

# Iluka Resources Limited

## Cataby Site Visit

1 November 2019



**ILUKA**

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This document provides an indicative outlook for the Iluka business in the 2019 financial year. The information is provided to assist sophisticated investors with the modelling of the company, but should not be relied upon as a predictor of future performance. The current outlook parameters supersede all previous key physical and financial parameters.

**This information is based on Iluka forecasts and as such is subject to variation related to, but not restricted to, economic, market demand/supply and competitive factors. It is Iluka's approach to modify its production settings based on market demand, and this can have a significant effect on operational parameters and associated physical and financial characteristics of the company.**

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This presentation contains certain statements which constitute "forward-looking statements". Often, but not always, forward looking statements can generally be identified by the use of forward looking words such as "may", "will", "expect", "plan", "believes", "estimate", "anticipate", "outlook" and "guidance", or similar expressions, and may include, without limitation, statements regarding plans; strategies and objectives of management; anticipated production and production potential; estimates of future capital expenditure or construction commencement dates; expected costs or production outputs; estimates of future product supply, demand and consumption; statements regarding future product prices; and statements regarding the expectation of future Mineral Resources and Ore Reserves.

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Capital estimates include contingency and risk allowances commensurate with international estimating classification systems.

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No independent third party has reviewed the reasonableness of the forward looking statements or any underlying assumptions.

## Non-IFRS Financial Information

This document contains non-IFRS financial measures including cash production costs, non production costs, Mineral Sands EBITDA, Underlying Group EBITDA, EBIT, free cash flow, and net debt amongst others. Iluka management considers these to be key financial performance indicators of the business and they are defined and/or reconciled in Iluka's annual results materials and/or Annual report. Non-IFRS measures have not been subject to audit or review.

All figures are expressed in Australian dollars unless stated otherwise.

## Mineral Resources and Ore Reserves Estimates

As an Australian company with securities listed on the Australian Securities Exchange (ASX), Iluka is subject to Australian disclosure requirements and standards, including the requirements of the Corporations Act and the ASX. Investors should note that it is a requirement of the ASX listing rules that the reporting of ore reserves and mineral resources in Australia comply with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") and that the Ore Reserve and Mineral Resource estimates underpinning the production targets in this presentation have been prepared by a Competent Person in accordance with the JORC Code 2012.

Information that relates to Mineral Resources estimates has been previously announced to ASX on 24 July 2019 in *Eneabba Mineral Sands Recovery Project Updated Mineral Resource Estimate*, on 20 February 2017 in *Updated Mineral Resource and Ore Reserve Statement*, on 21 February 2019 in *2018 Annual Report* and on 27 February 2018 in *2017 Annual Report*, all available at [www.iluka.com/investors-media/asx-disclosures](http://www.iluka.com/investors-media/asx-disclosures). Iluka confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. Iluka confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

## Production outlook

Production outlook and the basis thereof are noted within the relevant disclosure. The outlook included in this presentation is indicative only and should not be construed as guidance. The information is subject to changes in market and operating conditions; political risk; and any significant unplanned operational issues.





# Agenda – Friday 1 November

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<b>6.30 - 8.30</b>	Bus transfer from Perth to Cataby
<b>8.30 – 9.15</b>	Site induction and morning tea
<b>9.15 – 10.15</b>	Presentation
<b>10.15 – 11.45</b>	Site tour - concentrator and pits
<b>11.45 – 12.15</b>	Lunch
<b>12.15 – 2.15</b>	Bus transfer from Cataby to Perth (via Airport)

## Sophisticated environmental risk management

- Noise and dust dynamic models and predictive tools
- Reduces non-compliance risks at sensitive receptors

## Cooperative and mutually beneficial relationship with local Yued people

- Regular meetings with site management
- 7% indigenous employment
- Cultural awareness training provided to all site employees by a Yued Elder

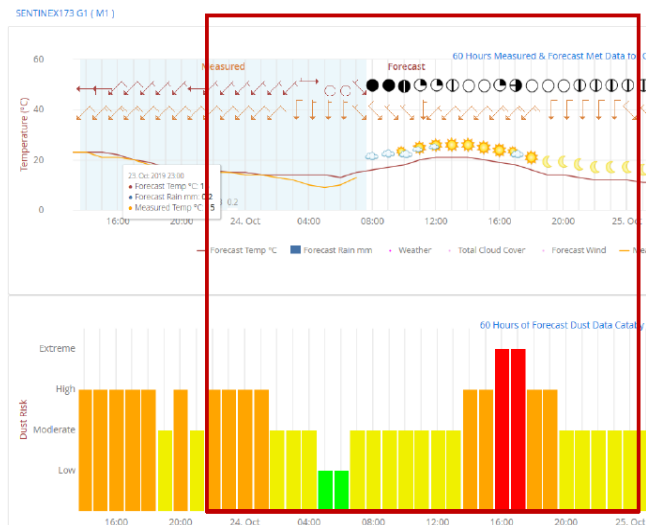
## Safety focus extends outside of site boundary

- Public road travel is a significant exposure for employees
- Rosters designed to manage fatigue of our operators
- Journey Management system and commute plans to mitigate risk

## Comprehensive safety risk management plans

- Focus on major hazards (Surface Mobile Equipment / Tailings / Isolation / Heights)
- Stable operations to reduce general workplace hazards

## Dust management predictive system



## Smoking and welcome ceremony



## Journey management app

A screenshot of the Iluka Journey Management app. The app displays a 'Journey Plan Risk Assessment Tool(1)' and an 'Iluka Personal Fatigue Survey'. The survey asks: 'How many hours sleep have you had in the last 24 hours?' and 'How many hours sleep have you had in the last 48 hours?'. The survey results show: Low Risk (7 or more), Moderate Risk (6 to 7), and High Risk (Less than 6).

- 1970s deposit discovered
- 2003-2012 many scenarios considered for development
- 2013 Board approved feasibility study
- December 2017 Board approved development
- January 2019 commissioning begun
- April 2019 first product trucked to Capel
- Project delivered on schedule and on budget

## Development highlights

- 12 months to develop from greenfields site
- Reuse of equipment from previous Iluka operations, including concentrator from Eneabba, reduced capital cost by ~\$100m
- Two new accommodation camps
- Road upgrades to Brand Highway
- New substation and power supply
- Upgrades to Narngulu and North Capel plants
- Designed and commissioned two new in pit mining units

January 2018



Initial earthworks

July 2018



Pit 9 pre-strip

September 2018



Concentrator construction

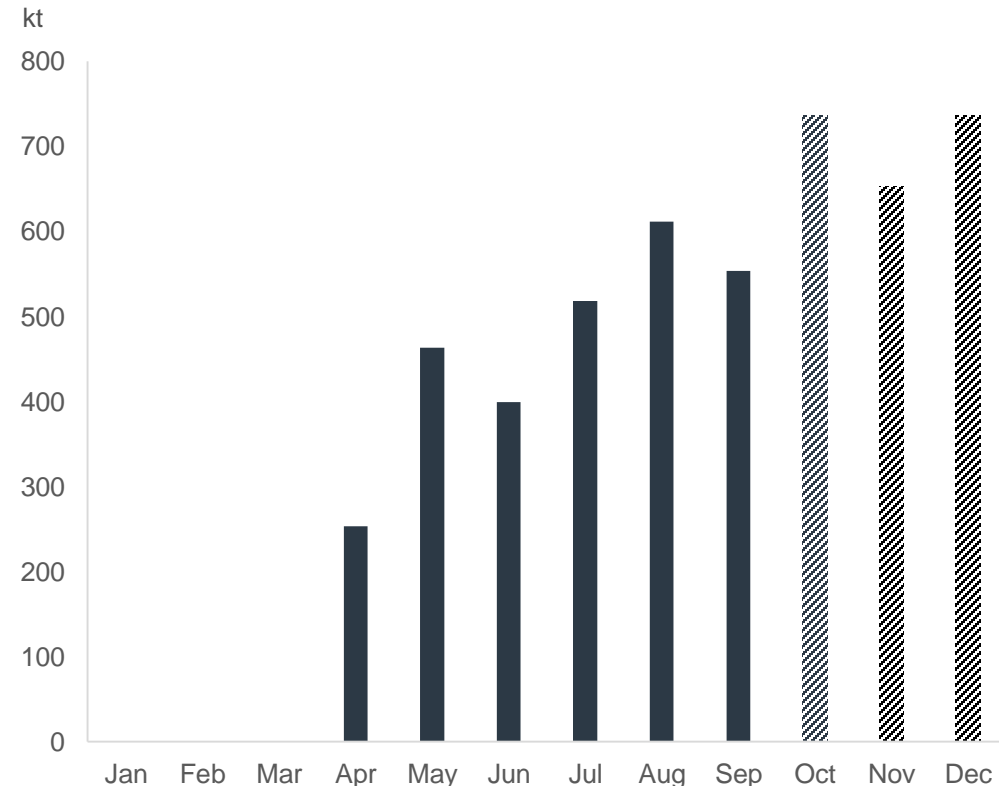
## Performance to Date

- Factors impacting commissioning and ramp up
  - condition and re-use of refurbished equipment
  - some re-configuration needed
  - training 80+ mostly new staff
- Existing ilmenite stocks consumed to sustain synthetic rutile
- Non-mag (rutile and zircon concentrate) production in line with plan
- Reliability of all plant trending up

## Current Focus Areas

- Building throughput capacity beyond current nameplate
- Optimising cost base in stable operations

Cataby 2019 Rougher Head Feed production – Actual to September and forecast Q4





- Cataby project approved in 2017 contemplated deferred capital works and sustaining capital<sup>1</sup>
- Number of pits, spread of deposits and volume of material being moved contribute to ongoing capital requirements
- Works to be undertaken in first 4 years include:
  - mining services and sand tailings systems for subsequent pits
  - development of southern mining area (Pit 1) including highway upgrade
  - additional bores, piping and infrastructure
- Estimated sustaining capital expenditure of ~\$20m p.a. over first kiln campaign<sup>2</sup>

1. Excludes expenditure on potential extensions beyond current mine development plan.

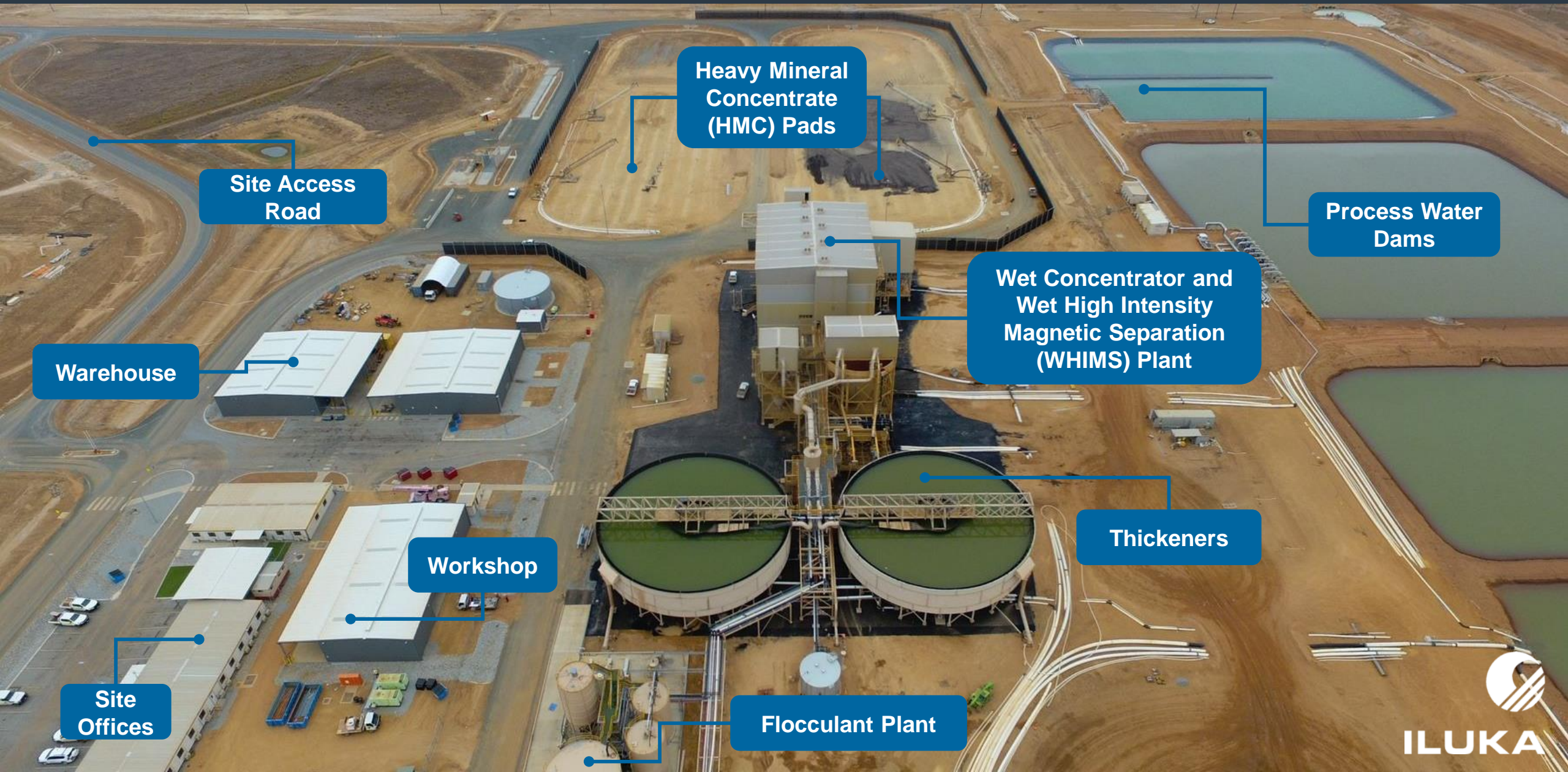
2. Remains in line with outlook provided at time of execution, see ASX release 12 December 2017 *Cataby Project Approved*, and includes kiln MMO in 2019.





# Site Overview

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Site Access Road

Heavy Mineral Concentrate (HMC) Pads

Process Water Dams

Wet Concentrator and Wet High Intensity Magnetic Separation (WHIMS) Plant

Warehouse

Workshop

Thickeners

Flocculant Plant

Site Offices



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## Deposit

- 150km north of Perth
- 18 mining pits over 20km strike length, 3km wide
- Mine life remaining ~ 8 years
- Possible 4 year extension
  - drilling commenced
  - subject to environmental approval, private land owner access

## Material movements planned over remaining 8 year life:

- Strip ratio 2:1
- 131M bcm material moved
- 5.3M tonnes heavy mineral
- 3.6M tonnes magnetic HMC, 1.7M tonnes non-magnetic HMC

## Employees and Infrastructure

- 85 Iluka employees plus 140 contractors
- Major contractors: Piacentini & Son, CaterCare and Qube Holdings
- Power supplied from the South West Interconnected System (grid)
- Water is drawn from onsite bore fields
- Camp consists of ~200 rooms, using refurbished facilities



# Mining Process Overview

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## WASTE STRIPPING

Removing and stockpiling soil and overburden via excavator and truck



## ORE MINING

Dozer push to in-pit mining units, excavators and trucks transfer to run of mine (ROM)



## FEED PREPARATION

Water added to create a slurry to wet concentrator plant



## CONCENTRATING

Spirals and magnetic separation methods split magnetic and non-magnetic product streams



## PRODUCTS

Product stockpiled for transport and further processing



## BY-PRODUCTS

Clay fines and sand pumped back into pits and in-pit sand stacking



## BACKFILL

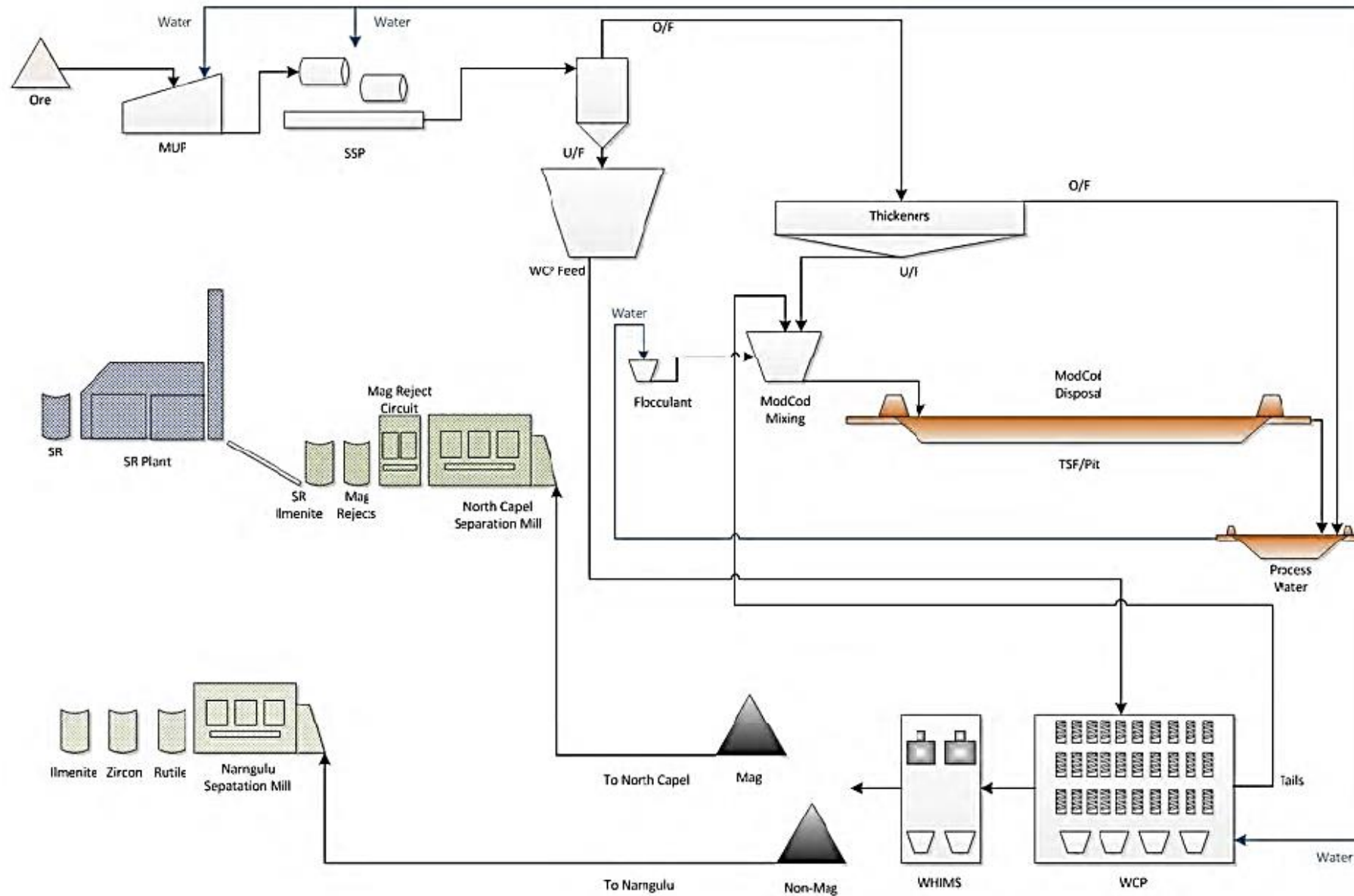
Overburden and top soil rehandled and contoured to produce a final landform



## REHABILITATION

Progressive restoration of pasture and native vegetation



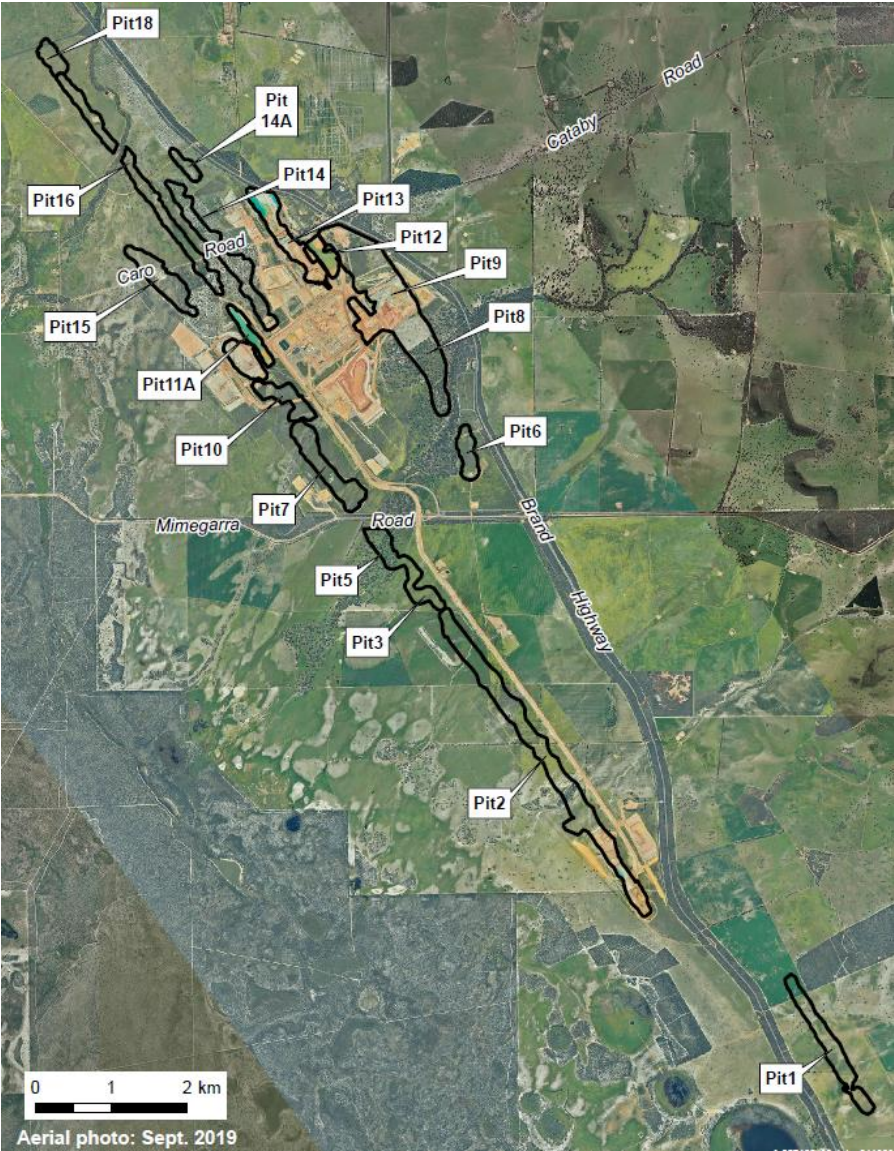


- Spread over 20km of lease
- Current mining in pits 9, 2, 11, 13
- Borders Tronox Cooljarloo mine in the north
- Distinct north and south operations with central processing facility
- Progressive rehabilitation
- Pre-mining dewatering includes ex-pit borefields and in-pit dewatering
- ‘Wet tailings’ storage use pre-mined pits
- ‘Dry tailings’ sand stacking facilities are a combination of off path and on path when sufficient mining void exists

Cataby Ore Reserves, as at December 2018

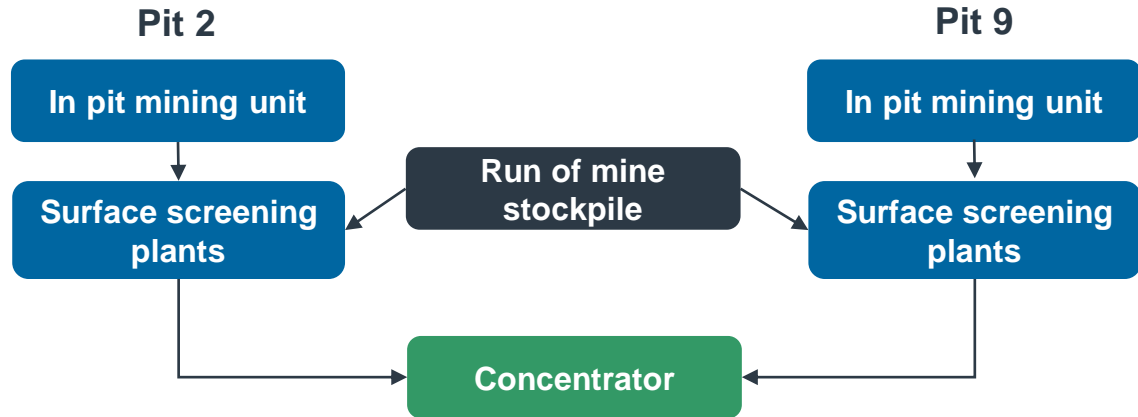
Deposit	Ore Reserve Category	Ore Mt	In Situ HM Mt	HM Assemblage			
				HM Grade %	Ilmenite %	Zircon %	Rutile %
Cataby	Proved	87.8	5.5	6.3	59.7	9.3	4.1
	Probable	32.6	1.3	4.1	62.3	9.4	4.3
Total		120.4	6.9	5.7	60.2	9.3	4.1
Development plan		80	5.3	6.6	60.0	9.6	4.1

This slide should be read in conjunction with disclaimers and compliance statement on slide 2.  
Source: ASX Release Updated Mineral Resource and Ore Reserve Statement, 20 February 2017, with minor adjustments reported in Iluka's 2018 Annual Report



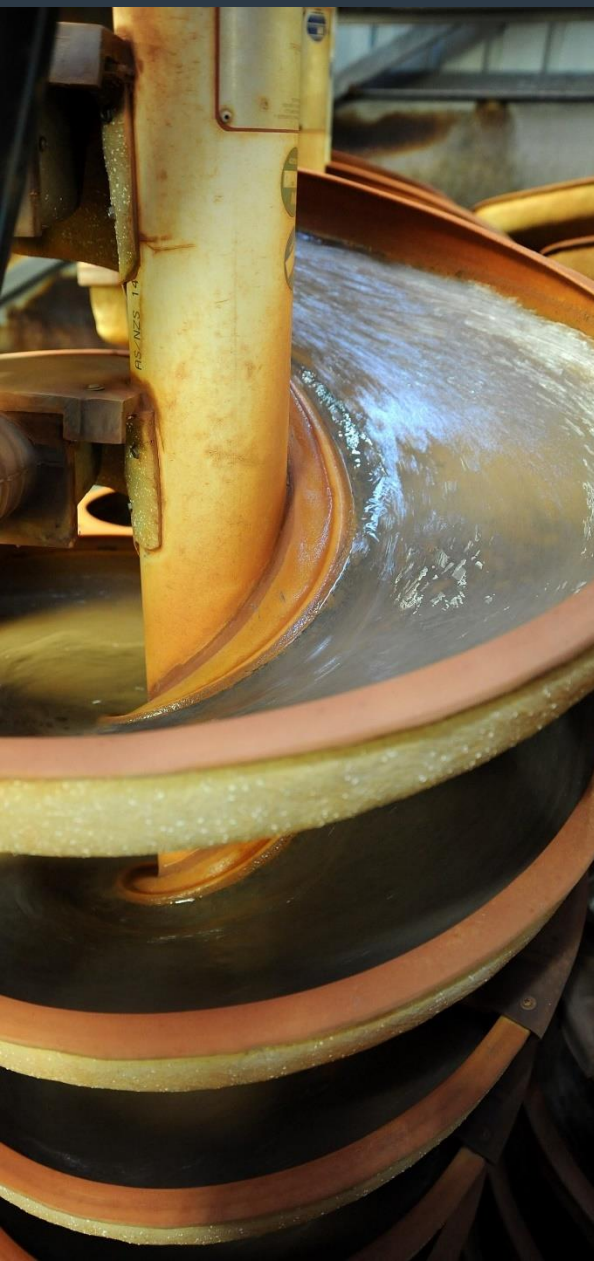


## Current Plant Configuration



- 2 x in-pit mining units fed via dozers
  - ore onto apron feeder conveyor through a sizer and into hopper
  - water added to form slurry then pumped to surface screening plants
- Surface screening plants consist of trommel and scrubber
  - feed either pumped from in-pit mining units or dry fed from the run of mine stockpile via a hopper, screen and conveyor
- Ability to blend feed from high and low grade pits
- Run of mine stockpile can supplement feed
- Mining contractor (Piacentini & Son) for bulk earthmoving operate and maintain: 14 haul trucks (up to 220t payload class); 5 excavators (up to 450t class); 3 scrapers; 10 dozers; 4 graders; 4 water carts





## Overview

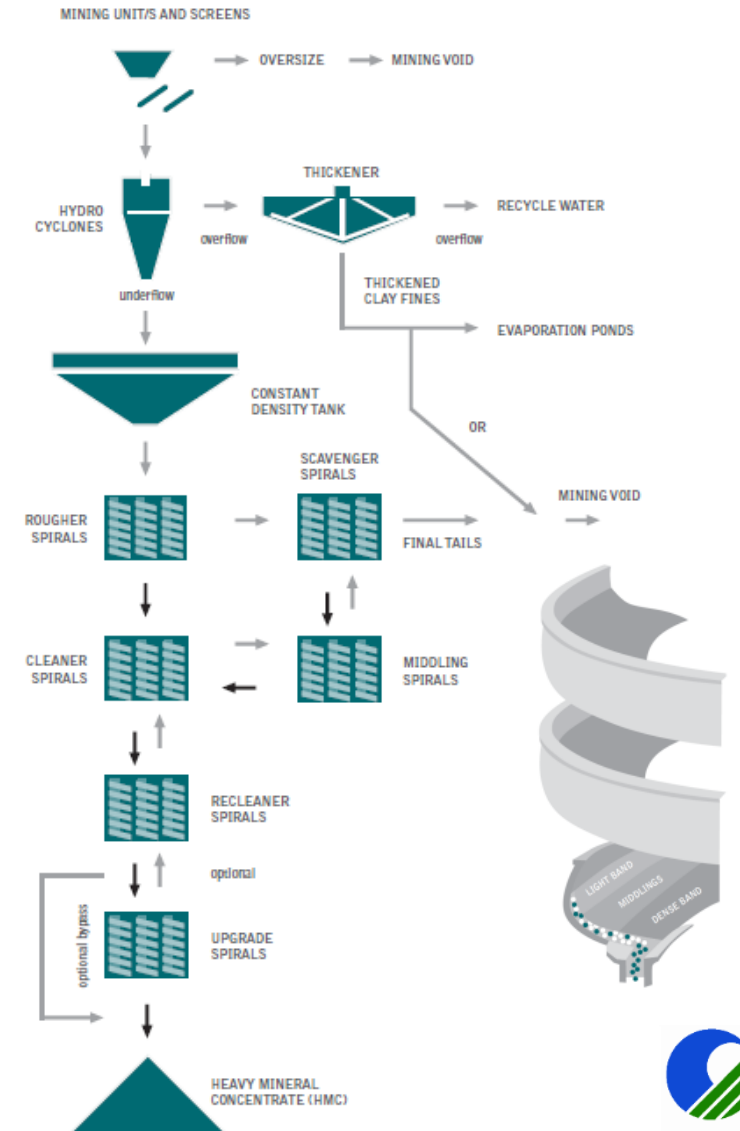
- 'Newman' Concentrator relocated from Eneabba
- Capacity: 1,100 tonnes per hour rougher head feed (ore less slimes and oversize)

## Products and Process

- Magnetic separation (Wet High Intensity Magnetic Separation - WHIMS) added to secondary concentrator (relocated from Murray Basin operations)
- Magnetic (ilmenite) and non-magnetic (zircon + rutile) heavy mineral concentrate produced for haulage
- Simple separation mechanics (gravity, classification and magnets)

## By-Product Handling

- Tailings consist of sand and clay fines
- Majority of sand backfilled to mining voids via sand stackers
- Clay fines and the balance of sand are co-disposed
- Flocculant added to co-disposed for immediate water recovery
- Process water never discharged off site





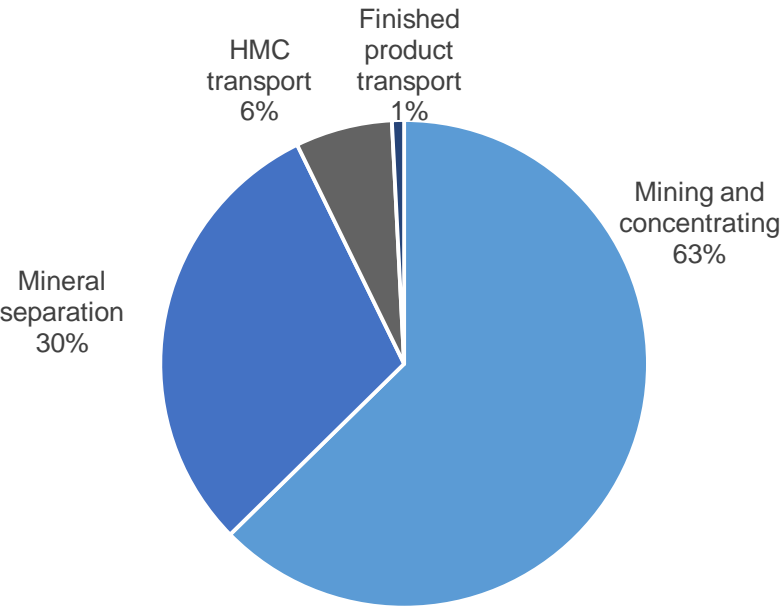


### Average Annual Volumes

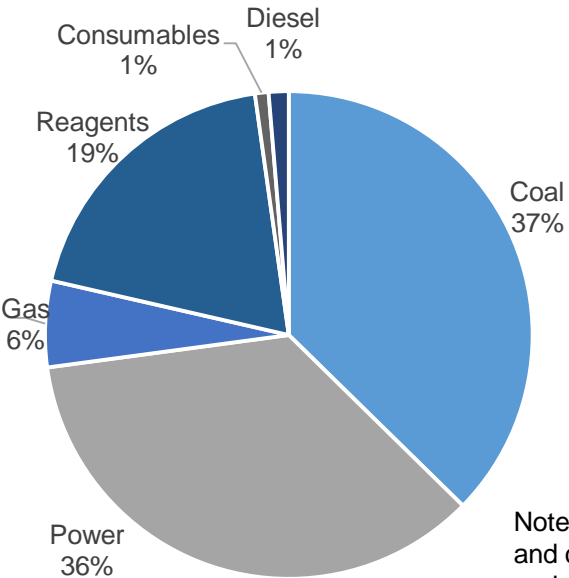
- ~185 kt non-magnetic heavy mineral concentrate (~30kt rutile, ~50kt zircon)
  - Final separation at Narngulu mineral separation plant
  - Exported from Geraldton
- 
- ~375kt ilmenite to produce 200kt synthetic rutile
  - Synthetic rutile produced at Capel
  - Exported from Bunbury

Haulage by triple (~100 tonnes) and double road trains

2020 forecast cash costs of production, South west



2020 forecast raw materials and consumables, South west



Note: does not include raw material and consumable costs covered under mining contractor







## Environmental Management

Strict environmental operating conditions set by the Minister for Environment which require regular monitoring and reporting to ensure we are compliant, including:

- Reducing impact on Carnaby's Cockatoos through protection of their habitat, limiting noise and lighting emissions in proximity to their habitat and funding a conservation program
- Upstream and downstream ground water and surface water monitoring
- Vegetation health monitoring
- Noise and dust monitoring

## Rehabilitation


Iluka's rehabilitation credentials are among the best in the resources industry and rehabilitation planning forms part of ongoing mine planning

- Progressive rehabilitation to reduce disturbance area and final closure costs
- An on-site rehabilitation specialist to plan and implement rehabilitation alongside the mining team
- Landform and hydrological modeling ensure land returned to sustainable contour for future use
- Rehabilitation obligations include planting 20km of roadside native tree belt, restoring over 180 hectares of previously cleared farmland and planting a vegetation corridor between the mine site and Enemunga Nature reserve



- Support and use of local business including venues and catering
- Dandaragan Primary School science week
- Decorate your gate participant
- Charity events in Iluka camp (including World's Greatest Shave)
- Ongoing engagement with local indigenous community
- Supporting Yandin Windfarm development (Alinta Energy)





For more information contact:

**Melissa Roberts**

General Manager – Investor Relations and Commercial  
Mineral Sands Operations

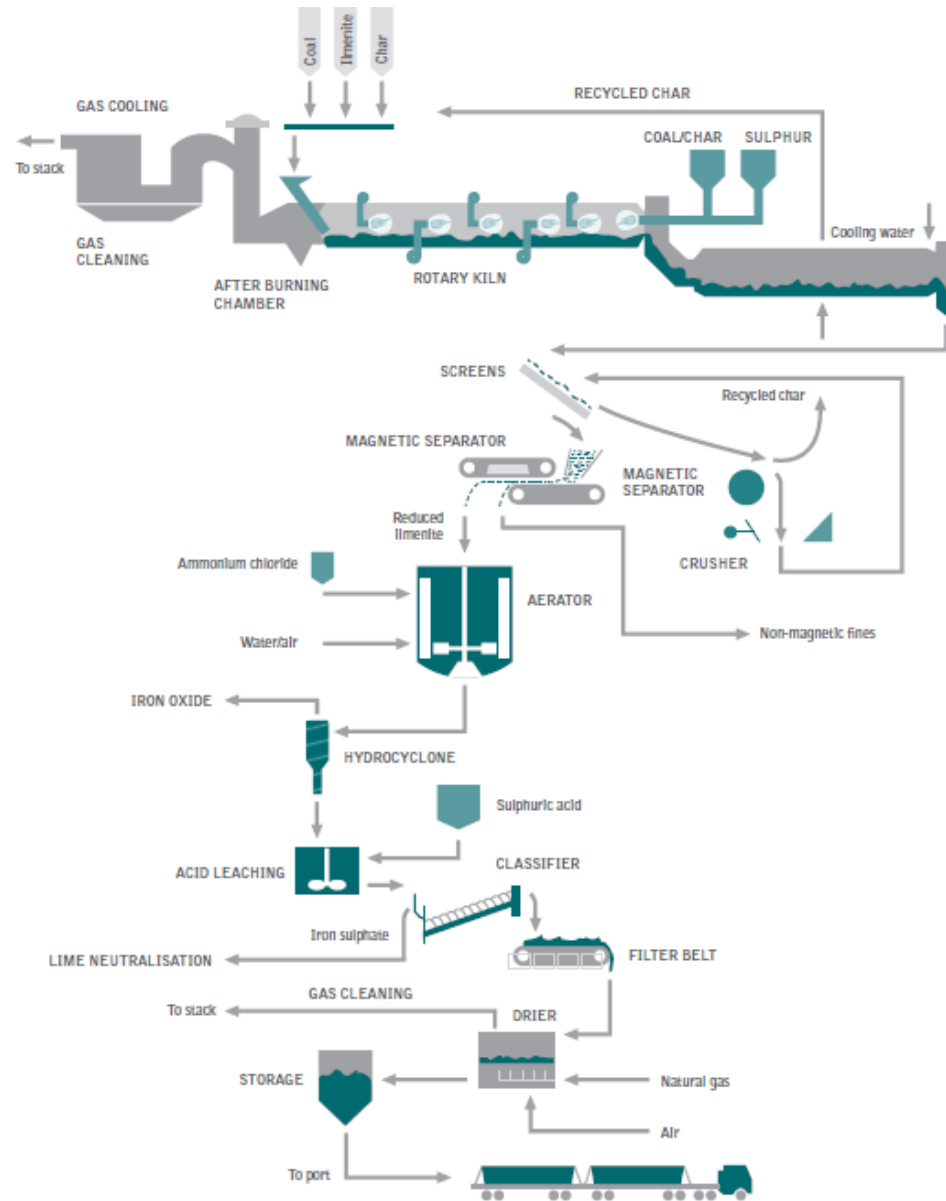
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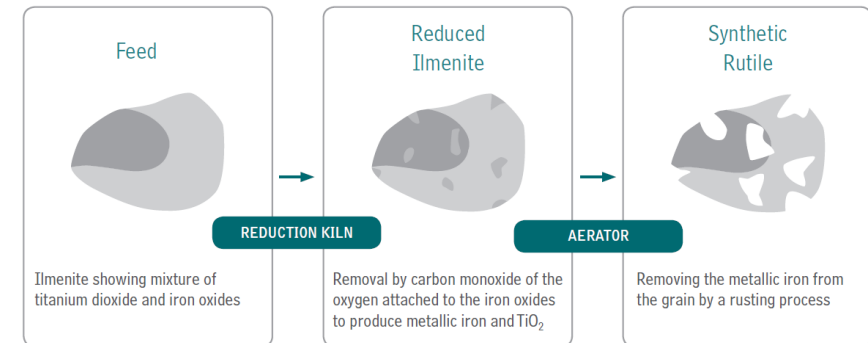


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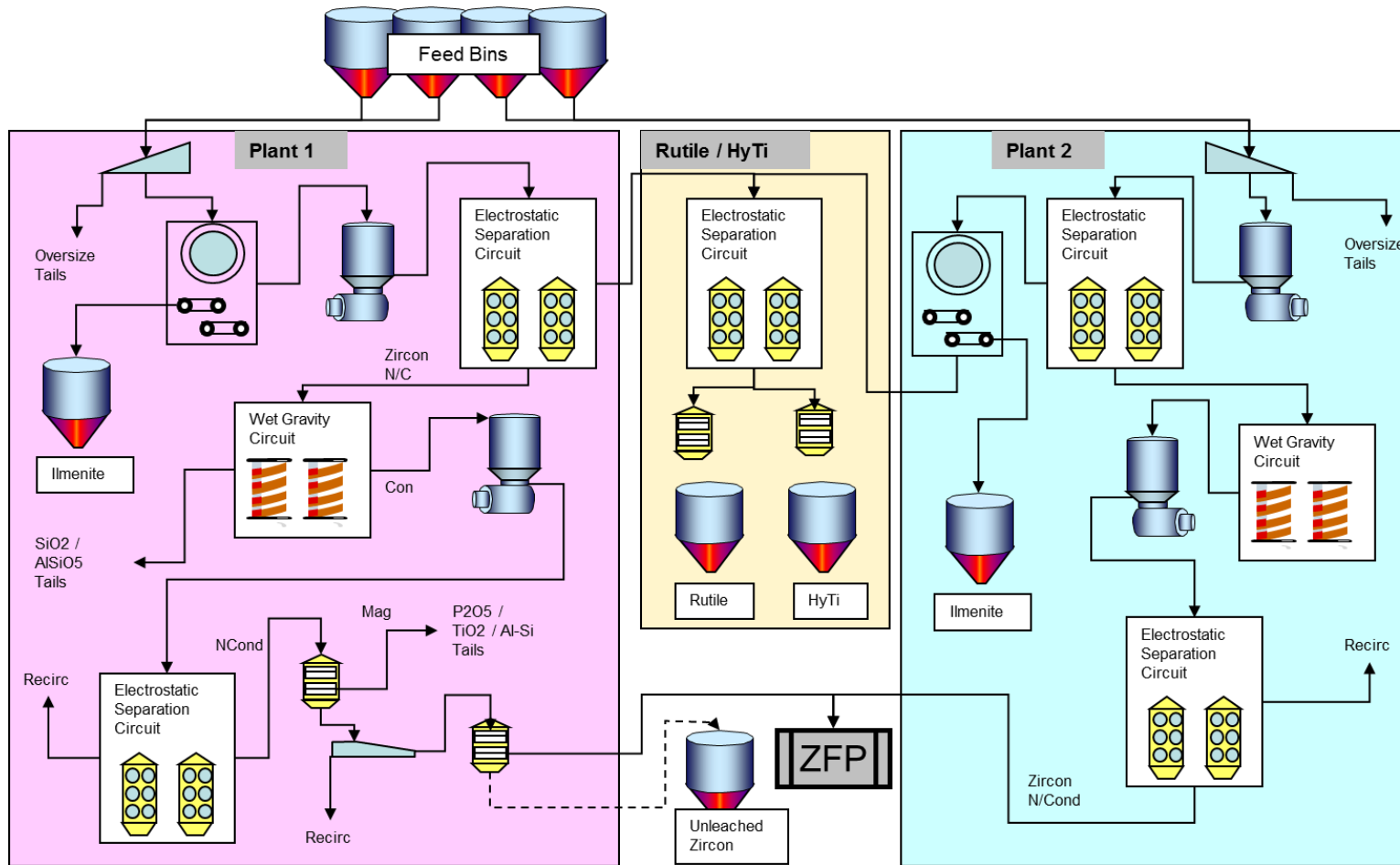


## Ilmenite Reduction





## Narngulu Plant 1 and 2



## Zircon Finishing Plant (ZFP)

