



OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS - PHONE HE1-2650

January 12, 1966

O. A. Sutton
407 Insurance Building
Wichita, Kansas

Dear Sir:

Enclosed herewith are the results of tests run on the Rotary core taken from the Mann Lease, Well No. 2, Elk County, Kansas, and submitted to our laboratory on January 6, 1966.

This core was sampled and the samples sealed in cans by a representative of Oilfield Research Laboratories.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman
Benjamin R. Pearman

BRP:rf

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Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company O. A. Sutton Lease Mann Well No. 2

Location 120' East of E $\frac{1}{2}$ E $\frac{1}{2}$ SE

Section 12 Twp. 31S Rge. 12E County Elk State Kansas

| | | | |
|------------------------------|---|-------|--------|
| Name of Sand | - | ? | Layton |
| Top of Core | - | 348.0 | 539.0 |
| Bottom of Core | - | 372.0 | 571.0 |
| Top of Sand | - | 348.8 | 540.8 |
| Bottom of Sand | - | 359.0 | 563.5 |
| Total Feet of Permeable Sand | - | 9.2 | 8.6 |
| Total Feet of Floodable Sand | - | | |

Distribution of Permeable Sand:
Permeability Range
Millidarcys

| | Feet | Cum. Ft. |
|---------------|------|----------|
| 65 - 500 | 5.2 | 5.2 |
| 500 & above | 4.0 | 9.2 |
| Layton 0 - 10 | 1.7 | 1.7 |
| 10 & above | 6.9 | 8.6 |

| | | | |
|---|---|--------|--------|
| Average Permeability Millidarcys | - | 495.0 | 19.6 |
| Average Percent Porosity | - | 15.9 | 15.6 |
| Average Percent Oil Saturation | - | 15.1 | 20.0 |
| Average Percent Water Saturation | - | 74.2 | 64.6 |
| Average Oil Content, Bbls./A. Ft. | - | 139. | 254. |
| Total Oil Content, Bbls./Acre | - | 1,422. | 4,549. |
| 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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Company O.A. Sutton Lease Mann Well No. 2

| <u>Depth Interval,</u> | <u>Description</u> |
|------------------------|--------------------|
| <u>Feet</u> | |

348.0 - 349.8 - Gray calcareous sandstone.

349.8 - 352.3 - Gray and brown, calcareous sandstone.

352.3 - 359.0 - Gray calcareous sandstone.

359.0 - 372.0 - Loss.

LAYTON

539.0 - 540.8 - Black, laminated, sandy shale.

540.8 - 549.9 - Gray, laminated, sandy shale.

549.9 - 554.0 - Brown, laminated, shaly sandstone.

554.0 - 557.8 - Shale.

557.8 - 560.0 - Gray shaly sandstone.

560.0 - 562.5 - Grayish light brown, shaly sandstone.

562.5 - 563.5 - Brown, slightly calcareous sandstone.

563.5 - 571.0 - Loss.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company O. A. Sutton Lease Mann Well No. 2

| Sample No. | Depth, Feet | Effective Porosity Percent | Percent Saturation | | | Oil Content Bbbs. / A Ft. | Perm., Mill. | Feet of Sand | | Total Oil Content | Perm. Capacity Ft. X md. |
|------------|-------------|----------------------------|--------------------|-------|-------|---------------------------|--------------|--------------|----------|-------------------|--------------------------|
| | | | Oil | Water | Total | | | Ft. | Cum. Ft. | | |
| 1 | 349.1 | 4.6 | 25 | 46 | 71 | 89 | Imp. | 1.0 | 1.0 | 89 | 0.00 |
| 2 | 350.1 | 6.1 | 23 | 60 | 83 | 109 | 91. | 0.8 | 1.8 | 87 | 72.80 |
| 3 | 351.1 | 7.2 | 29 | 65 | 94 | 162 | 104. | 1.0 | 2.8 | 162 | 104.00 |
| 4 | 352.1 | 13.8 | 42 | 37 | 79 | 449 | 145. | 0.7 | 3.5 | 314 | 101.50 |
| 5 | 353.1 | 19.1 | 27 | 60 | 87 | 399 | 65. | 1.3 | 4.8 | 519 | 84.50 |
| 6 | 354.1 | 16.3 | 6 | 79 | 85 | 76 | 1019. | 1.0 | 5.8 | 76 | 1019.00 |
| 7 | 355.1 | 23.8 | 5 | 94 | 99 | 92 | 1831. | 1.0 | 6.8 | 92 | 1831.00 |
| 8 | 356.1 | 23.1 | 2 | 96 | 98 | 36 | 531. | 1.0 | 7.8 | 36 | 531.00 |
| 9 | 357.1 | 22.7 | 1 | 94 | 95 | 18 | 536. | 1.0 | 8.8 | 18 | 536.00 |
| 10 | 358.1 | 17.9 | 2 | 95 | 97 | 28 | 194. | 1.4 | 10.2 | 29 | 271.60 |
| | | | | | | <u>LAYTON</u> | | | | | |
| 11 | 541.1 | 10.6 | 22 | 72 | 94 | 181 | Imp. | 0.8 | 0.8 | 145 | 0.00 |
| 12 | 542.1 | 14.3 | 8 | 82 | 90 | 89 | Imp. | 1.0 | 1.8 | 89 | 0.00 |
| 13 | 543.1 | 15.2 | 14 | 84 | 98 | 165 | Imp. | 1.0 | 2.8 | 165 | 0.00 |
| 14 | 545.1 | 12.8 | 12 | 76 | 88 | 119 | Imp. | 1.0 | 3.8 | 119 | 0.00 |
| 15 | 546.1 | 11.5 | 3 | 95 | 98 | 27 | Imp. | 1.0 | 4.8 | 27 | 0.00 |
| 16 | 547.1 | 14.3 | 24 | 71 | 95 | 266 | Imp. | 1.0 | 5.8 | 266 | 0.00 |
| 17 | 548.1 | 14.6 | 10 | 84 | 94 | 113 | 0.42 | 1.0 | 6.8 | 113 | 0.42 |
| 18 | 549.1 | 16.7 | 19 | 70 | 89 | 246 | Imp. | 1.3 | 8.1 | 320 | 0.00 |
| 19 | 550.1 | 17.5 | 34 | 46 | 80 | 461 | 9.4 | 0.7 | 8.8 | 323 | 6.58 |
| 20 | 551.1 | 20.1 | 31 | 39 | 70 | 482 | 22. | 1.0 | 9.8 | 482 | 22.00 |

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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 | Total | | | Ft. | Cum. Ft. | | |
| 21 | 552.1 | 18.7 | 33 | 37 | 70 | 479 | 17. | 1.0 | 10.8 | 479 | 17.00 |
| 22 | 553.1 | 15.6 | 43 | 36 | 79 | 519 | 11. | 1.4 | 12.2 | 726 | 15.40 |
| 23 | 558.1 | 13.1 | 15 | 82 | 97 | 153 | Imp. | 0.8 | 13.0 | 123 | 0.00 |
| 24 | 559.1 | 13.1 | 8 | 91 | 99 | 81 | Imp. | 1.4 | 14.4 | 113 | 0.00 |
| 25 | 560.1 | 19.9 | 15 | 58 | 73 | 232 | 12. | 0.5 | 14.9 | 116 | 6.00 |
| 26 | 561.1 | 21.9 | 24 | 47 | 71 | 408 | 15. | 1.0 | 15.9 | 408 | 15.00 |
| 27 | 562.1 | 21.2 | 19 | 53 | 72 | 313 | 33. | 1.0 | 16.9 | 313 | 33.00 |
| 28 | 563.1 | 11.9 | 24 | 48 | 72 | 222 | 53. | 1.0 | 17.9 | 222 | 53.00 |

Company O. A. Sutton

Lease Mann

Well No. 2

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

| Company | Lease | | Mann | Well No. | | |
|-------------------------|--------------------------|--------------------------------------|--|---------------------------------------|---------------------------------------|------------------------------------|
| O. A. Sutton | | | Mann | 2 | | |
| Depth Interval, Feet | Feet of Core Analyzed | Average Percent Oil Saturation | Average Percent Water Saturation | Average Oil Content Bbl./A. Ft. | Permeability Capacity Ft. x Md. | Total Oil Content Bbls./Acre |
| 348.8 - 359.0 | 9.2 | 15.1 | 74.2 | 139 | 4,551.40 | 1,422 |
| <u>LAYTON</u> | | | | | | |
| 540.8 - 549.9 | 1.0 | 14.0 | 77.4 | 154 | 0.42 | 1,244 |
| 549.9 - 554.0 | 4.1 | 36.1 | 38.7 | 490 | 60.98 | 2,010 |
| 557.8 - 563.5 | 3.5 | 17.2 | 64.9 | 227 | 107.00 | 1,295 |
| 540.8 - 563.5 | 8.6 | 20.0 | 64.6 | 254 | 168.40 | 4,549 |
| 348.8 - 359.0 | 10.2 | 15.9 | 74.2 | 139 | 168.40 | 1,422 |
| <u>LAYTON</u> | | | | | | |
| 540.8 - 549.9 | 8.1 | 13.9 | 77.4 | 154 | 0.42 | 1,244 |
| 549.9 - 554.0 | 4.1 | 17.8 | 38.7 | 490 | 60.98 | 2,010 |
| 557.8 - 563.5 | 5.7 | 16.5 | 64.9 | 227 | 107.00 | 1,295 |
| 540.8 - 563.5 | 17.9 | 15.6 | 64.6 | 254 | 168.40 | 4,549 |