

# OILFIELD RESEARCH LABORATORIES

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

June 10, 1981

Judy Oil Company  
9133 Woodend Road  
Kansas City, Kansas 66111

Gentlemen:

Enclosed herewith are the results of tests run on the rotary cores taken from the Wheeler Lease, Well No. 5, located in Chautauqua County, Kansas.

The cores were sampled and sealed in plastic bags by a representative of Oilfield Research Laboratories and were received in our laboratory on June 5, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Kansas City, Kansas

# Oilfield Research Laboratories

## GENERAL INFORMATION & SUMMARY

Company Judy Oil Company Lease Wheeler Well No. 5  
 Location 165' SNL & 750' WEL SW NE  
 Section 19 Twp. 33S Rge. 11E County Chautauqua State Kansas

|                                             |         |                       |
|---------------------------------------------|---------|-----------------------|
| Elevation, Feet . . . . .                   |         |                       |
| Name of Formation . . . . .                 | Wayside | Mississippi Limestone |
| Top of Core . . . . .                       | 1309.0  | 1904.0                |
| Bottom of Core . . . . .                    | 1322.0  | 1924.2                |
| Top of Formation . . . . .                  | 1309.0  | 1904.0                |
| Bottom of Formation . . . . .               | 1322.0  | 1924.2                |
| Total Feet of Permeable Formation . . . . . | 10.7    | 18.0                  |

| Distribution of Permeable<br>Permeability Range<br>Millidarcys | Feet | Cum. Ft. |
|----------------------------------------------------------------|------|----------|
| <u>WAYSIDE SAND</u>                                            |      |          |
| 0 - 5                                                          | 3.8  | 3.8      |
| 10 - 35                                                        | 5.2  | 9.0      |
| 40 - 50                                                        | 1.7  | 10.7     |
| <u>MISSISSIPPI LIMESTONE</u>                                   |      |          |
| 0 - 1                                                          | 7.0  | 7.0      |
| 1 - 3                                                          | 6.1  | 13.1     |
| 3 - 10                                                         | 4.9  | 18.0     |

|                                            |        |        |
|--------------------------------------------|--------|--------|
| Average Permeability Millidarcys . . . . . | 17.8   | 2.5    |
| Average Percent Porosity . . . . .         | 14.7   | 14.0   |
| Average Percent Oil Saturation . . . . .   | 16.6   | 27.8   |
| Average Percent Water Saturation . . . . . | 63.9   | 56.3   |
| Average Oil Content, Bbls./A. Ft. . . . .  | 194.   | 296.   |
| Total Oil Content, Bbls./Acre . . . . .    | 2,527. | 5,988. |

## OILFIELD RESEARCH LABORATORIES

LOGName Judy Oil Company Lease Wheeler Well No. 5

| <u>Depth Interval,</u><br><u>Feet</u> | <u>Description</u> |
|---------------------------------------|--------------------|
|---------------------------------------|--------------------|

WAYSIDE SAND

|                 |                                                          |
|-----------------|----------------------------------------------------------|
| 1309.0 - 1310.2 | Light brown slightly calcareous sandstone.               |
| 1310.2 - 1311.4 | Light brown slightly calcareous shaly sandstone.         |
| 1311.4 - 1314.1 | Light brown slightly calcareous sandstone.               |
| 1314.1 - 1316.7 | Grayish light brown slightly calcareous shaly sandstone. |
| 1316.7 - 1319.7 | Light brown slightly calcareous sandstone.               |
| 1319.7 - 1322.0 | Gray very shaly sandstone.                               |

MISSISSIPPI LIMESTONE

|                 |                                |
|-----------------|--------------------------------|
| 1904.0 - 1908.9 | Light brown limestone.         |
| 1908.9 - 1924.2 | Grayish light brown limestone. |

## RESULTS OF SATURATION &amp; PERMEABILITY TESTS

TABLE 1-B

Company Judy Oil Company Lease Wheeler Well No. 5

| 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. |                   |                          |
| <u>WAYSIDE SAND</u>          |             |                            |                    |       |       |                           |              |              |          |                   |                          |
| 1                            | 1309.4      | 17.9                       | 19                 | 57    | 76    | 264                       | 30.          | 1.2          | 1.2      | 317               | 36.00                    |
| 2                            | 1310.6      | 16.6                       | 14                 | 71    | 85    | 180                       | 4.9          | 1.2          | 2.4      | 216               | 5.88                     |
| 3                            | 1311.6      | 19.0                       | 9                  | 66    | 75    | 133                       | 40.          | 0.7          | 3.1      | 93                | 28.00                    |
| 4                            | 1312.3      | 16.3                       | 15                 | 64    | 79    | 198                       | 20.          | 1.0          | 4.1      | 198               | 20.00                    |
| 5                            | 1313.4      | 16.8                       | 21                 | 57    | 78    | 274                       | 16.          | 1.0          | 5.1      | 274               | 16.00                    |
| 6                            | 1314.6      | 10.7                       | 17                 | 67    | 84    | 141                       | 0.49         | 1.0          | 6.1      | 141               | 0.49                     |
| 7                            | 1315.6      | 12.8                       | 27                 | 58    | 85    | 268                       | 1.2          | 0.6          | 6.7      | 161               | 0.72                     |
| 8                            | 1316.5      | 12.3                       | 15                 | 78    | 93    | 143                       | 1.9          | 1.0          | 7.7      | 143               | 1.90                     |
| 9                            | 1317.6      | 17.2                       | 15                 | 61    | 76    | 200                       | 22.          | 1.0          | 8.7      | 200               | 22.00                    |
| 10                           | 1318.5      | 17.3                       | 15                 | 67    | 82    | 201                       | 49.          | 1.0          | 9.7      | 201               | 49.00                    |
| 11                           | 1319.6      | 17.1                       | 30                 | 44    | 74    | 398                       | 10.          | 1.0          | 10.7     | 398               | 10.00                    |
| 12                           | 1320.5      | 9.6                        | 13                 | 68    | 81    | 97                        | Imp.         | 1.3          | 12.0     | 126               | 0.00                     |
| 13                           | 1321.5      | 8.4                        | 9                  | 70    | 79    | 59                        | Imp.         | 1.0          | 13.0     | 59                | 0.00                     |
| <u>MISSISSIPPI LIMESTONE</u> |             |                            |                    |       |       |                           |              |              |          |                   |                          |
| 14                           | 1904.5      | 17.5                       | 20                 | 65    | 85    | 272                       | 2.8          | 1.0          | 1.0      | 272               | 2.80                     |
| 15                           | 1905.5      | 17.0                       | 37                 | 56    | 93    | 488                       | 2.9          | 1.0          | 2.0      | 488               | 2.90                     |
| 16                           | 1906.6      | 20.3                       | 17                 | 67    | 84    | 268                       | 5.8          | 1.0          | 3.0      | 268               | 5.80                     |
| 17                           | 1907.6      | 18.9                       | 26                 | 65    | 91    | 381                       | 5.7          | 1.0          | 4.0      | 381               | 5.70                     |
| 18                           | 1908.4      | 20.1                       | 29                 | 63    | 92    | 452                       | 11.          | 0.9          | 4.9      | 407               | 9.90                     |
| 19                           | 1909.4      | 11.3                       | 46                 | 36    | 82    | 403                       | 1.0          | 1.1          | 6.0      | 443               | 1.10                     |
| 20                           | 1910.6      | 14.0                       | 30                 | 44    | 74    | 326                       | 1.2          | 1.0          | 7.0      | 326               | 1.20                     |
| 21                           | 1911.4      | 12.6                       | 28                 | 66    | 94    | 274                       | 1.6          | 1.0          | 8.0      | 274               | 1.60                     |
| 22                           | 1912.4      | 10.9                       | 28                 | 63    | 91    | 237                       | 0.24         | 1.0          | 9.0      | 237               | 0.24                     |
| 23                           | 1913.6      | 14.1                       | 25                 | 67    | 92    | 274                       | 1.4          | 1.0          | 10.0     | 274               | 1.40                     |
| 24                           | 1914.5      | 9.6                        | 22                 | 73    | 95    | 164                       | Imp.         | 1.0          | 11.0     | 164               | 0.00                     |

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## RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Judy Oil Company Lease Wheeler Well No. 5

| 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 |                           |              | Ft.          | Cum. Ft. |                   |                          |
| 25         | 1915.6      | 13.1                       | 12                 | 54    | 66                        | 0.83         | 1.0          | 12.0     | 122               | 0.83                     |
| 26         | 1916.4      | 14.5                       | 19                 | 65    | 84                        | 3.4          | 1.0          | 13.0     | 214               | 3.40                     |
| 27         | 1917.4      | 14.8                       | 36                 | 54    | 90                        | 0.91         | 1.0          | 14.0     | 413               | 0.91                     |
| 28         | 1918.6      | 15.0                       | 14                 | 46    | 60                        | 0.54         | 1.0          | 15.0     | 163               | 0.54                     |
| 29         | 1919.5      | 10.9                       | 22                 | 50    | 72                        | 5.0          | 1.0          | 16.0     | 186               | 5.00                     |
| 30         | 1920.6      | 12.2                       | 40                 | 36    | 76                        | 0.81         | 1.0          | 17.0     | 379               | 0.81                     |
| 31         | 1921.4      | 12.5                       | 30                 | 63    | 93                        | 0.63         | 1.0          | 18.0     | 290               | 0.63                     |
| 32         | 1922.4      | 12.2                       | 46                 | 28    | 74                        | 0.53         | 1.0          | 19.0     | 435               | 0.53                     |
| 33         | 1923.4      | 10.0                       | 27                 | 65    | 92                        | Imp.         | 1.2          | 20.2     | 252               | 0.00                     |

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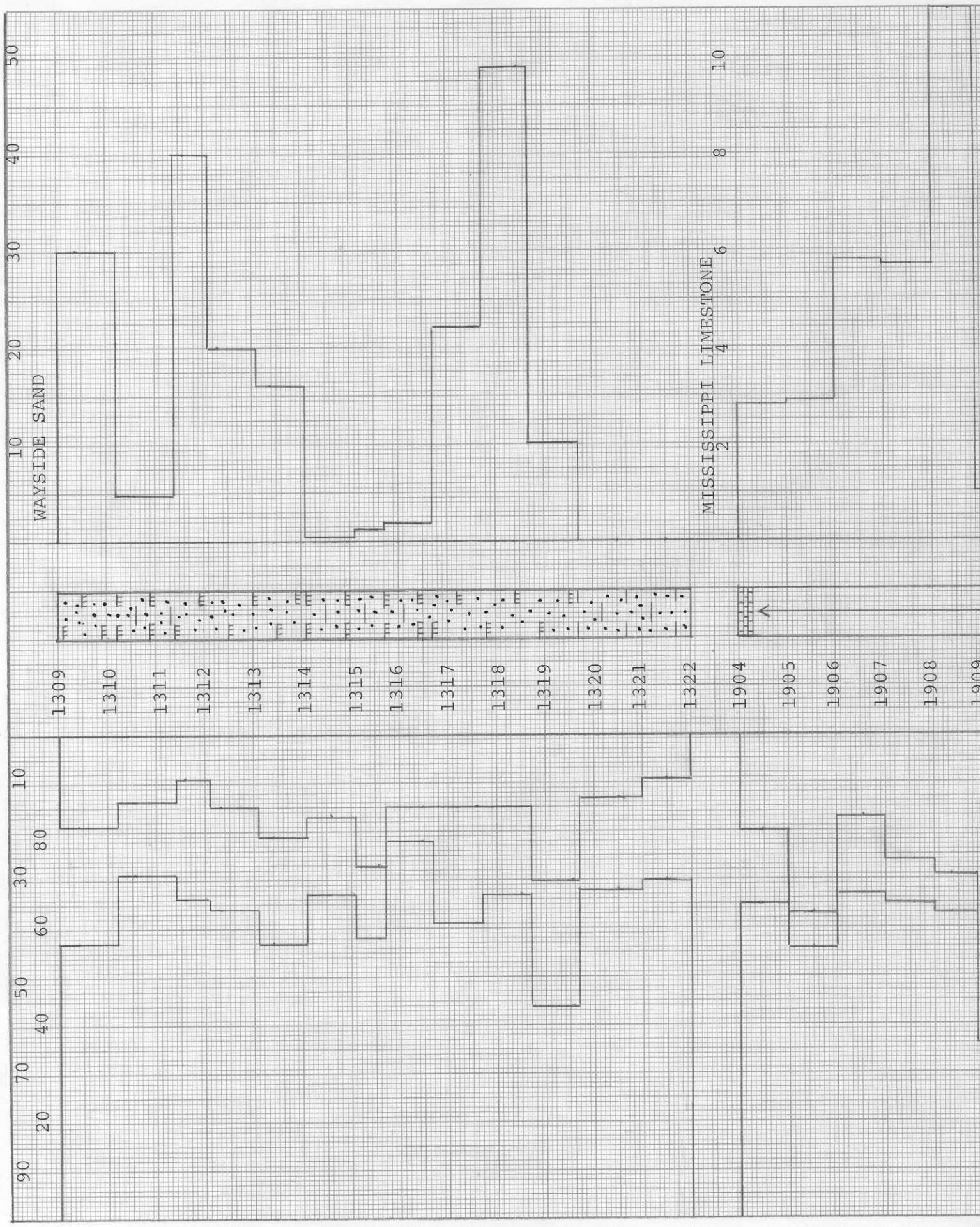
## SUMMARY OF PERMEABILITY & SATURATION TESTS

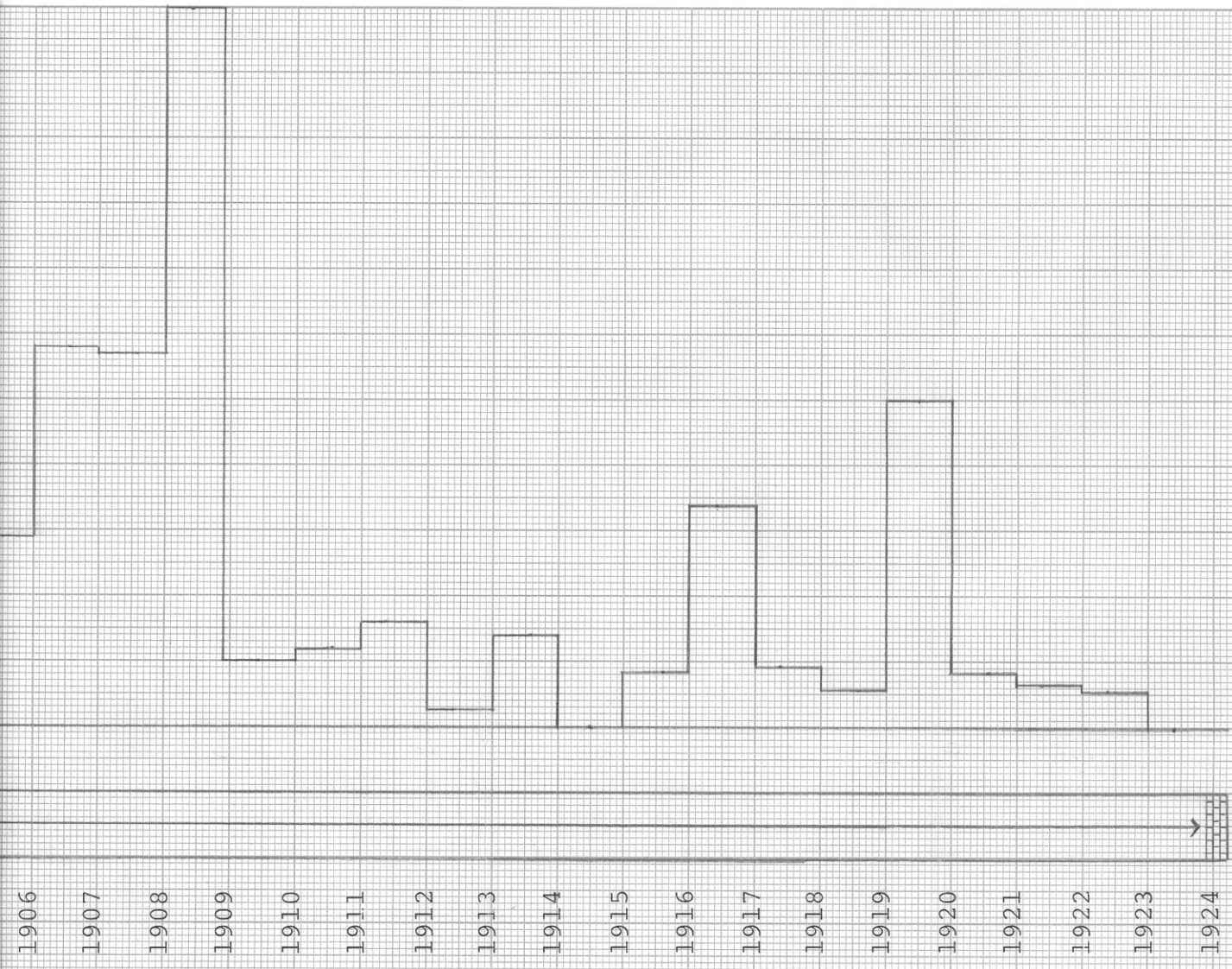
TABLE III

| Company | Judy Oil Company        | Lease                    | Wheeler                                 | Well No.                               | 5                                  |       |
|---------|-------------------------|--------------------------|-----------------------------------------|----------------------------------------|------------------------------------|-------|
|         | Depth Interval,<br>Feet | Feet of Core<br>Analyzed | Average<br>Permeability,<br>Millidarcys | Permeability<br>Capacity<br>Ft. x Md.  |                                    |       |
|         |                         |                          | <u>WAYSIDE SAND</u>                     |                                        |                                    |       |
|         | 1309.0 - 1322.0         | 10.7                     | 17.8                                    | 189.99                                 |                                    |       |
|         |                         |                          | <u>MISSISSIPPI LIMESTONE</u>            |                                        |                                    |       |
|         | 1904.0 - 1924.2         | 18.0                     | 2.5                                     | 45.29                                  |                                    |       |
|         | Depth Interval,<br>Feet | Feet of Core<br>Analyzed | Average<br>Percent Oil<br>Saturation    | Average<br>Percent Water<br>Saturation | Total Oil<br>Content<br>Bbls./Acre |       |
|         |                         |                          | <u>WAYSIDE SAND</u>                     |                                        |                                    |       |
|         | 1309.0 - 1322.0         | 13.0                     | 16.6                                    | 63.9                                   | 194                                | 2,527 |
|         |                         |                          | <u>MISSISSIPPI LIMESTONE</u>            |                                        |                                    |       |
|         | 1904.0 - 1924.2         | 20.2                     | 27.8                                    | 56.3                                   | 296                                | 5,988 |

— PERMEABILITY IN MILLIDARCYS

WATER SAT., PERCENT ← —→ OIL SAT., PERCENT

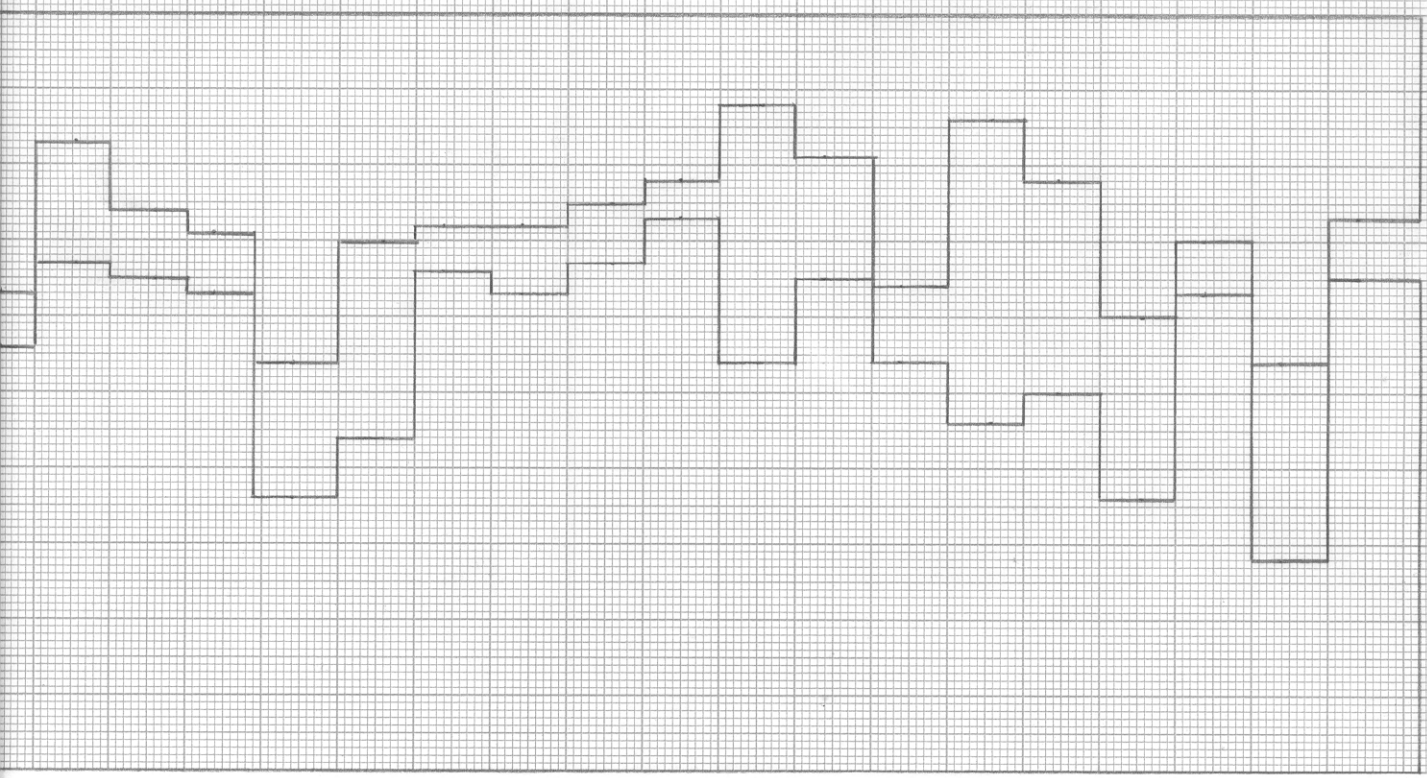




KEY:

SHALY SANDSTONE

LIMESTONE



KEY:

SHALY SANDSTONE

SHALY CALCAREOUS SANDSTONE

LIMESTONE

KEY:



CALCAREOUS SANDSTONE



SHALY SANDSTONE



SHALY CALCAREOUS SANDSTONE



LIMESTONE

# JUDY OIL COMPANY

WHEELER LEASE

WELL NO. 5

CHAUTAUQUA 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>MILLIDARCYS, |
|-------------------------|--------------------------|--------------------------------|-----------------------------------|-------------------------------------|-----------------------------------------|
|                         |                          |                                |                                   |                                     |                                         |

## WAYSIDE SAND

|                 |      |      |      |      |      |
|-----------------|------|------|------|------|------|
| 1309.0 - 1322.0 | 13.0 | 14.7 | 16.6 | 63.9 | 17.8 |
|-----------------|------|------|------|------|------|

## MISSISSIPPI LIMESTONE

|                 |      |      |      |      |     |
|-----------------|------|------|------|------|-----|
| 1904.0 - 1924.2 | 20.2 | 14.0 | 27.8 | 56.3 | 2.5 |
|-----------------|------|------|------|------|-----|

OILFIELD RESEARCH LABORATORIES  
CHANUTE, KANSAS  
JUNE, 1981

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