## Home & Garden

The goal of the Home & Garden Program within THE Plan is to prevent and reduce health risks from exposure to lead and smelter metals in the home and yard environment. Specific goals are:

* to prevent people’s, and particularly young children’s and pregnant women’s, exposure to lead in their home and yard environments
* to inform the community, and particularly expectant families and families with young children, about the potential health risks from lead and other smelter metals in the home & yard environment
* to engage the community, and particularly expectant families and families with young children, in addressing potential health risks from lead and other smelter metals in the home and yard environment
* to prevent health risks from exposure to soil in the community.

The Home & Garden Program works towards these goals through the following main approaches:

* Community Program Office
* Healthy Homes Program
* Residential Soil Assessment and Remediation
* Home Renovation Support Program
* Other Residential Assessment and Remediation Projects
* Parks & Playgrounds (to go to Parks and Wildlands)

### Each of these approaches is described in detail below.

### Community Program Office

* Provide information, advice and support for residents regarding health risks from metals in soil
* Provide instructions and facilitate laboratory access for residents submitting their own soil samples (typically garden soil) for analysis

### Healthy Homes Program

### Residential Soil Assessment

* Soil assessment is prioritized for Trail and Rivervale residents to prevent and reduce health risks from exposure to metals that may be present in yard and garden soil. Top priority is expectant families, families[[1]](#footnote-1) with children age 3 and under, and families with children who have measured blood lead levels above the Family Health case management thresholds. Second priority is vegetable gardens. Third priority is yard assessment of targeted blocks of properties close to the smelter.
* Yard soil assessment is offered to every expectant family and family with children 3 years and under living in Trail and Rivervale. This is part of the Healthy Homes Program (see xx above).
* Vegetable garden soil assessment is available upon request for residents in Trail and Rivervale.
* Yard soil assessment is offered in a targeted manner to residents of city blocks in areas close to the smelter and where it is suspected that soil metal levels may exceed remediation action levels (see remediation section below). Assessment is offered to residents on a block-by-block basis each year, depending on available resources.
* People outside Trail and Rivervale can request soil sampling, which are considered on a case-by-case basis. These requests are typically low priority as other communities are likely to have soil metal concentrations below remediation action levels.
* Residential soil assessment generally takes place between April and November when the ground is snow-free. The soil assessment process includes:
* signed consent from property owner to conduct assessment;
* site reconnaissance visit: on-site inspection of property conditions, sketch and photographs of property, and interview with property owner/tenant re. metals contamination issues;
* soil sample collection: shallow soil samples (up to 0.15 m. below grade) are collected from across the property including key areas such as bare soil, sandboxes and vegetable gardens. Deeper soil samples are collected on a case-by-case basis when screening indicates high metal concentrations or in situations where it is suspected that metals may be present in soil for reasons other than aerial emissions.
* soil screening: All soil samples are screened with an XRF machine for preliminary information about metal levels.
* laboratory analysis: approximately 2-3 soil samples from each property are submitted for laboratory analysis. This typically includes the highest sample, the median and any samples from vegetable gardens.
* quality assurance/control measures: One of every 10 samples sent to the lab is a duplicate sample (one sample split into two) to evaluate laboratory precision. Occasionally, replicate samples (two samples taken from the same location) are submitted to verify sample accuracy/representation. Other quality assurance measures include calibration of the XRF machine, sterilization of field equipment, XRF certification and field training for all assessment personnel.
* data interpretation: For yard assessments, the XRF screening readings are correlated with the laboratory results and the 95% upper confidence limit of the mean is calculated for each property. For vegetable gardens, the laboratory result is the measure used to compare with remediation action levels.
* records: all property information is tracked and managed through the THE database
  + reporting: Assessment results letters are provided to property owners following the assessment work and a summary letter is submitted to Teck after the assessment season is complete. Assessment results are reviewed with property owners where properties qualify for remediation as well as for all families participating in the Healthy Homes Program or receiving Family Health case management.

### Yard & Garden Remediation

Residential properties qualify for remediation where the soil assessment results exceed established remediation action levels (see glossary). The action levels have been established by the Trail Health & Environment Committee as follows:

* For yard soil and flower gardens:
* For full remediation (add to glossary) of yards, the action level corresponds to the Upper Cap Concentration, currently 5,000 ppm lead, set out in Protocol 11 of the BC Ministry of Environment, Contaminated Sites Regulation, If the soil lead concentration is greater than 5,000 ppm, full remediation of some or all of the yard is offered. This involves soil replacement to a depth of 30 cm (approximately 1 foot).
* Where soil lead concentrations are below 5,000 ppm and expectant families or children age 3 and under are present on a property, yard improvement work (add to glossary) is determined case-by-case to address potential risks from exposure to bare soil. In these situations, the work plan is determined based on the soil assessment results in conjunction with a visual assessment of ground conditions and land use. This includes areas of poor ground cover or bare ground in drip zones, play areas, parking areas, pathways, patios, as well as vegetable and flower gardens. In these cases, the yard improvement work typically consists of removing existing surface soil and ground cover and replacing it with better ground cover. The objective is to prevent young children’s potential exposure to metals in dust and soil.
* For vegetable gardens:
  + if soil lead concentration is greater than 1,000 ppm, full remediation is offered. This involves soil replacement to a depth of at least 60 cm (2 feet) across the vegetable garden. (Andrea to add simple explanation of how 1,000 ppm was established to be protective of all metals.)

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

Properties are prioritized for remediation and yard improvement work to prevent or minimize health risks. If soil is well covered with grass or a similar barrier, the risks are negligible. Health risks come from exposure to bare soil and the main health risks are to young children.

Priorities are determined based on soil lead concentrations in conjunction with the following factors:

* properties with expectant families or families with children under age 3. This includes family homes, daycares and homes of extended family and other caregivers where children spend a significant amount of time;
* gardening season for people preparing their vegetable garden to grow food;
* remediation logistics for the contractor (e.g. proximity to other remediation work) and/or property owner/tenant (e.g. preference, availability etc.);
* inclement weather (e.g. too wet or potentially extremely hot, dry & dusty);
* worker health and safety;
* condition of existing ground cover.
* run additional soil analysis to determine levels of leachable metals for soil disposal

The remediation process involves:

* Determining the scope of remediation or yard improvement work required (full remediation of whole or partial yard, yard improvement, vegetable garden);
* For properties receiving full remediation of all or part of the yard, preparing regulatory documentation to the BC Ministry of Environment, Land Remediation Branch Site Advisor. This includes the Notification of Independent Remediation (NOIR), Site Risk Classification Reports, a completed Exposure Pathway Questionnaire, a survey plan, a copy of the land title, and a map of metals concentrations in the soil.
* obtaining consent to access the property from the property owner and developing a remediation/yard improvement work plan in consultation with the property owner/tenant and contractor;
* scheduling remediation/yard improvement work based on prioritized list of properties
* submitting documentation to BC Ministry of Environment as listed above
* implementing remediation/yard improvement work (see Appendix xx);
* completing the work, obtaining a sign-off from the property owner that the work has been completed to their satisfaction;
* submitting a Notification of Completion of Independent Remediation (NCIR) to the BC Ministry of Environment;
* For High Risk Sites as determined under Protocol 11 of the CSR; providing a Site Reclassification Report signed by a Contaminated Sites Approved Professional (CSAP) to change the high-risk designation on the Site Registry to either non-high risk or a risk-managed high risk site.
* Providing results of the remediation/yard improvement work are provided to the property owner and to Teck.
* Information and Advice about Soil

### Healthy Home Program

* Overview of program - soil assessment to prioritize properties for remediation based on the presence of young children, both for Case Management (where BLL are elevated), and for Primary Prevention (to prevent elevated BLL from occurring)
* Lead paint testing (is this offered only to our PP and CM families or is it offered to anyone receiving the HRSP services?)
* Collaboration with Family Health Program - describe

### Home Renovation Support Program

* Overview of program only. Details provided…….
* Communication and outreach to increase public awareness of program.
* Supplies, equipment provided. Education/information.
* Connect to BC1Call, Building Permits in the appropriate place
* Make sure that the description responds to the following recommendation made after the 2010 consultation: “Given strong public support but low awareness of this program, it is a priority to conduct more extensive promotion of the Home Renovation Support Program. This includes expanded outreach to young families throughout Greater Trail through daycares, family play groups, home & garden stores, libraries and other businesses and services that cater to young families. There also will be increased outreach to home renovation professionals and links to the RDKB building permits department.”
* Lead Paint Testing (should this be here????)
* Engagement of the home building sector - Contractor Training, what else?

### Soil Assessment & Remediation in the Community

Upon request (typically from Teck, the City of Trail, or local residents), soil assessments are conducted for other sites including playgrounds, school yards, parks, picnic areas, rodeo grounds, play fields and other sites of concern. These situations typically involve sites receiving considerable use by children or the public, or where there are concerns about metals concentrations. In one case, the site qualified for improvement work which was carried out. The soil lead concentrations were below 5,000 ppm but the site was exposed and very accessible to the public.

### Monitoring, Evaluation and Continuous Quality Improvement

Long-term Studies (2010 - )

* Remediated Soils: A study is being carried out to monitor metals concentrations on remediated yards and vegetable gardens over time. The study is expected to continue over the long-term to determine changes in measured soil metal concentrations.
* Produce sampling: Each year, a representative sample of garden produce is collected from approximately 30 properties. The sample is small and depends upon the produce that the gardeners are growing or have harvested. It is intended to correspond to the sampling done for the HHRA.

Other Studies/Monitoring

* Grass Clipping assessment (2012): This was done to respond to questions from local gardeners, to determine what we should advise residents about the impacts of including grass clippings in garden compost. Samples of grass clippings were collected from 10 yards and analyzed for metal content. The results of the study have not yet been finalized.

Data Management – Bruce to include overview as appropriate

### Summary and Conclusions

### References

SNC-Lavalin. 2011. Draft Trail Wide Residential Remediation Guidelines. Version 5. Prepared for Teck Metals Ltd. August 2011.

SNC-Lavalin. 2008. Draft. Soil Assessment Guidelines.

### Contacts

Please refer to Table 1-1 for more information or to obtain copies of the referenced documents.

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| **Table 1-1 Contact Information for the Home and Garden Program** | | | |
| Program Area | Contact Person | Contact Phone Number | Contact Email |
| Trail Health and Environment Program General Information | Mark Tinholt | 250-364-4385 | Mark.Tinholt@Teck.com |
| Residential Yard Remediation |  |  |  |
|  |  |  |  |
| Home Renovation Support Program |  |  |  |

1. Families include extended families, caregivers and other situations such as daycares where children age 3 and under are present on the property for a significant amount of time. [↑](#footnote-ref-1)