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B U R R A R D I N L E T  
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A U D I T R E P O R T  
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*Environmental Management Act*



August 2017



## Executive Summary

The Burrard Inlet effluent authorization audit was undertaken to review facilities which are authorized to discharge effluent to the Burrard Inlet and assess compliance with their authorization issued under *Environmental Management Act* (EMA).

There are currently 15 facilities which have authorization to discharge effluent to the Burrard Inlet under EMA; all of which were assessed in this audit. The review focused on assessing water quality monitoring data that was collected during the fourth quarter (October 1 to December 31) in 2014 and 2015. The audit focused on the specific monitoring requirements identified in each facility's authorization.

The objective of this audit was to determine industry compliance by assessing each authorized facility and provide recommendations to industry and the ministry to improve overall compliance within the sector. This audit will also help to inform decisions made by the Burrard Inlet Water Quality Objectives Technical Working Group<sup>1</sup> and contribute to the Burrard Inlet Action Plan<sup>2</sup> – an initiative to improve Environmental health and integrity of the Burrard Inlet by 2025.

Data collected during this audit shows that the authorization holders were in compliance with 82% of their respective authorization requirements; however, only 37% of authorization holders were in compliance with all of their requirements. Authorized discharge requirements had the highest rate of compliance (85%), while reporting requirements had the lowest level of compliance (76%). Authorization sections containing general requirements and monitoring requirements had compliance rates of 84% and 83%, respectively.

The greatest occurrences of non-compliance were “failure to submit reporting data” (13 occurrences) and “effluent exceeding water quality authorization limits” (10 occurrences).

Overall, facility compliance with their respective authorizations was high during 2014 and 2015. The following recommendations are suggested:

### Compliance Verification and Promotion

1. Complete on-site inspections of all authorized facilities in 2017;
2. Collaborate with the Burrard Inlet Water Quality Objectives Technical Working Group through on-site inspections and receiving environment monitoring to assist in updating the water quality objectives in the Burrard Inlet; and
3. Provide information to authorization holders to encourage compliance such as the Ministry of Environment and Climate Change Strategy (ENV) reference documents: ‘How to stay in compliance’, ‘What to expect from an inspection’ and ‘What to do if you’re out of compliance’.

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<sup>1</sup> The Burrard Inlet Water Quality Objectives Technical Working Group is working towards updating the provisional 1990 Burrard Inlet Water Quality Objectives (WQOs) in order to improve the health of the Burrard Inlet Ecosystem.

<sup>2</sup> The Burrard Inlet Action Plan is a science-based initiative led by the Tsleil-Waututh First Nation to improve the environmental health and integrity of the Burrard Inlet ecosystem by 2025. The first priority of this plan is to update the British Columbia Water Quality Objectives for Burrard Inlet.

**For Industry**

4. Contact ministry authorizations staff to update effluent discharge authorizations to ensure consistent and unambiguous requirement descriptions;
5. Promote increased correspondence between industry representatives and compliance staff when non-compliances are identified; and
6. Ensure authorized works and treatment systems are maintained regularly, and the latest technologies are promoted, in order to prevent effluent exceedance beyond regulatory limits.

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## Introduction

The Burrard Inlet is a tidal salt-water body located in the heart of the Metro Vancouver region. The Inlet provides valuable habitat for birds, fish and marine life. The inlet's high productivity and abundance have also made it a destination for successive waves of human settlement. The local Coast Salish peoples - Tsleil-Waututh, Squamish and Musqueam Nations – have inhabited the lands and waters since time immemorial. In 1886, following the extension of the transcontinental railway to the Pacific, the Inlet's natural deep sea harbour was transformed into Canada's busiest port. Increasing industrial activity has attracted even more settlement and today, over one million lower mainland residents live within the Burrard Inlet watershed.

Commercial activities in the Burrard Inlet primarily consist of the international shipment of goods and bulk commodities. Production facilities presently located in the Inlet are generally associated with ship repair, chemical manufacturing and petroleum industries. Various agencies have roles and responsibilities for environmental management of Burrard Inlet including federal, provincial, local government and First Nations. Waste discharges to the Burrard Inlet area are regulated either by a BC Ministry of Environment and Climate Change Strategy (ENV) *Environmental Management Act* (EMA) authorization or a registration under a Regulation or Code of Practice. ENV also regulates Metro Vancouver's Liquid Resource and Waste Management Plan which includes the management of combined sewer overflows and storm water outfalls.

ENV, in coordination with Tsleil-Waututh Nation (TWN), is updating ENV's Coquitlam-Pitt River Area Burrard Inlet Water Quality Assessment and Objectives Technical Appendix (BIWQO's) (ENV, 1990) and is developing a subsequent plan for integrated monitoring of the updated objectives. The establishment of water quality objectives is a provincial mandate under the EMA and provides guidance to set authorization limits and assess performance. Ensuring ministry authorization information is up to date is necessary in order to update these objectives.

This audit evaluates each authorized facility operating within the Burrard Inlet to determine their level of compliance with the British Columbia Water Quality Guidelines (BCWQG) and authorization requirements outlined under the EMA. The objectives of this audit are to:

1. Determine each facility's compliance with its authorization and show overall industry compliance;
2. Determine compliance rate for each of the authorization sections that were assessed;
3. Provide information and support to the Burrard Inlet Water Quality Objectives Technical Working Group; and
4. Provide recommendations to improve regulatory compliance within Burrard Inlet.

## Background

Improving water quality and reducing contamination is the first goal of the Tsleil-Waututh First Nation Burrard Inlet Action Plan (TWN, 2016).

Marine water, sediment and biota chemistry data show exceedances of ambient BC BIWQO's throughout the Inlet, especially in the Central Harbour area (ENV, 2013). Recent fish health index results

in the Central Harbour showed that 100% of bottom fish sampled were impacted by pollution (Metro Vancouver, 2014).

ENV Water Quality Objectives Attainment reporting (ENV, 2013) recommended that:

- Ministry and partner agencies collaborate on reducing contaminants to the Inlet through compliance and enforcement for point sources and promotion of source control, best management practices and outreach programs for non-point sources of contaminants. In some cases, the most effective control strategies may be source prevention such the removal of contaminants from the manufacturing process of consumer products and from product lifecycles.
- Contaminant sources and loading from point and non-point sources, where appropriate, be further examined so that the most significant sources of pollution into Burrard Inlet can be addressed on a priority basis.

Progress on these recommendations includes the Tsleil-Waututh First Nation taking a leadership role to identify priorities and help focus the region and government agencies around a shared, strategic environmental stewardship agenda for Burrard Inlet. A Burrard Inlet Action Plan was developed to guide actions to improve the health of Burrard Inlet by 2025 ([www.twnation.ca](http://www.twnation.ca), 2016)

## Regulatory Context

Effective regulations ensure a safe and healthy environment for British Columbians, sustainable economic development, and clear and predictable decisions for the public and business community.

### **Ministry of Environment and Climate Change Strategy (ENV) Mandate**

ENV is responsible for the protection, management and conservation of BC's water, land, air and living resources. In order to fulfil this mandate, ENV establishes and administers a broad suite of regulatory requirements.

### ***Environmental Management Act (EMA) and Regulations***

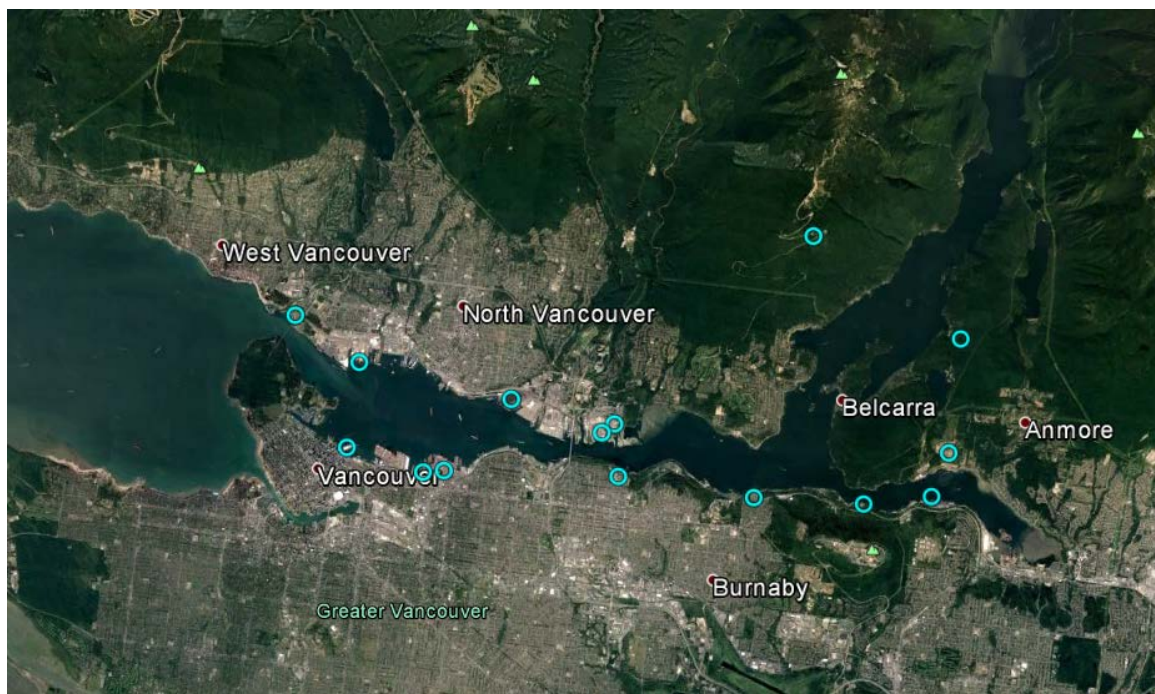
The EMA is one of the key ministry statutes governing environmental protection and management in British Columbia. The EMA regulates industrial and municipal waste discharges, pollution, air quality, hazardous waste and contaminated site remediation (Appendix 1). It provides powers and authorities for ministry staff to verify compliance, to prevent and correct detrimental environmental impacts, and to take enforcement action and respond to environmental emergencies.

## Audit Approach

There are currently 15 active effluent authorizations that are authorized under the EMA to discharge to the Burrard Inlet (Figure 1, Appendix 2). For each authorization, a desktop analysis was completed for fourth quarter 2014 and 2015 (October 1 to December 31) monitoring data that was submitted to the ministry in accordance with their authorization.

There are a wide variety of authorized facilities within the Burrard Inlet that operate under various Regulations and Codes of Practice as well as other activities regulated by other agencies. However, these facilities were not assessed in this audit report. This audit was limited to assessing facilities that currently hold an active effluent authorization under the EMA.





**Figure 1: The Burrard Inlet with location of facilities assessed in the audit (ENV 2017)**

Office reviews were completed by ENV Environmental Protection Officers (EPOs). As the authorization requirements were assessed, an ENV compliance response was determined based on the non-compliances noted during the desktop review. Non-compliances and final compliance responses were described and summarized in an inspection record which was then issued to the facility contact person(s).

## Compliance Determinations

In order to determine the overall compliance response, the EPO assigned one of four compliance determinations for sections of the authorization that were assessed during the desktop review. The four determinations used in the audit are defined as:

1. In – Facilities determined to be ‘In’ compliance, will have met the requirements of sections and/or subsections of the authorization.
2. Out – an ‘Out’ of compliance determination will be given to facilities that do not meet the requirements of sections and/or subsections of the authorization.
3. Not Determined – Assigned to facilities that had sections of their authorization which were applicable, but were not able to be assessed due to missing information i.e. flow data.
4. Not Applicable – Assigned to facilities that had sections of their authorization which no longer apply from a compliance standpoint i.e. an authorized works which no longer discharges.

## Compliance/Enforcement Response Determinations

A final decision was made on what the appropriate compliance/enforcement response for individual facilities based on the EPO’s professional judgement and a consideration of the Non-Compliance Decision Matrix found in ENV Compliance and Enforcement Policy and Procedure, Version 3, 2013 (Appendix 4).

## Results

Overall industry compliance with their respective authorization requirements was 82% (Figure 2); however, only 37% of authorization holders were in compliance with all of their requirements (Figure 14). Compliance was assessed by each facility's ability to meet the requirements outlined in each individual authorization. Ten of fifteen facilities were unable to demonstrate compliance in at least one authorization section between 2014 and 2015. The observed non-compliances were minor administrative and environmental infractions that would be unlikely to result in an environmental, human health or safety impact.

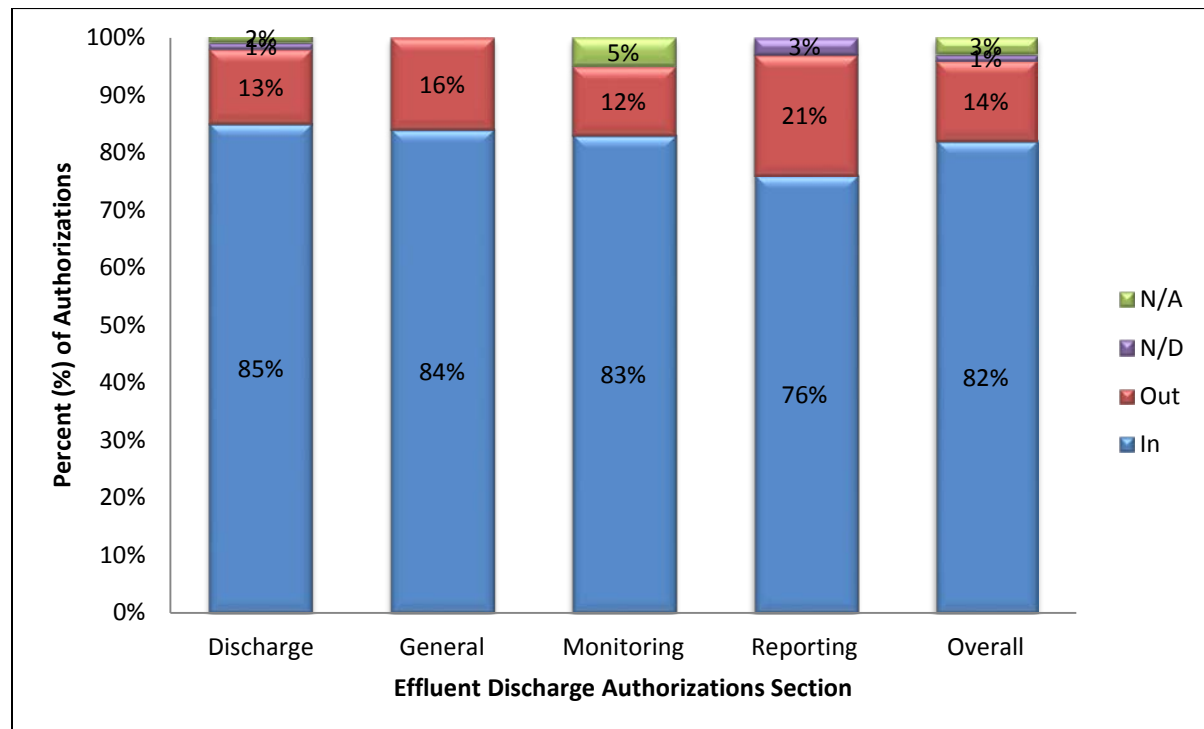


Figure 2: Summary of compliance determination by authorization section

## Discharge Requirements

Authorized discharge requirements set limits for effluent discharge volumes and characteristics ; the limits are set based upon considerations of the BCWQG, receiving environment uses and best available control technology. These requirements are designed to limit and regulate the total volume of industry specific pollutants discharged into the Burrard Inlet over a given period of time. The amounts and characteristics which are set are chosen so that they do not cause environmental, health or safety impacts.

Between 2014 and 2015, authorization holders were 85% in compliance with discharge requirements (Figure 3). Within this section, the highest rates of compliance were with maximum average annual rate of discharge, maximum concentration levels and maximum daily discharge loading (all 100% in compliance). The lowest rate of compliance was with the characteristics of discharge (75% in compliance).

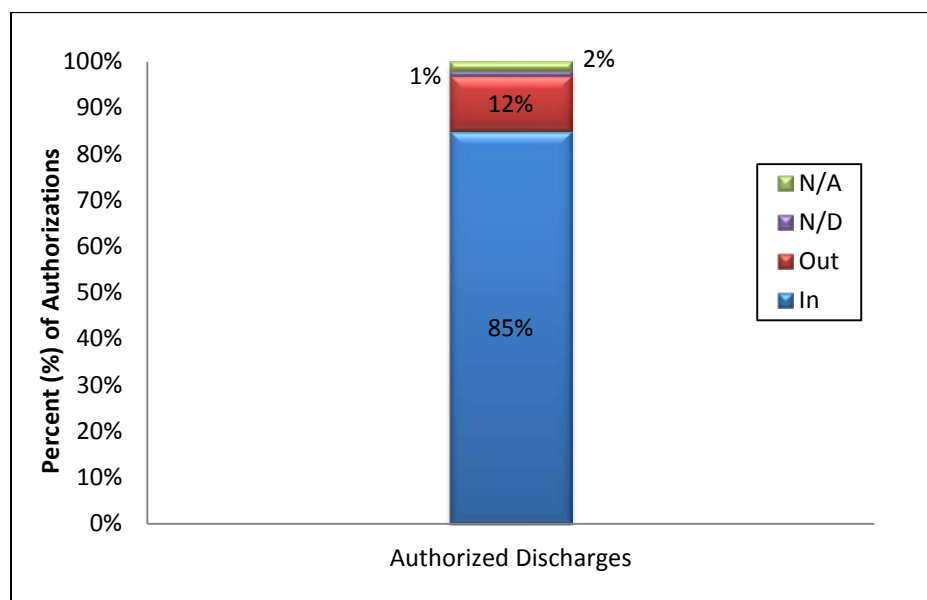


Figure 3: Authorized discharge requirements compliance determinations

## Discharge Characteristic Requirements

Authorization holders are required to sample and test effluent discharge on a prescribed basis (daily to annually) for parameters that reflect the nature of the industry generating the effluent. Characterization of effluent can inform industry and the Ministry of shortcomings in treatment processes, issues during production and potential effects on the receiving environment.

Exceedance of allowable discharge characteristic limits was responsible for the greatest rate of non-compliances under Section 1 (20 % out of compliance) and the second highest rate of non-compliance amongst all authorization requirements.



Figure 4: Example of a LC50 acute toxicity fish bioassay test using effluent ENV 2017

The following tables outline the exceedance rates for the most commonly addressed parameters found in the authorizations relevant to the audit (Figure 6). Total Suspended Solids (TSS), temperature and Biochemical Oxygen Demand (BOD) were identified as areas of concern due to their higher than average non-compliance rates. N/A was applied when a parameter was not required to be monitored by an authorization.

It was noted that some facilities had a regular or predictable exceedance schedule, driven largely by seasonal precipitation variations.

Lethal concentration monitoring (LC 50), or toxicity testing, which is a key indicator of acute toxicity and effects of effluent on biology of the receiving environment, was not exceeded by any of the 15 regulated operations during the audit period (100 % in compliance).



Figure 5: Total Suspended Solid Sample ENV 2017

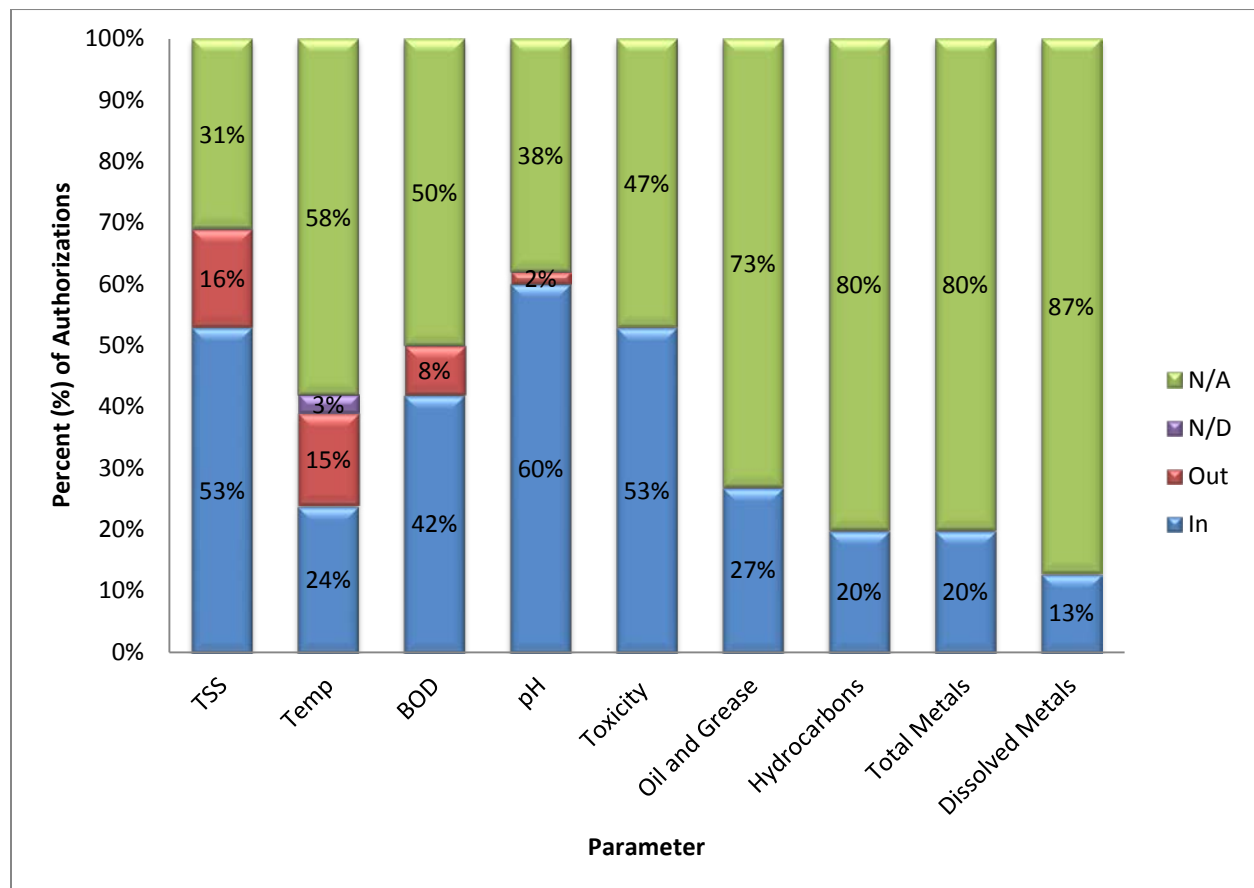


Figure 6: Discharge characteristics compliance determinations

## Discharge Rate Requirements

Authorization discharge requirements ensure that authorization holders monitor effluent discharge volumes from a facility or process on a prescribed basis (daily to annually) and report the data to the Ministry on a prescribed basis; usually annually. These requirements, along with the monitoring of effluent characteristics, can help ensure that the amount and type of pollutants being discharged into the receiving environment is limited so as to not cause impacts to the environment, human health or safety.

Data collected during this audit shows that 87% of facilities were in compliance for their daily rate of discharge and that 100% were in compliance with their annual rate of discharge (Figure 7) prescribed limits. Of the three reported non-compliances for daily discharge rate, two resulted from the inability of authorization holders to produce data rather than from documented exceedances.

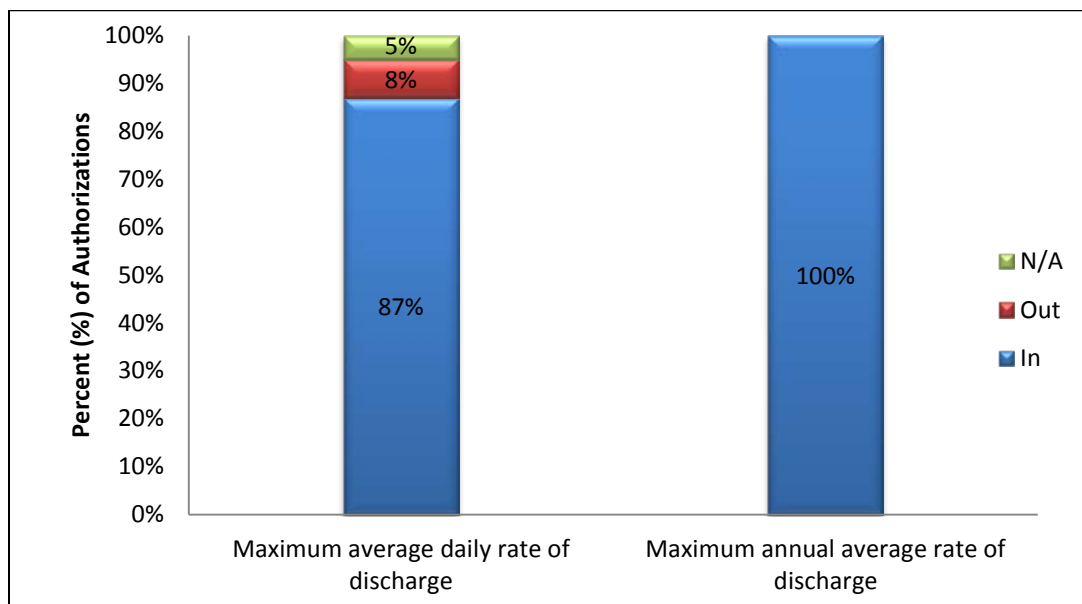


Figure 7: Discharge rate compliance determinations

## General Requirements

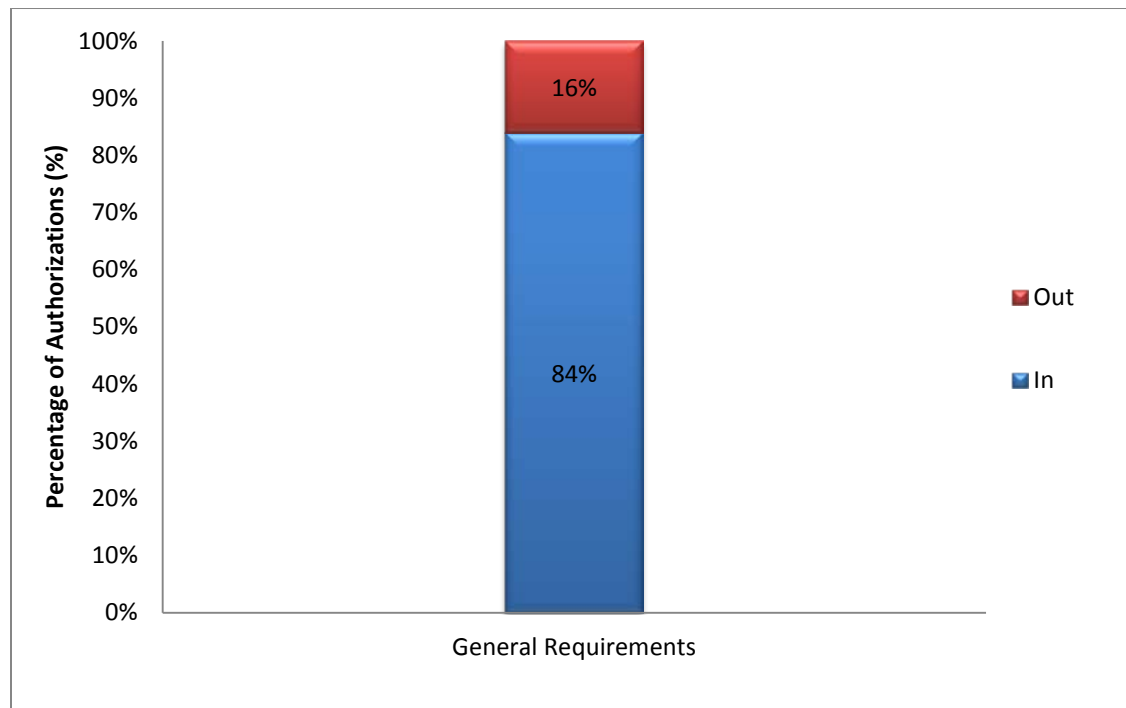
General requirements sections are used to ensure that authorization holders inspect and maintain each facility's authorized treatment works (Appendix 3). It also prohibits bypasses, meaning the discharge of an effluent that has not passed through the treatment works. This section also addresses requirements for disinfection/chlorination of effluent, outfall inspections and monitoring of the characteristics of groundwater from collection systems. These requirements ensure that no effluent is discharged without having first been treated by a facility that is in good working order and is authorized by ENV.



Figure 8: Stormwater Outfall Inspection ENV 2017



Between 2014 and 2015, 84% of authorization holders were in compliance with general requirements (Figure 9). The highest rates of compliance were with the maintenance of works and emergency procedures and management of groundwater from collection systems (both 100% in compliance). The lowest rates of compliance were with discharge outfall inspections (100% out of compliance). Bypassing authorized works (typically due to emergency discharges) was noted as an area of concern.



**Figure 9: General requirements compliance determinations**

## Monitoring Requirements

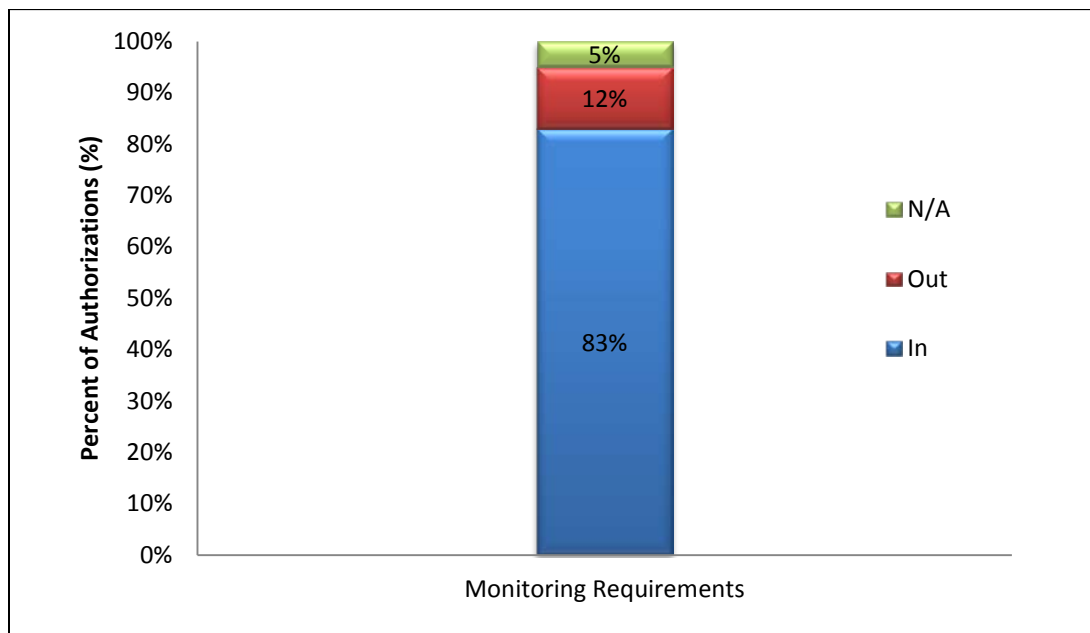
The monitoring requirements section of an authorization requires that authorization holders adhere to various monitoring requirements including: the type of parameters to sample, sampling frequency and flow measurement. Additional monitoring, such as inspections of the receiving environment and toxicity testing, can also be required. These requirements ensure that any changes in effluent quality or quantity, which may have an impact on the environment, are identified and mitigated without delay.

Between 2014 and 2015, authorization holders were in compliance with 83% of monitoring requirements (Figure 11).

The highest rates of compliance were with toxicity testing, receiving environment sampling and temperature measurement (100% in compliance). The lowest rates of compliance were with diving inspections of the receiving environment, although this requirement was only required by one authorization holder.



**Figure 10: Sampling in Burrard Inlet ENV 2017**



**Figure 11: Monitoring requirements compliance determinations**

## Reporting Requirements

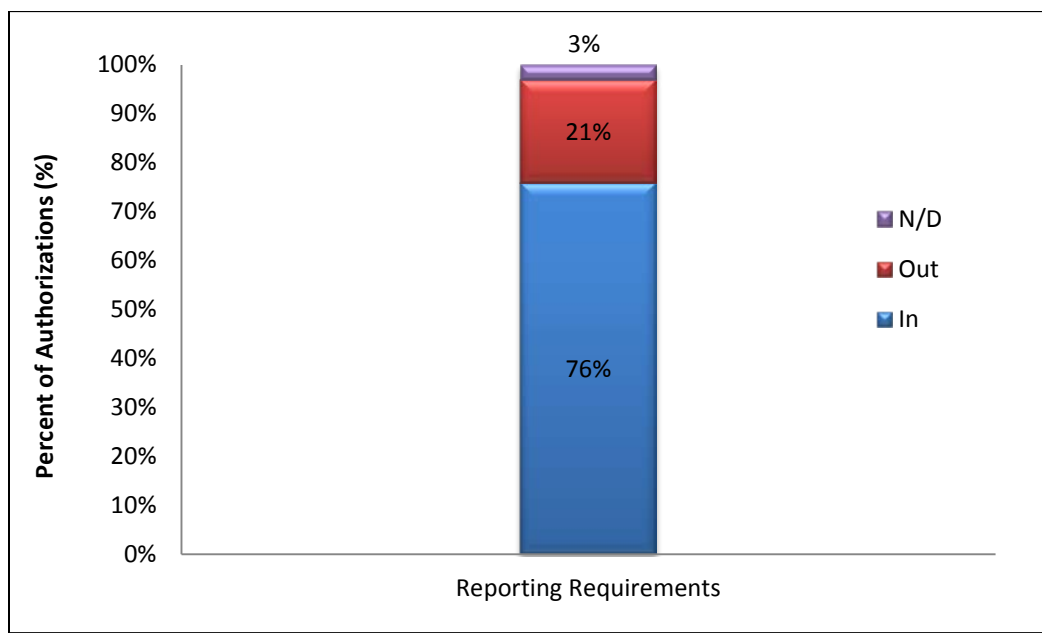
Reporting requirements in an authorization ensure that authorization holders submit reports which typically include: monitoring data and analysis, non-compliance reports, and a summary for the reporting period. These requirements ensure that all information deemed necessary for the effective management of effluent quality is submitted to ENV on a regular basis.

Between 2014 and 2015, authorization holders were in compliance with 76% of reporting requirements (Figure 13). Each requirement within the reporting requirements section was in compliance with the exception of report submissions. This requirement covers the submission of data from all monitoring and sampling that is required under the authorization. Only 50% of authorization holders were in compliance with this requirement. This is the only requirement that is applicable to all authorizations and was identified as an area to be addressed.



**Figure 12: Burrard Inlet (ENV 2017)**

Despite failing to report the necessary data, 80% of authorization holders were able to produce records of the missing data upon request from the Ministry.



**Figure 13: Reporting requirements compliance determinations**

## Compliance Responses

Each facility that was inspected during this audit was assigned a compliance response. Compliance responses are based on consideration of the Non-Compliance Decision Matrix found in ENV Compliance and Enforcement Policy and Procedure, Version 3, 2013 (Appendix 4). In most cases, the observed non-compliances were minor administrative and environmental infractions, which would not result or were unlikely to result in an environmental, human health or safety impact.

Facilities were issued notices of compliance if they were in compliance with their authorization requirements. Facilities were given a 1A response if the non-compliance was administrative in nature and they had a good compliance history. A 1B response was issued if the non-compliance was administrative in nature but there was a history of non-compliance or a questionable capacity to meet regulatory requirements. Facilities were given a 2A response if they were unable to produce a significant amount of data or had non-compliance rates in areas that presented a temporary threat to the environment or human health. Facilities were given 2B responses if they have previously exceeded the discharge characteristic requirements, bypassed treatment works without authorization, missed significant reporting deadlines or had a history of non-compliance.

Overall, there were eleven Notices issued, ten 1A – Advisories issued, three 1B – Advisories issued, four 2A – Advisories issued and two 2B – Warnings issued (Figure 14).



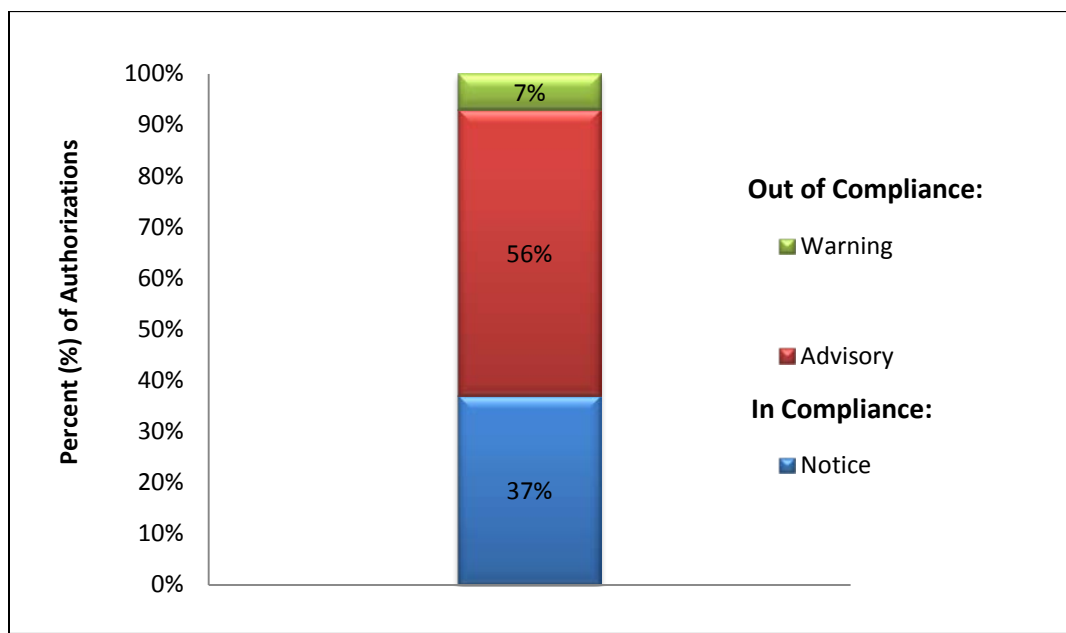


Figure 14: Final ENV Compliance Response Determinations

## Compliance Summary

Fifteen authorization holders, representing 100% of the active effluent authorization holders who discharge into the Burrard Inlet, were assessed to determine compliance with their authorizations between 2014 and 2015. Compliance rates were noticeably similar between 2014 and 2015.

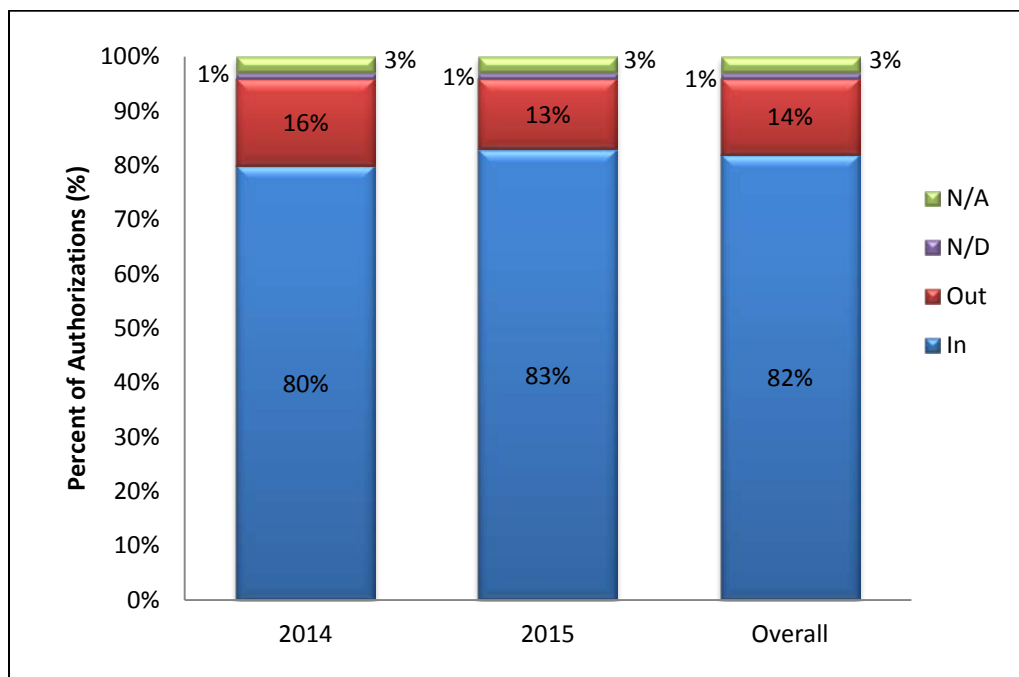


Figure 15: Summary of compliance determinations across the audit periods

## Industry Challenges Identified During the Audit

The results of the compliance audit and subsequent discussions with industry representatives have highlighted several challenges faced by industries within the Burrard Inlet:

- 50% of facilities have not been properly submitting reporting data that is required under their specific authorization
- The frequency of bypassing treatment works and discharging effluent under emergency circumstances is high. Follow-up on this issue will be completed during the next audit.
- Communication was considered to be one of the major issues identified during this audit. Authorization holders were often unaware of who to contact if there was ever an issue relating to their authorization and/or facility.
- There are a number of authorized works that are no longer in operation. Authorization holders have been notified that their authorization should be amended accordingly.

Authorization holders included a statement with their monitoring reports outlining the number and causes of non-compliances that occurred during a reporting period. From this data, as well as discussions with authorization holders, it was indicated that many exceedances occur during periods of excess precipitation when emergency discharges are sometimes required. The reasons for these emergency discharges will be assessed and identified during the next audit.

During discussions with authorization holders, it was indicated that missing data had been recorded in accordance with authorization requirements but had not been submitted to the Ministry as required. Lower compliance rates in reporting requirements were therefore due primarily to the lack of communication between the authorization holder and the Ministry. Authorization holders were able to produce records of the missing data upon request. As a solution to this issue, authorization holders were advised of the new ENV electronic reporting procedures.

It was also indicated that in the past, informal discussions between authorization holders and ENV staff, regarding potential amendments to or discontinuation of authorization requirements, were taken as formal permission from ENV. Authorization holders then proceeded with changes despite not having received express written consent from a Statutory Decision Maker (Director). This led to a number of non-compliances occurring. It was reiterated to each authorization holder that a written request followed by acceptance, in writing, from the Director is required when carrying out changes to authorization requirements.

## Conclusions/Recommendations

Despite certain shortcomings, overall industry compliance was high across the audit period and throughout the authorization sections (82% in compliance).

The following recommendations are being proposed to improve industry compliance with each authorization as a result of the audit:

1. Complete on-site inspections of all authorized facilities in 2017;
2. Collaborate with the Burrard Inlet Water Quality Objectives (WQO) Working Group through on-site inspections and on-site sampling to assist in updating the WQO's in the Burrard Inlet;
3. Compliance Promotion:
  - a. Provide information package to authorization holders containing ENV reference documents: 'How to stay in compliance', 'What to expect from an inspection' and 'What to do if you're out of compliance';
4. Recommended actions for Industry:
  - a. Contact ENV authorizations staff in order to update effluent discharge authorizations to ensure consistent and unambiguous requirement descriptions;
  - b. Promote increased correspondence between qualified professionals, laboratories performing compliance testing and industry representatives, specifically with regard to quality assurance data; and
  - c. Ensure authorized works and treatment systems are maintained regularly, and the latest technologies are promoted, in order to prevent effluent characteristic exceedance of regulatory limits.

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## Appendix 1 – Legislation

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## Appendix 1 – Legislation

For the purpose of the audit, the following sections of the EMA were assessed to determine compliance. Although numerous requirements occur in several or all authorizations, their wording and section numbering varies considerably, as authorizations are produced independently and are designed to be facility specific. For the purposes of efficiency, Ministry staff applied a unique numbering and wording format to the authorization requirements, to be used throughout the audit.

### Section 1: Authorized Discharges

1(a) The maximum authorized rate of discharge is ...

1(b) The maximum authorized annual rate of discharge is ...

1(c) The characteristics of the discharge must be equivalent to or better than: ...

1(d) The maximum daily (flow proportioned 24-composite) concentration level of the discharge shall be ...

1(e) The maximum daily discharge loadings\* for ... and ... for the final effluent to be used for the calculation of annual operational certificate fees shall be:...

\* Daily discharge loading is the total amount of contaminants discharged per day (contaminant concentration x rate of discharge)

### Section 2: General requirements

2(a) Maintenance of works and emergency procedures: The authorized works must be inspected regularly and maintained in good working order. In the event of an emergency or condition beyond the control of the permittee which prevents effective operation of the authorized works or leads to an unauthorized discharge, the permittee must take appropriate remedial action and notify the Director immediately.

2(b) Bypasses: Any bypass of the authorized works is prohibited unless the approval of the Director is obtained and confirmed in writing.

2(c) Disinfection: The effluent shall be disinfected between ... and ... so that the Burrard Inlet fecal coliform water quality objective is not exceeded at the edge of the initial dilution zone as described in the Municipal Wastewater Regulation. If chlorine is used, the effluent shall be dechlorinated prior to discharge to reduce the chlorine residual below the detection limit.

2(d) Groundwater From Collection Systems: Unless otherwise authorized by the Regional Waste Manager, the permittee shall take all measures necessary to ensure that, immediately prior to combining with other effluent,: a) the MTBE concentration in collected groundwater does not exceed 4.4 mg/L and b) The total MTBE mass loading produced by groundwater from all collection systems does not exceed 36.5 kg per calendar month.

2(e) Outfall Inspection: The Permittee shall have the outfall inspected once each two years by independent qualified personnel to ensure it is in good working condition. An inspection report shall be submitted to the Regional Manager, Environmental Protection, within 30 days after the inspection date...

### **Section 3: Monitoring Requirements**

3(a) Sampling: A suitable sampling facility shall be installed and maintained and grab or composite samples of the effluent authorized by Section... shall be obtained for analysis every ...

3(b) Sampling for the receiving environment: A suitable sampling facility must be installed and samples of the receiving environment must be obtained as outlined in the following table...

3(c) Analysis: Obtain analysis of the samples for the following: ...

3(d) Flow Measurement: The Permittee shall install and maintain a suitable flow measuring device and record once per ... the effluent volume discharged over a 24 hour period. Report the months where there was no discharge.

3(e) Temperature Measurement: Provide and maintain a suitable temperature measuring device for the discharged authorised in appendix 01 and record once per month the effluent temperature in degrees Celsius.

3(f) Toxicity analyses: Unless otherwise specified by the Director, analyses for determining the toxicity for liquid effluent to fish must be carried out in accordance with the procedures described in Section 3.2\*\*...

\*\*Analyses are to be carried out in accordance with procedures described in the “British Columbia Environmental Laboratory Manual, 2013 Edition”, or the most recent edition, or by suitably alternate procedures as authorized by the Director.

3(g) Additional Sampling Parameters: ... the operational certificate holder will submit to the Regional Waste Manager for approval, a list of additional substances that will be monitored in the effluent and has been reviewed by Environmental Monitoring Committee...

3(h) Toxicity Identification Evaluation: If the monthly bioassay test fails the operational certificate holder will conduct a Toxicity Identification evaluation (TIE) study for the purpose of determining the probable cause of the failure...

3(i) Monitoring of Marine Organisms: Diving inspections of the receiving environment in the vicinity of the outfalls must be conducted at... to assess levels of growth of marine organisms such as bacteria and algae and the condition of the marine environment and sea floor...

3(j) Quality Assurance: All analytical data required to be submitted by the permit must be conducted by a laboratory acceptable to the Director. At the request of the Director, the permittee must provide the laboratory assurance data, associated field blanks, duplicate analysis results along with the submission of data required under section... of the permit.

### **Section 4: Reporting Requirements**

4(a) Reporting: Maintain data of... for inspection and submit the data, suitably tabulated, to the Director, for the previous...

4(b) Non-compliance Reporting: The Permittee must immediately notify the Director or designate of any non-compliance with the requirements of this Permit and take appropriate remedial actions. Written confirmation of all non-compliance events, including available test

results is required within 24 hours of the original notification unless otherwise directed by the Director, Environmental Protection.

4(c) Spill reporting: All spills to Environment (as defined in the Spill Reporting Regulation) must be reported immediately in accordance with the Spill Reporting Regulation. Notification shall be via the Provincial Emergency Program at...

4(d) Non-Compliance Reporting of Toxicity: Immediately notify the Director of any toxicity failures.

4(e) Additional Toxicity Monitoring: For the discharges described in Sections ... toxicity testing must be increased from once per month to once per week if a sample of effluent fails the rainbow trout toxicity test...

4(f) Environmental Report: The Permittee shall have a qualified professional prepare an interpretive summary and an environmental report on Environmental fate and impact of ...'s MTBE Discharges into Burrard Inlet... If Environmental report indicates that MTBE discharges are causing pollution, the Permittee shall implement corrective action to stop the pollution



## Appendix 2 – List of Authorized Facilities Included in the Audit

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## Appendix 2 – List of Authorized Facilities Included in the Audit

Authorization Number	Company Name	Issue Date	Number of Discharges
18	Canexus Corporation (Nexen Chemicals Canada)	29-Oct-57	2
22	Suncor Energy Products Inc. (Petro Canada)	26-Mar-58	1
27	Mt. Seymour Resorts Ltd.	12-Nov-58	1
30	GVRD (Lion's Gate WWTP)	17-Feb-65	1
395	Sterling Pump Chemicals Ltd.	08-Apr-71	1
445	Imperial Oil (Ioco) Ltd.	26-Nov-71	2
1133	Chemtrade Chemicals Canada Ltd. (General Chemical)	14-Feb-72	1
1386	Kinder Morgan Canada Terminals Ltd. Partnership (Vancouver Wharves)	13-Jun-72	2
1668	Lantic Inc. (Rogers Sugar Ltd.)	23-Jul-73	3
3678	Trans Mountain Pipeline ULC. (Terasen Pipelines)	18-Oct-74	2
4970	Chevron Canada Ltd.	11-Oct-78	2
6898	Neptune Bulk Terminals Canada Ltd.	07-Mar-86	1
7944	Canada Place Corporation	17-Feb-88	1
8035	Evangelical Laymen's Church of Canada (formerly YMCA (Camp Howdy))	18-Jan-89	1
8426	West Coast Reduction Ltd.	23-Jul-93	1

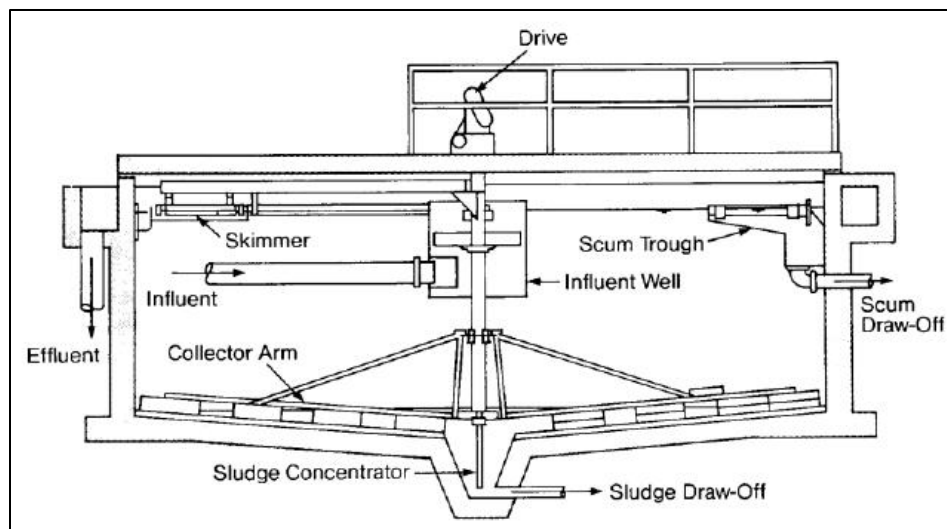
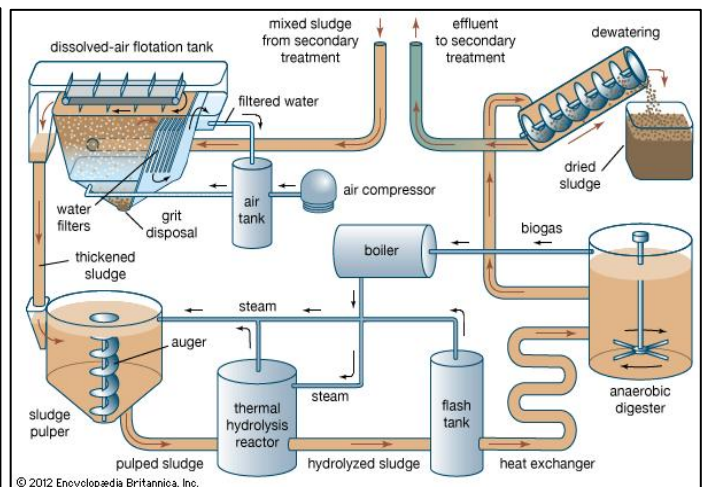
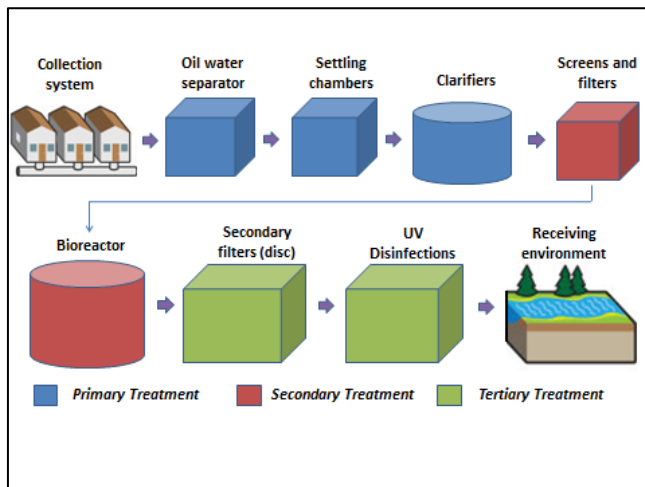
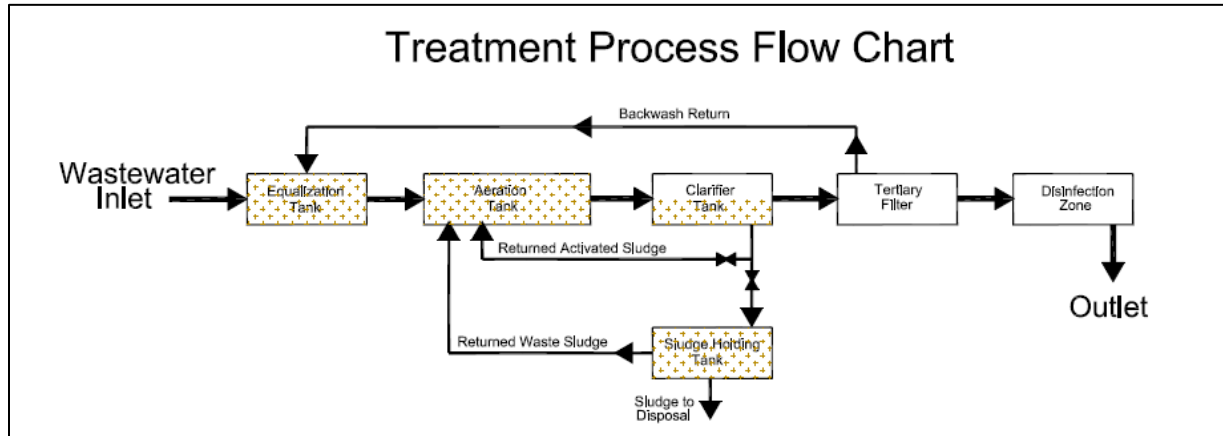


## Appendix 3 – Examples of Effluent Treatment Configurations

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## Appendix 3 – Examples of Effluent Treatment Configurations







## Appendix 4 – Non-Compliance Decision Matrix

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## Appendix 4 – Non-Compliance Decision Matrix

The Non-Compliance Decision Matrix is a risk-based guidance tool for assessing the variability and severity of factors influencing the selection of compliance tools (Figure 18). These factors include:

- Escalating levels of environmental, human health or safety impacts (Figure 19).
- Diminishing likelihood of achieving compliance (Figure 20).

The Non-Compliance Decision Matrix helps to ensure a consistent and principled approach to assessing and responding to regulatory non-compliance; it is to be used with discretion by Ministry of Environment and Climate Change Strategy staff when considering the context and specifics of individual cases of non-compliance.

		ESCALATING ENVIRONMENTAL, HUMAN HEALTH OR SAFETY (ACTUAL OR POTENTIAL)				
		LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
DIMINISHING LIKELIHOOD OF COMPLIANCE (COMPLIANCE HISTORY/WILLINGNESS AND CAPACITY TO COMPLY)	CATEGORY A (HIGH)	ADVISORY	ADVISORY - WARNING	WARNING - ORDER - ADMIN SANCTION - AP	ORDER - ADMIN SANCTION - AP - INVESTIGATION	INVESTIGATION  <div>Note: An investigation is always necessary prior to issuance of a <b>ticket</b>, recommendation of <b>formal charges</b> or use of <b>restorative justice</b> therefore these tools are not shown on the matrix. Depending on the outcome, an investigation could also culminate in the issuance of a warning, administrative sanction or penalty, or an order.</div>
	CATEGORY B	ADVISORY - WARNING	WARNING - AP	INVESTIGATION		
	CATEGORY C	WARNING - AP	WARNING - ORDER			
	CATEGORY D	WARNING - ORDER - ADMIN SANCTION - AP	ADMIN SANCTION - AP - INVESTIGATION			
	CATEGORY E (LOW)	ORDER - ADMIN SANCTION - AP - INVESTIGATION				

#### LEVEL 1

- Non-compliance that does not result or is unlikely to result in any environmental, human health or safety impact; or
- Minor administrative non-compliance.

#### LEVEL 2

- Non-compliance resulting in a minor, temporary impact to the environment or minor, temporary threat to human health or safety; or
- Significant administrative non-compliance.

#### LEVEL 3

- Non-compliance resulting in a moderate, temporary impact to the environment or moderate, temporary threat to human health or safety.

#### LEVEL 4

- Non-compliance resulting in a significant impact to the environment or significant threat to human health or safety (may be temporary or permanent).

#### LEVEL 5

- Known or likely human health impact that is severe in effect, i.e. resulting in hospitalization and/or long term human health consequences.

### Categories of Likelihood of Compliance

(Compliance History/Willingness and Capacity to Comply)

#### CATEGORY A - Indications of future and ongoing compliance are very high

- No previous occurrences of non-compliance;
- Good demonstrated awareness of and/or capacity to meet regulatory requirement; and/or
- Offender has a reasonable and cooperative attitude.

#### CATEGORY B - Indications of future and ongoing compliance are uncertain

- Few previous occurrences of non-compliance; and/or
- Questionable awareness of and/or capacity to meet regulatory requirement.

#### CATEGORY C - Indications of future and ongoing compliance are unlikely

- Numerous previous occurrences of non-compliance; and/or
- Little or no awareness of and/or capacity to meet regulatory requirement.

#### CATEGORY D - No indication of future and ongoing compliance

- Wilful violation of ministry regulatory requirement; and/or
- Little or no demonstrated willingness or capacity to meet regulatory requirement.

#### CATEGORY E - No indication of future and ongoing compliance

- Hindering or obstructing a ministry official;
- Refusing to furnish required information; and/or
- Intentionally including false or misleading information in any required document.