



2019

COMPLIANCE AUDIT REPORT

ENVIRONMENTAL MANAGEMENT ACT

CHEMICAL AND CHEMICAL PRODUCTS INDUSTRY



EXECUTIVE SUMMARY

The B.C. Ministry of Environment and Climate Change Strategy (ENV) conducted a sector-wide compliance audit between May 15, 2019 and March 5, 2020 on select chemical and chemical products (CCP) facilities within the province of British Columbia (B.C.) to determine their level of compliance with the *Environmental Management Act* (EMA) administered by the Ministry of Environment and Climate Change Strategy (ENV). Findings of the Chemical and Chemical Products (CCP) Audit will serve to identify compliance rates across the sector, guide strategies to improve compliance with legislative requirements, and inform regulatory improvement initiatives to ensure the protection of human health and the environment.

According to the EMA and the Waste Discharge Regulation (WDR), the CCP industry is a prescribed activity/operation; therefore, facilities require a site-specific authorization/permit to discharge waste into the environment. All 11 CCP facilities in B.C. with active waste authorizations under ENV were included in the CCP Audit – all possess site-specific permits to discharge air, effluent, or refuse. Four facilities had two separate authorizations each; therefore, a total of 15 authorizations (five for air, nine for effluent, and one for refuse) were included in the CCP Audit.

Inspections consisted of evaluating whether the facility was compliant with their discharge permit, and where appropriate, the Hazardous Waste Regulation (HWR) and the EMA on a section-by-section basis. This was achieved via office reviews of authorization information and any required documents, reports or data submissions (dating between 2017 and 2020), and on-site walkthroughs to verify facility and operational details and review monitoring records and maintenance logs. The inspection results were compiled and analyzed to determine compliance rates.

Inspection records were compiled for 14 out of the 15 total permits. The authorized works pertaining to the facility with the omitted (albeit active) permit have largely been decommissioned; however, an unauthorized discharge was identified during the on-site inspection and therefore the inspection of the facility was conducted against EMA instead of its permit. Therefore, 10 facilities were inspected against their CCP permits. Unauthorized discharges (air emissions from unauthorized boilers and a tank, and effluent from unauthorized misting cannons discharging to air and land) were identified at a total of three CCP facilities during permit inspections.

Twenty-two inspection records were generated following inspections of the eleven facilities included in the CCP Audit; 14 records for inspections against permit requirements, five records for inspections against the HWR at select sites, and three records for inspections against EMA Sections 6(2) and 6(3) on unauthorized discharges. Three notices of compliance were issued; two for permit inspections and one for HWR inspections. In total, ENV issued 14 advisories and five warnings.

The inspections of 10 facilities for the CCP Audit comprised a total of 370 evaluations of individual site-specific permit clauses. When facilities were evaluated for requirements for which compliance was applicable at the time of the inspection (317 evaluations), facilities were compliant in 61 percent of evaluations of applicable requirements. For five facilities, less than 10 percent of all compliance evaluations performed during each of their inspections resulted in non-compliance findings. The other five facilities had non-compliance rates between 17 percent and 62 percent of all compliance evaluations during each of their inspections.

Due largely to the lack of monitoring requirements, ENV could not determine whether facilities were keeping within discharge quantity limits in 44 percent of inspections conducted, nor whether facilities were meeting discharge quality standards in 34 percent of inspections. ENV determined facilities were within discharge quantity limits in 40 percent of inspections while non-compliance was determined in two percent of inspections. ENV

determined facilities met discharge quality standards in 35 percent of inspections but failed to do so in 22 percent of inspections. ENV determined facilities complied with discharge period requirements in 86 percent of the inspections and complied with discharge location specifications in 92 percent of inspections for these requirements.

ENV determined that in 63 percent of inspections, facilities conducted monitoring as required. Twenty percent of inspections found either monitoring was not conducted at all, monitoring was not conducted for all required parameters, or monitoring was not conducted via required methods. ENV determined that facilities adhered to required sampling and analysis procedures in 64 percent of inspections but failed to do so in 24 percent of inspections. ENV determined that in 64 percent of inspections, facilities submitted reports and data as required. In 29 percent of inspections, facilities missed report submissions, or submitted reports that were deficient in required information or using an incorrect submission format.

ENV determined that unauthorized bypasses occurred at three facilities (21 percent of inspections), and that two facilities which experienced non-compliances failed to submit timely non-compliance reports as required (25 percent of inspections). However, all facilities with permit requirements dictating necessary action in the event of an emergency/incident took required actions in response to site incidents.

ENV confirmed that authorized works were located and operating as described in their authorizations in 74 percent of inspections. Non-compliance with these requirements such as the use of unauthorized works or missing pollution prevention equipment were identified in 14 percent of operations. ENV confirmed that facilities were compliant with maintenance requirements in 62 percent of inspections. Compliance could not be determined in 23 percent of inspections, mainly due to lack of maintenance records or full access to all areas of authorized works. Non-compliance with maintenance requirements was determined in 10 percent of inspections.

Both facilities with the two permits containing requirements for operational plans failed to meet these requirements due to lack of plan submission, or missing information in submitted plans. Twenty-one percent of inspections determined facilities failed to provide prior notification of changes to the authorized works to ENV.

Five facilities were evaluated for one or more of the following HWR requirements: Sections 16(1)(a), 43(1), 44(1)(b), 44(1)(c), 45.1(2)(c)(i), 46(3)(b), 46(5), 46(8)(1), 46(9), 50(3)(a), 50(3)(b), and 50(3)(c). Seventeen percent of facilities had non-compliances with containment requirements, 32 percent of facilities had non-compliances with documentation and record-keeping requirements, and 20 percent of facilities had non-compliances with licence and registration requirements.

These findings have highlighted opportunities of improvement for the CCP sector and ENV. Facility owner/operators are reminded to ensure that discharge quality meets permit requirements, and conduct monitoring as required. Reports (and plans) must be produced and submitted as required. ENV must be notified in advance of any modifications to discharge processes and infrastructure, as well as changes to ownership and permittee names or administrative details. Owners /operators must also ensure that there are no bypasses of authorized works without prior written consent from ENV, that non-compliance reporting is completed as required, and that all works used have been authorized and complete with the required pollution prevention infrastructure. Additionally, hazardous waste must be managed accordingly with HWR requirements, such as proper container labelling and storage conditions, as well as proper completion and retention of required paperwork. ENV is recommended to consider updating permits to include requirements for routine monitoring of discharge quantity and discharge quality, as well as updating quality assurance clauses to match related amendments to the Environmental Data Quality Assurance Regulation. ENV is also recommended to focus compliance promotion efforts on facilities with higher rates of non-compliance.

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LIST OF ABBREVIATIONS USED

Acronym	Definition
CCP	Chemical and Chemical Products
EDQAR	Environmental Data Quality Assurance Regulation
EMA	<i>Environmental Management Act</i>
ENV	B.C. Ministry of Environment and Climate Change Strategy
HWR	Hazardous Waste Regulation
UA	Unauthorized Discharge
WDR	Waste Discharge Regulation

INTRODUCTION

PURPOSE OF THIS REPORT

This report presents the findings of a sector-wide compliance audit conducted between May 15, 2019 to March 5, 2020 on select chemical and chemical products (CCP) facilities within the province of British Columbia (B.C.) to determine their level of compliance with the *Environmental Management Act* (EMA) administered by the Ministry of Environment and Climate Change Strategy (ENV).

Findings of the Chemical and Chemical Products Audit (CCP Audit) will serve to identify compliance rates across the sector, guide strategies to improve compliance with legislative requirements, and inform regulatory improvement initiatives to ensure the protection of human health and the environment. ENV expects that the CCP industry sector will use the report to identify and address compliance areas of improvement for not only individual operations, but also across the overall sector.

ABOUT THE INDUSTRY SECTOR

SELECTION

Industry sectors targeted by the ENV's annual audit program are selected based on their inclusion in the Waste Discharge Regulation (WDR), as well as existing policy and direction such as Environmental Protection Division's Inspection Policy and the 2018 B.C. Service Plan.

DESCRIPTION

The CCP industry consists of manufacturing companies that either transform one substance into another through chemical reactions, or blend feedstocks in order to produce a functional product for specific end-use applications; there are several subsectors including basic chemical production, synthetic resin and fibre polymerization, agricultural chemical production and blending, pharmaceuticals, and formulated products, etc. In 2010, 2730 operations in the chemical industry in Canada employed 77,670 people and generated \$42.4 billion in shipments. In 2009, 12 percent of operations were in British Columbia.¹

REGULATORY OVERSIGHT

The EMA and the WDR are the principal pieces of legislation that protect soil, air and water quality in British Columbia. Under this legislation, the introduction of waste into the environment from identified "prescribed" industries, trades, businesses, operations, and activities requires authorization from ENV.

¹ Government of Canada. November 8, 2011. Chemicals and chemical products (Total). Accessed at <<https://www.ic.gc.ca/eic/site/chemicals-chimiques.nsf/eng/bt01270.html>>.

Chemical and Chemical Products Industry is a prescribed activity/operation listed under Schedule 1 of the WDR and included in Section 6(2) of EMA. Therefore, CCP facilities require a site-specific authorization/permit to discharge waste into the environment.

The CCP industry as defined under WDR includes:

“establishments, except home-based businesses, educational facilities and establishments of hobbyists or artisans, engaged in manufacturing industrial organic or inorganic chemicals, fertilizers, pesticides, plastics, synthetic resins or moulding compounds, and includes, but is not limited to, establishments manufacturing food supplements, vitamins or pharmaceuticals, except pharmaceuticals referred to in the definition of "biotechnology industry"

The Waste Discharge Regulation Implementation Guide expands on examples of activities and operations that are included in or excluded from the WDR definition of the CCP industry:

Included in CCP Industry	<ul style="list-style-type: none"> Plants that manufacture base chemicals that are used in other processes, or in other industries, trades, businesses, operations and activities Manufacturing or processing of organic or inorganic chemicals, fertilizers, agricultural chemicals or pesticides Manufacturing of food supplements, vitamins, pharmaceuticals or other medicines for human or animal use, perfumes, cosmetics or other similar products Manufacturing of plastics, synthetic resins or moulding compounds, paint and varnishes, printing inks or adhesives Manufacturing of soap and other cleaning compounds Manufacturing of charcoal and charcoal products or activated carbon products A variety and range of other chemical products for a variety of purposes
Excluded from CCP Industry	<ul style="list-style-type: none"> On-site chemical production at given facilities of specific sectors listed in WDR Schedule 1 or 2 (e.g. chlorine dioxide at a pulp mill, explosives blending at mines, production of sulphuric acids at smelters, preparation of glue at finger jointing plants, mixing of fibreglass resins at a plastic products industry) “Biotechnology industry” and “Refined petroleum and coal products industry” as defined in WDR Schedule 1 “Plastics and composite products industry” as defined in WDR Schedule 2 Home-based businesses, hobbyist and artisans who produce soaps, shampoos, candles, etc.

Home-based business, educational facilities, hobbyists, or artisans are as defined in the Waste Discharge Regulation Implementation Guide (Version Date: September 10, 2007):

Artisan	a trained or skilled person who creates an object or performs a task that has aesthetic value and who, generally in a small business, produces arts and crafts for retail or wholesale trade
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Home-based Business	a small business that operates from a (residential) home base including a family farm
Hobbyist	a person who conducts a pursuit outside of their regular occupation for recreation without expectation of commercial benefit
Educational Facility	a facility where teachers provide academic or practical education to students

The Hazardous Waste Regulation (HWR) addresses the proper handling and disposal of hazardous wastes, under the EMA.

DESCRIPTION OF THE AUDITED PREMISES

All 11 CCP facilities in the province of B.C. with a total of 15 active waste authorizations under ENV were included in the CCP Audit (four facilities had two waste authorizations each).

The CCP facilities have site-specific permits to discharge air, effluent, or solid waste (refuse); five permits authorize discharge of air, one permit authorizes discharge of refuse to land, and nine permits authorize discharge of effluent to land or surface water bodies such as Burrard Inlet, Northumberland Channel, Fraser River, and Pine River.

The CCP facilities included in this Audit, their respective waste discharge authorization numbers, discharge types, facility locations, and the inspection record numbers for inspections conducted against their permits, the HWR, and any discovered unauthorized discharges (UA), are as listed in Table 1.

Table 1. Facilities Inspected for the CCP Audit

Authorization Holder	Location	Authorization Number	Discharge	Permit Inspection Record	HWR Inspection Record	UA Inspection Record	Facility Description
Canadian Natural Resources Limited	Hasler Flats	13285	effluent	132560	-	-	Sulphur block storage area
Chemtrade Chemicals Canada Ltd.	Burnaby	1133	effluent	144625	-	-	Alum manufacturing plant
Chemtrade Electrochem Inc.	North Vancouver	18	effluent	144618	145550	-	Chlor-alkali plant
		1698	refuse	144623			
Chemtrade Pulp Chemicals Limited Partnership	Prince George	190	effluent	125343	132679	-	Sodium chlorate and crude tall oil acidulation and depitching plant
		3016	air	125344			
Chemtrade West GP Inc.	Prince George	254	effluent	139537	141004	-	Sulphuric acid, magnesium sulphate, liquid sulphur dioxide and alum manufacturing plant
		2119	air	139538			
Enersul Inc.	Hasler Flats	6700	effluent	129259	-	UA132479 (air)	Sulphur pelletizing plant
Enersul Operations	Fort Nelson	6955	air	-	-	UA137260 (effluent)	Formerly a sulphur pelletizing plant. The authorized works have largely been decommissioned (although the permit remains active); however, an unauthorized discharge was identified during the on-site inspection and therefore the inspection was conducted against EMA instead of the permit.
Nanaimo Forest Products Ltd.	Nanaimo	96	effluent	137061	-	-	Sodium chlorate facility
PeroxyChem Canada Ltd.	Prince George	9033	effluent	140094	140098	-	Hydrogen peroxide manufacturing facility
		9034	air	140095		UA142789 (air)	
Seastar Chemicals Inc.	Sidney	7809	air	130646	-	-	High-purity acid production plant
Sterling Pulp Chemicals Ltd.	North Vancouver	395	effluent	144624	145458	-	Sodium chlorate manufacturing facility

POTENTIAL ENVIRONMENTAL ISSUES AND KEY METHODS OF POLLUTION CONTROL

The discharges of contaminants of concern from CCP facilities vary with processes and products, and may pose corrosive, flammable, explosive, and/or toxic hazards to human health and the environment. Typical discharges include air emissions, effluent discharges such as cooling water and solvent washing, and solid waste.

Contaminants of concern from effluent discharged by facilities included in the CCP Audit include total suspended solids, residual chlorine, toxicity, biochemical and chemical oxygen demand, sodium chlorate, total extractable hydrocarbons, hydrogen peroxide, total organic carbon, methanol, ammonia, fecal coliforms, sulphate, sulphide, nitrate, nitrite, metals, and pH and temperature impacts to receiving waters.

Contaminants of concern from air emissions discharged by facilities included in the CCP Audit include sulphur oxides, sulphuric acid, hydrogen sulphide, particulate matter, chlorine, chlorine dioxide, nitric acid, hydrogen chloride, hydrogen fluoride, hydrogen peroxide, ammonia, perchloric acid, acetic acid, volatile organic compounds, carbon monoxide, nitrous oxides, and methanol.

Impacts from chemical product manufacturing processes can be mitigated through use of reagents and solvents that are less hazardous, selection of reactions that generate less hazardous waste and/or less volumes of waste overall, process design to maximize reaction efficiency and waste recovery and recycling, and proper treatment of discharged waste materials. These strategies are reflected in the codes promoted by sustainability initiative Responsible Care (established in Canada in 1985 and currently practiced in over 60 countries)² as well as the United States Environmental Protection Agency's twelve principles of green chemistry³.

² Chemistry Industry Association of Canada. June 2020. About Responsible Care. Accessed at <<https://canadianchemistry.ca/responsible-care/about-responsible-care/>>.

³ United States Environment Protection Agency. March 21, 2017. Basics of Green Chemistry. Accessed at <<https://www.epa.gov/greenchemistry/basics-green-chemistry>>.

CCP AUDIT METHODOLOGY

PRE-AUDIT ACTIVITIES

ENV regional compliance officers were responsible for scheduling and coordinating on-site inspections.

INSPECTIONS

Inspections included office reviews and on-site visits.

OFFICE REVIEW / DESKTOP INSPECTION

ENV reviewed office records required for each facility inspected in the CCP Audit. The office review included authorization information within ENV's Authorization Management System (AMS) database and any other documents, reports, or data submissions required under their permits between January 2017 and January 2020. The office review inspection also included direct communication with the authorization holder to ask questions as needed to gather additional information necessary to complete the inspection.

ON-SITE INSPECTION

ENV conducted on-site inspections on all facilities inspected in the CCP Audit. During each on-site inspection, ENV conducted a walkthrough of the site to verify facility and operational details and review monitoring records and maintenance logs. Site personnel were questioned on site history and operation details as necessary in order to verify permit compliance. Photographs of the authorized works and discharges were taken as necessary.

Additionally, the waste handling, storage, transportation and disposal activities of facilities were also inspected against the HWR where appropriate.

INSPECTION RESULTS REPORTING

Inspections consisted of evaluating whether the authorization holder was compliant with their discharge permit and, for select sites, the HWR and EMA Sections 6(2) or 6(3) on a section-by-section basis. Compliance findings for each section were one of four outcomes:

In	ENV determined that the authorization holder is compliant with the regulatory requirement at the time of the inspection
Out	ENV determined that the authorization holder is out of compliance with the regulatory requirement at the time of the inspection
Not determined	There was not enough information for ENV to determine whether the authorization holder is compliant with the regulatory requirement at the time of the inspection

Not applicable	Compliance with the regulatory requirement did not apply to the authorization holder at the time of the inspection
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ENV determined the appropriate administrative response based on the compliance verification findings of the inspection using the non-compliance decision matrix contained in ENV's Compliance and Enforcement Policy and Procedure⁴. A detailed description of some common administrative responses is included below:

Notice	A notice of compliance is a written confirmation that ENV determined that the authorization holder is compliant with all the regulatory requirements evaluated at the time of the inspection
Advisory	An advisory notifies the non-compliant party in writing that they are not in compliance with a specific regulatory requirement and often recommends a course of action that is expected to achieve compliance. An advisory is often the first enforcement response taken in cases of minor to moderate non-compliance when there is a high likelihood of achieving compliance.
Warning	Like an advisory, a warning notifies the non-compliant party in writing that they are not in compliance with a specific regulatory requirement; however, the warning differs from an advisory in that it warns of the possibility of an escalating response should non-compliance continue. Warnings are generally used when it is determined that an exchange of information alone would not be sufficient in achieving compliance.

The response of a notice of compliance is only issued if none of the assessed sections are found to be out of compliance. If a single non-compliance was found during an inspection, the minimum compliance response is an advisory, regardless of how many sections were compliant or how minor the non-compliance was.

Both advisories and warnings serve as a formal record of the alleged non-compliance and form an important element of the compliance history of the party in question. Other responses such as orders, administrative monetary penalties, etc., within ENV's enforcement toolkit can be found in ENV's Compliance and Enforcement Policy and Procedure.

The results of each inspection, along with the administrative responses, were summarized in an inspection record, a copy of which was provided to the authorization holder.

DATA ANALYSIS

⁴ B.C. Ministry of Environment and Climate Change Strategy. May 2014. Compliance and Enforcement Policy and Procedure, Version 3. Accessed at <https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/reporting/reporting-documents/environmental-enforcement-docs/ce_policy_and_procedure_2018.pdf>.

ENV compiled the results of the inspections for each of the 11 facilities included in the CCP Audit to determine compliance rates with the requirements of their site-specific permits, HWR, and EMA, and identify opportunities for improvement.

Data analysis was performed separately for inspections conducted against permits, HWR, and EMA.

Compliance evaluation findings for each individual permit clause were tallied and aggregated to obtain statistics on sector performance in different compliance categories (such as compliance with discharge quantity and quality requirements, compliance with maintaining authorized works, etc.). Each authorization included in the CCP Audit was inspected once. Each inspection was given equal weight when tallying sector performance results for a compliance category; therefore, if more than one clause evaluation for a compliance category was conducted during an inspection, the weights given to each of those inspections' multiple evaluations summed up to one for that compliance category. This is to ensure that the sector performance is reflective of all authorizations and not disproportionately impacted by authorizations with multiple requirements. For example, if a single authorization contained four requirements related to discharge quantity, the compliance findings on each requirement will be given a fractional weight (one-quarter) when the results are tallied to evaluate sector performance for the compliance category of discharge quantity. Results are therefore often presented as equivalent percentages of inspections conducted.

SUMMARY OF FINDINGS

Twenty-two inspection records were generated following inspections of the eleven facilities included in the CCP Audit; 14 records for inspections against permit requirements, five records for inspections against the HWR at select sites, and three records for inspections against EMA on unauthorized discharges discovered during permit inspections.

Inspection records were compiled for 14 out of the 15 total permits. The authorized works pertaining to the facility with the omitted (albeit active) permit have largely been decommissioned; however, an unauthorized discharge was identified during the on-site inspection and therefore the inspection of the facility was conducted against EMA instead of its permit. Therefore, 10 facilities were inspected against their CCP permits.

Table 2 details the compliance outcomes of the inspections conducted for the CCP Audit.

Table 2. Tally of Compliance Outcomes for CCP Audit Inspections

Compliance Response	Number of Responses Issued for Inspections Against Permit	Percentage of Responses Issued for Inspections Against Permit	Number of Responses Issued for Inspections on Unauthorized Discharges	Percentage of Responses Issued for Inspections on Unauthorized Discharges	Number of Responses Issued for Inspections Against HWR	Percentage of Responses Issued for Inspections Against HWR	Total
Notice of Compliance	2	14%	0	0%	1	20%	3
Advisory	10	71%	0	0%	4	80%	14
Warning	2	14%	3	100%	0	0%	5
Total	14		3		5		22

Facilities associated with fourteen percent of authorizations against which inspections were conducted in the CCP Audit were issued notices of compliance. Unauthorized discharges were identified at three CCP facilities. Five facilities were inspected against the HWR and one was determined to be compliant with all inspected HWR requirements.

In total, ENV issued 14 advisories and five warnings for non-compliances that were administrative deficiencies or considered to pose, at most, minor temporary impacts to environment, human health, or safety (Levels 1 or 2 ratings of impact based on ENV's Compliance Decision Making Matrix in ENV's Compliance and Enforcement Policy and Procedure⁵).

The inspections of 10 facilities for the CCP Audit comprised a total of 370 evaluations of individual site-specific permit clauses. In 194 of the 370 evaluations (52 percent), facilities were determined to be compliant with the evaluated permit requirement. Facilities were determined to be non-compliant in 13

⁵BC Ministry of Environment and Climate Change Strategy. How Compliance Is Assessed. Accessed at <<https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/natural-resource-law-enforcement/environmental-compliance/how-compliance-is-assessed>>

percent of clause evaluations. Compliance could not be determined in 20 percent of overall evaluations, and compliance with the evaluated permit requirement was deemed not applicable at the time of the inspection in 14 percent of evaluations (53 evaluations).

When facilities were evaluated for requirements for which compliance was applicable at the time of the inspection (317 evaluations), facilities were compliant in 61 percent of evaluations of applicable requirements. Table 3 illustrates the overall compliance findings for overall aggregated clause evaluations in the CCP Audit.

Table 3. Overall Compliance with Permit Clauses Evaluated in the CCP Audit

Compliance Findings		Tally of All Evaluations of Permit Clauses in the Audit	Percentage of All Evaluations of Permit Clauses in the Audit	Percentage of All Evaluations of Applicable Permit Clauses in the Audit
Compliance with clause is applicable at the time of inspection	In Compliance	194	52 %	61 %
	Out of Compliance	48	13 %	15 %
	Compliance Not Determined	75	20 %	24 %
	Subtotal	317	86 %*	100 %
Compliance with clause not applicable at the time of inspection		53	14 %	-
Total		370	-	-

* Due to rounding, percentages may not sum precisely to the totals provided

Analysis was performed to determine the distribution of non-compliance rates amongst the 10 facilities that were inspected against their CCP permits. For five facilities, non-compliance findings resulted from less than 10 percent of compliance evaluations performed during their inspections. Four facilities had non-compliance rates between 17 percent and 34 percent of compliance evaluations during their inspections. The remaining facility had the highest non-compliance rate at 62 percent of all compliance evaluations performed during their inspection.

COMPLIANCE WITH PERMIT REQUIREMENTS

The following sections present the inspection results grouped together by similar clauses and evaluated together to assess compliance based on like requirements of the site-specific permits. Thus, the data analysis excludes the statistics on clauses that were not evaluated.

PERMITTED DISCHARGE QUANTITY, QUALITY, AND DISCHARGE PERIOD AND LOCATION

All fourteen permits against which inspections were conducted in this Audit set requirements limiting discharge quantities for air, effluent, or refuse, depending on site operations. The weighted aggregated compliance findings of all the discharge quantity requirements inspected for the 10 active plastics facilities indicated that in 44 percent of inspections conducted, ENV could not determine whether facilities were keeping within discharge quantity limits – most commonly due to the lack of monitoring

requirements. Compliance was determined in 40 percent of inspections, while non-compliance was determined in two percent of inspections. Compliance with the clause was not applicable at the time of the inspection in 14 percent of inspections due to decommissioning of related operations.

All fourteen permits inspected against in this Audit set requirements for quality of specified discharge. In 35 percent of inspections, ENV determined facilities were compliant with discharge quality requirements, while non-compliance was determined in 22 percent of inspections. Compliance could not be determined in 34 percent of inspections due mostly to lack of monitoring requirements, while the clause was not applicable to nine percent of facilities at the time of the inspection due to lack of discharge into the environment and decommissioning of related operations.

Six authorizations contain discharge period requirements outlining when discharge was permitted to occur; facilities were determined to be complying with these requirements in 86 percent of inspections. Four authorizations contain requirements specifying the location of waste generation and discharge points; compliance was determined in 92 percent of inspections for these requirements.

Table 4 illustrates the aggregated and weighted compliance findings for discharge quantity, quality, timing, and location requirements evaluated for permitted facilities in this Audit.

Table 4. Compliance Findings for Discharge Quantity, Quality, Period, and Location Requirements

Permitted Facilities	Discharge Quantity				Discharge Quality				Discharge Period				Discharge Location			
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA
Tally of Findings																
18	-	1	-	2	-	1	-	1	1	-	-	1	-	-	-	-
96	1	-	-	1	-	1	-	1	1	-	-	-	2	-	-	1
190	1	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
254	1	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-
395	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1133	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
1698	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-
2119	1	-	5	-	2	-	10	-	6	-	1	-	10	-	-	-
3016	6	-	6	1	4	1	6	1	-	-	-	-	1	-	-	-
6700	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-
7809	-	-	5	-	-	-	5	-	5	-	-	-	-	-	-	-
9033	1	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-
9034	2	-	1	-	6	-	6	2	12	1	-	2	-	-	-	-
13285	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-
Weighted Tally of Findings																
18	-	0.3	-	0.7	-	0.5	-	0.5	0.5	-	-	0.5	-	-	-	-
96	0.5	-	-	0.5	-	0.5	-	0.5	1	-	-	-	0.7	-	-	0.3
190	1	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
254	0.3	-	-	0.7	1	-	-	-	-	-	-	-	-	-	-	-
395	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1133	0.5	-	0.5	-	-	1	-	-	-	-	-	-	-	-	-	-
1698	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-
2119	0.2	-	0.8	-	0.2	-	0.8	-	0.9	-	0.1	-	1	-	-	-
3016	0.5	-	0.5	0.1	0.3	0.1	0.5	0.1	-	-	-	-	1	-	-	-
6700	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
7809	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-
9033	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
9034	0.7	-	0.3	-	0.4	-	0.4	0.1	0.8	0.1	-	0.1	-	-	-	-
13285	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Weighted Total	5.6	0.3	6.1	1.9	4.9	3.1	4.8	1.2	5.2	0.1	0.1	0.6	3.7	-	-	0.3

Permitted Facilities	Discharge Quantity				Discharge Quality				Discharge Period				Discharge Location			
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA
Weighted Percentage [%]	40	2	44	14	35	22	34	9	86	1	2	11	92	-	-	8
Weighted Percentage (Applicable Findings Only) [%]	49	7	44	-	36	29	35	-	96	1	2	-	100	-	-	-
In	In Compliance															
Out	Out of Compliance															
ND	Compliance Not Determinable															
NA	Compliance with Clause Not Applicable															
*Due to rounding, percentages may not sum precisely to the totals provided (e.g. 100%)																

If compliance evaluations with non-applicable findings at the time of the inspection are excluded from the analysis, in-compliance rates for discharge quantity, quality, timing and location related clauses range from 36 percent (discharge quality) to 100 percent (discharge location), non-compliance rates range from zero percent (discharge location) to 29 percent (discharge quality), and undeterminable compliance rates range from zero percent (discharge location) to 44 percent (discharge quantity).

MONITORING, REPORTING AND PROVISIONAL

All fourteen permits against which inspections were conducted in this Audit set requirements for monitoring of discharge quantity and/or quality. ENV determined that in 63 percent of inspections, facilities conducted monitoring as required. In 20 percent of inspections, facilities failed to conduct monitoring as required; either monitoring was not conducted at all, monitoring was not conducted for all required parameters, or monitoring was not conducted via required methods. Compliance with monitoring requirements could not be determined in 14 percent of inspections due to lack of reporting. Compliance with the clause was not applicable to two percent of facilities at the time of the inspection due to lack of discharge into the environment and decommissioning of related operations. It should be noted that percentages may not sum precisely to 100 percent due to rounding.

Seven permits inspected against in this Audit detailed sampling and analysis procedures to be followed by the facilities. ENV determined that in 64 percent of inspections, facilities were compliant with these requirements. Non-compliance was determined in 24 percent of inspections, while compliance could not be determined in 12 percent of inspections.

Thirteen permits inspected against in this Audit contained requirements for report production and submission of data to ENV. ENV determined that in 64 percent of inspections, facilities were compliant with these requirements. Non-compliance was determined in 29 percent of inspections (due to missed report submissions, reports missing required information, or incorrect submission format), while compliance could not be determined in six percent of inspections. It should be noted that percentages may not sum precisely to 100 percent due to rounding.

Three permits inspected against in this Audit contained provisional requirements in the event the Director required further monitoring or pollution reduction measures to be taken. Inspections determined that facilities were either in compliance with these requirements, or compliance with the clause was not applicable at the time of the inspection.

Table 5 illustrates the aggregated and weighted compliance findings for monitoring, sampling and analysis, reporting, and provisional requirements evaluated for permitted facilities in this Audit.

Table 5. Compliance Findings for Monitoring, Sampling and Analysis, Reporting, and Provisional Requirements

Permitted Facilities	Monitoring				Sampling and Analysis Procedures				Reporting				Provisional				
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	
Tally of Findings																	
18	-	2	1	-	1	2	-	-	-	1	-	-	-	-	-	-	-
96	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
190	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
254	2	-	-	1	-	-	-	-	1	-	1	-	-	-	-	-	-
395	4	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
1133	-	1	2	-	-	2	-	-	1	-	-	-	-	-	-	-	-
1698	1	1	-	-	3	-	-	-	1	1	-	-	-	-	-	-	-
2119	6	-	-	-	2	-	-	-	6	1	1	-	1	-	-	1	-
3016	1	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-
6700	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-
7809	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9033	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	2
9034	3	-	-	-	4	-	2	-	3	1	1	-	1	-	-	-	-
13285	-	4	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Weighted Tally of Findings																	
18	-	0.7	0.3	-	0.3	0.7	-	-	-	1	-	-	-	-	-	-	-
96	0.7	0.3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
190	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
254	0.7	-	-	0.3	-	-	-	-	0.5	-	0.5	-	-	-	-	-	-
395	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
1133	-	0.3	0.7	-	-	1	-	-	1	-	-	-	-	-	-	-	-
1698	0.5	0.5	-	-	1	-	-	-	0.5	0.5	-	-	-	-	-	-	-
2119	1	-	-	-	1	-	-	-	0.8	0.1	0.1	-	0.5	-	-	0.5	-
3016	1	-	-	-	0.5	-	0.5	-	1	-	-	-	-	-	-	-	-
6700	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
7809	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9033	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1
9034	1	-	-	-	0.7	-	0.3	-	0.6	0.2	0.2	-	1	-	-	-	-
13285	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Weighted Total	8.8	2.8	2	0.3	4.5	1.7	0.8	-	8.4	3.8	0.8	-	1.5	-	-	1.5	-
Weighted Percentage [%]	63	20	14	2	64	24	12	-	64	29	6	-	50	-	-	50	-
Weighted Percentage (Applicable Findings Only) [%]	65	20	14	-	64	24	12	-	64	29	6	-	100	-	-	-	-
In	In Compliance																
Out	Out of Compliance																
ND	Compliance Not Determinable																
NA	Compliance with Clause Not Applicable																
*Due to rounding, percentages may not sum precisely to the totals provided (e.g. 100%)																	

If compliance evaluations with non-applicable findings at the time of the inspection are excluded from the analysis, in-compliance rates for monitoring, reporting and provisional clauses range from 64 percent (sampling and analysis procedures, and reporting) to 100 percent (provisional), non-compliance rates range from zero percent (provisional) to 29 percent (reporting), and undeterminable compliance rates range from zero percent (provisional) to 14 percent (monitoring).

BYPASSES AND INCIDENTS

All fourteen permits against which inspections were conducted in this Audit prohibit bypasses of the authorized works without prior written approval of ENV. ENV determined that in 79 percent of inspections, bypasses had not occurred (resulting in findings of in compliance and clause not applicable at the time of the inspection). Unauthorized bypasses were determined to have occurred at three facilities (21 percent of inspections).

Six permits inspected against in this Audit specify required actions (e.g. self-reporting, additional testing, etc.) in the event of non-compliances such as discharge quality issues. ENV determined that in 67 percent of inspections, compliance with those clauses were not applicable at the time of the inspection as non-compliances had not occurred. Two facilities which experienced non-compliances failed to submit timely non-compliance reports as required (25 percent of inspections). Compliance could not be determined in eight percent of inspections as the non-compliance was only identified during the inspection itself.

Ten permits inspected against in this Audit specify required actions in the event of an emergency/incident. ENV determined that in 60 percent of inspections, compliance with those clauses were not applicable at the time of the inspection as emergencies/incidents had not occurred. In 30 percent of inspections, compliance was determined as required actions were taken by the facility to address the incident. In 10 percent of inspections, the facility was out of compliance by failing to provide notification or reporting of the incident to ENV.

Four permits inspected against in this Audit specify required actions in the event of a spill. Inspections determined that either the facilities were compliant with these requirements (50 percent of inspections), compliance was not determinable (25 percent of inspections), or compliance with the clause was not applicable (25 percent of inspections) at the time of the inspection. It should be noted that spills must be reported in accordance with the Spill Reporting Regulation whether they are explicitly addressed in permits or not.

Table 6 illustrates the aggregated and weighted compliance findings for bypasses, non-compliance, emergencies, and spill requirements evaluated for permitted facilities in this Audit.

Table 6. Compliance Findings for Bypasses, Non-Compliance, Emergencies and Spills Requirements

Permitted Facilities	Bypasses				Non-Compliance				Emergencies				Spills			
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA
Tally of Findings																
18	-	1	-	-	-	1	-	1	-	-	-	1	1	-	-	-
96	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
190	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-
254	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-
395	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
1133	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
1698	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1
2119	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
3016	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-	-
6700	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-

Permitted Facilities	Bypasses				Non-Compliance				Emergencies				Spills				
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	
7809	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
9033	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-
9034	-	-	-	1	-	-	1	1	-	-	-	-	1	-	-	-	-
13285	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weighted Tally of Findings																	
18	-	1	-	-	-	0.5	-	0.5	-	-	-	-	1	1	-	-	-
96	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
190	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
254	-	-	-	1	-	-	-	1	-	-	-	-	1	-	-	-	-
395	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
1133	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
1698	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	1
2119	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
3016	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-
6700	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
7809	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
9033	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-
9034	-	-	-	1	-	-	0.5	0.5	-	-	-	-	1	-	-	-	-
13285	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weighted Total	1	3	-	10	-	1.5	0.5	4	3	1.0	-	6	2	-	1	1	1
Weighted Percentage [%]	7	21	-	71	-	25	8	67	30	10	-	60	50	-	25	25	25
Weighted Percentage (Applicable Findings Only) [%])	25	75	-	-	-	67	33	-	75	25	-	-	67	-	33	-	-
In	In Compliance																
Out	Out of Compliance																
ND	Compliance Not Determinable																
NA	Compliance with Clause Not Applicable																
*Due to rounding, percentages may not sum precisely to the totals provided (e.g. 100%)																	

If compliance evaluations with non-applicable findings at the time of the inspection are excluded from the analysis, in-compliance rates for bypass and incident clauses range from zero percent (non-compliance self-reporting) to 75 percent (emergencies), non-compliance rates range from zero percent (spills) to 75 percent (bypasses), and undeterminable compliance rates range from zero percent (bypasses and emergencies) to 33 percent (non-compliances and spills).

AUTHORIZED WORKS AND OPERATIONAL PRACTICES

All fourteen permits against which inspections were conducted in this Audit describe the details and locations of authorized works and processes on the site, which were verified during inspections. ENV confirmed that authorized works were located and operating as described in their authorizations in 74 percent of inspections. Non-compliance with these requirements such as the use of unauthorized works or missing pollution prevention equipment were identified in 14 percent of operations. Compliance could not be determined in four percent of inspections, and compliance the clause was not applicable at the time of the inspection to the facility due to decommissioning in seven percent of inspections. It should be noted that percentages may not sum precisely to 100 percent due to rounding.

Thirteen permits contain requirements for the regular maintenance and proper upkeep of authorized works. ENV confirmed that facilities were compliant with these requirements in 62 percent of

inspections. Compliance could not be determined in 23 percent of inspections, mainly due to lack of maintenance records or full access to all areas of authorized works (such as effluent ponds). Non-compliance was determined in 10 percent of inspections, while the compliance with the clause was not applicable at the time of the inspection in five percent of inspections.

Two permits contain requirements for operational plans (start-up and contingency and closure plans). However, the facilities associated with the two permits failed to meet these requirements due to lack of plan submission, or missing information in submitted plans. Therefore, 100 percent of inspections on this compliance section determined non-compliance.

All fourteen permits require prior notification of changes (such as to the process, authorized works, or ownership) to be submitted to ENV. In 57 percent of inspections, the requirements did not apply to the facilities at the time of the inspection as there were no changes. Compliance was determined in 14 percent of inspections, while non-compliance was determined in 21 percent of inspections. Compliance could not be determined in seven percent of inspections. It should be noted that percentages may not sum precisely to 100 percent due to rounding.

Table 7 illustrates the aggregated and weighted compliance findings for authorized works, maintenance of works, plans, and notification of changes requirements evaluated for permitted facilities in this Audit.

Table 7. Compliance Findings for Authorized Works, Maintenance of Works, Plans, and Notification of Changes Requirements

Permitted Facilities	Authorized Works				Maintenance of Works				Plans				Notification of Changes			
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA
Tally of Findings																
18	-	1	-	1	1	-	1	1	-	-	-	-	-	-	-	2
96	1	-	1	2	-	1	1	-	-	-	-	-	-	1	-	-
190	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
254	2	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1
395	3	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
1133	1	1	1	-	-	-	2	-	-	-	-	-	-	-	-	2
1698	1	-	-	-	2	2	1	2	-	2	-	-	-	-	-	1
2119	11	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-
3016	9	2	-	-	1	-	-	-	-	-	-	-	-	1	-	-
6700	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	1
7809	10	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
9033	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
9034	10	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
13285	-	1	-	-	-	1	1	-	-	-	-	-	-	-	1	-
Weighted Tally of Findings																
18	-	0.5	-	0.5	0.3	-	0.3	0.3	-	-	-	-	-	-	-	1
96	0.3	-	0.3	0.5	-	0.5	0.5	-	-	-	-	-	-	1	-	-
190	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
254	1	-	-	-	0.5	-	0.5	-	-	-	-	-	-	-	-	1
395	1	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
1133	0.3	0.3	0.3	-	-	-	1	-	-	-	-	-	-	-	-	1
1698	1	-	-	-	0.3	0.3	0.1	0.3	-	1	-	-	-	-	-	1
2119	1	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-
3016	0.8	0.2	-	-	1	-	-	-	-	-	-	-	-	1	-	-
6700	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
7809	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
9033	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1

Permitted Facilities	Authorized Works				Maintenance of Works				Plans				Notification of Changes			
	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA	In	Out	ND	NA
9034	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
13285	-	1	-	-	-	0.5	0.5	-	-	-	-	-	-	-	1	-
Weighted Total	10.4	2	0.6	1	8.1	1.3	3	0.6	-	2	-	-	2	3	1	8
Weighted Percentage [%]	74	14	4	7	62	10	23	5	-	100	-	-	14	21	7	57
Weighted Percentage (Applicable Findings Only) [%]	76	18	6	-	65	11	25	-	-	100	-	-	33	50	17	-
In	In Compliance															
Out	Out of Compliance															
ND	Compliance Not Determinable															
NA	Compliance with Clause Not Applicable															
*Due to rounding, percentages may not sum precisely to the totals provided (e.g. 100%)																

If compliance evaluations with non-applicable findings at the time of the inspection are excluded from the analysis, in-compliance rates for authorized works and operational practices clauses range from zero percent (plans) to 76 percent (authorized works), non-compliance rates range from 11 percent (maintenance of works) to 100 percent (plans), and undeterminable compliance rates range from zero percent (plans) to 25 percent (maintenance of works).

COMPLIANCE WITH EMA REQUIREMENTS

In the course of conducting inspections against authorizations included in the CCP Audit, inspectors identified three instances of unauthorized discharges at three facilities – air emissions from unauthorized boilers and a tank, and effluent from unauthorized misting cannons discharging to air and land. ENV conducted three inspections against EMA requirements; two against EMA Section 6(2) and one against EMA Section 6(3). All were found to be out of compliance with EMA Sections 6(2) and 6(3) requirements.

COMPLIANCE WITH HWR REQUIREMENTS

Five facilities were evaluated for one or more of the following HWR requirements: Sections 16(1)(a), 43(1), 44(1)(b), 44(1)(c), 45.1(2)(c)(i), 46(3)(b), 46(5), 46(8)(1), 46(9), 50(3)(a), 50(3)(b), and 50(3)(c). These requirements fell under three main compliance categories: Containment, Documentation and Record-Keeping, and Licence and Registration.

Table 8 presents the results of evaluations of compliance with HWR clauses. Clauses where non-compliance was determined are highlighted with bold font.

Table 8. Non-Compliances Identified During HWR Inspections

HWR Section	Non-Compliance Findings
Containment	
16(1)(a)	One facility was evaluated for this requirement and determined to be out of compliance as waste oil containers were being stored in a manner that did not provide space to allow for manual or visual inspection for leaks; furthermore, the labels identifying the contents of the containers were not visible.
50(3)(a)	Five facilities were evaluated for this requirement; ENV determined that two were compliant. Compliance could not be determined for two other facilities as those facilities did not have any hazardous waste stored on-site at the time of the inspection. One facility was out of compliance for failing to store waste oil pads and rags in a closed container.
50(3)(b)	Five facilities were evaluated for this requirement; ENV determined that three were compliant. Compliance could not be determined for two other facilities as those facilities did not have any hazardous waste stored on-site at the time of the inspection.
50(3)(c)	Five facilities were evaluated for this requirement; ENV determined one was compliant, while one was out of compliance for failing to label hazardous waste vessels with the shipping names of the waste, as well as the storage of unmarked drums of hazardous waste. Compliance could not be determined for two other facilities as those facilities did not have any hazardous waste stored on-site at the time of the inspection.
Documentation and Record Keeping	
44(1)(c)	All five facilities were evaluated for this requirement; ENV determined three were compliant, while two were out of compliance for failing to enter the Registration Number in the "Provincial ID No." space in Part A of each of the manifests.
45.1(2)(c)(i)	All five facilities were evaluated for this requirement; ENV determined four were compliant while one was out of compliance for failing to include the UN number on the manifest.
46(3)(b)	Three facilities were evaluated for this requirement; ENV determined that all were compliant.
46(5)	Three facilities were evaluated for this requirement; ENV determined that only one was compliant while two were out of compliance for failing to enter all required details on the manifests.
46(8.1)	One facility was evaluated for this requirement; ENV determined that it was out of compliance for failing to notify the director that the consignor was unable to obtain the applicable copy 6 of the manifest from the consignee.
46(9)	Four facilities were evaluated for this requirement; ENV determined that three were compliant while compliance could not be determined for the remaining facility.
Licence and Registration	
43(1)	All five facilities were evaluated for this requirement; ENV determined four were compliant while one was out of compliance for failing to register an on-site amount of asbestos exceeding Column II of Schedule 6 of the HWR.
44(1)(b)	Three facilities were evaluated for this requirement; ENV determined two were compliant while the clause was determined not to be applicable to the remaining facility at the time of the inspection.

The following are results of evaluations of HWR requirements at facilities for which the clauses were applicable:

HWR Requirement Category	Results by Weighted Percent of Facilities
Containment	<ul style="list-style-type: none">• 38 percent of facilities were compliant• 17 percent of facilities were out of compliance• Compliance could not be determined for 45 percent of facilities
Documentation and Record-Keeping	<ul style="list-style-type: none">• 64 percent of facilities were compliant• 32 percent of facilities were out of compliance• Compliance could not be determined for four percent of facilities
Licence and Registration	<ul style="list-style-type: none">• 80 percent of facilities were compliant• 20 percent of facilities were out of compliance

CONCLUSIONS AND RECOMMENDATIONS

Findings from the 2019 Chemical and Chemical Products Audit conducted on 11 CCP facilities in B.C. have highlighted opportunities of improvement for the CCP sector and ENV. Facility owner/operators are reminded to ensure that facility staff are aware of, and comply with, all permit requirements as well as HWR requirements.

Facility owner/operators are reminded of the following:

- ❖ Ensure that discharge quality meets permit requirements, and conduct monitoring as required (ensure all required parameters are included and that required methodology for sampling, analysis, and data collection is followed)
- ❖ Ensure that reports (and plans) are produced and submitted as required (includes all required information and data is submitted in the correct format)
- ❖ Ensure that ENV is notified in advance of any modifications to discharge processes and infrastructure, as well as changes to ownership and permittee names or administrative details.
- ❖ Ensure that there are no bypasses of authorized works without prior written consent from ENV, that non-compliance reporting is completed as required, and that all works used have been authorized and complete with the required pollution prevention infrastructure.
- ❖ Ensure hazardous waste is managed accordingly with HWR requirements, such as proper container labelling and storage conditions, as well as proper completion and retention of required paperwork.

In the interests of improving permit enforceability and allowing for timely evaluation of performance in mitigating impacts to human health and the environment, ENV is recommended to consider the following actions:

- ❖ Update permits to include requirements for routine monitoring of discharge quantity
- ❖ Update permits to include requirements for routine monitoring of discharge quality
- ❖ Characterize waste discharged from the facilities to confirm key parameters for monitoring
- ❖ Additionally, Permits 18 and 1698 contain quality assurance clauses requiring the permittee to utilize analytical laboratory(ies) that participate in the Proficiency Testing Program operated by the Canadian Association for Laboratory Accreditation for each test method, but there is no stated requirement for those laboratories to also pass the proficiency test, which aligns with the current requirements of the Environmental Data Quality Assurance Regulation (EDQAR). If the EDQAR is amended to require proficiency test success, those two permits may have to be amended accordingly.
- ❖ ENV is also recommended to focus compliance promotion efforts on facilities with higher rates of non-compliance.