

Teck

Elk Valley Water Quality Plan  
Phase 1 Consultation Summary Report

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and  
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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 1 Consultation, and therefore do not reflect a random sample.

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Appendix 1: Consultation Notification Materials

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

Appendix 3: Small Group Meeting and Open House Question and Answer Session Meeting Notes

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Appendix 5: Submission (under separate cover)

## 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 water quality concerns associated with mining activity in the Elk Valley watershed. 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. Teck is providing information about various aspects of the development of the Plan and is asking for the public to provide input.

Phase 1 Consultation regarding the Elk Valley Water Quality Plan took place from October 28 to November 29, 2013. This report summarizes input received through various methods during Phase 1 Consultation.

Additional phases of consultation are planned in 2014, and will provide an opportunity for Teck to provide an update on progress made in developing the Plan, and to seek feedback regarding the content of the proposed Plan.



*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](http://www.teck.com/ElkValley).

### Purpose – Phase 1 Consultation

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 input received during Phase 1 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.

## 2.1 Notification

Notification of opportunities to participate in Phase 1 Consultation was broad and included the following:

- **Invitation and Reminder Emails:** Approximately 300 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:** Approximately 100 phone 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 October 16 and November 8, 2013, inviting members of the public to attend open houses and to participate in online consultation:
  - Fernie Free Press (4 advertisements)
  - Fernie Fix (2)
  - Elk Valley Herald (4)
  - Crowsnest Pass Herald (4)
  - Kootenay Advertiser (4)
  - Cranbrook Daily Townsman (4)
- **Radio Advertising:** Radio advertisements ran twice per day from November 4 to November 15 on the following stations:
  - The Drive 102.9 and 99.1 FM
  - B104 Total Country 104.7 FM
- **Online Advertising:** A banner ran on [www.e-know.ca](http://www.e-know.ca) (East Kootenay News Online Weekly) from November 5 to November 29
- **Postcard Mailer:** Approximately 8,500 copies of a postcard were mailed to residences and businesses in the Elk Valley, and invited recipients to attend open houses or participate in online consultation
- **Plan Website:** Teck has developed a dedicated website for the Elk Valley Water Quality Plan ([www.teck.com/ElkValley](http://www.teck.com/ElkValley)). All consultation materials were available on the website.
- **Employee Notification:** Emails were sent on October 29 and November 21 to Teck employees at 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.

*A copy of the consultation notification materials can be found in Appendix 1.*

## 2.2 Participation

There were multiple opportunities for the public and stakeholders to participate in Phase 1 Consultation regarding the Elk Valley Water Quality Plan from October 28 to November 29, 2013. There were a total of 202 participant interactions during this time.

- 107 people attended 6 consultation events
  - 40 people attended three small group meetings
  - 67 people attended three open houses
- 94 feedback forms received
  - 89 online feedback forms
  - 5 hardcopy feedback forms
- 1 written submission was received via email

Some people participated through multiple methods, such as attending a consultation event and completing a feedback form.

## 2.3 Consultation Methods

Phase 1 Consultation materials were available online at [www.teck.com/ElkValley](http://www.teck.com/ElkValley) beginning on October 28, 2013. Input and feedback were collected through the following methods:

### 2.3.1 Discussion Guide and Feedback Form

A Phase 1 Discussion Guide and Feedback Form provided information about Teck in the Elk Valley, measures that Teck has been undertaking to protect water quality in the Elk Valley, and the development of the Elk Valley Water Quality Plan. The discussion guide included a feedback form, which sought feedback regarding three topics:

- Development of the Elk Valley Water Quality Plan
- Water Treatment and Water Quality Management
- Socio-Economic Impact Analysis

The Discussion Guide and Feedback Form was distributed at small group meetings and 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 2.*

### 2.3.2 Online Engagement

All consultation materials were available on the Plan website ([www.teck.com/ElkValley](http://www.teck.com/ElkValley)) including an online version of the feedback form which could be submitted directly from the website. Of the 94 feedback forms received, 89 were received online.

### 2.3.3 Small Group Meetings

40 people attended three small group meetings held on the following dates:

Small Group Meetings		
Location	Date	Time
Elkford	November 12, 2013	2:00 p.m. – 4:00 p.m.
Sparwood	November 13, 2013	10:00 a.m. – 12:00 p.m.
Fernie	November 14, 2013	10:00 a.m. – 12:00 p.m.

A Kirk & Co. facilitator and meeting recorder attended the small group meetings with Teck. A representative from the B.C. Ministry of Environment, who is also the Chair of the Elk Valley Water Quality Plan Technical Advisory Committee, attended the meetings. At each meeting, participants were provided with the discussion guide and feedback form and were encouraged to complete the feedback form. A Teck representative presented information, focusing on the consultation topics, and participants were invited to ask questions and provide feedback in the meeting.

Key themes from each of the meetings are summarized in Section 3 of this report beginning on page 5.

*Meeting notes from the small group meetings can be found in Appendix 3.*

### 2.3.4 Open Houses

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

Open Houses		
Location	Date	Time
Elkford	November 12, 2013	4:30 p.m. – 8:30 p.m.
Sparwood	November 13, 2013	4:30 p.m. – 8:30 p.m.
Fernie	November 14, 2013	4:30 p.m. – 8:30 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. Teck was available to answer questions in one-on-one or small group settings.

At the Sparwood and Fernie open houses, the second half of the open house included a presentation from Teck and an opportunity for participants to ask questions. At the open house in Elkford, a question and answer session was not held due to lower attendance and to provide attendees with an opportunity to engage in one-on-one conversation with Teck.

Key themes from the open house question and answer sessions are summarized in Section 3 of this report beginning on page 5.

*Meeting notes from the open house question and answer sessions can be found in Appendix 3.*

### 2.3.5 Submissions

One written submission was received during Phase 1 consultation, and is summarized on page 11.

### 3. Key Results

#### 3.1 Key Themes from Small Group Meetings and Open Houses

The following table includes the key themes from the small group meetings and 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
Elkford Small Group Meeting November 12, 2013 2:00 p.m. – 4:00 p.m.	<ul style="list-style-type: none"> <li>• Participants were interested in information regarding water quality targets, including the units they would be measured in.</li> <li>• Participants asked how constituents other than selenium, such as nitrate, sulphate and cadmium, would be considered in the development of the Elk Valley Water Quality Plan.</li> <li>• Participants asked what consideration has been given to testing well water to ensure that drinking water is safe.</li> <li>• Participants said they appreciated Teck’s efforts in sharing information about the Plan and for seeking community feedback.</li> <li>• Participants sought clarification about how much selenium would be removed from the Elk Valley watershed through the West Line Creek Water Treatment Facility.</li> </ul>
Elkford Open House November 12, 2013 4:30 p.m. – 8:30 p.m.	<ul style="list-style-type: none"> <li>• No question and answer session was held because participants had their questions answered by project staff throughout the open house.</li> </ul>
Sparwood Small Group Meeting November 13, 2013 10:00 a.m. – 12:00 p.m.	<ul style="list-style-type: none"> <li>• Participants expressed an interest in a development of a Watershed Plan for the Elk Valley, which would go beyond the scope of the Elk Valley Water Quality Plan that Teck is developing. They said that such a plan would look at other uses of the watershed beyond Teck’s operations, and would be the responsibility of the provincial government.</li> <li>• Participants wanted to know more about how the Elk Valley Water Quality Plan would identify priority areas for monitoring and treatment, noting that people who live on different tributaries and fish and swim in different areas would have different priorities. They stated that it was critical to identify target levels for receiving waters and discharge waters.</li> <li>• Participants were interested in the process used to remove nitrates and selenium from water at the West Line Creek Water Treatment Facility. Some participants were concerned about substances that were added during the water treatment process, such as phosphorus and aluminum, and sought assurances that these substances would not result in other impacts to the health of the watershed.</li> <li>• Participants expressed appreciation for Teck’s efforts to protect water quality while ensuring economic development can continue. Several participants acknowledged that Teck has taken a leadership role in water quality protection and stated that Teck is a good community partner.</li> <li>• Some participants expressed concerns that mine workers are hearing that selenium issues could result in the closure of the operations, and suggested that Teck ensure that its workers know that a goal of the Plan is to ensure that mining operations can continue.</li> </ul>



Meeting	Key Themes
<p>Sparwood Open House November 13, 2013 4:30 p.m. – 8:30 p.m.</p>	<ul style="list-style-type: none"> <li>• Participants asked questions about Teck’s West Line Creek Water Treatment Facility, seeking detailed information about substances added in the process, and whether future water treatment plants would use the same processes.</li> <li>• Participants were interested in whether Teck had looked at what companies in other jurisdictions with similar issues were doing to protect and improve water quality.</li> <li>• Participants sought confirmation that Michel Creek would be included and considered in the development of the Plan.</li> <li>• A participant expressed a concern that members of the public have not been invited to observe the Technical Advisory Group meetings.</li> <li>• A participant suggested that new targets should not be developed, and that the federal and provincial drinking water guidelines should be used as the targets for the Elk Valley Water Quality Plan.</li> </ul>
<p>Fernie Small Group Meeting November 14, 2013 10:00 a.m. – 12:00 p.m.</p>	<ul style="list-style-type: none"> <li>• Participants suggested that a broader water use plan for the Elk Valley watershed should be developed that encompasses more than Teck’s operations. Several suggested that other industries and organizations, such as tourism-related businesses and utilities, should be brought into a water use plan process.</li> <li>• Participants were interested in how changes would be made to the Plan following its implementation, suggesting that defined timelines need to be set for the review of the Plan. Several suggested that the results of monitoring should be transparent and made available to the public.</li> <li>• Participants asked about various water treatment and water quality management options, including seeking detailed information regarding the process that would be used at the West Line Creek Water Treatment Facility. Several indicated that they supported the idea of keeping clean water clean, while others had concerns with the use of synthetic covers on waste rock piles.</li> <li>• Participants asked how Teck’s Cumulative Effects Management Framework would be integrated with the Elk Valley Water Quality Plan.</li> <li>• Several participants sought clarity around the targets that would be included in the Elk Valley Water Quality Plan, including how the existing B.C. drinking water guidelines would be factored into the development of targets for the Plan.</li> <li>• Some participants expressed concerns about the stigma that the development of the Elk Valley Water Quality Plan would have on the fishing and tourism industries.</li> <li>• Some participants requested a water quality monitoring station at Bayne’s Lake.</li> </ul>



Meeting	Key Themes
Ferne Open House November 14, 2013 4:30 p.m. – 8:30 p.m.	<ul style="list-style-type: none"><li>• Participants were interested in learning more about water management measures, including whether diversions that Teck had built were currently in operation and how pumping and storing of freshet water would work.</li><li>• Participants asked about lined storage facilities at the sites that would be used to stockpile selenium removed from treated water. They sought assurances that safeguards would be in place to ensure that selenium would not leak out of the storage facilities and that there would be enough capacity to store selenium removed from water over time.</li><li>• Participants asked about the use of covers, including whether it was mandatory to use covers in Alberta, and whether top soil covers in Alberta were being used to manage selenium issues.</li><li>• A participant suggested that the fourth step in the Elk Valley Water Quality Plan development process should focus on the aquatic environment first, and then look at social and economic factors second.</li><li>• A participant asked why health authorities were not represented on the Technical Advisory Committee.</li></ul>

### 3.2 Results from Feedback Forms

This section provides the results from the 94 feedback forms received.

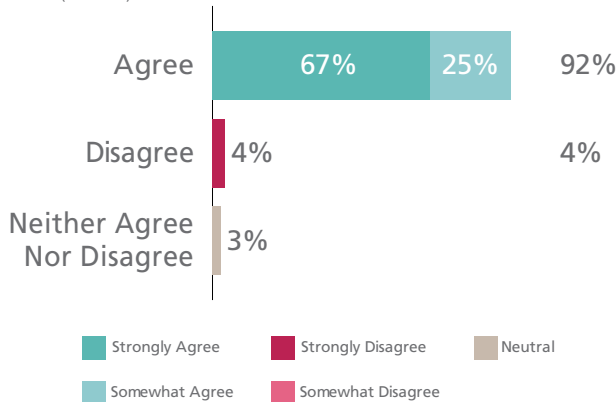
#### Topic 1: Development of the Elk Valley Water Quality Plan

Key steps in developing an Elk Valley Water Quality Plan are:

1. Defining water quality mitigation measures that will be used to develop the Plan.
2. Investigating different levels of water quality mitigation and management, utilizing an Elk Valley Water Quality Planning Model as an assessment tool.
3. Determining environmental, economic and social considerations of different water quality levels in the Elk and Fording rivers.
4. Setting medium- and long-term water quality targets and timelines that achieve a sustainable balance of protecting the health of the aquatic ecosystem and the social and economic costs and benefits.
5. Defining an implementation plan for meeting short-medium- and long-term water quality targets.
6. Develop a strategy for ongoing monitoring to assess the performance of the Plan, with a process for periodic review of the Plan. This review would incorporate results of Teck’s Applied Research and Development program, other advances in science and technology, and changes to future Teck mining plans and operations.

#### Please indicate your level of agreement with the key steps to developing the Elk Valley Water Quality Plan:

Base (n=92)



- 92% of respondents agree with the key steps to developing the Elk Valley Water Quality Plan, with 67% of respondents strongly agreeing
- 4% of respondents disagree, with the remaining 3% neither agreeing nor disagreeing

#### Please indicate your reasons and provide comments for consideration in developing the Elk Valley Water Quality Plan.

From 51 respondents who provided reasons and additional comments regarding topic 1, 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 the proposed key steps in developing the Elk Valley Water Quality Plan (17 mentions)
- Water quality must be monitored and protected for human and aquatic ecosystem health (12)
- Ensure regular monitoring and reporting of water quality is undertaken, with a process to update the Plan as required (8)
- Confident that Teck is taking appropriate steps to protect water quality, and will continue to do so through this Plan (8)
- Information regarding monitoring and results of mitigation efforts should be made available to the public (5)
- Environment must be protected first and foremost (3)
- There is a need for a more fulsome watershed plan that looks at more than Teck’s operations (3)
- An independent third-party should be responsible for monitoring the mitigation measures set out in the Plan (3)
- Look at selenium levels in other jurisdictions with similar geology that do not engage in mining activities (2)
- Public consultation process as part of the development of the Plan is good and important (2)

## Topic 2: Water Treatment and Water Quality Management

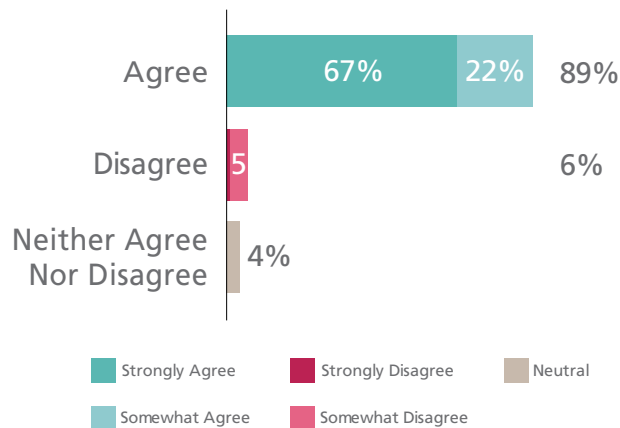
During the development of the Elk Valley Water Quality Plan, Teck has and will continue to implement various measures to protect water quality.

### Mitigation Measures:

- **Water treatment facilities** in development, with first facility under construction and plans for additional facilities
- **Water diversions** to keep water clean
- **Management of mine-affected waters** through collection, transport and storage, to reduce the amount of water requiring treatment
- **Covers on waste rock piles** to reduce or prevent contact with water
- **Research and Development** program to improve water quality management technologies and techniques

### Please indicate your level of agreement with the current and future water treatment and water quality management measures.

Base (n=92)



- 89% of respondents agreed with the current and future water treatment and water quality management measures outlined by Teck, with 67% strongly agreeing
- 6% expressed disagreement, with the remaining 4% neither agreeing nor disagreeing

### Please indicate your reasons and provide comments for consideration in developing the Elk Valley Water Quality Plan.

From 54 respondents who provided reasons and additional comments to topic 2, the following were the most frequently mentioned themes. It should be noted that one respondent's comments may have included more than one theme.

- Supportive of proposed mitigation measures (9 mentions)
- Suggestion of using diversions to keep clean water clean (5)
- Teck should continue to invest in research and development to mitigate issues with constituents of concern (4)
- Water quality monitoring reports should be made public (4)
- Concern that waste rock covers may not work, or would have unintended environmental impacts as they degrade (3)
- Supportive of using waste rock covers as a potential mitigation measure (3)
- Dilution of contaminants is not a solution (3)
- Teck should not rely on water treatment facilities (3)
- Concern that diversions that Teck constructed previously did not work (3)
- Teck should explore a change in mining operations, or curtail operations, if selenium levels cannot be reduced (2)

### Topic 3: Socio-Economic Impact Analysis

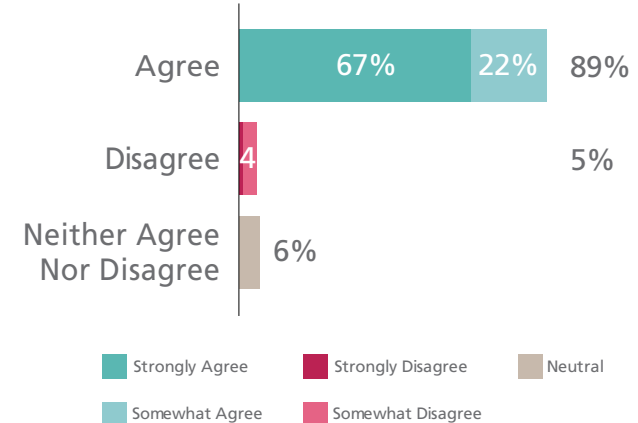
The Elk Valley Water Plan is intended to balance environmental, social and economic considerations. An important part of the development of the Plan is assessing how social and economic factors would be affected by different water treatment approaches.

The proposed scope of the analysis was determined by assessing the importance to communities, as understood from ongoing community engagement. The following are the preliminary, important economic and social components that were determined to meet those criteria that will be evaluated in the analysis.

Economic	Social
<ul style="list-style-type: none"> <li>• Changes in Gross Domestic Product</li> <li>• Local business opportunities</li> <li>• Investment</li> <li>• Jobs</li> <li>• Tax and resource revenue sharing</li> <li>• Personal income generation</li> <li>• Housing prices</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable community population</li> <li>• Physical health</li> <li>• Use of aquatic environment</li> <li>• Jobs</li> <li>• Skills training, apprenticeships and education</li> <li>• Availability and access to community services</li> </ul>

### Please indicate your level of agreement with the scope of the socio-economic impact analysis being conducted as part of the development of the Elk Valley Water Quality Plan.

Base (n=93)



- 89% of respondents agreed with the scope of the socio-economic impact analysis as outlined by Teck, with 67% strongly agreeing
- 5% of respondents disagree, while 6% neither agree nor disagree

### Please indicate your reasons and provide comments for consideration in developing the Elk Valley Water Quality Plan.

From 47 respondents who provided reasons and additional comments regarding topic 3, the following were the most frequently mentioned themes. It should be noted that one respondent's comments may have included more than one theme.

- Supportive of the proposed scope of the socio-economic impact analysis (17 mentions)
- Teck and mining activities provides good paying jobs and supports community services in the Elk Valley (9)
- Consider the positive impacts that mining has for other industries that supply the mining industry (4)
- Environmental health should be considered first before socio-economic (4)
- Do not underestimate the economic impact of sport fishing, angling and recreational tourism on the economy of the Elk Valley (3)
- Show what the impact of shutting down the mines would be on the local economy (2)
- The Elk Valley requires more health care services (2)

## Additional Comments

### **Please identify any additional interests and considerations you may have regarding the Elk Valley Water Quality Plan.**

From 52 respondents who provided additional comments regarding the Elk Valley Water Quality Plan, the following were the most frequently mentioned themes. It should be noted that one respondent's comments may have included more than one theme.

- Protect the Elk River watershed for aquatic and human health, recreation and fishing (17 mentions)
- Support for the development of the Plan and confidence in the role that Teck is taking to monitor and improve water quality (16 mentions)
- Reports regarding water quality and monitoring should be made public (3)
- Environmental impacts should be considered first, before socio-economic impacts (3)
- Appreciative of the steps that Teck has taken to engage communities regarding the Elk Valley Water Quality Plan (3)
- A plan should be developed that looks beyond Teck's impacts to the aquatic and terrestrial ecosystems within the Elk River Watershed (2)
- Teck should state that only trace amounts of selenium are needed for human and animal health (2)

## 3.3 Results from Submissions

One submission was received during Phase 1 Consultation, and included the following feedback:

- A baseline for selenium in the Elk River needs to be acquired just above Weary Creek, above Teck's mines
- There is a need for research into how much selenium is toxic for humans, and also what treatment could be available to reduce selenium levels in humans, should they become toxic
- A suggestion for mitigating the release of selenium from old creek beds by injecting warm water with flora/fauna to help stabilize selenium into a form that does not leach out

