Land and Water Boards of the Mackenzie Valley

Waste and Wastewater Management Policy

February 2023

Revision History Table

YEAR	SECTION	REVISION
February 2023	A Review Summary Table encompassing the two public reviews conducted during the development of the updated Policy is available for more information on how public review comments were considered.	
	General	• Expanded scope to include management of all types of waste in both licences and permits • Expanded scope from a narrow focus on EQC to include a broader variety of licence and permit requirements currently used by the LWBs to regulate the deposit (in licences) and management of waste (in licences and permits) • Updated title to reflect expanded scope • Updated and revised terminology and definitions • Updated references to new and updated LWB guidance documents • Updated references to legislation • Corrected typographical and administrative errors
	1.0 – Introduction (including subsections 1.1-1.5)	• Updated to reflect overall general revisions noted above • Updated history of Policy • Updated LWB process for reviewing and revising policy and guidance documents
	2.0 – Guiding Principles	• Updated to include references to LWB objectives and mandated requirements • Updated to incorporate consideration of climate change and cumulative effects • Removed limitation on types of knowledge to be considered • Removed 'Jurisdiction Best-Placed' principle
	3.0 – Objectives	• Updated existing objectives to reflect revised scope • Added new objective for preventing and minimizing waste • Moved Objective 2 to Objective 3 • Updated text regarding Objectives 2 and 3 to better reflect possibility of site or project-specific considerations in determining the best approach to waste management for a project
	4.1 – Waste Management Practices	• Updated subsection to reflect the LWB *Guidelines for Developing a Waste Management Plan*, expanded Policy scope, and new Policy objective
	4.2 – Management Plans	• Updated subsection to reflect current LWB Application Forms, guidance documents, and Standard Licence and Permit Conditions
	4.3 – Waste Management Criteria	• Revised and expanded to describe two general sub-types of waste management criteria (criteria for waste management facilities and discharge criteria)

		• Revised to recognize different possibilities for capturing cultural or other high water-quality uses in criteria • Revised to describe several types of discharge criteria that may be included in licence conditions to regulate the deposit of waste, with EQC as only one type • Added information about location where discharge criteria will apply • Added information about the role of WQOs and the relationship between WQOs and discharge criteria • Revised discussion of EQC to include both point and non-source effluent • Updated to reflect the LWB/GNWT *Guidelines for Effluent Mixing Zones* and the associated *Standard Process for Setting Effluent Quality Criteria* • Updated Figure 1 to include a non-point source effluent example
	4.4 – Monitoring Requirements	• Clarified that an SNP may include both water and wastewater monitoring • Clarified purpose of SNP monitoring • Updated and clarified typical SNP monitoring locations in relation to waste management systems, discharge points, and receiving environment • Added paragraph about current expectations for monitoring and response frameworks in plans • Updated information about AEMP monitoring to reflect LWB/GNWT *Guidelines for AEMPs* • Added requirement to meet data requirements in GNWT's *Standards for Reporting Water Quality Information in the NWT*
	4.5 – Adaptive Management	• Expanded to include both qualitative and quantitative monitoring • Added information about response frameworks • Added examples of adaptive management in licences and permits • Added information about EQC exceedance response actions in standard licence conditions
	5.0 – Information Required to Regulate Waste Management	• Replaced information about public/party participation with references to the LWBs' Engagement Guidelines and Policy • Moved information about Policy implementation, performance, and review up to section 1.0 • Added references to relevant guidance documents
	5.1 – Information Required from Applicants	• Revised to reflect current information requirements for applications and submissions as set out in the LWBs' current guidance documents, including the following additions: o Potential environmental effects for each waste type; o Consideration of climate change and cumulative impacts; o Contingency plans,

		○ Closure plans, and ○ Proposed monitoring • Revised WQO information requirements to acknowledge that baseline conditions for a project may not always be pre-development • Added proposed EQC and mixing information to list of information that may be required if applicable
	5.2 – Consideration of Other Applicable Legislation	• Updated to include additional examples of applicable legislation • Clarified LWBs' role and approach with regard to other applicable legislation and regulatory overlap • Updated to include information about consistency with MDMER
	Appendix A: Guidelines/Strategies that will Support Implementation of this Policy	• Replaced by list of guidance documents in section 1.1
2011		*Water and Effluent Quality Management Policy* released.

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Definitions and Acronyms

TERM	DEFINITION
AANDC	Aboriginal Affairs and Northern Development Canada (now Crown-Indigenous Relations and Northern Affairs Canada)
AEMP	Aquatic Effects Monitoring Program
applicant	A person who has filed an application with the Board.
application	Any application for or in relation to a land use permit or water licence submitted in accordance with the *Mackenzie Valley Resource Management Act* (MVRMA), the *Waters Act*, or their regulations, and includes a request for a Board ruling, a plan approval, or any step required to advance a Board proceeding.
Boards (LWBs)	The Land and Water Boards of the Mackenzie Valley, as mandated by the MVRMA. • Part 3 of the MVRMA establishes regional land and water boards with the power to regulate the use of land and water, and the deposit of waste, including the issuance of land use permits and water licences, so as to provide for the conservation, development, and utilization of land and water resources in a manner that will ensure the optimum benefit to the residents of the management area and of the Mackenzie Valley and to all Canadians. • Part 4 of the MVRMA establishes the Mackenzie Valley Land and Water Board (MVLWB). • Regional Land and Water Boards have been established in the Gwich'in, Sahtu, and Wek'èezhìı management areas and now form Regional Panels of the MVLWB.
CCME	Canadian Council of Ministers of the Environment
deposit of waste	As defined in section 1 of the MVRMA: a deposit of waste in any waters in the Mackenzie Valley or in any other place under conditions in which the waste, or any other waste that results from the deposit of that waste, may enter any waters in the Mackenzie Valley.
discharge	A direct or indirect deposit or release of any water or wastewater to waters in the receiving environment.
effluent	A wastewater discharge.
Effluent Quality Criteria (EQC)	Numerical or narrative limits on the quality or quantity of effluent authorized for deposit to the receiving waters.
GLWB	Gwich'in Land and Water Board
GNWT	Government of the Northwest Territories
INAC	Indian and Northern Affairs Canada (now Crown-Indigenous Relations and Northern Affairs Canada)
licensee	A person who holds a water licence issued by a LWB.
Mackenzie Valley	That part of the Northwest Territories bounded on the south by the 60th parallel of latitude, on the west by the Yukon Territory, on the north by the Inuvialuit Settlement Region as defined in the Agreement given effect by the *Western Arctic (Inuvialuit) Claims Settlement Act*, and on the east by the

TERM	DEFINITION
	Nunavut Settlement Area as defined in the *Nunavut Land Claims Agreement Act* but does not include Wood Buffalo National Park.
MVLWB	Mackenzie Valley Land and Water Board
MVLUR	Mackenzie Valley Land Use Regulations
MVRMA	*Mackenzie Valley Resource Management Act*
NWT	Northwest Territories
permittee	A person who holds a land use permit issued by a LWB.
project	Any undertaking[1] or activity that requires a water licence and/or a land use permit.
receiving environment	The natural environment[2] that, directly or indirectly, receives any waste from a project.[3]
receiving waters	The waters[4] in the receiving environment that receive any direct or indirect deposit of waste from a project.
regulated mixing zone	The defined area contiguous with a point-source effluent discharge site, or a delimited non-point source effluent, where the effluent mixes with ambient water and where concentrations of some substances may not comply with water quality objectives that have been established specifically for the receiving waters.
SLWB	Sahtu Land and Water Board
SNP	Surveillance Network Program
waste	As defined in section 1 of the *Waters Act* and section 51 of the MVRMA.[5]

[1] "undertaking" is defined, in section 1 of the Waters Regulations and section 2 of the Mackenzie Valley Federal Areas Regulations, as: an undertaking in respect of which water is to be used or waste is to be deposited, of a type set out in Schedule B, or Schedule II, respectively.

[2] "environment" is defined in section 2 of the MVRMA as: the components of the Earth and includes
(a) land, water and air, including all layers of the atmosphere;
(b) all organic and inorganic matter and living organisms; and
(c) the interacting natural systems that include components referred to in paragraphs (a) and (b).

[3] The receiving environment is generally outside of the project boundary. Where a project is located in a previously disturbed area (i.e., the receiving environment is no longer considered 'natural'), the definition of 'receiving environment' may be modified to account for this.

[4] "waters" is defined in section 1 of the *Waters Act* as: water under the administration and control of the Commissioner, whether in a liquid or frozen state, on or below the surface of land, and in section 51 of the MVRMA as: any inland waters, whether in a liquid or frozen state, on or below the surface of land.

[5] "waste" is defined as:
(a) any substance that, if added to water, would degrade or alter or form part of a process of degradation or alteration of the quality of the water to an extent that is detrimental to its use by people or by any animal, fish or plant, or
(b) water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a), and, without limiting the generality of the foregoing, includes
(c) any substance or water that, for the purposes of the Canada Water Act, is deemed to be waste,
(d) any substance or class of substances prescribed by regulations made under subparagraph 63(1)(b)(i),
(e) water that contains any substance or class of substances in a quantity or concentration that is equal to or greater than a quantity or concentration prescribed in respect of that substance or class of substances by regulations made under subparagraph 63(1)(b)(ii), and
(f) water that has been subjected to a treatment, process or change prescribed by regulations made under subparagraph 63(1)(b)(iii).

TERM	DEFINITION
wastewater	Any water that is generated by project activities or originates on-site, and which contains waste, and may include, but is not limited to, runoff, seepage, sewage, minewater, and effluent.
watercourse	A natural watercourse, body of water or water supply, whether usually containing water or not, and includes, but is not limited to, groundwater, springs, swamps, and gulches.[6] With respect to permit conditions, however, groundwater is not considered a watercourse.[7]
water quality objective (WQO)	A numerical concentration or narrative statement that has been established to protect the receiving environment at a specified site.[8]
WLWB	Wek'èezhìı Land and Water Board

[6] "watercourse" is defined in section 1 of the Waters Regulations and section 2 of the MVFAWR as: a natural watercourse, body of water or water supply, whether usually containing water or not, and includes, but is not limited to, groundwater, springs, swamps, and gulches.

[7] "watercourse" is defined in section 1 of the MVLUR as: a natural body of flowing or standing water or an area occupied by water during part of the year, and includes streams, springs, swamps and gulches but does not include groundwater.

[8] Paragraph 26(5)(c) of the *Waters Act* and paragraph 72.03(5)(c) the MVRMA states that "any waste that would be produced by the appurtenant undertaking will be treated and disposed of in a manner that is appropriate for the maintenance of water quality standards (…)." There is no definition of the term "water quality standard" in the *Waters Act* or the MVRMA, but the LWBs consider it to be equivalent to the more widely accepted term "water quality objective," which has been defined by the Canadian Council of Ministers of the Environment (CCME) as: "a numerical concentration or narrative statement that has been established to support and protect the designated uses of water at a specified site."(CCME (1999), Canadian Environmental Quality Guidelines. Guidelines and Standards Division, Winnipeg, MB.)

1.0 Introduction

The Land and Water Boards of the Mackenzie Valley (the LWBs or Boards) regulate the use of water and deposit of waste through the issuance of water licences (licences) in accordance with the *Waters Act* and Waters Regulations, and the *Mackenzie Valley Resource Management Act* (MVRMA) and Mackenzie Valley Federal Areas Waters Regulations (MVFAWR). The LWBs regulate the use of land through the issuance of land use permits (permits) in accordance with the MVRMA and the Mackenzie Valley Land Use Regulations (MVLUR).

1.1 Purpose and Objective

The purpose of the *Waste and Wastewater Management Policy* (the Policy) is to describe the LWBs' approach to regulating waste management through enforceable conditions set in water licences and land use permits.[9] Such conditions include, but are not limited to, specifications for waste management practices; requirements for plans and reports; waste management criteria; monitoring requirements; and the incorporation of adaptive management.[10]

The LWBs developed this Policy to clarify the LWBs' expectations and to support clear, timely, consistent, and transparent licensing and permitting decisions. By referencing this Policy, applicants, licensees, permittees, and all parties involved in the regulatory process will be able to make more informed submissions to the LWBs which will, in turn, lead to more efficient and effective LWB processes and decisions.

This Policy is supported by other LWB guidance documents, including:

- MVLWB *Guide to the Water Licensing Process*
- MVLWB *Guide to the Land Use Permitting Process*
- LWB Resources for Municipalities (webpage)
- LWB *Standard Water Licence Conditions Template*
- MVLWB *Standard Land Use Permit Conditions Template*
- MVLWB *Guidelines for Developing a Waste Management Plan*
- MVLWB/IWB/GNWT *Guideline for the Design, Construction, Operation, Monitoring, Maintenance, and Closure of Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories*
- LWB/GNWT *Guidelines for Effluent Mixing Zones*
- LWB *Standard Process for Setting Effluent Quality Criteria*
- MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*
- MVLWB/AANDC *Guidelines for Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*

[9] The deposit of waste, as defined in the legislation, can be authorized under a licence but not under a permit. Conditions in both permits and licences can address other aspects of waste management and prevention of the deposit of waste.

[10] See subsection 27(1) of the *Waters Act* and subsection 72.04(1) of the MVRMA for general types of conditions that may be set in a licence. Also, see the LWB *Standard Water Licence Conditions* and *Standard Land Use Permit Conditions* templates for more information on specific standard conditions.

- LWB *Engagement and Consultation Policy*
- MVLWB *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits*
- *Information for Proponents on the MVLWB's Engagement Guidelines*

All of these resources, along with links to some relevant guidance produced by other agencies, are available on any of the LWB websites, and new resources are added to the websites as they become available.[11] Applicants, licensees, permittees, and all parties should ensure that they are using the most recent version of all guidance documents.

1.2 Authority

The LWBs' authority to develop and implement this Policy is granted under sections 65, 102, and 106 of the MVRMA. In particular, section 106 of the MVRMA gives the MVLWB the responsibility to "issue directions on general policy matters or on matters concerning the use of land or waters or the deposit of waste that, in the Board's opinion, require consistent application throughout the Mackenzie Valley."

Under subsection 26(1) of the MVLUR, the LWBs have the authority to set permit conditions regarding various aspects of a project, several of which are directly or indirectly related to waste management, though the deposit of waste (as defined in the *Waters Act* and MVRMA) can only be authorized in a licence. Similarly, under subsections 27(1) of the *Waters Act* and 72.04(1) of the MVRMA, the LWBs have the authority to set any licence conditions considered appropriate for a project, including conditions regarding the deposit of waste to water.

Additionally, the authority to set limits in a licence on the amount and concentration of waste deposited from a project is given to the LWBs under paragraph 26(5)(c) of the *Waters Act* and paragraph 72.03(5)(c) of the MVRMA, which state that any waste produced by an undertaking "will be treated and disposed of in a manner that is appropriate for the maintenance of:

(i) water quality standards prescribed by regulations made under paragraph 63/90.3(1)(h) or, in the absence of such regulations, such water quality standards as the Board considers acceptable, and

(ii) effluent standards prescribed by regulations made under paragraph 63/90.3(1)(i) or, in the absence of such regulations, such effluent standards as the Board considers acceptable."

At the time this version of the Policy was issued, no regulations for water quality or effluent standards had been prescribed under the *Waters Act* or the MVRMA.

[11] All LWB guidance documents referenced in this Policy can be accessed on the LWB Policies and Guidelines webpage on any of the LWB websites (www.glwb.com/www.mvlwb.com/www.slwb.com/www.wlwb.ca/).

The purpose of the Policy (as per section 1.1) and the approaches to setting waste management conditions outlined within it are consistent with the authority described above; however, the Policy does not supersede applicable legislation.[12]

1.3 How this Policy Was Developed

Under the authority outlined above, the LWBs may establish working groups from time to time to address specific policy, technical, or scientific matters related to effluent and water quality management and the water licensing process, including the development of guidelines. This Policy was originally developed as the *Water and Effluent Quality Management Policy* by the Water/Effluent Quality Guidelines Working Group, one of the Standard Procedures and Consistency Working Groups established by the LWBs in 2008. The Policy was updated as the *Waste and Wastewater Management Policy* in 2023 under the LWBs' Areas of Operations Initiative.

This updated Policy is based on the original *Water and Effluent Quality Management Policy*, input from LWB staff and consultants, public review comments, the LWBs' governing legislation, other LWB policies, standards, and guidelines, and consideration of past and present practices of the LWBs. Although the scope of this Policy does not include managing water use, the LWBs recognize the relationship between waste management and water quality in the receiving environment, and the social, cultural, and economic importance of water to the people of the NWT. Accordingly, in developing this Policy, the LWBs considered the vision, guiding principles, and goals set out in the *NWT Water Stewardship Strategy*.[13]

The Policy was in effect as the *Water and Effluent Quality Management Policy* from March 31, 2011, to February 8, 2023, when it was replaced by this *Waste and Wastewater Management Policy*. A Review Summary Table encompassing the two public reviews conducted during the development of the updated Policy is available for more information.

1.4 Application

This Policy will be applied by all the LWBs operating under the MVRMA including the:

- Mackenzie Valley Land and Water Board
- Gwich'in Land and Water Board
- Sahtu Land and Water Board
- Wek'èezhìı Land and Water Board

This Policy applies to all projects that require a water licence and/or a land use permit and entail any aspect of waste (including wastewater) management – from waste production through to disposal.

This Policy outlines the types of requirements that the LWBs typically include in licence and permit conditions to regulate waste management, and the types of information that an applicant must submit to a Board as part of the process of setting these conditions. Although the same types of information will be

[12] See sections 5 and 61.1 of the MVRMA.
[13] See the External Initiatives webpage on any of the LWB websites, or the GNWT's NWT Water Stewardship webpage (https://www.nwtwaterstewardship.ca/) to access the *NWT Water Stewardship Strategy*.

required from each applicant, the amount of detail required will vary depending on the size, type stage, and duration of the project under consideration. The appropriate level of information required from the applicant is described in relevant guidance documents (see the list in section 1.1). In all cases, the LWB will set the conditions based on the evidence presented during the regulatory process for the application (including any environmental assessment/impact review proceedings for the project, if applicable).

This Policy will be applied to all new and renewal licence and permit applications received after the effective date of the Policy. In the case of existing authorizations, this Policy will be applied if relevant when there is a proposal to amend any conditions of a licence or permit.

1.5 Monitoring and Performance Measurement for the Policy

The Policy will be reviewed periodically to determine whether revisions are necessary. Information gathered through the application of the Policy during regulatory proceedings and through the implementation of relevant licence and permit conditions will guide the frequency and nature of revisions to the Policy. The LWBs will seek input on proposed revisions through public reviews and, in some cases, may establish working groups; however, the LWBs may also make administrative updates to the Policy from time to time as necessary.

2.0 Guiding Principles

As set out in the MVRMA, the overall objective of the LWBs is:[14]

> (…) to provide for the conservation, development and utilization of land and water resources in a manner that will provide the optimum benefit generally for all Canadians and in particular for residents of the Mackenzie Valley.

Where land claims are in place, the parallel objectives specific to these areas identify the provision of optimum benefit for the residents of the respective management area.

Within the broad authority provided to the LWBs in the MVRMA, the LWBs have the discretion, based on the evidence in a proceeding, to determine the best way to meet this objective in a licence and/or permit.

In support of this objective, the following principles have been adopted by the LWBs and will guide the LWBs' decisions on any matter related to the regulation of waste management. The principles are also consistent with the guiding principles set out in the *NWT Water Stewardship Strategy* but extend to land use. The principles are not listed in any order of priority.

1. Sustainable Development: Meeting the needs of the present without compromising the ability of future generations to meet their own needs, taking both the projected effects of climate change and projected cumulative effects into account.

[14] See sections 58, 58.1, and 101.1 of the MVRMA.

2. Pollution Prevention: The use of processes, practices, materials, products, or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to human health and the environment.
3. Precaution: Where there are threats of serious or irreversible damage, the lack of full certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
4. Polluter Pays: The polluting party should pay for the restoration of damage done to the natural and built environments.
5. Integrated Management: The cooperative and coordinated stewardship of shared land and water resources where decisions are made considering regional and watershed contexts and for the optimum collective benefit for all Canadians and, in particular, for residents of the Mackenzie Valley.
6. Multiple Uses and Values: Decisions should address multiple, diverse, and sequential uses of land and water – many of which depend at the same time on the same watercourse or resources – and consider the cumulative effects of multiple uses and waste deposits.
7. Shared Responsibility: In our co-management system, all parties have a responsibility to meaningfully participate in decisions that will affect land and water.

In applying the Policy and the above principles in a proceeding, a Board will consider the well-being and way of life of Indigenous Peoples, required conformity with any applicable land use plan(s), and any Traditional Knowledge and scientific information provided as evidence during a proceeding.[15]

3.0 Objectives for Regulating Waste Management

In accordance with the guiding principles listed in section 2, the LWBs regulate, through licence and permit requirements, the management of waste to meet the following three objectives:

1. Water quality in the receiving environment is maintained at a level that allows for current and future uses.

> Protection of water quality in the receiving environment is the primary objective. In licences for projects that include deposit of waste to water, the level of protection will be defined by narrative or numeric water quality objectives (WQOs) that have been established specifically for the receiving waters in question. Licence conditions for a project will be set as needed for the WQOs to be met. Although no deposit of waste to water is authorized in land use permits, permits will typically also include conditions that are, directly or indirectly, intended to generally protect water quality in the receiving environment.

[15] See sections 60.1 and 61 of the MVRMA.

2. Waste is prevented and/or minimized.

> The LWBs expect applicants, licensees, and permittees to manage waste in accordance with best practices that prevent and/or minimize the production of waste, whenever feasible and as appropriate for the project, with rationale.

3. The amount of waste to be disposed of or deposited to the receiving environment is minimized.

> The LWBs recognize that, after minimizing the production of waste, some waste may still need to be disposed of in the receiving environment or deposited to receiving waters. The LWBs expect applicants, licensees, and permittees to minimize the amount of waste to be disposed of or deposited by managing waste in accordance with best practices, whenever feasible and as appropriate for the project, with rationale.

Objective 2 supports Objective 3, and both support the primary objective of water quality and use protection. For proposed waste management measures and practices, applicants must provide rationale, which can include consideration of various factors and should reflect engagement discussions and recommendations. In identifying best practices to prevent, reduce, reuse, recycle, or treat waste, new and alternative technologies and methods should be considered. Implementation of waste management practices may be stipulated directly in licence or permit conditions, or through requirements for management or operation and maintenance plans. Where applicable, the LWBs may require conformity with specific guidance documents. For licences, the LWBs assess how these measures and practices are expected to affect waste deposited from a project in order to set discharge criteria that licensees can reasonably and consistently achieve.

There are several different types of requirements (e.g., prescribed management practices, management plans, waste management criteria, monitoring, etc.) that the LWBs include in licence and permit conditions to meet the objectives above. Section 4 describes the key requirements, and section 5 describes the types of information that the LWBs require to establish the requirements and conditions specific to a particular project. In setting these conditions, the LWBs will consider the entire life of the project, including the post-closure goals and objectives for the site. In keeping with the concept of adaptive management, the LWBs acknowledge that revisions to management plans and/or amendments to conditions may be necessary as more information becomes available over the life of a project.

4.0 Typical Licence and Permit Requirements Used to Regulate Waste Management

The LWBs will set licence and permit conditions to meet the objectives set out in section 3 for regulating the management of waste. The LWBs will set conditions on a project-specific basis, considering the evidence gathered during the regulatory process for a project, but the types of requirements the LWBs typically include are described below.

4.1 Waste Management Practices

In general, waste management practices should be guided by the waste prevention/minimization hierarchy of preferred options, as set out in the LWB *Guidelines for Developing a Waste Management Plan*:

1. Source reduction – waste should be prevented or reduced at the source whenever feasible;
2. Reuse/recycle – waste that cannot be prevented should be reused or recycled in an environmentally safe manner whenever feasible;
3. Treatment – waste that cannot be prevented or recycled/reused should be treated using best practices and in an environmentally safe manner whenever feasible; and
4. Disposal – disposal or deposit of waste into the receiving environment should be employed only as a last resort and must meet applicable conditions, such as discharge criteria.

The Guidelines include more information about the LWBs' general expectations for managing different types of waste, and a Board may require a licensee or permittee to use specific practices or conform with specific guidelines that are known to be effective in managing waste and protecting the environment, particularly by preventing or minimizing the deposit of waste to water. These requirements may be specified directly in licence or permit conditions or may be approved by the Board through the submission of plans that describe the waste management practices for the project (see section 4.2 below). An example of prescribing a management practice would be a condition stipulating the use of a specific erosion control method known to reduce the amount of sediment that enters water or setting a minimum distance between certain activities and watercourses (i.e., source reduction).[16] In all cases, the intent of prescribing specific management practices is to achieve the objectives listed in section 3 based on the evidence provided for the project.

4.2 Management Plans

All licence and permit applicants must submit waste management, spill contingency, and closure and reclamation planning information. For most applicants, this information must be provided in the form of management or operations and maintenance plans developed in accordance with applicable guidelines.[17]

In addition to the above, depending on the types of waste, the potential environmental effects, and the proposed mitigation measures, other management plans, design and construction plans, and/or

[16] For more examples of these types of conditions, see the LWB *Standard Water Licence Conditions* and *Standard Land Use Permit Conditions* templates.

[17] For more information, see the Apply for Permit/Licence page on any of the LWBs' websites to access the LWB *Guide to the Water Licensing Process* and *Guide to the Land Use Permitting Process*.

operations and maintenance plans may also be required in a licence application, and/or through licence conditions, to detail how specific types of waste will be managed for a project.

These plans will detail how certain aspects of the waste prevention/minimization hierarchy (e.g., source control, reuse/recycle, treatment, and/or deposit of waste) or other environmental protection methods will be implemented. In accordance with the applicable guidelines or the LWB *Standard Outline for Management Plans*, and as described in sections 4.3 to 4.5 below, some plans may also need to describe waste management criteria, monitoring, and adaptive management.

The information provided in an application and in these plans should reflect the engagement the applicant conducted during the project planning stages. All applicants must also submit an Engagement Plan that details how the applicant will conduct on-going engagement over the life of the project, including when planning changes to the project.

The Board will set out any plan requirements for a project in the licence and/or permit conditions.[18] In general, these plans will typically require Board approval, which will usually entail a public review, prior to implementation of the plan – for the core plans that are required for a complete application, the Board will usually make a decision on the plan when the licence or permit is issued and provide direction on required revisions if a plan is not approved. The licensee or permittee will be expected to review and revise the plans over the life of the project as set out in the conditions.

4.3 Waste Management Criteria

Once all reasonable measures have been taken to limit the amount of waste that will be disposed of, the applicant may still need to propose disposal of and/or deposit of waste to the receiving environment (directly or indirectly). In these cases, concerns will often exist about the quantity, concentration, and type of waste(s) an applicant is proposing to dispose of, so the licence and/or permit may specify waste management criteria for some or all proposed types of waste.[19] Such criteria could include design, performance, and/or operational criteria for waste management facilities, and/or discharge criteria. Criteria may be set out directly or by reference and may include established standards and/or project-specific criteria.

> Cultural or other specific land and water uses may require more stringent or different types of waste management criteria during operations and/or at closure. Based on engagement and the evidence, this could be reflected in the development of the types of criteria described below, and/or through the development of other types of criteria specific to the project and the identified uses.

[18] Applicants, licensees, and permittees should be aware that other submissions may be required by other regulatory agencies and/or by the landowner through other required authorizations.

[19] Waste management criteria are primarily applicable to licences, but in some cases, criteria may be included in permits.

Closure criteria, which are developed and approved for a project through the Closure and Reclamation Plan (or Operations and Maintenance Plans for municipal operations), may also include some or all the types of criteria described below.[20]

4.3.1 *Criteria for Waste Management Facilities*

Design, performance, and operational criteria for waste management facilities may be set out directly in the conditions for some types of projects but are often established and, if applicable, approved through design and/or management plans or manuals.[21] Some general examples of these types of criteria include, but are not limited to:

- Design: liner or cover composition and thickness, freeboard limits, maximum design earthquake or flood event, or maximum slope angle
- Performance: limits or action levels for monitoring results
  Operational: freeboard limits, acceptance and re-use criteria for hydrocarbon contaminated soil treatment facilities, acceptance criteria for landfills, or geochemical criteria for the management and placement of potentially acid-generating waste rock

Where there is a proposed or potential discharge to water, these criteria may be linked to the discharge criteria described in the following subsection. For example, geochemical criteria for waste rock may be established for the purposes of meeting discharge criteria for seepage from a waste rock pile.

4.3.2 *Discharge Criteria in Licences*

If a waste will be deposited directly or indirectly to water, it is considered a deposit of waste under the MVRMA/*Waters Act*. This type of waste deposit will often consist of effluent – either directly from a point source (e.g., wastewater outflow from a waste treatment facility into a lake), or indirectly, typically from a non-point source (e.g., seepage or leachate from a landfill or waste rock pile, or sedimentation in runoff from erosion). Seepage or runoff that originates from, or may be affected by, project components and/or activities is typically considered a potential effluent unless the applicant provides adequate evidence to demonstrate that it is not wastewater and/or will not directly or indirectly enter any waters.

When a proposed project includes effluent, the Board will review the evidence and set discharge criteria as necessary to prevent or minimize impacts and, if applicable, to meet water quality objectives.[22] Discharge criteria could include maximum discharge rates and/or volumes, seasonal or other timing restrictions, effluent quality criteria (EQC) or other wastewater quality criteria, and/or other discharge requirements, such as specific conditions in the receiving waters (e.g., minimum flow rates or water levels).

[20] For more information, see the LWB Policies and Guidelines page on any of the LWB websites to access the LWB *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*.
[21] See the LWB *Standard Water Licence Conditions Template*.
[22] The Board may also set similar types of criteria for discharges of water that are not considered waste in order to prevent or minimize impacts on downstream waters from increased volumes or flow rates; however, this type of discharge is not considered effluent or a deposit of waste, so it is not addressed further in this Policy.

For proposed point-source effluents, the LWBs will typically include conditions that set out EQC for the final discharge point(s) to define the maximum allowable concentrations (e.g., mg/L), quantities (e.g., kg/year), or limits (e.g., pH range) of any contaminant or parameter of the effluent if the evidence before a Board indicates that it has the potential to adversely affect water quality in the receiving waters.[23] The LWBs may also set other discharge criteria in the conditions, such as limits on the discharge rate and/or volume.

When control measures and/or collection systems are not proposed for non-point source effluents,[24] the Board may consider setting EQC and other discharge criteria directly in licence conditions as described above for a point source effluent. However, since there is typically no distinct final discharge point where a non-point source effluent can be controlled before it enters the receiving environment, and the discharge pathway can also be variable over time, establishing discharge criteria and a response framework in a management or monitoring plan submitted for Board approval may be more practical than setting EQC in some cases.[25] For example, for underground seepage or leachate from an existing municipal landfill or abandoned contaminated site, the Board could, in some cases, include conditions that set out EQC at specific groundwater monitoring wells, or alternatively, include conditions that require the licensee to develop and submit a groundwater management or monitoring plan that includes water and/or wastewater quality criteria and a response framework that apply at specific groundwater monitoring wells. This alternate approach may also be appropriate when additional data collection is needed to establish appropriate discharge criteria and compliance locations. Further, the Board may also consider this approach for closure, particularly when passive, long-term discharge is an approved closure method and EQC are not determined to be necessary. This approach is not, however, an alternative to implementing measures and/or systems to control and manage non-point source effluent where the evidence or applicable legislation indicates it is necessary to do so.

In all cases, the Board will establish discharge criteria for a project based on the evidence from the regulatory proceeding. The Board's Reasons for Decision will explain the rationale for the selected discharge criteria, and where applicable, procedural expectations for proposing changes to any discharge criteria in a plan or establishing discharge criteria in licence conditions once additional information is available.

Water Quality Objectives

When a proposed project includes effluent, the Board will often need to determine water quality objectives (WQOs) for the receiving waters in order to establish appropriate discharge criteria. At a minimum, any discharge criteria for a project must be set at levels that are intended to meet WQOs for the receiving waters. The WQOs for a project, the locations at which WQOs are expected to be met, and

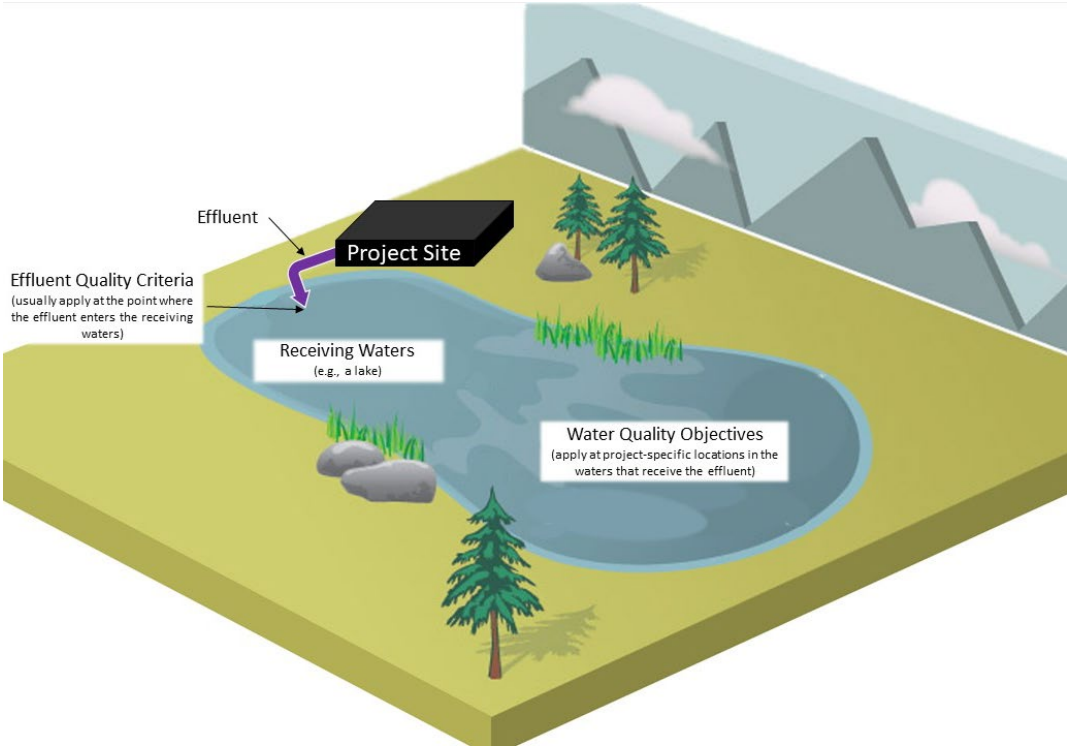
[23] When EQC are determined to be needed, the EQC will always be set out in conditions in the main body of the licence.
[24] If the non-point source effluent is collected prior to reaching the receiving waters and is discharged through a controlled point, it is considered a point-source effluent.
[25] The process in the LWB *Standard Process for Setting Effluent Quality Criteria* is described for EQC in particular but may also be used to develop wastewater quality criteria in a plan.

linkages between the WQOs and discharge criteria in the licence will typically be explained in the Board's reasons for decision but will not usually be set out directly in the licence.

As no pre-defined water quality standards have been established for watercourses in the NWT, the level of water quality to be maintained in the receiving environment has been, and will continue to be, decided on a site-specific basis to protect water uses. Section 5 outlines the information the LWBs will consider when establishing WQOs for a site, whether narrative or numeric, and the LWB *Standard Process for Setting Effluent Quality Criteria* summarizes the LWB information requirements and standard process for establishing numeric WQOs and related EQC when appropriate.

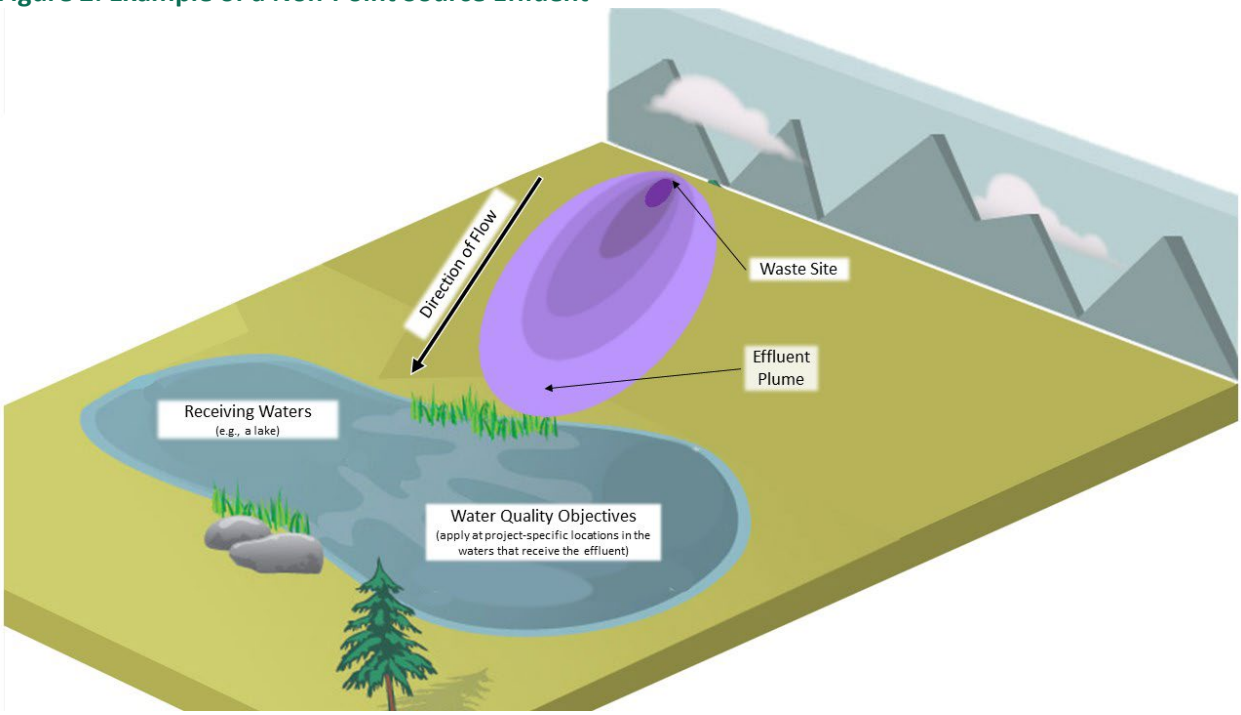
Figure 1 illustrates, with point-source and non-point source effluent examples, the general relationship between EQC and the WQOs in the receiving waters. On a case-by-case basis, a Board may decide to define a regulated mixing zone between the point of discharge and the point at which WQOs need to be met. The Board may also consider this approach for delimited non-point sources (i.e., where the applicant can delineate the spatial boundaries of the effluent from the waste source to the receiving waters). Further information about when and how the LWBs will consider mixing zones is available in the LWB/GNWT *Guidelines for Effluent Mixing Zones*.

Figure 1: Example of a Point Source Effluent[26]



[26] WQOs define the quality of water that must be maintained in the receiving waters. In this example, WQOs would be defined for the lake into which a point-source effluent is being discharged from a project. EQC would be set and would, in this example, apply at the point at which the effluent enters the lake (i.e., the final discharge point). Other discharge criteria (for example, rate or volume criteria) may also apply at this location.

Figure 2: Example of a Non-Point Source Effluent[27]



Note that in accordance with the LWBs' objective to minimize deposit of waste, licensees are expected to minimize and, where feasible, to prevent waste from entering water. Therefore, and consistent with the CCME nondegradation policy,[28] the LWBs may set EQC that are more stringent than what is necessary to meet WQOs in the receiving waters. When making this determination, the Board will ensure that EQC are set at levels that the licensee can reasonably and consistently achieve. Further details on the LWBs' process for setting EQC are available in the LWB *Standard Process for Setting Effluent Quality Criteria*.

4.4 Monitoring Requirements

Environmental monitoring programs are essential for providing the information needed to determine if the waste prevention/minimization and water quality protection measures (including waste management criteria) are successfully meeting their stated objectives. Monitoring will typically be required for various activities during the construction, operation, and closure of a project – the most common monitoring programs required by the LWBs are described below:[29]

1. Surveillance Network Programs (SNPs) are often included in licences and primarily consist of water and wastewater quality and quantity monitoring at key locations on the project site. SNPs are designed to aid the licensee and regulators in evaluating compliance with licence requirements and determining whether waste management activities are effective; therefore,

[27] For non-point source effluent, the location where any EQC or other discharge criteria apply will be project specific.
[28] For waters of superior quality or that support valuable biological resources, the CCME nondegradation policy states that "the degradation of the existing water quality should always be avoided." CCME (1999), Canadian Environmental Quality Guidelines. Guidelines and Standards Division, Winnipeg, MB.
[29] The LWBs do not typically include monitoring requirements in land use permits; however, permit requirements will always be determined based on the evidence submitted through the regulatory process for a given project.

sampling locations and requirements are decided on a site-specific basis. Any final discharge and compliance point(s) will have an associated SNP station where any applicable discharge criteria must be met. Other SNP stations are often located at points of waste transfer or treatment prior to the final discharge or compliance point(s) to confirm that the waste management system is working as expected and to identify any source control issues as they arise. In some cases, these locations may correlate to points where management plan action levels are applied. In order to determine the effectiveness of the discharge criteria, SNP stations are also often located in the receiving environment to monitor whether WQOs are being met. Data from these or other SNP stations may also be incorporated into the project's Aquatic Effects Monitoring Program, if applicable.

2. Management plans, design and construction plans, operations and maintenance plans, and closure and reclamation plans required by licence and/or permit conditions may include monitoring to evaluate whether design and/or performance criteria for waste management systems are being met. This type of monitoring may be associated with requirements for a response framework, with action levels and general response actions, to provide an early warning system to prevent non-compliance with conditions and potential environmental impacts (see section 4.5 and the *Standard Water Licence Conditions Template*). Applicable LWB guidance documents may set out requirements for this type of monitoring, and in licences, conditions may require the licensee to include this type of monitoring in specific plans and manuals. In some licences, separate water and/or groundwater monitoring plans may be required.
3. Aquatic Effects Monitoring Programs (AEMPs) may be required in licences to monitor the short- and long-term effects of a project on the wider aquatic receiving environment. In particular, AEMPs are meant to monitor project-related effects on the aquatic ecosystem including, for example, effects to water quality and/or quantity, aquatic habitats, and aquatic life. In addition to demonstrating that WQOs are being met, AEMPs can indicate whether the WQOs for the site are sufficiently protective and identify any effects that were not originally predicted. AEMPs include a response framework to link monitoring results to response actions. More information on when the LWBs may require AEMPs and on the LWBs' expectations for AEMPs is available in the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*.

Monitoring associated with criteria specific to cultural use may form part of the monitoring programs described above or may require the development of separate monitoring programs.

Where applicable, conditions will also include reporting requirements for the monitoring outlined above. Any water quality data submitted to the LWBs must meet the information requirements set out in the GNWT *Standards for Reporting Water Quality Information in the NWT*, which have been adopted by the LWBs.

4.5 Adaptive Management

While selecting the best possible approach to waste management is very important, it can be difficult to predict all the effects of a project and the efficacy of mitigation measures. As a result, adaptive management involves observing and/or monitoring the effects of actions and, where necessary, adjusting

actions based on the observations and/or monitoring results. For example, if results show the effects of a project on the environment and/or land and water uses are different than predicted, changes to mitigation measures, monitoring requirements, discharge criteria, or other conditions may be considered.[30] For a permit or licence, for example, additional erosion control measures may need to be installed or implemented if erosion is observed despite existing erosion control measures. For a licence with monitoring requirements, for example, seepage monitoring requirements may be reduced or removed if seepage from a waste management facility is infrequently observed or not present, or seepage may need to be collected and treated prior to discharge if the seepage quality is not as good as predicted.

Licence conditions will typically set out initial general response actions (e.g., ceasing discharge for point sources, notifying the Inspector, implementing applicable management/response plans, etc.) for EQC exceedances, if applicable.[31] As noted in section 4.4 above, for AEMPs, and in most cases, for any plans that include monitoring, the licensee will be required to develop a response framework outlining action levels and general response actions. For some types of action levels, the licensee may also be required to submit more detailed response plans when action exceedances occur.

5.0 Information Required to Regulate Waste Management

Licence and permit applications must include the information necessary for the Board to make its preliminary screening determination and set appropriate licence and/or permit conditions. Detailed information requirements are listed in the Application Forms, with additional guidance provided in the LWB *Guide to the Water Licensing Process* and *Guide to the Land Use Permitting Process* (the Guides).[32] This section of the Policy is only meant to highlight some specific types of information that the LWBs consider when setting conditions that, collectively, will result in a licence and/or permit that meets the objectives stated in section 3.

5.1 Information Required from Applicants

The information described in this section is expected to be provided by the applicant through the application package. While the same types of information will be required from each applicant, the amount of detail required will often vary depending on the size, type, and duration of the project, and the information provided should reflect the engagement the applicant conducts while planning the project and developing the application. As needed, more detailed information will be requested by parties or the Board during the regulatory proceeding to better understand specific project activities or potential effects.[33]

Early engagement is key to gathering the information needed to develop an application or submission. Engagement must be conducted in accordance with the LWB *Engagement and Consultation Policy* and

[30] In some cases, proposed response actions could require an amendment process and, possibly, a preliminary screening.
[31] See Part F in the LWB *Standard Water Licence Conditions Template* for more information on standard EQC exceedance conditions.
[32] See the Apply for Permit/Licence webpage on any of the LWB websites to access the Application Forms and Guides.
[33] See Rules 61 and 63 of the LWB *Rules of Procedure*.

Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits and should be reflected in the information provided in an application or submission.

Where an approved Land Use Plan applies, applicants must also consider and demonstrate how the proposed project meets the requirements of the applicable Land Use Plan. Applicants are encouraged to approach the applicable Land Use Planning Board and/or the Tłı̨chǫ Government's Department of Culture and Lands Protection, as the case may be, prior to submitting a licence or permit application to the Board.[34]

Some of the types of information required from applicants are listed below. Applicants are encouraged to review the Guides and contact Board staff for assistance prior to submitting an application. Applicants for larger projects should also refer to the Mackenzie Valley Environmental Impact Review Board (Review Board)'s *Guideline for Major Projects to go Directly to Environmental Assessment*.[35]

All Applicants:

- Information on the potential environmental effects associated with each waste type for a project, including consideration of climate change and cumulative impacts;
- Information on proposed waste prevention, minimization, and management measures for each waste type, including rationale for the selected measures, particularly if more than one option was considered or the selected measures differ from applicable best practices;
- Proposed contingency plans; and
- Proposed closure plans for the site.

If Applicable:

- Proposed monitoring for assessing both performance of waste management and mitigation measures, and environmental effects;
- Technically accurate predictions of the composition (including concentrations, where applicable) and quantities of waste that the applicant proposes to deposit after all feasible proposed waste prevention and management measures have been employed;
- If proposing to deposit waste to water (whether directly or indirectly), recommended WQOs appropriate for the receiving waters, including the evidence upon which the recommendations are based. During the licencing proceeding, all parties will have the opportunity to review the applicant's proposed WQOs before the Board makes a final decision on the WQOs for the site. Supporting information that the applicant should submit, if available, for the Board's consideration in establishing WQOs for the site includes, but is not limited to, the items listed below.

[34] For more information, see the LWB *Guide to the Water Licensing Process* and *Guide to the Land Use Permitting Process*.
[35] See the Review Board's website (www.reviewboard.ca) to access the *Draft Guideline for Major Projects to go Directly to Environmental Assessment* , which are currently in draft form. Until the Guidelines are finalized, applicants should contact Review Board staff for more information.

- Existing (baseline) conditions of the receiving waters (e.g., water quality and quantity as well as the resident species of plants, animals, and fish that live in or use the water);
- Traditional Knowledge, including knowledge about the environment, knowledge about interacting with the environment, and environmental values;[36]
- Traditional and potential uses of the receiving waters (e.g., sustenance, recreational, cultural, etc.);
- Cultural significance of the watercourses to local residents;
- Inputs of waste from other projects or activities located in the same watershed or region in order to evaluate potential cumulative effects;
- Published water quality guidelines (e.g., CCME Guidelines) and scientific studies that are relevant and appropriate for the receiving waters, based on the information listed above; and
- Measures, suggestions, and commitments, including predictions and limits of acceptable change, listed in Reports of Environmental Assessment or Environmental Impact Review for the project;

- Predictions of how effluent, once discharged, will mix and disperse in the receiving waters;[37]
- For each effluent, proposed EQC that reflect the recommended WQOs, including the supporting calculations and rationale.[38]

In gathering information for their applications, applicants can and should avail themselves of relevant information that has already been collected by other parties or through other initiatives (e.g., governmental agencies, regional land use or water management plans).

During a regulatory proceeding, the Board also provides opportunities for all parties to submit and/or present information to the Board regarding an application, and the Board will consider all of the evidence on the public record for the application when making its decision.

5.2 Consideration of Other Applicable Legislation

In addition to the information sources discussed above, the LWBs recognize that there is other legislation that must be complied with. For example, the LWBs cannot include any conditions in licences relating to the deposit of waste that are less stringent than the provisions of applicable regulations made under subsection 36(5) of the *Fisheries Act*.[39] Accordingly, where the Metal and Diamond Mining Effluent Regulations (MDMER) apply, and where the evidence before the Board indicates that parameters regulated under the MDMER require EQC for an effluent from a project, the Board will ensure that the

[36] In addition to following local protocols, policies, and guidelines for gathering Traditional Knowledge, the LWBs highlight the importance of using and considering this Knowledge in a way that respects the intentions of communities, Indigenous governments and organizations, and the individual Traditional Knowledge holders that provided it. For more information, please see the Review Board's *Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessment*, which has been adopted by the LWBs and is available on the Review Board's website (www.reviewboard.ca).

[37] See the LWB Policies and Guidelines webpage on any of the LWB websites to access the LWB/GNWT *Guidelines for Effluent Mixing Zones* for more details about proposing a mixing zone.

[38] See the LWB Policies and Guidelines webpage on any of the LWB websites to access the LWB *Standard Process for Setting Effluent Quality Criteria* for more details about proposing EQC.

[39] See subsection 27(5) of the *Waters Act* and subsection 72.04(5) of the MVRMA.

EQC for those parameters are equivalent to, or lower than, the MDMER limits. The Board, however, will not necessarily include all EQC for all parameters with MDMER limits unless the evidence indicates that each of these parameters requires EQC.

Note that applicants, licensees, and permittees must comply with all legal requirements (e.g., *Fisheries Act*, MDMER, *Oil and Gas Operations Act*, *Migratory Birds Convention Act*, *Archaeological Sites Act* and Regulations, etc.) relevant to their respective operation. It is the applicant, licensee, or permittee's responsibility to be aware of and comply with these requirements; however, in developing licence and permit conditions, the LWBs consider the evidence provided by other regulatory authorities regarding other regulatory requirements and attempt to assess and minimize regulatory conflict, overlap, and duplication wherever possible.