

## **Elk Valley Selenium Task Force (EVSTF)**

### **Final Report: Experts Workshop on the Evaluation and Management of Selenium in the Elk Valley, British Columbia**

October 10, 2008.

#### **Introduction: EVSTF and Objectives**

Selenium (Se) concentrations in surface water the Elk River watershed have been increasing since the 1990's as a result of open-pit coal mining activities in the area. In-stream concentrations of Se at downstream monitoring sites yield frequent exceedances of the B.C. provincial water quality guideline for Se. Concern about the potential for environmental impacts associated with these increases in the Elk Valley drainage led to establishment, in 1998, of a joint industry-government committee, the Elk Valley Selenium Task Force (EVSTF). The EVSTF presently consists of representatives from the 5 coal mining operations of Elk Valley Coal Corporation; Ministry of Environment; BC Ministry of Energy, Mines, and Petroleum Resources; Teck Cominco; and, Environment Canada. The main objectives of the EVSTF are as follows: to determine if effects are occurring or could occur in future; to provide input to the review of provincial or national guidelines/criteria for Se; and, to promote the development of site-specific environmental objectives, where possible or necessary. Significant monitoring and research has been undertaken to address these objectives, resulting in many EVSTF-related journal publications that have advanced the knowledge and understanding of Se fate and effects.

#### **The EVSTF Expert Review Panel**

The EVSTF identified the need to establish future directions for monitoring and management of Se from coal mining in the Elk River Valley. To facilitate this process, the task force commissioned an independent expert review of key Se monitoring and research studies conducted over the past 10 years. The key objectives of this expert review were: to gain a better understanding of the scientific significance of the studies conducted to date; to identify existing data gaps; and, to recommend options for managing issues related to Se releases into the environment. In late 2007, the EVSTF established an Expert Review Panel, comprised of the following four experts in the area of Se science: Steven Canton (GEI Consultants Inc.); Anne Fairbrother (Parametrix, Inc.); Dennis Lemly (U.S. Forest Service); and, Harry Ohlendorf (CH2M Hill).

#### **The Experts Workshop on the Evaluation and Management of Selenium in the Elk Valley, B.C.**

The workshop objectives included: summarizing the overall conclusions of existing Elk Valley Se studies; identifying major data gaps on the potential impacts of Se; determining if it was possible to establish regulatory limits for Se with the available data and information; recommending studies that would support the identification of toxicity thresholds for Se; and, identifying future monitoring priorities for Se originating from the coal mines.

In advance of the workshop, each of the experts reviewed EVSTF reports and publications that were most relevant to their respective areas of expertise. These studies related mainly to sources, transport and fate, and effects of Se in the Elk Valley. Each expert prepared a technical review related to key issues and concerns relative to Se management in the Elk Valley. The four experts participated in a workshop facilitated by Don MacDonald (MacDonald Environmental Sciences Ltd., Nanaimo, BC), with Les McDonald (Spirogyra Scientific Consulting, Cranbrook, BC) serving as workshop rapporteur. The workshop was convened at the Empire Landmark Hotel and Conference Centre in Vancouver, February 5-6, 2008, and provided the experts with an opportunity to present their findings to an invited audience and engage in technical discussions with other panel members.

The experts shared their insights on the status of Se-induced biological effects in the Elk Valley, through a series of technical presentations and discussions. In addition to summarizing technical findings, the

presentations addressed questions generated by members of the EVSTF. Following each presentation, experts were encouraged to engage in discussions and ask questions to better understand the perspectives offered. The facilitated discussions were intended to lead to general consensus on key issues related to the management of Se in the Elk Valley. In accordance with a previously-established protocol, workshop attendees were accorded 'observer' status. Observers were invited to submit questions for experts in writing, and these were addressed during the afternoon of February 6, 2008.

### **The Expert Review Panel Workshop Report**

The enclosed workshop summary report was prepared to outline the workshop objectives, describe the approach used at the workshop, and summarize the results of the experts' deliberations. The overarching advice to the EVSTF was to focus work and research on reducing selenium releases to the environment. The experts also identified key undertakings that would substantially contribute to the assessment and management of Se in the Elk Valley:

- refinement of a Conceptual Site Model that would facilitate an enhanced understanding of issues and concerns related to Se releases into the environment;
- development of an effective framework for monitoring and managing Se in the Elk Valley; and,
- establishment of triggers that could be applied to the Se monitoring and management framework.

Work on all these undertakings was initiated by the experts during the workshop discussions and these items comprise an important component of this final consensus report.

In addition, the experts developed a series of recommendations based on the results of their technical reviews of the Elk Valley studies. These recommendations were evaluated and ranked to identify the highest-priority initiatives for the next 3 to 5 years. The experts provided these recommendations to assist the EVSTF in defining short- and long-term priorities relative to Se monitoring and management in the Elk Valley.

### **Closure**

The Elk Valley Selenium Task Force (EVSTF) formally accepts the final report entitled "Experts Workshop on the Evaluation and Management of Selenium in the Elk Valley, British Columbia: Workshop Summary Report" (Canton *et al.*, 2008), including their key conclusions and recommendations as guidance for future work and research. We would like to sincerely thank the Expert Panel members for their diligence and willingness to participate in this process and appreciate the guidance that they have provided to the EVSTF.

A copy of the report is available at <http://www.evstf.ca> and <http://www.env.gov.bc.ca/eirs/epd/>

Sincerely,



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