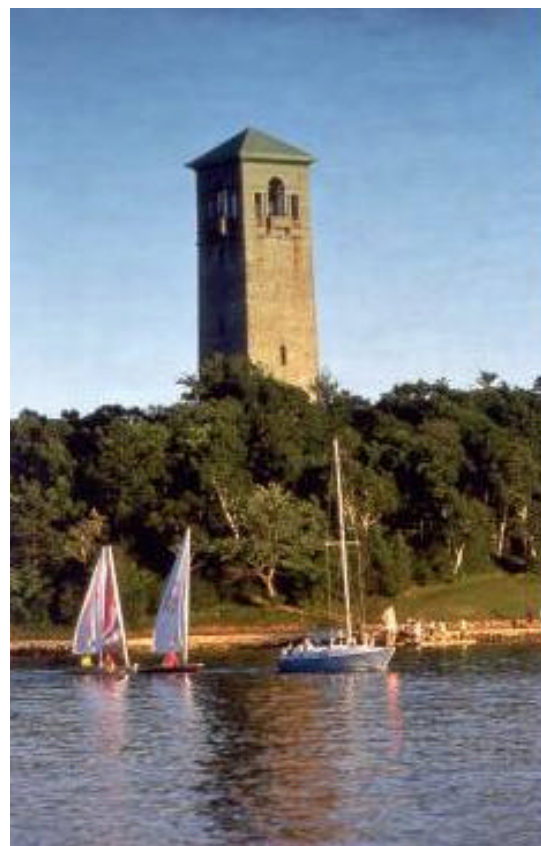




# HALIFAX

REGIONAL MUNICIPALITY

## HALIFAX HARBOUR SOLUTIONS PROJECT ADDENDUM 3 ENVIRONMENTAL SCREENING



September 2002

# **Halifax Harbour Solutions Project**

## **Addendum No. 3**

### **Response to Federal Questions and Final Clarifications**



**September 17, 2002**

**Federal Responsible Authority Comments on EA Addendum #2  
(Meeting of July 9, 2002, and subsequent correspondence).**

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Responses provided by Halifax Regional Municipality (HRM) and by HRM's contractor, Halifax Regional Environmental Partnership (HREP).

Department of National Defense

DND has indicated that the infrastructure components crossing DND property will require excavation of contaminated soils, some of which are currently contained by previously installed liners. Details concerning the mitigative measures that will be utilized during site excavation and restoration, especially with regard to maintaining the integrity of the installed liners and contaminated soils handling is required.

***HREP Response: HREP proposes to carry out construction through the existing DND parking lot underlain by the contained contaminated soils in the following manner:***

- ***Remove existing asphalt, gravel subgrade, existing cover liner and retaining walls.***
- ***Excavate trench for new sewer line and temporarily stockpile excavated contaminated soil onsite in a manner acceptable to DND.***
- ***Install new sewer and replace excavated contaminated soil in the containment site.***
- ***Install new liner over the entire containment site.***
- ***Reinstate parking lot to its pre-construction condition.***

***As well, HREP will work with DND, NSDEL and Harbour Engineering to prepare an environmental plan that will address the management of contaminated material that may be encountered on the DND lands associated with the new sewer outside of the containment area.***

Information on the types of unexploded ordnance expected in the vicinity of the Dartmouth outfall is required. A summary of procedures to be followed should such ordnance be encountered in outfall construction is required. (DND to provide types of ordnance expected)

***HREP Response: Prior to the start of construction, HREP will organize a meeting with DND to discuss the proposed construction activities and sequencing. At this meeting, it is expected that DND will provide the types of ordnance that may be encountered and provide examples of how this ordnance may appear. A visual pre-construction survey will be completed by divers to determine if there is any visible evidence of ordnance in the footprint area of the outfall. If suspected ordnance is identified, HREP will contact DND for a procedure for the clearing and disposal of ordnance.***

Fisheries and Oceans Canada - Navigable Waters Protection

An application has not been made to date under the Navigable Waters Protection Act. It should be noted that an approval under the NWPA could take an extended period of time (6 months - 2 years).

***HRM Response: No response required. NWPA permit application will be initiated by HREP as soon as possible.***

1 - Page 2, The second last paragraph states the Point Source Control by-law is outside the scope of the assessment. We do not agree. As stated in earlier correspondence to Bill Coulter, the courts have established that we, as a RA, must include within the EA process those issues that are relevant to the project. I believe the public expects those reviewing a project designed to clean up effluent going into the Harbour, to make reasonable attempts to keep deleterious substances out of the water body of concern. The treatment system selected does not have the capability of treating products such as dry cleaner fluid or motor oil. That is the reason for the need of a source control bylaw.

2 - Page 2, last paragraph states the \$500 fine is consistent with environmental fines. The present amount suggested does not reflect our experience.

*HRM Response (from correspondence from HRM (J. Sheppard) to DFO (B. Jollymore), Sept. 5, 2002):*

*“Halifax Regional Municipality has submitted draft documentation as required by the Canadian Environmental Assessment Act (CEAA) in support of the Halifax Harbour Solutions Project. As part of their review of this documentation, Fisheries and Oceans Canada requested clarification of the application of Sections 12 (1) and 12 (2) of HRM By-Law W-101, the Wastewater Discharge By-Law.*

*On July 8, 2002, staff from HRM and Fisheries and Oceans meet to discuss this issue, and the following is provided as a response to Fisheries and Oceans, as discussed at that meeting.*

*Section 12(1) of By-Law W-101 states as follows;*

*"Any person who contravenes any portion of this by-law shall be liable upon summary conviction for every such offence to a penalty not exceeding fifty thousand dollars (\$50,000.00) or in default of payment, to imprisonment for a term not exceeding ninety days and each day that the offence continues shall constitute a new offence."*

*This section is intended to be applied when an identified discharger is in violation of an applicable pretreatment or discharge standard as provided by the by-law, either through accidental or willful intent on the part of the discharger.*

*Any known occurrence of this nature will be considered by staff for possible prosecution.*

*Section 12(2) of By-Law W-101 states as follows;*

*"Any person alleged to have violated this bylaw, who is given notice of the alleged violation and where said notice so provides for payment, may pay a penalty in the amount of \$500.00 to the HALIFAX REGIONAL MUNICIPALITY provided that said payment is made within a period of 14 days following the day on which the alleged violation was committed, and said payment shall be in full satisfaction, releasing and discharging all penalties and imprisonments by the said person for the violation."*

*Section 12(2) is a standard part of HRM's municipal by-law penalty provisions designed to streamline the administrative procedures related to enforcement of minor infractions of by-laws by facilitating payment of voluntary penalties. This is comparable to the use of summary offense tickets, which also permits an offender, where the charging officer so permits, a stated penalty to be paid without a court appearance.*

*It is the intent of 12 (2) to provide a penalty when in the opinion of the HRM Solicitor and HRM staff that a violation of By-Law W-101 has occurred which does not include or involve a related discharge occurrence or pretreatment requirement. Examples of this type of by-law violation may include failure on the part of a discharger to submit plans or correspondence, deny staff access for the purpose of inspection, failure to conduct self monitoring when required, and failure to observe time lines for agreed upon work or controls relevant to pollution prevention initiatives as provided by the by-law."*

3 - Page 6, the last paragraph states there is an agreement with a soil manufacturer to provide additional storage. Who is the manufacturer and where is the location? This information is required to substantiate the claim made in the addendum.

***HREP Response: The soil manufacturer is Kynock Resources and the location is the company's quarry in Hammonds Plains.***

4 - Page 8, The answer to question 3.2.4 is still not clear. Where are the alternate storage sites?

***HREP Response: As noted above, the alternative storage site for the product is Kynock Resource's quarry in Hammonds Plains. To clarify, HREP does not intend to store untreated, dewatered biosolids at alternate storage sites. The dewatered sludge will be transported from the wastewater treatment facilities to the sludge treatment facility.***

5 - Page 9, response for 3.2.7 indicates what constituents HREP had intended to analyze for on both a quarterly and annual basis. There seems to be a misunderstanding about responsibilities between proponent and regulator during this review. The final soil product has the high likelihood of being handled by people and being used in food crop applications. We did not have a question but provided a position. Even though the bacteria levels should be zero after lime addition, testing should be carried out to be certain the product is safe. The final soil product is to be sampled for bacteria, viruses and pathogens of potential concern to humans. Passing levels will be similar to typical soil background levels.

***HREP Response: There are a number of standards against which the N-Viro Soil will be judged (See Table 1, appended). These include:***

- \* Pathogen reduction***
- \* Vector Attraction Reduction***
- \* Pollutants (i.e. heavy metals)***

***Pathogen Reduction***

***Pathogen reduction is a standard of the U.S. EPA under its Sludge Use and Disposal Standards published at 40 CFR 503; there is no corresponding requirement under AAFC fertilizer trade regulations. Pathogen reduction is divided into to two classes: A and B. Class A pathogen reduction***

*infers that pathogenic organisms are below detectable levels. Under this rule, the N-Viro Process is established as Class A pathogen reduction Alternative 2, Biosolids Treated in a High pH-High Temperature Process. This alternative defines the conditions that the process must meet to qualify as a Class A alternative, specifically:*

- \* elevating the pH to greater than 12 SU (measured at 25 degrees C) for 72 hours or longer;*
- \* maintaining the temperature above 52 degrees C for at least 12 hours during the period when the pH is greater than 12;*
- \* air drying to over 50 percent solids after the 72-hour period of elevated pH; and*
- \* Either the density of fecal coliforms in the biosolids must be less than 1000 MPN per gram of total solids (dry weight basis) or the density of Salmonella sp. bacteria must be less than 3 MPN per 4 grams of total solids (dry weight basis).*

*This process description actually describes the N-Viro Process utilizing windrowing to achieve the drying stage. Since the USEPA rule was promulgated, N-Viro has developed a modification to this process that includes the heat drying component proposed for Halifax. The USEPA has advised N-Viro International that the modified process including heat drying meets the Class A requirements given compliance with the operating procedures developed by N-Viro.*

*The Class A requirements are as follows (all units standard density limits (dry wt)):*

- \* salmonella - < 3 MPN / 4 g total solids or*
- \* fecal coliform - < 1000 MPN / g and*
- \* enteric viruses - < 1 PFU / 4 g total solids and*
- \* viable helminth ova - < 1 PFU / 4 g total solids*

#### *Vector Attraction Reduction*

*Vector attraction reduction is also a standard of the U.S. EPA under its Sludge Use and Disposal Standards published at 40 CFR 503 and also does not exist under the AAFC fertilizer trade regulations. Vector attraction reduction is an effort to describe how the biosolids will be made unattractive to potential vectors for pathogens (e.g. flies, mosquitoes, etc). For undigested sludges (as will be produced in Halifax), VAR Option 6, Addition of Alkali Material, will be utilized. This Option provides that the sludge be treated by the addition of lime or other alkaline material to:*

- \* raise the pH to at least 12 SU (measured at 25 degrees C), and, without the addition of more alkaline material, maintain a pH of at least 12 for 2 hours and;*
- \* maintain a pH of at least 11.5 without the addition of more alkaline material for an additional 22 hours.*

*The N-Viro process will meet the requirements of this Option.*

#### *Pollutants*

*Under both 40 CFR 503 and AAFC, limits on certain elemental pollutants (commonly called 'heavy*

*metals') are placed on any biosolids-derived fertilizer to be placed in commerce. The attached table lists those limits and projects initial sludge quality from the Halifax plants as well as the end-product quality after treatment through the N-Viro process, taking into consideration that some metals may also be found in the lime and kiln dust.*

Subsequent DFO question (Sept. 4, 2002): The response is much improved however the issue of sampling the soil before distribution is not addressed. The proponent contends that because they use this type of treatment system, all will be ok. Should the proponent wish to stop sampling routinely at a later date because all is working as planned and there is documented proof of compliance, then that option can be discussed at that time. Until then, sampling will be a requirement and needs to be reflected in the document.

Quoting from their example, how would the USEPA have discovered that heat drying was necessary if sampling had not been a requirement to see that the process was working. Quarterly and annual sampling is not adequate.

***HRM Response: The N-Viro product will be monitored for quality in accordance with all federal requirements.***

6 - Page 9, question 3.2.8 concerning the discussion about MSDS sheets. I understand HREP only intends to add an alkaline admixture to the sludge. However, referencing page 12 and 14 of Addendum 2, there are some 5000 estimated business within the serviced area of HRM subject to the Point Source Control by-law and many households that discharge hazardous waste, personal care products and pharmaceuticals into the sewer infrastructure. Included within this grouping are several significant regional hospitals catering to veterans, children and special care needs which generate radioactive and potent pathogen waste discharges. Until, we clearly know what is in the sludge and controls are in place to be reasonably sure what is going into the sewer infrastructure, this item is years down the road. Make a qualified statement to that effect.

***HREP Response: HREP will prepare MSDS sheets for the product. It is anticipated that sheets will be updated as product characteristics evolve (changes in product quality with on-going implementation of HRM's source control program and other measures).***

7 - Page 14, the last paragraph of section 3.3.1 indicates HRM anticipates a 3 - 4 year objective to make businesses aware of the by-law. Why such a long time? Compliance could be decades away at that rate. When our Fisheries Act Pulp and Paper Effluent Regulations were enacted, a transitional period was stipulated and a company had to register for the transitional period. We realize HRM does not believe the Point Source Control legislation is part of the environmental review. However, as one of the Responsible Authorities reviewing this project, we do. For a demonstration of due diligence that HRM is trying to seriously limit deleterious substances entering waters frequented by fish, then changes to the fine structure are needed to the by-law and a clearly defined time line to phase in the application of the legislation.

***HRM Response: The 3 new treatment plants will be constructed in a phased manner within approximately a 5-year timeframe. HRM will work with dischargers in each of the treatment plant sewersheds to ensure that dischargers within a particular sewershed are in compliance within the timeframe for initiation of operation for the associated new treatment plant. Thus, dischargers within the Halifax sewershed will be brought into compliance with the By-Law prior to the operational target for the Halifax STP, and similarly for dischargers within the Dartmouth and Mainland South STP sewersheds. All dischargers will thus be expected to be aware of the By-Law provisions and in***

*compliance within the overall 5-year project timeframe. STP scheduling details are as follows (all times relative to the project start date, projected to be in 2002): Halifax STP operational 26 months from start date; Dartmouth STP operational 40 months from start date; Herring Cove STP operational 53 months from start date.*

#### Environment Canada

#### Pollution Prevention Program (Source Control Strategy)

As part of the Pollution Prevention Program (PPP), it is understood that the Halifax Regional Municipality (HRM) is compiling a database of businesses subject to the Wastewater Discharge By-law (W-101). To assist businesses in coming into compliance with the by-law, a number of educational initiatives to promote the PPP are underway. HRM staff are also prepared to work co-operatively with businesses on a case by case basis. Inspections and unannounced monitoring will determine whether businesses are in fact in compliance with the by-law. The HRM is expecting that all relevant industrial, commercial and institutional locations will be compliant with the by-law before the project is completed. It is further understood that the by-law will be reviewed periodically and updated as required.

With regard to the residential sector, EC understands that HRM is continuing to distribute educational materials in order to minimize contamination of the municipal sewer system with hazardous wastes.

In EC's opinion, the relevance of the PPP to the project and the environmental assessment has been acknowledged by the proponent as indicated by the statement in Section 2.6.1 of the October screening document (i.e., "the implementation and continued maintenance of this program is key to the success of the proposed HHSP"). As such, EC expects that a discussion of the PPP will be included in the environmental screening report.

#### Inflow/Infiltration Reduction Plans

It is understood that an Inflow/Infiltration Reduction Plan (I/I) for the HRM, consisting of study and investigation, and remedial and corrective action phases, was in fact initiated in 1999/2000. The I/I, coupled with other ongoing measures (e.g. video inspections of sewers, flow monitoring during wet conditions, and sealing and grouting of manholes) all contribute to reducing infiltration and inflow into the sewer system. As these activities are important to the success of the HHSP, they should be discussed in the screening report.

***HRM Response: PPP - a discussion of the PPP has already been provided, in Addendum #2. I&I - a discussion of the I&I program has already been provided in Addendum #2. HRM has provided basic available information on both the PPP and I&I programs, and considers the Addenda to be part of the HRM Screening Document.***

***Regarding DFO Habitat Management Division, Item #1 - linkage of the Source Control program and the Harbour Solutions Project; and EC Items #1 and #2 - linkage of PPP and I&I programs: While it is HRM's position that the defined scope of the assessment does not include the HRM Pollution Prevention (Source Control) Program / HRM Sewer Use By-Law, or the HRM Infiltration and Inflow (I&I) Reduction Program, HRM agrees that these are important related initiatives which will be linked***



***to the Harbour Solutions Project through synchronized internal HRM business unit planning. HRM has made a commitment to meet the water quality objectives (Fournier Task Force) defined for the Harbour, as indicated in the Harbour Solutions Project RFP, and confirms this commitment. Both the Source Control and I&I programs are established and active, as indicated in information previously provided.***

#### Treatment Systems

Each treatment facility is presently designed to accommodate four times the average dry weather flow (ADWF) predicted for the year 2021. It is understood that flow monitoring will provide the basis for deciding when to increase the capacity of each treatment facility. Specifically, once flow monitoring during dry weather conditions consistently demonstrates that the ADWF is approaching that projected for 2021, the facility will be expanded to accommodate 4 x ADWF predicted for 2041. Changes to the level of treatment will be triggered by regulatory requirements or decisions made by the HRM.

***HRM Response: No response required.***

#### Sludge Management Program

It is understood that the final product must be in compliance with the requirements of the Fertilizers Act and Regulations, and will meet the USEPA regulatory limits relating specifically to pathogen reduction (regulation 40 CFR Part 503). In the screening document, these standards should be clearly identified together with the respective predicted parameters of this product. In the event that the final product fails to meet the required standards, it is understood that a contingency plan has been prepared whereby the sludge will be stabilized, prior to being sent to a landfill owned by the HRM.

***HREP Response: (See also response to DFO question #5 above). HREP has previously stated that, in the event of the production of an off spec product, the off spec product could be used as landfill cover. HREP reiterates its position that HREP would not use any product as a landfill cover or dispose of any product at any site (such as a landfill) without passing the mandated tests and obtaining the required approvals from NSDOEL. HREP considers however that a major pollution would be needed for the test results not to comply with leachate test limits, especially because of the residential aspect of all sewersheds of the Halifax area. Additionally, it should be noted that the flexibility of the N-Viro process will allow HREP to adjust admixture amounts and consequently compensate potential fluctuations in sludge quality delivered at the sludge processing facility, thus limiting even more the risk for being off spec. In case of major pollution, HREP would ultimately look for disposing of the sludge at a landfill inside or outside the province authorized to accept such material, and would most likely seek for the support of HRM and all applicable authorities to initiate remedial actions against the originator of the pollution.***

#### Disposal at Sea

It is EC's understanding that the construction activities associated with the installation of outfalls and diffusers will no longer require the issuance of a Disposal at Sea Permit. However, if these plans change in the future, the proponent will contact EC for further discussion in this regard.

***HRM Response: No response required.***

**Table 1.** Comparison of Sludge Composition with Disposal Regulations

	Disposal Regulations			Sludge Composition	
	NS Stabilized Sludge	Federal Fertilizer Act	Solid Waste NSDOE guidelines	HRM <sup>1</sup>	
	Metal Content	Standards for Metals	Standards for Metals	Actual Raw Sludge	N-VIRO SOIL
Arsenic (As)	170	75	50	1	0.4
Cadmium (Cd)	34	20	20	26	11.6
Cobalt (Co)	340	150	300	17.5	8
Chromium (Cr)	2800	Not regulated	800	349	156
Copper (Cu)	1700	Not regulated	500	223	99
Mercury (Hg)	11	5	10	3	1.3
Molybdenum (Mo)	94	20	40	17.5	8
Nickel (Ni)	420	180	500	175	78
Lead (Pb)	1100	500	1000	437	195
Selenium (Se)	34	14	10	17	7.6
Zinc (Zn)	4200	1850	1500	2423	1081
<i>All values in mg/kg dry weight basis</i>			reference for N-VIRO product		
<sup>1</sup> HRM data calculated for an enhanced primary treatment process.					

DFO questions regarding Table 1.

A brief description explaining the Table entitled "Comparison of Sludge Composition with Disposal Regulations" would be useful. For example, the terms "Actual Raw Sludge" and "N-VIRO Soil" should be defined. As I understand it, Actual Raw Sludge refers to the projected metal content of the sludge generated following the enhanced primary treatment process while the term "N-VIRO Soil" describes the metal content of the finished product after the sludge processing activity described in Section 2.1 in the March 27 Addendum.

While it is understood that the metals content of the finished product must comply with the standards for metals prescribed by the Federal Fertilizers Act and Regulations, it is not clear whether the final product must also adhere to the Nova Scotia Stabilized Sludge Regulations and/or the Solid Waste NSDEL Guidelines as well. This should be clarified.

***HREP response: The Table entitled "Comparison of Sludge Composition with Disposal***

*Regulations” is primarily an internally developed comparison of “test” scenarios relative to sludge content and disposal requirements. The “Actual Raw Sludge” is a rough estimate of theoretical average sludge content based on samples that HREP has been aware of and the estimated content of various compounds in the wastewater streams anticipated at the future treatment facilities. The “N-VIRO Soil” column contains the estimated finished product characteristics using the proposed sludge processing system and based on the “Actual Raw Sludge” values.*

*The statement that “...the metals content of the finished product must comply with the standards for metals prescribed by the Federal Fertilizers Act and Regulations...” is correct. If liquid or dewatered sludge was to be applied direct to land, the NS Stabilized Sludge Regulations would need to be adhered to; but they do not apply to the “N-VIRO Soil” which is a processed alkaline product and serves as a soil amendment like any other fertilizer. The Solid Waste NSDEL Guidelines are not relevant to this operation, as NSDEL has determined the N-VIRO process is not a compost process, but were provided for comparison purposes.*