Report Date:February 08, 2022 File:18

Report Number:180534

REGISTERED MAIL

Chemtrade Electrochem Inc.

100 Amherst Ave
North Vancouver, BC
V7H 1T9

Dear Chemtrade Electrochem Inc.,

Re: Warning Letter, Permit, 18

On December 08, 2021, Ministry of Environment, Environmental Protection Division staff conducted an inspection under *Environmental Management Act (EMA)*, 18. The inspection determined that Chemtrade Electrochem Inc. is out of compliance with its Permit 18, and the section(s) listed below. This Warning Letter lists the compliance verification information contained below.

Failure to comply with the requirements set out in your Permit is an offence under the *Environmental Management Act (EMA)*. Section 120(6) of *EMA* states as follows:

> *120(6) A person who, holding a permit or approval issued to the person under this Act to introduce waste into the environment, introduces waste into the environment without having complied with the requirements of the permit or approval commits an offence and is liable on conviction to a fine not exceeding $1 000 000 or imprisonment for not more than 6 months, or both.*

It should also be noted that, as an alternative to prosecution of the offence referenced above, the Ministry may initiate action to impose an administrative penalty against Chemtrade Electrochem Inc.. *The Administrative Penalties Regulation (EMA)* (B.C. Reg. 133/2014) (APR) was brought into force in 2014. The APR describes the prescribed provisions of the EMA as well as that of specified regulations under which administrative penalties can be assigned. Section 12(5) of the APR states as follows:

> *12(5) A person who fails to comply with a requirement of a permit or approval issued or given under the Act is liable to an administrative penalty not exceeding $40 000, unless the requirement the person failed to comply with is also a prescribed provision of the EMA or the regulations that is subject to a different maximum administrative penalty.*

I request that Chemtrade Electrochem Inc. immediately implement the necessary changes or modifications to correct the non-compliance(s) listed above with the *Environmental Management Act*. Further, I request that Chemtrade Electrochem Inc. notify this office in writing, by email or letter within 30 days of this letter, advising what corrective measures have been taken, and what else is being done, to prevent similar non-compliances in the future.

Please submit your response to the Ministry's Compliance Mailbox at:EnvironmentalCompliance@gov.bc.ca.

As a result of this Warning, this authorization will be prioritized for follow-up inspection. The corrective measures will be reviewed by an Officer as part of the next inspection.

Finally, if you fail to take the necessary actions to restore compliance, you may be subject to escalating enforcement action. This Warning Letter and the alleged violations and circumstances to which it refers, will form part of the compliance history of Chemtrade Electrochem Inc. and will be taken into account in the event of future violations.

Ministry of Environment and Climate Change Strategy

Compliance
Environmental Protection Division

Mailing Address:
2nd Fl
10470-152nd St
Surrey BC V3R 0Y3

Telephone: 604 582 5200
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Inspection Details:

On December 8, 2021, Ministry of Environment and Climate Change Strategy (Ministry) Environmental Protection Officers Katelyn Dick and Kerry Head (Officers) conducted an on-site inspection of Chemtrade Electrochem Inc. (Chemtrade), a Chlor-Alkali Plant (Site) located in North Vancouver, BC to verify compliance with permit number 18 (Permit). The Permit authorizes the discharge of effluent to Burrard Inlet and to the land from a Chlor-Alkali Plant located at 100 Amherst Avenue, North Vancouver, British Columbia, subject to the terms and conditions of the Permit. The Permit was first issued on October 29, 1957, and last amended on January 19, 2018. Present during the inspection was Saminda Chandraratne (EHS Supervisor, Chemtrade).

The inspection period for this report is from January 1, 2020, to December 8, 2021, (Inspection Period) and included a review of the following documents:

- The following Quarterly Reports, referenced as Quarterly Reports throughout the inspection:
- 2020 Q1 WQ Data, dated April 20, 2020, prepared by Chemtrade
- 2020 Q2 WQ Data, dated July 14, 2020, prepared by Chemtrade
- 2020 Q3 WQ Data, dated October 30, 2020, prepared by Chemtrade
- 2020 Q4 WQ Data, dated January 13, 2021, prepared by Chemtrade
- 2021 Q1 WQ Data, dated April 22, 2021, prepared by Chemtrade
- 2021 Q2 WQ Data, dated July 30, 2021, prepared by Chemtrade
- 2021 Q3 WQ Data, dated October 28, 2021, prepared by Chemtrade
- Plant Work Orders, dated October 12, 2021, prepared by Chemtrade;
- McRae's Environmental Invoices DS# 498023 and DS# 493489, dated November 23, 2021, and August 30, 2021; and,
- Internal QA/QC data (from Chemtrade's in-house lab) for 2020 and 2021, prepared by Chemtrade.

Below are the Permit clauses that were assessed for compliance during this inspection, as well as the associated details/findings and any actions required.

Requirement Description:	**1. AUTHORIZED DISCHARGES. 1.1** 1.1.1: This section applies to the discharge of effluent from a process effluent, cooling water and domestic sewage. The site reference number for this discharge is E208263. 1.1.1 The maximum rate of discharge is 90,000 cubic metres per day.
Details/Findings:	Following a review of the Quarterly Reports, it was determined that when flow rates were reported the maximum rate of discharge was not exceeded during the inspection period. However, no flow rates were measured or reported from January 1, 2020, to February 18, 2020, due to flow meter failure. As reported in the previous inspection report IR144618, the flow meter was replaced on February 6, 2020, and became operational on February 19, 2020. During this period of January 1, 2020, to February 18, 2020, it could not be determined if the maximum rate of discharge was exceeded.
Compliance:	Not Determined

Requirement Description:	**1. AUTHORIZED DISCHARGES. 1.1** 1.1.3: This section applies to the discharge of effluent from a process effluent, cooling water and domestic sewage. The site reference number for this discharge is E208263. 1.1.3 The characteristics of the discharge must be equivalent to or better than: pH: MAXIMUM: 9 pH Units, MINIMUM: 6 pH Units; Total Suspended Solids: MAXIMUM: 130 mg/L, AVERAGE: 20 mg/L; Temperature: MAXIMUM: 32 Degrees Celsius; Total Chlorine Residual: MAXIMUM: 1 mg/L, AVERAGE: 0.2 mg/L; Total Copper: MAXIMUM: 0.02 mg/L; Total Nickel: MAXIMUM: 0.02 mg/L; Total Zinc: MAXIMUM: 0.02 mg/L; Toxicity, Threespine Stickleback 96-hour Single-concentration Test: MAXIMUM: 50% mortality; and , In a static bioassay, there must be no more than 50% fish mortality in 100% (undiluted) effluent within 96 hours.
Details/Findings:	Following a review of the Quarterly Reports, it was determined that throughout the inspection period the characteristics of the discharge were equivalent to or better than the maximums and minimum set by the Permit, with the following exceptions: - one permit limit exceedance was reported to have occurred on May 6, 2020, for total zinc, at a concentration of 0.33 mg/L, which exceeds the maximum of 0.02 mg/L. - pH greater than the maximum of 9 pH Units between 18:44 and 19:27 on October 29, 2020. As reported in the DGIR 202730 End of Spill Report submitted on November 26, 2020, and then re-submitted on November 30, 2020, on October 29, 2020, at around 18:30 pm and until 00:29 am a contractors hose got sucked into the main effluent gate and high pH effluent was discharged. Chemtrade has a continuous pH monitoring device in place and a log of the data captured during this time was submitted with the DGIR 202730 End of Spill Report. The log has pH readings per minute and shows that discharged effluent pH was above 9 pH Units from 18:44 to 19:27. Additionally, on the following dates during the inspection period, samples were not collected and therefore compliance was not determined for these dates: - October 17, 2020 - missing daily samples for pH, total suspended solids (TSS), temperature, and total chlorine residual. The 2020 Q4 WQ Data provided the following reasoning for this: "at this time the plant started their Annual shut down and the Effluent Gate was open intermittently and not long enough for the technicians to take a sample" - From October 29, 2020, to October 31, 2020 - missing daily samples for pH, TSS, temperature, and total chlorine residual. The 2020 Q4 WQ Data explained that on these dates the plant was building inventory and the effluent gate would open only occasionally which was also not long enough for the technicians to take a sample - November 08, 2020, missing daily samples for pH, TSS, temperature, and total chlorine residual
Compliance:	Out
Actions to be taken:	Ensure permit limits are not exceeded.

Requirement Description:	**1. AUTHORIZED DISCHARGES. 1.1** 1.1.4: This section applies to the discharge of effluent from a process effluent, cooling water and domestic sewage. The site reference number for this discharge is E208263. 1.1.4 The authorized works are septic tanks for domestic sewage, a chlorine stripper for direct contact cooling effluent, a submerged outfall and diffuser and related appurtenances approximately located as shown on the Site Plan.
Details/Findings:	During the on-site inspection, the Officers observed the manholes covering the septic tanks, the outfall sump, various pipes containing the effluent used for cooling water and various storm drains throughout the Site. The Permittee informed the Officers that the Site stormwater collected from the various drains all over the Site meets the cooling water, and septic tanks effluent and then flows past the main effluent gate valve to the outfall to be discharged into the Burrard Inlet. During the on-site inspection, the Permittee informed the Officers that the chlorine stripper for direct contact cooling effluent is no longer in operation but still in place on-site, approximately located as shown on the Site Plan. As recorded in the previous inspection reports IR85448 and IR144618, the chlorine stripper was taken out of service in 2010. In an email sent on January 21, 2022, the Permittee reported that the current effluent treatment system works as follows: "every time we [Chemtrade] have an excursion the effluent goes into the diversion tank, from there goes to the ECT tank where we [Chemtrade] do pH control or adds bisulfite, the bisulfite neutralizes the amount of free Cl2 and then once the effluent is on spec it goes back to effluent". During the on-site inspection, the Permittee explained that Chemtrade has continuous monitoring devices in place to monitor various parameters of effluent quality before the effluent reaches the main effluent gate valve to the outfall. If effluent quality comes close to exceeding Permit limits for the parameters that can continuously monitor for, aka "an excursion" then the discharge is stopped and effluent is directed into the diversion tank until quality improves. Therefore, bisulfite treatment is only used as needed and not for all effluent. As the Permittee informed the Officers that the chlorine stripper for direct contact cooling effluent is still located as shown on the Site Plan, compliance with this section is met.
Compliance:	In
Actions to be taken:	It is recommended that the Permit is amended to accurately describe the current effluent treatment processes used on-site. To initiate a Permit amendment, please see our web page here for information on the process: https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/change Then please complete the following form and submit it to "PermitAdministration.VictoriaEPD@gov.bc.ca": https://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/forms/epd-ema-04_amend_preliminary_application_form.pdf

Requirement Description:	**1. AUTHORIZED DISCHARGES. 1.2** 1.2.1: This section applies to the discharge of effluent from the cathode washing operation. The site reference number for this discharge is E208289. 1.2.1 The average rate of discharge is 70 cubic metres per day.
Details/Findings:	During the on-site inspection, the Permittee reported that cathode washing operation was decommissioned in the summer of 2012 and effluent is no longer discharged from the system; therefore, compliance with the cathode washing operation discharge requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Actions to be taken:	It is recommended that the Permit be amended to remove these requirements.
Requirement Description:	**1. AUTHORIZED DISCHARGES. 1.2** 1.2.4: This section applies to the discharge of effluent from the cathode washing operation. The site reference number for this discharge is E208289. 1.2.4 The characteristics of the discharge must be equivalent to or better than: pH: MAXIMUM: 11 pH Units, MINIMUM: 6 pH Units.
Details/Findings:	As stated above, the cathode washing operation was decommissioned and removed in 2012 and no discharge from this system occurred throughout the inspection period; therefore, compliance with the cathode washing operation discharge requirement is not applicable for the inspection period. Although there was no discharge from these works to the infiltration ponds, the ponds are still in place and collect precipitation and sea water from a sprinkler system. Chemtrade keeps the ponds wet at all times because they may contain waste asbestos from the Site's past process. The water in these ponds is sampled and analyzed for pH daily. The Quarterly Reports show that the maximum and minimum pH limits were not exceeded throughout the inspection period, with the exception of the 2020 Q1 WQ Data. The 2020 Q1 WQ Data did not include any pH reading from these ponds.
Compliance:	Not Applicable

Requirement Description:	**1. AUTHORIZED DISCHARGES. 1.2** 1.2.5: This section applies to the discharge of effluent from the cathode washing operation. The site reference number for this discharge is E208289. 1.2.5 The authorized works are seawater cathode washing facilities, infiltration ponds and related appurtenances approximately located as shown on the Site Plan.
Details/Findings:	During the on-site inspection, the Officers observed the infiltration ponds to be in place, and the Permittee reported that the seawater cathode washing facilities were decommissioned in 2012. As these authorized works are no longer approximately located as shown on the Site Plan, Chemtrade is out of compliance with this section. In a follow-up to Inspection Record IR049012, Chemtrade (formerly Canexus), informed the Ministry that they would submit a permit amendment application to amend Section 1.2 of the Permit as the cathode washing operations were no longer in use. At the time of this inspection, Chemtrade has not submitted a Permit amendment application.
Compliance:	Out
Actions to be taken:	Submit a request to amend the Permit to reflect the changes that have occurred to the authorized works. To initiate a Permit amendment, please see our web page here for information on the process: https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/change Then please complete the following form and submit it to "PermitAdministration.VictoriaEPD@gov.bc.ca": https://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/forms/epd-ema-04_amend_preliminary_application_form.pdf
Requirement Description:	**2. GENERAL REQUIREMENTS. 2.1 Maintenance of Works and Emergency Procedures** 2.1: 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. The Director may reduce or suspend operations to protect the environment until the authorized works has been restored and/or corrective steps have been taken to prevent unauthorized discharges.

Details/Findings:	Maintenance of Works: During the on-site inspection, the Permittee informed the Officers that the entire Site is maintained on a preventative maintenance schedule. The maintenance of the submerged outfall and diffuser are tracked through work orders in their internal electronic system. On December 10, 2021, upon request Chemtrade submitted a copy of a recent work order from October 12, 2021, to have Fraser Burrard Diving conduct an inspection of the effluent outfall and dredge around the outfall pipe. During the on-site inspection, the Permittee reported that the septic tanks for domestic sewage are pumped out by McRae's Environmental. The Officers requested all pump out invoices for January 2020 to December 2021, and on December 16, 2021, Chemtrade submitted two invoices, the first for the pump out of two septic tanks on August 30, 2021, and the second for the pump out of five septic tanks on November 23, 2021. As described previously, the chlorine stripper for direct contact cooling effluent and the cathode washing operation were decommissioned prior to the inspection period. The infiltration ponds are still in place and are maintained, as they may contain asbestos. During the inspection period, on June 2, 2020, a leak was found in an underground pipe that supports the plant's effluent system. This pipe contained 0.2% Sulphuric Acid (H2SO4) mixed with seawater, and it was not determined how long it was leaking to the ground. The release was immediately contained once discovered. As a pipe from the effluent system was leaking for an unknown amount of time during the inspection period, but was contained and taken offline once discovered, and has since been repaired, Chemtrade is in compliance for maintenance of authorized works.
Compliance:	In
Requirement Description:	**2. GENERAL REQUIREMENTS. 2.1 Maintenance of Works and Emergency Procedures** 2.1: 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. The Director may reduce or suspend operations to protect the environment until the authorized works has been restored and/or corrective steps have been taken to prevent unauthorized discharges.

Details/Findings:	Emergency Conditions: A review of Ministry records determined that during the inspection period there were several emergencies or conditions beyond the control of the Permittee which prevented effective operation of the authorized works or lead to an unauthorized discharge. - DGIR 200792: On June 2, 2020, a leak was found in an underground pipe that supports the plant's effluent system. This pipe contained 0.2% Sulphuric Acid (H2SO4) mixed with seawater, and it was not determined how long it was leaking to the ground. The release was immediately contained once discovered. This spill was reported to the Provincial Emergency Program (PEP) on June 3, 2020, in DGIR 200792, however, the Director was not notified until July 2, 2020, in the Spill 30 Day Report. - DGIR 202730: On October 29, 2020, at around 18:30 pm and until 00:29 am while discharging on-spec effluent stream, a contractors hose got sucked into the main effluent gate causing a slow discharge of unwanted high pH plant process effluent, mainly rainwater, residual caustic from washings, plant sewage and diluted salt to the Burrard inlet. This was reported to PEP on October 30, 2020, and reported to the Director on November 26, 2020. - DGIR 203327: On December 13, 2020, due to a tube failure approximately 500Kg of Freon was forced through the leak point and into the seawater tubes, ultimately being discharged to the effluent system. After investigation, it was determined that the leak likely started on December the 12th at around 16:45 pm. This was reported to PEP on December 14, 2020, and reported to the Director on January 14, 2021. As the Director was not notified of any of these emergencies immediately, Chemtrade is out of compliance with this requirement.
Compliance:	Out
Actions to be taken:	
Requirement Description:	**2. GENERAL REQUIREMENTS. 2.2 Bypasses** 2.2: Any bypass of the authorized works is prohibited unless the approval of the Director is obtained and confirmed in writing.

Details/Findings:	During the inspection period, an unauthorized bypass of the authorized works occurred, and another bypass is ongoing from past inspection periods but first identified as a bypass in the inspection. This unauthorized bypass was reported to have been discovered on June 2, 2020, when a leak was found in an underground pipe that supports the plant's effluent system. Chemtrade described the effluent discharged as process effluent, cooling water, and domestic sewage, and reported it to contain 0.2% Sulphuric Acid (H2SO4). Chemtrade was unable to determine the quantity of effluent that bypassed the authorized works and discharged through this broken pipe to the ground, as the length of time that the pipe was leaking could not be determined. The location of the bypass was reported to be approximately 180-200 meters from the nearest foreshore area of Burrard Inlet. On June 3, 2020, DGIR 200792 was created as a result of Chemtrade reporting the incident to PEP; however, no report to the Director was made until July 2, 2020. In the July 2, 2020, 30-day Spill Report, Chemtrade stated that the release was immediately contained once it was discovered, and the entire North Vancouver plant was temporarily shut down. In this July 2, 2020, report Chemtrade stated that they had 10 groundwater monitoring wells located between the piping area of release and the foreshore and that they would have their consultant complete annual groundwater monitoring of these wells, as well as additional groundwater wells in the immediate area of the bypass. They also stated that they were conducting video inspection of the piping in the area, and making process adjustments to reduce the concentration of sulphuric acid in the effluent. In an update report submitted on July 31, 2020, Chemtrade reported that they had collected soil samples from the area, and the laboratory results of the two representative soils samples were submitted along with this report. The samples analyzed showed that pH varied from 8.22 to 7.73. Chemtrade also collected water samples daily from sump locations within the Site's main discharge pipe and submitted results of these samples on August 28, 2020, which contained pH Permit limit exceedances on July 26 and August 6, and pH and chlorine Permit limit exceedances from August 18 until August 23. The location where these samples with exceedances were collected was not indicated in the data. In a spill update report submitted on September 30, 2020, Chemtrade reported that prior to excavation for the repair of the effluent pipe; one additional groundwater monitoring well had been installed on September 17, 2020, and 17 more soil samples were collected from seven boreholes and analyzed for VOCs, PAHs, metals, and asbestos. Chemtrade stated that the soil analytical results indicated all parameters had concentrations less than the applicable BC Contaminated Sites Regulation (CSR) industrial land use (IL) standards. On October 30, 2020, Chemtrade submitted an update report stating that on October 18, 2020, at around 2 pm a pH 4.0 diluted acid HCl leak was discovered while excavating around the HCl truck acid loading area. The leak came from the small sump catch basin due to a breached pipe. The spill duration was reported to be about 2 hours; however, the volume could not be determined. Chemtrade reported that they called to report the spill, however since the spill originated while fixing the trench the officer on call updated the current DGIR 200792. On November 24, 2020, Chemtrade reported that the final work on the project was completed on November 6, 2020. As this effluent pipe discharged without flowing through the authorized works, and approval of the Director not was obtained and confirmed in writing, it is considered an unauthorized bypass.
Compliance:	Out

Actions to be taken:	Ensure the authorized works are not bypassed unless the approval of the Director is obtained and confirmed in writing.
Requirement Description:	**2. GENERAL REQUIREMENTS. 2.2 Bypasses** 2.2: Any bypass of the authorized works is prohibited unless the approval of the Director is obtained and confirmed in writing.
Details/Findings:	... [continued here from above] In addition to that bypass, another bypass has been occurring on-site since 2010 with the removal of the chlorine stripper for direct contact cooling effluent from the effluent treatment process. Prior to this inspection, the removal of the chlorine stripper was addressed under section 1.1.4. However, as of this inspection, it is now determined to be an unauthorized bypass of the authorized works, as the chlorine stripper is still listed as an authorized work in the Permit, but the effluent now bypasses it and has done so for a reported twelve years. No approval of the Director, confirmed in writing, to bypass the chlorine stripper was found on record. Until the approval of the Director is obtained (through a bypass approval letter or permit amendment), or the effluent is again directed through the chlorine stripper, Chemtrade is considered to have an ongoing unauthorized bypass.
Compliance:	Out
Actions to be taken:	Ensure the authorized works are not bypassed unless the approval of the Director is obtained and confirmed in writing.
Requirement Description:	**2. GENERAL REQUIREMENTS. 2.3 Process Modifications** 2.3: The Director must be notified prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge. Despite notification under this section, permitted levels must not be exceeded.

Details/Findings:	The Permittee informed the Officers that there have been no changes to the authorized works during the inspection period. Therefore, this section is not applicable for the current inspection period. However, changes to the authorized works did occur outside of the inspection period which were captured in the previous inspection records IR85448 from May 17, 2018, and IR144618 from March 5, 2020. It was recommended that Chemtrade apply to have the Permit amended to reflect these changes in the previous inspection record, but at this time no amendment has occurred.
Compliance:	Not Applicable
Actions to be taken:	Please ensure that the Director is notified prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge.
Requirement Description:	**2. GENERAL REQUIREMENTS. 2.4 Notification** 2.4: The Director must be notified of a change in ownership of the works specified in Sections 1.1 and 1.2 within 10 days of an ownership change.
Details/Findings:	No change of ownership occurred during the inspection period; therefore, this section is not applicable for the current inspection period.
Compliance:	Not Applicable

Requirement Description:	**3. SAMPLING REQUIREMENTS. 3.3 Quality Assurance** 3.3: (a) The Permittee must obtain from the analytical laboratory (ies) their precision, accuracy and blank data for each sample set submitted as well as an evaluation of the data acceptability, based on the criteria set by the laboratory. ; (b) During each monitoring period, replicate and blank samples must be prepared and submitted for analysis for each parameter for every 10 monitoring sites, with a minimum of one replicate and blank sample where the number of monitoring sites sampled is less than 10. ; (c) The Permittee must participate in the split sample analysis for performance evaluation under the Environmental Data Quality Assurance Regulation. ; (d) For each test method, the Permittee must use analytical laboratory(ies) that: 1. Participate in the Proficiency Testing Program operated by CALA (Canadian Association for Laboratory Accreditation) ; 2. Are listed in the Ministrys Directory of Qualified Laboratories, available online at http://www.env.gov.bc.ca/epd/wamr/labsys/lab_meth_manual.html. ; or 3. Are accredited to ISO 17025 standards for that test method(s).
Details/Findings:	During the on-site inspection, Chemtrade reported that they conduct analyses on grab samples in their in-house lab for pH, TSS, and residual chlorine. All other parameters are analyzed by Bureau Veritas Laboratories, except toxicity which is conducted by Nautilus Environmental. a) The Quarterly Reports all contained quarterly certificates of analysis from Bureau Veritas Laboratories and Nautilus Environmental, each with a quality assurance report that included precision, accuracy, and blank data. The Quarterly Reports did not contain any QA/QC data from Chemtrade's in-house lab. Upon request, Chemtrade submitted QA/QC data from the in-house lab, including precision, accuracy, and blank data. b) A review of the Quarterly Reports determined that quarterly certificates of analysis from Bureau Veritas Laboratories and Nautilus Environmental contained data from replicate and blank samples submitted by Chemtrade. The QA/QC data submitted by Chemtrade contained replicate and blank sample data as well. c) No split sample analysis occurred during the inspection period; therefore, this requirement is not applicable for the inspection period. d) 1. Analysis of total copper, total nickel, and total zinc, was carried out by Bureau Veritas Laboratories during the inspection period. Toxicity analysis was carried out by Nautilus Environmental Inc. The other monitoring parameters were all analyzed in Chemtrade's in-house lab. On January 7, 2022, a search was conducted, of the BC Directory of Qualified Laboratories which contains records of laboratories that participate in the Proficiency Testing Program operated by the Canadian Association for Laboratory Accreditation (CALA). Bureau Veritas Laboratories was found to have participated in proficiency testing in February 2021, for metals, including copper, nickel, and zinc. Chemtrade's in-house lab was found to have participated in proficiency testing in October 2020, for TSS, pH, and free chlorine. Nautilus Environmental Inc. was found to have participated in proficiency testing in October 2020, for Daphnia LC50 and Trout LC50, and to be a fully accredited CALA lab with membership number 3525. 2. Nautilus Environmental Inc., Bureau Veritas Laboratories, and Chemtrade's in-house lab are all listed in the Ministry's Directory of Qualified Laboratories. 3. CALA's online Directory of Laboratories confirms that Nautilus Environmental Inc. conforms with the requirements of ISO/IEC 17025. The Bureau Veritas Laboratories certificates of analysis sent to Chemtrade for the metal analysis contain a statement that they are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation.
Compliance:	In

Requirement Description:	**3. SAMPLING REQUIREMENTS. 3.4 Grab Sampling for Discharge Monitoring** 3.4: A suitable sampling facility must be installed and a grab sample of the effluent specified in Sections 1.1 and 1.2 must be obtained as outlined in the following table. Proper care must be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc. ; Sampling Sites (as shown on the Site Plan): E208263 - effluent at the sampling facility prior to the discharge to Burrard Inlet. , E208289 - centre of the active infiltration pond. ; PARAMETER: pH, E208263: daily, E208289: daily. ; Total suspended solids, mg/L, E208263: daily, E208289: ----- . ; Temperature, degrees Celsius, E208263: daily, E208289: ----- . ; Residual Chlorine, mg/L, E208263: daily, E208289: ----- . ; Total Copper, mg/L, E208263: quarterly, E208289: ----- . ; Total Nickel, mg/L, E208263: quarterly, E208289: -----. ; Total Zinc, E208263: quarterly, E208289: ----- . ; Toxicity Rainbow Trout, E208263: quarterly, E208289: ----- .
Details/Findings:	E208263 - effluent at the sampling facility prior to the discharge to Burrard Inlet: During the on-site inspection, the Officers viewed sample site E208263 where grab samples are collected. A review of the Quarterly Reports determined that daily grab samples were not collected on the following dates: - October 17, 2020 - missing daily samples for pH, TSS, temperature, and total chlorine residual. The 2020 Q4 WQ Data provided the following reasoning for this: "at this time the plant started their annual shut down and the effluent gate was open intermittently and not long enough for the technicians to take a sample" - From October 29, 2020, to October 31, 2020 - missing daily samples for pH, TSS, temperature, and total chlorine residual. The 2020 Q4 WQ Data explained that on these dates the plant was building inventory and the effluent gate would open only occasionally which was also not long enough for the technicians to take a sample - November 08, 2020 - missing daily samples for pH, TSS, temperature, and total chlorine residual E208289 - center of the active infiltration pond: As there was no effluent discharging from the Cathode Washing Operation to the infiltration ponds during the inspection period, the requirement to monitor E208289 was not applicable for the inspection period.
Compliance:	Out
Actions to be taken:	Please ensure that grab samples of the effluent are collected for the parameters specified in Sections 1.1 at the correct frequency defined in the Permit.

Requirement Description:	**3. SAMPLING REQUIREMENTS. 3.5 Grab Sampling for Receiving Environment Monitoring** 3.5: A suitable sampling facility must be installed and grab samples of the receiving environment must be obtained as outlined in the following table. Proper care must be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc. ; Sampling Sites (as shown on the Site Plan): E208291 - surface of Burrard Inlet above the point of discharge., E208292 - groundwater monitoring well., E208293 - tide pool in the mudflat area at low tide. ; PARAMETER: pH, E208291: ------ , E208292: monthly, E208293: monthly. ; Residual Chlorine, mg/L, E208291: monthly, E208292: ---------, E208293: -------- .
Details/Findings:	Following a review of the Quarterly Reports, it was determined that grab samples of the receiving environment were obtained monthly throughout the inspection period and analyzed for the required parameters.
Compliance:	In
Requirement Description:	**4. OPERATIONAL REQUIREMENTS FOR EFFLUENT DISCHARGES. 4.1 Flow Measurement** 4.1: Provide and maintain a suitable flow measuring device and record once per day the effluent volume discharged over a 24-hour period.
Details/Findings:	Compliance with this requirement for the period from January 1, 2020, to February 18, 2020, was previously documented by the Ministry in inspection report IR144618 and Chemtrade was found to be out of compliance for not monitoring flow rates in this date range. During the on-site inspection, the Permittee confirmed that a suitable flow measuring device was in place and operating since a new device was installed on February 19, 2020. A review of the Quarterly Reports confirmed this. Therefore, Chemtrade is in compliance with this requirement for the remainder of the current inspection period from February 19, 2020, to December 8, 2021.
Compliance:	In
Requirement Description:	**4. OPERATIONAL REQUIREMENTS FOR EFFLUENT DISCHARGES. 4.2 Foam** 4.2: Should foam, attributable to the effluent, become objectionable in receiving waters, the Director may require additional treatment to remove the foam or eliminate the cause of the foam.

Details/Findings:	During the on-site inspection, the Officers did not observe any foam in the receiving waters. Following a review of Ministry files, no letter from the Director requiring additional treatment to remove the foam or eliminate the cause of the foam was found; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**4. OPERATIONAL REQUIREMENTS FOR EFFLUENT DISCHARGES. 4.3 Infiltration Pond** 4.3: The infiltration pond must be operated such that: (a) there is no overflow from the infiltration pond to the surrounding environment. ; (b) surface drainage is diverted away from the infiltration pond. ; and (c) a minimum freeboard of 0.5 metres is maintained at all times. ; The residue, removed from the infiltration pond, must be disposed of in a manner authorized by the Director, or as authorized by regulation under the Environmental Management Act.
Details/Findings:	During the on-site, inspection the Officers viewed the infiltration ponds and found that no overflow to the surrounding environment was occurring and surface drainage was diverted away from the infiltration pond. The Permittee confirmed that no residue was removed from the infiltration ponds during the inspection period, as the Site no longer discharges to the ponds from their authorized works. No measurements of the freeboard were made during the on-site inspection; therefore, compliance with the minimum freeboard requirement is not determined for the inspection period.
Compliance:	Not Determined
Actions to be taken:	Ensure a minimum freeboard of 0.5 metres is maintained at all times. It is also recommended that the Permit be amended to account for these ponds no longer being used as infiltration ponds to discharge effluent from the cathode washing operation.

Requirement Description:	**5. REPORTING REQUIREMENTS. 5.1 Reporting** 5.1: Maintain data of analyses, lab quality assurance data, flow measurements and field measurement data for inspection and submit the data, suitably tabulated, to the Director, for the previous quarter. All reports must be submitted within 31 days of the end of each quarter. Each report must include a statement outlining the number of exceedances of permitted levels that occurred during the reporting period. The dates of the exceedances must be clearly identified in the data submission and an explanation as to the cause of the exceedances and a description of the measures taken to rectify the situation must be provided. Should no exceedances have occurred over the reporting period, a statement to that effect must be included. Sample analysis data and field measurement data must be submitted in an electronic format and entered into the provincial database system known as EMS (Environmental Monitoring System) within 30 days after the sampling date.
Details/Findings:	Flow measurements, field measurement data, data of analyses, and lab quality assurance data from Bureau Veritas Laboratories were submitted in the Quarterly Reports, suitably tabulated, to the Director, for each quarter of the inspection period. All reports were submitted within 31 days of the end of each quarter. During the on-site inspection, the Permittee confirmed that EMS data entry did not occur throughout the inspection period. No lab quality assurance data was submitted for samples analyzed within Chemtrade's in-house lab during the inspection period.
Compliance:	Out
Actions to be taken:	Ensure lab quality assurance data is submitted to the Director for each quarter. Ensure sample analysis data and field measurement data are submitted in an electronic format and entered into the provincial database system known as EMS (Environmental Monitoring System) within 30 days after the sampling date.
Requirement Description:	**5. REPORTING REQUIREMENTS. 5.2 Non-compliance Reporting** 5.2: The Permittee must immediately notify the Director or designate of any non-compliance with the requirements of this Permit and take appropriate remedial action. Written confirmation of all non-compliance events, including available test results is required by facsimile within 24 hours of the original notification unless otherwise directed by the Director, Environmental Protection. With 30 days of the non-compliant event, the Permittee must submit to the Director, Environmental Protection, a written report including, but not necessarily limited to, the following: (a) All relevant test results related to the noncompliance. ; (b) An explanation of the most probable cause(s) of the noncompliance. ; and (c) remedial action planned and/or taken to prevent similar noncompliance(s) in the future.

Details/Findings:	The Director or designate was not notified immediately of the following non-compliances which occurred during the inspection period: - pH exceedance under section 1.1.3; - Total zinc Permit limit exceedance on May 6, 2020, under section 1.1.3; - Unauthorized bypasses under section 2.2; and, - Missed sample collection on November 08, 2020, under section 3.4. 30-day follow-up reports were submitted to the director for the following non-compliances, including the information listed in (a) through (c): - Unauthorized bypasses under section 2.2 on June 2, 2020, with the Spill 30 Day Report sent on July 2, 2020; and, - pH exceedance under section 1.1.3 on October 29, 2020, with the Spill 30 Day Report sent on November 26, 2020. However, no 30-day follow-up reports were submitted to the director for the following non-compliances: - Total zinc Permit limit exceedance on May 6, 2020, under section 1.1.3; and, - Missed sample collection on November 08, 2020, under section 3.4.
Compliance:	Out
Actions to be taken:	Ensure the Director or designate is immediately notified of all non-compliances via the Compliance Reporting Mailbox (EnvironmentalCompliance@gov.bc.ca). Ensure that within 30 days of the non-compliant event, a written report including, but not necessarily limited to, the following is submitted to the Director: (a) All relevant test results related to the noncompliance. ; (b) An explanation of the most probable cause(s) of the noncompliance. ; and (c) remedial action planned and/or taken to prevent similar noncompliance(s) in the future is.
Requirement Description:	**5. REPORTING REQUIREMENTS. 5.3 Noncompliance Reporting of Toxicity** 5.3: Immediately notify the Director of any toxicity failures.
Details/Findings:	A review of the Quarterly Reports confirmed that no toxicity failures occurred during the inspection period; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable

Requirement Description:	**5. REPORTING REQUIREMENTS. 5.4 Spill Reporting** 5.4: All spills to the 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 1-800-663-3456.
Details/Findings:	Following a review of Ministry files, several spills were found to be reported during the inspection period. All of these spills were immediately reported to PEP in line with the Spill Reporting Regulation, and written reports on the spills were submitted to the director within 30 days after the emergency response completion date for that spill.
Compliance:	In

Compliance History:
2020-01-29 IR 144618 Warning 120(6): Analytical Procedures 3.2, AUTHORIZED DISCHARGES 1.1.1; 1.1.3; 1.1.4, Bypasses 2.2, Flow Measurement 4.1, Grab Sampling for Discharge Monitoring 3.4, Non-compliance Reporting 5.2, Quality Assurance 3.3, Reporting 5.1
2018-05-17 IR 85448 Advisory: AUTHORIZED DISCHARGES 1.1.3, Flow Measurement 4.1, Grab Sampling for Discharge Monitoring 3.4, Non-compliance Reporting 5.2, Process Modifications 2.3, Quality Assurance 3.3, Reporting 5.1
2017-03-13 IR 47393 Advisory: Grab Sampling for Discharge Monitoring 3.4, Reporting 5.1
2017-03-13 IR 49012 Advisory: Grab Sampling for Discharge Monitoring 3.4, Reporting 5.1
2017-03-01 IR 49444 Advisory: AUTHORIZED DISCHARGES 1.1.3

The Ministry of Environment Compliance and Enforcement Policy and Procedure (C&E Policy) prescribes common requirements and procedures for all Ministry staff to ensure consistent and risk-based assessment and response to non-compliance. Using the Non-Compliance Decision Matrix, the compliance determination for this inspection has been assessed as Level 2, Category C, Warning 120(6).

More information about Environmental Compliance, the Non-Compliance Decision Matrix, and reporting and data submission requirements can be found at the links below:
General compliance information:
www.gov.bc.ca/environmentalcompliance
Non-Compliance Decision Matrix information:
www.gov.bc.ca/environment/how-compliance-is-assessed
Reporting and data submission requirements (to be sent to EnvAuthorizationsReporting@gov.bc.ca):
https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/comply

Please be advised that this inspection report may be published on the provincial government website within 7 days.

If you have any questions about this warning, please contact the undersigned.

Yours truly,

Katelyn Dick
Environmental Protection Officer

cc:

Attachments:

Deliver via:

Email: [X] **Fax:** [ ] **Mail:** [ ]
Registered Mail: [X] **Hand Delivery:** [ ]

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