

WELL RECORD

WILDCAT.....

DISCOVERY.....

POOL.....

Company Cities Service Oil Company Well No. 1 Farm Rein "A"

Location 1980' N. and 660' E. of SW Corner Sec. 29 T. 19S R. 21W

Elev. Serv. K.B. 2265' D. F. 2283' Gr. 2277' Co. Ness State Kansas

State Potential: Pumped

N. I. P. 28 B.O. + No Wtr. - 24 hrs. A. I. P. Grav.
(11-20-63)

Pay Zones.....

Perforations.....

Acid. None Hydrafrac.....

T. D. 4415' P. B. T. D. N. T. D. Drlg. Comm. 10/18/63 Drlg. Comp. 11/10/63

CASING RECORD:

8 5/8" @ 538' w/300 sacks. (pozmix cement)
 4 1/2" @ 4411' w/375 sacks. (pozmix cement)

Formation Record:

| | <u>Depth:</u> |
|------------------------|---------------|
| clay, sand & limestone | 0 - 80 |
| shale & shells | 230 |
| sand & shale | 385 |
| shale | 476 |
| sand | 532 |
| shale | 540 |
| shale & shells | 570 |
| shale, sand & shells | 960 |
| sand | 1215 |
| shale | 1340 |
| sand & shale | 1520 |
| anhydrite | 1550 |
| shale | 1825 |
| shale & shells | 2276 |
| lime | 2750 |
| lime & shale | 3485 |
| shale & lime | 3610 |
| lime | 4413 R.T.D. |

Drill Deeper:

chert & lime 4414
 chert 4415 T.D.

2-27-64
 ng

Contractor Peel Brothers, Inc.

| | |
|------------------|---------------|
| Anhydrite | 1520' (+785) |
| Heebner | 3776' (-1481) |
| Toronto | 3792' (-1497) |
| Lansing | 3822' (-1527) |
| Base Kansas City | 4142' (-1847) |
| Fort Scott | 4323' (-2028) |
| Cherokee Shale | 4340' (-2045) |
| Conglomerate | 4386' (-2091) |
| Mississippi | 4410' (-2125) |
| R.T.D. | 4413' |

Drill In 11/2/63
 Drilled shoe & cleaned out to bottom rotary hole 4413'.
 Pumped 24 oil, no water, 24 hours.
 Drilled Deeper 4413-15'.
 Pumped 26 oil, no water, 24 hours.
 T.D. 4415'. Penetration Miss. 5'.

Slope Test (Sypho)

| | |
|-------|----|
| 500' | 0 |
| 1000' | 10 |
| 1500' | 10 |
| 2000' | 10 |
| 2500' | 10 |
| 3000' | 10 |

MILLER

TESTING COMPANY

P. O. BOX 547 GLADSTONE 3-3370
GREAT BEND, KANSAS

DATE 6/3/64 SEC. 29 TWN. 19 RG. 21 LEGAL DESCRIPTION C/NW/SE

COMPANY Cities Service Oil Company ELEV. 2502 D.F.

ADDRESS Box 308 Great Bend, Kansas

LEASE Rein WELL NO. #1 COUNTY Ness

INVOICES SENT TO: Same

CHARTS SENT TO: Same

| | | | |
|--|---------------------------------------|--------------------------------------|----------------------------|
| TOOL JT. <u>4 1/2 Acme-H-90</u> | SIZE HOLE <u>7 7/8"</u> | SIZE PACKER <u>6 3/4"</u> | TEST NO. <u>#2</u> |
| INITIAL CIP <u>HR 32 MIN</u> | TOOL OPEN. 1ST FLOW <u>HR 5 MIN</u> | 2ND FLOW <u>HR 20 MIN</u> | FINAL CIP <u>HR 30 MIN</u> |
| DEPTH <u>4461'</u> | TESTED FROM <u>4449'</u> | TO <u>4461'</u> | SUCCESSFUL NO. <u></u> |
| INITIAL HYD. <u>2470# (2421)</u> | FINAL HYD. <u>2450# (2380)</u> | MISRUN NO. <u></u> | |
| INITIAL SHUT-IN PRESSURE <u>1365# (1375)</u> | INITIAL FLOW PRESSURE <u>80# (77)</u> | FINAL FLOW PRESSURE <u>208 (212)</u> | |
| FINAL SHUT-IN PRESSURE <u>1230# (1220)</u> | BOTTOM HOLE TEMP. <u>122°</u> | FIELD ORDER NO. <u></u> | |
| MUD WEIGHT <u>9.8</u> | VISCOSITY <u>43</u> | WATER LOSS <u>13</u> | C.C. <u></u> |
| SP. GRAVITY OIL <u></u> | I.D. DRILL COLLARS <u></u> | AMT. OF FLEXWEIGHT <u></u> | |

BLOW: Fair Blow thru-out test

Packer has a little initial seepage

RECOVERY: 3' Free Oil, 63' muddy oil, 126' 5.0 E.G. 1.1
252' of Water

EXTRA EQUIPMENT None OPERATOR TIME 12 hrs. PRICE OF JOB \$210.00

FORMATION TESTED Mississippi

APPROVED BY: G. J. P. Williams

R REPRESENTATIVE: Williams

MILLER TESTING COMPANY

SMALL NOT BE LIABLE FOR DAMAGE OF ANY KIND TO THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

TICKET No 7021

13
Production Test No 42



P. O. BOX 547 GLADSTONE 3-3370
GREAT BEND, KANSAS

DATE 1/31/44 SEC. 29 TWN. 19 RG. 21 LEGAL DESCRIPTION C/NW/SE
COMPANY Cities Service Oil Company ELEV. 2302 D.F.
ADDRESS Box 309 Great Bend, Kansas
LEASE Rain WELL NO. #1 COUNTY Ness
INVOICES SENT TO: Same
CHARTS SENT TO: Same

| | | | |
|---|---------------------------------------|-------------------------------------|----------------------------------|
| TOOL JT. <u>4 1/2 Lame + 4-90</u> | SIZE HOLE <u>7 1/2"</u> | SIZE PACKER <u>6 3/4"</u> | TEST NO. <u>#1</u> |
| INITIAL CIP <u>HR. 3 MIN</u> | TOOL OPEN. 1ST FLOW <u>HR. 3 MIN</u> | 2ND FLOW <u>1 HR.</u> | MIN: FINAL CIP <u>HR. 30 MIN</u> |
| DEPTH <u>4449</u> | TESTED FROM <u>4444</u> | TO <u>4449'</u> | SUCCESSFUL NO. _____ |
| INITIAL HYD. <u>2495# (1408)</u> | FINAL HYD. <u>2485# (2280)</u> | MISRUN NO. _____ | |
| INITIAL SHUT-IN PRESSURE <u>139# (1400)</u> | INITIAL FLOW PRESSURE <u>36# (35)</u> | FINAL FLOW PRESSURE <u>45# (44)</u> | |
| FINAL SHUT-IN PRESSURE <u>1255# (1265)</u> | BOTTOM HOLE TEMP. <u>117°</u> | FIELD ORDER NO. _____ | |
| MUD WEIGHT <u>9.8#</u> | VISCOSITY <u>40</u> | WATER LOSS <u>12.0</u> | C.C. _____ |
| SP. GRAVITY OIL _____ | I.D. DRILL COLLARS _____ | AMT. OF FLEXWEIGHT _____ | |

BLOW: Weak For 25 min. Flushed tool in 30 min. Weak blow last 30 min.
Chart showed Plugging action for 10 min. on 2nd opening
RECOVERY: 35' Oil Cut Mud.

EXTRA EQUIPMENT None OPERATOR TIME 12 hrs PRICE OF JOB \$10.00

FORMATION TESTED Mudstone
APPROVED BY Frank P. Williams
OUR REPRESENTATIVE: _____

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TICKET No 7020

WILLER TESTING COMPANY.

Box 547

GREAT BEND, KANSAS

Company STANLEY SERVICE OIL COMPANY

Lease and Well No. BEIN #1

County NESS State KANSAS Date 6-3-64

Formation Test No. #1 Total Depth 4449

Interval Tested 4444 To 4449 Anchor Length 5'

Size Hole 7 7/8 Size Drill Pipe 1 1/2 ACME H-90 Size Packer 6 3/4

Mud Weight 9.8 Viscosity 40 Bottom Hole Temp. 117 ° F

Chokes: Top 1/2 Bottom 1/2 Ticket No. 7020

RECOVERY

WEAK BLOW FOR TWENTY-FIVE MINUTES
FLUSHED TOOL IN THIRTY MINUTES WEAK BLOW LAST THIRTY MINUTES

CHART SHOWED PLUGGING ACTION FOR TEN MINUTES
ON SECOND OPENING

35' OIL CUT MUD

Lease and Well No. BEIN #1 29 19 21 C J W SE Formation Test No. #1



P. O. BOX 547 GLADSTONE 3-3370
GREAT BEND, KANSAS

DATE 10-27-63 SEC. 29 TWN. 19S RG. 214 LEGAL DESCRIPTION _____

COMPANY Citi Service Oil Co. ELEV. _____

ADDRESS Great Bend Kansas

LEASE Rein WELL NO. A 1 COUNTY Green

INVOICES SENT TO: Same

CHARTS SENT TO: _____

| | | | |
|---|---------------------------------|---------------------------------------|----------------------|
| TOOL JT. <u>4 1/2 acme</u> | SIZE HOLE <u>7 7/8</u> | SIZE PACKER <u>6 3/4</u> | TEST NO. <u>1</u> |
| INITIAL CIP <u>HR 30</u> MIN: TOOL OPEN. 1ST FLOW <u>HR 2</u> MIN: 2ND FLOW <u>1</u> HR. MIN: FINAL CIP <u>HR 30</u> MIN: | | | |
| DEPTH <u>4339</u> | TESTED FROM <u>4325</u> | TO <u>4339</u> | SUCCESSFUL NO. _____ |
| INITIAL HYD. <u>2390</u> | FINAL HYD. <u>2350</u> | MISRUN NO. _____ | |
| INITIAL SHUT-IN PRESSURE <u>0</u> | INITIAL FLOW PRESSURE <u>30</u> | FINAL FLOW PRESSURE <u>30</u> | |
| FINAL SHUT-IN PRESSURE <u>0</u> | BOTTOM HOLE TEMP. <u>116</u> | FIELD ORDER NO. _____ | |
| MUD WEIGHT <u>10.2</u> | VISCOSITY <u>5</u> | WATER LOSS 7 <u>7</u> c.c. | |
| SP. GRAVITY OIL _____ | I.D. DRILL COLLARS <u>44</u> | AMT. OF FLEXWEIGHT <u>8 Stamps</u> | |

BLOW: Weak blow for 2 min flushed tool and 2 val openings in 30 min

RECOVERY: 20' mud.

EXTRA EQUIPMENT None OPERATOR TIME 12 PRICE OF JOB 210.⁰⁰

FORMATION TESTED Et. Gc.

APPROVED BY: Frank P. Miller

OUR REPRESENTATIVE: R. L. Buckler

MILLER TESTING COMPANY
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TICKET NO 6957

WELER TESTING COMPANY

Box 547

GREAT BEND, KANSAS

Company CITIES SERVICE OIL COMPANY

Lease and Well No. REIN #A-1

County NESS State KANSAS Date 10-27-63

Formation Test No. #1 Total Depth 4339
Interval Tested 4325 To 4339 Anchor Length 14'
Size Hole 7 7/8 Size Drill Pipe 4 1/2 ACME Size Packer 6 3/4
Mud Weight 10.2 Viscosity 55 Bottom Hole Temp 116 ° F
Chokes: Top 1/2 Bottom 1/2 Ticket No. 6957

RECOVERY

WEAK BLOW FOR 2 MINUTES
FLUSHED TOOL ON SECOND OPENING IN 30 MINUTES

20' MUD

Lease and Well No. REIN #A-1 29 198 21W C NW SW Formation Test No. #1

COMPANY MINNESOTA SERVICE OIL COMPANY

DATE OCTOBER 28, 1963

LEASE SEAN

WELL NO. A-1

TEST NO. 2

TICKET NO. 6058

| TIME | PSI |
|----------------------------|------|
| INITIAL HYDRO MUD PRESSURE | 2420 |
| INITIAL CLOSED IN PRESSURE | 1379 |
| INITIAL FLOW | 35 |
| FINAL FLOW | 60 |
| FINAL CLOSED IN PRESSURE | 1275 |
| FINAL HYDRO MUD PRESSURE | 2380 |

TOTAL DEPTH 4413
 PACKER DEPTH 4392
 BT. NO. 905 DEPTH 4408

| | 1ST FLOW PRESSURE | | INITIAL CIP | | 2ND FLOW PRESSURE | | FINAL CIP | |
|-----|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|------------------|-----------------|
| | TIME DEFL. .000" | PSI TEMP CORR. | TIME DEFL. .000" | PSI TEMP CORR. | TIME DEFL. .000" | PSI TEMP CORR. | TIME DEFL. .000" | PSI TEMP CORR. |
| T0 | .000 | 35 | .000 | 35 | .000 | 42 | .000 | 60 |
| P1 | .042 | 35 | .042 | 1344 | .083 | 42 | .042 | 1020 |
| P2 | | | .083 | 1360 | .167 | 42 | .083 | 1205 |
| P3 | | | .125 | 1367 | .250 | 44 | .125 | 1236 |
| P4 | | | .167 | 1375 | .333 | 50 | .167 | 1252 |
| P5 | | | .209 | 1378 | .416 | 54 | .209 | 1263 |
| P6 | | | .250 | 1379 | .500 | 60 | .250 | 1275 |
| P7 | | | | | | | | |
| P8 | | | | | | | | |
| P9 | | | | | | | | |
| P10 | | | | | | | | |
| | 2 | MINUTE INTERVAL | 5 | MINUTE INTERVAL | 10 | MINUTE INTERVAL | 5 | MINUTE INTERVAL |

REMARKS _____

SPECIAL PRESSURE DATA

MILLER TESTING COMPANY

Box 547

GREAT BEND, KANSAS

Company STANES SERVICE OIL COMPANY

Lease and Well No. BETH #A-1

County NEOSHO State KANSAS Date 10-28-63

Formation Test No. #2 Total Depth 4413
Interval Tested 4392 To 4413 Anchor Length 21'
Size Hole 7 7/8 Size Drill Pipe 4 1/2 ACME Size Packer 6 3/4
Mud Weight 10.2 Viscosity 45 Bottom Hole Temp 118 ° F
Chokes: Top 1/2 Bottom 1/2 Ticket No. 6958

RECOVERY

WEAK BLOW THROUGHOUT TEST

121' OIL CUT MUD

Lease and Well No. BETH #A-1 Formation Test No. #2



MILLER TESTING COMPANY
 P. O. BOX 347 GLADSTONE 3-3370
 GREAT BEND, KANSAS

DATE 10-28-63 SEC 29 TWN 19S RG 21W LEGAL DESCRIPTION C-NW-5W
 COMPANY Cities Service oil Co. ELEV 2283 DF.
 ADDRESS Box 308 Great Bend Kansas
 LEASE Rein WELL NO. #A1 COUNTY Wes
 INVOICES SENT TO: Same
 CHARTS SENT TO: 11

| | | | |
|--|---|---|----------------------------------|
| TOOL JT. <u>4 1/2 annular</u> | SIZE HOLE <u>7 7/8</u> | SIZE PACKER <u>6 3/4</u> | TEST NO. <u>2</u> |
| INITIAL CIP <u>HR 30</u> MIN: | TOOL OPEN. 1ST FLOW <u>HR 2</u> MIN: | 2ND FLOW <u>1</u> HR | MIN: FINAL CIP <u>HR 30</u> MIN: |
| DEPTH <u>4413</u> | TESTED FROM <u>4392</u> | TO <u>4413</u> | SUCCESSFUL NO. _____ |
| INITIAL HYD. <u>2460</u> (<u>2420</u>) | FINAL HYD. <u>2440</u> (<u>2380</u>) | MISRUN NO. _____ | |
| INITIAL SHUT-IN PRESSURE <u>1370</u> (<u>1379</u>) | INITIAL FLOW PRESSURE <u>50</u> (<u>35</u>) | FINAL FLOW PRESSURE <u>70</u> (<u>60</u>) | |
| FINAL SHUT-IN PRESSURE <u>1270</u> (<u>1275</u>) | BOTTOM HOLE TEMP. <u>118</u> | FIELD ORDER NO. _____ | |
| MUD WEIGHT <u>10 1/2</u> | VISCOSITY <u>45</u> | WATER LOSS <u>9 cc</u> C.C. | |
| SP. GRAVITY OIL _____ | I.D. DRILL COLLARS _____ | AMT. OF FLEXWEIGHT <u>8 stands</u> | |

BLOW: Weak blow throughout Test

RECOVERY: 121' @ C.S.M.

EXTRA EQUIPMENT: None OPERATOR TIME 12 PRICE OF JOB 210.00

FORMATION TESTED: Min
 APPROVED BY: Frank P. M. Collins
 OUR REPRESENTATIVE: R. L. Buckler

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TICKET No 6958

- (1) Q - PRODUCING RATE, BPD,
- (2) U - VISCOSITY, CENT, 2.5
- (3) B - FVF 1.2
- (4) M - SLOPE OF B-U CURVE, PSI/CYCLE 174
- (5) H - THICKNESS OF PRODUCING ZONE, FEET, 6'
- (6) K - PERM., MD. = $162.5 Q U B / M H$ 16.35
- (7) P_1 - PRESSURE ON SLOPE @ 1 HOUR, PSI, 1307
- (8) P_2 - PRESSURE @ 1 SEC. = $(P_1 - 3.56 M)$ 1.87
- (9) P_F - FLOWING PRESSURE, PSI, 60
- (10) $2.302(P_2 - P_F) / M$ 8.3
- (11) R_W - RADIUS OF DRILLED HOLE, INCHES, 3.94 $R_w^2 = 15.51$
- (12) F - POROSITY, FRACTION, (ESTIMATE)15
- (13) C - COMPRESS., VOL/VOL/PSI X 10^6 0
- (14) $2.30 \log_{10} \left\{ \frac{10.5 K}{F C U R_W R_W} \right\} + 0.8$ 1.84
- (15) S - SKIN, DIMENSIONLESS, = $\left[(10) - (14) \right] / 2$ 3.21
- (16) ΔP_S - PRESS. DROP DUE TO SKIN = $(.868 M S)$ 476
- (17) P_F^* - FLOWING PRESS. W/NO SKIN = $(P_F + \Delta P_S)$ 545
- (18) P_E - FINAL PRESSURE, PSI, 300
- (19) $(P_E - P_1)$ 55
- (20) $\Delta \bar{P} = 1.151(P_E - P_1) / M$ 364
- (21) \bar{T} - DIMENSIONLESS TIME @ 1 HOUR (FIG.1)225
- (22) $FR_E^2 = 264 K / U C \bar{T}$
- (23) $(P_E - P_F^*)$
- (24) $\log_{10} \bar{R} = (23) / 2 M$ 235
- (25) \bar{R} - DRAINAGE RADIUS/RADIUS DRILLED HOLE 225
- (26) R_E - DRAINAGE RADIUS, FT. = $(25) \times R_W / 12$ 74
- (27) F - POROSITY, FRACTION, = $(22) / (26)(26)$
- (28) PI - PRODUCTIVITY INDEX = $Q / (P_E - P_F)$
- (29) PI^* - PI W/NO SKIN = $Q / (P_E - P_F^*)$
- (30) \bar{E} - COMPLETION EFFICIENCY = $100 \times (28) / (29)$

FIELD BUILDUP CALCULATIONS

FORMATION WELL PRODUCING INTERVAL

HALLIBURTON DIVISION LABORATORY
HALLIBURTON COMPANY
Great Bend, Kansas

Handwritten initials

LABORATORY WATER ANALYSIS

No. _____

To Cities Service Oil Co.
Box 308
Great Bend, Kansas

Date 12/8/67

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

Well No. Rein A-1 Formation Miss. Osage

Location Sec. 29-19-21 Ness Co.

Field _____ Sample Source _____

Remarks: _____

Specific Gravity 1.022
pH 8.0
Hydrogen Sulfide Present
Resistivity @ ND °F _____ Ohm m²/m
Chlorides 20,800 _____ mpl*

Sulfates 3,280 _____ mpl
Calcium 1,705 _____ mpl
Magnesium 349 _____ mpl
Bicarbonates ND _____ mpl
Iron None _____ mpl

* milligrams per liter

Remarks: Formation water

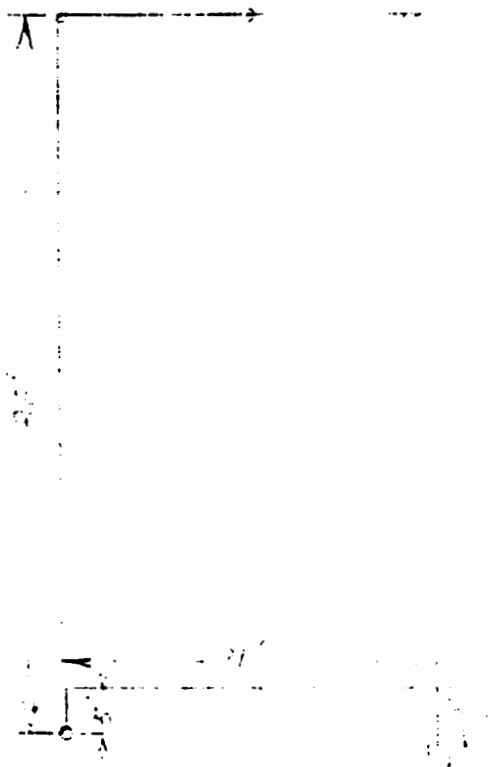
Respectfully submitted,

Laboratory Analyst
Fitzgerald

HALLIBURTON COMPANY
By J. A. Fitzgerald







Handwritten mark

4 - 2" x 60" D-51 Anodes on 15' ±



CIRCUIT RESISTANCE - 0.430

LEGEND

-  = Well Head
-  = Road
-  = Flow Line
-  = Reserve Pit
-  = Power Pole
-  = Tank

| WELL SITE PLAT | | |
|-------------------------------------|---------------|----------|
| Company: CITIES SERVICE OIL COMPANY | | |
| Well: Rein "A" #1 | Field: | |
| Location: South of Bazine, Kansas | | |
| County: Ness | State: Kansas | |
| Date: 3-10-64 | Engr: AHH | Org. No. |
| CORROSION SERVICES INC. | | |

M E M O R A N D U M

To: Mr. H. J. Lucchi

June 24, 1965

Re: Viscosity, Pour Point and Specific Gravity of Crude Oil Sample from
Rein "A" Lease, E/2 Sec. 29-19-21W, Ness County, Kansas

Viscosity, pour point, and specific gravity data have been run on a crude oil sample producing from the Mississippi-Osage formation of the Rein "A" lease, Ness County, Kansas. The pour point was 25° F. The specific gravity was 0.8240 at 60° F or 40.2 °API. The viscosity versus temperature data are shown on the attached curve.

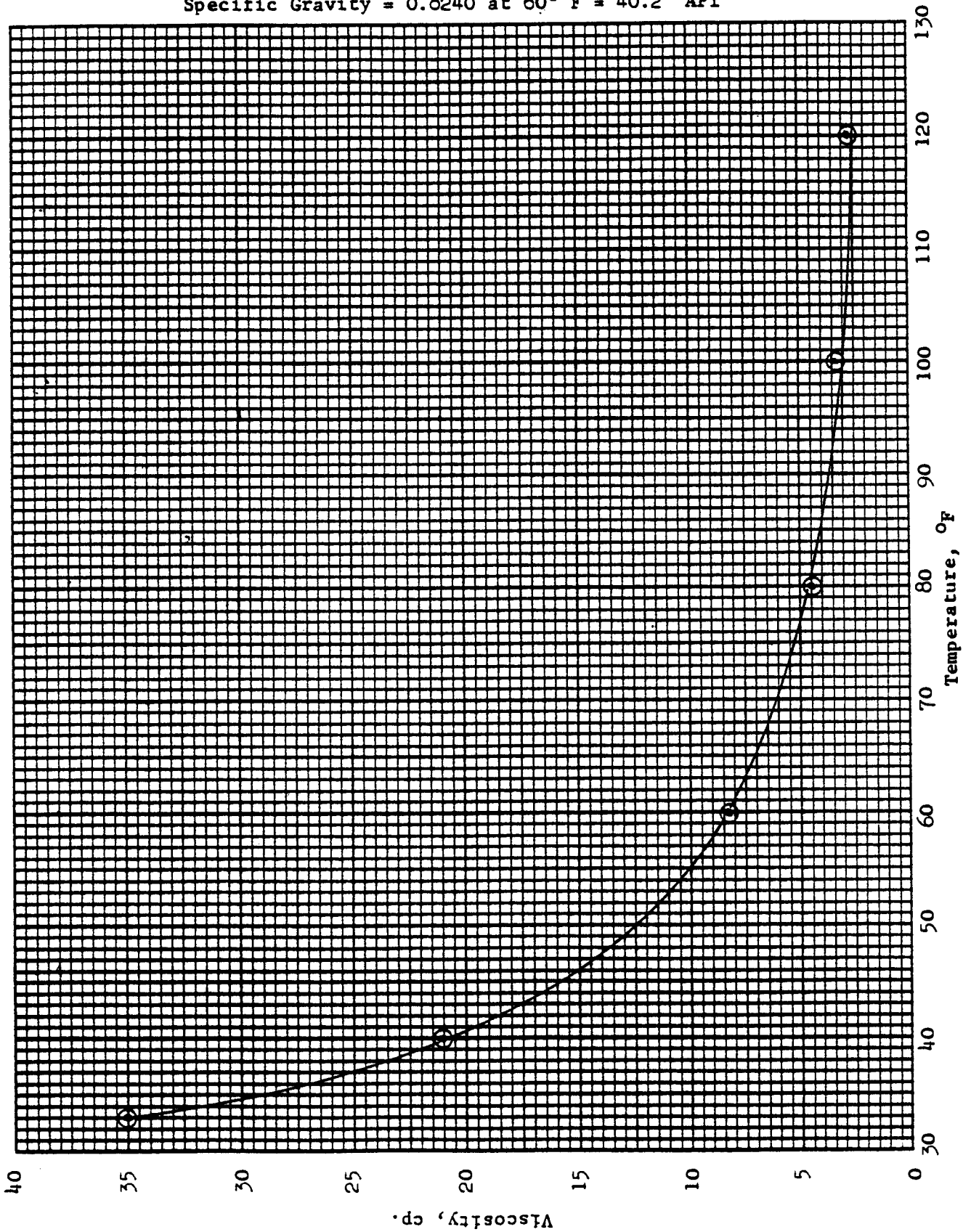
R.V. Maul
R. V. Maul

RVM/maw

CITIES SERVICE OIL COMPANY
RESEARCH AND DEVELOPMENT DEPARTMENT
TULSA LABORATORY

Rein "A" Lease Crude Oil
Mississippi-Osage Formation
Ness County, Kansas
Viscosity Versus Temperature

Specific Gravity = 0.8240 at 60° F = 40.2 °API



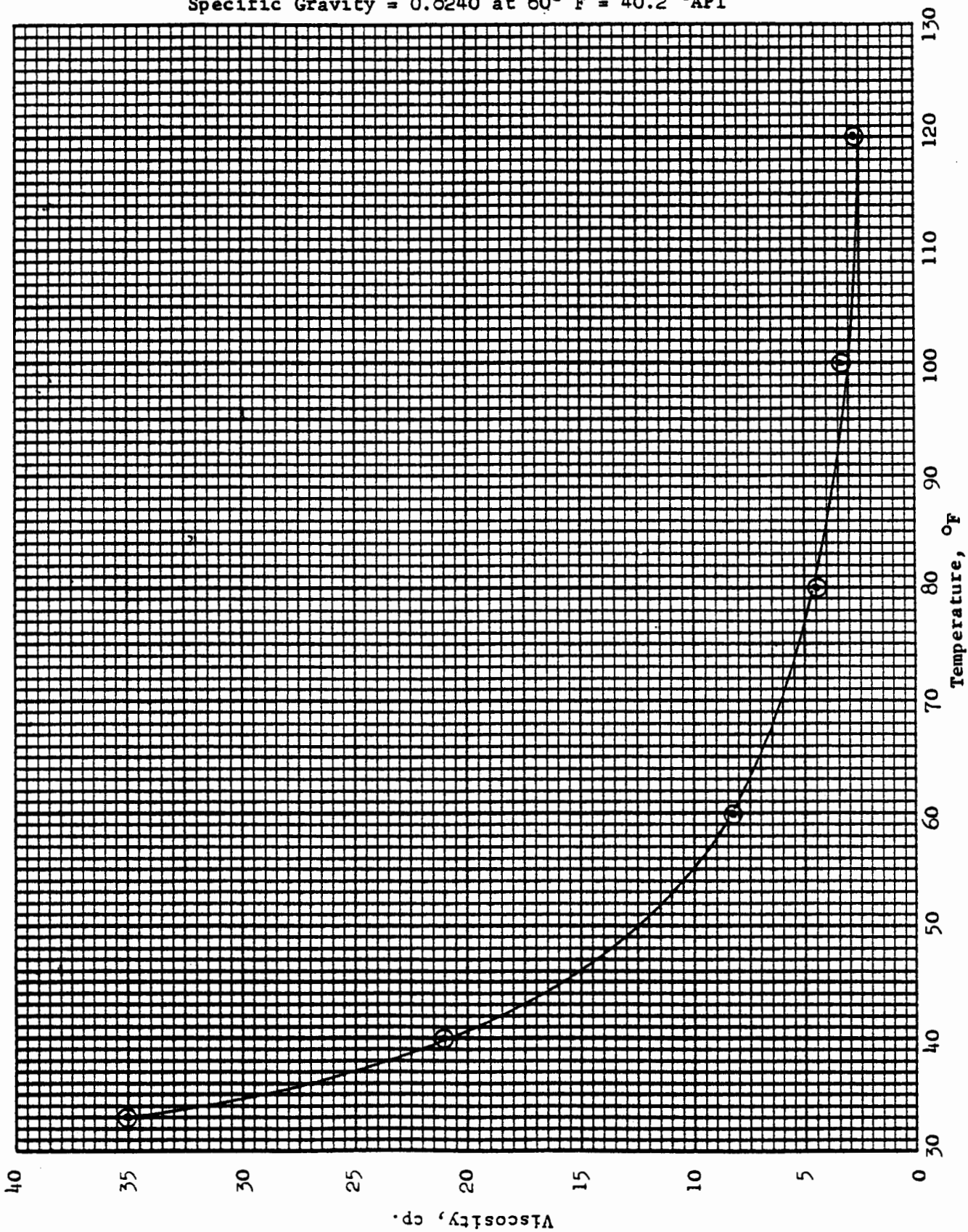
CITIES SERVICE OIL COMP.

RESEARCH AND DEVELOPMENT DEPARTMENT

TULSA LABORATORY

Rein "A" Lease Crude Oil
Mississippi-Osage Formation
Ness County, Kansas
Viscosity Versus Temperature

Specific Gravity = 0.8240 at 60° F = 40.2 °API



MEMORANDUM

To: Mr. H. J. Lucchi

June 24, 1965

Re: Viscosity, Pour Point and Specific Gravity of Crude Oil Sample from Rein "A" Lease, E/2 Sec. 29-19-21W, Ness County, Kansas

Viscosity, pour point, and specific gravity data have been run on a crude oil sample producing from the Mississippi-Osage formation of the Rein "A" lease, Ness County, Kansas. The pour point was 25° F. The specific gravity was 0.8240 at 60° F or 40.2 °API. The viscosity versus temperature data are shown on the attached curve.

R.V. Maul
R. V. Maul

RVM/maw