TOPIC	COMMENT	RECOMMENDATION
ECCC 1: Project Proposal for Resolute Bay Airport Sewage Lagoon Landfill leachate	The Project Proposal document states that a separate water licence was issued in 2014 to Transport Canada for remediation of the existing landfill. Figure 1 shows that the landfill is located adjacent to the airport sewage lagoon. It is unclear whether the proponent has considered whether the landfill could contribute to water quality impacts in the sewage lagoon or affect water lagoon performance.	ECCC recommends that the proponent confirm that the potential for landfill leachate to migrate toward the airport sewage lagoon has been considered and determine if their are any implications for lagoon performance and final effluent quality.
ECCC 2: Plan for Compliance with Licence no. NWB-3YRB-0308 Operation and Maintenance Manual for the Resolute Bay Airport Existing Sewage Lagoon (April 2016) Sludge management	Section H-8 of the Plan for Compliance states that sludge has never been removed from the lagoon and that there is no plan to remove the sludge in the future. Section 3.4.5 (Sludge Monitoring Plan) of the O&M manual states that the sludge blanket will be monitored as part of the annual discharge procedure and that non-compliant lab test results for BOD and TSS analysis could initiate a sludge removal study. Otherwise, such a study may be undertaken at approximately a 10 year interval. The O&M manual recommends storing sludge at the lagoon bed for the operational lifetime of the lagoon. It is not clear whether the sludge depth or quality has ever been tested.	ECCC recommends optimization of the lagoon performance, including through improving sludge management. As part of the sludge monitoring plan ECCC recommends that: Both depth measurement and quality testing of the airport lagoon sludge be conducted; lagoon design requirements be evaluated with respect to sludge measurement and removal in order to maintain lagoon performance. Additionally, ECCC recommends that any sludge removed be analyzed and managed accordingly.
ECCC 3: Resolute Bay: Interim Sewage Management Plan for Discussion (March 2016) Operation and Maintenance Manual for the Resolute Bay Airport Existing Sewage Lagoon (April 2016) Plan for Compliance with Licence no. NWB-3YRB-0308 Sewage management	Section 2.1.1 (Sewage Treatment Facility) of the O&M manual states that the lagoon is under-capacity and that *a one meter freeboard is impossible to maintain all the time in order to protect structural integrity...The lagoon structure is vulnerable.* The 2014 annual report (section vii) notes that *the low capacity of the existing sewage lagoon and every winter overflow are the concerns of AANDC and NWB.* The Interim Sewage Management Plan presents three options for managing trucked sewage. Effluent quality associated with sewage management Option 1 (status quo; continued use of airport sewage lagoon and wetlands area) is predicted to be in compliance with the current water licence effluent quality standards. However, Options 2 and 3 (i.e., diversion from lagoon to piped sewer system of some or all raw sewage, respectively) predict a higher-strength effluent quality entering the marine environment.	As the airport sewage lagoon-wetland system provides a higher level of treatment, it would be preferable to treat trucked sewage to the maximum extent possible in the airport sewage lagoon. However, as noted in Section D-6 of the Plan for Compliance, annual demand (more than 5 ML) greatly exceeds the lagoon capacity (approximately 1 ML), causing recurring overflow during the winter. ECCC supports option 1, and is of the view that a reasonable approach would be maintaining the status quo, pending sampling next summer and confirmation of quality of effluent reaching the marine waters. Should sampling and monitoring results of next summer indicate poor wetland treatment, ECCC recommends that alternate sewage management be evaluated.
ECCC 4: 2015 Annual Report Interim sewage management	Section (vi) of the 2015 annual report states that an interim arrangement to manage trucked sewage using the piped sewer system is expected to be implemented soon to stop overflow during the winter season.	If this option is pursued, ECCC recommends that details of the proposed interim arrangement to manage trucked sewage using the piped sewer system be provided, including: volume of raw sewage that will be diverted from the airport lagoon to the piped sewer system, feasibility, and the capacity of the piped sewer system to manage the additional raw sewage. The interim sewage management plan should also include steps to aid in the transition to the proposed WWTP, and associated target dates.
ECCC 5: Resolute Bay: Interim Sewage Management Plan for Discussion (March 2016) Wetland treatment	Effluent from the airport sewage lagoon flows through a wetland area before discharge to the marine environment however the proponent has not provided information on how wetland treatment would be optimized to minimize impacts to water quality.	ECCC recommends that the proponent evaluate methods to optimize wetland treatment of sewage effluent, including optimizing timing of discharge to wetland and wetland retention time.
ECCC 6: Resolute Bay: Interim Sewage Management Plan for Discussion (March 2016) Hamlet of Resolute Bay Airport Sewage Lagoon Quality Assurance/Quality Control Plan (April 2016) Monitoring	The current water licence does not require a monitoring station in the wetland area. The lack of monitoring in the wetland area is a gap that should be addressed in the current licence renewal process. The Quality Assurance/Quality Control Plan proposes the addition of a monitoring station in the wetland area. This station should be located at the downstream end of the wetland area, to monitor final effluent quality prior to release to the marine environment.	ECCC recommends that the proponent establish a monitoring station at the downstream end of the wetland area with consistent parameters and protocol to evaluate the quality of the effluent that is discharged to the marine environment. Monitoring of the quality of raw sewage at station YRB-2 and lagoon effluent quality at station YRB-3 should be continued as well as a comparison of monitoring data collected from these three sites which will enable ongoing performance evaluation of the sewage lagoon and the wetlands area.
ECCC 7: Operation and Maintenance Manual for the Resolute Bay Airport Existing Sewage Lagoon (April 2016) Compliance monitoring station	The water licence describes the compliance point YRB-3 as "effluent discharge from the Final Discharge Point of the Sewage Disposal Facilities". However, Figure 2 (Sampling Locations) of the airport sewage lagoon O&M manual indicates that monitoring station YRB-3 is located in the wetland area.	ECCC recommends that clarification be provided regarding whether monitoring station YRB-3 is located within the wetland area, as appears on Figure 2 (Sampling Locations) of the airport sewage lagoon O&M manual.
ECCC 8: Resolute Bay: Interim Sewage Management Plan for Discussion (March 2016) Project Proposal for Resolute Bay Airport Sewage Lagoon Effluent quality; Fisheries Act	The effluent quality downstream of the wastewater treatment systems should be such that discharges will comply with Section 36(3) of the *Fisheries Act.*	ECCC recommends that the proponent consider the Wastewater Systems Effluent Regulations SOR/2012-139 Fisheries Act Registration 2012-06-29 in determining effluent quality limits at the end of the treatment system. Although the Wastewater Systems Effluent Regulations do not apply in Nunavut, these regulations will provide useful information relevant to compliance with section 36(3) of the *Fisheries Act.*

ECCC 9: Resolute Bay: Interim Sewage Management Plan for Discussion (March 2016) Water licence renewal and amendment application Plan for Compliance with Licence no. NWB-3YRB-0308 Proposed wastewater treatment plant	The documentation submitted for this licence renewal/ amendment refers to the future construction and operation of a wastewater treatment plant (WWTP), which would accept the wastewater stream that is currently trucked to the airport sewage lagoon. However, there are few details provided regarding the planning process for the proposed WWTP. Section 23 (Studies Undertaken to Date) of the water licence application states that the WWTP is expected to be built in 2022. Page 1 of the Interim Sewage Management Plan states that the WWTP is anticipated to begin construction in 2019/20, dependent on funding approval. Section D-8 of the Plan for Compliance states that the WWTP is tentatively expected to be built and operational in 2022.	ECCC recommends that the proponent provide preliminary planning, timeline and design information for the proposed wastewater treatment plant, including timelines.
ECCC 10: Operation and Maintenance Manual for the Resolute Bay Airport Existing Sewage Lagoon (April 2016) Diversion of hazardous wastes and incompatible materials	ECCC notes that he airport sewage lagoon O&M manual does not currently address the issue of hazardous wastes and incompatible materials being diverted from the wastewater system .	ECCC recommends that the airport sewage lagoon O&M manual include a description of how hazardous wastes and incompatible materials are diverted from the wastewater system in order to minimize the effects of the effluent on the receiving environment and that a description of how these materials will be managed be provided.
ECCC 11: Hamlet of Resolute Bay Airport Sewage Lagoon Quality Assurance/Quality Control Plan (April 2016) Quality control samples	Section 2.4 (Quality Assurance and Quality Control Program) of the Quality Assurance/ Quality Control Plan recommends the use of trip blanks, which are commonly used to assess the potential for contamination of samples during travel. ECCC supports this recommendation. ECCC would also have some additional recommendations to further improve the QA/QC program.	In addition to this, ECCC recommends that the following quality control samples also be incorporated into the monitoring program to improve the level of QA/ QC. Field blanks are used to assess the potential for contamination during sample collection. Field duplicates (collecting a second sample from the same location as the original sample) are used to assess sampling precision. Both field blanks and field duplicates should be incorporated into the QA/QC progam.