

<b>PROJECT TITLE - ORE BODY INTELLIGENCE</b>					
<b>PROJECT OVERVIEW</b>					
Integration of high-resolution geological, geo-metallurgical, geo-physical data into a predictive modelling platform for a) process options valuation (Digital Twin?), b) data verification, c) decision-making. Use intrinsic information from core scan analysis (benefits are exact GPS location + relevant high resolution spatial data: textures, liberation sizes, heterogeneity/clustering, hardness, etc.) combined with operational data (downhole sensing, RFID tags, shovel, truck, belt, ICT, bulk and particle sensors). Develop a "living" platform where information about ore body is constantly updated from a stack of sensing solutions. Machine Learning/BigData/Automation/ITOT Network integration					
<b>PROJECT DESCRIPTION</b>					
The envisioned project will first evaluate current status of geo-mine-met-eco integration platforms (benchmarking), assess the state-of-the-art methodologies for core scans texture/mineralogy analysis and how this information can be used to predict geo-met responses to coarse pre-concentration (differential blasting, screening, bulk sorting, particle sorting), identify/estimate process relevant feed characteristics (e.g. acid generating material) and optimize comminution/mineral processing parameters. Utilize machine learning on these areas of performance as related to the ore composition for next encounter of similar texture.					
<b>PROJECT STATUS</b>			<b>PARTICIPANTS</b>		
Pockets of expertise in geo-met, geo-stat, process modelling, image processing			Miners (provide data), METS, Service Providers (Rockwell Automation, SGS), Universities (McGill) and Federal Labs (NRC)		
<b>METHODOLOGY</b>					
Phase	Project Tasks	Timing (Q/Y)	Budget (\$\$)	Resources Required	Outputs
1	Phase 1: Benchmarking/Gap Analysis				
1.1	Geo-Mine-Met Integration Platforms	Q1-Q3 2019	100,000		Project Report
1.2	Core scan data analysis techniques	Q1-Q3 2019	100,000		Project Report
1.3	Industry Survey (Define Requirements)	Q1-Q2 2019	20,000		Project Report
2	Phase 2: Proof-of-concept study with industrial partner(s) (limited scope/data sets) to refine functionality/performance requirements				
2.1	Develop/adapt a suit of modelling/data analytic	Q4 2019 - Q	500,000		Models / Report
2.2	Develop predictive response (unit op) models f	Q4 2019 - Q	500,000		Models / Report
2.3	Data integration into process/block models		100,000		Models / Report
3	Phase 3: Implementation (prototype)				
3.1	Models Validation	Q1 2023 - Q	500,000		Report
3.2	Task title				
3.3	Task title				
<b>ENVIRONMENTAL IMPACTS</b>			<b>DOWNSTREAM IMPACTS</b>		
- initial phase of sorting. - reduce energy usage to move waste material. - sort & blend ores more effectively improving mill performance.			- refinement of operation model		
<b>UPTAKE POTENTIAL AND SCALABILITY</b>			<b>THE INNOVATION CASE</b>		
- operators are asking for reduction of data silos. '- asking for data correlation and opportunity to report data to board against initial mine plan.			Increase productivity and recovery of metals; foundation for digital innovation		
<b>ECONOMIC AND/OR SOCIAL IMPACTS</b>			<b>HUMAN IMPACTS</b>		
Increase productivity and revenue			- lower human error to data input and reporting		