

# Public Works and Government Services Canada

## Mine Engineering and Backfill Placement Monitoring

### Giant Mine, Northwest Territories

JDS Energy & Mining Inc.

#### OVERVIEW

Giant Mine was a large-scale gold mine that operated from 1945 to 2004 under a series of different owners. Since 2005, the required Care and Maintenance at the Giant Mine Site, including environmental management activities, have been contracted out by Aboriginal Affairs and Northern Development Canada (AANDC) and Public Works and Government Services Canada (PWGSC).

The stability of certain underground mining excavations at the Giant Mine Remediation Project (Giant Mine) is of concern to AANDC and PWGSC as their failure would lead to physical surface hazards, compromise the ongoing and planned remediation work, and the release of arsenic trioxide into the mine and/or the environment. Specific arsenic containing and non-arsenic containing stopes have been prioritized as mitigation targets of the Interim Underground Stabilization Activities (IUSA). A general description of the IUSA activities is as follows:

- Provide support to pillars by backfilling stope voids with cemented paste tailings;
- Construction of barricades or fill fences necessary to contain the paste within the voids to be backfilled; and
- Installation of a monitoring system used to assess the level of paste in the voids to be backfilled and to assess if paste is leaking from known exits from the voids to be backfilled.

#### SCOPE

JDS as a sub-contractor to Det'on Cho Nahanni Construction was contracted to provide mine engineering and backfill placement monitoring support. The project placed 61,300 m<sup>3</sup> of paste backfill in 6 stope complexes. JDS provided the follow services:

- Underground geotechnical review and bulkhead area ground support recommendations;
- Develop detailed stope complex work plans to guide stope filling and monitoring;
- Paste backfill bulkhead design;
- Develop and implement paste leakage mitigation plans;
- On-site paste placement monitoring via real-time remote cameras, cavity monitoring surveys and UG inspections;
- Daily mine engineering, paste placement monitoring and reporting; and
- Final stope completion reporting.

**Project Value: \$500K**

