

WELL HISTORY REPORT

on

UNION IOL E MAUNOIR M-48
NORTHWEST TERRITORIES
CANADA

Submitted by:


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Nueces Management Ltd.

TABLE OF CONTENTS

SUMMARY OF PERTINENT WELL DATA

RESISTIVITIES (R_w) of WATER/FOAM FLOWING TO PIT

BIT RECORD

SAMPLE DESCRIPTION

CHRONOLOGICAL DATA

SUMMARY OF PERTINENT WELL DATA

NAME OF WELL: Union IOL E Maunoir M-48

LOCATION: Unit M Section 48 - Grid Corner 67°00' 124°15'
Latitude 66°57'54"N Long 124°24'00"W

UNIVERSAL WELL LOC. REF.: Lat 66.96500°N Long 124.40000°W

UNIQUE WELL IDENTIFIER: 300M486700124150

PERMITEE: Imperial Oil Enterprises Ltd.
Permit #6601 (50,262 acres)

EXPLORATORY LICENCE NO: 2022

OPERATOR: Union Oil Company of Canada Limited
335 - 8th Avenue S.W.
Calgary, Alberta.

DRILLING CONTRACTOR: Tri-City Drilling (1968) Ltd. - Rig #2

DRILLING AUTHORITY: #717 issued October 29, 1974

ELEVATION: Ground 1243' K.B. 1255.5'

SPUDDED: 7:00pm January 21, 1974

DRILLING COMPLETED: March 14, 1974

RIG RELEASED: 4:00pm March 18, 1974

TOTAL DEPTH: 2830' Driller 2802' Logger

WELL STATUS: Dry & Abandoned

TOOLPUSHERS: Ben Huber - Hans Jandl

WELLSITE SUPERVISORS: Engineering - Tom Ramsay, Karl Jasinski
Geological - W.F. Knodel III

HEADQUARTERS SUPERVISORS: Engineering - J.J. Sullivan, P. Eng.
Geological - W.D. Connolly

SUMMARY OF PERTINENT DATA (con'd)

AIR SUPPORT: CF-WZH De Havilland
Twin Otter - DHC-6 TransNorth Turbo Air (1971) Ltd.
Pilots: Mike Fritz, Bill Trerice
Co-Pilots: Wynn Muff, Brian Parsons
Engineers: Joe Muff, Mark Nickels

TNTA Piper Aztec CF-SK1
Contact Air CF-ZOW - Piper Navajo
Pilot - Al Furneaux

HELICOPTER SUPPORT: Hughes 500 - call letters F.G.I. (United Helicopter)
Pilot Nick Dreessen

Bell 206-B Jet Ranger
Helicopter TNTA
Don Plaster, Ray Conant-PILOTS
ENGINEERS:
Ken Demonkas, Ken Jones

DISTRIBUTION OF DATA: 1 set bags - surface to TD - D.E.M.R.
1 set cans - surface to TD - D.E.M.R.
1 set lined bags - surface to TD - IOL
1 set vials - surface to TD - IOL
1 set cans - surface to TD - IOL
1 set cans - surface to TD - Union
1 set vials - surface to TD - Union
1 set envelopes - surface to TD - Union

UNION IOL E MAUNOIR M-48

Spudded 7:00pm January 21, 1974
Tri-City Drilling Rig #2 - Unit #34
2 Pumps - Emsco D300
Tool Joints - Reed 4-1/2" x H 6" O.D.

B I T R E C O R D

	<u>BIT #</u>	<u>SIZE</u>	<u>MAKE TYPE</u>	<u>SERIAL</u>	<u>DEPTH</u>	<u>IN - OUT</u>	<u>FTG.</u>	<u>HOURS</u>
Air	1A	12-1/4	Security H7SG	279508	0	40	40	7
Air	2A	17-1/2	Security S88P	476826	0	95	95	18
Air	3A	12-1/4	Smith 3JSP	6R390-RB	95	234	139	7
Mud	4A	12-1/4	Security M44L	493951	234	283	49	8-3/4
Mud	5A	12-1/4	Smith 3JSP	HN704-RB	283	470	187	32-3/4
Mud	6A	12-1/4	Smith SL4	HC534	470	482	12	3-3/4
Mud	7A	12-1/4	Smith 3JSP	GM315RB	482	510	28	2-1/2
Air	1	8-3/4	Security M44N	451538	510	587	77	6-3/4
Air	2	8-3/4	Security S88P	342978	590	701	111	11-1/4
Air	3	8-3/4	Security S88	342979	701	-	-	-
Air	4	6-3/4	Smith L4HJ	PN650	701	727	26	8-1/4
Air	5	6-3/4	Security H88P	475004	727	1105	378	43-1/2
Air	6	6-3/4	Western J55	TN642	1105	2219	1114	72-1/2
Air	5RR	6-3/4	Security H88P	475004	2219	2830	611	43

SAMPLE DESCRIPTIONUNION IOL E MAUNOIR M-48

Sample interval 10' (feet)

10' Glacial Drift - 30% Dolomite and Limestone mainly light brown to tan, trace fossiliferous (coral sucrosic stems), 30% quartzitic Sandstone, light grey to tan, sub angular to sub rounded, coarse to fine grain, 20% Chert - clear to black, gravel to poorly sorted Sandstone, 20% Granite - red, pink.

20' as above

30' as above

40' as above - higher percent of quartzitic Sandstone - add trace black mica

50' 40% Quartzitic Sandstone - tan to tan white, pinkish, very fine grain to medium grain, sub rounded to sub angular, 40% PreCambrian material - red and pink granite, greenstone, black crystalline gabbro (?), ironstone, metaquartzite (?), 20% chert and dolomite

60' as above

70' 40% Limestone and Dolomite as in 10' - 30% dark PreCambrian, 30% Quartz and Chert

80' as above with trace banded and honeycomb chert

90' 35% Precambrian, 25% Quartzitic Sandstone, 25% Limestone and Dolomite, 15% Chert

100' as above (sample very coarse)

110' as above with trace siderite nodules, pyrite (very coarse sample)

120' 50% dark Precambrian, 30% Quartzitic Sandstone, 20% Chert, Limestone, Dolomite

130' As above - (very coarse)

140' 40% dark PreCambrian, 20% Limestone and Dolomite, 20% quartzitic Sandstone, 20% Chert - clear, milky red, black - trace light tan, massive, trace honeycomb

150' as above

160' as above

170' as above with 5% Chert - grey, massive - trace limestone, medium brown, dense to micro crystalline, trace birds-eye

180' as above - brown limestone about 10% - trace limestone - grey, dense - trace agate - 50% Precambrian, 20% quartz sandstone - white to red, 20% chert, trace coarse grained chert conglomerate - siliceous cement

190' Limestone - 50% - tan to light brown - micro crystalline, sucrosic, 20% dark Precambrian, 15% quart sandstone, 15% cherts

200' as above with trace greenish sandstone - tight, fine to very fine grain, with 5% dense, massive grey chert - few quartz grains

210' as above

220' 80% Limestone light brown - micro crystalline, sucrosic with 10% quartz grains and chert, 10% dark Precambrian

230' as above

CHANGE FROM AIR DRILLING TO MUD SYSTEM AT 234'

240' (sample bag 80% sawdust) 60% Limestone, 30% Precambrian, 10% chert and quartz

250' (sample bag 95% sawdust) as above - high percentage cavings

260' 35% Limestone as above, 35% dark Precambrian, 15% quartz and quartz Sandstone, 15% cherts with trace black silty shale

270' (sample bag 80% sawdust) 30% limestone, 40% Precambrian, 30% quartz, quartz sandstone and chert

280' (sample bag 95% + sawdust) as above

290' as above

300' 70% limestone, 15% Precambrian, 15% chert and quartz

310' as above

* 320' Limestone - 80% mostly tan to light brown - as above - trace medium grey limestone - micro crystalline - trace vug - trace tan limestone, lime mud - 10% Precambrian, 10% quartz and chert - trace black shale

330' as above with trace pyrite

340' as above

350' 50% limestone, 50% Precambrian cavings

360' as in 320' (limestone varies in reaction to HCl - from slow reaction to full effervesence)

370' 80% Limestone as above, 10% Precambrian, 10% quartz and chert

380' 90% Limestone as above, 10% Precambrian, quartz, chert, approximately 5% is grey limestone

390' as above - still very scattered pinpoint vugs in coarser-grained chips

400' as above - trace fossil casts

* 410' 85% tan and light brown Limestone - as above with scattered pinpoint vugs, 5% grey limestone as above, 5% Precambrian, 5% limonite with trace quartz grains and sandstone, calcite - spar, light green sandstone with glauconite

420' as above

430' 90% limestone - tan and light brown, as above, few scattered vugs - trace grey crystalline limestone - 5% limonite, 5% Precambrian, quartz grains, and sandstone, black silty shale

440' as above with slight iron stain on some limestone chips and with trace of a honeycombed limey mud - slightly silty - good vugular porosity

450' as above

460' as above - with increase in porosity in limestone and increase in amount of honeycombed lime mud - trace pyrite

470' 60% limestone - medium brown - crystalline, trace scattered pinpoint to fair vugs, - 30% limestone, tan as above with scattered honeycomb lime mud - 5% limonite, 5% chert, Precambrian, etc.

STUCK AT 470' - JANUARY 30, 1974 - 8:30pm UNTIL 11:00PM FEB 7/74

480' 50% Limestone as above, 50% cavings from glacial drift (sample very coarse)

At 482' (February 9, 1974) lost circulation followed by loss of torque -
(lost circulation a continuous problem - due to fractures)

490' 30% tan to medium brown limestone and lime mud, 70% cavings from glacial drift, high percentage of pyrite, quartz sandstone, quartz, chert (sample very coarse)

500' 80% drift cavings as above, 20% limestone as above

510' Limestone - 100% tan, fine to micro crystalline, sucrosic, fractured - grades to lime mud - poor to fair vug and intergranular porosity - scattered-5% limonite stained - trace quartz

520' as above

530' as above - traces of calcareous quartz sandstone, chert, siderite pebbles, Precambrian cavings

540' Limestone as above with partial limonite staining - as above, scattered porosity, trace quartz, light green silty shale, limonite stained quart sandstone

550' as above

560' Limestone - as above - limonite staining as above, scattered porosity, trace quartz sandstone, light green silty shale

570' Limestone - as above - limonite and stain - trace dark grey chert, trace white quartz crystals

580' Limestone - as above - tan, mostly dense, sucrosic - small percentage fine crystalline with scattered fair vug porosity with limonite staining - trace limonite stained micro crystalline limestone - good vug porosity (leached oolites?) trace quartz grains, trace tan dolomite - dense to fine crystalline, trace siderite nodules - trace chert, quartz sandstone

NOTE - sample taken from approximately 555' - apparent area of caving - (taken after depth of 587' reached)

very coarse - light tan to dark brown, silty limestone - scattered vugs - fractured - trace of calcite lining one a large vug - when wet some pieces exhibit a secondary infill of limy silt resembling a birds-eye structure - sub linear orientation (solution breccia?)

Drilling difficulties, and above sample indicate a karst feature.

NOTE - all limestone samples have been silty - much flour in sample after thorough washing and drying.

MOST SAMPLES COULD BE CALLED DOLOMITIC LIMESTONE OR LIMY DOLOMITE _ effervesence varies from active to slow

590' 90% Limestone - light tan to light brown, silty to micro crystalline, 10% light brown limestone - crystalline-fine - scattered pinpoint vugs, approximately 20% of sample exhibits limonite stain, trace of a white to yellowish limy, silty, unidentified substance - opaque inclusions (caliche?) - some limestone has manganese dendrites

NOTE - Sample taken February 20, 1974 from 558' (unwashed) includes limestone tan to light brown - from muds to crystalline, some crystalline with vugs partially filled with calcite, limonite stain common - small percentage thin bedded silty limy dolomite - tan - fractures effervesce more than body with small amount of a rust-colored flaky clay (terra rossa?) - slow effervescence - trace quartz grains/ with grey, salt and pepper siltstone, dark grey mud, silty, trace medium grey chert with apparent weathered surfaces, conchoidal fracture (resembles novaculite) - sample as above would indicate location or caving near the top of a karst feature

NOTE - Sample taken from February 22, 1974 from 558' (unwashed) majority (70%) of sample is silty limy dolomite - tan - fractured with 15% grey silty mud - trace thin bedded silty to crystalline-micro limy dolomite, 15% grey chert (novaculite?), trace terra rossa?

600' 40% Limestone - tan, silty to micro crystalline, approximately one-quarter limonite stained - small amount dendrites - scattered vugs, fractured, 40% limy dolomite - tan to light brown - crystalline-scattered vugs, 10% grey to dark grey silt and mudstone, 10% dark grey chert - brownish - conchoidal fracture - strong trace quartz grains, trace pale green silty shale, trace calcite vug lining, trace pale green fine crystalline dolomite, trace banded silty limestone - dense with narrow bands of calcite and limonite stain

610' as above, trace limonitic clay (terra rossa?)

620' as above, trace grey, waxy, limy dolomite - silty to micro crystalline, trace thin bedded silty to micro crystalline limy dolomite

630' 70% tan to light brown limestone and dolomite as above, 30% grey waxy silty to micro crystalline limy dolomite, limonite stain on one-quarter limestone, trace limonitic clay, banded limestone, calcareous quartz sandstone, siltstone

640' 80% limestone and dolomite as above, 10% grey dolomite as above, 10% grey salt and pepper siltstone as above, trace dark grey, dark brown chert with weathered surface

650' as above, expect no chert, more limonitic clay

660' 75% tan dolomite limestone - silty to micro crystalline to crystalline - partly limonite stained, 20% grey limy dolomite, 5% limonitic clay and siltstone, trace chert, pale green dolomite, trace calcite infill

670' 85% carbonates - as above, 15% grey salt and pepper siltstone, trace chert

680' 80% tan carbonates - as above, 15% grey limy dolomite, 5% chert, quartz grains, limonite

690' 90% tan carbonates - as above, 5% grey dolomite, 5% limonite, chert, quartz, salt and pepper silt

700' as above

710' 70% tan dolomitic limestone - argillaceous to silty, micro crystalline to crystalline with light green to light yellow waxy shale stringers and partings and coarse crystalline quartz seams
10% shale - blocky - light green to light yellow - waxy, 10% chert dark brown nodules with white matrix - speckled-10% cavings.

720' 40% Limestone - medium brown, crystalline, 40% tan dolomite limestone as above, 10% shale as above mainly green, blocky, 10% chert - grey to dark brown with trace of speckled chert as above, trace quartz grains

730' 45% dolomite limestone - tan to light brown, micro crystalline to fine crystalline - argillaceous-some iron stain, few thin quartz seams
45% dolomite - slightly limy, medium to dark grey, trace pyrite - trace scattered pinpoint porosity - micro to fine crystalline
10% shale - silty, limy, blocky - light green to light rusty brown, trace dendrites, trace limonite

740' 70% dolomite limestone - tan, light brown, greenish, micro to fine crystalline, limonite stain - trace quartz seam - trace brown chert 15% medium to dark grey dolomite as above, 15% rust red silty shale - slightly limy

750' 80% dolomite limestone - as above, 10% grey dolomite as above, 10% light greenish silty shale - limy

760' 80% dolomite - dark grey, slightly limy, micro crystalline, 20% tan limestone - as above, trace limonite, trace red micro crystalline dolomite limestone

770' as 760'

780' 50% grey dolomite - as above, 40% tan to light brown, limy dolomite - micro to fine crystalline, 10% reddish dolomite - micro crystalline

790' 50% grey dolomite - medium to dark grey, micro crystalline, 50% tan dolomite - limy - micro to fine crystalline - grades to light to medium brown and dark brown - trace tan limestone - honeycomb vugs - crystalline - argillaceous - trace limonite stain on tan limestone

800' as above

810' sample approximately 50% cement-balance as above

820' Dolomite - medium to dark grey - micro crystalline - trace pyrite

830' as above, trace tan limestone, trace cement

840' as above, trace quartz

850' 50% Dolomite - medium brown to medium grey - micro crystalline, trace pinpoint porosity - trace pyrite 50% green shale - blocky to fissile

860' 80% Dolomite as above, 20% green shale

870' 80% Dolomite as above, pyritic, 10% shale as above, 10% cement, trace tan dolomitic limestone

880' 80% dolomite - dark grey to dark brown, micro crystalline, trace pyrite, 20% green shale - fissile to blocky

890' as above - add trace limonite stain

900' Dolomite and shale as above, 10% cement

910' Dolomites 85% as above, 15% green shale, trace quartz

920' 75% Dolomites as above, 15% tan to light grey limestone, micro-crystalline, trace pyrite, trace quartz vein, 10% green shale

930' 80% light to medium grey dolomite - trace pyrite - micro crystalline
20% green waxy fissile shale

940' 35% medium brown dolomite, micro to fine crystalline, 35% green
shale - waxy, fissile, 30% dolomite - light to medium grey, trace
pyrite, trace quartz

950' 70% Shale - green, waxy, dark red, purple, slightly pyritic -
blocky to fissile - very slightly calcareous - with brownish and
reddish silstone
30% dolomites as above

960' 60% Shale - red, green, purple, waxy to silty to very fine grain
Sandstone - interbedded with light grey to light brown, limy dolomite -
micro crystalline - argillaceous, 40% to medium brown, medium grey
trace pyrite in shale partings

970' 70% Dolomite - slightly limy - tan to medium brown, light to medium
grey - micro crystalline to crystalline, pyrite specks
30% Shale as above - green only - waxy to silty

Saline River 978'

980' As above - trace reddish silty shale

990' non-useable sample - changed to different blooey line without first
cleaning out - sample all from top part of hole

1000' 60% Shale - green, waxy to silty - some purple, silty - slightly
pyritic, 30% dolomite - tan to medium brown, light to medium grey,
dense to micro crystalline, some limy, argillaceous
10% anhydrite, quartz, sandstone, quartz crystals

1010' as above - no anhydrite - trace quartz, some dolomite exhibits fair
vugular porosity, trace cavings

1020' 80% green shale - waxy to slightly silty, pyritic, 20% interbeds
(thin) of light brown and light grey dolomite

1030' 60% green shale as above, 40% dolomite - scattered fair vugular
porosity

1040' as above

1050' (?) (brought in when depth approximately 1100')
50% dolomite - medium brown - flecked with green waxy shale -
micro crystalline - very slightly argillaceous, calcite seams
50% green shale as above, pyritic - silty trace pyrite globules, quartz

AT THIS POINT WATER VOLUME INCREASED FROM + 70 bph TO + 200 bph - NO CUTTINGS
FROM 1050 to 1110 - SUPPOSITION OF AN ANHYDRITE SECTION WITH CUTTINGS DISSOLVED
BY HIGH WATER VOLUME - LOST CIRCULATION AT 1105'

1110' 70% Shale - dark green and dark grey - silty, pyritic
30% Dolomite - tan, medium grey, medium brown - scattered
vugs - microcrystalline, trace quartz grains

1120' as above

1130' 65% Shale - green - as above - pyritic
20% Shale - brick red - silty - fissile
15% dolomites as above, trace pyrite

1140' as above, trace quartz grains - trace grey dense dolomite with
fair vugular porosity

1150' 60% Shale - green and red as above
40% Dolomites - as above (porosity)

1160' as above (porosity)

1170' as above with 10% (approximately) anhydrite - white to pink,
65% shale, 25% dolomite

1180' 30% green shale, 30% brick red shale, 25% anhydrite, 15% dolomite

1190' same as 1180'

1200' 40% green shale, 40% red shale, 20% anhydrite

1210' as above - trace gypsum

1220' 50% green shale, 30% brick red shale, 20% anhydrite - trace
dolomite, quartz

1230' Shale and anhydrite as above - add grey silty shale, trace gypsum

1240' same as 1230'

1250' as above

1260' as above (samples silty - reddish wash water)

1270' 85% shale - green, red, grey - silty
15% anhydrite - white, pink, trace gypsum

1280' 70% anhydrite - light grey, platy, 20% shale - green and grey, silty
10% gypsum - white, columnar

1290' Insufficient sample to cut - very small amount for cans - only
cuttings visible were shales

1300' 70% shale - green, grey, red - silty
30% anhydrite - white, pink, red

1310' 60% shale - grey, green, trace red, 20% anhydrite, 20% red to
white honeycomb - appears to be partially leached anhydrite
seams (salt casts?) - trace white gypsum

1320' as above

1330' Shale - grey, green, yellowish, red - 90%
10% anhydrite

1340' 60% Shales as above, 30% dolomite - medium to dark grey, dark brown, dense to micro crystalline, approximately 5% good vugular porosity - leached (?), same calcite infill, 10% anhydrite

1350' 60% Dolomite - dense to very slightly microcrystalline, medium to dark grey, mainly dark brown, almost black
25% Silty shales as above,
15% Anhydrite

1360' 45% Dolomite as above, scattered good vug porosity in some light grey chips, 40% Silty shales - as above, 5% yellow Siltstone, 10% Anhydrite

1370' 70% Shale - red brown, greens (waxy and dark)
20% Dolomite - as above, trace vug porosity
10% anhydrite - trace yellow siltstone

1380' 50% Dolomite - light tan to medium brown to dark brown and dark grey - dense to micro crystalline, scattered good vug porosity
50% Shale - light to medium green (waxy to silty) light to medium grey (silty), brick red (silty)
trace tan to light brown Siltstone, trace Anhydrite

1390' 85% Dolomite - as above (lighter shades predominate) scattered good vug porosity
15% Shales
trace Siltstone, pyrite

1400' 70% Shale - mainly green and brick red, with grey - slightly silty
20% Dolomites - as above, no porosity
10% Anhydrite - white, pink

1410' 85% Dolomite - dense to microcrystalline - trace porosity
15% Shale - green and brick red

1420' 60% Shale, 40% Dolomite, trace porosity, trace anhydrite, gypsum (?)
sample silty

1430' 85% Shale - grey, green, brick red - slightly silty to waxy (green-waxy)
5% Dolomite - scattered vugs
10% Anhydrite

1440' 50% Dolomite as above - scattered good vug porosity
50% Shales as above

1450' 70% Dolomite - scattered good vug porosity
30% Shale; trace pyrite

1460' 50% Dolomite - trace porosity, 50% Shale
trace anydrite, gypsum

1470' as above

1480' as above (very small amount of sample)
trace yellow clay

1490' 70% Shale - waxy green, grey, brick red - silty
30% Dolomite - light grey to dark grey, dark brown, scattered
good vug porosity
trace anhydrite

1500' as above

1510' (small sample) as above - 70% shale, 30% dolomite - trace porosity,
trace anhydrite

1520' (small sample) as above

1530' (sample very silty) - 60% Shales, 40% Dolomites - scattered porosity,
trace anhydrite, gypsum

1540' (sample very silty) as above

1550' 70% Shale, 30% Dolomite
trace yellowish (limonite-stain) silty Sandstone - very porous,
calcareous, - trace anhydrite

1550' 70% Shale, 30% Dolomites
trace yellowish (limonite-stain) silty Sandstone - very porous
fine to medium grain - very calcareous; trace anhydrite

1560' (very small sample recovery) - 80% Shale - green, brick red, purple
15% Dolomites, 5% Anhydrite

1570' (small sample) 75% Shale, 10% Dolomite
15% Unidentified - resembles imperfect geodes - clear crystals
with a white amorphous, sinuous, center

1580' (small sample) - 75% Shale - green, waxy, red and green mottled
silty (predominates), light grey, silty, yellowish silty
15% Dolomite - light grey - dense to micocrystalline, scattered good
vugs - some partially infilled with calcite - some appear to be the
result of leaching
10% Unidentified (1570') and anhydrite

1590' 80% Shales as above, 10% Dolomite - no porosity, 10% Anhydrite

1600' (sample silty - dusty) 80% Shale - mainly grey, also green,
red and red and green mottled
15% Dolomite - mainly grey - dense - few vugs (solution?)
5% Anhydrite

1610' 50% Shales; 40% Dolomite - dense to slightly microcrystalline -
light grey - vugular porosity, looks like leaching
10% Anhydrite

1620' 80% Shales; 10% Dolomite; 10% Anhydrite

1630' (sample very silty) as above

1640' as above (silty sample), trace pyrite, trace black shale

1650' WET - clear crystals of evaporite, pinkish opaque evaporite, dark grey sandy, siltstone, clear bronze rhombic crystals (all traces)
DRY - 80% Shale - dark red, purple, medium green waxy and dark green, light green-grey, grey, mottled red and green
10% Dolomite - tan, vuggy (leached?)
10% Anhydrite - white to pink - platy to columnar

1660' WET - clear crystalline material (evaporite) as seam filling in red shale - trace
DRY - as above

1670' WET grey shale with cavities (leached?) - trace dark grey slightly sandy siltstone
DRY 90% Shales varicolored, interbedded - as above
10% Anhydrite

1680' 90% Shale - varicolored, trace vugs, leaching or casts
5% Dolomite - light grey, vuggy
5% Anhydrite

1690' 90% Shales, 5% Dolomite - light grey - dense, 5% Anhydrite

1700' as above

1710' as above

1720' 90% Shales, 10% Anhydrite

1730' as above

1740' as above, trace clear anhydrite crystals

1750' as above

1760' as above

1770' as above

1780' (sample had slight oil smell before washing) examined wet and dry - shales and anhydrite - one chip of light grey dolomite - vugular

1790' as above

1800' as above

1810' Shales and anhydrite - as above
one chip of a reddish, poorly bedded, silt to very fine grained sandstone - very poorly cemented - calcareous

1820' as above including silty and very fine grain sandstone

1830' WET - approximately 25% light grey and tan dense to microcrystalline dolomite - exceeding small chips
DRY - shales with anhydrite - trace siltstone - grey, trace dolomite

1840' Shales and anhydrite
trace tan to grey (light) dolomite - few vugs

(SAMPLE VOLUME VARIES FROM POOR TO PRACTICALLY NON-EXISTENT)

1850' as above - dolomite probably cavings

1860' as above, considerable dolomite in very fine chips - also clear, rhombic (?) crystals - trace

Mount Cap 1862'

1870' (very small chips)
50% Shale - black, dark grey, dark green, small amount brick red
10% Dolomite - light to medium grey, tan - dense to microcrystalline
20% Anhydrite
20% Dolomite - limy - light brown to medium brown - stained - fair to good pinpoint porosity - most grains florescence, micro to fine crystalline, very calcareous

1880' 30% Dolomite - limy - light to medium brown - very fine to fine grained, good pinpoint porosity, fair stain - some very fine grain - tight, very slightly glauconitic
40% Shale as above
20% Dolomite as above
10% Anhydrite

1890' 60% limy dolomite - light to medium brown - micro to fine crystalline majority good to excellent porosity, silty to very fine grain, some calcite crystals in porosity, light brown chips, silty, tight poor to fair stain
40% Shale - with dolomite, trace anhydrite

1900' 40% limy dolomite - light brown, silty to very fine grain - tight
40% Sandstone - light brown interbedded with dark grey silty shale - appears varved
20% Shale, dolomite, anhydrite cavings

1910' 60% black shale (in HCl, chips loose blackness and appear argillaceous to silty - eventually effervescence - black may be bitument coating - fissile)
25% light brown silty to very fine grain sandstone, thinly interbedded with dark shale (varve?) tight
15% Shale, dolomite, anhydrite cavings

1920' 50% Black shale
30% tan silty to very fine grain Sandstone - tan - tight -
laminated with dark shale
10% brown Sandstone - very fine grain - fair to good porosity
10% cavings

1930' black Shale 50%
40% laminated shale - silty sandstone
10% cavings
trace porosity-sandstone

1940' higher percentage of cavings - no porosity
rest as above

1950' as above, no porosity

1960' 70% black shale - slightly silty in part
10% tight, light brown silty sandstone
20% cavings

1970' as 1960'

1980' 50% black bitumen shale
30% light to medium brown, silty to very fine grain sandstone -
sub angular, slightly calcareous - fair florescence - no
visible porosity - some chips have seams of a white amorphous
material
20% cavings

1990' 70% black shale
10% sandstone - as above
20% cavings

2000' 40% black shale
40% sandstone
20% cavings

2010' 80% shales - light to dark green, brick red, pale purple,
dark purple
15% black shale - as above
5% anhydrite - white

2020' WET shales - trace brown chert and what appears to be coal
DRY - 60% green and red shales
30% black shale as above (part coal?)
10% brown silty sandstone (tight) - as above

2030' 50% dolomite - dark to medium brown, dark grey - microcrystalline,
tight
40% shale - light to dark green, rust red, dark grey - some
slightly silty - fissile to blocky
10% anhydrite, black shale, coal?, trace chert - medium brown

2040' as above

2050' 70% shale - light grey and light green predominate - slightly silty with other shales as above
30% dark dolomite as above
trace anhydrite

2060' as above
trace medium brown sandstone - sub angular - slight dark brown mica fleck - scattered porosity - calcareous - silty to very fine grain, trace pyrite

2070' variegated shales as above

2080' shales as above

2090' as above

2100' 65% shales - dark green, light green, light grey, dark grey and black, predominate - also brick red - black shale resembles coal
20% dolomites - medium to dark brown - dense to microcrystalline very limy
10% sandstone - medium to dark brown - silty to fine grain - sub angular, slightly to very calcareous - micromica
5% anhydrite

2110' 75% shales - mainly light green with light grey, light brownish - red, ranging to dark green and dark grey - calcareous in part
25% dolomitic limestone - mainly medium brown - ranging to dark brown - dense to crystalline - slightly fluorescence.
(gas odor)

2120' 60% shales - dark shades predominate
40% dolomitic limestone - microcrystalline - coarse crystalline in small part, medium to dark brown - slight trace porosity
trace pyrite, trace sandstone - medium to dark brown - silty to very fine grain - very calcareous - good porosity - sub angular - micaceous (?), slightly pyritic - or glauconitic
(gas odor)

2130' 70% shales - dark predominant
30% dolomitic limestone
trace sandstone - silty to very fine grain - very calcareous - pyritic - inclusions of what is probably glauconite - black to dark green - one chip approximately 90% glauconite
trace pyrite

2140' 75% shales - as above (approximately 60% dark, 40% light)
15% dolomitic limestone
5% glauconitic sandstone
5% white to pink anhydrite - amorphous to columnar

2150' 90% shales (80% dark)
5% dolomitic limestone
5% glauconitic sandstone
trace quartz grains, anhydrite

2160' 70% shales
30% dolomite - light to medium grey - microcrystalline - tight
trace sandstone, anhydrite

2170' as above - add a dark brown dense to coarsely crystalline dolomite

2180' 50% variegated shales
30% dolomites - medium to dark brown - dense to micro-crystalline
tight
20% sandstone - silty to very fine grain - glauconitic - sub rounded
no florescence

2190' 60% shales, 40% dolomites
trace sandstone, quartz (milky - seams), anhydrite

2200' 60% dolomites
40% shales
trace glauconitic sandstone, anhydrite

2210' 70% dolomites
30% shales
trace anhydrite

2220' 40% dolomite
40% limestone - medium to dark brown - microcrystalline - tight
20% shales
trace glauconitic siltstone

2230' 70% variegated shales
20% dark brown limestone
10% dolomite
trace glauconitic siltstone

2240' 90% shales
10% dolomite
trace white amorphous to columnar anhydrite which has been
present in every sample since Saline River

2250' 90% shales -(dark approximately 70%) trace mica-flake
10% dolomite
trace pyritic limestone

2260' 60% shales - becoming silty
30% dolomite
10% limestone

2270' 90% dolomite (to limy dolomite) dark brown - some medium brown microcrystalline, tight
10% shales - silty

2280' 75% dolomite - as above
25% shales (trace mica) silty

2290' 60% shales - silty
40% dolomite

2300' 70% shales - silty - dark grey, almost black, predominates-
then light grey and light green silty shale - almost siltstone
with medium to brick red, red
30% dark brown dolomite
trace tan siltstone, anhydrite

2310' same as 2300'

2320' 50% dark dolomite - trace mica
50% varicolored silty shales
trace glauconite - stone - mainly glauconitic in a matrix
ranging from silty to very fine grain sandstone - slightly
calcareous - sub rounded, glauconitic from black and green
fine grain size to coarse - slight trace pyrite in this
stone plus in sample

2330' 40% dark dolomites - becoming more micaceous - trace vug porosity
40% shales - silty
20% sandstone - very glauconitic - mostly tan, ranging to
medium brown, and light to medium grey - glauconite
fine grain to coarse grains - possible quartz - trace scattered
porosity
trace pyrite and in shale

2340' 60% glauconitic sandstone - trace coarse quartz grain - trace
porosity
20% silty shales
20% dolomite

2350' 45% shales (1/2 light green and grey, 1/2 dark)
45% dolomite
10% glauconitic sandstone - trace porosity

2360' 1/3 sandstone - glauconitic - slightly micaceous
1/3 dolomite - micaceous
1/3 shales - silty

Old Fort Island
Member 2366'

2370' dolomite as above - some very micaceous
30% shales - as above
30% silty sandstone - as above

2380' as above
dolomite more micaceous

2390' as above

2400' 40% micaceous dolomite
40% silty shale
20% glauconitic silty sandstone

2410' 60% shales - mostly silty
20% dolomite
20% sandstone

2415' (circulated)
40% sandstone - (occasional coarse quartz grain)
40% shales
20% dolomite

2420' 90% varicolored shales
10% micaceous dolomite
trace glauconitic sandstone, pyrite

2430' 80% varicolored shales
10% micaceous dolomite
10% glauconitic sandstone

Old Fort Island
Porosity 2436'

2440' 70% shales
15% dolomite - slightly micaceous
15% glauconitic sandstone - silty to very fine grain
trace glauconitic sandstone - medium to coarse quartz grains -
sub rounded to rounded - some frosted

2450' 80% shales - trace mica
10% silty to very fine grain glauconitic sandstone
10% quartzite sandstone - medium to coarse grained - tan -
sub angular to rounded, quart grains - scattered porosity -
slightly glauconitic - fair flourescence

2460' 70% shales
15% silty glauconitic sandstone
15% tan quartzite - slightly pyritic - trace porosity -
slightly glauconitic

2470' 70% shales
10% glauconitic sandstone
20% quartzite - more pyritic
pyrite common

2480' 20% tan quartzite - slightly pyritic, glauconitic - poor to
fair porosity, poor to fair flourecence
10% glauconitic silty sandstone
70% varicolored shales (black, red, green, some light tan)
light tan very micaceous - rest slightly

2490' as above - fair to good porosity and floourescence in quartzite sandstone

2500' as above with porosity - trace bitumen stain in quartzitic sandstone

2510' as above (lower percentage of sandstone due to higher amount of cavings)
(trace purplish slightly silty shale)

2520' 50% varicolored shales (trace dark grey shale with white inclusions in a dendrite pattern)
20% Old Fort quartz sandstone
20% glauconitic sandstone
10% white chalky material and anhydrite
trace clear quartzite (meta quartzite?) trace glauconitic inclusions - appears welded, not like Old Fort (fines mostly loose quartz grains)

2530' 60% varicolored shales - some micaceous
25% Old Fort quartz sandstone - still fair to good porosity, stain
10% glauconitic sandstone
5% anhydrite
still trace of quartzite
(fines mostly loose quartz grains)

2540' as above

2550' as above

2560' percentage as above - large percentage of shale is light grey very slightly silty and light green, waxy

2570' as above

2580' as above

2590' as above - reappearance of purplish shale

2600' as above - fines all quartz grains

2610' as above - appearance of dark grey, slightly silty shale - slightly micaceous and a black fissile shale - slightly pyritic shales constitute 60% of sample - light grey, light to medium green - waxy, light brick red, pale purple
20% Old Fort sandstone
10% glauconitic sandstone
10% anhydrite
Fines approximately 50% quartz grains, 50% shale chips

2620' same percentage as 2610' - trace grey shale with red (hematite?) inclusions, trace white quartzite

2630' as 2610'

2640' as above - add trace pale yellow silty shale

2650' 60% shales - light to medium green, waxy, predominant - then reddish, small amount purplish
30% quartz sandstone and loose quartz grains
10% anhydrite
trace dolomite

2660' 80% shales - light to medium to dark green, waxy - then reddish, trace mica, pyrite
Proterozoic 2666' 10% quartz sandstone
10% anhydrite, glauconitic sandstone

2670' 60% shales
10% quartz sandstone
10% anhydrite, glauconitic sandstone
10% tan limestone - dense to microcrystalline
10% tan to yellowish green shale to silty shale

2680' 70% shales
20% quartz sandstone and quartz grains
10% anhydrite, glauconitic sandstone
trace black botrioidal matter

2690' as above - approximately 20% of sample is tan to yellow to greenish yellow shale to silty shale
black botrioidal matter still a trace

2700' 80% shales - green, red, dark, trace tan-yellow - trace mica, pyrite
10% quartz sandstone and grains
10% glauconitic sandstone, anhydrite
trace orange, flaky material - f.r.i.d.k.

2710' 80% varicolored shales (some very micaceous)
20% quartzitic sandstone, anhydrite, quartz grains, glauconitic sandstone,
still trace orange chips

2720' as above - no orange chips

2730' 60% green shale - light, medium and dark - trace mica - blocky to fissile
30% other shales - mainly reddish
10% quartzitic sandstone, anhydrite, quartz grains, glauconitic sandstone

2740' as above

2750' as above

2760' as above

2770' 80% shales - light, medium and dark green, part waxy, reddish, purplish, black, light to medium grey - some mica, pyrite, trace birdseye
20% anhydrite, quartzitic sandstone, glauconitic sandstone

2780' as above
trace grey dense dolomite - trace white micaceous platy shale

2790' as above

2800' as above

2810' as above

2820' as above

2830' 70% varicolored shales - red and green predominant - some mica
10% Old Fort quartzitic sandstone
10% anhydrite
10% glauconitic sandstone and other cavings

UNION IOL E MAUNOIR M-48

CHRONOLOGICAL

20 January 21/74
8:00am - 52° Spud conductor hole 7:00pm
Drill to 20' - 17-1/4" hole - drill with
air and power swivel

January 22/74
8:00am - 54° Drill conductor hole - lay down power swivel
From 20' to 95' - 17-1/4" hole -
run 13-3/8" conductor pipe to 95'

January 23/74
8:00am - 53° Run 3 joints of 95' of 54.5#, 13-3/8", K-55
8rd casing - cement with 300 sacks permafrost cement

January 24/74
8:00am - 50° Drill 12-1/4" hole from 95' to 234' - progress 139'
Surveys: 112' 7/8°, 202' 3/4°

January 25/74
8:00am - 48° Depth 234'
Changeover from air to mud - lost circulation

January 26/74
8:00am - 50° Depth 234'
Mix mud - Additives: 40 sack sawdust,
100# kelzan, 1500# gel, 100# caustic
Viscosity - 410

January 27/74
8:00am - 38° Drill 12-1/4" hole from 234' to 253' - progress 19'
Lost circulation - mixing mud
Additives: 150# kelzan, 3300# gel, 150# caustic
Viscosity - 200

January 28/74
8:00am - 48° Drill 12-1/4" hole from 253' to 283' - progress 30'
Survey: 283' 1-1/2°
Additives: 1400# gel, 50# caustic, 100# kelzan
Viscosity - 210

January 29/74
8:00am - 16° Drill 12-1/4" hole from 283' to 359' - progress 76'
Survey: 330' 2°
Additives: 3000# gel, 300# kelzan, 50# caustic
Viscosity 350

January 30/74
8:00am - 16° Drill 12-1/4" hole from 359' to 470' - progress 111'
Lost circulation then stuck pipe at 8:00pm
Survey: 393' 2°
Additives: - none
Viscosity - 240

January 31/74 8:00am - 15°	Mix mud, work stuck pipe and jar at 470' Additives: 32 sack sawdust, 18 sack cane fiber, 4800# gel, 50# caustic, 50# kelzan Viscosity 250
February 1/74 8:00am - 29°	Jar pipe, mix mud, and wait on Schlumberger at 470' Additives: 5000# gel, 150# caustic, 150# kelzan Viscosity - 240+
February 2/74 8:00am - 34°	Fishing at 470' Additives: 5700# gel, 200# caustic, 300# kelzan Viscosity 460
February 3/74 8:00am - 42°	Fishing at 470' Additives: 1000# gel, 50# kelzan Viscosity 450
February 4/74 8:00am - 39°	Fishing at 470' Additives: 1300# gel, 50# kelzan
February 5/74 8:00am - 24°	Fishing (washover) at 470' Additives: 3200# gel, 200# kelzan, 28 sack sawdust, 12 sack cane fiber Viscosity 300
February 6/74 8:00am - 14°	Fishing at 470' + rig repairs Additives: - none Viscosity 540
February 7/74 8:00am - 28°	Repair low clutch and jar at 470' Additives: 400# gel Viscosity 500
February 8/74 8:00am - 44°	Recover fish - drill 12-1/4" hole to 472' Additives: 400# gel Viscosity 525
February 9/74 8:00am - 44°	Drill 12-1/4" hole to 482' - repair torque - progress 10' Additives: 13,100# gel, 450# kelzan, 12 sack cane fiber, 85 sack sawdust Viscosity 500
February 10/74 8:00am - 43°	Install torque, mix mud, drill 12-1/4" hole to 510' - progress 28' Additives: 6900# gel, 42 sack sawdust, 300# kelzan, 4 sack cane fiber Viscosity 450
February 11/74 8:00am - 44°	Run casing - 13 joints, 9-5/8", 36#, K-55, 8rd Class A casing set at 510' KB with Howco DV tool at 153' KB. 3 Baker centralizers and Baker float shoe Additives: 16,100# gel, 78 sack sawdust, 200# kelzan, 14 sack cane fiber

February 12/74
8:00am - 36° Cement casing - W.O.C. - head up
Cemented by Dowell - 1st stage 240 sack oilwell +
2% CaCl2 - plug down 2:00am. 2nd stage 240 sack
oilwell + 2% CaCl2 tailed in with 240 sack Perma-Frost
cement - plug down 6:15 AM - good returns to
surface - average slurry 15.4#/gal
Additives: 2300# gel, 18 sack sawdust, 100# kelzan,
5 sack cane fiber

February 13/74
8:00am - 18° Nippling up
Rig inspection by Greg Wood Conservation
Engineer - satisfactory

February 14/74
8:00am - 17° Drill out - drill 8-3/4" hole
Nipple up - pressure test BOPs
Change over to air drilling
Bit #1 - 8-3/4" security M44N - #451538 -
77' - 6-3/4 hours

February 15/74
8:00am - 28° Drill 8-3/4" hole from 510' to 587' - progress 77'
Water encroachment and sloughing hole
Survey: 520' 2'
Additives: 2500# gel, 200# kelzan
Pipe tally - 587.34
Strap tally - 586.39
Difference - 0.95
Bit #2 - 8-3/4" S88P - #342978 - 111' - 11-1/4 hours

February 16/74
8:00am - 9° Running open hole cement plugs and drilling mousehole.
Plug #1 - at 532' with 120 sack
oilwell cement + 3% CaCl2. Start mix at 7:10am -
plug down at 7:30am - displaced with 6 bbls water
Additives - 500# gel, 50# kelzan

February 17/74
8:00am - 24° Run cement plug #2 - string new travelling block -
Drop mud pill
Plug #2 at 534' with 120 sack oilwell cement +
10% NaCl2 - start mix at 12:25am, plug down
at 12:45am
Additives: 500# gel, 50# kelzan

February 18/74
8:00am - 29° Mix mud - drop 2 mud pills - run cement plug #3
Plug #3 at 538' - 120 sack oilwell + 3% CaCl2 -
start mix at 12:34pm - plug down at 12:45pm
Additives: 7000# gel, 500# kelzan, 70 sack sawdust,
35 sack cane fiber

February 19/74 8:00am - 10°	Clean out hole - drill to 590' - troubles with plugged bits, infill coming up hole
February 20/74 8:00am - 32°	<p>Running cement plugs -</p> <p><u>Plug #4</u>, at 512' - 60 sack oilwell cement + 3% CalC2 - start mix at 3:50am, plug down at 4:00am</p> <p><u>Plug #5</u> - at 490' with Howco RTTS tool - cemented with 120 sack oilwell + 3% CaCl₂, followed by 60 sack PermaFrost cement - plug down at 6:30pm</p> <p><u>Plug #6</u> - at 490' with Howco RTTS tool - 120 sack oilwell + 2% CaCl₂ followed by 60 sack PermaFrost cement - start mix at 10:50pm - plug down at 11:15pm - plug on vacuum</p>
February 21/74 8:00am - 27°	<p>Run Plug #7 - then clean hole to 558'</p> <p><u>Plug #7</u> - at 490' with Howco RTTS tool - 120 sack oilwell + 2% CaCl₂ followed by 60 sack PermaFrost cement - start mix at 4:50am - plug down at 5:20am - on vacuum</p>
February 22/74 8:00am - 28°	<p>Plug #8 and W.O.C. - find top of plug #8 at 480'</p> <p><u>Plug #8</u> at 492' with Howco RTTS tool - ran 40 sack diesel gel plug followed by 300 sack cement + 8% NaCl - start mix at 2:15am - plug down at 3:00am</p>
February 23/74 8:00am - 20°	<p>Running plugs</p> <p><u>Diesel gel plug #2</u> at 558' with 46 sack gel - plug down 12:45am</p> <p><u>Plug #9</u> at 492' with Howco RTTS tool - 100 sack oilwell cement + 7% NaCl - start mix 2:15am plug down 2:45am</p> <p><u>Diesel Gel Plug #3</u> at 558' with 50 sack gel + 12 bbls diesel - plug down 2:45pm</p> <p><u>Plug #10</u> at 492' - Howco RTTS tool - <u>diesel gel plug #4</u> with 50 sacks gel + 12 bbls diesel - plug down 5:15pm - tailed in behind #4 with <u>plug #10</u> - 120 sack oilwell cement + 7% NaCl - plug down 6:15pm</p>
February 24/74 8:00am - 35°	<p>W.O.C. - drill 8-3/4" hole from 590' to 701'</p> <p>Total Progress 111'</p> <p>Survey: 653' 3-1/2°</p> <p>Trip for Bit #3 - 8-3/4" security S88 #342979 - no footage</p>
February 25/74 8:00am - 24°	<p>Work tight hole - drop gel plugs</p> <p><u>Diesel gel plug #5</u> - 28 sack gel + 7 bbls diesel at 545' - plug down 10:00am.</p> <p><u>Diesel gel plug #6</u> - 40 sack gel + 10 bbls diesel at 570' - plug down 11:00am</p>

February 26/74 8:00am - 28°	Clean to 650' - wait on liner
February 27/74 8:00am - 15°	Wait on liner <u>Diesel gel plug #7</u> - 40 sack gel + 10 bbls diesel fuel-plug down at 9:00pm at 562'
February 28/74 8:00am - 13°	Run liner - cement plug fails - bank liner <u>diesel gel plug #8</u> - 28 sack gel + 7 bbls diesel fuel - plug down at 10:00pm at 570'. Ran 5 joints, 7-5/8", O.D., 26#, K-55 Butress casing liner set at 633' - circulate liner for 30 minutes prior to cementing with stiff foam - cemented with 20 sack oilwell cement + 7% NaCl - displaced plug with 22 bbls water (overdisplaced by 10 bbls - no latch down seat) tripped out with liner - Gasket rubber and fine cuttings lodged between seat and plug
March 1/74 8:00am - 16°	Wait on liner - clean to bottom - circulate
March 2/74 8:00am - 12°	Run liner - run diesel gel and cement plug Ran 7-5/8", O.D., 26#, K-55 Class A liner and set at 635', cemented with 30 sack oilwell cement + 8% NaCl - start mix at 8:30am - finish at 8:40am - displace plugs with 14.5 bbls H ₂ O - maximum pump pressure 1000 psi - plug down at 8:45am - top of liner at 414' 96' into top of 9-5/8" casing Ran Howco RTTS tool and set at 413' - ran diesel gel plug #9 with 20 sack gel + 5 bbls diesel - plug down 9:45pm. Followed by cement plug #11 with 50 sack oilwell cement + 8% NaCl and cement + 5#/bbl lost circulation material - plug down 10:00pm - plug not on vacuum - bled back and staged 4 bbl displacement
March 3/74 8:00am - 33°	W.O.C. and changed 4-1/2" pipe rams to 3-1/2"
March 4/74 8:00am - 24°	Drill 6-3/4" hole from 701' to 727' Wait on 3-1/2" drill pipe - drill out plug, float and shoe. Top of liner at 414' top of plug at 599' Bit #4 - 6-3/4" L4HJ #PN 650 26' 8-1/4 hours Bit #5 - 6-3/4" H88P #475004 378' 43-1/2 hours

March 5/74
8:00am - 26° Drill 6-3/4" hole from 727' to 865' - progress 138'
Survey: 790' 4°

March 6/74
8:00am - 30° Drill 6-3/4" hole from 865' to 1105' - progress
240 feet
Surveys: 915' 3-3/4°, 1073' 3-1/4°

March 7/74
8:00am - 37° Drill 6-3/4" hole from 1105' to 1453' - progress
348'
Bit #6 - 6-3/4" J-55 #TN642 -1114' - 72-1/2 hours
Additives: 200# Kelzan
Survey: 1370' 5-1/4°

March 8/74
8:00am - 46° Drill 6-3/4" hole from 1453' to 1734' - progress
281'
Surveys: 1450' 4-1/2°, 1540' 4°, 1645' 3°

March 9/74
8:00am - 41° Drill 6-3/4" hole from 1734' to 1925' - progress
191'
Survey: 1778' 2-3/4°

March 10/74
8:00am - 36° Drill 6-3/4" hole from 1925' to 2200' - progress
275'
Survey: 2000' 3°

March 11/74
8:00am - 15° Drilled 6-3/4" hole from 2200' to 2415' -
progress 215'
1st T.D. at 10:45pm
Bit #5 RR, 6-3/4" Security, H88P #475004 - 611'
43 hours

March 12/74
8:00am - 16° Attempt to log - bridge off - drill from
2415' to 2440' - 6-3/4"
Additives: 2700# gel, 200# kelzan

March 13/74
8:00am - 28° Drill 6-3/4" hole from 2440' to 2690' -
progress 250'

March 14/74
8:00am - 14° Drill 6-3/4" hole from 2690' to 2830' TD
Progress 140'
Survey: 2690' 5-1/4°

March 15/74
8:00am - 25° Cleaning hole - attempting to log

March 16/74
8:00am - 25° Log - run Plug #1 - stuck pipe
Ran Gamma Ray Neutron by Schlumberger - surface
to TD - in drill pipe
Plug #1 100 sack oilwell from 2830'-2510'
start mix at 8:00pm - plug down 8:15pm.
Worked pipe up to 2662' and stuck - backed
off manually after working pipe 6 hours -
top of fish at 1778' - total 28 joints, 3-1/2"
drill pipe in hole as fish

WATER ANALYSIS
FOR
UNION OIL COMPANY OF CANADA LTD.
UNION IOL E MAUNOIR M-48
MAUNOIR AREA
NORTHWEST TERRITORIES

CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering
CALGARY - EDMONTON - REGINA



CORE LABORATORIES - CANADA LTD.

Petroleum Reservoir Engineering

CALGARY ALBERTA

CONSERVATION ENGINEER



Plastic

CONTAINER IDENTITY

WATER ANALYSIS

28 1974
YUKON TERRITORIES
YUKON TERRITORIES
YUKON TERRITORIES

7021-4303

1 of 1

PAGE

66° 57' 54.00 N.L.

124° 24' 00.00 W.L.

OPERATOR

Union IOL E Maunoir M-48

WELL OR SAMPLE LOCATION NAME

LOCATION

1243'

GRD. ELEV.

Maunoir Area, Northwest Territories

FIELD OR AREA

POOL OR ZONE

SAMPLER

TEST TYPE & NO.

TEST RECOVERY

Water at 1105'

OF

POINT OF SAMPLE

AMT. & TYPE CUSHION

MUD RESISTIVITY

PUMPING

FLOWING

GAS LIFT

SWAB

WATER

BBLS/D.

OIL

BBLS/D.

GAS

MFC/D.

TEST INTERVALS OR PERFS.

SEPARATOR RESERVOIR

CONTAINER WHEN SAMPLED

CONTAINER WHEN RECEIVED

SEPARATOR

PRESSURES, PSIG

TEMPERATURES, °F

DATE SAMPLED (D/M/Y)

March 12/74

March 22/74

D.J.

DATE RECEIVED (D/M/Y)

DATE ANALYSED (D/M/Y)

ANALYST

REMARKS

ION	MG/L	MG%	MEQ/L
Na+K	48	7.3	2.1
K			
Ca	105	16.1	5.2
Mg	26	4.0	2.1
Ba			
Sr			
Fe	TRACE		

ION	MG/L	MG%	MEQ/L
Cl	48	7.3	1.4
Br			
I			
HCO ₃	239	36.5	3.9
SO ₄	169	25.8	3.5
CO ₃	19	2.9	0.6
OH	0	0.0	0.0
H ₂ S		ABSENT	

TOTAL SOLIDS MG/L

BY EVAPORATION @ 110°C

BY EVAPORATION @ 180°C

654

CALCULATED

1.0004 @ 60°F

1.3310 @ 24°C

SPECIFIC GRAVITY

REFRACTIVE INDEX

8.5

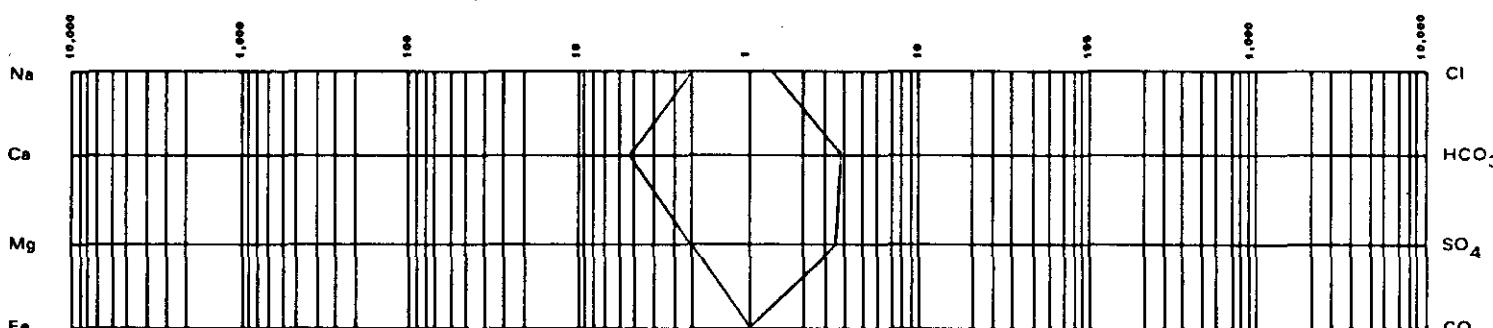
5.57

@ 25°C

pH

RESISTIVITY (OHM/METERS)

LOGARITHMIC PATTERN MEQ PER LITER



REMARKS