

# DESKTOP PRE-FEASIBILITY STUDIES

## SGS MINERALS SERVICES

SGS Lakefield Orestest Pty Ltd (SGS) was originally founded in 1993 as Orestest Pty Ltd. SGS has since developed into a major metallurgical services organisation located in a purpose-built laboratory in Perth, Western Australia.

The laboratory is dedicated to providing high quality metallurgical testing across the broad spectrum of the minerals industry including:

- Gold ores
- Nickel laterites
- Base metal
- Iron ore
- Mineral sands
- PGM ores
- Rare-earths and other exotics
- Diamond ores
- Environmental services

SGS provides a comprehensive range of test work capabilities including bacterial leaching, crushing, screening, grinding, ultra fine grinding, gravity, magnetic & electrostatic separation, solvent extraction, electrowinning, flotation, pressure leaching, pressure oxidation, pressure acid leach and cyanide speciation. Pre-feasibility studies, on-site diagnostic metallurgical services, environmental testing and analytical services are also included in our range of capabilities.



## INTRODUCTION

Metallurgical history, both past and recent, abounds with examples of plants that were either non-starters, or where operations were terminated after very short periods, with the explanation made to shareholders of “metallurgical problems”, or “unforeseen mineralogical implications impacting upon metallurgical performance”.

### Approach

SGS offers an approach to this problem by providing pre-feasibility desktop studies that draw from the considerable experience and expertise of its staff in the relevant areas of extractive metallurgy, chemistry, process flow sheet definition and costing. The approach is proving to be a successful one and may comprise several of the following aspects:

- Close contact with the client throughout the study to ensure maximum input from all angles in the approach to the problem.
- Round-table “brainstorming” discussions and briefing sessions at the outset to clearly define objectives and limitations.

- Identification of potential products from the ore, market conditions, prices, and future outlook.
- Review of the nature of the ore and overall implications for processing of
  - mineralogical
  - chemical
  - environmental considerations.
- Identification of potentially troublesome species and recommendations aimed at their elimination or suppression.
- Comprehensive review of existing and novel technologies that may be applicable to processing the ore.
- Development and critical assessment of theoretical process flowsheets, including
  - process flowsheet definition
  - calculation of process inputs
  - component mass-balancing
  - estimated product yields and qualities
  - chemical considerations that may impact upon processing
  - speciation modelling
  - simulation modelling
  - mineralogical considerations that may impact upon processing
  - potential technical viability
  - estimated equipment capital costs, operating costs and economic viability
  - environmental compliance baseline, potential recycles and consideration of locality.
- Proposed process development route to achieve bankable feasibility report.
- Planning and management of testwork programmes.

SGS personnel have undertaken pre-feasibility desktop studies on orebodies including rare earth elements, zirconium/hafnium, tantalum/niobium, gold, nickel, cobalt and other elements for clients ranging from mining companies to engineering contractors to consultants.

### Potential Benefits For Clients

- Impartial, unbiased overview – no preference given to any one technology.
- Early identification of difficult orebodies avoids incurring potentially high expense of non-relevant testwork or pilot campaigns.
- High-level expertise in fields such as chemistry, mineralogy, environmental issues, and process metallurgy that can make or break a project, resides under one roof at SGS – offering efficiency and continuity.

### Staff With Appropriate Experience

SGS has a number of experienced, qualified professional staff that are available for working on pre-feasibility desktop studies.

For more information, please contact us:

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