



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505  
(505) 827-7131

ADMINISTRATIVE ORDER DHC-2100

Richardson Operating Company  
1700 Lincoln Street  
Suite 1700  
Denver, Colorado 80203

Attention: Mr. Paul C. Thompson



*W. F. Federal No. 21-1 R*

*API No. - N/A*

*Unit M, Section 21, Township 30 North, Range 14 West, NMPM,  
San Juan County, New Mexico.*

*Basin-Fruitland Coal (Gas - 71629), and*

*Harper Hill*

*~~Twin Mounds~~ Fruitland Sand-Pictured Cliffs (Gas - 86620) Pools*

Dear Mr. Thompson:

Reference is made to your recent application for an exception to Rule 303.A. of the Division Rules and Regulations to permit the above described well to commingle production from the subject pools in the wellbore.

It appearing that the subject well qualifies for approval for such exception pursuant to the provisions of Rule 303.C., and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any Division Order which authorized the dual completion and required separation of the zones is hereby placed in abeyance.

The maximum amount of gas which may be produced daily from the well shall be determined by Division Rules and Regulations or by the gas allowable for each respective prorated pool as printed in the Division's San Juan Basin Gas Proration Schedule.

Subsequent to completion operations, the applicant shall conduct a production test on the Basin-Fruitland Coal Gas Pool and on the well's total production from both commingled zones. Allocation of production from the well shall be determined utilizing the allocation formula shown on Exhibit "A" attached to this order.

REMARKS: The operator shall notify the Aztec District Office of the Division upon implementation of the commingling process.

Pursuant to Rule 303.H., the commingling authority granted herein may be rescinded by the Division Director if conservation is not being best served by such commingling.

Approved at Santa Fe, New Mexico on this 14th day of September, 1998.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

A handwritten signature in cursive script, appearing to read "Lori Wrotenbery by DRC".

LORI WROTENBERY  
Director

S E A L

LW/DRC

cc: Oil Conservation Division - Aztec  
Bureau of Land Management-Farmington

***Exhibit "A"***  
**Division Order DHC-2100**

Monthly Gas Production Allocation Formula  
W. F. Federal No. 21-1

- 1) Perform well test on the Fruitland Coal formation and on the total well production.
- 2) Determine the initial production rate from the Pictured Cliffs formation from the actual first months production from the following relation:

$$Q_{PCi} = 1^{\text{st}} \text{ Month Production} * (\text{Total well test} - \text{Fruitland coal test}) / \text{Total well test}$$

- 3) Determine Pictured Cliffs decline from the following equation:

$$D = (Q_{PCi} - Q_{PCa}) / \text{Estimated Total Pictured Cliffs Gas Reserves}$$

where:

$Q_{PCa}$  = Pictured Cliffs rate at abandonment (304 MCF/Month)  
Total Pictured Cliffs Gas Reserves = 108,950 MCF (Average of eight offset wells)

- 4) Calculate Pictured Cliffs rate at any time from the following:

$$Q_{PC} = Q_{PCi} * e^{(-Dt)} \text{ where } t \text{ is time in months since first delivery.}$$

- 5) The Fruitland Coal production will be calculated monthly from the actual measured well production for that month minus  $Q_{PC}$ .