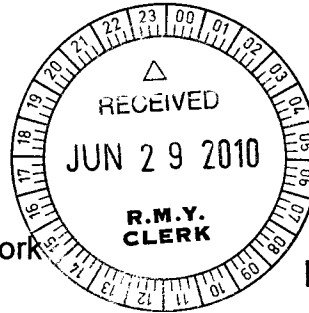




June 24, 2010

Mr. Denis Kelly,
Regional Clerk
The Regional Municipality of York
17250 Yonge Street
Newmarket, ON L3Y 6Z1



REGION OF YORK
CLERK'S OFFICE

FILE No. - **P42**

The Regional
Municipality
of Durham

Clerk's Department

605 ROSSLAND RD. E.
PO BOX 623
WHITBY ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
Fax: 905-668-9963
E-mail: clerks@durham.ca
www.durham.ca

Pat M. Madill, A.M.C.T., CMM III
Regional Clerk

**RE: REPORT ON THE REHABILITATION OF STAGES I AND STAGE II
AT THE YORK-DURHAM DUFFIN CREEK WATER POLLUTION
CONTROL PLANT, IN THE CITY OF PICKERING (2010-W-85)
(Our File No: 011)**

Please be advised the Works Committee of Regional Council considered the above matter and at a meeting held on June 23, 2010 Council adopted the following recommendations of the Committee:

- "a) THAT given that a Certificate of Approval (Air) from the Ministry of Environment (MOE) is required for York Region's Duffin Creek WPCP Stage III expansion project and the MOE requires that odour mitigation measures be implemented in order to obtain the Certificate of Approval (Air), it is recommended that:
- i) The upgrades to the existing Stage I and Stage II facilities at the Duffin Creek WPCP, estimated at \$200 million* be advanced, including the upgrades to odour control estimated at approximately 10 per cent (\$20 million*) of the cost;
 - ii) The Regional Municipality of Durham's share (40 million*) for the engineering services and construction of the rehabilitation of Stages I and II be advanced and included in the 2011 Sanitary Sewerage Capital Budget and Forecast (an advancement from beyond the Region's five year capital program); and
- b) THAT a copy of Report No. 2010-W-85 of the Commissioner of Works be forwarded to the Regional Municipality of York."
*(before applicable taxes in all instances)

As directed, please find enclosed a copy of Report No. 2010-W-85 of the Commissioner of Works.

P.M. Madill, AMCT, CMM III
Regional Clerk

PMM/cb
Encl.

"Service Excellence
for our Communities"

c: C. Curtis, Commissioner of Works, Region of Durham



The Regional Municipality of Durham
To: The Works Committee
From: Commissioner of Works
Report: 2010-W-85
Date: June 9, 2010

SUBJECT:

Report on the Rehabilitation of Stages I and Stage II at the York-Durham Duffin Creek Water Pollution Control Plant, in the City of Pickering

RECOMMENDATIONS:

THAT subject to the approval of the Finance and Administration Committee (recommendation a), the Works Committee recommends to Regional Council that:

- a) Given that a Certificate of Approval (Air) from the Ministry of Environment (MOE) is required for York Region's Duffin Creek WPCP Stage III expansion project and the MOE requires that odour mitigation measures be implemented in order to obtain the Certificate of Approval (Air), it is recommended that:
 - i. The upgrades to the existing Stage I and Stage II facilities at the Duffin Creek WPCP, estimated at \$200 million* be advanced, including the upgrades to odour control estimated at approximately 10 per cent (\$20 million*) of the cost; and
 - ii. The Regional Municipality of Durham's share (\$40 million*) for the engineering services and construction of the rehabilitation of Stages I and II be advanced and included in the 2011 Sanitary Sewerage Capital Budget and Forecast (an advancement from beyond the Region's five year capital program); and
- b) A copy of this report be forwarded to the Regional Municipality of York.

* (before applicable taxes in all instances)

REPORT:

1. BACKGROUND

The Duffin Creek Water Pollution Control Plant (WPCP) was initially constructed by the Province of Ontario in 1980 to provide sanitary sewage treatment capacity

for the Regional Municipality of Durham (Durham) and the Regional Municipality of York (York).

Construction to provide additional plant capacity at the York-Durham Duffin Creek WPCP Stage III commenced in 2007. Based on the current construction schedule, and progress to date, it is expected that the plant's overall installed liquid treatment capacity will be 630 megalitres per day (ML/d) at the earliest possible date being December 31, 2010.

In order for the Stage III expansion treatment capabilities to be fully realized, the Regions are required to obtain from the Ministry of the Environment (MOE), both a Certificate of Approval (C of A) – Sewage (this has been obtained) and a C of A – Air (this is pending). As a condition of the approval of the environmental assessment, which was undertaken by York for the Stage III plant expansion project, the Minister of the Environment (Minister) required York and Durham to conduct an odour management plan for the facility. This plan was submitted to the MOE in the last quarter of 2009. York and Durham, in consultation with the MOE, have been developing a strategy for odour control for the last several months. The MOE Central Director has stipulated that the MOE intends to incorporate this plan into the C of A - Air for the Duffin Creek WPCP and that York and Durham shall complete the upgrade and refurbishment of Stage I and Stage II of the Duffin Creek WPCP no later than December 31, 2017.

It should be noted that the majority of this work is required as part of the ten-year Capital Forecast and Asset Management Plan for the Duffin Creek WPCP. Proposed works are being advanced to comply with the MOE requirements and take best advantage of the rehabilitation of Stages I and II when addressing the odour issues.

In order to perform the capital works required, it will be necessary to sequentially remove from service Stage I and then Stage II modules. The removal of one of the existing stages from service essentially reduces the installed treatment capacity of the facility by 25 per cent during the estimated four to five year construction period to perform the improvements.

Stages I and II retrofit capital works had been identified as occurring later in the recent versions of the Ten-year Capital Forecast. However, with the MOE's requirement for odour mitigation measures to be implemented under a condition of the C of A – Air, it has been necessary to bring the proposed works forward in the capital works program and ensure sufficient treatment capacity is continuously available while portions of the plant are out of service for retrofitting and rehabilitation. Staff has determined that the most favourable method of implementing a large portion of the odour mitigation works required is to move forward with the rehabilitation of the existing headworks facility. It was further determined that the most economical method of rehabilitation was the replacement of the facility with alternative technology as the existing technology in use is obsolete. Replacement of this equipment within the existing structures

was projected to be for more difficult and substantially more expensive than replacing the complete facility with alternative technology. It is important to note that the proposed rehabilitation work also includes the replacement of the travelling bridges for the primary clarifiers in which two of eight have failed and the remaining require replacement.

Durham's share of the proposed rehabilitation works for the existing Stages I and II (including the mandated air quality measures) is proposed to be based on historical utilization of capacity, similar to previous rehabilitation undertaken at the plant as follows:

**Table 1
Project Splits**

Description of Project	Project Cost Splits	
	York Region (%)	Durham Region (%)
Rehabilitation of Stages I and II	80	20

A conceptual-level value engineering review of the Stages I and II work has determined that the project is estimated to cost \$200 million. York received approval on April 22, 2010 to initiate the rehabilitation project for Stages I and II.

2. FINANCING

2.1 Duffin Creek WPCP Stage I and II Upgrades

Based on Durham's allocation of 20 per cent, Durham's projected share of the estimated \$200 million* Stage I and II capital upgrades is \$40 million* as shown below:

**Table 2
Project Costing**

Description of Cost	Total Costs (\$)	York Region Costs (\$)	Durham Region Costs (\$)
Engineering Services Retrofitting of Stages I and II: Pre-Design, Design and Construction Administration	30,000,000	24,000,000	6,000,000
Capital Construction Costs: Retrofitting of Stages I and II	170,000,000	136,000,000	34,000,000
Total Estimated Costs	200,000,000*	160,000,000*	40,000,000*

The capital upgrades have increased significantly from previous budget estimates and the timing has also been advanced. The original estimate for Durham's share based on conceptual estimates was approximately \$14.2 million and only \$3.4 million was identified in the five year forecast. The current estimate identifies \$40 million* within the five year forecast, to be financed by user rates.

2.2 Duffin Creek WPCP 10 – Year Capital Program (Durham's Share)

Table 3 identifies the 10-year capital program at the Duffin Creek WPCP, which will create significant user rate pressures in addition to the \$40 million* for the Stage I and II upgrades (which include the mandated air quality measures).

Table 3
Duffin Creek WPCP 10-Year Capital Program (Durham's Share)

	<u>10-Year Forecast</u>		<u>Total</u>
	<u>2011-2015</u> (\$ millions)	<u>2016-2020</u> (\$ millions)	<u>2011-2020</u> (\$ millions)
<u>EXPENDITURES</u>			
<u>Growth Related</u>			
New Outfall (EA and Construction)	\$ 23.8	\$ 15.5	\$ 39.3
	23.8	15.5	39.3
<u>Replacement / Rehabilitation</u>			
Replacement of Incinerator #1	-	15.2	15.2
Replacement of Incinerator #2	12.1	3.1	15.2
Primary Tank Bridge	0.6	-	0.6
	12.7	18.3	31.0
<u>Regulatory Works</u>			
Stage I and II Upgrades - Includes Odour Control Mitigation	40.0	-	40.0
TOTAL	76.5	33.8	110.3
<u>FINANCING</u>			
Development Charges	3.1	2.0	5.1
User Rates	67.7	28.1	95.8
Other	5.7	3.7	9.4
	\$ 76.5	\$ 33.8	\$ 110.3

The estimated capital program is \$110.3 million over the next 10 years, with **approximately \$95.8 million required from user rates**. In addition to the Stage I and II upgrades, additional capital projects include:

- The two existing incinerators which are scheduled to be replaced at an estimated cost of \$30.4 million and is 100 per cent user rate financed;
- The new outfall (EA and construction) which is estimated at \$39.3 million and has a large user rate component, estimated at \$24.8 million (Durham's share is still being evaluated); and
- The replacement of the primary tank bridges, estimated at \$0.6 million (100 per cent user rate financed).

It is important to note that the 10-year capital program identified in Table 3 does not include two capital projects that could add to the financial pressures with respect to the Duffin Creek WPCP. These include:

- Remedial works to the existing YDSS Trunk Sewer. These works are unknown at this time and the extent of any work required will be identified when the proposed Southeast Collector is constructed;
- An Environmental Assessment and design work for the twinning of the YDSS Primary Trunk Sewer which is scheduled within the 10-year forecast at an estimated \$27.8 million. The twinning of the Primary Trunk Sewer is required to allow future repairs to the existing Primary Trunk Sewer. **Durham's share is not known at this time.**

2.3 Potential User Rate Impacts

It is anticipated that the user rate costs (approximately \$95.8 million) associated with the Duffin Creek WPCP will be **100 per cent debenture financed** given the significant pressures in the sanitary sewerage budget. As identified in the 2010 Water and Sewer User Rate Study, there are significant user rate pressures associated with the capital program, including:

- Harmony Creek WPCP #2 Upgrades (\$12.8 million user rate share);
- Nonquon River WPCP improvements (\$6.8 million user rate share);
- System upgrades in Whitby (to address basement flooding \$3.9 million user rate share); and
- Port Darlington WPCP Expansion (\$11.0 million user rate share).

The annual debt servicing costs associated with \$95.8 million debenture financing is approximately \$9.5 million. **This will result in significant and unanticipated user rate increases as the majority of these costs identified in Table 3 were not in the 2010 Sanitary Sewerage Capital Budget and Forecast. The rate increases identified below are in addition to the eight to nine per cent forecasted user rate increases identified in the 2010 Water and Sewer User Rate Study.**

- **Debenture requirements of \$40.0 million in 2011 for the Stage 1 and II upgrades will require a seven per cent user rate increase in 2012 to service the debt payments;**
- **Debenture requirements for the outfall (approximately \$24.8 million user rate share) will require a four per cent user rate increase to service the debt in 2012**
- **Debenture requirements of \$15.2 million in 2012 for the replacement of Incinerator #1 will require a 2.5 per cent user rate increase in 2013 to service the debt**

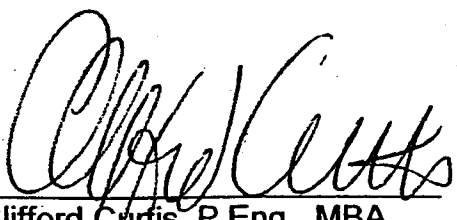
Any capital costs associated with the YDSS Trunk Sewer (either twinning or remedial works) will add to the debenture requirements and future user rate increases.

The sanitary sewerage capital program is re-examined and reprioritized and reported on annually in the Water and Sanitary Sewerage Servicing and Financing Study. Staff will continue to update Council on the financing details of the Duffin Creek WPCP capital program in conjunction with the entire Sanitary Sewerage Budget and identify all options to defer and/or smooth the capital program.

3. **CONCLUSION**

The Ministry of the Environment is requiring the odour mitigation plan to be implemented through the rehabilitation of the existing Stages I and II liquid process trains at the Duffin Creek Water Pollution Control Plant in order to receive a Certificate of Approval (Air) for the plant works. Moving the capital works for rehabilitating Stages I and II forward in the capital forecast to coincide with the necessary odour retrofit work, will permit economies of the construction to be realized.

This report has been reviewed by the Finance Department and the Commissioner of Finance concurs with the financial recommendation.


Clifford Curtis, P.Eng., MBA,
Commissioner of Works

Recommended for Presentation to Committee


G.H. Gubitt, M.S.W.,
Chief Administrative Officer

PO2/ms/em