

Oil Conservation Engineer  
Department of Indian Affairs  
and Northern Development  
Oil and Mineral Division  
112 - 11th. Ave. S. E.  
Calgary 21, Alberta

WELL HISTORY REPORT

ON

MOBIL INEXCO NCO SUN IROQUOIS D-40

Approved By:

  
Drilling and Production Engineering Supervisor

Date: June, 1971  
Edmonton, Alberta

C O N F I D E N T I A L

By: G. W. Stuart

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Water Analysis DST #1  
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## WELL HISTORY REPORT

### SECTION I - SUMMARY OF WELL DATA

a. Well Name: Mobil Inexco NCO Sun Iroquois D-40

b. Permittee: Mobil Oil Canada, Ltd., Inexco, North Canadian  
Oil, Sun Oil Company

c. Operator: Mobil Oil Canada, Ltd.  
Financial Building, Edmonton, Alberta.

d. Location: Unit D, Section 40, 67°30'; 129°45'  
Latitude 67° 29' 08" N  
Longitude 129° 52' 20" W

e. Coordinates: Unique Well Identifier 300D406730129450  
Universal Well Location Ref. 67.48555°N Lat  
129.87222°W Long

f. Permit No.: 4108

g. Drilling Contractor: Nabors Drilling (Rotary Rig #8)

h. Drilling Authority: 518 March 17, 1971

i. Classification: Exploratory Wildcat

j. Elevations: Ground: 693'  
KB: 710'

k. Spudded: 1900 hours March 14, 1971

l. Completed Drilling: May 1, 1971

m. Total Depth: 8500' KB Driller; 8508' Logger.

n. Well Status: Dry and abandoned

o. Rig Released: May 13, 1971

p. Hole Size: 24" to 107' KB  
12½" to 858' KB  
8 3/4" to 8500' KB

q. Casing: 20" Conductor 0.219" Well Line Pipe to 107' KB  
9 5/8" Surface 36.0#/ft J-55 to 858' KB

SECTION II - GEOLOGICAL SUMMARY

| a. <u>Formation Tops</u>                 | <u>Sample Tops</u><br><u>Depth</u> | <u>E - Log Tops</u><br><u>Depth</u> | <u>Elevation</u> |
|------------------------------------------|------------------------------------|-------------------------------------|------------------|
| Hare Indian                              |                                    | 70                                  | + 640            |
| Hume River                               | 540                                | 536                                 | + 174            |
| Bear Rock                                | 850                                | 806                                 | - 96             |
| Ronning                                  | 2660                               | 2585                                | -1875            |
| Cambrian                                 | 6055                               | 6055                                | -5345            |
| Top Cambrian Salt                        | 6188                               | 6172                                | -5462            |
| Base Cambrian Salt                       | 6540                               | 6404                                | -5694            |
| Precambrian                              |                                    | 7710                                | -7000            |
| b. <u>Cored Intervals</u>                |                                    |                                     |                  |
| No cores taken                           |                                    |                                     |                  |
| c. <u>Core Descriptions</u>              |                                    |                                     |                  |
| None                                     |                                    |                                     |                  |
| d. <u>Sample Description</u>             |                                    |                                     |                  |
| To follow                                |                                    |                                     |                  |
| e. <u>Paleontological Determinations</u> |                                    |                                     |                  |
| None                                     |                                    |                                     |                  |

SECTION III - ENGINEERING SUMMARY

a. Report of Drill Stem Tests      Field Pressures reported.

| <u>DST's</u> | <u>DST #1</u>                                                                                     | <u>DST #2</u>                                                                                    | <u>DST #3</u>                                                 | <u>DST #4</u>                                                                                      |
|--------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Date         | Mar 30/71                                                                                         | April 27/71                                                                                      | May 6/71                                                      | May 12/71                                                                                          |
| Formation    | Bear Rock                                                                                         | Cambrian                                                                                         | Cambrian                                                      | Ronning                                                                                            |
| Interval     | 1610-1710                                                                                         | 7586-7844                                                                                        |                                                               | 2600-2750                                                                                          |
| Times VO     | 5 min                                                                                             | 5 min                                                                                            |                                                               | 5 min                                                                                              |
| ISI          | 30 min                                                                                            | 30 min                                                                                           |                                                               | 30 min                                                                                             |
| VO           | 30 min                                                                                            | 113 min                                                                                          |                                                               | 60 min                                                                                             |
| FSI          | 45 min                                                                                            | 45 min                                                                                           |                                                               | 90 min                                                                                             |
| Pressures IF | N/A psi                                                                                           | N/A psi                                                                                          |                                                               | 92 psi                                                                                             |
| ISI          | 520 psi                                                                                           | 290 psi                                                                                          |                                                               | 1056 psi                                                                                           |
| FF           | 260-420 psi                                                                                       | 60-80 psi                                                                                        |                                                               | 111-201 psi                                                                                        |
| FSI          | 510 psi                                                                                           | 120 psi                                                                                          |                                                               | 981 psi                                                                                            |
| HH           | 740 psi                                                                                           | N/A                                                                                              |                                                               | 1279 psi                                                                                           |
| Recovery     | 60' mud,<br>90' watery<br>mud, 710'<br>fresh sulf-<br>urous muddy<br>water                        | 90' watery<br>mud                                                                                | No test                                                       | 280' muddy water<br>(9100 PPM)                                                                     |
| Comments     | Strong air<br>blow decrea-<br>sing to light<br>air blow at<br>end of test<br>Bottom-hole<br>test. | Weak air<br>blow- dead<br>in 22 min.<br>Reset tool.<br>No improve-<br>ment. Bottom-<br>hole test | Lost DST<br>Tool in<br>hole. Broke<br>off above<br>top packer | Formation damage<br>indicated. Medium<br>air blow decreasing<br>throughout test.<br>Straddle test. |

NOTE: Copy of Charts and Final Reports forwarded under separate cover.

b. Casing Record

1. Conductor Casing

Ran 60' of 20" welded 0.219" wall line pipe and cemented in 24" hole with 124 sacks Fondu cement using wheel barrow.

Drilled 12½" hole to 227'; conductor washed out and collapsed. Cleaned out hole.

Ran 107' of 20" welded 0.219" wall line pipe and landed at 107' KB. Cemented with 800 sacks Fondu and observed returns.

2. Surface Casing

Ran 21 joints of 9 5/8" 36.0#/ft J-55 casing and landed at 858.0' KB. Cemented with 420 sacks Fondu at a slurry weight of 15.0#/gal.

c. Bit Record

| No.                     | Make | Type   | Size  | Hours  | Depth |      | Footage | TBG.<br>Cond. |
|-------------------------|------|--------|-------|--------|-------|------|---------|---------------|
|                         |      |        |       |        | In    | Out  |         |               |
| (i) <u>Surface Hole</u> |      |        |       |        |       |      |         |               |
| 1A                      | HW   | OSC-3  | 8 3/4 | 5½     | 61    | 227  | 166     |               |
| 1B                      | HW   | S3TJ   | 12½   | Ream   | 227   | 227  | 0       |               |
| 1A                      | HW   | OSC-3  | 8 3/4 | 2½     | 227   | 314  | 87      |               |
| 1B                      | HW   | S3TJ   | 12½   | Ream   | 314   | 314  | 0       |               |
| 1A                      | HW   | OSC-3  | 8 3/4 | 15½    | 314   | 634  | 320     | 331           |
| 2A                      | HW   | XIG    | 8 3/4 | 22 3/4 | 634   | 970  | 336     |               |
| 2B                      | HW   | XIG    | 12½   | Ream   | 970   | 970  | 0       |               |
| (ii) <u>8 3/4 Hole</u>  |      |        |       |        |       |      |         |               |
| 1                       | HW   | ODV    | 8 3/4 | 17     | 970   | 1296 | 326     | 421           |
| 2                       | HW   | ODV    | 8 3/4 | 21 3/4 | 1296  | 1659 | 363     | 681           |
| 3                       | HW   | ODV    | 8 3/4 | 21     | 1659  | 2086 | 427     | 881           |
| 4                       | HW   | X55R   | 8 3/4 | 45½    | 2086  | 2693 | 607     |               |
| 5                       | HW   | WD7    | 8 3/4 | 5      | 2693  | 2750 | 57      | 641           |
| 6                       | HW   | X55R   | 8 3/4 | 35½    | 2750  | 3195 | 445     | 711           |
| 7                       | HW   | X55R   | 8 3/4 | 35     | 3195  | 3713 | 518     | 760           |
| 8                       | HW   | X55R   | 8 3/4 | 22½    | 3713  | 4003 | 290     | 170'          |
| 9                       | HW   | RG-1   | 8 3/4 | 52½    | 4003  | 4703 | 700     | 250           |
| 10                      | HW   | RG-1   | 8 3/4 | 60 3/4 | 4703  | 5488 | 785     | 581           |
| 11                      | HW   | RG-2B  | 8 3/4 | 64½    | 5488  | 6195 | 707     | 631           |
| 12                      | HW   | WD7    | 8 3/4 | 11     | 6195  | 6452 | 257     |               |
| 13                      | HW   | WD7    | 8 3/4 | 11½    | 6452  | 6552 | 100     | 741           |
| 14                      | HW   | X55R   | 8 3/4 | 35½    | 6552  | 6916 | 364     | 741           |
| 15                      | HW   | X55R   | 8 3/4 | 47     | 6916  | 7475 | 559     | 581           |
| 16                      | HW   | X55R   | 8 3/4 | 18½    | 7475  | 7690 | 215     |               |
| 17                      | HW   | X55R   | 8 3/4 | 11½    | 7690  | 7768 | 78      | 111           |
| 18                      | HW   | OSC-RR | 8 3/4 |        | 7768  | 7768 | 0       |               |
| 19                      | HW   | X55R   | 8 3/4 | 11½    | 7768  | 7844 | 76      |               |
| 20                      | HW   | X55R   | 8 3/4 | 26 3/4 | 7844  | 8066 | 222     |               |
| 21                      | HW   | X55R   | 8 3/4 | 47½    | 8066  | 8440 | 374     | 421           |
| 22                      | HW   | WD7    | 8 3/4 | 7      | 8440  | 8500 | 60      |               |

d. Mud Report

Mud Type: Gel/Water

|                 |                     |            |
|-----------------|---------------------|------------|
| Materials Used: | Gel                 | 169,000#   |
|                 | Salt Gel            | 97,300#    |
|                 | Sawdust             | 2,000#     |
|                 | Fibrescal           | 69 sacks   |
|                 | Caustic             | 2,900#     |
|                 | Corrosion Inhibitor | 20 gallons |

e. Deviation Report

| <u>Depth</u>           | <u>Deviation</u>       |
|------------------------|------------------------|
| 110'                   | $\frac{1}{4}^{\circ}$  |
| 150'                   | $\frac{1}{2}^{\circ}$  |
| 205'                   | $\frac{1}{2}^{\circ}$  |
| 263'                   | $3/4^{\circ}$          |
| 323                    | $7/8^{\circ}$          |
| 384'                   | $3/4^{\circ}$          |
| 444'                   | $\frac{1}{2}^{\circ}$  |
| 504'                   | $5/8^{\circ}$          |
| 563'                   | $7/8^{\circ}$          |
| 624'                   | $3/4^{\circ}$          |
| 687'                   | $3/4^{\circ}$          |
| 750'                   | $7/8^{\circ}$          |
| 814'                   | $\frac{1}{2}^{\circ}$  |
| 877'                   | $\frac{1}{2}^{\circ}$  |
| 939'                   | $\frac{1}{2}^{\circ}$  |
| Resurvey while reaming |                        |
| 308'                   | $\frac{1}{2}^{\circ}$  |
| 399'                   | $3/4^{\circ}$          |
| 489'                   | $\frac{1}{2}^{\circ}$  |
| 579'                   | $7/8^{\circ}$          |
| 673'                   | $\frac{1}{2}^{\circ}$  |
| 769'                   | $\frac{1}{2}^{\circ}$  |
| Set surface casing     |                        |
| 2086'                  | $1^{\circ}$            |
| 2560'                  | $1\ 3/4^{\circ}$       |
| 2693'                  | $2\frac{1}{2}^{\circ}$ |
| 3195'                  | N/A                    |
| 3713'                  | $3^{\circ}$            |
| 4007'                  | $3^{\circ}$            |
| 4475'                  | $1\ 1/8^{\circ}$       |
| 4703'                  | $7/8^{\circ}$          |
| 5200'                  | $2\frac{1}{2}^{\circ}$ |
| 5488'                  | $2\ 3/4^{\circ}$       |
| 6195'                  | $1\ 3/4^{\circ}$       |
| 6450'                  | $1\frac{1}{2}^{\circ}$ |
| 6915'                  | $2^{\circ}$            |
| 7473'                  | $4^{\circ}$            |
| 8066'                  | $4^{\circ}$            |

f. Abandonment Plugs

Plug No. 1 6405 - 6380 with 200 sacks oilwell cement  
 This plug was not felt. The plug was set at the base of the Cambrian Salt section in hole washed out beyond the Recording capability of wireline caliper log. This purpose of the plug was to cover drill stem test tools stuck in the hole from 6400 to 7200' KB.

Plug No. 2 6150 - 5950 with 100 sacks cement. Felt at 5920 ft KB after  $7\frac{1}{4}$  hours.

Plug No. 3 1800 - 1500 with 200 sacks cement + 2%  $\text{CaCl}_2$ . Felt at 1444' KB after 8½ hours.

Plug No. 4 910 - 810 with 100 sacks cement + 2%  $\text{CaCl}_2$ . Felt at 755' KB after 8½ hours. This plug was set across the surface casing shoe which was at 858' KB.

Plug. No. 5 Surface with 5 sacks.

Cut off casing bowl; welded on a plate; and installed a 5' riser with a plate and well name.

g. Lost Circulation Zones

1. Lost circulation at 6460' in the Cambrian Formation. Lost approximately 100 barrels and then regained complete circulation using bentonite and salt gel.
2. Started losing volume once again at approximately 7670' KB. Lost 20 barrels per hour from 2200 hours, April 22/71 to 0800 hours, April 26/71 for an approximate total loss of 1640 barrels. Used 200# sawdust and 69 sacks fibreseal to regain complete circulation.
3. Started losing volume at approximately 8066' when back on bottom after a trip. Lost 16 barrels per hour from 000 hours, April 29/71 to 1100 hours, May 2/71 for an approximate total loss of 1200 barrels. Used bentonite and salt gel to control the losses.

h. Report of Blowouts

None



SECTION IV - LOGS

a. Run Number 1 May 2, 1971

Induction Electrolog 8494 to 855' KB

Could not get a spontaneous potential log due to salinity of borehole fluid.

b. Run Number 2 May 4, 1971

Gamma Ray Log 8488 to 0' KB

Acoustilog 8488 to 774' KB

Bottom-Hole Caliper 6400 to 513' KB

No bottom-hole caliper below 6400' due to hole condition.

NOTE: Copy of Logs to follow.

SECTION V - ANALYSIS

a. Core Analysis

No core taken.

b. Water Analysis

DST #1

DST #2      See Appendix

DST #4

c. Gas Analysis

None

d. Oil Analysis

None

SECTION VI - COMPLETION ON SUMMARY

Well Not Completed - Dry and Abandoned

## A P P E N D I X

# CHEMICAL & GEOLOGICAL LABORATORIES LTD.

## WATER ANALYSIS

Lab No. C71-3033

Received: April 6, 1971 Reported: April 12, 1971

Well: Location:

Mobil Inexco NCO Sun Iroquois D-40

67° 29' 08" N -  
129° 52' 20" W

Operator: MOBIL OIL CANADA, LTD.

Field or Area:

Elev.: K.B. 711' Grd. 693'

Zone/Formation: Bear Rock

Sample Interval: 1610' - 1710'

Method of Production: D.S.T. #1

Sampled from:

Sampled by: B.J. Testers Date: Mar. 30, 1971

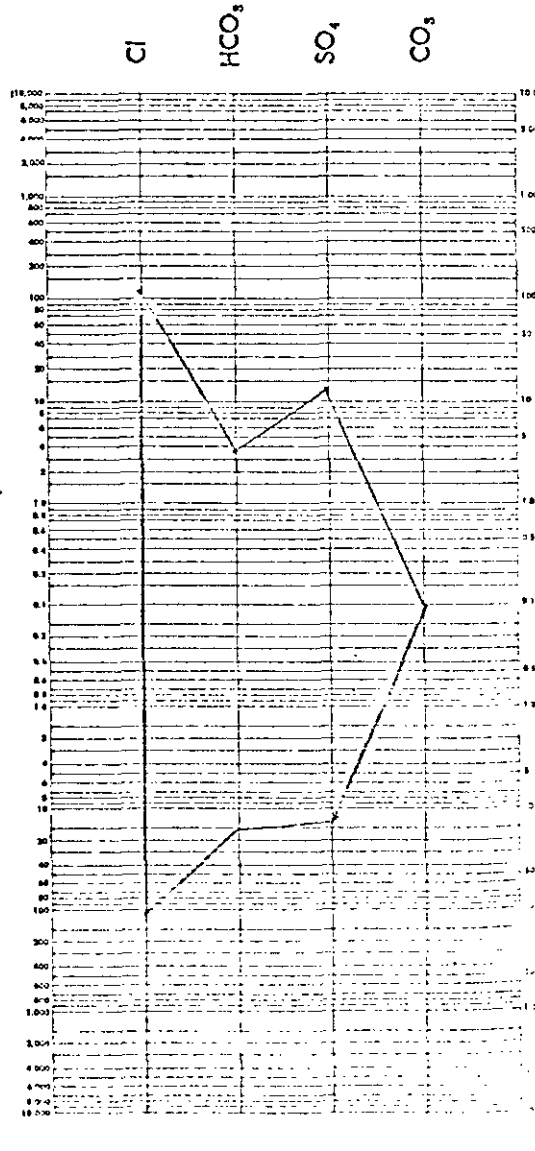
OTHER PERTINENT DATA Recovered 860' - 60' mud  
90' watery mud  
710' muddy water

(Signed)

|      | Na & K | Ca    | Mg    |  | SO <sub>4</sub> | Cl     | CO <sub>3</sub> | HCO <sub>3</sub> |  |
|------|--------|-------|-------|--|-----------------|--------|-----------------|------------------|--|
| mg/L | 2450   | 330   | 170   |  | 660             | 4240   |                 | 230              |  |
| mg/L | 106.63 | 16.47 | 13.97 |  | 13.73           | 119.57 |                 | 3.77             |  |
| %    | 38.89  | 6.01  | 5.10  |  | 5.01            | 43.62  |                 | 1.37             |  |

Total Solids Mg/L: By Evaporation 8,300 Fe Present Specific Gravity 1.009 @60°F Observed pH 7.9 @ 72 °F  
Calculated 8,080 After Ignition 7,080 H<sub>2</sub>S NIL Refractive Index 1.3342 @25°C Resistivity 0.850 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

The sample as received, contained a small percentage of sediment. The filtrate was colorless.

File 933-1593 Page 1 of 1

Company Mobil Oil Canada, Ltd.

Well \_\_\_\_\_ Mobil Inexco NCO Sun Iroquois D-40 \_\_\_\_\_ K.B. \_\_\_\_\_ Grd. \_\_\_\_\_  
 \_\_\_\_\_ 67 29'08.00 N.L. \_\_\_\_\_

Location 129 52'20.00 W.L. Field Iroquois River Area Province N.W.T.

| Formation | Interval |
|-----------|----------|
|-----------|----------|

Sampled from DST #2 (Tool #HHS26) by BJ Testers

Date sampled \_\_\_\_\_ Date analysed May 18/71 Analyst LK

|          |                          |
|----------|--------------------------|
| Recovery | 3 1/4 liters Muddy Water |
|----------|--------------------------|

Mud type \_\_\_\_\_ Water cushion \_\_\_\_\_

**Total Solids:**

Resistivity 0.160 Ohm-meters @ 67 °F      Calculated 49,817 mg/liter

Specific gravity 1.0337 @ 60°F By evaporation @ 110°C - mg/liter

pH 7.9 H<sub>2</sub>S Absent By evaporation @ 180°C --- mg/liter

Refractive Index 1.341 @ 67°F At ignition                      mg/liter

## MILLIGRAMS PER LITER

| Na + K | Ca  | Mg | Fe    | Ba   | Br | I | Cl    | HCO <sub>3</sub> | SO <sub>4</sub> | CO <sub>3</sub> | OH  |
|--------|-----|----|-------|------|----|---|-------|------------------|-----------------|-----------------|-----|
| 18487  | 637 | 71 | Trace | Abs. | -  | - | 27753 | 185              | 2684            | Nil             | Nil |

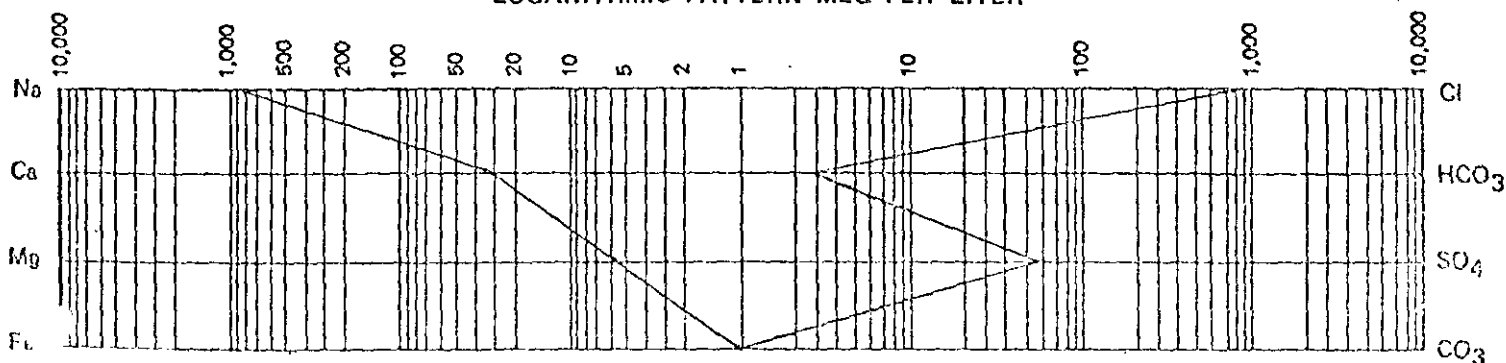
## PER CENT CALCULATED SOLIDS

|      |     |    |       |      |   |   |      |    |     |    |    |
|------|-----|----|-------|------|---|---|------|----|-----|----|----|
| 37.1 | 1.3 | .1 | Trace | Abs. | - | - | 55.7 | .4 | 5.4 | .0 | .0 |
|------|-----|----|-------|------|---|---|------|----|-----|----|----|

## MEQ PER LITER

|       |      |     |       |      |   |   |       |     |      |    |    |
|-------|------|-----|-------|------|---|---|-------|-----|------|----|----|
| 803.8 | 31.8 | 5.8 | Trace | Abs. | - | - | 782.6 | 3.0 | 55.8 | .0 | .0 |
|-------|------|-----|-------|------|---|---|-------|-----|------|----|----|

## LOGARITHMIC PATTERN MEQ PER LITER



148379. 18487.0

# CHEMICAL & GEOLOGICAL LABORATORIES LTD.

## WATER ANALYSIS

Lab No. E71-49. 6

Received: May 17, 1971 Reported: May 26, 1971 Well: Location: Mobil Inexco NCO Sun Iroquois D-40  
 Operator: MOBIL OIL CANADA, LTD. Field or Area:  
 Elev.: K.B. Grd. Zone/Formation: Ronning Sample Interval: 2600' - 2750'  
 Method of Production: D.S.T. #4 Sampled from: Bottom Hole Sampler Sampled by: Lynes United Date: May 11, 1971  
 Services Ltd.

OTHER PERTINENT DATA Recovered 280'

(Signed)

|        | Na & K  | K | Ca    | Mg    |  | SO <sub>4</sub> | Cl      | CO <sub>3</sub> | HCO <sub>3</sub> |  |
|--------|---------|---|-------|-------|--|-----------------|---------|-----------------|------------------|--|
| Mg./L  | 46866   |   | 1634  | 175   |  | 3713            | 72900   | 48              | Trace            |  |
| Meq./L | 2038.68 |   | 81.54 | 14.39 |  | 77.23           | 2055.78 | 1.60            | ---              |  |
| Meq. % | 47.75   |   | 1.91  | 0.34  |  | 1.81            | 48.16   | 0.04            | ---              |  |

Total Solids Mg/L:

By Evaporation 126,140

Fe Present Specific Gravity 1.088

@60°F

Observed pH 9.5

@ 79 °F

Calculated 125,336

After Ignition 124,220

H<sub>2</sub>S Nil

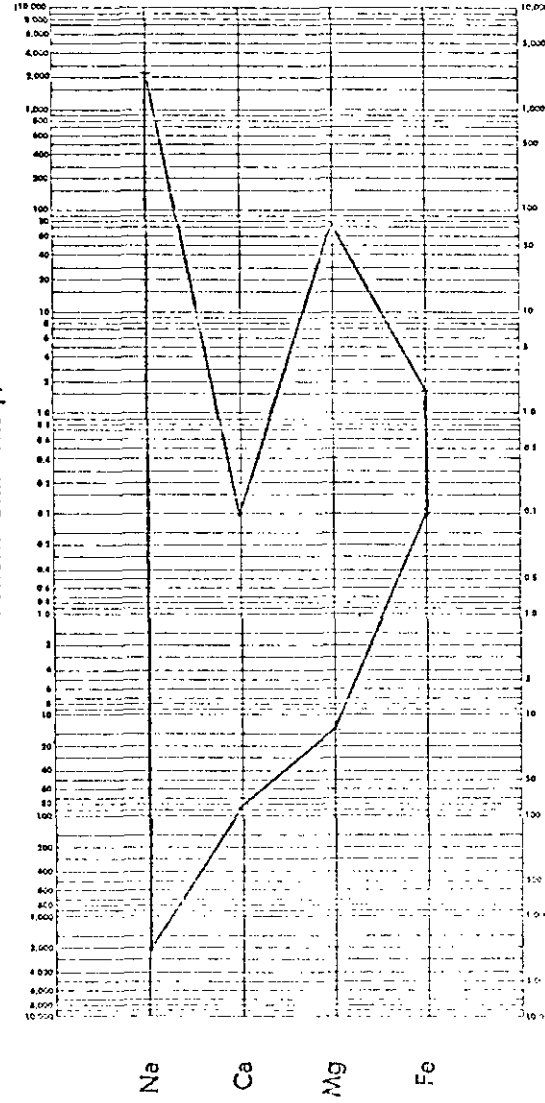
Refractive Index 1.3534

@25°C

Resistivity 0.083

ohm meters @ 68 °F

Pattern Unit Meq./L



### Remarks and Conclusions

Sample received in Lynes United bottom hole

hole sampler LUS -14. Contained in the sampler was

HCO<sub>3</sub> - 2850 mls. of muddy water. No gas present.

The filtered water was colourless.

continued.....

## CHEMICAL &amp; GEOLOGICAL LABORATORIES LIMITED

OPERATOR: MOBIL OIL CANADA, LTD.

REPORT NUMBER: E71-4916-1/-6

DATE SAMPLED: May 11, 1971

DATE RECEIVED: May 17, 1971

DATE REPORTED: May 26, 1971

WELL: Mobil Inexco NCO Iroquois D-40

| <u>LABORATORY<br/>NUMBER</u> | <u>SAMPLE<br/>POINT</u>   | <u>RESISTIVITY<br/>(OHM-meters at 68°F.)</u> |
|------------------------------|---------------------------|----------------------------------------------|
| E71-4916-1:                  | Sample Container Unmarked | 0.089                                        |
| E71-4916-2:                  | Sample # 9                | 0.080                                        |
| E71-4916-3:                  | Top of Recovery           | 0.075                                        |
| E71-4916-4:                  | Middle of Recovery        | 0.075                                        |
| E71-4916-5:                  | Top of Tool               | 0.077                                        |
| E71-4916-6:                  | Sampler LUS-14            | See Complete Analysis                        |