

WELL RECORD

Company Cities Service Oil Company Well No. 5 Farm Rein "A"
 Location 1874' FNL and 1874' FWL Sec. 29 T. 19 R. 21W
 Elevation 2311 DF, 2314 KB County Ness State Kansas
 Initial Prod. 44 bbls. oil, 0.4 bbl. water, 24 hrs. Contractor Gabbert-Jones, Inc.
 Acid 250 gals. 7½% Drig. Comm. 10-10-67
 T.D. 4459' Drig. Comp. 10-24-67

CASING RECORD:

8-5/8" set @ 498' w/ 275 sx
 4-1/2" set @ 4459' w/ 150 sx

FORMATION RECORD:

| | |
|---------------------|-----------|
| surface clay | 0-75' 70' |
| shale | 190 74' |
| sand & shale | 320 |
| shale & shells | 500 |
| shale | 501 |
| shale | 720 |
| red bed | 820 803 |
| red bed & sand | 1250 |
| shale | 1544 |
| anhydrite | 1576 903 |
| shale & lime | 2385 1085 |
| lime | 2785 |
| lime & shale | 2915 |
| lime | 2970 |
| lime & shale | 3660 |
| sandy lime & shale | 3795 |
| lime & shale | 4275 |
| lime | 4449 |
| lime, shale & chert | 4459 TD |

DRILL STEM TESTS:

- #1, 4434-49', Mississippi-Warsaw & Osage, packer failed; set 2' high.
- #2, 4437-49', Mississippi-Warsaw & Osage, packer failed.
- #3, 4399-4449', Cherokee, Miss.-Warsaw & Osage, 30-30-30-30, very weak blow first 30 mins. open, no blow second 30 mins. open, flushed tool after 15 mins. of second opening, few bubbles and died; rec. 75' mud; ISIP 789#, IFP 55#, FFP 83#, FSIP 734#.
- #4, 4448-59', Miss.-Osage, hit bridge at 4434', trip and condition hole.
- #5, 4448-59', Miss.-Osage, packer failed.
- #6, 4452-59', Miss.-Osage, 30-30-60-30, good blow throughout test; rec. 560' gas in D.P., 825' free oil, 60' muddy oil, 80' oil-cut mud and 40' watery mud; ISIP 935#, IFP 37#, FFP 376#, FSIP 770#.

ELECTRIC LOG TOPS:

| | |
|------------------|--------------|
| Haebner | 3802 (-1488) |
| Toronto | 3820 (-1506) |
| Lansing | 3850 (-1536) |
| Kansas City Base | 4174 (-1860) |
| Ft. Scott | 4348 (-2034) |
| Conglomerate | 4416 (-2102) |
| Miss.-Warsaw | 4428 (-2114) |
| Miss.-Osage | 4438 (-2124) |

COMPLETION:

Drill out to 4455½, PBTD.
 Ran Bond log. Top good cem. 4210'.
 Contaminated cem. to 3888'.
 Perf. Miss. 4448-54.
 400' fillup oil, 13 hrs.
 Acidized with 250 gals. 7½% MCA.
 Swabbed.
 Ran 2" tbg. to 4446'.
 Pumped 44 bbls. oil, 0.4 bbl. water, 24 hrs.

SLOPE TESTS:

425', 1/4°
 800', 3/4°
 1325', 1°
 1790', 1°
 2385', 1/4°
 2700', 3/4°
 3357', 1½°
 4010', 1½°
 4450', 1½°

1826 1/4°
 3011 1/2°
 3224 1/2°

| | | | | | | |
|----------------------------|------------------------|------------------|------------------------|---|----------------------------|----------------------------------|
| Flow Time | 1st 30 Min. | 2nd 60 Min. | Date | 10-23-67 | Ticket Number | 475018 - S |
| Closed in Pres. Time | 1st 30 Min. | 2nd 30 Min. | Kind of Job | OPEN HOLE | Halliburton District | GREAT BEND |
| Pressure Readings | Field | Office Corrected | Tester | MR. MOORE | Witness | MR. JOHNSON MR. MC CULLOM |
| Depth Top Gauge | | Blanked Off | Drilling Contractor | GABBERT & JONES DRILLING INCORPORATED TC | | |
| BT. P.R.D. No. | | Hour Clock | Elevation | 2311' D.F. | Top Packer | 4444' |
| Initial Hydro Mud Pressure | | | Total Depth | 4459' | Bottom Packer | 4452' |
| Initial Closed in Pres. | | | Interval Tested | 4452'-4459' | Formation Tested | MISSISSIPPI |
| Initial Flow Pres. | 1 | | Casing or Hole Size | 7 7/8" | Casing Perfs. } Top | |
| | 2 | | | | Perfs. } Bot. | - |
| Final Flow Pres. | 1 | | Surface Choke | 1" | Bottom Choke | 3/4" |
| | 2 | | | | | |
| Final Closed in Pres. | | | Size & Kind Drill Pipe | 4 1/2" F.H. | Drill Collars Above Tester | I.D. - LENGTH 2 1/4" x 83.10' |
| Final Hydro Mud Pressure | | | Mud Weight | 10.1 | Mud Viscosity | WEIGHT PIPE 122' 55 |
| Depth Con. Gauge | 4448 Ft. | Blanked Off | Temperature | 118 °F Est. | Anchor Size ID & Length | 2 1/4" X 7' OD 4" |
| BT. P.R.D. No. | 1838 | Hour Clock | Depths Mes. From | KELLY BUSHINGS | Depth of Tester Valve | 4430' Ft. |
| Initial Hydro Mud Pres. | 2396 | 2356 | Cushion | - | Depth Back Pres. Valve | - |
| Initial Closed in Pres. | 935 | 932 | Recovered | 560 Feet of Gas in pipe 825 Feet of Free oil | | |
| Initial Flow Pres. | 37 | 1 39 | Recovered | 60 Feet of Muddy oil | | |
| | 202 | 2 225 | | | | |
| Final Flow Pres. | 211 | 1 211 | Recovered | 80 Feet of Oil cut mud | | |
| | 376 | 2 379 | | | | |
| Final Closed in Pres. | 770 | 777 | Recovered | 40 Feet of Watery mud | | |
| Final Hydro Mud Pres. | 2396 | 2315 | Oil A.P.I. Gravity | 39 @ 60°F | Water Spec. Gravity | - |
| Depth Bot. Gauge | | Blanked Off | Gas Gravity | - | Surface Pressure | - psi |
| BT. P.R.D. No. | | Hour Clock | Tool Opened | 1:05 AM | A.M. P.M. Tool Closed | 3:35 AM P.M. |
| Initial Hydro Mud Pres. | WANTED MORE PERFOR- | | Remarks | Opened tool for 30 minute 1st flow with a | | |
| Initial Closed in Pres. | ATIONS DID NOT | | | good blow. Closed tool for 30 minute initial | | |
| Initial Flow Pres. | 1 | | | closed in pressure. Reopened tool for 60 minute | | |
| | 2 | | | 2nd flow with a good blow throughout test. | | |
| Final Flow Pres. | 1 | | | Closed tool for 30 minute final closed in | | |
| | 2 | | | pressure. | | |
| Final Closed in Pres. | | | | | | |
| Final Hydro Mud Pres. | | | | | | |

Legal Location
Sec. - Twp. - Rng.
Lease Name
SEC. 29 - 19S - 21W
Well No.
Field Area
County
NESS
State
KANSAS
Owner's District

FORMATION TEST DATA

5

| Gauge No. | | Depth | | | Clock | | hour | | Ticket No. | |
|-------------------|------------------|----------------------------|---------------------------|------------------|--------------------|------------------|--------------------------|---------------------------|------------------|--|
| 475018 | | | | | | | | | | |
| First Flow Period | | Initial Closed In Pressure | | | Second Flow Period | | Final Closed In Pressure | | | |
| Time Defl. .000" | PSIG Temp. Corr. | Time Defl. .000" | Log $\frac{t+\phi}{\phi}$ | PSIG Temp. Corr. | Time Defl. .000" | PSIG Temp. Corr. | Time Defl. .000" | Log $\frac{t+\phi}{\phi}$ | PSIG Temp. Corr. | |
| P ₀ | | | | | | | | | | |
| P ₁ | | | | | | | | | | |
| P ₂ | | | | | | | | | | |
| P ₃ | | | | | | | | | | |
| P ₄ | | | | | | | | | | |
| P ₅ | | | | | | | | | | |
| P ₆ | | | | | | | | | | |
| P ₇ | | | | | | | | | | |
| P ₈ | | | | | | | | | | |
| P ₉ | | | | | | | | | | |
| P ₁₀ | | | | | | | | | | |

| Gauge No. | | Depth | | | Clock | | hour | |
|------------------|------|-------|------|-----|-------|-----|-------|----|
| 1838 | | 4448' | | | 12 | | | |
| P ₀ | .000 | 39 | .000 | 211 | .000 | 225 | .000 | 37 |
| P ₁ | .041 | 92 | .020 | 675 | .0658 | 258 | .0204 | 58 |
| P ₂ | .082 | 129 | .040 | 733 | .1316 | 291 | .0408 | 67 |
| P ₃ | .123 | 161 | .060 | 774 | .1974 | 317 | .0612 | 68 |
| P ₄ | .164 | 187 | .080 | 808 | .2632 | 340 | .0816 | 67 |
| P ₅ | .205 | 211 | .100 | 836 | .3290 | 361 | .1020 | 68 |
| P ₆ | | | .120 | 862 | .3950 | 379 | .1224 | 77 |
| P ₇ | | | .140 | 883 | | | .1428 | - |
| P ₈ | | | .160 | 900 | | | .1632 | - |
| P ₉ | | | .180 | 917 | | | .1836 | 77 |
| P ₁₀ | | | .200 | 932 | | | .2040 | 77 |
| Reading Interval | 6 | | 3 | | 10 | | 3 | |

REMARKS:

SPECIAL PRESSURE DATA

| Flow Time | 1st Min. | 2nd Min. | Date | Ticket Number | Legal Location |
|----------------------------|----------|------------------|-------------------------------|--|----------------------|
| 30 | | 30 | 10-21-67 | 475016 S | Sec. - Twp. - Rng. - |
| Closed In Press. Time | 1st Min. | 2nd Min. | Kind of Job | Halliburton District | |
| 30 | | 30 | OPEN HOLE | GREAT BEND | |
| Pressure Readings | Field | Office Corrected | Tester | Witness | |
| | | | LARRY MOORE | MR. FRANK MC. COLLUM | |
| Depth Top Gauge | Ft. | Blanked Off | Drilling Contractor | | |
| | | | GABBERT - JONES DRILLING IND. | I.C. | |
| BT. P.R.D. No. | | Hour Clock | Elevation | Top Packer | |
| | | | 2311' DF | 4391' | |
| Initial Hydro Mud Pressure | | | Total Depth | Bottom Packer | |
| | | | 4449' | 4399' | |
| Initial Closed in Pres. | | | Interval Tested | Formation Tested | |
| | | | 4399' - 4449' | Mississippi | |
| Initial Flow Pres. | 1 | | Casing or Hole Size | Casing Perfs. | Top Bot. |
| | 2 | | 7 7/8" | | |
| Final Flow Pres. | 1 | | Surface Choke | Bottom Choke | |
| | 2 | | 1" | 3/4" | |
| Final Closed in Pres. | | | Size & Kind Drill Pipe | Drill Collars Above Tester | I.D. - LENGTH |
| | | | 4 1/2" FH | 2 1/2" - 83.10' | |
| Final Hydro Mud Pressure | | | Mud Weight | Mud Viscosity | 122' Wt. Pipe |
| | | | 10.1 | 42 | |
| Depth Con. Gauge | Ft. | Blanked Off | Temperature | Anchor Size & Length | ID OD X |
| | | | 118 °F Est. °F Actual | 2 1/2" X 49.83' | 4" |
| BT. P.R.D. No. | | Hour Clock | Depths Meas. From | Depth of Tester Valve | Pt. |
| | | | Kelly Bushing | 4375 | |
| Initial Hydro Mud Pres. | | | Cushion | Depth Back Pres. Valve | Pt. |
| | | | none | -- | |
| Initial Closed in Pres. | | | Recovered | Feet of | drilling mud. |
| | | | 75 | | |
| Initial Flow Pres. | 1 | | Recovered | Feet of | |
| | 2 | | | | |
| Final Flow Pres. | 1 | | Recovered | Feet of | |
| | 2 | | | | |
| Final Closed in Pres. | | | Recovered | Feet of | |
| | | | | | |
| Final Hydro Mud Pres. | | | Oil A.P.I. Gravity | Water Spec. Gravity | |
| | | | | | |
| Depth Bot. Gauge | 4445 Ft. | Blanked Off | Gas Gravity | Surface Pressure | psi |
| | | yes | | | |
| BT. P.R.D. No. | 1838 | Hour Clock | Tool Opened | A.M. P.M. Tool Closed | A.M. P.M. |
| | | 12 | 1:05 | 3:05 | |
| Initial Hydro Mud Pres. | 2321 | | 2330 | Remarks | |
| | | | | Tool opened with very weak blow on 30 minute | |
| Initial Closed in Pres. | 789 | | 792 | initial flow. Took a 30 minute initial closed in | |
| | | | | pressure. Reopened tool for a 30 minute final flow | |
| Initial Flow Pres. | 55 | 1 | 67 | | |
| | 174 | 2 | 63 | | |
| Final Flow Pres. | 64 | 1 | 147 | | |
| | 83 | 2 | 84 | with no blow, flush tool, few bubbles & died. | |
| Final Closed in Pres. | 734 | | 726 | Closed tool for a 30 minute final closed in pres- | |
| | | | | sure. Partial plugging of perforation during initial | |
| Final Hydro Mud Pres. | 2321 | | 2314 | flow. | |

FORMATION TEST DATA

flow.

Legal Location
 Sec. - Twp. - Rng. -
 Lease Name
 Well No.
 Field Area
 East No.
 County
 State
 NESS
 KANSAS

| | | | | | | |
|----------------------------|------------|------------------|------------------------|--|----------------------------|----------------------------------|
| Flow Time | 1st - Min. | 2nd - Min. | Date | 10-20-67 | Ticket Number | 475015 |
| Closed in Pres. Time | 1st - Min. | 2nd - Min. | Kind of Job | OPEN HOLE | Helliburton District | GREAT BEND |
| Pressure Readings | Field | Office Corrected | Tester | MR. MOORE | Witness | MR. MC CULLEM |
| Depth Top Gauge | Pt. | Blanked Off | Drilling Contractor | GABBERT - JONES DRILLING INCORPORATED IC | | |
| BT. P.R.D. No. | | Hour Clock | Elevation | 2311' D.F. | Top Packer | - |
| Initial Hydro Mud Pressure | | | Total Depth | 4449' | Bottom Packer | 4437' |
| Initial Closed in Pres. | | | Interval Tested | 4437'-4449' | Formation Tested | MISSISSIPPI |
| Initial Flow Pres. | 1 | | Casing or Hole Size | 7 7/8" | Casing Perfs. | Top |
| | 2 | | | | | Bot. |
| Final Flow Pres. | 1 | | Surface Choke | 1" | Bottom Choke | 3/4" |
| | 2 | | | | | |
| Final Closed in Pres. | | | Size & Kind Drill Pipe | 4 1/2" F.H. | Drill Collars Above Tester | I.D. - LENGTH 2 1/4" x 83.10' |
| | | | | | | Mud Weight |
| Final Hydro Mud Pressure | | | Temperature | 118 | Anchor Size & Length | ID 2 1/4" x 15' |
| | | | | | | *F Est. |
| Depth Cen. Gauge | Pt. | Blanked Off | Depths Meas. From | KELLY BUSHINGS | Depth of Tester Valve | 4419' Pt. |
| Initial Hydro Mud Pres. | | | TYPE AMOUNT | | Depth Back Pres. Valve | - Pt. |
| Initial Closed in Pres. | | | Cushion | - | | |
| Initial Flow Pres. | 1 | | Recovered | - | Feet of | Meas. From Tester Valve |
| | 2 | | Recovered | - | Feet of | |
| Final Flow Pres. | 1 | | Recovered | - | Feet of | |
| | 2 | | Recovered | - | Feet of | |
| Final Closed in Pres. | | | Recovered | - | Feet of | |
| Final Hydro Mud Pres. | | | Oil A.P.I. Gravity | - | Water Spec. Gravity | - |
| Depth Bot. Gauge | 4445 Pt. | Blanked Off YES | Gas Gravity | - | Surface Pressure | - psi |
| BT. P.R.D. No. | 1838 | 12 Hour Clock | Tool Opened | - | A.M. Tool Closed | - A.M. P.M. |
| Initial Hydro Mud Pres. | - | 2323 | Remarks | Opened tool at 7:10 with a strong blow. | | |
| Initial Closed in Pres. | | | Remarks | Lost packer seat. | | |
| Initial Flow Pres. | 1 | | | | | |
| | 2 | | MTSRUN | MTSRUN | MTSRUN | MTSRUN |
| Final Flow Pres. | 1 | | | | | |
| | 2 | | | | | |
| Final Closed in Pres. | | | | | | |
| Final Hydro Mud Pres. | - | 2306 | | | | |

Logal Location
Sec. - Twp. - Rng.
SEC. 29 - 19S - 21W
Field Area
County
NESS
State
KANSAS

FORMATION TEST DATA

| Gauge No. | | Depth | | | Clock | | hour | | | Ticket No. 475016 | | |
|-------------------|------------------|-------|----------------------------|-------------------------------|------------------|--------------------|------------------|--|--------------------------|-------------------------------|------------------|--|
| First Flow Period | | | Initial Closed In Pressure | | | Second Flow Period | | | Final Closed In Pressure | | | |
| Time Defl. .000" | PSIG Temp. Corr. | | Time Defl. .000" | Log $\frac{t+\theta}{\theta}$ | PSIG Temp. Corr. | Time Defl. .000" | PSIG Temp. Corr. | | Time Defl. .000" | Log $\frac{t+\theta}{\theta}$ | PSIG Temp. Corr. | |
| P ₀ | | | | | | | | | | | | |
| P ₁ | | | | | | | | | | | | |
| P ₂ | | | | | | | | | | | | |
| P ₃ | | | | | | | | | | | | |
| P ₄ | | | | | | | | | | | | |
| P ₅ | | | | | | | | | | | | |
| P ₆ | | | | | | | | | | | | |
| P ₇ | | | | | | | | | | | | |
| P ₈ | | | | | | | | | | | | |
| P ₉ | | | | | | | | | | | | |
| P ₁₀ | | | | | | | | | | | | |

| Gauge No. 1838 | | Depth 4445' | | | Clock 12 | | hour | | |
|-----------------|------|-------------|------|--|----------|------|------|------|-----|
| P ₀ | .000 | 67 | .000 | | 147 | .000 | 63 | .000 | 84 |
| P ₁ | .222 | 147 | .192 | | 792 | .205 | 84 | .191 | 726 |
| P ₂ | | | | | | | | | |
| P ₃ | | | | | | | | | |
| P ₄ | | | | | | | | | |
| P ₅ | | | | | | | | | |
| P ₆ | | | | | | | | | |
| P ₇ | | | | | | | | | |
| P ₈ | | | | | | | | | |
| P ₉ | | | | | | | | | |
| P ₁₀ | | | | | | | | | |

Reading Interval _____ Minutes

REMARKS:

SPECIAL PRESSURE DATA

| | | | | | | | |
|----------------------------|------------|--------------------|------------------------|--|--|-----------------------------|--------------------------------------|
| Flow Time | 1st - Min. | 2nd - Min. | Date | 10-22-67 | Ticket Number | 475017 | Legal Location Sec. - Twp. - Rng. |
| Closed in Pres. Time | 1st - Min. | 2nd - Min. | Kind of Job | Open hole | Halliburton District | Gt. Bend | |
| Pressure Readings | Field | Office Corrected | Tester | Larry Moore | Witness Herman Johnson Frank Mc Cullom | | Lease Name |
| Depth Top Gauge | Pt. | Blanked Off | Drilling Contractor | GABBERT JONES DRILLING INCORPORATED SM | | | |
| BT. P.R.D. No. | | Hour Clock | Elevation | 2311' DF | Top Packer | | 29 19S 21W |
| Initial Hydro Mud Pressure | | | Total Depth | 4459' | Bottom Packer 4448' | | |
| Initial Closed in Pres. | | | Interval Tested | 4448-59' | Formation Tested Mississippi | | |
| Initial Flow Pres. | 1 | | Casing or Hole Size | 7 7/8" | Casing Perfs. } Top Bot. | | |
| Final Flow Pres. | 1 | | Surface Choke | 1" | Bottom Choke 3/4" | | |
| Final Closed in Pres. | 2 | | Size & Kind Drill Pipe | 4 1/2" FH | Drill Collars Above Tester I.D. - LENGTH 2 1/2" x 83.10 wt. pipe 122' | | |
| Final Hydro Mud Pressure | | | Mud Weight | 10.1 | Mud Viscosity 42 | | |
| Depth Con. Gauge | Pt. | Blanked Off | Temperature | 118 | Anchor Size & Length ID 2 1/2" X 11' OD 4" | | Field Area |
| BT. P.R.D. No. | | Hour Clock | Depths Mes. From | Kelly bushing | Depth of Tester Valve 4331 Ft. | | |
| Initial Hydro Mud Pres. | | | Cushion | none | Depth Back Pres. Valve Ft. | | |
| Initial Closed in Pres. | | | Recovered | Foot of | Meas. From Tester Valve | | |
| Initial Flow Pres. | 1 | | Recovered | Foot of | | | |
| Final Flow Pres. | 1 | | Recovered | Foot of | | | |
| Final Closed in Pres. | 2 | | Recovered | Foot of | | | |
| Final Hydro Mud Pres. | | | Oil A.P.I. Gravity | | Water Spec. Gravity | | |
| Depth Bot. Gauge | 4455 Pt. | Blanked Off yes | Gas Gravity | | Surface Pressure psi | | |
| BT. P.R.D. No. | 1838 | Hour Clock 12 | Tool Opened | | A.M. P.M. | Tool Closed A.M. P.M. | |
| Initial Hydro Mud Pres. | | 2399 | Remarks | Tool opened at 4:00 PM | | | |
| Initial Closed in Pres. | - | - | | Lost Packer seat | | | |
| Initial Flow Pres. | 1 | | | County | | | |
| Final Flow Pres. | 2 | | | | | | |
| Final Closed in Pres. | 1 | | | | | | |
| Final Hydro Mud Pres. | - | 2399 | | State | | | |
| | | | | KANSAS | | | |

FORMATION TEST DATA

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