rio Arriba County, NM  
Latitude 36° 38.2, Longitude 107° 26.5  
**Formation:** Blanco Mesa Verde/Basin Dakota  
**Elevation:** 6361' GL

<u>Formation Tops:</u>	<u>Top</u>	<u>Bottom</u>	<u>Contents</u>
Surface	San Jose	2393'	
Ojo Alamo	2393'	2753'	aquifer
Fruitland	2753'	3148'	gas
Pictured Cliffs	3148'	3303'	gas
Lewis	3303'	3673'	gas
Intermediate TD	3403'		
Mesa Verde	3673'	4093'	gas
Chacra	4093'	4818'	
Massive Cliff House	4818'	4973'	gas
Menefee	4973'	5333'	gas
Massive Point Lookout	5333'	6545'	gas
Gallup	6545'	7293'	gas
Greenhorn	7293'	7393'	gas
Graneros	7393'	7505'	gas
Dakota	7505'		gas
TD (4 1/2" liner)	7648'		

### Logging Program:

Cased hole - CBL - TD to 200' above TOC, GR/CNL across MV/Dk

### 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
200-3403'	LSND	8.4-9.0	30-60	no control
3403-7648'	Gas	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>Csq. Size</u>	<u>Wt.</u>	<u>Grade</u>
12 1/4"	0' - 200'	9 5/8"	32.3#	WC-50
8 3/4"	0' - 3403'	7"	20.0#	J-55
6 1/4"	3303' - 6855'	4 1/2"	10.5#	J-55
6 1/4"	6855' - 7648'	4 1/2"	11.6#	J-55

### Tubing Program:

0' - 7648' 2 3/8" 4.70# EUE

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Operations Plan - San Juan 28-6 Unit #155M

Page Two

## 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, rams 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, rams 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 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 163 sx Class "B" cement with 1/4# flocele/sx and 2% calcium chloride (188 cu.ft. of slurry, 200% excess to circulate to surface). WOC 12 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/273 sx Class "B" w/3% medisilicate, 10# gilsonite/sx and 1/2# flocele/sx. Tail w/90 sx 50/50 Class "B" Poz w/2% calcium chloride, 2% gel, 1/2# flocele/sx, 10# gilsonite/sx (895 cu.ft. of slurry, 75% excess to circulate to surface.) WOC minimum of 12 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.

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Operations Plan - San Juan 28-6 Unit #155M

Page Three

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 2753'. Two turbolating centralizers at the base of the Ojo Alamo at 2753'. 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 -

Cement to cover minimum of 100' of 4 1/2" x 7" overlap. Lead with 106 sx 65/35 Class "B" poz with 6% gel, 5# gilsonite/sx and 1/4# flocele/sx. Tail with 305 sx 50/50 Class "B" Poz with 2% gel, 1/4# flocele/sx, 5# gilsonite/sx, and 0.4% fluid loss additive (602 cu.ft., 35% excess to cement 4 1/2" x 7" overlap). WOC a minimum of 18 hrs prior to completing.

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

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 liner top can then be pressure tested to ensure a seal between the liner top and the 7" casing has been achieved. The test pressure shall be the maximum anticipated pressure to which the seal will be exposed (700 psi for the Mesa Verde and 2500 psi for the Dakota). 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.
- The pipe will be rotated and/or reciprocated, if hole conditions permit.

### 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.

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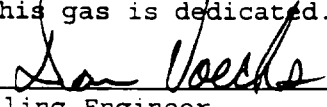
Operations Plan - San Juan 28-6 Unit #155M

Page Four

### Additional Information:

- The 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	800 psi
Pictured Cliffs	800 psi
Mesa Verde	700 psi
Dakota	2500 psi
- Sufficient LCM will be added to the mud system to maintain well control, if lost circulation is encountered.
- The west half is dedicated to the Mesa Verde and Dakota in this well.
- This gas is dedicated.

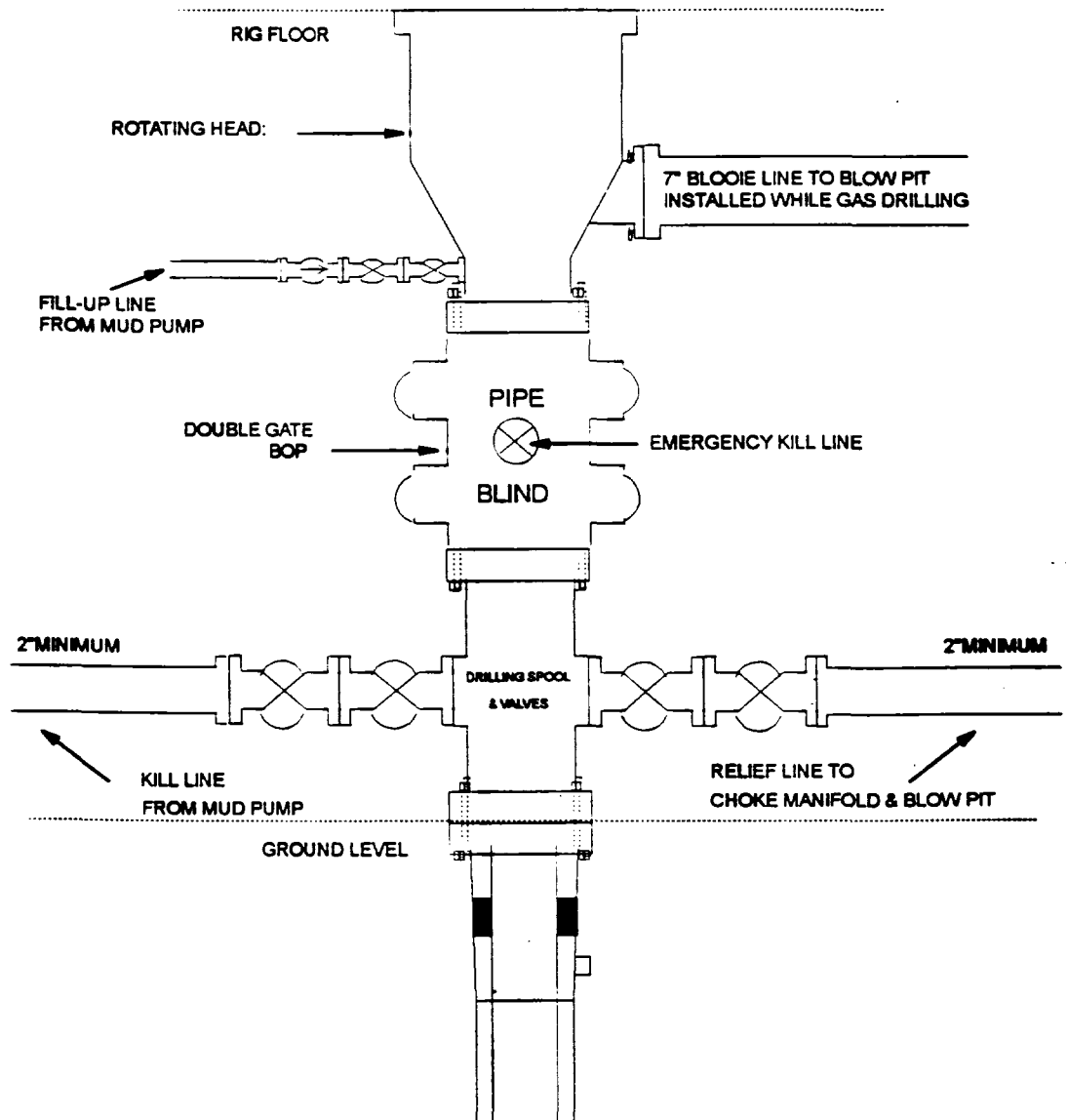
  
Drilling Engineer

7/9/97  
Date

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# BURLINGTON RESOURCES

## BOP Configuration 2M psi System



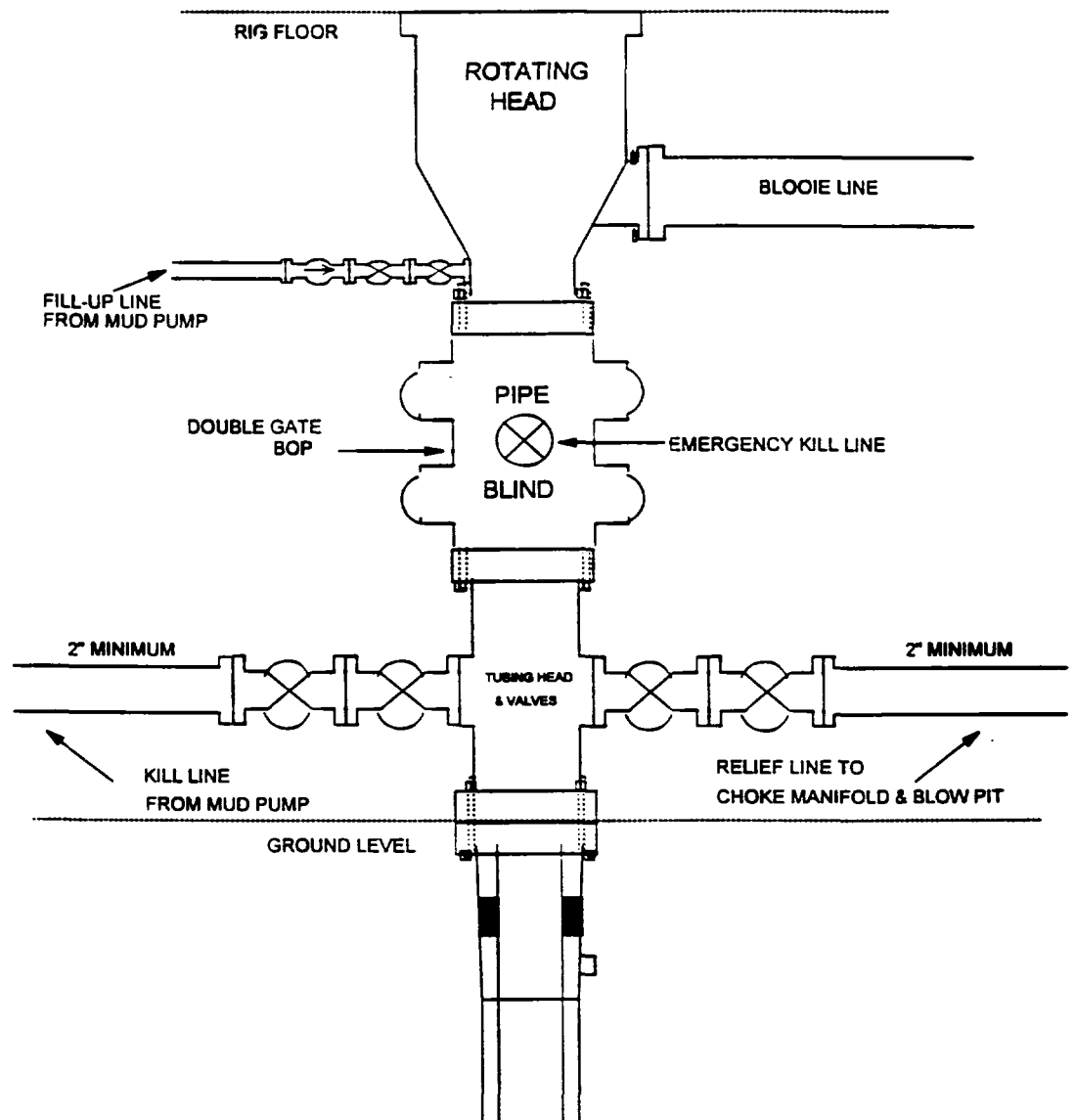
11" Bore, 2000psi minimum working pressure double gate BOP to be equipped with blind and pipe rams. A Schaffer Type 50 or equivalent rotating head to be installed on the top of the BOP. All equipment is 2000psi working pressure/or greater.

FIGURE #1

FOR PUBLIC RECORD

# BURLINGTON RESOURCES

## BOP Configuration 2M psi System



Minimum BOP installation for Completion operations. 7 1/16" Bore (6" Nominal), 2,000 psi minimum working pressure double gate BOP to be equipped with blind and pipe rams.

FIGURE #2

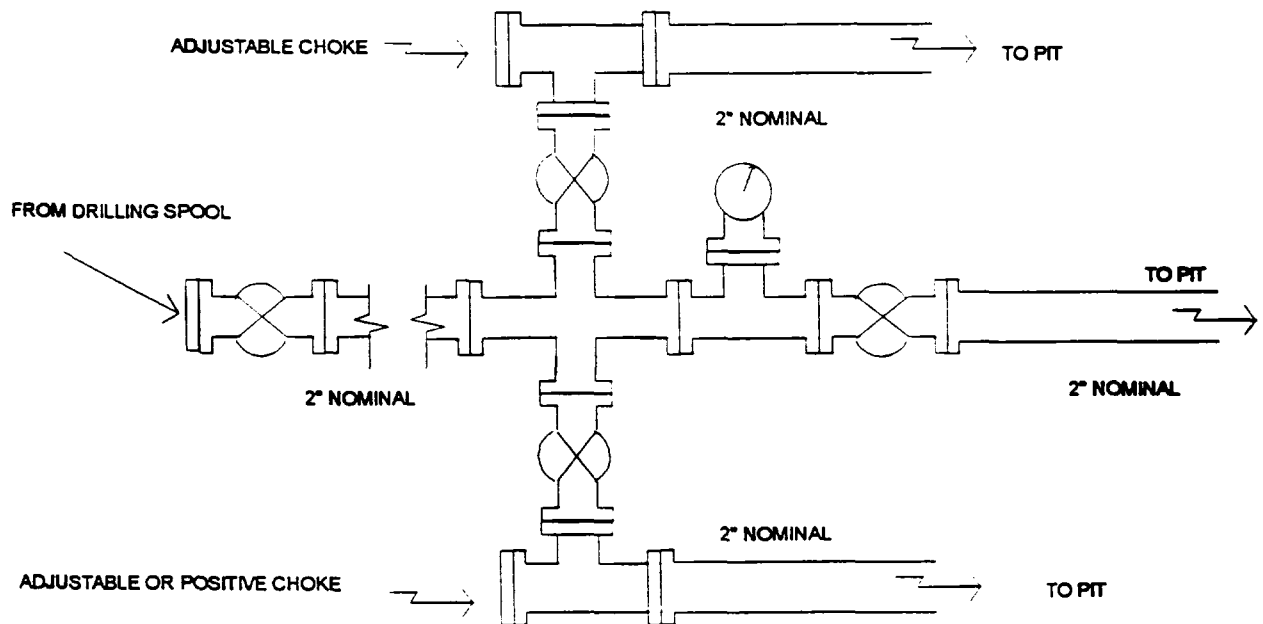
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Sample Confidential Filing

# BURLINGTON RESOURCES

## Choke Manifold Configuration 2M System



Minimum choke manifold installation from surface to Total Depth.  
2" minimum, 2000psi working pressure equipment with two chokes.

**Figure #3**

AMM/06-01-94

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***BURLINGTON  
RESOURCES***


San Juan 28-6 Unit #155M  
Multi-Point Surface Use Plan

1. Existing Roads - Refer to Map No. 1. Existing roads used to access the proposed location will be properly maintained for the duration of the project. Bureau of Land Management right-of-way has been applied for as shown on Map No. 1.
2. Planned Access Road - Refer to Map No. 1. The required new access road is shown on Map No. 1. The gradient, shoulder, crowning and other design elements will meet or exceed those specified by the responsible government agency. The new access road surface will not exceed twenty feet (20') in width. No additional turnarounds or turnouts will be required. Upon completion of the project, the access road will be adequately drained to control soil erosion. Approximately 200' of access road will be constructed. Pipelines are indicated on Map No. 1A.
3. Location of Existing Wells - Refer to Map No. 1A.
4. Location of Existing and/or Proposed Facilities if Well is Productive -
  - a. On the Well Pad - Refer to Plat No. 1, anticipated production facilities plat.
  - b. Off the Well Pad - Anticipated pipeline facilities as shown on the attached plat from Williams Field Service.
5. Location and Type of Water Supply - Water will be hauled by truck for the proposed project and will be obtained from Lobato Water Hole located NE Section 9, T-27-N, R-6-W, New Mexico.
6. Source of Construction Materials - If construction materials are required for the proposed project, such materials will be obtained from a commercial quarry.
7. Methods of Handling Waste Materials - All garbage and trash materials will be removed from the site for proper disposal. A portable toilet will be provided for human waste and serviced in a proper manner. If liquids are left in the reserve pit after completion of the project, the pit will be fenced until the liquids have had adequate time to dry. The location clean-up will not take place until such time as the reserve pit can be properly covered over to prevent run-off from carrying waste materials into the watershed. Reserve pits will be lined as needed with either 12 mil bio-degradable plastic liner or a bentonite liner. All earthen pits will be so constructed as to prevent leakage from occurring; no earthen pit will be located on natural drainage. Generation of hazardous waste is not anticipated. Federal regulations will be adhered to regarding handling and disposal of such waste if so generated.
8. Ancillary Facilities - None anticipated.
9. Wellsite Layout - Refer to the location diagram and to the wellsite cut and fill diagram (Figure No. 4). The blow pit will be constructed with a 2'/160' grade to allow positive drainage to the reserve pit and prevent standing liquids in the blow pit.

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10. Plans for Restoration of the Surface - After completion of the proposed project, the location will be cleaned and leveled. The location will be left in such a condition that will enable reseeding operations to be carried out. Seed mixture as designated by the responsible government agency will be used. The reseeding operations will be performed during the time period set forth by the responsible government agency. The permanent location facilities will be painted as designated by the responsible government agency.
11. Surface Ownership - Bureau of Land Management
12. Other Information - Environmental stipulations as outlined by the responsible government agency will be adhered to. Refer to the archaeological report for a description of the topography, flora, fauna, soil characteristics, dwellings, historical and cultural sites.
13. Operator's Representative and Certification - Burlington Resources Oil & Gas Company Regional Drilling Manager, Post Office Box 4289, Farmington, NM 87499, telephone (505) 326-9700. I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan, are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Burlington Resources Oil and Gas Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

 7-25-97  
Regulatory/Compliance Administrator Date

pb

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**BURLINGTON  
RESOURCES**

San Juan 28-6 Unit #155M  
T28N, R6W

200' BLM New Construction

T28N, R6W

Section 28: NENW 200'

APD MAP #1

NEW BLM  
ROW

EXISTING  
R-O-W

FOR PUBLIC RECORD

CAN JUAN GATHERING SYSTEM

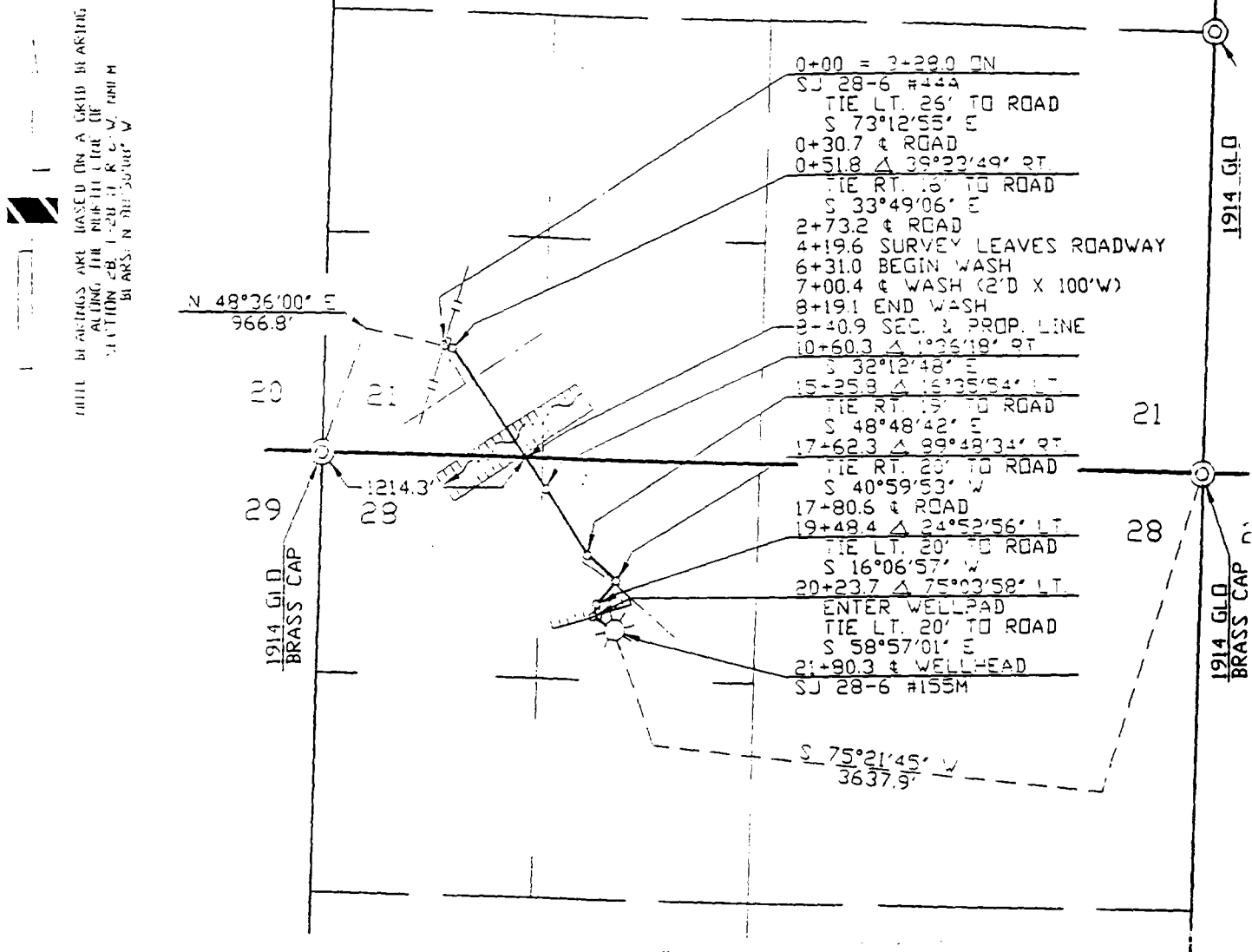
WILLIAMS GAS PROCESSING

ONE OF THE WILLIAMS COMPANIES

LINE \_\_\_\_\_ 3000 - 10 28-6 #155M  
FROM \_\_\_\_\_ 0+00 = 3-29.0 ON SJ 28-6 #44A  
(REF. DWG. 5G765.0-43-1)  
COUNTY \_\_\_\_\_ RIO ARriba STATE \_\_\_\_\_ NEW MEXICO  
SECTION \_\_\_\_\_ 21 & 29 TOWNSHIP \_\_\_\_\_ 29-N RANGE \_\_\_\_\_ 6-W

SCALE \_\_\_\_\_ 1"=1000'  
DRAWN BY \_\_\_\_\_ JCB  
CHECKED BY \_\_\_\_\_ FAS  
APPROVED \_\_\_\_\_ PR  
APPROVED \_\_\_\_\_ CK  
DWG. NO. \_\_\_\_\_ 5G765.0-56  
DATE \_\_\_\_\_ 6/24/97  
SURVEYED \_\_\_\_\_ 6/10/97  
V.O. NO. \_\_\_\_\_  
R/W NO. \_\_\_\_\_ 03229

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APPLICATION DWG. \_\_\_\_\_ DATE \_\_\_\_\_ METER NO. \_\_\_\_\_ FORMATION \_\_\_\_\_ METER NO. \_\_\_\_\_ FORMATION \_\_\_\_\_

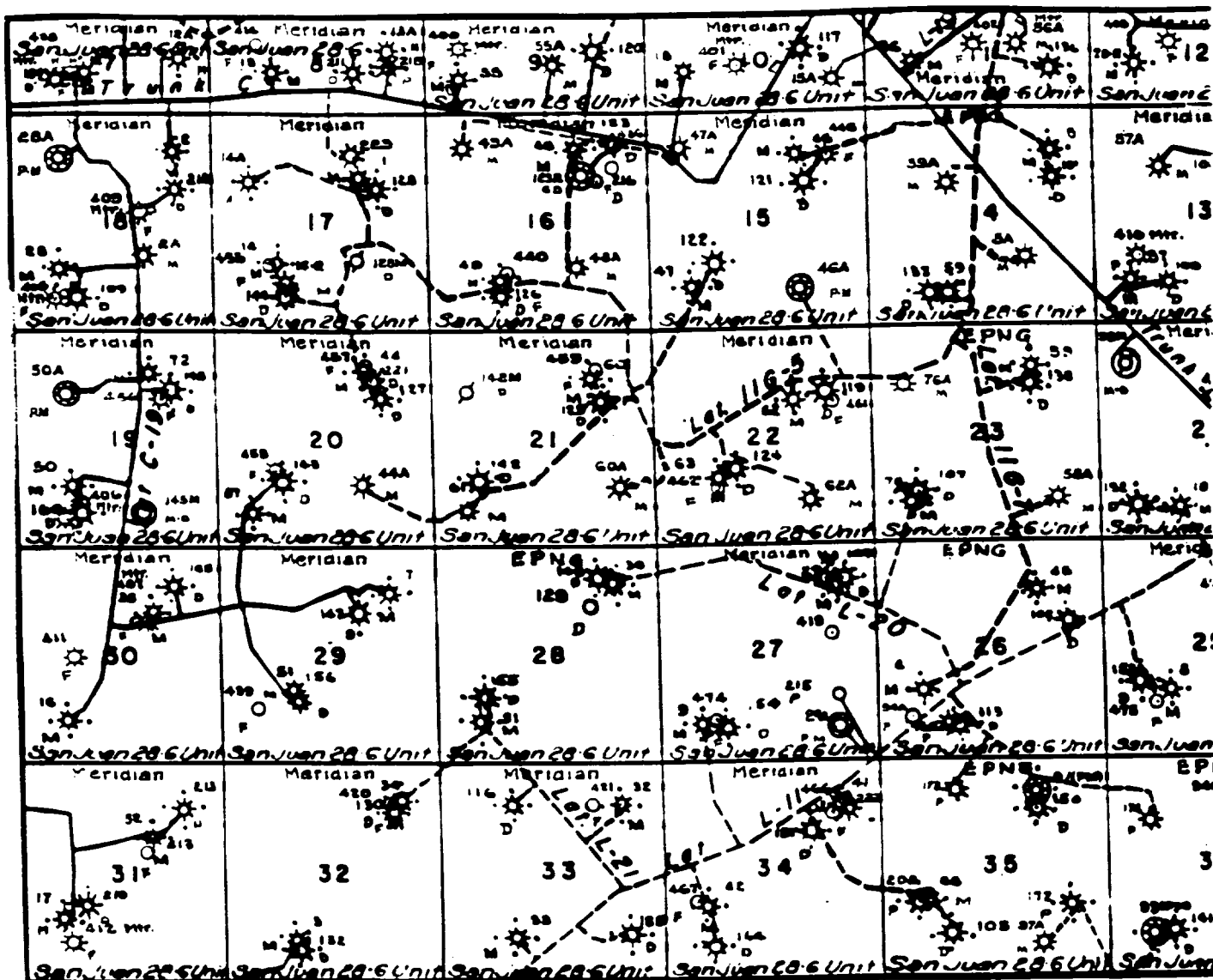
AS-BUILT PIPE DATA

FOR PUBLIC RECORD

SUBDIVISION	OWNER	LEASE	FEET	MILES	ACRES	ROD
0+00 TO 3-40.9	BUREAU OF LAND MANAGEMENT		840.9	0.159	0.965	50.9
3-40.9 TO 21-90.3	FRANK RAMSEY ESTATE		1339.4	0.254	1.845	81.1

17/16/97 FAD	REVISED PER LINE CHANGE 6/27/97	CK				
6/24/97 JDB	ISSUED FOR REVIEW	CK				
DATE	BY	REVISION DESCRIPTION	APP	NO.	DATE	BY

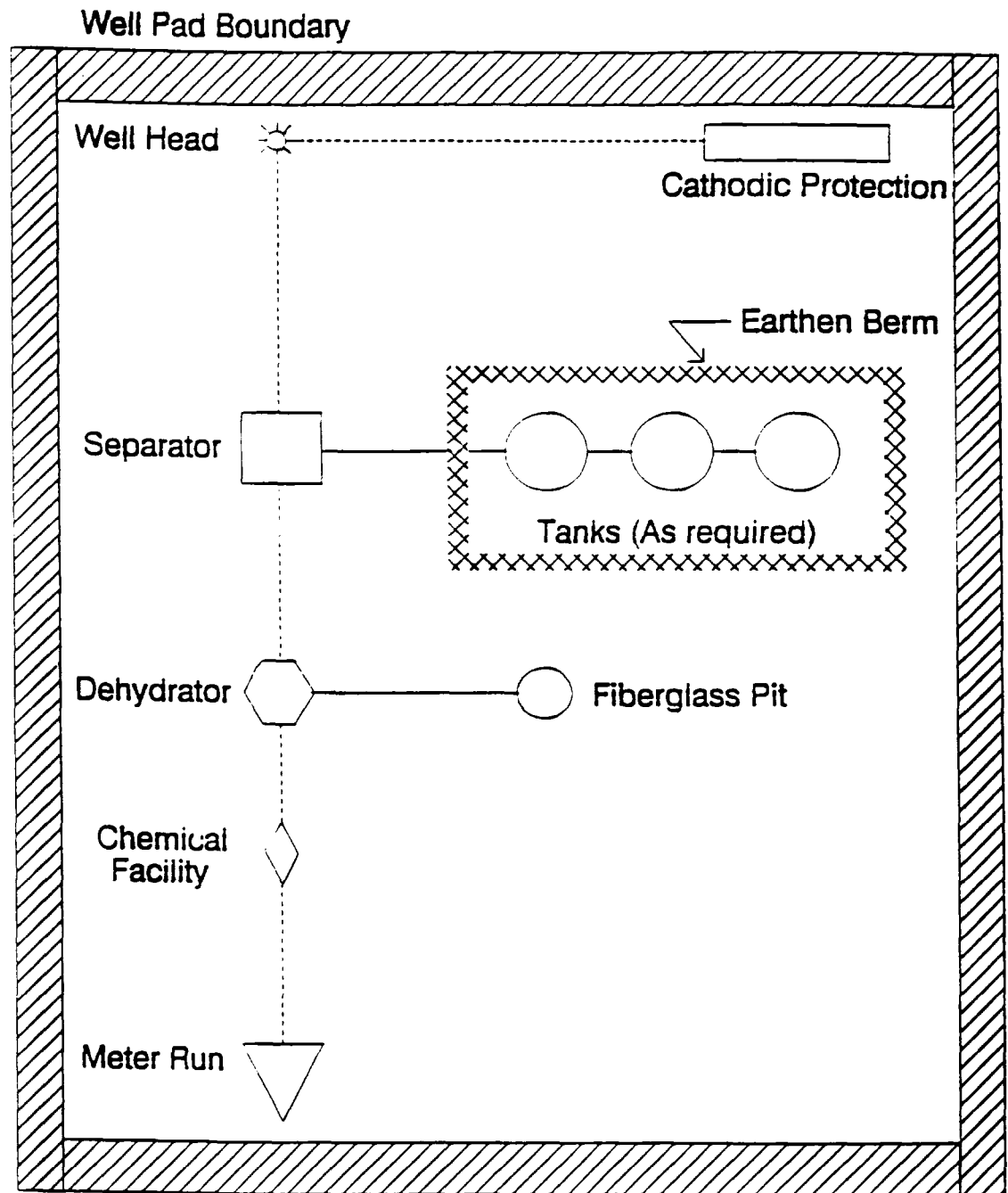
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MERIDIAN OIL INC.  
 Pipeline Map  
 T-28-N, R-06-W  
 San Juan County, New Mexico  
 San Juan 28-6 Unit #155M  
 Map 1A

3/91 adw/

FOR PUBLIC RECORD



PLAT #1

ANTICIPATED  
PRODUCTION FACILITIES  
FOR A  
DAKOTA WELL

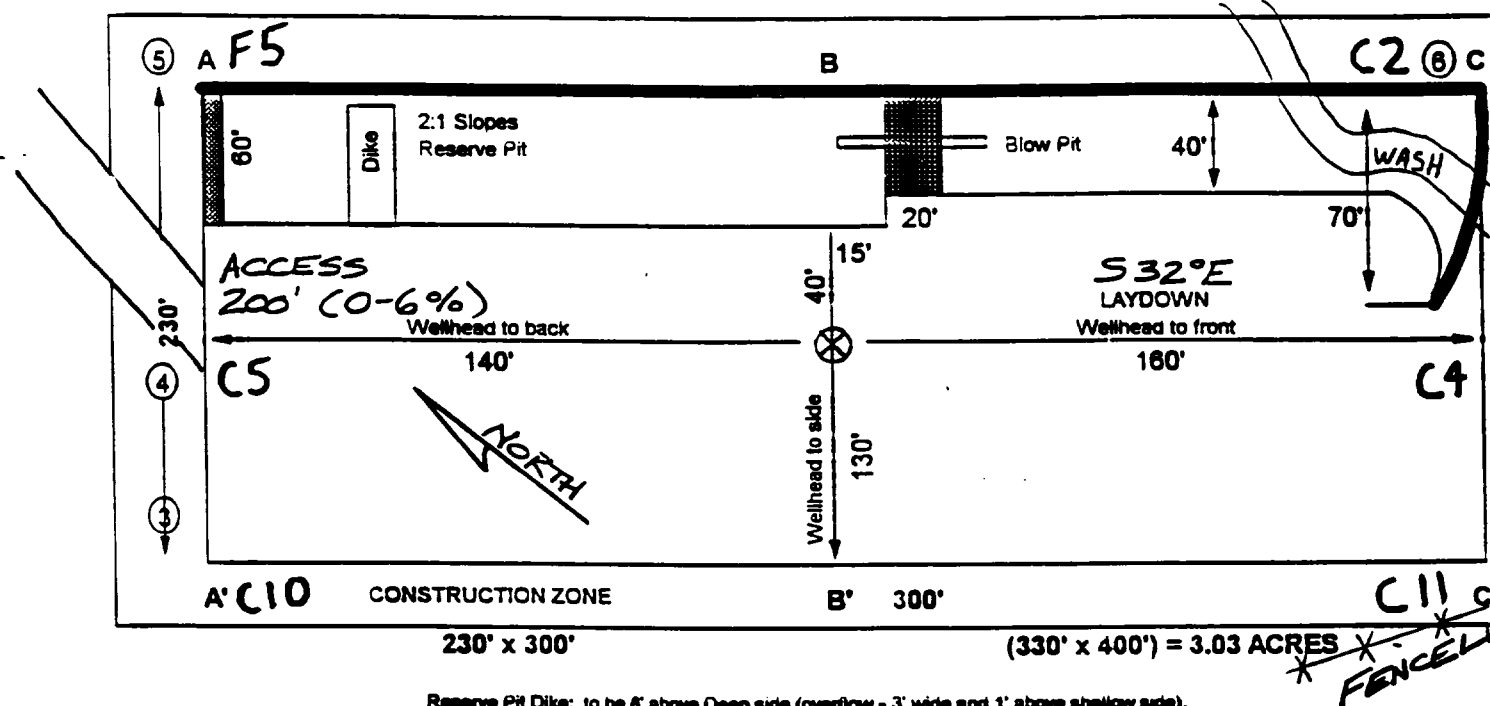
SFF 4/91

# BURLINGTON RESOURCES

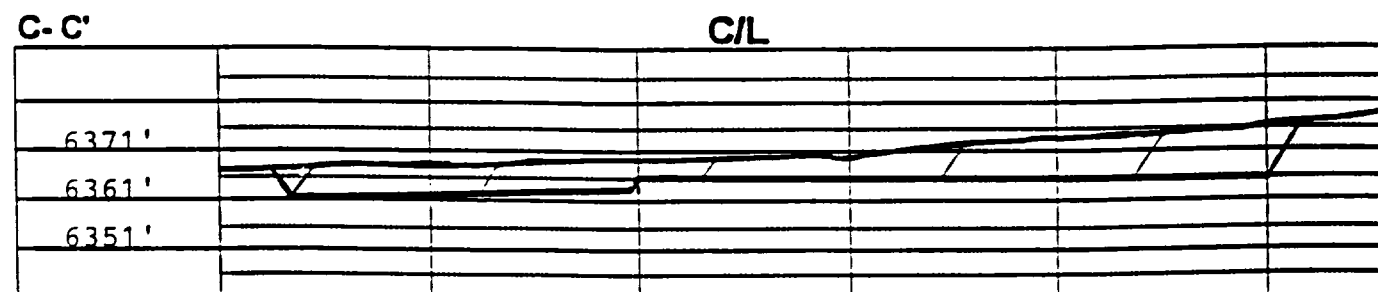
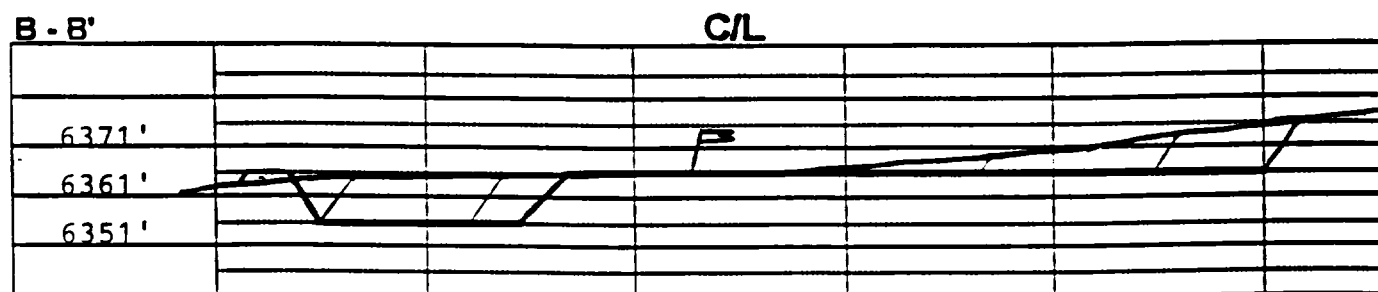
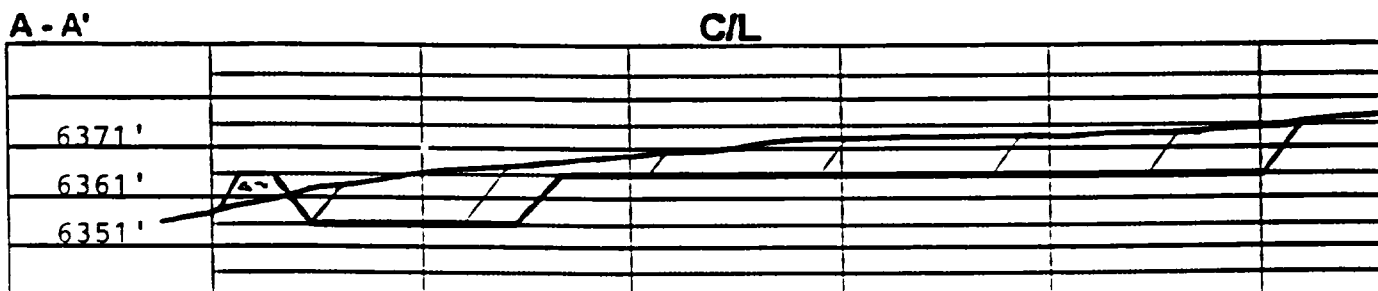
PLAT #1

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NAME: San Juan 28-6 Unit #155M  
 FOOTAGE: 1010' FNL, 1780' FWL,  
 SEC 28 TWN 28N N.R. 6W W NMPM  
 CO: Rio Arriba ST: New Mexico  
 ELEVATION: 6361' DATE: 6/04/97



Reserve Pit Dike: to be 6" above Deep side (overflow - 3' wide and 1' above shallow side).  
 Blow Pit: overflow pipe halfway between top and bottom and to extend over plastic liner and into blow pit.



Note: Contractor should call One-Call for location of any marked or unmarked buried pipelines or on well pad and/or access road at least two (2) working days prior to construction.

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*operator's copy*

## BLM CONDITIONS OF APPROVAL

Operator Burlington Resources O&G Co. Well Name 155M San Juan 28-6 Unit  
Legal Location 1010' FNL/1780' FWL Sec. 28 T. 28 N. R. 6 W.  
Lease Number SF-079080-C Field Inspection Date 6/4/97

The following conditions of approval will apply to this well unless a particular Surface Managing Agency or private surface owner has supplied to BLM and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties pursuant to 43 CFR 3163.1 or 3163.2. A copy of these conditions of approval shall be present on the location during construction, drilling and reclamation activity.

An agreement between operator and fee land owner will take precedence over BLM surface stipulations unless (In reference to 43 CFR Part 3160) 1) BLM determines that the operator's actions will affect adjacent Federal or Indian surface, or 2) the operator does not maintain well area and lease premises in a workmanlike manner with due regard for safety, conservation and appearance, or 3) no such agreement exists, or 4) in the event of well abandonment, minimal Federal restoration requirements will be required.

- 
1. The top *12 inches* of soil material will be stripped and stockpiled to rehab cut and fill slopes.
  2. The *northwest and southwest corners* of the well pad will be rounded off to avoid excess disturbance.
  3. Diversion ditch(es) will be constructed on the *south side* of location above the cut slope, draining to the *west*.
  4. An 18" culvert will be placed where access enters pad.
  5. The final cut slope shall not exceed a *3:1 ratio*. The final fill slope shall not exceed a *3:1 ratio*. To obtain this ratio, pits and slopes shall be backsloped into the pad upon completion of drilling and prior to setting production equipment. Construction slopes can be much steeper during drilling, but will be contoured to the above final slopes upon reclamation.
  6. All above ground structures shall be painted to blend with the natural color of the landscape. The paint used shall be: *Federal 595a-34127 (Juniper Green)*.

### I. LOCATION AND ACCESS ROAD

1. Well area and lease premises will be maintained in a workmanlike manner with due regard to safety, conservation and appearance. All liquid waste, completion fluids and drilling products associated with oil and gas operations will be contained and then buried in place, or removed and deposited in an approved disposal site.
2. Surface disturbance and vehicular traffic will be limited to the approved location and approved access road.

3. Mud pits and blow pits will be constructed so as not to leak, break or allow discharge of liquids or produced solids. At least half of the capacity of the reserve pit must be in cut. The top of the outside wall of reserve pit should be smoothed-off with a minimum of one blade width. The pit should have adequate capacity to maintain 2 feet of free board. Pits are not to be located in natural drainages. Pit walls are to be "walked down" by a crawler type tractor following construction and prior to usage. Any plastic material used to line pits must be removed to below-ground level before pits are covered. The final grade of reserve pit (after reclamation) shall allow for drainage away from pit area.

4. All unguarded pits (reserve/production/blow pits) containing liquids will be fenced with woven wire. Drilling pits will be fenced on three sides and once the rig leaves location, the fourth side will be fenced. All fencing must be a legal fence in accordance with New Mexico State Law. Liquids in pits will be allowed to evaporate, or be properly disposed of, before pits are filled and recontoured. (This office will be notified 24 hours prior to fluid hauling). Under no circumstances will pits be cut and drained. Aeration of pit fluids must be confined within pit area. Upon completion of the well the reserve pit will be covered with screening or netting and remained covered until the pit is reclaimed. All production pits 16 feet in diameter or larger will be covered with screening or netting.

5. No gravel or other related minerals from new or existing pits on Federal land will be used in construction of roads, well sites, etc., without prior approval from the Surface Managing Agency.

6. Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of tanks, or the combined capacity of tanks if a rupture could drain more than one tank. Berm walls will be compacted with appropriate equipment to assure proper construction.

7. All roads on public land must be maintained in good passable condition.

8. Use of pesticides and herbicides shall comply with the applicable Federal and State laws. Pesticides and herbicides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, Holder shall obtain from the AO written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the AO. Emergency use of pesticides shall be approved in writing by the AO prior to use.

9 The Holder shall be responsible for weed control on disturbed areas within the limits of the well pad and associated road. The Holder is responsible for consultation with the AO and/or local authorities for acceptable weed control methods within limits imposed in the conditions of approval.

## **II. CULTURAL RESOURCES (ARCHAEOLOGY)**

1. **DISCOVERY OF CULTURAL RESOURCES IN THE ABSENCE OF MONITORING:** If, in its operations, *operator/holder* discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM District Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the *operator/holder*

prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

2. **DISCOVERY OF CULTURAL RESOURCES DURING MONITORING:** If monitoring confirms the presence of previously unidentified cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM District Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the *operator/holder* prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed.

3. **DAMAGE TO SITES:** If, in its operations, *operator/holder* damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the *operator/holder* agrees at his/her expense to have a permitted cultural resources consultant prepare and have executed a BLM approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

### III. RESEEDING AND ABANDONMENT

#### Seed Mixture Number 1:

Crested Wheatgrass ( <u>Agropyron desertorum</u> )	2 lbs.
Smooth Brome ( <u>Bromus inermis</u> )	1 lb.
Fourwing Saltbush (dewinged)( <u>Atriplex canescens</u> )	1 lb.
Nomad Alfalfa ( <u>Medicago sitiva</u> )	2 lbs.
Indian Ricegrass ( <u>Oryopsis hymenoides</u> )	1 lb.
Western Wheatgrass ( <u>Agropyron smithii</u> )	2 lbs.

Species shall be planted in pounds of pure live seed per acre:

$$\text{Present Pure Live Seed (PLS)} = \text{Purity} \times \text{Germination}/100$$

Two lots of seed can be compared on the basis of PLS as follows:

<u>Source No. One (poor quality)</u>		<u>Source No. two (better quality)</u>	
Purity	50 percent	Purity	80 percent
Germination	40 percent	Germination	63 percent
Percent PLS	20 percent	Percent PLS	50 percent
5 lb. bulk seed required to make 1 lb. PLS.		2 lb. bulk seed required to make 1 lb. PLS.	

The seed mixture used must be *certified*. There shall be NO primary or secondary noxious weeds in the seed mixture. Seed labels from each bag shall be available for inspection while seeding is being accomplished.

Seeding shall be accomplished between July 1 and September 15 (later date may be extended on a case-by-case basis with Authorized Officer approval). Seeding shall be repeated if a satisfactory stand is not obtained as determined by the Authorized Officer upon evaluation after the second growing season.

Compacted areas shall be ripped to a depth of 12" and disked to a depth of six inches before seeding. Seed with a disk-type drill with two boxes for various seed sizes. The drill rows shall be eight to ten inches apart. Seed shall be planted at not less than one-half inch deep or more than one inch deep. The seeder shall be followed with a drag, packer, or roller to ensure uniform coverage of the seed, and adequate compaction. Drilling shall be done on the contour where possible, not up and down the slope.

Where slopes are too steep for contour drilling a "cyclone" hand seeder or similar broadcast seeder shall be used. Seed shall then be covered to the depth described above by whatever means is practical, i.e. hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.

If, upon abandonment of wells, the retention of access road is not considered necessary for the management and multiple use of the natural resources, it will be ripped a minimum of 12" in depth. After ripping, water bars will be installed. All ripped surfaces are to be protected from vehicular travel by construction of a dead end ditch and earthen barricade at the entrance to these ripped areas. (Reseeding of affected areas may be required.)

CULTURAL RESOURCES STIPULATIONS  
Farmington District

PROJECT San Juan 28-6 Unit #155M well + pipeline Report No. 97(V)053P

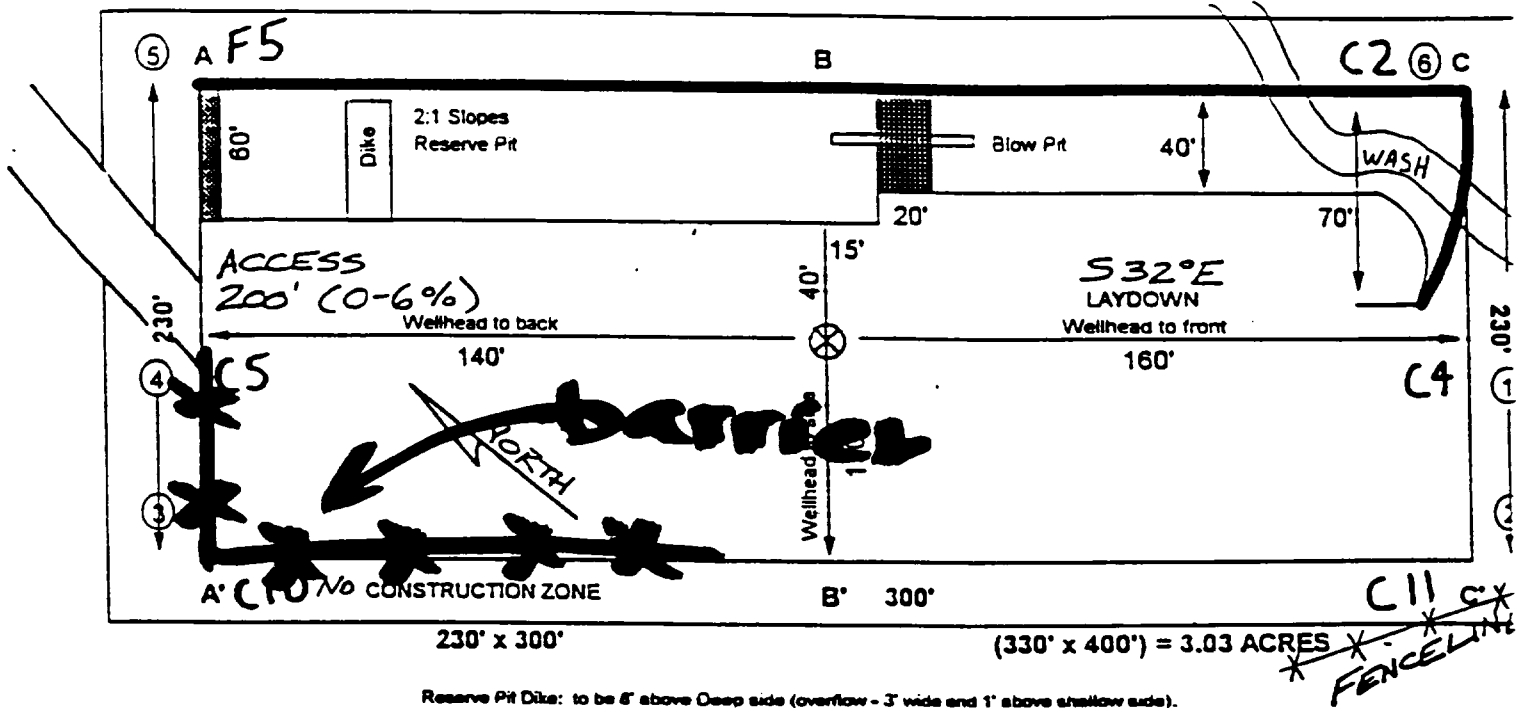
- ✓ 1. SITE PROTECTION AND EMPLOYEE EDUCATION: All employees of the project will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified that it is illegal to collect, damage or disturb cultural resources.
- ✓ 2. Monitoring is required.
  - ✓ a. A copy of these stipulations will be supplied to the archeological monitor at least two working days prior to the start of construction activities.
  - ✓ b. No construction activities, including vegetation removal, may begin before the arrival of the monitor.
  - ✓ c. The monitor will:
    - ✓ 1. Ensure that the site protection barrier is located as indicated on the attached map(s).
    - ✓ 2. Observe all surface disturbing activities within well pad and pipeline within 200 ft of LA 118346
    3. Other:
    - ✓ 4. Submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM. These stipulations must be attached to the report.
3. The grantees must select one of the following alternatives:
  - \_\_\_\_\_ a. Controlled test excavations to determine if cultural resources are present;
  - \_\_\_\_\_ b. Reduction of the project size to avoid all significant cultural materials;
  - \_\_\_\_\_ c. Relocation of the project;
  - \_\_\_\_\_ d. Preparation and implementation of a data recovery plan for site(s)
- ✓ 4. SITE BARRIER/FENCING:
  - ✓ a. A temporary site protection barrier(s) will be erected prior to well pad + pipeline construction. The barrier will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. There will be no construction activities or vehicle traffic past the barrier. The barriers(s) will remain in place through reclamation and reseeding.
  - \_\_\_\_\_ b. A permanent (Type A - see attachment) fence(s) will be erected prior to \_\_\_\_\_ construction. There will be no construction activities or vehicle traffic past the fence(s).
  - ✓ c. The barrier(s)/fence(s) will be placed as indicated on the attached map ~~(LA 118346)~~ LA 118347 and between CS 15+50 and CS 16+50
- ✓ 5. CONSTRUCTION ZONES: There will be a no construction zone behind barriers
6. OTHER:

97(11)053E

# JURLINGTON RESOURCES

## PLAT #1

NAME: San Juan 28-6 Unit #155M  
 FOOTAGE: 1010' FNL, 1780' FWL,  
 SEC 28 TWN 28N N.R. 6W W NMPM  
 CO: Rio Arriba ST: New Mexico  
 ELEVATION: 6361' DATE: 6/04/97

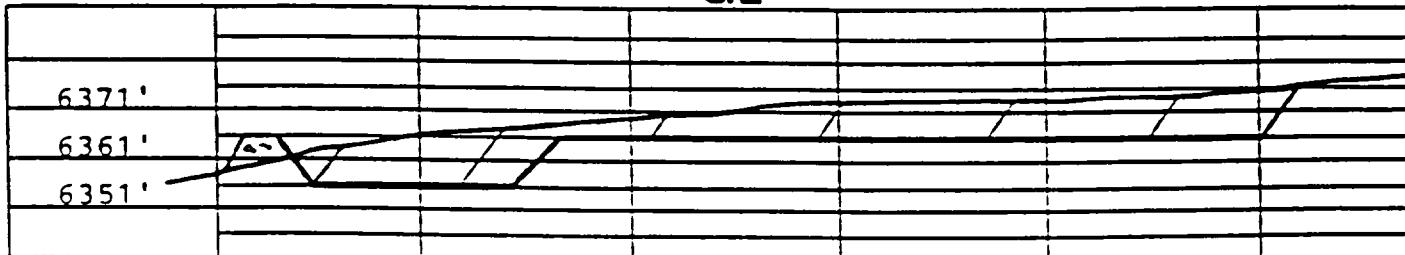


Reserve Pit Dike: to be 6" above Deep side (overflow - 3' wide and 1" above shallow side).

Blow Pit: overflow pipe halfway between top and bottom and to extend over plastic liner and into blow pit.

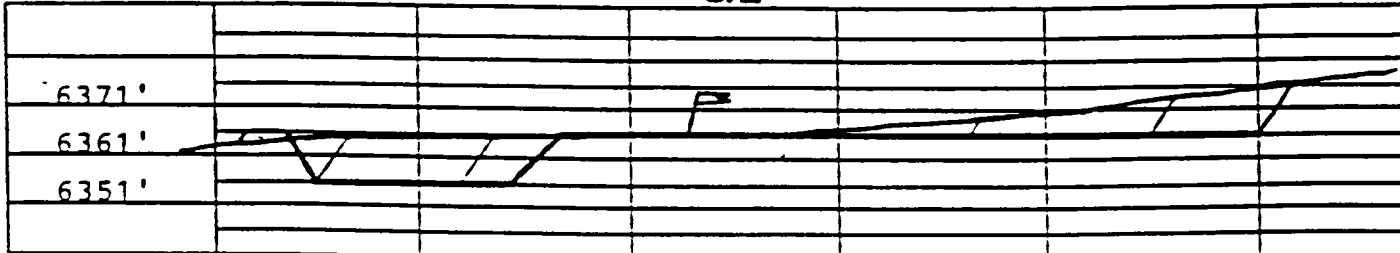
A - A'

C/L



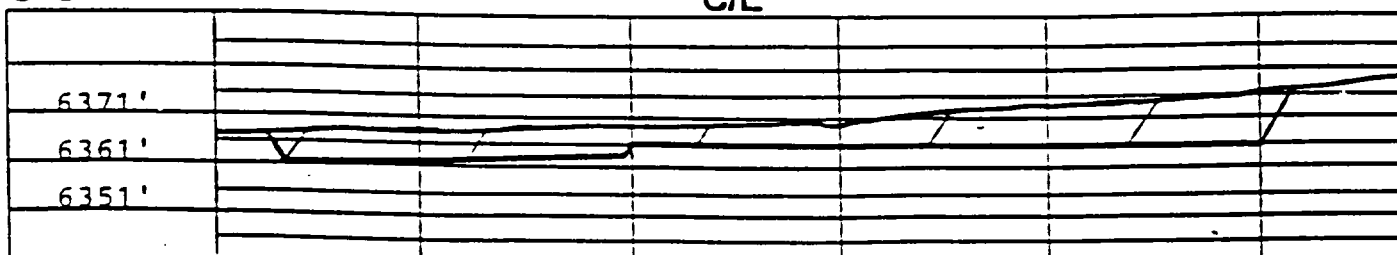
B - B'

C/L



C - C'

C/L



Note: Contractor should call One-Call for location of any marked or unmarked buried pipelines or cables on well pad and/or access road at least two (2) working days prior to construction.

## EXHIBIT A

### **PROJECT**

Location(s)

T. 28 N., R. 6 W., Sec. 28

T.    N., R.    W., Sec.   

EA LOG NO. NM-070-97-336

Lease NO. SF-079080-C

File Code 2800

### **ROAD STIPULATIONS**

Project Construct New Road to 155M San Juan 28-6 Unit Well Site

Applicant Burlington Resources Oil & Gas Company

Address P. O. Box 4289, Farmington, NM 87499

BLM Office: Farmington District Office - Phone No.: (505) 599-8900

The following stipulations and/or mitigating measures will be implemented during (1) the various stages (if specified) of project development/operation and (2) up to 30 years after construction is completed for this project. If problems arise during or after field work is completed, the applicant/contractor(s) is required to promptly notify the Bureau's authorized representative. Consultation between the applicant/contractor(s) and the Bureau's authorized representative may result in additional field work being required of the applicant/contractor(s) to fully implement one or more of the following stipulations.

#### **A. CONSTRUCTION AND MAINTENANCE**

##### **SPECIAL:**

1. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of **6 inches** deep, the soil shall be deemed too wet to adequately support construction equipment.
2. Those segments of road where grade is in excess of ten percent for more than 300 feet shall be designed by a professional engineer.
3. Right-of-way clearing shall be limited to the limits of the right-of-way.
4. This road shall have a minimum driving surface of 14 feet, a maximum bladed width of **14 feet** excluding turnout ditches and turnouts, and a maximum grade of 10 percent (pitches over 10 percent that are less than 300 feet in length may be allowed).
5. Crowning and ditching on both sides of the road is required. The road cross section will conform to the cross section diagrams available from BLM. The crown shall have a grade of approximately two percent (i.e., two inch crown on a 14 foot wide road).
6. Drainage control shall be ensured over the entire road through the use of borrow ditches, drainage dips, outsloping, insloping, natural rolling topography, and/or turnout (lead-off) ditches. Every drainage dip shall drain water into an adjacent turnout ditch.
7. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible.
8. Unless otherwise approved by the AO, vehicle turnouts will be required. Vehicle turnouts will be constructed at location of locked gate. Turnouts will conform to diagrams that can be obtained from the AO.

9. Surfacing may be applied at the Holder's discretion, but is not required at this time. However, if it becomes evident there is resource damage or it becomes evident the road is receiving excess damage, surfacing will be required.

11. Seed all the disturbed areas (except the driving surface and road shoulders [entire area if road is to be reclaimed] road only) using the following designated seed mixture and to the specifications given. Disturbed areas shall be reseeded within one year of final construction.

**Seed Mixture Number 1:**

Crested Wheatgrass ( <u>Agropyron desertorum</u> )	2 lbs.
Smooth Brome ( <u>Bromus inermis</u> )	1 lb.
Fourwing Saltbush (dewinged)( <u>Atriplex canescens</u> )	1 lb.
Nomad Alfalfa ( <u>Medicago sitiva</u> )	2 lbs.
Indian Ricegrass ( <u>Orysopsis hymenoides</u> )	1 lb.
Western Wheatgrass ( <u>Agropyron smithii</u> )	2 lbs.

Species shall be planted in pounds of pure live seed per acre:

Present Pure Live Seed (PLS) = Purity X Germination/100

Two lots of seed can be compared on the basis of PLS as follows:

<u>Source No. One (poor quality)</u>		<u>Source No. two (better quality)</u>	
Purity	50 percent	Purity	80 percent
Germination	40 percent	Germination	63 percent
Percent PLS	20 percent	Percent PLS	50 percent
<i>5 lb. bulk seed required to make 1 lb. PLS.</i>		<i>2 lb. bulk seed required to make 1 lb. PLS.</i>	

Seed mixture used must be **certified**. There shall be **NO** primary or secondary noxious weeds in the seed mixture. Seed labels from each bag shall be available for inspection while seeding is being accomplished.

Seeding shall be accomplished between July 1 and September 15 (later date may be extended on a case-by-case basis with AO approval). Seeding shall be repeated if a satisfactory stand is not obtained as determined by the Authorized Officer upon evaluation after the second growing season.

Compacted areas shall be ripped to a depth of twelve inches and disked to a depth of six inches before seeding. Seed with a disk-type drill with two boxes for various seed sizes. The drill rows shall be eight to ten inches apart. The seed shall be planted at not less than one-half inch deep or more than one inch deep. The seeder shall be followed with a drag, packer, or roller to ensure uniform coverage of the seed, and adequate compaction. Drilling shall be done on the contour where possible, not up and down the slope.

Where slopes are too steep for contour drilling a "cyclone" hand seeder or similar broadcast seeder shall be used. Seed shall then be covered to the depth described above by whatever means is practical, i.e. hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.

If, upon abandonment of wells, the retention of access road is not considered necessary for the management and multiple use of the natural resources, it will be ripped a minimum of 12" in depth. After ripping, water bars will be installed. All ripped surfaces are to be protected from vehicular travel by construction of a dead end ditch and earthen barricade at the entrance to these ripped areas. (Reseeding of affected areas may be required).



**STANDARD:**

1. The Holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.
2. A copy of these stipulations, including exhibits and the Plan(s) of Operation (if required), shall be on the project area and available to persons directing equipment operation.
3. Disposal of all liquid and solid waste produced during operation of this right-of-way shall be in an approved manner so it will not impact the air, soil, water, vegetation or animals.
4. Holder shall not violate applicable air and water quality standards or related facility siting standards established by or pursuant to applicable Federal and State law.
5. Holder shall minimize disturbance to existing fences and other improvements on public land. Holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. Holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be H-braced on both sides of the passageway prior to cutting the fence.
6. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment.
7. Holder shall maintain the right-of-way in a safe, useable condition, as directed by the AO. (A regular maintenance program shall include, but is not limited to, soil stabilization.)
8. The Holder shall be responsible for weed control on disturbed areas within the limits of the right-of-way. The Holder is responsible for consultation with the Authorized Officer and/or local authorities for acceptable weed control methods within the limits imposed in the grant stipulations.
9. Use of pesticides and herbicides shall comply with the applicable Federal and State laws. Pesticides and herbicides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, Holder shall obtain from the AO written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the AO. Emergency use of pesticides shall be approved in writing by the AO prior to use.
10. Unless otherwise approved in writing by the Authorized Office, this road will be designed and constructed to conform with the BLM, New Mexico road construction/maintenance policy.
11. Public access along this road will not be restricted by the Holder without specific written approval being granted by the AO. Gates or cattleguards on the public land will not be locked or closed to public use unless specifically determined by the AO.
12. Unless otherwise approved in writing by the AO, drainage dip location for grades over two (2) percent shall be determined by the formula:

$$\text{Spacing Interval} = \frac{400}{\text{road slope \%}} + 100'.$$

Example: For a road with a four (4) percent slope.

$$\text{Spacing Interval} = \frac{400}{4\%} + 100' = 200 \text{ feet}$$

13. Unless otherwise approved in writing by the Authorized Officer, all turnout ditches shall be graded to drain water with a one (1) percent minimum to three (3) percent maximum ditch slope. The spacing interval for turnout ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road grade:

#### SPACING INTERVAL FOR TURNOUT DITCHES

<u>Percent Slope</u>	<u>Spacing Interval</u>
0 - 4%	150 - 350 feet
4 - 6%	125 - 250 feet
6 - 8%	100 - 200 feet
8 - 10%	75 - 150 feet

14. Maintain the road so that user traffic remains within the right-of-way and erosion is mitigated. Roads and road segments where serious erosional damage is occurring will be handled on a case-by-case basis. "Flat blading" will be avoided where practical. A typical exemption would be where bedrock is exposed at the surface. The road(s) will be maintained so that over time a proper road prism and good drainage is achieved. Maintenance will include drainage dips, turnout ditches, crowning and/or out-sloping/in-sloping, low water crossings and vehicle turnouts. Cattleguards and culverts will be cleaned and repaired or replaced. Surfacing may be required.

15. Failure of Holder to share maintenance costs in dollars/equipment/materials/manpower proportionate to Holder's use with the other authorized users may be adequate grounds to terminate ROW grant. The determination as to whether this has occurred and the decision to terminate shall rest with the AO and upon request, he shall be provided with copies of any maintenance agreement entered into.

#### B. CULTURAL RESOURCES ARCHEOLOGY

1. **DISCOVERY OF CULTURAL RESOURCES IN THE ABSENCE OF MONITORING:** If, in its operations, *operator/holder* discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM District Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the *operator/holder* prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

2. **DISCOVERY OF CULTURAL RESOURCES DURING MONITORING:** If monitoring confirms the presence of previously unidentified cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM District

Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the *operator/holder* prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed.

3. **DAMAGE TO SITES:** If, in its operations, *operator/holder* damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the *operator/holder* agrees at his/her expense to have a permitted cultural resources consultant prepare and have executed a BLM approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

#### C. ABANDONMENT

1. Ninety days prior to termination of the ROW, the Holder shall contact the Authorized Officer to arrange a joint inspection of the ROW. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, or surfacing material, recontouring, topsoiling or seeding. The AO must approve the plan in writing prior to the Holder's commencement of any termination actions.

#### D. GENERAL

1. After complying with all restoration stipulations, submit a "proof of restoration" letter if this road has been approved as a right-of-way. Proof of restoration letters shall be filed with BLM, Farmington District, 1235 La Plata Highway, Farmington, NM 87401 not later than 2 years after completion of construction.

2. The Holder of this right-of-way agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on this ROW (unless the release or threatened release is wholly unrelated to Holder's activity in this ROW). This agreement applies without regard to whether a release is caused by the Holder, their agent, or unrelated third parties.

3. The Holder(s) shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release of spill of any toxic substances shall be furnished to the AO concurrent with the filing of reports to involved Federal agency or State government.

4. The Holder of this right-of-way grant, or the Holder's successor in interest, shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and the regulations of the Secretary of the Interior issued pursuant thereto.

On behalf of Burlington Resources O&G Co., I have reviewed these stipulations and conditions and agree with them.

\_\_\_\_\_  
Burlington Resources O&G Co.

\_\_\_\_\_  
Date

Bill Liss  
BLM Field Examiner

6/19/97  
Date

## EXHIBIT A

### **PROJECT**

Location(s) T. 28 N., R. 6 W., Sec. 28  
NE¼NW¼

EA LOG NO. NM-070-97-336

Lease NO. SF-079080-C

File Code 2800

### **PIPELINE STIPULATIONS**

Project Well Tie to 155M San Juan 28-6 Unit Gas Well  
Applicant Burlington Resources O&G Company  
Address P. O. Box 4289, Farmington, NM 87499  
BLM Office: Farmington District Office - Phone No.: (505) 599-8900

The following stipulations and/or mitigating measures will be implemented during (1) the various stages (if specified) of project development/operation and (2) up to **30** years after construction is completed for this project. If problems arise during or after field work is completed, the applicant/contractor(s) is required to promptly notify the Bureau's authorized representative. Consultation between the applicant/contractor(s) and the Bureau's authorized representative may result in additional field work being required of the applicant/contractor(s) to fully implement one or more of the following stipulations.

#### **A. CONSTRUCTION AND MAINTENANCE**

##### **SPECIAL:**

1. No construction or routine maintenance activities shall be performed during periods when soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 6" deep, the soil shall be deemed too wet to adequately support construction equipment.
2. No surface disturbing activities shall take place on the subject right-of-way until the associated APD is approved. The Holder will adhere to special stipulations in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
3. Right-of-way clearing shall be limited to the limits of the right-of-way.
4. Sidehill cuts of more than three (3) feet are not permitted. Areas requiring cuts greater than this shall be terraced so none are greater than three (3) feet.
5. Place pipeline within twenty (20) feet of the edge of traveled surface of the existing road.
6. Holder shall recontour the disturbed area and obliterate all earthwork by removing embankments, backfilling excavations and grading to re-establish the approximate original contours of the land in right-of-way.
7. Holder shall construct waterbars on all disturbed areas to the spacing and cross sections specified by the Authorized Officer (AO). Waterbars are to be constructed to: (1) simulate the imaginary contour lines of the slope (ideally with a grade of one or two percent); (2) drain away from the disturbed area; and (3) begin and end in vegetation or rock whenever possible. Spacing will be as follows:

Percent Slope	Spacing Intervals
less than 1%	400 feet
1 - 5%	300 feet
5 - 15%	200 feet
12 - 25%	100 feet

8. All above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint used shall be a non-glare, non-reflective, non-chalking color of *Federal Juniper Green (95a-34127)*.

9. Seed all the disturbed areas except the driving surface and road shoulders [entire area if road is to be reclaimed] only using designated *seed mixture #1* and to the specifications given. Disturbed areas shall be reseeded within one year of final construction.

**Seed Mixture Number 1:**

Crested Wheatgrass ( <i>Agropyron desertorum</i> )	2 lbs.
Smooth Brome ( <i>Bromus inermis</i> )	1 lb.
Fourwing Saltbush (dewinged)( <i>Atriplex canescens</i> )	1 lb.
Nomad Alfalfa ( <i>Medicago sitiva</i> )	2 lbs.
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Species shall be planted in pounds of pure live seed per acre:

Present Pure Live Seed (PLS) = Purity X Germination/100

Two lots of seed can be compared on the basis of PLS as follows:

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The seed mixture used must be *certified*. There shall be **NO** primary or secondary noxious weeds in the seed mixture. Seed labels from each bag shall be available for inspection while seeding is being accomplished.

Seeding shall be accomplished between July 1 and September 15 (later date may be extended on a case-by-case basis with Authorized Officer approval). Seeding shall be repeated if a satisfactory stand is not obtained as determined by the Authorized Officer upon evaluation after the second growing season.

Compacted areas shall be ripped to a depth of twelve inches and disked to a depth of six inches before seeding. Seed with a disk-type drill with two boxes for various seed sizes. The drill rows shall be eight to ten inches apart. The seed shall be planted at not less than one-half inch deep or more than one inch deep. The seeder shall be followed with a drag, packer, or roller to ensure uniform coverage of the seed, and adequate compaction. Drilling shall be done on the contour where possible, not up and down the slope.

Where slopes are too steep for contour drilling a "cyclone" hand seeder or similar broadcast seeder shall be used. Seed shall then be covered to the depth described above by whatever means is

practical, i.e. hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.

If, upon abandonment of wells, the retention of access road is not considered necessary for the management and multiple use of the natural resources, it will be ripped a minimum of 12" in depth. After ripping, water bars will be installed. All ripped surfaces are to be protected from vehicular travel by construction of a dead end ditch and earthen barricade at the entrance to these ripped areas. (Reseeding of affected areas may be required).

**STANDARD:**

1. The Holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.
2. A copy of these stipulations, including exhibits and the Plan(s) of Operation (if required), shall be on the project area and available to persons directing equipment operation.
3. Disposal of all liquid and solid waste produced during operation of this right-of-way shall be in an approved manner so it will not impact the air, soil, water, vegetation or animals.
4. Holder shall not violate applicable air and water quality standards or related facility siting standards established by or pursuant to applicable Federal and State law.
5. The Holder shall minimize disturbance to existing fences and other improvements on public land. The Holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The Holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be H-praced on both sides of the passageway prior to cutting the fence.
6. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment.
7. Holder shall maintain the ROW in a safe, useable condition, as directed by the Authorized Officer. (A regular maintenance program shall include, but is not limited to, soil stabilization.)
8. The Holder shall be responsible for weed control on disturbed areas within the limits of the right-of-way. The Holder is responsible for consultation with the Authorized Officer and/or local authorities for acceptable weed control methods within limits imposed in the grant stipulations.
9. Use of pesticides/herbicides shall comply with applicable Federal and State laws. Pesticides/herbicides shall be used only in accordance with their registered uses and within limitations imposed by Secretary of the Interior. Prior to the use of pesticides, Holder shall obtain from AO written approval of a plan showing type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by AO. Emergency use of pesticides shall be approved in writing by the AO prior to use.

## **B. CULTURAL RESOURCES ARCHEOLOGY**

1. **DISCOVERY OF CULTURAL RESOURCES IN THE ABSENCE OF MONITORING:** If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM District Manager. The BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization or data recovery may be performed by the BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is successfully completed. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

2. **DISCOVERY OF CULTURAL RESOURCES DURING MONITORING:** If monitoring confirms the presence of previously unidentified cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM District Manager. The BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed.

3. **DAMAGE TO SITES:** If, in its operations, operator/holder damages, or is found to have damaged, any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare and have executed a BLM approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resource Protection Act of 1979 (as amended).

## **C. ABANDONMENT**

1. Ninety days prior to termination of the ROW, Holder shall contact the Authorized Officer to arrange a joint inspection of the ROW. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, or surfacing material, recontouring, topsoiling or seeding. The AO must approve the plan in writing prior to the Holder's commencement of any termination actions.

## **D. GENERAL**

1. After complying with all restoration stipulations, submit a "proof of restoration" letter if this pipeline has been approved as a right-of-way. Proof of restoration letters shall be filed with BLM, Farmington District, 1235 La Plata Highway, Farmington, NM 87401 not later than 2 years after completion of construction.



2. Holder of this right-of-way agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on this ROW (unless the release or threatened release is wholly unrelated to Holder's activity in this ROW). This agreement applies without regard to whether a release is caused by the Holder, their agent, or unrelated third parties.

3. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release of spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

4. The Holder of this right-of-way grant, or the Holder's successor in interest, shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and the regulations of the Secretary of the Interior issued pursuant thereto.

On behalf of Burlington, we have reviewed these stipulations and conditions and agree with them.

\_\_\_\_\_  
Burlington Resources O&G Co.

\_\_\_\_\_  
Date

Bill Riess  
\_\_\_\_\_  
BLM Field Examiner

6/19/97  
\_\_\_\_\_  
Date



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Farmington District Office  
1235 La Plata Highway  
Farmington, New Mexico 87401

TAKE  
PRIDE IN  
AMERICA  
IN REPLY REFER TO:  
3162.3-1 (070)

**Burlington Resources Oil & Gas Co.  
155M San Juan 28-6 Unit  
Santa Fe 079050C  
NE/4NW/4 Sec. 28, T. 28 N., R. 6 W.  
Rio Arriba County, New Mexico**

Above Data Required on Well Sign

### GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

In addition to those requirements set forth in the laws, regulations and Onshore Orders, these requirements apply generally to all oil and gas operations on Federal and Indian leases. They apply specifically to the above-described well. Special requirements that apply and are effective for this well, if any, are check-marked in Section VII of these General Requirements. The failure of the operator to comply with these requirements and the filing of required reports will result in strict enforcement of 43 CFR 3163.1 or 3163.2.

#### I. GENERAL

A. Full compliance with all applicable laws, regulations, and Onshore Orders, with the approved Permit to Drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors.

B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or allotted, (see 43 CFR 3162.6(b)).

C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.

D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-District Office, weekly from the spud date until the well is completed and the Well Completion Report (Form 3160-4) is filed. The report should be on 8 1/2 x 11 inch paper, and each page should identify the well by; operator's name, well number, location and lease number.

E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).

3. A cement evaluation log if cement is not circulated to surface.

### III. DRILLER'S LOG

A. The following shall be entered in the daily driller's log: 1) Blowout preventer pressure tests, including test pressures and results. 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results and 8) Estimated amounts of oil and gas recovered and/or produced during drillstem tests.

### IV. GAS FLARING

A. Gas produced from this well may not be vented or flared beyond an initial, authorized test period of \_\_\_\_\* days or 50 MMcf following its (completion) (recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted, and you shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.

\* 30 days, unless a longer test period specifically is approved by the authorized officer. The 30-day period begins when the casing is first perforated for cased holes, and when Total Depth (TD) is reached for open hole completion.

### V. SAFETY

- A. All rig heating stoves are to be of the explosion-proof type.
- B. Rig safety lines are to be installed.
- C. Hard hats must be utilized.

### VI. CHANGE OF PLANS OR ABANDONMENT

A. Any change of plans required in order to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section I.F..

B. If the well is dry it is to be plugged in accord with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section I.F.. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section II.B.1.c..

C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drillsite without prior approval from the BLM-Authorized Officer

# Sample Confidential Filing

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

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-101  
Revised February 21, 1994

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

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

Instructions on back  
Submit to Appropriate District Office  
State Lease - 6 Copies  
Fee Lease - 5 Copies

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

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

☐ AMENDED REPORT

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

Operator Name and Address. Burlington Resources Oil & Gas Company PO Box 4289 Farmington, NM 87499		OGRID Number 14538
		API Number 30 - 0
Property Code 7462	Property Name San Juan 28-6 Unit	Well No. 155M

#### 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	28	28N	6W		1010	N	1780	W	RA

#### 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

Proposed Pool 1 Blanco Mesa Verde - 72319	Proposed Pool 2 Basin Dakota - 71599
--	---

Work Type Code N	Well Type Code G	Cable/Rotary Rotary	Lease Type Code F	Ground Level Elevation 6361' GR
Multiple Yes	Proposed Depth 7648'	Formation MV/Dk	Contractor	Spud Date

#### Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
	CONFIDENTIAL DATA ATTACHED				

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.

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

Signature:

Printed name:

Peggy Bradfield

Title:

Regulatory/Compliance Admin.

Date:

7-3-97

Phone:

505-326-9700

#### OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date:

Expiration Date:

Conditions of Approval:

Attached ☐

FOR PUBLIC RECORD

District I  
PO Box 1980, Hobbs, NM 88241-1980  
District II  
PO Drawer DD, Artesia, NM 88211-0719  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals & Natural Resources Department

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

Form C-101  
Revised February 21, 1994  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 6 Copies  
Fee Lease - 5 Copies

☐ AMENDED REPORT

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

<sup>1</sup> Operator Name and Address. Burlington Resources Oil & Gas Company PO Box 4289 Farmington, NM 87499		<sup>1</sup> OGRID Number 14538
		<sup>1</sup> API Number 30 - 0
<sup>4</sup> Property Code 7462	<sup>5</sup> Property Name San Juan 28-6 Unit	<sup>6</sup> Well No. 155M

CONFIDENTIAL

<sup>7</sup> 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	28	28N	6W		1010	N	1780	W	RA

<sup>8</sup> 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

<sup>9</sup> Proposed Pool 1 Blanco Mesa Verde - 72319	<sup>10</sup> Proposed Pool 2 Basin Dakota - 71599
---	---

<sup>11</sup> Work Type Code N	<sup>12</sup> Well Type Code G	<sup>13</sup> Cable/Rotary Rotary	<sup>14</sup> Lease Type Code F	<sup>15</sup> Ground Level Elevation 6361' GR
<sup>16</sup> Multiple Yes	<sup>17</sup> Proposed Depth 7648'	<sup>18</sup> Formation MV/Dk	<sup>19</sup> Contractor	<sup>20</sup> Spud Date

<sup>21</sup> 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#	200'	188 cu.ft.	surface
8 3/4"	7"	20.0#	3403'	895 cu.ft.	surface
6 1/4"	4 1/2"	10.5#/11.6#	7648'	602 cu.ft.	overlap

<sup>22</sup> 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.

<sup>23</sup> I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature:

Printed name:

Peggy Bradfield

Title:

Regulatory/Compliance Admin.

Date:

7-3-97

Phone:

505-326-9700

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date:

Expiration Date:

Conditions of Approval:

Attached ☐

NOT FOR PUBLIC RECORD

Submit to Appropriate  
District Office  
State Lease - 6 copies  
Fee Lease - 5 copies  
DISTRICT I

P.O. Box 1980, Hobbs, NM 88240

DISTRICT II

P.O. Drawer DD, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P. O. Box 2089  
Santa Fe, New Mexico 87504-2088

Form C-105  
Revised 1-1-89

WELL API NO.

30-039-25622

5. Indicate Type of Lease

STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

B-10037-55

7. Lease Name or Unit Agreement Name

San Juan 29-7 Unit

8. Well No.

47B

9. Pool name or Wildcat

Blanco Mesaverde

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. TYPE OF WELL:

OIL WELL ☐ GAS WELL ☒ DRY ☐ OTHER ☐ R-10720

b. TYPE OF COMPLETION:

NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF RESVR ☐ OTHER ☐

2. Name of Operator

BURLINGTON RESOURCES OIL & GAS COMPANY

3. Address of Operator

P.O. BOX 4289, Farmington, NM 87499

4. Well Location

Unit Letter J : 2610 Feet From The South Line and 2200 Feet From The East Line

Section 2 Township 29N Range 7W NMPM Rio Arriba County

10. Date Spudded 7-10-97 11. Date T.D. Reached 7-16-97 12. Date Compl. (Ready to Prod.) 8-31-97 13. Elevations (DF&RKB, RT, GR, etc.) 6829 GR, 6841 KB 14. Elev. Casingshead

15. Total Depth 6286 16. Plug Back T.D. 17. If Multiple Compl. How Many Zones? 18. Intervals Drilled By 19. Producing Interval(s), of this completion - Top, Bottom, Name 5243-6227 Mesaverde 20. Was Directional Survey Made No 21. Type Electric and Other Logs Run CNL-GR 22. Was Well Cored No

CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB/FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9 5/8	32.3#	240	12 1/4	224 cu.ft.	
7	23#	3992	8 3/4	1200 cu.ft.	

LINER RECORD					TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
4 1/2	3820	6285	428 cu.ft.		2 3/8	6200	

26. Perforation record (interval, size, and number)

5243, 5254, 5270, 5282, 5292, 5333, 5372, 5443, 5453, 5459, 5467, 5474, 5488, 5499, 5510, 5515, 5520, 5527, 5531, 5536, 5558, 5583, 5587, 5595, 5626, 5646, 5651, 5657, 5690, 5697, 5754, 5761, 5778, 5787, 5804, 5836.

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
5243-5697	1150 bbl x-link gel, 100,000# 20/40 Brady sd
5754-6227	1310 bbl x-link gel, 100,000# 20/40 Brady sd
Perforations cont'd on back	

PRODUCTION

Date First Production		Production Method (Flowing, gas lift, pumping - Size and type pump)				Well Status (Prod. or Shut-in)	
8-31-97		Flowing				SI	
Date of Test	Hours Tested	Choke Size	Prod'n for Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
8-31-97					2039 Pitot Gauge		
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl	Gas - MCF	Water - Bbl	Oil Gravity - API - (Corr.)	
SI 253	SI 709						

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

To be sold

Test Witnessed By

30. List Attachments

None

31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature

*Peggy Bradfield*

Printed

Name Peggy Bradfield

Title

Regulatory Administrator

Date 9-3-97

# INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, vertical depths shall also be reported. For multiple completions, Items 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE.

## Southeastern New Mexico

T. Anhy	T. Canyon
T. Salt	T. Strawn
B. Salt	T. Atoka
T. Yates	T. Miss
T. 7 Rivers	T. Devonian
T. Queen	T. Silurian
T. Grayburg	T. Montoya
T. San Andres	T. Simpson
T. Glorieta	T. McKee
T. Paddock	T. Ellenburger
T. Blinberry	T. Gr. Wash
T. Tubb	T. Delaware Sand
T. Drinkard	T. Bone Springs
T. Abo	T.
T. Wolfcamp	T.
T. Penn	T.
T. Cisco (Bough C)	T.

## Northwestern New Mexico

T. Ojo Alamo	2682	T. Penn. "B"
T. Kirtland-Fruitland	2780-3248	T. Penn. "C"
T. Pictured Cliffs	3700	T. Penn. "D"
T. Cliff House	5240	T. Leadville
T. Menefee	5540	T. Madison
T. Point Lookout	5884	T. Elbert
T. Mancos		T. McCracken
T. Gallup		T. Ignacio Otzle
Base Greenhorn		T. Granite
T. Dakota		T. Lewis - 3816
T. Morrison		T. Huerfano Bent - 4446
T. Todilto		T. Chacra - 4688
T. Entrada		T.
T. Wingate		T.
T. Chinle		T.
T. Permian		T.
T. Penn "A"		T.

## OIL OR GAS SANDS OR ZONES

No. 1, from \_\_\_\_\_ to \_\_\_\_\_ No. 3, from \_\_\_\_\_ to \_\_\_\_\_  
 No. 2, from \_\_\_\_\_ to \_\_\_\_\_ No. 4, from \_\_\_\_\_ to \_\_\_\_\_

## IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from \_\_\_\_\_ to \_\_\_\_\_ feet  
 No. 2, from \_\_\_\_\_ to \_\_\_\_\_ feet  
 No. 3, from \_\_\_\_\_ to \_\_\_\_\_ feet

## LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology	From	To	Thickness In Feet	Lithology
2682	2780		White, cr-gr ss.				
2780	3248		Gry sh interbedded w/tight, gry, fine-gr ss				
3248	3700		Dk gry-gry carb sh, coal, gm silts, light-med gry, tight, fine gr ss				
3700	3816		Bn-gry, fine gm, tight ss				
3816	4446		Shale w/siltstone stringers				
4446	4688		White, waxy chalky bentonite				
4688	5240		Gry fn gm silty, glauconitic sd stone w/drak gry shale				
5240	5540		ss. Gry, fine-grm, dense sil ss.				
5540	5884		Med-dark gry, fine gr ss, carb sh & coal				
5884	6286		Med-light gry, very fine gr ss w/frequent sh breaks in lower part of formation				

Perforations continued:  
 5854, 5864, 5870, 5883, 5897  
 5905, 5914, 5923, 5932, 5944,  
 5952, 5961, 5969, 5976, 5983,  
 5990, 6023, 6040, 6071, 6084,  
 6162, 6180, 6197, 6227