

# CORE LABORATORIES, INC.

## ANALYTICAL REPORT

1-2-85

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ANALYSIS #:

AMOCO PRODUCTION CO.

JOB: A40289-6  
 TECH: RAC  
 LOCATION: CASPER, WYO.

WELL: 1 R  
 FIELD: LEEPER GAS COH. 'D'  
 COUNTY: SAN JUAN  
 STATE: NEW MEXICO  
 DATE SAMPLED: 11-30-84

SAMPLING POINT: HTN NEBO FRUITLAND  
 SAMPLE TEMP: DEG. F.  
 SAMPLE PRESSURE: 68 PSIA  
 REMARKS: #RC1034

### CHROMATOGRAPHIC ANALYSIS

|                | HOL     | GPH * |
|----------------|---------|-------|
|                | PERCENT | ----- |
| CARBON DIOXIDE | 6.55    |       |
| NITROGEN       | 0.04    |       |
| METHANE        | 92.83   |       |
| ETHANE         | 0.58    | 0.155 |
| PROPANE        | 0.00    | 0.000 |
| ISO-BUTANE     | 0.00    | 0.000 |
| NORMAL BUTANE  | 0.00    | 0.000 |
| ISO-PENTANE    | 0.00    | 0.000 |
| NORMAL PENTANE | 0.00    | 0.000 |
| HEXANES        | 0.00    | 0.000 |
| HEPTANES PLUS  | 0.00    | 0.000 |
| TOTAL          | 100.00  | 0.155 |

CALCULATED BTU/CU.FT. @ 14.730 PSIA  
 DRY BASIS: 950  
 WET BASIS: 933

CALCULATED BTU/CU.FT. @ 14.696 PSIA  
 DRY BASIS: 948  
 WET BASIS: 931

CALCULATED SPECIFIC GRAVITY: 0.6201  
 (AIR = 1.00)

COMPRESSIBILITY FACTOR: .997948

\* GPH CALCULATED AT 14.696 PSIA

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The information reported represents the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees assume no responsibility, as to the productivity, proper operation, or profitability of any oil, gas, coal or other mineral resources.

EXL101H 15B

AMOCO PRODUCTION COMPANY  
DENVER REGION

DESORBED GAS ANALYSES  
CAHN GAS COM. NO. 1

| <u>Sample</u> | <u>Interval</u> | <u>Helium</u> | <u>Nitrogen</u> | <u>Carbon Dioxide</u> | <u>Methane</u> | <u>Ethane +</u> | <u>BTU</u> |
|---------------|-----------------|---------------|-----------------|-----------------------|----------------|-----------------|------------|
| "A"           | 2798-2801       | 0.00          | 0.00            | 10.35                 | 89.10          | 0.55            | 910        |
| "B"           | 2809-2810       | 0.00          | 0.00            | 9.43                  | 90.04          | 0.55            | 919        |

Note: Numbers are volume %

Exhibit 11

AMOCO PRODUCTION COMPANY  
DENVER REGION

GAS ANALYSES - MAIN BASAL COAL  
STATE GAS COM "BW" NO. 1  
790' FNL X 1,480' FEL  
SECTION 32-T32N-R10W  
SAN JUAN COUNTY, NEW MEXICO

| Date Tested | Helium | Nitrogen | Carbon Dioxide | Methane | Ethane | Propane | Isobutane | Normal Butane | Pentane | Hexane + | BTU   | Gr     |
|-------------|--------|----------|----------------|---------|--------|---------|-----------|---------------|---------|----------|-------|--------|
| 12/81       | 0.18   | 0.01     | 5.82           | 93.68   | 0.21   | 0.02    | 0.00      | 0.00          | 0.00    | 0.00     | 955   | 0.6128 |
| 12/81       | 0.20   | 0.00     | 5.82           | 93.75   | 0.20   | 0.03    | 0.00      | 0.00          | 0.00    | 0.00     | 951   | 0.6104 |
| 8/82        | 0.00   | 0.02     | 5.84           | 93.95   | 0.18   | 0.01    | 0.00      | 0.00          | 0.00    | 0.00     | 952   | 0.6113 |
| 8/82        | 0.00   | 0.00     | 5.87           | 93.91   | 0.22   | 0.00    | 0.00      | 0.00          | 0.00    | 0.00     | 952   | 0.6116 |
| 9/82        | 0.00   | 0.50     | 3.78           | 92.68   | 1.85   | 0.69    | 0.12      | 0.15          | 0.10    | 0.13     | 1,010 | 0.6190 |
| 11/82       | 0.00   | 0.00     | 6.09           | 93.71   | 0.15   | 0.05    | 0.00      | 0.00          | 0.00    | 0.00     | 950   | 0.6138 |
| 11/82       | 0.00   | 0.00     | 6.11           | 93.68   | 0.18   | 0.03    | 0.00      | 0.00          | 0.00    | 0.00     | 950   | 0.6140 |
| 11/82       | 0.06   | 0.36     | 5.96           | 93.55   | 0.00   | 0.07    | 0.00      | 0.00          | 0.00    | 0.00     | 947   | 0.6133 |

Note: Numbers are volume %

TAB748

Exhibit 104-117

AMOCO PRODUCTION COMPANY  
DENVER REGION

GAS ANALYSES

SAN JUAN COUNTY, NEW MEXICO

|                        | <u>Date Tested</u> | <u>Helium</u> | <u>Nitrogen</u> | <u>Carbon Dioxide</u> | <u>Methane</u> | <u>Ethane</u> | <u>Propane</u> | <u>Isobutane</u> | <u>Normal Butane</u> | <u>Pentane</u> | <u>Hexane +</u> | <u>BTU</u> | <u>GR</u> |
|------------------------|--------------------|---------------|-----------------|-----------------------|----------------|---------------|----------------|------------------|----------------------|----------------|-----------------|------------|-----------|
| <u>Fruitland Wells</u> |                    |               |                 |                       |                |               |                |                  |                      |                |                 |            |           |
| Keys Gas Com E1        | 3/77               | 0.00          | 0.09            | 1.09                  | 95.06          | 1.54          | 0.82           | 0.23             | 0.46                 | 0.48           | 0.23            | 1,066      | 0.6070    |
| SE NW NW 27-32N-10W    | 12/81              | 0.13          | 0.03            | 0.77                  | 93.63          | 1.51          | 0.97           | 0.25             | 0.63                 | 0.86           | 1.22            | 1,125      | 0.6413    |
|                        | 12/81              | 0.00          | 0.00            | 0.80                  | 93.36          | 1.57          | 0.90           | 0.08             | 0.68                 | 0.99           | 1.62            | 1,143      | 0.6531    |
|                        | 6/82               | 0.00          | 0.03            | 1.15                  | 94.66          | 1.81          | 0.93           | 0.24             | 0.46                 | 0.55           | 0.17            | 1,070      | 0.6090    |
| Holmberg Gas Com A1    | 12/81              | 0.00          | 0.00            | 0.18                  | 92.85          | 2.11          | 1.49           | 0.16             | 0.76                 | 0.69           | 1.76            | 1,162      | 0.6555    |
| SE NW NE 28-32N-10W    | 12/81              | 0.17          | 0.03            | 0.14                  | 93.23          | 2.09          | 1.65           | 0.44             | 0.73                 | 0.60           | 0.92            | 1,131      | 0.6352    |
|                        | 9/82               | 0.00          | 0.03            | 0.19                  | 94.48          | 2.11          | 1.62           | 0.45             | 0.54                 | 0.39           | 0.19            | 1,096      | 0.6100    |

Note: Numbers are volume %

TAB749

Exhibit 18

AMOCO PRODUCTION COMPANY  
DENVER REGION

GAS ANALYSES

SAN JUAN COUNTY, NEW MEXICO

| Pictured Cliff Wells                         | Date Tested            | Helium               | Nitrogen             | Carbon               |                         |                      | Methane              | Ethane               | Propane              | Isobutane            | Normal               |                         |                            | BTU | GR |
|--|------------------------|----------------------|----------------------|----------------------|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------------------|----------------------------|-----|----|
|  |                        |                      |                      | Dioxide              | Ethane                  | Propane              |                      |                      |                      |                      | Butane               | Pentane                 | Hexane +                   |     |    |
| Martinez Gas Com A1<br>NW SE SW 32-32N-10W   | 9/77<br>12/81<br>11/82 | 0.00<br>0.09<br>0.00 | 0.15<br>0.17<br>0.33 | 1.37<br>1.52<br>1.70 | 89.07<br>86.10<br>87.99 | 5.83<br>6.57<br>5.74 | 2.12<br>2.53<br>2.20 | 0.34<br>0.32<br>0.32 | 0.54<br>0.63<br>0.57 | 0.32<br>0.35<br>0.30 | 0.26<br>1.72<br>0.85 | 1,115<br>1,184<br>1,130 | 0.6440<br>0.6930<br>0.6625 |     |    |
| Gardner Gas Com No: 1<br>SW NE SE 33-32N-10W | 12/81<br>9/82          | 0.30<br>0.00         | 0.21<br>0.22         | 1.74<br>1.78         | 89.44<br>90.02          | 4.75<br>4.86         | 1.60<br>1.89         | 0.11<br>0.30         | 0.48<br>0.44         | 0.27<br>0.24         | 1.10<br>0.25         | 1,114<br>1,095          | 0.6524<br>0.6370           |     |    |
| *Valentine Gas Com B1<br>SW NE NE 32-32N-10W | 9/79<br>12/81<br>9/82  | 0.17<br>0.00<br>0.00 | 0.12<br>0.25<br>0.20 | 5.91<br>5.77<br>5.56 | 93.70<br>93.26<br>93.21 | 0.00<br>0.42<br>0.54 | 0.07<br>0.09<br>0.28 | 0.00<br>0.03<br>0.05 | 0.00<br>0.04<br>0.07 | 0.00<br>0.04<br>0.04 | 0.03<br>0.10<br>0.05 | 950<br>964<br>971       | 0.6122<br>0.6190<br>0.6190 |     |    |
| Leeper Gas Com C1<br>NE SE SW 34-32N-10W     | 10/80                  | 0.00                 | 0.15                 | 1.49                 | 90.16                   | 5.09                 | 1.93                 | 0.33                 | 0.42                 | 0.25                 | 0.18                 | 1,098                   | 0.6340                     |     |    |

Note: Numbers are volume %

SLS:jal  
060683  
TAB749

\*Believed to be in communication with Fruitland Coal.

Exhibit 19