



CANADA

# WELL TERMINATION RECORD

This record is submitted in triplicate in compliance with Section 184 of the Canada Oil and Gas Drilling Regulations.

## WELL DATA

Well Name: CANOE RIVER CHANCE, YT J-19 Area: Eagle Plains/Chance  
 Grid Area: 300J196610137300 Field/Pool: Chance Sand  
 Permit or Lease No.: 3363 Final Coordinates: Lat.: 66° 08' 31.2" Long: 137° 32' 28.02"  
 Drilling Unit: Elevations-RT/KB: 518.6 m KB SF/IGL: 514.2 m GL  
 Spud Date: 67 12 14 Rig Released: 68 02 17 Total Depth: 1446.3 m KB

## CASING AND CEMENTING

O.D.:	Weight:	Grade:	Depth Set:	Cement and Additives:
339.7 mm	81.1 kg/m	J55	21.3 m KB	75 sxs of Fondu cement
244.5 mm	53.6 kg/m	J55	246.6 m KB	325 sxs of Fondu cement
177.8 mm	32.4/38.7 kg/m J80		1440.3 m KB	450 sxs of construction cement

## PLUGGING PROGRAM

Approval of the following program was obtained by (person) Not applicable from  
 (person) by means of  
 on 19

Type of Plug:	Interval:	Felt:	Cement and Additives:
None			

Lost Circulation/Overpressure Zones: None  
 Equipment left on Seafloor (Describe): Not applicable  
 Provision for Re-entry (Describe and attach sketch):  
 Cores: Type: Full diameter Intervals: 1243 m - 1260 m, 1260 m - 1279 m, 1279 m - 1294 m,  
 1337 m - 1356 m, 1356 m - 1373 m, 1390 m - 1392 m KB  
 Other Downhole Completion/Suspension Equipment: See attached schematic

## CERTIFICATION

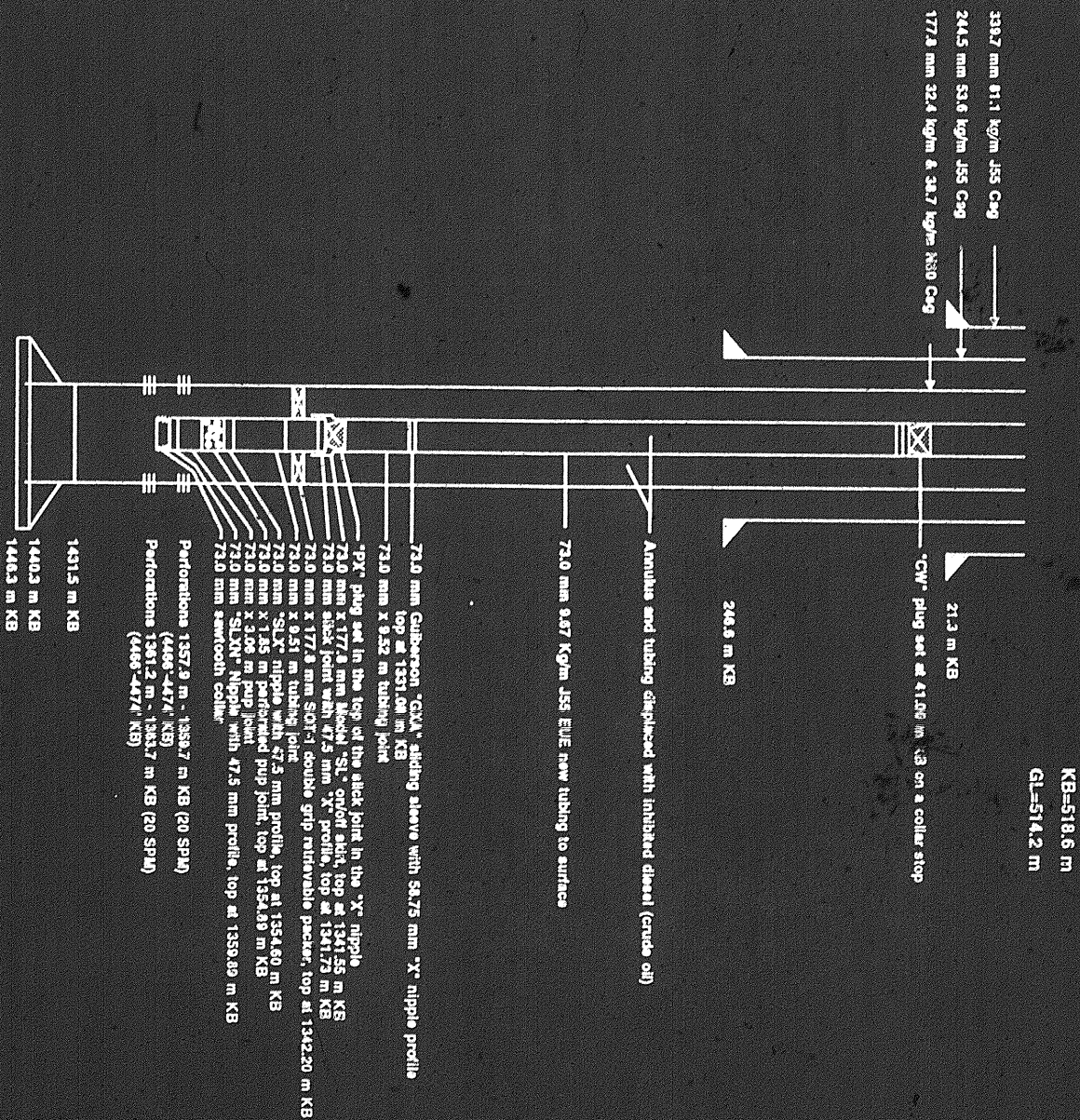
I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: *D.R. Thompson* P. Eng. Title: President  
 Name: D.R. Thompson Date: July 10, 1998

Acknowledged by: *J.M. Baker*  
 Engineering Branch  
 Date: July 22/98  
 File: 66-10-13730, MID 367  
 UWI 300J196610137301

Well Status  
 Suspended   
 Completed   
 Abandoned

**EXISTING WELLBORE SCHEMATIC  
CANOE RIVER CHANGE YT J-19**



**Northern Cross Oil Analysis**  
File 98C24716

PARAMETER	RESULT
Ash content	1.77 % by weight
Asphaltenes	2.85 % by weight
BTU	19,520/lb
Carbon residue	4.06 % by weight
Cetane index	sample too heavy to calculate
Cloud point	10°C
Copper strip corrosion	Class 3B - dark tannish
Flash point - closed cup	< -20°C
H2S	< 1 ppm
pH	6.69
Reid vapor pressure	24.1 kPa at 37.8°C
Salt content	100 lbs/1000 barrels
Max content	1.43 % by weight

*Skinner low read 2100  
will re-run  
with distillate.  
Revised to 105  
5/1/1002/361*

Characterization Factor - UOP Method 375-59:  
This is a method for determining the UOP characterization factor, which is indicative of the general origin and nature of a petroleum stock. Values 12.5 or higher indicate a material predominantly paraffinic in nature. Highly aromatic materials have characterization factors of 10.0 or less.  
The characterization factor is determined by deriving the API and kinematic viscosity at 50°C. The interaction of the two on an API vs Viscosity graph will give your characterization factor.

# AGGAT<sup>®</sup> Laboratories



3801 - 21st STREET N.E. CALGARY, ALBERTA T2E 6T5  
TEL: (403) 299-2000 FAX: (403) 299-2010

NORTHERN CROSS (YUKON) LIMITED

ATTENTION: PAT SNYDER

## OIL ANALYSIS

File Number : 24716.000  
Date Sampled : 03-16-98  
Date Received: 03-26-98  
Date Reported: 04-08-98

### PARAMETER

LAB NUMBER: P31A  
SAMPLE ID : CANOE RIVER CHANCE  
SWAB 03-15 & 03-16

Aluminum	ppm	178
Arsenic	ppm	3.48
Cadmium	ppm	<0.050
Lead	ppm	19.0
Silicon	ppm	98.0
Sodium	ppm	1143
Vanadium	ppm	2.24
Sodium/Vanadium Ratio	ppm	1:1844
Sodium/Vanadium Ratio	mol eqv	1:4086

<REFERS TO METHOD DETECTION LIMIT.

Accredited by the American Industrial Hygiene Association (AIHA)  
Accredited by the Canadian Association of Environmental Analytical Laboratories (CAEAL)

CERTIFIED BY



3801-21 STREET N.E. CALGARY, ALBERTA, T2E 6M5  
 TEL: (403) 299-2000 FAX (403) 299-2022

**QUALITY ASSURANCE REPORT**

NORTHERN CROSS (YUKON) LIMITED  
 ATTENTION: PAT SNYDER

Sample Identification: Oil

Date Reported: 04-08-98

J-10

File No: 24716.000

**DUPLICATE ANALYSIS**

PARAMETER	DUPLICATE ANALYSIS		ACCEPTANCE
	SAMPLE A	SAMPLE B	
Aluminum	3.57	3.55	YES
Arsenic	12.1	10.9	YES
Cadmium	<0.001	<0.001	YES
Lead	0.370	0.380	YES
Silicon	1.76	1.74	YES
Sodium	66.7	68.6	YES
Vanadium	0.034	0.034	YES

**SPIKES**

PERCENTAGE RECOVERY	ACCEPTABLE LOWER	LIMITS UPPER
108	85	115
88	60	140
105	78	117
96	85	115
108	85	115
100	85	115
102	82	117

**QA/QC CHECK**

PERCENTAGE RECOVERY	ACCEPTABLE LOWER	LIMITS UPPER
103	90	110
105	60	140
91	83	114
100	90	110
106	90	110
98	90	110
98	90	110

CERTIFIED BY

# AGAT Laboratories



3801 - 21st STREET N.E. CALGARY, ALBERTA T2E 6T5  
TEL: (403) 299-2000

FAX: (403) 299-2010

ATTN: PAT SNYDER

NORTHERN CROSS (YUKON) LIMITED

Date Sampled : 98-03-16  
Date Received: 98-03-26  
Date Reported: 98-04-02  
File Number : 24716.2A

## POLYCHLORINATED BIPHENYLS ANALYSIS RESULTS

Lab#	Sample ID	Type	Concentration ug/g(ppm)	Aroclor Type	Surrogate*
PB2A	Y.T.J-19	Oil	<0.2	N.A.	87
	Canoe river chance J-19				
	CHANCE SAND				
	(treater after acidizing)				

METHOD DETECTION LIMIT:

0.2 ug/g(ppm)

ANALYST:

KW

DATE ANALYZED:

03/31

NOTES:

N.A. - Not Applicable

\* Reported as percent recovery of decachlorobiphenyl added to sample prior to analysis.

METHOD REFERENCE: AEC M106.0 & ASTM D4059-91.m, AGAT SOP #TO-0100

CERTIFIED BY

*Pat Snyder*



3801 - 2<sup>nd</sup> ST. STREET N.E. CALGARY, ALBERTA T2E 6T5  
TEL: (403) 299-2000 FAX: (403) 299-2010

NORTHERN CROSS (YUKON) LIMITED

ATTENTION: JOHN HNAATIUK

OIL ANALYSIS

File Number : 26903.002  
Date Sampled : 03/16/98  
Date Received : 04/30/98  
Date Reported: 06/03/98

PARAMETER

LAB NUMBER: FB1A  
SAMPLE ID : W.T. J-19  
CANDOR RIVER CHANCE

Calcium  
Magnesium  
Sodium  
Chloride

µg/g  
µg/g  
µg/g  
µg/g

714  
57.4  
1718  
2153

*See report 633 and 4131 on earlier reports*

Accredited by the American Industrial Hygiene Association (AIHA)  
Accredited by the Canadian Association of Environmental Analytical Laboratories (CAEAL)

CERTIFIED BY



3801-21 STREET N.E. CALGARY, ALBERTA T2E 6T5  
 TEL: (403) 299-2000 FAX (403) 299-2022

**QUALITY ASSURANCE REPORT**

NORTHERN CROSS (YUKON) LIMITED  
 ATTENTION: JOHN HNAATIUK

Sample Identification: OILWAT

Date Reported: 06/02/98

File No: 26008.P81A

**DUPLICATE ANALYSIS**

PARAMETER	SAMPLE A	SAMPLE B	ACCEPTANCE
Calcium	52.8	52.9	YES
Magnesium	26.6	26.7	YES
Sodium	50.2	50.6	YES
Chloride	9.49	9.73	YES

**SPIKES**

PERCENTAGE RECOVERY	ACCEPTABLE LOWER	LIMITS UPPER
96	85	115
101	85	115
96	85	115
94	85	115

**QA/QC CHECK**

PERCENTAGE RECOVERY	ACCEPTABLE LOWER	LIMITS UPPER
106	90	110
106	90	110
101	90	110
97	90	110

CERTIFIED BY \_\_\_\_\_



## GAS ANALYSIS

CONTAINER IDENTIFICATION  
**AGAT 17712**

LABORATORY NUMBER  
**GH24777B**

**NORTHERN CROSS**

OPERATOR NAME

UNIQUE WELL IDENTIFIER  
**CHANCE**

WELL NAME  
**CANOE RIVER CHANCE Y.T. J-19**

LAB. m ELEVATIONS  
**518.60** **514.20**

FIELD OR AREA  
**CHANCE**

POOL OR ZONE  
**CHANCE SAND**

NAME OF SAMPLER

COMPANY  
**SAVE**

TEST TYPE  
**NO**

TEST RECOVERY

TEST INTERVAL OR PERIS  
**1357.90-1363.70**  
**mkB**

SAMPLING POINT  
**WELHEAD**

GAUGE PRESSURE lps  
**3500**

TEMPERATURE °C  
**-20**

SOURCE  
**3500**

SAMPLED  
**-20**

RECEIVED  
**3000**

DATE SAMPLED (Y-M-D)  
**98-03-21**

DATE RECEIVED (Y-M-D)  
**98-03-30**

DATE REPORTED (Y-M-D)  
**98-04-06**

ANALYST  
**BN NCO**

OTHER INFORMATION

COMP	MOLE FRACTION		PETROLEUM CONTENT ml. m <sup>-3</sup>
	AIR FREE AS RECEIVED	ACID GAS FREE	
H <sub>2</sub>	0.0016	0.0019	
H <sub>4</sub>	TRACE	TRACE	
H <sub>2</sub>	0.0095	0.0116	
CO <sub>2</sub>	0.1735	0.0000	
H <sub>2</sub> S	0.0042	0.0000	
C <sub>1</sub>	0.6515	0.7922	
C <sub>2</sub>	0.1073	0.1305	
C <sub>3</sub>	0.0401	0.0488	147.6
C <sub>4</sub>	0.0044	0.0054	19.2
N <sub>C4</sub>	0.0065	0.0073	27.5
N <sub>C5</sub>	0.0007	0.0009	3.5
N <sub>C5</sub>	0.0005	0.0006	2.4
C <sub>6</sub>	0.0002	0.0002	1.0
C <sub>7</sub>	0.0000	0.0000	0.0
C <sub>8</sub>			
C <sub>10+</sub>			

GROSS HEATING VALUE (MJ m<sup>-3</sup>)  
OF GAS AND 10% GAS

MEASURED  
**45.12**

AIR FREE AS RECEIVED  
**37.22**

VAPOUR PRESSURE  
PENTANES PLUS  
**115.5** lps

MOISTURE FREE GAS SAMPLED

MEASURED

CALCULATED  
**0.837**

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED  
**0.691**

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED  
pTc (kPa) **5092** lps  
pTc (kPa) **232.6** K

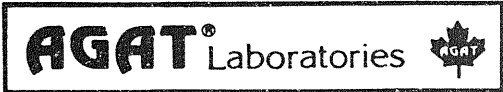
ACID GAS FREE  
pTc (kPa) **4589** lps  
pTc (kPa) **216.7** K

RELATIVE MOLECULAR MASS

TOTAL GAS  
**24.2** **0.0**

H<sub>2</sub>S gm m<sup>-3</sup> **6.03**

REMARKS:



**OIL ANALYSIS**

CONTAINER IDENTIFICATION: **PB#1** LABORATORY NUMBER: **024716A**

OPERATOR NAME: **NORTHERN CROSS**

UNIQUE WELL IDENTIFIER: \_\_\_\_\_ WELL NAME: **CANOE RIVER CHANCE J-19** KB m: **518.60** GRD m: **514.20**

FIELD OR AREA: \_\_\_\_\_ POOL OR ZONE: **CHANNEL SAND** NAME OF SAMPLER: \_\_\_\_\_ COMPANY: **SAME**

TEST TYPE:  NO  TEST RECOVERY: \_\_\_\_\_

SAMPLING POINT: **TREATER** AMT & TYPE OF CUSHION: \_\_\_\_\_ MUD RESISTIVITY:  $\Omega$  m @ 25° C: \_\_\_\_\_

TEST INTERVAL OR PERFS: **1357.9-1359.7**  
**1361.2-1363.7**  
**mKB**

SEPARATOR: \_\_\_\_\_ TREATER: \_\_\_\_\_ RESERVOIR: \_\_\_\_\_ SOURCE: \_\_\_\_\_ SAMPLED: \_\_\_\_\_ RECEIVED: \_\_\_\_\_

GAUGE PRESSURE kPa: \_\_\_\_\_ TEMPERATURE °C: \_\_\_\_\_

DATE SAMPLED (Y-M-D): **98-03-16** DATE RECEIVED (Y-M-D): **98-03-26** DATE REPORTED (Y-M-D): **98-03-31** ANALYST: **DPGM NCO** OTHER INFORMATION: \_\_\_\_\_

**SAMPLE PROPERTIES**

COLOUR OF CLEAN OIL: **BROWN**

B.S. & W. (VOLUME FRACTION): WATER: **0.26** SEDIMENT: **0.15** TOTAL: **0.41**

COLOUR NUMBER ASTM D-1500: **D-8 A.S.T.M.**

RELATIVE DENSITY: AS RECEIVED: \_\_\_\_\_ AFTER CLEANING: **0.8713** ABSOLUTE  $\rho_{kg\cdot m^{-3}}$ : AS RECEIVED: \_\_\_\_\_ AFTER CLEANING: **870.5**

API GRAVITY @ 15° C: **30.90**

TOTAL SULPHUR (MASS FRACTION): **0.01068** TOTAL SALT  $g\cdot m^{-3}$ : \_\_\_\_\_ POUR POINT / °C: U.S.B.M.: \_\_\_\_\_ A.S.T.M.: **-21**

FVP/kPa: \_\_\_\_\_ CARBON RESIDUE (MASS FRACTION): CONRADSON: \_\_\_\_\_ RAMSBOTTOM: \_\_\_\_\_

VISCOSITY		
TEMP / °C	ABSOLUTE $\eta_{mPa\cdot s}$	KINEMATIC $\nu_{mm^2\cdot s^{-1}}$
25	6.25	7.23
38	5.05	5.90
50	4.18	4.93

**DISTILLATION**

METHOD: **A.S.T.M.-D86\***

INITIAL BOILING POINT: **54.9**

ABS BAROM PRESS/kPa: **88.1** ROOM TEMP/°C: **21.0**

DISTILLATION SUMMARY (VOLUME FRACTION):

200° C NAPHTHA	275° C KEROSENE	350° C LIGHT GAS OIL
<b>0.28</b>	<b>0.48</b>	<b>0.59</b>

RECOVERED: **0.65** RESIDUE: **0.33** DISTILLATION LOSS: **0.02**

CHARACTERIZATION FACTOR: **11.7**

VOLUME FRACTION	TEMP. / °C
0.05	93.3
0.10	118.6
0.15	136.8
0.20	162.1
0.25	188.4
0.30	215.8
0.35	233.0
0.40	257.3
0.45	267.4
0.50	281.5
0.55	293.7
0.60	358.4
0.65	370.6
0.70	
0.75	
0.80	
0.85	
0.90	
0.95	
1.00	
F.B.P	370.6
CRACKED	

REMARKS: \* THE DISTILLATION TEMPERATURES HAVE BEEN CORRECTED TO 101.3 KPA (ABS).

## WATER ANALYSIS

CONTAINER IDENTIFICATION <b>PB 5A</b>		LABORATORY NUMBER <b>W25509A</b>	
OPERATOR NAME <b>NORTHERN CROSS</b>			
UNIQUE WELL IDENTIFIER	WELL NAME	KB m	ELEVATIONS GRD m
	<b>CANOE RIVER CHANCE Y.T. J-19</b>	<b>518.60</b>	<b>514.20</b>
FIELD OR AREA	POOL OR ZONE	NAME OF SAMPLER	COMPANY
<b>YUKON</b>	<b>CHANCE SAND</b>		<b>SAME</b>
TEST TYPE	NO	TEST RECOVERY	
SAMPLING POINT <b>TREATER</b>		AMT & TYPE OF CUSHION	MUD RESISTIVITY: $\Omega$ m @ 25° C
TYPE OF PRODUCTION			
<input type="checkbox"/> PUMPING <input type="checkbox"/> FLOWING <input type="checkbox"/> GAS LIFT <input type="checkbox"/> SWAB			
PRODUCTION RATES			
WATER m <sup>3</sup> /d	OIL m <sup>3</sup> /d	GAS 10 <sup>3</sup> m <sup>3</sup> /d	
SEPARATOR		TREATER	RESERVOIR
SOURCE		SAMPLED	RECEIVED
Gauge Pressure kPa	TEMPERATURE ° C		
DATE SAMPLED (Y-M-D)	DATE RECEIVED (Y-M-D)	DATE REPORTED (Y-M-D)	ANALYST
<b>98-03-18</b>	<b>98-04-13</b>	<b>98-04-17</b>	<b>LN NCO</b>
OTHER INFORMATION			

TEST INTERVAL OR PERFS  
 1357.90-1359.70  
 1361.20-1363.70  
 mKB

ION	mg/L	MASS FRACTION	mmol/L
Na	4610.0	0.121	200.0
K	321.0	0.008	8.2
Ca	7980.0	0.210	199.0
Mg	548.0	0.014	22.6
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	424.0	0.011	7.6

ION	mg/L	MASS FRACTION	mmol/L
Cl	23300.0	0.612	658.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO <sub>3</sub>	793.0	0.021	13.0
SO <sub>4</sub>	81.5	0.002	0.8
CO <sub>3</sub>	NIL	NIL	NIL
OH	NIL	NIL	NIL
H <sub>2</sub> S	N.D.	N.D.	N.D.

**DISSOLVED**

TOTAL SOLIDS mg/L

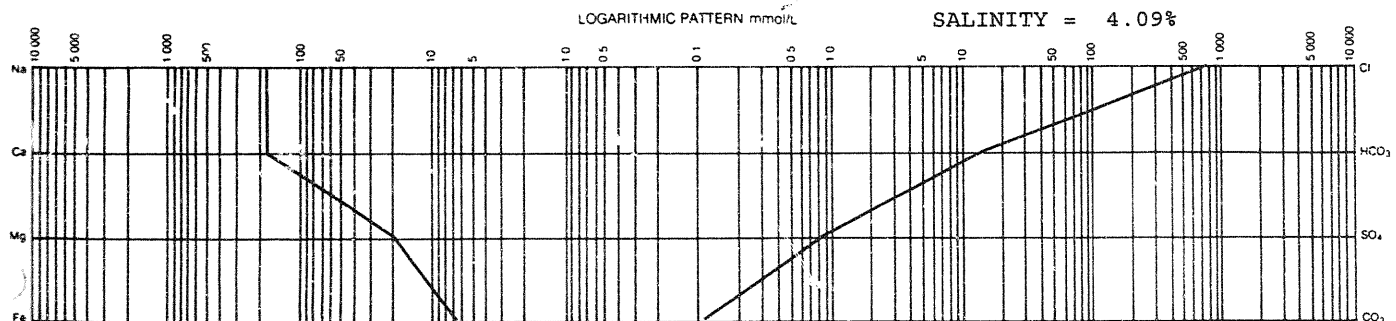
EVAPORATED AT 110° C	EVAPORATED AT 180° C
AT IGNITION	CALCULATED
	<b>38100.0</b>

RELATIVE DENSITY	REFRACTIVE INDEX
<b>1.030 @ 25° C</b>	<b>N.A. @ 25° C</b>

OBSERVED pH	RESISTIVITY/OHM *m
<b>6.45 @ 25° C</b>	<b>0.20 @ 25° C</b>



REMARKS  
 TRC+ = LESS THAN 0.1    N.D. = NOT DETECTED    NIL = 0.0    TRC\* = LESS THAN 0.001    N.A. = NOT ANALYZED

## WATER ANALYSIS

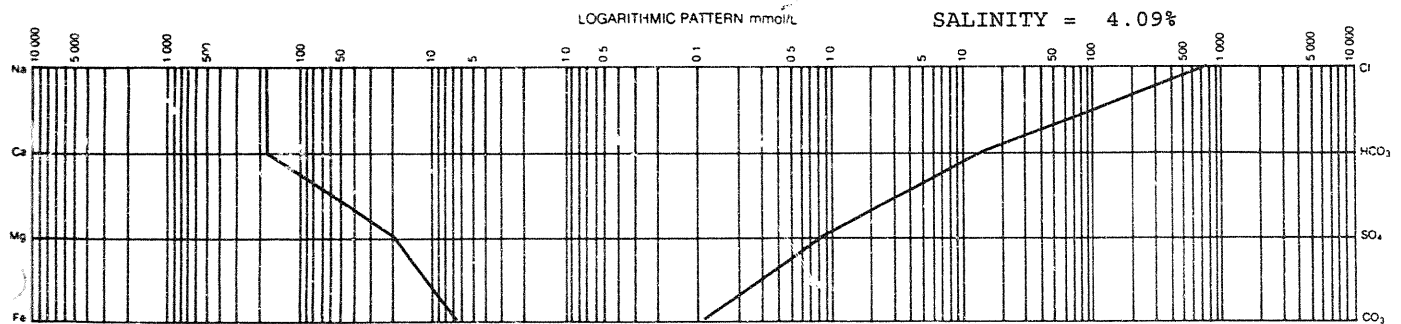
CONTAINER IDENTIFICATION <b>PB 5A</b>		LABORATORY NUMBER <b>W25509A</b>	
OPERATOR NAME <b>NORTHERN CROSS</b>			
UNIQUE WELL IDENTIFIER	WELL NAME	KB m ELEVATIONS	GRD m
	<b>CANOE RIVER CHANCE Y.T. J-19</b>	<b>518.60</b>	<b>514.20</b>
FIELD OR AREA	POOL OR ZONE	NAME OF SAMPLER	COMPANY
<b>YUKON</b>	<b>CHANCE SAND</b>		<b>SAME</b>
TEST TYPE	NO	TEST RECOVERY	
SAMPLING POINT		AMT & TYPE OF CUSHION	MUD RESISTIVITY: $\Omega$ m @ 25° C
<b>TREATER</b>			
TEST INTERVAL OR PERFS			
1357.90-1359.70 1361.20-1363.70 mKB			
TYPE OF PRODUCTION			
<input type="checkbox"/> PUMPING <input type="checkbox"/> FLOWING <input type="checkbox"/> GAS LIFT <input type="checkbox"/> SWAB			
PRODUCTION RATES			
WATER m <sup>3</sup> /d	OIL m <sup>3</sup> /d	GAS 10 <sup>3</sup> m <sup>3</sup> /d	
SEPARATOR		TREATER	RESERVOIR
SOURCE		SAMPLED	RECEIVED
Gauge Pressure kPa			
TEMPERATURE ° C			
DATE SAMPLED (Y-M-D)	DATE RECEIVED (Y-M-D)	DATE REPORTED (Y-M-D)	ANALYST
<b>98-03-18</b>	<b>98-04-13</b>	<b>98-04-17</b>	<b>LN NCO</b>
OTHER INFORMATION			

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Na	4610.0	0.121	200.0
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SO <sub>4</sub>	81.5	0.002	0.8
CO <sub>3</sub>	NIL	NIL	NIL
OH	NIL	NIL	NIL
H <sub>2</sub> S	N.D.	N.D.	N.D.

### DISSOLVED

TOTAL SOLIDS mg/L	
EVAPORATED AT 110° C	EVAPORATED AT 180° C
AT IGNITION	CALCULATED
	<b>38100.0</b>
RELATIVE DENSITY	
<b>1.030</b> @ 25° C	REFRACTIVE INDEX
	<b>N.A.</b> @ 25° C
OBSERVED pH	
<b>6.45</b> @ 25° C	RESISTIVITY/OHM *m
	<b>0.20</b> @ 25° C



REMARKS: TRC+ = LESS THAN 0.1    N.D. = NOT DETECTED    NIL = 0.0    TRC\* = LESS THAN 0.001    N.A. = NOT ANALYZED