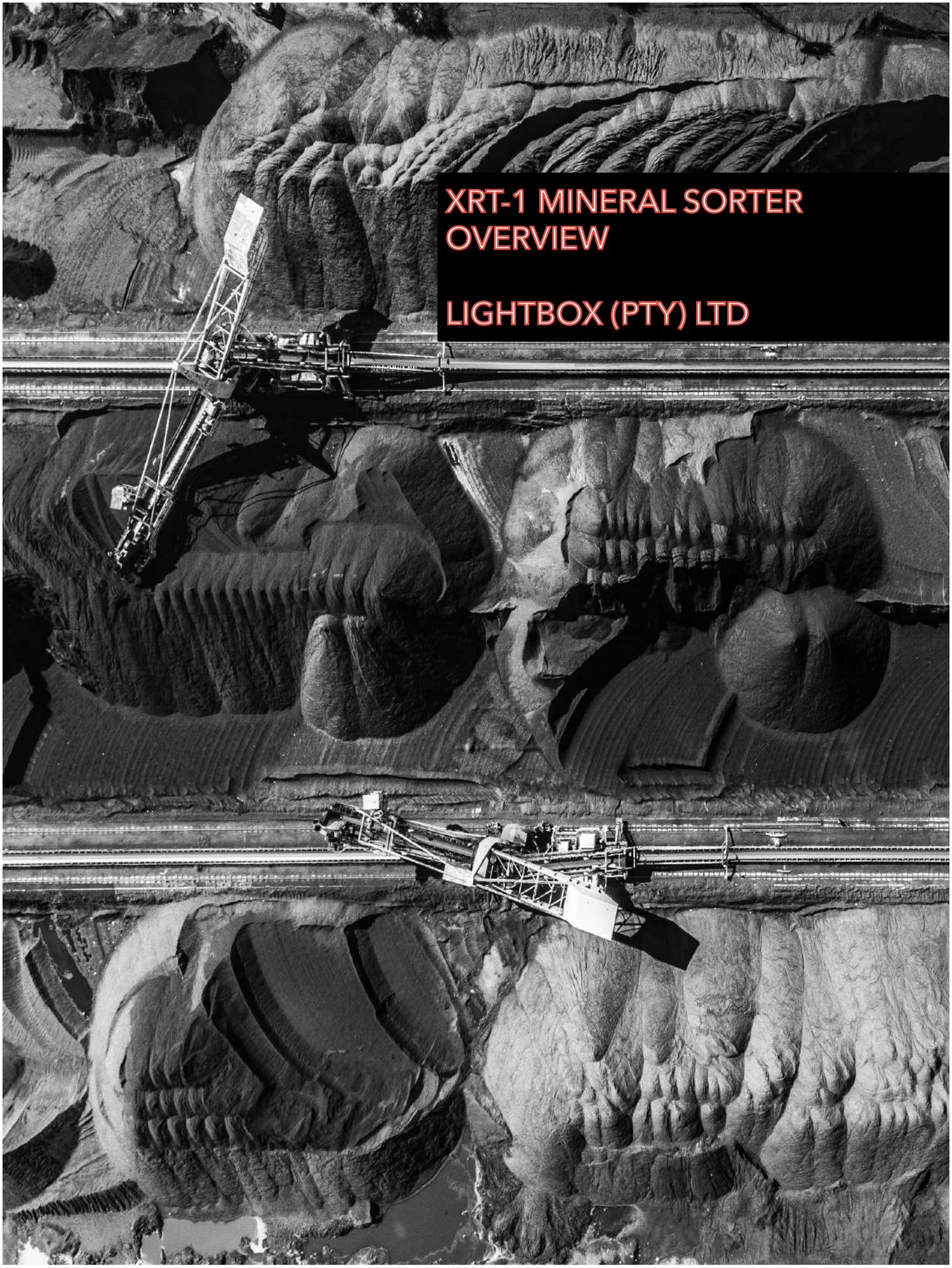


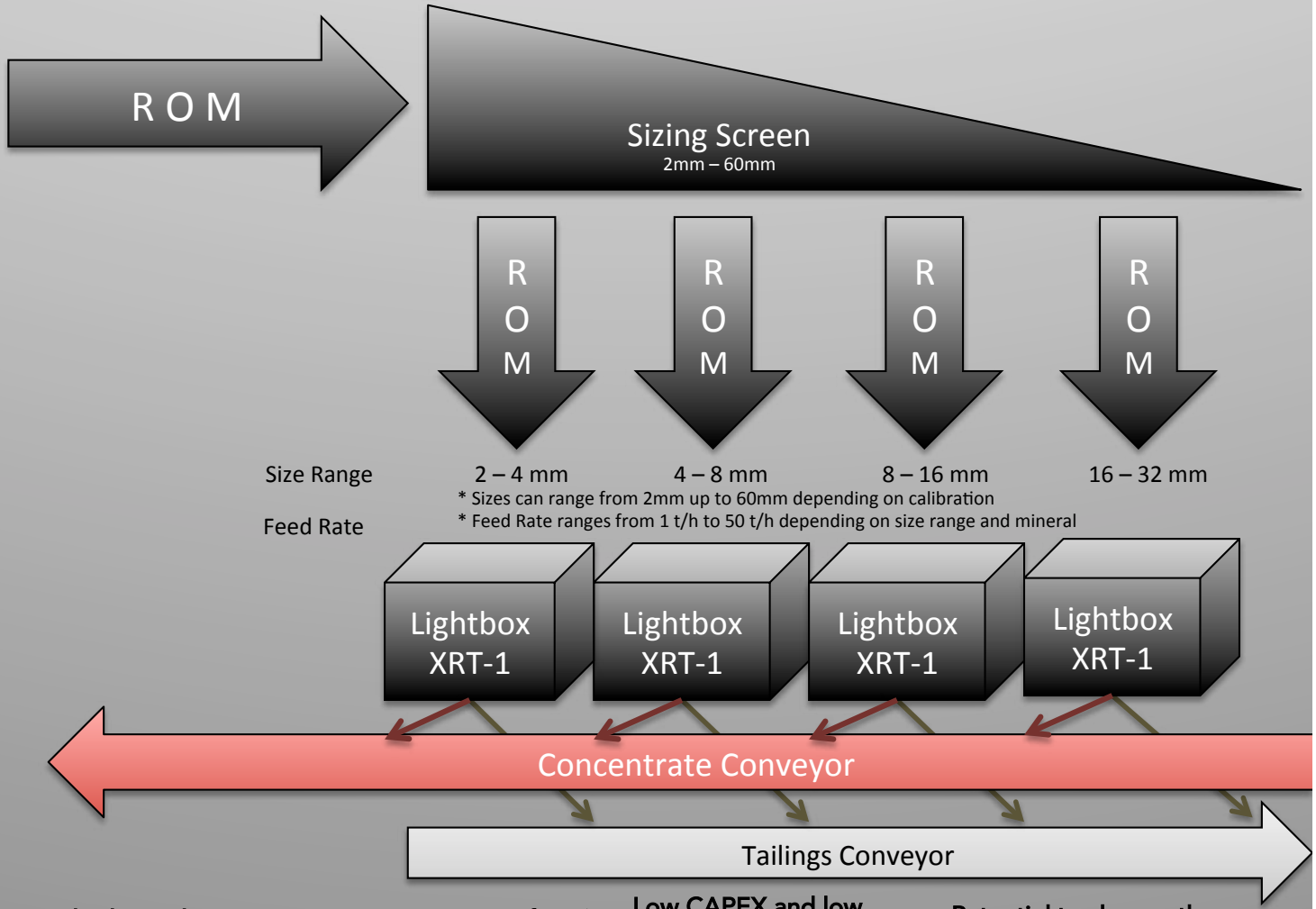
XRT-1 MINERAL SORTER OVERVIEW

LIGHTBOX (PTY) LTD

XRT-1 MINERAL SORTER OVERVIEW

Introduction

- The XRT-1 sorter uses Atomic Density X-Ray Transmission technology to identify and split minerals and particles with different densities. When a high value mineral is identified a high pressure air ejection system separates the mineral from the waste onto a different sorting line.
- The sorter has been successfully implemented on numerous diamond mines. It has delivered results better than competitors and other recovery methods utilized in the current market.
- Opportunities exist to implement in the **diamond, platinum, copper, cobalt, nickel, lithium, tin, gold, PGM's & chrome** industries



Multiple applications from the XRT-1 through various industries

Recovery rates of 95% to 98% of high value minerals

Low CAPEX and low OPEX for improved cashflow

Potential to change the viability of mining operations

XRT-1 MINERAL SORTER OVERVIEW

Applications of XRT-1 Bulk Sorter:

1. Upgrade R.O.M. grade as a pre-concentration process before existing plant feed (eg. Initial raw material mining with 2% grade and upgrade to 4%)
2. Treatment of tailing dumps and plant tailings to add additional revenue stream which otherwise would not have materialized
3. Feed rates and recovery rates justify replacement of existing DMS plants as a result of improved technological advancements
4. Many applications outside mining such a waste management, fruit and nut inspection, steel quality inspection, security etc.

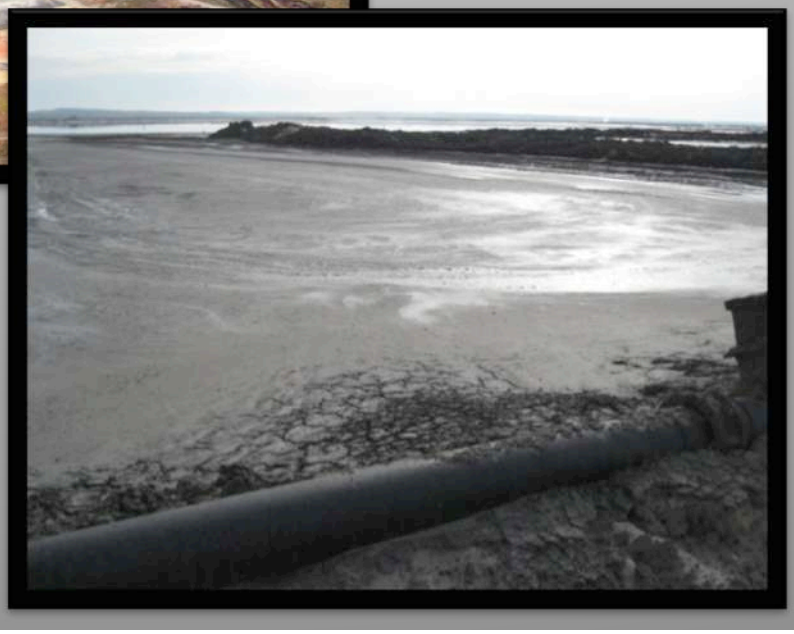
The advantages of XRT compared to traditional mining methods:

- Dramatic Reduction of Water Consumption
- Dramatic Reduction of Electricity Consumption (Electricity requirement for standard plant is 140Kva)
- Environmental footprint decrease dramatically as a result of XRT plant size
- CAPEX and OPEX reductions for mine operators
- Capital and Machines costs a fraction of European and Asian counterparts operating in a similar space.
- National Strategic Importance for the development of local mining opportunities.
- Rehabilitation and retreatment of existing tailing dumps for environmental rehabilitation
- Limited downtime - all hardware contained within the sorter is “plug-and-play”. Downtime in the rare event of a hardware failure is between 5 and 30 minutes for repairs. Critical spares kept on site.
- Reliability – No moving parts in the machine, therefore breakdown are very rare and maintenance minimal
- Software and program maintenance and upgrades are done remotely via internet connection

The Realities of Dense Media Separation

Current Mining Methods:

- High environmental impact
- Trillions of liters of water required
- High creation of slime dams
- High energy/electricity requirement
- High operational costs



THE XRT-1 Solution

Advantages:

✓Reduced operational costs

✓Reduced capital requirements

✓Cost reduction:

- ○Increased production.
- ○New mines.
- ○Higher profit margins

Opportunities:

✓Unfeasible reserves now economically viable

✓Treatment of tailing dumps

✓Uneconomic mines now economically viable

Green Technology Savings:

- ✓ Electrical = 85% Saving
- ✓ Water = 90% Saving
- ✓ Enviromenment = no Stockpiles

XRT-1 MINERAL SORTER OVERVIEW

- Remote monitoring of sorter performance and fault finding via internet
- Lightbox XRT has been proven and tested to recover small size fractions down to 1mm
- Improved recovery rates – why are recoveries better than DMS recoveries? It is because some ore is highly disseminated and density differences between target material and waste are too small for effective separation on DMS. XRT technology can detect very small quantities of target material contained in the particles and effectively separate this from pure waste. Furthermore, the process can be set to predetermined conditions, eg. if a particle contains less than 2% target material and it is determined that it is not economically viable to extract such low grade material it will be determined as waste material, but all particles with more than 2% target material will be separated with the rest of the concentrate.
- User friendliness. Sorters can be operated with ease by a technician after a short on site and factory training course.
- We have operational staff with field experience.
- Safety of utmost importance

Software and Algorithms

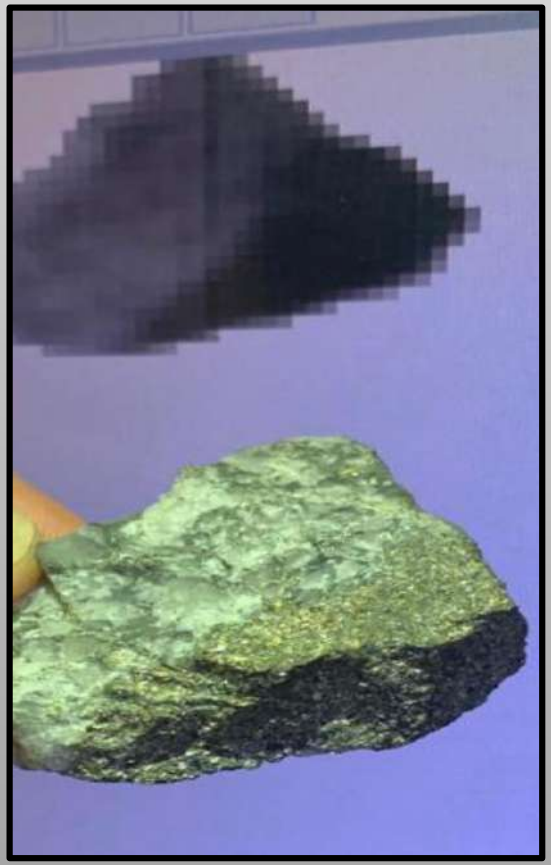
The XRT electronics system comprises of 4 main parts.

- Firstly the control of the system which is done through a realtime controller. The realtime controller also controls all valves, X-Rays, sensor data, conveyors, visual and indications.
- Secondly is the XRT sensor which is a single line scanner reporting back data of what it sees periodically every few micro seconds.
- Third is the Xray Tube and Generator.
- Lastly is the valve bank to eject particles. The system can be developed or configured to handle multiple variables for example, only ejecting Gold or in another example eject everything but gold depending on material composition

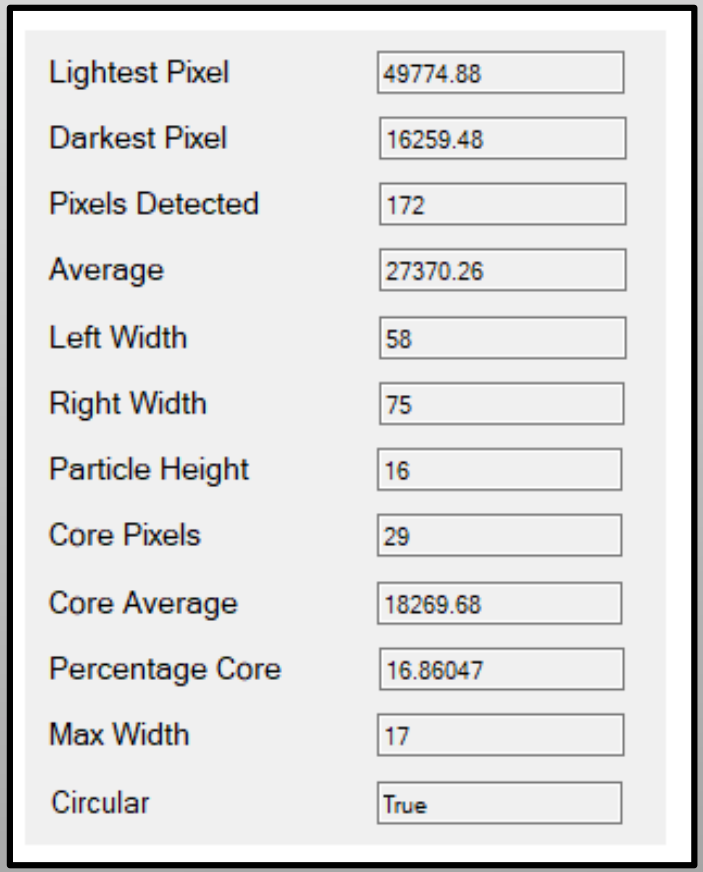
Lines of data are collected by the real time controller where the realtime controller will then build a particle up and decide if the particle should be ejected or not. This is done in less than 500 micro seconds per line while a particle is free falling and the particle is being exposed to X-rays.

XRT-1 MINERAL SORTER OVERVIEW

Separation of particles are done dependant on the difference in density between target particle and waste. For example if the density difference between target particle and waste is large a simple; average check between the particles depending on size is all that is needed. However when density is not as defined or very small amount of target particle is within the waste range more checks can be done. For example checking the darkest particle, checking how many dark particles(Most dense part of the particle), checking the shape of the particle, checking how many dark particles between light particles and also the size of the particle



Visual Representation of X-Ray image captured



Digital Representation of X-Ray Readings

Clear distinction between lightest Pixels – waste - and darkest Pixels – usable product. Percentage core represents the usable Ore content of particle, i.e. 16.8%

XRT-1 MINERAL SORTER OVERVIEW

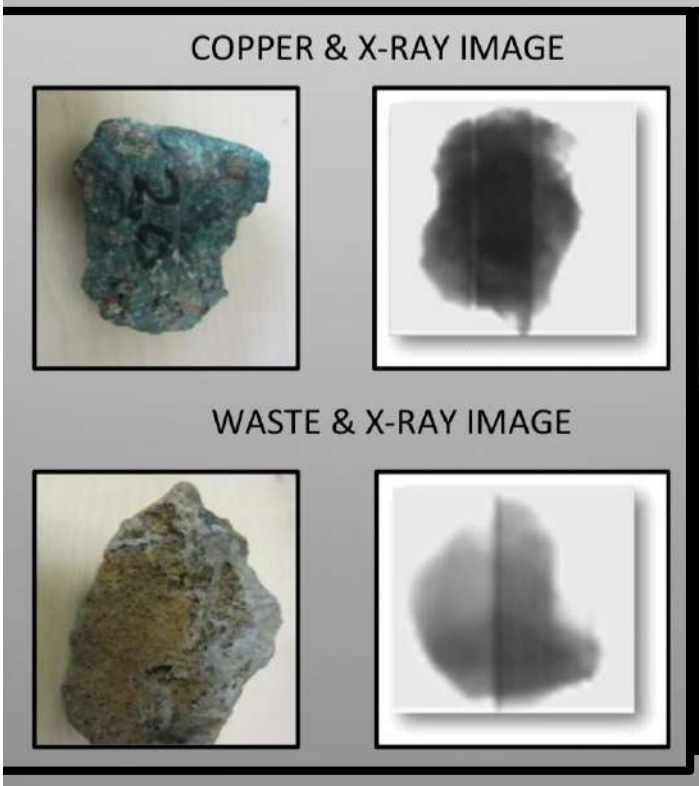
XRF & XRT Technology comparison

Lightbox has been at the forefront of developing XRF technology at a fraction of the cost of international competitors and aims to transform the mining landscape in South Africa. We have a well diversified target market in copper, coal, iron ore, tin, zinc, PGM's, gold, cobalt, manganese and chrome markets

We have actively been involved in development of X-Ray fluorescence (XRF) technology which was developed for extraction of diamonds and we have already deployed the machines on several working mines successfully.
The two technologies are predominantly overlapping, essentially differing only in detection where XRF relies on luminescence using photomultiplier tubes to detect diamonds and XRT uses density differences between mineral particles and uses line scanners for detection and differentiation

Detection of target material ✔

XRT



XRF

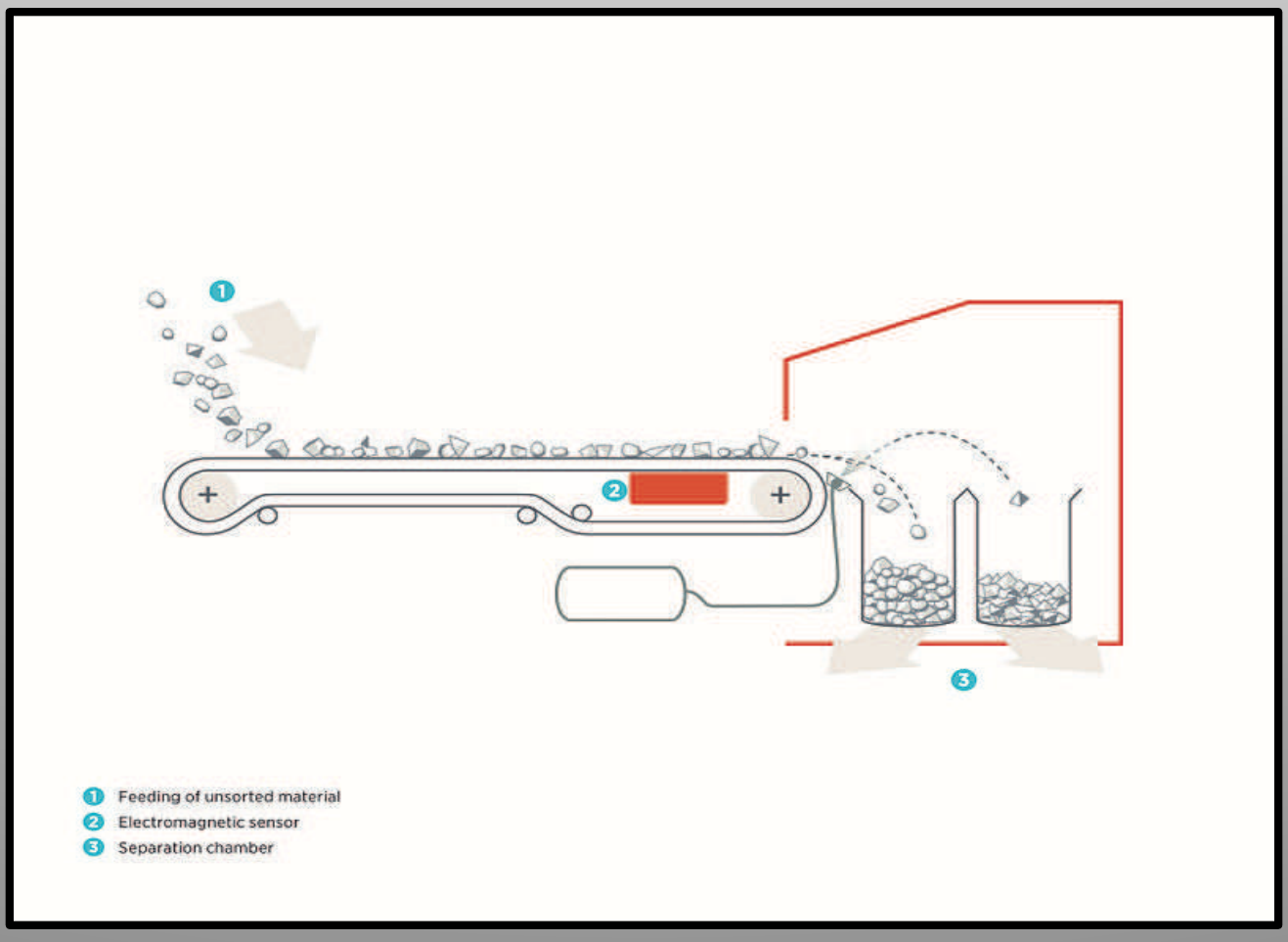
XRT-1 MINERAL SORTER OVERVIEW

Development of Software and Algorithms ✔

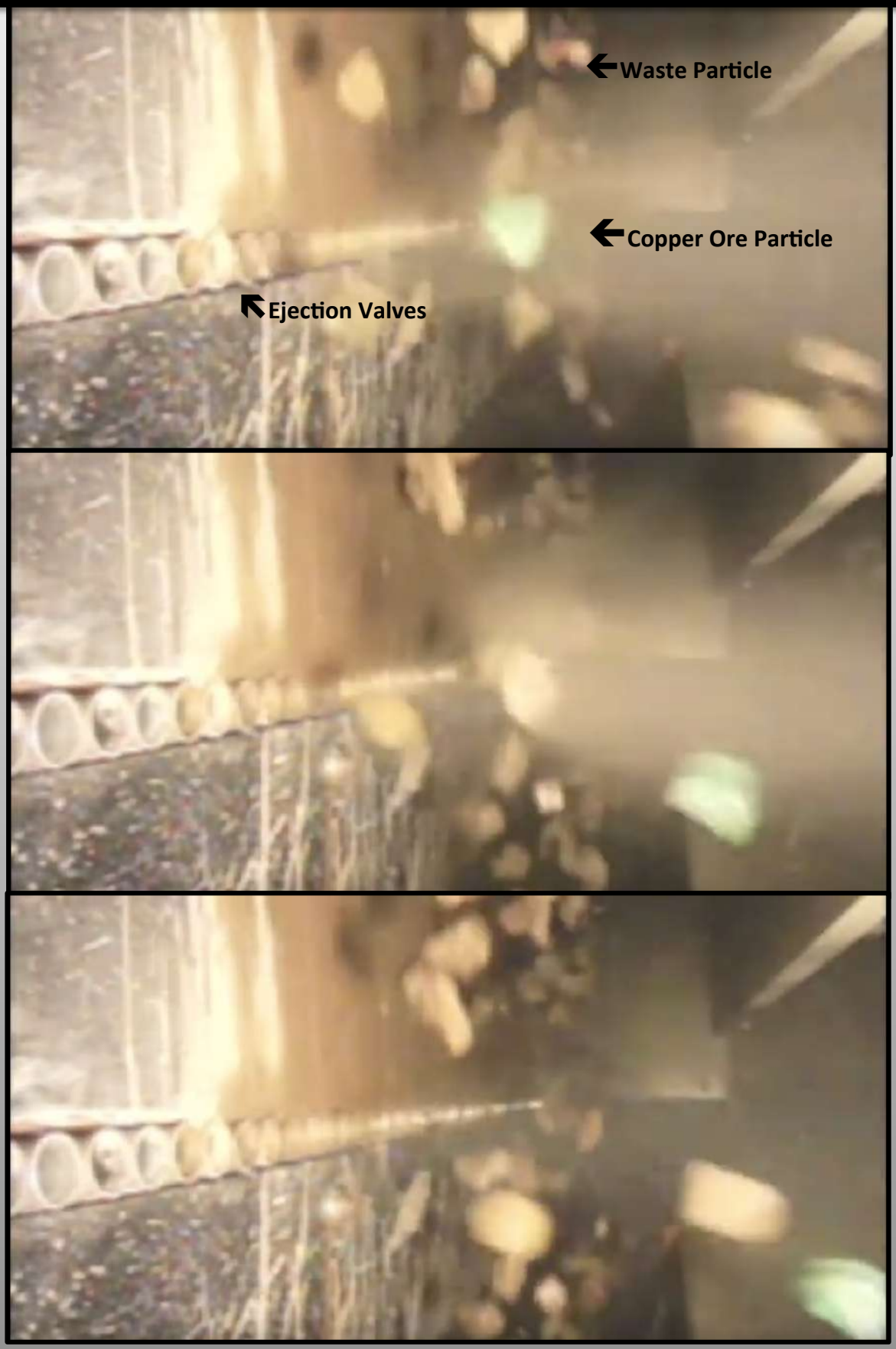
The software which runs the XRT and XRF sorters has been developed and completed in cooperation with Wardew Automation & Design and all hardware has been finalized through Beckoff Industrial Computers
The Intellectual Property (IP) and licensing rights belongs to Lightbox and is locally based.

Ejection System ✔

The means of physical separation is pneumatic air ejections, i.e. once the target particle has been identified by the detection system it sends a signal to the pneumatic air valves which open and close in 26 milliseconds pushing the target particles into a concentrate chute separating it from waste material.



XRT-1 MINERAL SORTER OVERVIEW

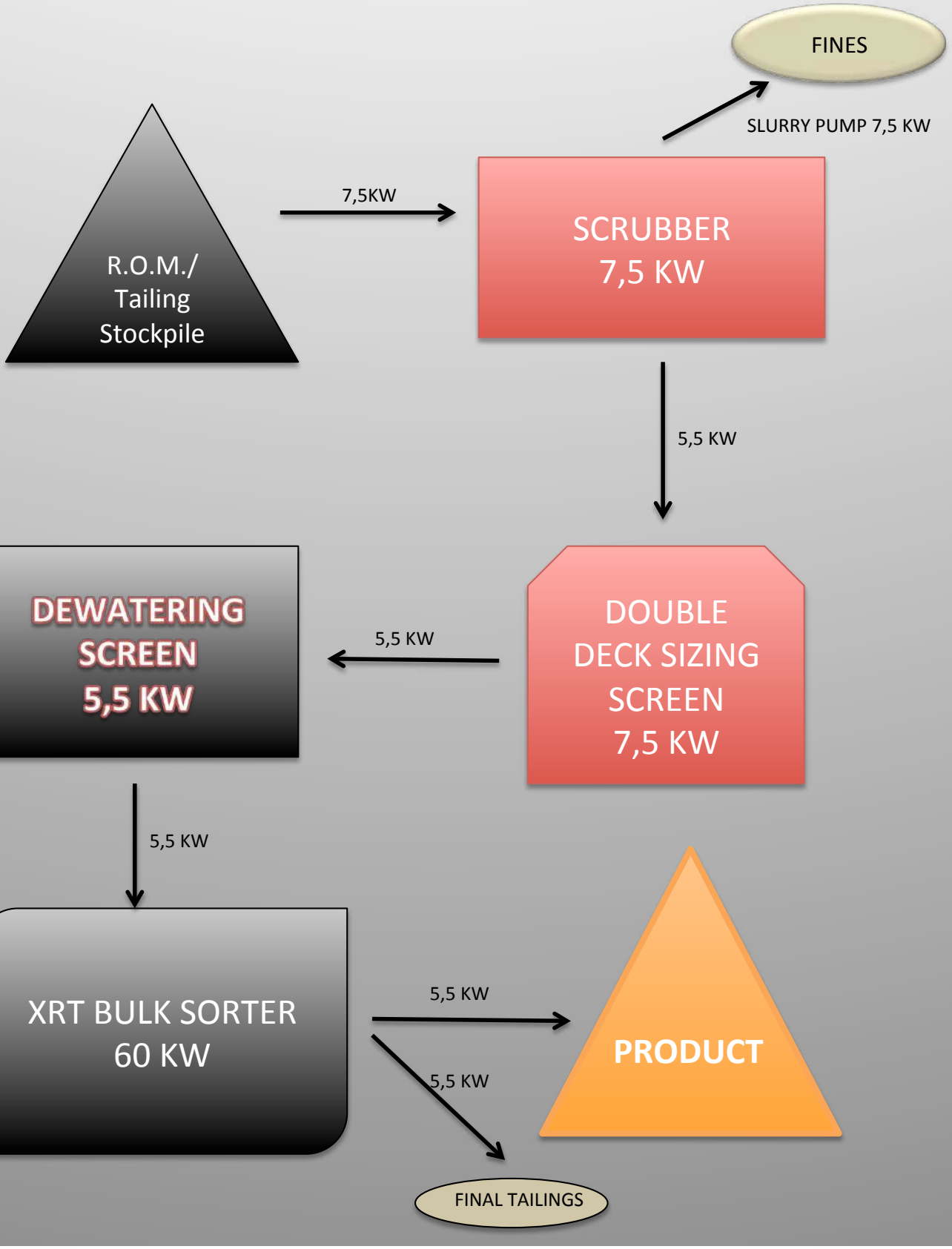


XRT-1 MINERAL SORTER OVERVIEW

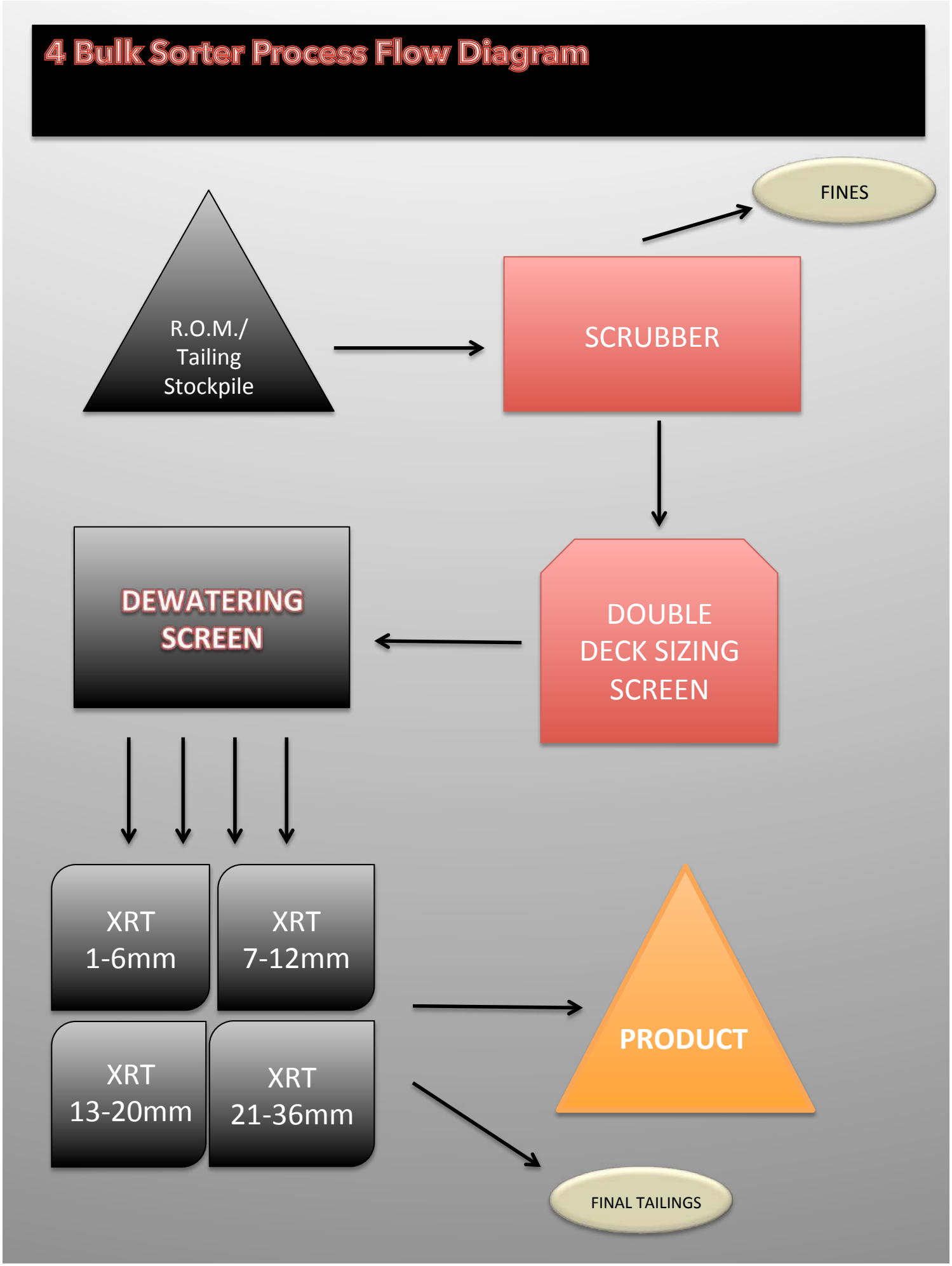
As illustrated above on the previous slide the ejection system for XRT has been completed and is fully functional. It has been developed and perfected over many years and has proven to be highly efficient and durable in existing functioning XRF plants.

Current Lightbox Diamond XRF operation at Elandsdrift Mine, Kimberley, NC.

Process Flow Diagram for Plant with Single Bulk Sorter



4 Bulk Sorter Process Flow Diagram

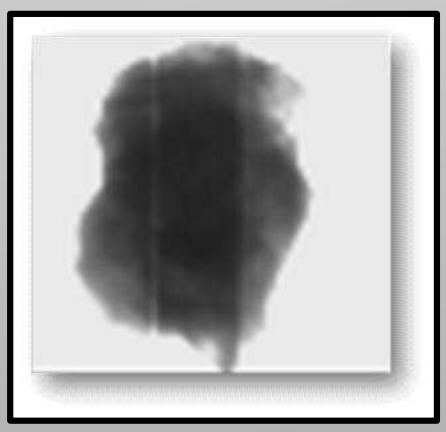


XRT-1 MINERAL SORTER OVERVIEW

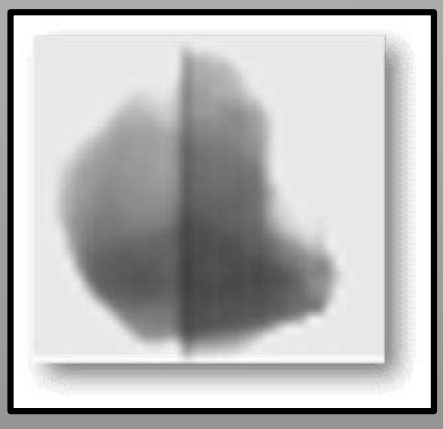
Highlights

- Mineral recovery rate of 99.9% from ROM and tailings material
- Replaces dense media separation (DMS) of 60-70% mineral recovery
- High Throughput
- Final product is a sellable concentrate that requires no further processing
- Can process small sized ROM material i.e.. Can be used on tailings
- Successful pilot plant built with proven recoveries
- Machine has a small footprint that can be retrofitted into existing line
- Low water consumption compared to DMS
- Low power consumption
- Remote monitoring, control and data capture
- Modular design allows for easy relocation at end of project life
- Partnerships with industry leaders in software processing and mining industry

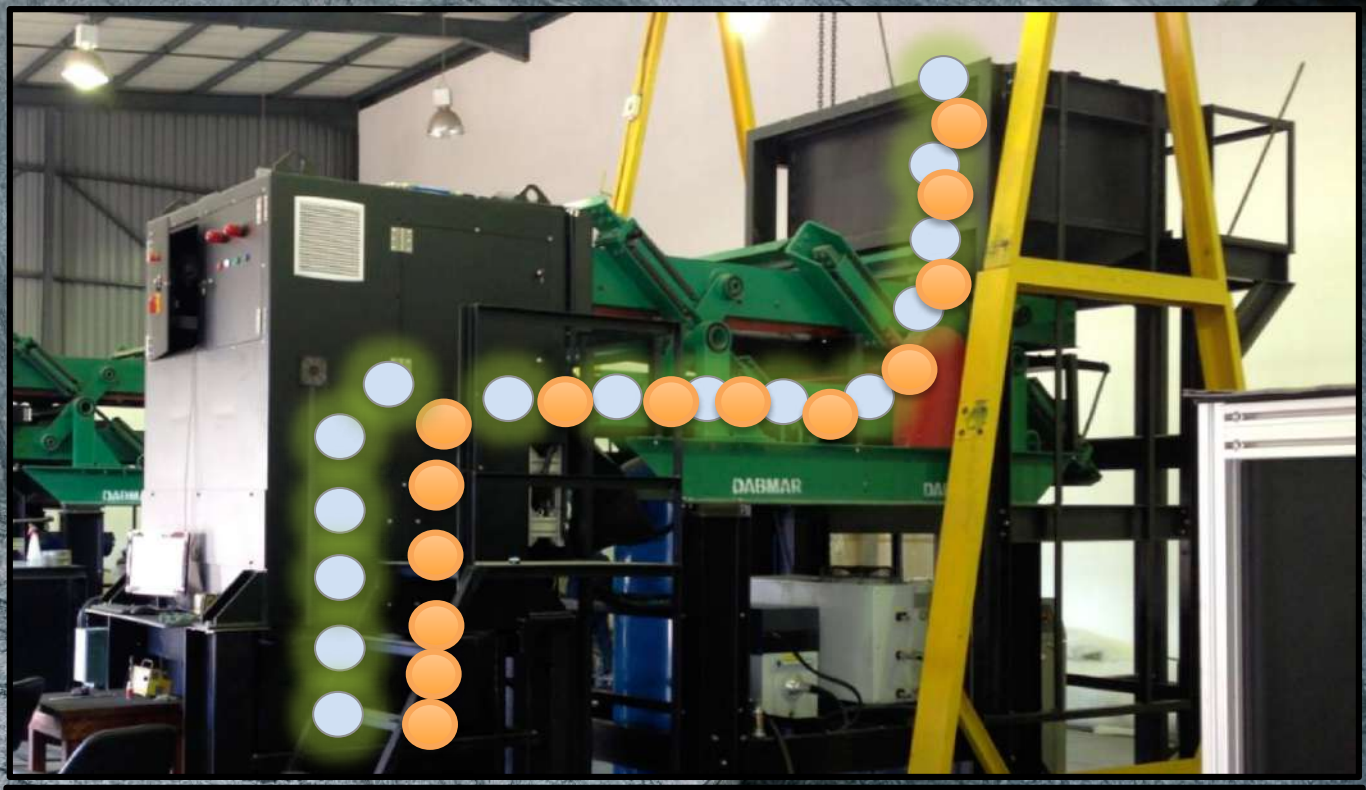
COPPER & X-RAY IMAGE

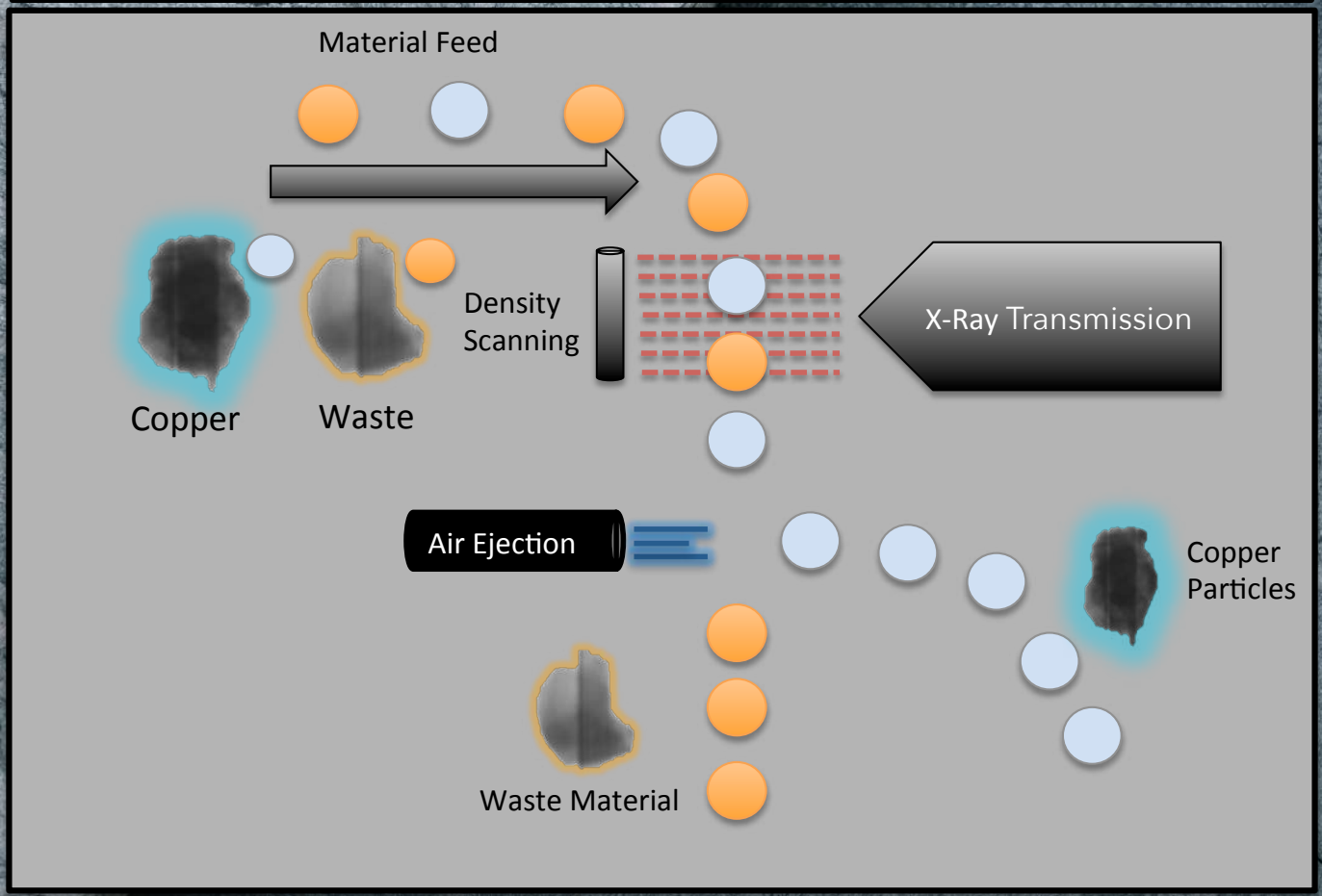


WASTE & X-RAY IMAGE



PLANT & MATERIAL FLOW





ROM COPPER ORE & EXTRACTED CONCENTRATE

CONCLUSION

Lightbox brings a low CAPEX, low OPEX mobile processing facility with the ability to achieve exceptional recoveries and upgrades of either feed material or product at controllable output grades to the market. Benefits are improved profitability and cashflow.

MARKETERS & DISTRIBUTORS

SINERGY GLOBAL SOUTH AFRICA

Sivaji Murukesan
+27 (73) 594 7831
sivaji@sinergyglobal.co.za

Ally Maphale
+27 (79) 280 8259
allymaphale@sinergyglobal.co.za

*