

Trail Area Health & Environment Committee



MINUTES

*Tuesday, July 7, 2015
City of Trail – Committee Room #2
7:00 pm*

Committee Members in Attendance:

Mike Martin, Chair, City of Trail
Diane Langman, Councillor, Village of Warfield
Gord DeRosa, Community Member
Jeannine Stefani, Interior Health

Lisa Pasin, Alternate Chair, City of Trail
Mark Tinholt, Teck Trail Operations
Craig Adams, Community Member

Others in Attendance:

Bruce Enns, SNC-Lavalin Inc.
Cindy Hall, SNC-Lavalin Inc.
Ruth Beck, Program Manager
Dave DeRosa, Teck Trail Operations
Angelique Rosenthal, Teck Trail Operations

Ruth Hull, Instrinsic
Clare North, Teck Trail Operations
Liz Anderson, SNC-Lavalin Inc.
Chris D’Odorico, Teck Trail Operations

The meeting opened with a round of introductions.

Gord DeRosa commented that Trail resident participation on the THEC appears to be dwindling; we need to push to encourage local participation. It was noted that the June/July meeting of the THEC is traditionally the poorest attended meeting of the year due to summer holidays. Ruth pointed out that the Committee has 7 community members, 5 of whom live in Trail and the other 2 in Warfield and Rossland.

Ruth introduced the completed abridged version of the Program Document. She highlighted the dedication to Graham Kenyon, and credited Ruth Hull for putting the Abridgement together based on Graham’s first draft. Gord pointed out that he had raised an issue of historical errors. Ruth noted that she followed up with Steve Hilts and Ruth Hull in order to double-check the dates. Gord noted that there is inadequate recognition of the role played by Mayor Marcolin. Ruth acknowledged that Gord is still concerned about the historic record: she will follow up, including reviewing the documents that Gord gave the THEP Program Office and updating the THEC at the next meeting.

ACTION: Ruth to follow up and report back at the next THEC meeting, September 8.

Ruth presented the Spring 2015 Newsletter and highlighted the photos of local families. In the past, there had been concern about the lack of readership; we now direct mail the newsletter to HFHH families as well as sending to the community via Canada Post unaddressed mail. This newsletter has generated more contact with the Program Office than before and has had positive feedback on the whole.

Ruth also highlighted the Summer Message cards we hand out to families with young children. Cindy added that recently, at a home visit, the cards aided communication with a family where there was a language barrier.

MEETING MINUTES: Dated April 14, 2015

Motion to approve the minutes from April 14th, 2015. Craig motioned to accept; Mark seconded. None against; approved.

PRESENTATIONS, REPORTS, DISCUSSIONS & RECOMMENDATIONS:

Program Updates and Business Arising:

Family Health:

Jeannine presented the IH Family Health update. She highlighted her completed home visits and the upcoming fall blood lead clinics. In particular, there is a new poster for the clinics and 230 kids on the list to be invited. Regarding the renewed effort to find expectant parents, Jeannine recently presented to the Regional Perinatal Committee which comprises health practitioners from Castlegar, Trail, Nelson and Grand Forks. Feedback was that they really liked the Program map as it helped them understand what services are available in Greater Trail. The next step is that Jeannine and Cindy will present to the local perinatal committee to expand outreach to expectant families and connect as early as possible to educate about home renovation and Healthy Families Healthy Homes.

Air Quality:

Mark presented the Teck update on Air Quality. Despite particularly hot and dry weather, the ambient lead particulate is trending downward. Mark commended the work Bill Jankola is doing on site and is optimistic about the success of the Fugitive Dust Reduction Program (FDRP). Mike commented that the numbers are very encouraging. Mark added that on June 29, there was a big wind storm and a lot of dust came off the site, and not necessarily in the typical direction. Teck is currently looking into data on the loading that resulted from the wind storm; Mark will share with the Committee when he has the update. Mark provided a brief update on the progress of the FDRP: the smelter recycle building is under construction now. Continuing with the air quality update, so far, ambient arsenic is just below our 2018 target, Teck is looking to continue the trend throughout the year. Mike offered congratulations for these results, "well done, it's been a lot of work to get there".

Air Quality Technical Working Group update: Mark shared that Ron Joseph is absent and he will bring the update to the next meeting. In short, the Working Group discussed the issue of leaf blowers and air quality. Mark developed a draft document on leaf blower best practices that has gone to City of Trail staff. Mike added that feedback from City employees is that there are no concerns or issues with Mark's draft. It looks like implementation will require some education, but will likely move forward. The bottom line of the best practices: "if you're making dust, stop!" Jeannine mentioned it's been shared with IH as well.

ACTION: based on the best practices document that Mark compiled, Ruth will create an FAQ for the thep.ca website and share it with the Committee.

Update on recent EPA residential soil sampling in Washington. Committee members may have heard about a newspaper article in Spokane and subsequent letter to the editor that Teck wrote; it relates to part of a recent study that included sampling local residential properties for metals just south of the border from Trail. Mark shared the regional soil concentration map and asked if there were any questions from the committee. Mike added that THEC has four key spokespersons available to address questions from the public or media on this issue:

- Karl Hardt, Interior Health Communications (250) 354-3030
- Mayor Mike Martin, Trail, Chair of the THEC (250) 521-2114
- Media Relations, BC Ministry of Environment (250) 953-3834
- Richard Deane, Manager of Environment, Health & Safety, and Public Affairs, Teck Trail Operations (250) 364-4118

The three key messages are:

1. THEC has a comprehensive integrated program developed over the last 25 years that prevents and reduces health risks and protects the health of the Trail area community related to smelter metals through a combination of reducing smelter emissions, public education, and dealing with elevated metals in soil.
2. The integrated program includes residential soil remediation based on Canadian government standards and ground cover improvement for all properties where young children live or spend significant time. When exposed soil is covered, the risks are negligible.
3. The main health risks are to young children. Since 1989, the average blood lead levels for young children in Trail has dropped from 13.5 µg/dL to about 4.5 µg/dL. At the blood lead levels we see today, the effects in individual children would be subtle and not measurable.

Discussion continued. Gord mentioned that he attended a public meeting in Northport, Washington and heard that residents are worried about recontamination, but many residents had refused retesting. After a recent meeting in which they were informed that this may affect their land value, residents are now willing

to have their land sampled. Craig asked if there has been an investigation into recontamination in Trail. Mark replied that there is, and we're not seeing recontamination rates that would cause properties to exceed remediation trigger values.

Home & Garden:

Cindy presented the Home & Garden Program update. She highlighted that the Lead Safe Home Renovation Program has sent out requests for Expressions Of Interest (EOI) to over 30 local videographers, the closing date for receiving completed EOIs is July 9. It is hoped that by mid August we will have contracted a videographer to create a series of lead safe how-to videos. Cindy also highlighted ongoing community engagement and the positive response from families. We are noticing a level of increase in familiarity and interest in the program. The Home & Garden team will provide a more thorough update in September.

Cindy also mentioned the Motivational Interviewing training that Cindy, Andrea, Catherine, Liz, Jeannine, Ruth, Mark and about 14 other professionals attended in May. It was very well received by all. Ruth added that Motivational Interviewing is an evidence-based best practice that was highlighted in the literature review the THEC commissioned from the Human Early Learning Program at UBC. The Program Team intends to continue reviewing and practicing the skills we learned during the training and Ruth will keep the Committee updated.

Cindy talked about yard conditioning – a new strategy implemented this year to help families keep their yard green where we enhance existing ground cover rather than replace it. The Home & Garden team will evaluate the yard conditioning program again next spring as to the effectiveness of the activities.

Program Planning & Operations:

Executive Committee update.

Mark spoke about the WARP (Wide Area Remediation Plan). He received written review comments from the Ministry of Environment (MoE) about 6 weeks ago. The MoE will only approve the aspects of the program that fall under the Contaminated Sites Regulation (CSR), although we can point to the whole Program as our rationale for what the soil program is undertaking. The metric we use for success is children's blood lead levels, and as such, there is a section in the regulations that allow the MHO to authorize that. Mark will be working on a separate document to respond to the specific needs of the MoE. Mark noted that the WARP won't necessitate changes to the operation of the Program as it stands. The WARP will require public consultation and it's possible it may be able to happen in concert with the THEC's public consultation on new blood lead level objectives. Craig asked if we are able to avoid the wide area contaminated site designation. Mark replied that this is something we have to address as we get closer to that point. We need a WARP that the MoE will approve and so far they remain unwilling to revise their policy. We will need to address those issues again with the stakeholders. Mike spoke about timing; noting that we expect to submit a draft of the WARP to the MoE by year end, then wait for comments. Mark added a note regarding participants in the WARP discussions. The Land Remediation Section of the MoE wants to talk to Teck only; IH is involved through the MHO, and Teck acknowledges the community as the driver of the THEP.

Mike spoke about engaging the Committee in discussions about the Program in advance of the public consultation next year. We need to make sure there is a good opportunity for input and exchange of ideas and that the THEC is involved, supportive, and engaged. Ruth will schedule a workshop for the THEC to reflect on the Program and its functions to take place in the New Year (January/February). Specifically of importance are the proposed blood objectives for next 5 years and thoughts on what needs to happen to get us there. Mike encouraged the Committee to provide any feedback or questions.

Ruth continued the topic of the next Public Consultation. It is time to re-engage the THEC in planning for a successful consultation. The Committee will strike a Consultation Working Group in the Fall that will develop terms of reference for, and eventually work with, a consultation consultant. The Working Group will make sure the consultation proceeds as planned, keeping the needs of the Committee and community in mind. We will want strong representation from the THEC to ensure THEC leadership and direction for the consultation. Ruth presented a draft timeline for public consultation, proposing September/October of 2016 to hold the public consultation.

MOTION: That the THEC prepare to hold a public consultation regarding the new blood lead objectives and related programs in September and October of 2016. Craig moved, Lisa seconded. None opposed; carried.

Ruth provided highlights of the manager report (attached).

Community Check-In:

Mike asked for feedback from the community members. Gord brought up that he was recently at a gathering in Nelson where he witnessed the continued misconception of how dirty Trail Operations are and the belief that the Columbia River is contaminated. He spoke up to correct the erroneous beliefs, but wants to share that the message is getting out in Trail about our efforts, but not outside the community. Gord would like to see communication and outreach happen outside the community (especially in Northport) and highlighted water quality sampling recently done that rated the water in the Columbia River as “exceedingly clean”. Mark will bring the issue forward to Catherine Adair (Community Engagement Coordinator at Teck). It was also suggested that Committee members can invite people from outside the community to attend our meetings.

Gord also mentioned that he recently watched a young family complete a yard improvement on shrubs that have extremely thick foliage. He noticed that a lot of dust was generated and identified it as a potential source. The Home & Garden team and Ruth will look into this as an issue for communications.

Ruth asked if anyone would like to suggest a topic for the Fall 2015 newsletter (such as, “If you see dust, Stop!” and best practices around dust generating). Lisa spoke about the Greater Trail Home of Champions Award. The award committee conditionally accepted the nomination of Graham Kenyon for the Builder in the Community Award and are looking for back-up information from Tina Kenyon. Lisa will update as soon as she knows anything further. This will be the 20th anniversary of Home of Champions, and as such, it’s going to be a nice event to have Graham honoured along with 7 other inductees.

Presentations:

Evaluation of Program Boundaries – deferred until next meeting.

Lower Columbia Ecosystem Management Program – Ruth Hull presented.

Aquatic Receiving Environment Management Program (AREMP) – Dave DeRosa presented. AREMP information is also available on the Teck website.

Mark will address the topic of why there is a mercury advisory below the border and not above the border at a subsequent meeting (when Gord is present).

Groundwater Update – Clare North presented. May 2016 is projected for completion and operation of the ground water treatment plant. Mike offered kudos to Teck for facing the issues and working to remediate them.

NEXT MEETING: Tuesday, September 8, 2015

Meeting adjourned at 9:06pm

Liz to send out reminder note earlier than usual to encourage attendance at the next THEC meeting.

Trail Area Health and Environment Committee

Interior Health Family Health Report

July 7, 2015

1. Healthy Family Visits
2. Fall Blood Lead Clinic prep
3. Continuing Education
4. Community Education

Details:

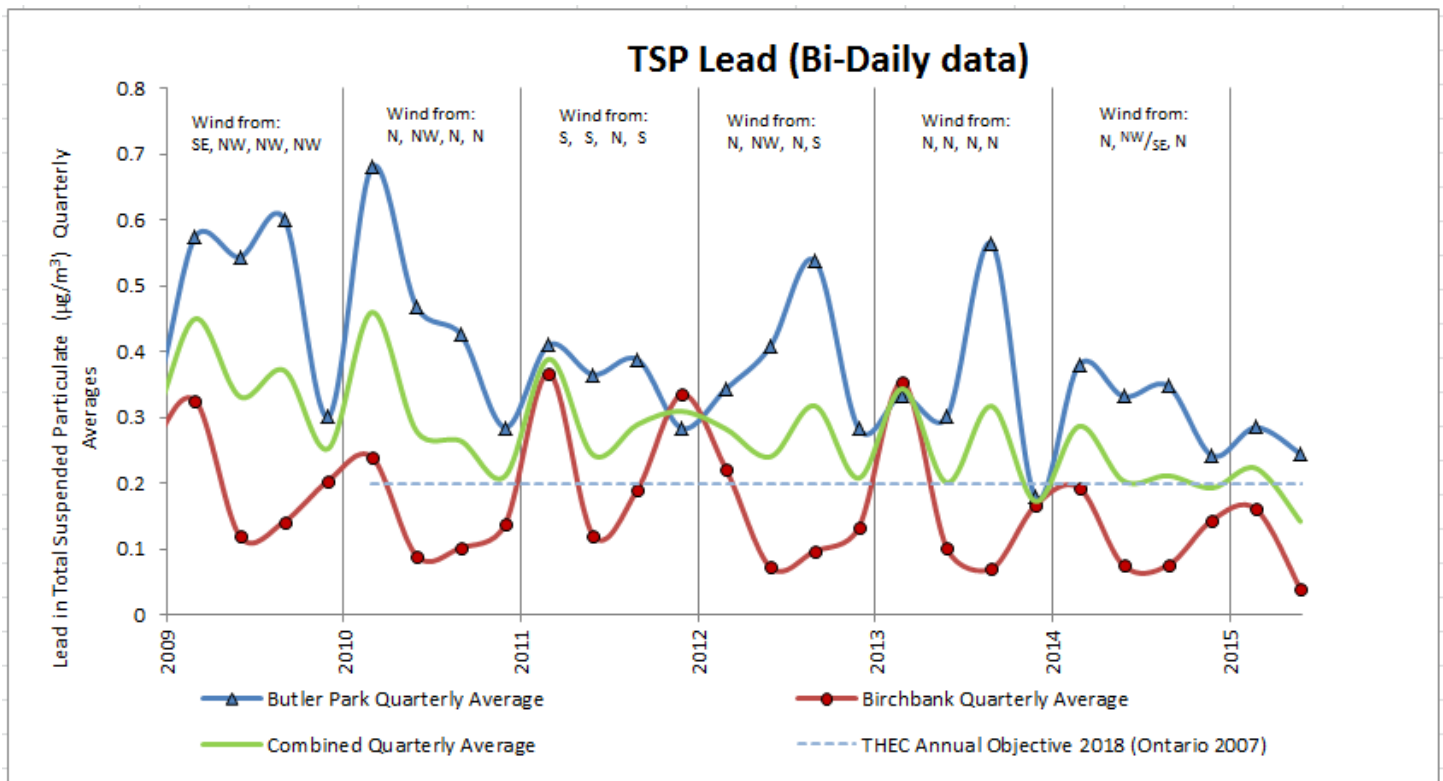
1. Health Family Visits
 - 30 done between April 15th and July 7th. 2 more scheduled on July 8th.
 - 52 done in 2015 up to July 7th.
2. Fall Blood Lead Clinic prep
 - Dates set:
 - o Monday September 14th from 9:00-4:00
 - o Wednesday September 16th from 9:00-4:00
 - o Monday September 21st from 9:00-4:00
 - o Tuesday September 22nd from 11:00-6:00
 - o Monday September 28th from 9:00-4:00
 - o Wednesday September 30th from 11:00-6:00
 - Presently have about 230 children on my invite list, using data from the Public Health information system and MSP.
 - Invitations to be sent out by the end of August 2015
3. Continuing Education
 - attended Motivational Interviewing Training May 13th and 14th, 2015
4. Community Education
 - Attend local Pregnancy Outreach Program (Building Beautiful Babies) once a month
 - Attended Prenatal Class on May 21st, 2015 with Home and Garden Program
 - Presented to Regional Perinatal Committee June 15, 2015
 - Attended Teddy Bear Picnic at Gyro Park on June 26, 2015 with Home and Garden Program
 - Helping to organize the next Family Action Network Ages and Stages Day Wednesday September 30th at Kiro Wellness Centre.

Trail Health & Environment Committee – Teck Report July 7, 2015

Air Quality Program

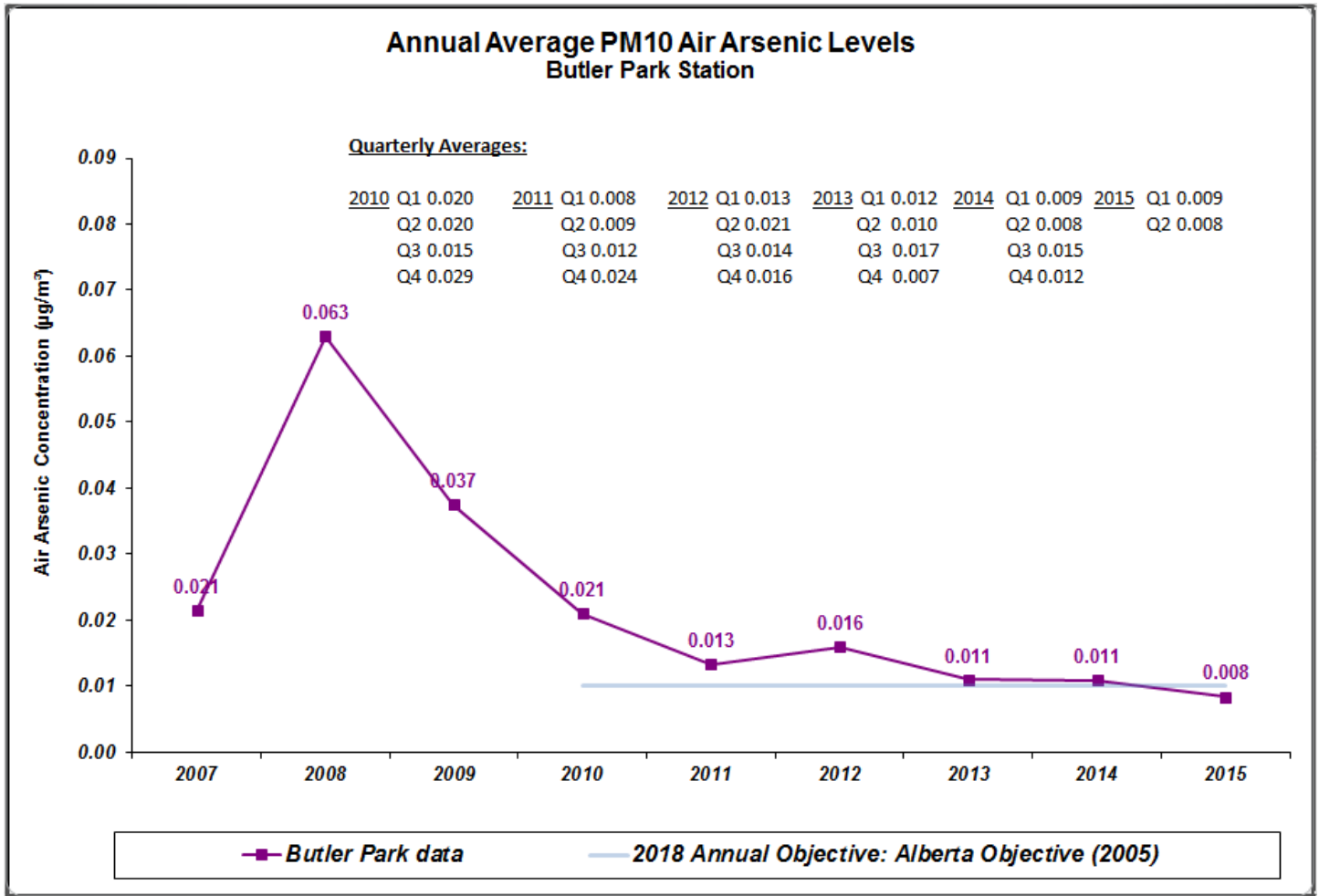
Lead – Total Suspended Particulate:

- The graph shows ambient (community) levels for the Butler Park and Birchbank monitoring stations based on quarterly averages of Bi-Daily data (rather than NAPS -6 day- data), as well as predominant wind direction (quarterly, as measured at Maintenance Services Building). More detailed data (e.g. box-plots) are reviewed at the Air Quality Technical Working Group meetings.
- The most recent quarterly average for Butler Park was $0.27 \mu\text{g}/\text{m}^3$. Quarterly averages for Lead in ambient air are expected to have some variability due to season, weather, predominant wind and operational variance. Overall, an improving trend is becoming apparent.
- Real-time XACT monitors at Butler Park and Duncan Flats (located north of Metallurgical Operations) are operational.
- Measured stack emissions have continued to be less than 0.5 tonnes/year. The discrepancy in trends between stack emissions and measured TSP in air is believed to be sourced from fugitive dust.
- Trail Operation's releases of lead to air are amongst lowest in smelting industry.



Arsenic- PM10:

- Arsenic in ambient (community) air had returned to pre-2004 levels in 2011. Improvements appear to be the results of actions taken at the Continuous Drossing Furnace and Refinery Scrubber Stack.
- The 2015 average to date is 0.008 $\mu\text{g}/\text{m}^3$, just below the 2018 objective of 0.010 $\mu\text{g}/\text{m}^3$.
- Trail Operation's releases of arsenic to air are amongst lowest in smelting industry.



Trail Area Health & Environment Committee
Home & Garden Program Update
July 7, 2015

1. Home & Garden Program Highlights
 - a. Lead-Safe Home Renovation Program:
 - i. On June 23, 2015, a Request for Expression of Interest for filmmakers interested in producing the Lead-Safe Home Renovation video series was sent out to local media, online job boards, Selkirk College and Community Futures. It was sent out to over 30 filmmakers. Deadline for interested potential applicants is July 9, 2015.
 - ii. Interviewing applicants late July
 - b. Community Outreach Success: a noticeable increase in the level of interest and familiarity in THEP throughout the community
 - i. Outreach Events - H&G Days, Teddy Bear Picnic, and Trail Market
 - ii. Newsletter – anecdotal feedback from the community has been positive
 - iii. Website –program enquiries through website

2. Healthy Homes Program
 - a. Update on in-home visits:
 - i. **43** families have received a visit in 2015
 - ii. **11** families scheduled for a visit in the coming weeks
 - iii. **6** families currently on the Healthy Homes scheduling list

Noticeable increase in the number families who've received HF/HH services yet are reconnecting with H&G staff for further follow-up and/or requesting more program information.
 - b. Supports provided to families:
 - i. **43** Dust-buster kits
 - ii. **39** Garden kits
 - iii. **28** Sandboxes
 - iv. **27** Vacuums (*13 vacuums currently on order*)
 - v. **1** vacuum rebate given for installation of new central vacuum

3. Soil Programs – *a presentation is scheduled for the next THEC meeting in September and attached is a detailed summary including year-over-year comparisons. Since the soil program started up in the spring it's been met with some challenges including an issue with a key piece of technical equipment and a long stretch of hot, dry weather.*
 - a. Soil Assessment
 - i. Yard and/or garden soil assessment completed at **30** properties. (15 awaiting screening)
 - ii. **26** (11 yard, 14 yard and garden, 1 garden only) assessments were part of the Healthy Homes Program (HH), in addition:
 - 12 soil assessments are awaiting screening
 - 14 requests for assessment in the queue
 - iii. **4** (1 yard and garden, 3 garden only) assessments have been completed through the Community Program (CP), in addition:
 - 1 yard and garden assessment awaiting screening
 - 2 garden only awaiting screening
 - 60 CP assessment requests from 2014/2015 in the queue

iv. Results for 30 properties shown below, with 15 results pending. To date, no yards are >4,000 ppm lead and no gardens >1,000 ppm lead.

Figure 1: Residential Yard Soil Assessment by Year

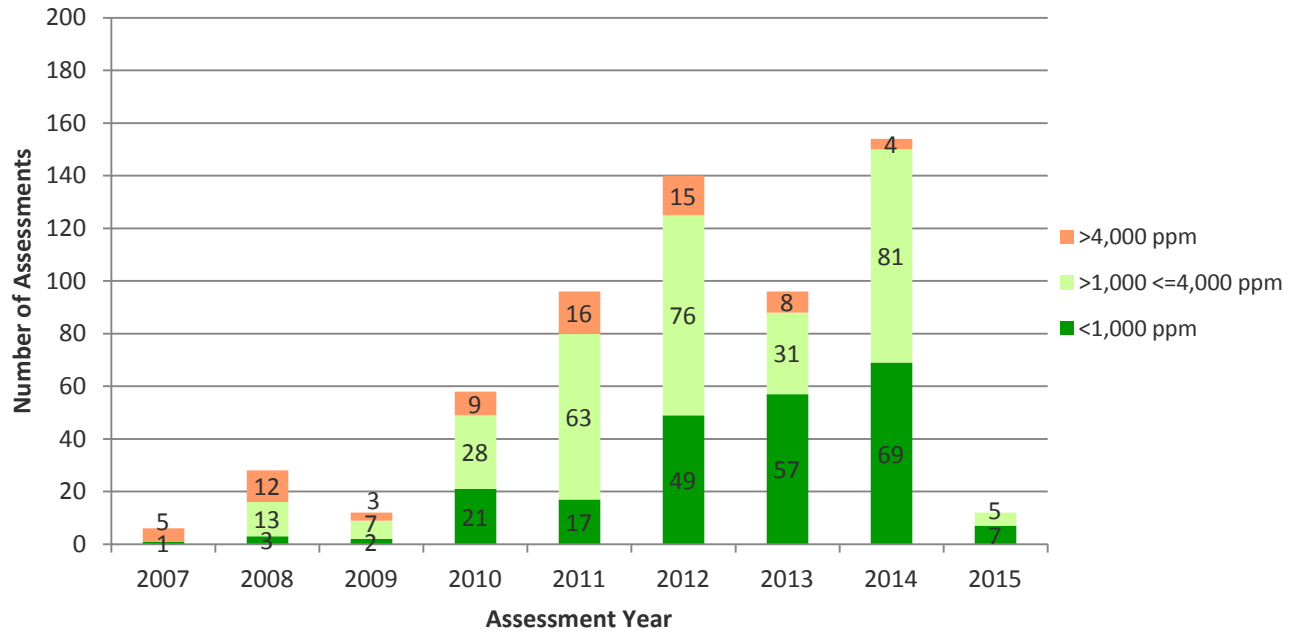
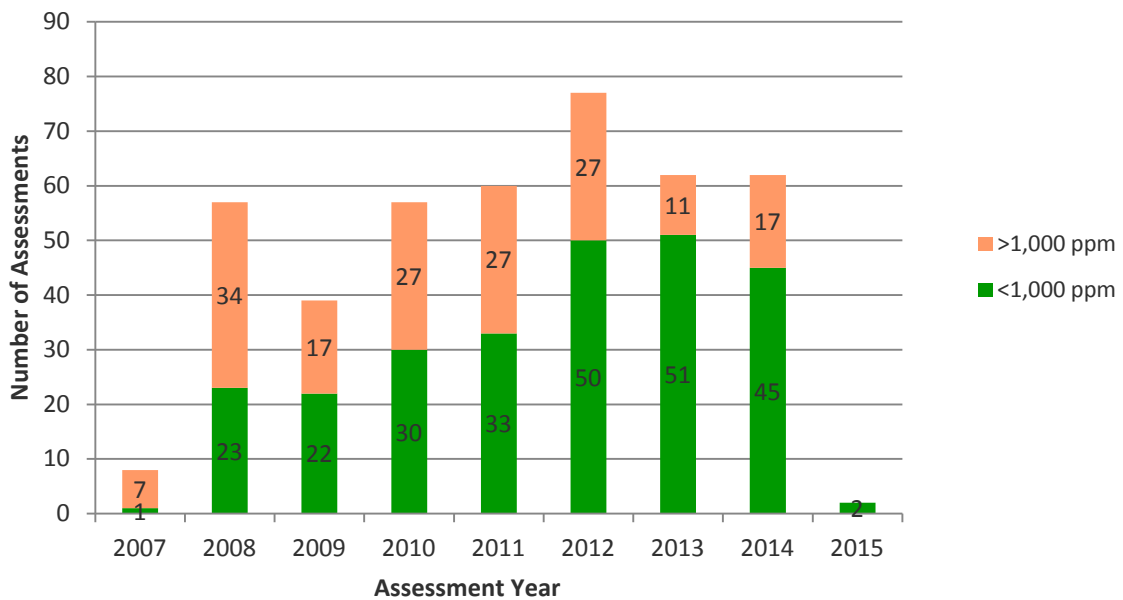


Figure 2: Garden Soil Assessments by Year



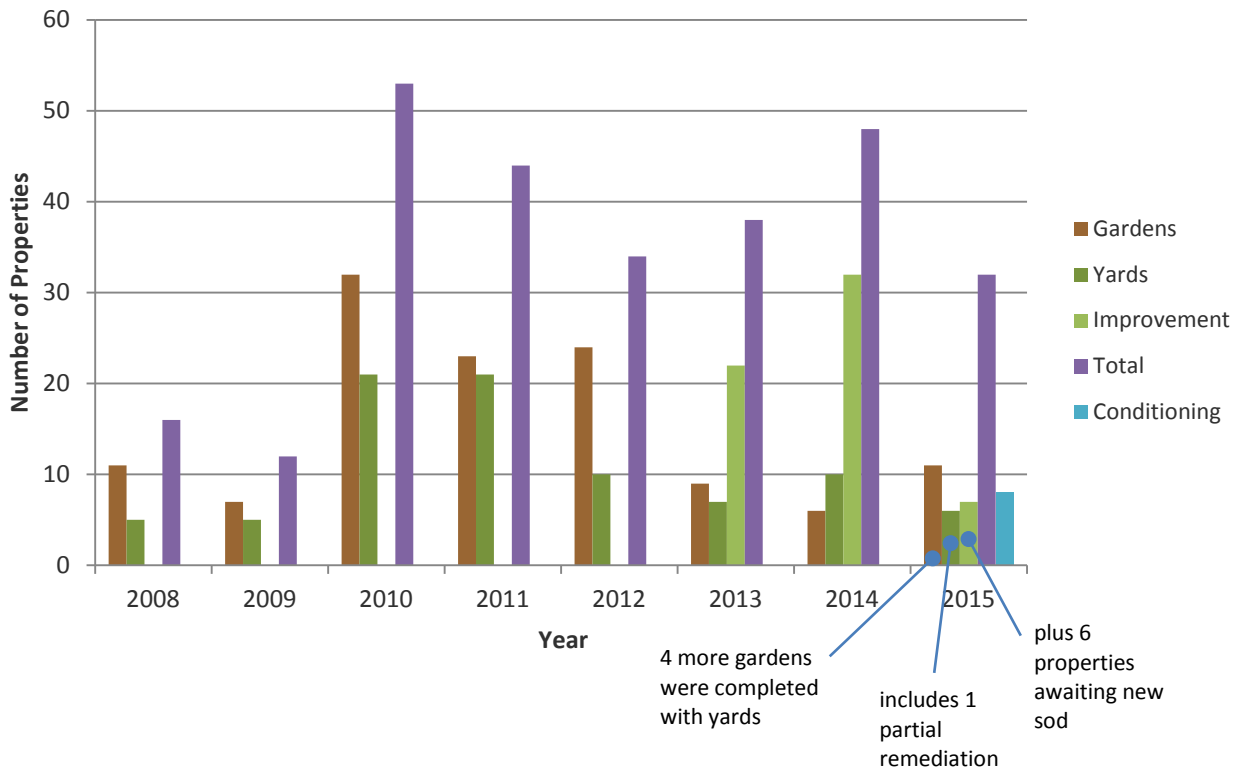
b. Remediation and Yard Improvement Work

i. Work started on April 23rd, 2015

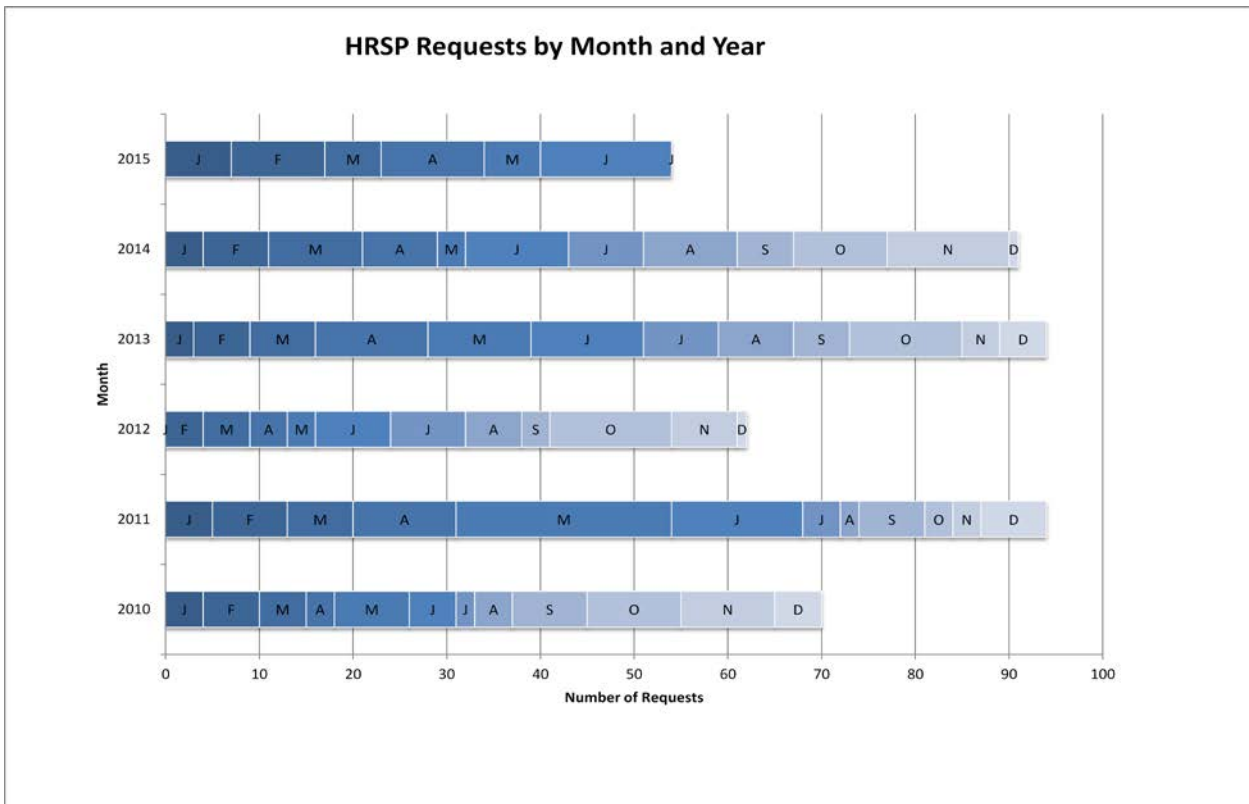
- Yard improvement for Healthy Homes Families:
 - a. 7 properties have had yard improvement work completed, 6 are just waiting for sod due to heat wave.
 - b. 16 yard evaluations in the queue (to determine if improvement or conditioning is recommended)
- Yard Remediation (offered to properties with soil >4,000 ppm lead)

- a. 6 properties have had remediation work completed, 4 were Healthy Homes properties
- b. 4 properties scheduled for completion by the end of August
- c. 2 properties will be offered remediation
- Garden Remediation (offered when soil is >1,000 ppm lead)
 - a. 15 garden remediations have been completed
 - b. 1 garden scheduled for completion this fall
- c. Yard Conditioning for Healthy Home Properties
 - i. Work completed between April 13th and May 15th, 2015
 - 8 properties have received initial yard conditioning work with follow up planned for September

Figure 3: Summary of Remediation and Improvement Work by Year



4. Home Renovation Support, Radon kits and Lead Safe Home Renovation
 - a. Total HRSP requests in 2015 up to June 30: 54 requests
 - b. Radon kits – 5 kits given out in May and June
 - c. LSHR Update: Request for Expressions of Interest was announced on June 23rd. We have sent the request to 34 filmmakers – it is expected that by the end of August we will have contracted a filmmaker to create Lead Safe Home Reno ‘How To’ videos.



5. Community Outreach, Engagement and Training

a. Community Program Office Public Contact Summary

- i. May: Total: 74 (42 walk-ins and 32 phone calls)
- ii. June: Total: 69 (47 walk-ins and 22 phone calls)

b. Engagement Activities

i. Attended:

- May 2 – Mother Unite Garage Sale
- May 30– Home and Garden Days at Home Hardware and Columbia Valley Greenhouse – *almost 300 people entered the draw for a 100\$ GC to Home Hardware. A local Trail resident won!*
- May 26 – Ready Set Learn at Glenmerry Elementary
- May 31 – jointly presented with IH to a local prenatal class
- June 19 – Trail Market
- June 23 – Building Beautiful Babies
- June 25 – Greater Trail Success By 6 Community Table
- June 26 – Teddy Bear’s Picnic
- July 3 – Trail Market

ii. Upcoming 2015 events:

- August 14 & Sept 11 – outreach table at the Trail Market
- August 20 –Trail Library, HFHH presentation to Creative ABC’s group
- Walmart Outreach Table – Dates TBC and will be jointly hosted with FAN to promote Ages & Stages Event, Summer Messaging, BLL clinic, and find expectant families.
- Fall 2015 Blood Lead Clinic

c. Training Opportunities

- i. May 13th & 14th attended Motivational Interviewing Training. We learned how to assess readiness for change as well as methods and strategies for non-violent, positive communication.

**Trail Area Health & Environment Committee
Program Manager Report
July 7, 2015**

HIGHLIGHTS

1. Working more closely with the Community Program Office to maintain a seamless approach to THEP Program Management, including attending meetings of the SNC Trail team (as needed) and tracking follow-up actions.
2. Contracted a website developer, Solona Mead of sunWISE design (Slocan Valley) to help with refinements to www.thep.ca. Simple refinements have been made but more extensive changes have been delayed due to a technical web server related issue that Solona and Mike Hepher (our website designer) are sorting out.
3. Issued a Request for Expressions of Interest for filmmakers regarding videos for the Lead-Safe Home Renovation Program. As of June 29, 34 filmmakers were reached with our REOI. Bruce, Mark, Andrea and I have developed a scoring sheet for the EOIs, as well as draft guidelines for the next phases of the contracting process (Work Scope meetings and Proposals). EOIs are due July 9.
4. Produced the Abridgement of the THEP document, with support from Ruth Hull and all of you who sent comments. Thanks!
5. Produced Spring Newsletter, which is getting great reviews and resulting in expectant families contacting our office. Thanks everyone and particularly to Mike Hepher, our graphic designer.
6. Supported Sonia Tavares to host Motivational Interviewing training May 13/14 in Trail. THEP co-sponsored this with Greater Trail Success by 6. There were 21 registrants. We have started to reflect on the learnings at the Program Team. We hope to demonstrate some techniques with the THEC (e.g. agenda mapping) at a future meeting, perhaps related to priority setting &/or public consultation.
7. Drafted a Powerpoint presentation on the THEP that Jeannine made to the Regional Perinatal Committee on June 15. We are hoping this group may help us connect with more expectant families in our area.
8. Participated in Blood Lead Objectives Setting Working Group meeting, June 17.

TRAIL
A R E A
HEALTH &
ENVIRONMENT
COMMITTEE



April 28, 2015

Jack Anderson, BA
President/CEO
Healthy Housing Solutions Inc.
10320 Little Patuxent Parkway, Suite 500
Columbia, MD, USA 21044

Dear Mr. Anderson:

On behalf of the Trail Area Health & Environment Committee, I would like to thank you for assembling a great faculty and facilitating delivery of a helpful and informative program for the CDC National Healthy Homes and Lead Poisoning Prevention Training Center conference. Two of our program professionals, Bruce Enns and Cindy Hall, were able to attend this excellent training event held this past March in Chicago. Bruce Enns attended the Program Management, Surveillance and Strategic Planning Track, and Cindy Hall participated in the Targeting, Partnership, and Primary Prevention Track.

Cindy and Bruce have both benefited from the opportunity to learn from leading experts in the field of Healthy Homes and Lead Exposure Primary Prevention as well as build relationships with faculty members and attendees. The learning outcomes from this training have helped us solidify the direction we've taken in development of our Healthy Families Healthy Homes Program. Overall, the experience has provided our program professionals with best practice knowledge and resources that will continue to strengthen our program in future.

Again, please accept our gratitude for putting together this excellent educational and relationship building opportunity.

Best regards,

Mike Martin

Mike Martin, Chair
Trail Area Health & Environment Committee

cc: Kimball Credle



Lower Columbia Ecosystem Management Program (LCEMP)

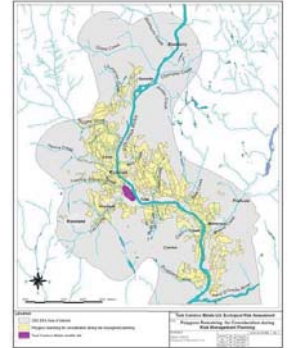
Ruth Hull, LCEMP Program Manager
July 2015 Update



LCEMP Background



- LCEMP is a collaborative approach to assess, rehabilitate, conserve and enhance land-based wildland ecosystems affected by historical smelter emissions.
- A Steering Committee oversees and provides technical assistance and recommendations.



Completed Activities



- Developed and approved the Vision, Mission, and Values of LCEMP
- Updated the habitat map according to new provincial standard mapping methods
 - Habitat condition
 - Develop prescriptions
 - Monitor changes
- Teck Land Management Plans
 - ERA North and South Areas
- LCEMP Fact Sheet on THEP website
 - <http://www.thep.ca/pages/lcemp>



Ongoing Activities



- Evaluation of amphibians in area wetlands
- Soil sampling to confirm modelled metal concentrations, to help determine priorities for next year's plant community field work
- Project Ranking Framework is being developed to help prioritize LCEMP projects
 - based on ecological factors, administrative issues, social/community interest, and feasibility/likelihood of success

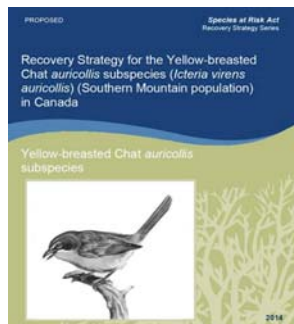


(photos from Ecoscape, 2015)

Projects - Chat Habitat Protection and Restoration

Teck

- Endangered yellow-breasted chat critical habitat on Teck land was fenced to protect from further impacts from livestock trespassing;
- Teck is funding restoration treatments in areas of critical habitat:
 - Planting native shrubs
 - Pruning to improve shrub condition
 - Invasive plant control



THANK YOU!

Teck



Questions?

Aquatic Receiving Environment Monitoring Program (AREMP) 2012-13 Data Collection, Analysis, and Interpretation

Teck

David DeRosa, Superintendent Ecosystem Projects
July 2015 AREMP update



2012-13 AREMP Program

Teck



- AREMP is a requirement under Teck Trail Operation's Provincial Effluent Discharge Permit.
- AREMP is an in-depth review of the aquatic health of the Lower Columbia River.
- Water quality monitoring will be conducted yearly, fish tissue and more in-depth biological monitoring will be conducted every 4 years.

2012-13 AREMP Summary

Teck

- **Water Quality:** respective water quality objectives or guidelines were met throughout the Lower Columbia River:
 - The exception is for cadmium and mercury which is important to note exceed guidelines upstream of Trail Operations
- **Fish Health:** there were continually reduced metal concentrations in fish tissue from 2000 to 2012:
 - The fish are safe to eat and within the published Canadian guidelines for human consumption;
 - Since 2000, declining trends are evident for arsenic, cadmium, and lead concentrations in fillets of Mountain Whitefish, Rainbow Trout, and Walleye.
- **Algal and Invertebrate Communities:** the study detected no aquatic community-level adverse responses that would be attributable to influence of Teck Trail Operations.
- **Wildlife Impacts:** there was no impact on larger wildlife such as the belted kingfisher, great blue heron, mallard, osprey and river otter

2012-13 AREMP Conclusions

Teck

- The study confirmed that water quality is good, the river is healthy, and the fish are safe to eat.
- The AREMP study will provide Teck with baseline data which will be used by future monitoring programs to look for any changes within the environment



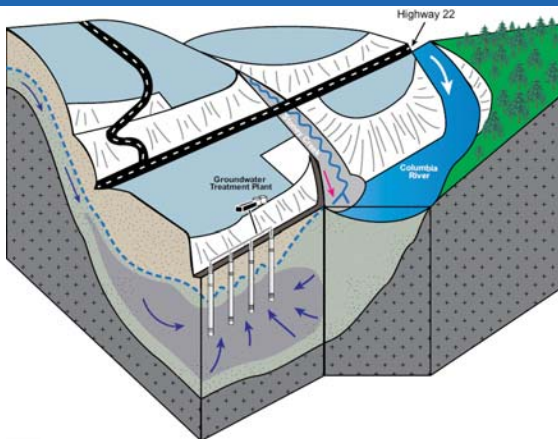
Teck

Questions?

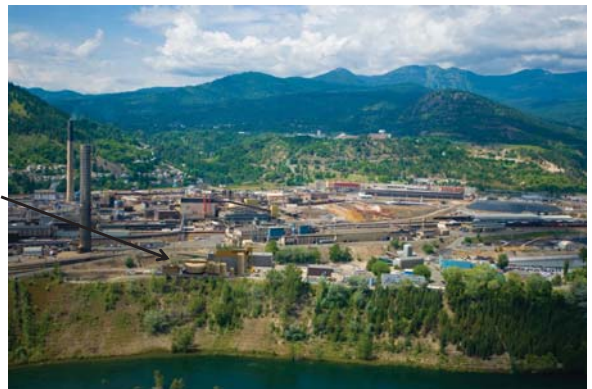


- Elevated ammonia, sulphate and some metals, related to historical operations
- Present under Trail Operations with flow toward Columbia River and East Trail
- Also smaller amount of flow toward Annable (Silver Street area)
- Fish populations not affected, little risk to human health

2



3



4

Groundwater Treatment Plant

Teck



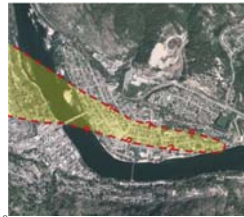
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Groundwater Affected Zone: East Trail

Teck

Ecological risk assessment for East Trail where affected groundwater potentially enters Columbia River:

- No unacceptable risk
- No remedial intervention required
- Follow up monitoring to confirm levels remain similar



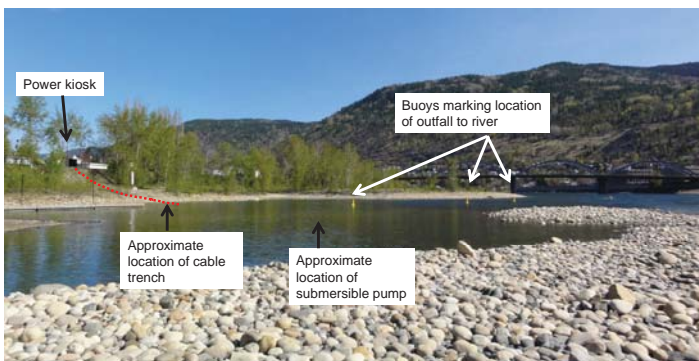
Groundwater monitoring network expansion:

- Three further monitoring wells installed March 2015 (2 wells already installed)

6

Groundwater Affected Zone: Gyro Park Boat Launch Bay Interim Measure

Teck



7

Groundwater Affected Zone: Gyro Park Boat Launch Bay Interim Measure

Teck



8

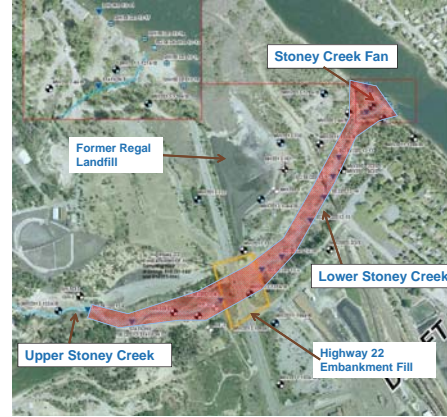
Additional Groundwater Investigation Areas: Teck Overview

- Inspector's Direction from Environment Canada required Teck to expand groundwater investigation up and downstream of operational site
- Three isolated areas with potential for localized groundwater impacts were identified:
 - Lower Stoney Creek
 - Iron Ore Roaster Residue Release Area
 - Columbia River Adjacent to Downtown
- Final Remediation Plan committed to additional studies of these three areas followed by remedial planning, if required



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Additional Groundwater Investigation Areas: Teck Stoney Creek



- Elevated metals in surface water and sediment
- Higher concentrations downstream of highway embankment fill

Additional Groundwater Investigation Areas: Teck Stoney Creek



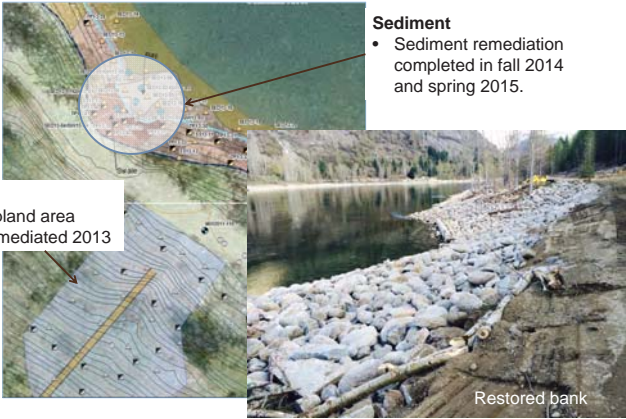
Additional Groundwater Investigation Areas: Teck Stoney Creek



- Plan for 2015:
- Cover affected sediment in order to isolate it from the creek, and provide habitat improvement.
 - Install barriers to prevent further affected sediment from entering the creek

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Additional Groundwater Investigation Areas: Tadanac Bank (IORRA) Teck



Sediment

- Sediment remediation completed in fall 2014 and spring 2015.

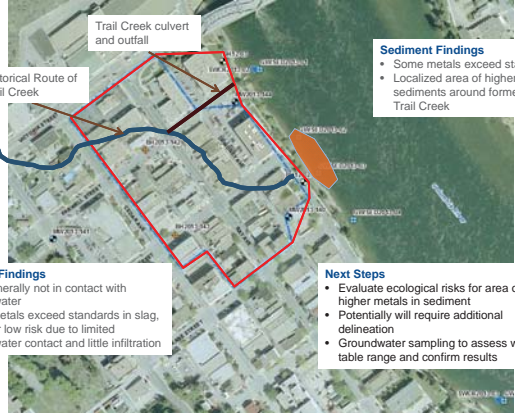
Soil

- Upland area remediated 2013

Restored bank

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Additional Groundwater Investigation Areas: Columbia River Adjacent to Downtown Teck



Trail Creek culvert and outfall

Historical Route of Trail Creek

Sediment Findings

- Some metals exceed standards
- Localized area of higher metals in sediments around former mouth of Trail Creek

Borehole Findings

- Slag generally not in contact with groundwater
- Some metals exceed standards in slag, however low risk due to limited groundwater contact and little infiltration

Next Steps

- Evaluate ecological risks for area of higher metals in sediment
- Potentially will require additional delineation
- Groundwater sampling to assess water table range and confirm results

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Annable Affected Groundwater Zone Teck

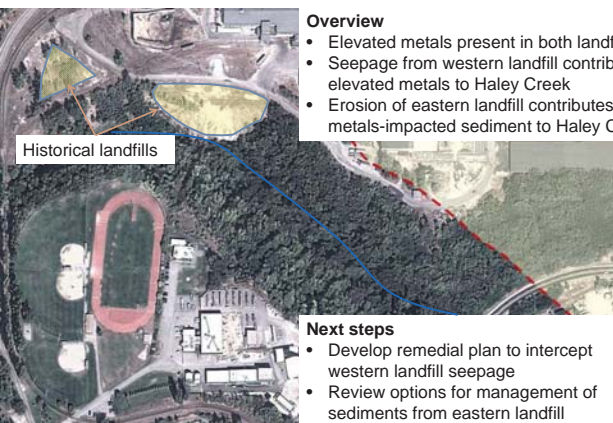
- Elevated ammonia and other fertilizer constituents
- Related to historical discharges, not present operation
- Groundwater not used for drinking
- Indoor air concentrations meet standards
- Groundwater extraction well installed to enable larger scale pumping of groundwater



- Next step
- Develop remediation plan

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Haley Gully Teck



Historical landfills

Overview

- Elevated metals present in both landfills
- Seepage from western landfill contributes elevated metals to Haley Creek
- Erosion of eastern landfill contributes metals-impacted sediment to Haley Creek

Next steps

- Develop remedial plan to intercept western landfill seepage
- Review options for management of sediments from eastern landfill

Thank you

Teck

