OIL FIELD RESEARCH LABORATORIES
CHANUTE, KANSAS

April 4, 1951

28-27-19E

Berry & Eells
Newton, Kansas

Gentlemen:

Enclosed herewith is the report of the partial analysis of the Cable Tool core taken from the Reinhardt & Malson Lease, Well No. 26, Neosho County, Kansas, and submitted to our laboratory on March 23, 1951.

In calculating the recovery for the area represented by this core, an allowance was made for oil lost during coring and it was assumed that the true water saturation of the sand was 35 percent and that the well was drilled in semi-virgin territory.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Clayton A. Nattier

CAN:eam
c.c. to Mr. L. C. McLaughlin

REINHARDT & MALSON 26

BERRY & EELLS

CORE ANALYSIS REPORT

REINHARDT & MALSON LEASE WELL NO. 26

NEOSHO COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

APRIL 3, 1951

# Oil Field Research Laboratories

## GENERAL INFORMATION & SUMMARY

Company Berry & Eells Lease Reinhardt & Malson Well No. 26

Location

Section 28 Twp. 27S Rge. 19E County Neosho State Kansas

| | |
|---|---|
| Name of Sand | Bartlesville |
| Top of Core | 683.00 |
| Bottom of Core | 714.15 |
| Top of Pay Sand | 700.30 |
| Bottom of Sand | 710.50 |
| Total Feet of Permeable Sand | 6.77 |

| Distribution of Permeable Sand: Permeability Range Millidarcys | Feet | Cum. Ft. |
|---|---|---|
| | | |

| | |
|---|---|
| Average Effective Permeability Millidarcys | 5.77 |
| Average Percent Porosity | 18.98 |
| Average Percent Oil Saturation | 41.74 |
| Average Percent Water Saturation | - |
| Average Oil Content, Bbls./A. Ft. | 628. |
| Total Oil Content, Bbls./Acre | 4,600. |
| Average Percent Oil Recovery by Laboratory Flooding Tests | 14.09 |
| Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. | 223. |
| Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre | 1,511. |
| Total Calculated Oil Recovery, Bbls./Acre | 2,300. |
| Packer Setting, Feet | 697.0 |
| Viscosity, Centipoises @ | |
| A. P. I. Gravity, degrees @ 60 °F | |

The above averages are for that part of the sand section extending from the packer setting to the top of the cement plug.

LOG

Company Berry & Eells Lease Reinhardt & Malson Well No. 26

| Depth Interval, Feet | Description |
|---|---|
| 683.00 - 689.25 | Gray shale (Discarded at well.). |
| 689.25 - 690.75 | Gray shale. |
| 690.75 - 691.75 | Hard brown fine grained micaceous sandstone. |
| 691.75 - 691.90 | Finely laminated sandy shale. |
| 691.90 - 692.50 | Gray shale. |
| 692.50 - 693.05 | Hard brown fine grained micaceous sandstone. |
| 693.05 - 695.50 | Finely laminated sandy shale. |
| 695.50 - 696.80 | Hard brown fine grained micaceous sandstone. |
| 696.80 - 698.55 | Finely laminated sandy shale. |
| 698.55 - 699.10 | Hard brown fine grained micaceous sandstone. |
| 699.10 - 700.30 | Gray shale. |
| 700.30 - 700.85 | Brown fine grained micaceous sandstone. |
| 700.85 - 701.20 | Gray shale. |
| 701.20 - 703.20 | Brown fine grained micaceous sandstone. |
| 703.20 - 703.42 | Dark brown fine grained micaceous carbonaceous sandstone. |
| 703.42 - 703.50 | Gray shale. |
| 703.50 - 703.80 | Brown fine grained micaceous sandstone. |
| 703.80 - 704.50 | Dark brown fine grained micaceous carbonaceous sandstone. |
| 704.50 - 704.65 | Gray shale. |
| 704.65 - 705.35 | Brown fine grained micaceous sandstone. |
| 705.35 - 705.58 | Gray sandy shale. |
| 705.58 - 706.10 | Brown fine grained micaceous sandstone. |

706.10 - 706.70 - Dark brown fine grained micaceous carbonaceous sandstone.

706.70 - 707.30 - Gray shale.

707.30 - 707.40 - Laminated shaley sandstone.

707.40 - 707.55 - Gray shale.

707.55 - 708.65 - Brown fine grained micaceous sandstone.

708.65 - 709.15 - Brown fine grained micaceous conglomeratic sandstone.

709.15 - 709.40 - Dark brown fine grained micaceous carbonaceous conglomeratic sandstone.

709.40 - 710.50 - Dark brown fine grained micaceous carbonaceous sandstone.

710.50 - 714.15 - Gray shale.

## Oil Field Research Laboratories

**SHOT RECOMMENDATION**

Company Berry & ?Eells Lease Reinhardt & Malson Well No. 26

| Depth Interval, Feet | Feet of Sand | Size of Shell Inches | Qts./Ft. | Total Quarts |
|---|---|---|---|---|
| 701.5 - 710.0 | 8.5 | 4½ | 3.1 | 26.35 |

Recommended Packer Setting 695.5 feet.
Note: Plug hole back to 711.0 feet.
Packer actually set 697.0 feet.

## Oil Field Research Laboratories

**RESULTS OF SATURATION TESTS**

**TABLE III**

Company Berry & Eells Lease Reinhardt & Malson Well No. 26

| Sat. No. | Depth, Feet | Effective Porosity Percent | Percent Saturation | | | Oil Content, Bbls./A. Ft. | Feet of Core | | Total Oil Content Bbls./Acre |
|---|---|---|---|---|---|---|---|---|---|
| | | | Oil | Water | Total | | Ft. | Cum. Ft. | |
| 1 | 690.82 | 8.4 | 32.7 | - | - | 213 | 0.50 | 0.50 | 107 |
| 2 | 691.69 | 11.9 | 46.0 | - | - | 425 | 0.50 | 1.00 | 213 |
| 3 | 692.72 | 11.2 | 35.5 | - | - | 308 | 0.55 | 1.55 | 169 |
| 4 | 695.58 | 10.9 | 52.5 | - | - | 444 | 0.95 | 2.50 | 421 |
| 5 | 696.35 | 13.4 | 39.4 | - | - | 410 | 0.85 | 3.35 | 348 |
| 6 | 698.78 | 13.1 | 38.6 | - | - | 392 | 0.55 | 3.90 | 216 |
| 7 | 700.58 | 18.8 | 44.9 | - | - | 655 | 0.55 | 4.45 | 360 |
| 8 | 701.38 | 20.6 | 53.6 | - | - | 857 | 0.70 | 5.15 | 600 |
| 9 | 702.48 | 20.1 | 41.2 | - | - | 692 | 1.30 | 6.45 | 901 |
| 10 | 703.58 | 19.7 | 41.8 | - | - | 639 | 0.30 | 6.75 | 192 |
| 11 | 704.73 | 18.2 | 40.6 | - | - | 573 | 0.70 | 7.45 | 401 |
| 12 | 705.83 | 19.5 | 37.0 | - | - | 560 | 0.52 | 7.97 | 291 |
| 13 | 707.62 | 18.2 | 35.4 | - | - | 500 | 1.10 | 9.07 | 550 |
| 14 | 708.78 | 20.0 | 38.6 | - | - | 600 | 0.50 | 9.57 | 300 |
| 15 | 709.81 | 20.2 | 45.7 | - | - | 717 | 1.10 | 10.67 | 789 |
| | | | | | | | Total - - - - - | | 5,858 |

## Oil Field Research Laboratories

**SUMMARY OF SATURATION TESTS**

**TABLE IV**

Company Berry & Eells Lease Reinhardt & Malson Well No. 26

| Depth Interval, Feet | Feet of Core Analyzed | Average Percent Porosity | Average Percent Oil Saturation | Average Percent Water Saturation | Average Oil Content Bbls./A. Ft. | Total Oil Content Bbls./Acre |
|---|---|---|---|---|---|---|
| 690.75-699.10 | 3.90 | 11.64 | 41.92 | - | 378 | 1,474 |
| 700.30-710.50 | 6.77 | 19.45 | 42.01 | - | 647 | 4,384 |
| 697.00-711.00 | 7.32 | 18.98 | 41.74 | - | 628 | 4,600 |

## Oil Field Research Laboratories

### RESULTS OF LABORATORY FLOODING TESTS

### TABLE V

Company Berry & Wells Lease Reinhardt & Malson Well No. 26

| Sample No. | Depth, Feet | Effective Porosity Percent | Original Oil Saturation | | Oil Recovery | | Residual Saturation | | | Volume of Water Recovered cc* | Effective Permeability, Millidarcys ** | Initial Fluid Production Pressure Lbs./Sq. In. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Percent | Bbls./A. Ft. | Percent | Bbls./A. Ft. | % Oil | % Water | Bbls./A. Ft. | | | |
| 1 | 690.82 | 8.4 | 32.7 | 213 | 0.0 | 0 | 32.7 | 36.4 | 213 | 0 | Imp. | 50 |
| 2 | 691.69 | 11.9 | 46.0 | 425 | 0.0 | 0 | 46.0 | 20.0 | 425 | 0 | Imp. | 50 |
| 3 | 692.72 | 11.2 | 35.5 | 308 | 0.0 | 0 | 35.5 | 25.0 | 308 | 0 | Imp. | 50 |
| 4 | 695.58 | 10.9 | 52.5 | 444 | 0.0 | 0 | 52.5 | 20.8 | 444 | 0 | Imp. | 50 |
| 5 | 696.35 | 13.4 | 39.4 | 410 | 0.0 | 0 | 39.4 | 42.4 | 410 | 0 | Imp. | 50 |
| 6 | 698.78 | 13.1 | 38.6 | 392 | 0.0 | 0 | 38.6 | 30.6 | 392 | 0 | Imp. | 50 |
| 7 | 700.58 | 18.8 | 44.9 | 655 | 17.7 | 258 | 27.2 | 65.6 | 397 | 178 | 5.83 | 15 |
| 8 | 701.38 | 20.6 | 53.6 | 857 | 29.7 | 475 | 23.9 | 70.2 | 382 | 124 | 9.35 | 5 |
| 9 | 702.48 | 20.1 | 41.2 | 692 | 17.0 | 314 | 24.2 | 63.5 | 378 | 106 | 8.55 | 10 |
| 10 | 703.58 | 19.7 | 41.8 | 639 | 20.2 | 309 | 21.6 | 66.6 | 330 | 124 | 8.48 | 10 |
| 11 | 704.73 | 18.2 | 40.6 | 573 | 15.8 | 223 | 24.8 | 66.6 | 350 | 140 | 5.17 | 15 |
| 12 | 705.83 | 19.5 | 37.0 | 560 | 9.1 | 138 | 27.9 | 64.8 | 422 | 106 | 4.75 | 15 |
| 13 | 707.62 | 18.2 | 35.4 | 500 | 13.1 | 185 | 22.3 | 64.1 | 315 | 114 | 5.51 | 15 |
| 14 | 708.78 | 20.0 | 38.6 | 600 | 12.4 | 193 | 26.2 | 64.0 | 407 | 190 | 7.16 | 15 |
| 15 | 709.81 | 20.2 | 45.7 | 717 | 0.4 | 6 | 45.3 | 43.1 | 711 | 19 | 0.580 | 30 |

Notes: cc - cubic centimeter
* - Volume of water recovered at the time of maximum oil recovery.
** - Determined by passing water through sample which still contains residual oil.

## Oil Field Research Laboratories

### SUMMARY OF LABORATORY FLOODING TESTS

**TABLE VI**

Company Berry & Eells Lease Reinhardt & Malson Well No. 26

| | |
|---|---|
| Depth Interval, Feet | 697.00 - 711.00 |
| Feet of Core Analyzed | 6.77 |
| Average Percent Porosity | 19.45 |
| Average Percent Original Oil Saturation | 41.99 |
| Average Percent Oil Recovery | 14.09 |
| Average Percent Residual Oil Saturation | 27.90 |
| Average Percent Residual Water Saturation | 61.74 |
| Average Percent Total Residual Fluid Saturation | 89.64 |
| Average Original Oil Content, Bbls./A. Ft. | 647. |
| Average Oil Recovery, Bbls./A. Ft. | 223. |
| Average Residual Oil Content, Bbls./A. Ft. | 424. |
| Total Original Oil Content, Bbls./Acre | 4,384. |
| Total Oil Recovery, Bbls./Acre | 1,511. |
| Total Residual Oil Content, Bbls./Acre | 2,873. |
| Average Effective Permeability, Millidarcys | 5.77 |
| Average Initial Fluid Production Pressure, p.s.i. | 14.4 |

NOTE: Only those samples which recovered oil were used in calculating the above averages.