Report Date:March 08, 2021 File:107517

Report Number:164358

TECK COAL LIMITED
3300-550 Burrard Street
Vancouver BC V6C 0B3

Dear TECK COAL LIMITED

Re: An Administrative Penalty Referral, Permit 107517, Elk Valley, BC, Effluent

On March 08, 2021, Ministry of Environment and Climate Change Strategy, Environmental Protection Division staff conducted an inspection of your facility, TECK COAL LIMITED located at Elk Valley, BC with authorization number 107517 under the *Environmental Management Act*.

For your information, this inspection record is being referred for an Administrative Penalty.

Inspection Details:

On March 8, 2021, Ministry of Environment and Climate Change Strategy (Ministry) Environmental Protection Officer Kelly Mills conducted a data review inspection of the Teck Coal Ltd. (Teck) valley wide operations, located in the Elk Valley, British Columbia. Environmental Management Act Permit 107517 (Permit) was first issued November 19, 2014 and authorizes the discharge of effluent to the land and water from five coal mine sites. The Permit was most recently amended October 22, 2020.

This inspection report is focused on water quality data for the period October 1, 2020 to December 31, 2020 (2020 Q4, inspection period). In addition, selenium exceedances that occurred earlier in 2020, but had not previously been assessed due to an investigation referral to the BC Conservation Officer Service, have also been included in this inspection report.

The following documents and information were reviewed as part of this inspection:
- Elk Valley Regional Water Quality Report Fourth Quarter 2020, dated January 30, 2021 (2020 Q4 Report);
- Quarterly Water Treatment Performance Report, Fourth Quarter 2020, dated January 30, 2021 (2020 Q4 Treatment Performance Report);
- Quarterly compliance sampling undertaken by Officer Mills during 2020 Q4;
- Non-compliance emails (NCR's) submitted to ENVSECoal@gov.bc.ca for the inspection period; and
- Data uploaded to the Ministry Environmental Monitoring System (EMS) for the inspection period.

A Split Sample Audit was conducted at one compliance point for each of the five mine sites as part of this inspection. This Split Sample Audit consists of a comparison of Teck's and Ministry's sampling and analytical procedures and results, collected from a homogenized sample. The audit is conducted to provide further validity to the monitoring data provided by the Teck, beyond that of their own QA/QC program. The results of this audit are as follows:
Fording River Compliance Point Split Sample (Permit Section 2.1 - location E300071): Pass - Performance Evaluation of 97%.
Greenhills Elk River Compliance Point Split Sample (Permit Section 2.3 - location E300090): Pass - Performance Evaluation of 96%.
Line Creek AWTF Compliance Point Split Sample (Permit Section Appendix 4B1 - location E291569): Pass - Performance Evaluation of 94%.
Elkview Michel Creek Compliance Point Split Sample (Permit Section 2.6 - location E300091): Pass - Performance Evaluation of 99%.
Coal Mountain Michel Creek Compliance Point Split Sample (Permit Section 2.7 - location E258937): Pass - Performance Evaluation of 95%.

Ministry of Environment and Climate Change Strategy
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Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.1 FORDING RIVER OPERATIONS - FORDING RIVER COMPLIANCE POINT (FR_FRCP1), 2.1.1** 2.1.1: This section applies to effluent from Teck Coal Limited mine operations (Fording River Operations and the Greenhills Operations into the Fording River watershed) upstream of FRO Compliance Point (EMS E300071). The FRO Compliance Point (EMS E300071) is located approximately 525 m downstream of Cataract Creek as shown in Appendix 1. 2.1.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: MONTHLY AVERAGE PARAMETERS Immediately By Dec. 31, 2019 By Dec. 31, 2023 Total selenium (g/L) 130 90 61 Nitrate as N (mg/L) 27 19 13 Sulphate (mg/L) 580 620 650
Details/Findings:	As reported in the 2020 Q4 Report, the following monthly average permit limit exceedances for selenium occurred during the inspection period: Month Result (ug/L) October 112 November 102.5 December 124
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.1 FORDING RIVER OPERATIONS - FORDING RIVER COMPLIANCE POINT (FR_FRCP1), 2.1.2** 2.1.2: This section applies to effluent from Teck Coal Limited mine operations (Fording River Operations and the Greenhills Operations into the Fording River watershed) upstream of FRO Compliance Point (EMS E300071). The FRO Compliance Point (EMS E300071) is located approximately 525 m downstream of Cataract Creek as shown in Appendix 1. 2.1.2 The characteristic of the effluent at the compliance point must not exceed the following daily maximums: DAILY MAXIMUM PARAMETERS Immediately By Dec. 31, 2019 By Dec. 31, 2023 Total selenium (g/L) 155 106 71 Nitrate as N (mg/L) 32.5 23 15

Details/Findings:	As reported in the 2020 Q4 Report, the following daily maximum permit limit exceedances for selenium occurred during the inspection period: Date Result (ug/L) 2020-10-20 115 2020-10-27 119 2020-11-03 118 2020-12-10 124
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.2 GREENHILLS OPERATIONS - FORDING RIVER COMPLIANCE POINT (GH_FR1), 2.2.1** 2.2.1: This section applies to effluent from Teck Coal Limited mine operations (Fording River Operations, Greenhill Operations and Line Creek Operations) upstream of GHO Fording River Compliance Point (EMS 0200378). The GHO Fording River Compliance Point (EMS 0200378) is located 205 m downstream of Greenhills Creek as shown in Appendix 1. 2.2.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: MONTHLY AVERAGE PARAMETERS Immediately By Dec. 31, 2019 By Dec. 31, 2023 Total selenium (g/L) 80 63 57 Nitrate as N (mg/L) 20 14 11
Details/Findings:	The 2020 Q4 Report states that the monthly average limit for selenium was exceeded during the month of December with a value of 67.9 ug/L. In addition, the monthly average limit for selenium was exceeded during the month of March 2020 with a value of 65.7 ug/L.
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.

Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.2 GREENHILLS OPERATIONS - FORDING RIVER COMPLIANCE POINT (GH_FR1), 2.2.2** 2.2.2: This section applies to effluent from Teck Coal Limited mine operations (Fording River Operations, Greenhill Operations and Line Creek Operations) upstream of GHO Fording River Compliance Point (EMS 0200378). The GHO Fording River Compliance Point (EMS 0200378) is located 205 m downstream of Greenhills Creek as shown in Appendix 1. 2.2.2. The characteristics of the effluent at the compliance point must not exceed the following daily maximums: DAILY MAXIMUM PARAMETERS — Immediately — By Dec. 31, 2019 — By Dec. 31, 2023 Total selenium (g/L) — 100 — 78 — 62 Nitrate as N (mg/L) — 29 — 17 — 15
Details/Findings:	The 2020 Q4 Report states that the daily maximum permit limits were not exceeded for nitrate during this inspection period. This was corroborated during a review of data uploaded to EMS. Water quality samples collected at the Greenhills Operations Fording River Compliance Point (0200378) by Officer Mills on October 5, 2020, found the total selenium and nitrate results within daily maximum permit limits: Parameter — Result Nitrate — 12.3 mg/L Selenium — 55.6 ug/L Full results for these samples can be found on the Ministry EMS database (https://a100.gov.bc.ca/pub/ems/mainmenu.do?userAction=mainmenu)
Compliance:	In
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.3 GREENHILLS OPERATIONS - ELK RIVER COMPLIANCE POINT (GH_ERC), 2.3.1** 2.3.1: This section applies to effluent from Teck Coal Limited mine operations (Greenhills Operations into the Elk River watershed) upstream of GHO Elk River Compliance Point (EMS 300090). The GHO Elk River Compliance Point (EMS 300090) is located 220 m downstream of Thompson Creek as shown in Appendix 1. 2.3.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: MONTHLY AVERAGE PARAMETERS — Immediately — By Dec. 31, 2027 Total selenium (g/L) — 15 — 8 Nitrate as N (mg/L) — 3 — 3
Details/Findings:	The 2020 Q4 Report states that the monthly average permit limits were not exceeded during this inspection period. This was corroborated during a review of data uploaded to EMS.

Compliance:	In
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.4 LINE CREEK OPERATIONS - LINE CREEK COMPLIANCE POINT (LC_LCDSSLCC), 2.4.1** 2.4.1: This section applies to effluent from Teck Coal Limited mine operations (Line Creek Operations into the Line Creek Watershed) above LCO Compliance Point (EMS E297110). The LCO Compliance Point (EMS E297110) is located approximately 1500 m downstream of the West Line Creek Active Water Treatment Facility (WLC AWTF) outfall as shown in Appendix 1. 2.4.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: MONTHLY AVERAGE PARAMETERS Immediately By Dec. 31, 2015 By Dec. 31, 2033 Total selenium (g/L) 80 50 29 Nitrate as N (mg/L) 14 7 3
Details/Findings:	As reported in the 2020 Q4 Report, the following monthly average permit limit exceedances for nitrate occurred during the inspection period: Month Result (mg/L) October 8.9 November 8.7 December 9.7
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.4 LINE CREEK OPERATIONS - LINE CREEK COMPLIANCE POINT (LC_LCDSSLCC), 2.4.2** 2.4.2: This section applies to effluent from Teck Coal Limited mine operations (Line Creek Operations into the Line Creek Watershed) above LCO Compliance Point (EMS E297110). The LCO Compliance Point (EMS E297110) is located approximately 1500 m downstream of the West Line Creek Active Water Treatment Facility (WLC AWTF) outfall as shown in Appendix 1. 2.4.2. The characteristics of the effluent at the compliance point must not exceed the following daily maximums: DAILY MAXIMUM PARAMETERS Immediately By Dec. 31, 2015 By Dec. 31, 2033 Total selenium (g/L) 95 58 33 Nitrate as N (mg/L) 20 9 4

Details/Findings:	As reported via non-compliance notification emails, as well as in the 2020 Q4 Report, the following daily maximum permit limit exceedances for nitrate occurred during the inspection period: Date Result (mg/L) December 07 10 December 14 9.8 December 29 10.7 In addition, the daily maximum permit limit for selenium was exceeded on September 21, 2020, with a value of 61.7 ug/L. Water quality samples collected at the Line Creek Compliance Point (E297110) by Officer Mills on October 7, 2020, found that the daily maximum permit limits were not exceeded: Parameter Result Nitrate 8.6 mg/L Selenium 39.9 ug/L Full results for these samples can be found on the Ministry EMS database.
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.5 ELKVIEW OPERATIONS – HARMER CREEK COMPLIANCE POINT (EV_HC1), 2.5.1** 2.5.1: This section applies to effluent from Teck Coal Limited mine operations (Elkview Operations into the Harmer Creek watershed) above EVO Harmer Compliance Point (EMS E102682). The EVO Harmer Compliance Point (EMS E102682) is located at the Harmer Spillway as shown in Appendix 1. 2.5.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: MONTHLY AVERAGE PARAMETERS Immediately By Dec. 31, 2017 By Dec. 31, 2021 Total selenium (g/L) 45 57 53 Nitrate as N (mg/L) 4 16 8 Sulphate (mg/L) 300 380 450

Details/Findings:	The 2020 Q4 Report states that the monthly average permit limits were not exceeded during this inspection period. This was corroborated during a review of data uploaded to EMS. Water quality samples collected at the Elkview Harmer Compliance Point (E102682) by Officer Mills on October 7, 2020, found the following results within Permit limits: Parameter Result Nitrate 0.6 mg/L Sulphate 197 mg/L Selenium 34.3 ug/L Full results for these samples can be found on the Ministry EMS database.
Compliance:	In
Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.6 ELKVIEW OPERATIONS – MICHEL CREEK COMPLIANCE POINT (EV_MC2), 2.6.1** 2.6.1: This section applies to effluent from Teck Coal mine operations (Elkview Operations into the Michel Creek watershed) above EVO Michel Creek Compliance Point (EMS E300091). The EVO Michel Creek Compliance Point (EMS E300091) is located at the Highway 3 bridge over Michel Creek as shown in Appendix 1. 2.6.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: MONTHLY AVERAGE PARAMETERS Immediately By Dec. 31, 2021 By Dec. 31, 2025 Total selenium (g/L) 28 20 19 Nitrate as N (mg/L) 6 6 6
Details/Findings:	The 2020 Q4 Report states that the monthly average permit limits were not exceeded during this inspection period. This was corroborated during a review of data uploaded to EMS.
Compliance:	In

Requirement Description:	**2. AUTHORIZED DISCHARGES (COMPLIANCE POINTS), 2.7 COAL MOUNTAIN OPERATIONS (CMO) - MICHEL CREEKCOMPLIANCE POINT (CM_MC2), 2.7.1** 2.7.1: This section applies to effluent from Teck Coal Limited mine operations (Coal Mountain Operations) above CMO Compliance Point (EMS E258937). The CMO Compliance Point (EMS E258937) is located 50 m upstream of Andy Goode Creek as shown in Appendix 1. 2.7.1. The characteristics of the effluent at the compliance point must not exceed the following monthly average limits: PARAMETERS Immediately Total selenium (g/L) 19 Nitrate as N (mg/L) 5 Sulphate (mg/L) 500
Details/Findings:	The 2020 Q4 Report states that the monthly average permit limits for nitrate and sulphate were not exceeded during this inspection period. This was corroborated during a review of data uploaded to EMS.
Compliance:	In
Requirement Description:	**3. SITE PERFORMANCE OBJECTIVES, 3.1 Site Performance Objectives for Order Stations** 3.1: The following Site Performance Objectives (SPOs) are established at the Order Stations. It is expected that SPOs will be maintained during all timeframes shown in the tables or immediately maintained if no date is indicated. Site performance objectives are expressed as monthly average concentrations. The monthly average concentration is defined as the average of the samples collected in a month. See PDF file: "2020-10-22 107517 - Tables".
Details/Findings:	The 2020 Q4 Report states that the monthly average SPO for selenium was exceeded at the GHO Fording River Order Station (EMS 0200378) during the month of December with a value of 67.9 ug/L. In addition, the monthly average limit for selenium was exceeded at the GHO Fording River Order Station (EMS 0200378) during the month of March 2020 with a value of 65.7 ug/L.
Compliance:	Out
Actions to be taken:	These non-compliances has been referred for Administrative Penalty

Requirement Description:	**6. GENERAL REQUIREMENTS, 6.2 EFFLUENT NON-TOXICITY** 6.2: Effluent is not acutely toxic if it does not cause greater than 50% mortality in 96 hr Rainbow Trout (Oncorhynchus mykiss) single concentration toxicity tests (EPS 1/RM/13 2nd edition, December 2000) or greater than 50% mortality in 48 hr Daphnia magna single concentration toxicity tests (EPS 1/RM/14 2nd edition, December 2000).
Details/Findings:	The 2020 Q4 Report states that there were four Daphnia magna toxicity failures at the Goddard Creek (EMS E208043) discharge location during the inspection period. The details of the toxicity failures are as follows: Date — Percent mortality October 27 — 100% November 1 — 100% November 2 — 100% December 2 — 100%
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.
Requirement Description:	**7. ABMP COMMITMENTS. 7.1 TREATMENT, 7.1.1 ACTIVE WATER TREATMENT FACILITIES** 7.1.1: The permittee must design, construct and operate the following active water treatment facilities (AWTF) or alternative water treatment technology as approved by the director, by the date shown. The permittee must employ best achievable technology in the development of these treatment facilities. Phosphorus treatment must be included if necessary, to ensure BC Water Quality Guidelines for chlorophyll -a for freshwater aquatic life in streams is met. See PDF file: "2020-10-22 107517 - Tables". Notwithstanding the above requirements to construct and operate active water treatment facilities, the permittee must ensure that all necessary active water treatment works or alternative water quality mitigation works are designed, constructed and operated in sufficient time and at sufficient capacity to meet targets and timeframes for water quality consistent with the ABMP.
Details/Findings:	Teck failed to ensure that the Elkview Operations SRF was operational by December 31, 2020.
Compliance:	Out

Actions to be taken:	This non-compliance has been referred for Administrative Penalty.
Requirement Description:	**8. MONITORING REQUIREMENTS, 8.1 Discharge and Receiving Environment Monitoring Programs** 8.1: The permittee must sample the parameters at the sampling sites at the specific frequencies as defined in Appendix 2 Tables 9 through 23. The permittee must sample flow at the sites listed and at the frequency recommended in Appendix B in the approved Regional Surface Flow Monitoring Plan. The discharge and receiving environment water sampling sites are located approximately as shown in Appendix 1.
Details/Findings:	As reported on Page 16 of the 2020 Q4 Report, "No samples were missed at order stations, compliance points, or regional sampling locations in Q4 2020."
Compliance:	In
Requirement Description:	**9. REPORTING REQUIREMENTS, 9.2 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING DATA, 9.2.1 NON-COMPLIANCE NOTIFICATION** 9.2.1: The permittee must immediately notify the director or designate by e-mail (ENVSECoal@gov.bc.ca) of any non-compliance with the requirements of this permit, including requirements within the appendices, by the permittee and take appropriate remedial action to remedy any effects of such non-compliance. The permittee must provide the director and KNC with written confirmation of all such non-compliance events, including available test results within 24 hours of the original notification unless otherwise directed by the director.
Details/Findings:	Teck failed to notify the ministry of the exceedance of the monthly average nitrate limit at the Line Creek Compliance Point during the month of October.
Compliance:	Out
Actions to be taken:	Notify the Ministry of non-compliances in accordance with the requirements of this section.

Requirement Description:	**9. REPORTING REQUIREMENTS, 9.2 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING DATA, 9.2.3 MONITORING AND REPORTING FOLLOWING TOXICITY NON-COMPLIANCE** 9.2.3: In addition to Section 9.2.1, for any acute toxicity test failure in the effluent, the permittee must: i. Immediately conduct a confirmatory test on the effluent using multiple concentrations (i.e. 96 hr LC50 for Rainbow Trout or 48 hr LC50 for Daphnia magna, as appropriate). The director may require a Toxicity Identification Evaluation (TIE) to be initiated to determine the cause of the effluent toxicity, ii. Immediately take corrective action, and iii. Forward all test results including raw laboratory data sheets to the director as soon as they are available. As soon as possible, submit a full report indicating the cause and effects of the incident, which identifies all actions taken by the permittee to correct, restore and prevent a similar event from occurring in the future. This report must be submitted with the next quarterly report or as otherwise instructed by the director.
Details/Findings:	As reported via NCR on January 29, 2021, "During the month of October, November and December, four Daphnia magna toxicity failure results were received from samples taken at the Goddard Creek (EMS E208043) discharge location... However, as required under Section 9.2.3 of Permit 107517, confirmatory tests on the effluent using multiple concentrations (i.e., LC50) were not conducted for any of the four toxicity failures." The details of the toxicity failures are as follows: Date Mortality % 2020-10-27 100% 2020-11-01 100% 2020-11-02 100% 2020-12-02 100% Teck is out of compliance for failing to conduct confirmatory tests using multiple concentrations in response to the four toxicity failures above.
Compliance:	Out
Actions to be taken:	These non-compliances have been referred for Administrative Penalty.

Requirement Description:	**9. REPORTING REQUIREMENTS, 9.2 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING DATA, 9.2.4 QUARTERLY REPORTING** 9.2.4: The permittee must submit a written quarterly report to the director or designate, due within 30 days of the end of the quarter in which the samples were taken. The quarterly report must include: i. Effluent water quality results used to calculate monthly averages for the limits in Section 2, if applicable; ii. Effluent water quality results exceeding limits and targets or other criteria, such as daily maximums or as specified by the director; iii. Identification of all missing data and all QA/QC issues; iv. All toxicity test results and raw laboratory data sheets for all mortality results; v. All reportable spills or other incidents related to water quality, occurring in the quarter; vi. Explanation of the most probable cause(s) of any non-compliances; vii. All measures taken to reduce or eliminate non-compliances; viii. All other reports or documentation as specified by this permit to be submitted quarterly; and ix. Any additional sampling results for the compliance points identified in Section 2 obtained for any reason, whether compliance, maintenance, or operational purposes. All test data must be reported within 30 days of the end of the quarter in which sampling occurred. These additional results may be reported in summary form. Further information on the testing event may be requested in writing by the director. • Any data collected at the compliance points in Section 2 for research-oriented activities that do not meet the analytical requirements in Section 8.1.2.1 of the Permit must be submitted separate from Quarterly Reports in a project report at the completion of the applicable study.
Details/Findings:	The 2020 Q4 Report was submitted January 29, 2021, and included all information required by this section.
Compliance:	In

Requirement Description:	**APPENDIX 4A – Selenium and Nitrate Treatment Facility General Operational Requirements, 4A7 QUARTERLY TREATMENT PERFORMANCE REPORT** Appendix 4A7: The permittee must submit a quarterly treatment performance report to the director within 30 days of the end of the quarter in which the samples were collected. The quarterly treatment performance report must include the following for each water treatment facility: i. Effluent water quality results used to calculate monthly averages for the limits in Section 2 and Appendix 4, if applicable; ii. Effluent water quality results exceeding limits and targets or other criteria, such as daily maximums or as specified by the director; iii. Facility throughput and availability; iv. Selenium and nitrate load removal; v. A summary of selenium speciation data; vi. Identification of all missing data and all QA/QC issues; vii. All toxicity test results and raw laboratory data sheets for all mortality results; viii. All reportable spills or other incidents related to water quality, occurring in the quarter; ix. A summary of operational and/or performance highlights and trends from the quarter; x. Explanation of the most probable cause(s) of any non-compliances; xi. All measures taken to reduce or eliminate non-compliances; and xii. Any additional sampling results for the compliance points identified in Section 2 obtained for any reason, whether compliance, maintenance, or operational purposes. All test data must be reported within 30 days of the end of the quarter in which sampling occurred. These additional results may be reported in summary form. Further information on the testing event may be requested in writing by the director. Results from samples collected in the last month of the quarter that are not available must be included in the following quarterly report. Any deviation from the information listed in this section must be communicated in the quarterly report and include rationale for the changes.
Details/Findings:	A review of the 2020 Q4 Treatment Performance Report determined that it met the requirements of this section.
Compliance:	In
Actions to be taken:	Please include document titles or descriptions for Appendices in the Table of Contents.
Requirement Description:	**APPENDIX 4B – West Line Creek (WLC) AWTF, 4B1** Appendix 4B1: This section applies to the discharge of effluent from the West Line Creek Active Water Treatment Facility (WLC AWTF) Phase 1 to Line Creek. The WLC AWTF influent is comprised of contact water from waste rock piles and non-hazardous leachate from the WLC AWTF residual waste landfill. The site reference number for this discharge is E291569 (WL_BFWB_OUT_SP21) as shown in Appendix 4B4.

Details/Findings:	As reported by NCR on November 10, 2020, "Permit 107517 Section 4B1 of Appendix 4 states that the WLC AWTF influent is comprised of contact water from waste rock piles and non-hazardous leachate from the WLC AWTF residual waste landfill. During external lab data review on November 9, 2020 it was noted that two total selenium samples for leachate, E301611 (West Line Creek Monitoring Leachate Cell 1 A), collected on November 6, 2020 at 9:00 am and 9:30 am were 1010 ug/L and 1160 ug/L respectively. Both results exceed the criteria in Table 1, Schedule 4 of the BC Hazardous Waste Regulations. It was also identified that on November 6, 2020, the WLC AWTF processed 20 m3 of this leachate, and was non-compliant with the requirements for non-hazardous leachate outlined in Section 4B1 of Appendix 4 in Permit 107517." Teck is out of compliance for the unauthorized treatment of hazardous waste at the West Line Creek Active Water Treatment Facility on November 6, 2020.
Compliance:	Out
Actions to be taken:	Implement measures to ensure that only contact water from waste rock piles and non-hazardous leachate from the WLC AWTF residual waste landfill is treated at the WLC AWTF.
Requirement Description:	**APPENDIX 4B – West Line Creek (WLC) AWTF, 4B1.2** Appendix 4B1.2: This section applies to the discharge of effluent from the West Line Creek Active Water Treatment Facility (WLC AWTF) Phase 1 to Line Creek. The WLC AWTF influent is comprised of contact water from waste rock piles and non-hazardous leachate from the WLC AWTF residual waste landfill. The site reference number for this discharge is E291569 (WL_BFWB_OUT_SP21) as shown in Appendix 4B4. 4B1.2 The treated effluent discharged to Line Creek must not be acutely toxic as per Section 6.2. The characteristics of the discharge at the Buffer Pond Outfall (E291569) must not exceed: PARAMTER — Daily Maximum Concentration Ammonia — 1.0 mg/L Biological Oxygen Demand — 25 mg/L pH Range — 6.5-8.5 pH units Nitrate — 3.0 mg/L Total Phosphorus — 0.3 mg/L Total Selenium — 20 g/L, Monthly Average Total Suspended Solids — 10.0 mg/L Antiscalant — 5 mg/L, two-minute time weighted
Details/Findings:	The 2020 Q4 Report states there were no permit limit exceedances during this inspection period. This was corroborated during a review of data uploaded to EMS.

Compliance:	In
Requirement Description:	**APPENDIX 4A – Selenium and Nitrate Treatment Facility General Operational Requirements, 4A5 DISCHARGE MONITORING** Appendix 4A5: The permittee must sample the parameters at the sampling sites at the specific frequencies as defined in subsequent sections in Appendix 4. The influent and discharge water sampling sites are located approximately as shown in subsequent sections in Appendix 4. Sampling and analytical procedures in Section 8.1.2 apply to the monitoring required per Appendix 4 of this permit.
Details/Findings:	As reported via NCR on January 7, 2020, "On January 6, 2021, during a review of December 2020 sample data, Teck noted that analysis of certain parameters was missed for E321811 (F2_ECIN) and E321812 (F2_BPO) due to operator error. As per Table 4C4 of Appendix 4 of Permit 107517 (October 22, 2020), total metals samples are required to be collected monthly at the E321811 and E321812, and selenium speciation samples are required to be collected weekly at E321811 and E321812 when influent and effluent water is available. For location E321811, Total Metals and Selenium Speciation analysis was missed. For location E321812, Total Metals analysis was missed."
Compliance:	Out
Actions to be taken:	Ensure that monitoring is undertaken in accordance with the requirements of the Permit.

Daniel Gasperko assisted with the preparation of this report.

Compliance History (2017 to present)
2021-03-05 - IR164400 - Warning: Unauthorized treatment of hazardous waste
2020-11-26 - IR161140 - Administrative Penalty Referral: Line Creek Compliance Point nitrate exceedances, failure to report malfunction of authorized works, missed samples.
2020-08-31- IR155311 - Administrative Penalty Referral: Line Creek Compliance Point nitrate exceedances, nitrate exceedance at Order Station 0200027, missed EMS uploads.
2020-07-20 - IR151619 - Administrative Penalty Referral: Fording River Compliance Point sulphate and nitrate exceedances, Line Creek Compliance Point nitrate exceedances, missed samples, antiscalant dosing exceedances, late submission of the 2019 Research and Technology Development Report, failure to ensure that draft Public Notifications are submitted to both the Director and Interior Health 30 days prior to distribution, failure to include include an updated schedule for application and implementation of calcite treatment in Upper Greenhills Creek in the 2019 Greenhills Calcite Report.
2020-02-03 - IR145030 - Administrative Penalty Referral: Fording River Compliance Point sulphate exceedance, Line Creek Compliance Point nitrate exceedances, AWTF Compliance Point pH exceedance and toxicity failure.
2020-01-08 - IR141970 - Advisory: Failure to comply with antiscalant requirements for Lower Greenhills Creek, missed monitoring, missed EMS uploads.
2019-09-03 - IR134433 - Administrative Penalty Referral: Line Creek Compliance Point nitrate exceedances, toxicity failure, missed sample events, failure to upload monitoring data to EMS.
2019-05-01 - IR124940 - Administrative Penalty Referral: Fording River Compliance Point nitrate and sulphate exceedances, Line Creek Compliance Point nitrate exceedances, Failure to have the Fording River South AWTF operational on December 31, 2018, missed sampling and reporting deadlines.
2019-03-29 - IR116454 - Warning: 2018 Q4 LCO Nitrate CAP data review. Nitrate exceedances
2019-03-28 - IR116453 - Administrative Penalty Referral: Fording River Compliance Point nitrate and sulphate exceedances
2018-11-29 - IR109861 - Advisory: 2018 Q3 LCO Nitrate CAP data review. Nitrate exceedances
2018-11-26 - IR107220 - Warning: 2018 Q3 data review. Sulphate exceedances at FRO compliance point, deficiencies in WLC AWTF Operations Plans, failure to maintain authorized works.
2018-10-01 - IR102863 - Administrative Penalty Referral: Toxicity Failure
2018-09-27 - IR103130 - Notice of Compliance: Review of March 24, 2018 to August 30, 2018. AWTF shutdown
2018-09-26 - IR102924 - Advisory: 2018 Q2 LCO Nitrate CAP data review. Nitrate exceedances
2018-06-05 - IR83346 - Notice of Compliance: Review of 2018 March monthly AWTF shutdown Report
2018-05-28 - IR85712 - Investigation: Selenium exceedances at Fording River and Line Creek Compliance Points
2018-05-07 - IR85265 - Investigation: Selenium exceedance at Koocanusa Reservoir Order Station
2018-05-03 - IR84879 - Warning: 2018 Q1 data review. Sulphate, nitrate, selenium exceedances, toxicity failure, flow reporting errors.
2018-05-02 - IR83487 - Advisory: 2018 Q1 LCO Nitrate CAP data review. Nitrate exceedances, failure to commission dewatering truck on time.
2018-02-02 - IR77480 - Warning: 2017 Q4 data review. Nitrate, selenium and sulphate exceedances, toxicity failure, missed samples
2018-01-26 - IR77152 - Warning: Nitrate and Selenium exceedances at WLC AWTF
2017-12-15 - IR74811 - Warning: Nitrate and Selenium exceedances at WLC AWTF
2017-11-16 - IR67401 - Warning: 2017 Q3 data review. Nitrate and Selenium exceedances, toxicity failure, missed samples
2017-10-12 - IR69226 - Warning: Toxicity failures
2017-09-07 - IR58535 - Warning: 2017 Q2 data review. Nitrate exceedances and toxicity failures
2017-05-09 - IR47577 - Warning: 2017 Q1 data review. Nitrate, selenium and sulphate exceedances, toxicity failures, missed samples and QA/QC issues
2017-05-09 - IR52054 - Warning: 2016 Q4 data review. Nitrate exceedances, toxicity failures, reporting requirements, missed samples, missed uploads, and QA/QC issues

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 3, Category C, AMP.

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):
www.gov.bc.ca/submit-waste-authorization-reports

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

Below are attachments related to this inspection.

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

Yours truly,

Kelly Mills
Environmental Protection Officer

cc:

Attachments:
1) 2020-10-22 107517 - Tables.pdf 2020-10-22 107517 - Tables

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3.1 **SITE PERFORMANCE OBJECTIVES FOR ORDER STATIONS**

ORDER STATION (Teck ID) (EMS number)	ORDER DESCRIPTION (Teck location description)	PARAMETER	UNIT	EFFECTIVE DATE				
				Nov. 19, 2014	Dec. 31, 2019	Dec. 31, 2023	Dec. 31, 2025	Dec. 31, 2028
FR4 {GH_FR1} (0200378)	Fording River Downstream of Greenhills Creek	Total Selenium	µg/L	-	63	57	57	57
		Nitrate as N[2]	mg/L	20	14	11	11	11
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.39	0.39	0.39	0.39	0.39
FR5 {LC_LC5} (200028)	Fording River at the Mouth (Fording River downstream of Line Creek)	Total Selenium	µg/L	-	51	40	40	40
		Nitrate as N[2]	mg/L	18	10	10	10	10
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.39	0.39	0.39	0.39	0.39
ER1 {GH_ER1} (206661)	Elk River downstream of Greenhills Operations (Upstream of Boivin Creek)	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	3	3	3	3	3
		Sulphate	mg/L	309	309	309	309	309
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
ER2 {EV_ER4} (200027)	Elk River from Fording River to Michel Creek (upstream of Grave Creek)	Total Selenium	µg/L	23	23	19	19	19
		Nitrate as N	mg/L	-	4	4	3.5	3
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
ER3 {EV_ER1} (200393)	Elk River downstream of Michel Creek	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	-	3	3	3	3
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
ER4 {RG_ELKORES} (E294312) (E294312)	Elk River at Elko Reservoir	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	-	3	3	3	3
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
LK2 {RG_DSELK} (E300230)	Koocanusa Reservoir south of the Elk River	Total Selenium	µg/L	2	2	2	2	2
		Nitrate as N	mg/L	3	3	3	3	3
		Sulphate	mg/L	308	308	308	308	308
		Dissolved Cadmium[1]	µg/L	0.19	0.19	0.19	0.19	0.19

[1] Cadmium SPOs are hardness dependent based on the following formula:
Cd (in µg/L) = $10^{0.83\log 10(\text{hardness})-2.53}$ where hardness is in mg/L of $CaCO_3$

[2] Nitrate SPOs for FR4 {GH_FR1} as of 2023 and FR5 {LC_LC5} as of 2019 are hardness dependent based on the following formula:

Level 1 benchmark for the Fording River N as mg/L = $10^{0.0003\log 10(\text{hardness})-1.52}$ where hardness is in mg/L of $CaCO_3$

For the purposes of calculating the targets above, hardness is based on the following concentrations:

FR4{GH_FR1}, FR5{LC_LC5}, and ER1{GH_ER1} – 360 mg/L
ER2{EV_ER4}, ER3{EV_ER1}, and ER4{RG_ELKORES} – 200 mg/L
LK2{RG_DSELK} – 150 mg/L

3.3 **SITE PERFORMANCE OBJECTIVES FOR COMPLIANCE POINTS**

COMPLIANCE POINT	SITE PERFORMANCE OBJECTIVE	
GHO Fording River, GHO Elk River, LCO, EVO Michel Creek	Sulphate: BCWQG FWAL[1] (hardness dependent)	
	WATER HARDNESS[2] (mg/L)	**SULPHATE GUIDELINE (mg/L)**
	Very Soft (0-30)	128
	Soft to moderately soft (31-75)	218
	Moderately soft/hard to hard (76-180)	309
	Very hard (181-250)	429
	In addition, the following water quality benchmark as developed for the ABMP will be applied:	
	Very hard (>250)	429
All Compliance Points	Cadmium: Cd (in µg/L) = $10^{(0.83(\log[\text{hardness}])-2.53)}$ where hardness is in mg/L of CaCO3	

[1]BC Water Quality Guideline for Freshwater Aquatic Life
[2]Hardness is in mg/L $CaCO_3$

7.1.1 ACTIVE WATER TREATMENT FACILITIES

TREATMENT FACILITY	TREATMENT SCOPE	APPROXIMATE CAPACITY OF AWTF	OPERATIONAL DATE
Fording River South	Cataract, Swift, Kilmarnock Creeks	20,000 m^3/day	December 31, 2018
Elkview Phase I*	Bodie, Gate, Erickson Creeks	30,000 m^3/day	December 31, 2020
Fording River North	Clode Creek, North Spoil, Swift Pit	15,000 m^3/day	December 31, 2022
Elkview Phase II	Erickson	20,000 m^3/day	December 31, 2024
Greenhills	GHO West Spoil (Thompson, Leask, Wolfram), Greenhills Creek	7,500 m^3/day	December 31, 2026
Fording River North Phase II	Swift Pit Discharge	15,000 m^3/day	December 31, 2030

*Elkview Operations SRF Phase 2 replaces Elkview Phase I

TABLE 1: COMPLIANCE POINTS SAMPLING LOCATIONS (APPENDIX 1C)

EMS #	*TECK IDENTIFIER*	*SITE*	*SITE DESCRIPTION*
E300071	FR_FRCP1	FRO	Fording River, approximately 525 m downstream of Cataract Creek
0200378	GH_FR1	GHO	Fording River, approximately 205 m downstream of Greenhills Creek
E300090	GH_ERC	GHO	Elk River, approximately 220 m downstream of Thompson Creek
E297110	LC_LCDSSLCC	LCO	Line Creek immediately downstream of South Line Creek Confluence (approximately 1500 m downstream of the WLC WTP outfall)
E102682	EV_HC1	EVO	Harmer Spillway
E300091	EV_MC2	EVO	Michel Creek at Highway 3 Bridge
E258937	CM_MC2	CMO	Michel Creek, approximately 50m upstream of Andy Goode Creek
E291569	WL_BFWB_OUT_SP21	LCO (Effluent)	WLC WTP Outfall (Effluent)

TABLE 2: ORDER STATIONS SAMPLING LOCATIONS (APPENDIX 1D AND 1E)

EMS #	*ORDER STATION (TECK IDENTIFIER)*	*SITE DESCRIPTION*
0200378	FR4 (GH_FR1)	Fording River Downstream of Greenhills Creek
0200028	FR5 (LC_LC5)	Fording River downstream of Line Creek
E206661	ER1 (GH_ER1)	Elk River upstream of Boivin Creek
0200027	ER2 (EV_ER4)	Elk River upstream of Grave Creek (from Fording River to Michel Creek)
0200393	ER3 (EV_ER1)	Elk River Downstream of Michel Creek
E294312	ER4 (RG_ELKORES)	Elk River at Elko Reservoir
E300230	LK2 (RG_DSELK)	Koocanusa Reservoir south of the Elk River

TABLE 3: FORDING RIVER OPERATION DISCHARGE, RECEIVING ENVIRONMENT, AND OTHER SAMPLE LOCATIONS (APPENDIX 1F)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E102475	FR_TP1	Tailings Slurry to North Tailings Pond
E206660	FR_TP3	Tailings Slurry to South Tailings Pond
E102476	FR_NL1	North Loop Settling Pond Decant to the Fording River
E102478	FR_MS1	Maintenance and Services Settling Pond Decant
E102480	FR_EC1	Eagle Settling Pond Decant
E102481	FR_CC1	Clode Settling Pond Decant
E208394	FR_SKP1	South Kilmarnock Settling Pond Decant - Phase 1
E208395	FR_SKP2	South Kilmarnock Settling Pond Decant- Phase 2
E216781	FR_HP1	Henretta Pit Effluent into diversion culvert
E217403	FR_3PIT	Swift Pit Effluent to Fording River
E261897	FR_SP1	Smith Ponds Decant
E304835	FR_LP1	Liverpool Sed. Pond Decant
E304750	FR_PP1	Post Sed. Pond Decant
0200252	FR_KC1	Kilmarnock Cr. D/S of Rock Drain
E306924	FR_LMP1	Lake Mountain Sediment Pond Decant
0200201	FR_FR2	Fording river upstream of Kilmarnock Creek
0200251	FR_FR1	Fording River downstream of Henretta
E216777	FR_UFR1	Fording River upstream of Henretta
E216778	FR_HC1	Henretta Cr. upstream of Fording River
E300096	FR_HC3	Henretta Creek upstream of McQuarrie Creek
E300097	FR_FRRD	Fording River near Fording River Road
E320693	FR_FR3	Fording River upstream of FRO AWTF-S Outfall Structure
E320694	FR_SCOUT	Discharge from the pipeline conveying the combined, untreated mine-influenced flow from Swift-Cataract dosed with antiscalant, and Swift Clean Water Diversion at the FRO AWTF-S Outfall Structure
E320695	FR_SCOUTDS	Fording River downstream (approx. 100 m) of FRO AWTF-S Outfall Structure
E319331	FR_SCCAT	Swift Creek Sediment Ponds Decant to Fording River

TABLE 4: GREENHILLS OPERATION DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1G)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E287438	GH_TPS	Tailings Pond Water
E102709	GH_GH1	Greenhills Creek Sed. Pond Decant
E309911	GH_GH2	Greenhills Creek downstream of Sed. Pond Decant
E207436	GH_TC2	Thompson Creek Sed. Pond Decant
0200385	GH_PC1	Porter Creek Sed. Pond Decant
E257795	GH_WC1	Wolfram Creek Sed. Pond Decant
E257796	GH_LC1	Leask Creek Sed. Pond Decant
E207437	GH_RLP	Rail Loop Sed. Pond Decant
0200388	GH_MC1	Mickelson Creek at LRP Road
E287433	GH_WADE	Wade Creek at LRP Road
E305855	GH_WOLF_SP1	Wolf Creek Sed. Pond Decant
E305854	GH_WILLOW_SP1	Willow Creek Sed. Pond Decant
0200389	GH_ER2	Elk River upstream of Greenhills Operation
E102714	GH_TC1	Thompson Creek at LRP Road
E287432	GH_COUGAR	Cougar Creek at LRP Road
E287437	GH_BR_F	Branch F at LRP Road
E305875	GH_NNC	No Name Creek
E305876	GH_ER1A	Elk River Side Channel D/S Wolfram Creek
E305877	GH_ERSC2	Elk River D/S of Thompson Creek
E305878	GH_ERSC4	Elk River Side Channel U/S Wolfram Creek
E309912	GH_CAM1EFF	Discharge from Antiscalant Module to Lower Greenhills Creek
E321331	GH_CA04	Greenhills Creek ~80 m downstream of Antiscalant Module

TABLE 5: LINE CREEK OPERATION DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1H)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E221268	LC_LC9	No Name Cr. Pond Decant
E216144	LC_LC7	MSA North Ponds Effluent to Line Creek
E304613	LC_LC7DSTF	MSA North Ponds Effluent to Line Creek Alternate
E219411	LC_LC8	Contingency Treatment System Effluent to Line Creek
E293371	WL_WLCI_SP01	WLC WTP West Line Creek (Influent)
E293370	WL_LCI_SP02	WLC WTP Line Creek (Influent)
200044	LC_LC4	Line Creek u/s of Process Plant (~5,550 m d/s of WLC WTP outfall)
200337	LC_LC3	Line Creek d/s of West Line Creek (~200 m d/s of WLC WTP Outfall)
200335	LC_LC2	Line Creek upstream of Rock Drain
E293369	LC_LCUSWLC	Line Creek u/s of West Line Creek, below rock drain (~ 140 m u/s of WLC WTP outfall)
E216142	LC_LC1	Line Creek upstream MSA North Pit
E282149	LC_SLC	South Line Creek West Side of Main Rock Drain
E261958	LC_WLC	West Line Creek
E223240	LC_LC12	North Horseshoe Creek Near Mouth

TABLE 6: ELKVIEW OPERATION DISCHARGE, RECEIVING ENVIRONMENT AND OTHER SAMPLE LOCATIONS (APPENDIX 1I)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E296310	EV_GH1	GEHO Line Valve at Plant (West Fork Tailings Effluent)
0200097	EV_EC1	Erickson Creek at Mouth
E296311	EV_SP1	South Pit Creek Sed. Pond Decant
E208057	EV_MG1	Milligan Creek Sed. Pond Decant
E206231	EV_GT1	Gate Creek Sed. Pond Decant
E102685	EV_BC1	Bodie Creek Sed. Pond Decant
E102679	EV_OC1	Otto Creek 70 m upstream of the Elk River
E208043	EV_GC2	Goddard Creek Sed. Pond Decant
E258135	EV_LC1	Lindsay Creek Infiltration Pond
E298590	EV_DC1	Dry Creek Sed. Pond Decant
E102681	EV_SM1	6 Mile Creek Sed. Pond Decant
E302170	EV_AQ6	Aqueduct Control Structure to Aqueduct Creek
0200203	EV_MC3	Michel Creek upstream of Erickson Creek
0200111	EV_ER2	Elk River upstream of Michel Creek
E298592	EV_BLM2	Balmer Creek at CFI Road
E298591	EV_FC1	Fennelon Creek at CFI Road
E298594	EV_SPR2	Spring Creek at Mouth
E298593	EV_TC1	Thresher Creek at Milligan Road

TABLE 7: COAL MOUNTAIN OPERATION DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1J)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E102488	CM_SPD	Decant Discharge from Main Interceptor Sedimentation Ponds to Corbin Creek
E206438	CM_CCPD	Decant Discharge from Corbin Sedimentation Pond to Corbin Creek
E298733	CM_PC2	Pengelly Channel to Corbin Creek
E298734	CM_SOW	Sowchuck Sump
E258175	CM_MC1	Michel Creek upstream of Operations
E200209	CM_CC1	Corbin Creek near Confluence with Michel Creek

TABLE 8: KOOCANUSA RESERVOIR RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1E)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E300095	RG_KERRRD	Koocanusa Reservoir downstream of Kikkoman Creek
E300092	RG_GRASMERE	Koocanusa Reservoir west of Grasmere
E300093	RG_USGOLD	Koocanusa Reservoir upstream of Gold Creek
E300094	RG_BORDER	Koocanusa Reservoir upstream of the Canada/US border

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