

PROJECT OPPORTUNITY

Improved grade control from air based drilling systems

The challenge



Grade control is undertaken either using RC and/or blast holes with both having advantages and disadvantages. Blast hole grade control often has sampling issues including pile segregation, refluxing of material, upward contamination and difficulty of consistent sample quality. However blast holes have the advantage of providing higher spatial resolution and requires no additional OPEX. Both systems have issues with the recovery of very fine cuttings, dust management and drill collar stability.

Why invest in this project? Anecdotal evidence suggests that the use of modern additives in air based drilling can improve collar and wall stability, sample quality and reduction in dust generation with minimal water. Traditional drilling additives have been based around natural mineral products in a fluid to enhance drilling productivity. Modern additives can be tailored to specific purposes through unique formulations of polymers, resins and mineral products. The goal of this project is to investigate the use of modern drilling additives on sample quality and quantify the benefits to grade control practice.

Targeted outcomes



Determine whether modern drilling additives in air based drilling can reduce sampling issues with no negative impact on assaying.



Undertake field trials to assess the technical and economic benefit of using modern drilling additives in blast hole and RC grade control.

- This project is envisaged to involve an integrated approach that considers additive formulations and concentrations; impacts on assaying, sampling systems, dust reduction and hole stability through field trials.
- The project will assess the technical feasibility and determine a preliminary economic value proposition by reducing misclassification and improving HSE.
- It will also identify technical and implementation issues that may impede adoption.
- If sufficient improved value exists then further development and trials can be undertaken which addresses any identified issues.

Kalgoorlie-Boulder Mining Innovation Hub
Located in the Western Australian Chamber of
Minerals and Energy (CME) office
115 Egan St, Kalgoorlie WA 6430

Email: info@kalhub.com
Website: www.kalhub.com

IMDEX
REAL-TIME SUBSURFACE SOLUTIONS



Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Program

CRCORE

Project scope



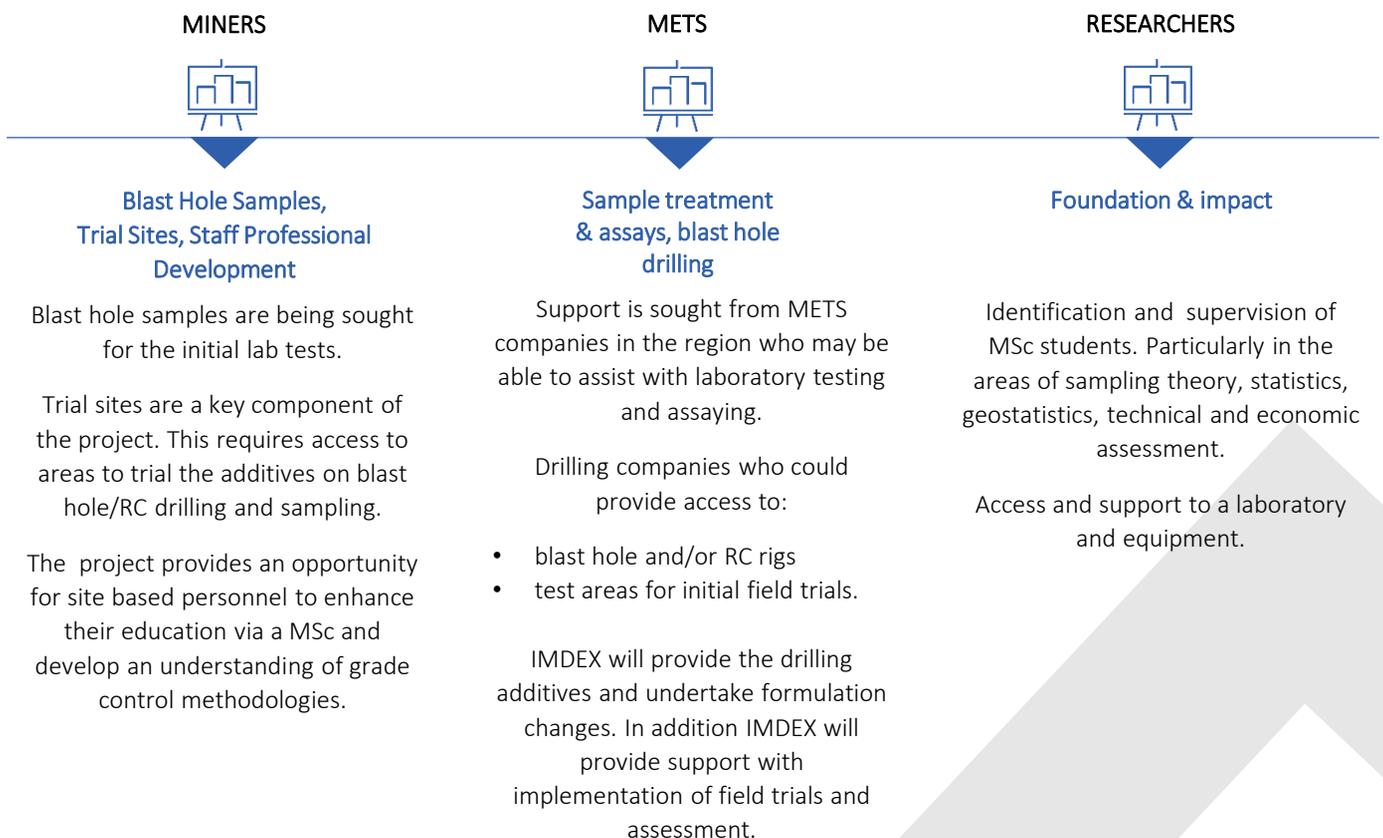
The goal of this project will be addressed in a preliminary assessment through an integrated and multi disciplinary three step approach:

1. Lab scale tests
 - These will investigate the impact of various additive formulations on assaying procedures and techniques.
 - Various concentrations and formulations of the additives will be assessed for different sampling methodology.
 - IMDEX will be the key contributor in determining the formulations and additives.
2. Field trials
 - Field trials of the selected additive are expected to be undertaken in a staged process.
 - Comparison of additive based sampling verses current sampling and drilling practice will be undertaken.
3. Assessment
 - The technical, economic, environmental/health and workflow impact of using the drilling additives to improve sampling will be assessed and quantified where possible.

The generic results of the project will be published to Kalgoorlie-Boulder Mining Innovation Hub and CRC ORE participants.

What we are seeking

The Kalgoorlie-Boulder Mining Innovation Hub is seeking industry participants to contribute to a study to determine the amenability of modern drilling additives to improve blast hole grade control.



Like to get involved?

Contact: Laurence Dyer
info@kalhub.com

Project Manager: Sabina Shugg, Hub Director
s.shugg@kalhub.com 0417 998 586

Project Leader: Laurence Dyer, Hub Technical Specialist
l.dyer@kalhub.com 0409 294 896

Timing: July 2018 – September 2018