

## REPORT SUMMARY

**Date:** July 31, 2007  
**Re:** PREDICTIVE OIL ANALYSIS REPORT  
**For:** ABC CANADA INC.

UNIT	Code	RECOMMENDATION	ACTION TAKEN
R#1	1	-ISO contamination level, Spectrograph and Debris analysis tests show Critical Iron metal concentration in the oil due to component internal wear.  -We advise immediate gearbox inspection as well as immediate oil change after a thorough drainage of the gearbox.	W/O#
R#2	1	-ISO contamination level, Spectrograph and Debris analysis tests show Critical and increased Iron, Tin, Lead and Nickel metal concentration in the oil due to component internal wear.  -We advise immediate gearbox inspection as well as immediate oil change after a thorough drainage of the gearbox.	W/O#

1	Immediate action is required
2	Service action is needed and close monitoring is required
3	Normal operating condition. No service action is required
[**]	Chemical analysis (Spectrograph and TAN tests) is due.

Prepared by: PdM360

Sample ID: 00000001  
Equipment Code: R-1  
Equipment Name: R#1 GEARBOX, BEFORE TREATMENT  
Equipment Area: ALL EQUIPMENT  
Lubricant: EP-220

## CRITICAL

Sampled: 30-JUL-07, 05:51 pm  
Tested: 30-JUL-07  
Reported: 31-JUL-07

### Sample Comments

dCA ISO Code 19/19/16 exceeds the target cleanliness 19/18/15.

The dVA reading (212.56cst.) at 40 deg. Celsius is within the range (198.00 to 242.00)cst.

dMA reading (80.000ppm.) is in the NORMAL range.

Spectrographic analysis reveals:

Cd (0.0ppm) is NORMAL. Al (0.0ppm) is NORMAL. Cr (0.0ppm) is NORMAL.  
Cu (1.0ppm) is NORMAL. Fe (50.0ppm) is CRITICAL. Sn (0.0ppm) is NORMAL.  
Pb (0.0ppm) is NORMAL. Si (3.0ppm) is NORMAL. Mo (0.0ppm) is NORMAL.  
Ni (0.0ppm) is NORMAL. Ag (0.0ppm) is NORMAL. K (0.0ppm) is NORMAL.  
Na (0.0ppm) is NORMAL. B (20.0ppm) is NORMAL. Ba (0.0ppm) is NORMAL.  
Ca (18.0ppm) is NORMAL. Mg (1.0ppm) is NORMAL. Mn (0.0ppm) is NORMAL.  
P (110.0ppm) is CAUTION. Zn (7.0ppm) is NORMAL.

Chemical Elements:

Al=Aluminum Ag=Silver B=Boron Ba=Barium Ca=Calcium Cd=Cadmium Cr=Chromium  
Cu=Copper Fe=Iron K=Potassium Mg=Magnesium Mn=Manganese Mo=Molybdenum  
Na=Sodium Ni=Nickel Pb=Lead P=Phosphorus Si=Silicon Sn=Tin Zn=Zinc

Total Acid Number: TAN (0.840mg KOH/g) is in the NORMAL range.

RECOMMENDATIONS: From the data indicated above, the following actions are recommended:

1) The ISO contamination level is in the CRITICAL range at ISO code 19/19/16. The Spectrographic analysis test shows a Critical concentration of Iron in the oil indicating internal component wear within the Gearbox.

Furthermore, we performed a Debris Analysis test to determine the criticality of wear particulate. The test shows Critical size iron metal particulate in the oil ( see attached pictures ).

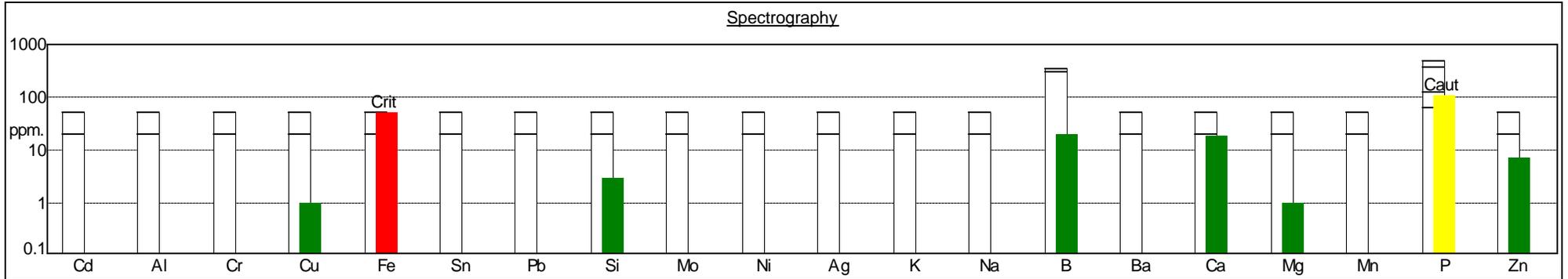
The following is advised:

- Inspection the gearbox for internal component wear and
- Drain the gearbox and flush thoroughly and re-charge with new oil ( Esso EP-220 gearoil )

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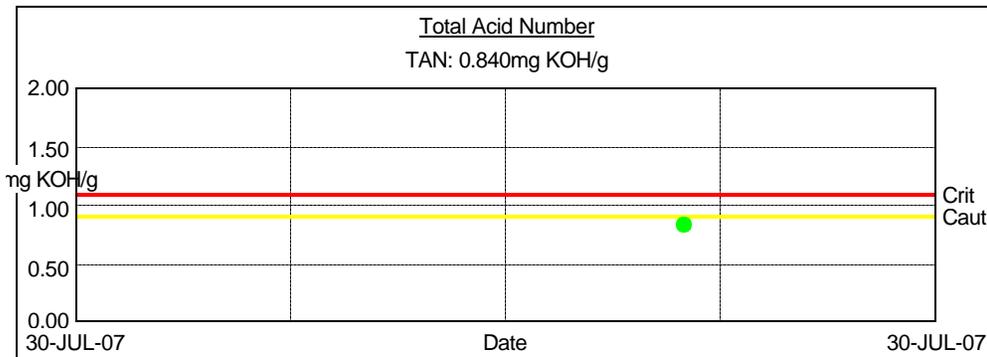
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Spectrography (ppm.) - Table

Sample	Date	Hours	Cd	Al	Cr	Cu	Fe	Sn	Pb	Si	Mo	Ni	Ag	K	Na	B	Ba	Ca	Mg	Mn	P	Zn
00000001	30-JUL-07	0.0	0.0	0.0	0.0	1.0	**50.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	18.0	1.0	0.0	*110.0	7.0



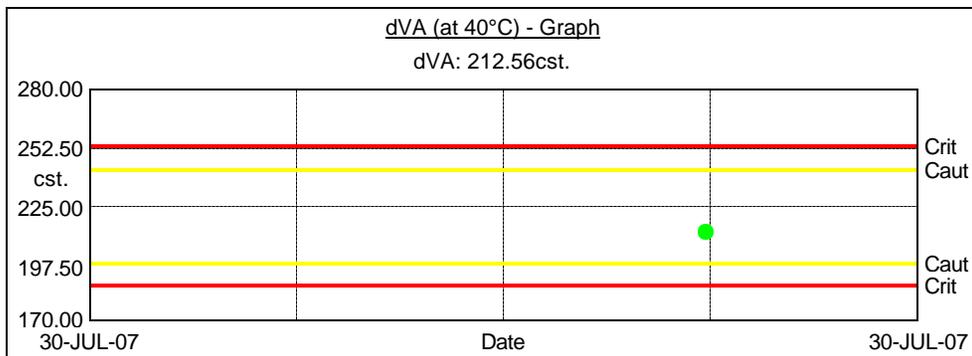
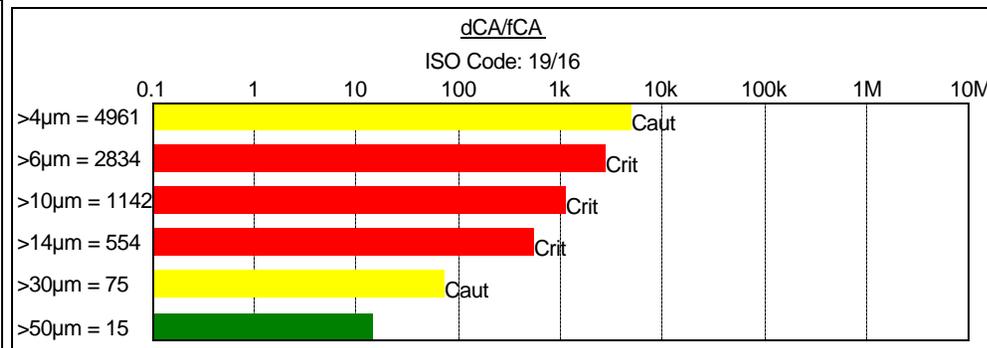
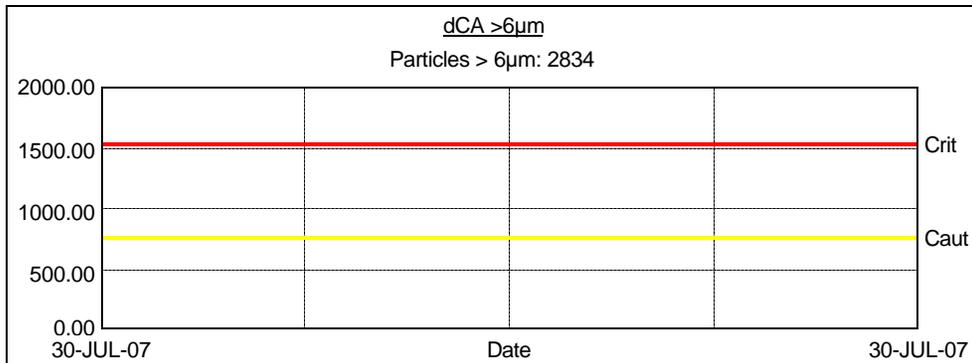
Total Acid Number - Table

Sample	Date	Hours	TAN
00000001	30-JUL-07	0.0	0.840

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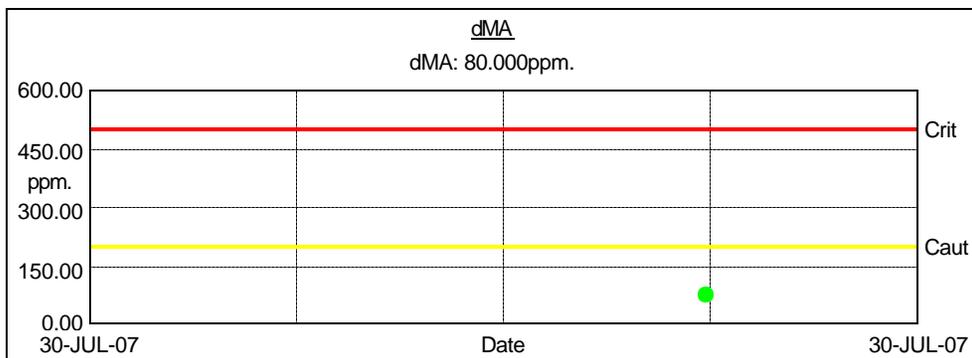
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**dVA (at 25°C) - Table**

Sample	Date	Hours	dVA
00000001	30-JUL-07	0.0	212.6cst.



**dMA - Table**

Sample	Date	Hours	dMA
00000001	30-JUL-07	0.0	80.0ppm.





