

## TOXICOLOGICAL INVESTIGATIONS OF MINING EFFLUENTS (TIME) NETWORK

### Background:

In late 1999 the TIME Network was formed to address toxicological issues related to the proposed Metal Mining Effluent Regulations (MMER). The MMER are expected to include a new provision for non-acutely lethal effluents. Some mines may be challenged to consistently meet this new requirement. TIME Network participants agreed that a multi-stakeholder program would be an effective approach to the issue of effluent toxicity. The TIME Network Program was launched with the following goals:

- To undertake projects that will broaden the knowledge base with respect to the causes of, and solutions to, effluent toxicity;
- To investigate and develop methodologies to identify causes of, and solutions to, reduce or eliminate toxicants;
- To look for cost-effective and environmentally sound pollution prevention and control treatment technologies to consistently achieve non-acutely lethal effluents; and
- To provide a mechanism for information dissemination.

### Strategy:

During the first TIME workshop, held in November 1999, a number of potential projects were identified. In May 2000, these projects were prioritized by a multistakeholder planning group, and four projects were selected that would help meet Year 1 program objectives. Each project is co-ordinated by a multistakeholder Project Task Force. Information will be disseminated to industry, federal and provincial governments, non-government organizations, consultants and academia via workshops, a network site, and a newsletter.

### Roles:

Secretariat is located at Natural Resources Canada (CANMET). Members of the Projects Planning Group (management committee) of the TIME Network are: Mining Association of Canada, Environment Canada, Fisheries and Oceans Canada, Ontario Ministry of the Environment, BC Environment, Canadian Environment Network, Cree Regional Authority and Natural Resources Canada.

### Activities Underway:

Four projects are underway that focus on issues of concern to all stakeholders. Each project is guided by a Scientific Authority and a multistakeholder Project Task Force.

#### Development of a Guidance Document for Acute Lethality Testing of Metal Mining Effluents

The objective is to develop a guidance document to assist users in maximizing the reliability of data generated from effluent acute lethality tests. Document is to include acute lethality tests for rainbow trout and *Daphnia magna*. Guidelines are designed for use by the metal mining industry, but will be useful to others with an interest in acute lethality testing.

Contractor: ESG International Inc.

Sponsor: Environment Canada

Completion date: November 2001

Scientific Authority: Julie Schroeder, Ontario Ministry of the Environment

Development of a Toxicity Identification/Reduction Evaluation/Treatability Evaluation (TI/RE/TE) Guidance Document

The objective is to develop consistent, cost-effective protocols for the Canadian mining sector to identify, evaluate and treat toxicants and achieve non-acutely lethal effluents.

Contractor: ESG International Inc.

Sponsors: Environment Canada and Mining Association of Canada

Completion date: November 2001

Scientific Authority: Richard Scroggins, Environment Canada

Literature Review of Toxicity of Mercury, Cadmium, Selenium and Antimony in Mining Effluents

The MMER sets concentration limits for some metals that are of environmental concern. No limits are established for Hg, Cd, Se and Sb; potential toxicity is expected to be captured under the requirement for non-acute lethality. A better understanding of these elements might help industry to achieve non-acutely lethal effluents.

Contractor: Beak International Incorporated

Sponsors: Natural Resources Canada, Mining Association of Canada and Environment Canada

Completion date: November 2001

Scientific Authority: Charlene Hogan, Natural Resources Canada

Best Management Practice (BMP) for Ammonia in the Canadian Mining Industry

Ammonia discharges exist in the mining industry, and in some cases, can contribute to toxicity or have negative effects on the receiving environment. A BMP guide and training package would treat the problem at the source by minimizing ammonia discharges. The objective is to develop and deliver BMPs to industry and other interested parties. Deliverables include a video, BMP guide and a training package.

Contractor: To be awarded

Sponsor: Mining Association of Canada

Estimated date of completion: November 2001

Scientific Authority: Brian Bell, Environmental Consultant

Non-Acutely Lethal Mining Effluent Technologies (NALMET) Program

Environment Canada sponsored the NALMET program to demonstrate the use of toxicity identification evaluation and toxicity treatment evaluation to assist mines with difficulty in producing non-acutely lethal effluents. The project, undertaken by Beak, was completed in October 2000.

**TIME Network Workshop:**

The second TIME Network workshop is scheduled for November 22 and 23, 2001 in Ottawa. Agenda to include presentations on the above projects, a follow-up on the previous TIME Workshop, and other studies relevant to the TIME Network. A call for papers has been released.

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