



OILFIELD RESEARCH LABORATORIES

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

July 11, 1980

CHN Oil Company
841 North Broadway
Wichita, Kansas 67214

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the Hale Lease, Well No. H-14, Allen County, Kansas, and submitted to our laboratory on June 21, 1980.

The core was 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/tem

1 c to Cal Franklin, Chanute, Kansas
4 c to Wichita, Kansas

Oilfield Research Laboratories
GENERAL INFORMATION & SUMMARY

Company CHN Oil Company Lease Hale Well No. H-14
 Location SW $\frac{1}{4}$
 Section 27 Twp. 26S Rge. 21E County Allen State Kansas

| | |
|--|--------------|
| Elevation, Feet | |
| Name of Sand | Bartlesville |
| Top of Core | 660.0 |
| Bottom of Core | 681.0 |
| Top of Sand | 660.0 |
| Bottom of Sand | 681.0 |
| Total Feet of Permeable Sand | 19.1 |

| Distribution of Permeable Sand: Permeability Range Millidarcys | Feet | Cum. Ft. |
|--|------|----------|
| 0 - 5 | 7.6 | 7.6 |
| 5 - 10 | 1.6 | 9.2 |
| 10 - 20 | 4.1 | 13.3 |
| 20 - 30 | 3.3 | 16.6 |
| 30 & Above | 2.5 | 19.1 |

| | |
|--|---------|
| Average Permeability Millidarcys | 14.1 |
| Average Percent Porosity | 16.9 |
| Average Percent Oil Saturation | 37.5 |
| Average Percent Water Saturation | 40.4 |
| Average Oil Content, Bbls./A. Ft. | 498. |
| Total Oil Content, Bbls./Acre | 10,018. |

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LOGName CHN Oil Company Lease Hale Well No. H-14

| <u>Depth Interval, Feet</u> | <u>Description</u> |
|---------------------------------|-------------------------------------|
| 660.0 - 663.9 | Grayish brown very shaly sandstone. |
| 663.9 - 670.1 | Brown sandstone. |
| 670.1 - 671.7 | Brown shaly sandstone. |
| 671.7 - 673.2 | Brown sandstone. |
| 673.2 - 674.3 | Brown shaly sandstone. |
| 674.3 - 676.6 | Brown sandstone. |
| 676.6 - 678.0 | Black shaly carbonaceous sandstone. |
| 678.0 - 678.8 | Brown sandstone. |
| 678.8 - 681.0 | Black shaly carbonaceous sandstone. |

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

| 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. | | |
| 1 | 660.2 | 13.9 | 30 | 57 | 324 | 0.49 | 1.0 | 1.0 | 324 | 0.49 |
| 2 | 661.3 | 17.6 | 33 | 48 | 451 | 4.3 | 1.0 | 2.0 | 451 | 4.30 |
| 3 | 662.5 | 14.5 | 23 | 52 | 259 | Imp. | 1.0 | 3.0 | 259 | 0.00 |
| 4 | 663.5 | 15.5 | 30 | 47 | 361 | 1.6 | 0.9 | 3.9 | 325 | 1.44 |
| 5 | 664.5 | 16.8 | 39 | 39 | 508 | 12. | 1.0 | 4.9 | 508 | 12.00 |
| 6 | 665.5 | 18.3 | 34 | 37 | 483 | 17. | 1.0 | 5.9 | 483 | 17.00 |
| 7 | 666.5 | 20.2 | 55 | 19 | 862 | 52. | 1.0 | 6.9 | 862 | 52.00 |
| 8 | 667.8 | 8.6 | 21 | 70 | 140 | 29. | 1.0 | 7.9 | 140 | 29.00 |
| 9 | 669.1 | 19.5 | 37 | 33 | 560 | 11. | 1.3 | 9.2 | 728 | 14.30 |
| 10 | 670.3 | 18.0 | 33 | 44 | 461 | 8.0 | 1.0 | 10.2 | 461 | 8.00 |
| 11 | 671.5 | 20.4 | 36 | 33 | 570 | 8.2 | 0.6 | 10.8 | 342 | 4.92 |
| 12 | 672.5 | 19.9 | 30 | 39 | 463 | 31.6 | 1.5 | 12.3 | 695 | 46.50 |
| 13 | 674.0 | 15.5 | 36 | 58 | 433 | 3.6 | 1.1 | 13.4 | 476 | 3.96 |
| 14 | 675.2 | 20.1 | 41 | 33 | 639 | 26. | 1.3 | 14.7 | 831 | 33.80 |
| 15 | 676.5 | 17.6 | 41 | 46 | 560 | 22. | 1.0 | 15.7 | 560 | 22.00 |
| 16 | 677.5 | 18.7 | 46 | 27 | 667 | 3.6 | 1.4 | 17.1 | 934 | 5.04 |
| 17 | 678.7 | 16.0 | 52 | 33 | 646 | 12. | 0.8 | 17.9 | 517 | 9.60 |
| 18 | 679.9 | 15.5 | 46 | 30 | 553 | 3.0 | 1.2 | 19.1 | 664 | 3.60 |
| 19 | 680.7 | 12.3 | 48 | 29 | 458 | 0.76 | 1.0 | 20.1 | 458 | 0.76 |

Company CHN Oil Company

Lease Hale

Well No H-14

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

| Company | Lease | Well No. | | | | | |
|-------------------------|--------------------------|---|---------------------------------------|--------------------------------|--------------------------------------|--------------------------------|------------------------------------|
| CHN Oil Company | Hale | H-114 | | | | | |
| Depth Interval, Feet | Feet of Core Analyzed | Average Permeability, Millidarcys | Permeability Capacity Ft. x Md. | Average Percent Porosity | Average Percent Oil Saturation | Average Water Saturation | Total Oil Content Bbls./Acre |
| 660.0 - 681.0 | 19.1 | 14.1 | 268.71 | 16.9 | 37.5 | 40.4 | 10,018 |
| 660.0 - 681.0 | 20.1 | | | 16.9 | 37.5 | 40.4 | 10,018 |