



WELCOME TO THE XSTRATA-MERAPE CHROME VENTURE'S WONDERKOP OPERATION

'The home of modern, cost effective
chargechrome production'



Safety at Wonderkop

Safety at Wonderkop



Our operation contains some element of risk. Every action or operation in the plant undergoes the following process:

- A job description is developed describing all the responsibilities and safety aspects of a specific job.
- An extensive risk assessment is conducted by suitably trained supervisory personnel.
- Safe working procedures are developed based on the risk assessments
- All personnel are trained before any task is being performed and re-trained annually regarding the risks and safe working procedures of their jobs.



Safety – Our objectives

2005 objective

No Fatalities

TRIFR < 13 (2005 ytd. – 7.7)

LTIFR < 4 (2005 ytd. – 1.75)

All based on 1 million man hours worked

Implementation of BBS System

Current and long term objectives

- Zero fatalities or injuries.
- Achieve a LTIFR of <3 by using 2002 as a base and reduce by 20% annually.
- Achieve a TRIFR of <15 by using 2002 as a base and reduce by 20% annually.

For Your Own Safety



Personal Protective Equipment

- Hard hat
- Leather shoes covering the foot in full
- Safety spectacles
- Trousers
- Dust coat buttoned up

Please adhere to the safety signs.

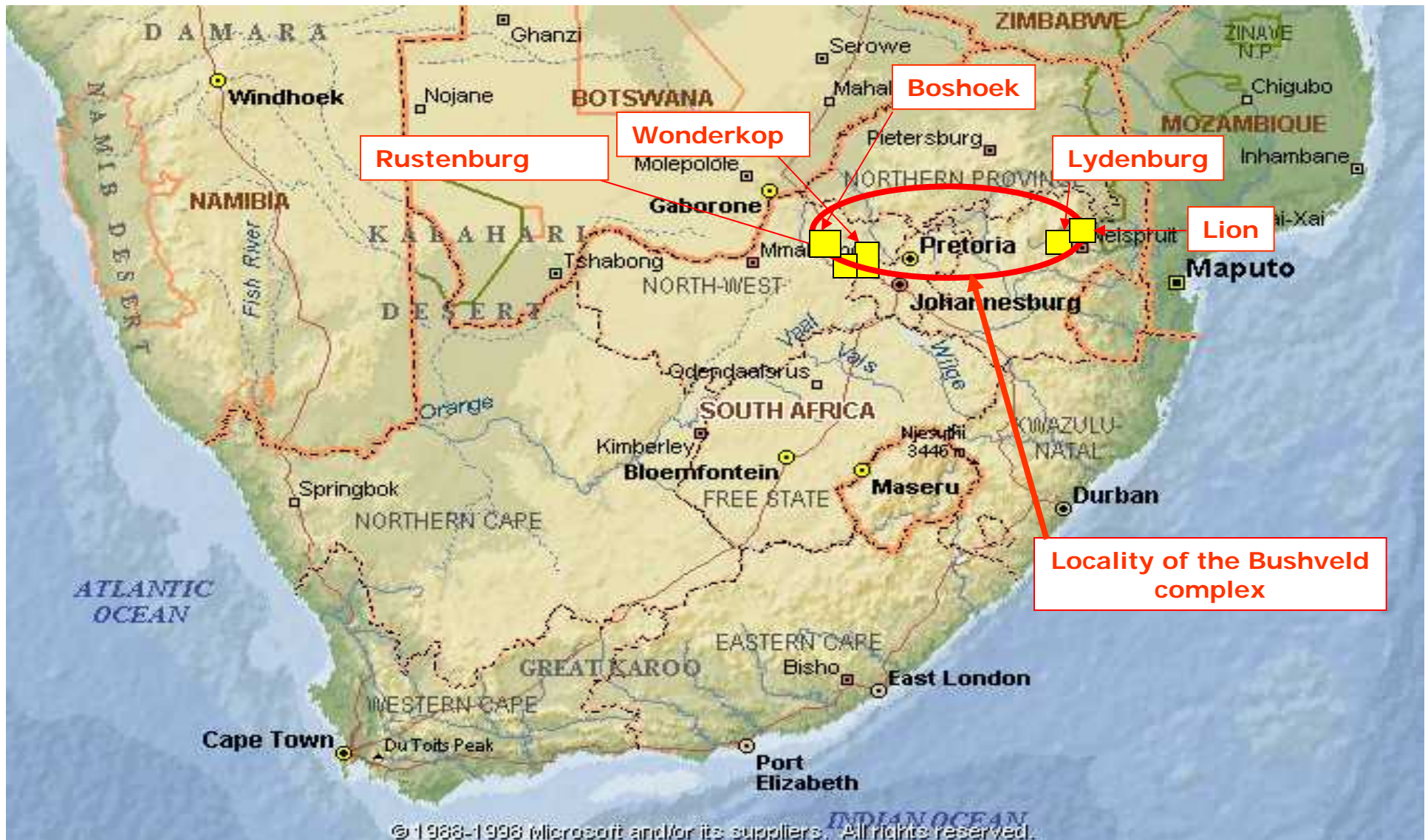
Please listen to the instructions from your guide.

Do not hesitate to report any unsafe actions or conditions during or after your visit – it is welcomed



Wonderkop Operation

Locality of Wonderkop



Environment, Health and Safety



Wonderkop is ISO 14001 accredited

- Extensive capital expenditure program in place
- Every effort is made to ensure efficient recycling of waste materials

Plant conforms to South African statutory legislation regarding employee working environment (MHSA, OHSA, BCEA, APPA, WA etc.)

Accident rate reduction is priority focus for management in achieving industry best practice

- **Compliance to requirements of Xstrata's 17 HSEC management Standards**
- **Implementation of Behaviour Based Safety system.**

HSEC in context



Corporate Governance

Sustainability

Social

- Safety
- Health
- Community

Environment

Economic

- Quality

Risk Management

- Legal compliance
- Reputation

**Accounting
Auditing & Communications**
• Non-financial information

Overview of the Wonderkop Plant

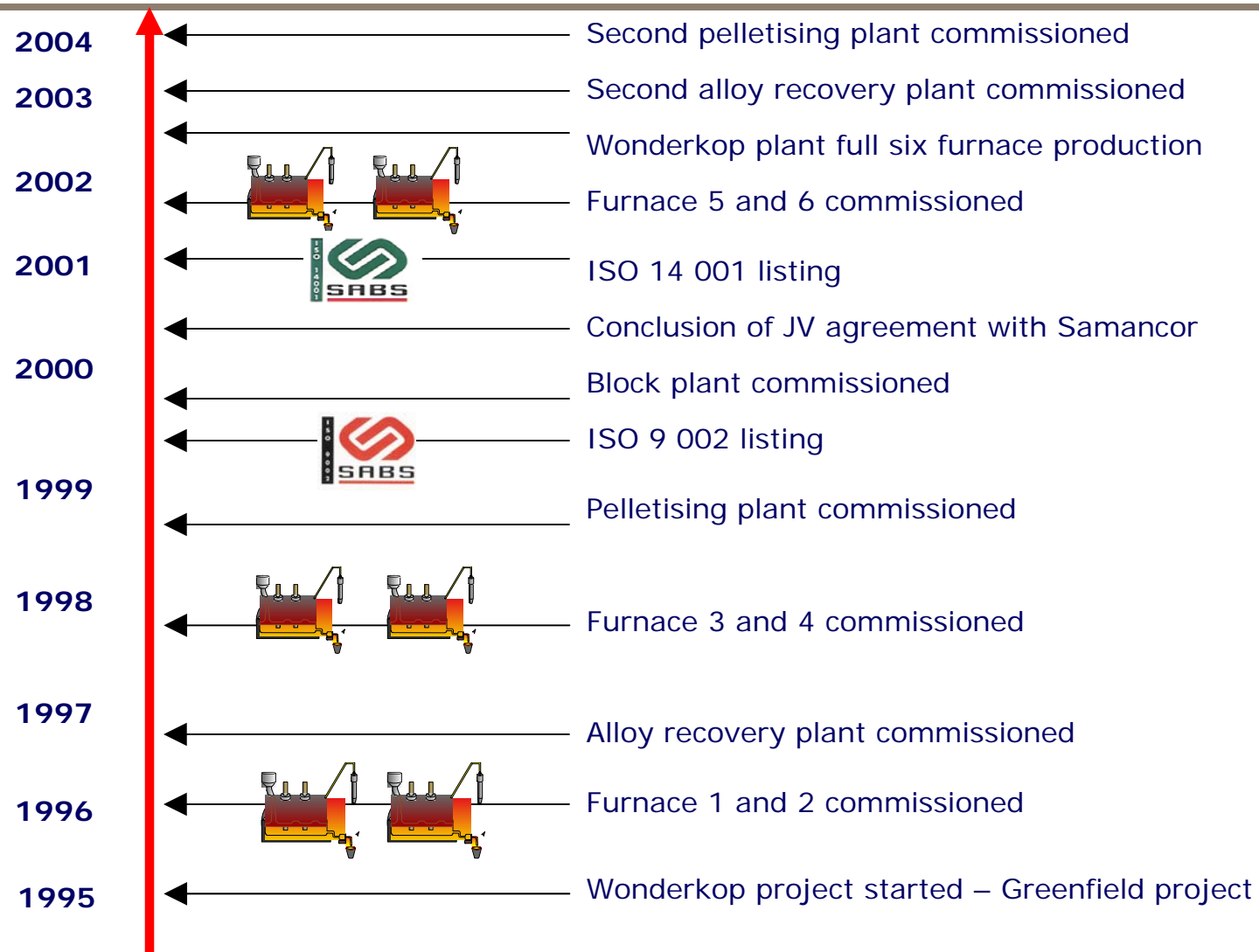


Overview of the Wonderkop Plant Continued



- **520 000 ton of Ferrochrome per Annum.**
 - Normal Grade Product
 - Alternative Grade Product
 - Recovery Product (Typical < 3% slag)
- **6 Furnaces**
 - 270MVA Installed Capacity
 - 35% to 40% low temperature sintered pellets
- **Agglomeration Capacity 780 000 ton p.a.**
 - Blocks 240 000 ton p.a.
 - Pellets 540 000 ton p.a.
 - In-house developed low temperature (700 deg. C) process.
 - Fluidised bed driven baking grate
- **Recovery Plant**
 - 45 000 ton Ferrochrome p.a.
 - Magnetic upgrade and gravity separation

History of Wonderkop

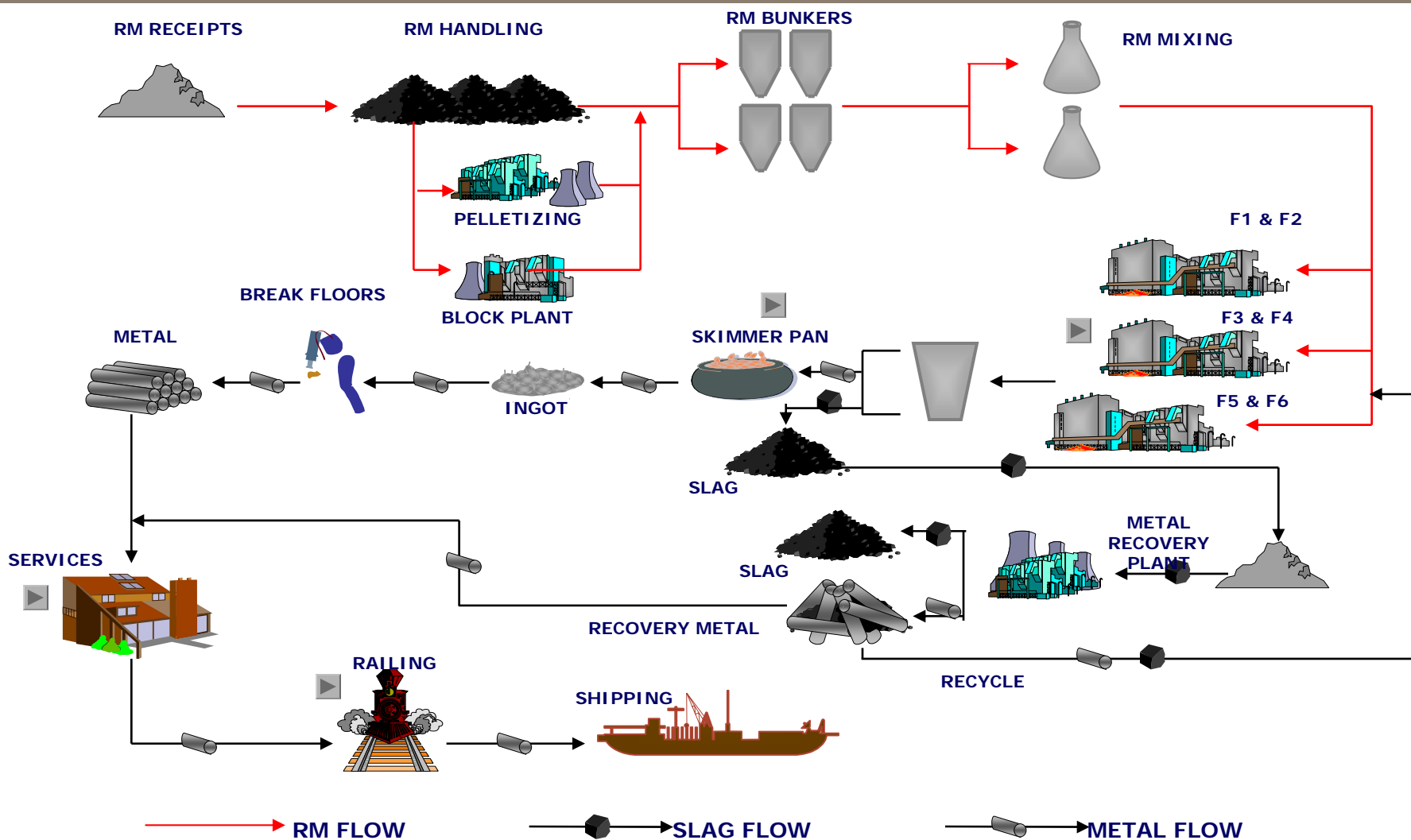


Wonderkop Operational Fundamentals



-
- Our plant is nearby our mining operations (Kroondal).
 - We operate open top furnaces to achieve maximum flexibility in raw material feed.
 - ISO 9002 and 14001 accredited. Formalised safety system based on risk assessments and behaviours.
 - Well serviced infrastructure (Electricity, railway, water).
 - Key operating raw materials supplied by sister companies in Xstrata Group, i.e. paste, fluxes, ores and reductants.
 - Strive to balance ore consumption with size fractions generated at mine and maximise use of low cost raw materials.
 - Effective coke reduction achieved (65% to 35%)

Production Flow



Furnace process inputs and outputs



INPUT

Ore (Chromite)

Reductants

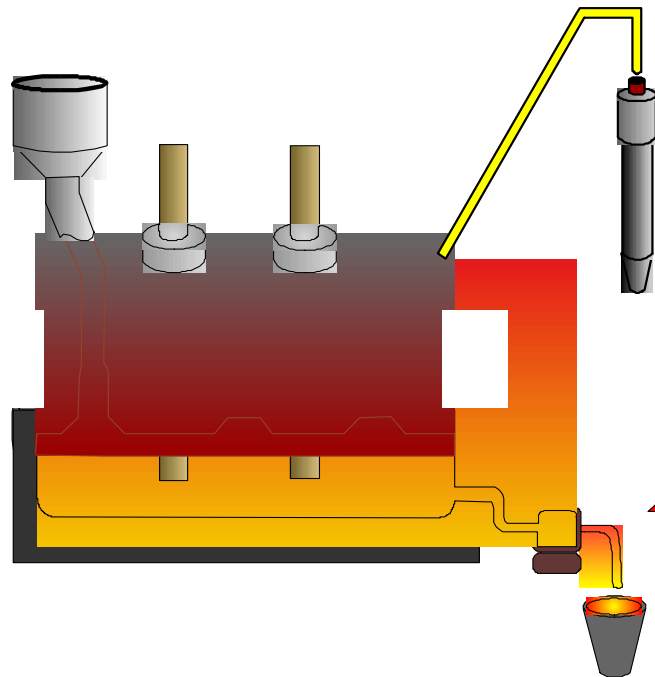
Coke

Coal

Char

Flux (Silica)

Water



OUTPUT

Ferrochrome ▶

Slag ▶

Slimes ▶

Gases ▶

SO₂

NO₂


CO₂

TSP

Water ▶



Wonderkop's Competitive Edge

- Low capital cost (own construction) compared to new projects.
- Close proximity to mining operations and other ore sources.
- Economies of scale, worlds largest producer 
- Management skills and continuity – senior management are part of the team and mostly grew up on the plant or similar operations.
- Design and build our own furnaces – high level of ownership.
- Professional management of employment equity and mining charter issues.
- Management of SHEQ aspects well integrated as part of our day to day operation – not stand alone issue.





Enjoy your Plant visit

Local area geology

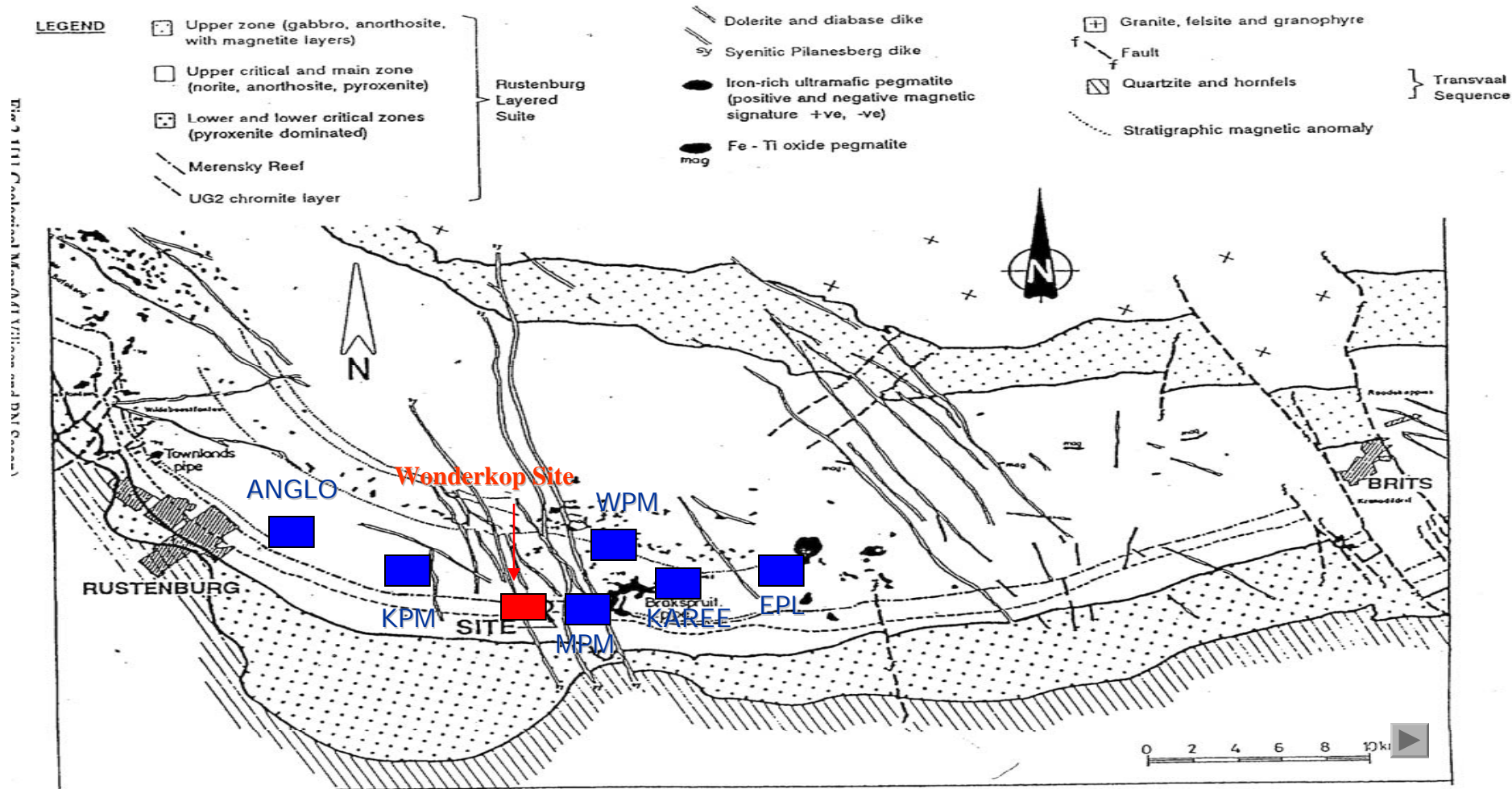
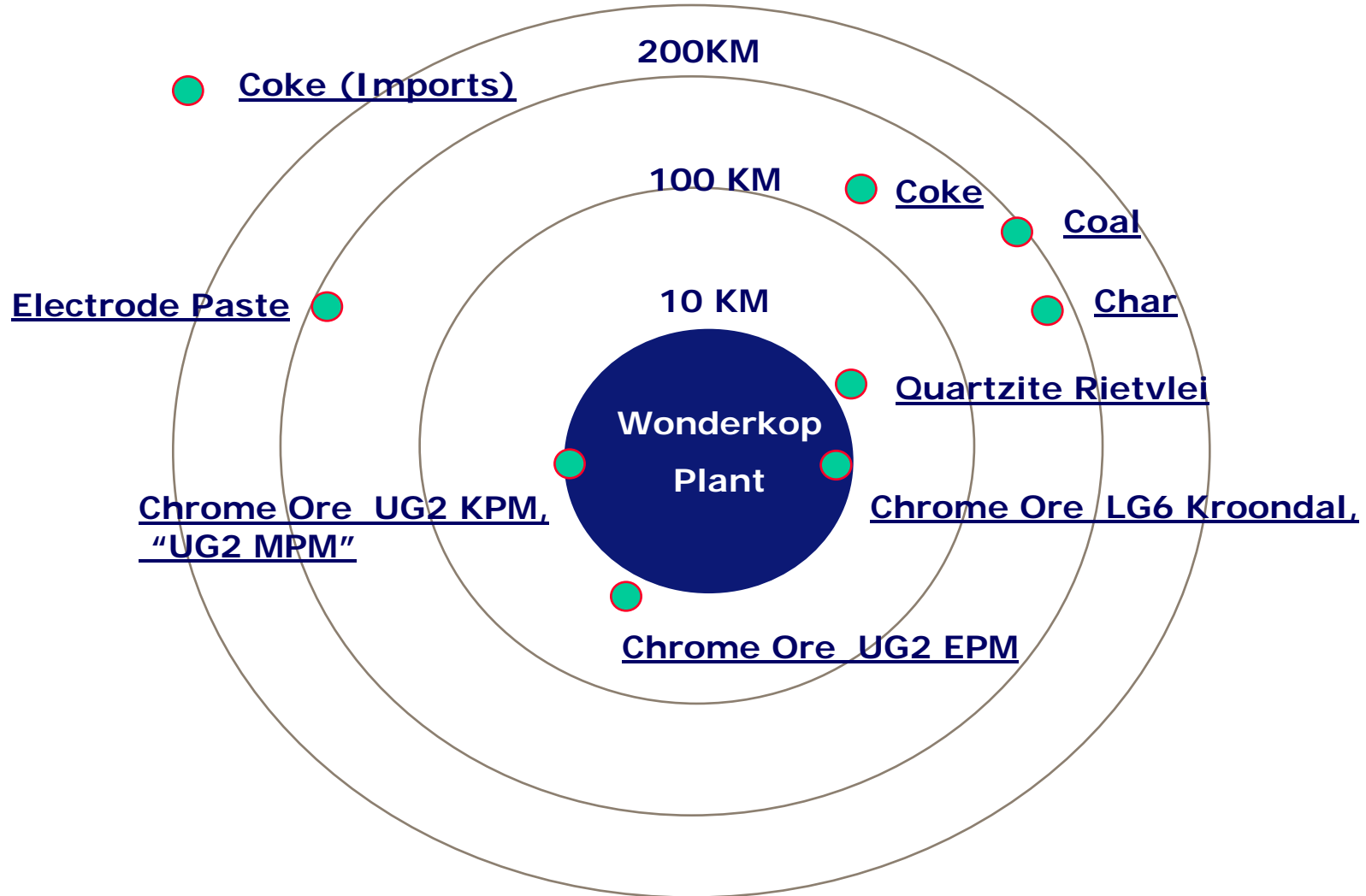


Fig. 9.1111 Geological Map of the Rustenburg and DNI Complex

(taken from geological map by MJ Viljoen & RN Scoon: The distribution and main geological features of discordant bodies of iron-rich ultramafic pegmatite in the Bushveld Complex, Economic Geology, Vol 80, 1985, pp 1109-1128.

Raw Materials Supply



Screening operation



Multi-deck sieve system for sizing to specific clients requirements

Rail car loading



Final load and sampling station for sized product rail loading



Metal and slag tapping arrangement



Skimmer tapping arrangement allows separation of molten slag and metal- metal shown cascading into chills

Typical open top SAF layout



Slime treatment



- H:h classification. Bottom clay lining and double plastic lining with leakage detection.
- Operation of dam as per mandatory COP: Residue deposits
- To ensure continued stability, the side slopes are designed to retain a growth of 2 units horizontal for each unit vertical growth



Slag Handling



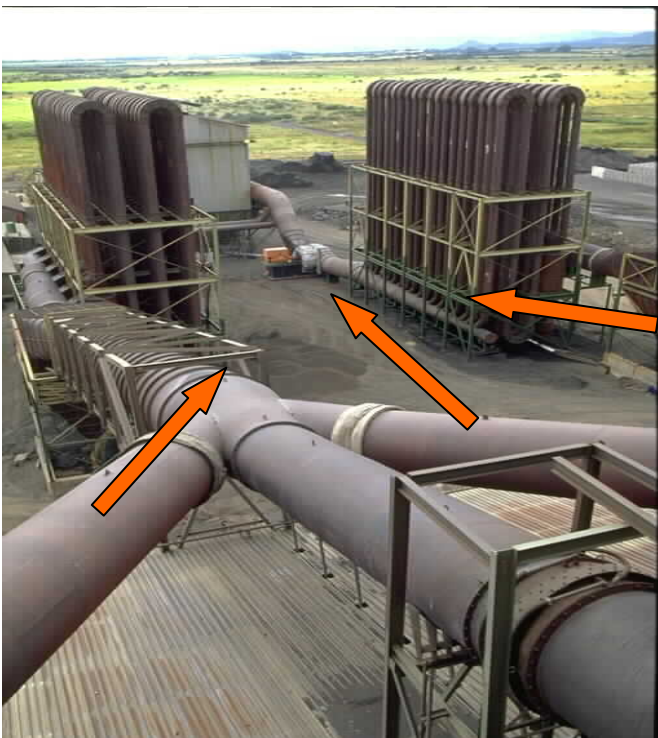
- Slag in the process of being declassified as hazardous waste.
- Extensive acid rain leach tests conducted during EMPR process and as follow up

- Operation of dam as per mandatory COP: Residue deposits



Furnace Fume Abatement

- Emission rates and all aspects of fume abatement equipment regulated by Provisional registration certificate as per APPA - issued by CAPCO NWP
- Iso-kinetic sampling conducted as per schedule in certificate
- Baghouse utilisation increased from < 98% in 2000 to > 99.5% currently following various projects and very high levels of focus



Alloy Handling



Alloy cooled down after tap

Alloy in final product stock yard



Site water-flow capture ponds



- Water that drains off the site is captured in large holding ponds where residual suspended solids drop out before the water is returned to the plant.
- Water is tested weekly and classified as a class ii water.

