

Aug 19, 2013

Nunavut Water Board

PO Box 119

Gjoa Haven, Nunavut, X0B 1J0

Attention: Phyllis Beaulieu, Manager of Licensing

RE: Water Licence Compliance Plan for Hamlet of Gjoa Haven, NU (**Licence No. NWB-3GJO-0409**)

Dear Ms. Beaulieu,

On behalf of the Hamlet of Gjoa Haven, I am pleased to submit to Nunavut Water Board the 'Executive Summary' of Renewal Application along with the Compliance Plan of its Licence No. NWB-3GJO-0409.

We realize that a separate compliance plan has been submitted by Dillon Consulting on behalf of the Hamlet of Gjoa Haven on July 15, 2011 in support to the renewal of its water licence. We also refer to your respond to Bill Westwell (Senior Municipal Planning Engineer) dated Sep 07, 2011 to application for renewal and plan for compliance which comprises some clarification and outstanding information to be updated with the Board. We are forwarding this 'plan for compliance' which will cover most required information including monitoring program, annual reports, training, operation, maintenance, QA/QC plan and plan for abandonment & restoration of its facility(s) as requested by the Board.

With the help of Government of Nunavut through Community and Government Services, it has been undertaken a comprehensive waste management monitoring program which has led to the improvement of sewage and solid waste site facilities, wetland and effluent discharges. The annual monitoring program for sewage and solid waste has been in effect since summer 2012. Sample tests result has shown excellent control on contamination parameters within allowable limits comprising BOD, TSS, E-coli and Toxicity components. There is no change in Operation and Maintenance plan for water supply; however remediation measures has been taken for current sewage lagoon in regards to leakage and freeboard issues and segregation & piling of solid waste dumps. An updated manual for both the sewage facility and solid waste site has been forwarded to the Board along with the Water Licence Renewal Application.

We hope that Nunavut Water Board will find the Compliance Plan effective in regards to the water licence renewal process. In anticipation of the need to consider, we are requesting for re-installation of the current licence status in order to submit necessary amendments to the Board. We all admit that water supply and waste management are the top priority in adherence to public safety and environmental protection.

Sincerely,  Aug 19, 2013  
(Shah Alam, P. Eng.)

Regional Municipal Planning Engineer,

Kitikmeot Region, Cambridge Bay, Nunavut

## **Executive Summary**

The Hamlet of Gjoa Haven is responsible for the disposal of sewage and solid waste generated from the community. These facilities are currently operating without a Water Licence active. Current sewage lagoon constructed early 2000, is now undersized for the growing population and went through some repairs due to leakage issues, inadequate freeboard height, and possibility of sewage overflow during summer time once sewage inside melts. In such case, the Hamlet would require to plan for decanting with approve test result of samples and approval from the inspector. Leakage through the berm may weaken the confinement of raw sewage and possible runoff onto wetland that finally discharge to ocean without proper treatment. DIAND and Environment Canada had notified the issue in 2010 and repeated reports from AANDC inspector. Solid waste site facility had issues over the year in terms of operation & maintenance manual updating, control of metal and hazardous materials leachate mixing onto water through wetland, poor segregation & heaping of waste dumps, illegal dumping outside the facility, lack of signage at the facility & monitoring stations, broken spots of protection fence and poor performance of facility operations due to lack of operator training.

In order to obtain the Water Licence through the Nunavut Water Board, improvements were required to the sewage lagoon and solid waste site facilities. The Hamlet of Gjoa Haven with the help of GN had taken certain measures over the year in compliance to the requirements for water licence renewal, but due to incomplete information of the compliance plan and time specific confirmation of outstanding items (O&M manual, A&R plan of facility decommission, Annual Reports of water drawn & sewage disposal and monitoring schedule for sampling & training) the community Water Licence status still remains unchanged. However, NWB has outlined some items to be updated with the Board and submit a short term and a long term plan of compliance. This report of O & M plan and Compliance plan is prepared with the confirmation of most items requested in the letter of NWB in respond to earlier submissions by GN and by Dillon Consulting.

The community has repaired the leakage issues of current sewage lagoon and raised the berm height to reinstall enough freeboard (current freeboard height more than 1.5 m), so that confinement of raw sewage inside throughout the winter to early summer is not a problem. Continuous discharge through the overflow flute onto the secondary cell reduce the quantity above the mark point when sewage inside melts and ready for discharge. Additional scope of mechanical decanting also in plan with proper approval process if requires anytime during summer and fall. A geotechnical inspection of Dam Stability check for the current lagoon berm is scheduled Sep 2013, and a follow up report will be submitted with the Board by Nov 2013. However, construction work for a new full engineered lagoon in progress and expecting completion by end of 2013, which will be used for sewage disposal of the community. Once the

new lagoon completed and starts operation for sewage disposal, the current lagoon will be decommissioned and the Abandonment plan will be submitted to the Board at least 90 days ahead of this change of operation.

Monitoring of current solid waste facility has been started since summer 2012 comprising onsite segregation of metal dump and hazardous waste and heaping up in separate cells, picking up paper boards & wood pieces from household storage, picking up recycles separately, isolation of batteries and waste oil from regular waste and confined in metal or plastic containers, repair of broken fence and removal of illegal dump outside of the facility. Signage has been installed on the location of sampling stations (GJO-2, GJO-3, GJO-4 and new station GJO-5) with GPS locators. Comprehensive monitoring of solid waste facility will be continued during the summer 2013 including signage, pictures, leachate retention, wetland improvement and operator Training of Environmental Awareness. GN has retained EXP consultants to help the community in compliance with requirements requested by the Board.

CGS of GN will continue the monthly monitoring and sampling program for sewage and solid waste effluent for the summer and fall. Monitoring and sampling program also included in hand training, sample preservation, packaging, transportation, communication for testing in laboratory and recording of sample results for Annual Reporting to the Board.

The Hamlet of Gjoa Haven and GN CGS are aware of the solid waste site capacity and volume of current storage at the facility which might requires an improvement and or expansion in coming future, such development can be planned with the confirmation of funding source and future Community Plan.

The enclosed O & M manual and plan for sewage and solid waste facilities are updated with current status and resources in implementing the operational procedure as outlined in the manual. We confidently determined, the operational procedure will be helpful and in compliance with the requirement the Nunavut Water Licence for this northern community.

**PLAN FOR COMPLIANCE LICENCE NO. NWB-3GJO-0409 (EXPIRED)**

Licence Condition		Status of Compliance	Short Term Compliance	Schedule for Implementation / Date of Obligation	Long Term Plan of Compliance (including funding status where applicable)
Part B	General Conditions				
B-1	The Licensee shall file an Annual Report with the Board not later than March 31st of the year following the calendar year reported which shall contain information monitoring program, water and sewage waste quantity	Non compliance - Hamlet Annual reports from 2004-2010 still outstanding	<p>Annual Reporting in effect and completed before Mach 31 each year since 2012.</p> <p>Raw water samples taken from Swan Lake and tested in laboratory for composition.</p> <p>Annual quantities in cubic meters drawn reported in the Annual Reports in Tabular Form.</p>	<p>Sampling results 2012 submitted. July 2013r= results attached with O&amp;M manual.</p> <p>Annual Reports 2006 through 2012 already submitted.</p> <p>Operation and sampling schedule 2013 provided.</p>	Continue Monitoring Program and Annual Report submission within time limit each year and as required.
B-2	The Licensee shall comply with the “Monitoring Program” described in this Licence, and any amendments to the “Monitoring Program” as may be made from time to time, pursuant to the conditions of this Licence	Non compliance - Please refer to section H for specific compliance issues	<p>Monitoring program in effect for 2012, 2013 and continue for next year 2014.</p> <p>Samples were taken from stations GJO-2 and GJO-4 as marked with GPS locator and identified in the water licence. Collected samples were transported to the Taiga laboratory in YK, tested for parameters and recorded Test Results.</p>	<p>Samples results 2012 submitted. Samples results of each year will be send to the Board within the timeline.</p> <p>Full QA/Qc plan completed in June 01, 2013 and to the Board by Oct, 2013</p> <p>Training program started Oct 2012, continued summer 2013 by EXP</p>	<p>Dillon consulting will provide Training and QA/QC plan for new sewage lagoon and wetland once ready at the end of 2013</p> <p>A training plan for a TRAIN THE TRAINER to be delivered in Sep 13 for GN staff review</p>

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Licence Condition		Status of Compliance	Short Term Plan for Compliance	Schedule for Implementation / date of obligation	Long Term Plan for Compliance
B-5	The Licensee shall, within ninety (90) days after the first visit of the Inspector, post the necessary signs, where possible, to identify the stations of the "Monitoring Program." All signage postings shall be in the Official Languages of Nunavut, and shall be located and maintained to the satisfaction of an Inspector.	Non compliance as per 2011 inspection reports, signed, sent off and posted	Signage at monitoring stations has been Installed. Signage for solid waste including a new station GJO-5 has been installed in July 2013.	Hamlet has installed signage at the monitoring stations. GN has also supplied signage and complete installation/replacement by Aug 2013.	Monitoring Stations will be inspected by the MTO (Municipal Technical Officer) if this reverts back to non-compliance
B-9	The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut	Non compliance	EXP's site visit Report submitted in March 2013.  A Geotechnical investigation of Sewage lagoon berm will be carried by EXP consultant.	Report of Geotechnical investigation will be available by Nov 30, 2013	CGS will request additional funding to ensure resources to complete reports and studies if required.
Part C	Conditions Applying To Water Use				
C-2	The annual quantity of water used for <del>all purposes shall not exceed 62,000</del> cubic metres.	Compliant	2011 Annual report shows 31,300 m <sup>3</sup> and 2012 Annual Report shows 35,600 m <sup>3</sup>	Hamlet/CGS will submit Annual water consumption and sewage quantity in every Annual Report to NWB.	GN will look any alternate way of measuring volume of sewage discharge.
Part D	Conditions Applying To Waste Disposal				
D-3	A Freeboard limit of 1.0 metre, or as <del>recommended by a qualified</del> geotechnical engineer and as approved by the Board, shall be maintained at all dams, dykes or structures intended to contain, withhold, divert or retain water or wastes.	Non compliance as per the 2011 inspection report	Free board limit maintained more than 1.5m at the dike. 2012 visit shows the compliance of this issue.	New lagoon will follow this compliance once ready and operation by 2014.	Dillon consulting will ensure the Freeboard status with lagoon completion final report expecting by Dec 2013.

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Licence Condition		Status of Compliance	Short Term Plan for Compliance	Schedule for Implementation / Date of obligation	Long Term Plan for Compliance
D-5	The Sewage Disposal Facility shall be maintained and operated, to the satisfaction of an Inspector in such a manner as to prevent structural failure	Non compliance	Repairs of berm and Freeboard to the current lagoon berm has done in 2011 which prevented overflow possibilities.  Disposal of raw sewage from collecting truck into lagoon through discharge chute remains workable.	Operation for new lagoon will be informed at the end of Year 2013.  A&R plan for current lagoon submission in Dec 2013.	New lagoon will be only in operation. O & M manual for new lagoon by Dillon Consulting by March 2014.
D-7	The Licensee shall implement measures to ensure hazardous materials and/or leachate from the Solid Waste Disposal Facility does not enter water	Non compliances as per 2009 & 2008 inspector's reports.	Separation of hazardous metals started summer 2012 and continued 2013. Quantities of hazardous materials can be assessed by a Licenced contractor.  Hamlet has contacted KBL and other contractors for who are licenced for the estimate of handling hazardous materials.	Action plan, information update and recommendation to the Board by <b>Oct, 2013</b> EXP's visit report updated March 2013 with the Board. Cost estimate and Report from contractor can be available sometime in Nov 2013	The improvement of current solid waste facility is in future plan subjected to funding assurance.
D-8	The Licensee shall submit to the Board for review within six (6) months of the issuance of this license a report identifying each Final Discharge Point. The report shall at least include: a. Plans, specifications and a general description of each Final Discharge Point together with its specific geo-referenced location b.A description of how each Final Discharge Point is designed, maintained	Non compliance	Final discharge point identified as stations GJO-2 for sewage run-off and GJO-4 for Solid waste run-off - marked on site with signage and updated GPS location with the Board in July 2013.	Updated in July 2013 with the Board.  Test results shows effluent parameters within MAC limits.	Possible Changes of station GJO-2 once new lagoon starts the operation, will be updated.
Part G	Conditions Applying to Abandonment and Restoration				
G-1	The Licensee shall submit to the Board for approval an Abandonment and Restoration Plan at least six (6) months prior to abandoning any	Compliant	No plan for A&R for current facilities within 6 months of existing Licence period.	Implement A&R plan for current lagoon once new Lagoon is commissioned, expecting by <b>March 2014</b> .	Future plan for solid waste site improvement, yet to initiate and funding assurance.

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	facilities and the construction of new facilities to replace existing ones. The Plan shall include, but not be limited to where applicable:				
Part H	Conditions Applying To The Monitoring Program				
H-1	The Licensee shall maintain Monitoring Stations at the following locations:	Non compliance as per 2011 inspection reports, signed, sent off and posted	Monitoring stations already located, updated and confirmed during site visit in July 2013.	EXP has issued a confirmation letter to the Board.	Any changes to the Monitoring stations will be updated on time once new lagoon comes into operation.
H-2	The Licensee shall sample monthly at Monitoring Station GJO-2 and GJO-4 during the months of May to August, or as water flow permits	Non compliance as per 2011 inspection	Samples were taken from May-Aug In 2012 and 2013, results compiled to NWB. Training for the monitoring program continued to 2013 by EXP.	Sampling dates determined as 1 <sup>st</sup> -3 <sup>rd</sup> week of each month during May-Aug based on weather condition and availability of samples.	GN CGS remains in help for sampling and will leave to Hamlet once Operator are capable in handling monitoring operation.
H-3	The Licensee shall measure and record in cubic metres the monthly and annual quantities of water pumped from Monitoring Station GJO-1 for all purposes.		The Hamlet is not equipped anything more than truck measurement and record of Fluid manager. Daily Log sheet provides the daily volume and calculates to monthly supply to house hold tanks.	Annual Reports 2006 through 2012 has shown annual volume within allowable quantity limits. Current measurement is close to accurate but not exceeded the maximum limits.	No other device in plan for measuring quantities water pumped or intake from Station GJO-1.