



tharisa

PROFITABLE LOW COST CO-PRODUCER – PGMS AND CHROME  
Analyst Visit - September 2016





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*Basis of preparation note: where figures are expressed in percent and a change is reflected, the change is expressed in percent basis points.*

# AGENDA

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① Overview

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② Mining

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③ Processing

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④ Mine to Market

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⑤ Financials

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⑥ Conclusion

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# OVERVIEW



# WHAT YOU WILL HEAR TODAY

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## Tharisa is ...

### Maturing

- A mid-tier company mining the world's single largest chrome resource
- Approaching steady state of 147.4 koz PGMs and 1.3 Mt of chrome concentrates
- Listed on the JSE and LSE

### Delivering

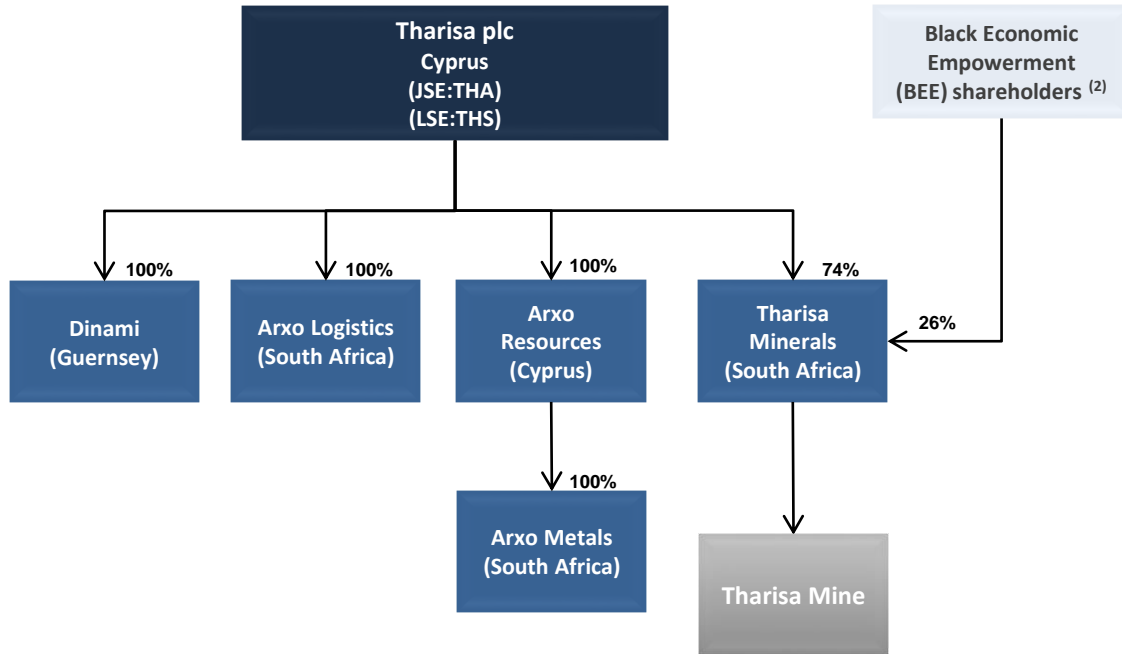
- A co-producer of PGMs, metallurgical and specialty grade chrome concentrates
- Among the lowest cost producers of both PGM and chrome concentrates
- Profitable from dual revenue streams from a single cost base

### Forward looking

- Organic growth opportunities that will result in improved recoveries and production
- Continually evaluating accretive growth opportunities
- Successful listing on the LSE improves capital flexibility

# WHO WE ARE ...MEET THE TEAM

## CORPORATE STRUCTURE (1)



- Notes:**
1. Only major subsidiaries have been included
  2. Tharisa Minerals BEE partners are a broad-based Community Trust which holds an unencumbered 6% interest and a women's investment group Thari Resources, which holds a 20% interest

## EXECUTIVE MANAGEMENT



Loucas Pouroulis

Executive Chairman



Phoevos Pouroulis

CEO



Michael Jones

CFO



Michelle Taylor

COO

## GROUP MANAGEMENT



Hans van Wyk

Operations  
Director: Tharisa  
Minerals



David Malunga

Mine Manager:  
Tharisa Minerals



Alston Smith

Process Manager:  
Tharisa Minerals



Elize Groesbeek

Managing  
Director: Arxo  
Logistics



Greg Taurog

Executive: Sales and  
Marketing

# OVERVIEW

Direct access to the only JSE & LSE listed PGM and chrome co-producer with an integrated marketing and logistics platform



Large scale  
(**828 Mt** resource)  
mid-tier PGM and chrome  
co-producer

Open pit mine with  
**20 year LOM** and  
**40 year LOM**  
underground extension

One of the **world's largest** single chrome resources

**Mechanised** open pit  
mining with a **skilled** and  
**stable**  
labour force

Steady state production  
of **147.4 koz PGMs**  
and **1.3 Mt** of chrome

In production and  
**de-risked** with major  
capex programme  
complete

**Lowest cost** quartile  
producer of PGM and  
chrome

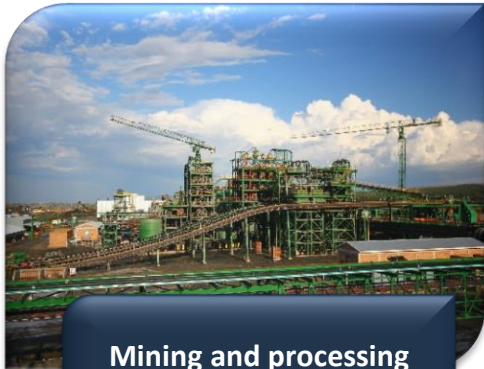
In-house, cost effective  
**mine to market**  
sales and distribution  
solution

Growth/optimisation  
**initiatives** in place



# OUR VALUE CHAIN

THE FULL VALUE CHAIN IS CAPTURED THROUGH THE CO-EXTRACTION OF PGM AND CHROME AND IN-HOUSE MARKETING, SALES AND LOGISTICS



## Mining and processing (Tharisa Minerals)

74%

- 20 year open pit
- 40 year LOM underground extension
- 829 Mt resource
- 87 Mt open pit reserve
- 5.5 km mining strike length
- 5 475 ha mining right area
- 300 ktpm ROM capacity at Voyager Plant
- 100 ktpm ROM capacity at Genesis Plant
- Forecast production FY2016:
  - 129.6 koz of PGMs
  - 1.25 Mt chrome concentrates



## Beneficiation (Arxo Metals)

100%

- Production of higher value foundry and chemical grade chrome concentrates
- Committed to research and development
- Forecast specialty grade production FY2016: 250 kt



## Marketing and sales (Arxo Resources)

100%

- 10.1% of China's chrome ore/concentrate imports and 14.2% of South Africa's chrome ore/concentrate exports for FY2015



## Logistics (Arxo Logistics)

100%

- Road and rail transport capacity, warehousing facilities and port facilities
- Transport of PGMs to Impala Refinery Services by road
- Shipment of chrome concentrate in bulk from Richards Bay Dry Bulk Terminal and containers from the Durban port
- Forecast shipments for FY2016:
  - 1 Mt of chrome concentrates, mainly to China



## Our customers and agreements

- PGM off-take agreement with Impala Refinery Services
- Off-take agreement with Rand York for foundry and chemical grade chrome concentrates
- 50 ktpm chrome concentrate agency agreement with the Noble Group
- Relationships with a broad range of stainless steel producers, ferrochrome producers, foundries, chemical factories and global commodity traders



# MINING



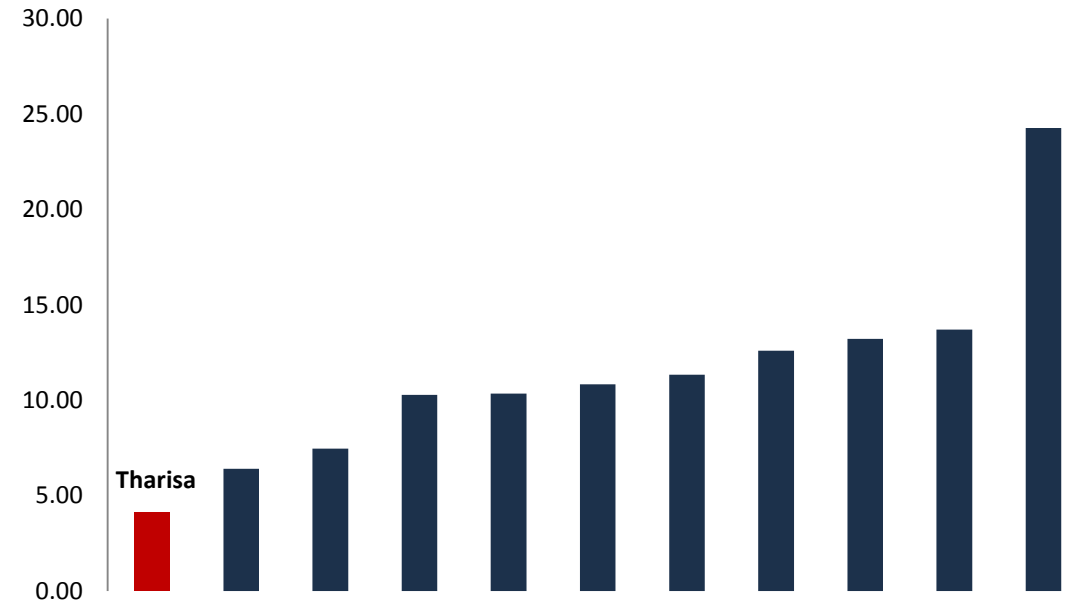
# SAFETY

## FOCUS ON SAFETY

- Safety remains the number one priority of management and all employees – we strive for zero harm
- Tharisa's TIFR remains among the lowest in the South African PGM and chrome mining industries
- Renewed commitment to safety engagement with new safety imperatives and programs being launched
- Achieved the MHSC milestone of 1000 Fatality Free Production Shifts – 26 August 2016
- Awarded the Best Safety Performance: Opencast Operations

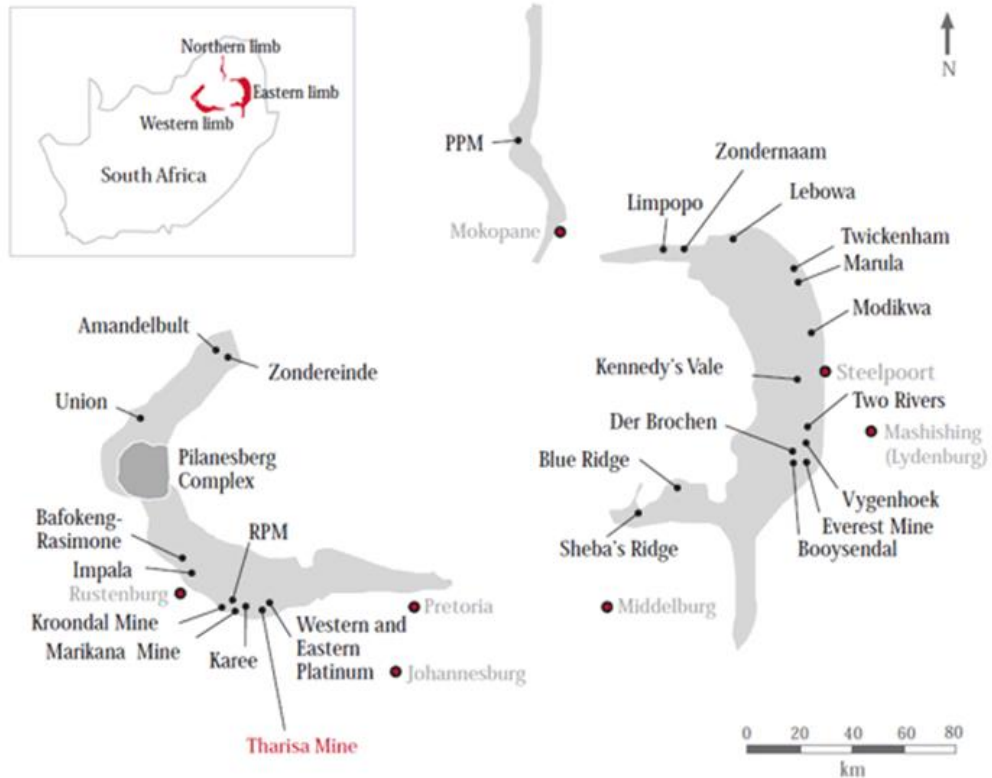
## INDUSTRY TIFR

**Comparative Rate Per Million Hour worked June 2016**

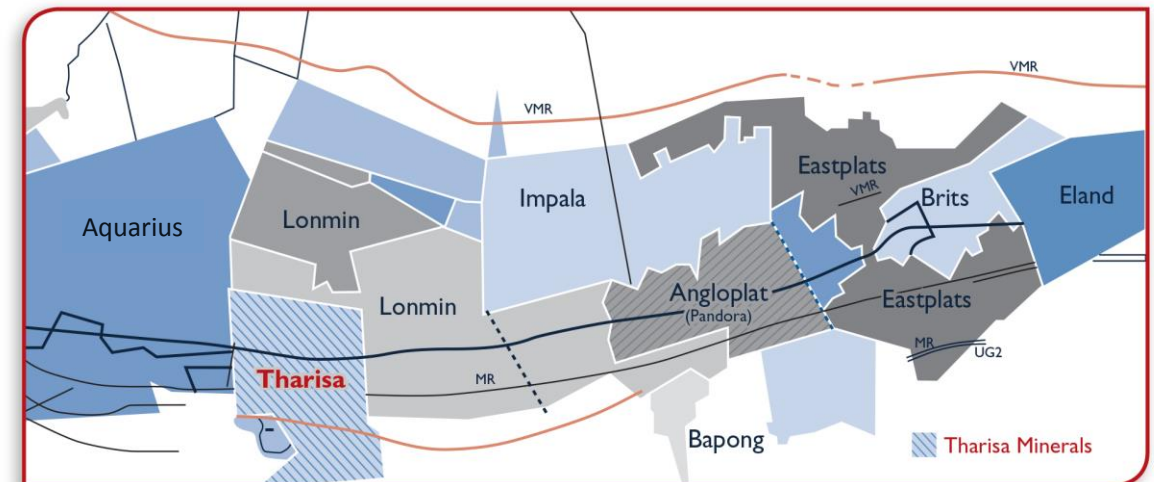


# MINE LOCATION

## LOCATED IN THE MAIN PGM AND CHROME PRODUCING AREA IN SOUTH AFRICA



- Mining rights over 5 475 ha
- Adjacent to Anglo Platinum, Aquarius, Impala Platinum, Lonmin and Samancor
- Well serviced by road, rail, power and other services
- Neighbouring towns are Brits (45 km), Rustenburg (30 km), Mooinooi (10 km) and Marikana (5 km)





# MINING MG CHROMITITE LAYERS

Steady state production of 4.8Mtpa ROM

Average stripping ratio of 8.9 (bcm:bcm) over LOM

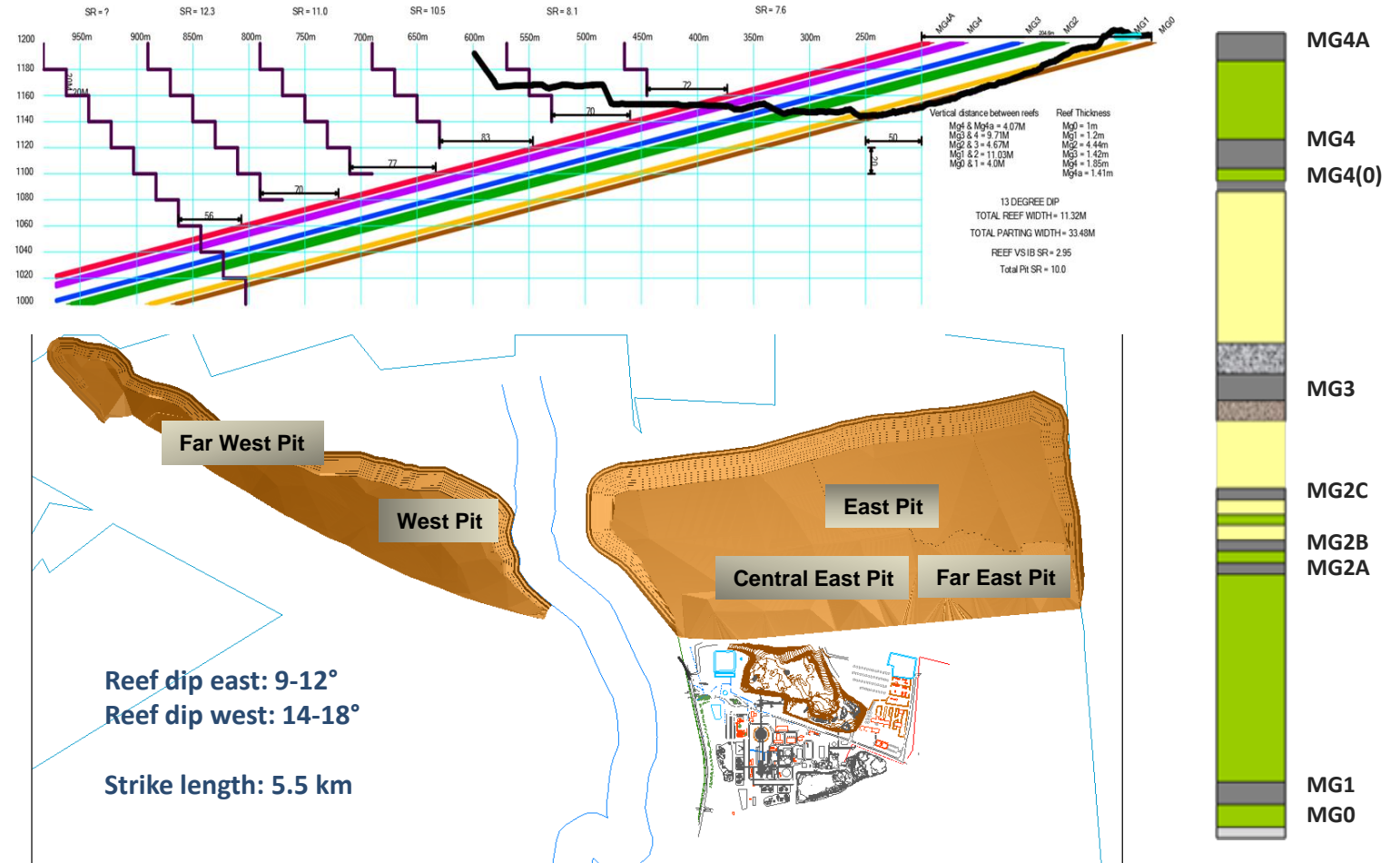
## MINERAL RESOURCE

829.0 Mt at 1.56 g/t (6PGE Au) and 20.4% Cr<sub>2</sub>O<sub>3</sub>

## OPEN PIT MINERAL RESERVE

87.8 Mt at 1.44 g/t (5PGE + Au) and 18.5% Cr<sub>2</sub>O<sub>3</sub>

## GENERALISED CROSS SECTION SHOWING THE MG CHROMITITE LAYERS AND PLANNED PIT DEPTH



Resource and reserves as at 30 September 2015

# GEOLOGY

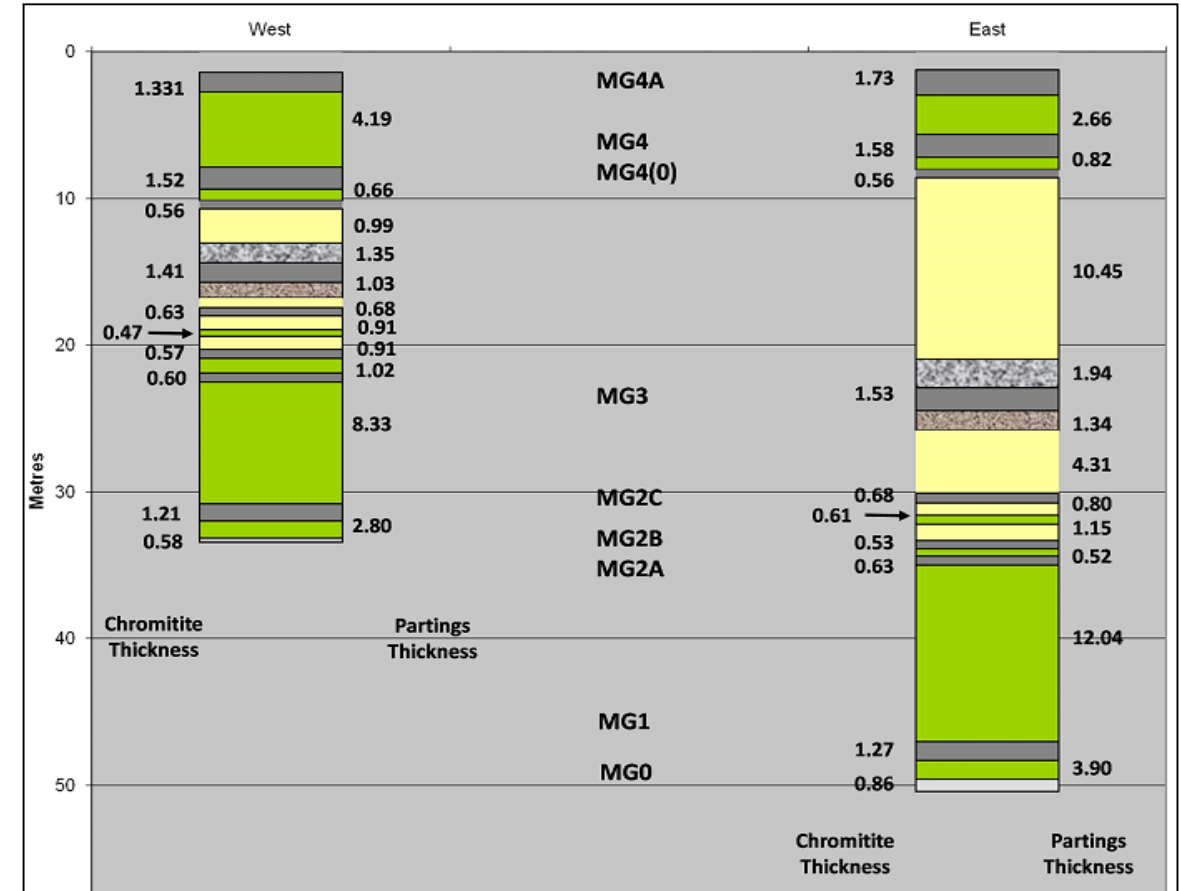
## GEOLOGY

- The MG reef package is classified into six chromitite layers
  - MG0, MG1, MG2, MG3, MG4, MG4A
- Partings are generally anorthosite, pyroxenite or norite
- Reef package varies from 50 m in the west to 74 m in the east (incl. partings)
- PGMs are concentrated in the MG2, MG3 and MG4 reefs

### MINING SEQUENCE AND PROCESS ROUTE

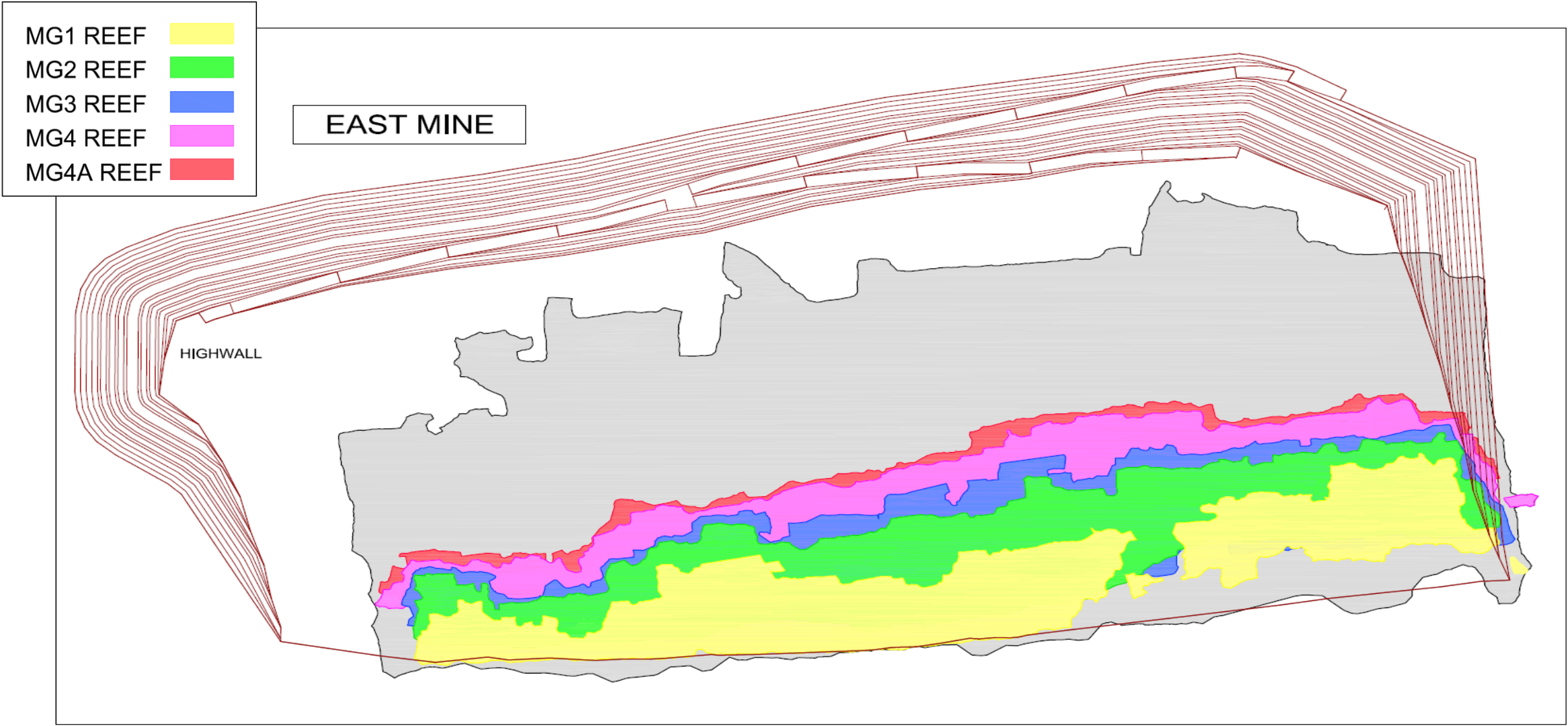
UNIT	PROCESS
MG4A chromitite layer	Sent to Genesis Plant
Parting	Discarded
MG4 package	Sent to Voyager Plant
Norite or anorthosite	Selectively mined and discarded
MG3 package	Sent to Voyager Plant
Norite or anorthosite	Selectively mined and discarded
MG2 package	Sent to Voyager Plant
Pyroxenite with disseminated mineralisation	Selectively mined and discarded
MG1 and MG0 package	Sent to Genesis Plant

## MG REEF STRATIGRAPHY



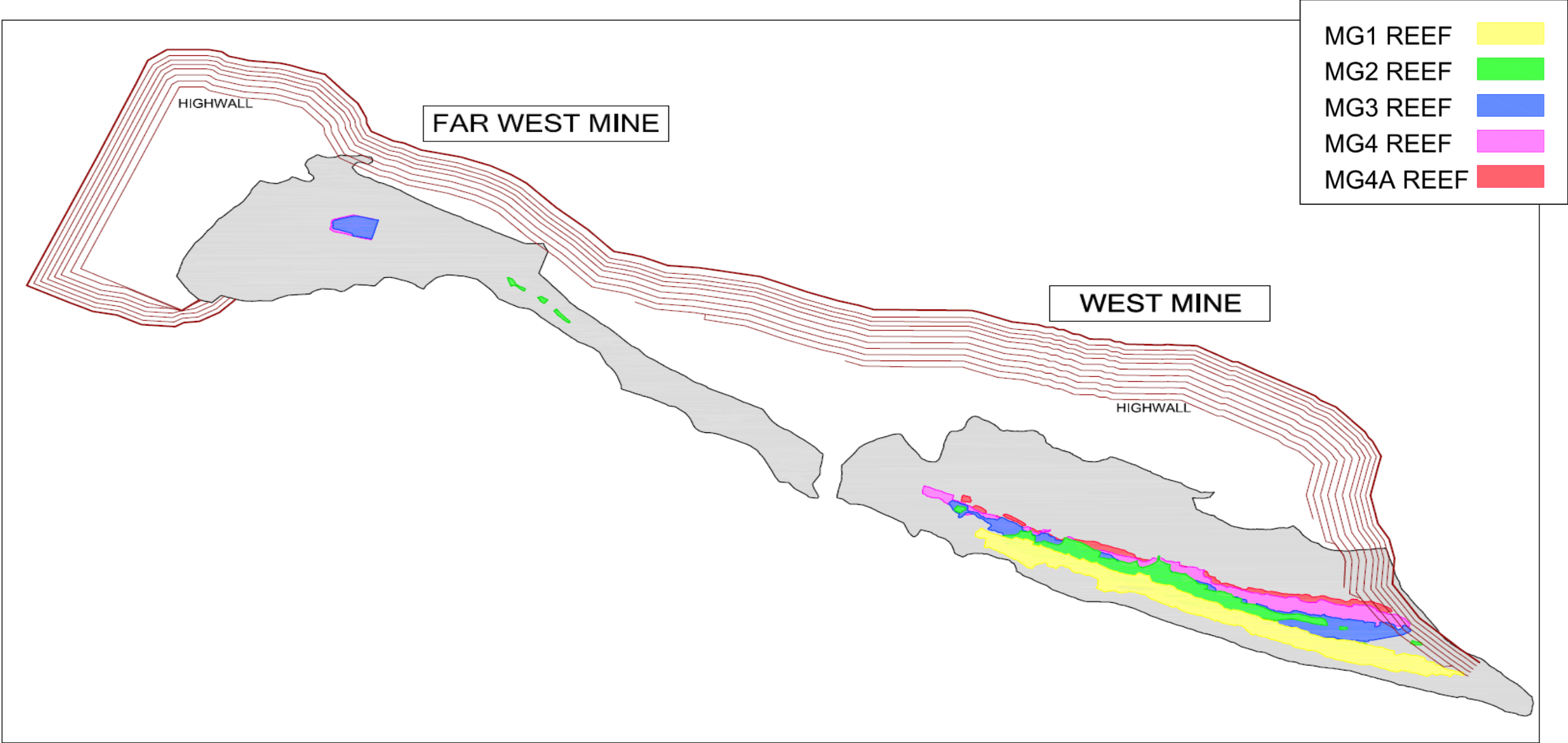
MG chromitite layers
  Waste
  Disseminated mineralisation

# EAST PIT MINING





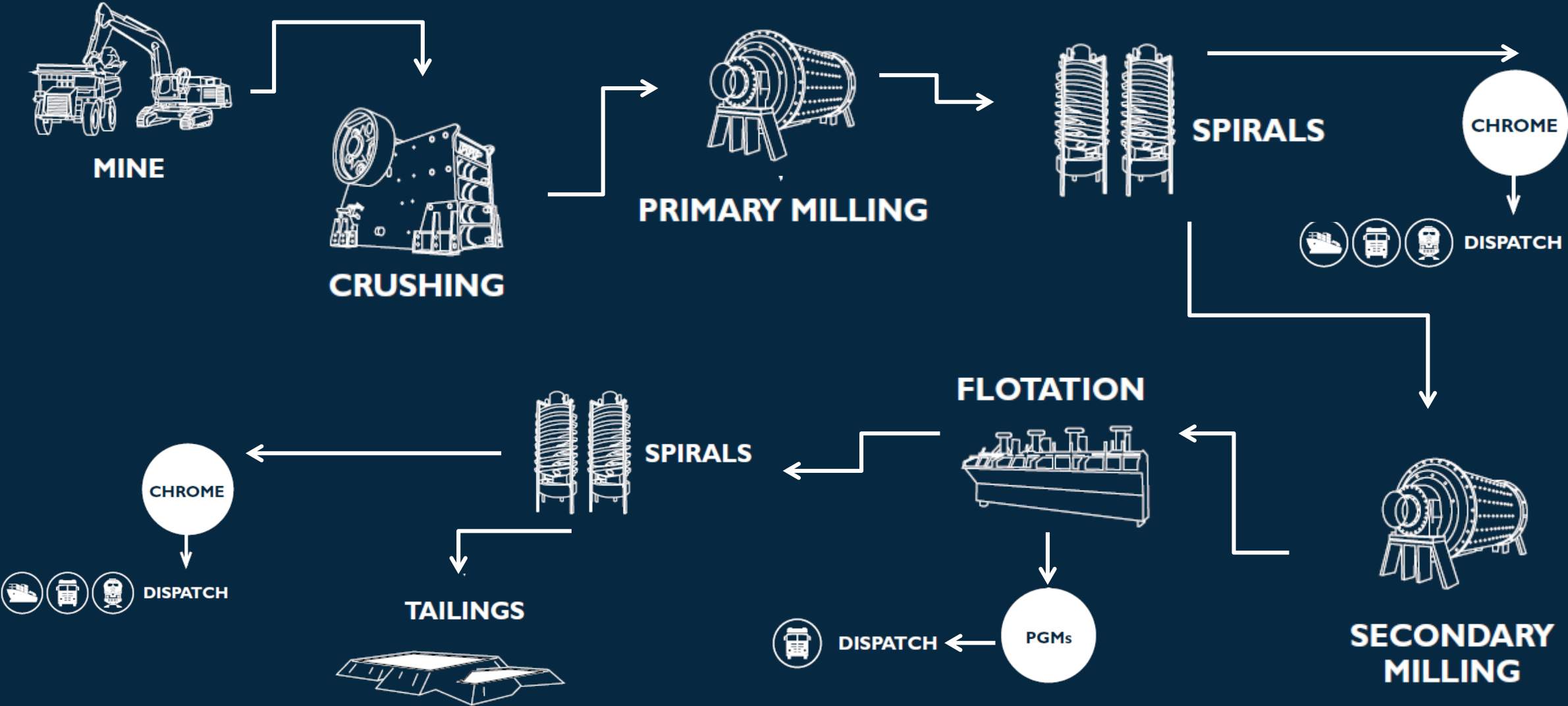
# WEST PIT MINING



# PROCESSING



# PROCESSING OVERVIEW







# PROCESSING

## KEY FACTS

- Process plants are owned and operated by Tharisa
- Each plant operates independently, providing flexibility and limiting potential process disruptions
- Basic process:
  - ROM is crushed and screened
  - Selected reef ROM sent to Challenger Plant to recover foundry and chemical grade
  - Primary milling to liberate chromite crystals
  - Primary spirals to recover chromite
  - Secondary milling to liberate PGM particles
  - Flotation circuit to recover PGM particles
  - Secondary spirals to recover additional chromite

## INDEPENDENT PROCESSING PLANTS

### GENESIS PLANT

- Capacity: 100 ktpm ROM
- Processes reef layers with lower PGM and higher chromite grades
- Challenger Plant recovers high value foundry and chemical grade chrome concentrates



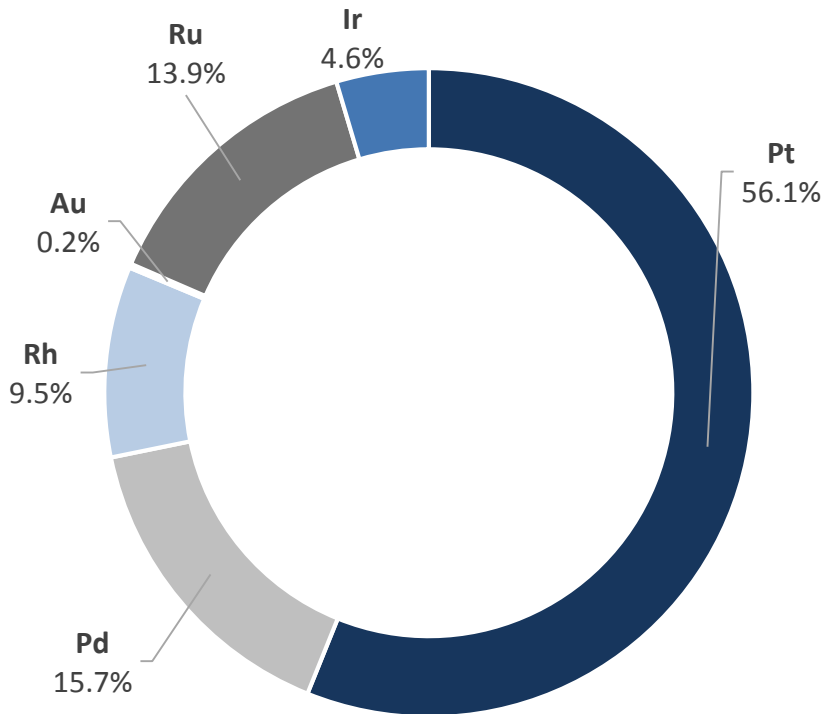
### VOYAGER PLANT

- Capacity: 300 ktpm ROM
- Processes reefs with higher PGM and lower chromite grades
- Produces both metallurgical and chemical grade products

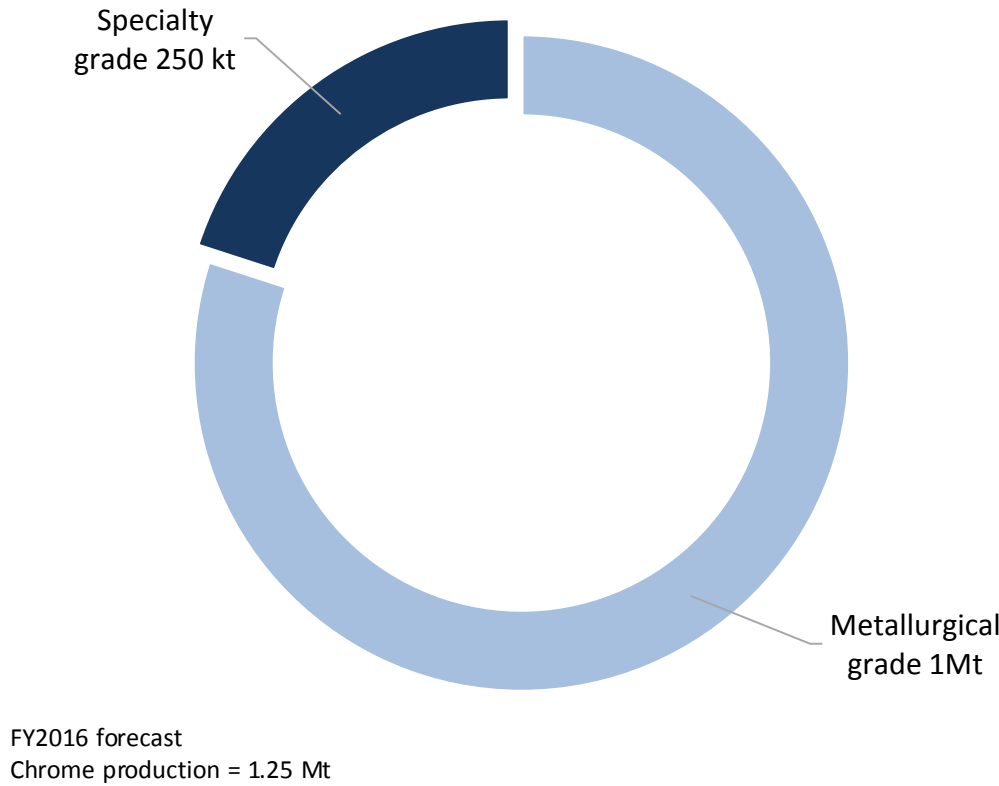


# THARISA'S CONCENTRATE

## PRILL SPLIT



## CHROME GRADES

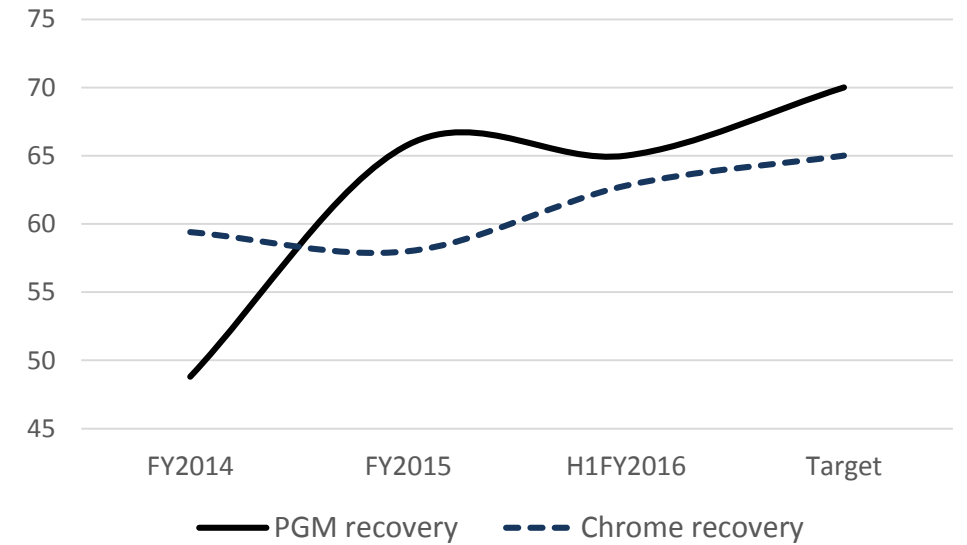




# KEY OPERATIONAL METRICS

		9 months to end 30 June 2016	H1 FY2016	H1 FY2015	FY2015
ROM mined	Mt	3.6	2.4	1.9	4.8
PGM rougher feed grade	g/t	1.67	1.68	1.65	1.62
Chrome grade	%	18.1	18.4	18.7	18.3
ROM processed	Mt	3.4	2.2	2.2	4.4
PGM recovery	%	66.2	65.0	63.1	65.8
PGM in concentrate	koz	93.5	60.0	57.4	118.0
Chrome recovery	%	62.4	62.8	56.7	58.0
Chrome concentrate	Mt	0.9	0.6	0.6	1.1
Specialty chrome	kt	187.3	105.8	47.4	112.8
PGM basket price	US\$/oz	708	686	945	885
Chrome concentrate price (42% CIF China)	US\$/t	105	106	156	158
Average exchange rate	ZAR:US\$	15.0	15.0	11.5	12.0

## Recoveries

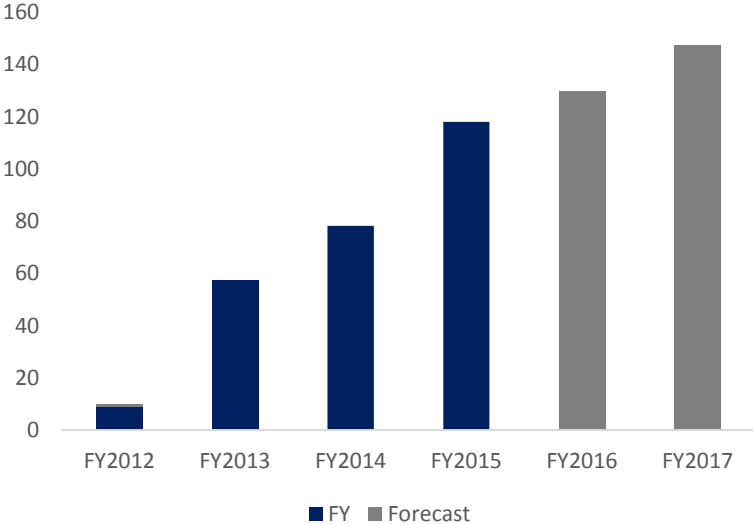


**PGM RECOVERY**  
Target – 70%

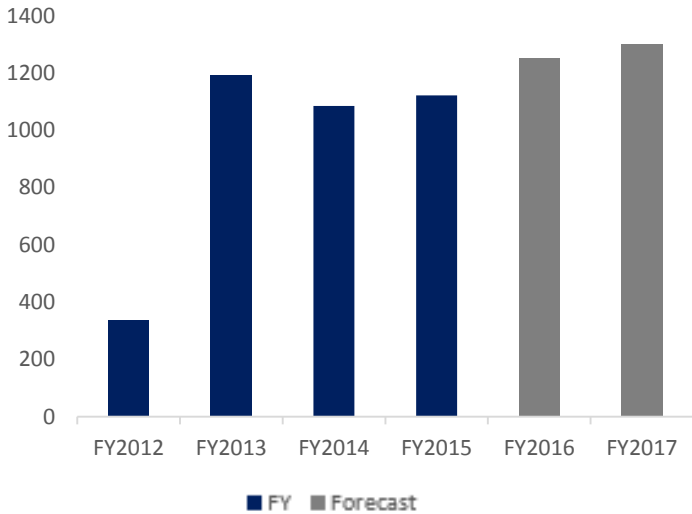
**CHROME RECOVERY**  
Target – 65%

# OUR PRODUCTION

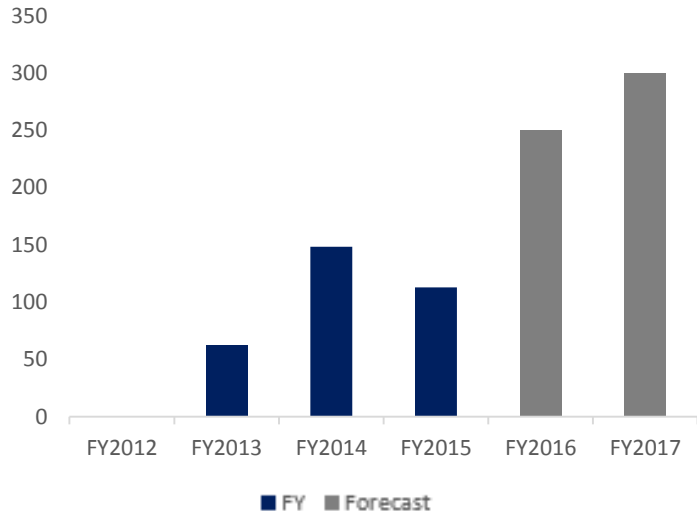
### PGM Production (koz)



### Total Chrome Production (kt)



### Specialty Grade Production (kt)

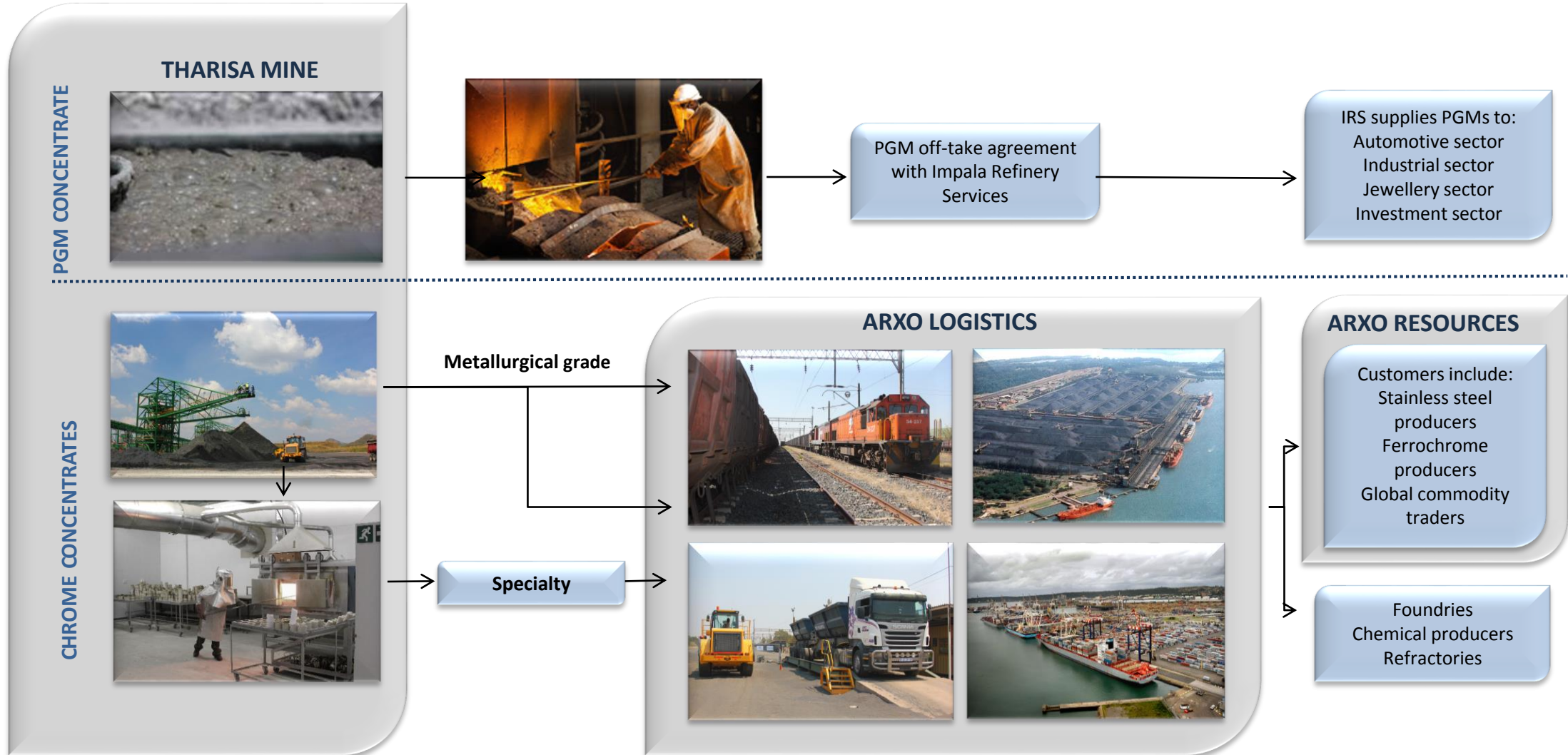


# MINE TO MARKET





# MINE TO MARKET



# GLOBAL DISTRIBUTION



# FINANCIALS

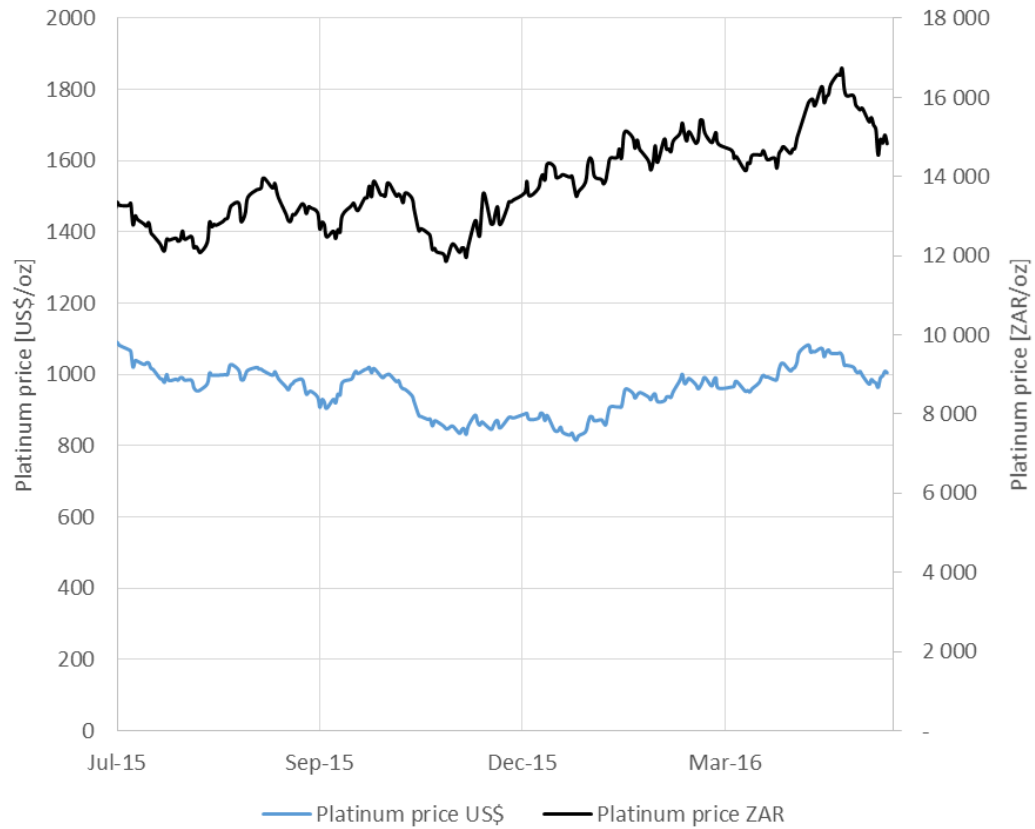




# MARKET CONTEXT – 12 MONTHS

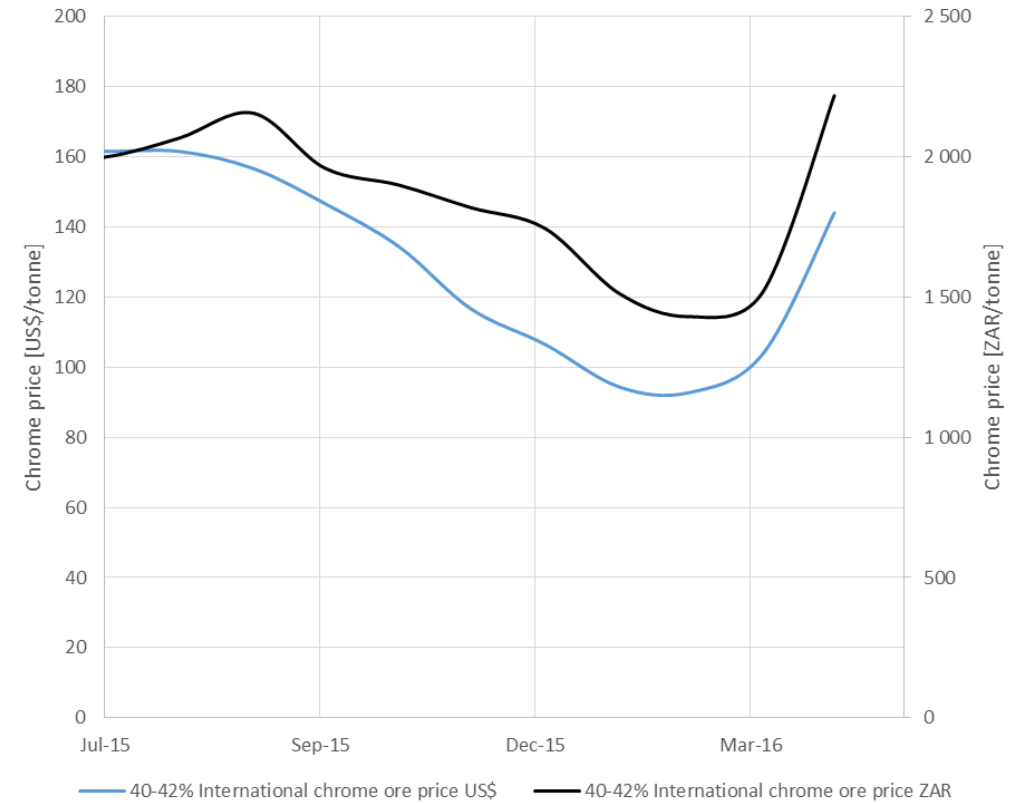
CURRENT 42% CHROME  
CONCENTRATE PRICE

## PLATINUM



Source: Johnson Matthey

## CHROME

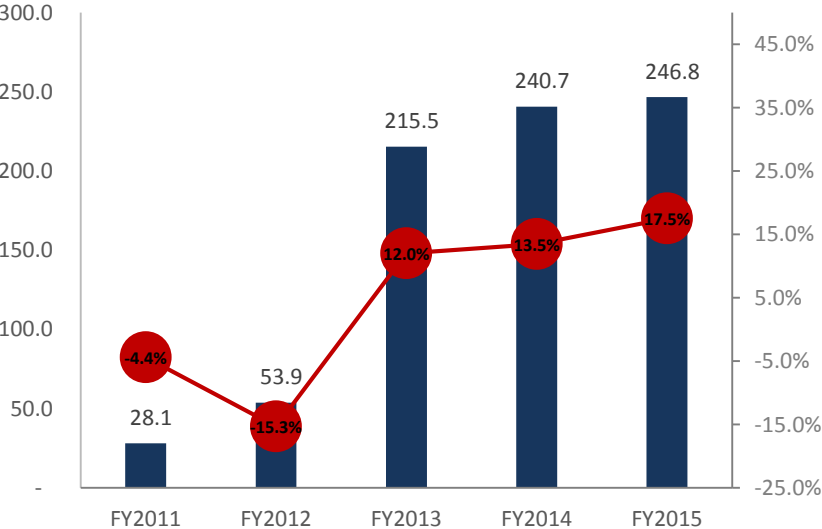


Source: FerroAlloyNet

# FINANCIAL CONTEXT

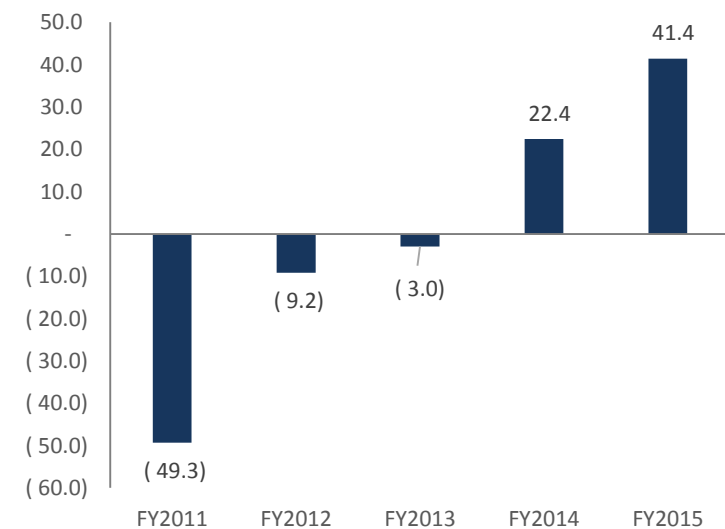
## GROUP REVENUE AND GROSS PROFIT MARGIN

US\$ millions



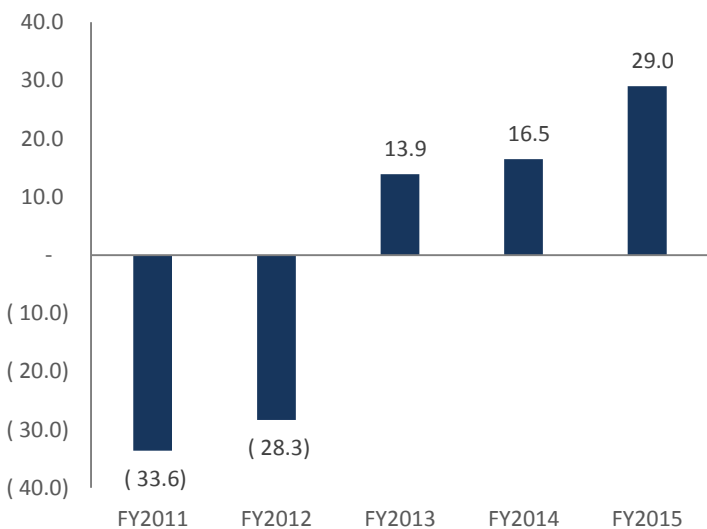
## NET CASH FLOWS FROM OPERATIONS

US\$ millions

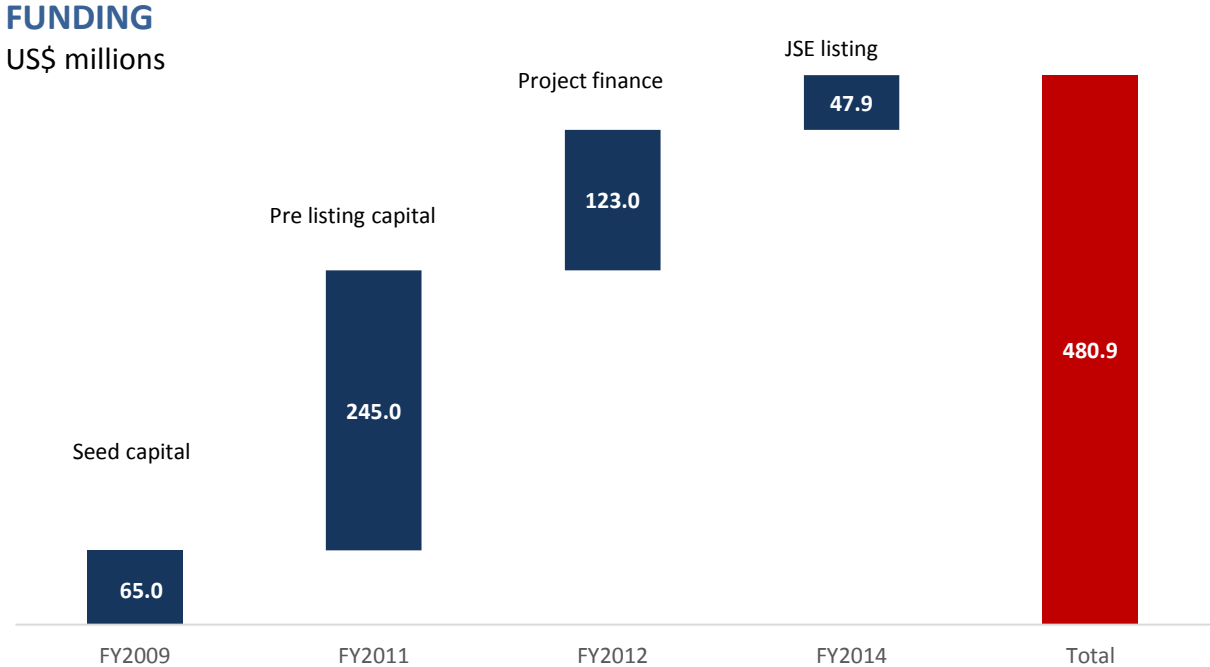


## EBITDA

US\$ millions



# FINANCIAL CONTEXT





# SEGMENTAL ANALYSIS (H1 2016)

REVENUE

↓ 30.5%  
**US\$86.0m**  
 (2015: US\$123.7m)

OPERATING PROFIT

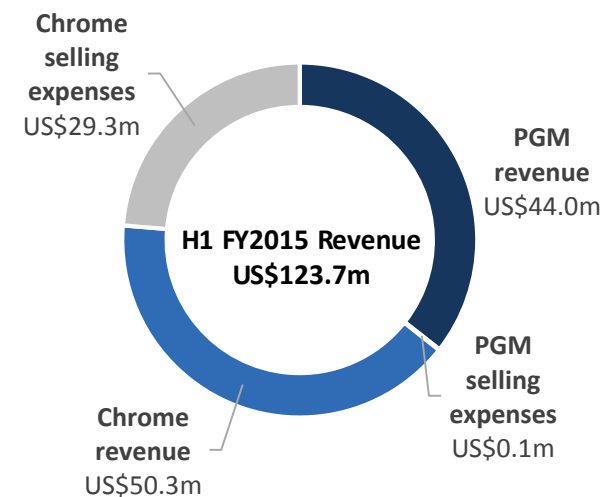
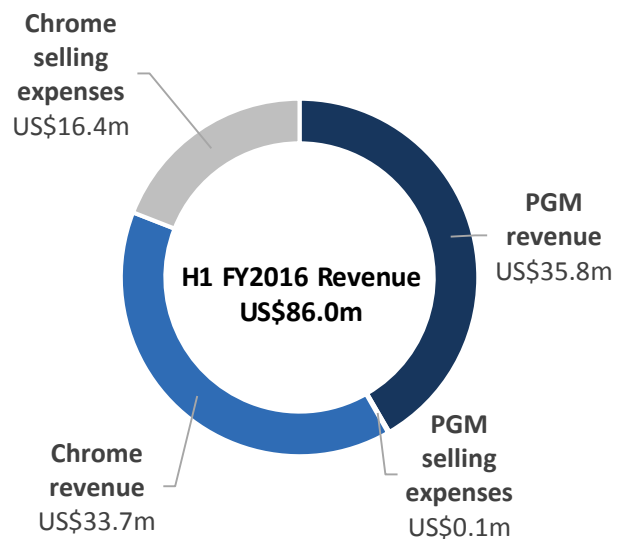
↓ 12.4%  
**US\$10.6m**  
 (2015: US\$12.1m)

NET PROFIT AFTER TAX

↓ 36.7%  
**US\$3.1m**  
 (2015: US\$4.9m)

US\$m	% change	H1 FY2016	H1 FY2015
Gross profit	(7.5%)	21.1	22.8
Gross profit margin	6.2%	24.6%	18.4%
Results from operating activities	(12.4%)	10.6	12.1
EBITDA	(17.9%)	14.7	17.9
EBITDA margin	2.6%	17.1%	14.5%
Net finance costs	22.0%	6.1	5.0
Profit before tax	(36.6%)	4.5	7.1
Tax	(36.4%)	1.4	2.2
Profit for the period	(36.7%)	3.1	4.9
Headline earnings per share (US\$ cent)	-	1	1
Free cash flow per share (US\$ cent)		4.6	2.5

US\$m	H1 FY2016		H1 FY2015	
	PGMs	Chrome	PGMs	Chrome
Gross profit	12.1	9.0	17.2	5.6
Gross profit percentage	33.8%	17.9%	39.1%	7.0%
Sales volume	59.1 koz	481.7 kt	58.4 koz	520.5 kt
Average transport costs per tonne of chrome concentrate (CIF main ports China) a decrease of 32.2%		US\$40/t		US\$59/t



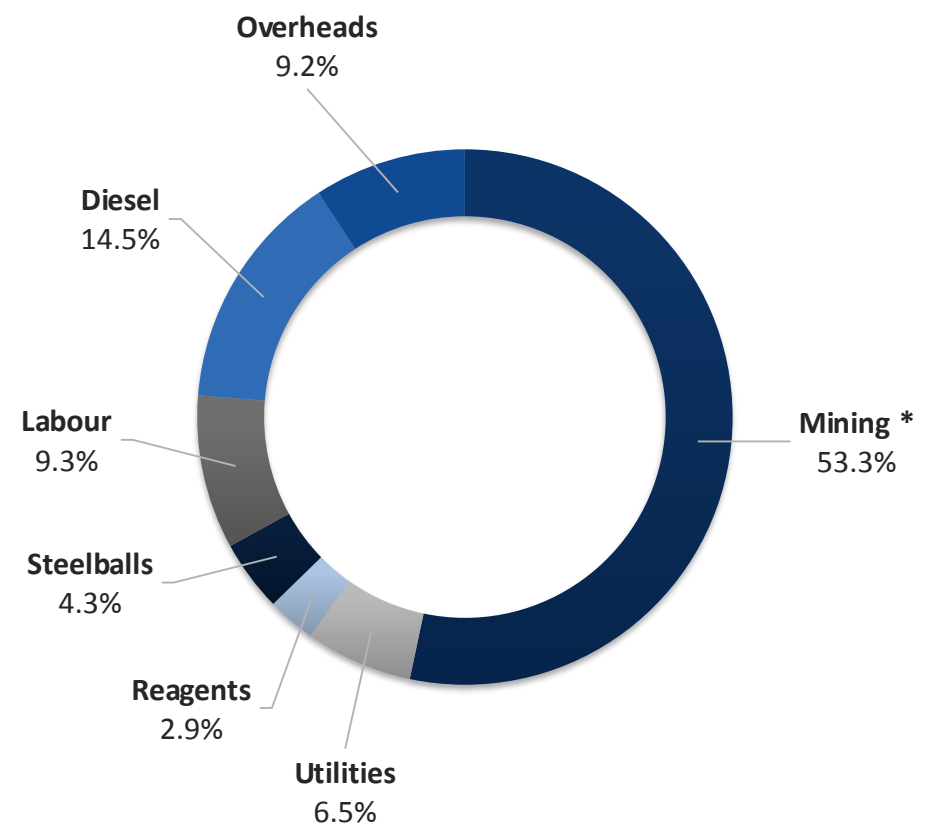
# COST ANALYSIS

CONSOLIDATED CASH COST PER TONNE MILLED ↓16.3%  
**US\$28.7/t**  
 (2015: US\$34.3/t)

## UNIT COSTS\*

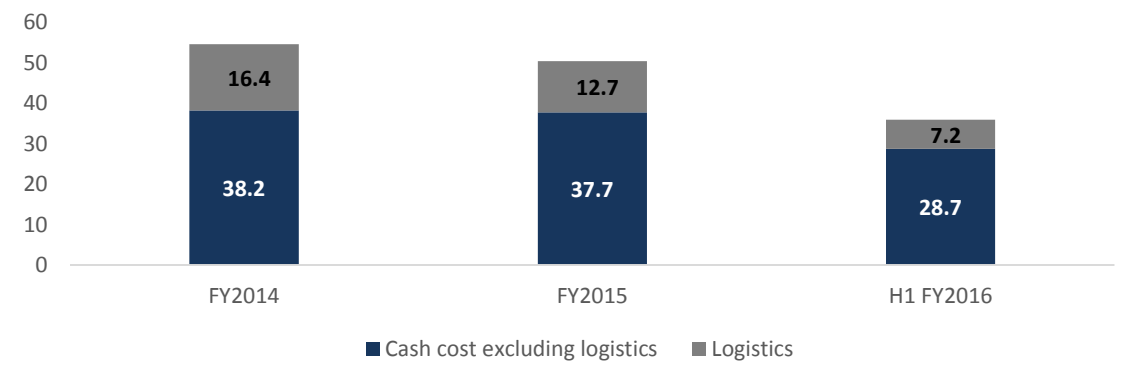
	change	H1 FY2016	FY2015
All in cost per Pt ounce	(26.8%)	US\$450	US\$615
All in cost per 42% chrome tonne	(40.4%)	US\$81	US\$136

## OPERATING COST ANALYSIS – EX-WORKS



## CONSOLIDATED CASH COST PER TONNE MILLED

US\$/tonne milled



\* By product basis

\* Including contractor mining labour of 884 people

# BALANCE SHEET

DEBT TO EBITDA MULTIPLE

**1.8 x**

(FY2015: 2.6 x)

## FUNDING

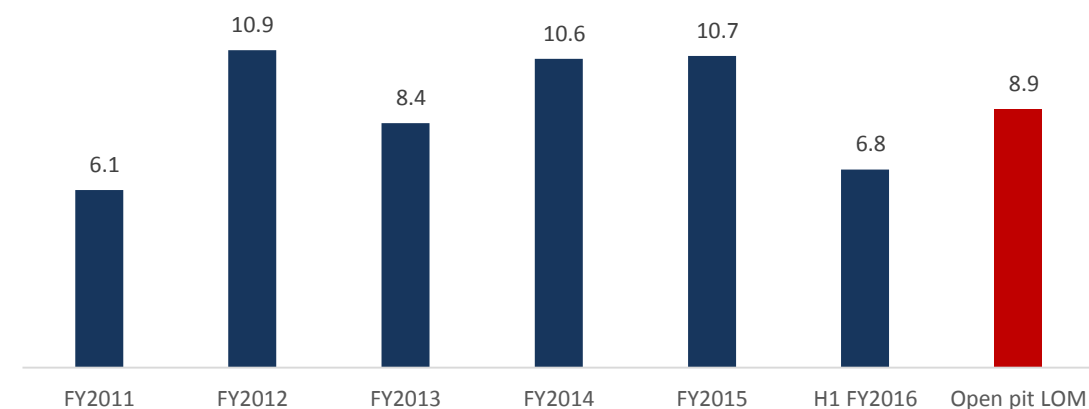
US\$m	H1 FY2016	FY2015
<b>Total interest bearing debt</b>	<b>51.8</b>	75.6
Long term	<b>27.8</b>	36.3
Short term*	<b>24.0</b>	39.3
<b>Debt service reserve account</b>	<b>9.8</b>	10.6
<b>Pro forma interest bearing debt</b>	<b>42.0</b>	65.0
<b>Pro forma debt to total equity ratio</b>	<b>24.2%</b>	36.3%
<b>Cash and cash equivalents</b>	<b>11.1</b>	24.3
<b>Net debt</b>	<b>30.9</b>	40.7
<b>Net debt to total equity ratio</b>	<b>17.8%</b>	22.7%
<b>Net current liabilities</b>	<b>11.4</b>	10.3
<b>Return on equity</b>	<b>2.7%</b>	2.0%

## CAPITAL

US\$m	H1 FY2016	FY2015
<b>Capital expenditure</b>	<b>6.4</b>	24.6
<b>Deferred stripping</b>	<b>3.1</b>	15.2
	<b>3.3</b>	9.4
<b>Depreciation charge</b>	<b>4.6</b>	10.3

## STRIPPING RATIO

m<sup>3</sup> to m<sup>3</sup> basis

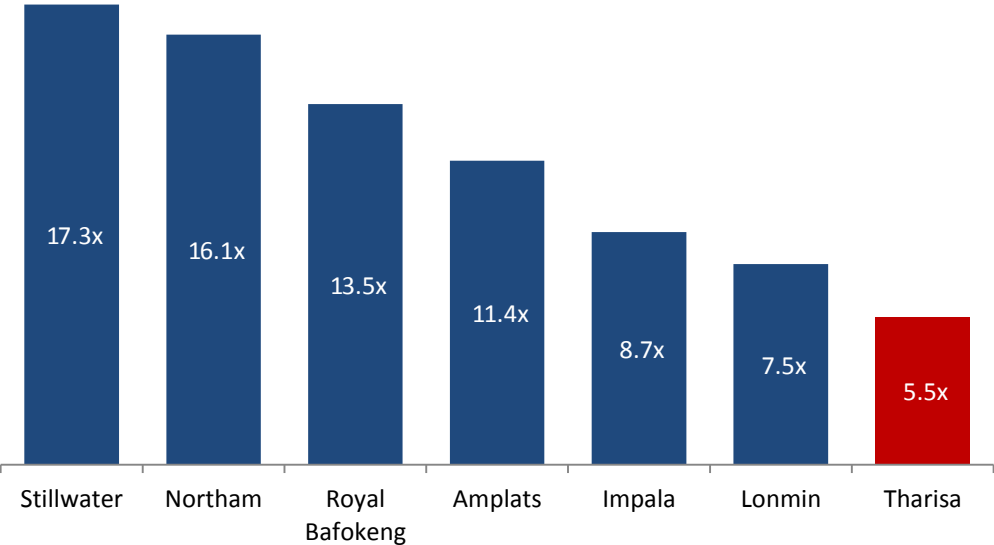


\* Included certain amounts in accounts payable relating mainly to accrued dividends payable by a subsidiary

# OUR VALUE PROPOSITION

	THARISA*	PEER AVERAGE**
EV/EBITDA	5.5 x	12.3 x
Debt/EBITDA	1.8 x	1.9 x
Net debt/EBITDA	1.0 x	1.0 x
Net debt/Equity	0.2 x	0.2 x
EBITDA margin	17.1%	13.7%
Operating margin	21.2%	12.6%
Price/free cash flow per share*	7.8 x	12.1 x

EV/EBITDA COMPARISON\*



\*Annualised EBITDA  
 \*\*Source: BMO Capital / Factset  
 As at 24 June 2016

\*Source: BMO Capital / Factset



# CONCLUSION



# SHAREHOLDER ANALYSIS

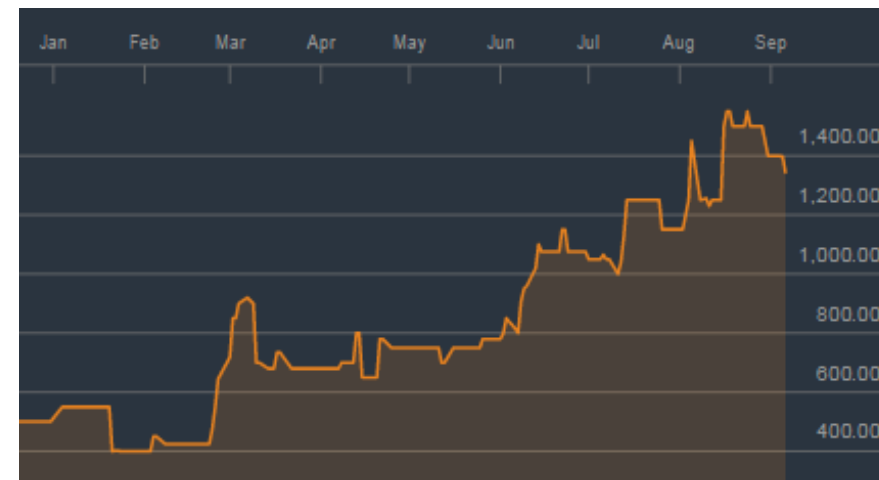
## MARKET STATISTICS

Listings	JSE code: THA	LSE code: THS
Listing date	10 April 2014	8 June 2016
Market cap	R3.4 billion	GBP188.9 million
Ranges	R4 – R16 (1Y)	35.00p – 93.00p (since listing)
YTD return	168%	110% (since listing)
Current P/E Ratio	47.5	-
Shares in issue	256.982 (m)	

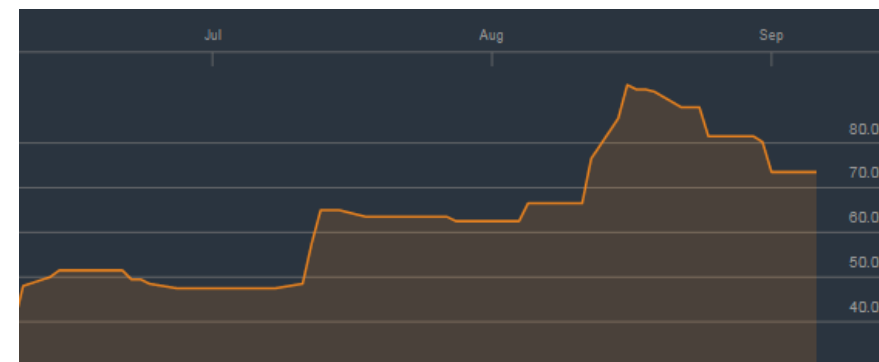
As at 5 September 2016

## SHARE PERFORMANCE

JSE (YTD)



LSE (since listing)



Source: Bloomberg

# OUTLOOK

- **Q3 production of 33.5 koz of PGMs and 307.1 kt of chrome concentrates**
- PGM full year 2016 forecast of **129.6 koz**
  - Steady state production of **147.4 kozpa**
- Chrome concentrate full year 2016 forecast of **1.25 Mt**
  - Steady state production of **1.3 Mtpa** including 300 kt of specialty chrome concentrates
- Looking ahead
  - Improving ROM feed grades
  - Targeted improvement in PGM and chrome recoveries
  - Optimisation initiatives being implemented through innovative technology
  - Annual dividend policy of 10% NPAT

**Tharisa will continue to implement its strategy to become a leading natural resources company focused on originating, developing and operating mines in the PGM, chrome and automotive raw materials sectors**

# WHAT MAKES US DIFFERENT?

## Innovative ...

- We don't only produce platinum ... we are a **co-producer** of PGM and chrome concentrates
- We don't mine just one mineral reef ... we mine **5 MG chromitite reef layers**
- We don't have underground mines ... we run a **large scale open pit** operation
- We don't only mine ... we enjoy the benefits of controlling an integrated **mine-to-market value chain**

## Established ...

- We are not new ... we are **10 years** old
- We are not a start up ... we plan to reach **steady state production** of 147.4 koz PGMs and 1.3 Mt chrome concentrates within the next year
- We are not still spending ... all **major capital investment** already **complete**
- We are not entering wage talks ... we have **stable labour** relations with a **three year wage agreement** with NUM
- We are not burning cash ... we are generating cash as a low cost producer

## Focused ...

- We have a **solid platform** underpinned by an optimised operating model
- We are **profitable** in spite of a weak commodity environment
- We intend to **maintain momentum** through challenging times



# WHY WE STAND OUT FROM OTHER INVESTMENTS

## UNIQUE MINING APPROACH

Mining 5 MG chromitite layers – access to both PGMs and chrome resources

## LOWEST QUARTILE COST CURVE

One of the PGM and chrome industry's lowest cost producers – with more room to cut costs

## INNOVATIVE PROCESSING

Allows us to process both PGMs and chrome – with expansion opportunities

## GROWTH OPPORTUNITIES

Organic growth opportunities through pit extension and future underground mining – with potential acquisitive growth when the market allows

## SECURE VALUE INVESTMENT

Direct access to JSE and LSE listed PGM and chrome co-producer

# STRATEGY

## LEADING NATURAL RESOURCES COMPANY

## PGM, CHROME AND AUTOMOTIVE RAW MATERIALS

## LARGE SCALE, LOW COST PROJECTS THAT ARE IN OR CLOSE TO PRODUCTION

### LEADING NATURAL RESOURCES COMPANY

- PGM, chrome and automotive raw materials
- Large scale, low cost projects that are in or close to production

### INNOVATION

- Growth through innovative research and development projects

### OPTIMISATION INITIATIVES

- Maximise value extraction

### CAPITAL DISCIPLINE

- Dividend policy of 10% of NPAT
- Capital allocation to low risk projects

### LEVERAGING MARKETING, SALES AND LOGISTICS PLATFORM

- Expansion into multi-commodities
- Geographic diversity



# STRATEGY - GROWTH

## OPTIMISATION

- From SIB
  - Spiral replacement programme complete by end FY2016
  - High energy flotation at Genesis Plant complete by end FY2017
- Ring fenced capital
  - Public private partnership with Transnet for on mine rail siding (estimated capital of R180 million)
  - Ultra fine grind feasibility study to improve PGM recoveries by 10% (estimated capital of R250 million)
  - Assessment of various chrome technologies to improve recoveries

## ACCRETIVE

- Parameters
  - Open pit, large scale
  - Quick to market approach
  - ROI of 25%
  - Location/geographic diversification
- Commodities
  - PGMs
  - Chrome
  - Stainless steel raw materials
  - Automotive raw material supply

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**THANK YOU**

[www.tharisa.com](http://www.tharisa.com)



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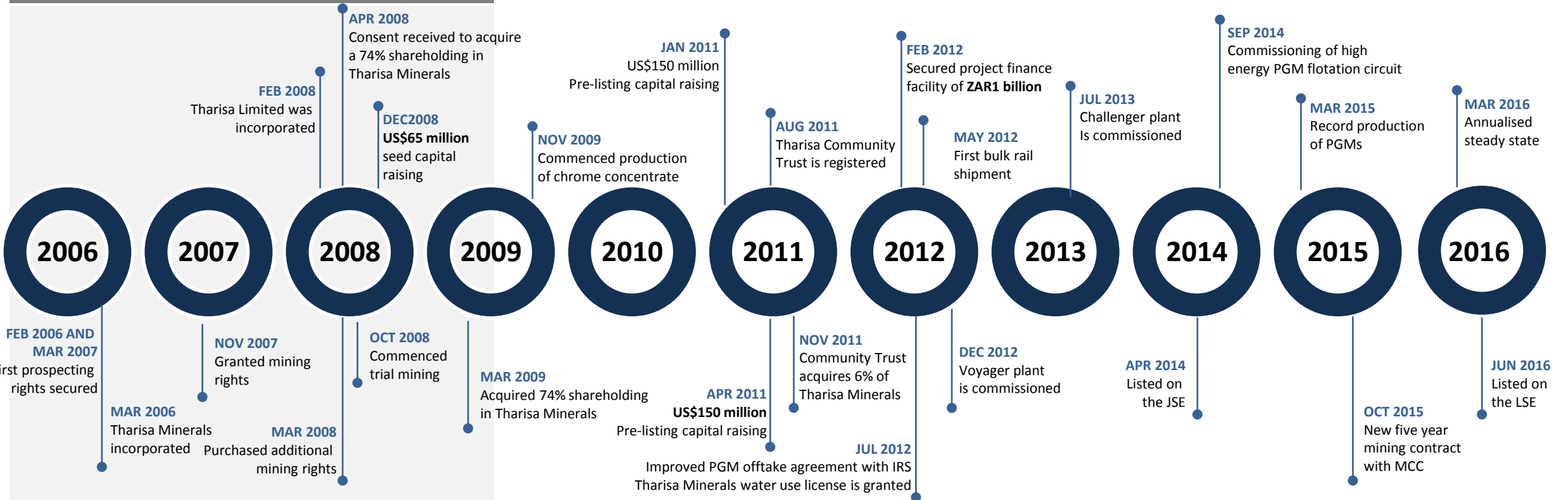
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# HISTORY AND MILESTONES

## THARISA PLC

### PRIOR TO ACQUISITION OF THARISA MINERALS

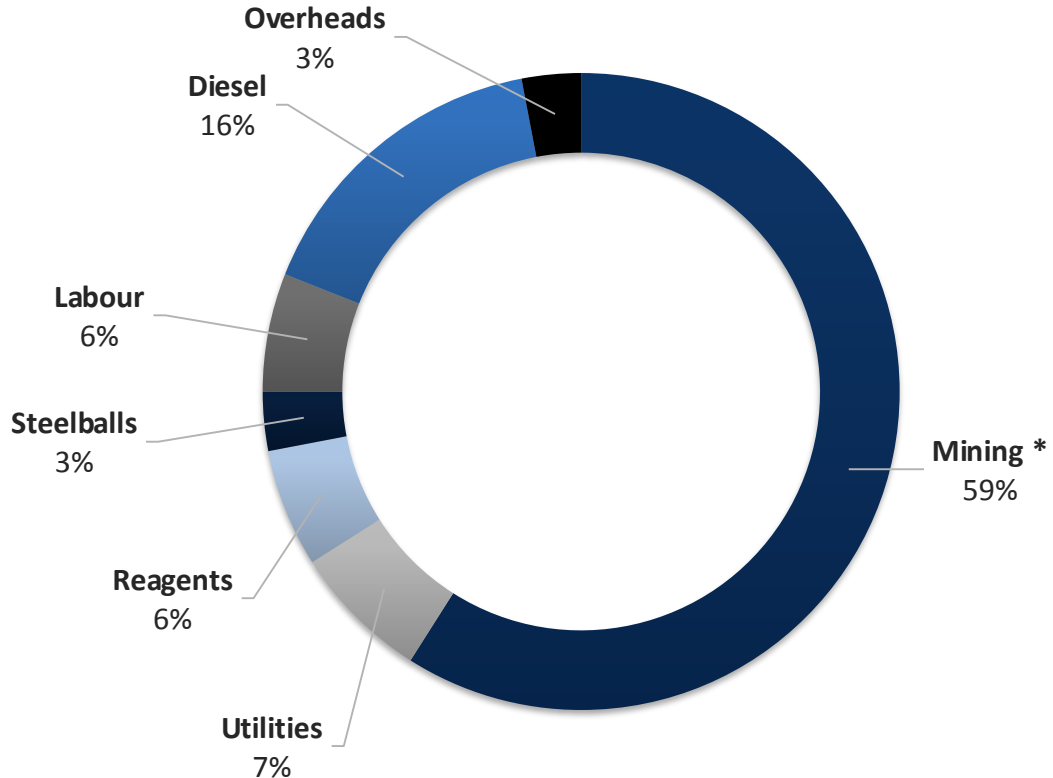


### PRIOR TO ACQUISITION BY THARISA PLC

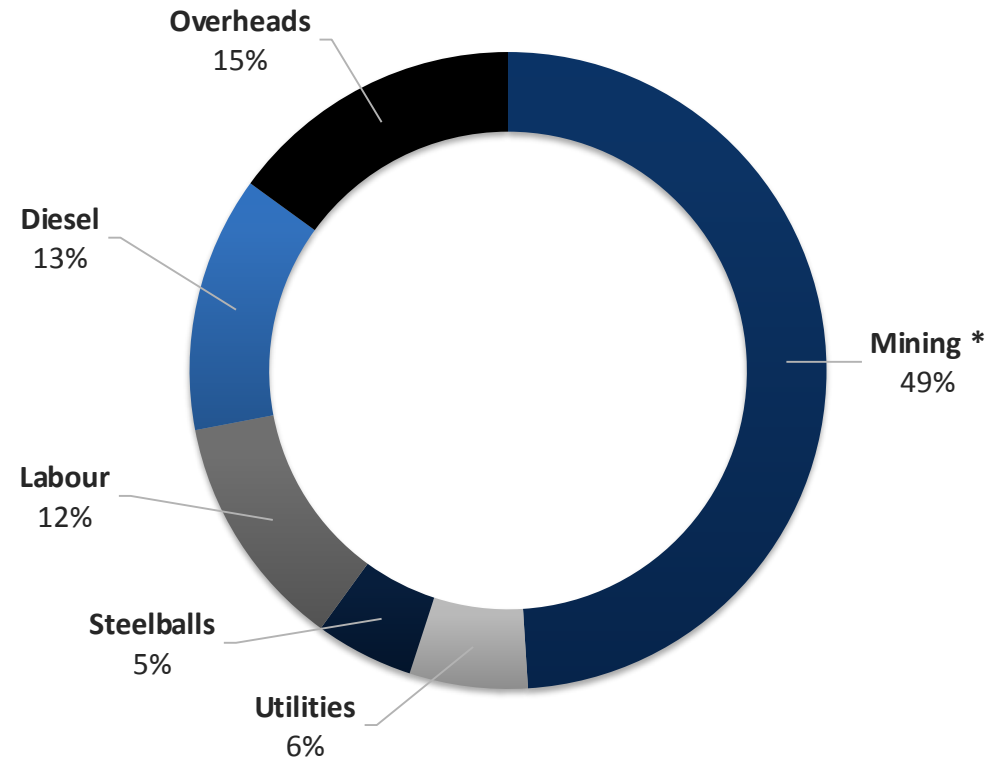
## THARISA MINERALS

# OPERATING COST ANALYSIS – EX-WORKS

## PGM CASH COST OF SALES (H1 FY2016)



## CHROME CASH COST OF SALES (H1 FY2016)



\* Including contractor labour

\* Including contractor labour

# PGMS PRODUCTS AND END USES

## PGM MARKETS

- Largest deposits of PGMs are found in South Africa, Zimbabwe, Russia
- Bushveld Complex is the largest platinum resource in the world and accounts for 75% of annual global production
- Longer term PGM outlook remains robust as global emission standards continue to tighten while mine production remains constrained and above ground stocks continue to be drawn down
- Fuel cell applications remain potential wildcard

## PRIMARY USES OF PGMS GLOBALLY

<b>Pt</b>	Platinum	Automotive catalytic converters	Jewellery
<b>Pd</b>	Palladium	Automotive catalytic converters	Jewellery
<b>Ru</b>	Ruthenium	Electrical contacts	Chemical catalyst
<b>Rh</b>	Rhodium	Automotive catalytic converters	Optic fibre coatings
<b>Ir</b>	Iridium	Corrosion resistant	Automotive spark plugs
<b>Au</b>	Gold	Jewellery	Coinage

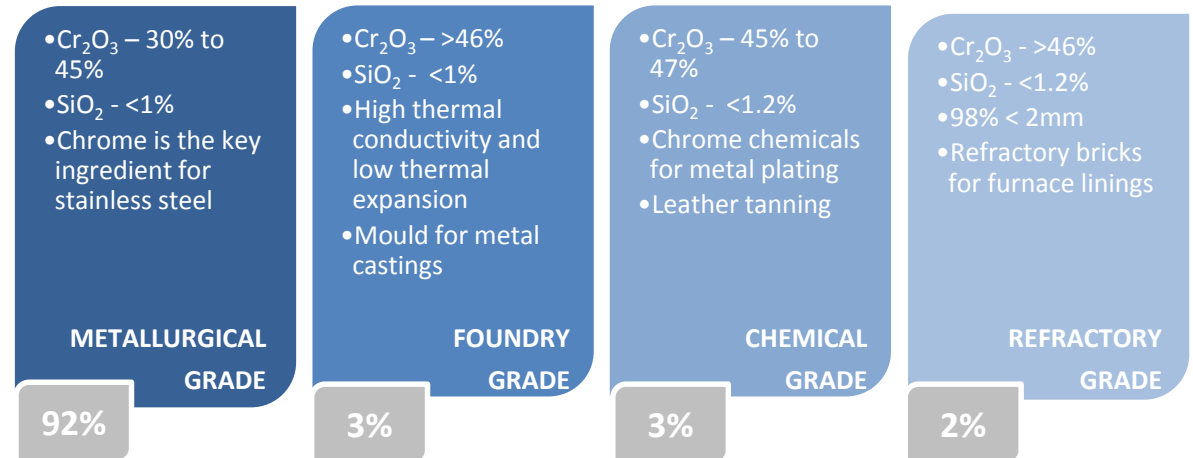


# CHROME PRODUCTS AND END USES

## CHROME ORE/CONCENTRATE MARKETS

- Chromite is the mineral extracted from the ore
- Chrome ore is mined from primary chromite deposits
- Chrome concentrates can be recovered from tailings and secondary ores
- 92% of global chromite produced is metallurgical grade used for stainless steel production (mostly via ferrochrome)
- Globally, 8% of global chromite produced is the higher value chemical and foundry products
- Tharisa produces up to 10% of the higher value chemical and foundry grades, depending on the ore mix

## USE OF CHROME ORE/CONCENTRATE GLOBALLY



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