

***Investigation of the Field Precipitation, Sedimentation
and Stability of Neutralization Sludge***

Objective

Several mines practice lime neutralization and subsequent settling of sludges from high volume effluents in ponds rather than in tanks and thickeners. Present practices can give a voluminous, low density sludge that can become remobilized during periods of high rainfall or snow melt. The impact of organic matter on the remobilization of sludge is also a concern.

The objective of this project is to improve the field neutralization, precipitation, and settling of high-volume, acidic, metal-bearing streams so that the resulting sludge is chemically stable and settles rapidly to a high density without the use of an extensive, capital-intensive system of tanks and thickeners. The impact of organics on sludge stability would also be examined.

Potential Benefit

Successful completion of the project will provide the sponsors with improved field neutralization and sedimentation techniques that could reduce operating costs and assist in reaching environmental compliance.

Scope of Research Activities

The project is to be split into phases as outlined below. The project would involve a literature survey, a review of sponsors' operating experience, development of alternative approaches, and fields trials. Laboratory testwork would determine the effect of organics on sludge remobilization.

Phase 1 Literature survey and analysis of sponsor data.

Phase 2 Laboratory and field studies of promising alternatives. Laboratory study of the effect of organics.

Phase 3 Larger scale field demonstration.

Time Frame

A total project duration of two years is expected divided into the phases outlined below.

Phase 1 Two Months

Phase 2 Ten Months

Phase 3 Twelve Months

Potential Sponsors

Agnico-Eagle, Barrick Gold, INCO, Noranda, Rio Algom, Rio Tinto, Teck

Budget cost

The following draft budget has been prepared.

Budget cost estimate

Item	Cost C\$
Total Project Budget	\$100,000
NSERC Funding	(\$50,000)
Sponsor Funding	\$50,000
CAMIRO Fee (10% of Total Budget)	\$10,000
Total cost to sponsors	\$60,000
Cost per sponsor (assumes five sponsors)	\$12,000
Cost per sponsor per year	\$6,000/a

Specific Deliverables

- Progress Reports (Quarterly) and presentation at end of each Phase
- Final project report

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