

29-23-37N  
15-013-20243

CORE ANALYSIS REPORT

FOR

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL  
KEARNY COUNTY, KANSAS

*Parsons*  
*Council Grove*

CORE LABORATORIES, INC.  
*Petroleum Reservoir Engineering*  
DALLAS, TEXAS

FEBRUARY 5, 1975

REPLY TO  
8 N. W. 42ND ST.  
OKLAHOMA CITY, OKLA.  
73118

AMOCO PRODUCTION COMPANY  
SECURITY LIFE BUILDING  
DENVER, COLORADO 80202

ATTN: MR. LLOYD C. FURER

SUBJECT: CORE ANALYSIS DATA  
MILES GAS UNIT B NO. 2  
KEARNY COUNTY, KANSAS  
CLI FILE NO: 3402-8513

GENTLEMEN:

COUNCIL GROVE FORMATION CORES TAKEN IN THE SUBJECT WELL  
WERE RECEIVED AT THE OKLAHOMA CITY LABORATORY FOR SPECIAL  
ANALYTICAL TESTING DESCRIBED ON THE PROCEDURE PAGE.

THE ACCOMPANYING COREGRAPH PRESENTS THE SURFACE CORE GAMMA LOG  
AND BINOMIALLY AVERAGED CORE ANALYSIS DATA IN GRAPHICAL FORM TO  
AID CORRELATION WITH DOWNHOLE ELECTRICAL SURVEYS.

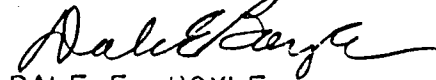
TABULAR PRESENTATION OF THE MEASURED PHYSICAL PROPERTIES MAY  
BE FOUND ON PAGES ONE THROUGH EIGHT OF THIS REPORT.

DATA AVERAGES REFLECTING ZONE CHANGES ARE PRESENTED ON PAGES  
NINE AND TEN OF THIS REPORT.

IT IS A PLEASURE TO HAVE THIS OPPORTUNITY OF SERVING YOU.

VERY TRULY YOURS,

CORE LABORATORIES, INC.



DALE E. BOYLE  
DISTRICT MANAGER

5CC ADDRESSEE  
2CC HARVEY-AMOCO-LIBERAL

**CORE LABORATORIES, INC.**  
*Petroleum Reservoir Engineering*  
**DALLAS, TEXAS**

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL  
FILE NO: 3402-8513

PROCEDURE PAGE

HANDLING AND ANALYTICAL PROCEDURES

DIAMOND CORING EQUIPMENT AND WATER BASE MUD WERE USED TO OBTAIN 3.5 INCH DIAMETER CORES BETWEEN 2885 TO 3109 FEET.

THE CORES WERE NOT PRESERVED.

THE CORES WERE TRANSPORTED TO OKLAHOMA CITY BY CLI PERSONNEL.

A CORE GAMMA LOG WAS RECORDED FOR DOWNHOLE E-LOG CORRELATION.

CORE ANALYSIS WAS MADE IN THE INTERVALS REQUESTED ON RIGHT CYLINDER FULL DIAMETER SAMPLES.

FLUID REMOVAL WAS ACCOMPLISHED USING LOW TEMPERATURE EXTRACTION.

POROSITY DETERMINED BY BOYLE'S LAW GRAIN VOLUME-  
ARCHIMEDES BULK VOLUME.

AIR PERMEABILITY IN TWO HORIZONTAL DIRECTIONS-MEASURED WITHOUT KLINKENBERG CORRECTION.

CORES HAVE BEEN SHIPPED TO AMOCO PRODUCTION COMPANY IN DENVER.

CORE LABORATORIES, INC.  
Petroleum Reservoir Engineering  
DALLAS, TEXAS

1

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL  
PANOMA FIELD  
KEARNY COUNTY, KANSAS

DATE: 1/7/76  
FORMATION: COUNCIL GROVE  
DRLG. FLUID: WATER BASE MUD  
LOCATION: SEC. 29-23S-37W

FILE NO: 3402-8513  
ENGINEER: PUGH  
ELEVATION: 3306' KB

\* INDICATES PLUG PERM

| SMP.<br>NO.         | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM | 90 DEG<br>VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION         |
|---------------------|-------------|-----------------------------|-----------------|-----------------------|-------------------------|-------------|---------------------|
| WHOLE CORE ANALYSIS |             |                             |                 |                       |                         |             |                     |
| 1                   | 2885.0-86.0 | 0.1                         | <0.1            | 14.6                  |                         | 2.73        | SLTSTN, SHY, SL/LMY |
| + 2                 | 2886.0-87.0 | 0.8                         | 0.7             | 14.1                  |                         | 2.73        | SLTSTN, SHY, SL/LMY |
| + 3                 | 2887.0-88.0 | 29.0                        | 24.0            | 13.9                  |                         | 2.74        | SLTSTN, SHY, SL/LMY |
| + 4                 | 2888.0-89.0 | 7.5                         | 7.0             | 11.0                  |                         | 2.76        | SLTSTN, SHY, SL/LMY |
| + 5                 | 2889.0-90.0 | 22.0                        | 19.0            | 13.3                  |                         | 2.75        | SLTSTN, SHY, SL/LMY |
| + 6                 | 2890.0-91.0 | 24.0                        | 17.0            | 12.4                  |                         | 2.78        | SLTSTN, SHY, ANHY   |
| 7                   | 2891.0-92.0 | <0.1                        | <0.1            | 7.9                   |                         | 2.72        | LM, SL/ANHY         |
| 8                   | 2892.0-93.0 | 0.1                         | <0.1            | 7.7                   |                         | 2.73        | LM, SL/ANHY         |
| 9                   | 2893.0-94.0 | <0.1                        | <0.1            | 4.7                   |                         | 2.72        | LM, SL/ANHY         |
| + 10                | 2894.0-95.0 | 11.0                        | 9.5             | 8.5                   |                         | 2.76        | LM, SHY, SL/ANHY    |
| + 11                | 2895.0-96.0 | 9.0                         | 5.5             | 7.9                   |                         | 2.78        | LM, SHY, ANHY       |
| 12                  | 2896.0-97.0 | 0.1                         | 0.1             | 3.1                   |                         | 2.72        | LM, SL/SHY          |
| 13                  | 2897.0-98.0 | <0.1                        | <0.1            | 1.5                   |                         | 2.72        | LM, SL/SHY          |
| + 14                | 2898.0-99.0 | 9.3                         | 7.7             | 7.3                   |                         | 2.74        | LM, SL/SHY, SL/ANHY |
| 15                  | 2899.0-00.0 | *                           | 0.1             | 5.6                   |                         | 2.71        | LM, SL/SHY          |
| 16                  | 2900.0-01.0 | *                           | <0.1            | 3.3                   |                         | 2.70        | LM, VF              |
| + 17                | 2901.0-02.0 | 5.0                         | 4.7             | 7.6                   |                         | 2.73        | LM, SHY             |
| + 18                | 2902.0-03.0 | 5.2                         | 4.2             | 6.3                   |                         | 2.77        | LM, SHY, ANHY       |
| + 19                | 2903.0-04.0 | 7.1                         | 6.9             | 8.1                   |                         | 2.74        | LM, SHY, SL/ANHY    |
| 20                  | 2904.0-05.0 | *                           | 0.2             | 8.4                   |                         | 2.74        | LM, SL/ANHY, VF     |
| 21                  | 2905.0-06.0 | *                           | 0.1             | 6.6                   |                         | 2.71        | LM, VF              |
| 22                  | 2906.0-07.0 | *                           | <0.1            | 4.4                   |                         | 2.71        | LM, VF              |
| 23                  | 2907.0-08.0 | <0.1                        | <0.1            | 2.1                   |                         | 2.72        | LM                  |
| + 24                | 2908.0-09.0 | 0.5                         | 0.3             | 4.2                   |                         | 2.73        | LM, SHY             |
| 25                  | 2909.0-10.0 | 0.1                         | <0.1            | 4.4                   |                         | 2.70        | LM, SL/SHY          |
| + 26                | 2910.0-11.0 | 0.3                         | 0.2             | 5.2                   |                         | 2.71        | LM, SL/SHY          |

FILE NO: 3402-8513  
ENGINEER: PUGH

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*Petroleum Reservoir Engineering*

DALLAS, TEXAS

3

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL

DATE: 1/7/76  
FORMATION: COUNCIL GROVE

FILE NO: 3402-8513  
ENGINEER: PUGH

| SMP.<br>NO. | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM 90 DEG VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION         |
|-------------|-------------|------------------------------------------|-----------------------|-------------------------|-------------|---------------------|
| + 59        | 2943.0-44.0 | 15.0                                     | 14.0                  | 10.4                    | 2.73        | SLTSTN,SHY,LMY      |
| #+ 60       | 2944.0-45.0 | 60.0                                     | 43.0                  | 15.4                    | 2.76        | SLTSTN,SHY          |
| #+ 61       | 2945.0-46.0 | 67.0                                     | 58.0                  | 15.1                    | 2.75        | SLTSTN,SHY          |
| #+ 62       | 2946.0-47.0 | 57.0                                     | 55.0                  | 14.4                    | 2.73        | SLTSTN,SHY          |
| #+ 63       | 2947.0-48.0 | 20.0                                     | 16.0                  | 13.9                    | 2.71        | SLTSTN,SHY          |
| #+ 64       | 2948.0-49.0 | 12.0                                     | 8.1                   | 15.6                    | 2.71        | SLTSTN,SHY          |
| #+ 65       | 2949.0-50.0 | 9.9                                      | 9.1                   | 14.8                    | 2.72        | SLTSTN,SHY          |
| #+ 66       | 2950.0-51.0 | 38.0                                     | 36.0                  | 14.5                    | 2.75        | SLTSTN,SHY          |
| + 67        | 2951.0-52.0 | 17.0                                     | 15.0                  | 8.9                     | 2.72        | SLTSTN,SHY,LMY      |
| + 68        | 2952.0-53.0 | 26.0                                     | 20.0                  | 9.8                     | 2.73        | SLTSTN,SHY,LMY      |
| + 69        | 2953.0-54.0 | 5.8                                      | 1.0                   | 13.9                    | 2.79        | SLTSTN,SHY,LMY      |
| + 70        | 2954.0-55.0 | 29.0                                     | 15.0                  | 10.8                    | 2.75        | SLTSTN,SHY,LMY      |
| 71          | 2955.0-56.0 | 0.9                                      | 0.5                   | 6.1                     | 2.70        | SLTSTN,SHY,LMY      |
| 72          | 2956.0-57.0 | 0.2                                      | 0.2                   | 5.1                     | 2.70        | SLTSTN,SHY,LMY      |
| 73          | 2957.0-58.0 | 1.1                                      | 0.6                   | 6.2                     | 2.70        | SLTSTN,SHY,LMY      |
| # 74        | 2958.0-59.0 | *                                        | 0.1                   | 11.2                    | 2.74        | SLTSTN,SHY,LMY      |
| # 75        | 2959.0-60.0 | *                                        | 0.1                   | 13.0                    | 2.74        | SLTSTN,SHY,LMY      |
| 76          | 2960.0-61.0 | 0.1                                      | 0.1                   | 2.6                     | 2.73        | LM,SL/SHY           |
| 77          | 2961.0-62.0 | 0.3                                      | 0.3                   | 13.9                    | 2.83        | LM,SHY,ANHY         |
| 78          | 2962.0-63.0 | 0.1                                      | 0.1                   | 2.2                     | 2.73        | LM,SL/ANHY          |
| 79          | 2963.0-64.0 | <0.1                                     | <0.1                  | 2.5                     | 2.72        | LM                  |
| #+ 80       | 2964.0-65.0 | 7.9                                      | 7.3                   | 6.3                     | 2.76        | SLTSTN,SHY,LMY,ANHY |
| #+ 81       | 2965.0-66.0 | 7.1                                      | 0.2                   | 9.9                     | 2.73        | SLTSTN,SHY,SL/LMY   |
| # 82        | 2966.0-67.0 | 0.5                                      | 0.3                   | 8.9                     | 2.72        | SLTSTN,SHY          |
| #+ 83       | 2967.0-68.0 | 14.0                                     | 10.0                  | 12.1                    | 2.75        | SLTSTN,SHY,SL/ANHY  |
| + 84        | 2968.0-69.0 | 1.2                                      | 0.4                   | 9.5                     | 2.72        | SD,SLTY,LMY         |
| 85          | 2969.0-70.0 | 0.2                                      | 0.2                   | 7.6                     | 2.71        | SD,SLTY,LMY         |
| + 86        | 2970.0-71.0 | 1.0                                      | 0.8                   | 7.2                     | 2.72        | SLTSTN,SHY,LMY      |
| + 87        | 2971.0-72.0 | 7.1                                      | 6.9                   | 8.7                     | 2.72        | SLTSTN,SHY,LMY      |
| # 88        | 2972.0-73.0 | 3.3                                      | 2.1                   | 8.6                     | 2.72        | SLTSTN,SHY,LMY      |
| 89          | 2973.0-74.0 | 0.1                                      | 0.1                   | 8.6                     | 2.70        | SD,SLTY,LMY         |
| 90          | 2974.0-75.0 | 0.1                                      | 0.1                   | 10.1                    | 2.70        | SD,SLTY,LMY         |

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Petroleum Reservoir Engineering  
DALLAS, TEXAS

4

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL

DATE: 1/7/76  
FORMATION: COUNCIL GROVE

FILE NO: 3402-8513  
ENGINEER: PUGH

| SMP.<br>NO. | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM 90 DEG VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION        |
|-------------|-------------|------------------------------------------|-----------------------|-------------------------|-------------|--------------------|
| 91          | 2975.0-76.0 | 0.1                                      | <0.1                  | 12.4                    | 2.74        | SD,SLTY,LMY        |
| #+ 92       | 2976.0-77.0 | 28.0                                     | 21.0                  | 12.4                    | 2.75        | SLTSTN,SHY,LMY,ANH |
| #+ 93       | 2977.0-78.0 | 11.0                                     | 10.0                  | 9.1                     | 2.72        | SLTSTN,SHY,LMY,ANH |
| 94          | 2978.0-79.0 | 0.1                                      | 0.1                   | 8.4                     | 2.72        | SD,SLTY,LMY        |
| 95          | 2979.0-80.0 | 0.2                                      | 0.1                   | 15.8                    | 2.74        | SD,SLTY            |
| 96          | 2980.0-81.0 | 0.4                                      | 0.3                   | 17.0                    | 2.75        | SD,SLTY            |
| 97          | 2981.0-82.0 | 0.2                                      | 0.2                   | 15.9                    | 2.77        | SD,SLTY            |
| 98          | 2982.0-83.0 | 0.1                                      | <0.1                  | 15.0                    | 2.78        | SD,SLTY            |
| + 99        | 2983.0-84.0 | 10.0                                     | 9.5                   | 10.4                    | 2.76        | SLTSTN,SHY,ANHY    |
| #+ 100      | 2984.0-85.0 | 25.0                                     | 23.0                  | 10.3                    | 2.74        | SLTSTN,SHY,LMY     |
| #+ 101      | 2985.0-86.0 | 41.0                                     | 41.0                  | 12.7                    | 2.77        | SLTSTN,SHY,SL/ANHY |
| #+ 102      | 2986.0-87.0 | 33.0                                     | 20.0                  | 11.7                    | 2.74        | SLTSTN,SHY,LMY     |
| + 103       | 2987.0-88.0 | 3.1                                      | 2.8                   | 12.4                    | 2.74        | SLTSTN,SHY,LMY     |
| 104         | 2988.0-89.0 | 0.1                                      | <0.1                  | 10.1                    | 2.71        | SD,SLTY,LMY        |
| 105         | 2989.0-90.0 | 0.1                                      | <0.1                  | 10.3                    | 2.70        | SD,SLTY,LMY        |
| 106         | 2990.0-91.0 | 0.1                                      | 0.1                   | 10.4                    | 2.70        | SD,SLTY,LMY        |
| 107         | 2991.0-92.0 | 0.1                                      | 0.1                   | 12.6                    | 2.71        | SD,SLTY,LMY        |
| 108         | 2992.0-93.0 | 0.1                                      | <0.1                  | 14.0                    | 2.71        | SD,SLTY,LMY        |
| 109         | 2993.0-94.0 | 0.1                                      | 0.1                   | 13.5                    | 2.70        | SD,SLTY,LMY        |
| 110         | 2994.0-95.0 | <0.1                                     | <0.1                  | 13.6                    | 2.70        | SD,SLTY,LMY        |
| 111         | 2995.0-96.0 | 0.1                                      | 0.1                   | 14.6                    | 2.70        | SD,SLTY,LMY        |
| 112         | 2996.0-97.0 | 0.1                                      | <0.1                  | 13.2                    | 2.70        | SD,SLTY,LMY        |
| 113         | 2997.0-98.0 | 0.1                                      | 0.1                   | 14.7                    | 2.74        | SD,SLTY,LMY        |
| + 114       | 2998.0-99.0 | 4.4                                      | 2.8                   | 12.6                    | 2.75        | SD,SLTY,LMY        |
| #+ 115      | 2999.0-00.0 | 26.0                                     | 23.0                  | 13.5                    | 2.75        | SLTSTN,SHY         |
| 116         | 3000.0-01.0 | 0.1                                      | 0.1                   | 13.9                    | 2.70        | SD,SLTY,LMY        |
| 117         | 3001.0-02.0 | 0.4                                      | 0.4                   | 16.1                    | 2.70        | SD,SLTY,LMY        |
| 118         | 3002.0-03.0 | 0.6                                      | 0.6                   | 16.5                    | 2.70        | SD,SLTY,LMY        |
| 119         | 3003.0-04.0 | 0.7                                      | 0.6                   | 16.8                    | 2.71        | SD,SLTY,LMY        |
| 120         | 3004.0-05.0 | 0.7                                      | 0.7                   | 17.3                    | 2.71        | SD,SLTY,LMY        |
| 121         | 3005.0-06.0 | 0.1                                      | 0.1                   | 14.4                    | 2.71        | SD,SLTY,LMY        |
| 122         | 3006.0-07.0 | 0.1                                      | <0.1                  | 14.8                    | 2.72        | SD,SLTY,LMY        |

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CORE LABORATORIES, INC.  
Petroleum Reservoir Engineering  
DALLAS, TEXAS

5

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL

DATE: 1/7/76  
FORMATION: COUNCIL GROVE

FILE NO: 3402-8513  
ENGINEER: PUGH

| SMP.<br>NO. | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM 90 DEG VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION     |
|-------------|-------------|------------------------------------------|-----------------------|-------------------------|-------------|-----------------|
| 123         | 3007.0-08.0 | 0.1                                      | 0.1                   | 15.3                    | 2.72        | SD,SLTY,LMY     |
| # 124       | 3008.0-09.0 | 4.5                                      | 4.0                   | 10.6                    | 2.73        | SD,SLTY,LMY     |
| #+ 125      | 3009.0-10.0 | 26.0                                     | 16.0                  | 13.0                    | 2.75        | SLTSTN,SHY,LMY  |
| #+ 126      | 3010.0-11.0 | 35.0                                     | 30.0                  | 13.7                    | 2.77        | SLTSTN,SHY,LMY  |
| 127         | 3011.0-12.0 | 0.3                                      | 0.2                   | 20.3                    | 2.84        | DOL,SL/ANHY     |
| 128         | 3012.0-13.0 | 0.3                                      | 0.3                   | 21.6                    | 2.84        | DOL,SL/ANHY     |
| 129         | 3013.0-14.0 | 0.2                                      | 0.1                   | 6.0                     | 2.75        | LM,SL/ANHY      |
| 130         | 3014.0-15.0 | 0.1                                      | 0.1                   | 4.5                     | 2.77        | LM,SL/ANHY      |
| #+ 131      | 3015.0-16.0 | 31.0                                     | 20.0                  | 10.4                    | 2.77        | SLTSTN,SHY,LMY  |
|             | 3016.0-17.0 | SH,SL/LMY                                |                       |                         |             |                 |
| #+ 132      | 3017.0-18.0 | 38.0                                     | 29.0                  | 15.1                    | 2.77        | SLTSTN,SHY,LMY  |
| #+ 133      | 3018.0-19.0 | 25.0                                     | 19.0                  | 13.9                    | 2.76        | SLTSTN,SHY,LMY  |
| #+ 134      | 3019.0-20.0 | 19.0                                     | 13.0                  | 10.3                    | 2.76        | SLTSTN,SHY,LMY  |
|             | 3020.0-22.0 | SH                                       |                       |                         |             |                 |
| 135         | 3022.0-23.0 | 0.1                                      | 0.1                   | 14.8                    | 2.82        | DOL             |
| 136         | 3023.0-24.0 | 0.2                                      | 0.1                   | 11.1                    | 2.81        | DOL             |
| 137         | 3024.0-25.0 | 1.3                                      | 1.3                   | 20.5                    | 2.84        | DOL             |
| 138         | 3025.0-26.0 | 3.5                                      | 1.5                   | 19.7                    | 2.84        | DOL             |
| 139         | 3026.0-27.0 | 3.9                                      | 3.5                   | 22.3                    | 2.85        | DOL             |
| 140         | 3027.0-28.0 | 4.1                                      | 4.1                   | 22.7                    | 2.81        | DOL             |
| 141         | 3028.0-29.0 | 1.9                                      | 1.9                   | 16.3                    | 2.51        | DOL,SL/LMY      |
| 142         | 3029.0-30.0 | 1.6                                      | 1.4                   | 15.6                    | 2.79        | DOL,SL/LMY      |
| 143         | 3030.0-31.0 | 0.8                                      | 0.8                   | 12.6                    | 2.76        | DOL,LMY         |
| 144         | 3031.0-32.0 | 0.7                                      | 0.7                   | 12.6                    | 2.75        | DOL,LMY         |
| 145         | 3032.0-33.0 | 0.7                                      | 0.6                   | 9.9                     | 2.79        | DOL,LMY,SL/ANHY |
| 146         | 3033.0-34.0 | 0.6                                      | 0.5                   | 12.8                    | 2.74        | LM,DOL          |
| 147         | 3034.0-35.0 | 0.5                                      | 0.5                   | 12.6                    | 2.75        | LM,DOL          |
| 148         | 3035.0-36.0 | 0.5                                      | 0.4                   | 13.1                    | 2.74        | LM,DOL          |

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CORE LABORATORIES, INC.  
Petroleum Reservoir Engineering  
DALLAS, TEXAS

6

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL

DATE: 1/7/76  
FORMATION: COUNCIL GROVE

FILE NO: 3402-8513  
ENGINEER: PUGH

| SMP.<br>NO. | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM | 90 DEG<br>VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION    |
|-------------|-------------|-----------------------------|-----------------|-----------------------|-------------------------|-------------|----------------|
| 149         | 3036.0-37.0 | 0.2                         | 0.1             | 11.5                  |                         | 2.74        | LM,DOL         |
|             | 3037.0-38.0 | SH,LMY                      |                 |                       |                         |             |                |
| # 150       | 3038.0-39.0 | *                           | 0.2             | 15.4                  |                         | 2.77        | SLTSTN,SHY,DOL |
| #+ 151      | 3039.0-40.0 | 25.0                        | 21.0            | 14.0                  |                         | 2.79        | SLTSTN,SHY,DOL |
| # 152       | 3040.0-41.0 | *                           | 0.2             | 13.4                  |                         | 2.75        | SLTSTN,SHY,LMY |
| # 153       | 3041.0-42.0 | *                           | 0.1             | 15.0                  |                         | 2.78        | SLTSTN,SHY,LMY |
| + 154       | 3042.0-43.0 | 22.0                        | 16.0            | 8.5                   |                         | 2.74        | SLTSTN,SHY,LMY |
| + 155       | 3043.0-44.0 | 13.0                        | 7.9             | 9.1                   |                         | 2.75        | SLTSTN,SHY,LMY |
| #+ 156      | 3044.0-45.0 | 22.0                        | 19.0            | 11.2                  |                         | 2.77        | SLTSTN,SHY,LMY |
| + 157       | 3045.0-46.0 | 26.0                        | 25.0            | 10.2                  |                         | 2.77        | SLTSTN,SHY,LMY |
| #+ 158      | 3046.0-47.0 | 12.0                        | 9.8             | 9.6                   |                         | 2.75        | SLTSTN,SHY,LMY |
| #+ 159      | 3047.0-48.0 | 29.0                        | 18.0            | 13.7                  |                         | 2.78        | SLTSTN,SHY,LMY |
| #+ 160      | 3048.0-49.0 | 30.0                        | 27.0            | 12.0                  |                         | 2.75        | SLTSTN,SHY,LMY |
| #+ 161      | 3049.0-50.0 | 32.0                        | 30.0            | 13.7                  |                         | 2.78        | SLTSTN,SHY,LMY |
| #+ 162      | 3050.0-51.0 | 31.0                        | 26.0            | 9.5                   |                         | 2.74        | SLTSTN,SHY,LMY |
| #+ 163      | 3051.0-52.0 | 23.0                        | 17.0            | 11.3                  |                         | 2.74        | SLTSTN,SHY,LMY |
| #+ 164      | 3052.0-53.0 | 33.0                        | 20.0            | 12.3                  |                         | 2.75        | SLTSTN,SHY,LMY |
| + 165       | 3053.0-54.0 | 34.0                        | 26.0            | 15.1                  |                         | 2.79        | SLTSTN,SHY,LMY |
| + 166       | 3054.0-55.0 | 33.0                        | 29.0            | 15.9                  |                         | 2.80        | SLTSTN,SHY,LMY |
| + 167       | 3055.0-56.0 | 31.0                        | 17.0            | 13.2                  |                         | 2.76        | SLTSTN,SHY,LMY |
| + 168       | 3056.0-57.0 | 27.0                        | 22.0            | 10.7                  |                         | 2.75        | SLTSTN,SHY,LMY |
| + 169       | 3057.0-58.0 | 21.0                        | 17.0            | 12.4                  |                         | 2.78        | SLTSTN,SHY,LMY |
| + 170       | 3058.0-59.0 | 38.0                        | 32.0            | 15.0                  |                         | 2.79        | SLTSTN,SHY,LMY |
| + 171       | 3059.0-60.0 | 36.0                        | 30.0            | 11.4                  |                         | 2.74        | SLTSTN,SHY,LMY |
|             | 3060.0-62.0 | SH,SL/LMY                   |                 |                       |                         |             |                |
| + 172       | 3062.0-63.0 | 41.0                        | 22.0            | 12.4                  |                         | 2.74        | SLTSTN,SHY,LMY |
| + 173       | 3063.0-64.0 | 9.8                         | 8.5             | 9.7                   |                         | 2.73        | SLTSTN,SHY,LMY |
| #+ 174      | 3064.0-65.0 | 9.9                         | 8.7             | 10.4                  |                         | 2.73        | SLTSTN,SHY,LMY |

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Petroleum Reservoir Engineering  
DALLAS, TEXAS

7

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL

DATE: 1/7/76  
FORMATION: COUNCIL GROVE

FILE NO: 3402-8513  
ENGINEER: PUGH

| SMP.<br>NO. | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM 90 DEG VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION   |
|-------------|-------------|------------------------------------------|-----------------------|-------------------------|-------------|---------------|
|             | 3065.0-66.0 | SH, SL/LMY                               |                       |                         |             |               |
| 175         | 3066.0-67.0 | 1.3 0.2                                  | 5.6                   |                         | 2.74        | LM, SL/SHY    |
| 176         | 3067.0-68.0 | 0.1 0.1                                  | 8.5                   |                         | 2.75        | LM, SL/ANHY   |
| 177         | 3068.0-69.0 | <0.1 <0.1                                | 5.8                   |                         | 2.76        | LM, SL/ANHY   |
| 178         | 3069.0-70.0 | <0.1 <0.1                                | 6.5                   |                         | 2.76        | LM, SL/ANHY   |
| 179         | 3070.0-71.0 | 0.1 <0.1                                 | 4.6                   |                         | 2.74        | LM            |
| 180         | 3071.0-72.0 | 0.1 <0.1                                 | 5.0                   |                         | 2.72        | LM            |
| 181         | 3072.0-73.0 | <0.1 <0.1                                | 6.6                   |                         | 2.73        | LM            |
| + 182       | 3073.0-74.0 | 3.7 1.6                                  | 5.6                   |                         | 2.75        | LM, SHY       |
| 183         | 3074.0-75.0 | 0.2 <0.1                                 | 8.1                   |                         | 2.74        | LM, SHY, ANHY |
| + 184       | 3075.0-76.0 | 2.8 0.4                                  | 7.5                   |                         | 2.75        | LM, SHY, ANHY |
| + 185       | 3076.0-77.0 | 3.3 1.8                                  | 6.5                   |                         | 2.73        | LM, SHY, ANHY |
| + 186       | 3077.0-78.0 | 4.9 2.2                                  | 6.4                   |                         | 2.72        | LM, SHY       |
| + 187       | 3078.0-79.0 | 1.4 1.3                                  | 6.1                   |                         | 2.72        | LM, SHY       |
| + 188       | 3079.0-80.0 | 0.3 0.1                                  | 5.7                   |                         | 2.72        | LM, SL/SHY    |
| 189         | 3080.0-81.0 | 0.1 0.1                                  | 5.7                   |                         | 2.69        | LM, SL/SHY    |
| + 190       | 3081.0-82.0 | 4.0 0.3                                  | 6.3                   |                         | 2.69        | LM, SL/SHY    |
| + 191       | 3082.0-83.0 | 1.4 <0.1                                 | 6.8                   |                         | 2.70        | LM, SL/SHY    |
| 192         | 3083.0-84.0 | <0.1 <0.1                                | 7.1                   |                         | 2.68        | LM, SL/SHY    |
| 193         | 3084.0-85.0 | 0.1 0.1                                  | 6.5                   |                         | 2.67        | LM, SL/SHY    |
| + 194       | 3085.0-86.0 | 2.7 2.1                                  | 6.8                   |                         | 2.68        | LM, SL/SHY    |
| + 195       | 3086.0-87.0 | 1.2 0.6                                  | 7.6                   |                         | 2.69        | LM, SL/SHY    |
| + 196       | 3087.0-88.0 | 1.4 <0.1                                 | 7.2                   |                         | 2.69        | LM, SL/SHY    |
| + 197       | 3088.0-89.0 | 6.0 5.5                                  | 6.7                   |                         | 2.69        | LM, SHY       |
| + 198       | 3089.0-90.0 | 5.7 1.6                                  | 6.6                   |                         | 2.69        | LM, SHY       |
| + 199       | 3090.0-91.0 | 8.2 5.0                                  | 6.2                   |                         | 2.71        | LM, SHY       |
| + 200       | 3091.0-92.0 | 7.3 5.2                                  | 6.2                   |                         | 2.72        | LM, SHY       |
| + 201       | 3092.0-93.0 | 3.8 3.1                                  | 6.0                   |                         | 2.72        | LM, SHY       |
| + 202       | 3093.0-94.0 | 4.7 3.9                                  | 6.3                   |                         | 2.72        | LM, SHY       |
| + 203       | 3094.0-95.0 | 5.6 2.3                                  | 6.7                   |                         | 2.72        | LM, SHY       |

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*Petroleum Reservoir Engineering*

DALLAS, TEXAS

8

AMOCO PRODUCTION COMPANY  
MILES GAS UNIT B NO. 2 WELL

DATE: 1/7/76  
FORMATION: COUNCIL GROVE

FILE NO: 3402-8513  
ENGINEER: PUGH

| SMP.<br>NO. | DEPTH       | PERM. TO AIR MD.<br>MAXIMUM | 90 DEG<br>VERT. | POROSITY<br>GEX. FLD. | FLUID SATS.<br>OIL WTR. | GR.<br>DEN. | DESCRIPTION    |
|-------------|-------------|-----------------------------|-----------------|-----------------------|-------------------------|-------------|----------------|
| -----       | -----       | -----                       | -----           | -----                 | -----                   | -----       | -----          |
| #+ 204      | 3095.0-96.0 | 5.7                         | 4.6             | 6.8                   |                         | 2.72        | LM,SHY         |
| + 205       | 3096.0-97.0 | 4.2                         | 2.4             | 5.6                   |                         | 2.73        | LM,SHY         |
| 206         | 3097.0-98.0 | 0.1                         | <0.1            | 3.1                   |                         | 2.71        | LM,SL/SHY,VF   |
| 207         | 3098.0-99.0 | 26.0                        | <0.1            | 3.1                   |                         | 2.73        | LM,VF          |
| 208         | 3099.0-00.0 | 0.2                         | <0.1            | 3.3                   |                         | 2.71        | LM,SHY,VF      |
| 209         | 3100.0-01.0 | 0.1                         | 0.1             | 3.7                   |                         | 2.71        | LM,SHY         |
| + 210       | 3101.0-02.0 | 28.0                        | 20.0            | 14.3                  |                         | 2.74        | SLTSTN,SHY,LMY |
| #+ 211      | 3102.0-03.0 | *                           | 0.4             | 12.2                  |                         | 2.77        | SLTSTN,SHY,LMY |
| #+ 212      | 3103.0-04.0 | *                           | 0.2             | 14.5                  |                         | 2.77        | SLTSTN,SHY,LMY |
| #+ 213      | 3104.0-05.0 | *                           | 0.2             | 7.7                   |                         | 2.74        | SLTSTN,SHY,LMY |
| #+ 214      | 3105.0-06.0 | *                           | <0.1            | 5.2                   |                         | 2.73        | SLTSTN,SHY,LMY |
| + 215       | 3106.0-07.0 | 20.0                        | 18.0            | 5.9                   |                         | 2.73        | LM,SHY         |
| + 216       | 3107.0-08.0 | 11.0                        | 6.6             | 2.6                   |                         | 2.72        | LM,SHY         |
| + 217       | 3108.0-09.0 | *                           | 1.5             | 14.3                  |                         | 2.78        | SLTSTN,SHY,DOL |

# DENOTES CHAOTIC FISSURES

+ DENOTES HORIZONTAL CRACK

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*Petroleum Reservoir Engineering*  
**DALLAS, TEXAS**

**CORE SUMMARY**

COMPANY AMOCO PRODUCTION COMPANY  
WELL MILES GAS UNIT B NO. 2  
PAGE 9 OF 10 FILE 3402-8513

| DEPTH     | PERMEABILITY |            |          | POROSITY | SATURATION |       |
|-----------|--------------|------------|----------|----------|------------|-------|
|           | MAXIMUM      | 90 DEGREES | VERTICAL |          | OIL        | WATER |
| 2885-2887 | 0.5          | 0.4        |          | 14.4     | 0.0        | 0.0   |
| 2887-2891 | 20.6         | 16.8       |          | 12.7     | 0.0        | 0.0   |
| 2891-2894 | 0.0          | 0.0        |          | 6.8      | 0.0        | 0.0   |
| 2894-2896 | 10.0         | 7.5        |          | 8.2      | 0.0        | 0.0   |
| 2896-2901 | 3.1          | 1.6        |          | 4.2      | 0.0        | 0.0   |
| 2901-2904 | 5.8          | 5.3        |          | 7.3      | 0.0        | 0.0   |
| 2904-2913 | 0.2          | 0.1        |          | 6.0      | 0.0        | 0.0   |
| 2913-2916 | 0.6          | 0.1        |          | 9.6      | 0.0        | 0.0   |
| 2916-2921 | 22.8         | 20.4       |          | 9.9      | 0.0        | 0.0   |
| 2921-2923 | 4.8          | 3.6        |          | 6.6      | 0.0        | 0.0   |
| 2923-2931 | 0.3          | 0.2        |          | 8.4      | 0.0        | 0.0   |
| 2931-2936 | 27.0         | 10.4       |          | 11.4     | 0.0        | 0.0   |
| 2936-2941 | 0.1          | 0.1        |          | 3.3      | 0.0        | 0.0   |
| 2941-2944 | 8.3          | 6.2        |          | 8.6      | 0.0        | 0.0   |
| 2944-2951 | 37.7         | 32.2       |          | 14.8     | 0.0        | 0.0   |
| 2951-2955 | 19.5         | 12.8       |          | 10.9     | 0.0        | 0.0   |
| 2955-2958 | 0.7          | 0.4        |          | 5.8      | 0.0        | 0.0   |
| 2958-2960 | 0.0          | 0.1        |          | 12.1     | 0.0        | 0.0   |
| 2960-2964 | 0.1          | 0.1        |          | 5.3      | 0.0        | 0.0   |
| 2964-2968 | 7.4          | 4.5        |          | 9.3      | 0.0        | 0.0   |
| 2968-2970 | 0.7          | 0.3        |          | 8.6      | 0.0        | 0.0   |
| 2970-2973 | 3.8          | 3.3        |          | 8.2      | 0.0        | 0.0   |
| 2973-2976 | 0.1          | 0.1        |          | 10.4     | 0.0        | 0.0   |
| 2976-2978 | 19.5         | 15.6       |          | 10.8     | 0.0        | 0.0   |
| 2978-2983 | 0.2          | 0.1        |          | 14.4     | 0.0        | 0.0   |
| 2983-2988 | 22.4         | 19.3       |          | 11.5     | 0.0        | 0.0   |
| 2988-2998 | 0.1          | 0.1        |          | 12.7     | 0.0        | 0.0   |
| 2998-3000 | 15.2         | 12.9       |          | 13.1     | 0.0        | 0.0   |
| 3000-3008 | 0.4          | 0.3        |          | 15.6     | 0.0        | 0.0   |

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*Petroleum Reservoir Engineering*  
DALLAS, TEXAS

CORE SUMMARY

COMPANY AMOCO PRODUCTION COMPANY  
WELL MILES GAS UNIT B NO. 2  
PAGE 10 OF 10 FILE 3402-8513

| DEPTH     | PERMEABILITY |            |          | POROSITY | SATURATION |       |
|-----------|--------------|------------|----------|----------|------------|-------|
|           | MAXIMUM      | 90 DEGREES | VERTICAL |          | OIL        | WATER |
| 3008-3011 | 21.8         | 16.7       |          | 12.4     | 0.0        | 0.0   |
| 3011-3013 | 0.3          | 0.3        |          | 21.0     | 0.0        | 0.0   |
| 3013-3015 | 0.2          | 0.1        |          | 5.3      | 0.0        | 0.0   |
| 3015-3020 | 28.3         | 20.3       |          | 12.4     | 0.0        | 0.0   |
| 3022-3024 | 0.2          | 0.1        |          | 13.0     | 0.0        | 0.0   |
| 3024-3028 | 3.2          | 2.6        |          | 21.3     | 0.0        | 0.0   |
| 3028-3030 | 1.8          | 1.7        |          | 16.0     | 0.0        | 0.0   |
| 3030-3033 | 0.7          | 0.7        |          | 11.7     | 0.0        | 0.0   |
| 3033-3037 | 0.5          | 0.4        |          | 12.5     | 0.0        | 0.0   |
| 3038-3060 | 27.2         | 18.6       |          | 12.4     | 0.0        | 0.0   |
| 3062-3065 | 20.2         | 13.1       |          | 10.8     | 0.0        | 0.0   |
| 3066-3073 | 0.2          | 0.1        |          | 6.1      | 0.0        | 0.0   |
| 3073-3079 | 2.7          | 1.2        |          | 6.7      | 0.0        | 0.0   |
| 3079-3088 | 1.2          | 0.4        |          | 6.6      | 0.0        | 0.0   |
| 3088-3097 | 5.7          | 3.7        |          | 6.3      | 0.0        | 0.0   |
| 3097-3101 | 6.6          | 0.0        |          | 3.3      | 0.0        | 0.0   |
| 3101-3104 | 28.0         | 6.9        |          | 13.7     | 0.0        | 0.0   |
| 3104-3106 | 0.0          | 0.1        |          | 6.5      | 0.0        | 0.0   |
| 3106-3108 | 15.4         | 12.5       |          | 4.3      | 0.0        | 0.0   |
| 3108-3109 | 0.0          | 1.5        |          | 14.3     | 0.0        | 0.0   |

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