

# MINING SERVICES

Integrated environmental services  
for mining that support from  
exploration to post-mine  
closure phase





Environmental management in mining sector needs to be integrated from exploration phase until post-mine closure phase. GES provides innovative and professional services based on applied research. These services are integrated from each phase in order to help mining companies sustaining their environmental management, implementation and monitoring.

## How do we work



GES provides five reliable business services that can be tailored to our customers' need, helping them achieve their unique business vision



ARD Potential Risk Evaluation and Modelling



Mine Water Management



Mine-Pit Lake Management



Fate, distribution, and pollutant transport modelling



Mine closure planning

Services





## Benefit



- Assessing the effectiveness of existing environmental management systems.
- Compliance with safety, quality and environmental regulations.
- Creating a good image for the company to the government and community, especially if the company get a good PROPER value.



## ARD Potential Risk Evaluation and Modelling

Acid Mine Drainage and heavy metal contaminant become the main problem in managing the mining environment. GES offers its expertise in developing an integrated mine waste management.

# 01



### Services

#### Sub-Services

Rock Sampling : Representative rocks sampling plan and preparation depending on geological condition (stratigraphy and lithology) and mining plan.

Material Classification : Acid Mine Drainage and heavy metal leaching forming process prediction through mineralogy test, static (acid-base accounting) and kinetic/leaching tests

Formation of geochemical rock distribution model as a mining plan baseline and waste rock pile design.

Cover system design and performance monitoring in waste rock pile.

### Services



## Mine Water Management

GES promotes sustainable mine water management in hand with its hydro geological, mine planning, water utilization, and water quality conservation aspects.

#### Sub-Services

Watersheds hydrology and water balance modeling.

Surface water and ground water runoff quality modeling

Water supply and mine dewatering system plan.

Mine water treatment.

Monitoring, data management and performance reporting in water management.

# 02

## Mine-Pit Lake Management

Ex-mine pit from post mining activities will become a water reservoir and forming mine pit lake. The quantity and quality of mine pit lake water must be maintained to ensure best practice in the mining environmental management.



### Services

#### Sub-Services

Water balance modeling in pit lake.

Hydro-chemical water quality modeling in pit lake.

Pit lake management

Management possibility improvement on post-mining pit lake.

# 03

## Fate, distribution and pollutant transport modelling

A thorough understanding on the pollutant characteristic (organic and inorganic) and its transformation process in the environment are the most essential part in mitigation design, monitoring plan and environmental remediation.



## Services

GES has a specialization in pollutant dynamic investigation of aquatic environment and terrestrial system as well as strategy framing of the environmental management.

# 04

## Services



## Mine Closure Planning

Mine closure planning is a complex activity that considers various aspects such as environmental, social and economic sustainability.

GES offers a solution in helping the mining companies to develop a strategic mine closure plan that integrates in each mine development phase.

# 05

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It is our greatest honor to be able to get an opportunity to give presentation of our expertise and discussing related to your environmental issue

