

Teck

Elk Valley Water Quality Plan
Phase 2 Consultation Summary Report

May 2014



Prepared by:
Kirk & Co. Consulting Ltd.
and
Mustel Group Market Research

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Appendix 1: Elk Valley Water Quality Plan – Phase 2 Consultation Discussion Guide and Feedback Form

Appendix 2: Open House Question and Answer Session Meeting Notes



Kirk & Co. is a recognized industry leader in designing and implementing comprehensive public and stakeholder consultation and engagement programs. Utilizing best practices, consultation and engagement programs are designed to maximize opportunities for input. Kirk & Co. works with internationally-recognized polling firms to independently analyze and report on large volumes of public and stakeholder input.



MUSTEL GROUP
MARKET RESEARCH

Mustel Group has been a leading marketing and public opinion research firm in western Canada for more than 25 years. Feedback forms received as part of this consultation were independently verified and analyzed by Mustel Group.

The views represented in this report reflect the priorities and concerns of consultation participants. They may not be representative of the views of the public and other stakeholders because participants self-selected into Phase 2 Consultation, and therefore do not reflect a random sample.

1. Introduction

1.1 Elk Valley Water Quality Plan

In April 2013, the Government of B.C. established a process to create an Elk Valley Water Quality Plan, the goal of which is to address concentrations of selenium, cadmium, nitrate and sulphate, as well as to address evidence of calcite formation. The Plan will establish short-, medium- and long-term targets for improving water quality, as well as targets to manage rates of calcite formation.

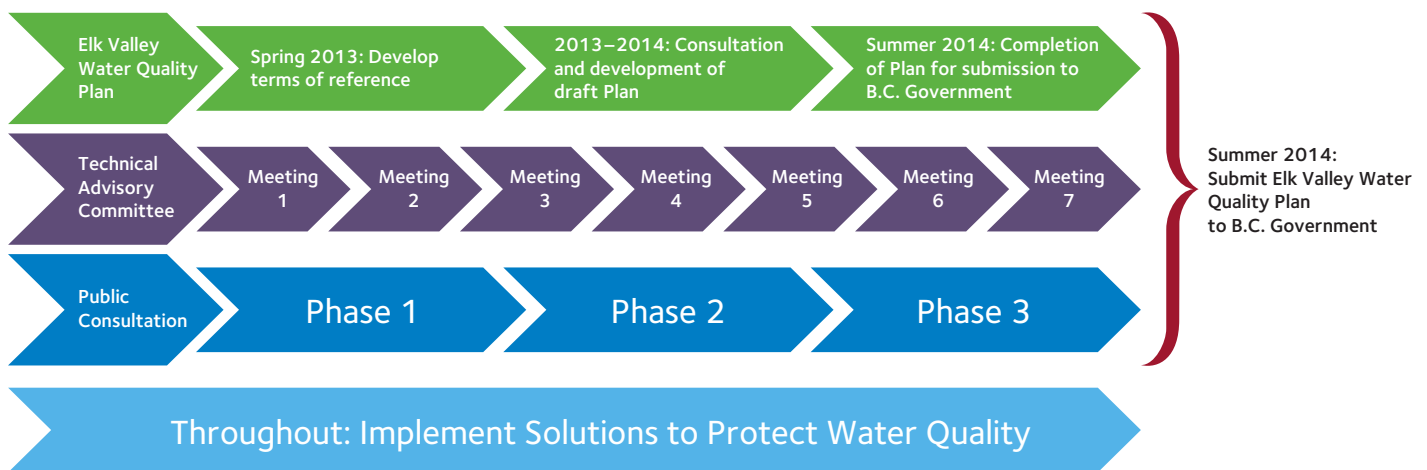
Teck is developing the Elk Valley Water Quality Plan in cooperation with governments in Canada and the U.S., First Nations, and the public. The Plan must be submitted to the B.C. Government in the summer of 2014. Once approved by the provincial government, Teck will implement the Plan.

2. Phase 1 Consultation – October 28-November 29, 2013

The process to develop the Elk Valley Water Quality Plan includes several rounds of public consultation with opportunities for feedback.

Phase 1 Consultation took place from October 28-November 29, 2013. During Phase 1 Consultation, Teck provided information regarding the process to develop the Elk Valley Water Quality Plan and sought input regarding current and potential water treatment and water quality management approaches, as well as Teck’s plans for ongoing mitigation strategies and the supporting socio-economic impact analysis.

The Phase 1 Consultation Summary Report can be found at www.teck.com/ElkValley.



Timeline for the development of the Elk Valley Water Quality Plan.

More information about the development of the Elk Valley Water Quality Plan can be found at www.teck.com/ElkValley.

3. Phase 2 Consultation – April 9-May 5, 2014

Phase 2 Consultation regarding the Elk Valley Water Quality Plan took place from April 9– May 5, 2014. This report summarizes input received through various methods during Phase 2 Consultation. The consultation period was originally scheduled to end on April 30, but to allow more time for stakeholders and the public to return their feedback, it was extended to May 5, 2014.

An additional phase of consultation is planned for 2014, which will provide an opportunity for members of the public to review content from the draft Elk Valley Water Quality Plan prior to its submission to government in summer 2014.

3.1 Purpose – Phase 2 Consultation

During Phase 2 Consultation, Teck provided an update regarding the progress made in developing the Plan, including information about research into ecologically-protective levels. Teck sought input regarding the short-, medium- and long-term approaches to be included in the Elk Valley Water Quality Plan, and how communities and the public would like to be consulted about the Adaptive Management of the Plan after it has been implemented.

The input received during Phase 2 Consultation and summarized in this report will be considered, along with technical and socio-economic information, in the development or refinement of the Elk Valley Water Quality Plan, prior to its submission to the B.C. Ministry of Environment for approval.

3.2 Notification

Notification of opportunities to participate in Phase 2 Consultation was broad and included the following:

- **Invitation and Reminder Emails:** Approximately 440 emails were sent to invite people to or remind people about stakeholder meetings and open houses and the opportunity to participate in consultation online.
- **Reminder Phone Calls:** Calls were made in follow-up to the email invitations, inviting or reminding people about meetings.
- **Newspaper Advertising:** Advertisements were placed in the following publications between March 25 and April 18, 2014, inviting members of the public to attend open houses and to participate in online consultation:
 - Fernie Free Press (4 advertisements)
 - Fernie Fix (1)
 - Elk Valley Herald (4)
 - Crowsnest Pass Herald (4)
 - Kootenay Advertiser (4)
 - Cranbrook Daily Townsman (4)
- **Radio Advertising:** Radio advertisements ran daily from April 6 to May 2 on the following stations:
 - The Drive 102.9 and 99.1 FM
 - B104 Total Country 104.7 FM
- **Household Mailers:**
 - **Newsletter:** A newsletter with information about the development of the Plan, and information on upcoming open houses and online consultation opportunities, was mailed to approximately 8,500 Elk Valley households the week of March 31, 2014.
 - **Postcard:** A postcard inviting recipients to attend open houses or participate in online consultation was mailed to approximately 8,500 Elk Valley households the week of April 7 and again the week of April 14, 2014.
- **Plan Website:** Teck has developed a dedicated website for the Elk Valley Water Quality Plan (www.teck.com/ElkValley). All consultation materials were available on the website.
- **Employee Notification:** Emails were sent on April 21 and 28 to Teck employees at all Elk Valley operations and offices. Notices, consultation postcards and posters were also distributed and posted at all sites inviting employees and family members to participate. These materials were available to more than 4,000 employees in the Elk Valley.

3.3 Participation

There were a total of 129 participant interactions during Phase 2 Consultation.

- **84 people attended three open houses**
- **45 feedback forms were received (42 online, 3 hardcopy)**

Some people participated through multiple methods, such as attending an open house and completing a feedback form.

3.4 Consultation Methods

Phase 2 Consultation materials were available online at www.teck.com/ElkValley beginning on April 9, 2014. Feedback was collected through the following methods:

3.4.1 Discussion Guide and Feedback Form

A Phase 2 Discussion Guide and Feedback Form provided an update regarding the progress made in developing the Elk Valley Water Quality Plan, including information about research into ecologically-protective levels. The discussion guide included a feedback form, which sought feedback from the public and stakeholders regarding two topics:

- Management of Water Quality in the Short-, Medium- and Long-term
- Ongoing Monitoring and Adaptive Management

The Discussion Guide and Feedback Form was distributed at three open houses and was available on the Teck website. An online version of the feedback form was also available.

A copy of the Discussion Guide and Feedback Form can be found in Appendix 1.

3.4.2 Online Consultation

All consultation materials were available on the Plan website (www.teck.com/ElkValley) including an online version of the feedback form which could be submitted directly from the website. Of the 45 feedback forms received, 42 were received online.

3.4.3 Open Houses

84 people attended three open houses held on the following dates:

Open Houses		
Location	Date	Time
Fernie	April 22, 2014	5:00 p.m. – 8:00 p.m.
Elkford	April 23, 2014	5:00 p.m. – 8:00 p.m.
Sparwood	April 24, 2014	5:00 p.m. – 8:00 p.m.

The Discussion Guide and Feedback form was provided to those who attended the open houses. Display boards summarizing the consultation content were set up around the room, and members of the Teck team were available to answer questions in one-on-one or small group settings.

At the Fernie and Elkford open houses, the first hour was a drop-in open house format, with a presentation from Teck and a question and answer session beginning at 6:00 p.m. At the open house in Sparwood, a presentation was not held due to lower attendance and to provide attendees with an opportunity to engage in one-on-one conversation with the Teck team.

Key themes from the open house question and answer sessions are summarized in this report beginning on page 4.

Meeting notes from the open house question and answer sessions can be found in Appendix 2.

4. Key Results

4.1 Key Themes from Open Houses

The following table includes the key themes from the open house question and answer sessions. The meetings are listed in the order in which they were held. As much as possible, the language expressed by participants was retained in the key themes.

Meeting	Key Themes
Fernie Open House April 22, 2014 5:00 – 8:00 p.m.	<ul style="list-style-type: none"> • Some participants sought more information regarding the effects of selenium on fish, particularly what types of effects could be expected and whether selenium bio-accumulates or bio-magnifies (increases exponentially as it moves up the food chain) • Some participants expressed a desire for Teck to provide data showing historic selenium level increases and projections of future selenium levels with treatment • Some participants asked why the draft site-specific benchmarks for the protection of aquatic life are different for bodies of water • Some participants expressed an interest in how the Elk Valley Water Quality Plan would address potential selenium levels in domestic or public drinking water wells • Some participants asked whether the use of waste rock covers should be moved up from a long-term approach to be a short- or medium-term approach • Some participants asked how the Plan would accommodate or consider future industrial development in the Elk Valley • Some participants asked whether the Plan would give consideration to changing mining practices, such as utilizing underground mining or slowing down production
Elkford Open House April 23, 2014 5:00 – 8:00 p.m.	<ul style="list-style-type: none"> • Some participants asked whether and how long water treatment, monitoring and other mitigation efforts would be maintained, should Teck’s or subsequent mining operations be discontinued • Some participants asked for more information regarding the siting of water treatment facilities, noting that should additional areas be mined in the future, currently planned water treatment facilities may not capture water flowing through new waste rock piles • Some participants asked how long it would take for waste rock piles to no longer release selenium • Some participants asked whether Teck had looked at whether certain type of seams contains more selenium, and if so, whether mining those seams could be avoided • Some participants asked about whether Teck had studied the concentration of selenium in birds and mammals • Some participants asked about why the existing B.C., Canadian and U.S. water quality guidelines for selenium are different
Sparwood Open House April 24, 2014 5:00 – 8:00 p.m.	<ul style="list-style-type: none"> • No question and answer session was held due to lower attendance and to provide attendees with an opportunity to engage in one-on-one conversation with the Teck team

4.2 Results from Feedback Forms

This section provides the results from the 45 feedback forms received.

Topic 1: Short-Term Approach

In the short-term, Teck will stabilize water quality conditions by implementing proven measures that will have the most significant impact on water quality. These include:

- Completion of the water quality treatment facility at Line Creek Operations, using proven biological treatment technology (commissioning in 2014)
 - Construction cost: \$105 million
 - Volume treated: 7,500 cubic metres/day
 - Selenium removed: 1.8 kg/day
- Construction of a new water diversion at Line Creek Operations (anticipated to begin diverting water to reduce concentrations of selenium and other constituents in 2015)
- Construction of a water treatment facility at Fording River Operations, using the same proven biological treatment technology as Line Creek (anticipated commissioning 2017/2018)

Please provide any comments you may have regarding the proposed short-term approach:

From 34 respondents who provided comments regarding the proposed short-term approach, the following were the most frequently mentioned themes. It should be noted that one respondent's comments may have included more than one theme.

- Agreement with and support of the proposed short-term approach (13 mentions)
- Concern about the economic feasibility of water treatment as a mitigation measure as part of the short-term approach because of its cost (5)
- Teck should focus on keeping clean water clean through water diversions and other passive treatment (4)
- Short-term approach should include ongoing investment in research and development (4)
- There is a need for a monitoring program to determine the effectiveness of mitigation measures (3)
- Concern that the short-term measures are not being implemented quickly enough and that water facilities should be built sooner (2)
- Concern about the potential detrimental and unforeseen effects of water treatment on water quality (2)
- Multiple techniques (active water treatment, diversions, and others) should be employed at the same time to increase the chance of successful mitigation (2)
- Short-term approach should include targets and timelines (2)

Topic 2: Medium-Term Approach

In the medium-term, Teck will demonstrate progress in achieving targets set out in the Plan through the following measures:

- Construction of water treatment facilities, as required, based on ongoing monitoring
- Construction of water diversions, as required
- Ongoing piloting of treatment technologies
- Potential changes to blasting practices to reduce nitrates

Please provide any comments you may have regarding the proposed medium-term approach:

From 38 respondents who provided comments regarding the proposed medium-term approach, the following were the most frequently mentioned themes.

- Agreement with and support of the proposed medium-term approach (12 mentions)
- Teck must continue monitoring, research and development to learn and improve measures based on the results of the short-term approach (4)
- Concern about the economic feasibility of ongoing active water treatment (3)
- Further research should be undertaken to understand the geochemical properties of rock formations that release the most selenium (3)
- All mine operations should have active water treatment plants (2)
- Changes to mining practices and construction of waste rock dumps should take place to minimize contact with water and air (2)
- Teck should continue to engage and inform the public and employees (2)
- High viscosity emulsion products should be used in blasting to minimize nitrates (2)
- A timeframe for the medium-term approach should be defined (2)
- Passive water treatment technologies should be implemented in the medium-term (2)
- The Elk Valley Water Quality Plan should be flexible and adaptable to account for variables and uncertainty (2)

Topic 3: Long-Term Approach (more than 20 years)

Teck will select the most appropriate long-term mitigation based on research and development currently underway and analysis of economic factors, including:

- In situ treatment of water saturated waste rock fills
- Improved water treatment technologies
- Use of covers for waste rock piles

Please provide any comments you may have regarding the proposed long-term approach:

From 31 respondents who provided comments regarding the proposed long-term approach, the following were the most frequently mentioned themes.

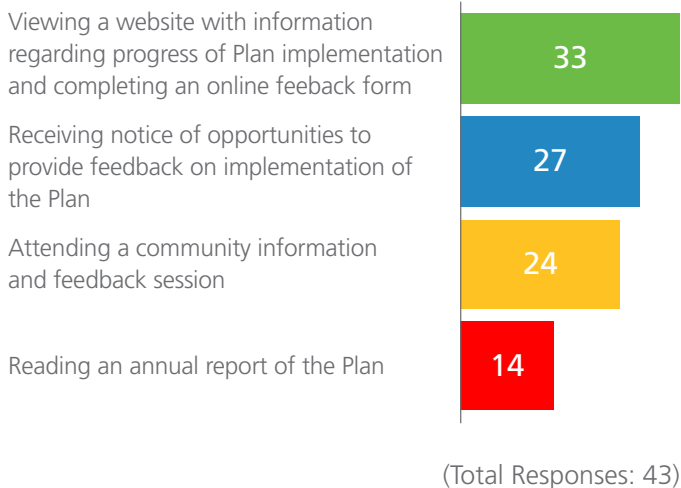
- Agreement with and support of the proposed long-term approach (8 mentions)
- Mitigation currently identified for the long-term (waste rock covers, insitu treatment) should be implemented in the short- or medium-term (6)
- Suggested use of passive biological water treatment through wetland/aquatic plants/grasses (5)
- Teck must continue monitoring, research and development to learn and improve measures based on the results of the short- and medium-term approaches (3)
- Support for treatment of waste rock at the source (2)

Topic 4: Ongoing Monitoring and Adaptive Management of the Elk Valley Water Quality Plan

As part of the development of the Elk Valley Water Quality Plan, Teck is including a forward-looking process to adapt the Plan to changing circumstances once it is put into action. This process will include monitoring of progress coordination with other management plans, and updating of the Plan itself to reflect new research and technology.

The Elk Valley Water Quality Plan will establish a process to ensure the public and key stakeholders are provided with information about the progress of implementation of the Plan.

Please indicate how you would like to be notified and consulted about ongoing monitoring and adaptive management to the Elk Valley Water Quality Plan (select all that apply):



Please provide any additional comments you may have regarding ongoing monitoring and adaptive management

From 23 respondents who provided comments regarding ongoing monitoring and adaptive management, the following were the most frequently mentioned themes.

- Continue to engage and inform employees and the public through the implementation of the Plan (5 mentions)
- Teck should provide frequent and easy to understand updates and reports (4)
- Need to ensure ongoing monitoring and reporting of water quality (3)
- Teck is doing a good job of consulting and informing the community (3)
- Appreciate the effect that Teck is making in developing the Elk Valley Water Quality Plan (3)

Additional Comments

Please provide any additional comments you may have regarding any aspect of the Elk Valley Water Quality Plan.

From 34 respondents who provided additional comments, the following were the most frequently mentioned themes:

- Appreciate Teck’s efforts in developing the Elk Valley Water Quality Plan (16 mentions)
- More information is required regarding mitigation of cadmium, nitrate, sulphate and formation of calcite (3)
- Teck should continue to engage and update its employees and the public (2)
- Future consultation events should not be scheduled to coincide with public events, for example, Earth Day (2)
- Questions regarding what would happen if the targets set out in the Plan could not be achieved and whether this would slow down mining operations (2)

