

# OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND · CHANUTE, KANSAS 66720 · PHONE (316) 431-2650

November 4, 1980

Hillenburg Oil Company  
P. O. Box 94  
Bronson, Kansas 66716

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the Ermel-D Lease, Well No. 9, located in Bourbon County, Kansas.

The core was sampled and sealed in plastic bags by a representative of the client and submitted to our laboratory on September 10, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/mkf

5 c to Bronson, Kansas

# Oilfield Research Laboratories

## GENERAL INFORMATION & SUMMARY

Company Hillenburg Oil Co. Lease Ermel-D Well No. 9  
 Location -  
 Section 28 Twp. 24S Rge. 22E County Bourbon State Kansas

|                                        |              |
|----------------------------------------|--------------|
| Elevation, Feet . . . . .              | -            |
| Name of Sand . . . . .                 | Bartlesville |
| Top of Core . . . . .                  | 658.0        |
| Bottom of Core . . . . .               | 675.6        |
| Top of Sand . . . . .                  | 658.0        |
| Bottom of Sand . . . . .               | 675.6        |
| Total Feet of Permeable Sand . . . . . | 17.6         |

| Distribution of Permeable Sand:<br>Permeability Range<br>Millidarcys | Feet | Cum. Ft. |
|----------------------------------------------------------------------|------|----------|
| 0 - 100                                                              | 8.7  | 8.7      |
| 100 - 200                                                            | 5.4  | 14.1     |
| 200 - 400                                                            | 2.7  | 16.8     |
| 400 & Above                                                          | 0.8  | 17.6     |

|                                            |         |
|--------------------------------------------|---------|
| Average Permeability Millidarcys . . . . . | 123.6   |
| Average Percent Porosity . . . . .         | 20.7    |
| Average Percent Oil Saturation . . . . .   | 40.4    |
| Average Percent Water Saturation . . . . . | 42.4    |
| Average Oil Content, Bbls./A. Ft. . . . .  | 644.    |
| Total Oil Content, Bbls./Acre . . . . .    | 11,328. |

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## LOG

Name Hillenburg Oil Co. Lease Ermel-D Well No. 9

| <u>Depth Interval,</u><br><u>Feet</u> | <u>Description</u>                                  |
|---------------------------------------|-----------------------------------------------------|
| 658.0 - 662.7                         | Grayish light brown slightly calcareous sandstone.  |
| 662.7 - 667.1                         | Brown slightly calcareous sandstone.                |
| 667.1 - 667.9                         | Brown slightly calcareous slightly shaly sandstone. |
| 667.9 - 675.2                         | Brown slightly calcareous sandstone.                |
| 675.2 - 675.6                         | Brown shaly sandstone.                              |

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## RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Hillenburg Oil Co. Lease Ermel - D Well No. 9

| Sample No. | Depth, Feet | Effective Porosity Percent | Percent Saturation |       |       | Oil Content Bbls. / A Ft. | Perm., Mill. | Feet of Sand |          | Total Oil Content | Perm. Capacity Ft. X md. |
|------------|-------------|----------------------------|--------------------|-------|-------|---------------------------|--------------|--------------|----------|-------------------|--------------------------|
|            |             |                            | Oil                | Water | Total |                           |              | Ft.          | Cum. Ft. |                   |                          |
| 1          | 658.5       | 17.9                       | 18                 | 72    | 90    | 250                       | 53.          | 1.0          | 1.0      | 250               | 53.00                    |
| 2          | 659.5       | 21.4                       | 18                 | 67    | 85    | 299                       | 241.         | 1.0          | 2.0      | 299               | 241.00                   |
| 3          | 660.5       | 23.4                       | 19                 | 72    | 91    | 345                       | 170.         | 1.0          | 3.0      | 345               | 170.00                   |
| 4          | 661.5       | 18.0                       | 22                 | 71    | 93    | 307                       | 314.         | 1.0          | 4.0      | 307               | 314.00                   |
| 5          | 662.5       | 22.9                       | 24                 | 66    | 90    | 426                       | 288.         | 0.7          | 4.7      | 298               | 201.60                   |
| 6          | 663.5       | 21.4                       | 27                 | 64    | 91    | 448                       | 23.          | 1.0          | 5.7      | 448               | 23.00                    |
| 7          | 664.5       | 23.1                       | 35                 | 45    | 80    | 627                       | 54.          | 1.0          | 6.7      | 627               | 54.00                    |
| 8          | 665.5       | 22.1                       | 45                 | 43    | 88    | 772                       | 11.          | 1.0          | 7.7      | 772               | 11.00                    |
| 9          | 666.5       | 22.3                       | 47                 | 44    | 91    | 813                       | 195.         | 1.4          | 9.1      | 1138              | 273.00                   |
| 10         | 667.5       | 18.1                       | 50                 | 34    | 84    | 702                       | 430.         | 0.8          | 9.9      | 562               | 344.00                   |
| 11         | 668.5       | 19.9                       | 49                 | 47    | 96    | 757                       | 106.         | 1.0          | 10.9     | 757               | 106.00                   |
| 12         | 669.5       | 20.7                       | 42                 | 46    | 88    | 675                       | 31.          | 1.0          | 11.9     | 675               | 31.00                    |
| 13         | 670.5       | 21.2                       | 48                 | 50    | 98    | 790                       | 9.6          | 1.0          | 12.9     | 790               | 9.60                     |
| 14         | 671.5       | 21.4                       | 59                 | 28    | 87    | 980                       | 133.         | 1.0          | 13.9     | 980               | 133.00                   |
| 15         | 672.5       | 20.3                       | 59                 | 33    | 92    | 929                       | 169.         | 1.0          | 14.9     | 929               | 169.00                   |
| 16         | 673.5       | 18.9                       | 59                 | 29    | 88    | 865                       | 26.          | 1.0          | 15.9     | 865               | 26.00                    |
| 17         | 674.5       | 20.2                       | 52                 | 32    | 84    | 815                       | 11.          | 1.3          | 17.2     | 1060              | 14.30                    |
| 18         | 675.5       | 16.9                       | 43                 | 8     | 51    | 564                       | 4.3          | 0.4          | 17.6     | 226               | 1.72                     |

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

| Company              |  | Hillenburg Oil Co.    |  | Lease                             | Ermel - D |                                 | Well No. |  | 9 |  |
|----------------------|--|-----------------------|--|-----------------------------------|-----------|---------------------------------|----------|--|---|--|
| Depth Interval, Feet |  | Feet of Core Analyzed |  | Average Permeability, Millidarcys |           | Permeability Capacity Ft. x Md. |          |  |   |  |
| 658.0 - 663.7        |  | 5.7                   |  | 175.9                             |           | 1002.60                         |          |  |   |  |
| 663.7 - 675.6        |  | 11.9                  |  | 98.5                              |           | 1172.62                         |          |  |   |  |
| 658.0 - 675.6        |  | 17.6                  |  | 123.6                             |           | 2175.22                         |          |  |   |  |

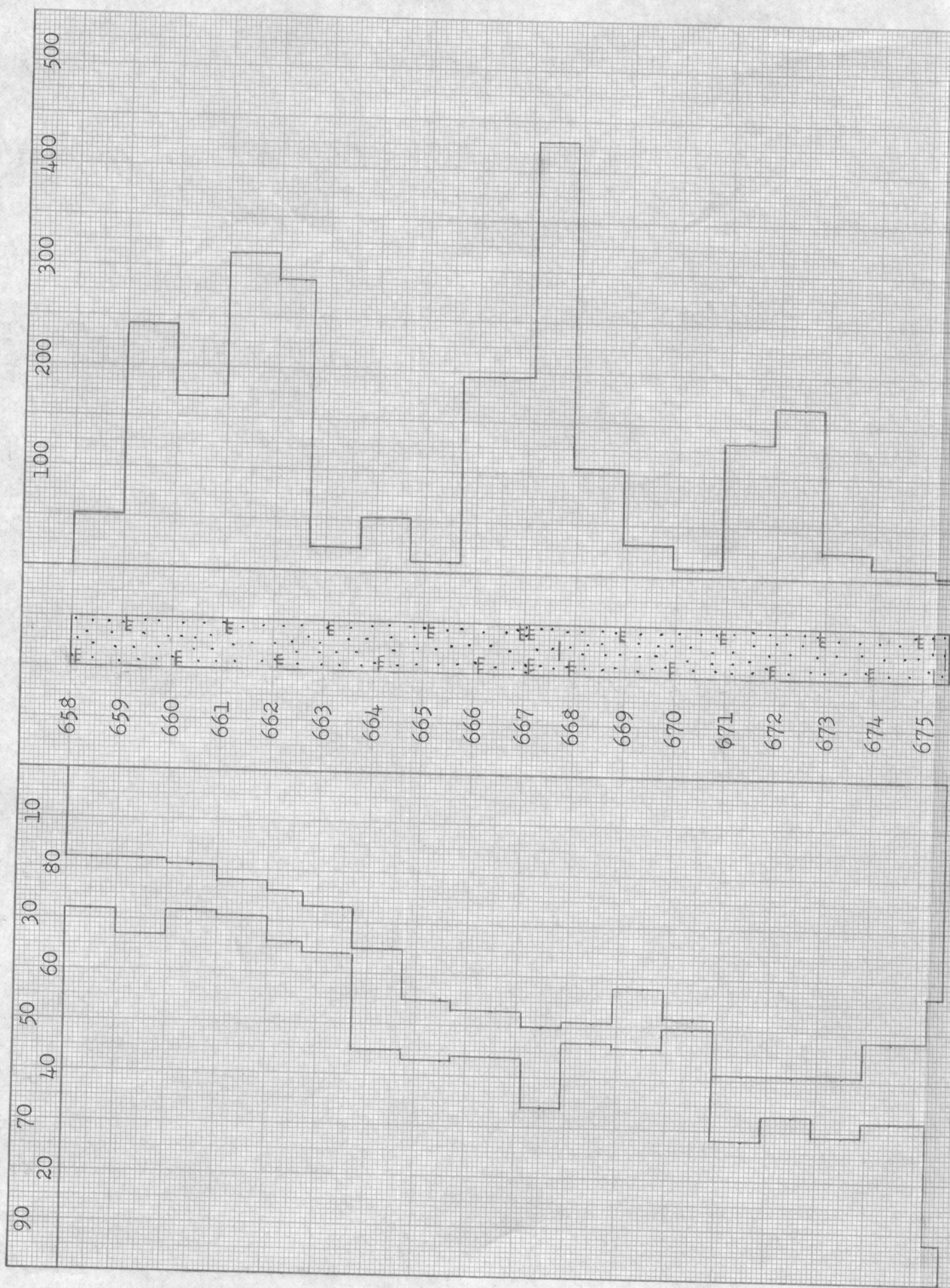
| Depth Interval, Feet |  | Feet of Core Analyzed |  | Average Porosity |  | Average Percent Oil Saturation |  | Average Percent Water Saturation |  | Average Oil Content Bbl./A. Ft. |  | Total Oil Content Bbls./Acre |  |
|----------------------|--|-----------------------|--|------------------|--|--------------------------------|--|----------------------------------|--|---------------------------------|--|------------------------------|--|
| 658.0 - 663.7        |  | 5.7                   |  | 20.7             |  | 21.2                           |  | 68.8                             |  | 342                             |  | 1,947                        |  |
| 663.7 - 675.6        |  | 11.9                  |  | 20.7             |  | 49.6                           |  | 38.2                             |  | 788                             |  | 9,381                        |  |
| 658.0 - 675.6        |  | 17.6                  |  | 20.7             |  | 40.4                           |  | 42.4                             |  | 644                             |  | 11,328                       |  |

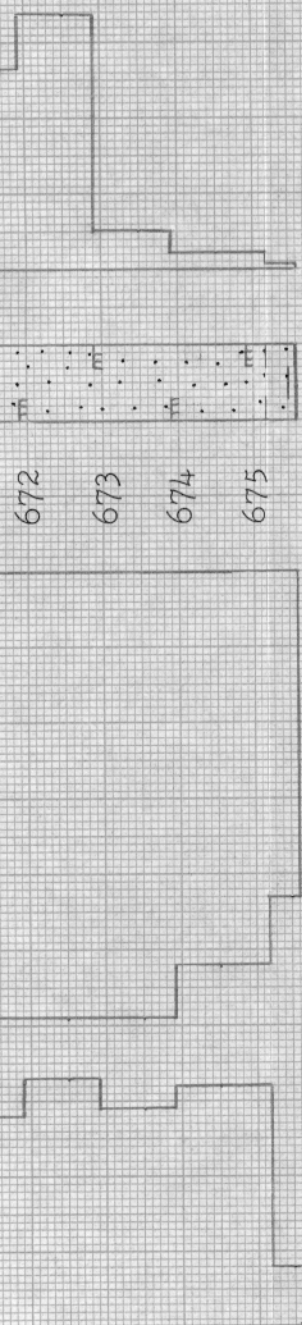
K&E 10 X 10 TO THE CENTIMETER • 25 X 38 CM.  
KLOFFEL & ESSER CO. MADE IN U.S.A.

WATER SAT., PERCENT ← OIL SAT., PERCENT

47 1512

PERMEABILITY, IN MILLIDARCYS





KEY:

-  CALCAREOUS SANDSTONE
-  SHALY SANDSTONE

# HILLENBURG OIL CO.

ERMEL - C D I L E A S E W E L L N O . 9  
BOURBONN COUNTY, KANSAS

| DEPTH INTERVAL,<br>FEET | FEET OF CORE<br>ANALYZED | AVERAGE<br>POROSITY<br>PERCENT | AVG. OIL<br>SATURATION<br>PERCENT | AVG. WATER<br>SATURATION<br>PERCENT | AVERAGE<br>PERMEABILITY<br>MILLIDARCS |
|-------------------------|--------------------------|--------------------------------|-----------------------------------|-------------------------------------|---------------------------------------|
| 658.0 - 663.7           | 5.7                      | 20.7                           | 21.2                              | 68.8                                | 175.9                                 |
| 663.7 - 675.6           | 11.9                     | 20.7                           | 49.6                              | 38.2                                | 98.5                                  |
| 658.0 - 675.6           | 17.6                     | 20.7                           | 40.4                              | 42.4                                | 123.6                                 |

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CHANUTE, KANSAS  
OCTOBER, 1980 SO