

P.O. Box 1749 Halifax, Nova Scotia B3J 3A5 Canada

> Halifax Regional Council March 28, 2006

го:	Mayor Kelly and Members	of Halifax Regional Counci

SUBMITTED BY:

Councillor Reg Rapkin, Chair

Solid Waste Resource Advisory Committee

**DATE:** March 21, 2006

SUBJECT: Partial Interim Closure of Cell 3- Advance 2006-2007 Budget Approval

## **ORIGIN**

March 20, 2006 meeting of the Solid Waste Advisory Committee.

## **RECOMMENDATION**

It is recommend that Halifax Regional Council:

- 1. Approve Capital Project CWI00779, Partial Interim Closure of Cell 3.
- 2. Provide advanced funding approval of the proposed 2006-2007 Capital budget in the amount of \$4,233,000, to be withdrawn from Reserve Q120.

#### **BACKGROUND**

Refer to staff report dated March 14, 2006.

#### **DISCUSSION**

The Committee is aware that advanced Capital Project approvals for 2006-2007 is scheduled for April 11, 2006, however, as indicated in Attachment 2 of the staff report the project requires a full nine months to complete. A delay of project approval, even several weeks, could jeopardize the completion of this project in 2006, risking odours migrating off site and potentially causing a nuisance for the local community. "Community Protection" benefits the immediate community and the HRM environmentally, socially and potentially financially. Therefore the Committee recommended that the project be submitted for approval on March 28, 2006, as the commencement of the project in April will ensure completion during the 2006 construction season.

#### **BUDGET IMPLICATIONS**

Refer to staff report dated March 14, 2006.

# FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

#### **ALTERNATIVES**

- 1. Council may decide to consider the project with other capital projects during the advanced funding approval of the proposed 2006/2007 Capital Budget on April 12, 2006. This alternative is not recommended as early approval is required to ensure the completion of the project during the construction season.
- 2. Additional alternatives are outlined in the staff report dated March 14, 2006 and are not recommended.

#### **ATTACHMENTS**

- 1) Staff report dated March 14, 2006.
- 2) Draft Minute Extract March 20, 2006.
- 3) Letter dated March 16, 2006 from the Community Monitoring Committee.

Additional copies of this report, and information on its status, can be obtained by contacting the office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by:

Stephanie Parsons Legislative Assistan

Report Approved by: Councillor Reg Rankin, Chair, Solid Waste Resource Advisory Committee



PO Box 1749 Halifax, Nova Scotia B3J 3A5 Canada

# Solid Waste/Resource Advisory Committee March 20, 2006

TO:	Councillor Rea	Rankin.	Chairman.	and	Members	of the	Solid	Waste
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Resource Advisory Committee

Jim Bauld, Manager, Solid Waste Resources

**DATE:** March 14, 2006

SUBJECT: Partial Interim Closure of Cell 3 - Advance 2006/07 Budget Approval

#### **ORIGIN**

- Proposed 2006/07 Capital Project CWI00779, Partial Interim Closure fo Cell 3;
- Delay in approval of 2006/07 budget.

#### **RECOMMENDATION**

It is recommended that:

The Solid Waste Resource Advisory Committee recommend to Regional Council that:

- 1. Capital Project CWI00779, Partial Interim Closure of Cell 3, be submitted with the next advance capital funding request prior to May 2, 2006; and
- 2. funding for this project be as contained in the Budget Implications section of this report; and
- 3. funding in the amount of \$4,233,000 be withdrawn from Q120 for this project.

#### BACKGROUND / DISCUSSION

Attachment "A", "Partial Interim Closure of Cell 3 - Business Case" dated March 13, 2006, provides the background and rationale for staff's recommendation for the Partial Interim Closure of Cell 3, Capital Project CWI00779, to receive approval in advance of the 2006/07 budget, enabling the commencement of the nine-month project in April 2006.

The attached Business Case details the financial benefits for the HRM of approximately \$1,201,497 in savings and avoided costs, and the significant environmental benefits realized with the completion of the Partial Interim Closure of Cell 3 in 2006/07.

Staff has completed an assessment of Reserve Q120 for the purpose of identifying funding requirements to ensure sustainability and continuity for future Solid waste Resources capital projects, cell closures, to fiscal year 2025/2026. This assessment included:

- history of annual accruals and withdrawals from Reserve Q120;
- the projected balance of \$1,814,043 at the end of 2005/06;
- the projected timing and value of resource requirements for future cell closures; and
- funding opportunities in Solid Waste Resources and Fiscal Services operating accounts.

Staff has determined that for Reserve Q120 to be financially sustainable (that is to meet all future cell closure costs), \$1.3 million (half of which is for Partial Interim Cell 3 Closure, the other half is to catch up on previous years under funding) is required in 2006/07, and an annual contribution averaging \$2,394,000 is required to 2012/2013.

Staff will be providing a future report identifying a strategy which will achieve adequacy of contributions to Reserve Q120 for future capital requirements.

#### **BUDGET IMPLICATIONS**

As contained in Table 3 of the attached Business Case, funding in the amount of \$4,233,000 is available for the Partial Interim Closure of Cell 3 in 2006/07. The following details each of the funding sources:

- 1. Balance of Reserve Q120 on March 31, 2006 \$1,814,042
  Fiscal Services has confirmed this amount as the balance in Reserve Q120, Otter Lake
  Landfill Closure.
- 2. Contribution to Reserve Q120 in 2006/07 (similar to 2005/06) \$1,440,000

  Annual funding for Reserve Q120 is an accrual from R327, Solid Waste Resources. In 2005/06 funding was at \$8.99/tonne of waste disposed at Otter Lake. A review of future costs of closure of each cell, plus post cell closure costs, has determined that for Reserve Q120 to be financially sustainable, i.e. to meet all future costs, the current rate of \$8.99/tonne

has to be increased to \$18/tonne in 2006/07, which will enable adequacy of funding for Partial interim Closure of Cell 3 in 2006/07, and to catch up on the per tonne contribution to the Reserve to ensure funding availability in future years. Funding at \$15.49/tonne would then apply to 2011/12, increasing to \$16.50 tonne to 2017/18.

NOTE:

Subject to approval of the funding as outlined in this report, for the Partial Interim Closure of Cell 3 in 2006/07, the \$18/tonne contribution rate for 2006/07 would not be required, that is, the \$8.99 /tonne rate applied in 2005/06 also applies in 2006/07.

## 3. 2005/06 Mirror Contract Savings

\$816,000

(transfer from M310-6399 to Q120)

Staff's extensive nine month cost verification review of the operations of the Otter Lake facilities, resulting in the "Base Operating Plus Tonnage Variation Approach" for the 2005-2010 contact term, achieved a savings of \$816,000 in 2005/06 which is available in M310-6399.

# 4. Otter Lake Leachate Savings in 2006/07

\$317,000

(transfer from R329-6301 to Q120)

The completion of the Partial Interim Closure of Cell 3 in 2006/07 includes a 37,000 sq. metre 40 ml LDPE flexible membrane cover, which will reduce leachate volume and transportation costs by \$317,000, which will be available in R329-6301 in 2006/07.

# 5. 2005/06 Surplus Tipping Fee Revenue

\$154,491

(transfer from R321-5225 to Q120)

Additional revenue from an increase in commercial waste disposed at Otter Lake in 2005/06 is available in the amount of \$154,491 from account R321-5225.

#### 6. Havill Lands

-\$140,030

On September 7, 1999, Regional Council approved the purchase of 775 acres buffer area, abutting the Otter Lake site, which contains large quantities of soil for cell construction and cell closure. Repayment to the Sale of Land Reserve is over a period of twenty years. \$140,030 is the amount of the repayment in 06/07.

Subtotal

\$4,401,503

Minus \$168,503; required to maintain adequacy/continuity of funding for Q120 in future years

-\$ 168,503

Cost of Partial Interim Closure of Cell 3

\$4,233,000

## FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

#### **ALTERNATIVES**

- 1. One alternative, which is not recommended, is to approve the Partial Interim Closure of Cell 3, Capital Project CWI00779, with other capital projects when the 2006/07 budget is approved in June 2006. This is not recommended as approval of this project in June will not enable the completion of the nine-month project in 2006.
- 2. A second alternative is not to approve CWI00779 as a capital project in 2006/07. This is not recommended as there are significant avoided costs and savings, plus significant environmental benefits for this project to be approved in April 2006, which will enable completion during the 2006 construction season.

# **ATTACHMENTS**

Attachment "A", Partial Interim Closure of Cell 3 - Business Case, dated March 13, 2006

A copy of this report ca	n be obtained online at http://www.halifax.ca/council/agendasc/cagenda.html then
choose the appropriate i	neeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax
490-4208.	Lowermite
Report Prepared by:	Jim Bauld, Manager, Solid Waste Resources 490-6606
Financial Review:	Joan Broussard, Financial Consultant, Budget and Financial Analysis 490-6267  Catherine Sanderson, A/Director, Financial Services, 490-1562

SWRAC -March 20/06 Attuck word A'

Draft Date: March 13, 2006

# Partial Interim Closure of Cell 3 Business Case

Halifax Regional Municipality • Environmental Management Services • Solid Waste Resources • 490-6606 • Fax: 490-6690

Date:

March 13, 2006

Contact:

Jim Bauld, Manager, Solid Waste Resources

## 2006-07 Partial Interim Closure of Cell 3

## **BACKGROUND**

In 1997, HRM entered into a twenty-five-year agreement with MIRROR NS for the design, construction and operation of a mixed waste processing and disposal facility at the Otter Lake site. As specified in Section 15 "Cell Construction and Interim Closure" of the Agreement (attachment #1), MIRROR NS is responsible for the Interim Closure and the Construction of Residuals Disposal Cells. Pursuant to Section 15.2, MIRROR NS has provided the ninety-day minimum notice before a Residual Disposal Cell is expected to be filled to its capacity (attachment #2, letter from Kurt Jacobs dated February 2, 2006).

Note: The 1997 Agreement does not reference partial (e.g. half) interim cell closure of a residuals disposal cell. However, the current five-year operating agreement (Supplementary Agreement #8) references the phased closure of cells through a partial interim cell closure process (phased closure costs comparable to full closure costs), and a process should partial interim cell closure not occur.

The following is a comparative of the size in sq. meters of Cell 1 and Cell 2 (which are closed/capped), Cell 3 and future Cells.

Table 1

Cell	Cap Size - Sq. Meter				
Cell 1	42,000 m <sup>2</sup>				
Cell 2	46,000 m <sup>2</sup>				
Cell 3A	37,074 m²	61,574 m <sup>2</sup>			
Cell 3B	24,500 m <sup>2</sup>				
Cell 4A/B	$\pm$ 61,000 m <sup>2</sup>				
Cell 5 A/B to 9 A/B (each)	$\pm$ 61,000 m <sup>2</sup>	(each)			

#### **METHODOLOGY**

The following details the rationale and benefits of HRM and MIRROR NS proceeding with partial interim closure of Cell 3 in 2006-07 and adopting the practise of partial interim closure of future cells.

# 1. Gas/Odour Management - Labour Cost Avoidance

The presence of landfill gas was first experienced in late 2002, which was approximately two and half years earlier than anticipated.

The nature of the waste placed in each cell (having been subject to rapid advancement of the initial composting process in the WSF) has resulted in generation of landfill gases/odours within two to three years while material is still being placed in the cell, i.e. before it is closed/capped. As compared to a "wet" landfill containing unprocessed organics where typically the generation of gas/odour occurs approximately six years after the material is disposed and continues for a period of twenty to twenty-five years, the generation of gas/odour at Otter Lake is expected to diminish more rapidly, within approximately six to seven years of the waste being placed in each cell. (See attachment # 3, letter dated June 16/05 from MIRROR NS - page 2.)

Thirty temporary gas wells are operating in Cell 3, plus three temporary flares which combust the gases, destroying odours and minimizing the release of harmful greenhouse gases. There are twenty-five permanent gas collection wells and a permanent flare in closed cells one and two.

The interim partial closure of Cell 3 in 2006-07, includes the replacement of the temporary wells and surface pipe/header system with twenty-two permanent wells with subsurface collection system which will:

- significantly enhance the gas/odour management control at the site; and
- avoid labour costs for the temporary gas system in the amount of approximately \$80,000 in 2006-07 and \$80,000 in 2007-08.

# 2. Clay Slope - Cost Avoidance

The partial interim closure of the lower half of Cell 3 in 2006-07, negates the requirement for a clay barrier on the northeast slope of Cell 3, resulting in a one time cost avoidance of \$127,680. The clay slope is required as a barrier for fire safety control purposes between the lower and upper half of Cell 3, should the interim closure of the cell not occur in two phases.

# 3. Clay Cover - Cost Avoidance

The partial interim closure of the lower half of Cell 3 in 06/07, negates the requirement of a 250 mm clay cover (over 48,500 m²) which would be required for the purpose of gas/odour management and leachate reduction (see attachment # 4, letter dated February 24, 2006 from MIRROR NS). Avoided cost of a clay cover in the lower half of Cell 3 is \$557,000 (note: a similar cost avoidance applies for the lower half of Cell 4 and future cells.) A clay cover does not replace the requirement for a final cover system comprised of geotextile layers, liners, drainage net, soil layer and hydroseeding, as detailed in attachment # 2.

# 4. Leachate - Volume Reduction/Savings

The partial interim closure of Cell 3 in 2006-07 includes the installation of approximately 37,000 m<sup>2</sup> of 40 ml LDPE flexible membrane liner as one component of the cover system, which

will direct precipitation to the surface water collection system. As a result, the partial interim closure of the lower half of Cell 3 in 2006-07, has the potential to reduce the volume of leachate and resultant transport costs by approximately \$317,000 in 2006-07 (based upon forecast leachate volume of eighty-eight million litres in 2005-06). \$317,000, plus net HST, would be a savings applied to the EMS/SWR 2006-07 operating budget.

# 5. Environmental Compliance - "Community Protection"

In 1995, the citizens of the former municipalities were entrusted with the responsibility to develop criteria which, subject to approval by the municipal and provincial governments, was the basis for siting the facilities at Otter Lake. One of the key fundamental principles, as developed by and committed to the community, is the concept of "Community Protection" including that the facilities would not result in a "Nuisance at Law". Both the 1997 Agreement with MIRROR NS and the permit by NSEL specify that the facilities will not cause a nuisance for the community.

MIRROR NS has advised that the installation of the permanent gas/odour management system in the lower half of Cell 3 will significantly reduce the risk of nuisance from odours. As detailed in Section 1, the interim closure of half of Cell 3 includes the replacement of the surface level gas collection system of pipes/headers and temporary flares with a permanent subsurface gas collection system and permanent flares. A temporary surface level gas collection system, which is subject to atomospheric conditions (e.g. freezing of condensation, changes in barometric pressures, etc.), is inherently of higher risk and cost to operate than a permanent gas collection system.

## 6. Summary of Benefits

Table 2

				1 4010 2
(A)	Cost Avoidance	2006-07	2007-08	Total
	Labour	\$80,000	\$80,000	\$160,000
	Clay Slope	\$127,680	\$0	\$127,680
	Clay Cover	\$557,000	\$0	\$557,000
B)	Savings			
	Leachate	\$317,000	\$0 (half of Cell 4 open)	\$317,000
	Subtotal	\$1,081,680	\$80,000	\$1,161,680
	Net HST	\$37,075	\$2,742	\$39,817
	Total	\$1,118,755	\$82,742	\$1,201,497

#### C) Community Protection

Ensuring "No Nuisance at Law" from odours benefits the immediate community and the HRM environmentally, socially and, potentially, financially.

# 7. Otter Lake Landfill Closure Q120 Capital Reserve Account

As prescribed by the Province, Capital Reserve Q120 was established in 1998/99 for the purpose of funding the capital cost of each cell closure and for post closure, monitoring, perpetual care, gas system operation after closure, infrastructure decommissioning, site cleanup and general maintenance. Funding is contributed to Q120 from Solid Waste Resources operating account R327 on a per tonne rate for waste disposed. The rate is determined based on current estimates of costs for closure and post closure work over a twenty to twenty-five-year period. Since 1998-99, HRM has funded the Q120 Reserve at a rate that has been between about \$9 and \$13 per tonne disposed. The current projection of closure and post closure costs indicates an increase to this rate is required.

The partial interim closure of the lower half of Cell 3 in 2006-07 is one year in advance of the original schedule for total closure of Cell 3 in 2007-08. The combination of advancing the partial interim closure of Cell 3 in 2006-07, plus the requirement to adjust the per tonne contribution rate, results in a projected underfunding of Q120 of approximately \$1.3 million. Approximately half of the projected underfunding is due to the partial interim closure of Cell 3, and the remaining \$650,000 is to catch up on the per tonce contribution to the Reserve to ensure funding availability in future years.

Note: Based on current estimates of closure and post closure funding requirements and timing of spending, staff's analysis has determined that an \$18/tonne contribution rate to Q120 for 2006-07 would adequately fund the reserve. This can then be reduced in 2007-08 to \$15.49/tonne disposed until 2011/12, increasing to \$16.50/tonne disposed to 2017/18, while maintaining adequacy of funding for all future expenditures from this Reserve.

A rate of \$18/tonne disposed, based on approximately 150,000 tonnes estimated to be disposed in 2006/07, results in a contribution to Q120 of \$2.664 million and an approximate balance of \$168,000 at year end. In order to fund the Partial Interim Closure of Cell 3, funding is identified under "Project Funding" below (Table 3).

# PROJECT FUNDING

An analysis has identified available funding for the Partial Interim Closure of Cell 3, as a 2006/07 Capital Project, in the amount of \$4,233,000 and other Q120 commitments (Havill Lands) for 2006-07.

Table 3 \$4,233,000 1 Total Funding Required for Partial Interim Closure of Cell 3 (\$1,814,042)Balance of Reserve Q120 on March 31, 2006 Contribution to Reserve Q120 in 2006-07 (similar to 2005-06) (\$1,440,000)2005-06 Mirror Contract Savings - Fiscal Services (move from account #(\$816,000) M310-6399 to Q120) Otter Lake Leachate Savings in 2006-07 (move from R329-6301 to Q120) (\$317,000)2005-06 Surplus Tipping Fee Revenue (move from R321-5225 to Q120) (\$154,491)\$140,030 Havill Lands Balance Required to maintain continuity schedule for future years (\$168,503)

<sup>&</sup>lt;sup>1</sup> Includes net HST, cost of design and cost review of project by CBCL Ltd.

#### CONCLUSION

There are significant environmental, social, and financial benefits for the partial interim closure of Cell 3 in 2006-07 and the closure of future cells in two phases.

#### **RECOMMENDATION**

It is recommended that:

- 1. the partial interim closure of Cell 3 be included as a Capital Project in 2006-07;
- 2. funding for the partial interim closure of Cell 3 in 2006-07 be as contained in Table 3 "Project Funding";
- 3. the contribution rate of \$15.49/tonne disposed, based on 150,000 tonnes, be applied to Reserve Q120 for 2007-08;
- 4. the total funding source in the amount of \$4.233 million be transferred from Reserve Q120 for this project; and
- 5. approval by Regional Council be obtained in April, 2006, enabling the completion of the project during the 2006 construction season.

Attachments (4)

Attachment # 1

# 14.6 Disputes

If HRM in good faith disputes any amount billed by Mirror in any Billing Statement, HRM shall pay that portion of the billed amount which is not in dispute and shall provide Mirror with written objection within fifteen (15) days of the receipt of such Billing Statement indicating the portion of the billed amount that is being disputed and providing all reasons then known to HRM for its objection to or disagreement with such amount and copies of any supporting documentation then available to HRM relating to such objection or disagreement.

# 15. CELL CONSTRUCTION AND INTERIM CLOSURE

#### 15.1 General

Mirror and HRM acknowledge and agree that it is the intent of this Agreement that Mirror shall be responsible during the Operating Term for the Interim Closure of Residuals Disposal Cells and for the construction of additional Residuals Disposal Cells as required for the disposal of Acceptable Waste.

# 15.2 Closure Notice

Mirror shall send written notice ("Notice of Closure") to HRM not earlier than two hundred and forty (240) days and not later than ninety (90) days before the date each Residuals Disposal Cell is expected to be filled to its capacity. The Notice of Closure shall be accompanied by:

- (1) a description of the work required for Interim Closure of the Residuals Disposal Cell;
- (2) an estimate of the total cost of labour and material and other costs associated with the work required for Interim Closure and a preliminary Cost Substantiation therefor, and
- (3) a projected work schedule including an anticipated commencement date and an anticipated completion date.

# 15.3 Negotiation of Closure Terms and Conditions

Within twenty (20) days after a Notice of Closure is delivered, representatives of Mirror and HRM shall meet and attempt, in good faith, to negotiate the terms and conditions under which Mirror will undertake the Interim Closure of the

applicable Residuals Disposal Cell. If the parties are unable to agree on the terms and conditions under which Mirror will undertake the Interim Closure on a lump sum or Cost Substantiation basis within thirty (30) days after commencing negotiations, then HRM, may require Mirror to undertake the Interim Closure in accordance with the provisions of Section 15.4.

# 15.4 Terms and Conditions Relating to Closure Work

The following terms and conditions shall apply in the event Mirror is required to undertake the Interim Closure of any Residuals Disposal Cell except to the extent the parties agree otherwise.

- (1) The work shall commence as soon as practicable after HRM delivers a notice to proceed to Mirror and all Legal Entitlements, if any, required to permit the Interim Closure have been obtained.
- (2) Mirror shall prosecute the work diligently so as to ensure that the work is completed by the earliest date practicable and in any event by such date as may be required under Applicable Law or the Legal Entitlements, if any, relating thereto.
- (3) Mirror shall perform the work required for the Interim Closure diligently and in a good and workmanlike manner and in accordance with generally accepted

good solid waste landfill practice. Mirror shall have exclusive responsibility for all construction means, methods, techniques, sequences and procedures necessary or desirable for the correct, prompt, and orderly prosecution and completion of the work required for the Interim Closure.

- (4) Mirror shall make all applications and filings and obtain and maintain all Legal Entitlements required to be made, obtained or maintained under Applicable Law in connection with the Interim Closure. HRM shall cooperate fully with Mirror to the extent necessary for Mirror to perform its obligations in connection with obtaining and maintaining such permits and other Legal Entitlements.
- obtain and maintain insurance equivalent to the Construction Period Insurance from the date of commencement of the work required for the Interim Closure until the completion of the work. Mirror shall during the same period obtain and maintain a Performance Bond in the form attached as Appendix "E" in an amount equal to the total cost of the work required for the Interim Closure. HRM shall be entitled to waive the requirements for such insurance or performance bond if HRM is satisfied that equivalent protection is provided to HRM under the Operations Period Insurance and the Operations Performance Bond.

- (6) Mirror shall comply with all Applicable Law in performing the work required for the Interim Closure.
- (7) The terms and conditions of the then latest version of the Canadian Construction Documents Committee (CCDC) Stipulated Price Contract shall apply to the work required for the Interim Closure except to the extent inconsistent with the provisions of this Section 15.4.
- (8) HRM shall make payments on account of the work required for the Interim Closure in accordance with the Progress Payments Procedures.
- (9) Mirror shall pay directly all costs and expenses of the work required for the Interim Closure of any kind or nature whatscever, with payment, reimbursement and compensation from HRM being limited solely to the payment of the amount determined pursuant to subsection (10) of this Section 15.4. Such costs and expenses, without limiting the generality of the foregoing, shall include all costs of designing, constructing, testing, obtaining permits, approvals and authorizations required to be obtained under Applicable Law; obtaining and maintaining construction financing, if any, (including all commitment and loan fees and related expenses and appraisal fees); taxes (excluding any real property taxes on the Facilities and the Site which are payable by HRM), applicable fees and expenses related to securing and maintaining

performance bonds, labour material payment bonds or letters of credit; payments due under contracts with Subcontractors; the cost of all labour and materials; legal, financial, engineering, architectural and other professional services; general supervision of all design and construction; preparation of schedules, budgets and reports and all other costs of Interim Closure.

shall be a lump sum equal to the reasonably estimated total Direct Cost of the work plus a margin of ten percent (10%) before taxes. If the parties are unable to agree on the reasonably estimated total Direct Cost of the work then such amount shall be determined by arbitration conducted in accordance with the Dispute Resolution Procedures. The parties agree to instruct the Arbitration Board to complete the arbitration and render a decision within three (3) months after the matter is referred to arbitration. The parties agree to co-operate to the fullest extent possible in order to permit the arbitration to be held and completed within such time frames. In the event it is necessary to do so to comply with the Applicable Law, Mirror shall undertake and complete the work required for Interim Closure within the time limits prescribed by Applicable Law notwithstanding that an arbitration to determine the reasonably estimated total Direct Cost of work may then be ongoing or pending.

\*- - ; - -

(11) In the event that Mirror should become entitled to any adjustment to the fee for the work required for Interim Closure, the adjustment shall be calculated based on Cost Substantiated Direct Costs plus a margin of ten percent (10%).

# 15.5 <u>Cell Construction Notice</u>

Mirror shall send written notice ("Cell Construction Notice") not earlier than twelve (12) months and not later than eight (8) months before the date any new Residuals Disposal Cell will be required to be constructed and completed in order to accommodate the disposal of Acceptable Waste at the Site. The Cell Construction Notice shall be accompanied by:

- (1) a description of the work required for the construction of the new Residuals Disposal Cell and preliminary plans and specifications therefor;
- (2) an estimate of the total cost of labour and material and other costs . associated with the work required to construct the Residuals Disposal Cell; and
- (3) a projected work schedule including an anticipated commencement date and an anticipated completion date.

MIRROR Nova Scotia

Reflecting Community Partnership MUNICIPAL INTEGRATED RESOURCE

RECOVERY OPPORTUNITY REALIZATION

February 2<sup>nd</sup>, 2006

RECEIVED FEB - 3 2006

HALIFAX REGIONAL MUNICIPALITY 21 Mount Hope Avenue P.O. Box 1749 Halifax, Nova Scotia B3J 3A5

RROR Nova Scotia

0 Otter Lake Drive

ATTENTION: Jim Bauld

Manager, HRM Solid Waste Resources

). Box 209

keside. Nova Scotia

T 1 1 1 6

Notice of Closure

Otter Lake RDF - Cell #3

1: 902) 453-3490

x: (902) 453-3489

Further to Clause 15.2, Closure Notice, of the Agreement we hereby give Notice of Closure for partial closure of Cell #3 of the Otter Lake RDF. It is estimated that Cell #3 will be completed by early spring of 200. As per Clause 15.2 we attach three schedules as follows:

Schedule 1 – Description of Work

Schedule 2 – Estimate of Cost

Schedule 3 - Projected Work Schedule

We look forward to meeting with HRM within the next 20 days to finalize the closure of Cell

Yours truly.

Kurt Jacobs

MIRROR Nova Scotia

# Schedule 1 - DESCRIPTION OF WORK

The work required for closure of Cell #3 includes:

- 1. Final Cover System As outlined in the NS Department of Environment and Labour Guidelines the purpose of the final cover system is to; (a) control the amount of surface water infiltration into the buried waste material; (b) limit erosion and sedimentation; (c) control the release of methane gas from the facility; and, (d) protect the underlying waste from exposure. The cap system from bottom to top will consist of the following layers.
  - (i) Geotextile to separate the lancifill gas (LFG) granular collection layer from the top of the landfilled residual material.
  - (ii) Granular gas control layer to capture and control LFG movement under the flexible membrane liner (FML).
  - (iii) Geotextile to protect the FML from the stone in the granular gas control layer.
  - (iv) Flexible Membrane Liner to control surface water infiltration. The FML will have booted penetrations through it to accommodate the leachate cleanout pipes, LFG control wells, and sump observation wells. The FML will be anchored into the existing perimeter berm.
  - (v) Geotextile to protect the FML from the stone in the granular drainage layer and the drainage net.
  - (vi) Drainage net on side slopes of the cell to provide drainage for surface water that infiltrates through the soil layer. The drainage net will be connected to a toe drainage system below the anchor trench to direct collected water to the surface for discharge.
  - (vii) Granular drainage layer on low slope areas to drain surface water that infiltrates through the soil layer, away from the top of the cell.
  - (viii) Geotextile over drainage net on side slopes and the granular layer to protect the drainage net from intrusion of soil and to separate the granular layer from soil layer.
  - (ix) Soil Layer above the drainage net or granular drainage layer to provide a vegetative layer for final seeding of the cover. This soil layer will include surface water drainage swales and low sloping

- side hill drainage channels to reduce the potential for erosion. These channels will be lined with FML and stone to reduce erosion.
- (x) A maintenance travel way will be constructed along the top of Cell #3 to provide access for maintenance in the future.
- 2. Landfill Gas Control Landfill gas extraction wells are required to control the release of LFG and to prevent the build-up of LFG under the final cover. Twenty-four wells will be connected, in Phase 1 of the closure, into the perimeter landfill gas header pipe constructed during the closure of Cell #2.
- 3. LFG Blower Building An additional blower will be installed in the blower building and piping will be modified to accept the additional blower. The flare will increase in size to accommodate the additional LFG from Cell #3.
- 4. LFG Collection System The landfill gas wells in Cell #3 will be connected to the landfill gas blower building constructed during the Cell #1 closure and flared.
- 5. Hydroseeding will be done on all exposed areas. Runoff during construction will be controlled using conventional construction technique.

# Estimated Cost for Partial Closure of Cell 3 Otter Lake RDF

Prepared January 13, 2006

			Par	tial Closure of C	Ceil 3
Description	Units	Estim Quar	i	Unit Price	Budget
	I comment	1	<del></del>	\$20,000.00	\$20,000.00
Haul Road Maintenance	lump sum		1	\$5,000.00	
ter Fence Removal and Reinstallation	lump sum				
Mobilization for Wells	lump sum	2	2 .	54,450.00	\$97,900.00
Gas Collection Well	each	<del></del>	2	\$2.350.00	\$62,700.00
Weil Heads	each				
Failed Hole Allowance	lump sum				
Standby Allowance for Wells	lump sum		62	\$100.00	
Piping Inside Landfill - 150 HDPE	metre		08	\$100.00	\$10.780.00
Piping Inside Landfill - 200 HDPE	metre		95	\$135.00	380,338.50
Piping Inside landfill - 250 HDPE	metre		72	\$195.00	
Piping Outside Landfill - 300 HDPE	metre		12		
Hancheid Flow Meter	lump sur	<u>n  </u>	4.7	\$4,000.0	G 552.000.00
Condensate Traps	each		13 5	\$7,000.0	
Valves in concrete chambers	each			\$5,000.0	1 222 00
Valves in Landfill	each		2	3500.0	00
Valves in Carlami	each		4	\$75,000.0	
Instail Biower and new Flare c/w M&E	lump su	ım	1	373,000.5	
Blower Suilding Complete	lump su			\$0.3	25 \$9,186.45
	sq met		6,746	\$3.	2111 001 70
Site Grading  Geotextile - Terrafix 270	sq met		37,074		157.00
Granular Layer 25mm Clear Stone - 300thk	sq me		36,746	\$10.	1 2 2 2 2 4 94
Granular Layer Zollilli Clear Otomo	sq me		37,07≟		255 02
Geotextile - Terrafix 800	sq me		37,074		
Geomembrane - 40 mil LDPE	sq me	tre	37,074		
Geotextile - Synthetic Industries 1201	sq me	tre	18,256	\$10	
25mm Clear Stone on top - 300 thk	sq me	tre	20,340		2110 001 06
Drainage Net - Polynet 3000 on sides	sq me	tre	38,934		
Geotextile - Terrafix 270	sq me	etre	37,730		504 CO4 C1
E  Vegetative Soil - 500 thk	sa m	etre	37,730		= =====================================
T Hydroseeding	ead	h	97		
Penetrations Through Membrane	me	re	220	\$10	222 524 00
G Ceil Access Road	me	re	795		0.11 \$63,624.00
Ditching c/w LDPE, rip rap	me	tre	144		5.011 \$9,360.00
Back of Cap LDPE Interception Swale	me		289		5.00 \$24,543.7
Cell 1 / Cell 2 / Cell 3 Cover Connection	me		131		90.00 \$11,812.5
Toe of cap toe drain - 300thk - 25mm cir, 270th	me		131	\$6	60.II \$7,875.0
34 Toe of cap rock lined swale	<del></del>	tre	0	S4	10.11. SO.0
35 1/2 Pice Culvert		etre	0	\$50	00.11: SO.C
35 Sume Standpipe Extension		sum	1	\$15,00	00.33 \$15,000.0
37 Sediment Control Plan			1	\$52.5	00.:: \$52,500.0
Geomembrane Quality Assurance		sum	<u>_</u>		00.111 \$16,000.0
39 Monitoring and Material Testing Allowance		sum	<u>-</u>	\$161,5	00.01 S161,500.
43 Engineering and Site Inspection		sum			\$3,170,167.
41	Sub	1			\$352,240.
	Margin @				\$3.522,408.
43	Bu	dget			

Schedule does not include expansion of the South Sedimentation pond

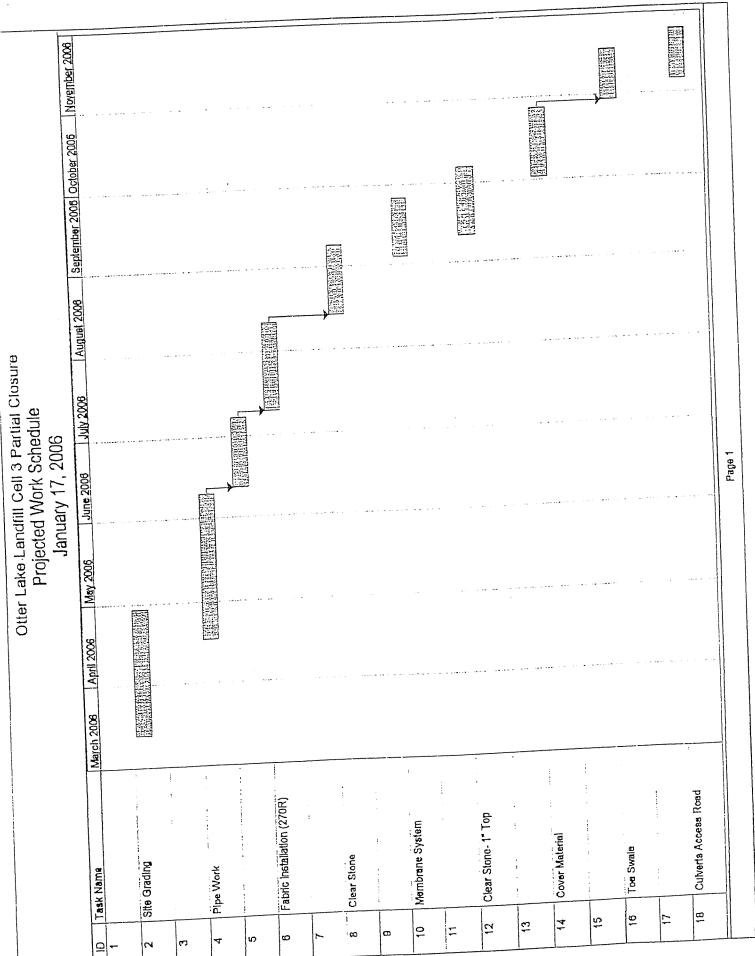
Quantities based on Design Drawings for Pond and Concept layout of area west of Pond Estimated Costs for South Sediment Pond Expansion - Otter Lake RDF

			. (		
			Mirror Cost	Quantity	Mirror Cost Quantity Estimated Cost
**	Utubbing South Sediment Pond Expansion	Γ			1000 0000000
•		hectare	\$1,000.00	7.3	2000
7	2 Cut and Fill South Sediment Pond Area			6:1	006,24
٢	1211	cubic metre	\$8.50	39 770	210 812.9
C	om Curtain South Sediment Pand				CHO, acce.
		limear metre	\$280.00	891	6.12 0.40
4	Lower Existing Ditching at South Sediment pand				01-0,1 44.
3		linear metre	\$30.00	126	000
6	S Kip Kap (300 thk) in South Sediment Pond Dynamics			1,4	33,780
	101	square metre	\$50.00	460	104
c	of Extend Discharge Piping at South Sediment pand			CEL	323,450
t		linear metre	\$330 00	85	
,	Fencing around South Sediment Pand Bytongion			9.6	\$19,140
		linear metre	£50 00	יאנ	
8	Filling area west of Cell 4/5 to channel flow to south contra		20.00	OOC	\$18,000
-	pHO I bac important to the photograph of the pho	lums dum	\$55,000,00	_	
7	900 Culvert under Existing			-	\$55,000
-		mns dum	\$10,000,013	-	
101	10 Relocate Monitoring well in area			-	\$10,000
		lump sum	\$7 500 00	***	
				-	

\$524,255 \$58,250.56 \$582,505.56

> Margin @ 10% Budget

Sub total



# MIRROR Nova Scotia

Reflecting Community Partnership

MUNICIPAL INTEGRATED RESOURCE

RECOVERY OPPORTUNITY REALIZATION

June 16, 2005

Halifax Regional Municipality Solid Waste Resources 21 Mount Hope Avenue Dartmouth, Nova Scotia B3J 3A5

Attention: Mr. Jim Bauld, Manager, Environmental Management Services

MIRROR Nova Scotia

500 Otter Lake Drive

P.O. Box 209

Lakeside, Nova Scotia

33T 1M6

Tel: (902) 453-3490

Fax: (902) 453-3489

Dear Jim:

As a follow-up to our discussions of June 8, 2005, please find attached a report and accompanying attachments relating to the history and future development of the gas management system at the Otter Lake facility.

Please let me know if you have any questions.

Subject: Gas Collection Management System

Sincerely,

Brian Dubblestyne

## INTRODUCTION

In the main HRM/MIRROR NS agreement (1997), the design plan for the RDF contemplated a gas control / venting system to reduce health and environmental impacts from landfill gas emissions. Beginning in late 2002, MIRROR developed an odourmonitoring program that included quantitative assessment of odours on a daily basis as well as an aggressive landfill gas control plan. This gas management system is composed of a series of gas collection wells, both temporary (active cell) and permanent (closed cells), placed throughout the landfill. The number and spacing of the wells is dependent upon landfill-specific characteristics, such as waste, volume, density, depth and area. As gas is generated in the landfill, the collection wells offer preferred pathways for gas migration. Operationally, MIRROR employees assess gas production and distribution changes 24/7, 365 days per year, modifying the pumping system and collection well valves to most efficiently run an active gas collection system. Combusting or flaring is utilized to control odours by thermally destroying odour-causing gases.

# CHRONOLGY OF GAS MANAGEMENT SYSTEM

Due to the nature of HRM wastes into the RDF and the consequential levels of gas production, the need for an active gas management system was accelerated from a projected 2005 installation to early 2003. During the previous contract term (April 2001 - March 2005), MIRROR NS expended in excess of \$1.1M to develop and implement a temporary/permanent gas control system in Cell #1 and Cell #2. Annual operating requirements are directly correlated to the number of gas control wells that are present in the RDF. The following summary provides a chronology of the gas management system to date. Furthermore, the attached schedule depicts both existing and proposed additional gas wells throughout the RDF, and the associative impact on labour required to assess and manage levels of gas production;

# January 2003:

Installation of a temporary gas management system comprised of two flares and hundreds of metres of piping aboveground, combined with a series of headers, blowers, valves and flares (2), to collect and burn off odour-causing landfill gases. Operational crews ranging form 4-6 individuals, managed the gas control system, 24/7, 365 days per year.

# March 2003:

 As part of the impending closure of Cell #1, a total of 18 permanent wells were drilled, at varying depths between 20 to 50 feet.

# August 2003:

Cell #1 was capped and a permanent gas collection system was installed in a portion of the site. At this time, 3 flares were utilized (2 temporary for Cell #2, and 1 permanent for Cell #1). The permanent gas collection system is much more efficient that the temporary gas collection system, resulting in a greater recovery of landfill gases within the RDF and provides greater control.

# Actual and Anticipated Gas Control Timeline Cell #3 Closure Aug 2006 Scenario

Period	Date	Cell #1	Cell #2	Cell #3	Cell #3	Cell #4	Lab	our (12 hc	ur Shπt)	Notes
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	Legend			
ı		Indicates a	3	permanent well
		Indicates a	3	temporary well

Permanent gas collection wells are considered to be much less labour intensive from an operations and maintenance perspective versus temporary systems. Capital expeditures for the permanent gas collection system were included in the interim cell closure budget, as approved by HRM. Operationally, MIRROR employed 3-5 employees to manage the gas control system 24/7, 365 days per year.

## February 2004:

• An additional 7 permanent wells were drilled in Cell #2 to improve the capture rate of odour-causing landfill gases. These wells were incorporated into the gas management system, which was continually monitored, cleaned and maintained throughout 2004.

## August 2004:

• Cell #2 was capped and the permanent gas collection system was extended into Cell #2. Operational crews for the permanent system for Cell #1 and Cell #2 ranged in size from 1 to 3 individuals. 24/7, 365 days per year.

## February 2005:

• An additional 30 temporary wells were drilled in Cell #3. The temporary gas flares were re-employed. The twofold increase in the number of gas collection wells combined with the temporary nature of the Cell #3 wells, results in a significant increase in MIRROR's labour requirements.

#### Present:

• MIRROR NS manages 55 gas collection wells. of which 30 are temporary (Cell #3) and 25 are permanent wells in Cells =1 & #2. Odour-causing gases are combusted utilizing three temporary flares and one permanent flare.

Future: (Interim capping of Cell #3 in August 2006) - see attached details

Future (No Interim Capping of Cell #3 in August 2006) - see attached details

# Actual and Anticipated Gas Control Timeline

Audit Period	Date	Cell #1	Cell #2	Cell #3	Cell #4	cipated Gas Control Time	12 hour Shift)		1 1 1
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Legend Indicates a permanent well Indicates a temporary well

Attachwent # 4

February 24, 2006

Halifax Regional Municipality Solid Waste Resources 21 Mount Hope Avenue Dartmouth, Nova Scotia B3J 3A5

Attention: Mr. Jim Bauld, Manager Solid Waste Resources

Subject : Business Case - Service Fee Implications

Dear Jim:

Further to your letter of February 10, 2006 and our subsequent discussion, we have estimated the financial impact of not proceeding with Partial Interim Cell Closure of Cells = 3A and Cell # 4A, as shown in the following table;

Item Description	m2	Incremental Cost (Note 1)	Total Cost with Margin
Installation of 250 mm of clay cover on Cell   3A	÷3.500	S445,600	\$557,000
Installation of 250 mm of clay cover on Cell # 4A	48,500	S482,000	\$602,500
Totals		S927.600	\$1.159.500

(Note 1: Total Cost of \$495,600 less ½ of \$100,000 of clay fire presention cost included in Future Operating Expenditures in current Service Fee calculations)

The opportunity cost calculated above of not proceeding with partial interim cell closure in two stages over the period covered in Supplemental Agreement No. 8 represents the continued use of an extensive temporary gas management system to control odour.

In addition to the improvement in odour management control, the partial interim cell closure of Cell # 3 is expected to reduce the quantity of leachate volume that would require transportation and treatment. Using a model based on average annual precipitation in Halifax, the partial interim cell closure of Cell # 3 could reduce the production of leachate by an estimated 56 million litres (please refer to attached memo from Dillon Consulting).

On a related topic, and from previous discussions, you have noted that HRM's closure accrual (reference my letter dated January 5, 2004 – "HRM Capital Accruals Trust Flind) is not sufficient to cover the estimate of \$3,522,408.19 for the partial interim closure of Cell = 3 plus \$582,505.56 required for the expansion of the south sedimentation pond, both scheduled to commence in March 2006. Based on mutually acceptable terms, Mirror NS is prepared to provide funding towards the total estimated cost of \$4,104,913.75 at an interest rate equal to the prime commercial lending rate of the Royal Bank of Canada plus two percent (2%) per annum.

I would be pleased to further discuss this matter at your earliest occuenience.

Yours truly

Kurt Jacobs MIRROR Nova Scotia

# SOLID WASTE RESOURCE ADVISORY COMMITTEE DRAFT MINUTE EXTRACT March 20, 2006

# 7.2 Partial Interim Closure of Cell 3 - Advance 06/07 Budget Approval Staff Report March 16, 2006

• A staff report dated March 14, 2006 re Partial Interim Closure of Cell 3 - Advance 2006/07 Budget Approval was before the Committee.

Mr. Bauld provided a brief overview of the project and pointed out the financial benefits and cost savings with moving ahead with the project in 2006-2007 as per page six of attachment "A" to the March 14, 2006 staff report. He advised that the project cannot wait until the June approval of the Capital Budget as it is a 9 month project and needs to be completed before winter.

In response to Councillor Snows requested for clarification on the Havill Lands, Mr. Bauld advised that in 1999 Council approved the purchases of the lands to ensure that there were no encroachment issues within the Otter Lake and wilderness area. The lands contain large quantities of clay deposits for cell construction and cell closure.

A discussion ensued regarding the risk of the project not being completed on time and the impact of cost avoidance, from a business case and environmental sense.

Mr. Bauld commented that business units were advised that requests for advanced Capital Projects approvals and funding were going forward to Council on April 11, 2006.

After further discussion Councillor Rankin suggested that the project be brought forward on March 28, 2006 for approval as cost avoidance and community protection is the case for support. The following motion was placed:

MOVED by, Councillor Karsten, seconded by Councillor Sloane that the Solid Waste Resource Advisory Committee recommend that Regional Council approve Capital Project CWI00779, Partial Interim Closure of Cell 3 on March 28, 2006 and provide advanced funding approval of the proposed 206-2007 Capital Budget in the amount of \$4, 233,000 be withdrawn from Reserve Q120 for this project. MOTION PUT AND PASSED UNANIMOUSLY.

Councillor Rankin requested that the Community Monitoring Committee's letter dated March 16, 2006 be attached to the Committee Report. He asked staff to respond to the letter indicating that the letter was forwarded to the Committee and will be coming forward to Council in support of staffs request. He further advised Mr. Mason that the Community Monitoring Committee can write a letter outlining their concerns addressed to Mayor and Council.



Monitoring HRM Solid Waste Strategy

community monitoring committee

March 16, 2006

Halifax Regional Municipality, Solid Waste Resources 21 Mount Hope Avenue Dartmouth, Nova Scotia, B3J 3A5

Attention: Mr. Jim Bauld, Manager Solid Waste Resources

Dear Mr. Bauld:

Community Monitoring Committee members have expressed renewed concern about the potential for odour nuisance from the Otter Lake Residual Disposal Facility. This continuing concern is supported by new complaints registered with your office and unsolicited comments from residents of neighbouring communities and the on-site incident with resident complaints earlier in the year.

Community Monitoring Committee requests confirmation that odour suppression through cell cover will be done this spring on a half-cell basis. Members' anxiety has furthur grown since the announcement that Halifax Regional Municipality's budget is postponed until May/June.

You will recall your last visit with the Community Monitoring Committee board when the cover matter was discussed and your resultant e-mail stating that half-cell cover was planned this spring/summer for cell three and following cells.

Upon reading your letter of February 10, 2006, addressed to Mr. Wayne Rogers, copied to the undersigned, regarding Mr. Rogers' recent inquiries into the Otter Lake operations, you noted that HRM was currently "assessing" the partial closure of the lower half of Cell # 3 would be completed in 2006/07.

It was my understanding from discussions with Mr. Kurt Jacobs of Mirror that the negotiated contract between HRM and Mirror had specifically included a provision to cap/close all future cells in two stages, thereby ensuring a much higher level of control over odour, to which the CMC is highly supportive. We regard this as both a responsible and proactive approach to creating a gas/odour management system that minimizes odour and prevents the release of harmful ozone depleting greenhouse gases. The CMC relies on this approach. What is now important is that further to your letter to Mr. Rogers, you can confirm that this provision for better community protection, as agreed by both HRM and Mirror, will indeed be undertaken this spring or early summer. Please verify this for us.

I would welcome the opportunity to further discuss this topic with you.

Yours truly

Terry Henley, Chairman,

cc. Community Monitoring Committee

Reg Rankin, Councillor - District 21, Chairman SWRAC Gary Meade, Councillor - District 22, Member SWRAC

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