



OILFIELD RESEARCH LABORATORIES

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

May 25, 1979

North Slope Properties, Ltd.
c/o Don Thompson
212 North Holiday Lane
Iola, Kansas 66749

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the McIntyre Lease, Well No. 14, Allen County, Kansas, and submitted to our laboratory on May 15, 1979.

This core was sampled by a representative of Oilfield Research Laboratories.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman
Benjamin R. Pearman

SAM:cgb

5 c to Iola, Kansas

- REGISTERED ENGINEERS -

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

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GENERAL INFORMATION & SUMMARY

Company North Slope Properties, Ltd. Lease McIntyre Well No. 14

Location _____

Section 31 Twp. 23S Rge. 19E County Allen State Kansas

| | |
|------------------------------|--------------|
| Name of Sand | Bartlesville |
| Top of Core | 883.0 |
| Bottom of Core | 916.0 |
| Top of Sand | 884.0 |
| Bottom of Sand | 911.9 |
| Total Feet of Permeable Sand | 15.8 |
| Total Feet of Floodable Sand | |

| Distribution of Permeable Sand: Permeability Range Millidarcys | Feet | Cum. Ft. |
|--|------|----------|
| 0 - 5 | 13.5 | 13.5 |
| 5 - 10 | 2.3 | 15.8 |

| | |
|---|--------|
| Average Permeability Millidarcys | 2.3 |
| Average Percent Porosity | 13.9 |
| Average Percent Oil Saturation | 14.9 |
| Average Percent Water Saturation | 70.5 |
| Average Oil Content, Bbls./A. Ft. | 169. |
| Total Oil Content, Bbls./Acre | 3,392. |
| Average Percent Oil Recovery by Laboratory Flooding Tests | |
| Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. | |
| Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre | |
| Total Calculated Oil Recovery, Bbls./Acre | |
| Packer Setting, Feet | |
| Viscosity, Centipoises @ | |
| A. P. I. Gravity, degrees @ 60 °F | |
| Elevation, Feet | |

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- LOG -

Company North Slope Properties, Ltd. Lease McIntyre Well No. 14

| <u>Depth Interval, Feet</u> | <u>Description</u> |
|---------------------------------|---|
| 883.0 - 885.6 | Gray and light brown laminated shale and sandstone. |
| 885.6 - 893.7 | Light brown laminated very shaly sandstone. |
| 893.7 - 894.3 | Gray shale. |
| 894.3 - 894.7 | Gray and light brown laminated shale and sandstone. |
| 894.7 - 896.2 | Gray shale. |
| 896.2 - 899.0 | Light brown laminated very shaly sandstone. |
| 899.0 - 899.6 | Gray and light brown laminated shale and sandstone. |
| 899.6 - 900.2 | Gray shale. |
| 900.2 - 901.8 | Light brown laminated shaly sandstone. |
| 901.8 - 904.1 | Gray and light brown laminated shale and sandstone. |
| 904.1 - 906.6 | Gray laminated sandy shale. |
| 906.6 - 907.7 | Gray and light brown laminated shale and sandstone. |
| 907.7 - 909.7 | Gray laminated sandy shale. |
| 909.7 - 910.0 | Gray and light brown laminated shale and sandstone. |
| 910.0 - 910.6 | Gray laminated sandy shale. |
| 910.6 - 911.9 | Brown slightly shaly sandstone. |
| 911.9 - 913.0 | Gray shale. |
| 913.0 - 913.5 | Coal. |
| 913.5 - 916.0 | Gray shale. |

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company North Slope Properties, Ltd.

Lease McIntyre

Well No. 14

| 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 | 884.5 | 12.1 | 1 | 91 | 92 | 9 | Imp. | 1.0 | | 9 | 0.00 |
| 2 | 886.8 | 15.0 | 18 | 70 | 88 | 210 | 0.28 | 1.4 | | 294 | 0.39 |
| 3 | 887.6 | 15.7 | 18 | 63 | 81 | 219 | Imp. | 1.0 | | 219 | 0.00 |
| 4 | 888.4 | 14.8 | 27 | 63 | 90 | 310 | 1.8 | 1.0 | | 310 | 1.80 |
| 5 | 889.5 | 13.3 | 6 | 77 | 83 | 62 | 8.9 | 1.0 | | 62 | 8.90 |
| 6 | 890.5 | 14.6 | 29 | 66 | 95 | 329 | 3.4 | 1.0 | | 329 | 3.40 |
| 7 | 891.4 | 14.5 | 19 | 69 | 88 | 214 | 0.31 | 1.0 | | 214 | 0.31 |
| 8 | 892.5 | 14.1 | 5 | 77 | 82 | 55 | 1.0 | 1.0 | | 55 | 1.00 |
| 9 | 893.5 | 16.1 | 17 | 59 | 76 | 212 | 1.3 | 0.7 | | 148 | 1.04 |
| 10 | 894.5 | 9.6 | 3 | 91 | 94 | 22 | 3.6 | 0.4 | | 9 | 1.44 |
| 11 | 896.4 | 11.6 | 6 | 87 | 93 | 54 | 0.53 | 0.8 | | 43 | 0.42 |
| 12 | 897.5 | 13.2 | 9 | 83 | 92 | 92 | 0.39 | 1.0 | | 92 | 0.39 |
| 13 | 898.5 | 17.1 | 29 | 54 | 93 | 372 | 0.60 | 1.0 | | 372 | 0.60 |
| 14 | 899.4 | 12.9 | 8 | 88 | 96 | 80 | 0.38 | 0.6 | | 48 | 0.23 |
| 15 | 900.5 | 12.1 | 20 | 74 | 94 | 188 | 0.95 | 0.8 | | 150 | 0.76 |
| 16 | 901.5 | 16.4 | 25 | 53 | 88 | 318 | 2.6 | 0.8 | | 254 | 2.08 |
| 17 | 902.6 | 9.6 | 8 | 88 | 96 | 60 | Imp. | 1.2 | | 72 | 0.00 |
| 18 | 903.7 | 13.7 | 4 | 70 | 74 | 43 | Imp. | 1.1 | | 47 | 0.00 |
| 19 | 906.8 | 14.0 | 13 | 70 | 83 | 141 | 0.76 | 0.4 | | 56 | 0.30 |
| 20 | 907.4 | 14.3 | 11 | 71 | 82 | 122 | 3.5 | 0.7 | | 85 | 2.45 |
| 21 | 909.8 | 14.6 | 16 | 75 | 91 | 181 | 2.4 | 0.9 | | 163 | 2.16 |
| 22 | 910.7 | 15.2 | 21 | 58 | 79 | 248 | 6.2 | 0.4 | | 99 | 2.48 |
| 23 | 911.5 | 14.4 | 26 | 64 | 90 | 291 | 7.5 | 0.9 | | 262 | 6.75 |

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

| Company | North Slope Properties, Ltd. | Lease | McIntyre | Well No. | | | | | | | |
|-------------------------|------------------------------|--------------------------|---|---------------------------------------|--------------------------|---|--------------------------------|----------------------------------|---|---------------------------------------|------------------------------------|
| | | | | | | | | 14 | | | |
| Depth Interval, Feet | Depth Interval, Feet | Fest of Core Analyzed | Average Permeability, Millidarcys | Permeability Capacity Ft. x Md. | Fest of Core Analyzed | Average Permeability, Millidarcys | Average Percent Porosity | Average Percent Saturation | Average Percent Water Saturation | Average Oil Content Ebl./A. Ft. | Total Oil Content Bbls./Acre |
| | 884.0 - 898.0 | 9.3 | 2.1 | 19.09 | 9.3 | 2.1 | 14.0 | 13.9 | 73.8 | 158 | 1,784 |
| | 898.0 - 911.9 | 6.5 | 2.7 | 17.81 | 6.5 | 2.7 | 13.9 | 16.2 | 66.1 | 183 | 1,608 |
| | 884.0 - 911.9 | 15.8 | 2.3 | 36.90 | 15.8 | 2.3 | 13.9 | 14.9 | 70.5 | 169 | 3,392 |