

OILFIELD RESEARCH LABORATORIES

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

November 2, 1981

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

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the Umbarger Lease, Well No. 1-P, located in Neosho County, Kansas.

The core samples 1 thru 6 were sampled and sealed in plastic bags by a representative of the client, samples 7 thru 17 were sampled in our laboratory after being received on October 27, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES



Sanford A. Michel

SAM/mkf

5 c to Chanute, Ks.

Oilfield Research Laboratories
GENERAL INFORMATION & SUMMARY

Company Ponderay International, Inc. Lease Umberger Well No. 1-P
 Location 450' NSL & 330' WEL SW $\frac{1}{4}$
 Section 13 Twp. 29S Rge. 17E County Neosho State Kansas

Elevation, Feet

Name of Sand.....

BARTLESVILLE

Top of Core

927.1

Bottom of Core

946.0

Top of Sand

927.1

Bottom of Sand

943.9

Total Feet of Permeable Sand

16.1

Distribution of Permeable Sand:
 Permeability Range
 Millidarcys

Feet

Cum. Ft.

0 - 100
 100 - 200
 200 - 300
 300 - 500

4.0
 5.8
 4.3
 2.0

4.0
 9.8
 14.1
 16.1

Average Permeability Millidarcys

191.4

Average Percent Porosity

19.6

Average Percent Oil Saturation

25.8

Average Percent Water Saturation.....

51.4

Average Oil Content, Bbls./A. Ft.....

385.

Total Oil Content, Bbls./Acre.....

6,192.

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LOGName Ponderay International, Inc. Lease Umbarger Well No. 1-P

| <u>Depth Interval,</u> <u>Feet</u> | <u>Description</u> |
|---------------------------------------|--|
| 927.1 - 928.4 | Light brown sandstone with shale partings. |
| 928.4 - 931.2 | Light brown sandstone. |
| 931.2 - 932.2 | Light brown sandstone with shale partings. |
| 932.2 - 932.9 | Light brown slightly calcareous sandstone with shale partings. |
| 932.9 - 933.5 | Light brown sandstone. |
| 933.5 - 934.2 | Light gray and dark gray laminated sandstone and shale. |
| 934.2 - 934.7 | Light brown sandstone with small shale inclusions. |
| 934.7 - 943.0 | Light brown slightly calcareous sandstone. |
| 943.0 - 943.9 | Dark gray and light gray laminated shale and sandstone. |
| 943.9 - 945.1 | Gray shale with very fine intermittent sandstone partings. |
| 945.1 - 946.0 | Gray shale. |

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Ponderay International, Inc. Lease Umberger Well No. 1-P

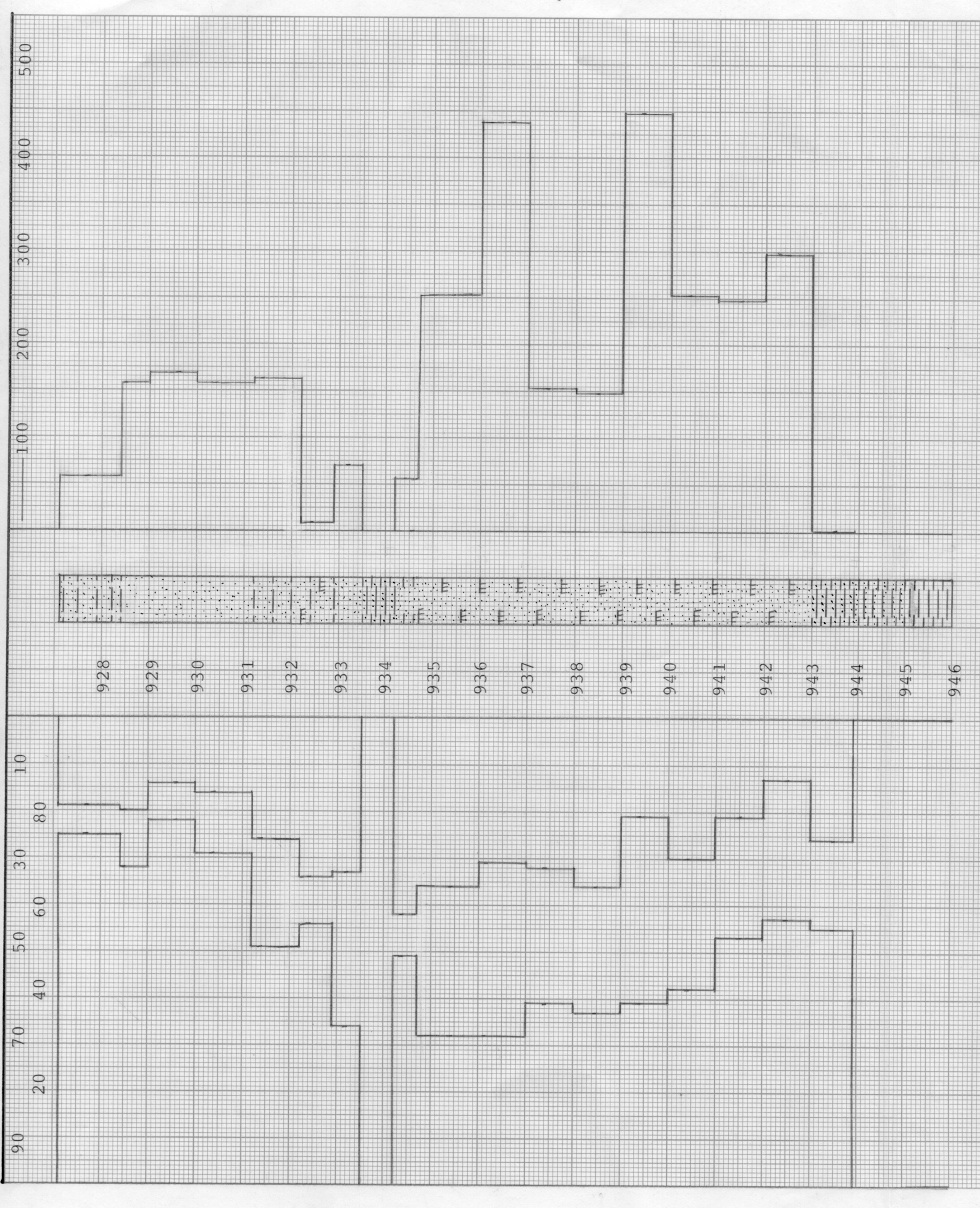
| Sample No. | Depth, Feet | Effective Porosity Percent | Percent Saturation | | | Oil Content Bbls. / A Ft. | Perm., Mill. | Feet of Sand | | Total Oil Content | Perm. Capacity Ft. X md. |
|------------|-------------|----------------------------|--------------------|-------|-------|---------------------------|--------------|--------------|----------|-------------------|--------------------------|
| | | | Oil | Water | Total | | | Ft. | Cum. Ft. | | |
| 1 | 927.7 | 20.0 | 19 | 75 | 94 | 295 | 58. | 1.3 | 1.3 | 384 | 75.40 |
| 2 | 928.5 | 21.1 | 20 | 68 | 88 | 327 | 158. | 0.6 | 1.9 | 196 | 94.80 |
| 3 | 929.6 | 19.7 | 14 | 78 | 92 | 214 | 169. | 1.0 | 2.9 | 214 | 169.00 |
| 4 | 930.4 | 19.6 | 16 | 71 | 87 | 243 | 158. | 1.2 | 4.1 | 292 | 189.60 |
| 5 | 931.4 | 19.7 | 26 | 51 | 77 | 397 | 163. | 1.0 | 5.1 | 397 | 163.00 |
| 6 | 932.4 | 15.8 | 34 | 56 | 90 | 417 | 9.9 | 0.7 | 5.8 | 292 | 6.93 |
| 7 | 933.2 | 20.3 | 33 | 34 | 67 | 520 | 70. | 0.6 | 6.4 | 312 | 42.00 |
| 8 | 934.4 | 17.7 | 42 | 49 | 91 | 577 | 56. | 0.5 | 6.9 | 289 | 28.00 |
| 9 | 935.4 | 19.0 | 36 | 32 | 68 | 531 | 253. | 1.3 | 8.2 | 690 | 328.90 |
| 10 | 936.2 | 22.1 | 31 | 32 | 63 | 532 | 437. | 1.0 | 9.2 | 532 | 437.00 |
| 11 | 937.4 | 14.4 | 32 | 39 | 71 | 357 | 153. | 1.0 | 10.2 | 357 | 153.00 |
| 12 | 938.5 | 19.7 | 36 | 37 | 73 | 550 | 148. | 1.0 | 11.2 | 550 | 148.00 |
| 13 | 939.4 | 22.2 | 21 | 39 | 60 | 362 | 449. | 1.0 | 12.2 | 362 | 449.00 |
| 14 | 940.4 | 20.9 | 30 | 42 | 72 | 486 | 253. | 1.0 | 13.2 | 486 | 253.00 |
| 15 | 941.5 | 21.6 | 21 | 53 | 74 | 352 | 247. | 1.0 | 14.2 | 352 | 247.00 |
| 16 | 942.5 | 22.8 | 13 | 57 | 70 | 230 | 296. | 1.0 | 15.2 | 230 | 296.00 |
| 17 | 943.5 | 14.2 | 26 | 55 | 81 | 286 | 0.61 | 0.9 | 16.1 | 257 | 0.55 |






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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

| Company | Ponderay International, Inc. | | Lease | Umbarger | Well No. | 1-P | |
|----------------------|------------------------------|-----------------------|-----------------------------------|---------------------------------|--------------------------|---------------------------------|------------------------------|
| Depth Interval, Feet | Depth Interval, Feet | Feet of Core Analyzed | Average Permeability, Millidarcys | Permeability Capacity Ft. x Md. | Average Percent Porosity | Average Oil Content Bbl./A. Ft. | Total Oil Content Bbls./Acre |
| 927.1 - 932.2 | 927.1 - 932.2 | 5.1 | 135.7 | 681.90 | 19.9 | 291 | 1,483 |
| 932.2 - 939.0 | 932.2 - 939.0 | 6.1 | 187.5 | 1,143.83 | 18.5 | 495 | 3,022 |
| 939.0 - 943.9 | 939.0 - 943.9 | 4.9 | 254.2 | 1,245.55 | 20.5 | 344 | 1,687 |
| 927.1 - 943.9 | 927.1 - 943.9 | 16.1 | 191.4 | 3,081.28 | 19.6 | 385 | 6,192 |
| 927.1 - 932.2 | | 5.1 | | | 18.8 | 69.7 | |
| 932.2 - 939.0 | | 6.1 | | | 34.5 | 38.3 | |
| 939.0 - 943.9 | | 4.9 | | | 22.1 | 49.1 | |
| 927.1 - 943.9 | | 16.1 | | | 25.8 | 51.4 | |



KEY:  LAMINATED SANDSTONE AND SHALE
 SANDSTONE WITH SHALE PARTINGS
 SANDSTONE WITH SHALE INCLUSIONS
 SHALE WITH SANDSTONE PARTINGS
 CALCAREOUS SANDSTONE WITH SHALE PARTINGS

SANDSTONE
 SHALE
 CALCAREOUS SANDSTONE

PONDERAY INTERNATIONAL, INC.

UMBARGER LEASE
 NEOSHO COUNTY, KANSAS
 WELL NO. 1-P

| DEPTH INTERVAL, FEET | FEET OF CORE ANALYZED | AVERAGE PERCENT POROSITY | AVG. OIL SATURATION PERCENT | AVG. WATER SATURATION PERCENT | AVERAGE PERMEABILITY, MILLIDARCS |
|-------------------------|--------------------------|--------------------------------|-----------------------------------|-------------------------------------|--|
| 927.1 - 932.2 | 5.1 | 19.9 | 18.8 | 69.7 | 135.7 |
| 932.2 - 939.0 | 6.1 | 18.5 | 34.5 | 38.3 | 187.5 |
| 939.0 - 943.9 | 4.9 | 20.5 | 22.1 | 49.1 | 254.2 |
| 927.1 - 943.9 | 16.1 | 19.6 | 25.8 | 51.4 | 191.4 |

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 CHANUTE, KANSAS
 OCTOBER, 1981

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