## 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 metals in soil and dust in the community
* to promote lead-safe work practices

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

Community Program Office

Healthy Homes Program

Residential Soil Assessment

Residential Soil Remediation and Yard Improvement Work

Home Renovation Support Program

Soil Assessment and Remediation in the Community (possibly move to Parks and Wildlands)

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

### Community Program Office

* The Community Program Office (CPO) is a storefront in downtown Trail from which the Home & Garden Program operates and where the public can access information about THEP services. It is a key component of THEP’s community outreach and engagement efforts, as described in Plan section CE.
* In addition to providing accessible information about THEP services, the Program Office offers the following support to delivery of the Home & Garden Program:
* providing information, advice and support for residents on how to prevent or minimize health risks from exposure to metals in soil or dust, including dust stirred up by home renovations
* providing instructions and facilitating laboratory access for residents submitting their own soil samples (typically garden soil) for analysis
* responding to non-smelter home and garden related inquiries related to lead-based paint, radon, asbestos, and mould.
* coordinating distribution of radon test kits (as a community service).
* CPO staff continuously update their resources/information, utilizing the most current best practice information available from sources such as Health Canada, WorkSafe BC, the US Centres for Disease Control and Prevention (US CDC), the US Environmental Protection Agency (EPA) and the US Department of Housing and Urban Development (HUD).

### Healthy Homes Program

In-home visits – “Healthy Homes” Program

* New program started in April, 2013 as part of “Healthy Families Healthy Homes” Program in response to US CDC guidance to expand efforts to prevent exposure to lead in communities where young children’s BLLs test > 5µg/dL;
* Visits are offered to every family in Trail and Rivervale who are expecting children as well as any families with children 3 years of age or younger who have not been reached when the family is expecting. During the phase-in/transition period, the program is targeting both groups - expectant families and families with children aged 3 and under.
* This program takes a holistic approach to home health and safety, based on guidance from various US agencies, including HUD’s Office of Healthy Homes and Lead Hazard Control (OHHLHC), the CDC and EPA (include sources, including Health Canada, in bibliography). The holistic approach promotes the Seven Principles of Healthy Homes – Keep it dry, clean, safe, ventilated, pest-free, contaminant-free, and maintained;
* Qualifying families are identified/contacted through participation in the Kootenay Boundary Regional Hospital Expectant Parent Event, family friendly public events, and blood lead clinics as well as through the newsletter, the Program Office and other THEP communications. THEP has a system for obtaining clients’ consent to share contact information between the Family Health and Home & Garden Programs.
* Healthy Homes visits are prioritized using a “scheduling priority” function in the THE Database. (are they? or is soil assessment prioritized?) As much as possible, visits are scheduled when soil assessment results are available.
* Visits include a review of the soil assessment results, education, information, advice, a visual environmental assessment of the home and yard, lead-paint testing, and documentation/demonstration of exposure prevention tools/strategies (as appropriate).
* Educational topics include preventing health risks from lead exposure, keeping dust down in the home and yard, strategies for yard and garden improvement, lead-safe home renovation including removal of lead-based paint, and other home health topics, as appropriate. Key messages for different topics are provided in Appendix aa).
* Visits are guided by a checklist that identifies key topics (see Appendix xx). Families may be offered a Dust Buster Kit, and Greening Your Garden Kit, a covered sandbox, a HEPA-vacuum and/or home renovation supplies to support family actions to prevent lead exposure. Contents of the Dust Buster Kit were based on recommendations for lead and allergy kits from a US source (Carol Kawecki, Healthy Housing Solutions Inc., personal communication). Demonstrations are offered for some of the provided supplies.
* For families living in pre-1976 homes where there is evidence of peeling, chipped or worn paint is areas accessed or used by children, lead-based paint testing is recommended. Permission to test requires signed consent by the property owner (see Appendix xx). Lead-based paint testing is conducted using an X-ray Fluorescence handheld analyzer. Results are included in a pilot study to assess the prevalence of lead-based paint within the program area and the possible impact of non-smelter sources of lead in homes where children are present.
* Visits end with a discussion of the family’s top 3 opportunities to make a difference in reducing exposure to lead. These are noted on the Healthy Families Healthy Homes poster (see Appendix xx) as are any THEP follow-up actions.
* Follow up includes documentation, case conferencing (as needed), communication with the family, and carrying out any additional actions to support the family

The geographic area covered by the Healthy Homes Program is Trail and Rivervale. See map H&G.

Supporting materials include:

* THEP Healthy Families Healthy Homes poster
* THEP Greening Your Garden rack card
* THEP Family Health materials (as listed in Section xxx)
* THEP communications materials (as listed in Section zzz)
* Go Green when you Clean (produced by…)
* Bust that Dust (by…)
* Creating Healthy Environments for Kids (by)
* Hazardcheck: Hazards in your Environment (by)

Note: Appendices need to be developed with:

* key messages - for dust buster kit, carpets/vacuuming, pets, garden kit, renovations, lead-based paint
* SOP for lead-paint testing
* SOP for in-home visit and use of checklist?

Still need to think about…

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

### 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.

The geographic area covered by the Residential Soil Assessment Program is Trail and Rivervale, except for requests considered case-by-case from outside this area.

Support materials include:

### Residential Soil Remediation & Yard Improvement Work

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 to the property owner and to Teck.

The geographic area covered by the residential soil remediation and yard improvement work program is Trail and Rivervale. (Assessment may be requested outside this area but it is unlikely that the metals concentrations would warrant remediation.)

Support materials include:

### Home Renovation Support Program

The Home Renovation Support Program (HRSP) was initiated based on a recommendation by the Trail Community Lead Task Force following the 2000 Community Consultation (Hilts et al., 2001). The recommendation was to: “Implement a new program to advise and assist people doing excavation, construction, demolition, or renovation”.

Further recommendations were as follows:

* To encourage homeowners and contractors to follow precautions when undertaking, excavation, construction demolition or renovation projects in order to minimize dust exposure to workers and residents.
* To assist people who need to dispose of contaminated soil or dust.
* The program is not meant to encourage people to undertake projects such as soil replacement. Instead, it is intended to make it safer and easier for people who, on their own, have decided to do work on their properties.

In addition, the THEP 2010 Community Consultation led to the following recommendation:

“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.”

Based on these recommendations the HRSP continues to evolve and strive to be an integral, accessible THEP service.

The HRSP Program consists of advice and information on preventing lead exposure during home renovations, provision of free supplies to qualifying clients, loan of a construction grade HEPA vacuum (shop vac) and, under special circumstances, on-site visits to help set up or monitor a renovation.

The HRSP Program operates as follows:

* Residents and landowners who are interested in accessing the HRSP program do so through the Community Program Office. The Home & Garden Program receptionist conducts an informal screening to determine the client’s eligibility for the program. HRSP support is available to all homeowners, tenants and landlords in the Trail and Rivervale area. HRSP also includes homeowners, tenants and landlords in the Greater Trail area who are renovating pre-1976 homes. See Map HG-XX.

* For eligible clients, the following steps are taken to determine and arrange the safety supplies and materials required for the project:

1. Completion of Project Scope Survey (Appendix HG-XX)
2. Completion of HRSP request form (Appendix HG-XX); Appendix HG-XX is an itemized product list of the HRSP safety supplies.
3. HRSP request is faxed to a nearby equipment supplier
4. Client picks up filled order from supplier

* Client information is cross-referenced with THE database at the time the HRSP request is made. This supports seamless provision of THEP services to residents by identifying other THEP programs that may relate to that property or family, ie. children who have not been in contact with the Family Health Program; updating property owner information; obtaining yard soil assessment consent, etc.
* To support thorough clean-up, clients are able to loan one of THEP’s four HEPA vacuums, including all necessary attachments and disposable bags. Note: The US Environmental Protection Agency defines a HEPA vacuum as:  *"HEPA vacuum means a vacuum cleaner which has been designed with a high-efficiency particulate air (HEPA) filter as the last filtration stage. A HEPA filter is a filter that is capable of capturing particles of 0.3 microns with 99.97% efficiency. The vacuum cleaner must be designed so that all the air drawn into the machine is expelled through the HEPA filter with none of the air leaking past it.*"
* Each HRSP request is considered an educational opportunity to engage the client about potential lead-related health risks associated with home renovations and construction. It is also an opportunity to demonstrate how to set up a work area to best protect people and their home from dust during renovations. Home & Garden Program staff are available to provide this support either in the CPO or in the client’s home. Educational materials and information for lead-safe home renovation and construction are provided free of charge to the client.

Additional Home Renovation Support Program Services include:

* *Lead-based Paint Testing:* Lead-based paint testing is limited to the Healthy Homes Program and, in exceptional situations, where there may be a significant risk of exposure for child/children outside of their primary residence (e.g. daycare, play school). Lead-based paint testing is described in detail in Section XX.
* *BC One Call:* BC One Call is a province-wide non-profit organization that provides the excavating community, including contractors and homeowners, with a means to request information on the location of underground services prior to digging or ground disturbance on a worksite. City of Trail is a member of BC One Call. When a BC One Call request is made the City it provides a dimensional site plan to the requester. Which each request, through collaboration with the City and THEC, the City has attaches a copy of the THEP Home Renovation Support brochure (Appendix HG-XX). When a homeowner contacts us via BC One Call process the H&G Team follow the procedures and protocol outlined in Appendix HG-XX.
* *Informing the construction sector about lead exposure prevention guidelines*: Contractors and construction professionals are expected to provide the necessary training and safety equipment to staff as per the WorkSafe BC lead-safe construction guidelines (WorkSafe BC, 2006). THEP partners with the Regional District of Kootenay Boundary (RDKB) to provide a HRSP brochure with each building permit issued for properties in Trail and Rivervale. The RDKB provides building inspection services to the City of Trail under contract. THEP is considering how best to expand the partnership with the RDKB to engage building inspectors in promoting the HRSP guidelines.
* *Engaging the construction sector in lead exposure prevention:* THEP is currently reaching out to residential construction contractors, and particularly roofers, to get their input into the development of a contractor training program. The aim of this program would be have all construction projects implemented with minimized dust/soil disturbance and exposure to lead. This initiative is currently at the concept stage, as there are a number of challenges in promoting this idea to contractors and residents conducting renovations. (Possible footnote: The concept of a contractor training program comes from the US EPA. It has an extensive program under the Lead Renovation, Repair and Painting Rule (RRP Rule) requiring firms performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities, and kindergartens built before 1978 to be EPA- or state-certified and requiring them to use certified renovators who follow specific work practices to prevent lead contamination. This includes in-house maintenance staff and many types of outside contractors. For renovators to become certified, individual workers must take training from an EPA – accredited training provider.)
* *Providing information on housing-related health and safety risks:* Since the CPO opened in 2010, an increasing number of community members have enquired about radon and asbestos. While these enquires are non-smelter related, the Home & Garden Program provides information, as appropriate, recognizing the opportunity to provide service to the community and build THEP’s reputation as a reliable source of credible information on home health and safety. THEP distributes the Hazardcheck booklet, product of a public education campaign of the Government of Canada that promotes awareness about environmental health risks in the home. The information is geared toward families and can be accessed online or in the booklet. A copy of the Hazardcheck booklet is attached as Appendix HG-XX.

#### Coordinating the distribution of radon test kits: As described in the CPO section, the Home & Garden program coordinates the distribution of radon test kits in Trail in partnership with the Donna Schmidt Lung Cancer Memorial Fund (DSLCMF). The kits are free with a suggested $15 donation going to the DSLCMF. Sign-up forms are attached in Appendix HG-XX. Additional information is provided to clients, as needed.

#### Responding to enquiries regarding asbestos: Many of the non-smelter-related enquires received at the CPO are about asbestos, including requests for asbestos sampling. We provide WorkSafe BC handouts and refer people to the WorkSafe BC Asbestos interactive website: <http://www.hiddenkiller.ca>. Examples of these handouts are attached in Appendix HG-XX.

The Home Renovation Support Program provides two levels of service for geographic areas within Greater Trail. The entire Greater Trail region is eligible for advice, information, contractor training, and HRSP supplies & use of vacuums for home owners/tenants of pre-1976 homes. Trail and Rivervale is the area in which all home owners/tenants conducting renovations qualify for supplies and use of THEP’s HEPA vacuums. See map HGxx.

Supporting educational materials and handouts include:

* THEP Home Renovation Support brochure (Appendix HG-XX)
* Lead in Your Home (CMHC, 2004)
* Renovate Right (Appendix HG-XX)
* Hazardcheck (Appendix HG-XX)

### 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

Continuous quality improvement in THEP information and communications

Information provided by through the CPO is regularly vetted by the Program Team for the most current best practice guidelines, techniques, and practices to help people plan and make good healthy choices when undertaking a project. (We may need to consolidate this somewhere in the plan.)

### Summary and Conclusions

### References

Soil Assessment and Remediation

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.

Healthy Homes

CDC. 2013. Home visiting, Care Coordination, and Referrals Track. CDC National Healthy Homes and Lead Poisoning Prevention Training Center. Chicago, IL. March19-21, 2013.

Intrinsik. 2013. Lit review…or appendix?

EPA.1999. Lead in Your Home: A Parent’s Reference Guide. Available online at <http://www2.epa.gov/lead/lead-your-home-parents-reference-guide> .

HUD. 2012. The Healthy Homes Program Guidance Manual. U.S. Department of Housing and Urban Development, Office of Healthy Homes and Lead Hazard Control. Available online at: <http://www.healthyhousingsolutions.com/Portals/0/HUD_Guidance_Manual_July_2012.pdf> .

Healthy Housing Institute

[http://www.healthyhouseinstitute.com/a-853-How-to-Choose-a-HEPA-Vacuum-Cleaner#sthash.QzCHWeTf. http://www.allergybuyersclub.com/hepa-vacuum-cleaners.htmldpuf](http://www.healthyhouseinstitute.com/a-853-How-to-Choose-a-HEPA-Vacuum-Cleaner" \l "sthash.QzCHWeTf. http://www.allergybuyersclub.com/hepa-vacuum-cleaners.htmldpuf)

Home Renovation Support

CMHC. 1984. Lead in Your Home. Prepared by Canada Mortgage and Housing Corporation and Health Canada. (Attached in Appendix HG-XX)

Health Canada. 2012. Radon: It’s Your Health. <http://hc-sc.gc.ca/hl-vs/iyh-vsv/environ/radon-eng.php> (June, 2012)

Hilts, S., White, E., and Yates, C. 2001. Evaluation, Identification, and Selection of Remedial Options. Trail Lead Program. Trail, B.C.

HUD. 2011. Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work. U.S. Department of Housing and Urban Development Office of Healthy Homes and Lead Hazard Control. HUD-1779-LHC

WCB. 2006. Lead: preventing exposure at work. Workers’ Compensation Board of British Columbia. BK 17 (Available online at: <http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/lead.pdf> ).

WCB. 2012. Safe Work Practices for Handling Asbestos. Workers Compensation Board of British Columbia. (Available online at: <http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/asbestos.pdf> )

THEC. 2010. THEP Community Consultation….

### Contacts

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

|  |  |  |  |
| --- | --- | --- | --- |
| **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)