



August 21, 2017

Mr. David Brogliatto
Canadian National Railway Company (CN)
CN Environment, Yard Office
Building #2, 2nd Floor, 1108 Industrial Way
Prince George, BC V2N 5S1

Dear Mr. Brogliatto:

**Re: Performance Verification Plan for Certificate of Compliance
Former Terrace Pole Dipping Facility – Off-Site Affected Parcel (4640 Keith Avenue)
CN Terrace Yard, Terrace, BC
Site ID: 4031
Project No. 13062**

1. BACKGROUND

Keystone Environmental Ltd. (Keystone Environmental) has prepared this Performance Verification Plan (PVP) in support of an application for a risk-based Certificate of Compliance (CofC) for the off-site affected parcel listed as 4640 Keith Avenue, Terrace, BC (the "Off-Site Affected Parcel"). The Off-Site Affected Parcel contains groundwater and soil contamination associated with historical activities at the former Terrace Pole Dipping Facility, located at 3007 Kallum Street in Terrace, British Columbia (the "Site").

The PVP presents the principal risk management measures (i.e., the Schedule B key risk management controls) that apply and must remain in place at the Off-Site Affected Parcel to ensure that the CofC remains valid. The PVP was prepared in accordance with BC Ministry of Environment (MOE) Administrative Guidance 14: Performance Verification Plans, Contingency Plans, and Operations and Maintenance Plans (BC MOE, 2015). The PVP was based on the findings of the following report:

- Keystone Environmental (2017). *Report of Findings – Human Health and Ecological Risk Assessment, Former Terrace Pole Dipping Facility – Off-Site Affected Parcels, CN Terrace Yard, Terrace, BC*. Dated August 2017.

2. PERFORMANCE VERIFICATION PLAN

2.1 Determination of Remediation Type

Based on the risk management measures for the Off-Site Affected Parcel, the Remediation Type applicable at the Off-Site Affected Parcel is considered to be Type 2. Remediation Type 2 sites may require the use of engineering and institutional controls to mitigate/eliminate risks at the Off-Site Affected Parcel, but in the event that controls were either not implemented or were implemented but were rendered ineffective, there is a lack of imminent risks.

Under a Remediation Type 2 (Case 2) scenario, MOE (2015) indicates that a PVP is required and that an operations and maintenance plan may be required. A contingency plan is not required.

2.2 Required Risk Controls

The principal risk controls which must be maintained at the Off-Site Affected Parcel include the following items:

- Groundwater must not be used as drinking water.
- Soil contamination exceeding standards relevant to human and ecological soil contact must remain at depths greater than 3 metres below grade (mbg) (assumed to apply to all soils on the Off-Site Affected Parcel).

2.3 Required Actions to Implement the Required Risk Controls

The following actions are required to implement the risk controls:

- Mandatory notification provided to the owner/operator of the Off-Site Affected Parcel that groundwater wells are not to be installed and used for drinking water purposes.
- Mandatory notification provided to the owner/operator of the Off-Site Affected Parcel that soil contamination with concentrations exceeding standards relevant to human and ecological soil contact is to remain at depths greater than 3 mbg.

Records of these actions should be maintained by the owner of the Site and the Off-Site Affected Parcel and submitted to the BC MOE if requested. Other reporting requirements for all performance verification records include the following:

- The Director must be notified promptly by the person(s) responsible for the Off-Site Affected Parcel if performance verification actions indicate that any of the required risk controls are not being met. The following information must be submitted to the Director with the notification, or as soon as practicable thereafter:
 - The time period over which risk controls were not in place or implemented
 - The nature of the excursion(s)
 - The temporary or permanent corrective measures implemented or to be implemented

- An implementation schedule
- Supporting documentation
- If requested by the Director, a report signed by an Approved Professional must be submitted for review to the Director and must include the following (as applicable):
 - An evaluation of the performance of the institutional controls
 - Supporting documentation

2.4 Summary Rationale

Groundwater contamination greater than the Contaminated Sites Regulation (CSR) Schedule 6 drinking water (DW) standards is present on the Off-Site Affected Parcel. Drinking water is currently provided through municipal water lines. Groundwater at the Off-Site Affected Parcel is not anticipated to be used as drinking water in the future. A drinking water use preclusion on the use of groundwater at the Off-Site Affected Parcel is needed to prevent potential human health risks associated with drinking water consumption of off-Site groundwater.

Soil contamination greater than the CSR Schedule 4 or Schedule 5 commercial land use (CL) soil standards is present at depths greater than 3 mbg. The risk assessment assumed that the identified contaminated soils are too deep for human and ecological exposures to occur. Soils less than applicable CL standards must remain over top of the identified soil contamination to prevent potential health risks to humans and terrestrial ecological organisms.

2.5 Conclusion

It is our opinion that the actions identified above are sufficient to ensure performance verification of the risk controls required for this Off-Site Affected Parcel.

3. GENERAL LIMITATIONS AND CONFIDENTIALITY

The findings presented in this report are based upon the field work conducted by Keystone Environmental for CN. Keystone Environmental has prepared this document in good faith and has relied upon information provided by others. Keystone Environmental has assumed that the information provided by third parties is both complete and accurate.

This report was completed in a manner consistent with that level of care and skill normally exercised by other environmental professionals, practicing under similar circumstances in the same locale at the time of the performance of the work.

This report has been prepared solely for the internal use of CN and the review by the BC MOE, pursuant to the agreement between Keystone Environmental Ltd. and CN. By using this report, CN and the BC Ministry of Environment agree(s) to review this report in its entirety. Keystone Environmental accepts no responsibility, and denies any liability whatsoever, to parties other than CN and the BC Ministry of Environment, who may obtain access to this report for any injury, loss or damage suffered by such parties arising out of, reliance upon, or decisions or actions based on this report, except to the extent those parties have obtained a prior written

consent of Keystone Environmental to use and rely upon this report and the information contained herein. Any use, reliance or decisions made based on this report by other parties without prior written approval by Keystone Environmental are the responsibility of such parties and Keystone Environmental accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report. The findings presented herein should be considered within the context of the scope of work and project terms of reference. The findings are time sensitive and are considered valid at the time this report was produced. The conclusions and recommendations contained in this report are based upon applicable guidelines, regulations, and legislation existing at the time this report was produced; consequently, any changes in the regulatory regime may alter the conclusions and/or recommendations.

4. CLOSURE

The opinions, advice and recommendations expressed in this performance verification plan are made in accordance with generally accepted principles and practices as recognized by members of the applicable profession or discipline practising at the same time and in the same or similar locations.

If you have any questions, please do not hesitate to contact the signatories below.

Sincerely,

Keystone Environmental Ltd.



Kevin Hall, B.Sc., R.P.Bio.
Risk Assessor

Adam J. Radlowski, M.Sc., R.P.Bio.
Senior Environmental Risk Assessor

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5. REFERENCES

BC MOE (2015). British Columbia Ministry of Environment. Environmental Protection Division. *Administrative Guidance 14 on Contaminated Sites: Performance Verification Plans, Contingency Plans, and Operations and Maintenance Plans*. (Version 3.0). December 2015.

Keystone Environmental (2017). *Report of Findings – Human Health and Ecological Risk Assessment, Former Terrace Pole Dipping Facility – Off-Site Affected Parcels, CN Terrace Yard, Terrace, BC*. Burnaby, BC. Dated August 2017.