

# OILFIELD RESEARCH LABORATORIES

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October 21, 1980

Samson Oil Company  
842 One Energy Square  
Dallas, Texas 75206

Gentlemen:

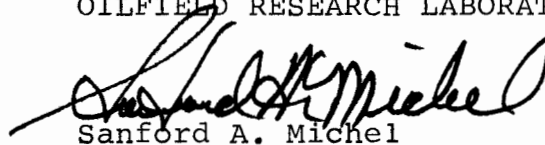
Enclosed herewith are the results of tests run on the rotary cores taken from the Wagner Lease, Well No. 3, located in Leavenworth County, Kansas and submitted to our laboratory on August 22, 1980.

The cores were sampled and sealed in plastic bags by a representative of the client.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

  
Sanford A. Michel

SAM/ks

6 c to Dallas, Texas

**Oilfield Research Laboratories**  
**GENERAL INFORMATION & SUMMARY**

Company Samson Oil Company Lease Wagner Well No. 3  
Location -  
Section 3 Twp. 9S Rge. 20E County Leavenworth State Kansas

|                                                       |          |          |
|-------------------------------------------------------|----------|----------|
| Elevation, Feet . . . . .                             | 1051.0   |          |
|                                                       | Upper    | Lower    |
| Name of Sand . . . . .                                | Mc Louth | Mc Louth |
| Top of Core . . . . .                                 | 1436.5   | 1453.0   |
| Bottom of Core . . . . .                              | 1450.0   | 1475.0   |
| Top of Sand . . . . .                                 | 1438.9   | 1457.7   |
| Bottom of Sand . . . . .                              | 1449.0   | 1474.1   |
| Total Feet of Permeable Sand . . . (Tested) . . . . . | 10.1     | 15.3     |

**Distribution of Permeable Sand:**  
**Permeability Range**  
**Millidarcys**

**Feet**

**Cum. Ft.**

UPPER Mc Louth SAND

|             |     |      |
|-------------|-----|------|
| 40 - 50     | 3.1 | 3.1  |
| 200 - 300   | 5.0 | 8.1  |
| 300 & Above | 2.0 | 10.1 |

LOWER Mc Louth SAND

|             |     |      |
|-------------|-----|------|
| 10 - 200    | 4.0 | 4.0  |
| 350 - 750   | 8.3 | 12.3 |
| 800 & Above | 3.0 | 15.3 |

|                                            |       |       |
|--------------------------------------------|-------|-------|
| Average Permeability Millidarcys . . . . . | 213.6 | 585.9 |
| Average Percent Porosity . . . . .         | 21.0  | 19.8  |
| Average Percent Oil Saturation . . . . .   | 46.1  | 31.7  |
| Average Percent Water Saturation . . . . . | 12.7  | 11.5  |
| Average Oil Content, Bbls./A. Ft. . . . .  | 761.  | 481.  |
| Total Oil Content, Bbls./Acre . . . . .    | 7684. | 7887. |

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LOGName Samson Oil Company Lease Wagner Well No. 3

| <u>Depth Interval,<br/>Feet</u> | <u>Description</u>                                                     |
|---------------------------------|------------------------------------------------------------------------|
|                                 | <u>UPPER MC LOUTH SAND</u>                                             |
| 1436.5 - 1437.5                 | Gray shale.                                                            |
| 1437.5 - 1438.0                 | Coal.                                                                  |
| 1438.0 - 1438.9                 | Black shale.                                                           |
| 1438.9 - 1449.0                 | Very dark brown sandstone.                                             |
| 1449.0 - 1450.0                 | Gray sandy shale.                                                      |
|                                 | <u>LOWER MC LOUTH SAND</u>                                             |
| 1453.0 - 1457.7                 | Gray sandy shale.                                                      |
| 1457.7 - 1474.1                 | Brown and gray laminated slightly calcareous sand-<br>stone and shale. |
| 1474.1 - 1475.0                 | Gray shale.                                                            |

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## RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Samson Oil Company Lease Wagner Well No. 3

| 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. |                   |                          |
| UPPER Mc Louth SAND                       |             |                            |                    |       |                           |              |              |          |                   |                          |
| 1                                         | 1439.5      | 20.5                       | 52                 | 14    | 827                       | 147.         | 1.1          | 1.1      | 910               | 161.70                   |
| 2                                         | 1440.5      | 20.2                       | 45                 | 11    | 705                       | 256.         | 1.0          | 2.1      | 705               | 256.00                   |
| 3                                         | 1441.5      | 20.0                       | 52                 | 7     | 807                       | 305.         | 1.0          | 3.1      | 807               | 305.00                   |
| 4                                         | 1442.5      | 19.9                       | 49                 | 13    | 757                       | 216.         | 1.0          | 4.1      | 757               | 216.00                   |
| 5                                         | 1443.8      | 19.4                       | 56                 | 13    | 843                       | 223.         | 1.0          | 5.1      | 843               | 223.00                   |
| 6                                         | 1444.5      | 19.9                       | 34                 | 16    | 834                       | 236.         | 1.0          | 6.1      | 834               | 236.00                   |
| 7                                         | 1445.5      | 17.6                       | 48                 | 10    | 655                       | 49.          | 1.0          | 7.1      | 655               | 49.00                    |
| 8                                         | 1446.5      | 19.7                       | 47                 | 18    | 718                       | 128.         | 1.0          | 8.1      | 718               | 128.00                   |
| 9                                         | 1447.5      | 20.9                       | 53                 | 13    | 859                       | 324.         | 1.0          | 9.1      | 859               | 324.00                   |
| 10                                        | 1448.5      | 32.0                       | 24                 | 9     | 596                       | 259.         | 1.0          | 10.1     | 596               | 259.00                   |
| LOWER Mc Louth SAND                       |             |                            |                    |       |                           |              |              |          |                   |                          |
| 11                                        | 1458.5      | 19.5                       | 40                 | 8     | 605                       | 518.         | 1.0          | 1.0      | 605               | 518.00                   |
| 12                                        | 1459.7      | 25.3                       | 35                 | 10    | 687                       | 485.         | 1.3          | 2.3      | 893               | 630.50                   |
| 13                                        | 1460.5      | 25.0                       | 12                 | 15    | 233                       | 141.         | 1.0          | 3.3      | 233               | 141.00                   |
| 14                                        | 1461.5      | 22.1                       | 28                 | 6     | 480                       | 837.         | 1.0          | 4.3      | 480               | 837.00                   |
| 15                                        | 1462.7      | 18.2                       | 39                 | 11    | 551                       | 711.         | 1.0          | 5.3      | 551               | 711.00                   |
| 16                                        | 1463.5      | 20.3                       | 32                 | 9     | 504                       | 546.         | 1.0          | 6.3      | 504               | 546.00                   |
| 17                                        | 1464.5      | 17.9                       | 27                 | 57    | 375                       | 664.         | 1.0          | 7.3      | 375               | 664.00                   |
| 18                                        | 1465.7      | 22.1                       | 30                 | 15    | 514                       | 2010.        | 1.0          | 8.3      | 514               | 2010.00                  |
| 19                                        | 1466.5      | 18.0                       | 30                 | 14    | 419                       | 352.         | 1.0          | 9.3      | 419               | 352.00                   |
| 20                                        | 1467.6      | 15.5                       | 33                 | 5     | 397                       | 86.          | 1.0          | 10.3     | 397               | 86.00                    |
| 21                                        | 1468.6      | 16.4                       | 35                 | 4     | 445                       | 79.          | 1.0          | 11.3     | 445               | 79.00                    |
| 22                                        | 1469.4      | 18.6                       | 35                 | 5     | 505                       | 711.         | 1.0          | 12.3     | 505               | 711.00                   |
| 23                                        | 1470.7      | 20.9                       | 7                  | 3     | 114                       | 12.          | 1.0          | 13.3     | 114               | 12.00                    |
| 24                                        | 1471.4      | 19.2                       | 34                 | 7     | 506                       | 955.         | 1.0          | 14.3     | 506               | 955.00                   |
| 25                                        | 1472.5      | 17.6                       | 58                 | 5     | 792                       | 711.         | 1.0          | 15.3     | 792               | 711.00                   |
| 26                                        | 1473.5      | 20.4                       | 35                 | 11    | 554                       | *            | 1.1          | 16.4     | 554               | *                        |
| NOTE: * Permeability sample unobtainable. |             |                            |                    |       |                           |              |              |          |                   |                          |

\* Permeability sample unobtainable.

NOTE:

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## SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

| Company                 | Samson Oil Company       | Lease                                   | Wagner                                 | Well No.                              | 3                                  |
|-------------------------|--------------------------|-----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|
| Depth Interval,<br>Feet | Feet of Core<br>Analyzed | Average<br>Permeability,<br>Millidarcys | Permeability<br>Capacity<br>Ft. x Md.  |                                       |                                    |
|                         |                          | UPPER Mc Louth SAND                     |                                        |                                       |                                    |
| 1438.9 - 1449.0         | 10.1                     | 213.6                                   | 2157.70                                |                                       |                                    |
|                         |                          | LOWER Mc Louth SAND                     |                                        |                                       |                                    |
| 1457.7 - 1474.1         | 15.3                     | 585.9                                   | 8963.50                                |                                       |                                    |
| Depth Interval,<br>Feet | Feet of Core<br>Analyzed | Average<br>Percent Oil<br>Saturation    | Average<br>Percent Water<br>Saturation | Average<br>Oil Content<br>Bbl./A. Ft. | Total Oil<br>Content<br>Bbls./Acre |
|                         |                          | UPPER Mc Louth SAND                     |                                        |                                       |                                    |
| 1438.9 - 1449.0         | 10.1                     | 46.1                                    | 12.7                                   | 761                                   | 7,684                              |
|                         |                          | LOWER Mc Louth SAND                     |                                        |                                       |                                    |
| 1457.7 - 1474.1         | 16.4                     | 31.7                                    | 11.5                                   | 481                                   | 7,887                              |