

CF 10707

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

November 22, 1993

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

Amoco Production Company  
P.O. Box 800  
Denver, CO 80201

Attention: J. W. Hawkins

**RE: Injection Pressure Increase Florence "S" Gas Com  
No. 7-A, San Juan County, New Mexico**

Dear Mr. Hawkins:

Reference is made to your request dated October 21, 1993 to increase the surface injection pressure on the Florence "S" Gas Com Well No. 7-A This request is based on engineering data and calculations submitted with your request. The data has been reviewed by my staff and we feel an increase in injection pressure on this well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

| Well and Location  | Maximum Injection Surface Pressure |
|--|------------------------------------|
| Florence "S" Gas Com Well No. 7-A<br>Unit F, Section 23, Township 30 North, Range 9 West | 1300 PSIG                          |
| This well located in San Juan County, New Mexico.  |                                    |

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

William J. LeMay  
Director

WJL/DRC/amg

cc: Oil Conservation Division - Aztec  
Oil Conservation Division - R. Brown  
Oil Conservation Division - D. Catanach  
File: Case No. 10707

NO WAITING PERIOD

COMPANY: Amoco Production Company  
ADDRESS: P.O. Box 800  
CITY, STATE, ZIP: Denver, Colorado 80201  
ATTENTION: J.W. Hawkins

Re: Injection Pressure Increase  
Florence "S" Gas Com No. 7-A

Santa Fe County, New Mexico

Dear Sir:

Reference is made to your request dated October 21, 1983, to increase the surface injection pressure on The Florence "S" Gas Com Well No. 7-A. This request is based on a ~~step rate test conducted on the well on~~ \_\_\_\_\_, 1983. The results <sup>data</sup> of ~~the test~~ have been reviewed by my staff and we feel an increase in injection pressure on the well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

*has*  
*engineering data and calculations submitted with your request.*

| <u>Well &amp; Location</u>   | <u>Maximum Injection Surface Pressure</u> |
|--|---|
| <u>Florence "S" Gas Com Well No. 7A</u><br><u>Unit F, Section 23, T-30 North, R-9 West, 10N10W</u><br><u>Santa Fe County, New Mexico</u> | <u>1300 PSIG</u>                          |

The Division Director may rescind this <sup>carbon dioxide</sup> injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

*R. Brown*  
xc: ~~F. GALLEGOS~~  
D. CATANACH  
FILE- Cage No. 10707  
OCD- Hytac



OIL CONSERVATION DIVISION  
RECEIVED

'93 OCT 25 AM 9 29

**Amoco Production Company**

Southern Rockies Business Unit  
Amoco Building  
1670 Broadway  
Post Office Box 800  
Denver, Colorado 80201  
303-830-4040

October 21, 1993

William J. LeMay, Director  
New Mexico Oil Conservation Division  
310 Old Santa Fe Trail  
P.O. Box 2088  
Santa Fe, NM 87504

File: CAW-281-986.511

Basin Fruitland Carbon Dioxide Pilot Project  
Increased Surface Injection Pressure Limit  
Rule 6 and 7, Order No. R-9948  
Florence 'S' Gas Com Well No. 7A  
N/2 Section 23, T30N-R9W  
San Juan County, New Mexico

Amoco Production Company hereby requests an increase in the surface injection pressure limit for the Basin Fruitland Carbon Dioxide Pilot Project as established in Rule 6 of Order No. R-9948. Rule 6 requires the surface injection pressure to be no more than 504 psi. We are requesting this pressure limit to be increased to 1,500 psi. This is based on a maximum bottom hole injection pressure of 1,800 psi (top of injection interval - 2,520 ft., fracture gradient - 0.72 psi/ft., calculated fracture pressure - 1,814 psi).

We have conducted a study using computer simulation to predict wellbore pressure profiles for various injection rates and concentrations of CO<sub>2</sub>/CH<sub>4</sub> mixtures. The WFS membrane unit which is the source of CO<sub>2</sub> for this pilot project is currently providing a 60% CO<sub>2</sub>/40% CH<sub>4</sub> mixture (see attached sample analysis). The attached graph shows a wellhead injection pressure of 1,500 psi for this 60% CO<sub>2</sub>/40% CH<sub>4</sub> mixture. As you will note, this wellhead injection pressure required for 1,800 psi bottomhole injection pressure decreases as the CO<sub>2</sub> concentration increases.

We will be monitoring the injection fluid composition and will adjust our injection pressure accordingly. We will report any changes in injection fluid concentration. If there is any more information required, please contact me at (303) 830-5072.

Sincerely,

J.W. Hawkins

JWH:skb

cc: Chris Zogorski

**WESTERN RESEARCH INSTITUTE***The University of Wyoming Research Corporation*

COMPANY: AMOCO  
WELL: CDP  
LOCATION:  
FORMATION:  
COUNTY: SAN JUAN  
DATE: SEPT 28 93  
TIME: 1115  
SAMPLE SRC: STACK

REMARKS: AIR FREE

| <u>COMPONENT</u> | <u>MOLE %</u> |
|------------------|---------------|
| HYDROGEN         | 0.000%        |
| NITROGEN         | 0.630%        |
| OXYGEN           | 0.000%        |
| ARGON            | 0.000%        |
| CO               | 0.000%        |
| CO <sub>2</sub>  | 58.114%       |
| METHANE          | 41.198%       |
| ETHANE           | 0.059%        |
| PROPANE          | 0.000%        |
| ISOBUTANE        | 0.000%        |
| N-BUTANE         | 0.000%        |
| ISOPENTANE       | 0.000%        |
| N-PENTANE        | 0.000%        |
| N-HEXANE         | 0.000%        |

**WESTERN RESEARCH INSTITUTE***The University of Wyoming Research Corporation*

COMPANY: AMOCO  
WELL: CDP  
LOCATION:  
FORMATION:  
COUNTY: SAN JUAN  
DATE: SEPT 28 93  
TIME: 1015  
SAMPLE SRC: STACK

REMARKS: AIR FREE

| <u>COMPONENT</u> | <u>MOLE %</u> |
|------------------|---------------|
| HYDROGEN         | 0.000%        |
| NITROGEN         | 0.194%        |
| OXYGEN           | 0.000%        |
| ARGON            | 0.000%        |
| CO               | 0.000%        |
| CO <sub>2</sub>  | 62.610%       |
| METHANE          | 37.140%       |
| ETHANE           | 0.053%        |
| PROPANE          | 0.000%        |
| ISOBUTANE        | 0.000%        |
| N-BUTANE         | 0.000%        |
| ISOPENTANE       | 0.000%        |
| N-PENTANE        | 0.000%        |
| N-HEXANE         | 0.000%        |

## Fruitland Coal CO2 Injection Project Wellbore Pressure Profiles

