

# OILFIELD RESEARCH LABORATORIES

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

July 22, 1982

Ponderay International, Inc.  
P.O. Box Drawer "D"  
Chanute, Kansas 66720

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the Estes Lease, Well No. 1, located in Wilson County, Kansas.

The core was sampled and sealed in plastic bags by a representative of the client and was submitted to our laboratory on July 20, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

A handwritten signature in cursive script, appearing to read "Sanford A. Michel".

Sanford A. Michel

SAM/dlb

5 c to Chanute, Kansas

- REGISTERED ENGINEERS -

CORE ANALYSIS - WATER ANALYSIS - REPRESSURING ENGINEERING - SURVEYING & MAPPING - PROPERTY EVALUATION & OPERATION

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

Company Ponderay International, Inc. Lease Estes Well No. 1  
 Location 1155' SNL & 165' WEL, SW $\frac{1}{4}$   
 Section 30 Twp. 29S Rge. 17E County Wilson State Kansas

|                                    |                |
|------------------------------------|----------------|
| Elevation, Feet .....              |                |
| Name of Sand .....                 | Bartlesville   |
| Top of Core .....                  | 882.0          |
| Bottom of Core .....               | 903.0          |
| Top of Sand .....                  | (Tested) 882.7 |
| Bottom of Sand .....               | 903.0          |
| Total Feet of Permeable Sand ..... | 17.3           |

| Distribution of Permeable Sand:<br>Permeability Range<br>Millidarcys | Feet | Cum. Ft. |
|--|------|----------|
| 0 - 10   | 6.4  | 6.4      |
| 10 - 20  | 3.0  | 9.4      |
| 20 - 30  | 2.9  | 12.3     |
| 30 - 40  | 1.4  | 13.7     |
| 40 - 60  | 3.6  | 17.3     |

|  |        |
|--|--------|
| Average Permeability Millidarcys ..... | 20.1   |
| Average Percent Porosity .....         | 18.1   |
| Average Percent Oil Saturation .....   | 29.3   |
| Average Percent Water Saturation ..... | 43.8   |
| Average Oil Content, Bbls./A. Ft. .... | 419.   |
| Total Oil Content, Bbls./Acre .....    | 8,088. |

**OILFIELD RESEARCH LABORATORIES**LOGName Ponderay International, Inc. Lease Estes Well No. 1

| <u>Depth Interval,<br/>Feet</u> | <u>Description</u>                  |
|---------------------------------|-------------------------------------|
| 882.0 - 885.7                   | Grayish brown very shaly sandstone. |
| 885.7 - 896.6                   | Brown sandstone.                    |
| 896.6 - 898.0                   | Brown shaly sandstone.              |
| 898.0 - 898.6                   | Brown slightly shaly sandstone.     |
| 898.6 - 899.9                   | Brown shaly sandstone.              |
| 899.9 - 901.1                   | Brown slightly shaly sandstone.     |
| 901.1 - 902.2                   | Grayish brown very shaly sandstone. |
| 902.2 - 903.0                   | Grayish brown shaly sandstone.      |

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Ponderay International, Inc. Lease Estes Well No. 1

| Sample No. | Depth, Feet | Effective Porosity Percent | Percent Saturation |       | Oil Content Bbbls. / A Ft. | Perm., Mill. | Feet of Sand |          | Total Oil Content | Perm. Capacity Ft. X md. |
|------------|-------------|----------------------------|--------------------|-------|----------------------------|--------------|--------------|----------|-------------------|--------------------------|
|            |             |                            | Oil                | Water |                            |              | Ft.          | Cum. Ft. |                   |                          |
| 1          | 883.4       | 14.2                       | 19                 | 63    | 209                        | Imp.         | 1.0          | 1.0      | 209               | 0.00                     |
| 2          | 884.5       | 11.0                       | 16                 | 81    | 137                        | Imp.         | 1.0          | 2.0      | 137               | 0.00                     |
| 3          | 885.8       | 19.6                       | 25                 | 38    | 380                        | 37.          | 0.4          | 2.4      | 152               | 14.80                    |
| 4          | 886.6       | 19.8                       | 32                 | 26    | 492                        | 58.          | 0.6          | 3.0      | 295               | 34.80                    |
| 5          | 887.4       | 19.2                       | 32                 | 34    | 477                        | 21.          | 1.0          | 4.0      | 477               | 21.00                    |
| 6          | 888.5       | 19.4                       | 34                 | 35    | 512                        | 15.          | 1.0          | 5.0      | 512               | 15.00                    |
| 7          | 889.5       | 19.6                       | 36                 | 34    | 547                        | 31.          | 1.0          | 6.0      | 547               | 31.00                    |
| 8          | 890.5       | 19.0                       | 31                 | 42    | 457                        | 43.          | 1.0          | 7.0      | 457               | 43.00                    |
| 9          | 891.6       | 19.1                       | 34                 | 38    | 504                        | 41.          | 1.0          | 8.0      | 504               | 41.00                    |
| 10         | 892.5       | 18.5                       | 32                 | 40    | 459                        | 23.          | 0.9          | 8.9      | 413               | 20.70                    |
| 11         | 893.5       | 19.4                       | 37                 | 36    | 557                        | 28.          | 1.0          | 9.9      | 557               | 28.00                    |
| 12         | 894.5       | 18.6                       | 32                 | 42    | 462                        | 13.          | 1.0          | 10.9     | 462               | 13.00                    |
| 13         | 895.5       | 17.9                       | 20                 | 49    | 278                        | 13.          | 1.0          | 11.9     | 278               | 13.00                    |
| 14         | 896.5       | 21.1                       | 35                 | 32    | 573                        | 42.          | 1.0          | 12.9     | 573               | 42.00                    |
| 15         | 897.4       | 18.4                       | 32                 | 47    | 457                        | 5.8          | 1.4          | 14.3     | 640               | 8.12                     |
| 16         | 898.4       | 18.8                       | 35                 | 42    | 511                        | 8.0          | 0.6          | 14.9     | 307               | 4.80                     |
| 17         | 899.4       | 16.6                       | 23                 | 46    | 296                        | 4.0          | 1.3          | 16.2     | 385               | 5.20                     |
| 18         | 900.5       | 19.0                       | 26                 | 41    | 383                        | 7.7          | 1.2          | 17.4     | 460               | 9.24                     |
| 19         | 901.6       | 16.3                       | 28                 | 51    | 354                        | 0.69         | 1.1          | 18.5     | 389               | 0.76                     |
| 20         | 902.4       | 17.9                       | 30                 | 46    | 417                        | 2.5          | 0.8          | 19.3     | 334               | 2.00                     |

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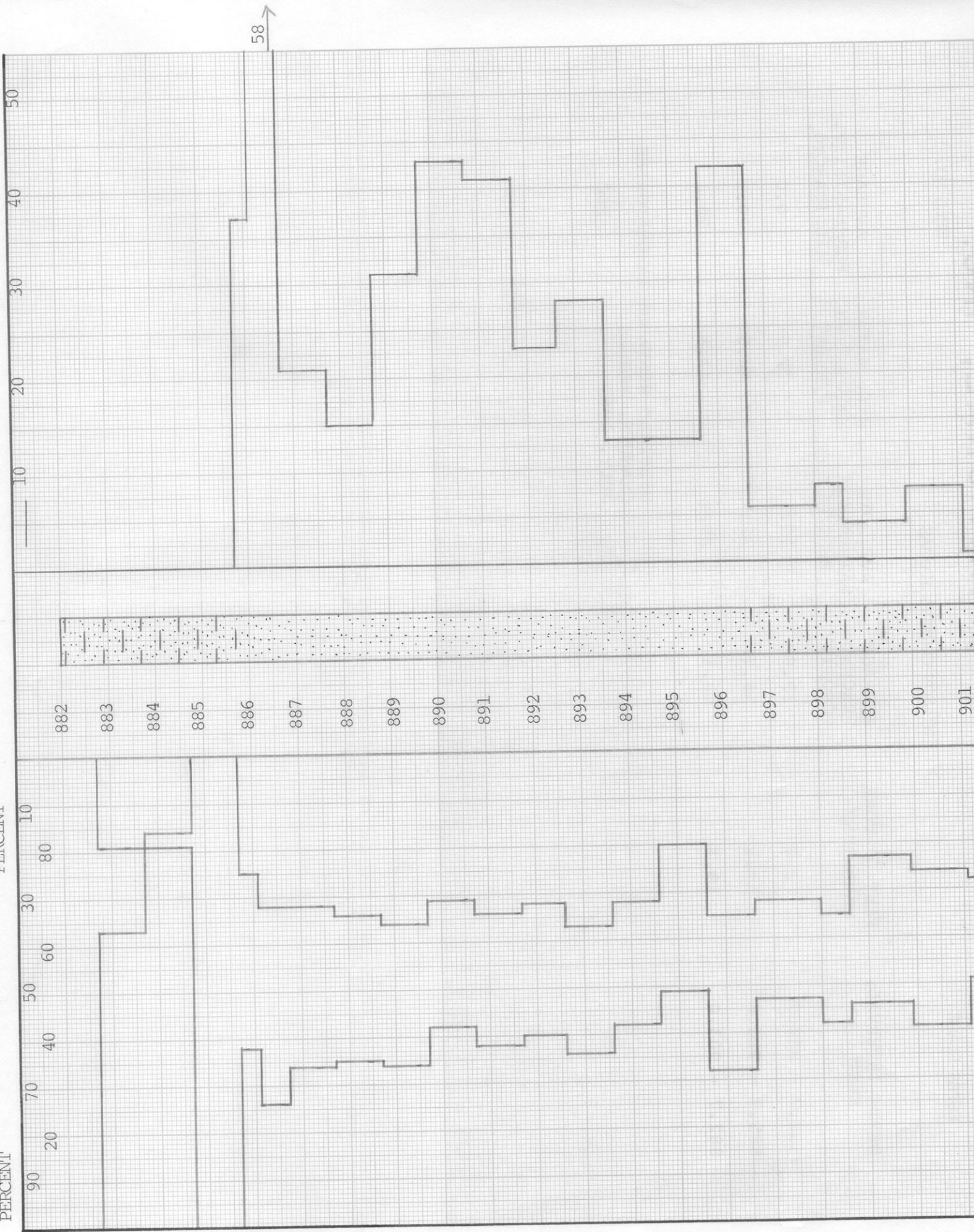
## SUMMARY OF PERMEABILITY & SATURATION TESTS

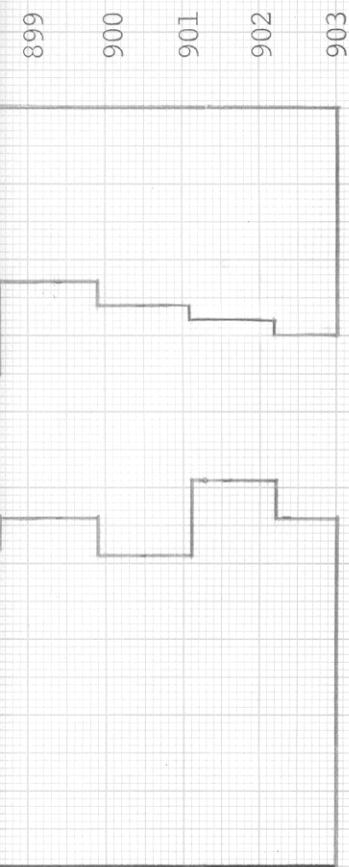
TABLE III

| Company | Ponderay International, Inc. |                          | Lease                                   | Estes                                  | Well No.                              |                                    |
|---------|------------------------------|--------------------------|---|--|---------------------------------------|------------------------------------|
|         | Depth Interval,<br>Feet      | Feet of Core<br>Analyzed | Average<br>Permeability,<br>Millidarcys | Permeability<br>Capacity<br>Ft. x Md.  |                                       |                                    |
|         | 882.7 - 884.7                | 0.0                      | 0.0                                     | 0.00                                   |                                       |                                    |
|         | 885.7 - 903.0                | 17.3                     | 20.1                                    | 347.42                                 |                                       |                                    |
|         | 882.7 - 903.0                | 17.3                     | 20.1                                    | 347.42                                 |                                       |                                    |
|         | 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 |
|         | 882.7 - 884.7                | 2.0                      | 17.5                                    | 72.0                                   | 173                                   | 346                                |
|         | 885.7 - 903.0                | 17.3                     | 30.7                                    | 40.6                                   | 448                                   | 7,742                              |
|         | 882.7 - 903.0                | 19.3                     | 29.3                                    | 43.8                                   | 419                                   | 8,088                              |

PERMEABILITY, IN MILLIDARCYDS

WATER SAT., PERCENT  
OIL SAT., PERCENT





KEY:

 SANDSTONE

 SHALY SANDSTONE

# PONDERAY INTERNATIONAL, INC.

ESTES ELASE

WELL NO. 1

WILSON COUNTY, KANSAS

| DEPTH INTERVAL,<br>FEET | FEET OF CORE<br>ANALYZED | AVERAGE<br>PERCENT<br>POROSITY | AVG. OIL<br>SATURATION<br>PERCENT | AVG. WATER<br>SATURATION<br>PERCENT | AVERAGE<br>PERMEABILITY,<br>MILLIDARCYS |
|-------------------------|--------------------------|--------------------------------|-----------------------------------|-------------------------------------|---|
| 882.7 - 884.7           | 2.0                      | 12.6                           | 17.5                              | 72.0                                | 0.0                                     |
| 885.7 - 903.0           | 17.3                     | 18.7                           | 30.7                              | 40.6                                | 20.1                                    |
| 882.7 - 903.0           | 19.3                     | 18.1                           | 29.3                              | 43.8                                | 20.1                                    |

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 CHANUTE, KANSAS  
 JULY, 1982  
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