

Minutes - Standing Committee on Fiscal Issues - November 8, 2005

REPORTS

**Minute No. 5 North End Water Pollution Control Centre Wastewater Disinfection
Financial Status Report No. 4 for the period from May 1, 2005 to
August 31, 2005
File WS-7.1**

STANDING COMMITTEE DECISION:

The Standing Committee on Fiscal Issues concurred in the administrative recommendation and received the report as information.

Minutes - Standing Committee on Fiscal Issues - November 8, 2005

DECISION MAKING HISTORY:

Moved by Councillor Pagtakhan,

That the administrative recommendation be concurred in.

Carried

**RE: NORTH END WATER POLLUTION CONTROL CENTRE (NEWPCC)
WASTEWATER DISINFECTION FINANCIAL STATUS REPORT NO. 4
FOR THE PERIOD FROM MAY 1, 2005 TO AUGUST 31, 2005**

FOR SUBMISSION TO: The Standing Committee on Fiscal Issues

ORIGINAL REPORT SIGNED BY: The Director of the Water and Waste Department

REPORT DATE: October 31, 2005

RECOMMENDATION: That this report be received as information.

REPORT SUMMARY

KEY ISSUES:

- Manitoba Conservation issued Environment Act Licence No. 2684 dated June 1, 2005 and revised Environment Act Licence No. 2684 R dated August 17, 2005. Environment Act Licence No. 2684 R requires that the City of Winnipeg disinfect its NEWPCC secondary effluent through the construction and commissioning of an ultraviolet (UV) disinfection facility on or before June 1, 2006.
- The NEWPCC UV Disinfection Project is expected to be completed on schedule and under budget.

IMPLICATIONS OF THE RECOMMENDATION(S):

General Implications

- None
 For the organization overall and/or for other departments
 For the community and/or organizations external to the City of Winnipeg
 Involves a multi-year contract
Comment(s):

Policy Implications

- No
 Yes - Comment(s):

Environmental Implications

- None
 Yes - Comment(s): Year round disinfection of NEWPCC Secondary effluent commencing in June 2006.

Human Resources Implications

- No
 Yes - Comment(s):

Financial Implications

X	Within approved current and/or capital budget
	Current and/or capital budget adjustment required

REPORT

REASON FOR THE REPORT:

At its meeting held on December 16, 1999, City Council adopted a policy whereby all Capital projects with a total estimated cost of \$10 million or more be submitted by the associated Civic Department to the Standing Committee on Fiscal Issues for review and recommendation prior to any bid solicitation being issued.

HISTORY:

- 2001 Council approved Capital funding in the amount of \$6,480,000 for the NEWPCC disinfection facility.
- 2002 Council approved Capital funding in the amount of \$8,520,000 for the NEWPCC disinfection facility.
- 2004 On October 12, the Standing Committee on Fiscal Issues received as information Financial Status Report No. 1 for the NEWPCC UV Disinfection Facility.
- 2004 On December 13, Council approved Capital funding in the amount of \$11,500,000 for the NEWPCC projects comprised of \$5,000,000 for UV disinfection facility and \$6,500,000 for outfall upgrades.
- 2005 On February 28, the Standing Committee on Fiscal Issues received as information Financial Status Report No. 2 for the NEWPCC UV Disinfection Facility.
- 2005 On June 14, the Standing Committee on Fiscal Issues received as information Financial Status Report No. 3 for the NEWPCC UV Disinfection Facility.

DISCUSSION:

1.0 INTRODUCTION

Administrative policy for projects with capital costs exceeding \$10 million requires formation of Major Project Steering Committee. The Committee has been formed and its members are:

Barry D. MacBride, Director and Chair
Mike Ruta, Corporate Controller (Alternate: Jason Ruby)

Bill Larkin, Director of Public Works
Harry Finnigan, Director of Planning, Property and Development (Alternate: Ian Mckay)

The Major Project Steering Committee has reviewed this report and recommended that the report be sent to the Standing Committee on Fiscal Issues.

2.0 SCOPE MANAGEMENT

2.1 General

The 2003 CEC public hearing recommendations and the September 26, 2003 letter from Manitoba Conservation identified the requirement that the City implement year round secondary effluent disinfection at the NEWPCC by the 2006 recreation season. Earth Tech (Canada) Inc. (ETC) commenced preliminary studies and conceptual design in April 2003 and completed these activities in March of 2004. Through development of the project design, the Water and Waste Department had dialogue with Manitoba Conservation where it was agreed that only dry weather flow will be treated on a year round basis.

In January 2004, the design criteria were confirmed as being 380 ML/day of dry weather secondary flow with a disinfection requirement of no more than 200 E.coli and 200 fecal coliform organisms/100 mL in the plant effluent as determined on a monthly geometric basis. Manitoba Conservation issued Environment Act Licence No. 2684 date June 1, 2005 confirming the above conditions. These conditions remain unchanged in the revised Manitoba Conservation Environment Act Licence No. 2684 R dated August 17, 2005.

The Water and Waste Department is preparing a Master Plan for the NEWPCC which will address wet weather disinfection requirements at the NEWPCC by December 31, 2014.

2.2 Sequential Multi-Contract Project Delivery Model

In order to meet the aggressive schedule for this project, a sequential multi-contract project delivery model is being used. Four equipment supply and construction contracts have been prepared by Earth Tech Canada.

All contracts required under this project have now been awarded.

2.2.1 UV Equipment Supply - RFP No. 257-2004

The UV equipment supply contract in the amount of \$6,414,000.00 was awarded to Trojan Technologies Inc. on October 26, 2004. An Authorization of Contract

Change No. 1, in the sum of \$36,476.30 was issued May 2, 2005 to upgrade the minimum fault capability for the power distribution system.

2.2.2 Pumping Equipment Supply - B.O. 89-2005 (except for requirement for bid security)

The pumping equipment supply contract in the amount of \$1,306,000.00 was awarded to KSB Pumps Inc. on May 27, 2005. An Authorization of Contract Change No. 1, was issued May 2, 2005 to revise the payment clauses of the contract. Authorization of Contract Change No. 1 did not have any costs associated with the changes.

2.2.3 Manitoba Hydro Power Supply Upgrade Contract - B.O. 440-2005

City of Winnipeg Purchase Order No. 50745 in amount of \$710,000.00 was issued to Manitoba Hydro on August 10, 2005.

2.2.4 Facility Construction and Equipment Installation - B.O. 74-2005

The contract for the UV equipment installation, pumping equipment installation, and the facility construction in the amount of \$6,383,897.00, plus applicable taxes, was awarded to Gateway Construction and Engineering Ltd. on June 8, 2005.

To date, five Contemplated Change Notices have been issued to the contractor for pricing and are listed as follows:

1. CCN #1 - To provide a power supply feed to the new Ultraviolet Disinfection Facility that was deleted from the Facility Construction project due to coordination and location of the new Manitoba Hydro service. The requirement for this Contemplated Change Order was realized during the bid period. The estimated cost is \$686,393.47 plus taxes.
2. CCN#2 - To provide revisions to the reinforcing steel of the new effluent channel in preparation for a future connection. The estimated cost is \$1,500.
3. CCN #3 - To provide an additional fire exit from the mezzanine floor as identified during the permit approval process. The estimated cost is \$15,000.
4. CCN#4 - To provide additional reinforcing and concrete to ensure the integrity of an access door to support vehicle traffic. The estimated cost is \$1,159.79.
5. CCN#5 - To provide revisions to the route of a sewer line. City staff identified a shorter route for the facility sewer. The estimated cost is a credit of \$4,500.

2.3 Contract Issues

2.3.1. Scope Issues

Change of scope items are described in the equipment supply and construction contract sections above. There are no other major scope issues on which to report at this time.

2.3.2 Schedule Issues

Bid Opportunity 74-2005 indicated that the City intended to award the facility construction contract by May 13, 2005. In that Environment Act Licence was not issued until June 1, 2005, the Gateway contract was not awarded until June 8, 2005. Gateway has submitted an acceleration claim, in the amount of \$65,000 which is currently under review, to accelerate construction activities to compensate for this lost time.

A schedule issue that could arise would be severe winter weather that could delay completion of the roof. The roof cannot be completed until the UV system is installed in mid December 2005.

3.0 QUALITY MANAGEMENT

During the engineering pre-design phase, pilot testing was conducted to verify UV disinfection dosage requirements under various actual NEWPCC plant operating conditions. Through this pilot testing, it was determined that disinfection of wet weather flows using UV technology was not practical. This limitation is reflected in Manitoba Conservation's Environment Act Licence No. 2684 R dated August 17, 2005.

During the UV equipment engineering design and equipment procurement phase, Earth Tech Canada retained the services of specialists in other firms for input and quality assurance.

During the detailed design phase specialist hydraulic engineering services were provided to construct a small scale model and recommend appropriate design features for the pumping equipment and facility.

Project contract administration commenced in April 2005. Earth Tech Canada developed an administration manual to address the following requirements:

- Pre-construction meetings
- Review meetings
- Change orders
- Progress payments
- Quality control

- Contractor submittals
- Site memos
- Communication protocol
- Shop drawing processing procedure

4.0 PROJECT TIME (SCHEDULE) MANAGEMENT

The engineering design phase was completed in June 2005 with award of the installation contract to Gateway Construction & Engineering Ltd. Earth Tech Canada is now providing contract administration services including preparation of any necessary Contract Change Notices or Authorization for Contract Changes.

The following table provides schedule information for the four contracts as well as the schedule for facility commissioning:

Description	Start Date	Completion Date
UV Equipment Supply Contract	October 26, 2004	June 30, 2006
Pumping Equipment Supply Contract	May 27, 2005	June 30, 2006
Manitoba Hydro Power Supply Upgrading	August 10, 2005	May 31, 2006
Manitoba Hydro Power Supply Upgrading	August 10, 2005	May 31, 2006
UV Facility construction contract	June 8, 2005	June 30, 2006
Commissioning and validation	April, 2006	June 2006

5.0 COMMUNICATIONS MANAGEMENT

To promote internal project communications between the City, the Consultant and the Contractor, the following has been, or is being, done:

- A partnering session, using the services of an external consultant to facilitate the session, was conducted June 23-24, 2005.
- Weekly project management coordination meetings, attended by Earth Tech Canada and City project management personnel, are held and minuted by Earth Tech Canada.

- Weekly site meetings for the UV installation contract, attended by Gateway Construction & Engineering Ltd., Earth Tech Canada, and City personnel, are held and minuted by Earth Tech Canada.

6.0 RISK MANAGEMENT

CSC Project Management Services was contracted in February 2005 to conduct an independent integrated cost and schedule risk review and analysis of the NEWPCC UV Disinfection Facility. A preliminary results package was provided on February 28th, 2005. The risk analysis was updated on April 29th, 2005 based on the bids received on the contract for UV Installation and again on September 2, 2005 based on contracts awarded to Manitoba Hydro for a power supply and a detailed construction schedule provided by the contractor.

6.1 Cost Risks

The Project Base Costs were adjusted to reflect the bids of \$6,400,000 for the installation contract, \$700,000 for an electrical change notice, \$1,300,000 for the pump supply and \$700,000 for the power supply.

The project has a high probability of being completed for less than \$20,066,000. The remaining risk is primarily in the form of the potential for scope growth in the existing contracts and equipment purchases.

6.2 Schedule Risks

The schedule risk analysis indicates the expected start up completion date is June 30, 2006. There is a high confidence in achieving the project schedule. The key risks for achieving the schedule are contractor performance or late scope changes.

6.3 Mitigation

The effect of fixing the equipment supply and the installation contract costs and completion dates has been to eliminate any potential cost reduction below the base estimate, while at the same time leaving a much reduced risk of large cost increases.

Although the contractor schedule indicates completion on time, the contractor's claim for acceleration costs has not been resolved and work progress will be monitored closely to compensate for the late start.

The Environmental Act Licence does not contain any unanticipated clauses which will impact cost or schedule. A log of licence requirements has been prepared and will be monitored monthly as part of the risk register review.

A partnering session was held in late June with the general contractor, sub-contractors and key equipment suppliers to identify risk issues and to develop protocols for dispute resolution. Equipment delivery dates have all been confirmed with suppliers and these dates will not cause any construction delays.

The Risk Register completed by the Project Team to identify specific actions, accountability and target completion dates has recently been reviewed and updated. This will ensure that the risks are being managed and cleared and will identify any new risk items and appropriate action steps required. The Risk Register will be reviewed on a monthly basis by the Project Directors from the City and Consultant.

7.0 NEWPCC UV FACILITY PROJECT: COST MANAGEMENT

7.1 Cost Estimate Summary

Description	Approved Budget (\$000)	Previous Estimate (\$000)	Current Estimate (\$000)
Engineering - Preliminary/ Conceptual Design	\$492	\$580	\$580
Engineering - Functional/ Detailed Design	\$1,227	\$1,227	\$1,227
Engineering - Contract Administration	\$1,200	\$1,200	\$1,200
UV Equipment Supply Contract	\$6,414	\$6,414	\$6,451
Pumping Equipment Supply	\$1,397	\$1,397	\$1,397
Building Construction	\$15,770	\$7,700	\$6,425
Power Supply Upgrading	0	0	\$710
Project Insurance	0	0	\$162
Risk Assessment Contingency Allowance	0	\$2,482	\$1,914
Total Estimated Cost	\$26,500	\$21,000	\$20,066

The amount of the risk assessment contingency allowance has been based upon revised cost estimate information provided by the independent Risk Analysis Consultant on August 31, 2005. The risk analysis consultant estimate is based on a 90% probability of

completing the project under the cost of \$20,066,000. Water and Waste Department staff have estimated the construction cost at approximately \$19,200,000.

The estimated reduction in building construction cost from \$15,770,000 to \$9,211,000 is comprised of the costs for Building Construction, Power Supply Upgrading, Project Insurance and Risk Assessment Contingency from Table 7.1 above. The reduction in costs is mainly attributed to the competitive bidding of the successful contractors.

7.2 Project Budget Requirements (in \$000s)

Year	Authorized Capital	Actual + Projected Cashflows	Cumulative Capital Budget Remaining
2001	\$6,480	-	\$6,480
2002	\$8,520	-	\$15,000
2003	-	\$250	\$14,750
2004	-	\$539	\$14,211
2005	\$11,500	\$13,536	\$12,175
2006	-	\$5,741	\$6,434
Total	\$26,500	\$20,066	\$6,434

The above summary table indicates a surplus of \$6,434,000 in the 2006 cash flow projection. Detailed financial information is provided in Appendix 1.

FINANCIAL IMPACT:

The following financial impact statement for this project has been prepared in accordance with the recommendation adopted by Council on December 13, 2000.

Project Name:

**NORTH END WATER POLLUTION CONTROL CENTRE (NEWPCC)
WASTEWATER DISINFECTION**

COMMENTS:

As this report is submitted for informational purposes only, there is no financial impact related to the recommendation.

Maira L. Geer C.A.
Manager of Finance & Administration

**IN PREPARING THIS REPORT THERE WAS CONSULTATION WITH AND
CONCURRENCE BY: N/A**

THIS REPORT SUBMITTED BY:

Water and Waste Department
Engineering Division
Prepared by: Terry Kjartanson, P. Eng.
File No. 020-17-08-09-01

TEJK:lc:th

APPENDIX 1
As at August 31, 2005

Components	COSTS				PROJECTED COSTS TO COMPLETE			TOTAL	VARIANCE	NOTE	
	Total Budgeted Costs	Approved** Budget To Date	Costs Incurred up to last report	Costs submitted this report	Total Costs Incurred to Date (per G/L) Aug. 31,2005	2005	2006	Total Costs Remaining to Complete	Total Project Cost	Variance from Budget (Unfavourable)	
ENGINEERING											
A) PRELIMINARY DESIGN/CONCEPTUAL	580,000	492,000	580,000	-	580,000	-	-	580,000	580,000	(88,000)	3.1
B) FUNCTIONAL/DETAILED DESIGN	1,227,000	1,227,000	391,809	409,905	801,714	425,286	-	425,286	1,227,000	0	
C) CONTRACT ADMIN/COMMISSIONING	1,200,000	1,200,000	-	85,982	85,982	314,018	800,000	1,114,018	1,200,000	0	
Total Engineering	3,007,000	2,919,000	971,809	495,887	1,467,696	739,304	800,000	1,539,304	3,007,000	(88,000)	
FACILITIES CONSTRUCTION											
A1) UV EQUIPMENT SUPPLY CONTRACT	6,414,000	6,414,000	-	-	-	4,192,809	2,221,191	6,414,000	6,414,000	0	
A2) APPROVED CONTRACT CHANGES	36,476	0	-	-	-	36,476	-	36,476	36,476	(36,476)	4.1
B1) PUMPING EQUIPMENT SUPPLY CONTRACT	1,397,420	1,397,420	-	-	-	908,323	489,097	1,397,420	1,397,420	0	
B2) APPROVED CONTRACT CHANGES	0	0	-	-	-	-	-	-	-	0	
C1) TRANSFORMER & SERV. INSTALL. CONTR.	710,000	0	-	190,631	190,631	519,369	-	519,369	710,000	(710,000)	4.2
C2) APPROVED CONTRACT CHANGES	0	0	-	-	-	-	-	-	-	0	
D1) BUILDING CONSTRUCTION CONTRACT	6,425,324	15,769,580	-	78,500	78,500	4,888,275	1,458,549	6,346,824	6,425,324	9,344,256	3.2, 4.3
D2) APPROVED CONTRACT CHANGES	0	0	-	-	-	-	-	-	-	0	
E) COC/BUILDERS RISK INSURANCE COSTS	161,991	0	-	153,511	153,511	8,480	-	8,480	161,991	(161,991)	4.4
F) RISK ASSESSMENT. CONTINGENCY ALLOW.	1,913,789	-	-	-	-	1,141,378	772,411	1,913,789	1,913,789	(1,913,789)	3.3, 4.5
Total Facilities Construction	17,059,000	23,581,000	-	422,642	422,642	11,695,110	4,941,248	16,636,358	17,059,000	6,522,000	
Total	20,066,000	26,500,000	971,809	918,529	1,890,338	12,434,414	5,741,248	18,175,662	20,066,000	6,434,000	3.4, 4.6

Percentage Complete

9%

**Council approval provided for total budget of \$26.50 million rather than \$26.52 million reported in previous reports. Distribution of costs to project activities completed by Water and Waste Department.

**EFFLUENT DISINFECTION - NEWPCC
WATER AND WASTE DEPARTMENT - ENGINEERING DIVISION**

APPENDIX 1

As at August 31, 2005

Distribution of costs to project activities completed by Water and Waste Department.

Notes:

	Date	Amount
3.1- Budget increase for pumping modeling by outside consultant.	Oct. 15, 2004	(88,000)
3.2 -Building construction budget surplus based on current cost estimate without contingencies	April 30,2005	8,089,580
3.3 -Risk assessment contingency allowance	April 30,2005	(2,481,580)
3.4 -Total project surplus based on current cost estimate without contingencies	April 30,2005	5,520,000
4.1 - Variance: Additional cost of Change Notice #1 to Trojan Technologies Inc. (0 - 36,476)	August 31,2005	(36,476)
4.2 - Variance: Contract awarded to Manitoba Hydro on 26 July 2005. (0 - 710,000)	August 31,2005	(710,000)
4.3 - Variance: Contract awarded to Gateway Construction & Engineering Ltd. On June 8, 2005 (15,769,580 - 6,425,324)	August 31,2005	9,344,256
4.4 - Variance: COC/Builders Risk and Wrap up Insurance arranged and paid by City of Winnipeg (0 - 161,991)	August 31,2005	(161,991)
4.5 - Variance: Revised Risk Assessment contingency allowance (0 - 1,913,789)	August 31,2005	(1,913,789)
4.6 - Project budget surplus (26,500,000 - 20,066,000)	August 31,2005	6,434,000