

**Final Submission Regarding
City of Iqaluit
Type A Water Licence Renewal/Amendment
Application for Municipal Undertakings**

Indigenous and Northern Affairs Canada

Final Submission to the Nunavut Water Board

March 30, 2016

EXECUTIVE SUMMARY

Indigenous and Northern Affairs Canada (INAC) has participated in the ongoing review of the City of Iqaluit's application for the renewal and amendment of Type A Water Licence 3AM-IQA0611 for municipal undertakings. These undertakings include those for water use, solid waste management and wastewater management.

During the technical review, issues were raised by INAC on four topics and many of these have been resolved through discussion with the City of Iqaluit. Issues which remain from the initial review are relatively minor and mostly deal with monitoring requirements. Submissions by the City since the technical meeting have raised additional concerns regarding the timing of management plan updates and proposed modifications to the conditions of the amended water licence.

Based on the information available, INAC recommends that the renewal and amendment application be accepted with consideration of the Department's recommendations once an adequate updated Spill Contingency Plan has been submitted.

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RÉSUMÉ

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INTRODUCTION

Indigenous and Northern Affairs Canada (INAC or the Department) has participated in the ongoing review of the City of Iqaluit's (the Licensee or the City) application (the application) for the renewal and amendment of Type A Water Licence 3AM-IQA0611 (Type A licence or 3AM-IQA0611).

On November 8, 2013, INAC conducted a first completeness review of the application which included information requests and comments regarding proposed changes to the water licence. Following further submissions by the City in 2014 and 2015, INAC conducted a second completeness review on March 28, 2015. INAC submitted a technical review of the application on July 6, 2015 and participated in a Technical Meeting and Pre-Hearing Conference (TM-PHC) on January 13 and 14, 2016. On February 19, 2016 the Nunavut Water Board (NWB or Board) distributed the Pre-Hearing Conference Decision inviting interested parties to submit final written submissions by March 30, 2016.

The scope of the licence has changed during the four year renewal process and presently includes:

1. *Proposed maximum annual water withdrawal of 1,100,000 m³ from Lake Geraldine to the City of Iqaluit Water Treatment Plant;*
2. *Upgrade, operation and the eventual decommissioning of the infrastructure for managing wastewater at the existing West 40 Wastewater Treatment Plant and backup Sewage Lagoon;*
3. *Operation and the eventual decommissioning of the infrastructure for managing surface water run-off at the solid waste management facility at the existing West 40 Landfill;*
4. *Changes to the Monitoring Program, and*
5. *Request to extend the length of the term of the licence to ten years.*

Four major topics with outstanding issues were discussed at the TM-PHC. Several sub-topics were resolved through discussions with the City. Following the TM-PHC, the City submitted additional information in several submissions throughout the end of January and February 2016.

Comments in this submission are made in the context of INAC policy and mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*. Comments are structured as issues and supported by observations made during the course of the application review and recommendations are made directly to the Board.

COMMENTS ON THE TYPE A RENEWAL/AMENDMENT APPLICATION

1.0 Technical Comments Discussed at Technical Hearing

The technical issues brought up by INAC at the Technical Meeting covered four broad topics:

1. Monitoring requirements
2. Operation manuals/management plans
3. Wastewater treatment criteria
4. Landfill leachate and runoff

The third issue was resolved during the technical meeting as confirmed in the City's letter *Changes to Schedule C of expired licence 3AM-IQA0611 and the monitoring program* submitted on February 5, 2016. Many other sub-topics under the other three issues were also resolved.

2.0 Outstanding Issues

A few issues remain outstanding. These are primarily ones for which the Department has concerns with the written responses provided by the applicant since the TM-PHC. New concerns are raised by the proposed schedule for updating management plans and proposed changes to the water licence the City has submitted since the TM-PHC.

2.1 Lake Geraldine raw water monitoring requirements (station IQA-01)

Reference

- City of Iqaluit letter *Changes to Schedule C of expired licence 3AM-IQA0611 and the Monitoring Program*, dated February 5, 2016.

Background

The City of Iqaluit has requested removal of monitoring station IQA-01 because, in their opinion, it falls out of the NWB's mandate. INAC disagrees. Water management is a shared responsibility between the NWB and INAC and management of Lake Geraldine is particularly important because it is the City of Iqaluit's drinking water source. Gathering data on the water quality in Lake Geraldine is necessary in order to follow any changes and to react quickly if protection measures become needed. During the technical meeting and in their letter, the City has stated they already collect and analyse samples of raw water. The Department is requesting that a subset of this data be transmitted to the Board in the annual reports.

Recommendation

INAC recommends that station IQA-01 remain as a monitoring requirement in the renewed licence and if possible the frequency and parameters be streamlined with raw water samples taken for other regulatory agencies to diminish the burden to the City.

2.2 West 40 landfill monitoring stations

Reference

- City of Iqaluit letter *Changes to Schedule C of expired licence 3AM-IQA0611 and the Monitoring Program*, dated February 5, 2016.
- City of Iqaluit letter *Changes to the Conditions to expired Water Licence 3AM-IQA0611*, dated February 19, 2016.
- City of Iqaluit letter *Identification of off-site sampling point locations down gradient of the West 40 Landfill*, dated February 5, 2016.

Background

In schedule C of the expired licence, the location, parameters to be tested, and testing frequency of station IQA-08# (West 40 landfill monitoring) are not included, but are defined in accordance with Part E Item 17, Part F Item 10 and Part I Item 4 of the licence. To fulfil the licence conditions of the three items listed above, the Licensee provided a Water Licence Monitoring Program report in June 2008 that includes landfill monitoring.

Table 1 of the letter *Changes to Schedule C* requests modifications to the monitoring program. For station IQA-08#, no addition or removal of parameters is requested. Yet in the letter *Changes of Conditions to expired Water Licence*, removal of all three items referred to in schedule C of the expired licence is requested.

Sampling downgradient of the landfill was discussed first at the TM-PHC and further during a meeting on site. The City has submitted a letter entitled *Identification of off-site sampling point locations* presenting the conclusions of the on-site meeting.

Recommendation

INAC recommends that an updated version of the June 2008 Water Licence Monitoring Program be referred to for station IQA-08#.

We also recommend the inclusion in schedule C of monitoring stations downstream from the landfill agreed upon and described in the letter *Identification of off-site sampling point locations*.

2.3 Disposal of pond sludge at West 40 landfill

Reference

- City of Iqaluit letter *Landfill Fire Emergency Measures Update*, dated January 29, 2016.

Background

Disposal of sludge from the ponds at the West 40 landfill was discussed at the TM-PHC as it is potentially toxic. In their letter *Landfill Fire Emergency Measures* the City writes: *A plan for the disposal of sediment contained at the bottom of each pond will be developed when the City is preparing for the final abandonment and restoration of the West 40 landfill.*

Whilst this seems logical for the ponds used for the operation of the landfill, it will be problematic for the sediment at the bottom of the drafting pond, which is scheduled to be decommissioned in 2016. This pond is located in a ditch and when its berms are removed, water will likely run through and may entrain contaminated sediments if they have not been properly dealt with.

Recommendation

INAC recommends that the applicant be required to submit a plan for the disposal or temporary storage of sediment from the ponds it decommissions before doing so. For the drafting pond, this would require a plan to be developed shortly for the work to be done in 2016.

2.4 Timing of plan updates

Reference

- City of Iqaluit letter *Response to NWB Recommendations Regarding Management Plans Submitted for the City of Iqaluit Water Licence Application*, dated February 5, 2016.
- City of Iqaluit letter *Prepare an addendum to the Landfill Operations and Maintenance Manual to include the current sampling program*, dated February 5, 2016

Background

During the TM-PHC, the NWB requested the update of several management plans associated with the water licence. After the meeting, it provided the City with a detailed list of the plans and the City responded with a schedule for submission of updated management plans. The schedule proposes six month deadlines after licence issuance for five of the plans, no updates for three plans, undetermined timelines for three plans and timelines related to planned operational stages for the remaining two plans.

The Department is of the opinion that the proposed schedule is unreasonably slow, particularly for the Spill Contingency Plan. Many of these plans form an integral part of the application and should have been updated with it. Updated plans were requested by the NWB on January 25, 2016, so it has already been 65 days and will be 100 days before the final hearing.

Recommendation

INAC recommends that several of the updated plans requested be provided before a renewed licence is issued because they should form part of the new licence and if the renewal process is insufficient incentive to update the plans, it is difficult to see how it will get done within 180 days of licence issuance. The table below is a copy of that provided by the City with an additional column with INAC comments.

No.	Plan/Report Title	City of Iqaluit Comments	City of Iqaluit Proposed Schedule	INAC Comments
1	Lake Geraldine Water Balance Assessment	This report does not require updating	NA	Agreed.
2	Wastewater Treatment Plant Operation and Maintenance Manual	The operation of Phase 1 of the Wastewater Treatment Plant has not changed since it was commissioned in 2005, therefore, the Operation and Maintenance Manual is still current.	The City will provide the Operation and Maintenance Manual for the Upgrade to the Wastewater Treatment Plant once the upgraded plant is commissioned. The upgrades to the plant are scheduled to be complete by December 31, 2018.	December 31, 2018 should be the deadline for providing the updated O&M manual and it should be included in the new licence.
3	Iqaluit Sewage Sludge Management Composting Pilot Project Report	The City is willing to discuss concerns at the Public Hearing, and if required, provide a date to update the Iqaluit Sewage Sludge Management Composting Pilot Project Report	To be determined	The concluding recommendation of the 2009 Composting Pilot Project Report remains valid and as the City seems to be implementing this composting. INAC recommends that the City updates its Sludge Management Operation and Maintenance Manual (2006) since maps in the current version do not include the landfill expansion.

No.	Plan/Report Title	City of Iqaluit Comments	City of Iqaluit Proposed Schedule	INAC Comments
4	City of Iqaluit Solid Waste Management Plan	The City is willing to discuss concerns at the Public Hearing, and if required, provide a date to update the Solid Waste Management Plan	To be determined	A plan will be required for waste disposal once the West 40 landfill reaches capacity. Since this is expected to occur in three years, INAC recommends an updated plan be provided in December 2017.
5a	City of Iqaluit Landfill Operations and Maintenance Manual, January 2014	The management of landfill run-off is the only aspect of the landfill that is regulated under the Water Licence	NA	The comment is incorrect because leachate may also be a concern. In its letter about this manual, the City agrees that the plan should be updated to include the sampling program, requests the changes as appendices rather than addenda and proposes a timeline of 90 days after approval of the West 40 Drainage Management Review, the QA/QC Plan and the Water Licence Monitoring Program. INAC has no issue with appendices rather than addenda and recommends the timeline of 90 days after issuance of the renewed licence.
5b	Sewage Lagoon Operation and Maintenance Manual	The City believes this should be a standalone Operation and Maintenance Manual	The City will provide the Sewage Lagoon Operations and Maintenance Manual within 180 days of the issuance of the Licence	INAC requested this O&M manual in its July 6, 2015 Technical Review, 268 days ago. It should be provided before issuance of a renewed licence.

No.	Plan/Report Title	City of Iqaluit Comments	City of Iqaluit Proposed Schedule	INAC Comments
5c	Operation and Maintenance Manual to include open burning or incineration	The City is only in the preliminary stages of the Incineration review and does not have the information required to provide the NWB	NA	The City conducts open burning of wood and cardboard. An O&M manual should be provided to outline measures taken to prevent outfall and ash from entering water. This could be integrated in the Landfill O&M manual.
6	West 40 Drainage Management Review	The City is willing to discuss concerns at the Public Hearing, and if required, provide a date to update the West 40 Drainage Management Review	To be determined	As stated in our Technical Review, INAC is concerned by the lack of on-site permafrost data because it is assumed to act as a barrier. During the TM-PHC, the City informed us no data was available. INAC recommends that an updated Drainage Management Review addressing these concerns be provided in December 2017.
7	City of Iqaluit Spill Contingency Plan	No comments	The City will provide an updated Spill Contingency Plan within 180 days of the issuance of the Licence	This plan is to deal with emergencies and needs to be updated and in place before a new licence is issued.
8	Sewage Lift Station Spill Contingency Plan	The Spill Contingency Plan for the Lift Stations will be incorporated into the City of Iqaluit Spill Contingency Plan. The Bionest Pilot Project was never installed.	The City will provide an updated Spill Contingency Plan within 180 days of the issuance of the Licence	Same comment as for #7.

No.	Plan/Report Title	City of Iqaluit Comments	City of Iqaluit Proposed Schedule	INAC Comments
9	City of Iqaluit Water Licence Monitoring Program, June 2008	No comments	The City will provide an updated Monitoring Plan if required within 180 days of the issuance of the Licence	An updated Plan will be required as monitoring requirements will be different in the new licence. INAC recommends a timeline of 60 days after licence issuance.
10	City of Iqaluit Quality Assurance/Quality Control Plan, March 2013	No comments	The City will provide an updated QA/QC Plan within 180 days of the issuance of the Licence	Same comment as for #9.
11	Iqaluit Solid Waste Management Plan, West 40 Landfill Decommissioning Technical Memorandum January 2014	The information provided in the Technical Memorandum is still valid and a final decommissioning plan will be provided	The City of Iqaluit will provide a Final Decommissioning Plan for review one year prior to final decommissioning	INAC agrees that the information provided is still valid and recommends a Final Abandonment and Restoration plan be provided one year prior to the landfill reaching capacity. Using final decommissioning as the trigger would allow the City to delay restoration for an unspecified period after the landfill reaches capacity and should be avoided.
12	Final Abandonment and Restoration Plan West 40 Landfill	No comments	The City will provide a Final Abandonment and Restoration Plan one year prior to final decommissioning.	Same comment as for #11.
13	Water Treatment Plant Operation and Maintenance Manual	Operation and Maintenance of the Water Treatment Plant is outside the scope of the Water Licence	NA	Agreed.

2.5 Proposed modifications to conditions of water licence

Reference

- City of Iqaluit letter *Changes to the Conditions to expired Water Licence 3AM-IQA0611*, dated February 19, 2016.

Background

During the TM-PHC, the Board asked the City to provide input on any modifications to the expired water licence they thought were relevant. Appended to the letter it submitted on February 19, 2016, the City provided a copy of the expired licence with 38 comments inserted as track changes, with most of these requesting removal of licence terms. No justification has been provided for the removals or modifications and they are not always self-explanatory.

The Department has concerns with the following proposed changes:

- Part A, Item 1, Solid Waste Management, vii: Removal of: *Improved drainage works at the West 40 Landfill* – Work on the drainage at the West 40 landfill will likely be necessary after decommissioning the Drafting Pond so it seems logical to leave this possibility in the licence scope.
- Part A, Item 1, Solid Waste Management, viii: Removal of: *Management and operation of current and future solid waste facilities* – While the removal of future solid waste facilities would be acceptable, it is necessary that the operation of the current facility be included in the water licence as this generates waste deposited to water.
- Part A, Item 1, Wastewater Management, xi: Removal of: *Construction* for the wastewater treatment plant. – The City has committed to upgrading and commissioning the wastewater treatment facility before the end of 2017. Given the 10 year licence term requested, construction of the facility will occur during the licence term and should therefore be included in the licence.
- Part A, Item 1, Wastewater Management, xii: Removal of: *Construction, operation, maintenance and monitoring of a Sludge Management Facility* – Sewage sludge is a waste that will enter water unless properly handled and it is relevant to include its management in the water licence. It is understood that sludge is handled at the West 40 landfill site and that construction of a facility is not necessary presently. Given the requested licence term and remaining years until the landfill reaches capacity, construction of a new facility or modification of the existing one will be necessary.
- Part A, Item 1, Wastewater Management, xiv: Removal of: *Contingency measures for wastewater and landfill management* – Why remove the possibility of doing contingency measures?
- Part B, Item 6: Removal of: *Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in English and Inuktitut* – Information requested by the Board is to be shared with the public so that they

can follow project developments and participate in discussions. It is therefore important to provide plain language summaries in both English and Inuktitut.

- Part D, Item 5: Exchange: *A final report shall be submitted to the Board for review no later than 60 days following the site inspection and include a cover letter from the Licensee indicating how and when recommendations and/or deficiencies identified in the Inspection Report will be addressed for: A final report shall be submitted to the Board with the Annual Report.* – The Department agrees that the Inspection Report can be submitted with the Annual Report but recommends keeping the requirement to indicate how and when deficiencies identified in the Inspection Report will be addressed.
- Part E, Item 6: Coordinate with upgrade of wastewater treatment plant: *The Licensee shall submit to the Board for approval an Operation and Maintenance Manual for the Wastewater Treatment Facilities by December 31, 2007. The manual shall be prepared in accordance with the “Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories (GNWT 1996).” The manual shall also cover the operation and maintenance of the Sludge Management Facility.* – As discussed in the previous table of timing for plan updates, INAC agrees that the Operation and Maintenance Manual for the wastewater treatment plant could be updated for December 2018, when the upgraded plant will be commissioned. However, the manual for the sewage lagoon, which the City believes should be stand alone, should be provided before the licence is renewed. The Sludge Management Operation and Maintenance Manual also needs to be updated promptly.
- Part E, Item 8: Exchange: *A final report shall be submitted to the Board for review no later than 60 days following the site inspection and include a cover letter from the Licensee indicating how and when recommendations and/or deficiencies identified in the Inspection Report will be addressed for: A final report shall be submitted to the Board with the Annual Report.* – The Department agrees that the Inspection Report can be submitted with the Annual Report but recommends keeping the requirement to indicate how and when deficiencies identified in the Inspection Report will be addressed. A suggestion for this licence condition would be to conduct inspections following the frequency recommended by the most recent version of the Canadian Dam Safety Guidelines.
- Part E, Item 10: Removal of: *The Licensee shall submit to the Board for review by March 31, 2010, a Long-term Solid Waste Management Plan. The plan shall include, but not limited to, the following:*
 - a. *Options for solid waste disposal and discussion of preferred alternative; and*
 - b. *Selection of a site for solid waste disposal.*– During the TM-PHC, the City stated that there was three years capacity left in the West 40 landfill. An alternate solid waste management strategy will therefore be necessary during the proposed licence term and it is relevant to request further details for a long-term plan. The City’s intention of submitting an amendment request in 2017 to incorporate a new landfill facility under the water

licence was shared during the TM-PHC, but since this licence will be valid whether the City goes through with its intentions or not, it seems necessary to incorporate conditions to ensure adequate long term solid waste management.

- Part E, Item 17: Removal of: *At least 90 days prior to any proposed release, discharge or transfer of leachate from the West 40 Landfill, the Licensee shall submit to the Board for approval a report prepared by an Engineer that will include at minimum a discussion of available treatment options, proposed discharge criteria in relation to the proposed discharge location(s) and discharge volumes, and a monitoring programme.* – The City has provided a Water Run-off Treatment and Discharge at the City of Iqaluit Solid Waste Facility (2015) report that is adequate apart from the fact it has not been signed by a Professional Engineer registered in Nunavut. This omission needs to be corrected before the condition is dropped from the licence.
- Part F, Item 14: Removal of: *The Licensee shall submit to the Board for review, within 10 days of the effective date of the Licence, the Final Design for Phase I of the Wastewater Treatment Plant stamped by an Engineer and qualified in accordance with Part F, Item 3, and As-built drawings.* – A schedule for wastewater treatment plant upgrades has been set during quarterly meetings between the City of Iqaluit, Environment and Climate Change Canada and INAC Field Operations and which can be used to set dates for plan and design submissions. The design of upgrades is to be completed in July, 2016 and INAC recommends using this as a date for submission of the Final Design for the plant upgrade.
- Part I, Item 7: Removal of: *The Licensee shall submit to the Board for approval, within 90 days of the effective date of this License, a Quality Assurance/Quality Control (QA/QC) Plan prepared in accordance with “Quality Assurance (QA) and Quality Control (QC) Guidelines For Use By Class “A” Licensees in Meeting SNP Requirements and for Submission of a QA/QC Plan (INAC, 1996)”* – INAC does not support removing this condition unless the QA/QC plan is integrated in the Water Licence Monitoring Program.
- Part I, Item 14: Waive condition until commissioning of new wastewater treatment plant: *The Licensee shall increase sampling frequency if results of such sampling indicate that the Effluent Quality Requirements provided in Part C have been exceeded, or as requested by the Board or directed by the Inspector* – INAC is of the opinion that though it is unlikely to be used, the Board and Inspector should retain this ability in event of an emergency, even before commissioning of the new wastewater treatment plant.
- Part J, Item 3: Exchange: *The Licensee shall submit to the Board for approval, one year prior to expiry of this Licence or one year before the West 40 Landfill site will reach capacity, a Final Abandonment and Restoration Plan prepared by an Engineer in accordance with industry best practise.* for: *The Licensee shall submit to the Board for approval, one year before the West 40 Landfill site will be fully decommissioned, a Final Abandonment and Restoration Plan prepared by an Engineer in accordance with industry best practise.* – INAC disagrees with this

modification for the reasons stated in the timing of management plan update table #12.

Recommendation

INAC recommends that the applicant be required to provide justifications for modifying the 15 points raised in the background section for the Board's consideration before the renewed water licence is issued.

CONCLUSION

Based on the information available, INAC recommends that the renewal and amendment application be accepted with consideration of the Department's recommendations once an adequate updated Spill Contingency Plan has been submitted.