



NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT

**COMPILATION OF CANADIAN
PROVINCIAL AND FEDERAL
REGULATIONS RELEVANT TO
PULP AND PAPER AND WOOD
PRODUCTS FACILITIES:
2011 UPDATE**

**SPECIAL REPORT NO. 11-01
JUNE 2011**

**by
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PRESIDENT'S NOTE

The regulatory landscape in Canada is comprised of federal and provincial legislative and regulatory requirements and as a result, forest products operations are subject to regulatory frameworks that vary with the location and type of facility. There are only a few key applicable regulations at the federal level and most air, water, and solid residue issues are regulated by the provincial governments. Some provinces have very complex and comprehensive laws and regulations, while other provinces have a fairly simple regulatory framework and control releases through environmental permits.

As companies are faced with new regulations and/or need to renew their operating permits, they may face modifications of their permitted releases to air, water, or land. Furthermore, in recent years, some provinces have promulgated several pieces of legislation on climate change, water use, and management of toxic substances, thereby increasing the regulatory burden imposed on industrial facilities.

In 2007, NCASI published Special Report No. 07-04, together with an Excel workbook that compiled relevant environmental legislation and permit limits for various Canadian jurisdictions, for both wood products and pulp and paper facilities. Since then, a significant number of legislative acts and regulations have been enacted, revised, or even revoked.

This report is an updated version of Special Report No. 07-04, and its purpose is to assist Canadian member companies and facilities in grasping the complex and continuously evolving Canadian regulatory landscape. A new component of the updated Excel workbook consists of a list of sampling and analytical methods used across Canada for air and water media. Regulatory standards are inextricably linked with the analytical method specified for compliance, and therefore, analytical and test methods are an important aspect of comparing regulatory requirements across jurisdictions.

The report, along with a companion detailed and updated Excel workbook containing current regulatory standards, publicly available individual mill permit limits, and a compilation of sampling and analytical methods specified in each province, provides a framework for considering the comparability of regulatory requirements across the nation. That said, the legally binding requirements for forest products facilities are within the legislative acts, regulations, guidelines and standards themselves, and thus this report does not provide legal guidance of any sort.



Ronald A. Yeske

June 2011

MOT DU PRÉSIDENT

L'environnement réglementaire au Canada est constitué de lois et d'exigences à respecter sur le plan fédéral et provincial, ce qui a pour conséquence de soumettre les activités de l'industrie des produits forestiers à un cadre réglementaire qui varie en fonction du type d'installation et de son emplacement. Il n'existe que quelques règlements clés qui s'appliquent sur le plan fédéral. La plupart des questions liées à l'air, à l'eau et aux résidus solides sont réglementées par les gouvernements provinciaux. Certaines provinces ont des lois et règlements très complexes et très détaillés, alors que d'autres ont un cadre réglementaire relativement simple et contrôlent les rejets par l'entremise d'un permis environnemental.

Lorsqu'une entreprise doit respecter un nouveau règlement ou doit renouveler son permis d'exploitation, il peut arriver qu'elle ait à faire face à des modifications de ses rejets (air, eau, sol) dans son permis. Dans les dernières années, certaines provinces ont également promulgué plusieurs textes législatifs sur les changements climatiques, l'utilisation de l'eau, et la gestion des substances toxiques, ce qui a accru le fardeau réglementaire imposé aux installations industrielles.

En 2007, NCASI publiait le rapport spécial no 07-04 avec un fichier Excel contenant des renseignements sur les lois pertinentes en matière d'environnement et sur les limites de rejet inscrites dans les permis de certaines installations de pâtes et papiers et de produits du bois, et ce, pour différentes juridictions canadiennes. Depuis ce temps, il y a eu promulgation, révision et même révocation d'un grand nombre de lois et règlements.

Le présent rapport constitue une version actualisée du rapport spécial n° 07-04. Il a pour but d'aider les sociétés et installations membres situées au Canada à mieux comprendre la complexité de l'environnement réglementaire canadien qui évolue constamment. Le fichier Excel actualisé contient une nouvelle section, soit une liste des méthodes d'échantillonnage et d'analyse utilisées au Canada pour mesurer les paramètres atmosphériques et aquatiques. Les normes réglementaires sont forcément reliées aux méthodes d'analyse spécifiées dans les règlements et utilisées à des fins de conformité. C'est pourquoi les méthodes d'échantillonnage et d'analyse représentent un aspect important de la comparaison des exigences réglementaires entre les juridictions.

Le rapport, qui est accompagné d'un fichier Excel actualisé contenant des renseignements détaillés sur les normes réglementaires actuelles, sur les limites de rejet qui sont inscrites dans les permis publiquement accessibles de certaines usines, ainsi que sur les méthodes d'échantillonnage et d'analyse spécifiées par chaque province, fournit un cadre de travail pour comparer les exigences réglementaires dans l'ensemble du pays. Il est important de souligner que les exigences juridiquement contraignantes qui s'appliquent aux installations des produits forestiers sont contenues dans les documents officiels (lois, règlements, lignes directrices et normes) et, par conséquent, le présent rapport ne constitue pas un guide juridique d'aucune façon.



Ronald A. Yeske

Juin 2011

**COMPILATION OF CANADIAN PROVINCIAL AND FEDERAL REGULATIONS
RELEVANT TO PULP AND PAPER AND WOOD PRODUCTS FACILITIES:
2011 UPDATE**

SPECIAL REPORT NO. 11-01
JUNE 2011

ABSTRACT

Forest products facilities in Canada face a complex and highly variable regulatory context depending on the province in which they are located. This report provides an updated overview of the applicable federal and provincial legislation, regulation, guidelines and standards, for both pulp and paper mills and wood products facilities. The focus of the review is on legislation and regulatory guidelines associated with industrial releases to air, water, and land; residuals management; chemicals and toxic substances management; storage of petroleum products; mill practices; transportation and handling of dangerous goods; climate change and renewable energy; water resources conservation and protection; and approval or permitting procedures. This report is accompanied by an Excel workbook which compiles specific applicable limits for the regulations described in the report, publicly available individual mill permit limits, sampling and analytical methods specified in each province, and online government references for all legislative acts and regulations.

KEYWORDS

air quality objective, air standards, ambient air criteria, CEPA, chemicals management, climate change, code of practice, dangerous goods, discharge limit, effluent limitations, environmental permit, guideline, licence, renewable energy, regulation, renewable fuel, residuals management, toxic substances, water conservation, water protection, water quality, water quality objective, water use

RELATED NCASI PUBLICATIONS

Special Report No. 07-04. (May 2007). *Compilation of Canadian provincial and federal regulations relevant to pulp and paper and wood products facilities.*

**COMPILATION DES RÈGLEMENTS CANADIENS PROVINCIAUX ET
FÉDÉRAUX S'APPLIQUANT AUX INSTALLATIONS DE L'INDUSTRIE DES
PÂTES ET PAPIERS ET DES PRODUITS DU BOIS :
MISE À JOUR 2011**

RAPPORT SPÉCIAL N^o 11-01
JUIN 2011

RÉSUMÉ

Les installations des produits forestiers au Canada font face à un environnement réglementaire complexe et très variable selon la province où elles se trouvent. Le présent rapport est un aperçu actualisé des lois, règlements, lignes directrices et normes sur le plan fédéral et provincial qui s'appliquent aux usines de pâtes et papiers et aux installations de produits du bois. Cette analyse met l'accent sur les lois et règlements qui portent sur les rejets (air, eau et sol), la gestion des matières résiduelles, la gestion des produits chimiques et des substances toxiques, le stockage des produits pétroliers, les pratiques en usine, le transport et la manutention des matières dangereuses, les changements climatiques et l'énergie renouvelable, la conservation et la protection des ressources en eau, et sur les procédures d'approbation ou d'autorisation. Le rapport s'accompagne d'un fichier Excel qui contient les limites applicables de chaque règlement décrit dans le rapport, les limites qui sont inscrites dans les permis publiquement accessibles de certaines usines, les méthodes d'échantillonnage et d'analyse exigées par chaque province, et des hyperliens menant à tous les textes de loi et règlements officiels.

MOTS-CLÉS

biocombustible, changement climatique, code de pratique, conservation de l'eau, critères d'air ambiant, énergie renouvelable, gestion des matières résiduelles, gestion des produits chimiques, LCPE, licence, lignes directrices, limite de rejet, matières dangereuses, normes de qualité de l'air, objectif de qualité de l'air, objectif de qualité de l'eau, permis environnemental, protection de l'eau, qualité de l'eau, règlement, restrictions en matière d'effluent, substances toxiques, utilisation de l'eau

AUTRES PUBLICATIONS DE NCASI

Rapport spécial n^o 07-04. (mai 2007). *Compilation des règlements canadiens provinciaux et fédéraux s'appliquant aux installations de l'industrie des pâtes et papiers et des produits du bois.*

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COMPILATION OF CANADIAN PROVINCIAL AND FEDERAL REGULATIONS RELEVANT TO PULP AND PAPER AND WOOD PRODUCTS FACILITIES: 2011 UPDATE

1.0 INTRODUCTION

Forest products facilities in Canada face a very complex and highly variable regulatory context depending on the province in which they are located. There are only a few applicable regulations at the federal level, and most environmental protection and conservation issues are regulated by the provincial governments.

This report provides an updated overview of applicable federal regulations and the regulatory context in each province, for both pulp and paper mills and wood products facilities. Since 2007, the year NCASI released its first compilation of Canadian regulations, a significant number of Acts, regulations, codes of practice, guidelines, and standards have been proposed, promulgated, produced, or revised.

The focus of the review continues to be on legislation related to primary industrial releases to **air**, **water**, or **land**. This time, the scope has been extended to also include

- residuals management;
- chemicals and toxic substances management;
- storage of petroleum products;
- mill practices (e.g., Alberta Code of Practice for Sawmill Plants);
- transportation and handling of dangerous goods;
- climate change and renewable energy;
- water resources conservation and protection; and
- approval or permitting procedures.

Where relevant draft or proposed Acts or regulations were available, these have also been included. That said, provincial policies or programs not formalized through legislation or regulation have not been addressed. In total, over 280 pieces of legislation, regulation, guidelines and standards have been synthesized. See Appendix A for definitions of the abbreviations used in this report.

In spite of the expanded scope, this report does not present a complete picture of all applicable laws and regulations for the forest products industry. For example, it does not include legislation or guidelines regarding forestry operations (unless related to forest products manufacturing operations), potable water, environmental impact and assessment, halocarbons, ozone depletion, pesticides, occupational health, groundwater and drilling operations, site remediation, or regulatory fees or penalties.

This report is accompanied by an Excel workbook which compiles the specific applicable limits found in the regulations and standards described in the report. The Excel workbook also contains spreadsheets that compile a) requirements for a selection of provincial environmental permits (where publicly available); b) sampling and analytical methods used by the various provinces to measure specific substances in different media; and c) all legislation, regulations, guidelines and standards reviewed in this report along with their respective internet addresses and the year of the latest update (see also Appendix B). Permits, methods, legislation, regulations, guidelines and standards are all organized in a database fashion and categorized by provincial jurisdiction.

It is important that this report and the accompanying Excel workbook be used with caution. The Canadian regulatory landscape changes regularly as laws and regulations are modified and updated, and new regulations promulgated. Before using the document, readers should always verify whether an update has been published for the regulatory instrument in which they are interested.

Given the amount of information presented in this report and in the Excel workbook, it is possible that small errors or typographic errors may be found. NCASI would be interested in hearing about these, so that the master document can be corrected in future updates.

Finally, while every effort has been made to provide a useful and accurate overview of Canadian regulations, the information contained in this report should be used for reference only and is neither intended nor designed to render legal advice to the reader or serve as legal documentation. Under no circumstances shall NCASI be liable for any damages, including incidental, special or consequential damages, arising from the use of the present report or the associated Excel workbook or an inability to use them.

Basic Legal Terminology

A number of legal terms are used throughout this report. This section provides the definitions of some of the most relevant terms¹.

Act or Statute (Loi): A bill that has been passed by Parliament or a provincial legislature, has received Royal Assent, and has been proclaimed. Unless a provision of the Act specifies otherwise, the Act comes into force on the date of Royal Assent or, when Royal Assent is signified by written declaration.

Bill (Projet de loi): A proposed or draft law submitted to Parliament or a provincial legislature for its consideration and approval.

Regulation (Règlement): A subordinate legislation defined as a statutory instrument made in the exercise of a legislative power conferred by an Act. A regulation sets out detailed provisions that are not essential to include in the Act. Regulations are not made by Parliament or a provincial legislature but by persons or bodies to whom Parliament or a provincial legislature has delegated the authority to make them, such as the Governor-General in Council (the federal cabinet), the Lieutenant-Governor in Council (provincial cabinet), a Minister or government official, or an administrative board. The power to enact regulations permits the government to introduce changes without having to enact a new Act.

Ministry (Ministère): A branch or department of a government.

Code: A complete statement of the law in a specific area of application.

Crown (Couronne): The government or state.

Royal Assent (Sanction royale): The formal approval of all federal or provincial legislation by a representative of the Crown, the Governor General (federally) or the applicable Lieutenant Governor (provincially).

¹ These terms have been extracted and synthesized from the following sources: Glossary of Parliamentary Procedure (<http://www.parl.gc.ca/information/about/process/house/glossary/gloss-e.htm>), Irwin Law's Canadian Online Legal Dictionary (<http://www.irwinlaw.com/cold>), and JURIST Canada's browsable dictionary of basic Canadian legal terms (<http://jurist.law.utoronto.ca/dictionary.htm>).

2.0 FEDERAL LEGISLATION AND REGULATORY TOOLS

At the federal level, there are six Acts that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and natural resources:

- Canadian Environmental Protection Act (CEPA)
- Fisheries Act
- Transportation of Dangerous Goods Act
- Canada Water Act
- Kyoto Protocol Implementation Act
- Canada Emission Reduction Incentives Agency Act

Overall, eight regulations, three federal notices, and nine standards and guidelines have been identified as being directly relevant to Canada's forest products industry. The federal regulatory framework is shown in Table 1 (organized by type of environmental release or media) and, schematically, in Figure 1.

2.1 Canadian Environmental Protection Act, 1999 (CEPA 1999)

The Canadian Environmental Protection Act, 1999 (CEPA 1999) is the primary federal legislation aimed at preventing pollution and protecting the environment and human health. CEPA 1999 is administered by the Minister of the Environment. One of the most important provisions of this Act relates to the prevention and management of risks posed by toxic and other harmful substances.

CEPA 1999 gives the Minister of the Environment the authority to publish via the *Canada Gazette*² a notice requiring facilities to provide information regarding toxic or potentially toxic substances, or substances that may contribute significantly to air pollution or, if released into Canadian waters, cause or may cause damage to fish or to their habitat. The intent is to use the information gathered for conducting research, creating data inventories, performing environmental monitoring, or developing objectives, guidelines, codes of practice and regulations. Additional provisions of the Act allow the Minister of the Environment to assess whether or not a substance is toxic or potentially toxic, whether it needs to be controlled, and if so, in what manner (see section below on Schedule 1).

CEPA 1999 has established a registry, called the *Environmental Registry*, for the purpose of facilitating access to documents relating to matters under the Act. The Environmental Registry is a comprehensive source of information on proposed and existing policies, guidelines, codes of practice, government notices and orders, agreements, permits, and regulations.

CEPA 1999 also manages environmental and human health impacts of products of biotechnology, marine pollution, vehicle, engine and equipment emissions, fuels, hazardous wastes, environmental emergencies, and other sources of pollution (e.g., nutrients).

Schedule 1: List of Toxic Substances

CEPA 1999 defines as a toxic substance, a substance that enters or may enter the environment in a quantity or concentration or under conditions that a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity; b) constitute or may constitute a danger to the environment on which life depends; or c) constitute or may constitute a danger in Canada to human life or health.

² Periodical in which regulations and notices of the federal government are officially published.

The Minister of the Environment may, at any time, publish in the *Canada Gazette* a notice requiring prescribed facilities to prepare and implement a pollution prevention plan with respect to a substance or group of substances specified on the List of Toxic Substances in Schedule 1.

Table 1 Federal Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater/Water	Solid Residuals
Canadian Environmental Protection Act, 1999 (CEPA 1999)	Regulations		Environmental Emergency Regulations	
			Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations	
		Pulp and Paper Mill Defoamer and Wood Chip Regulations	Renewable Fuels Regulations	
		Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations	PCB Regulations	
	Standards and Guidelines		Guidelines for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents	
Canada Gazette Notices		National Pollutant Release Inventory (NPRI)		
		Chemical Management Plan (CMP) – CEPA Section 71		
		Greenhouse Gas Emissions Reporting		
Canadian Council of Ministers of the Environment (CCME)	Standards and Guidelines	Canadian Environmental Quality Guidelines (EQG)		
		Canada-wide Standards (CWS) for Dioxin and Furan Emissions from Incineration and Coastal Pulp and Paper Boilers		
		Canada-wide Standards for Particulate Matter (PM) and Ozone		
		Guidance Document on Achievement Determination: CWS for PM and Ozone		National Guidelines for Hazardous Waste Landfills
		National Emission Guideline for Commercial/Industrial Boilers and Heaters		
		National Emission Guideline for Stationary Combustion Turbines		
Fisheries Act	Regulations		Pulp and Paper Effluent Regulations	
Transportation of Dangerous Goods Act, 1992	Regulations			Transportation of Dangerous Goods Regulations
Canada Water Act				
Kyoto Protocol Implementation Act				
Canada Emission Reduction Incentives Agency Act				

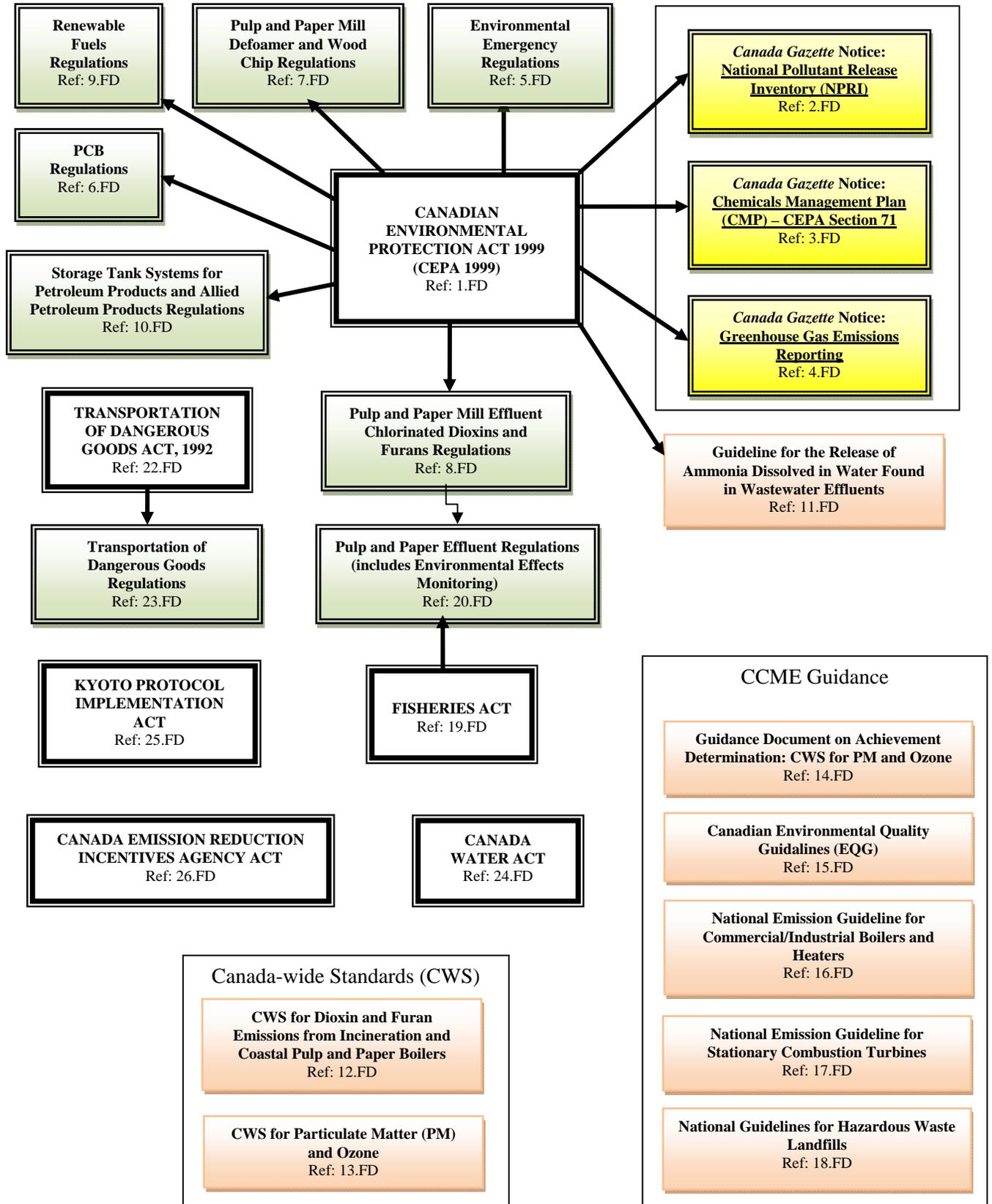


Figure 1 Federal Regulatory Framework

Domestic Substance List (DSL)

Both the Minister of the Environment and the Minister of Health jointly administer the part of CEPA 1999 that deals with the assessment and management of risks associated with toxic substances currently existing in commerce or being released to the environment in Canada.

Under CEPA 1999, the federal government is required to maintain a list of substances that were, between January 1, 1984 and December 31, 1986, manufactured in or imported into Canada in a quantity of 100 kg/yr, or used in Canadian commerce or for commercial manufacturing purposes in Canada. These substances comprise the *Domestic Substances List (DSL)*. To date, approximately 23,000 substances have been included on the DSL.

CEPA 1999 also mandated the Ministers to categorize the substances on the DSL as meeting (or not) the following criteria: a) presenting the greatest potential for human exposure; or b) being persistent or bioaccumulative and inherently toxic to humans or the environment. This review was completed in 2006. Of the substances reviewed, 4,000 met the categorization criteria and 300 were seen to warrant human health-based attention. These substances are known as *priority substances* and dealt with through the *Chemicals Management Plan (CMP)*.

2.1.1 *Canada Gazette Notices*

2.1.1.1 *Chemicals Management Plan (CMP)*

The CMP is a multi-year program to address the 4,300 priority substances that resulted from Environment Canada (EC) and Health Canada's legislated review and categorization of the substances on the DSL.

The DSL categorization identified nearly 200 substances representing the highest priorities for risk assessment and appropriate controls. These substances have been addressed through information requests for "batches" of substances. The CMP required companies to submit information on the use, manufacture, or import of all "high priority" substances that are applicable to their operations, under Section 71 of CEPA 1999.

Also as a result of the DSL categorization, roughly 1,000 substances were deemed "low priority" while nearly 3,000 have been identified as *medium priority substances*. EC and Health Canada have applied a *rapid screening* approach to address the "low priority" substances. Medium priority substances are currently being addressed through Section 71 (*Canada Gazette*) notices. These notices require companies to submit information on the manufacture or import, but not use, of a number of medium priority substances that are applicable to their operations. The approach for managing these substances is being integrated with the federal government's legislated obligation, under CEPA 1999, to revise the DSL on an ongoing basis.

2.1.1.2 *National Pollutant Release Inventory (NPRI)*

The National Pollutant Release Inventory (NPRI) is Canada's legislated, publicly accessible inventory of pollutant releases to air, water and land. The NPRI contains information reported annually by industrial facilities (meeting certain criteria) and published by EC under the authority of CEPA 1999. The NPRI also includes information on air emission estimates compiled for facilities not required to report and various non-industrial sources (e.g., motor vehicles).

NPRI information is primarily used to identify and monitor sources of pollution in Canada, develop indicators for the quality of air, water and land, and evaluate releases and transfers of substances of concern. This consolidated information can then be used to identify and take action on environmental priorities, or to implement policy initiatives and risk management measures.

2.1.1.3 Greenhouse Gas Emissions Reporting

Under CEPA 1999, operators of facilities that meet the criteria specified in the annual *Canada Gazette* notice with respect to reporting of greenhouse gases (GHG) are required to report these emissions to EC by June 1st of every year³.

2.1.2 Regulations

2.1.2.1 Environmental Emergency Regulations

The intent of these regulations is to protect the environment and human health in environmental emergency situations. These regulations contain a list of substances which, if released as a result of an environmental emergency a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity; b) constitute or may constitute a danger to the environment on which human life depends; or c) constitute or may constitute a danger in Canada to human life or health. The regulations require facilities that own or manage any of those substances at or above the prescribed thresholds to provide specific information related to those substances (e.g., quantity of the substance in storage or in use). The regulations also require these facilities to prepare and implement environmental emergency plans.

2.1.2.2 PCB Regulations

The purpose of these regulations is to minimize the risk to the environment and human health posed by the use, storage, and release of polychlorinated biphenyls (PCBs), and to accelerate the elimination of these substances. In particular, these regulations prohibit the release, manufacture, export, import, offer for sale, sale, processing, and use of PCBs and products containing PCBs. Exemptions to this prohibition are specified in the regulations. Other relevant provisions of the regulations include the specification of a) storage requirements for PCBs and products containing PCBs that are not processed daily or used; b) deadlines to end the storage of PCBs and products containing PCBs and send them for destruction; and c) the labelling, record-keeping and reporting requirements for PCBs and products containing PCBs.

2.1.2.3 Pulp and Paper Mill Defoamer and Wood Chip Regulations

The purpose of these regulations is to prevent the formation of dioxins and furans and to limit the discharge of these substances from pulp and paper mills where pulp is bleached by chlorine or chlorine dioxide⁴. In particular, the regulations prescribe maximum concentration limits for dibenzodioxins and dibenzofurans contained in the defoamers⁵ used by the prescribed pulp and paper mills. These regulations also prohibit the import, offer for sale, use, or sell for use of wood chips that come from wood treated with polychlorinated phenols.

³ Facilities emitting the equivalent of 50,000 tonnes per year or more of CO₂eq of the GHG listed in the *Canada Gazette* notice are required to submit a report.

⁴ Since these and the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* (see Section 2.1.2.4) came into force (1992), the quality of pulp and paper mill effluents has significantly improved largely as the result of the application of elemental chlorine-free (ECF) bleaching coupled with biological wastewater treatment.

⁵ According to these regulations, a defoamer is “any product that contains dibenzofuran or dibenzo-para-dioxin and that is added to the water-pulp mixture during the manufacture of pulp in a mill to prevent the production of foam or reduce the amount of foam that would otherwise be produced”.

2.1.2.4 Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations

The intent of these regulations is to protect the environment and human health from releases of polychlorinated dioxins and furans. In particular, the regulations prohibit the release of any measurable concentration of 2,3,7,8-tetrachlorodibenzo-para-dioxin (TCDD) and 2,3,7,8-tetrachlorodibenzofuran (TCDF) in effluents from pulp and paper mills where pulp is bleached by chlorine or chlorine dioxide. The regulations included transitional provisions to allow existing facilities to implement modifications to their bleaching processes and achieve compliance. Under these regulations, facilities are required to collect composite samples of their final effluent and report on concentrations of all dioxin and furan congeners.

2.1.2.5 Renewable Fuels Regulations

The purpose of these regulations is to reduce GHG emissions by mandating an average renewable fuel content of at least 5% based on the volume of gasoline produced and imported. Provisions requiring an average 2% renewable fuel content in diesel fuel and heating distillate oil based on annual volumes are not yet in force⁶. The renewable fuels considered by these regulations are ethanol, biodiesel, and a liquid fuel (other than spent pulping liquor) produced from one or more renewable fuel feedstocks. Cellulosic material derived from lignocellulosic or hemicellulosic matter available on a renewable basis is considered, under these regulations, to be a renewable fuel feedstock. Under Equivalency Agreements⁷, federal and provincial governments agree that a federal regulation does not apply within a province where there is an equivalent provincial regulation.

These regulations fulfill the commitments under the *Renewable Fuels Strategy* (RFS) of reducing GHG emissions from liquid petroleum fuels and supporting the expansion of Canadian production of renewable fuels.

2.1.2.6 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations

The purpose of these regulations is to reduce the risk of contaminating soil and groundwater due to spills and leaks of petroleum products and prescribed allied petroleum products from storage tank systems. These regulations specify the requirements for installing, operating, and maintaining these systems or for withdrawing them from service. Other provisions include procedures for detecting leaks and for preparing emergency plans related to the operation of these storage tank systems.

2.1.3 Standards and Guidelines

CEPA 1999 provides for the preparation of guidelines to indicate government policy direction for the implementation of certain provisions of the Act. Guidelines may also be developed to provide industries with direction on how to reduce environmental releases. These documents reflect a shared national view of environmental measures, and although they are not law, they may form the scientific basis of regulations.

2.1.3.1 Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents

This guideline is to be used as a tool to reduce the impact of releases of ammonia dissolved in water to surface water. The guideline applies to owners of wastewater systems that have an effluent

⁶ The proposed *Regulations Amending the Renewable Fuels Regulations* published in the *Gazette* Part I (Vol. 145, No. 9, February 26, 2011) propose a date of coming into force of this requirement: July 1st, 2011.

⁷ CEPA 1999 provides for Equivalency Agreements where provincial or territorial environmental legislation has provisions that are equivalent to those stipulated in CEPA 1999. The intent is to eliminate the duplication of environmental regulations.

discharge flowrate greater than or equal to 5,000 m³/d. The guideline provides acute and chronic toxicity standards to be met by these facilities.

2.1.3.2 Canada-wide Standards (CWS)

CEPA 1999 allows the federal government to negotiate an agreement with provinces and territories to promote coordinated environmental management. These federal/provincial/territorial agreements do not delegate legislative power from one government to another. Canada-wide Standards (CWS) are included in this category of agreements. CWS can include qualitative or quantitative standards, guidelines, objectives, and criteria for protecting the environment and reducing risks to humans. They are developed under the Canadian Council of Ministers of the Environment (CCME) Canada-wide Environmental Standards Sub-Agreement, which operates under the broader CCME Canada-wide Accord on Environmental Harmonization.

Canada-wide Standards for Dioxin and Furan Emissions from Incineration and Coastal Pulp and Paper Boilers

Dioxins and furans emitted from coastal pulp and paper mills are created through the burning of salt-laden hogged fuel. The CWS for these emission sources consist of two components. The first component sets out numeric targets and timeframes for reducing emissions from new and existing boilers burning hogged fuel generated from wood transported or stored in salt water. The second component establishes a process for further examining pollution prevention opportunities to prevent the creation of dioxins and furans at coastal pulp and paper facilities.

Canada-wide Standards for Particulate Matter (PM) and Ozone

Particulate matter (PM) is either emitted directly or formed in the atmosphere from precursor emissions (e.g., nitrogen oxides [NO_x]). Ground-level ozone is, on the other hand, not emitted directly into the atmosphere but formed by the reaction of volatile organic compounds (VOCs) and NO_x in the presence of heat and sunlight. Both PM and ozone are known to form photochemical smog. These CWS introduce ambient air concentration limits for ground-level ozone⁸ and fine particles with an aerodynamic diameter of 2.5 microns or less (PM_{2.5})⁹.

2.1.3.3 CCME Guidance

Guidance Document on Achievement Determination: Canada-wide Standards for Particulate Matter and Ozone

The intent of this guidance document is to serve as a reference tool for jurisdictions and the public, providing information, methodologies, criteria, and procedures for reporting on achievement of the CWS for PM and ozone. The document also provides the guidelines for ensuring consistency and comparability of data when meeting other CWS reporting requirements.

Canadian Environmental Quality Guidelines (EQG)

EQGs are defined as numerical concentrations or narrative statements that are recommended as levels that should result in negligible risk to ecosystems and the designated resource uses they support. In many cases, provincial jurisdictions develop their site-specific criteria, guidelines, objectives, and standards based on EQGs. The Canadian EQG document provides information on the development of guidelines for the protection of a) air quality for human health and the environment; b) water quality for drinking water supplies, recreational use and aesthetics, freshwater and marine life, and

⁸ 65 ppb averaged over 8 hours.

⁹ 30 µg/m³ averaged over 24 hours.

agricultural uses; c) sediment quality for freshwater and marine life; d) soil quality for human health and the environment; and e) tissue residues for wildlife consumers of aquatic biota.

National Emission Guideline for Commercial/Industrial Boilers and Heaters

The purpose of this guideline is to provide a consistent national basis for reducing emissions of NO_x, while encouraging greater energy efficiency in the operation of new and modified commercial or industrial boilers and heaters. In particular, the document describes commonly available methods to reduce or prevent NO_x emissions, and post-combustion controls that reduce emissions after generation.

National Emission Guideline for Stationary Combustion Turbines

The intent of this guideline is to encourage project proponents to develop and operate combustion turbine facilities such that emissions of NO_x, sulphur dioxide (SO₂), and carbon monoxide (CO) from these units are minimized. This guideline establishes minimum broad national emission targets for each of these substances.

National Guidelines for Hazardous Waste Landfills

These guidelines provide a framework of principles, methodologies, and criteria to design and operate engineered hazardous waste landfill facilities in Canada. The document is intended for the use of the various federal, provincial, and territorial regulatory agencies, and designers, owners, and operators of hazardous waste management systems. The guidelines address the following specific topics: waste characteristics affecting landfill design; site selection; design and construction; operation and performance monitoring; closure and post-closure care; contingency and mitigation planning; and financial assurances and record keeping. The application of these guidelines is subject to any restrictions or conditions that are in place by the jurisdiction of authority.

2.1.4 *Fisheries Act and Pulp and Paper Effluent Regulations (PPER)*

The Fisheries Act includes provisions to prevent pollution of waters inhabited by fish.

The Act prohibits any work or undertaking that would cause the harmful alteration, disruption or destruction of fish habitat, as well as the deposit of deleterious substances into waters frequented by fish, without an authorization under the Act or other federal legislation.

The *Pulp and Paper Effluent Regulations (PPER)*, under the Fisheries Act, require final effluents from pulp and paper mills and off-site treatment facilities to be non-acutely lethal to rainbow trout at 100% effluent concentration and to respect prescribed limits for biochemical oxygen demand (BOD₅) and total suspended solids. The regulations also require these pulp and paper mills to monitor their effluents for acute lethality, quantity of BOD₅ and total suspended solids (TSS), volume, pH levels, and electrical conductivity. Provincial governments may adopt federal regulatory limits or implement stricter limits.

Environmental Effects Monitoring (EEM) Program

The PPER also require mills to conduct receiving environment studies to assess the effectiveness of environmental management measures. In this regard, the Environmental Effects Monitoring (EEM) program is incorporated into the PPER as a tool to identify and measure changes in aquatic ecosystems as a result of pulp and paper mill effluent discharges.

The EEM program for pulp and paper mills is structured into sequences of monitoring and interpretation phases called *cycles*. At the beginning of each cycle, each mill designs a site-specific field monitoring study based on preliminary site characterization and previous monitoring data. By the end of each cycle, the mill is required to submit an interpretative report and supporting data to EC. EC has used the data received to improve the PPER and the EEM program.

In 2005, EC launched the Smart Regulation Project on Improving the Effectiveness and Efficiency of Pulp and Paper Environmental Effects Monitoring. This project brought together a group of policy experts from the federal government, industry, and the Aboriginal and environmental communities to review the key outcomes of the national assessment of the EEM Cycles 2 and 3. The group issued a report proposing a number of recommendations to improve the efficiency of the EEM program (http://www.ec.gc.ca/eem/pdf_publications/english/EEM_Smart_Regulation.pdf).

2.2 Transportation of Dangerous Goods Act (TDGA), 1992 and Transportation of Dangerous Goods Regulations (TDGR)

The purpose of this Act is to promote public safety and the prevention of incidents when transporting dangerous goods in Canada. In particular, the Act prohibits the import, handling, offer for transport, or transport of any dangerous goods unless all prescribed safety and security requirements are met, and all means of containment¹⁰ and transport display applicable safety marks¹¹.

Under the TDGA, the transport of dangerous goods on highways remains a shared responsibility between the federal, provincial and territorial governments. On the other hand, the transportation of dangerous goods by rail, ship, and air falls under the responsibility of the federal government. The Act and its associated regulations are enforced directly by federal inspectors designated under the Act, as well as by provincial and territorial inspectors.

The *Transportation of Dangerous Goods Regulations* (TDGR) implement the TDGA and set out the requirements to ship hazardous substances by truck, rail, ship, or air. The regulations specify when a substance is considered dangerous goods and groups dangerous goods into nine classes: a) explosives; b) gases; c) flammable liquids; d) flammable solids, substances liable to spontaneous combustion, and substances that on contact with water emit flammable gases; e) oxidizing substances and organic peroxides; f) toxic and infectious substances; g) radioactive materials; h) corrosives; and i) miscellaneous products, substances or organisms.

The TDGR establish the requirements for dangerous goods safety marks and for a standardized means of containment. Relevant sections of the regulations include provisions for training those who handle or transport dangerous goods, preparing emergency response assistance plans, and reporting accidental or imminent accidental releases.

Several provincial regulations on the transportation of dangerous goods adopt the provisions of the TDGR.

¹⁰ Means of containment include containers, packaging or anything that can be used to contain a good.

¹¹ According to the Act, safety marks are any “symbol, device, sign, label, placard, letter, word, number or abbreviation, or any combination of those things, that is to be displayed to indicate the presence or nature of danger on dangerous goods, or on a means of containment used or intended to be used in importing, offering for transport, handling or transporting dangerous goods to indicate compliance with a safety standard”.

2.3 Canada Water Act

The purpose of this Act is to provide for the management of the water resources of Canada, including research and the planning and implementation of programs relating to the conservation, development and utilization of water resources.

The Act allows the federal government to establish intergovernmental committees with provincial governments with the purpose of facilitating the formulation of policies and programs relating to the optimal use of Canada's water resources.

The Act also prohibits the deposit of waste of any type in any waters except in quantities and under conditions prescribed in water quality management areas designated by agreements between the federal government and one or more provincial governments.

2.4 Kyoto Protocol Implementation Act

Under this Act, the Government of Canada is required to prepare, every year until 2013, a *Climate Change Plan* that essentially contains a) a description of the measures to be taken to ensure that Canada meets its obligations under the Kyoto Protocol; b) the projected GHG emission levels in Canada for each year from 2008 to 2012; and c) a statement of progress achieved in implementing the measures proposed in the plan the previous calendar year. The Act specifies that a Climate Change Plan must respect provincial jurisdiction and take into account the relative GHG emission levels of provinces.

The Act also mandates the Minister of the Environment to prepare and publish in the *Canada Gazette* a statement setting out the GHG emission reductions that are reasonably expected to result for each year up to and including 2012.

2.5 Canada Emission Reduction Incentives Agency Act

This Act establishes a Crown corporation called the *Canada Emission Reduction Incentives Agency* with the purpose of providing incentives for the reduction or removal of GHGs through the acquisition, on behalf of the Government of Canada, of eligible credits created as a result of the reduction or removal of those gases. The Act does not limit the power of a province to provide incentives for the reduction or removal of GHGs through a similar mechanism.

2.6 Federal Regulatory Initiatives

2.6.1 Risk Management Activities

At the time of the preparation of this report, EC and Health Canada have completed, either in draft or final form, risk assessments for 200 substances. Current activities, under the CMP, that are relevant to the forest products sector include the development of a risk management approach targeting *MAPBAP acetate*¹² and the undertaking of a voluntary study on *Bisphenol A (BPA)* in effluents and sludges from recycling pulp and paper facilities.

MAPBAP acetate

MAPBAP acetate is a component of dyes sometimes used on mechanical pulp fibres. No other uses for this substance were identified in Canada. MAPBAP acetate is included in one of the high priority batches assessed under the CMP. A notice summarizing the scientific considerations of a final screening assessment report and a proposed risk management approach document were published by EC and Health Canada in July 2010. The final screening assessment report concluded that MAPBAP

¹² Methylum, [4-(dimethylamino)phenyl]bis[4-(ethylamino)-3-methylphenyl]-,acetate.

acetate is entering the environment in a quantity or a concentration that has or may have an immediate or long-term harmful effect on the environment or its biological diversity. The report also concluded that MAPBAP acetate meets the criteria for persistence but not for bioaccumulation. The objectives of the proposed risk management approach are to limit industrial releases to receiving streams from facilities manufacturing, processing, or using MAPBAP acetate or products containing MAPBAP acetate, and prevent increases in exposure. In addition, the Government of Canada plans to implement the Significant New Activity provisions under CEPA 1999 for MAPBAP acetate. These provisions would require that any proposed activity associated with this substance be subject to further assessment, and would establish whether that activity requires further risk management consideration.

Bisphenol A (BPA)

In October 2010, BPA was added to CEPA's List of Toxic Substances. EC is currently developing a risk management strategy to limit releases of BPA from industrial facilities to less than 1.75 µg/L, to be applied to all facilities that manufacture, process, or use at least 100 kg/yr of BPA. From previous literature and research, the pulp and paper sector, and specifically the waste paper recycling industry, has been identified as a potential source of BPA releases. To assess whether existing wastewater treatment systems at paper recycling mills are effective in controlling the release of BPA in their effluents, EC has designed a BPA sampling study in collaboration with NCASI, FPAC, Health Canada, and the National Water Research Institute. Participation in this study was opened, on a voluntary basis, to all pulp and paper facilities that recycle waste paper. The objectives of the study are to (a) identify the range of concentrations of BPA in effluents and sludges from Canadian paper recycling mills; (b) determine the BPA removal capability of existing wastewater treatment facilities used by these mills; and (c) investigate the factors contributing to effluent BPA levels.

2.6.2 Proposed Comprehensive Air Management System (CAMS)

The CAMS proposal was developed by an *ad hoc* Steering Committee formed by EC (in an advisory capacity), officials from provinces, and representatives of industry and environment and health organizations.

The main components of the CAMS include proposals for new Canadian ambient air quality standards (CAAQS) for fine PM (PM_{2.5}) and ozone, as well as base-level industrial emissions requirements (BLIERs) to be applied to industrial sectors across the country. Air zones and regional airsheds are proposed to address place-based management needs and regional circumstances. The proposal also includes mechanisms to ensure that the system is effectively implemented.

The nature of provincial and territorial participation in the system is proposed as being subject to individual jurisdictional approval.

3.0 PROVINCIAL LEGISLATION AND REGULATORY TOOLS

3.1 Alberta

In Alberta, there are four provincial Acts that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and natural resources:

- Environmental Protection and Enhancement Act (EPEA)
- Dangerous Goods Transportation and Handling Act
- Water Act
- Climate Change and Emissions Management Act (CCEMA)

The EPEA prohibits the carrying out of activities that may impact the environment in Alberta unless an approval is obtained. The Dangerous Goods Transportation and Handling Act governs the transport of dangerous goods within the province. The Water Act focuses on managing and protecting Alberta's water. The CCEMA imposes comprehensive regulations requiring large facilities to reduce their GHG emissions.

Overall, ten provincial regulations, three codes of practice, and twelve standards and guidelines have been identified as being directly relevant to the forest products industry in Alberta. The regulatory framework in Alberta is shown in Table 2 (organized by type of environmental release or media) and, schematically, in Figure 2.

3.1.1 *Environmental Protection and Enhancement Act (EPEA) and Associated Regulatory Tools*

The purpose of this Act is to support and promote the protection, enhancement and wise use of the environment. The EPEA outlines the type of projects and activities needing an approval and the procedures to obtain it. The Act also specifies laws concerning potable water, waste and hazardous substances.

3.1.1.1 *Approval/Permitting System*

Approvals for the pulp and paper industry can contain the following sections: operation, limits, monitoring and reporting for air, industrial wastewater, solid waste management, groundwater, and soil. Construction and reclamation are also considered in the same document. The permits are issued in regional offices, and are valid for up to 10 years.

An application for an approval may be for a new plant or facility, renewal of an existing approval, or for a change to the existing approval. An amendment to an existing approval is required for any change to the activity governed by the approval, any change to the construction, operation and decommissioning of the plant, and any addition or changes to the machinery, equipment, or process.

All applications are available for public review subject to the confidentiality provisions of the EPEA. The applicant of an approval can appeal the MOE decision not to issue a permit or the content of the issued approval. Issued permits can also be appealed. Certificates of approval are publicly available on the MOE website.

Table 2 Alberta Regulatory Framework Organized by Type of Environmental Release or Media

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater/Water	Solid Residuals
Environmental Protection and Enhancement Act (EPEA)	Authorization Tool	Approval		
	Regulations	Activities Designation Regulation		
		Release Reporting Regulation		
	Codes of Practice	Substance Release Regulation	Wastewater and Storm Drainage Regulation	Waste Control Regulations
		Code of Practice for Sawmill Plants Code of Practice for Energy Recovery		Code of Practice for Sawmill Plants Environmental Code of Practice for Landfills Code of Practice for Energy Recovery
Standards and Guidelines	Alberta Ambient Air Quality Objectives Air Monitoring Directive Air Quality Model Guideline Continuous Emissions Monitoring Systems (CEMS) Code	Technology Based Standards for Pulp and Paper Mill Wastewater Releases Surface Water Quality Guidelines for Use in Alberta	Standards for Landfills in Alberta Alberta's user guide for waste managers Standards and Guidelines for the Land Application of Mechanical Pulp Mill Sludge to Agricultural Land Standards and Guidelines for the Use of Wood Ash as a Liming Material for Agricultural Soils	
Dangerous Goods Transportation and Handling Act	Regulations		Dangerous Goods Transportation and Handling Regulation	
Water Act	Authorization Tool	Approval or License		
	Regulations		Water (Ministerial) Regulation	
Climate Change and Emissions Management Act	Regulations	Specified Gas Emitters Regulation Specified Gas Reporting Regulation		Renewable Fuels Standard Regulation
	Standards and Guidelines	Specified Gas Reporting Standard Various Quantification Protocols and Project Guidelines		

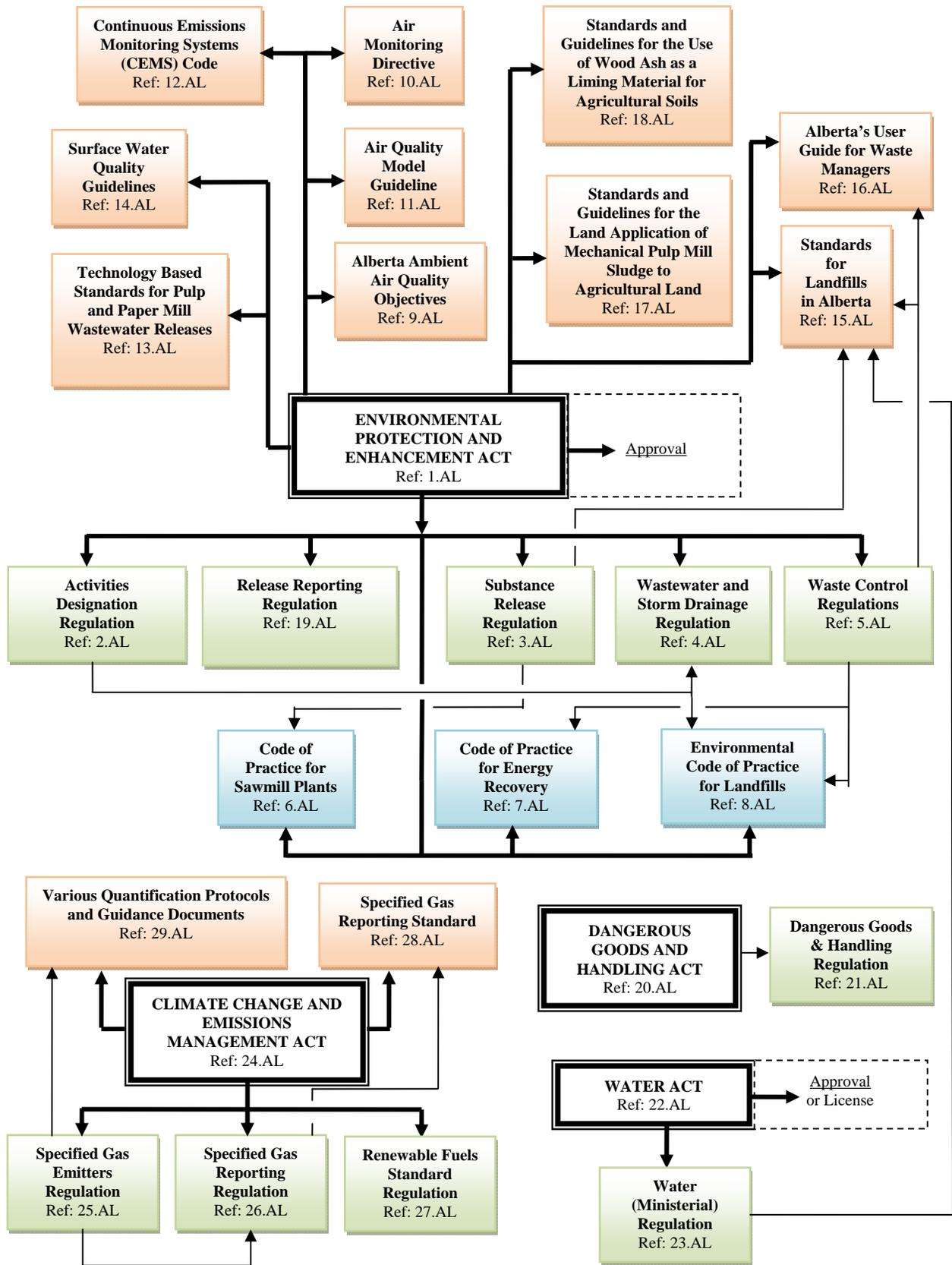


Figure 2 Alberta Regulatory Framework

Industrial effluent limits are incorporated into approvals for industrial facilities based on the government's determination of the most appropriate pollution prevention and control technologies to protect the receiving stream. This objective is achieved by adopting the more stringent of either technology-based or water quality-based limits. Software tools may be used to screen effluents for compliance with surface water quality objectives and to compute water quality-based effluent limits.

The most common parameters listed for wastewater are BOD₅, TSS, colour, resin and fatty acids, acute lethality, and pH.

Dispersion models are used to determine whether the emissions from an industrial facility meet ambient air quality objectives. End-of-stack limits are also specified in the approvals, and are obtained from the more stringent of the ambient air quality criteria or the technology-based limit. Parameters that can be regulated include NO_x, total reduced sulphur (TRS), opacity, chlorine and chlorine dioxide, and total particulates. In situations where there are no published limits, case-specific control technologies can be specified. All sources of air emissions (stacks, vents, exhausts, etc.) and related air pollution control equipment are listed in the approval.

3.1.1.2 Regulations

Activities Designation Regulation

The activities mentioned in this regulation require an approval to operate. The construction, operation, or reclamation of a wood processing plant, a wood treatment plant, a pulp and paper manufacturing plant, and a pulp manufacturing plant are activities mentioned in the regulation.

Substance Release Regulation

This regulation sets a maximum percentage of opacity of visible emissions and also a maximum concentration of total PM in emission sources to the ambient air.

Wastewater and Storm Drainage Regulation

This regulation applies to the design, construction, extension, and operation of wastewater systems or storm drainage systems as designated in the Activities Designation Regulation. The regulation also specifies the approved codes of practice for operating these systems and the approved guidelines for land application of sludge and wastewater irrigation.

Waste Control Regulation

This regulation is composed of three major parts. Part 1 addresses primarily the storage and disposal of hazardous waste; Part 2 deals with the storage and recycling of hazardous recyclables; and Part 3 applies to the management of waste other than hazardous waste. In addition, the regulation deals with the environmental protection orders that may be issued under the EPEA for the control of solid waste, and addresses the review of such orders once issued.

Release Reporting Regulation

This regulation provides requirements for reporting any release of a substance into the environment that could cause an adverse effect. Substances that must be reported are those specified in Part 8 of the federal TDGR, provided they are released into a watercourse or into ground or surface water, or exceed the quantity or emission level set out in the aforementioned section of the federal regulations.

3.1.1.3 Codes of Practice

Code of Practice for Sawmill Plants

This code of practice presents the environmental requirements related to operating a sawmill plant. It includes requirements related to air, wastewater, and solid waste management. This code includes air emission limits for total PM and opacity.

Code of Practice for Energy Recovery

This code specifies the design, operational and monitoring requirements associated with the production of alternate fuel and the burning of waste as fuel. Quality limits for alternate fuel, and quality and emission limits for waste burned as fuel are provided.

Environmental Code of Practice for Landfills

This code of practice outlines minimum requirements for the construction, operation, and reclamation of landfills that accept 10,000 tonnes or less per year of non-hazardous and inert solid waste, and promotes environmentally sound management practices at those landfills.

3.1.1.4 Standards, Guidelines, and Objectives

Alberta Ambient Air Quality Objectives

The EPEA allows Alberta Environment to develop ambient air quality objectives and guidelines for all or part of the province to protect Alberta's air quality. Alberta has developed or adopted objectives from other jurisdictions where there are no national objectives or CWS. Air quality objectives are generally established for one-hour, 24-hour, and annual averaging periods. Other averaging periods may be used occasionally. Objectives and guidelines are based on an evaluation of scientific, social, technical, and economic factors. These objectives establish limits for 49 parameters.

Air Monitoring Directive

The Air Monitoring Directive, which was issued in 1989 and amended in 2006, specifies environmental monitoring and reporting requirements and guidelines in Alberta. This document sets out a quality system for the framework for planning, implementing, documenting, and assessing the environmental monitoring and data operations and for carrying out required quality assurance and quality control.

Air Quality Model Guideline

This document provides detailed guidance on suitable methods and approaches for assessing air quality from emission sources. The guideline sets out the statutory authority and provides an overview of the approach, guidance on appropriate technical methods, and the information required to demonstrate that a source meets the Alberta Ambient Air Quality Objectives (AAAQO).

Continuous Emissions Monitoring Systems (CEMS) Code

This code establishes requirements for the installation, operation, maintenance, and certification of CEMS. These requirements ensure effective measurement, recording, and standardized reporting of specified emissions and other parameters. In addition, the code establishes requirements for alternative monitoring systems and for the quality assurance and quality control of continuous emission monitoring data.

Technology Based Standards for Pulp and Paper Mill Wastewater Releases

This document establishes a set of benchmarks for Best Available Technology Economically Achievable (BATEA) for the pulp and paper sector in Alberta for wastewater releases. The standards apply to new and existing pulp and paper mills (all types) in Alberta. The BATEA standards are the minimum requirements for pulp and paper mill wastewater releases. The listed substances are BOD₅, TSS, adsorbable organic halides (AOX), colour, dioxins and furans, acute toxicity, and pH.

Surface Water Quality Guidelines for Use in Alberta

These guidelines deal with the protection of aquatic life, agriculture, recreation, and aesthetics. The guidelines are numerical concentrations or narrative statements recommended to support and maintain a designated water use. Guidelines are listed for various substances or conditions and have been compiled from new and previous Alberta guidelines, CCME guidelines, and USEPA criteria.

Standards for Landfills in Alberta

These standards outline the minimum requirements for development, operation, monitoring, closure, and post-closure of various types of landfills (Class I, Class II, and Class III). The standards apply to disposal activities at new landfills, new cells at existing landfills, and lateral expansions at existing landfills.

Alberta's User Guide for Waste Managers

This guide provides an extensive list of hazardous and non-hazardous wastes and attempts to minimize the need for costly analytical tests in waste classification. This guide holds generators responsible for classifying their own waste and for determining if the waste is prohibited from landfilling.

Standards and Guidelines for the Land Application of Mechanical Pulp Mill Sludge to Agricultural Land

These standards and guidelines are intended for operations involving the land application of mechanical pulp (MP) mill sludge on agricultural land. General information on MP sludge is presented as well as the regulatory requirements for generators and recommended practices for end users. The rationale for the land application is that mechanical pulp mill sludge is a good soil amendment. These guidelines do not cover land application of mechanical pulp mill sludge to pasture lands or forested areas.

Standards and Guidelines for the Use of Wood Ash as a Liming Material for Agricultural Soils

These standards and guidelines are intended for operations involving the use of energy system wood ash as a liming material for agricultural soil. General information on wood ash is presented as well as the regulatory requirements for generators and recommended practices for land managers. The rationale behind the application is that wood ash improves the pH of acidic soils in a manner similar to the use of agricultural lime. These standards and guidelines do not apply to ash generated from other types of burners (e.g., beehive burners or silo burners), or wood ash applied to pasture lands or forested areas.

3.1.2 Dangerous Goods Transportation and Handling Act and Regulation

The Dangerous Goods Transportation and Handling Act prohibits the handling, offering for transport, or transport of any dangerous goods unless all applicable safety and security requirements are complied with; goods are accompanied with all prescribed documents; and the means of containment display all applicable safety marks.

The Act also establishes nine classes of dangerous goods. It also has provisions for reporting and handling the release of dangerous goods in excess of prescribed quantities or concentrations, and for designating inspectors.

The *Dangerous Goods Transportation and Handling Regulation* adopts Parts I to X of the federal TDGR. The regulation also establishes the procedures to apply for a *Permit for Equivalent Level of Safety* which authorizes the conducting of an activity that would otherwise be contrary to the Dangerous Goods Transportation and Handling Act.

3.1.3 *Water Act and Associated Regulatory Tools*

The purpose of this Act is to support and promote the conservation and management of water, including the allocation and use of water.

Before taking on any construction activity in a water body in Alberta, an approval under the Water Act must be obtained. The Act also specifies that anyone who diverts or uses surface or ground water in Alberta requires a license. This license identifies the water source, location of the diversion site, volume, rate and timing of water to be diverted, priority of the “water right” established by the licence, and any conditions the diversion must adhere to.

The Water Act has two Regulations: Water (Ministerial) and Water (Offences and Penalties). The Water Ministerial regulation establishes the activities requiring of an approval or a license; safety considerations for the operation of dams and canals; and requirements for the construction and operation of water wells. The offences and penalties regulation specifies fines for contravening the provisions established in the Water (Ministerial) regulation.

3.1.4 *Climate Change and Emissions Management Act (CCEMA) and Associated Regulatory Tools*

The Act legislates an intensity-based target (total annual emissions divided by total annual production) of reducing emissions, relative to Gross Domestic Product, by 50% below 1990 levels by 2020. The Act also establishes the Climate Change and Emission Management Fund which is directed to strategic projects or transformative technology aimed at reducing GHG emissions in Alberta. The Act has promulgated three relevant regulations: *Specified Gas Emitters* (SGER), *Specified Gas Reporting* (SGRR), and *Renewable Fuels Standard* (RFSR). The first two regulations detail the requirements of GHG emissions reductions and emissions reporting, while the latter concerns the implementation of renewable fuel standards for diesel and gasoline sold in Alberta.

The SGER requires facilities with annual GHG emissions at or above 100,000 tonnes of carbon dioxide equivalents (CO₂e) to submit a Baseline Emissions Intensity (BEI)¹³ Application and annual compliance reports. New facilities are not required to reduce their emissions intensity within their first three years of operation, while emissions from existing facilities¹⁴ must not exceed 88% of their BEI¹⁵. Facilities can meet their targets by a) directly reducing emissions through process improvements; b) buying emission credits from facilities that have reduced their emissions below

¹³ CO₂ emissions from the combustion of biomass and from the aerobic decomposition of waste are included in the calculation of total annual emissions to determine whether the facility exceeds the 100,000-tonne CO₂e threshold. These emissions are not included in the calculation of the BEI for the facility.

¹⁴ According to the regulation, an existing facility is a facility that completed its first year of commercial operation before January 1, 2000, or that has completed eight years of commercial operation.

¹⁵ According to the regulation, compliance reports must be prepared on a calendar year basis and submitted by March 31 of the following year.

required levels; or c) paying a penalty to the Climate Change and Emissions Management Fund in exchange for an emission (fund) credit.

The CCEMA allows the use of Ministerial guidelines and quantification protocols to help facilities comply with the SGER. Some of the guidance documents relevant to forest products facilities are listed below.

- Specified Gas Emitters Regulation: Additional Guidance on Cogeneration Facilities
- Specified Gas Emitters Regulation: Offset Credit Project Guidance Document
- Specified Gas Emitters Regulation: Quantification Process for Waste Heat Recovery Project
- Specified Gas Emitters Regulation: Quantification Protocol for Biofuel Production and Usage
- Specified Gas Emitters Regulation: Quantification Protocol for Diversion of Biomass to Energy from Biomass Combustion Facilities
- Specified Gas Emitters Regulation: Quantification Protocol for Energy Efficiency Projects
- Specified Gas Emitters Regulation: Technical Guidance Document for Baseline Emissions Intensity Applications

The SGRR requires facilities that have released specified gases into the environment at or in excess of the level prescribed in the Specified Gas Reporting Standard¹⁶ to submit a report with respect to the release.

The RFSR requires fuel suppliers to ensure an annual average of 2% renewable diesel in diesel fuel and 5% renewable alcohol in gasoline sold in Alberta. Renewable fuels are, according to the regulation, those produced from renewable feedstocks (e.g., vegetable or plant materials).

3.2 British Columbia

In British Columbia, there are seven provincial Acts that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and natural resources.

- Environmental Management Act (EMA)
- Transport of Dangerous Goods Act
- Water Act
- Water Protection Act
- Greenhouse Gas Reduction Targets Act
- Greenhouse Gas Reduction (Cap and Trade) Act
- Greenhouse Gas Reduction (Renewable and Low Carbon Fuel) Requirements Act

The EMA is the primary legislation for environmental issues. It prohibits the discharge of waste from specified industries, trades, businesses, operations, or activities to the environment unless appropriate authorization is obtained. The Transport of Dangerous Goods Act establishes the safety regulatory framework for the movement of dangerous goods by truck within the province.

The Water Act and the Water Protection Act are the principal laws for managing the diversion, use, conservation, and protection of provincial water resources. The legislation associated with climate change is focused on reducing GHG emissions with the intent of preparing the province for an emerging low-carbon economy.

¹⁶ The threshold level for submission of a specified gas report is the release of 100,000 tonnes of CO₂e based on the sum of direct emissions of CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆).

Overall, fifteen provincial regulations, two proposed provincial regulations, two regional district bylaws, four codes of practice, and thirteen standards and guidelines have been identified as being directly relevant to the forest products industry in British Columbia. The regulatory framework in British Columbia is shown in Table 33 (organized by type of environmental release or media) and, schematically, in Figure 3.

3.2.1 *Environmental Management Act (EMA) and Associated Regulatory Tools*

The purpose of the Environmental Management Act (EMA) is to protect human health and the quality of water, land and air in British Columbia, as well as to enable the use of administrative penalties, informational orders and economic instruments to assist in achieving compliance. Only introductions of waste to the environment from prescribed industries, which are listed in the *Waste Discharge Regulation* (WDR), require authorization.

There are various regulations, guidelines and objectives under the Act applying to a wide range of industrial sectors. In particular, Sections 30 and 31 of the EMA give the Greater Vancouver Regional District (GVRD) the mandate to regulate the liquid wastes (*Greater Vancouver Sewerage and Drainage District Sewer Use Bylaw No. 299*) and air emissions (*GVRD Air Quality Management bylaw No. 1082*) within the Greater Vancouver regional area.

3.2.1.1 *Permitting/Approval System*

The province is divided into nine regions. Each individual region issues the permits for industries in its area and administers regulations.

Table 3 British Columbia Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater/Water	Solid Residuals
Environmental Management Act (EMA)	Authorization Tools	Air Permit	Effluent Permit	Refuse/Landfill Permit
	Regulations	Waste Discharge Regulation (WDR)		
		Antisapstain Chemical Waste Control Regulation		
		Spill Reporting Regulation		
	Hazardous Waste Regulation	Pulp Mill and Pulp and Paper Mill Liquid Effluent Control Regulation	Hazardous Waste Regulation	
	Wood Residue Burner and Incinerator Regulation	Greater Vancouver Sewerage and Drainage District Sewer Use Bylaw 299	Organic Matter Recycling Regulation	
	Open Burning Smoke Control Regulation	Petroleum Storage and Distribution Facilities Storm Water Regulation	Wood Residue Burner and Incinerator Regulation	
	Sulphur Content of Fuel Regulation			
	Greater Vancouver Regional District Air Quality Management Bylaw 1082			
	Codes of Practice	Primary Wood Manufacturing Industry Code of Practice (Under Development)		Industrial Non-hazardous Waste Landfills Code of Practice
		Open Burning Smoke Control Code of Practice		Code of Practice for Soil Amendments
				Open Burning Smoke Control Code of Practice

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater/Water	Solid Residuals
		Waste Discharge Regulation (WDR) Implementation Guide		
	Standards and Guidelines	Report on Emissions from Wood-Fired Combustion Equipment Report on Emissions and Air Pollution Controls for the Biomass Pellet Manufacturing Industry Canada-wide Standards for Dioxins and Furans: B.C. Pulp and Paper Boilers Burning Salt-laden Wood Provincial Medium Density Fibreboard (MDF) Emission Guidelines Air Quality Objectives and Standards for British Columbia and Canada Standard Audit Procedure for Continuous Emission Monitors and Ambient Air Monitoring Instruments Procedure Guidance on Application of Provincial Air Quality Criteria for PM _{2.5} Pollution Control Objectives for the Forest Products Industry of British Columbia	Approved Water Quality Guidelines A Compendium of Working Water Quality Guidelines for British Columbia	Land Application Guidelines for the Organic Matter Recycling Regulation and the Soil Amendment Code of Practice
Transport of Dangerous Goods Act	Regulations			Transport of Dangerous Goods Regulation
Water Act	Authorization Tool		Licence	
	Regulations		Water Regulation	
Water Protection Act				
Greenhouse Gas Reduction Targets Act (GGRTA)	Regulations	Emission Offset Regulation		
	Standards and Guidelines	Guidance Document to the British Columbia Emission Offset Regulation		
Greenhouse Gas Reduction (Cap and Trade) Act	Regulations	Cap and Trade Reporting Regulation Proposed Offset Regulation Proposed Emission Trading Regulation		
	Standards and Guidelines	Reporting Regulation Methodology Manual		
Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act	Regulations	Renewable and Low Carbon Fuel Requirements Regulation		Renewable and Low Carbon Fuel Requirements Regulation

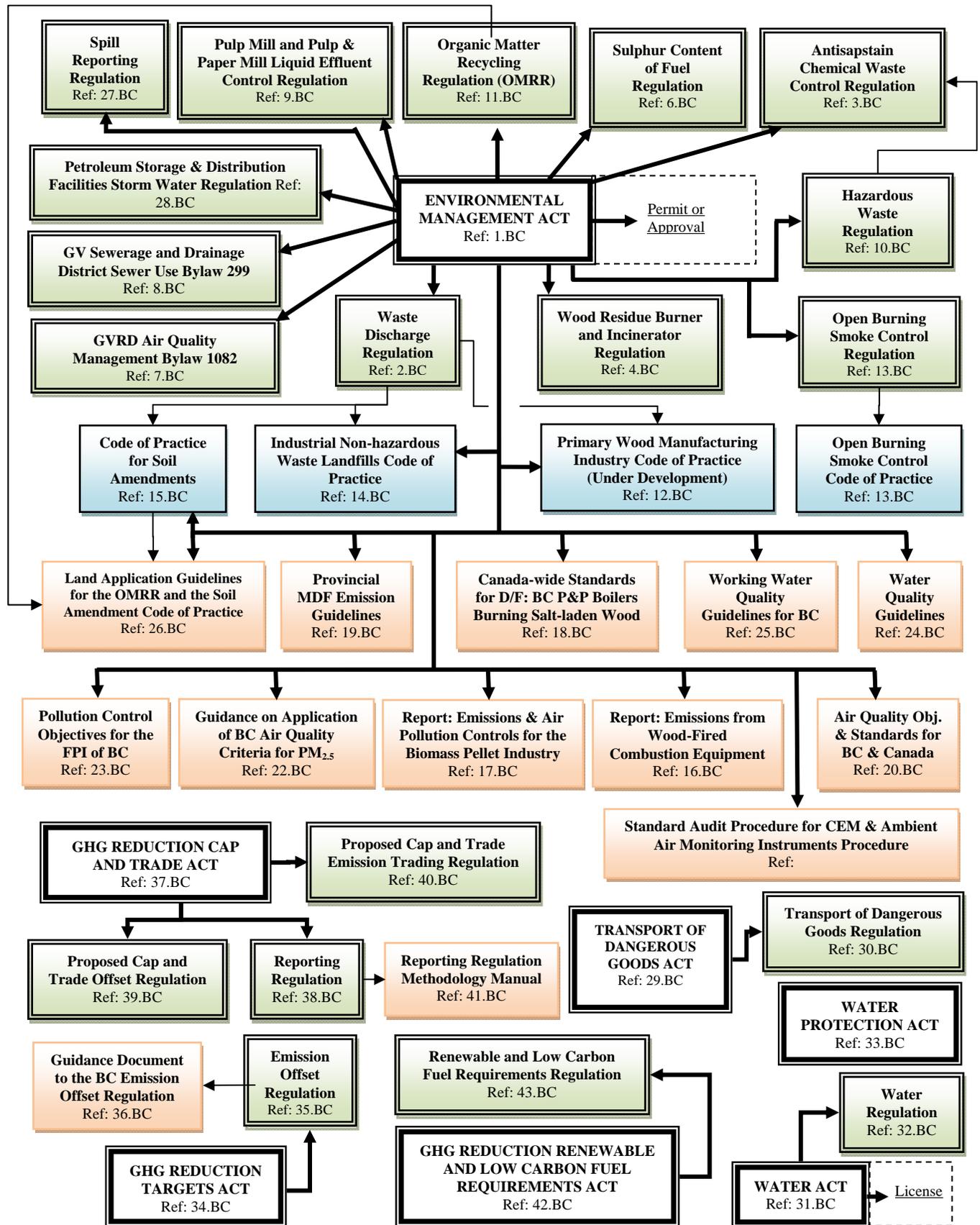


Figure 3 British Columbia Regulatory Framework

There are two types of authorizations: permits and approvals. The approvals are authorizations issued for a short period, no more than 15 months. When the operation period is longer than 15 months, a permit is required.

A single permit is used both for site construction and operation. Permits do not have a period of validity, but must be amended when there is a change in production rate, installation of new equipment, modification of process, or at the discretion of the regional manager. There are three types of permits: air permit, effluent permit, and solid waste permit (known as a refuse permit).

A typical air permit for the pulp and paper industry contains end-of-stack limits for particular matter, TRS, SO₂, NO_x, and Cl₂ (if applicable). Based on the results of the mill's monitoring program or other information, the regional manager may specify additional or different emission quality limits. Ambient air limits may be established in the air permit and when this is the case, the receiving environment must be monitored. The limits contained within a permit are based on BC objectives and policy, regional considerations, negotiations, and best available technology.

An effluent permit (pulp and paper facilities) can state limits for total suspended solids, BOD₅, toxicity, pH, temperature and dissolved oxygen. Monitoring and reporting requirements are also included for the parameters listed. Other parameters such as toxicity to daphnia magna, conductivity, oil and grease, residual chlorine, ammonia nitrogen, and resin acids may also be included.

The solid waste permit, in the case of a pulp and paper mill, authorizes a rate of discharge per year (m³/year) and indicates the construction and operation characteristics for a landfill (if applicable).

A typical air permit issued for an OSB Plant can set limits for total particular matter and formaldehyde. An ambient monitoring program can be included for PM₁₀, PM_{2.5} and formaldehyde.

Sawmill air permits contain mainly opacity and total particular matter limits and monitoring and reporting requirements for the same contaminants.

The complexity and technical requirements within provincial air permits vary widely between geographic and MOE management regions. The MOE's long-term goal is to eventually replace the existing environmental permit system with codes of practice that will specify performance objectives for specific industries in BC. The intent is to reduce the administrative burden on the Ministry and place a greater emphasis on the use of registered professionals and mill operations in meeting compliance objectives.

In order to invite public comments, permit applications are published in local newspapers. The company or concerned individuals can appeal the permits.

3.2.1.2 Regulations

Waste Discharge Regulation (WDR)

The WDR specifies, in Schedules 1 and 2, the type of industries and activities that require an authorization (e.g., permit, approval) or to follow a specific code of practice to introduce waste into the environment.

Pulp, paper, paperboard, particleboard, waferboard, veneer and plywood facilities, as well as the burning or incineration of wood residue are activities listed in Schedule 1. This Schedule lists activities that due to the complexity of their discharges or limited number of similar operations in the province require a specific permit or regulation.

Activities such as industrial non-hazardous waste landfills and soil enhancement using wastes, as well as sawmills and facilities manufacturing shingle and shakes, finger-jointing products, prefabricated buildings, furniture, chopsticks, and pellets are listed in Schedule 2 of the regulation. This Schedule lists activities that are eligible to be governed by codes of practice. If a code of practice governs a given activity, no site-specific environmental permit or authorization is required.

The Waste Discharge Regulation (WDR) Implementation Guide has been developed to provide general guidance on the application of the WDR and information on the associated obligations.

Wood Residue Burner and Incinerator Regulation

This regulation establishes the phase-out dates and operating conditions for specified burners and sets limits and fees for the discharge of associated end-of-stack total particulate emissions. In January 2011, the Ministry of Environment amended this regulation with the primary intention of establishing a phase-out date (December 31, 2016) for all remaining wood residue burners (beehive burners) in British Columbia.

Open Burning Smoke Control Regulation and Associated Code of Practice

The Open Burning Smoke Control Regulation governs burning of vegetative material associated with a range of activities that include land clearing and forestry-related resource management. It sets out the conditions under which the open burning of debris for individuals and facilities can be authorized and a list of materials that cannot be burned out in the open. The regulation includes a code that describes practices for open burning of debris that will reduce the health impact of smoke emissions and ensure that the debris being burned is handled in an environmentally sound manner. The Ministry of Environment intends to revise this regulation to include provisions to reduce impacts to human health, enable and encourage compliance, and minimize undue costs.

Sulphur Content of Fuel Regulation

This regulation limits the sulphur content of fossil fuels to 1.1%. A pulp mill is exempt from complying with this limit if its permit specifies a limit on SO₂ emissions.

Antisapstain Chemical Waste Control Regulation

This regulation specifies requirements for antisapstain chemical concentrations in sawmill stormwater, emission rate limits for antisapstain chemicals emitted from lumber spray systems, the design of antisapstain chemical dip tank and spray booth systems, and the management of sludge and wood residue that has originated from these systems.

Pulp Mill and Pulp and Paper Mill Liquid Effluent Control Regulation

This regulation sets out specific limits for pulp mills and pulp and paper mills. Parameters considered are TSS, BOD₅, AOX and acute toxicity (rainbow trout).

Hazardous Waste Regulation

The Hazardous Waste Regulation specifies requirements for the siting, construction, operation, performance, management, maintenance, and closure of facilities for the storage, use, treatment and disposal of hazardous waste. The regulation also specifies handling and transport requirements and outlines testing protocols for hazardous waste determination. This regulation was amended in 2009 to address some housekeeping issues; increase the accountability of generators, carriers and receivers of hazardous waste; and promote greater reliance on qualified professionals.

Organic Matter Recycling Regulation (OMRR)

The Organic Matter Recycling Regulation (OMRR), enacted under both the EMA and the *Public Health Act*, applies to the construction and operation of composting facilities, and the production, distribution, storage, sale and use or land application of biosolids and compost. In particular, this regulation considers animal bedding derived from paper, hog fuel, wood chips, bark, shavings or sawdust, as well as non-contaminated and untreated wood from sawmills (e.g. shavings, sawdust, chips, hog fuel) suitable as organic material for composting.

Spill Reporting Regulation

This regulation specifies the substances that must be reported in case they are released or spilled into the environment at or above prescribed quantity limits. The regulation prescribes reportable levels for 25 substances.

Petroleum Storage and Distribution Facilities Storm Water Regulation

This regulation applies to facilities, other than oil refineries, that have a petroleum storage capacity of 100 m³ or more. The regulation specifies the oil and grease content in storm water effluent and requirements regarding the operations and maintenance of treatment facilities.

3.2.1.3 *Codes of Practice****Primary Wood Manufacturing Industry Code of Practice***

At the time of the preparation of this report, the Ministry of Environment was in the process of developing this code of practice. It is anticipated that this code will be applicable to facilities engaged in manufacturing wood products including, but not limited to, lumber, shingles, shakes, and finger jointing products.

Industrial Non-Hazardous Waste Landfills Code of Practice

This code of practice addresses industrial non-hazardous waste landfills for the wood processing industry under provisions of the EMA and the Waste Discharge Regulation (WDR). The code establishes province-wide standards for the discharge of wood waste to industrial non-hazardous waste landfill sites. The code requires all landfills to register their facilities, provide financial security and prepare a conceptual closure plan, an annual report and a final closure plan and report. In addition, all large landfills are required to prepare a waste characterization report, a design plan and an operation plan.

Code of Practice for Soil Amendments

The Code of Practice for Soil Amendments provides consistent requirements across the province and has the objective of protecting the quality of soil as well as the surface and groundwater on sites where industrial wastes or by-products are applied on land. According to this code, a discharger must complete and submit a notification form at least 30 days prior to a proposed soil amendment application greater than 5m³. The code allows the use of fly ash derived from the burning of non-salt-laden wood, pulp and paper residuals from the primary or secondary wastewater treatment, lime mud derived from pulp and paper mills, and industrial (untreated) wood residue for soil amendment applications.

3.2.1.4 Standards, Guidelines, and Objectives

Proposed New Guidelines for Emission Standards for Biomass-fuel Electricity Projects

In 2008, the Ministry of Environment sponsored a review of guidelines for emission standards in anticipation of new biomass-fired combustion electricity projects under the BC Hydro call for new biomass-fired power projects. The following two reports are the result of this review: *Emissions from Wood-Fired Combustion Equipment* (2008) and *Emissions and Air Pollution Controls for the Biomass Pellet Manufacturing Industry* (2010). The Ministry has indicated that these reports will be used to propose these new guidelines.

Canada-wide Standards for Dioxins and Furans: BC Pulp and Paper Boilers Burning Salt-laden Wood

These standards set numeric targets and time frames for reducing dioxin and furan emissions from new and existing boilers burning more than 10,000 oven-dried metric tonnes per year of hogged fuel generated from wood transported or stored in salt water. These standards are only applicable to coastal pulp and paper mills that burn salt-laden hog fuel.

Provincial Medium Density Fiberboard (MDF) Emission Guidelines

These guidelines are used for setting permit emission limits at new MDF plants. Emission guidelines have been developed for total particulates, formaldehyde and opacity.

Air Quality Objectives for British Columbia and Canada

These objectives are benchmarks for the government to determine whether concentrations of pollutants in ambient air (or in source emissions) are of concern from a regulatory standpoint or in terms of public concern. Criteria upon which objectives are based may be defined in terms of human health effects or other environmental impacts. Air quality objectives in BC are used for establishing approval conditions for permitting new or modified sources and assessing compliance for permitted sources. BC has adopted air quality objectives and standards for CO, formaldehyde, hydrogen sulphide (H₂S), lead (Pb), nitrogen dioxide (NO₂), ozone, PM₁₀, PM_{2.5}, SO₂, TRS, and total PM. BC has also adopted the CWS for PM and ozone.

Standard Audit Procedure for Continuous Emission Monitors and Ambient Air Monitoring Instruments Procedure

This procedure establishes criteria and guidance to determine if continuous emission monitors and ambient monitoring instruments are performing within acceptable standards.

Guidance on Application of Provincial Air Quality Criteria for PM_{2.5}

This guideline provides an overview of how air quality criteria are considered in regional decision making and includes specific information related to applying the PM_{2.5} criteria to decisions on authorizations, air quality advisories, and airshed planning. The guidance document was prepared through a collaborative effort between the Ministry of Healthy Living and Sport and the Ministry of Environment.

Pollution Control Objectives for the Forest Products Industry of British Columbia

These are old objectives that the government generally uses only for reference or as guidelines for some environmental discharges. The 1977 objectives set end-of-stack limits, ambient air quality objectives, effluent quality objectives, receiving water quality objectives, and landfill operating levels for new or existing facilities. Actual emission limits are generally specified in facility-specific discharge permits issued to pulp and paper or solid wood manufacturing facilities. The 1977 Pollution

Control Objectives for the Forest Products Industry have largely been replaced by newer acts and regulations, permit requirements and evolving codes of practices.

Approved Water Quality Guidelines

These guidelines are typically used to assess water quality conditions and to set site-specific water quality objectives to protect a number of water uses (e.g., drinking water, freshwater aquatic life, wildlife, irrigation, or recreation). Water quality objectives are used in the preparation of waste management plans, pollution prevention plans, waste management permits, or approvals.

A Compendium of Working Water Quality Guidelines for British Columbia

These are guidelines that are under review by the Ministry of Environment. They are obtained from various Canadian (primarily the Canadian Council of the Ministers of the Environment or CCME) and other North American jurisdictions. These guidelines provide benchmarks for those substances not yet fully assessed or formally endorsed by the Ministry of Environment, and thus should be referenced with caution.

Land Application Guidelines for the Organic Matter Recycling Regulation and the Soil Amendment Code of Practice

This document provides guidance and best management practices (BMPs) to assist the user in complying with the requirements of the Organic Matter Recycling Regulation (OMRR) and the Soil Amendment Code of Practice. The guidelines contain information on the sampling and analytical requirements for residuals (covered by the aforementioned regulation and code of practice) and the receiving environment, including soil and vegetation.

3.2.2 *Transport of Dangerous Goods Act and Regulation*

The Transport of Dangerous Goods Act prohibits the handling and transport of dangerous goods unless all applicable prescribed safety requirements are complied with, and all containers, packaging, road vehicles, and rail vehicles comply with the applicable prescribed safety standards and display the applicable prescribed safety marks¹⁷. The Act categorizes dangerous goods into nine classes.

The Act also provides for the designation of qualified dangerous goods inspectors and establishes their powers and functions.

The *Transport of Dangerous Goods Regulation* adopts almost in its entirety the federal *Transportation of Dangerous Goods Regulation*, specifically in relation to a) the safety requirements, safety standards, and safety marks for the handling and transportation of dangerous goods on road and rail vehicles in the province; and b) the classification, documentation, training, appointment of agents, inspectors, and fees for inspection.

3.2.3 *Water Act and Water Regulation*

The Water Act provides for the allocation and management of surface water by authorizing issuance of water licences and approvals, creation of reserves, development of water management plans, and establishment of water user communities. The Act also sets out protective measures for wells and groundwater, and identifies offences and penalties. The government of BC is considering modernizing the Water Act and, in late 2010, released its Policy Proposal on British Columbia's new

¹⁷ According to the Act, a safety mark "includes a design, symbol, device, sign, label, placard, letter, word, number, abbreviation or any combination of these that is to be displayed on dangerous goods or containers, packaging, road vehicles or rail vehicles used in the handling or transportation of dangerous goods".

Water Sustainability Act. This Act would update, build on, and eventually replace the current Water Act.

The Water Regulation sets out the procedures for the acquisition of water rights in BC through water licences. The regulation also specifies the associated licence fees, annual water rentals, and charges.

3.2.4 Water Protection Act

The purpose of the Water Protection Act is to foster the conservation and sustainable management of water in BC. Specifically, the Act prohibits the construction and operation of large-scale projects capable of diverting or transferring water from one major watershed to another¹⁸. The Act also prohibits the bulk removal of BC's water to locations outside the province. To meet its purpose, the Act establishes a comprehensive registration system that limits the quantity of bulk water being removed from British Columbia.

3.2.5 Greenhouse Gas Reduction Legislation

3.2.5.1 Greenhouse Gas Reduction Targets Act (GGRTA) and Associated Regulatory Tools

The Greenhouse Gas Reduction Targets Act (GGRTA) sets targets for reducing GHGs. Under the Act, GHG emissions are to be reduced by at least 33% below 2007 levels by 2020. Interim reduction targets of 6% by 2012 and 18% by 2016 are stipulated to assess progress. A further emission-reduction target of 80% below 2007 levels is required for 2050. The Act provides authority for the *Emission Offsets Regulation*.

The Emission Offsets Regulation sets out requirements for GHG reductions and removals from projects or actions to be recognized as emission offsets against the carbon neutral government commitment. The regulation follows a criteria-based approach, through which the project proponent makes assertions in project-related documents. These documents must be evaluated by third-party validation and verification bodies.

The Pacific Carbon Trust (PCT)¹⁹ has published a guidance document titled *Guidance Document to the BC Emission Offsets Regulation* (2010). This document provides offset project developers an overview of the Emission Offsets Regulation and the process required to successfully submit offset project proposals.

3.2.5.2 Greenhouse Gas Reduction (Cap and Trade) Act and Associated Regulatory Tools

The Greenhouse Gas Reduction (Cap and Trade) Act authorizes hard caps on GHG emissions and provides authority for the *Reporting Regulation*. The Reporting Regulation sets out the requirements for the reporting of GHG emissions from facilities in British Columbia emitting 10,000 tonnes or more of CO₂e emissions per year²⁰. Facilities emitting more than 25,000 tonnes are required to have emissions reports verified by a third party. The regulation also has provisions to address the methodologies for quantifying GHG gas emissions, and to calculate and report emissions from biomass sources. The Ministry of Environment has prepared a *Reporting Regulation Methodology Manual*, which provides a compilation of current methodologies for quantifying emissions from sources specified in the Reporting Regulation.

¹⁸ According to the Act, a large-scale project is one that diverts or extracts 10 cubic metres per second of water or more, excluding projects that were already built or were under construction when the Act was proclaimed.

¹⁹ A Crown corporation that delivers BC-based GHG offsets.

²⁰ Not including CO₂ produced from “(a) wood biomass, or the wood biomass component of mixed fuels, including wood residue; [...] (b) wood-derived fuel, red liquor and black liquor from pulp and paper production processes; and (c) woody matter from [...] tree thinning...”.

The GHG Cap and Trade Act also provides the statutory basis for setting up a market-based cap and trade system²¹ to reduce GHG emissions from large emitters operating in the province. The details of the system are currently being developed in cooperation with partner jurisdictions in the *Western Climate Initiative* (WCI)²². At the time of the preparation of this report, the Government of BC was holding consultations on two proposed regulations to enable implementation of the cap and trade system: *Proposed Cap and Trade Offsets Regulation* and the *Proposed Emissions Trading Regulation*. The proposed Cap and Trade Offsets Regulation would replace or expand upon the *Emissions Offset Regulation*, under the GGRTA, and establish a single standard for developing compliance grade offsets issued by BC. The proposed Cap and Trade Offsets Regulation would also include new procedures for offset registration, validation, monitoring, quantification, reporting, verification, certification, and issuance of offsets. The proposed Emissions Trading Regulation would establish the market rules by which emissions may be traded under BC's cap and trade system.

3.2.5.3 Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act and Associated Regulation

The Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act promotes the use of renewable fuel (e.g., ethanol or diesel produced from biomass) by setting new requirements for transportation fuels. The intent of the Act is to decrease the amount of carbon in transportation fuel blends, and thus promote the adoption of a low-carbon fuel standard. The Act provides authority for the *Renewable and Low Carbon Fuel Requirements Regulation*. The Renewable and Low Carbon Fuel Requirements Regulation establishes benchmarks for the amount of renewable fuel in BC's transportation fuel blends and includes new requirements to reduce the carbon intensity of transportation fuels.

3.3 Manitoba

In Manitoba, there are eight provincial Acts that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and the natural resources.

- Environment Act
- Dangerous Goods Handling and Transportation Act
- Water Rights Act
- Water Resources Conservation Act
- Water Protection Act
- Energy Act
- Biofuels Act
- Climate Change and Emissions Reduction Act

The Environment Act governs the development and maintenance of an environmental protection and management system in Manitoba. The Dangerous Goods Handling and Transportation Act establishes requirements for the handling and transportation of dangerous goods and hazardous waste.

Water issues are governed through three major pieces of legislation. The Water Rights Act deals with the allocation of water resources; the Water Resources Conservation Act limits bulk water removal, diversion, or transfers from water basins in Manitoba; and the Water Protection Act aims to protect

²¹ A cap and trade program is one method of pricing carbon to reduce emissions. A market price applied on greenhouse gas (GHG) emissions reflects the value or cost of achieving a greenhouse gas reduction target.

²² The WCI is a collaboration of independent North American jurisdictions working together to identify, evaluate, and implement policies to tackle climate change at a regional level.

the quality of Manitoba's water resources and to promote water conservation and watershed management initiatives.

Sustainable development legislation includes the following Acts: the Energy Act which promotes the conservation and efficient use of energy and the development of affordable energy sources; the Biofuels Act which supports the production and consumption of biofuels; and the Climate Change and Emissions Reduction Act which establishes targets and plans for reducing air emissions.

Overall, nineteen provincial regulations, one proposed provincial regulation, and three standards and guidelines have been identified as being directly relevant to Manitoba's forest products industry. The regulatory framework in Manitoba is shown in Table 4 (organized by type of environmental release or media) and, schematically, in Figure 4.

3.3.1 *Environment Act and Associated Regulatory Tools*

The Environment Act provides the Minister of Manitoba Conservation with the authority to issue and enforce licences and orders, and to develop and implement environmental standards, objectives, management strategies and policies for the protection, maintenance, enhancement and restoration of environmental quality in Manitoba.

The Environment Act prohibits the unauthorized release of pollutants having a significant adverse effect on the environment. The Act outlines an environmental assessment and licensing process for developments (projects, industries, operations or activities) that cause or are likely to cause such an effect. The Act also establishes three types (classes) of developments which are defined by the Classes of Development Regulation.

3.3.1.1 *Permitting/Approval System*

As indicated above, facilities in Manitoba must obtain a licence under the Environment Act. There is one licence for construction and another one for operation, but these can be combined into one approval document. Environment Act licences do not have an expiration date, but an application for a permit amendment must be submitted in case of modifications to the facility. Typically, these amendments are considered "minor alterations to the development", a designation made at the discretion of the Director of Environmental Approvals. These minor alterations do not require a permit to be reissued. If the modification is considered a "major alteration", then the licence needs to be reissued.

The province is divided into operational regions for management of industrial licences and enforcement. Licence approvals are issued through a head office located in Winnipeg.

A typical licence for the pulp and paper industry covers the following areas: process wastewater, leachate, effluent and surface runoff, sewage, solid wastes, chemical substances, and monitoring and reporting. Effluent limits are set by analyzing receiving water characteristics and following the directions set by the federal Pulp and Paper Effluents Regulation. The licence can also include end-of-stack limits (standards) for total PM (recovery boiler, lime kiln, power boiler, and smelt dissolving tank) and TRS (recovery boiler, lime kiln, and smelt dissolving tank). Maximum ground level concentrations are established for some pollutants (TSP, TRS, SO₂, ClO₂, Cl₂, and total chlorinated dioxins and furans). Concentrations are estimated using air dispersion models.

Table 4 Manitoba Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater /Water	Solid Residuals
Environment Act	Authorization Tools	Licence for Construction and/or Operation		
	Regulations	Classes of Development Regulation		
		Licensing Procedures Regulation		
		Notice & Reporting Regulation		
	Regulations	Incinerators Regulation Proposed Thermal Treatment Systems Regulation	Water and Wastewater Treatment Facility Operators Regulation	Incinerators Regulation Proposed Thermal Treatment Systems Regulation Waste Disposal Grounds Regulation
	Standards and Guidelines	Ambient Air Quality Criteria Draft Guidelines for Air Dispersion Modelling in Manitoba	Manitoba Water Quality Standards, Objectives and Guidelines	
Dangerous Goods Handling and Transportation Act	Authorization Tools			Licence to Handle or Transport Hazardous Waste, and Licence to Operate a Hazardous Waste Facility
	Regulations	Storage and Handling of Petroleum Products and Allied Products Regulation		
				Classification Criteria for Products, Substances & Organisms Regulation Dangerous Goods Handling & Transportation Regulation Generator Registration & Carrier Licensing Regulation PCB Storage Site Regulation Environmental Accident Reporting Regulation Manifest Regulation
Water Rights Act	Authorization Tools		Licence or Authorization	
	Regulations		Water Rights Regulation	
Water Resources Conservation Act	Regulations		Water Resources Conservation Regulation	
Water Protection Act	Regulations		Nutrient Management Regulation	
Energy Act				
Biofuels Act	Regulations			Biodiesel General Regulation Ethanol General Regulation
Climate Change and Emissions Reduction Act	Regulations			Prescribed Landfill Regulation

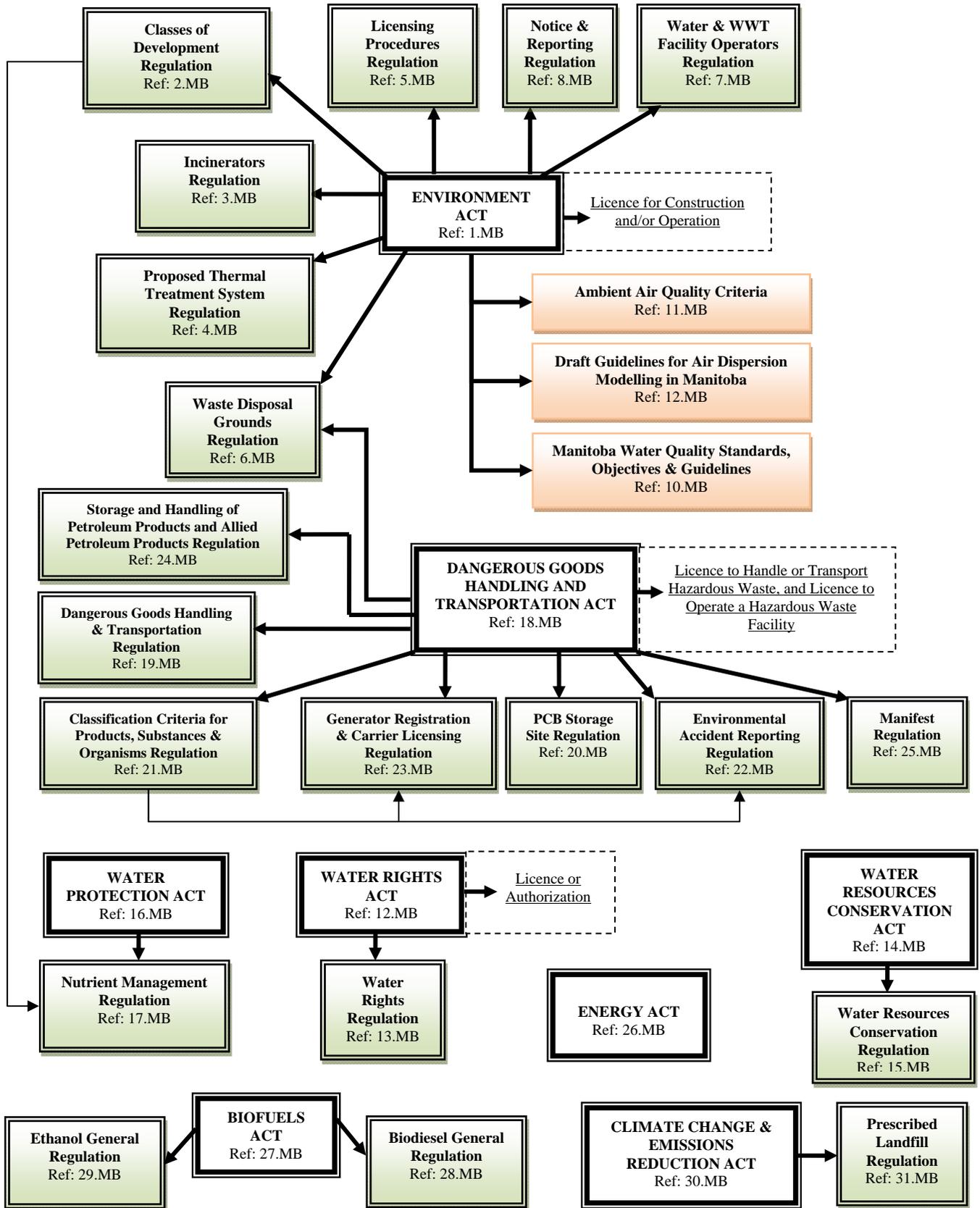


Figure 4 Manitoba Regulatory Framework

Typically, a wood products facility receives a single multi-media licence, but the focus is on atmospheric emissions management. Emission limits are specified for pollutants such as PM, VOC, formaldehyde, phenol, NO_x, benzene, and MDI from each point source, as applicable. Since currently there are no specific emission regulations in Manitoba, all point source emissions rates are authorized by permit rather than by regulation, making each facility's authorized emission rates unique. Solid and liquid waste management may be addressed if specific to a facility's processes and wastes (specific waste streams such as blender waste and production residues may be included). The licence may also include additional requirements such as an equipment maintenance plan, ambient air quality monitoring, surface water quality monitoring, and groundwater quality monitoring. These requirements are negotiated during the licensing process.

3.3.1.2 Regulations

Classes of Development Regulation

This regulation specifies the type of industries and activities considered in each of the Classes of Developments established by the Environment Act. Plywood and particle wood plants, stationary sawmills, wood treatment plants, and waste disposal facilities are part of Class 1 Developments. Class 2 Developments include electrical generating facilities with a capacity less than or equal to 100 MW, pulp and paper mills, wastewater treatment lagoons, and withdrawals of water from any body of water between 200,000 and 10,000,000 m³ per year, including non-consumptive closed systems where water is returned to its source with a flow rate between 25 and 250 L/s²³. Class 3 Developments include electrical generating facilities with a capacity greater than 100 MW and withdrawals of water of more than 10,000,000 m³ per year, including non-consumptive closed systems where water is returned to its source with a flow rate greater than 250 L/s.

Licensing Procedure Regulation

This regulation specifies the type of information that needs to be submitted to the Ministry when proposing a development. Some of this information includes descriptions of the development proposed, potential impacts of the development on the environment, and proposed environmental management practices.

Environment Act Fees Regulation

This regulation specifies fee amounts for a licence or permit to construct, operate or alter a given development.

Incinerators Regulation

This regulation establishes that incinerators must be registered and meet limits for particular matter and opacity.

Proposed Thermal Treatment Systems Regulation

This regulation was proposed in 2010 and will replace the *Incinerators Regulation*. Primary changes involve establishing a permit process for thermal treatment systems (incineration, and gasification and pyrolysis processes) and providing additional air emission criteria.

²³ Although this report does not address forestry-related legislation, it is worthwhile to note that major forestry operations are also considered Class 2 Developments and have separate licensing requirements from mill operations.

Waste Disposal Grounds Regulation

This regulation prescribes operational requirements for landfill sites and conditions for landfill site closure. A landfill under this regulation is defined as ground used for the disposal of solid or industrial waste. The regulation prohibits the deposit of hazardous wastes into a landfill except in accordance with the *Dangerous Goods Handling and Transportation Act* and the regulations made under it.

Water and Wastewater Treatment Facility Operators Regulation

This regulation classifies facilities into the following categories: a) water distribution facilities; b) water treatment facilities; c) wastewater collection facilities; and d) wastewater treatment facilities. Owners of these facilities must submit an application to the Ministry to obtain a classification certificate. The regulation establishes that only classified facilities are allowed to operate. The regulation has also provisions for certifying operators of these facilities.

Notice and Reporting Regulation

This regulation establishes the means by which written notices from the Ministry must be delivered to facilities as well as the means by which facilities must report unauthorized pollutant releases.

3.3.1.3 Standards, Guidelines, and Objectives

Manitoba Water Quality Standards, Objectives, and Guidelines

The water quality standards contain minimum standards identified for common classes of discharges. These standards form the basis of the technology-based approach to the prevention of pollution in Manitoba.

Water quality objectives are defined for a limited number of common pollutants in Manitoba that are routinely controlled through licensing under the Environment Act. These objectives form the basis for the water quality-based approach when additional restrictions need to be developed to protect the various uses of ground or surface waters.

Water quality guidelines include a) those derived by the CCME for water, lake and river bottom sediments, and residues in fish or other aquatic life tissues for protection of wildlife consumers; b) those derived by Health Canada to protect human consumers of fish or other aquatic life tissues; and c) narrative guidelines to be met at all times to ensure that all receiving waters are free of constituents attributable to man-induced discharges that may unacceptably impair water quality.

Objectives and Guidelines for Various Air Pollutants – Ambient Air Criteria

In this document, ambient air quality criteria are provided for 26 air contaminants. These criteria are classified in three categories: objectives, guidelines, and CWS.

The “objectives” classification is for air pollutants of sufficiently widespread presence for which national limits have been developed. The “guidelines” classification is used for those pollutants of a more localized presence for which provincial limits have been developed. CWS are national standards developed under the Canada-wide Environmental Standards Sub-agreement by the federal, provincial, and territorial governments for a contaminant of national priority.

Maximum time-based pollutant concentration levels are provided for each available ambient air criterion. These limits are classified as *tolerable*, *acceptable*, and *desirable*. “Tolerable” levels are only for evaluation purposes, to identify the severity of an anthropogenic or natural phenomenon. In general, “acceptable” levels are not to be exceeded within urban areas including those in the vicinity of industries with atmospheric emissions, while “desirable” levels are to be respected within rural areas.

Draft Guidelines for Air Dispersion Modelling in Manitoba

This document sets out the Manitoba government's expectations in relation to air dispersion modelling carried out to support a licence application. The guidelines recommend, in most situations, the latest version of a number of U.S. EPA air dispersion models.

3.3.2 Dangerous Goods Handling and Transportation Act and Associated Regulatory Tools

The Dangerous Goods Handling and Transportation Act sets out requirements for the handling and transportation of dangerous goods and hazardous waste. The Act enables the provincial government to establish standards pertaining to the generation, storage, transportation, and disposal of hazardous waste.

3.3.2.1 Classification Criteria for Products, Substances and Organisms Regulation

The Classification Criteria for Products, Substances and Organisms Regulation (CCPSOR) regulation sets out the criteria to determine whether a particular material is regulated as a hazardous waste. Materials with shipping names specified in the federal TDGR are classified according to the classes of dangerous goods set out therein. Materials not fully specified as per the TDG Regulations are classified according to the criteria set out in Schedule A of the CCPSOR.

3.3.2.2 Dangerous Goods Handling and Transportation Regulation

This regulation adopts Parts 1 to 10 and the Schedules of the federal TDG Regulations for use within Manitoba's jurisdiction.

3.3.2.3 Generator Registration and Carrier Licensing Regulation

This regulation requires that generators of hazardous waste must register with Manitoba Conservation. The regulation also requires companies transporting hazardous waste to apply for a licence under the *Dangerous Goods Handling and Transportation Act*.

3.3.2.4 PCB Storage Site Regulation

This regulation sets out standards for the design and operation of storage sites for waste PCBs. The regulation specifies requirements regarding record keeping at the site and the reporting of such information to Manitoba Conservation. In addition, the regulation stipulates that a written authorization from Manitoba Conservation is required prior to the disposal of PCB waste.

3.3.2.5 Storage and Handling of Petroleum Products and Allied Products Regulation

This regulation adopts to a significant extent the content of the CCME code for *Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* (2003). The regulation applies in its entirety to all tanks with a storage capacity of more than 5,000 L, but only partially to systems with a storage capacity exceeding the 230-litre mark. The regulation also establishes requirements and prohibitions regarding the delivery of petroleum (and allied petroleum) products to storage tank systems, the use of tank vehicles to store these products, and the transfer of these products from storage tank systems.

Other relevant sections of the regulation contain provisions regarding permitting for the construction, alteration, or operation of storage tank systems; quality standards of the fuel used in internal combustion engines; record keeping of the petroleum (and allied petroleum) products stored at the site; spillages and leakages; handling of out-of-service storage tank systems; licensing of petroleum technicians; and testing, inspection, upgrade, and removal of storage tank systems.

This regulation was amended in February 2011. Relevant amendments include the addition of definitions for biodiesel, biofuel, and blended biofuel; new fuel standards for internal combustion engines; and a prohibition to possess biofuel/blended biofuels for sale in Manitoba, for use in internal combustion engines, unless those biofuels comply with all applicable standards under the *Biofuels Act* (see Section 3.3.7).

3.3.2.6 Environmental Accident Reporting Regulation

This regulation specifies the information to be communicated to the authorities when an environmental accident occurs. The regulation also lists reportable contaminants (e.g., PCB mixtures) and associated quantity limits.

3.3.2.7 Manifest Regulation

This regulation sets out the procedures to be used for completing and distributing a manifest. The regulation defines a manifest as a document approved by Manitoba Conservation for use in tracking shipments of hazardous waste from the generator to the final disposal site. The manifest includes an environmental control document approved by Manitoba Conservation for that use.

3.3.3 Water Rights Act and Associated Regulatory Tools

The Water Licensing Branch of Manitoba Water Stewardship has the responsibility for allocating the use of water resources within the province. The permission to use or divert water or to construct or operate any waterworks is obtained by licence (existing projects) or authorization (developing projects) under The Water Rights Act (WRA).

3.3.3.1 Permitting/Approval System

The purpose of the licensing scheme is to ensure the sustainable allocation of Manitoba's water resources. Water withdrawals for municipal or industrial purposes, or in quantities above 25,000 L per day for all other purposes, require a licence. A separate licence is required for each source (and/or location) from which water is to be withdrawn.

Applications for water use are reviewed by the Water Licensing Branch to determine the availability of the water supply affected and the amount of unallocated water remaining. Licences have precedence in relation to the date of submission of the application of each licence. A licence that is renewed retains the precedence established in the original licence.

3.3.3.2 Water Rights Regulation

This regulation specifies the requirements and conditions under which licences are issued. The regulation also prescribes fees for licence applications and annual water use for industrial purposes and for purposes not associated with municipal, agricultural, or irrigation projects.

3.3.4 Water Resources Conservation Act and Associated Regulation

The Water Resources Conservation Act (WRCA) prohibits bulk water removal, diversion, or movement from a water basin or sub-water basin. The Act specifies exempted water removal activities, some of which include the use of the removed water in the ordinary operation of a vehicle, vessel or aircraft, or in the manufacturing of a product²⁴ in Manitoba. The WRCA also prescribes penalties to those who contravene any of the provisions stipulated in the Act. The WRCA takes precedence over the WRA where provisions may be in conflict.

²⁴ The Act does not consider potable water to be a product.

The *Water Resources Conservation Regulation* specifies additional water removal exemptions not contemplated in the Act.

3.3.5 *Water Protection Act and Nutrient Management Regulation*

The purpose of this Act is to provide for the protection and stewardship of Manitoba's water resources and aquatic ecosystems. The Act has provisions for establishing water quality criteria, water quality management zones, water conservation programs, and watershed management plans. In addition, the Act prohibits the sale of products containing phosphorus (e.g., prescribed chemical water conditioners) and provides the Ministry with the authority to declare water shortages, in all or part of Manitoba, if water supply is at risk. The Act prescribes penalties to those who contravene any of the provisions stipulated in the Act.

The Act establishes the Manitoba Water Council and the Water Stewardship Fund. The primary functions of the Council include, but are not limited to, monitoring the development and implementation of watershed management plans in the province; reviewing regulations respecting water quality management zones; advising the Minister about general matters related to water. The purposes of the Fund are primarily to support water research and the implementation of watershed management plans or water conservation programs.

The *Nutrient Management Regulation*, under the Water Protection Act, aims to protect water quality by encouraging responsible nutrient planning, regulating the application of materials containing nitrogen or phosphorus and restricting the development of certain types of facilities, such as wastewater treatment lagoons²⁵, in environmentally sensitive areas.

3.3.6 *Energy Act*

This Act aims to promote and facilitate the development of energy resources in Manitoba, to ensure a reliable low-cost energy supply, and to promote energy conservation and efficiency.

3.3.7 *Biofuels Act and Associated Regulatory Tools*

The purposes of this Act are to encourage and support the production and consumption of biofuels in Manitoba and to ensure that biofuels and blended biofuels sold in Manitoba meet prescribed quality specifications. In particular, the Act has provisions for licensing biofuel manufacturing facilities and establishes grant programs to support denatured ethanol and biodiesel production in Manitoba. The Biofuels Act defines denatured ethanol as a blend of ethanol derived from renewable sources, such as biomass material, and up to 5% gasoline or other prescribed denaturant. Biodiesel is defined as an ester-based oxygenated fuel that is derived from vegetable oils, animal fats, or other biomass material, or a prescribed renewable fuel that may be used to power a diesel engine or for heating.

The *Biodiesel General Regulation* and the *Ethanol General Regulation* specify the procedures involved in applying for a licence to manufacture biodiesel and denatured alcohol, respectively. In addition, these regulations set out specifications and standards for biodiesel and gasohol²⁶ offered for sale. Both regulations specify the reporting duties of licence holders.

²⁵ Wastewater treatment lagoons are defined in the *Classes of Development Regulation* as an impoundment into which wastewater (i.e., used water from a community or industry) is discharged for storage and treatment.

²⁶ Defined by the *Ethanol General Regulation* as a blend of denatured ethanol and gasoline, in which the denatured ethanol content is at least 3% of the total volume.

3.3.8 *Climate Change and Emissions Reductions Act and Prescribed Landfills Regulation*

The purpose of this Act is to address climate change, to set targets for reducing air emissions, and to promote sustainable economic development and energy security. The Act establishes, as an initial target, the reduction of Manitoba's emissions, by December 31, 2012, to an amount that is at least 6% less than Manitoba's total 1990 emissions. The Act has provisions for creating a public registry to allow persons and businesses to voluntarily register the amount of their emissions, emissions reductions and emissions offsets.

The Act also requires operators of prescribed landfills to develop plans to mitigate emissions from these landfills. The *Prescribed Landfills Regulation* defines a prescribed landfill as a landfill that, as of December 31, 2009, is in operation and has 750,000 tonnes or more of waste in place.

3.4 New Brunswick

In New Brunswick, there are seven provincial Acts that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and natural resources.

- Clean Environment Act
- Clean Water Act
- Clean Air Act
- Transportation of Dangerous Goods Act
- Electricity Act
- Transportation of Primary Forest Products Act
- Environmental Trust Fund Act

The Clean Air Act, the Clean Environment Act, and the Clean Water Act are the three principal environmental legislative acts in New Brunswick. They prohibit the discharge of contaminants into the environment without an authorization given by the Minister of the Environment. These Acts also provide the Minister with the authority to issue orders to control or stop the discharge of contaminants.

The Transportation of Dangerous Goods Act and the Transportation of Primary Forest Products Act control, respectively, the transport of prescribed dangerous goods and substances and the transport of unmanufactured forest products in New Brunswick.

The Electricity Act has a provision for the production of electricity from renewable resources.

The Environmental Trust Fund Act establishes a fund to be used to pay for the costs associated with protecting and conserving the environment.

Overall, eleven provincial regulations, one provincial order, and four standards and guidelines have been identified as being directly relevant to New Brunswick's forest products industry. The regulatory framework in New Brunswick is shown in Table 5 (organized by type of environmental release or media) and, schematically, in Figure 5.

Table 5 New Brunswick Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater /Water	Solid Residuals
Clean Environment Act	Authorization Tools		Wastewater Operation Approval Order	
	Regulations		Petroleum Product Storage and Handling Regulation Water Quality Regulation	
Clean Water Act	Authorization Tools		Order Permit to Alter a Watercourse	
	Regulations and Orders		Watercourse and Wetland Alteration Regulation Water Classification Regulation Watershed Protected Area Designation Order Protected Area Exemption Regulation	
	Standards and Guidelines		Watercourse Alteration Technical Guidelines A Guide To New Brunswick's Water Classification Regulation A Guide To New Brunswick's Watershed Protected Area Designation Order	
Clean Air Act	Authorization Tools	Order Air Quality Approval		
	Regulations	Air Quality Regulation Public Participation Regulation		
	Standards and Guidelines	Canada-Wide Standards for New Brunswick		
Environmental Trust Fund Act				
Transportation of Primary Forest Products Act	Authorization Tools		Transportation Certificate	
	Regulations		General Regulation	
Transportation of Dangerous Goods Act	Regulations			General Regulation
Electricity Act	Regulations			Electricity from Renewable Resources Regulation

3.4.1 *Clean Environment Act and Associated Regulatory Tools*

The Clean Environment Act aims to protect the environment within New Brunswick. The Act grants the Minister the power to designate contaminants, and for each contaminant establish the maximum amount, level, or concentration that may be released into the environment. Through this legislation the Minister is also empowered to issue orders intended to control, reduce, or eliminate, permanently or for a specified period, the rate of release of any contaminant into the environment. These orders may involve the installation, alteration, or replacement of wastewater treatment facilities or any equipment designed to control, reduce, or eliminate environmental releases.

Other sections of this Act include pesticide control, designation of protected areas (e.g., wetlands), the establishment of regional solid waste commissions, and the generation of electricity.

3.4.1.1 *Permitting/Approval System*

Approvals under the *Water Quality Regulation* (see Regulations section below) are valid for up to five years maximum. Wastewater operation approvals typically contain treated effluent discharge limits at the final discharge point for flow rate, pH, total suspended solids, BOD₅, and toxicity. Depending on site-specific conditions, other parameters, such as nutrients and dissolved oxygen, may also be monitored.

3.4.1.2 *Regulations*

Water Quality Regulation

This regulation establishes that an approval is needed to emit, discharge, deposit, leave, or throw any contaminant in the environment in any location that may cause water pollution. An approval is also required in the case of the construction, modification, or operation of any water or wastewater works. The regulation does not specify discharge limits but outlines the conditions under which approvals may be issued.

Petroleum Product Storage and Handling Regulation

This regulation applies to the storage, handling, and use of petroleum products. In particular, under this regulation, the owner of a petroleum storage tank, with a total capacity of 2,000 L or more, must apply for a site licence each year. The regulation also establishes standards for the design and construction of petroleum storage tanks.

3.4.2 *Clean Water Act and Associated Regulatory Tools*

The Clean Water Act outlines the legal framework for water protection in New Brunswick. Through this legislation the Minister is empowered to issue orders intended to control, reduce, or eliminate, permanently or for a specified period, the rate of release of any contaminant into surface or ground water. These orders may involve the installation, alteration, or replacement of waterworks or wastewater treatment facilities.

The Act also establishes that a permit issued by the Minister of Environment is required to construct any project that alters a watercourse or diverts all or part of a watercourse.

Other relevant sections of this Act address well-drilling issues and the designation of protected areas²⁷.

3.4.2.1 *Permitting/Approval System*

A watercourse alteration permit frequently states the conditions under which the watercourse alteration is to be done, and whether or not the activity is limited to certain times of the year due to flow conditions or fish migration issues.

Watercourse alterations include all activities taking place within 30 metres of the bank of any watercourse involving a disturbance of the water, soil, or vegetation. Accordingly, taking water from a watercourse or wetland is considered, under the *Watercourse and Wetland Alteration Regulation* (see Regulations section below), an activity for which a permit is required. On the other hand, the water returned to the watercourse, via an effluent pipe, must comply with the *Water Quality Regulation* under the *Clean Environment Act*.

3.4.2.2 *Regulations*

Watercourse and Wetland Alteration Regulation

The intent of this regulation is to protect the banks and bed of a watercourse from activities which will excessively affect the function of the watercourse. The regulation specifies the activities exempted from applying for a permit to alter a watercourse or a wetland. It also outlines the conditions under which the Minister may renew, suspend, cancel, or refuse a permit, and specifies permit application fees.

Water Classification Regulation

This regulation classifies protected areas and the water of lakes and rivers (or segments of rivers) into categories based on water quality goals. The intent is to set goals for surface water quality and promote management of water on a watershed basis. The goals associated with a specific category are set according to the intended uses of the water, and the water quality and quantity required to protect the intended uses.

Watershed Protected Area Designation Order and Protected Area Exemption Regulation

The intent of this Order is to protect surface water used for public drinking water supplies. The Order specifies the watersheds or portions of watersheds designated as protected areas²⁸, and establishes the activities and uses permitted in these areas.

The *Protected Area Exemption Regulation* establishes an administrative procedure for issuing exemptions from the Protected Areas Designation Order.

3.4.2.3 *Guidelines*

A Guide to New Brunswick's Water Classification Regulation

This document describes the various classes of water in the province and describes the water quality standards associated with each Class. It also describes the steps that are followed to classify river

²⁷ The Act designates a *protected area* as a “portion of a watershed, aquifer or ground water recharge area that is used as a source of water for a public water supply system”.

²⁸ Three types of protected areas are established: a) the 75-m setback zone from the watercourse; b) the land area located outside the setback zone but inside the watershed boundaries; and c) the watercourse itself.

systems, and how the water classification system is used to manage the water quality in a watershed once the watercourses have been classified.

Watercourse Alterations Technical Guidelines

This document contains information on guiding principles for planning a watercourse alteration or reviewing a proposed alteration. Water control and water intake structures are some of the watercourse alterations covered by the guidelines.

A Guide to New Brunswick's Watershed Protected Area Designation Order

This document provides background information on designated watershed protected areas. It also describes prohibited and permitted activities within protected areas and includes contact details for Offices of the Department of Environment and Local Government for further information.

3.4.3 Clean Air Act and Associated Regulatory Tools

The intent of the Clean Air Act is to protect and improve the quality of the air in New Brunswick. One of the primary objectives of the Act is to control the type and amount of contaminants released into the atmosphere, through a system of Air Quality Approvals. Also through this Act, the Minister is given the authority to issue orders intended to control, reduce, or eliminate, permanently or for a specified period, the rate of release of any contaminant into the air.

Other provisions of the Act include the establishment of air quality objectives and air resource management areas, and the creation of expanded opportunities for public participation in the review of air approvals for major emission sources and in the development of air quality objectives.

3.4.3.1 Permitting/Approval System

Air Quality Approvals under the *Air Quality Regulation* (see Regulations section below) are valid for up to five years maximum. Air approvals can contain emission limits for SO₂, NO_x, TRS, formaldehyde, CO, and total PM.

Approvals may require facilities to conduct an air quality dispersion modelling study following any annual source testing activities. This study typically determines the annual ground level concentrations for the air contaminants specified in the approval. Approvals typically stipulate that facilities must ensure that their source emissions are controlled in such a way as to not exceed the maximum ground level concentrations specified in the *Air Quality Regulation*. Some approvals provide site-specific maximum ground level concentration limits.

Approvals can sometimes specify concentration limits for waste-derived fuel (used oil).

As mentioned earlier, approvals are classified according to the volume of emissions released (Classes 1A, 1B, 2, 3, and 4). Class 1 facilities include power plants, pulp mills, and large manufacturing plants. Class 1 sources release the most emissions in the province and they are the only ones that have a formal, public participation component in their approval process (see section on Air Quality Regulation).

3.4.3.2 Regulations

Air Quality Regulation

This regulation establishes that an air quality approval is required to construct, modify, or operate a source of air contaminants. The regulation outlines the process to apply, amend, or renew an air quality approval as well as the conditions under which that approval may be cancelled or suspended.

Through this regulation, emission sources are classified based on permitted rates of release of gas, SO₂, and PM (see Section 3.4.3.1).

The regulation establishes maximum permissible ground level concentrations for CO, H₂S, NO₂, SO₂, total suspended particulate and smoke density (opacity). For the counties of Charlotte, Kings, and Saint John maximum permissible ground level concentrations of SO₂ are also provided. The regulation also sets limits for the maximum percentage of sulphur content of fuels.

Other provisions of this regulation include requirements for conducting performance testing and the specification of annual fees for air quality approvals.

Public Participation Regulation

This regulation calls for a formal public review process to take place whenever a large source of air pollution, a “Class 1” facility, applies for, renews, or amends an Air Quality Approval. The regulation stipulates that such consultation must take place before final decisions on these Approvals are made.

3.4.3.3 Standards

Canada-Wide Standards for New Brunswick

In 2001, the government of New Brunswick endorsed the CWS for fine PM (PM_{2.5}) and ozone. In 2008, the Department of Environment released its plan to implement these standards in the province. The document outlining this plan includes preliminary analysis of air quality data sampled in Moncton, Saint-John and Fredericton in relation to the CWS numerical targets. The document also contains a summary of initiatives that have been completed or are underway by various industrial sectors in New Brunswick, including the pulp and paper and wood products industries.

The Department of Environment anticipates implementing CWS for mercury and dioxins and furans emitted from incinerators, and for dioxins and furans resulting from the burning of salt-laden wood at pulp and paper facilities.

3.4.4 Environmental Trust Fund Act

This Act establishes and regulates the management of the Environmental Trust Fund. The Act provides for using the assets of this Fund to pay for the costs incurred in a) providing for environmental protection and restoration; b) promoting sustainable development and conservation of natural resources; c) educating on matters relating to environmental issues and the sustainable development of natural resources; and d) maintaining and enhancing the visual environment.

3.4.5 Transportation of Primary Forest Products Act and General Regulation

This Act prohibits, without a properly completed transportation certificate, the operation of a vehicle in New Brunswick that is carrying a full or partial load of unmanufactured forest products, or wood chips and biomass produced at or on harvest sites. The Act establishes an exemption for loads of fuel wood of less than 1.22 metres in length.

The *General Regulation* provides details for the implementation of the Transportation of Primary Forest Products Act, specifically with respect to transportation certificates, their registration and access to information contained in the certificates.

3.4.6 *Transportation of Dangerous Goods Act and General Regulation*

This Act deals with the transport of dangerous goods and dangerous substances within the province of New Brunswick. The Act prohibits the transport of any dangerous goods by a motor vehicle on a highway unless applicable prescribed safety requirements and standards are complied with. Other sections of the Act include information on licences, inspections, certification, and offences and penalties. The annexed schedule lists the classes of goods and substances covered by the Act.

The *General Regulation*, under the *Transportation of Dangerous Goods Act*, adopts the provisions of the federal TDGR²⁹ regarding safety requirements for the transportation of dangerous goods; safety standards regulating the design, construction, equipping, functioning, or performance of containers, packaging, or vehicles used in the transporting of dangerous goods; and safety marks to be displayed on such vehicles, containers, and packaging.

3.4.7 *Electricity Act and Electricity from Renewable Resources Regulation*

The Electricity Act governs all issues related to the production and distribution of electric energy in New Brunswick. One section of the Act, in particular, requires the standard service supplier (New Brunswick Power Corporation), and municipal distribution utilities or industrial facilities that obtain electricity from other sources than the standard service supplier to ensure that a portion of that electricity is generated from renewable resources.

The *Electricity from Renewable Resources Regulation* has detailed provisions regarding the generation of electricity from renewable sources. Essential sections of the regulation concern the approval of generation facilities³⁰ and the specification of the minimum percentage of electricity acquired by the standard service that must come from approved generation facilities. In particular, the regulation requires that 10% of electricity sales must come from renewable sources by 2016.

3.5 Newfoundland and Labrador

In Newfoundland and Labrador (NL), there are three provincial Acts that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and natural resources.

- Environmental Protection Act
- Dangerous Goods Transportation Act
- Water Resources Act

The Environmental Protection Act is the province's principal environmental legislation. The Dangerous Goods Transportation Act outlines the legal framework to regulate the transportation of dangerous goods by road. The Water Resources Act empowers the provincial government to manage ground and surface waters with the purpose of ensuring the continuing availability of clean water in Newfoundland and Labrador.

Overall, six provincial regulations and six guidelines have been identified as being directly relevant to Newfoundland and Labrador's forest products industry. The regulatory framework in Newfoundland and Labrador is shown in Table (organized by type of environmental release or media) and, schematically, in Figure 6.

²⁹ Excluding Parts XI to XVI.

³⁰ The regulation considers that a generation facility is one that generates alternative-use electricity, biogas-fuelled electricity, biomass-fuelled electricity, solar-powered electricity, water-powered electricity, or wind-powered electricity.

3.5.1 *Environmental Protection Act and Associated Regulatory Tools*

The Environmental Protection Act prohibits the release of a substance in an amount, concentration, or at a rate that causes or may cause an adverse effect on the environment without an approval issued under this Act. The Act establishes that a person responsible for the release of a substance potentially harmful to the environment, or that is in excess of the limits prescribed in the approval, must report such a release and take all reasonable measures to prevent, reduce and remedy the associated adverse environmental effects.

The Act outlines the approval application process and the conditions under which an approval is issued, refused, or amended. The Act provides the Minister of the Environment with the authority to issue an order to facilities that contravene the Act or the terms of an approval.

The Act also contains general provisions on a number of environmental protection issues including, but not limited to, environmental education and research, waste disposal and management, air quality management, and dangerous goods handling.

3.5.1.1 *Permitting/Approval System*

Under the Environmental Protection Act, the Industrial Compliance Section of the NL Department of Environment and Conservation develops and administers Certificates of Approval (CofA) for the construction and/or operation of various industrial facilities. Limits for air quality are not detailed in the approval; only ambient and stack air monitoring requirements are included. On the other hand, approvals stipulate effluent limits, water intake and effluent discharge locations, and effluent monitoring requirements.

3.5.1.2 *Regulations*

Air Pollution Control Regulations, 2004

The Air Control Regulations establish ambient air quality standards (AAQS) for 23 substances. The regulations also prescribe stack emission NO_x standards for certain fossil fuel-fired boilers and heaters as well as opacity limits for certain types of emission sources. The regulations also establish an annual cap on SO₂ emissions. Facilities exceeding this cap are required to submit to the NL Department of Environment and Conservation an annual report on SO₂ emissions and fuel usage and characteristics.

These regulations prohibit the operation of new incineration equipment emitting mercury and dioxins/furans above prescribed concentration limits. Administrative penalties are specified for exceeding any of the prescribed standards or opacity limits.

These regulations also require facilities installing new or modified emission sources to employ the best available and economically feasible technology in controlling their emissions.

Heating Oil Storage Tank Systems Regulations, 2003

These regulations establish technical requirements for the operation of heating oil storage systems with a capacity of 2,500 litres or less, that are or were connected to an appliance intended for space heating. The regulations also specify that these storage systems must be registered and inspected by a licensed inspector.

Storage and Handling of Gasoline and Associated Products Regulations, 2003

The *Storage and Handling of Gasoline and Associated Products Regulations (GAP)* prohibit the construction of storage tank systems unless minimum requirements and installation standards are met. The regulations also prohibit the leakage, spillage, deposit, or discharge of gasoline or associated products from a storage tank system into the environment. Other provisions include procedures to follow when a storage tank system presents leaks, has been or will be abandoned, or will be relocated.

These regulations do not apply to systems covered by the *Heating Oil Storage Tank Systems Regulations*.

Table 6 Newfoundland and Labrador Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater /Water	Solid Residuals
Environmental Protection Act	Authorization Tools	Certificate of Approval		
	Regulations	Heating Oil Storage Tank Systems Regulations, 2003 Storage and Handling of Gasoline and Associated Products Regulations, 2003		
		Air Pollution Control Regulations, 2004		Storage of PCB Wastes Regulations, 2003
	Standards and Guidelines	Guidance Document for the Determination of Compliance with the Ambient Air Quality Standards Guideline for Plume Dispersion Modelling Guidelines for Ambient Air Monitoring		Guidance Document on Leachate Toxic Waste, Testing and Disposal
Dangerous Goods Transportation Act	Regulations			Dangerous Goods Transportation Regulations
Water Resources Act	Authorization Tools		Permit for waterworks and or wastewater works Permit to Alter a Body of Water Water Use Licence	
	Regulations and Notices		Environmental Control Water and Sewage Regulations, 2003 Various Notices of Protected Water Supply Areas	
	Standards and Guidelines		Guidelines for the Design, Construction and Inspection of Water and Sewerage Systems	

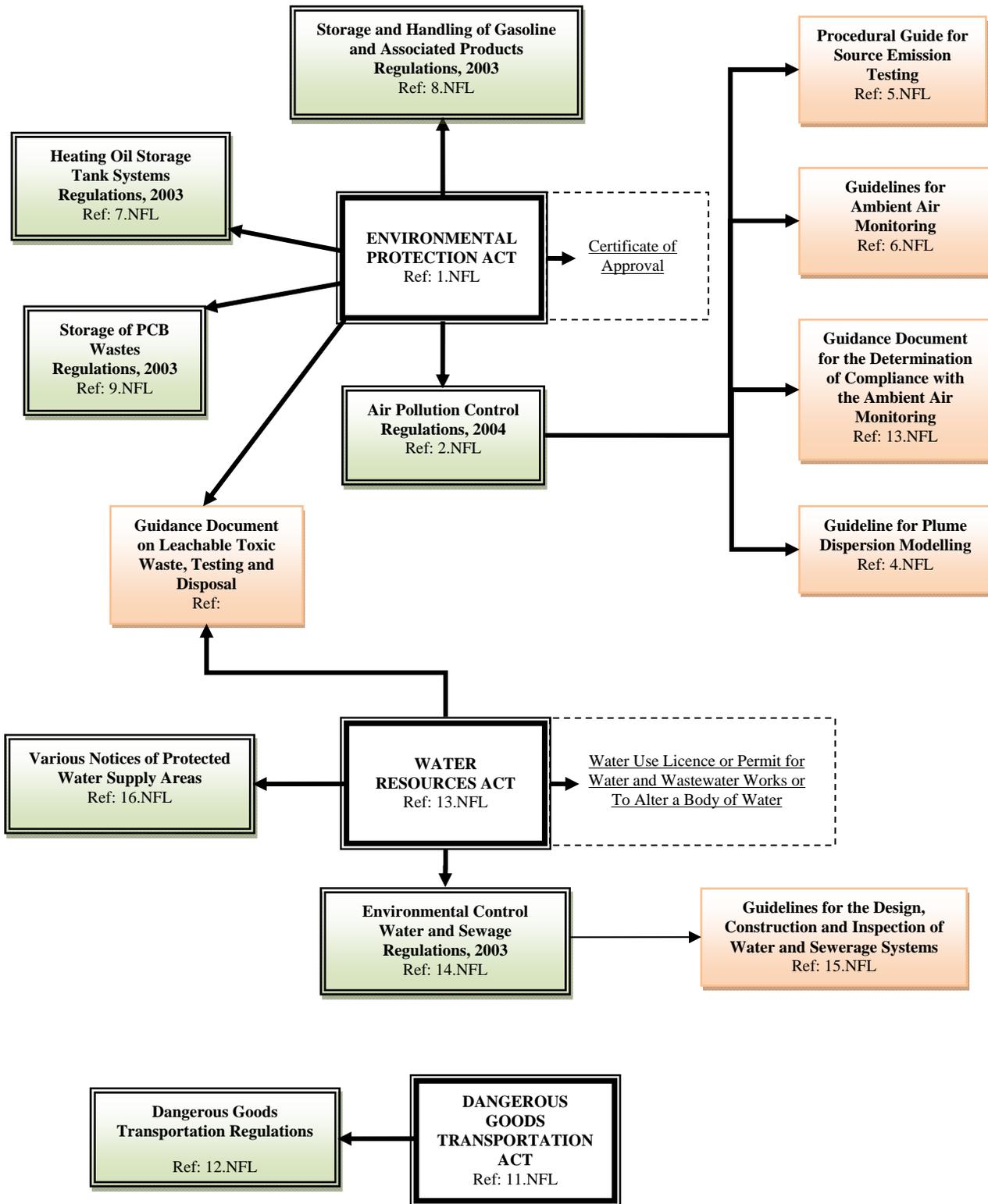


Figure 6 Newfoundland and Labrador Regulatory Framework

Storage of PCB Wastes Regulations, 2003

These regulations apply to all storage sites containing PCBs in a quantity exceeding 1.0 kilogram; PCB liquids of a volume greater than 100 litres; or PCB solids of a weight greater than 100 kilograms. The regulations require operators of PCB storage sites to ensure a fire and emergency plan is in effect. They also establish that operators of these sites must know and understand current PCB waste management guidelines and procedures, inspect their sites monthly and, if required, repair leaking containers or equipment. Other provisions of these regulations include the labelling of equipment containing PCBs and the record keeping of PCB waste at storage sites.

3.5.1.3 Guidelines***Guidance Document for the Determination of Compliance with the Ambient Air Quality Standards***

This guidance document sets out the procedures used by the NL Department of Environment and Conservation to determine whether a facility is in compliance with the Air Pollution Control Regulations. The guidelines also outline the conditions under which a facility has to perform dispersion modelling, ambient air compliance monitoring, and/or stack emission testing.

Guideline for Plume Dispersion Modelling

This guideline describes the plume dispersion modelling methods approved by the NL Department of Environment and Conservation for the purpose of determining compliance with the conditions specified in the guidance document on the *Determination of Compliance with the Ambient Air Quality Standards*.

Procedural Guide for Source Emission Testing

This guide describes the sampling conditions, procedures, and standard methods accepted by the Department of Environment and Conservation for compliance source emission testing. All standard methods specified in this guide were developed by US EPA.

Guidelines for Ambient Air Monitoring

This guidance document describes the ambient air monitoring methods approved by the NL Department of Environment and Conservation to monitor the air quality in Newfoundland and Labrador. The guidelines also specify procedures for data acquisition and the quantitative assessment of analyzer performance.

Guidance Document on Leachable Toxic Waste, Testing and Disposal

The intent of this document is to provide guidance for determining whether a given material may leach toxic contaminants into the environment. The document compares leachate test results with the numerical criteria for various contaminants of concern to determine whether landfilling is an acceptable disposal option.

3.5.2 *Dangerous Goods Transportation Act and Associated Regulatory Tools*

The Dangerous Goods Transportation Act prohibits the handling, offering for transport, or transporting of dangerous goods unless all applicable prescribed safety requirements are complied with and all containers, packaging, and vehicles³¹ meet all applicable prescribed safety standards and display all applicable prescribed safety marks. The Act establishes the type of substances or materials (nine classes) that are considered to be dangerous goods.

Other provisions of the Act include, but are not limited to, economic penalties for contravening the Act and the designation of a dangerous goods transportation inspector.

This Act does not apply to the handling, offering for transport or transporting of dangerous goods in a vehicle if these activities are exempted by regulation or permit, or are under the sole control of the Minister of National Defence for Canada.

The *Dangerous Goods Transportation Regulations* prescribe the safety requirements, safety standards, and safety marks³² set out in the federal TDGR for the purpose of complying with the provisions of the *Dangerous Goods Transportation Act*. In essence, these regulations prohibit the transportation of dangerous goods under circumstances where the transportation is prohibited in the federal TDGR. The regulations also specify the persons that are eligible to be designated as inspectors.

3.5.3 *Water Resources Act and Associated Regulatory Tools*

The Water Resources Act vests the ownership of the province's water resources in the government of Newfoundland and Labrador. The Act establishes that the government can confer water rights of property, use, and flow to a person by a grant, lease, or licence provided these rights do not cause an adverse effect on water. On the other hand, the Act also provides the Lieutenant-Governor in Council with the authority, on the advice of the Minister of Environment, to return licensed water rights to the Crown.

The Act also provides for the Minister of the Environment to issue a licence to divert water for various purposes, including water intended for industrial use within the province.

The Act also prohibits the export of water out of the province unless that water is a) contained in receptacles with a capacity of 30 litres or less; b) necessary for the operation of a motor vehicle, vessel, or aircraft or intended for the use of persons being transported in those vehicles; c) used to transport food or an industrial product out of the province; or d) removed for a non-commercial purpose.

The Water Resources Act also has water protection provisions intended to minimize the adverse effects of human activities on water, wetlands, and floodways. Other relevant sections of the Act include provisions for the approval of water and wastewater works, the protection of public water supplies, and the assigning of penalties for contravening the Act.

³¹ In this Act, *vehicle* means a “device in, upon or by which a person or thing may be transported or drawn upon a highway but does not include devices used exclusively upon fixed rails”.

³² The Act includes as a safety mark the following: “design, symbol, device, sign, label, placard, letter, word, number, abbreviation or a combination of these that is to be displayed on dangerous goods, packaging or containers or vehicles used in the handling, offering for transport or transporting of dangerous goods”.

3.5.3.1 Permitting/Approval System

The Act outlines the licence approval procedure and establishes, in the case of multiple applications (multi-use) for the same body of water, the licensing priority for each type of water use. Licences can be amended according to the provisions stipulated in the Water Resources Act.

Water use licences allocate water use and grant non-exclusive rights for designated purposes and specified water quantities. They also include multi-use and conservation provisions, and are typically approved for periods of 5 to 10 years or less for temporary licences that may be renewed³³. Licensees are required to register their water rights in a registry established under the Water Resources Act. This registry records the location of the body of water used or diverted, the designated purposes, whether the use is consumptive or not, the expiry date, and the current status.

The Water Resources Act also requires facilities to have a permit from the Minister of the Environment to construct, modify, operate, or decommission waterworks³⁴ or sewage works³⁵, to develop an activity in a protected public water supply area, or to carry out any activities that may alter or affect a body of water.

3.5.3.2 Regulations, Directives, and Notices

Environmental Control Water and Sewage Regulations, 2003

These regulations control the discharge of sewage or effluents into a body of water, public sewer, or sewer leading to a public sewer. The regulations prescribe temperature and pH conditions as well as maximum concentrations for the constituents of the sewage or effluent discharged. Two sets of standards and conditions are prescribed depending on whether the discharge is made to a body of water or to a public sewer system.

The Environmental Control Water and Sewage Regulations also stipulate that pulp and paper facilities must comply with the provisions of the federal Pulp and Paper Effluent Regulations regarding the maximum BOD₅ and maximum quantity of suspended solids that may be discharged from a mill.

Various Notices of Protected Water Supply Areas

The Water Resources Act provides the NL Department of Environment and Conservation with the authority to designate areas surrounding a present or potential source of public water supply as *protected public water supply areas*. This designation is typically given to areas where the yield of the water source is insufficient to meet the present and future demands of its users, or where the quality of the water source does not comply with existing drinking water quality guidelines.

³³ Water Resources Management Division, NL Department of Environment and Conservation.

³⁴ The Water Resources Act defines *waterworks* as “a part of public, commercial or industrial works for the collection, production, treatment, storage, supply and distribution of water”.

³⁵ The Water Resources Act defines *sewage works* as “works for [...] the collection, transmission, treatment and disposal of sewage or a part of those sewage works”. *Sewage*, in turn, is defined as “residential, municipal, commercial or industrial waterborne and solid wastes which would, if left untreated, cause an adverse effect, and drainage and storm water collected from natural runoff”.

3.5.3.3 Guidelines

Guidelines for the Design, Construction and Operation of Water and Sewerage Systems

This document contains information on recent developments in the water and sewer treatment industry and provides guidance on appropriate engineering practices for the design, construction, operation, and maintenance of water and sewage/wastewater works.

3.6 Nova Scotia

In Nova Scotia, there are six provincial Acts and one proposed provincial Act that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and natural resources.

- Environment Act
- Environmental Goals and Sustainable Prosperity Act
- Water Resources Protection Act
- Dangerous Goods Transportation Act
- Electricity Act
- Forests Act
- Proposed Voluntary Carbon Emissions Offset Fund Act (not yet proclaimed in force – Bill 38)

The Environment Act is Nova Scotia's principal environmental legislation. The Environmental Goals and Sustainable Prosperity Act sets out over 20 provincial goals, ranging from reduced air emissions and waste to increased land and water protection.

The Water Resources Protection Act establishes the legal framework to ensure the protection of the water resources of Nova Scotia.

The Dangerous Goods Transportation Act governs the transport of dangerous goods by road.

The Electricity Act has a section dealing with renewable energy standards applicable to sellers of electricity.

The Forests Act outlines the legal framework to acquire primary forest products (PFP)³⁶ to manufacture secondary wood products.

The proposed Voluntary Carbon Emissions Offset Fund Act will create a fund to help reduce greenhouse gas (GHG) emissions.

Overall, eleven provincial regulations³⁷ and two standards and guidelines have been identified as being directly relevant to Nova Scotia's forest products industry. The regulatory framework in Nova Scotia is shown in table 7 (organized by type of environmental release or media) and, schematically, in Figure 7.

³⁶ i.e., commercially valuable raw materials cut or harvested from a forest.

³⁷ Without taking into account the various regulations controlling specific protected water areas.

Table 7 Nova Scotia Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater /Water	Solid Residuals
Environment Act	Authorization Tools	Industrial Approval		
			Water (withdrawal) Approval	Dangerous Goods/Waste Dangerous Goods Approval
	Regulations	Activities Designation Regulations Approvals Procedure Regulations Emergency Spill Regulations Petroleum Management Regulations		
		Air Quality Regulations Greenhouse Gas Emissions Regulations	Water and Wastewater Facilities and Public Drinking Water Supplies Regulations Various Regulations Governing Protected Water Areas	Dangerous Goods Management Regulations PCB Management Regulations
Standards and Guidelines		Guide to Surface Water Withdrawal Approvals Facility Classification Standards		
Dangerous Goods Transportation Act	Regulations			Dangerous Goods Transportation Regulations
Environmental Goals and Sustainability Prosperity Act				
Water Resources Protection Act				
Forest Act	Authorization Tools	Wood Acquisition Plan		
Electricity Act	Authorization Tools			Biomass Fuel Procurement Plan
	Regulations			Renewable Electricity Regulations
Proposed Voluntary Carbon Emissions Offset Fund Act (Bill 38)				

3.6.1 *Environment Act and Associated Regulatory Tools*

The intent of the Environment Act is to support and promote the protection, enhancement, and prudent use of the environment. The Act prohibits the starting or carrying out of any activity designated by the *Activities Designation Regulation* (see Regulations section below) without an approval from the Minister of the Environment. The Act outlines the approval application process as well as the conditions under which such an approval may be issued, amended, suspended, or cancelled.

The Environment Act also prohibits the release into the environment of a substance in an amount, concentration, level, or at a rate that exceeds those specifically authorized by an approval. In this regard, the Act mandates that anyone releasing a substance into the environment that has caused or may cause an adverse effect must take measures to prevent, reduce, and remedy that effect. The Act empowers the Minister of the Environment to classify all environmental releases, prescribe their concentration, amount or rate limits, and establish sampling, monitoring, and reporting procedures.

In terms of air quality, the Act requires the Minister of the Environment to establish provincial ambient air quality standards or objectives, standards for air quality testing and monitoring, and reporting requirements for air emissions. Other powers conferred to the Minister include the establishment of air emissions standards, regional air quality management programs, and requirements for the operation or maintenance of units that may emit contaminants into the air.

On the water front, the Act designates the Nova Scotia Department of Environment as the lead agency for water management and regulation. In particular, the Act gives the Department the authority to restrict activities affecting water quality, designate watersheds and recharge areas³⁸ as protected areas, regulate water and wastewater utilities, create monitoring standards, and ensure that water is managed and used efficiently.

Other relevant sections of the Act include provisions for fostering and promoting education and research on issues related to the environment, storing and handling dangerous goods, and promoting the development and use of sustainable environmental industries and technologies.

3.6.1.1 *Permitting/Approval System*

The Activities Designation Regulations specify three types of approval: industrial approvals, water approvals, and dangerous goods/waste dangerous goods approvals.

An industrial approval is required for construction or operation of a facility or industrial plant. The approval is valid for 10 years. The approval process is decentralized in four regions. If the facility is modified, a new approval is required. New facilities have only one industrial approval for air, wastewater, and solid waste. However, existing facilities may have different industrial approvals for each type of release to the environment. Liquid effluent limits are established following the criteria suggested by the federal *Pulp and Paper Effluent Regulation*, under the federal *Fisheries Act*. The parameters analyzed are pH, conductivity, BOD₅, TSS, and toxicity. Receiving water studies are also used in certain situations. Supplementary air limits are set by consulting national guidelines (CCME) or other provincial legislation, such as those from New Brunswick. An approval is not required if the activity generates only a liquid effluent which is discharged to a municipal wastewater treatment

³⁸ A recharge area is where water from precipitation is transmitted downward to an aquifer. Some areas allow more precipitation to infiltrate the ground than others. A critical recharge area is one that transmits a significant amount of precipitation (Chapter 2 of the Washington State, Department of Ecology, Ground Water Resource Protection Handbook, 1986).

facility. Industrial approvals for pulp and paper mills contain ambient air limits that are set according to ground level concentrations specified in the *Air Quality Regulation*.

Activities that require water approvals include, but are not limited to, water withdrawals or diversions of more than 23,000 L per day from surface or ground waters, storage of water in amounts of 25,000 m³ or more, or the installation and maintenance of pipelines in surface watercourses.

Dangerous Goods and Waste Dangerous Goods Approvals are required for the construction, operation, or reclamation of facilities handling dangerous goods or waste dangerous goods as defined in the *Dangerous Goods Management Regulations*. Other activities that require approvals of this type include, but are not limited to, the disposal of oily debris resulting from releases of a petroleum product and the storage of chemicals in tanks with capacities of 2,000 L or greater (liquid chemicals) and 2,000 kg or greater (solid chemicals).

3.6.1.2 Regulations

Activities Designation Regulations

Any activity designated in these regulations requires an approval from the Minister of the Environment. The modification or extension of any such activity also requires an approval, unless the activity is exempted by regulation. Pulp and paper manufacturing plants, wood treatment plants, industrial incinerators, industrial landfills, and the treatment or processing of industrial wastewater and wastewater sludge are some of the designated activities listed by these regulations.

Approvals Procedure Regulations

These regulations establish that an application for an approval must be made using a form prescribed by the Minister of the Environment. The regulations specify the type of information that must be provided when applying for an approval, and describe the approval application process, duration of approval/renewal, as well as the possibility of approval transfers.

Air Quality Regulations

These regulations set the criteria for ambient air quality throughout the province, prescribing the maximum permissible ground level concentrations for CO, H₂S, NO₂, ozone, SO₂, and total suspended particulate. The regulations also set out provincial annual SO₂ emission caps, require SO₂ emissions reduction plans for certain facilities, prescribe limits for sulphur content in certain fuels, and prohibit the burning of certain materials without ministerial approval.

Dangerous Goods Management Regulations

The Dangerous Goods Management Regulations prohibit the storage or adulteration of *dangerous goods*³⁹ or *waste dangerous goods*⁴⁰ without the prior written approval of the Minister of the Environment. The regulations specify requirements for the storage of prescribed dangerous and dangerous waste goods and set out storage limits for these substances.

³⁹ These regulations designate as dangerous goods any substance that is included, or conforms to the criteria set out, in specific sections of the federal *Transportation of Dangerous Goods Regulations*.

⁴⁰ These regulations designate waste dangerous goods any dangerous goods no longer in use for their original purpose but handled for treatment, disposal, or recycling. Dangerous goods returned directly to the manufacturer or supplier of the dangerous goods for reprocessing, repacking, or resale are not considered by the regulations as waste dangerous goods.

Emergency Spill Regulations

These regulations apply to an environmental emergency or an unauthorized release of a prescribed contaminant into the environment. For each of the prescribed contaminants, the regulations specify the limit above which the spill must be reported.

Water and Wastewater Facilities and Public Drinking Water Supplies Regulations and Associated Standards

These regulations are relevant to forest products plants that treat their fresh water. The regulations require water treatment (and non-industrial wastewater treatment) facilities to be classified in accordance with the *Facility Classification Standards* prior to starting operations. The regulations also require that these facilities be operated by certified personnel.

Greenhouse Gas Emissions Regulations

These regulations require electricity generators emitting more than 10,000 tonnes of CO₂e per year to make incremental GHG emissions reductions between 2010 and 2020. The regulations also prescribe mandatory annual reporting for the following GHGs: CO₂, CH₄, N₂O, SF₆, and various hydrofluorocarbons and perfluorocarbons.

Petroleum Management Regulations

These regulations require all underground and aboveground tanks with a capacity of storing 4,000 L or more of petroleum products⁴¹ to be installed by a certified installer. The regulations also require that tank installation comply with the *Nova Scotia Construction, Installation and Operation Standards for Petroleum Storage Tank Systems* and that installed tanks be registered with the Nova Scotia Department of Environment.

Other relevant sections of these regulations include provisions relating to the release and spill of petroleum products, and the monitoring, alteration, and decommissioning of tanks storing petroleum products.

PCB Management Regulations

These regulations prohibit the adulteration and disposal of any PCB liquid, PCB solid, or PCB substance, as well as the storage of PCB waste without the prior written approval of the Minister of the Environment⁴². In terms of PCB waste storage, the regulations only apply to sites where the stored waste contains more than 0.5 kg of PCBs. The regulations also specify the conditions under which these storage sites must operate.

Various Protected Water Areas Regulations

Nova Scotia has enacted a number of regulations to protect areas that surround drinking water sources. These regulations specify restrictions on various water uses and specific activities or industries. In general, these regulations prohibit the release of substances that cause or may cause an adverse effect within protected water areas.

⁴¹ The Petroleum Management Regulations designate petroleum products as dangerous goods.

⁴² The PCB Regulations designate PCB liquids, PCB solids, and PCB substances as dangerous goods; and PCB waste as waste dangerous goods.

3.6.1.3 Guidelines

Guide to Surface Water Withdrawal Approvals

The purpose of this guide is to describe water approval application requirements, corresponding supporting documentation, and the criteria used by the Nova Scotia Department of Environment to evaluate surface water withdrawal applications.

3.6.2 Dangerous Goods Transportation Act and Regulations

The Dangerous Goods Transportation Act (DGTA) classifies dangerous goods in various categories that include explosives, compressed gas, flammable solids and liquids, oxidizing substances, toxic substances, infectious substances, corrosive substances, and miscellaneous goods that the government has concluded pose a risk in transport.

The Act prohibits the carrying of dangerous goods in a vehicle on a highway unless all applicable prescribed safety requirements are complied with, and the vehicle and all containers and packaging comply with all applicable prescribed safety standards and display all applicable prescribed safety marks. The *Dangerous Goods Transportation Regulations* prescribe the use of the safety requirements, safety standards, and safety marks set out in the federal TDGR.

The DGTA also establishes the appointment and certification of an inspector with the right to stop and inspect vehicles and their loads and to ensure they comply with the Act and its regulations. Where the Act or the regulations are contravened, the Act provides the inspector with the authority to seize or detain the vehicle.

3.6.3 Environmental Goals and Sustainable Prosperity Act

The intent of this Act is to set specific goals to address a number of environmental and sustainability issues. Some of the most relevant goals include, but are not limited to, the protection of the province's natural resources and ecosystems, the preservation of water quality, the reduction of air emissions and waste, and the use of renewable energy sources. One particular goal aims at reducing Nova Scotia's GHG emissions by at least 10% below 1990 levels by 2020. The Act requires the government to report annually on the progress achieved in meeting those goals.

The Environmental Goals and Sustainability Prosperity Act is expected to be reviewed, including an opportunity for public comment, in 2012.

3.6.4 Water Resources Protection Act

The purpose of the Water Resources Protection Act is to ensure the protection of the water resources of Nova Scotia. The Act prohibits the drilling for, diversion, extraction, storage, sale, disposal of, or transport of surface or ground water for removal, or the direct withdrawal of these waters from the portion of the Atlantic Drainage Basin that is located within the province. The Act establishes some exceptions to this prohibition. Thus, water may be removed from the province's portion of the Atlantic Drainage Basin if it is used, for instance, to fight fire or to transport fish or any other product, or if it is included in manufactured, produced, or packaged foods or products (which do not include potable or other water).

3.6.5 *Electricity Act and Renewable Electricity Regulations*

The Electricity Act establishes that companies selling or supplying electricity to a customer must comply with the renewable energy standards set out in the *Renewable Electricity Regulations*. These standards require that by 2013, a minimum of 10% of the electricity sold by each supplier in Nova Scotia must come from renewable sources. This goal is increased to 15% by 2015.

The Renewable Electricity Regulations establish a cap for the utilization of primary forest biomass⁴³ to attain any renewable electricity standard established in these regulations. The regulations also require proponents of renewable electricity generation projects to provide a biomass fuel procurement plan to ensure that fuel supply meets sustainable harvesting requirements.

3.6.6 *Forest Act*

One of the primary purposes of the Forest Act is to enhance forest productivity, wildlife and wildlife habitat, water quality, and the viability of forest-based manufacturing and processing industries. In particular, one section of the Act targets the buyers of primary forest products (PFP). These buyers must be registered with the Ministry of Land and Forests. They include wood processing facilities, importers and exporters of PFP, fuel wood dealers, and companies that buy PFP to produce energy. The Act requires buyers to submit to the Minister of Land and Forests for approval, on an annual basis, a wood acquisition plan setting out the manner in which the PFP acquisition may be made on a sustainable basis.

3.6.7 *Proposed Voluntary Carbon Emissions Offset Fund Act (Bill 38)*

This proposed Act will create the Nova Scotia Voluntary Carbon Emissions Offset Fund for projects that reduce GHG emissions. This Fund will deliver surplus emissions credits to individuals, businesses, organizations, and government to use in offsetting all or part of their own GHG emissions inventories.

3.7 Ontario

In Ontario, there are seven provincial acts that are relevant to the protection and conservation of the environment, and that directly affect the forest products industry.

- Environmental Protection Act
- Dangerous Goods Transportation Act
- Ontario Water Resources Act
- Water Opportunities and Water Conservation Act
- Green Energy Act
- Nutrient Management Act
- Toxics Reduction Act

The Environmental Protection Act is Ontario's primary environmental legislation and deals with the discharge of contaminants to the environment.

The Dangerous Goods Transportation Act controls the transport and handling of dangerous goods in Ontario.

The Ontario Water Resources Act aims to conserve, protect, and manage Ontario's ground and surface water resources. The Water Opportunities and Water Conservation Act is designed to foster

⁴³ i.e., biomass produced as a result of forest harvesting in the province and first used as a fuel.

the development of innovative water and wastewater technologies, as well as to conserve and sustain the province's water resources.

The Green Energy Act supports the development of renewable energy projects and encourages energy conservation.

The Nutrient Management Act provides standards for how nutrients, such as pulp and paper biosolids, are applied to farmland.

The Toxics Reduction Act aims to prevent pollution and protect human health through the reduction of toxic substances.

Overall, seventeen provincial regulations, one code, and twenty-two standards and guidelines have been identified as being directly relevant to Ontario's forest products industry. The regulatory framework in Ontario is shown in Table 8 (organized by type of environmental release or media) and, schematically, in Figure 8.

3.7.1 *Environmental Protection Act and Associated Regulatory Tools*

This Act grants the Ontario Ministry of the Environment (OMOE) the authority to prohibit the discharge of contaminants which are likely to cause negative effects into the environment. In the case of some approved contaminants, the Act requires that they must not exceed approved and regulated limits. The Act also deals with commercial transactions involving contaminated land.

Ontario is currently working with other provinces and US states through the WCI to design a broad-based GHG cap-and-trade system. To lay the foundation for this system, in 2009, the government of Ontario amended the Environmental Protection Act to include provisions for GHG emissions trading. The amendments authorize the making of regulations related to emissions trading and other economic and financial instruments and market-based approaches. The amended Act also introduces the definition of GHGs and establishes the Greenhouse Gas Reduction Account which is intended to fund research and development of lower GHG emitting technologies, as well as programs, infrastructure, or equipment to reduce GHG emissions.

Table 8 Ontario Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media			
		Air	Wastewater /Water	Solid Residuals	Chemicals
Environmental Protection Act	Authorization Tools	Air and Noise Approval		Waste Disposal and Management Approvals Renewable Energy Approval	
	Regulations	Renewable Energy Approvals, O. Reg. 359/09 Air Pollution - Local Air Quality, O. Reg. 419/05 Airborne Contaminant Discharge Monitoring and Reporting, O. Reg. 127/01 Emissions Trading, O. Reg. 397/01 Industry Emissions – NO _x & SO ₂ , O. Reg. 194/05 Boilers, R.R.O. 1990, Reg. 338 GHG Emissions Reporting, O. Reg. 452/09	Effluent Monitoring and Effluent Limits - Pulp and Paper Sector, O. Reg. 760/93 Waste Management - PCB's, R.R.O. 1990, Reg. 362	Renewable Energy Approvals, O. Reg. 359/09 Ethanol in Gasoline, O. Reg. 535/05 General - Waste Management, R.R.O. 1990, Reg. 347 Landfilling Sites, O. Reg. 232/98 Waste Management - PCB's, R.R.O. 1990, Reg. 362 Classification and Exemption of Spills and Reporting of Discharges Regulation, O. Reg. 675/98 Spill Prevention and Contingency Plans Reduction, O. Reg. 224/07	
	Codes	Emissions Trading Code			
	Standards and Guidelines	Ontario's Ambient Air Quality Criteria Guide to Provincial approvals for Renewable Energy Projects Summary of Standards and Guidelines to Support O. Reg. 419 Technical Standards to Manage Air Pollution Air Dispersion Modelling Guideline Technical Methods For Opacity Guideline for the Implementation of Air Standards in Ontario Procedure for Preparing an ESDM Report Operations Manual for Air Quality Monitoring in Ontario Atmospheric Emissions from Stationary Combustion Turbines Policy Guideline NO _x Emissions from Boilers and Heaters Policy Guideline Step by Step Guideline for Emission Calculation, Record Keeping and Reporting for Airborne Contaminant Discharge Guideline for the Installation and Operation of CEMS and their Use for Reporting under the provisions of O. Reg. 127/01 Guideline for Identification of Best Available Control Technology - Economically Achievable (BACTEA) for O. Reg. 194/05	Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Protocol for Conducting a Storm Water Control Study Water Management – Policies, Guidelines and Provincial Water Quality Objectives Guideline B-1-3 Protocol for Sampling And Testing At PCB Storage Sites In Ontario	Guide to Provincial approvals for Renewable Energy Project A Guideline on the Regulatory & Approval Requirements for New or Expanding Landfilling Sites Protocol for Sampling And Testing At PCB Storage Sites In Ontario Spills Reporting - A Guide to Reporting Spills and Discharges Guideline for Implementing Spill Prevention and Contingency Plans Regulatory Requirements	

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media			
		Air	Wastewater /Water	Solid Residuals	Chemicals
		Guideline for the installation and operation of CEMS and their use for reporting under the provisions of O. Reg. 194/05 Guideline for GHG Emissions Reporting Guideline on Regulatory & Approval Requirements for New or Expanding Landfilling Sites			
Dangerous Goods Transportation Act					
Ontario Water Resources Act	Authorization Tool		Sewage Works Approval Permit to Take Water		
	Regulations		Water Taking, O. Reg. 387/04		
Water Opportunities and Water Conservation Act					
Green Energy Act					
Nutrient Management Act	Regulations			General Nutrient Management Regulation, O. Reg., 267/03	
Toxics Reduction Act	Regulations				General Toxics Reduction Regulation, O. Reg. 455/09

3.7.1.1 Permitting/Approval System

Under the Environmental Protection Act, any facility that releases emissions to the atmosphere and manages or disposes of waste must obtain a *Certificate of Approval (CofA)*. The requirement to obtain a Certificate of Approval to discharge wastewater to ground and surface water is established under the *Ontario Water Resources Act*. All approvals are issued by the Ministry of Environment head office. Once issued, CofAs are available to the public.

Air and Noise Approvals: These approvals generally do not contain stack limits for air emissions. Models are used to determine values of contaminants at point of impingement. Results of modelling are controlled with limits established in applicable regulations, guidelines and policies. Certificates of approval are usually valid perpetually, unless there is a modification in the process or equipment.

Waste Disposal and Management Approvals: These approvals must be obtained before using, operating, establishing, altering, enlarging, or extending a waste management system or a waste disposal site. Operations or activities that require approval include, but are not limited to, landfills, incinerators, processing external waste, waste transfer and processing facilities, and biosolids spreading sites. Specific exemptions for selected types of waste or activities are specified in the *General Waste Management Regulation (R.R.O. 1990, Reg. 347)*.

OMOE is currently modernizing its environmental approvals process by moving from a “one-size-fits-all” approach to a risk-based approach with the intent to account for the specific potential environmental risks associated with a given activity. The new approvals process will affect owners and operators of facilities that currently require a CofA.

The newest addition to the permitting system is the *Renewable Energy Approval (REA)* established by the *Renewable Energy Approvals under Part V.0.1 of the Environmental Protection Act Regulation* (O. Reg. 359/09). This regulation sets out the requirements for obtaining a REA to proceed with a renewable energy project. Bioenergy power facilities that use renewable sources of energy such as wind, solar, biomass, biogas and biofuels require a REA. Waterpower projects do not currently require a REA, and must follow the requirements established under the Environmental Assessment Act. OMOE has prepared a guide to applying to a REA: *Provincial approvals for Renewable Energy Projects*. This guide outlines the provincial rules for developing renewable energy projects and explains the associated approvals process.

3.7.1.2 Regulations and Codes

Air Pollution - Local Air Quality Regulation, O. Reg. 419/05

The intent of this regulation is to reduce industrial emissions of harmful pollutants and to protect communities against adverse effects from local sources of air emissions. To do this, the regulation grants authority to OMOE to set out air standards as point of impingement⁴⁴ limits for contaminants released by industrial facilities. Most of the standards listed under Schedules 2 and 3 of this regulation are based on the Ministry’s *Ambient Air Quality Criteria (AAQCs)*. AAQCs are effect-based concentration levels with variable averaging time (e.g., 24 hour, 1 hour, 10 minutes) below which adverse health and/or environmental effects are not expected. The list of AAQCs was developed as a component of OMOE’s standard setting process and replaces O. Reg. 337: *Ambient Air Quality Criteria*, which was revoked in 2008.

Air Pollution Regulation 419 approves the use of a number of dispersion models⁴⁵ and, since 2010, requires facilities to prepare annual Emission Summary and Dispersion Modelling (ESDM) reports. Pulp, paper, and paperboard facilities are required to comply with air standards in Schedule 3 of the regulation using approved air dispersion models by 2013. Prior to this date, the regulation specifies that facilities must complete and update their ESDM reports annually to assess the impact of their emissions against standards and guidelines.

Once the standards come into effect, facilities unable to identify the technology or capital funding needed for compliance can apply for a site-specific alteration of the standard or for a technical standard for certain contaminants, provided such a standard exists for their industry and sources.

Ethanol in Gasoline Regulation, O. Reg. 535/05

This regulation establishes that every fuel supplier must ensure that gasoline contains, on an annual average, no less than 5% ethanol by volume. The regulation approves the use of *cellulosic ethanol* in determining the annual average ethanol content in ethanol-blended gasoline.

⁴⁴ A point of impingement is the point at which a contaminant contacts ground or a building (typically) located out of the property where the source of contaminant is located (O. Reg. 419 and Ontario Ministry of Environment).

⁴⁵ An air dispersion model is a mathematical tool that is used to estimate point of impingement concentrations (Ontario Ministry of Environment).

Airborne Contaminant Discharge Monitoring and Reporting Regulation, O. Reg. 127/01

This regulation applies to facilities that have units that discharge, or have the potential to discharge, a contaminant into the air. Facilities addressed by this regulation are required to monitor and calculate their annual air emissions, and prepare a report. The reporting requirements specified in this regulation are harmonized with EC's federal air emissions reporting requirements.

Emissions Trading Regulation, O. Reg. 397/01

The purpose of the Emissions Trading regulation is to help reduce nitric oxide (NO), NO_x, and SO₂ emissions from facilities generating electricity. In particular, this regulation is applicable to facilities operating an electricity generating unit of more than 25 MW, and renewable energy and conservation projects. Under this regulation, both NO_x and SO₂ emissions are tradable through a system of emission allowances⁴⁶ and emission reduction credits⁴⁷. The *Ontario Emissions Trading Registry* tracks the creation, transfer, and use of allowances and emission-reduction credits issued under O. Reg. 397/01.

Emissions Trading Code

This code provides specific information about emissions trading requirements and sets out the rules for the operation of the Emissions Trading Registry. The code also establishes the procedures and requirements that proponents of renewable energy projects need to follow to be eligible to receive emission allowances.

Industry Emissions – Nitrogen Oxides and Sulphur Dioxide Regulation, O. Reg. 194/05

This regulation is applicable to specific industrial sectors, including facilities that produce pulp using the kraft pulping process. Specifically, the regulation establishes NO_x and SO₂ emission intensity rates for nine pulp and paper mills. These rates are specified for 2006, 2007-2009, and 2010 and beyond. The regulation includes provisions for new and expanding facilities in the pulp and paper sector to receive NO_x and SO₂ emission allowance allocations based on emission levels that correspond to the application of best available control technologies economically achievable (BACTEA). NO_x and SO₂ emissions are controlled and tradable under both O. Reg. 194/05 and O. Reg. 397/01. For kraft mills, these facilities must therefore apportion NO_x and SO₂ emissions between electrical power generation and the kraft pulp manufacturing process.

Boilers Regulation, R.R.O. 1990, Reg. 338

This regulation limits the sulphur content of fossil fuels to 1%.

Greenhouse Gas Emissions Reporting Regulation, O. Reg. 452/09

This regulation requires large GHG emitters to report their annual emissions using standard quantification methods. These methods are based on procedures developed by the WCI and US EPA. Thirty-one GHGs and 26 industrial sectors, including electricity generation, cogeneration, and pulp and paper manufacturing, are covered by this regulation. All prescribed facilities must collect GHG emissions data, but only those emitting more than 25,000 tonnes of CO₂e per year are subject to the

⁴⁶ Each allowance equals one tonne of emissions. Each emitter is allocated a specific number of allowances by the government, which equals the amount of pollutant that the emitter is allowed to release into the atmosphere in a given year.

⁴⁷ Each credit represents one tonne of approved emission reductions. Credits are subject to approval by the Ministry before they can be sold to emitters.

annual reporting requirements⁴⁸. Beginning with the 2011 reporting year, emissions data must be verified by an accredited third party and an annual verification report submitted⁴⁹.

Effluent Monitoring and Effluent Limits - Pulp and Paper Sector Regulation, O. Reg. 760/93

This is one of nine regulations (one for each relevant industrial sector) promulgated in the context of the *Municipal Industrial Strategy for Abatement (MISA)* program. This program was designed to address levels of persistent toxic substances in industrial direct discharges entering Ontario's waterways. The primary purpose of this regulation is to monitor and control the quality of effluent discharged from pulp and paper facilities. The regulation sets out limits for BOD₅, total phosphorus, total suspended solids, chloroform, toluene, phenol, and AOX.

General - Waste Management Regulation, R.R.O. 1990, Reg. 347

This regulation lists requirements for various types of wastes (including solid, hazardous and liquid wastes) and prescribes standards for the location, maintenance and operation of landfilling sites. This regulation does not apply to a) unpainted and untreated chipped or waste wood intended for use as ground cover; or b) waste from harvesting or processing forestry products and from the treatment of wastewater generated by pulp, paper, or corrugated cardboard facilities and intended for use as a feedstock in the production of ethanol or biodiesel.

According to this regulation, facilities generating untreated wood waste are exempted from requiring a Waste Management or Waste Disposal Site Approval provided the wood waste is transferred to a site where it will be thermally treated or entirely utilized as a fuel or fuel supplement in a combustion unit.

This regulation considers as hazardous industrial waste the wastewater and wastewater sludge produced by wood processing facilities that use chlorophenolic or creosote formulations, or inorganic preservatives containing arsenic or chromium.

Landfilling Sites Regulation, O. Reg. 232/98

This regulation contains standards for the design, operation, financial assurance, and post-closure care of non-hazardous waste landfill sites. The standards apply to new or expanding non-hazardous landfill sites where the total waste disposal volume is greater than 40,000 m³. The regulation includes specific requirements regarding leachate control and groundwater protection. It should be noted that discharges to surface water from landfilling sites may also be subject to approval under the *Ontario Water Resources Act*. For a landfill discharging to a sewer, the quality and quantity of the discharge is controlled by local sewer use bylaws, and the requirements or limitations of the receiving wastewater treatment plant.

Waste Management - PCB's Regulation, R.R.O. 1990, Reg. 362

This regulation prohibits the disposal, decontamination, or management of mono- and polychlorinated biphenyls PCB waste, or dilution of liquid PCB waste, except when permitted under a CofA. The regulation also requires that every operator of a waste disposal site maintain records of PCB waste storage, track movements of PCB waste, and ensure a safe and secure storage of PCB waste.

⁴⁸ The CO₂ from biomass combustion is not included in the threshold calculations. If the facility meets or exceeds the threshold calculations, then it must also include reporting the CO₂e from biomass combustion.

⁴⁹ CO₂ emissions data generated from the combustion of biomass are exempted from verification.

Classification and Exemption of Spills and Reporting of Discharges Regulation, O.Reg. 675/98

The first part of this regulation classifies 11 types of spills, circumstances, industry type or activities, and exempts these, under specified conditions, from all or part of the Environmental Protection Act's Part X duties and responsibilities. The regulation encourages facilities that manage substances that may spill to evaluate potential risks within their operations and to develop appropriate spill contingency plans.

The second part of this regulation prescribes the notification requirements for reporting discharges or spills of a contaminant that causes or is likely to cause an adverse effect on the environment.

Spill Prevention and Contingency Plans Regulation, O.Reg. 224/07

This regulation applies to various industrial sectors, including the pulp and paper industry. Facilities affected by this regulation are required to develop and implement spill prevention and contingency plans. The regulation specifies the type of information these plans must include and the date they must be developed and implemented.

3.7.1.3 Guidelines and Standards***Summary of Standards and Guidelines to Support Ontario Regulation 419***

This document lists the air standards specified in O. Reg. 419/05 and the current OMOE guidelines for various contaminants. The document also includes the Upper Risk Thresholds identified in Schedule 6 of O. Reg. 419/05.

Technical Standards to Manage Air Pollution

This document includes industry and equipment standards, specifies the types of facilities and contaminants to which these standards apply, and sets out the requirements that facilities must follow to register for a technical standard.

Guideline for the Implementation of Air Standards in Ontario

This document provides guidance on the information needed to support a request for an altered air standard.

Air Dispersion Modelling Guideline for Ontario

This guideline provides an overview of the approved dispersion models and discusses the type of data and approach needed to assess compliance with O. Reg. 419/05.

Technical Methods for Opacity under O. Reg. 419

The purpose of this technical report is to discuss the technical issues regarding opacity measurements conducted for regulatory purposes.

Procedure for Preparing an Emission Summary and Dispersion Modelling (ESDM) Report

This document provides guidance regarding the preparation of an ESDM report as per required by O. Reg. 419/05.

Operations Manual for Air Quality Monitoring in Ontario

This manual provides guidance and direction to emitters and station operators in Ontario who are responsible for the operation and maintenance of air quality monitoring stations near an emitter's facilities.

Atmospheric Emissions from Stationary Combustion Turbines Policy Guideline A-5

This policy controls emissions of NO_x from new and modified stationary combustion turbines by specifying atmospheric emission limits for NO_x, SO₂, and CO. This policy applies to all new and modified stationary combustion turbines using gaseous, liquid or solid-derived fuels.

NO_x Emissions from Boilers and Heaters Policy Guideline A-9

This guideline specifies limits for emissions of NO_x for new or modified fossil fuel boilers and heaters that have a fuel energy input greater than 10 million Btu/h (10.5 GJ/h). The guideline specifies various NO_x emission limits, based on the type of fuel and the size of boiler or heater, with specified credits for high efficiency boilers. These emission limits do not apply to coal-fired or wood-fired boilers and heaters.

Step by Step Guideline for Emission Calculation, Record Keeping and Reporting for Airborne Contaminant Discharge

This guideline specifies the types of facility affected by O. Reg. 127/01 and is intended to assist those facilities in complying with that regulation.

Guideline for the Installation and Operation of Continuous Emission Monitoring Systems (CEMS) and their Use for Reporting

The purpose of this guideline is to provide direction on the selection, installation, commissioning, and operation of continuous emission monitors required by the provisions of O. Reg. 127/01.

Guideline for Identification of Best Available Control Technology Economically Achievable (BACTEA) for O. Reg. 194/05

The BACTEA requirement applies to equipment that emits NO_x or SO₂, has a heat input greater than one million Btu per hour, and is new or has been modified since O. Reg. 194/05 was enacted. The purpose of this document is to provide guidance on how to undertake a BACTEA determination for either new or expanding facilities under O. Reg. 194/05. The determination is applicable only to equipment and process changes that lead or could lead to an increase in production.

Guideline for the Installation and Operation of Continuous Emission Monitoring Systems (CEMS) and Their Use for Reporting under the Provisions of O. Reg. 194/05

The purpose of this document is to provide guidance on the selection, installation, commissioning, and operation of continuous emission monitors required by the provisions of O. Reg. 194/05.

Guideline for Greenhouse Gas Emissions Reporting

This guideline sets out the standard and alternative quantification methods that can be used by facilities under O. Reg. 452/09. Some of these methods provide two or more options for calculation, sampling, analysis, and measurement procedures depending on the type of fuels and other material used in industrial processes.

Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater

The purpose of this protocol is to provide guidance on the sampling, analysis, and QA/QC procedures to be followed by all laboratories handling samples under the Effluent Monitoring and Effluent Limits Regulations, such as O. Reg. 760/93.

Water Management – Policies, Guidelines & Provincial Water Quality Objectives Guideline B-1-3

This document provides information regarding the management of the quality and quantity of surface and ground water. The document also establishes specific provincial water quality objectives (PWQO) for many pollutants, and the requirements intended to ensure that the objectives are maintained or achieved. These objectives consist of chemical and physical criteria set at levels intended to protect aquatic life and the largest number of water uses. The guidelines and objectives contained in this document do not have any formal legal status, but serve as water quality standards when government reviews decisions regarding both the *Ontario Water Resources Act* and the *Environmental Protection Act*. In particular, PWQOs are used for deriving effluent requirements for a CofA or as the standard set of water quality indicators sampled for under the *Provincial Water Quality Monitoring Program*.

Protocol for Conducting a Storm Water Control Study

This protocol provides guidance on conducting a Storm Water Control Study (SWCS) in accordance with the requirements of the Effluent Monitoring and Effluent Limits Regulations, such as O. Reg. 760/93. The protocol outlines the role and responsibilities of the discharger, exemption criteria, and the requirements for a SWCS and for developing a control program.

Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites

The guideline is intended to help landfill owners, consultants, the public, and other interested parties understand the requirements and standards established in O. Reg. 232/98. For each standard, this document provides the regulatory requirements and approval guidelines necessary to comply with the regulation and obtaining a CofA. The guideline also describes the legislative framework within which the landfill standards operate and provides a summary of those standards.

Protocol for Sampling and Testing at PCB Storage Sites in Ontario

This document provides standard procedures for sampling and testing (laboratory analysis) of contaminated materials stored at PCB storage sites. The protocol can also be used for the decommissioning of these sites or for the clean-up of PCB-contaminated sites.

Spills Reporting - A Guide to Reporting Spills and Discharges

The primary purpose of this guide is to provide practical guidance on the reporting provisions for spills and discharges under the Environmental Protection Act, and O. Reg. 675/98. The guide also contains information on the various discharge reporting requirements, spill classification, and exemptions for Part X of the Environmental Protection Act (Spills).

Guideline for Implementing Spill Prevention and Contingency Plans Regulatory Requirements

The purpose of this guideline is to provide guidance on the development and implementation of plans, as prescribed by O. Reg. 224/07. The document contains information explaining key terms of the regulation and provides details on the minimum requirements for spill prevention and contingency planning.

3.7.2 *Dangerous Goods Transportation Act*

The 2010 amendments made to the Dangerous Goods Transportation Act will come into force on July 1, 2011. The new Act prohibits the transport of any dangerous goods in a means of transport on a highway unless all applicable federally prescribed safety requirements and standards are complied with, and the means of transport and all means of containment display all applicable federally prescribed safety marks. The Act also categorizes dangerous goods into nine classes and provides for the designation of inspectors and establishes their powers and functions.

The only regulation under this Act, *R.R.O. 1990 Regulation 261*, will be revoked on July 1, 2011.

3.7.3 *Ontario Water Resources Act (OWRA) and Water Taking Regulation O. Reg. 387/04*

The Ontario Water Resources Act prohibits the discharge of polluting materials from sewage works that may impair water quality. Sewage works are defined as works used for the collection, transmission, treatment, or disposal of industrial wastewater. The OWRA requires that a Ministry Certificate of Approval be obtained before constructing, altering, extending, or replacing any sewage works. Approvals are valid for five years for construction. If the facility is not built in that period, a new approval is needed. Approvals to operate have no end date unless there are modifications in the equipment or the process. Many pulp and paper mills are tracked under the *Municipal/Industrial Strategy for Abatement (MISA)* program. In this case, specific limits are established for facilities in the *Effluent Monitoring and Effluent Limits - Pulp and Paper Sector Regulation (O. Reg. 760/93)*. In other cases, effluent limits are set using the *Provincial Water Quality Objectives*. Nevertheless, receiving water conditions are always taken into consideration and more stringent limits can be set.

The Act is designed to protect water resources from industrial and commercial users who might draw more water out of provincial aquifers than these aquifers can reasonably sustain. Accordingly, facilities withdrawing more than 50,000 L of water per day from ground or surface water sources are required, under the Act, to apply for a permit. The Water Resources Act also regulates well construction, operation and abandonment, as well as the approval, construction, and operation of all waterworks.

The Water Taking Regulation (O. Reg. 387/04) prohibits water transfers out of a water basin and sets out specific criteria for the Ministry to consider when reviewing applications for a permit to take water. The regulation also contains provisions regarding watershed protection, water conservation, and water taking reporting.

3.7.4 *Green Energy Act*

The primary purpose of this Act is to encourage energy conservation and to expand Ontario's production of renewable energy such as solar, biogas, biomass, landfill gas, wind, and water power. The Act establishes the *Renewable Energy Facilitation Office* to facilitate and foster the development of renewable energy projects, and to assist project proponents with satisfying the requirements of associated approval processes or alert them of potential requirements imposed by the Federal Government.

3.7.5 *Water Opportunities and Water Conservation Act*

The purpose of this Act is to promote water conservation, and to encourage the creation and export of innovative water, wastewater, and stormwater technology. Specifically, the Act requires municipalities to prepare and submit sustainability plans for their drinking water, wastewater, and stormwater services, and requires public agencies to prepare water conservation plans and achieve

water conservation targets⁵⁰. The Act also establishes the *Water Technology Acceleration Project* (WaterTAP) to support research and development as well as the commercialization of new technologies and innovations in Ontario's water and wastewater sector. The Water Opportunities and Water Conservation Act amended both the Green Energy Act and the Ontario Water Resources Act (OWRA)⁵¹.

3.7.6 Nutrient Management Act and Associated Regulation

The purpose of this Act is to provide for the management of materials containing nutrients in ways that will enhance protection of the environment. The Act considers pulp and paper biosolids as one type of nutrients that can be applied to land for the purpose of improving the growing of agricultural crops.

The General Nutrient Management Regulation, O. Reg. 267/03, provides rules and guidelines for applying non-agricultural source materials (NASM) to farmland. These rules establish quality standards and requirements across the province for material intended for land application. NASM includes yard waste, fruit and vegetable peels, food processing waste, pulp and paper biosolids, and sewage biosolids. NASM land application standards and requirements are enforceable under the *Nutrient Management Act* and, if an adverse effect occurs or may occur, the *Environmental Protection Act* or the *Ontario Water Resources Act* may also apply.

3.7.7 Toxics Reduction Act and Associated Regulatory Tools

The objective of the Toxics Reduction Act is to reduce the use and emission of toxic substances. The Act requires regulated facilities to track and quantify the toxic substances that they use and generate, to develop plans to reduce the use and creation of these substances, and to make summaries of their plans available to the public.

The Toxics Reduction Act introduces two types of substances: *toxic substances* and *substances of concern*.

The General Toxics Reduction Regulation (O. Reg. 455/09) lists almost 100 *toxic substances*. This regulation applies to manufacturing or mineral processing activities involving substances listed in the National Pollutant Release Inventory (NPRI) Notice as well as acetone. There are many substances on the NPRI list that are not part of the toxic substances listed in O. Reg. 455/09. Facilities that use these substances were expected to begin tracking them in 2010 and reporting them by June 2011. Facilities must meet prescribed criteria including thresholds for the use and creation of toxic substances. The thresholds are the same as those established for the NPRI and those adopted from O. Reg. 127/01 for acetone. If a manufacturing or mineral processing facility is required to provide information under NPRI or Ontario Regulation 127/01, then the facility is required to account, plan, and report under the Toxics Reduction Act and Ontario Regulation 455/09.

Substances of concern are not tracked by NPRI. Moreover, the sections in the Toxics Reduction Act pertaining to these substances are not currently in effect.

⁵⁰ At the time of the preparation of this report, these targets remained unspecified pending future regulation.

⁵¹ As a result of these amendments, the Green Energy Act now allows OMOE to issue directives related to water use and conservation, and the adoption of technologies and services promoting the efficient use of water. The amendments to the OWRA are not directly relevant to the forest products sector and involve provisions, shifted out of the Green Energy Act, setting efficiency standards for prescribed appliances and products.

3.8 Quebec

In Quebec, there are four provincial statutes that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and the natural resources.

- Environmental Quality Act (EQA)
- Highway Safety Code
- Forest Act
- An Act to Affirm the Collective Nature of Water Resources and Provide for Increased Water Resource Protection

The Environmental Quality Act (EQA) is Quebec's primary legislation respecting environment conservation, protection, and management.

The Highway Safety Code governs the use of vehicles on public highways and has provisions relating to highway safety and the transportation of goods.

The Act to Affirm the Collective Nature of Water Resources and Provide for Increased Water Resource Protection confirms the legal status of Quebec's surface and ground water as a collective resource and sets out principles to protect it.

The Forest Act includes provisions for the utilization and processing of timber.

Overall, ten provincial regulations, one proposed provincial regulation, four municipal by-laws, and eight standards and guidelines have been identified as being directly relevant to Quebec's forest products industry. The regulatory framework in Quebec is shown in Table 9 (organized by type of environmental release or media) and, schematically, in Figure 9.

Table 9 Quebec Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater /Water	Solid Residuals
Environmental Quality Act	Authorization Tools	Certificate of Authorization and/or Depollution Attestation		
			Water Withdrawal Authorization	
	Regulations	Regulation Respecting Pulp and Paper Mills		
		Regulation Respecting Industrial Depollution Attestations		
		Regulation Respecting the Quality of the Atmosphere Draft Air Quality Regulation Amended Regulation Respecting Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere City of Montreal By-law 2001-10 Pertaining to Clean Air	Regulation Respecting Solid Waste Regulation Respecting the Landfilling and Incineration of Residual Materials Regulation Respecting the Declaration of Water Withdrawals City of Montreal By-law 2001-9 Respecting Waste Water Disposal in Sewer Systems and Waterways City of Montreal By-law 2008-47 Drainage, prétraitement, normes de rejet, caractérisation et déversements accidentels City of Montreal By-law RCG 08-041 Permis de déversement d'eaux usées, entente de dérogation ainsi que tarification des rejets d'eaux usées, de boues de fosses septiques et de toilettes chimiques	Regulation Respecting Solid Waste Regulation Respecting the Landfilling and Incineration of Residual Materials Regulation Respecting Hazardous materials
Standards and Guidelines	Guidelines for the Sawmill Industry			
	Air Quality Criteria (Critères de qualité de l'air)	Surface Water Quality Criteria Guideline for Conducting Industrial Toxicity Reduction Evaluations Guideline for the Use of Effluent Discharge Objectives Associated with Industrial Effluent Discharges into the Aquatic Environment A Technical Support Guideline to Determine the Volumes of Water Withdrawn in the Context of the Regulation Respecting the Declaration of Water Withdrawals	Guidelines for the Beneficial Use of Fertilizing Residuals Guidelines Respecting the Management of Treated Wood	
Highway Safety Code	Regulations			Transportation of Dangerous Substances Regulation
An Act to Affirm the Collective Nature of Water Resources and Provide for Increased Water Resource Protection				
Forest Act	Authorization Tool	Wood Processing Plant Operating Permit		
	Regulations	Regulation Respecting Operating Permits for Wood Processing Plants		

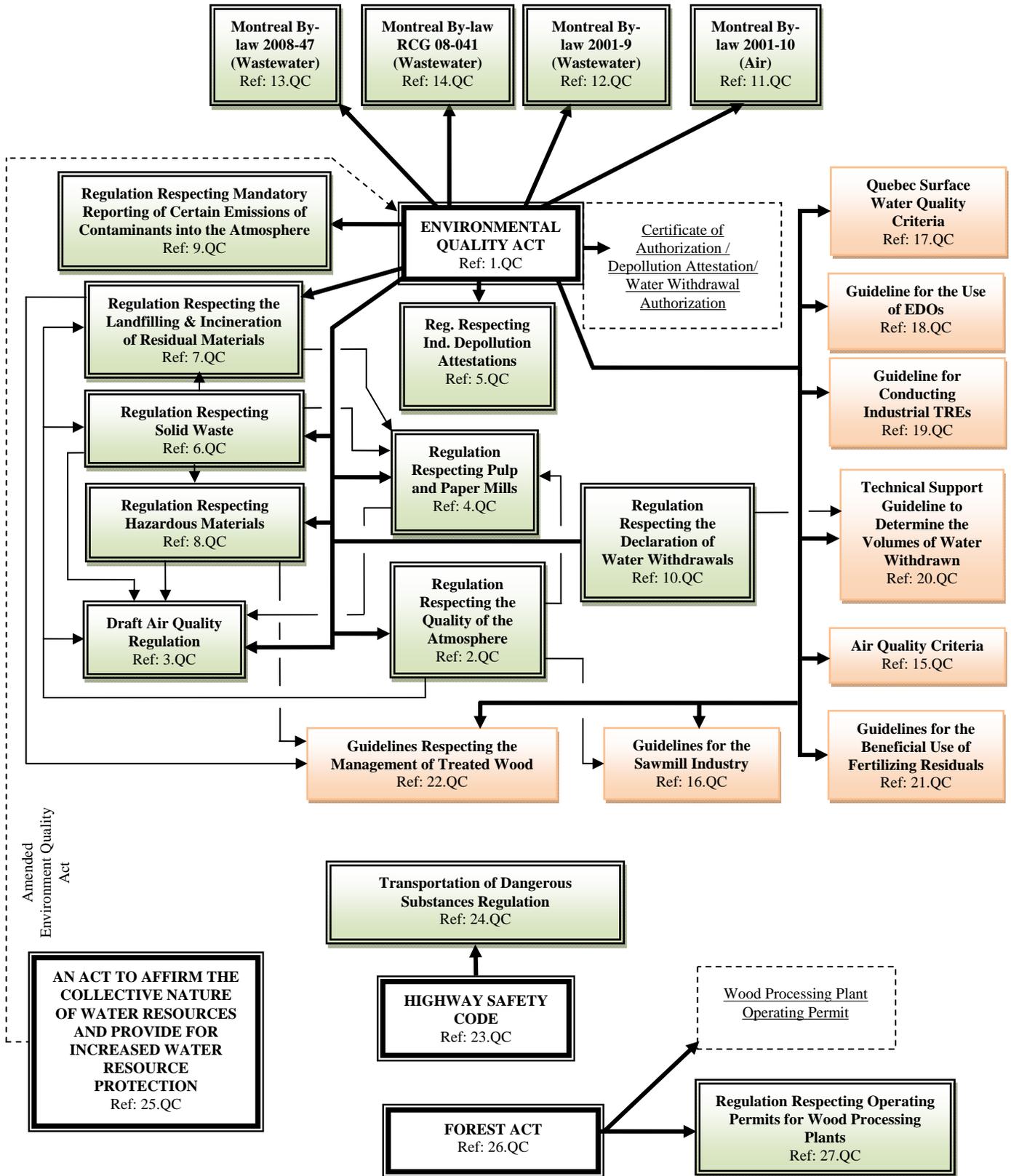


Figure 9 Quebec Regulatory Framework

3.8.1 Environmental Quality Act (EQA) and Associated Regulatory Tools

This Act grants the *Ministère du Développement durable, de l'Environnement et des Parcs* (MDDEP) the power to prohibit the construction and alteration of an industry, or the starting of an activity that will result in a release of contaminants into the environment, unless a Certificate of Authorization is first obtained. The Act also establishes that industrial facilities must obtain a *depollution attestation* (*attestation d'assainissement*) to be allowed to operate in Quebec.

The EQA also has provisions for land protection and rehabilitation, water quality and wastewater management, air quality, residual and hazardous materials management, and noise control.

In 2009, the Government of Quebec amended the EQA to include provisions regarding climate change (*An Act to amend the Environment Quality Act and other legislative provisions in relation to climate change*). The primary purpose of these amendments is to reduce GHG emissions. The amended EQA grants MDDEP the authority to require regulated emitters to report their GHG emissions for the purposes of a GHG emissions inventory. The amended EQA requires that the Government set GHG reduction targets using 1990 emissions as the baseline. It also contains various provisions allowing the Government to put in place, by regulation, all the mechanisms required to implement a cap-and-trade system. Several of these provisions were not yet in force at the time of the preparation of this report.

3.8.1.1 Permitting/Approval System

Certificate of Authorization

Section 22 of the Environmental Quality Act requires a Certificate of Authorization for any activity that may result in an emission of contaminants into the environment. The same section makes it obligatory to obtain authorization from the Minister before starting any activity or work in a watercourse, lake, pond, etc.

The Certificate of Authorization is the primary environmental permit for wood products facilities. It was previously also the primary permit for pulp and paper mills, but these facilities are now also permitted through *Depollution Attestations*. Certificates of Authorization address air, water, and solids issues and must be modified or renewed when modifications are made to the process or the site.

Depollution Attestation

A depollution attestation is equivalent to the “approval to operate” in other jurisdictions in Canada. The depollution attestation sets out mill-specific contaminant discharge limits and can contain monitoring requirements, residual materials management plans, corrective plans, studies that must be undertaken, and the schedule to comply with regulations and additional requirements (e.g., more stringent end-of-stack or end-of-pipe limits based on receiving environment considerations).

Depollution attestations must be renewed every five years. At the time of the renewal, more stringent requirements can be established after considering the receiving environment characteristics and best available technology. Additional requirements are prescribed based on the studies prepared by the proponent. These permits are developed and issued by the MDDEP's regional offices. There is public notification for depollution attestation applications.

3.8.1.2 Regulations

Regulation Respecting the Quality of the Atmosphere (Règlement sur la qualité de l'atmosphère)

This regulation establishes ambient air standards, emission and opacity standards, as well as control measures for the prevention, elimination, or reduction of contaminant discharges from stationary sources. Most sections of this regulation are not applicable to pulp and paper mills, which are primarily regulated by the *Regulation Respecting Pulp and Paper Mills*. However, this is the primary air regulation applicable to wood products facilities. The regulation has provisions regarding opacity, fugitive emissions, use of fossil fuels, wood burning, and atmospheric emission measurement methods. These provisions are applicable to forest products manufacturing facilities in general.

Draft Air Quality Regulation (Projet de règlement sur l'assainissement de l'atmosphère)

This regulation was proposed in November 2005, and will replace the *Regulation Respecting the Quality of the Atmosphere* when approved. MDDEP is currently evaluating the comments received on this proposed regulation. The proposed regulation includes major modifications from the existing regulation, such as more stringent total particulate emission limits for many sources, a total particulate limit for pulp and paper process sources, and an ambient formaldehyde limit for panel plants. In addition, the proposed regulation makes ambient air criteria applicable to existing sources if they increase production or make process modifications.

Regulation Respecting Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere (Règlement sur la déclaration obligatoire de certaines émissions de contaminants dans l'atmosphère)

This regulation determines the thresholds over which facilities are required to report their emissions in relation to the GHGs, criteria air contaminants, and contaminants that cause toxic pollution. It also determines the information to be provided, including information that is necessary to calculate the quantity of the contaminants emitted, such as data pertaining to production, fuels, raw materials, equipment, and processes.

In December 2010, this regulation was amended by modifying the requirements regarding GHG reporting to meet the standards developed by the WCI. The primary modifications made to this regulation involve a) setting the GHG reporting threshold at 10,000 tonnes of CO₂e for emissions generated in 2011 and the following years; b) prescribing facility- and process-specific methods for calculating GHG emissions⁵²; and c) for facilities emitting more than 25,000 tonnes of CO₂e in 2012 and the following years, mandatory verification of their emissions report by an accredited organization.

Regulation Respecting Pulp and Paper Mills (Règlement sur les fabriques de pâtes et papiers)

This regulation applies to pulp and paper mills, pulp and paper wastewater treatment plants, or facilities that store, landfill, or treat by combustion mill residuals (e.g., bark, wood residue, ash, treatment sludge, de-inked sludge, lime sludge, green liquor dregs, etc.). The regulation has provisions for wastewater management, including effluent standards for pH, temperature, petroleum hydrocarbons, polychlorinated dioxins and furans, PCBs, TSS, BOD₅, and AOX. The regulation also provides atmospheric emission standards for PM, TRS, and SO₂, and sets out mill effluent, landfill leachate, and air emissions monitoring requirements.

⁵² At the time of the preparation of this report, emitters were only required to use the calculation methods prescribed for stationary combustion sources, and thus to report emissions generated in 2011 and the following years.

Regulation Respecting Industrial Depollution Attestations (Règlement sur les attestations d'assainissement en milieu industriel)

This regulation sets out the requirements to apply or reapply for a depollution attestation or to apply to amend an existing one. The regulation also prescribes the annual duties required from a depollution attestation holder.

Regulation Respecting the Declaration of Water Withdrawals (Règlement sur la déclaration des prélèvements d'eau)

The purpose of this regulation is to assess the impact of water withdrawals on water resources and ecosystems, and to allow the Government of Quebec to establish measures to prevent conflicting uses of water resources. The regulation requires that facilities withdrawing an average daily volume of 75 m³ or more of water per day, from surface and ground water sources, submit an annual declaration to MDDEP specifying the monthly volumes of water withdrawn.

The regulation sets out provisions for the determination of water withdrawal volumes. In this regard, the regulation, as currently in force, only allows the use of ISO (International Standards Organization) methods and the flow measurement methods in open channels described in *Booklet 7 of the Sampling Guide for Environmental Analysis*, published by the *Centre d'expertise en analyse environnementale du Québec* (CEAEQ).

In a letter addressed to the Quebec Forest Industry Council in late 2010, MDDEP indicates that the regulation will be modified to allow the use of alternative estimation methods that are at least as precise as those currently accepted. Thus, pending the anticipated regulation amendments, facilities unable to determine their water withdrawal volumes using prescribed methods can temporarily use the estimation method developed by NCASI and outlined in Technical Bulletin 960⁵³. This report presents a methodology to estimate water withdrawals from available information on water consumption rates and final effluent flow rates. Incidentally, pulp and paper-specific coefficients for use in water consumption calculations can be found in NCASI Technical Bulletin 946⁵⁴.

In January 2011, MDDEP proposed a draft regulation to amend the *Regulation Respecting the Declaration of Water Withdrawals*. This draft regulation prescribes provisions for the implementation of the *Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement*⁵⁵ in Quebec. The draft regulation also sets the standards of the annual declaration of water withdrawals to which withdrawers of the St. Lawrence River Basin will be subject and whose withdrawal capacity reaches or exceeds 379 m³ per day, or that transfer water out of the Basin.

⁵³ National Council for Air and Stream Improvement, Inc. (NCASI). 2009. *Water profile of the United States forest products industry*. Technical Bulletin No. 960. Research Triangle Park, NC: National Council for Air and Stream Improvement, Inc.

⁵⁴ National Council for Air and Stream Improvement, Inc. (NCASI). 2008. *Estimating water consumption at pulp and paper mills*. Technical Bulletin No. 946. Research Triangle Park, NC: National Council for Air and Stream Improvement, Inc.

⁵⁵ This is an agreement signed by government representatives of Quebec and Ontario, and the American states of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. The primary objectives of the Agreement include the protection, restoration, improvement, and management of the waters of the Great Lakes and St. Lawrence River; the creation of a cooperative arrangement to manage proposals to withdraw water; the creation of common and regional mechanisms to evaluate proposals to withdraw water; and the prevention of significant adverse impacts of water withdrawals on the Basin ecosystem and its watersheds.

Regulation Respecting Hazardous materials (Règlement sur les matières dangereuses)

This regulation provides definitions for hazardous, leachable, and toxic materials, as well as requirements regarding the handling, storage, and management of hazardous wastes. Pulp and paper mill residues, treated wood, as well as wood residue, bark, or ash from a wood processing plant are not considered hazardous materials under this regulation. This regulation also requires that specific industrial sectors, including the pulp and paper and wood preservation sectors, keep a register of the hazardous materials produced, used, or taken possession of with the view to utilizing them.

Regulation Respecting Solid Waste (Règlement sur les déchets solides)

The regulation contains requirements for the operation, closure, and post-closure care of solid waste landfill sites. It also prescribes limits for leachates. This regulation has been replaced by the *Regulation Respecting the Landfilling and Incineration of Residual Materials* (see below); however, some parts of the solid waste regulation are still applicable to a) disposal sites that were permanently closed before 19 January 2006, or b) disposal areas in disposal sites that continued to receive material on January 19, 2006 but were permanently closed within the three-year period following that date.

Regulation Respecting the Landfilling and Incineration of Residual Materials (Règlement sur l'enfouissement et l'incinération de matières résiduelles)

This regulation contains detailed requirements for the operation, closure, and post-closure monitoring of engineered, trench, and construction/demolition waste landfills. This regulation also applies to facilities incinerating domestic waste or sludge from municipal wastewater treatment plants.

The regulation prescribes contaminant concentration limits for groundwater migrating into the soil where engineered landfills are sited, and for leachate collected at an engineered landfill. The regulation specifies that pulp and paper mill residuals as well as fibrous waste from sawmills can only be disposed of in engineered landfills. The regulation also establishes that pulp and paper residuals with dryness lower than 25% cannot be landfilled⁵⁶.

City of Montreal's Relevant Regulations

Industries located in the City of Montreal are also regulated by City of Montreal By-laws. Relevant by-laws include By-law 2001-10 Pertaining to Clean Air⁵⁷ and By-law 2001-09 Respecting Waste Water Disposal in Sewer Systems and Waterways. By-law 2001-9 will be repealed on January 1st, 2012 and replaced thereupon by By-law 2008-47 *Drainage, prétraitement, normes de rejet, caractérisation et déversements accidentels*⁵⁸. Also in January 2012, By-law RCG 08-041 (*Permis de déversement d'eaux usées, entente de dérogation ainsi que tarification des rejets d'eaux usées, de boues de fosses septiques et de toilettes chimiques*) will come into force to regulate, among other things, the issuance of wastewater discharge permits.

⁵⁶ The regulation allows, however, the landfilling of sludge from the biological treatment of pulp and paper wastewater with dryness greater than 15%, and lime sludge and residue from lime slaking with dryness greater than 55%.

⁵⁷ This regulation replaces By-law 44 (Pertaining to Air Purification).

⁵⁸ Some sections of By-law 2008-47 are already in force, while others will be so only in January 2012.

3.8.1.3 Guidelines and Standards

Air Quality Criteria (Critères de qualité de l'air)

Air quality criteria are used to evaluate the results of an air quality monitoring program or to assess the impact of a contaminant emitted from a stationary source on the surrounding ambient air concentrations. These criteria are based on studies and literature reviews carried out by the US EPA and the World Health Organization (WHO). The latest version of the document containing Quebec's Air Quality Criteria (*Mise à jour des critères québécois de qualité de l'air*, 2010) lists air criteria for 90 substances.

Guidelines for the Sawmill Industry (Lignes directrices pour l'industrie du bois de sciage)

These guidelines are applicable to sawmills. They provide requirements for the management of wastewater from log basins and for paint application, limits for combustion units, and management requirements for wood yards, including limits for runoff water. MDDEP is currently preparing a new version of these guidelines, applicable to both sawmills and panel plants.

Quebec Surface Water Quality Criteria (Critères de qualité de l'eau de surface au Québec)

This document contains water quality criteria for more than 300 substances. Three types of quality criteria are considered: *narrative quality criteria*, which provide general rules to protect surface water from any significant degradation; *chemical-specific quality criteria*, which are contaminant concentration thresholds above which a given water use (e.g., drinking water, aquatic life, etc.) may be partially or totally compromised; and *whole effluent toxicity criteria*, which allow acute and chronic toxicity evaluations of mixtures of substances.

Guideline for the Use of Effluent Discharge Objectives (EDOs) Associated with Industrial Effluent Discharges into the Aquatic Environment (Guide d'information sur l'utilisation des objectifs environnementaux de rejet relatifs aux rejets industrielles dans le milieu aquatique)

MDDEP uses *effluent discharge objectives* (EDOs) to evaluate the effect of contaminants potentially discharged into an aquatic environment without compromising water uses. MDDEP indicates that EDOs are indicators of the assimilative capacity of a given receiving stream. They are determined for individual contaminants based on surface water quality criteria, hydrodynamic conditions, and the uses supported by the aquatic environment.

This guideline provides information on the use of EDOs to design and evaluate industrial projects, to establish monitoring programs, and to determine effluent standards and requirements relative to effluent toxicity. The document also provides a general procedure followed by MDDEP to assess the acceptability of a new industrial facility or an existing industrial facility that intends to increase its production and that discharges effluent into an aquatic environment.

Guideline for Conducting Industrial Toxicity Reduction Evaluations (TREs) (Guide d'évaluation et de réduction des toxiques)

This document provides guidance to industrial dischargers that are required to reduce their whole effluent toxicity. The guideline outlines a method for performing a toxicity reduction evaluation (TRE). This evaluation is triggered by requirements (typically associated with EDOs) stipulated in depollution attestations, certificates of authorization, or depollution programs. A TRE helps guide the choice of corrective measures, evaluate their efficacy, and confirm the reduction of toxicity.

A Technical Support Guideline to Determine the Volumes of Water Withdrawn in the Context of the Regulation Respecting the Declaration of Water Withdrawals (Guide de soutien technique pour la clientèle – Règlement sur la déclaration des prélèvements d'eau)

This document provides guidance on how to put in place a system to determine the volumes of water withdrawn by a given facility. The guideline provides information on commonly used measurement equipment, including its installation, use, and maintenance, as well as on the ISO estimation methods accepted by MDDEP.

Guidelines for the Beneficial Use of Fertilizing Residuals (Guide sur la valorisation des matières résiduelles fertilisantes)

This document describes the beneficial use activities that require a Certificate of Authorization and the activities that are exempted from this requirement. The guideline describes the quality requirements (standards and criteria) for the residual material that is to be beneficially used. The requirements for handling and storing fertilizing residual material are also listed.

Guidelines Respecting the Management of Treated Wood (Lignes directrices relatives à la gestion du bois traité)

This document summarizes MDDEP's policy with respect to the management of treated wood, i.e., wood that has been treated with wood preservatives (e.g., pentachlorophenol [PCP], creosote, cremated copper arsenate [CCA], ammoniacal copper arsenate [ACA], etc.). These guidelines are applicable to sites that store, recycle, or reuse treated wood, and sites that use treated wood for energy purposes.

3.8.2 Highway Safety Code and Transportation of Dangerous Substances Regulation

This statute concerns the use of vehicles on public highways and, in specified cases, on certain private roads and lands, and pedestrian traffic on public highways. It establishes, among other things, the rules relating to highway safety and transportation of goods.

The *Transportation of Dangerous Substances Regulation*, under the Highway Safety Code, governs the handling and transportation of dangerous substances on Quebec roads from the place of manufacture or distribution to the place of delivery or unloading. The regulation also provides for some exemptions depending on the type or quantity of dangerous substances in question. This regulation adopts the classification of dangerous substances and the safety standards and requirements established in the federal TDGR.

3.8.3 An Act to affirm the collective nature of water resources and provide for increased water resource protection (Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection)

The purpose of this Act is to confirm the legal status of Quebec's surface and ground water as a collective resource. The Act defines the responsibilities of the government as protector of this resource, as well as the rights and responsibilities of the community.

This Act amended the EQA by incorporating a section titled *Water Resource Protection and Management*. This section establishes that industrial facilities require a water withdrawal authorization to take more than 75 m³ per day of water surface or ground water. Withdrawal authorizations are set to be valid for 10 years.

Other relevant provisions incorporated in the EQA amendment include a) the authority given to the government to limit or cease water withdrawals that present a serious risk for public health or aquatic ecosystems; b) the implementation in Quebec of the Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement; and c) the prohibition against transferring water out of Quebec unless this water is used in hydroelectric power generation or bottled water operations.

Finally, the Act sets out transitional measures applicable to existing water withdrawals.

3.8.4 *Forest Act (Loi sur les forêts) and the Regulation Respecting Operating Permits for Wood Processing Plants (Règlement sur les permis d'exploitation d'usines de transformation du bois)*

The purpose of the Forest Act is to promote sustainable forest development while taking into account other potential uses of the territory. The Act has provisions primarily for the management and protection of the forest, the development of private woodlots, and the utilization and processing of timber.

The *Regulation Respecting Operating Permits for Wood Processing Plants*, under the Forest Act, establishes the requirements for obtaining a permit and/or permit renewal to operate a *wood processing plant*. Forest products manufacturing facilities as well as facilities processing wood for energy production are considered by this regulation as wood processing plants provided they transform more than 2,000 m³ of timber annually.

3.9 Saskatchewan

In Saskatchewan, there are six provincial acts and one proposed provincial act that directly affect the forest products industry, and that are relevant to the protection and conservation of the environment and the natural resources.

- Environmental Management and Protection Act
- Clean Air Act
- Saskatchewan Watershed Authority Act
- Dangerous Goods Transportation Act
- The Forest Resources Management Act
- Ethanol Fuel Act
- Proposed Management and Reduction of Greenhouse Gases Act

The Environmental Management and Protection Act (EMPA) sets the framework to regulate activities that have or potentially have an adverse effect on the environment in general, and on land and water resources in particular. The Clean Air Act is Saskatchewan's principal legislation addressing air emissions.

The Dangerous Goods Transportation Act governs the handling and transportation of prescribed dangerous goods.

The Saskatchewan Watershed Authority Act and the EMPA coincide in their purpose of ensuring a sustainable, reliable, safe, and clean water supply in the province.

The Forest Management Act establishes the requirement of applying for a licence to operate forest products manufacturing facilities and addresses the use of wood residue.

On the climate change front, the Ethanol Fuel Act and the proposed Management and Reduction of Greenhouse Gases Act are the pieces of legislation most relevant to the forest products sector. The Ethanol Fuel Act mandates the use of a renewable feedstock-derived ethanol in gasoline blends sold

in Saskatchewan. The proposed Management and Reduction of Greenhouse Gases Act establishes GHG reduction targets and outlines the framework for regulating GHG emissions.

Overall, nine provincial regulations, one proposed provincial regulation, and six standards and guidelines have been identified as being directly relevant to Saskatchewan's forest products industry. The regulatory framework in Saskatchewan is shown in Table 10 (organized by type of environmental release or media) and, schematically, in Figure 10.

3.9.1 *Environmental Management and Protection Act, 2002 (EMPA) and Associated Regulatory Tools*

The intent of the EMPA is to protect air, land, water resources, and ecosystems of the province by managing and regulating potentially harmful activities and substances. The Act prohibits facilities from discharging a substance into the environment in an amount or concentration that causes or is likely to cause an adverse effect, unless they are authorized to do so by regulation or through a permit. The Act prescribes a duty to report any such discharge and requires the facility to take measures to minimize the damage and restore the environment. The Act also allows the Ministry to investigate past or current potentially harmful discharges, and to issue an environmental protection order to facilities that contravene the Act.

The Act includes sections dealing with contaminated sites, the protection of water, and the regulation of specific halocarbons. The section on water protection addresses the construction and operation of waterworks and sewage works, and the discharge of effluents into the environment. Enforcement provisions include administrative penalties for water-related issues.

3.9.1.1 *Permitting/Approval System*

The EMPA establishes the powers and responsibilities of the Ministry regarding water quality. In particular, the Act sets the requirement of applying for a permit to construct, alter, and operate industrial effluent works⁵⁹, and establishes the conditions under which such a permit may not be required.

Under the EMPA, the construction and operation of waterworks and sewage works⁶⁰ also require a permit. The Act specifies the conditions under which this permit may be cancelled, altered, or suspended. Also, the EMPA provides the Ministry of the Environment with the authority to issue environmental protection orders to facilities responsible for waterworks or sewage works if, in the opinion of the Ministry, it is necessary to do so to protect human health or the environment.

⁵⁹ The EMPA defines *industrial effluent works* as “works for the collection, containment, storage, transmission, treatment or disposal of industrial waste”.

⁶⁰ The EMPA defines *waterworks* as “work that is designed to supply, collect, treat, store or distribute water that is intended or actually used for human consumption or hygiene, regardless of whether or not any other uses have been made of that water”. *Sewage works* are defined as “works for the collection, storage, transmission, treatment or disposal of any sewage [‘liquid waste of domestic, commercial or industrial origin containing animal, vegetable or mineral matter in suspension or solution and includes rainwater or storm water that enters any sewage works’]”.

Table 10 Saskatchewan Regulatory Framework by Type of Environmental Release/Media Affected

Acts	Regulations & Regulatory Tools	Type of Environmental Release or Media		
		Air	Wastewater /Water	Solid Residuals
Clean Air Act	Authorization Tools	Permit to (a) operate or (b) alter, add to or change an industrial source, an incinerator or fuel-burning equipment Control orders to the owner or operator of any industrial source, incinerator or fuel-burning equipment		
	Regulations	Clean Air Regulations		
	Standards and Guidelines	Air Monitoring Directive Air Quality Modeling Website		
Environmental Management and Protection Act, 2002	Authorization Tools		Permit for waterworks and sewage works Permit required to discharge into water	
		Emergency environmental protection orders		
	Regulations		Water Regulations Environmental Spill Control Regulations	Hazardous Substances and Waste Dangerous Good Regulations PCB Waste Storage Regulations
	Standards and Guidelines	Industrial Works Construction Application Standards A Guide to Waterworks Design Stormwater Guidelines Surface Water Quality Objectives – Interim Edition		
Dangerous Goods Transportation Act	Regulations			Dangerous Goods Transportation Regulations
Saskatchewan Watershed Authority Act, 2005	Authorization Tools		Water Rights Licence and/or Approval for Works	
	Regulations		Saskatchewan Watershed Authority Regulations Drainage Control Regulations	
Forest Resources Management Act	Authorization Tools	Licence to operate a processing facility		
	Regulations	Forest Resources Management Regulations		
Ethanol Fuel Act				
Proposed Management and Reduction of Greenhouse Gases Act	Regulations	Proposed Management and Reduction of Greenhouse Gases Regulations		

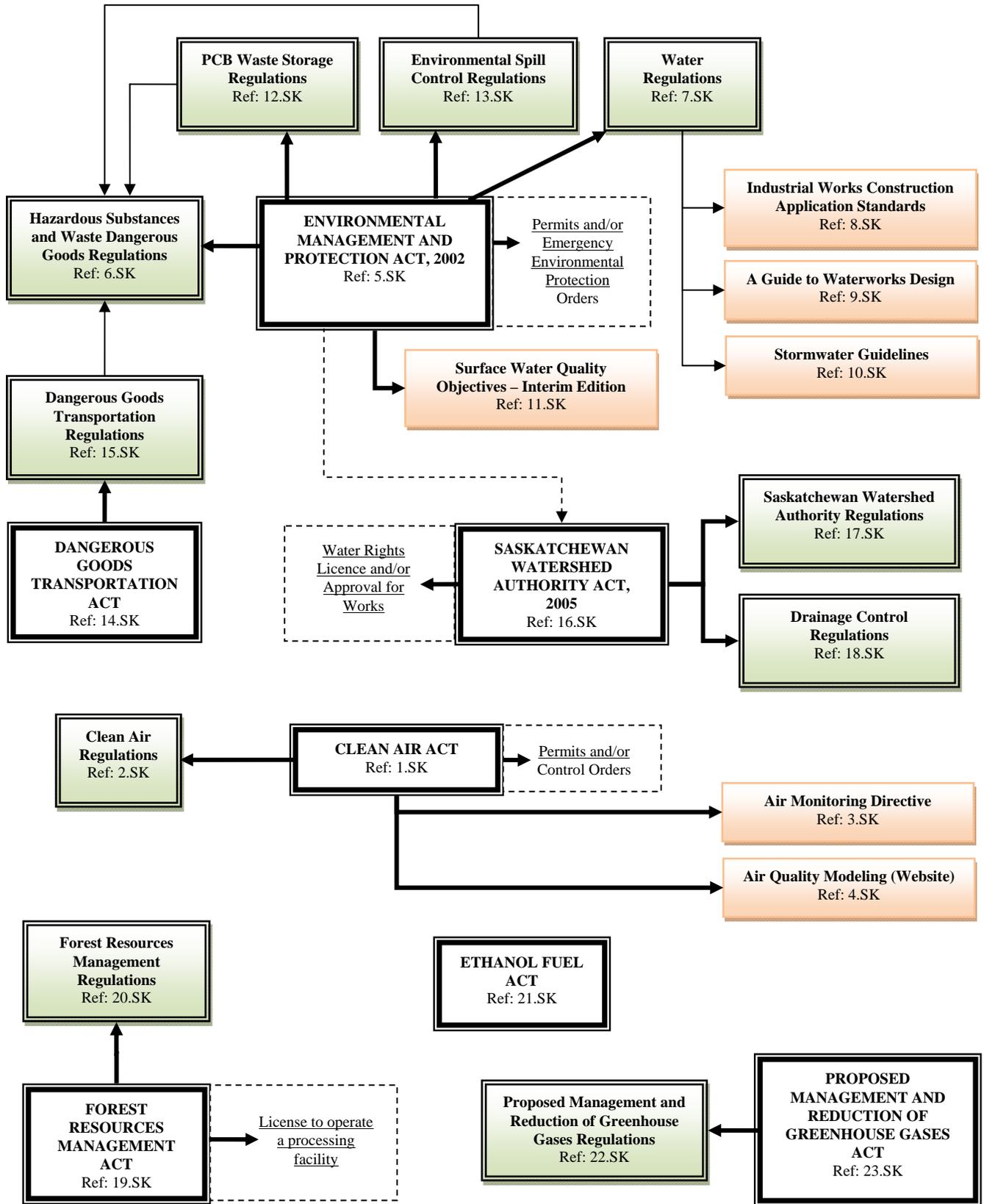


Figure 10 Saskatchewan Regulatory Framework

3.9.1.2 Regulations

Hazardous Substances and Waste Dangerous Goods Regulations

These regulations provide a list of hazardous substances and waste dangerous goods and specify the characteristics of certain hazardous substances⁶¹ as well as requirements regarding the storage and transfer of hazardous substances.

Water Regulations

These regulations establish permit requirements for industrial effluent works. They also set limits for BOD₅ and suspended solids for secondary treatment processes, and provide standards for water intended for human consumption. Other sections of the regulations include those dealing with waterworks operations, and water sampling and testing.

PCB Waste Storage Regulations

These regulations designate PCBs as hazardous waste and outline specific requirements for their storage when quantities are greater than one kilogram. The regulations also specify the duties of owners or operators of PCB storage sites.

Environmental Spill Control Regulations

These regulations provide special requirements for reporting a spilled substance and mitigating its release. The regulations prescribe the substances and the amount (within a prescribed time period) above which each of these substances must be reported. Industrial wastewaters are considered reportable substances. The regulations also prohibit, without prior consent of the Ministry, the disposal of spilled substances or the parts of the environment that may have been affected by a spill.

3.9.1.3 Guidelines and Standards

Industrial Works Construction Application Standards

This guideline document outlines the content requirements for applications to construct an industrial facility that will discharge wastewater to the environment.

A Guide to Waterworks Design

This guide applies to all waterworks controlled by *The Water Regulations* and addresses aspects such as water supply and the design of water treatment units.

Stormwater Guidelines

The purpose of this guideline is to provide technical guidance on developing and implementing drainage systems for stormwater in municipal, commercial, and industrial areas in Saskatchewan.

Surface Water Quality Objectives – Interim Edition

These objectives have no legal standing, but serve as a guide for issuing permits, licenses, and orders, and as a means of supporting and maintaining designated water uses. The document provides information on two types of objectives: general and specific. General objectives are narrative standards applicable to all waters receiving effluents, including the mixing zones adjacent to effluent outfalls. Specific surface water quality objectives are numerical concentrations directly adopted from

⁶¹ The federal *Transportation of Dangerous Goods Act* is referred to several times.

the generic CCME Guidelines for the protection of aquatic life, and agricultural and recreational water uses.

3.9.2 *Clean Air Act and Associated Regulatory Tools*

The Clean Air Act prohibits facilities from operating or altering an industrial source, an incinerator (including wood waste incinerators) or fuel-burning equipment unless they hold a valid permit to do so. The Act establishes the legal framework for issuing, suspending, amending, or cancelling a permit, and for issuing and carrying out control orders to permitted facilities that may be considered, by the Ministry, to be a source of air pollution.

3.9.2.1 *Permitting/Approval System*

The Clear Air Act specifies that all sources of air emissions have to obtain a permit to be allowed to operate. Monitoring and reporting requirements are included for both end-of-stack emissions and ambient air. Separate permits are issued for operating and for altering an industrial source, incinerator, or fuel burning equipment.

3.9.2.2 *Regulations*

Clean Air Regulations

These regulations set out the requirements for obtaining permits to construct, alter, or operate industrial sources, incinerators, or fuel-burning equipment. The regulations also prohibit the discharge of air contaminants in amounts that would cause a concentration of those contaminants in the ambient air to be greater than prescribed limits. Ambient air concentration limits are specified for total suspended particulates, settleable particulates, soil index, potash, SO₂, sulphur trioxide, CO, ozone, NO₂, and H₂S. An opacity limit is also established on emissions from industrial sources, incinerators or fuel burning equipment.

Other features of the regulations include requirements for reporting accidental discharges and the prohibition of burning trash, garbage, industrial waste, or any other material or waste.

3.9.2.3 *Guidelines*

The primary purpose of this Directive is to provide general guidance to facilities that are required to conduct air monitoring. The document provides information on general and industry-specific monitoring and reporting requirements for measuring air quality in Saskatchewan.

Air Quality Modeling Website

This website provides a brief summary of the recommended air dispersion models facilities may use to estimate the downwind concentration of air substances emitted from a source. These models are approved by the US Environmental Protection Agency (US EPA).

3.9.3 *Dangerous Goods Transportation Act and Associated Regulations*

The Dangerous Goods Transportation Act (DGTA) outlines requirements for the handling, offering for transport, and transportation of dangerous goods. The Act also specifies offences and penalties for contravening any of its provisions. The Ministry is given the authority to issue a permit exempting any facility or dangerous goods from any of the provisions established in the DGTA.

The *Dangerous Goods Transportation Regulations* adopt the provisions of the federal TDGR regarding the safety requirements and standards required in the handling, offering for transport or transportation of dangerous goods. The regulations specify the content of the application for a DGTA exemption permit.

3.9.4 *Saskatchewan Watershed Authority Act, 2005 and Associated Regulatory Tools*

The intent of this Act is to protect the province's surface and ground water supplies, both in terms of quality and quantity. The Act establishes the Saskatchewan Watershed Authority (SWA) and empowers it to manage, administer, develop, regulate, control, and protect the water, watersheds, and related land resources of Saskatchewan; promote their efficient use, distribution, and conservation; and maintain and enhance their quality and availability.

Other relevant mandates given to the SWA include, but are not limited to, representing Saskatchewan in interprovincial and international water sharing agreements and discussions; promoting and undertaking watershed studies and research; issuing water rights licences and approvals; and developing and implementing watershed protection plans.

3.9.4.1 *Permitting/Approval System*

Under the Saskatchewan Watershed Authority Act 2005, the SWA can issue water rights licences for the right to use any water that has not already been allocated to other users. The Act stipulates the conditions under which a licence can be cancelled, amended or suspended.

The SWA can also issue approvals for constructing, extending, altering or operating works intended to carry or conduct water. The Act outlines the requirements for applying for such an approval.

3.9.4.2 *Regulations*

Saskatchewan Watershed Authority Regulations

These regulations establish application fees for various types of authorizations, including water rights licences or approvals to construct, extend, alter, or operate waterworks. The regulations also set out charges for different industrial water uses.

Drainage Control Regulations

Formerly under the repealed Drainage Control Act, these regulations are currently in force under the Saskatchewan Watershed Authority Act 2005 and describe the requirements to obtain a permit for the construction and operation of drainage projects (e.g., ditches, culverts, pipelines, etc.).

3.9.5 *Forest Resources Management Act and Regulations*

The purpose of the Forest Resources Management Act is to promote the sustainable use of forest land. The Act includes provisions for managing forest resources, harvesting vegetation from forest lands, and maximizing the use of wood residue. In particular, the Act prohibits the operation of a processing (forest products manufacturing) facility without a licence. The *Forest Resources Management Regulations* specify the requirements to apply for such a licence, including associated fees, and the terms under which the licence may be issued, renewed, amended, suspended or cancelled.

3.9.6 *Ethanol Fuel Act*

The Ethanol Fuel Act establishes the legal framework for the provincial government to promote the use of ethanol produced from biomass or renewable feedstocks, and to mandate the sale of ethanol-blended gasoline in Saskatchewan.

3.9.7 Proposed Management and Reduction of Greenhouse Gases Act and Regulations

In December 2009, the Government of Saskatchewan introduced the proposed Management and Reduction of Greenhouse Gases Act (MRGGA) into the Legislative Assembly (Bill 126). At the time of the preparation of this report, the proposed legislation was yet to receive Royal Assent.

The proposed legislation establishes the authority to set a baseline for GHG emissions and reduction targets, and to monitor the province's progress in reducing emissions. The MRGGA will also empower the Ministry to undertake and promote GHG emission reduction programs, enter into performance agreements with regulated emitters, create guidelines, policies, and codes, and establish registries of offset credits.

Under this proposed Act, an *Office of Climate Change* would be created within the Ministry of Environment to prepare and implement climate change initiatives and to address the impacts of climate change. Other organizations proposed to be established are the *Saskatchewan Technology Fund* and the *Saskatchewan Climate Change Foundation*. These entities would primarily focus on supporting, promoting, and investing in low-carbon technologies.

In 2010, The Saskatchewan Ministry of Environment conducted stakeholder consultations on proposed *Management and Reduction of Greenhouse Gases Regulations*. The proposed regulations establish a provincial GHG reduction target of 20% below 2006 levels by 2020 and specify the prescribed GHGs and regulated emissions activities. Other provisions include baseline emission levels for regulated emitters, reporting rules, compliance mechanisms, and the use of the various types of offset credits.

APPENDIX A

ABBREVIATIONS

2,3,7,8-TCDD	2,3,7,8-tetrachlorodibenzo-para-dioxin
2,3,7,8-TCDF	2,3,7,8-tetrachlorodibenzofuran
AACQ	Ambient air quality criteria
AOX	Adsorbable organic halogens
BATEA	Best available technology economically achievable
BOD ₅	5-day biochemical oxygen demand
CCME	Canadian Council of the Ministers of the Environment
CEPA	Canadian Environmental Protection Act (Federal)
EMA	BC Environmental Management Act
EEM	Environmental Effects Monitoring
EPEA	Alberta Environmental Protection and Enhancement Act
ESDM	Ontario emission summary and dispersion modelling
GHG	Greenhouse Gases
GVRD	Greater Vancouver Regional District
MDDEP	Ministère du développement durable, de l'environnement et des parcs du Québec
MDF	Medium density fiberboard
MDI	Diphenylmethane diisocyanate
MISA	Ontario Municipal-Industrial Strategy for Abatement Program
MOE	Ministry of Environment
NPRI	National Pollutant Release Inventory
OSB	Oriented Strand Board
PCB	Polychlorinated Biphenyls
PM	Particulate matter
PWQO	Ontario Provincial Water Quality Objectives
SARA	Species at Risk Act
TDGR	Transportation of Dangerous Goods Regulation (Federal)
TRS	Total reduced sulphur
TSP	Total suspended particulate
TSS	Total suspended solids
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compounds
WCI	Western Climate Initiative

APPENDIX B

REFERENCES

(Highlighted references were included in SR 07-04.)

Table 11 Regulatory References – Federal

Ref.	Title	Website	Last update
1.FD	Canadian Environmental Protection Act, 1999	http://laws-lois.justice.gc.ca/eng/acts/C-15.31/FullText.html	2011
2.FD	Notices with respect to substances in the National Pollutant Release Inventory	http://www.ec.gc.ca/inrp-npri/default.asp?lang=en&n=71D56679-1	2011
3.FD	Domestic Substances List CEPA Section 71 Notices	http://www.chemicalsubstanceschimiques.gc.ca/plan/approach-approche/dsl-lis-eng.php	2010
4.FD	Notice with respect to reporting of greenhouse gases	http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=F3E7B38E-1	2010
5.FD	Environmental Emergency Regulations	http://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-307/FullText.html	2003
6.FD	PCB Regulations	http://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-273/FullText.html	2010
7.FD	Pulp and Paper Mill Defoamer and Wood Chip Regulations	http://laws-lois.justice.gc.ca/eng/regulations/SOR-92-268/FullText.html	2000
8.FD	Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations	http://laws-lois.justice.gc.ca/eng/regulations/SOR-92-267/FullText.html	2000
9.FD	Renewable Fuels Regulation	http://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-189/FullText.html	2010
10.FD	Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations	http://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-197/FullText.html	2008
11.FD	Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents	http://www.gazette.gc.ca/archives/p1/2004/2004-12-04/html/notice-avis-eng.html#i2	2004
12.FD	Canada-wide Standards for Dioxin and Furan Emissions from Incineration and Coastal Pulp and Paper Boilers	http://www.ccme.ca/assets/pdf/d_and_f_standard_e.pdf	2001
13.FD	Canada-wide Standards for Particulate Matter (PM) and Ozone	http://www.ccme.ca/assets/pdf/pmozone_standard_e.pdf	2000
14.FD	Guidance Document on Achievement Determination: Canada-wide Standards for Particulate Matter and Ozone	http://www.ccme.ca/assets/pdf/1391_gdad_e.pdf	2007
15.FD	Canadian Environmental Quality Guidelines (EQG)	http://cegg-rcqe.ccme.ca/	N.A.
16.FD	National Emission Guideline for Commercial/Industrial Boilers and Heaters	http://www.ccme.ca/assets/pdf/pn_1286_e.pdf	1998
17.FD	National Emission Guideline for Stationary Combustion Turbines	http://www.ccme.ca/assets/pdf/pn_1072_e.pdf	1992
18.FD	National Guidelines for Hazardous Waste Landfills	http://www.ccme.ca/assets/pdf/pn_1365_e.pdf	2006
19.FD	Fisheries Act	http://laws-lois.justice.gc.ca/PDF/F-14.pdf	2009
20.FD	Pulp and Paper Effluent Regulations	http://laws-lois.justice.gc.ca/PDF/SOR-92-269.pdf	2011
21.FD	Environmental Effects Monitoring (EEM) Program	http://www.ec.gc.ca/esee-eem/default.asp?lang=En&n=453D78FC-1	N.A.
22.FD	Transportation of Dangerous Goods Act, 1992	http://laws-lois.justice.gc.ca/PDF/T-19.01.pdf	2009
23.FD	Transportation of Dangerous Goods Regulations	http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm	2008
24.FD	Canada Water Act	http://laws-lois.justice.gc.ca/PDF/C-11.pdf	2011
25.FD	Kyoto Protocol Implementation Act	http://laws-lois.justice.gc.ca/eng/acts/K-9.5/page-1.html	2007
26.FD	Canada Emission Reduction Incentives Agency Act	http://laws-lois.justice.gc.ca/eng/acts/C-3.8/index.html	2005
27.FD	Proposed Comprehensive Air Management System (CAMS)	http://www.ccme.ca/assets/pdf/cams_proposed_framework_e.pdf	2010

Table 12 Regulatory References - Alberta

Ref.	Title	Website	Last update
1.AL	Environmental Protection and Enhancement Act	http://www.gp.alberta.ca/documents/Acts/E12.pdf	2010
2.AL	Activities Designation Regulation, Reg. 276/2003	http://www.gp.alberta.ca/documents/Reqs/2003_276.pdf	2009
3.AL	Substance Release Regulation, Reg. 124/1993	http://www.gp.alberta.ca/documents/Reqs/1993_124.pdf	2006
4.AL	Wastewater and Storm Drainage Regulation, Reg. 119/1993	http://www.gp.alberta.ca/documents/Reqs/1993_119.pdf	2003
5.AL	Waste Control Regulations, Reg.192/1996	http://www.gp.alberta.ca/documents/Reqs/1996_192.pdf	2008
6.AL	Code of Practice for Sawmill Plants	http://www.gp.alberta.ca/documents/codes/sawmill.pdf	2006
7.AL	Code of Practice for Energy Recovery	http://www.gp.alberta.ca/documents/codes/ENERGY.pdf	2005
8.AL	Environmental Code of Practice for Landfills	http://www.gp.alberta.ca/documents/codes/LANDFILL.pdf	1997
9.AL	Alberta Ambient Air Quality Objectives	http://environment.gov.ab.ca/info/library/5726.pdf	2005
10.AL	Air Monitoring Directive	http://environment.alberta.ca/documents/AMD.pdf http://environment.gov.ab.ca/info/library/7297.pdf	2006 1989
11.AL	Air Quality Model Guideline	http://environment.gov.ab.ca/info/library/8151.pdf	2009
12.AL	Continuous Emissions Monitoring Systems (CEMS) Code	http://environment.gov.ab.ca/info/library/6997.pdf	1998
13.AL	Technology Based Standards for Pulp and Paper Mill Wastewater Releases	http://environment.gov.ab.ca/info/library/7543.pdf	2005
14.AL	Surface Water Quality Guidelines for Use in Alberta	http://environment.gov.ab.ca/info/library/5713.pdf	1999
15.AL	Standards for Landfills in Alberta	http://environment.gov.ab.ca/info/library/7316.pdf	2010
16.AL	Alberta's user guide for waste managers	http://environment.gov.ab.ca/info/library/7423.pdf	1995
17.AL	Standards and Guidelines for the Land Application of Mechanical Pulp Mill Sludge to Agricultural Land	http://environment.gov.ab.ca/info/library/7267.pdf	1999
18.AL	Standards and Guidelines for the Use of Wood Ash as a Liming Material for Agricultural Soils	http://environment.gov.ab.ca/info/library/6680.pdf	2002
19.AL	Release Reporting Regulation, Reg. 117/1993	http://www.gp.alberta.ca/documents/Reqs/1993_117.pdf	2003
20.AL	Dangerous Goods Transportation and Handling Act	http://www.gp.alberta.ca/documents/Acts/d04.pdf	2010
21.AL	Dangerous Goods Transportation and Handling Regulation, Reg. 157/1997	http://www.gp.alberta.ca/documents/Reqs/1997_157.pdf	2008
22.AL	Water Act	http://www.gp.alberta.ca/documents/Acts/w03.pdf	2010
23.AL	Water (Ministerial) Regulation, Reg. 205/1998	http://www.gp.alberta.ca/documents/Reqs/1998_205.pdf	2009
24.AL	Climate Change and Emissions Management Act	http://www.gp.alberta.ca/documents/Acts/C16P7.pdf	2009
25.AL	Specified Gas Emitters Regulation, Reg. 139/2007	http://www.gp.alberta.ca/documents/Reqs/2007_139.pdf	2007
26.AL	Specified Gas Reporting Regulation, Reg. 251/2004	http://www.gp.alberta.ca/documents/Reqs/2004_251.pdf	2010
27.AL	Renewable Fuels Standard Regulation, Reg. 29/2010	http://www.gp.alberta.ca/documents/Reqs/2010_029.pdf	2010
28.AL	Specified Gas Reporting Standard	http://environment.gov.ab.ca/info/library/7759.pdf	2007
29.AL	Various Quantification Protocols and Guidance Documents	<ul style="list-style-type: none"> Specified Gas Emitters Regulation - Additional Guidance on Cogeneration Facilities: http://www.assembly.ab.ca/lao/library/egovdocs/2007/alen/165318.pdf Specified Gas Emitters Regulation - Offset Credit Project Guidance Document: http://environment.gov.ab.ca/info/library/7915.pdf Specified Gas Emitters Regulation - Quantification Process for Waste Heat Recovery Projects : http://environment.gov.ab.ca/info/library/7919.pdf Specified Gas Emitters Regulation - Quantification Protocol for Biofuel Production and Usage: http://environment.gov.ab.ca/info/library/7907.pdf Specified Gas Emitters Regulation - Quantification Protocol for Diversion of Biomass to Energy from Biomass Combustion Facilities: http://environment.gov.ab.ca/info/library/7908.pdf Specified Gas Emitters Regulation - Quantification Protocol for Energy Efficiency Projects: http://environment.gov.ab.ca/info/library/7909.pdf Specified Gas Emitters Regulation - Technical Guidance Document for Baseline Emissions Intensity Applications: http://environment.gov.ab.ca/info/library/7811.pdf 	2007

Table 13 Regulatory References – British Columbia

Ref.	Title	Website	Last update
1.BC	Environmental Management Act (EMA) – S.B.C. 2003, c.53	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/03053_00	2003
2.BC	Waste Discharge Regulation (WDR), Reg. 320/2004	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/50_320_2004	2010
3.BC	Antisapstain Chemical Waste Control Regulation, Reg. 300/90	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/12_300_90	2004
4.BC	Wood Residue Burner and Incinerator Regulation, Reg. 519/95	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/51_519_95	2006
5.BC	Open Burning Smoke Control Regulation, Reg. 145/93	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/34_145_93	2010
6.BC	Sulphur Content of Fuel Regulation, Reg. 67/89	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/48_67_89	2004
7.BC	Greater Vancouver Regional District Air Quality Management Bylaw 1082	http://www.metrovancouver.org/boards/bylaws/Bylaws/RD_Bylaw_1082.pdf	2008
8.BC	Greater Vancouver Sewerage and Drainage District Sewer Use Bylaw 299	http://www.metrovancouver.org/boards/bylaws/Amending%20Bylaws/GVSDD_Consolidated_Bylaw_299.pdf	2010
9.BC	Pulp Mill and Pulp and Paper Mill Liquid Effluent Control Regulation, Reg. 470/90	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/41_470_90	2004
10.BC	Hazardous Waste Regulation, Reg. 63/88	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/63_88_00	2009
11.BC	Organic Matter Recycling Regulation, Reg. 18/2002	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/18_2002	2007
12.BC	Primary Wood Manufacturing Industry Code of Practice	Under development	
13.BC	Open Burning Smoke Control Code of Practice	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/34_145_93#ScheduleA	2010
14.BC	Industrial Non-hazardous Waste Landfills Code of Practice	http://www.env.gov.bc.ca/epd/industrial/regs/codes/industrial_landfill/pdf/wood-waste-landfill-cop-min-order-260.pdf	2010
15.BC	Code of Practice for Soil Amendments	http://www.env.gov.bc.ca/epd/industrial/regs/codes/soil_amend/pdf/soil_amend_1849_001.pdf	2007
16.BC	Report on Emissions from Wood-Fired Combustion Equipment	http://www.env.gov.bc.ca/epd/industrial/pulp_paper_lumber/pdf/emissions_report_08.pdf	2008
17.BC	Report on Emissions and Air Pollution Controls for the Biomass Pellet Manufacturing Industry	http://www.env.gov.bc.ca/epd/industrial/pulp_paper_lumber/pdf/moe-pellet-industry-051410.pdf	2010
18.BC	Canada-wide Standards for Dioxins and Furans: B.C. Pulp and Paper Boilers Burning Salt-laden Wood	http://www.env.gov.bc.ca/epd/industrial/pulp_paper_lumber/pdf/pulp_paper_boilers.htm	2006
19.BC	Provincial Medium Density Fibreboard (MDF) Emission Guidelines	http://www.bcairquality.ca/reports/pmdfeg.html	2008
20.BC	Air Quality Objectives and Standards for British Columbia and Canada	http://www.bcairquality.ca/reports/pdfs/aqotable.pdf	2009
21.BC	Standard Audit Procedure for Continuous Emission Monitors and Ambient Air Monitoring Instruments Procedure	http://www.bcairquality.ca/reports/pdfs/Standard-Audit-Procedure-2-10.pdf	2009
22.BC	Guidance on Application of Provincial Air Quality Criteria for PM _{2.5}	http://www.bcairquality.ca/reports/pdfs/pm25-implementation-guide.pdf	2009
23.BC	Pollution Control Objectives for the Forest Products Industry of British Columbia	Not available online	1975
24.BC	Approved Water Quality Guidelines	http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html#approved	2010
25.BC	A Compendium of Working Water Quality Guidelines for British Columbia	http://www.env.gov.bc.ca/wat/wq/BCguidelines/working.html	2006
26.BC	Land Application Guidelines for the Organic Matter Recycling Regulation and the Soil Amendment Code of Practice	http://www.env.gov.bc.ca/epd/industrial/regs/codes/soil_amend/pdf/land-app-guide-soil-amend.pdf	2008
27.BC	Spill Reporting Regulation, Reg. 263/90	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/46_263_90	2008
28.BC	Petroleum Storage and Distribution Facilities Storm Water Regulation, Reg. 168/94	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/38_168_94	2004
29.BC	Transport of Dangerous Goods Act	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96458_01	1996
30.BC	Transport of Dangerous Goods Regulation, Reg. 203/85	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_203_85	2002
31.BC	Water Act	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96483_01	2011
32.BC	Water Regulation, Reg. 204/88	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/12_204_88	2010
33.BC	Water Protection Act	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96484_01	2011
34.BC	Greenhouse Gas Reduction Targets Act (GGRTA)	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_07042_01	2011
35.BC	Emission Offset Regulation, Reg. 393/2008	http://www.env.gov.bc.ca/cas/mitigation/ggrrta/pdf/offsets-reg.pdf	2010

Ref.	Title	Website	Last update
36.BC	Guidance Document to the British Columbia Emission Offsets Regulation	http://www.pacificcarbontrust.com/LinkClick.aspx?fileticket=I=ZCb/%2bt1cMU%3d&tabid=80&mid=572	2010
37.BC	Greenhouse Gas Reduction (Cap and Trade) Act	http://www.leg.bc.ca/38th4th/3rd_read/gov18-3.htm	2008
38.BC	Reporting Regulation, Reg. 272/2009	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_272_2009	2010
39.BC	Proposed Offset Regulation	http://www.env.gov.bc.ca/cas/mitigation/ggrcta/pdf/ctor-consultation-paper.pdf	2010
40.BC	Proposed Emission Trading Regulation	http://www.env.gov.bc.ca/cas/mitigation/ggrcta/pdf/etr-consultation-paper.pdf	2010
41.BC	Reporting Regulation Methodology Manual	http://www.env.gov.bc.ca/cas/mitigation/ggrcta/reporting-regulation/pdf/methodology-manual.pdf	2009
42.BC	Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_08016_01#part2	2011
43.BC	Renewable and Low Carbon Fuel Requirements Regulation, Reg. 394/2008	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/1231636805	2011

Table 14 Regulatory References – Manitoba

Ref.	Title	Website	Last update
1.MB	Environment Act	http://web2.gov.mb.ca/laws/statutes/ccsm/e125e.php#12.0.2	2010
2.MB	Classes of Development Regulation (164/88R)	http://web2.gov.mb.ca/laws/regs/pdf/e125-164.88.pdf	2007
3.MB	Incinerators Regulation (91/88R)	http://web2.gov.mb.ca/laws/regs/pdf/e125-091.88r.pdf	1988
4.MB	Proposed Thermal Treatment Systems Regulation	http://www.gov.mb.ca/conservation/eal/publs/thermtreat_sys_reg.pdf	2010
5.MB	Licensing Procedures Regulation (163/88)	http://web2.gov.mb.ca/laws/regs/pdf/e125-163.88.pdf	1988
6.MB	Waste Disposal Grounds Regulation (150/91)	http://web2.gov.mb.ca/laws/regs/pdf/e125-150.91.pdf	1991
7.MB	Water and Wastewater Treatment Facility Operators Regulation (77/2003)	http://web2.gov.mb.ca/laws/regs/pdf/e125-077.03.pdf	2007
8.MB	Notice and Reporting Regulation (126/2010)	http://web2.gov.mb.ca/laws/regs/pdf/e125-126.10.pdf	2010
9.MB	Manitoba Water Quality Standards, Objectives and Guidelines	http://www.gov.mb.ca/waterstewardship/water_quality/quality/mwqsog_2002.pdf	2002
10.MB	Ambient Air Quality Criteria	http://www.gov.mb.ca/conservation/pollutionprevention/airquality/aq-criteria/ambientair-table.html	2005
11.MB	Draft Guidelines for Air Dispersion Modelling in Manitoba	Not available	2006
12.MB	Water Rights Act	http://web2.gov.mb.ca/laws/statutes/ccsm/w080e.php	2006
13.MB	Water Rights Regulation (126/87)	http://web2.gov.mb.ca/laws/regs/pdf/w080-126.87.pdf	2003
14.MB	Water Resources Conservation Act	http://web2.gov.mb.ca/laws/statutes/ccsm/w072e.php	2006
15.MB	Water Resources Conservation Regulation (179/2010)	http://web2.gov.mb.ca/laws/regs/pdf/w072-179.10.pdf	2010
16.MB	Water Protection Act	http://web2.gov.mb.ca/laws/statutes/ccsm/w065e.php	2010
17.MB	Nutrient Management Regulation (62/2008)	http://web2.gov.mb.ca/laws/regs/pdf/w065-062.08.pdf	2008
18.MB	Dangerous Goods Handling and Transportation Act	http://web2.gov.mb.ca/laws/statutes/ccsm/d012e.php	2006
19.MB	Dangerous Goods Handling and Transportation Regulation (55/2003)	http://web2.gov.mb.ca/laws/regs/pdf/d012-055.03.pdf	2003
20.MB	PCB Storage Site Regulation (474/88)	http://web2.gov.mb.ca/laws/regs/pdf/d012-474.88.pdf	1988
21.MB	Classification Criteria for Products, Substances & Organisms Regulation (282/87)	http://web2.gov.mb.ca/laws/regs/pdf/d012-282.87.pdf	2003
22.MB	Environmental Accident Reporting Regulation (439/87)	http://web2.gov.mb.ca/laws/regs/pdf/d012-439.87.pdf	1987
23.MB	Generator Registration and Carrier Licensing Regulation (175/87)	http://web2.gov.mb.ca/laws/regs/pdf/d012-175.87.pdf	1988
24.MB	Storage and Handling of Petroleum Products and Allied Products Regulation (188/2001)	http://web2.gov.mb.ca/laws/regs/pdf/d012-188.01.pdf (2011 amendment: http://web2.gov.mb.ca/laws/regs/2011/019.pdf)	2004
25.MB	Manifest Regulation (139/88)	http://web2.gov.mb.ca/laws/regs/pdf/d012-139.88.pdf	2003
26.MB	Energy Act	http://web2.gov.mb.ca/laws/statutes/ccsm/e112e.php	1998
27.MB	Biofuels Act	http://web2.gov.mb.ca/laws/statutes/ccsm/b040e.php	2010
28.MB	Biodiesel General Regulations (178/2008)	http://web2.gov.mb.ca/laws/regs/pdf/b040-178.08.pdf	2008
29.MB	Ethanol General Regulation (165/2007)	http://web2.gov.mb.ca/laws/regs/pdf/b040-165.07.pdf	2007
30.MB	Climate Change and Emissions Reduction Act	http://web2.gov.mb.ca/laws/statutes/ccsm/c135e.php	2008
31.MB	Prescribed Landfills Regulation (180/2009)	http://web2.gov.mb.ca/laws/regs/pdf/c135-180.09.pdf	2009

Table 15 Regulatory References – New Brunswick

Ref.	Title	Website	Last update
1.NB	Clean Environment Act	http://www.gnb.ca/0062/PDF-acts/c-06.pdf	2010
2.NB	Water Quality Regulation (82-126)	http://www.gnb.ca/0062/PDF-regs/82-126.pdf	2009
3.NB	Petroleum Product Storage and Handling Regulation (87-97)	http://www.gnb.ca/0062/PDF-regs/87-97.pdf	2009
4.NB	Clean Water Act	http://www.gnb.ca/0062/PDF-acts/c-06-1.pdf	2009
5.NB	Watercourse and Wetland Alteration Regulation (90-80)	http://www.gnb.ca/0062/PDF-regs/90-80.pdf	2010
6.NB	Watercourse Alteration Technical Guidelines	http://www.gnb.ca/0009/0371/0005/0001-e.pdf	N.A.
7.NB	Water Classification Regulation (2002-13)	http://www.gnb.ca/0062/PDF-regs/2002-13.pdf	2006
8.NB	A Guide To New Brunswick's Water Classification Regulation	http://www.gnb.ca/0009/0371/0003/waterclass-e.pdf	2002
9.NB	Watershed Protected Area Designation Order (2001-83)	http://www.gnb.ca/0062/PDF-regs/2001-83.pdf	2010
10.NB	A Guide To New Brunswick's Watershed Protected Area Designation Order	http://www.gnb.ca/0009/0371/0004/watershed-e.pdf	N.A.
11.NB	Protected Area Exemption Regulation (90-120)	http://www.gnb.ca/0062/PDF-regs/90-120.pdf	1990
12.NB	Clean Air Act	http://www.gnb.ca/0062/PDF-acts/c-05-2.pdf	2010
13.NB	Air Quality Regulation (97-113)	http://www.gnb.ca/0062/PDF-regs/97-113.pdf	2005
14.NB	Public Participation Regulation (2001-98)	http://www.gnb.ca/0062/PDF-regs/2001-98.pdf	2006
15.NB	Canada-Wide Standards for PM and Ozone - Implementation Plan for New Brunswick	http://www.gnb.ca/0009/0355/0020/0001-e.pdf	2008
16.NB	Environmental Trust Fund Act	http://www.gnb.ca/0062/PDF-acts/e-09-3.pdf	2006
17.NB	Transportation of Primary Forest Products Act	http://www.gnb.ca/0062/PDF-acts/t-11-02.pdf	2004
18.NB	General Regulation (2002-37)	http://www.gnb.ca/0062/PDF-regs/2002-37.pdf	2004
19.NB	Transportation of Dangerous Goods Act	http://www.gnb.ca/0062/PDF-acts/t-11-01.pdf	2000
20.NB	General Regulation (89-67)	http://www.gnb.ca/0062/regs/89-67.htm	2002
21.NB	Electricity Act	http://www.gnb.ca/0062/PDF-acts/e-04-6.pdf	2010
22.NB	Electricity from Renewable Resources Regulation (2006-58)	http://www.gnb.ca/0062/PDF-regs/2006-58.pdf	2006

Table 16 Regulatory References – Newfoundland and Labrador

Ref.	Title	Website	Last update
1.NFL	Environmental Protection Act	http://www.assembly.nl.ca/legislation/sr/statutes/e14-2.htm	2006
2.NFL	Air Pollution Control Regulations, 2004 (39/04)	http://assembly.nl.ca/Legislation/sr/Regulations/rc040039.htm	2010
3.NFL	Guidance Document for the Determination of Compliance with the Ambient Air Quality Standards	http://www.env.gov.nl.ca/env/env_protection/science/gd_ppd_009_3.pdf	2006
4.NFL	Guideline for Plume Dispersion Modelling	http://www.env.gov.nl.ca/env/env_protection/science/gd_ppd_019_1.pdf	2006
5.NFL	Procedural Guide for Source Emission Testing	http://www.env.gov.nl.ca/env/env_protection/science/gd_ppd_016_1.pdf	2004
6.NFL	Guidelines for Ambient Air Monitoring	http://www.env.gov.nl.ca/env/env_protection/science/gd_ppd_065.pdf	2010
7.NFL	Heating Oil Storage Tank Systems Regulations, 2003 (60/03)	http://www.assembly.nl.ca/Legislation/sr/Regulations/rc030060.htm#8	2010
8.NFL	Storage and Handling of Gasoline and Associated Products Regulations, 2003 (58/03)	http://www.assembly.nl.ca/Legislation/sr/Regulations/rc030058.htm	2004
9.NFL	Storage of PCB Wastes Regulations, 2003 (61/03)	http://www.assembly.nl.ca/Legislation/sr/Regulations/rc030061.htm	2003
10.NFL	Guidance Document on Leachable Toxic Waste, Testing and Disposal	http://www.env.gov.nl.ca/env/env_protection/waste/guidancedocs/leachable_toxic_waste.pdf	2003
11.NFL	Dangerous Goods Transportation Act	http://www.assembly.nl.ca/legislation/sr/statutes/d01.htm	2006
12.NFL	Dangerous Goods Transportation Regulations (5/96)	http://www.assembly.nl.ca/Legislation/sr/Regulations/rc960005.htm	2002
13.NFL	Water Resources Act	http://www.assembly.nl.ca/legislation/sr/statutes/w04-01.htm	2008
14.NFL	Environmental Control Water and Sewage Regulations, 2003 (65/03)	http://assembly.nl.ca/Legislation/sr/Regulations/rc030065.htm	2009
15.NFL	Guidelines for the Design, Construction and Inspection of Water and Sewerage Systems	http://www.env.gov.nl.ca/env/waterres/waste/groundwater/guidelines_for_design_constr_oper_wss.pdf	2005
16.NFL	Various Notices of Protected Water Supply Areas	http://assembly.nl.ca/Legislation/sr/Tableregulations/tableofregulations_w04-01.htm	N.A.

Table 17 Regulatory References – Nova Scotia

Ref.	Title	Website	Last update
1. NS	Environment Act	http://nslegislature.ca/legc/statutes/envromnt.htm	2006
2. NS	Activities Designation Regulations (352/2007)	http://www.gov.ns.ca/just/regulations/regs/envactiv.htm	2007
3. NS	Air Quality Regulations (187/2010)	http://www.gov.ns.ca/just/regulations/regs/envairqt.htm	2010
4. NS	Approvals Procedure Regulations (48/95)	http://www.gov.ns.ca/just/regulations/regs/env4895.htm	1995
5. NS	Guide to Surface Water Withdrawal Approvals	http://gov.ns.ca/nse/water/docs/guideToSurfaceWaterWithdrawalApprovals.pdf	2004
6. NS	Dangerous Goods Management Regulations (23/2002)	http://www.gov.ns.ca/just/regulations/regs/envdqm.htm	2002
7. NS	Emergency Spill Regulations (59/95)	http://www.gov.ns.ca/just/regulations/regs/env5995.htm	1995
8. NS	Greenhouse Gas Emissions Regulations (260/2009)	http://www.gov.ns.ca/just/regulations/regs/envgreenhouse.htm	2009
9. NS	Petroleum Management Regulations (144/2002)	http://www.gov.ns.ca/just/regulations/regs/envpetma.htm	2002
10. NS	PCB Management Regulations (163/97)	http://www.gov.ns.ca/just/regulations/regs/envpcb.htm	1997
11. NS	Water and Wastewater Facilities and Public Drinking Water Supplies Regulations (181/2009)	http://www.gov.ns.ca/just/regulations/regs/envwaste.htm	2009
12. NS	Facility Classification Standards	http://gov.ns.ca/nse/water/docs/FacilityClassificationStandards.pdf	2009
13. NS	Protected Water Areas (Various Regulations)	List available at http://www.gov.ns.ca/just/regulations/rxaa-l.htm#env	N.A.
14. NS	Dangerous Goods Transportation Act	http://nslegislature.ca/legc/statutes/dangerus.htm	1989
15. NS	Dangerous Goods Transportation Regulations (105/2002)	http://www.gov.ns.ca/just/regulations/regs/dqtgenrl.htm	2002
16. NS	Environmental Goals and Sustainable Prosperity Act	http://www.canlii.org/en/ns/laws/stat/sns-2007-c-7/latest/sns-2007-c-7.html	2007
17. NS	Water Resources Protection Act	http://nslegislature.ca/legc/statutes/waterres.htm	2000
18. NS	Electricity Act	http://nslegislature.ca/legc/statutes/elctrcty.htm	2010
19. NS	Renewable Electricity Regulations (155/2010)	http://www.gov.ns.ca/just/regulations/regs/elecrenew.htm	2010
20. NS	Forest Act	http://nslegislature.ca/legc/statutes/forests.htm	1998
21. NS	Voluntary Carbon Emissions Offset Fund Act (Bill 38 – not proclaimed in force)	http://nslegislature.ca/legc/bills/61st_2nd/1st_read/b038.htm	2010

Table 18 Regulatory References – Ontario

Ref.	Title	Website	Last update
1.ON	Environmental Protection Act	http://www.canlii.org/eliisa/highlight.do?text=Environmental+Protection+Act&language=en&searchTitle=Search+all+CanLII+Databases&path=en/on/laws/stat/rso-1990-c-e19/latest/rso-1990-c-e19.html	2010
2.ON	Renewable Energy Approvals under Part V.0.1 of the Act Regulation, O.Reg. 359/09	http://www.canlii.org/en/on/laws/regu/o-reg-359-09/latest/o-reg-359-09.html	2010
3.ON	Guide to Provincial Approvals for Renewable Energy Projects	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079527.pdf	2010
4.ON	Air Pollution - Local Air Quality, O. Reg. 419/05	http://www.canlii.org/en/on/laws/regu/o-reg-419-05/latest/o-reg-419-05.html	2010
5.ON	Ontario's Ambient Air Quality Criteria	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079182.pdf	2008
6.ON	Summary of Standards and Guidelines to Support O. Reg. 419	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079181.pdf	2008
7.ON	Technical Standards to Manage Air Pollution	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_078247.pdf	2009
8.ON	Air Dispersion Modelling Guideline for Ontario	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079138.pdf	2009
9.ON	Technical Methods for Opacity under O. Reg. 419	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_078253.pdf	2008
10.ON	Guideline for the Implementation of Air Standards in Ontario	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079139.pdf	2009
11.ON	Procedure for Preparing an Emission Summary and Dispersion Modelling (ESDM) Report	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079006.pdf	2009
12.ON	Operations Manual for Air Quality Monitoring in Ontario	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079184.pdf	2008
13.ON	Atmospheric Emissions from Stationary Combustion Turbines Policy Guideline A-5	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079000.pdf	1994
14.ON	NO_x Emissions from Boilers and Heaters Policy Guideline A-9	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079062.pdf	2001
15.ON	Ethanol in Gasoline, O. Reg. 535/05	http://www.ene.gov.on.ca/html/regs/english/elaws_reqs_050535_e.htm	2007
16.ON	Airborne Contaminant Discharge Monitoring and Reporting, O. Reg. 127/01	http://www.canlii.org/en/on/laws/regu/o-reg-127-01/latest/o-reg-127-01.html	2006
17.ON	Step by Step Guideline for Emission Calculation, Record Keeping and Reporting for Airborne Contaminant Discharge	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079079.pdf	2008
18.ON	Guideline for the Installation and Operation of Continuous Emission Monitoring Systems (CEMS) and their Use for Reporting under the provisions of O. Reg. 127/01	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_080762.pdf	2001

Ref.	Title	Website	Last update
19.ON	Emissions Trading, O. Reg. 397/01	http://www.canlii.org/en/on/laws/regu/o-reg-397-01/latest/o-reg-397-01.html	2005
20.ON	Emissions Trading Code	http://www.ene.gov.on.ca/envision/env_reg/er/documents/2001/RA01E0020-B.pdf	2001
21.ON	Industry Emissions - NOx and Sulphur Dioxide, O. Reg. 194/05	http://www.canlii.org/en/on/laws/regu/o-reg-194-05/latest/o-reg-194-05.html	2005
22.ON	Guideline for identification of Best Available Control Technology - Economically Achievable (BACTEA) for O. Reg. 194/05	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_078881.pdf	2005
23.ON	Guideline for the installation and operation of Continuous Emission Monitoring Systems (CEMS) and their use for reporting under the provisions of O. Reg. 194/05	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_078882.pdf	2005
24.ON	Boilers, R.R.O. 1990, Reg. 338	http://www.canlii.org/en/on/laws/regu/rro-1990-reg-338/latest/rro-1990-reg-338.html	1999
25.ON	Greenhouse Gas Emissions Reporting, O. Reg. 452/09	http://www.canlii.org/en/on/laws/regu/o-reg-452-09/77165/o-reg-452-09.html#history	2010
26.ON	Guideline for Greenhouse Gas Emissions Reporting	http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2009/010-7889%202.pdf	2010
27.ON	Effluent Monitoring and Effluent Limits - Pulp and Paper Sector, O. Reg. 760/93	http://www.e-laws.gov.on.ca/html/reg/english/elaws_regs_930760_e.htm#BK1	2007
28.ON	Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_080765.pdf	1999
29.ON	Protocol for Conducting a Storm Water Control Study	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_080766.pdf	1994
30.ON	Water Management – Policies, Guidelines and Provincial Water Quality Objectives Guideline B-1-3	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079681.pdf	1999
31.ON	General - Waste Management, R.R.O. 1990, Reg. 347	http://www.canlii.org/en/on/laws/regu/rro-1990-reg-347/latest/rro-1990-reg-347.html	2009
32.ON	Landfilling Sites, O. Reg. 232/98	http://www.canlii.org/en/on/laws/regu/o-reg-232-98/latest/o-reg-232-98.html	2008
33.ON	Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079859.pdf	2010
34.ON	Waste Management - PCB's, R.R.O. 1990, Reg. 362	http://www.canlii.org/en/on/laws/regu/rro-1990-reg-362/latest/rro-1990-reg-362.html	2007
35.ON	Protocol for Sampling And Testing At PCB Storage Sites In Ontario	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079372.pdf	2000
36.ON	Classification and Exemption of Spills and Reporting of Discharges Regulation, O.Reg. 675/98	http://www.canlii.org/en/on/laws/regu/o-reg-675-98/latest/o-reg-675-98.html	2011
37.ON	Spill Prevention and Contingency Plans Regulation, O.Reg. 224/07	http://www.canlii.org/en/on/laws/regu/o-reg-222-07/latest/o-reg-222-07.html	2007
38.ON	Spills Reporting - A Guide to Reporting Spills and Discharges	http://www.region.waterloo.on.ca/85256ae80070e40f/vwSiteMap/E1F490B277C127B885257344006A2DC5/\$file/SpillReportingGuide.pdf?openelement	2007
39.ON	Guideline for Implementing Spill Prevention and Contingency Plans Regulatory Requirements	http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079161.pdf	2007
40.ON	Dangerous Goods Transportation Act	http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90d01_e.htm	2010
41.ON	Ontario Water Resources Act	http://www.canlii.org/eliisa/highlight.do?text=Ontario+Water+Resources+Act&language=en&searchTitle=Search+all+Canada+Databases&path=/en/on/laws/stat/rso-1990-c-o40/latest/rso-1990-c-o40.html	2010
42.ON	Water Taking, O. Reg. 387/04	http://www.canlii.org/en/on/laws/regu/o-reg-387-04/latest/o-reg-387-04.html	2007
43.ON	Water Opportunities and Water Conservation Act	http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&trinet=&BillID=2362	2010
44.ON	Green Energy Act	http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_09g12_e.htm	2010
45.ON	Nutrient Management Act	http://www.canlii.org/eliisa/highlight.do?text=nutrient+management+act&language=en&searchTitle=Ontario&path=/en/on/laws/stat/so-2002-c-4/latest/so-2002-c-4.html	2010
46.ON	General Nutrient Management Regulation, O. Reg., 267/03	http://www.canlii.org/en/on/laws/regu/o-reg-267-03/latest/o-reg-267-03.html	2009
47.ON	Toxics Reduction Act	http://www.canlii.org/eliisa/highlight.do?text=toxics+reduction+act&language=en&searchTitle=Ontario&path=/en/on/laws/stat/so-2009-c-19/latest/so-2009-c-19.html	2010
48.ON	General Toxics Reduction Regulation, O. Reg. 455/09	http://www.canlii.org/en/on/laws/regu/o-reg-455-09/latest/o-reg-455-09.html	2010

Table 19 Regulatory References – Quebec

Ref.	Title	Website	Last update
1.QC	Environment Quality Act	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/Q_2/Q2_A.htm	2010
2.QC	Regulation Respecting the Quality of the Atmosphere, R.R.Q. 1981, c. Q-2, r.20 (<i>Règlement sur la qualité de l'atmosphère</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R38_A.htm	2010
3.QC	Draft Air Quality Regulation (<i>Projet de règlement sur l'assainissement de l'atmosphère</i>)	http://www.mddep.gouv.qc.ca/air/atmosphere/reg-assain-air-en.pdf	2005
4.QC	Regulation Respecting Pulp and Paper Mills, 2007 G.O.Q. 2, 2581 (<i>Règlement sur les fabriques de pâtes et papiers</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R27_A.htm	2010
5.QC	Regulation Respecting Industrial Depollution Attestations, 1993 G.O.Q. 2, 2672 (<i>Règlement sur les attestations d'assainissement en milieu industriel</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R5_A.htm	2010
6.QC	Regulation Respecting Solid Waste, R.R.Q. 1981, c. Q-2, r.14 (<i>Règlement sur les déchets solides</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R13_A.htm	2010
7.QC	Regulation Respecting the Landfilling and Incineration of Residual Materials, 2005 G.O.Q. 2, 1182 (<i>Règlement sur l'enfouissement et l'incinération de matières résiduelles</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R19_A.HTM	2010
8.QC	Regulation Respecting Hazardous materials, 1997 G.O.Q. 2, 5199 (<i>Règlement sur les matières dangereuses</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R32_A.htm	2010
9.QC	Regulation Respecting Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere, 2007 G.O.Q. 2, 2833 (<i>Règlement sur la déclaration obligatoire de certaines émissions de contaminants dans l'atmosphère</i>)	Regulation: http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R15_A.htm Amendment: http://www.mddep.gouv.qc.ca/air/declar_contaminants/reglement-en.pdf	2010
10.QC	Regulation Respecting the Declaration of Water Withdrawals, 2009 G.O.Q. 2, 3147 (<i>Règlement sur la déclaration des prélèvements d'eau</i>)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R14_A.HTM	2010
11.QC	City of Montreal By-law 2001-10 Pertaining to Clean Air	http://ville.montreal.qc.ca/portal/page?_pageid=7237.75191.583&_dad=portal&_schema=PORTAL	2007
12.QC	City of Montreal By-law 2001-9 Respecting Waste Water Disposal in Sewer Systems and Waterways	http://ville.montreal.qc.ca/pls/portal/docs/page/enviro_fr/media/documents/reglements/reglement87_1_2_3.pdf	2000
13.QC	City of Montreal By-law 2008-47 Drainage, prétraitement, normes de rejet, caractérisation et déversements accidentels	http://ville.montreal.qc.ca/pls/portal/docs/page/enviro_fr/media/documents/reglements/reglement_cmm_2008_47.pdf	2008
14.QC	City of Montreal By-law RCG 08-041 Permis de déversement d'eaux usées, entente de dérogation ainsi que tarification des rejets d'eaux usées, de boues de fosses septiques et de toilettes chimiques	http://ville.montreal.qc.ca/pls/portal/docs/page/enviro_fr/media/documents/reglements/reglement_rcq08_041.pdf	2008
15.QC	Air Quality Criteria (<i>Critères de qualité de l'air</i>)	http://www.mddep.gouv.qc.ca/air/criteres/fiches.pdf	2010
16.QC	Guidelines for the Sawmill Industry (<i>Lignes directrices pour l'industrie du bois de sciage</i>)	No website	2000
17.QC	Quebec Surface Water Quality Criteria (<i>Critères de qualité de l'eau de surface au Québec</i>)	http://www.mddep.gouv.qc.ca/eau/criteres_eau/criteres.pdf	2009
18.QC	Guideline for the Use of Effluent Discharge Objectives (EDOs) Associated with Industrial Effluent Discharges into the Aquatic Environment (<i>Guide d'information sur l'utilisation des objectifs environnementaux de rejet relatifs aux rejets industriels dans le milieu aquatique</i>)	http://www.mddep.gouv.qc.ca/Industriel/demande/guide-oer-ind-mars08.pdf	2008
19.QC	Guideline for Conducting Industrial Toxicity Reduction Evaluations (TREs) (<i>Guide d'évaluation et de réduction des toxiques</i>)	http://www.mddep.gouv.qc.ca/eau/oer/1996_GERT.pdf	1996
20.QC	A Technical Support Guideline to Determine the Volumes of Water Withdrawn in the Context of the Regulation Respecting the Declaration of Water Withdrawals (<i>Guide de soutien technique pour la clientèle – Règlement sur la déclaration des prélèvements d'eau</i>)	http://www.mddep.gouv.qc.ca/eau/prelevements/Guide-soutien-clientele.pdf	2009
21.QC	Guidelines for the Beneficial Use of Fertilizing Residuals (<i>Guide sur la valorisation des matières résiduelles fertilisantes</i>)	Guideline : http://www.mddep.gouv.qc.ca/matieres/mat_res-en/fertilisantes/critere/guide-mrf.pdf Addendum: http://www.mddep.gouv.qc.ca/matieres/mat_res/fertilisantes/critere/addenda4.pdf	2010
22.QC	Guidelines Respecting the Management of Treated Wood (<i>Lignes directrices relatives à la gestion du bois traité</i>)	http://www.mddep.gouv.qc.ca/matieres/valorisation/lignesdirectrices/bois-traite.pdf	2009
23.QC	Highway Safety Code	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/C_24_2/C24_2_A.html	2010
24.QC	Transportation of Dangerous Substances Regulation	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/C_24_2/C24_2R4_2_1_A.HTM	2010

Ref.	Title	Website	Last update
25.QC	An Act to affirm the collective nature of water resources and provide for increased water resource protection (Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2009C21A.PDF	2009
26.QC	Forest Act (Loi sur les forêts)	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/F_4_1/F4_1_A.html	2011
27.QC	Regulation Respecting Operating Permits for Wood Processing Plants, R.R.Q., c. F-4.1, r. 8 (Règlement sur les permis d'exploitation d'usines de transformation du bois)	http://www.canlii.org/en/qc/laws/requ/rrq-c-f-4.1-r-8/latest/rrq-c-f-4.1-r-8.html	2011

Table 20 Regulatory References – Saskatchewan

Ref.	Title	Website	Last update
1. SK	Clean Air Act	http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/C12-1.pdf	2003
2. SK	Clean Air Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/C12-1R1.pdf	1989
3. SK	Air Monitoring Directive	http://www.environment.gov.sk.ca/adx/asp/adxGetMedia.aspx?DocID=415_236_94_88_Documents&MediaID=159&Filename=Air+Monitoring+Directive+in+Sask.pdf	2007
4. SK	Air Quality Modeling Website	http://www.environment.gov.sk.ca/Default.aspx?DN=35205651-cfcc-496a-97b7-4e8484699571	
5. SK	Environmental Management and Protection Act, 2002	http://www.qp.gov.sk.ca/documents/english/Statutes/Statutes/e10-21.pdf	2007
6. SK	Hazardous Substances and Waste Dangerous Good Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/E10-2R3.pdf	2000
7. SK	Water Regulations	http://www.qp.gov.sk.ca/documents/english/Regulations/Regulations/e10-21r1.pdf	2007
8. SK	Industrial Works Construction Application Standards	http://www.saskh2o.ca/DWBinder/EPB204IndustrialWorksConstructionApplicationStandards.pdf	N.A.
9. SK	A Guide to Waterworks Design	http://www.saskh2o.ca/DWBinder/EPB201AGuideWaterworksDesign.pdf	2008
10. SK	Stormwater Guidelines	http://www.saskh2o.ca/DWBinder/EPB322StormwaterGuidelines.pdf	2006
11. SK	Surface Water Quality Objectives – Interim Edition	http://www.saskh20.ca/DWBinder/EPB356SurfaceWaterQualityObjectives.pdf	2006
12. SK	PCB Waste Storage Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/E10-2R6.pdf	1989
13. SK	Environmental Spill Control Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/D14R1.pdf	2005
14. SK	Dangerous Goods Transportation Act	http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/D1-2.pdf	2004
15. SK	Dangerous Goods Transportation Regulations	http://www.qp.gov.sk.ca/documents/english/regulations/regulations/D1-2r1.pdf	2002
16. SK	Saskatchewan Watershed Authority Act, 2005	http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/S35-03.pdf	2006
17. SK	Saskatchewan Watershed Authority Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/S35-03R1.pdf	2009
18. SK	Drainage Control Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/D33-1R1.pdf	2006
19. SK	Forest Resources Management Act	http://www.qp.gov.sk.ca/documents/english/statutes/statutes/f19-1.pdf	2010
20. SK	Forest Resources Management Regulations	http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/F19-1R1.pdf	2007
21. SK	Ethanol Fuel Act	http://www.qp.gov.sk.ca/documents/english/Statutes/Statutes/e11-1.pdf	2002
22. SK	Proposed Management and Reduction of Greenhouse Gases Act	http://www.legassembly.sk.ca/bills/pdfs/3_26/bill-126.pdf	2009
23. SK	Proposed Management and Reduction of Greenhouse Gases Regulations	http://www.environment.gov.sk.ca/adx/asp/adxgetmedia.aspx?MediaID=3208&Filename=Draft%20for%20consultation%20March%2022.pdf	2010