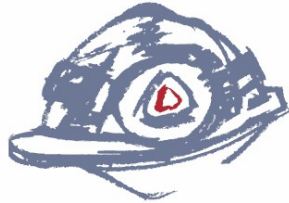


Safe

Profitable

Platinum Production

- **Introduction**
- **Overview**
- **Safety Health and Environment (SHE)**
- **Polokwane Smelter**
- **Production and Costs**
- **Social Responsibility**



Safety



**Honesty &
integrity**



**Deliver on
promises**



**Team
work**



Caring



**Passion
&
pride**



Bertus de Villiers
Head of Smelting Operation



Malmsey Zitha
Operational CED
Manager



Alpheus Mothiba
HR Manager



Andre Theron
Finance Manager



Jacob Mohlamme
DC Outbound Manager



Tamryn De Vries
Production Superintendent



Phillimon Patson
Mukumbe
Smelter Manager



Bart Pieterse
Engineering Manager



Ernest Swart
EBRL Laboratory Manager



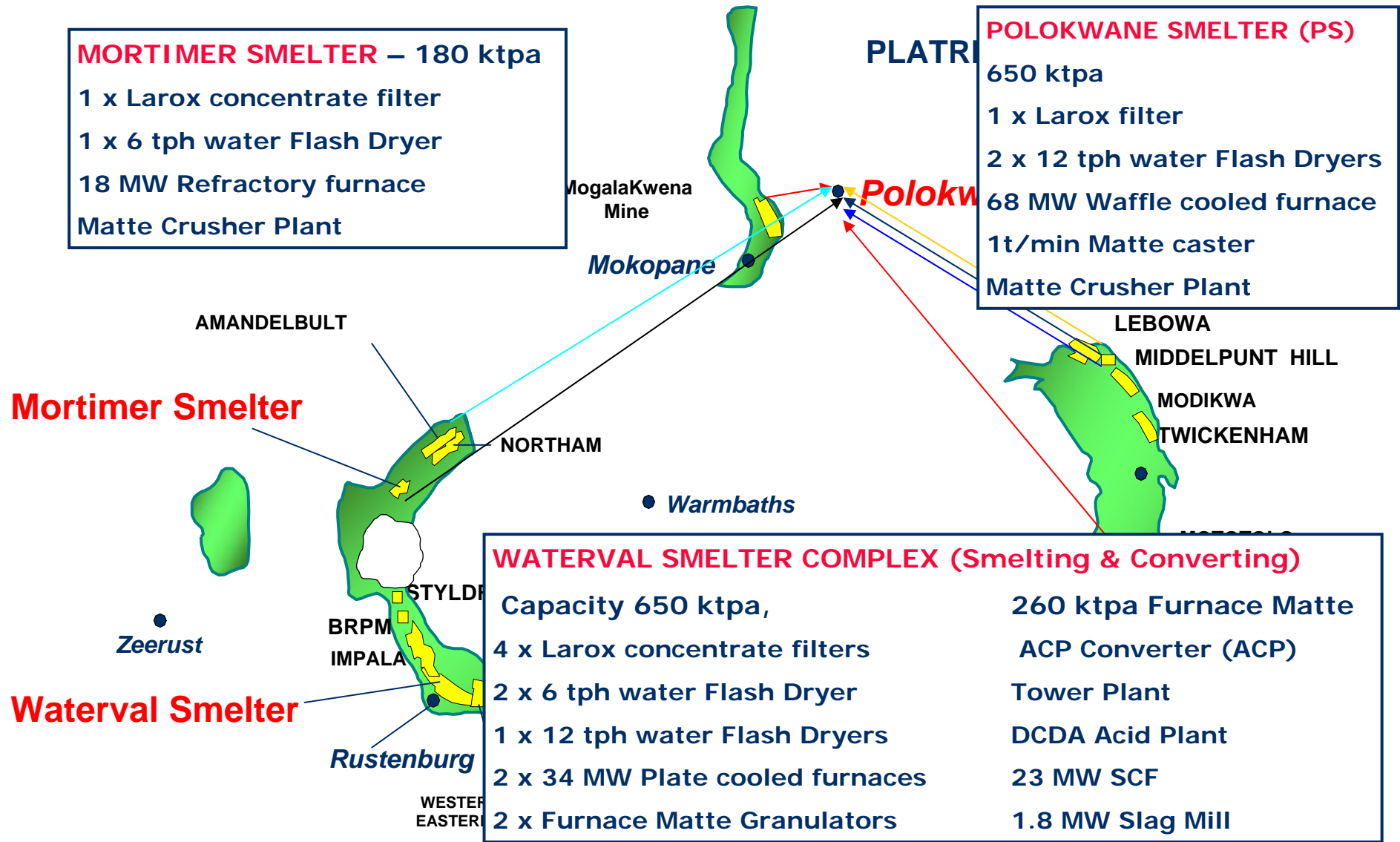
John Madiba
Protection Services



Paul van Manem
Technical Manager



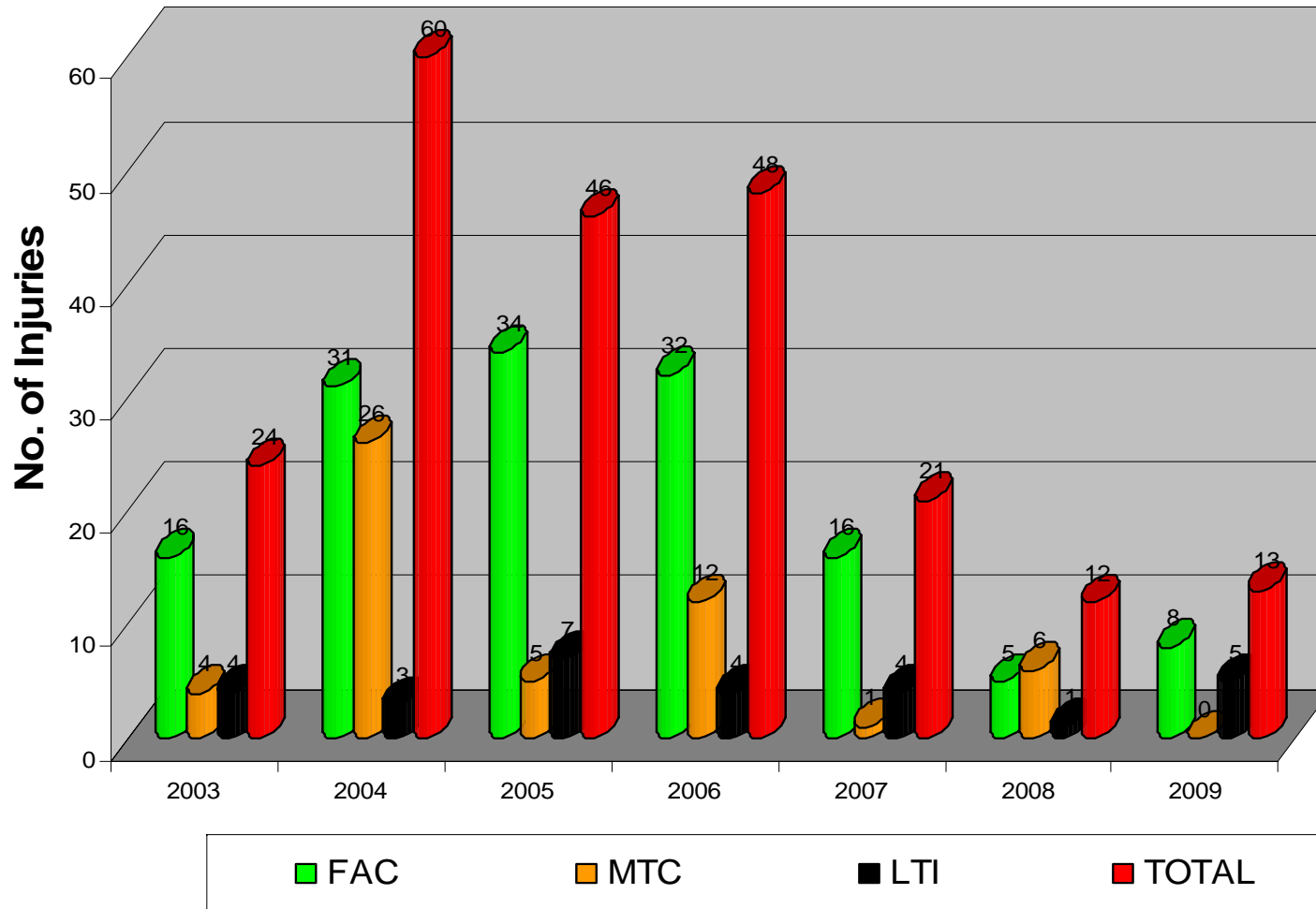
Matthew Ncube
SHEQ Manger



Concentrate Receipts at Polokwane	Distribution (%)			Total
	UG2	Merensky	Platreef	
Mogalakwena	0	0	100	0
Twickenham	100	0	0	100
Bokoni (Lebowa)	38	62	0	100
Mototolo	100	0	0	100
Union	63	37	0	100
Amandelbult	35	65	0	100

SAFETY

POLOKWANE SMELTER



- **Polokwane Smelter SHE thrusts in line with Anglo Platinum**
 - **Safety Management Systems (SMS)**
 - **Behaviors**
 - **Engineering Solutions**
 - **Wellness in the Workplaces and communities**

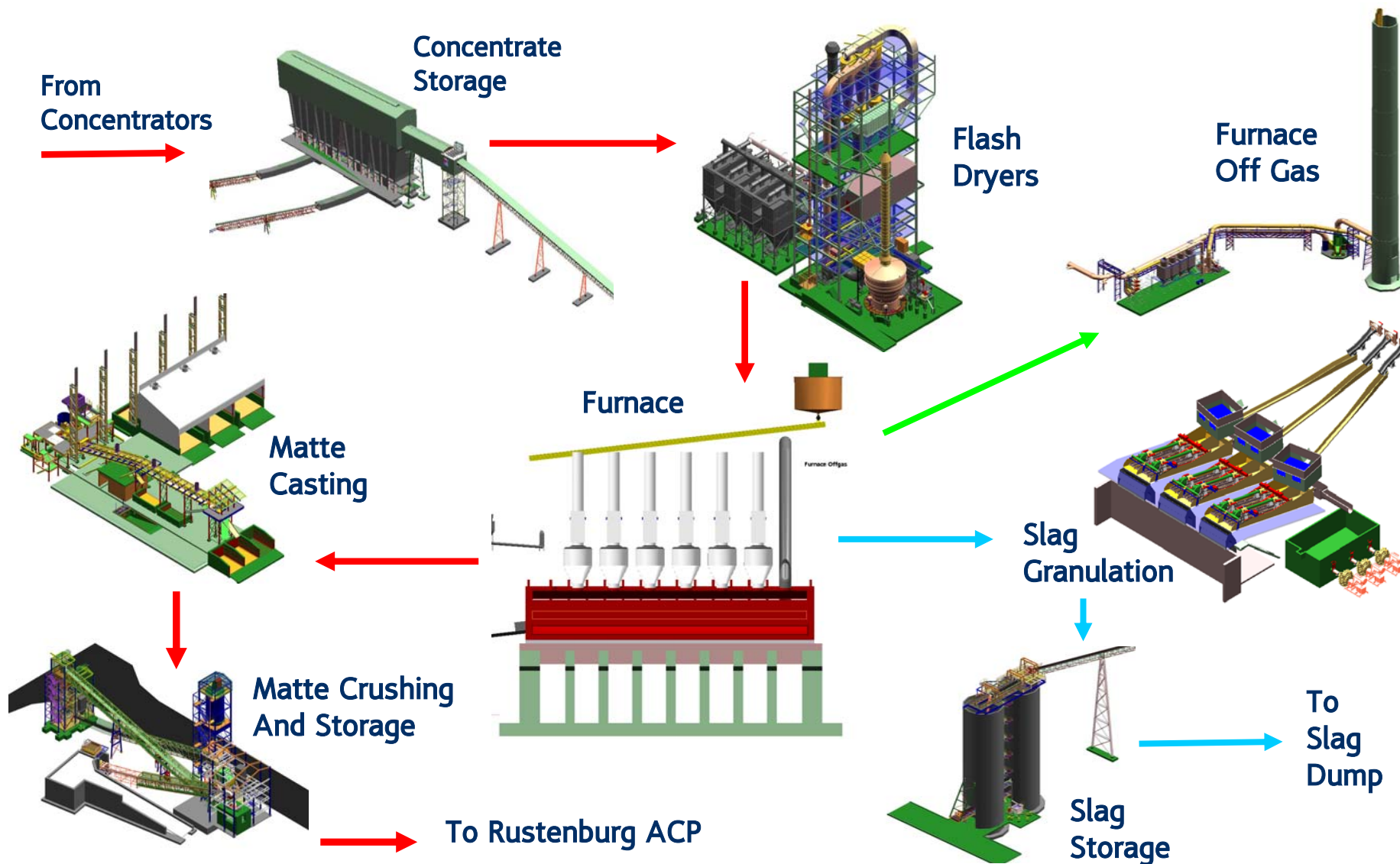
Safety Focus

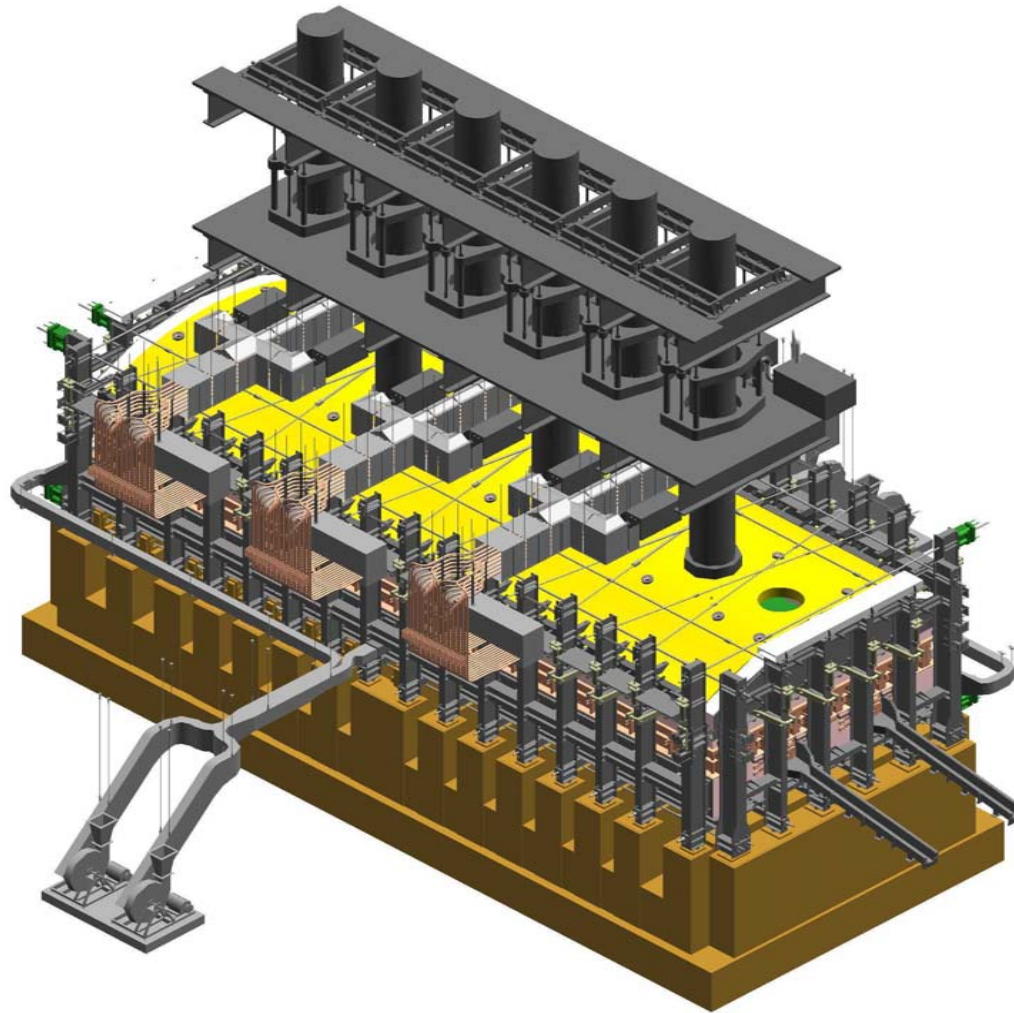
- **Monitoring of the quality of HIRA process steps; Emphasis on proper identification of hazards.**
- **Visible Felt Leadership to enhance effective supervision through presence of management and supervisors;**
- **Implementation and optimization of IRM.net;**
- **Improved communication through effective engagement between employees and management**
- **Improved access control to the plant and enhanced management of contractors on site.**
- **Drive full compliance in the plant**

Achievements

- **7 730 000 fatal free-hours end March 2010**
- **ISO 14001 continued certification**
- **ISO 9001 quality assurance certification**
- **OSHAS 18001 continued certification;**
- **Implementation of the Anglo Safety Way**
- **Occupational Health Way**
- **Comprehensive HIV/Aids programme on site and in community**

Polokwane Smelter





Design Capacity:
650 000 t/a
~87 t/h

Power:
68MW (max 80)
168MVA

Power density:
250kW/m²

Matte temperature:
1450°C

Slag temperature:
1600°C

Electrode diameter:
1600mm

Chrome tolerance: Max 4% Cr₂O₃

75% electrode immersion – stirring

- Prevent hearth build-up

- Break-up intermediate layers

Hearth Power density: 250 kW/m²

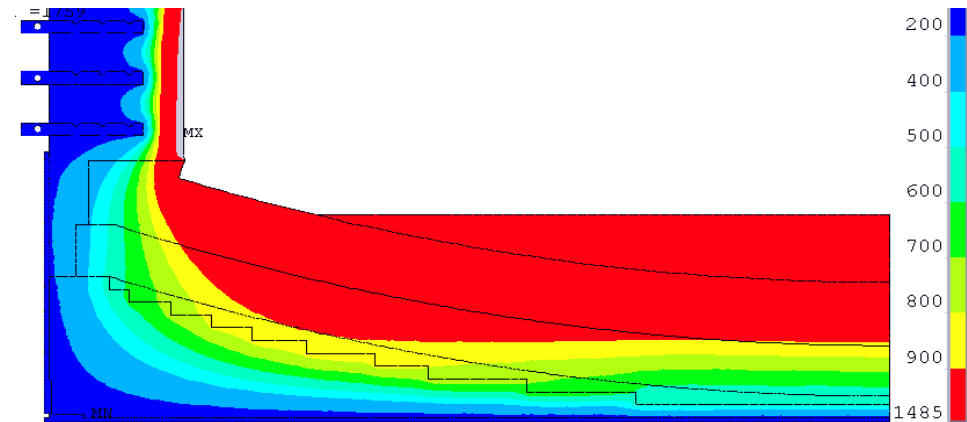
Sidewall heat flux: 220kW/m²

Other:

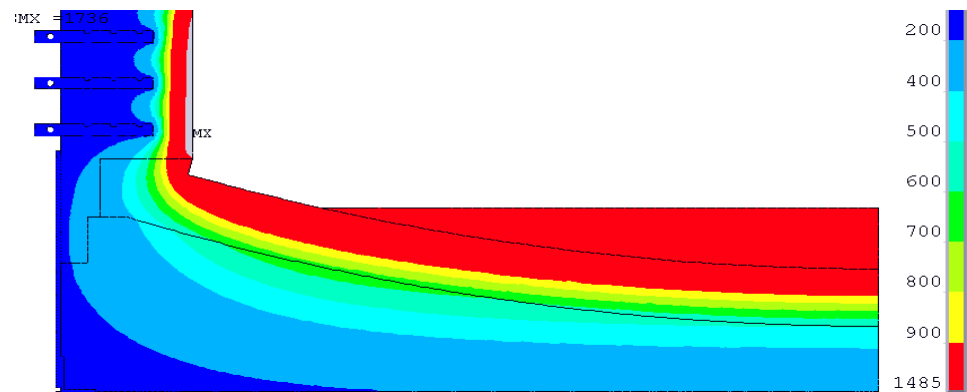
- High intensity air cooling on lower sidewalls

- Thermally conductive hearth with forced air cooling

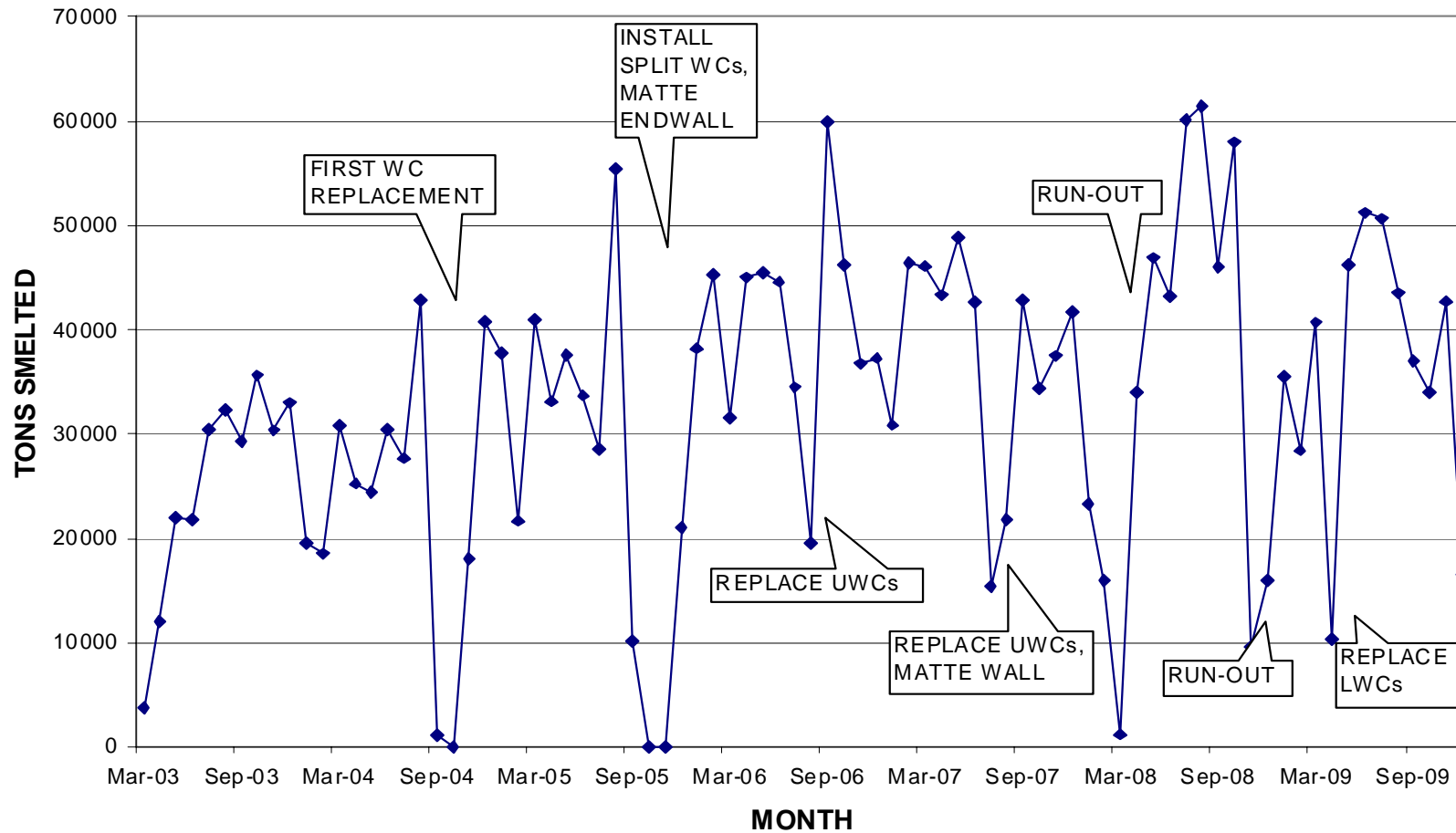
Waterval Hearth



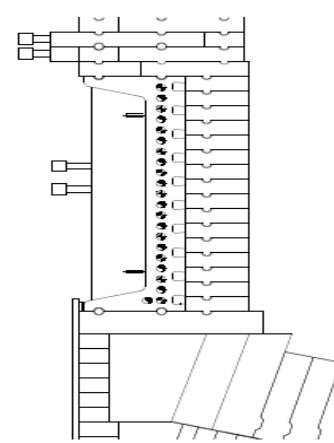
Polokwane Hearth



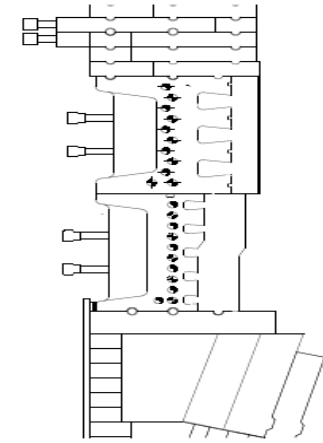
POLOKWANE SMELTER: MONTHLY TONS SMELTED SINCE START-UP



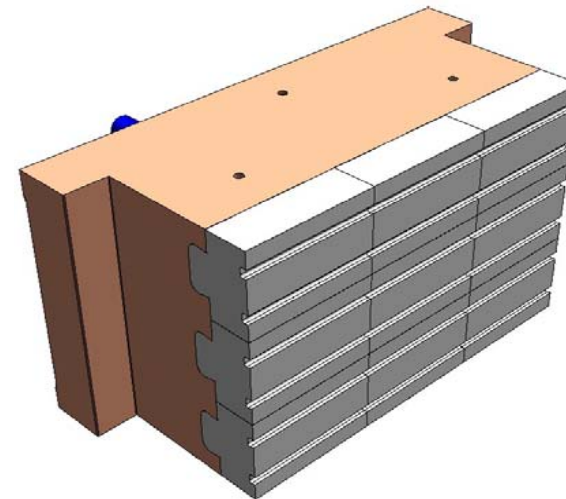
- Split Waffle Coolers
- Automatic pressure testing of copper cooling water circuits
- Graphite Usage & Materials of construction
- Ultrasonic copper thickness testing
- Install thermo-wells 20mm past Monel pipe – pressure testing
- 2010 Rebuild and extension of furnace (Equivalent Power density Waterval Smelter)
- Increased the copper thickness on the lower waffle coolers by 70mm
- Installation of the third matte tap hole



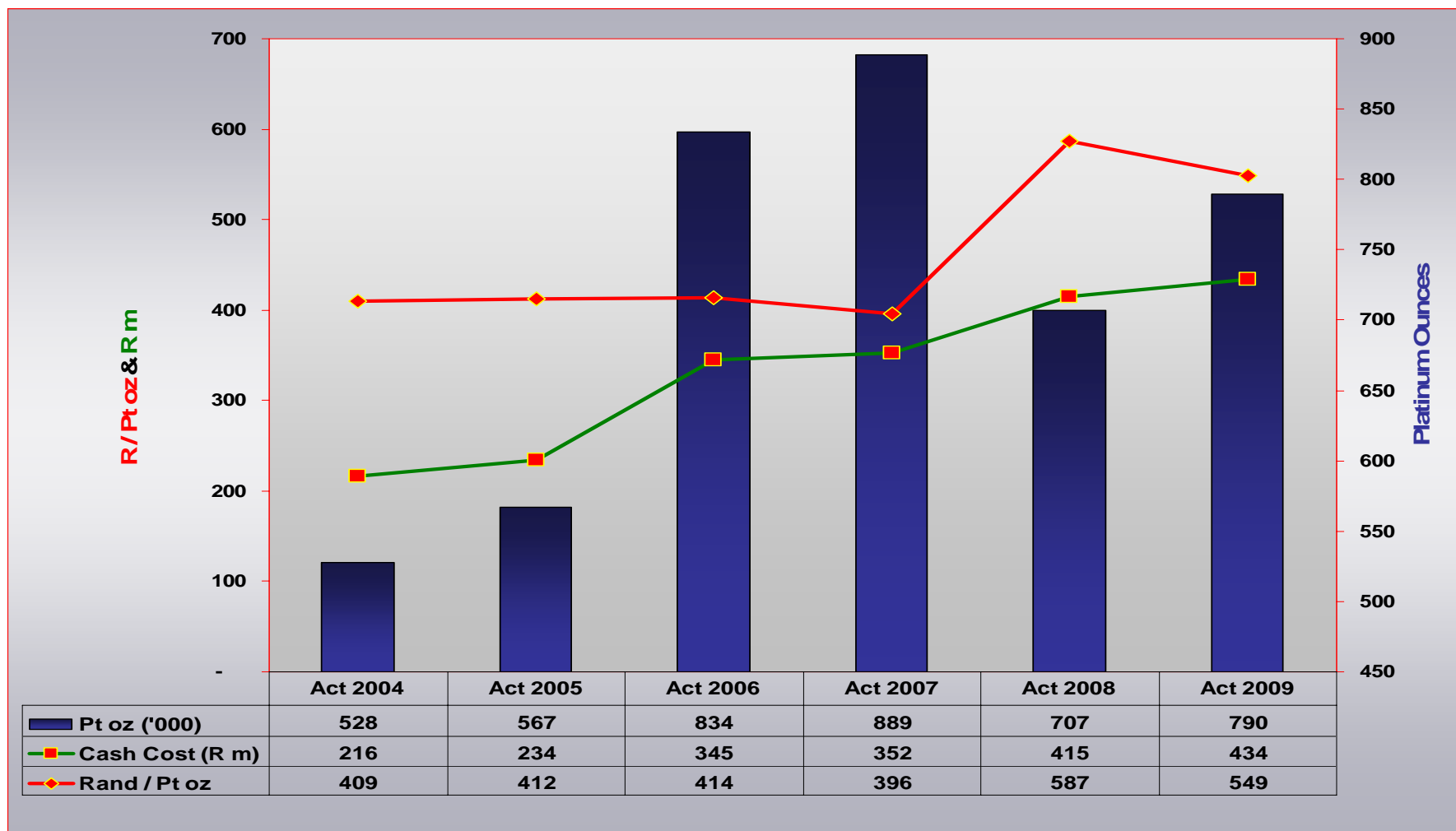
ORIGINAL DESIGN

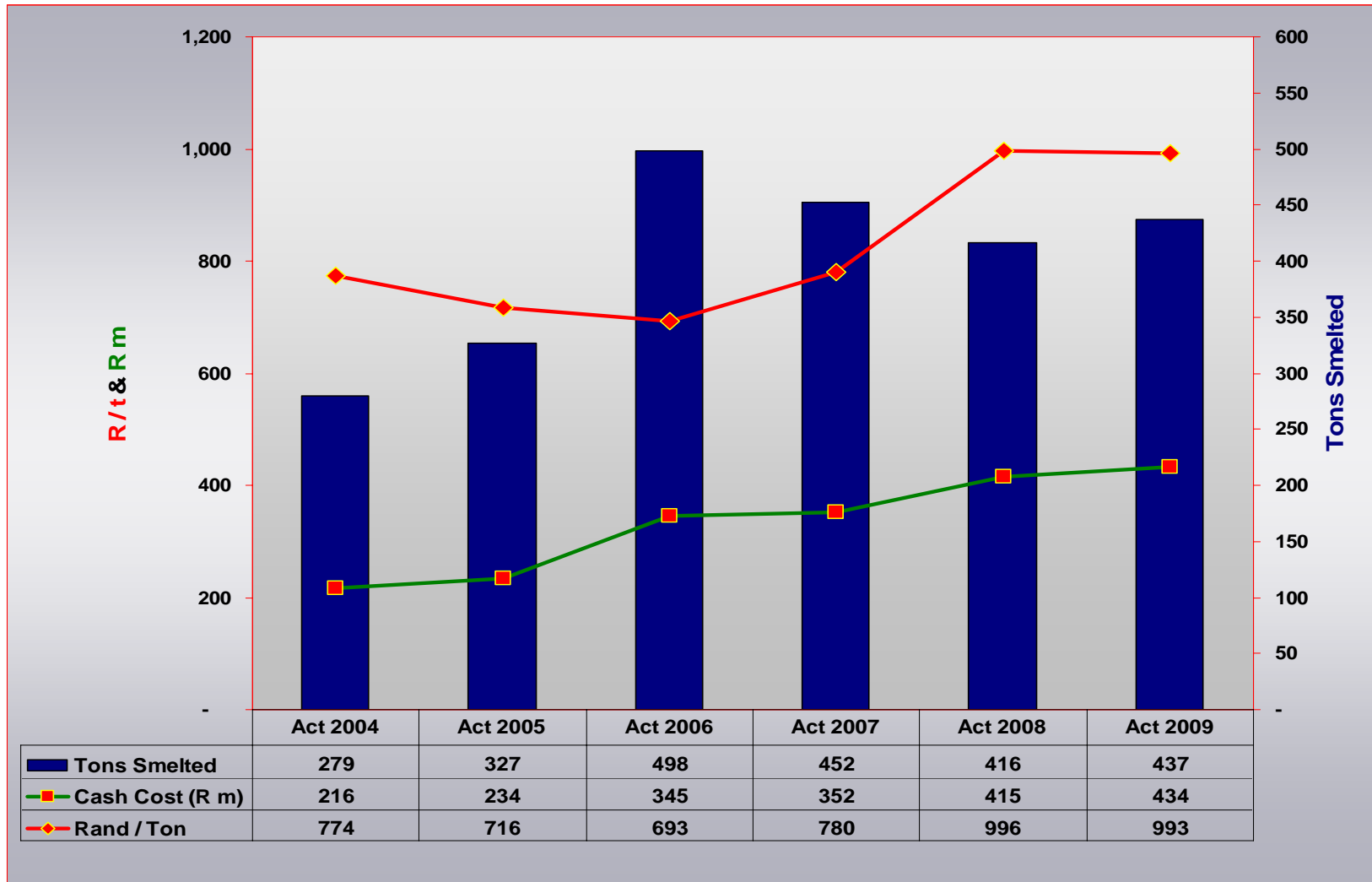












2005 REBUILD



Company	Impala Platinum	Anglo Waterval Smelter	Lonmin	Anglo Polokwane
Year Commenced Operating	1991, 1999	1992, 1993	2002	2003
Product	PGM Furnace Matte	PGM Furnace Matte	PGM Furnace Matte	PGM Furnace Matte
Furnace Type	AC, 6-electrode rectangular	AC, 6-electrode rectangular	AC, 3-electrode circular	AC, 6-electrode rectangular
Furnace Power (MW)	2 x 40	2 x 34	1 x 27.5	1 x 68
Capacity change	Substituted 4-15 MW Furnaces with 2	Upgraded 2 X 18 MW Furnaces	Substituted 6-5MW Furnaces with 1	Commissioned 1-68 MW Furnace





	Goal	Progress Status		Target & Metric	Base	MTD*	Size of Prize (Cum. to 2010)
		Dec/Jan	Feb				
1	Waffle Cooler Design	Increase the life of the side wall			Lower waffle cooler life: 5yr Upper waffle cooler life: 3yr	3 yr 1 yr	1 mo. 1 mo. R42.6M
2	Furnace Energy Efficiency	Reduce specific energy consumption on the furnace			Energy efficiency: 735 kWh/t	766 kWh/t	- Furnace rebuild R2.7M (Energy: 18600 MWh/yr)
3	Caster Utilization	Improve matte caster utilisation			Matte to caster: 3000t/mo. Availability: 80% Utilisation: TBD	1496t 71% 36%	0t 100% 0% R0.5M
4	Water Management	Improve water management, control and potable water savings			Water efficiency: 0.53m ³ /t conc. smelted	0.75m ³ /t	- Furnace rebuild R1.05M
5	Slag Uses Project	Find uses for slag to reduce capital expenditure on the slag pad, generate income from slag sales and reduce rehabilitation costs.			Slag Tons Used: TBD	0	0 R19M

Polokwane Metallurgical Complex Socio-Economic Projects

Construction of 4 Class Rooms and Science Laboratory



Construction of Two Blocks of Class Rooms



- Slag product development
 - Mining application usage trials
 - Rock support
 - Ventilation seals
 - PPL road usage trials
 - Building Application
 - Bricks
 - Housing systems and boards



85 m² Slag House



46 m² Slag House



- Step change to Zero Harm
- Focus on stable operations on the furnace
- Continue with the blending of feed (Operate below chrome saturation zones)
- Derive benefit from matte wall life and extended copper cooler life
- Optimize on all initiatives in place (Push to 10 years)