BREAKTHROUGH INNOVATIONS FOR TREATING ACID MINE DRAINAGE
FEBRUARY-MARCH 2024

PROBLEM STATEMENT

Acid Mine Drainage (AMD) is the result of exposing pyrite or other metal sulfides to water and air during mining operations, generating sulfuric acid. That acid interacts with surrounding rocks and releases contaminants and metal ions such as aluminum and iron. This fluid is highly acidic and poses dangerous to plant and animal life.

While effective treatment options for remediating AMD exist, they are energy intensive and/or require expensive reagents to neutralize it. Through this project, the client sought to uncover either A) improvements for existing treatment options (lime precipitation and reverse osmosis) or B) entirely new approaches.

The value in finding new approaches for remediating AMD is substantial for the client and for the mining industry as a whole. AMD is present in both active and former mining sites. Additionally, the composition of the AMD varies by location. Consequently, new approaches could potentially allow for reductions in costs (in terms of energy or reagents), increased customization based on chemical composition of the AMD at a given site, and improved speed and/or efficacy of remediation. Our client, a global leader in mining, hired TechConnect to help find solutions that speak to that Challenge.

OUTCOME & RESULTS

This project resulted in 40 submissions, spanning 15 countries. The client intended to conduct pilot-scale testing in mid-2024. More than 75% of respondents proposed technologies that were at least prototyped.

After conducting virtual meetings with eight respondents, as well as requesting additional information from a further 11 respondents, the client selected 10 for direct engagements. The client also indicated that several respondents not selected for immediate engagement could be suitable for other remediation efforts with less polluted water. Consequently, the total number of engagements resulting from this project could increase beyond its present level.

40
APPLICANTS

10
DIRECT ENGAGEMENTS

40%
STARTUPS

1
VIRTUAL PITCH DAY

15
COUNTRIES

78%
PROTOTYPE STAGE

23%
TRL 9

TechConnect
a division of ATI