July, 2013 Project: «PROJECT»

PID: «PHASE»

«Owner\_Street\_Address»

«Owner\_City»

«Postal\_Code»

ATTENTION: «Owner\_Name»

REFERENCE: Summary of Soil Sampling at  
 «PID\_Street\_Address», «PID\_City»

On behalf of Teck Metals Ltd. (Teck) and the Trail Area Health and Environment Program (THEP), SNC-Lavalin Inc., Environment and Water (E&W) is pleased to provide you with the results of soil sampling on your property.

# RESULTS OF SOIL sampling

Soil samples were collected on DATE after we received signed consent to access your property. Samples were collected from the top 15 cm (approx. 6”) of soil across the property including any flower and vegetable gardens. We can provide you with information on our detailed sampling methodologies if you are interested.

Soil samples were analyzed with an Olympus Delta Premium x-ray fluorescence (XRF) analyzer to get an estimate of metal concentrations in the soil. The XRF readings are provided on the attached soil log. Based on the XRF readings, two or three, soil samples were selected for lab analysis to confirm metals concentrations. The lab results are also attached.

The soil on your property has the following lead concentrations, show in ppm[[1]](#footnote-1):

|  |  |  |
| --- | --- | --- |
| Yard Soil[[2]](#footnote-2) | Vegetable Garden Soil | Flower Garden Soil |
|  |  |  |

* .

# “action levels”

Remediation is offered if soil lead concentrations are greater than established “Action Levels” developed by the Trail Health and Environment Committee (THEC), which includes Teck, Interior Health and the BC Ministry of Environment. The action levels are:

* For yard soil and flower gardens:
  + Full remediation (soil replacement to a depth of 30 cm, about 1 foot) of some or all of your yard if the “yard soil” and/or flower garden soil lead concentration is greater than 5,000 ppm; and
  + Partial remediation if the “yard soil” and/or flower garden soil lead concentration is greater than 1,000 ppm and your family is expecting or there are children under 3 years of age present. Partial remediation is intended to prevent or minimize young children’s exposure to lead in dust and soil. The extent of remediation is determined case-by-case, generally focused on improving ground cover and any “hot spot” areas.
* For vegetable gardens:
  + Full remediation: soil replacement to a depth of 60 cm (about 2 feet), if soil lead concentration is greater than 1,000 ppm.

Soil with lead concentrations below these levels do not qualify for remediation at this time.

Based on the studies of human health done in Trail, the remediation “action levels” based on lead are also protective of health risks from other metals such as arsenic and cadmium that may be present in the soil.

For your reference, the *Contaminated Sites Regulation*[[3]](#footnote-5)(CSR)Matrix Standards for Human Health Protection for Residential Land Use are attached. While some metal levels on your property may exceed these values, the human health risks from soil above these values are considered relatively low based on the human health studies in Trail. If soil is well covered, the risks are negligible.For information on the health risks from soil or for more information on our program, please visit [www.thep.ca](file:///C:\Users\Ennsb\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\W2YZTW4G\www.thep.ca).

# CLOSURE (select one)

The soil results on your property show lead concentrations above the “action levels”. The Trail Area Health & Environment Program is offering remediation on your property. Please return the attached Remediation Options and Consent Form and we will contact you to schedule the remediation work...

The soil results on your property show lead concentrations below the “action levels”. Your property does not qualify for remediation at this time. If you have questions, please contact us for more information.

Regardless of the soil lead concentrations on your property, the Trail Area Health & Environment Program advises all Trail area residents to:

* Keep bare dirt areas in your yard to a minimum.
* Use sandboxes for children’s play areas and cover them when not in use.
* Hose off outside toys, play equipment and paved areas or other hard surfaces.
* Wash your hands and your children’s hands before meals and after playing or working in the dirt.
* Keep your floors clean by vacuuming, damp-mopping and leaving shoes at the door.
* Wash your garden produce before eating it, and also peel root crops.
* Amend your garden soil by adding manure and use lime to adjust the pH to 7.
* Note that the fruit parts of plants (e.g., berries, tomatoes, cucumbers, beans) take up very little metal from soil, while leafy produce (e.g., lettuce, spinach, swiss chard) takes up more.

For more detailed information for gardening in soil with elevated metals levels, see the Washington State University web link below.

* Gardening on Lead and Arsenic-contaminated Soils – Washington State University (<http://www.ecy.wa.gov/programs/tcp/area_wide/AW/AppK_gardening_guide.pdf>).

Please note that our program offers support for home renovations, another source of lead exposure. Our *Home Renovation Support Program* brochure includes guidelines for renovation, construction, excavation and/or demolition projects in the City of Trail and pre‑1976 homes in the Greater Trail area. For more information on lead-safe home renovations, please contact our office.

If you have any questions or concerns at all, please do not hesitate to call or e-mail us at:

Trail Area Health & Environment Program

Community Program Office

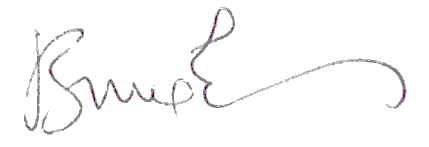
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Project Manager

**SNC-LAVALIN INC., ENVIRONMENT & WATER**

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ATTACHMENTS

1. Soil Sample Log
2. Laboratory Report
3. CSR Matrix Standards for Protection of Human Health
4. General Limitations and Confidentiality

Included: Trail Health and Environment Committee – HRSP Brochure

Remediation Options Letter and Consent Form – if applicable

cc: Mr. Mark Tinholt, Superintendent, Environmental Remediation, Teck Metals Ltd., Trail, BC

ATTACHMENT 1

Soil Sample Log

ATTACHMENT 2

Detailed Laboratory Report

ATTACHMENT 3

CSR Matrix Standards

BC Contaminated Sites Regulation Matrix Standard for Residential Land Use

|  |  |
| --- | --- |
| Metal | BC CSR Matrix Standard for Residential Land Use (ppm)a,b |
| Antimony | 20 |
| Arsenic | 100 |
| Barium | 6,500 |
| Beryllium | 4 |
| Cadmium | 35 (3 if used to grow produce for consumption) |
| Chromium | 100 |
| Cobalt | 50 |
| Copper | 15,000 |
| Lead | 500 |
| Mercury | 15 |
| Molybdenum | 10 |
| Nickel | 100 |
| Selenium | 3 |
| Silver | 20 |
| Thallium | 1c |
| Tin | 50 |
| Vanadium | 200 |
| Zinc | 10,000 |

**Notes:**

a ppm = parts per million. Soil and outdoor dust are measured in parts of metal per million parts of soil or dust. This is equivalent to milligrams of metal per kilogram of soil.

b Matrix standard from the British Columbia Contaminated Sites Regulation (CSR), B.C. Reg. 375/96, including amendments up to B.C. Reg. 6/2013 for human health protection, intake of contaminated soil.

c There is no BC CSR standard for Thallium, so the Canadian National standard is displayed.

ATTACHMENT 4

General Limitations and Confidentiality

# sle general LIMITATIONS AND CONFIDENTIALITY

This report has been prepared by SNC-Lavalin Inc., Environment Division (SLE) for the exclusive use Teck Metals Ltd. (Teck), who has been party to the development of the scope of work for this project and understands its limitations.

This report is intended to provide information to Teck to assist it in making business decisions. SLE is not a party to the various considerations underlying the business decisions, and does not make recommendations regarding such business decisions. In providing this report, SLE accepts no liability or responsibility in respect of the site described in this report or for any business decisions relating to the site, including decisions in respect of the purchase, sale or investment in the site.

Should this report be submitted to the Ministry of Environment (MoE) by Teck, the MoE is authorized to rely on the results within the limitations of the following paragraphs for the purpose of determining whether Teck is fulfilling (has fulfilled) its obligations with respect to applicable environmental regulations. Any use, reliance on, or decision made by a third party based on this report is the sole responsibility of such third party. SLE accepts no liability or responsibility for any damages that may be suffered or incurred by any third party as a result of the use of, reliance on, or any decision made based on this report.

The findings, conclusions and recommendations in this report have been developed in a manner consistent with the level of skill normally exercised by environmental professionals currently practising under similar conditions in the area. The findings contained in this report are based, in part, upon information provided by others. If any of the information is inaccurate, modifications to the findings, conclusions and recommendations may be necessary.

The findings, conclusions and recommendations presented by SLE in this report reflect SLE’s best judgement based on the site conditions at the time of the site inspection on the date(s) set out in this report and on information available at the time of preparation of this report. They have been prepared for specific application to this site and are based, in part, upon visual observation of the site, subsurface investigation at discrete locations and depths, and specific analysis of specific materials as described in this report during a specific time interval. The findings cannot be extended to previous or future site conditions or to portions of the site which were unavailable for direct observation, subsurface locations which were not investigated directly, or materials or analysis which were not specified. Substances other than those described may exist within the site, reported substance parameters may exist in areas of the site not investigated, and concentrations of substances greater or less than those reported may exist between sample locations.

The findings and conclusions of this report are valid only as of the date of this report. If site conditions change, new information is discovered, or unexpected site conditions are encountered in future work, including excavations, borings, or other studies, SLE should be requested to re-evaluate the findings, conclusions and/or recommendations of this report, and to provide amendments as required.

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Nothing in this letter or the letter report is or may be deemed to be an admission of liability by Teck for any environmental condition related to the Property or any claim that you may make against Teck.

1. ppm is parts per million. This is equal to mg/kg if that terminology is more familiar. [↑](#footnote-ref-1)
2. “yard soil” represents an estimated lead concentration for your property based on all the yard samples. It corresponds to the 95% Upper Confidence Limit of the Mean (UCLM), which is a conservative statistical evaluation of the lead concentrations from across the entire property using laboratory data and correlated XRF readings. [↑](#footnote-ref-2)
3. Contaminated Sites Regulation (CSR), B.C. Reg. 375/96, including amendments up to B.C. Reg. 6/2013. [↑](#footnote-ref-5)