



December 22, 2010

Via: Email

Mr. Ed Murphy, SAO
Hamlet of Arviat
Arviat, Nunavut X0C 0E0

Dear Mr. Murphy:

**Re: NWB Licence 3AM-ARV1015 Compliance Issues
GN File 08-3025
Hamlet of Arviat, Nunavut
File No. N-O15746**

1.0 Introduction

In 2008, the Hamlet of Arviat applied for a Type A Water Licence from the Nunavut Water Board (NWB). Community and Government Services (CGS) of the Government of Nunavut (GN) retained Nuna Burnside Engineering and Environmental Ltd. (Nuna Burnside) on behalf of the Hamlet of Arviat to assist with the licensing process. As part of the licence application, a Technical Meeting/Pre-Hearing Conference was conducted in Arviat March 29 – 31, 2010. As part of the process, a “Compilation of Issues” was prepared. The compilation included issues identified by the NWB and review agencies including:

- INAC
- DFO
- EC
- GN-DOE.

In a letter dated June 23, 2010, to address the comments and compliance issues, Nuna Burnside outlined a workplan that included the following tasks:

- Address the data and information gaps identified (i.e. as-built drawings, documentation, impact assessment, and reporting)
- Conduct studies to address outstanding issues (i.e. DFO fish habitat impact)
- Conduct sampling and data collection
- Conduct training of Hamlet staff as to sampling and information recording requirements

- Submission of document and reports.

The work plan was approved by CGS on behalf of the Hamlet, and submitted as evidence during the Public Hearing in July 2010, to demonstrate the Hamlet's commitment to address compliance issues. A new five year license (NWB 3AM-ARV1015) was issued August 23, 2010, with conditions that included completion of the Nuna Burnside workplan by December 31, 2010.

The following documents have been prepared in accordance with the Nuna Burnside June 23, 2010 work plan.

- Wolf River Water Intake Impact Assessment
- Sewage Disposal Facility Report
- Old Sewage Lagoons Abandonment and Restoration Plan
- Solid Waste Management Report
- Solid Waste Management Facility Abandonment and Restoration Plan
- Environmental Monitoring and Quality Assurance and Quality Control Plan
- Addendum: Environmental Emergency Contingency Plan
- Hamlet of Arviat, 2010 Annual Report
- Environmental Monitoring Training Manual, Hamlet of Arviat
- Plan of Compliance.

The Plan of Compliance is an NWB formatted table to monitor the Hamlet's progress at achieving compliance with the licence. The plan outlines each of the terms of the licence, whether the Hamlet is in compliance, and whether plans are in place to achieve compliance including timelines and funding details.

The Hamlet of Arviat water licence includes three different facilities, the Water Supply Facility, the Sewage Disposal Facility and the Solid Waste Management Facility. Each of the facilities have compliance issues that need to be addressed as conditions of the new licence. An overview of these issues and the work that Nuna Burnside completed on behalf of the Hamlet to address them is provided below.

It should be noted, that the approved workplan was prepared prior to the release of the new licence. All work was completed with "best efforts" to meet the conditions of the licence within the approved scope of work. As a result, some requirements listed in the licence were not completed as they were not part of the scope of the approved workplan. These have been identified in the Plan of Compliance.

2.0 Water Supply Facility

The water licence hearings identified that there is very little data about the environmental impacts of pumping at the Wolf River intake. A detailed impact assessment was a condition in the new licence. The assessment is detailed in the report titled "Wolf River Water Intake Impact Assessment, December 2010". Included in the report is field data collected in Sept 2010 which included the following:

- A detailed topographic survey of the intake area including water depth measurements and flow measurements
- Water quality samples
- Documentation of the intake screen and operating pump.

The intake was evaluated according to DFO guidelines and found to be out of compliance. Recommendations for a new intake screen are provided in the report.

3.0 Sewage Disposal Facility

During the process of the NWB water licence renewal, data gaps and missing information regarding the sewage disposal facility were identified by various regulatory agencies.

To address the issues identified two reports have been prepared, "Sewage Disposal Facility Report" and "Old Sewage Lagoons Abandonment and Restoration Plan". These reports are conditions of the licence, Part D Item 5 and Part G, Item 2.

Field work completed to support these reports included:

- A detailed topographic survey of the sewage lagoons and surrounding wetlands
- Collection of water depths and sludge thicknesses in the lagoons
- Collection of surface water samples from the lagoons and the wetland treatment area
- Collection of sludge samples from lagoons
- Excavation of test pits to assess the active layer.

As part of the Sewage Disposal Facility Report, an assessment of available numerical models for wetland treatment areas was completed. It is our opinion that monitoring arctic wetlands is a better method of predicting their effectiveness over the use of models. Research on arctic wetland treatment systems is ongoing and new models may be available in the near future.

4.0 Solid Waste Management Facility

Currently the Hamlet has three sites as part of their Solid Waste Management Facility, the Solid Waste Disposal Area, the Bulky Metals Waste Area and the Hazardous Waste Storage Area. There were no Operation and Maintenance Plans, Abandonment and Restoration Plans, or As-Built Drawings for any of these facilities.

A new Solid Waste Management Facility was designed for the Hamlet in May 2009 by Nuna Burnside. To date, the Hamlet has not reached a decision as to the location and type of a new solid waste facility they wish to develop for long term use.

To address the compliance issues with the existing landfill, bulky metals area, and hazardous waste storage area two reports have been prepared, "Solid Waste Management Report" and "Solid Waste Management Facility Abandonment and Restoration Plan". These reports are conditions of the licence, Part D Item 14 and Part

G, Item 1. The reports provide recommendations for the continued “best practices” use of the existing facilities until a new Solid Waste Management Facility is constructed.

Field work completed included:

- A detailed topographic survey of the landfill and bulky metals waste area
- Collection of soil samples from contaminated soil pile and at the hazardous waste storage area
- Collection of surface water samples from the waste areas and the evaluation of a contaminant attenuation zone
- Excavation of test pits to assess the active layer.

A Closure Plan for the existing landfill has been created. Final contours were based on a maximum of 5 more years of waste disposal. This should be sufficient time to get a new facility operational.

5.0 Monitoring and Annual Reporting

All sampling and information for the annual report was collected and included in a 2010 Annual Report.

Based on the studies completed, an updated Environmental Monitoring Program and QA/QC Plan has been created. Within this Plan, monitoring locations and sampling parameters are chosen to provide the best information for monitoring the environmental impacts from the facilities. Some of the monitoring locations and sampling parameters selected differ from those provided in the current licence.

Signs were not installed at several of the monitoring locations for the current licence in anticipation of changes to those locations based on the findings of the studies. When the NWB approves the new locations provided in the Environmental Monitoring Plan, signs will need to be installed to meet the licence requirements.

An Addendum to the Environmental Emergency Contingency Plan has been prepared as required by the conditions in Part F, Item 5 of the license.

6.0 Training

One of the components of the work plan was the training of Hamlet staff in using the Operation and Maintenance Plans and completing the sampling required for the annual report. This training was completed during two visits, September and November 2010. Laura Tassiuk was the Hamlet staff person who participated in the training.

A document entitled “Environmental Monitoring Training Manual, Hamlet of Arviat” was provided as part of the training program.

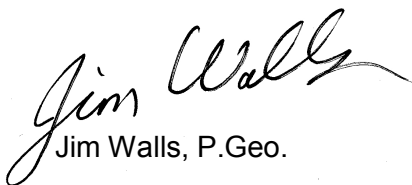
7.0 Recommendations

Based on the findings of the work conducted to date, the following recommendations are provided:

1. The various documents and contents of this submission should be reviewed by the NWB and the various agencies with jurisdiction (INAC, DFO, EC, GN-DOE, etc.)
2. Following the review of the submissions and the various recommendations included in the documents, the conditions of the NWB license should be amended
3. With the assistance of CGS the Hamlet should submit to the NWB timelines to address the various items in the Plan of Compliance
4. The conditions of the NWB License, the Plan of Compliance and the findings of the current study should be evaluated as part of the Community Land Use Plan currently being finalized to address any potential conflicts
5. The Hamlet needs to establish a budget to meet the requirements of the conditions of the new license. This may require an application to the GN to increase the level of municipal funding to cover the increased level of work to achieve compliance
6. As CGS only funds capital projects capable of regulatory compliance and does not fund O&M or compliance maintenance, the Hamlet should carefully evaluate capital works to ensure the requisite annual funding from the GN is committed to ensure they have the resources to maintain compliance.

Yours truly,

Nuna Burnside Engineering and Environmental Ltd.


Jim Walls, P.Geo.



cc: Mr. Richard Dwyer, Nunavut Water Board
Mr. Wayne Thistle, Regional Projects Director, Community and Government Services, Government of Nunavut
Mr. Balihar Antaal, Project Officer, Community and Government Services, Government of Nunavut

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