

Metallurgical

Analytical

Fabrication



# Company Overview

Nagrom, a privately owned Western Australian company, has been providing metallurgical services to the mining industry for over 45 years.

Our Kelmscott facility with over 400 processing units and a staff of over 130 can provide thorough investigation of your process flowsheet. From bench-scale to >100t pilots, from high volume yields of iron ore to high concentration processes of tin, tungsten, tantalum & REO ores, Nagrom will have a solution for your project.

Our in-house laboratory provides low cost/fast turnaround service to your Metallurgical & Exploration programs, covering full iron ore, REO, Lithium, Tantalite, gold and base metals suites.

## Key Personnel Experience

### **Rick Murphy:** CEO

50+ Years Assaying, Minerals & Metallurgy

### **Rain Lewis:** Metallurgical Supervisor

15+ Years Metallurgy and Processing

BSc (Extractive Metallurgy)

### **Dr Slobodanka Vukcevic:** Senior Metallurgist

30+ Years Hydromet, Pyromet, Leaching and Flotation

BSc(Metallurgy) MSc(Eng) Ljubljana, PhD Belgrade - Associate Professor (UWA)

Involved with Comalco, Anaconda, KCGM and Bactech.

### **Lisa Allen:** Metallurgical Coordinator and Environmental Scientist

13+ Years experience in Environmental Sector

10+ Years Metallurgical and Processing

BSc (Environmental Science), Grad Dip (Extractive Metallurgy)

### **Adam Pound:** Laboratory Manager

18+ Years experience in Analytical Testing

BSc (Chemistry)

### **Adam Holmes:** Metallurgist/Process Engineer

15+ Years Technical, Operational and Design in Mineral Processing

BEng (Chemical and Process Engineering)

### **Anthony Price:** Metallurgist/Process Engineer

11+ Years experience in Metallurgy and Project Management

BEng (Chemical Engineering, Hons)

### **Ryan Wilson:** Process Engineer

8+ Years experience in Metallurgy, Hydrometallurgy and Processing

MPE (Chemical Engineering), BSc (Engineering and Synthetic Chemistry)

# Capability Statement

## Metallurgical Testing & Mineral Beneficiation

### **Mineral Distributions & Separations effected via:**

- Allmineral Upcurrent Classifier (3 Product)
- FLSMidth Reflux Classifiers (RC300, RC100, Batch RC)
- Crushing/Grinding - Jaw, Rolls & Cone Crushing, HPGR, Rod & Ball Mill
- Allmineral Stratification Jig (Batch and Continuous)
- Russell Jig
- Allmineral Air Jig
- Custom Drying
- Large Scale Rotary Sample Divider
- Size Separation
- Gravity Separation - Spirals, Tables, Jigs & Hydrosizer
- GZRINM
- Dense Media Cyclone & Ericsson Cone
- Magnetic Separators
- Gaustec Wet High Intensity Magnetic Separator
- Wet High Gradient Magnetic Separator (Slon, Longi, GRZINM)
- Electrostatic Separation
- Flotation (Benchscale and Pilot)
- Column and HydroFloat Flotation
- Atmospheric Leaching (acid and alkaline) Programs
- Pyrometallurgical Units (Calcination, Roasting, Chlorination)
- High Pressure Leaching
- Solvent Extraction and Ion Exchange
- High Purity Hydrometallurgy

## Analytical Laboratory Services

### **A full range of assaying services available via:**

- Analytical Axios Wavelength Dispersive XRF
- Perkin Elmer ICP-OES and ICP-MS
- Thermo Scientific ICAP 6000 ICP-OES
- Full Suite Rare Earth Analysis
- Full Iron Ore Suites with TGA
- Malvern Mastersizer 3000 Lasersizer
- Carbon Analysis - Graphitic, Carbonate, Organic
- Aqua-regia Gold Assays
- Base Metals
- Leco TGA 701's
- Fire Assay



**NAGROM**  
THE MINERAL PROCESSOR





# Capability Statement - 2023

## Custom Crushing/ Grinding & Preparation

- Almonte Auto Core Cutting
- Scrubber Trommels - 1 metre, 2 metre & 5 metre
- Hydrocyclone Desliming Circuits
- Mozley Ultrafine Cyclone
- Jaw Crushing
- Rolls Crushing
- WesCone 14" Cone Crusher
- Rod Mill Grinding (wet & dry circuit)
- Continuous Ball/Rod Mill
- Bench Scale Ball & Rod Mills
- Thyssenkrupp High Pressure Grinding Rolls (HPGR)
  - Pilotwall
  - Labwall
- Comminution Testing:
  - Bond Ball Mill Work Index
  - Bond Rod Mill Work Index
  - Bond Abrasion Index
  - Crusher Work Index

## Custom Drying

- Controlled Drying Rooms - 1kg to 2 tonne
- Controlled Rotary Drying Kiln (2tph)
- Quarantine ovens for Sterilization (AQIS)

## Custom Screening

- Single & Twin Deck Vibratory Screens (1-6tph)
- Gyratory Kason-Type Screens - wet & dry process
- Orbital Bed Rotex Screens
- Large Scale Piloting (Customised)
- Shenck Screens
- Derrick Screen

## Flotation / Hydromet

- Various Pilot Flotation Cells
  - Joy-Denver Pilot Flotation Cells
  - OK Type U style Pilot Flotation Cells
  - Agitair Style (20L and 40L)
- ERIEZ HydroFloat lab unit
- ERIEZ Column Flotation Unit
- FLSmidth CoarseAir
- Benchtop Flotation Units
  - Essa
  - Denver
  - Agitair
- Leaching/Extraction Processes
  - Diagnostic - atmospheric - pressure leaching
  - Pilot and Customised process programs and Equipment
- Solvent Extraction Processes
  - Diagnostic and Benchscale
  - Pilot and Customised process programs and Equipment
- Ion Exchange Processes
  - Diagnostic and Benchscale
  - Pilot and Customised process programs and Equipment

- Precipitation and Crystallisation Processes
  - Diagnostic and Benchscale
  - Pilot and Customised process programs and Equipment
- FLSmidth RFC100

## Electrostatic Separation

- Dual Drum High Tension Separation
- Electrostatic Plate Separator
- Carrara and Readings High Tension Roll Separator

## Gravity and Classification

- Air Tables - 1.5m to 2.5m decks
- Wet Tables
  - Wilfley
  - Holman
  - Gemini
- Spirals - various profiles
- Falcon Separator
- Knelson Concentrator
- Kelsey Jig
- Dense Media Cyclone Separation
  - DMS100
  - DMS250
  - Dedicated Diamond DMS
- Sepro Condor Dense Media Cyclone
- Flat Bottom Classifier
- Desliming Cyclones
- FLSmidth Reflux Classifiers (RC300, RC100, Batch RC, and RFC)
- Allmineral Allflux Classifier
- Russell Jig
- Allmineral Stratification Jig
  - Batch and Continuous Wet Jig
  - Batch and Continuous Air Jig
- Specific Gravity Determinations - Via Gas Pycnometer and Wet Pycnometer
- Hydrostatic Weighing
- Cyclosizer
- Multi Gravity Separator

## Magnetic Separations

- Rare Earth Drum Magnets
  - Various Dry Drum Magnets
- Rare Earth Belt Magnets
- Rapid Disc Magnets - single & triple discs
- Wet Drum Separations
  - Various Wet Drum Magnets
- Eriez Davis Tube
- Cross-belt Magnet
- Carpco Lab Magnet
- Gaustec Wet High Intensity Magnetic Separator
- Wet High Gradient Magnetic Separator
  - SLon500
  - GZRINM145 and GZRINM800
  - Longj500
  - DLS50

# Capability Statement - 2023

## Gold Extraction - Testwork

- Cyanide Leach Programs
  - Bottle Rolls & Column Leach Pilot Runs - static & agitated
- Wet Tabling of Concentrates
- Knelson and Falcon Concentrators
- Leachwell™

## Mineral Concentrates -

## Packing & Export

- Products blended to export specification
- Full export batch superintended rotary sampling and packaging
- Quarantine (AQIS) support and assistance for international shipping

## Metallurgical Testwork - Current & Past Activity

- Mineral Resources Limited
- Fortescue Metals Group Ltd
- Galileo Mining
- Iluka Resources Limited
- Rio Tinto Exploration
- Hastings Technology Metals Ltd
- AVZ Minerals
- Lione Resources
- Saturn Metals Limited
- Northern Minerals Ltd
- Peak Resources Ltd
- TNG Ltd
- Savannah Resources PLC
- Consolidated Minerals Ltd
- Atlantic Lithium Limited
- Pensana Metals Ltd
- Calidus Resources Limited
- Margosa Graphite Limited
- Covalent Lithium Pty Ltd
- Core Lithium Ltd
- Walkabout Resources Ltd
- King River Copper Ltd
- BHP Billiton Limited
- Kasbah Resources Limited
- Latin Resources
- Prospect Resources Limited
- Metals Tech Ltd

- Deep Yellow Limited
- Mkango Resources Ltd
- Birimian Limited
- Multicom Resources
- Speewah Mining Pty Ltd
- Pilbara Minerals Limited
- Novo Resources
- Artemis Resources Limited
- Bryah Resources Ltd
- Brockman Mining Australia
- Tungsten Mining NL
- Hill End Gold Ltd
- Arafura Resources Ltd
- Galaxy Lithium Australia Ltd
- Neometals Ltd
- Metals Australia Ltd
- Greenpower Energy Limited
- Hexagon Resources Ltd
- New Energy Minerals (Mustang)
- Saracen Metals Pty Ltd
- Golden Rim Resources LTD
- Lithium Australia
- Northern Star Resources Ltd
- Eastern Goldfields Limited
- Global Advanced Metals
- First Graphite Limited
- Flinders Mines Ltd
- European Metals Holdings Ltd
- Spitfire Minerals Limited
- U308 Corp.
- Echo Resources Ltd
- Aurora Minerals Limited
- Tyranna Resources Limited
- Kin Mining NL
- AngloGold Ashanti Australia
- Auroch Minerals NL
- Oceanagold Ltd
- Namibia Rare Earths Inc
- Delta Lithium Limited
- Liatam Mining
- Global Lithium Resources
- Talison Mining Pty Ltd
- Albemarle
- Lynas Rare Earths Ltd



## Contact Us

49 Owen Road  
Kelmscott WA 6111

**T** +61 (0) 8 9399 3934

PO Box 66  
Kelmscott WA 6991

**E** info@nagrom.com.au  
**W** www.nagrom.com.au

### Rick Murphy- CEO

rick@nagrom.com.au  
+61 (0) 417 187 184

### Adam Pound - Laboratory Manager

adam.pound@nagrom.com.au  
+61 (0) 8 9399 3934

### Rain Lewis - Metallurgical Supervisor

rain@nagrom.com.au  
+61 (0) 400 205 209