



Saskatchewan Environmental Code

Brief Description of Standards

June 2015

The Saskatchewan Environmental Code
– Brief Description of Standards –

List of Standards

Administrative Controls Standard	3
The ASTM E2516 – 11 Standard Classification for Cost Estimate Classification System	3
Bacteriological Follow-up Standard	3
CAN/CSA-Z769-00 (R2008) - Phase II Environmental Site Assessment Standard.....	4
Discharge and Discovery Reporting Standard.....	4
Endpoint Selection Standard.....	4
Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems.....	5
Environmental Code of Practice on Halons.....	5
Forest Data Submission Standard.....	6
Forest Management Planning Standard	6
Forest Operating Plan Standard	6
Forest Regeneration Assessment Standard	6
Guidelines for Canadian Drinking Water Quality – Summary Table, Health Canada (2012).....	6
NSF/ANSI Standard 60: Drinking Water Treatment Chemicals - Health Effects	7
Qualified Person Certification Standard	7
Quality Assurance and Quality Control for Water Treatment Utilities Standard – Drinking Water Quality Management	7
Reclamation Technology Standard.....	7
Saskatchewan Environmental Quality Standard.....	8
Saskatchewan Water and Wastewater Works Operator Certification Standard.....	8
Scaling Standard.....	9
Sewage Works Design Standard, EPB 203.....	9
Standard Methods for the Examination of Water and Wastewater.....	9
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846).....	9
Visual Site Assessment Checklist Standard.....	10
Water Quality Contingency Planning Standard.....	10
Water Quality Emergency Planning Standard – An Overview.....	10
Waterworks Start-Up Standard.....	10
Waterworks Design Standard	11
Waterworks Emergency Response Planning Standard	11

Administrative Controls Standard

Referenced in: Corrective Action Plan Chapter

Developed by: Ministry of Environment (new)

This standard describes administrative controls available for proponents wishing to use endpoints in corrective action plans that eliminate exposure pathways to ensure that the exposure pathway can remain eliminated. Exposure pathways are routes by which a receptor comes into contact with a contaminant (ie: groundwater, inhalation, ingestion, etc). To help ensure the pathway can remain eliminated some form of land use controls will be required. These will take the form of administrative controls that may use some or all of the following:

- Title Instruments
- Zoning Controls
- Development Restriction within a land use zone
- Construction Restrictions
- Bylaws adopted by communities (e.g. ground disturbance bylaw for certain land use)

The ASTM E2516 – 11 Standard Classification for Cost Estimate Classification System

Referenced in: Transfer of Responsibility for an Environmentally Impacted Site Chapter

Developed by: The American Society for Testing and Materials (ASTM)

This standard is used for determining a contingency amount for a financial assurance when transferring responsibility for an environmentally impacted site. The standard provides a generic classification system for cost estimates and provides guidelines for applying the classification to cost estimates. The standard was developed in a way that:

- provides a common understanding of the concepts involved with classifying cost estimates;
- defines and correlates the major characteristics used in classifying cost estimates, and;
- uses the degree of project definition as the primary characteristic used to categorize estimate classes.

Bacteriological Follow-up Standard

Referenced in: *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (updated)

The Bacteriological Follow-up Standard replaces the Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Environment, EPB 205. The standard is used when follow-up actions are required when drinking water samples indicate the presence of total coliform, background bacteria, overgrowth or *E. coli*. bacteria. The standard summarizes the intent, rationale, responsibilities and scope of activities of agencies involved in the monitoring of the bacteriological quality of drinking water in Water Security Agency and Ministry of Environment regulated systems. The rationale for requisite monitoring of drinking water quality is to ensure that the microbiological quality does not exceed levels specified in the regulations. The monitoring of microbiological quality of drinking water is a critical component in protecting the health of those persons consuming drinking water from municipal and other communal systems.

CAN/CSA-Z769-00 (R2008) - Phase II Environmental Site Assessment Standard

Referenced in: Site Assessment Chapter

Developed by: The Canadian Standards Association

This standard establishes the principles and practices that are applicable to a Phase II site assessment. The objective of a Phase II Environmental Site Assessment is to define the nature and extent of any environmental impacts at a site through an intrusive sampling program. It provides a consistent framework and minimum requirements for conducting Phase II site assessments, as well as addresses pertinent site-specific requirements. This framework involves developing a sampling plan, preparing for and undertaking an investigation for sampling and measuring, and interpreting and reporting on the information gathered.

Discharge and Discovery Reporting Standard

Referenced in: Discharge and Discovery Reporting Chapter; Site Assessment Chapter

Developed by: Ministry of Environment (new)

This standard provides the reporting amounts and concentrations for discharges and discoveries of substances that may cause or is causing an adverse effect. The standard is provided in a table format with substances and amounts and concentrations.

Endpoint Selection Standard

Referenced in: Corrective Action Plan Chapter

Developed by: Ministry of Environment (new, use of existing guidelines)

In order to facilitate and foster tiered risk-based approaches to impacted sites endpoint selection requires clearly established rules and an understanding of how endpoints are determined. This standard sets out the manner in which endpoint criteria are determined or referenced. This process has been utilized in guideline format for petroleum contaminated sites in Saskatchewan for a number of years. This standard formalizes the process and expands its use to be applicable to all types of contaminants.

Tier One Endpoints

Proponents wishing to choose the most conservative values in the Saskatchewan Environmental Quality Standards will be referred to the *de minimis* tier one tables in the Saskatchewan Environmental Quality Standards.

Tier Two Endpoints

Proponents wishing to reduce reclamation costs may do so by eliminating a certain exposure scenario and then refer to the next least conservative value for a particular substance in the Saskatchewan Environmental Quality Standards. Performance and administrative objectives describe what will be acceptable when justified and will be outlined for the following exposure pathways:

- Human Health
 - Soil Ingestion
 - Soil Dermal Contact
 - Inhalation of Indoor Air
 - Protection of Potable Groundwater
- Ecological
 - Plant/Invertebrate Soil Contact
 - Soil Ingestion by Livestock/Wildlife
 - Protection of Groundwater for Aquatic Life
 - Protection of Groundwater for Livestock and Wildlife Watering

Tier Three Endpoints

Risk assessments or site specific criteria derivations are classed as tier three endpoints. This standard adopts three documents to provide the methodology for Human Health Risk Assessments, Ecological Risk Assessments, and Development of Site Specific Criteria.

These documents are:

- [PN 1195](#) A Framework for Ecological Risk Assessment: General Guidance, Canadian Council of Ministers of the Environment, 1996.
- [PN 1197](#) Guidance Manual for Developing Site-specific Soil Quality Remediation Objectives for Contaminated Sites in Canada, Canadian Council of Ministers of the Environment, 1996.
- [ISBN 0-662-38244-7](#) Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Health Canada, 2004.

Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems

Referenced in: Halocarbon Control Chapter

Developed by: Environment Canada

This standard provides requirements for the reduction of atmospheric emissions of chlorofluorocarbons (CFCs) used in refrigeration and air conditioning applications.

The standard updates the phase-out of CFCs and hydrochlorofluorocarbons (HCFCs), the technologies and techniques (best practices) to reduce emissions of refrigerants, and alternate means and/or refrigerants to provide cooling. It also considers the global warming implications of refrigerants and their use.

The standard was developed in consultation with active and corresponding stakeholders from all trade sectors such as manufacturers, contractors, organized labour, trade associations, service industry representatives, environmental interest groups, federal and provincial representatives, and regulators.

Environmental Code of Practice on Halons

Referenced in: Halocarbon Control Chapter

Developed by: Environment Canada

This standard reduces and eventually eliminates halon emissions to the atmosphere, in accordance with the international Montréal Protocol on Substances that Deplete the Ozone Layer and regulations under the Canadian Environmental Protection Act. Halons are used in fire protection because they are effective fire extinguishing agents, are electrically non-conductive, leave no solid or liquid residue, are non-corrosive, and are considered not toxic at recommended concentrations for occupied areas. However, halons significantly contribute to the depletion of the stratospheric ozone layer.

The standard provides direction on how to manage halon stocks in a manner that takes into consideration the environmental concerns regarding the depletion of the ozone layer.

The standard was developed in consultation with active and corresponding stakeholders from all trade sectors such as manufacturers, contractors, organized labour, trade associations, service industry representatives, environmental interest groups, federal and provincial representatives, and regulators.

Forest Data Submission Standard

Referenced in: Forest Data Submission Chapter; Forest Regeneration Assessment Chapter

Developed by: Ministry of Environment (new)

This standard establishes a set of requirements respecting a licensee's submission of information related to their forest management activities, including harvesting, scaling, renewal and roads.

Forest Management Planning Standard

Referenced in: Forest Management Planning Chapter

Developed by: Ministry of Environment (existing)

This standard provides strategic-level direction for management of forest resources within a Forest Management Agreement (FMA) area. This standard establishes goals, objectives and strategies to guide forest management activities.

Forest Operating Plan Standard

Referenced in: Forest Operating Plan Chapter

Developed by: Ministry of Environment (new)

This standard consolidates current requirements governing the submission of information respecting a licensee's proposed forest management activities including harvesting, renewal and roads.

Forest Regeneration Assessment Standard

Referenced in: Forest Regeneration Assessment Chapter

Developed by: Ministry of Environment (new)

This standard assesses the success of forest regeneration in order to determine the long term productive capacity of forest land and the integrity of associated ecosystem processes by surveying harvested areas to assess, adequate and appropriate renewal and identifying and recording areas not sufficiently regenerated.

Guidelines for Canadian Drinking Water Quality – Summary Table, Health Canada (2012)

Referenced in: *The Waterworks and Sewage Works Regulations*

Developed by: Health Canada (existing)

The Guidelines for Canadian Drinking Water Quality are established by the Federal-Provincial-Territorial Committee on Drinking Water (CDW) and published by Health Canada. Each guideline was established based on current, published scientific research related to health effects, aesthetic effects, and operational considerations. Health-based guidelines are established on the basis of comprehensive review of the known health effects associated with each contaminant, on exposure levels and on the availability of treatment and analytical technologies.

NSF/ANSI Standard 60: Drinking Water Treatment Chemicals - Health Effects

Referenced in: Water Main Chapter; *The Waterworks and Sewage Works Regulations*

Developed by: The National Sanitation Foundation

This standard covers corrosion and scale control chemicals; pH adjustment, softening, precipitation, and sequestering chemicals; coagulation and flocculation chemicals; well-drilling products; disinfection and oxidation chemicals; and miscellaneous and specialty chemicals for treatment of drinking water. The standard addresses the health effects implications of treatment chemicals and related impurities.

Qualified Person Certification Standard

Referenced in: Corrective Action Plan; Hydrostatic Testing; Industrial Source (Air Quality); Sewage Main; Site Assessment; and Water Main Chapters

Developed by: Ministry of Environment (new)

This standard provides clear direction on the information required when a qualified person provides a certificate to the minister. Qualified persons use this standard when providing an opinion to the minister of aspects such as an environmental protection plan, environmental sampling, operating plans or design plans.

The certificate helps ensure consistent information is provided to the minister and provides direction to the qualified person and the regulated community on exactly what the qualified person is providing an opinion on.

Quality Assurance and Quality Control for Water Treatment Utilities Standard – Drinking Water Quality Management

Referenced in: *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

The standard is to assist a drinking water system owner or management group in preparing a Quality Assurance and Quality Control (QA/QC) policy. Quality assurance/quality control measures for water treatment utilities refer to a set of activities that are to be undertaken to ensure compliance and above all, ensure that the water is safe for public consumption in a sustainable manner. In general, quality assurance (QA) refers to the overall *management system* that includes the organization, planning, data collection, quality control, documentation, evaluation and reporting activities of the group; quality control (QC) refers to the routine *technical activities* whose purpose is, essentially, error control and thereby ensure the production of accurate and reliable results. Together, QA and QC help to produce data of known quality, enhance the credibility of an organization in reporting monitoring results, and ultimately help the organization to achieve the desired goals. In the case of water treatment utilities, QA/QC applies to the overall Drinking Water Quality Management System (DWQMS).

Reclamation Technology Standard

Referenced in: Corrective Action Plan Chapter

Developed by: Ministry of Environment (new)

This standard allows proponents, through a generic environmental protection plan (EPP), to propose technology, and methodologies that are applicable across the province to be allowed as corrective actions in the accepted solutions.

Once approved, the technology would be listed as “Approved Technology” and then only a declaration in the Corrective Action Plan submission would be required and the technology would not have to go through the approval process again.

There are numerous technologies that are suitable for reclamation of impacted sites. Source removal by excavation is the primary technology used in Saskatchewan. Other in-situ methods are as effective without the disruption to infrastructure. There is a need to describe the process to have technology other than source removal approved and allowed in the accepted solution.

Saskatchewan Environmental Quality Standard

Referenced in: Corrective Action Plan; and Industrial Source (Air Quality) Chapters

Developed by: Ministry of Environment (new)

The Saskatchewan Environmental Quality Standard (SEQS) prescribes concentrations of substances in the environment that are protective of the applicable pathway and land use. The standard contains all media (air, soils, sediments, and water) and is protective of the four Canadian Council of Ministers of the Environment land use categories: Agricultural, Residential/Parkland, Commercial, and Industrial. The tables is broken down into pathway specific criteria, based on human health and ecological exposure scenarios as contemplated by the Canadian Council of Ministers of the Environment. There are *de minimis* tables that pull the most conservative values from the exposure pathways and will be used as tier one endpoints. A second set of tables have pathway specific values. The pathways are limited to the following as contemplated by the CCME:

- Human Health
 - Soil Ingestion
 - Soil Dermal Contact
 - Inhalation of Indoor Air
 - Protection of Potable Groundwater
- Ecological
 - Plant/Invertebrate Soil Contact
 - Soil Ingestion by Livestock/Wildlife
 - Protection of Groundwater for Aquatic Life
 - Protection of Groundwater for Livestock and Wildlife Watering

The number of substances with guidance from the Canadian Council of Ministers of the Environment is limited. The standard adopts those substances along with others from jurisdictions that used the same derivation methodology as the Canadian Council of Ministers of the Environment.

Saskatchewan Water and Wastewater Works Operator Certification Standard

Referenced in: Sewage Main; Water Main Chapter and *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard sets out the requirements for the classification of water and wastewater works and the qualifications for the certification of the operators of those facilities.

These standards are intended for use by operators, municipalities, consultants and other persons involved with the operation of water and wastewater treatment facilities in Saskatchewan.

Scaling Standard

Referenced in: Forest Products Scaling Chapter

Developed by: Ministry of Environment (existing)

This standard is used to determine monies owing to the Crown, to update forest product inventories and to determine the depletion of forest product volumes and costs associated with renewing harvested lands.

Sewage Works Design Standard, EPB 503

Referenced in: Sewage Main Chapter and *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard identifies items and factors that should be considered for the construction, operation and maintenance of a sewage works to safeguard the public and protect the environment. The standard also provides accepted practices suitable for Saskatchewan conditions.

The standard is designed to serve as a general guide to engineers in the preparation of plans and specifications for sewage works systems. The standard is intended for use by individuals who are qualified to exercise the professional judgment necessary to select and design sewage works facilities. The individual must be able to substantiate and define the design criteria based on engineering and scientific principles.

The standard includes sections on; submission of information to the minister, sanitary sewer systems (pressure and gravity); pumping stations and main lines; sewage treatment and storm drainage.

Standard Methods for the Examination of Water and Wastewater

Referenced in: Water Main Chapter; Sewage Main Chapter and *The Waterworks and Sewage Works Regulations*

Developed by: American Public Health Association, American Water Works Association, and Water Environment Federation

This standard contains reference material for analyzing natural waters, water supplies, and wastewaters.

The methods in the standard are the best available, generally accepted procedures for analyzing water, wastewater, and related materials. They represent the recommendations of specialists, ratified by a large number of analysts and others of more general expertise, and as such are truly consensus standards, offering a valid and recognized basis for control and evaluation.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)

Referenced in: Substance Characterization Chapter

Developed by: United States Environmental Protection Agency (USEPA)

This standard is a compendium of procedures for sampling, field and laboratory quality control, determinant the physical and chemical characteristics of solid wastes including their hazardous characteristics i.e. toxicity, ignitability, reactivity, and corrosivity. SW-846 functions primarily as a guidance document setting forth acceptable, methods for the regulated and regulatory communities to use in sampling and characterization of solid waste as required by the chapter.

Visual Site Assessment Checklist Standard

Referenced in: Site Assessment Chapter

Developed by: Ministry of Environment (new)

This standard provides proponents the ability to do a visual site assessment for those discharges that do not warrant a Phase II site assessment. This is required for those incidences such as the spills on the side of the road that are cleaned up in a timely manner and the Phase II site assessment would be unjustified in this situation.

Water Quality Contingency Planning Standard

Referenced in: *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard replaces the Water Quality Contingency Planning Guide. An emergency response plan will help to ensure waterworks owners and operators know what to do in the event a problem occurs and act accordingly, rather than losing valuable time which ultimately could result in greater contamination and cost to resolve. The standard is designed to form the basis for a fundamental plan for use by small municipal waterworks such as those found in a hamlet, village, resort village, northern village and some smaller towns. It may also provide a useful example for private waterworks regulated by the Water Security Agency or Ministry of Environment and some sections will be of value to pipeline owners and operators. The standard includes the rationale for an emergency response plan and provides guidance that may apply for common problems and upset conditions that occur in waterworks from time to time.

Water Quality Emergency Planning Standard – An Overview

Referenced in: *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard replaces the Water Quality Emergency Planning – An Overview, EPB 241A. A Waterworks Emergency Plan (WEP), a stand-alone plan, or Water Quality Contingency Plan (WQCP), which complements an existing Corporate/Municipal Emergency Plan, is a vital component of the operational and maintenance component of a QA/QC policy. WQCPs or WEPs are also vital in protecting the health of consumers served by a waterworks and will be valuable as an example of “due diligence” in the event that serious problems do affect a waterworks.

A WQCP or WEP will help to ensure waterworks owners and operators know what to do in the event of a problem and act accordingly, rather than losing valuable time which could ultimately result in greater contamination and cost to resolve. Owners/operators who are not directly involved in the development of the waterworks specific plan should familiarize themselves with the final plan content.

Waterworks Start-Up Standard

Referenced in: Water Main Chapter and *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard is used for the start-up of new waterworks, waterworks with major upgrades, seasonal waterworks and existing waterworks new to Water Security Agency/Ministry of Environment.

Before a waterworks system begins supplying water to the consumers (Start-up) the system is placed on a Precautionary Drinking Water Advisory that requires persons to boil the water before consumption.

The Start-up protocol ensures the pipes, valves and accessories of the distribution system are pressure tested and disinfection of the system and bacteriological sampling is complete. The Start-up protocol also helps ensure all other applicable conditions of the Permit have been met. Once all conditions are met the Precautionary Drinking Water Advisory will be lifted.

Waterworks Design Standard

Referenced in: Water Main Chapter and *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard identifies items and factors that should be considered for the siting, design, construction, operation and maintenance of waterworks to safeguard the public and protect the environment. The standard also provides accepted practices suitable for Saskatchewan conditions.

The standard is designed to serve as a general guide to engineers in the preparation of plans and specifications for drinking water systems. The standard is intended for use by individuals who are qualified to exercise the professional judgment necessary to select and design water supply facilities. The individual must be able to substantiate and define the design criteria based on engineering and scientific principles.

The standard includes sections on; submission of information to the minister, water supply including groundwater and surface water; pumping stations and pipelines; water treatment; water storage and water distribution.

Waterworks Emergency Response Planning Standard

Referenced in: *The Waterworks and Sewage Works Regulations*

Developed by: Water Security Agency/Ministry of Environment (existing)

This standard replaces the Guidelines for Waterworks Emergency Response Planning, EPB 240. The purpose of this standard is to assist a drinking water management group in preparing a Waterworks Emergency Plan (WEP). The WEP deals specifically and solely with the waterworks but could be incorporated in a municipality's or another organization's larger emergency plan. Other styles and forms of emergency plans may be acceptable to or required by the Water Security Agency or Ministry of Environment based on the local situation.

An emergency is an unforeseen or unplanned event that may degrade the quality or quantity of potable water supplies available to serve customers. A written emergency response plan for a waterworks allows operating personnel to respond efficiently, effectively and rapidly to an emergency situation. Water quality, system safety and system reliability are improved if a utility has a plan of action to respond to emergencies.