

REGIONAL MUNICIPALITY OF OTTAWA-CARLETON  
MUNICIPALITÉ RÉGIONALE D'OTTAWA-CARLETON

REPORT  
RAPPORT

Our File/N/Réf.  
Your File/V/Réf.

DATE 22 April 1998

TO/DEST. Co-ordinator  
Corporate Services and Economic Development Committee

FROM/EXP. Environment and Transportation Commissioner

SUBJECT/OBJET **BRITANNIA WATER PURIFICATION PLANT CW 8624  
GENERATOR SET #3 - TURBO CHARGER REPLACEMENT  
(IN ACCORDANCE WITH CORPORATE POLICY MANUAL  
SECTION 4.6.9)**

### DEPARTMENTAL RECOMMENDATION

**That the Corporate Services and Economic Development Committee and Council approve the award of contract CW8624 to Toromat Industries for the Turbo Charger Replacement at Britannia Water Purification Plant, for a total contract provision of \$137,536.**

### INTRODUCTION

Occasionally, the Department is faced with an urgent requirement and is unable to meet the standard report routing process to Committee. Section 4.6.9 of the Corporate Policy Manual addresses such situations. The Water Division recently followed this section of the Corporate Policy Manual.

### BACKGROUND

On 12 March 1998, Generator Set #3 (Caterpillar Model #3606) failed and was rendered inoperable due to an exhaust valve stem breakage on #6 cylinder. Once the stem dislodged from the valve, a piece of the valve head travelled through the exhaust system, which supplies power to the turbo charger, and subsequently caught in the turbine. The turbine's malfunction caused the rotor assembly to become imbalanced, consequently bending the charger's main shaft.

The Generator Set #3 was installed in 1989 and is the largest unit (1500 KW) at the Britannia Water Purification Plant. It is the main alternate source of power during hydro interruptions. The Plant also adheres to a hydro restriction program set by Ottawa Hydro. During peak hydro demand periods, the Britannia Plant's power supply is provided solely by the diesel generators. Strict penalties apply for non compliance to the restriction schedule.

### DISCUSSION

Prior to installing a new turbo charger, Toromont Industries in conjunction with the equipment's Manufacturer, Caterpillar Inc., conducted an in-depth investigation to determine the cause of the valve breakage. The investigation included engine boroscoping, a physical inspection of #6 cylinder, and an overall system overview. The inspections determined that upon breakage, the exhaust valve caused damage to the cylinder head, the bridge, rocker arm, push rod and the bridge guide assembly. The necessary work was completed by internal staff and Toromont Industries within a two week period with a billing date of late April 1998.

The work involved repairs to the #6 cylinder, the installation of an exchange cylinder head, a valve train assembly and a new turbo charger.

### CONSULTATION

The public consultation process is not applicable.

### EXPENDITURE JUSTIFICATION

On 12 March 1998, an exhaust valve stem breakage caused extensive damage to Generator Set #3. This unit is the largest at the Britannia Water Purification Plant and is the main source of power in hydro interruptions and restrictions. Corrective measures were immediately undertaken to minimize operational impact. The diesel generator was fully recommissioned on 4 April 1998.

Full insurance coverage applies to this incident and the total expenditure will be in the amount of the applicable insurance deductible of \$100,000. The balance will be recovered from the insurer, The Boiler Inspection and Insurance Company.

*Approved by*  
*M. J. E. Sheflin, P.Eng.*

FM/

FINANCE DEPARTMENT COMMENT

Funds for the Turbo Charger Replacement were not provided for in the 1998 Operating Budget. It is recommended that all costs be charged directly to the Water Operating Budget. In the event of a deficit arising as a result of the Turbo Charger Replacement, funds up to \$100,000 would be contributed from the Insurance Reserve Funds. The balance of the cost (\$37,536) will be recovered from the Boiler Inspection & Insurance Company.

*Approved by C. Colaiacovo  
on behalf of the Finance Commissioner*