

**Minutes - Standing Policy Committee on Infrastructure Renewal and Public Works -  
September 12, 2006**

**REPORTS**

**Minute No. 159      North End Water Pollution Control Centre (NEWPCC) Centrate  
Treatment Financial Status Report No. 6 for the period from January  
31, 2006 to July 31, 2006  
File WS-7.1**

**STANDING COMMITTEE DECISION:**

The Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the administrative recommendation and received the matter as information.

**Minutes - Standing Policy Committee on Infrastructure Renewal and Public Works -  
September 12, 2006**

DECISION MAKING HISTORY:

Moved by Councillor Lazarenko,

That the administrative recommendation be concurred in.

Carried

**RE: NORTH END WATER POLLUTION CONTROL CENTRE (NEWPCC)  
CENTRATE TREATMENT FINANCIAL STATUS REPORT NO. 6  
FOR THE PERIOD FROM JANUARY 31, 2006 TO JULY 31, 2006**

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**FOR SUBMISSION TO:** THE STANDING COMMITTEE ON FISCAL ISSUES AND  
THE STANDING POLICY COMMITTEE ON  
INFRASTRUCTURE RENEWAL AND PUBLIC WORKS

**ORIGINAL REPORT SIGNED BY:** Barry D. MacBride, P. Eng.

**REPORT DATE:** September 5, 2006

**RECOMMENDATION(S):** That this report be received as information.

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**REPORT SUMMARY**

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**KEY ISSUES:**

- Manitoba Conservation issued Environment Act Licence No. 2684 dated June 1, 2005 and revisions Environment Act Licence No. 2684 R dated August 17, 2005 and Environment Act Licence No. 2684 RR dated June 1, 2006. Environment Act Licence No. 2684 RR requires that the City of Winnipeg to implement Centrate Nutrient Treatment (CNT) at the NEWPCC on or before December 31, 2006.
- Phosphorus removal facility commissioning is expected by December 2006. Nitrogen removal facility commissioning is expected by July 2008, which is over one and one half years beyond the date specified by the Licence.
- A request for an extension to the completion deadline will be filed with Manitoba Conservation following award of the construction contract.
- Bid Opportunities for the Nitrogen Removal portion of the project have closed and a recommendation for award is being made to the Standing Policy Committee on Infrastructure Renewal and Public Works, in a separate report.
- Prices have escalated due to the active construction market, the labour shortage and increases in the cost of materials.

**IMPLICATIONS OF THE RECOMMENDATION(S):**

**General Implications**

- |                                     |   |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | None  |
| <input type="checkbox"/>            | For the organization overall and/or for other departments               |
| <input type="checkbox"/>            | For the community and/or organizations external to the City of Winnipeg |
| <input type="checkbox"/>            | Involves a multi-year contract  |
- Comment(s):

**Policy Implications**

- |                                     |    |
|-------------------------------------|----|
| <input checked="" type="checkbox"/> | No |
|-------------------------------------|----|

Yes - Comment(s):

**Regulatory Implications**

- None
- Eliminates or reduces regulatory impact
- Proposes regulatory impact

**Environmental Implications**

- None
- Yes

Comment(s): Reduction of nitrogen and phosphorus at the NEWPCC in the centrate side stream, in concert with nutrient reduction at the WWPCC, will meet the interim nutrient reduction targets established for Lake Winnipeg by the Province in February 2003.

**Human Resources Implications**

- No
- Yes

Comment(s): Additional staff will be required to operate and maintain the expanded facility.

**Financial Implications**

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

Comment(s): The increase in the cost of the Centrate Nutrient Treatment Project will require an adjustment to the capital budget in the future. The estimated shortfall is approximately \$2,720,000 and a request has been submitted in the 2007 Capital Budget.

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## **REPORT**

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### **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:**

- 2003 In March, Council adopted the 2003 Capital Budget including an amount of \$1,000,000.00 for the NEWPCC Centrate Treatment Project (ammonia reduction only).
- 2003 In December, Council adopted the 2004 Capital Budget including an amount of \$9,946,000.00 for the NEWPCC Centrate Treatment Project (ammonia reduction only).
- 2004 On December 13, Council adopted the 2005 Capital Budget including an amount of \$15,000,000.00 for the NEWPCC Centrate Treatment Facility.
- 2006 On March 22, Council approved the transfer of funds in the amount of \$5,404,000.00 to the NEWPCC Centrate Nutrient Treatment Project.
- 2006 On March 22, the Standing Committee on Fiscal Issues received as information Financial Status Report No. 5 for the NEWPCC Centrate Nutrient Treatment Project.

### **DISCUSSION:**

#### **MAJOR CAPITAL PROJECTS STEERING COMMITTEE**

Administrative policy for projects with capital costs exceeding \$10 million requires the formation of a Major Capital Projects Committee. This committee has been formed and its members are as follows:

- Barry D. MacBride - Director and Chair
- Mike Ruta - Corporate Controller
- Bill Larkin – Director of Public Works
- Harry Finnigan – Director of Planning Property and Development

The Major Capital Projects Committee has reviewed this report and recommended that the report be sent to the Fiscal Issues Committee.

## **DESCRIPTION OF PROJECT**

This project is to upgrade the existing NEWPCC to reduce Phosphorus and Nitrogen in the centrate side stream, as set out in Manitoba Conservation Environment Act Licence No. 2684RR. This is to be achieved by chemically precipitating Phosphorus from the centrate and using a biological nutrient removal process to reduce the Nitrogen in the centrate.

The Centrate Nutrient Treatment Project work includes the following new facilities:

- Phosphorus Removal Facility
  - Railcar unloading building (for chemical delivery)
  - Chemical Storage Building
  - Chemical feed equipment, piping and controls.
- Nitrogen Removal Facility
  - Two covered Sequencing Batch Reactors (SBR)
  - One Blower Building
  - One methanol unloading facility
  - Two methanol storage tanks
  - One Soda Ash Storage Silo
  - One Fan Room Building
  - One 50m foul air dispersion stack
  - Ancillary civil, mechanical and electrical to support new facility

The schedule for the construction phases of the project revised as of July 31, 2006 are listed in the table below:

<b>DESCRIPTION</b>	<b>START</b>	<b>COMPLETION</b>
<b>Phosphorus Removal Facility</b>	March 2006	January 2007
<b>Nitrogen Removal Facility</b>	September 2006	July 2008

## **RISK & RISK MITIGATION STRATEGIES**

Risk management services during the course of the project were contracted with CSC Project Management Services with the last Risk Analysis update being completed in December 2005.

Current risk mitigating activities include:

- Continuous budget and forecast monitoring.
- Constant communication with consultant and contractors to keep abreast of new and developing issues/risks.
- Identifying, planning and reacting to opportunities and threats to the project cost and schedule.

In addition, an itemized list of risks identified by the Project team has recently been reviewed and updated. This list identifies specific actions, accountabilities, and target completion dates. This system will ensure that the risks are being managed and cleared and will also accommodate any new risk items and appropriate action steps required.

In an effort to mitigate rising construction costs due to labour shortages and on the advice of general contractors, the overall project construction schedule was extended by an additional 4 months.

The Nitrogen Removal Facility bid opportunity has now closed, with two bids being received. The low bid (\$23,641,086) was higher than the pre-tender estimate of \$22,807,860.00, however, the project cost risk is now largely removed.

## **CHANGES FROM LAST REPORT**

### *Phosphorus Removal Facility*

Contract 1 – Phosphorus Removal Construction – Bid Opportunity No. 611-2005 Project Completion Date December 2006, closed February 10, 2006. Contract was awarded on March 16, 2006 to Ernst Hansch Construction Ltd., for a Total Tendered Price of \$2,129,000.00 plus applicable MRST and GST.

The Phosphorus Removal Construction contract is approximately 30% complete as of July 31, 2006. The project is on schedule to be completed prior to January 2007.

### *Nitrogen Removal Facility*

Detailed Design for the Nitrogen Removal Facility was completed during this period.

Contract 2 – Sequence Batch Reactor (SBR) Decanter Procurement – Bid Opportunity No. 31-2006; Bid Opportunity closed April 4, 2006. Contract was awarded on May 10, 2006, to ITT Industries Ltd., for a Total Tendered Price of \$489,600.00 plus applicable MRST and GST.

Contract 3 – Sequence Batch Reactor (SBR) Aeration Equipment Procurement – Bid Opportunity No. 196-2006 closed May 17, 2006. Contract was awarded on June 15, 2006, to ITT Industries Ltd., for a Total Tendered Price of \$390,500.00 plus applicable MRST and GST.

Contract 4 – Nitrogen Removal Sequence Batch Reactor (SBR) Construction Contract – Bid Opportunity 291-2006 closed August 10, 2006, with the following bids received:

- M.D. Steele Construction Ltd.            \$23,641,086.00
- Bird Construction Company            \$26,262,085.00
- Engineer's Pre-Tender Estimate        \$22,807,860.00

Applicable MRST and GST are in addition to the Tendered Price for the SBR Construction Contract.

As of July 31, 2006 funds committed to the CNT Project stood at approximately \$6,308,352. The funds expended to date have been for engineering studies, pilot testing, design services and construction of the Phosphorus Removal Facility.

Based on the last reported project estimate in Financial Status Report No. 5, the tendered price is about 13% higher than the previous report estimated of \$20.9 million. The cost for the Nitrogen Removal Facility has been reviewed and the higher bids are likely the result of the very active construction industry in Manitoba at this time. The large number of concurrent major projects has resulted in labour shortages and increased labour costs. These factors coupled with increasing material and fuel costs have resulted in increased construction costs. Increased costs were anticipated based on these market conditions.

### **ISSUES/RISKS REQUIRING FURTHER ATTENTION**

#### **a) Cost**

Based upon the results of these tenders and the work that remains to be completed, we have revisited our previous allowances for the cost of the remaining work and have increased our centrate nutrient treatment cost estimate to \$35.35 million. The results of this analysis are shown in Appendix 1.

At the last reporting it was forecast that the project would exceed budget by \$5.404 million. The department recommended and received Council's approval on March 22, 2006 to transfer surplus funds from previously approved projects.

Although the Nitrogen Removal Contract can be awarded as sufficient funds are currently available, as a result of the higher bid amount there will not be sufficient funds available to cover contingencies that may arise during construction. Therefore additional capital funds in the amount of \$2.72 million have been requested for 2007 to cover the projected deficit.

#### **b) Schedule**

The overall project is expected to be complete July 2008. This is 7 months later than last report and 19 months later than the date stipulated in Environment Act Licence No. 2684RR for the NEWPCC. The additional 7 months in schedule growth was driven by longer engineering design period, longer tender period and extending the construction schedule, accommodating industry requests, and the effect of Water Treatment Bid Opportunity on the General Contractor's ability to bid this contract. The Water and Waste Department has been in dialogue with the provincial regulator with respect to not achieving the licence stipulated date. The Department will file an official request for an extension to the deadlines specified by the licence after award of the construction contract.

#### **c) Canada Strategic Infrastructure Funding**

The Department is currently in the process of developing the contribution agreement with Canada and Manitoba. In addition, an Environmental Assessment of the project components is being undertaken in accordance with the Canadian Environmental Assessment Act which will include public communication elements. Actual funding will not flow until both the Contribution Agreement and the Environmental Assessment are completed which is anticipated to be done by the end of 2006.

**d) Construction**

A full time consultant Contract Administrator will be on-site for the duration of construction and commissioning. The project consultant has developed and will be implementing 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

To ensure fiscal control, any construction change will be administered through the Contemplated Change Notice and Contract Change Order process with appropriate approvals required before work is authorized.

Weekly site meetings will also be held and minuted by the project consultant and attended by the general contractor, major subcontractors, and City personnel.

## FINANCIAL ANALYSIS

Bid Opportunities issued and pending as of the date of this report are as follows.

Table 1

Bid Opportunity Number	Issued to	Description	Budget	Tender Price	\$ Variance	% Variance
611-2005	Ernst Hansch	Phosphorus Removal Facility	2,196,000	2,129,000	(67,000)	-3.1%
31-2006	ITT Industries	Decanter Supply	750,000	489,600	(260,400)	-34.7%
196-2006	ITT Industries	Aeration Equip Supply	700,000	390,500	(309,500)	-44.2%
291-2006	M.D. Steele (Apparent Low Bid)	Nitrogen Removal Facility	17,896,000	23,641,086	5,745,086	32.1%
Total			21,542,000	<b>26,650,186</b>	5,108,186	23.7%

### BID OPPORTUNITIES TO BE ISSUED

Estimated Date of Issue	Description	Budget
September 2006	Communication Line Relocation	35,000
Total		<b>35,000</b>

Total Tendered Amount & Un-issued Pre-tender Estimate	\$ 21,577,000
Items Not Issued by Tender	4,369,000
Increase in Budget as Approved by Council	5,404,000
Total Approved Budget	<u>\$ 31,350,000</u>

## Project Funding

The approved capital and projected budget deficit are as follows:

Table 2

## PROJECT FUNDING

Year	Approved Capital	Actual + Projected Cashflows	Cumulative Capital Budget Remaining
Up to			
2003	1,000	-	1,000
(1) 2004	9,946	164	10,782
(1) 2005	15,000	795	24,987
(2) 2006	5,404	5,723	24,668
2007	-	18,435	6,233
2008	-	8,953	(2,720)
<b>Total</b>	<b>31,350</b>	<b>34,070</b>	<b>(2,720)</b>

(1) Capital Budget approved by Council

(2) Council approved transfer of funds from other projects

## Financial Analysis

A summary of the budget to forecast comparison is contained in Appendix 1.

## FINANCIAL IMPACT:

As this report is submitted for informational purposes only, there is no financial impact associated with this recommendation.

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Manager of Finance & Administration

## IN PREPARING THIS REPORT THERE WAS:

**Internal Consultation With and Concurrence By:** not applicable

**External Consultation with:** N/A

## THIS REPORT SUBMITTED BY:

Water and Waste Department  
Engineering Division  
Prepared by: K.Martens, P. Eng.  
File No. S-627

**APPENDIX 1  
CAPITAL PROGRAM  
As of July 31, 2006**

Project Component	Capital Budget <sup>1</sup>			Capital Expenditure Forecast					Surplus (Deficit)  From Revised Budget <sup>3</sup>	Variance Last Report	Change in Variance
	Council Approved Change - March 22, 2006 <sup>2</sup>			Actual Costs  To July 31, 2006	Projected Costs			Total  Forecast			
	Original		Revised		2006	2007	2008				
<b>A Preliminary/Conceptual Engineering</b>	\$ 223,280	\$ -	\$ 223,280	\$ 223,280				\$ 223,280	\$ 0	\$ -	\$ 0
<b>B Functional/Detailed Engineering</b>	1,874,514	-	1,874,514	1,363,689	456,810	55,000		1,875,499	(985)	-	(985)
<b>C Contract Admin/Commissioning</b>	1,862,206	-	1,862,206	14,697	264,017	1,030,000	940,000	2,248,714	(386,508)	-	(386,508)
<b>D Phosphorus Removal Facility</b>	2,120,000	-	2,120,000	449,104	1,633,000	75,000		2,157,104	(37,104)	-	(37,104)
<b>E Aeration Equipment Procurement</b>	400,000	-	400,000	-	25,000	367,000	26,000	418,000	(18,000)	-	(18,000)
<b>F Decanter Procurement</b>	500,000	-	500,000	-	20,000	468,500	35,500	524,000	(24,000)	-	(24,000)
<b>G Nitrogen Removal Facility</b>	17,896,000	5,404,000	23,300,000	-	1,820,000	14,851,000	7,212,000	23,883,000	(583,000)	-	(583,000)
<b>H Permits, COC Insurance, Misc.</b>	220,000	-	220,000	164,402	35,000	10,500	10,500	220,402	(402)	-	(402)
<b>I Communication Line Relocation</b>	50,000	-	50,000	-	35,000			35,000	15,000	-	15,000
<b>J Contingency</b>	800,000	-	800,000	-	178,000	1,578,000	729,000	2,485,000	(1,685,000)	-	(1,685,000)
	\$ 25,946,000	\$ 5,404,000	\$ 31,350,000	\$ 2,215,173	\$ 4,466,827	\$ 18,435,000	\$ 8,953,000	\$ 34,070,000	\$ (2,720,000)	\$ -	\$ (2,720,000)

**Notes:**

<sup>1</sup> Council approval for total budget of \$31.35 million. Distribution of component costs have been estimated by the Water and Waste Department.

<sup>2</sup> Transfer of funds.

<sup>3</sup> Variance from budget due to increased capital cost