



ArcelorMittal

# ArcelorMittal Newcastle Works

June 2012

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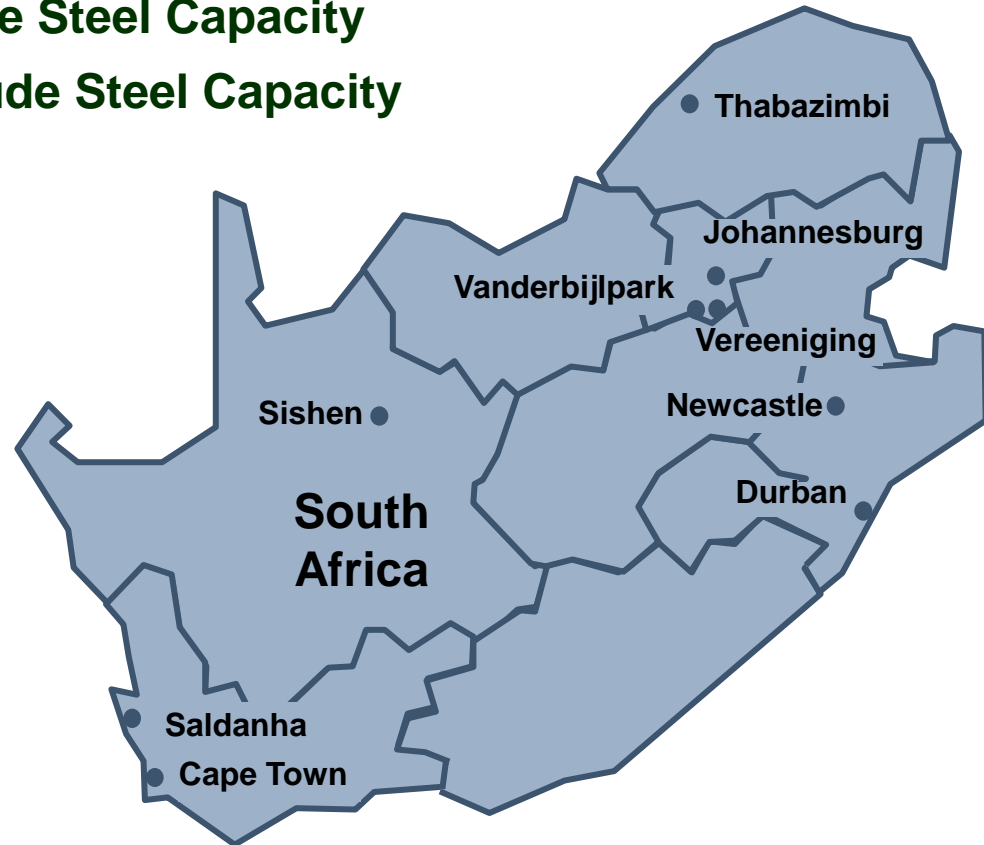
- About Newcastle Works
- Newcastle Works
- Management Drives
- People
- Highlights of Newcastle Works

# About Newcastle Works



# ArcelorMittal South Africa

- **Vanderbijlpark plant – 4.5 Mtpa Crude Steel Capacity**
- **Saldanha Steel – 1.2 Mtpa Crude Steel Capacity**
- **Newcastle plant – 1.9 Mtpa Crude Steel Capacity**
- **Vereeniging plant – 0.4 Mtpa Crude Steel Capacity**



# Brief History



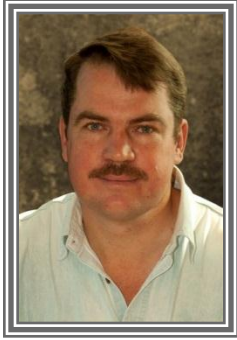
- Newcastle Works
- Originally part of a government run organisation (ISCOR).
- The then government chose to build a plant in Newcastle to promote industrialisation in the area and optimise use of nearby resources and ports.
- Designs began in 1969 and the plant began its full production in November 1976.

## Newcastle Works 2011 (2010)

• Liquid Steel Production ('000 tons)	1 064 (1 563)
• Sales tons ('000 tons)	1 039 (1 490)
• Percentage Domestic Sales	74% (54%)
• Manpower	1 715 (1740)
• Area of Site	1697 ha
• Perimeter	18.97 km
• Rail Networks	90 km
• Electricity consumption	1 752 Mwh/day (1 688)
• Primary Raw Materials received	7 086 t/day (7 874)
• Water Consumption	16 284 KLtrs/day (17 963)



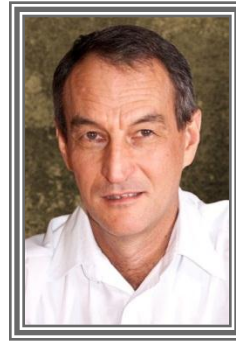
# NC Management Team



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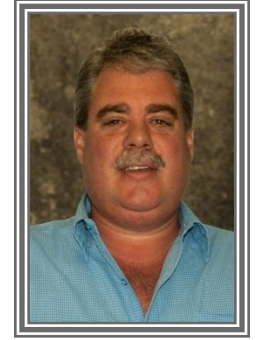
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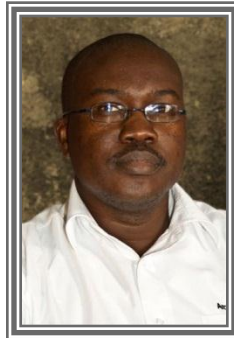
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**SHERQ**



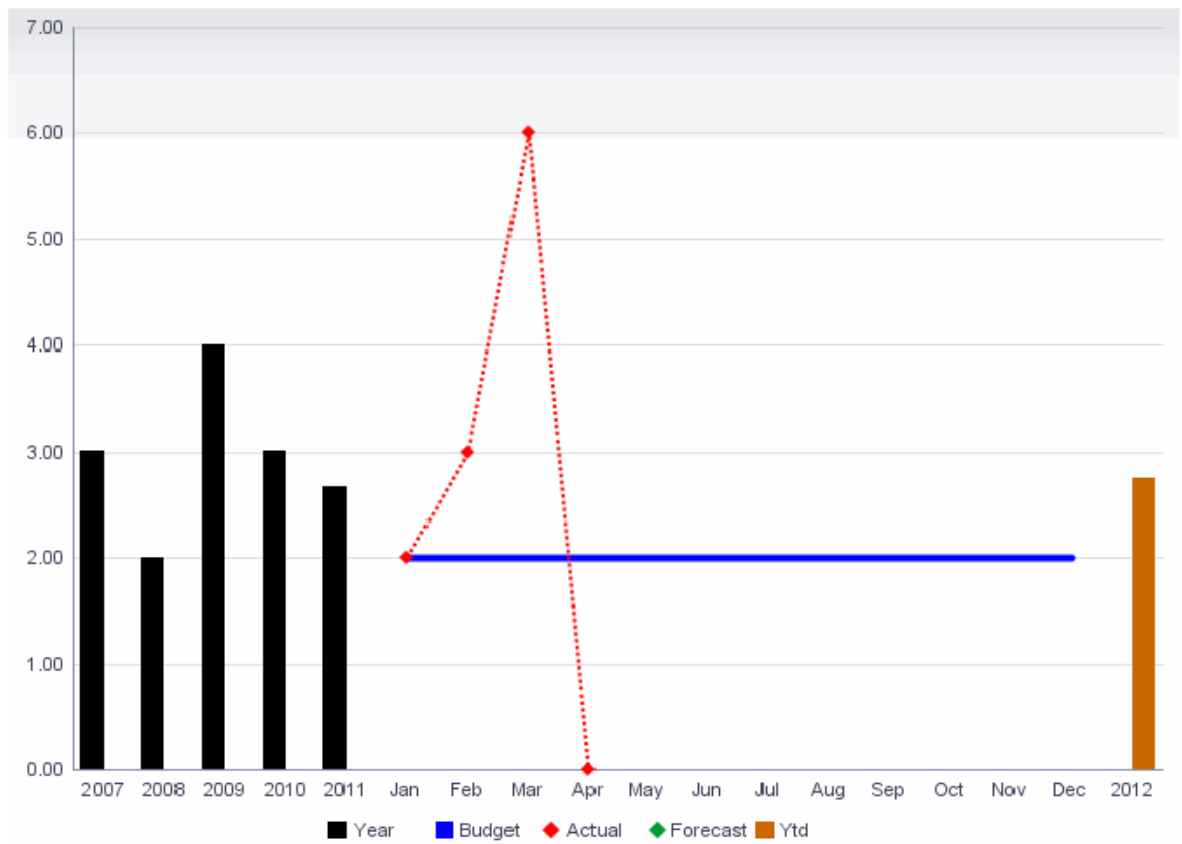


### Monthly Follow-up Chart: 2012

KPI

Special Group : NC-All Bonus KPI's - 739

Kpi Number	KPI Description	Unit
7176	NEW-SHRQ Combined Injuries (LTI & RWDC)	# per month



Month	Actual	Forecast	Budget
Jan	2.00		2.00
Feb	3.00		2.00
Mar	6.00		2.00
Apr	0.00		2.00
May			2.00
Jun			2.00
Jul			2.00
Aug			2.00
Sep			2.00
Oct			2.00
Nov			2.00
Dec			2.00

Quarter	Actual	Forecast	Budget
Q1	3.67		2.00
Q2			2.00
Q3			2.00
Q4			2.00

Year	Actual
2007	3.00
2008	2.00
2009	4.00
2010	3.00
2011	2.67
2012	2.75

**Month Remark:**

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**Forecast Remark:**

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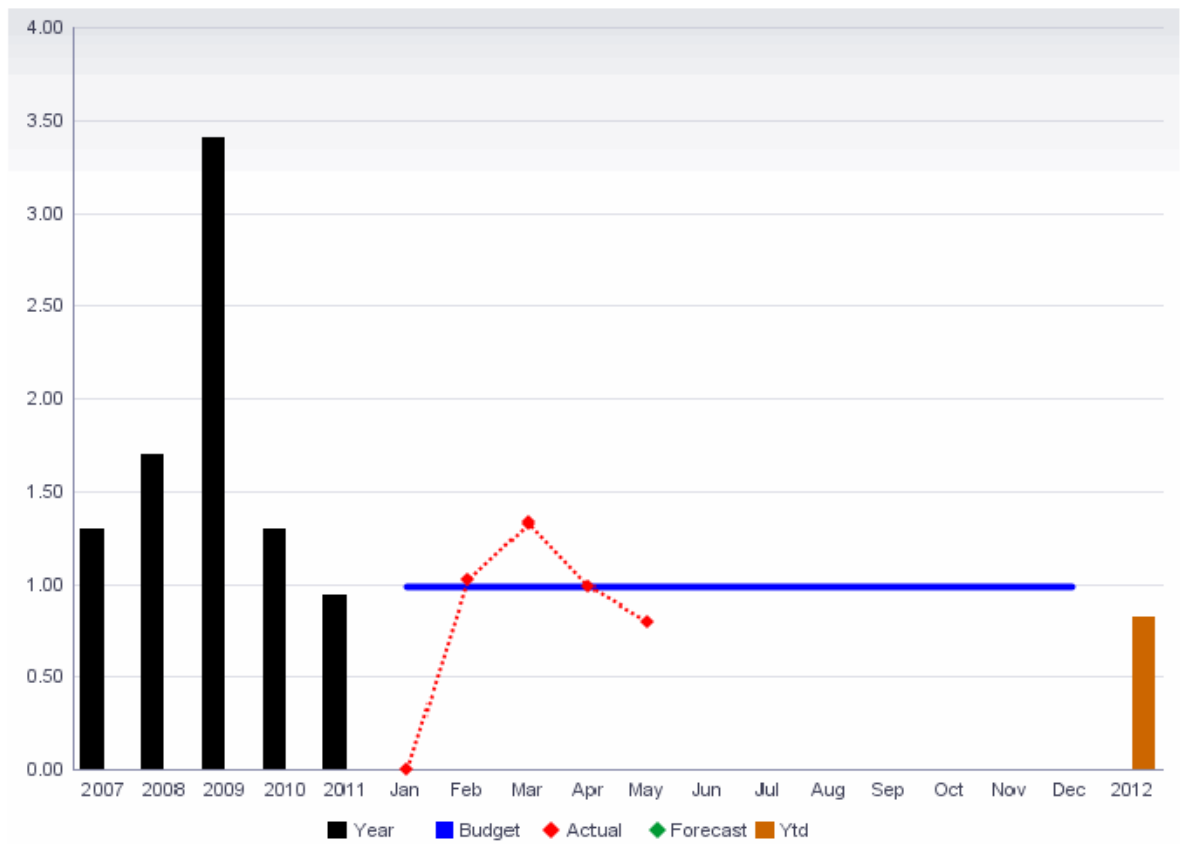
Responsible Person: Gouws, Samantha

### Monthly Follow-up Chart: 2012

KPI

Special Group : NC-All Bonus KPI's - 739

Kpi Number	KPI Description	Unit
6486	NC-LTIFR (Cum) Newcastle	LTIFR



Month	Actual	Forecast	Budget
Jan	0.00		0.99
Feb	1.02		0.99
Mar	1.33		0.99
Apr	0.99		0.99
May	0.80		0.99
Jun			0.99
Jul			0.99
Aug			0.99
Sep			0.99
Oct			0.99
Nov			0.99
Dec			0.99

Quarter	Actual	Forecast	Budget
Q1	0.78		0.99
Q2			0.99
Q3			0.99
Q4			0.99

Year	Actual
2007	1.30
2008	1.70
2009	3.40
2010	1.30
2011	0.94
2012	0.83

**Month Remark: May**

**Forecast Remark: May**

Responsible Person: Gouws, Samantha



# SHRQ

## ▪ **Safety:**

- Best ever LTIFR of 0.94 achieved in 2011 and 0.79 YTD.
- Record run of 3.69 million man-hours (126 days) worked without an LTI during 2010.
- Achieved a Level 5 rating for all ten ArcelorMittal Fatality Prevention Standards during June 2011 (first site in the global ArcelorMittal Group).
- Training resources increased significantly to support Safety Program.
- Completed major Blast Furnace repair project during H2 2011 without a serious injury.

## ▪ **Health & Wellness:**

- Risk-based occupational health surveillance program well established.
- Employee Wellness Program provides screening and counseling support for a range of lifestyle illnesses.
  - Voluntary HIV Counseling & Testing of employees and contractors.
  - HIV Support
  - Screening, counseling and tracking of BMI, raised cholesterol, hypertension and raised blood glucose.

## ▪ **Occupational Hygiene:**

- Occupational Hygiene monitoring program in place to identify and manage occupational health risks relating to noise, heat, hazardous substances (including dust etc.), illumination, ergonomics and indoor air quality.
- Identified risks are used as inputs to the occupational health surveillance program.

# SHRQ

- **Management Systems:**
- ISO 9001:2008 certification - Quality Management System
- ISO14001:2005 certification - Environmental Management System
- OHSAS 18001: 2007 certification - Occupational Health & Safety Management System
  
- **Risk Management:**
- Comprehensive risk assessment and management process in place.
- Process fully integrated with all other ArcelorMittal South Africa sites.
- External, international risk auditors are used to support the process from the risk identification phase, and where required, right through to the installation of mitigation measures.



# Environment

## **FOCUS POINTS:**

- Zero Effluent Discharge (ZED) implementation.
- Water use license amendment
- Closure and capping of historical disposal facility
- Historical pollution rehabilitation.
- implementation of a Strategy for the containment and treatment of storm water.

## **HOLISTIC ENVIRONMENTAL MANAGEMENT:**

- Development of Air Quality Strategy to strive towards compliance with New Air Quality Act.





## Capex spent on Environmental projects to date

Year	Project	Capital
1998 – 2001	Masterplan studies	R16.8m
2001	Old Waste Site cut-off trenches	R3.5m
2003 & 2010	New waste site & phase 2	R49m
2003 - 2008	Water strategy (phases 1 – 4)	R191m
2004 – 2012	Rehabilitation	R33m
2000 – 2010	Air Quality projects	R69.3m
2011 – 2012	Pollution control projects	R6m
2012 onwards	Minimal effluent discharge related projects	R380m
<b>Total to date</b>		<b>R730.6m</b>

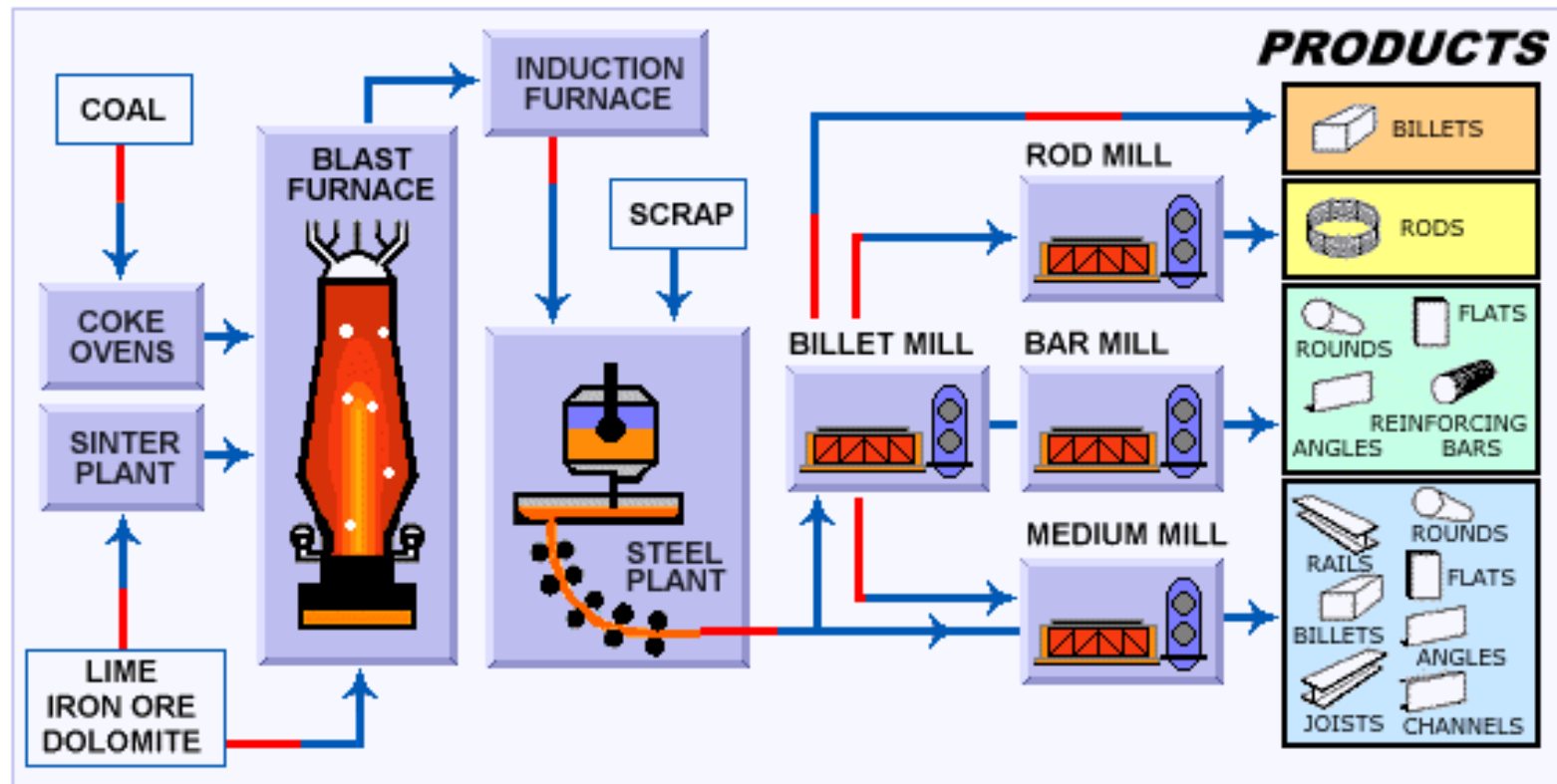
# Newcastle Works



# Newcastle Works Production Flow and Equipment



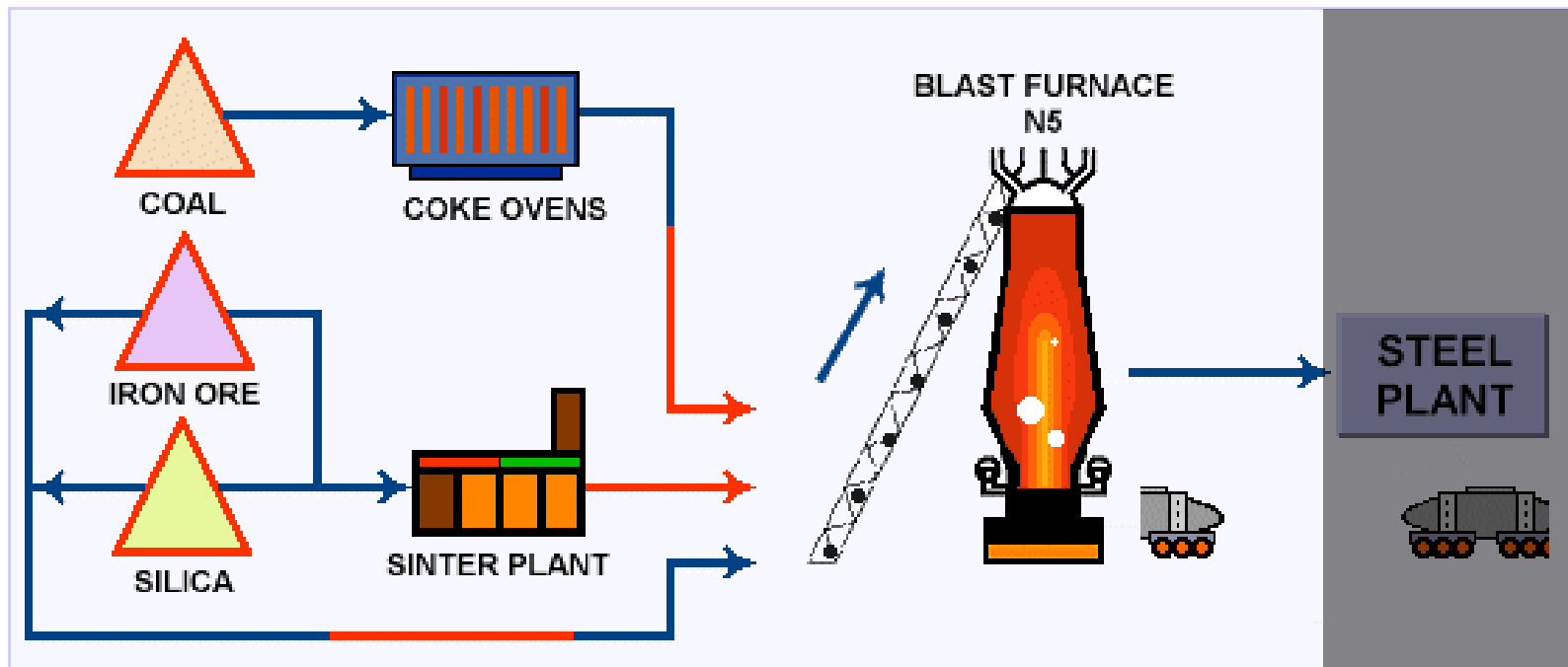
Gerald Gadd  
GM Newcastle Works



# Newcastle Works Metallurgical Operations



Colin Hill  
Works Manager: Ops. Metallurgy

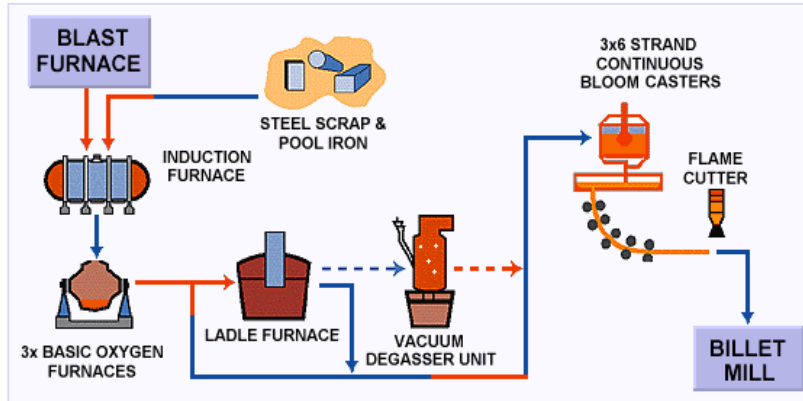


# Newcastle Works Rolling Operations

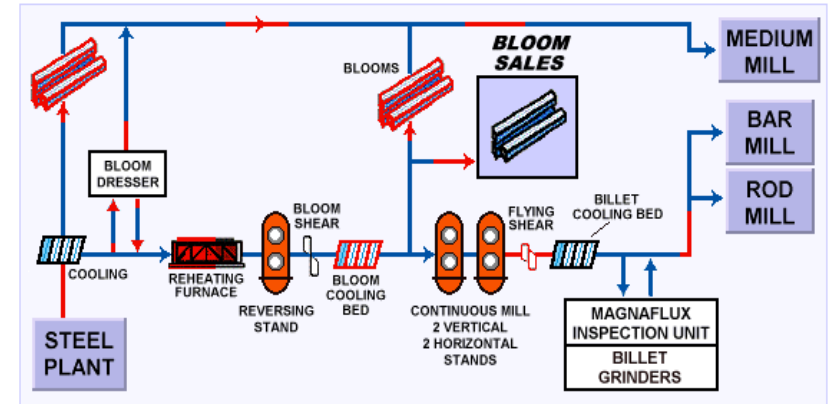


Fanie Conradie  
Works Manager:

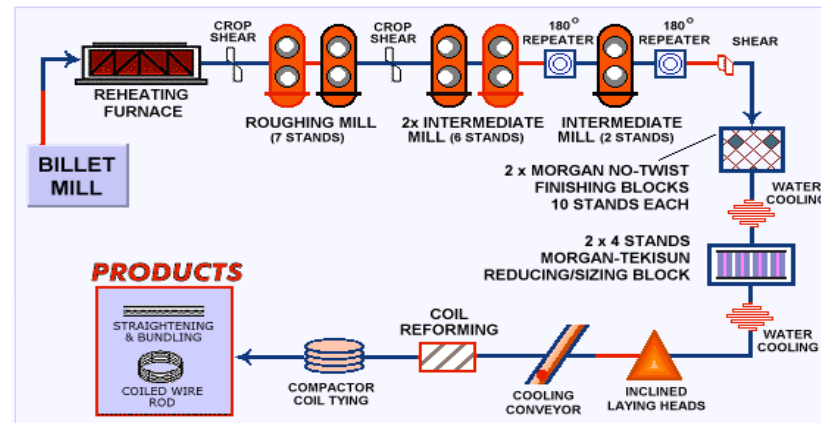
## Steel Plant



## Billet Mill



## Rod Mill



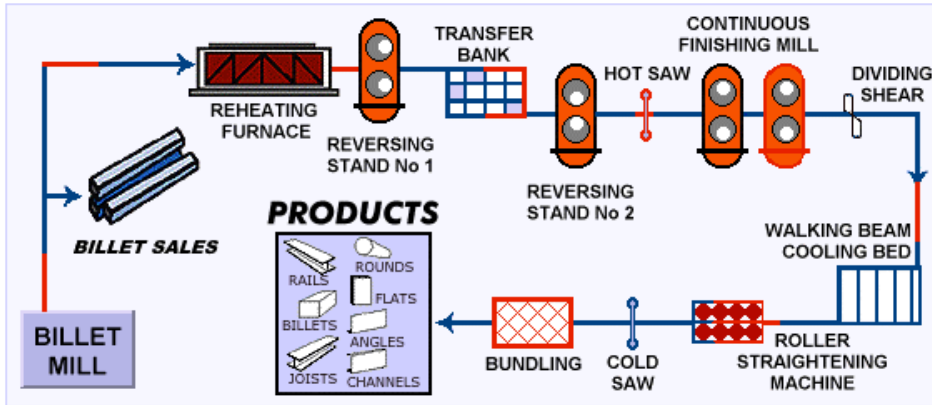


# Newcastle Works Rolling Operations

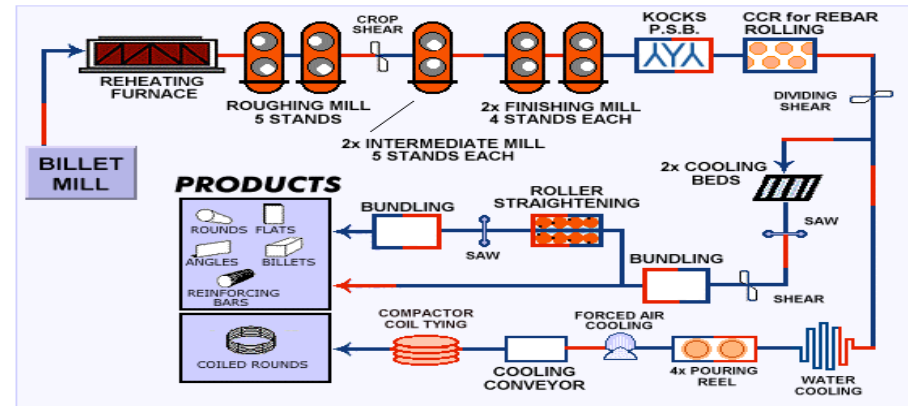


Bruce McQuade  
Manager Bar &  
Medium Mill

Medium Mill



Bar Mill





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# Market Related Issues

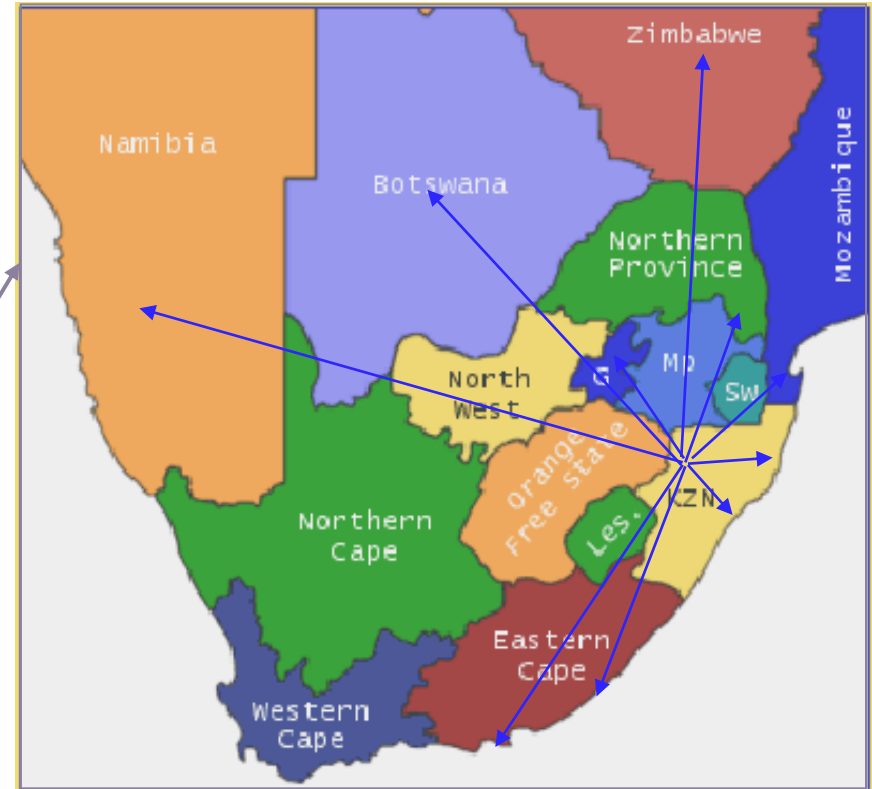
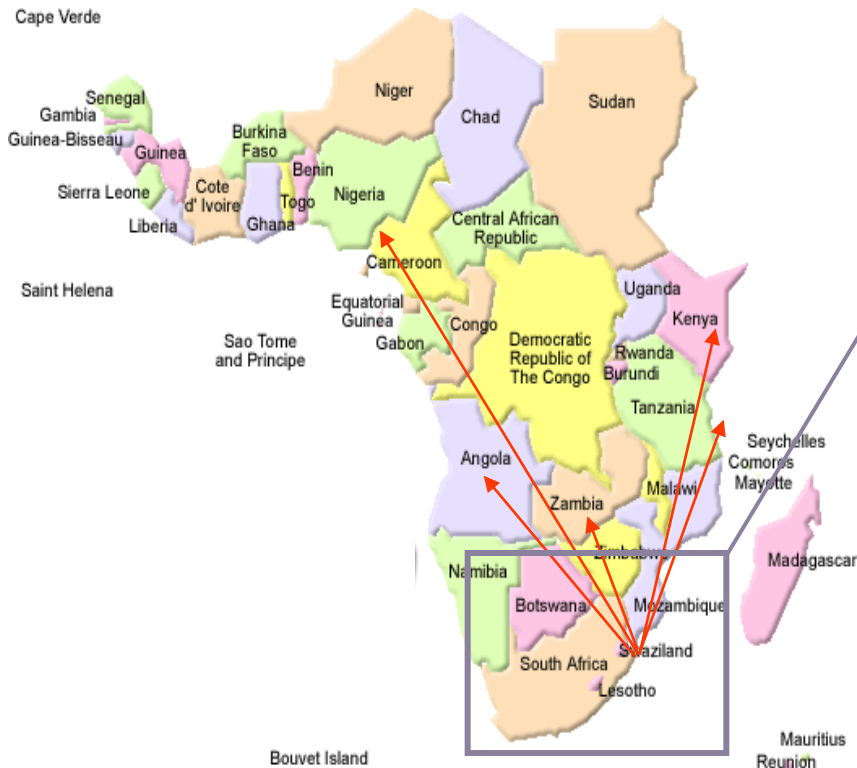




# Main Industries

1. Reinforcing
2. Structural steels
3. Rails
4. Low Carbon Wire Rod:
  - Commercial wire rod (Fencing, Mesh, Binding Wire)
  - Steelwool
  - Welding wire (MIG, electrodes)
5. Grinding Media
6. High Carbon Wire Rod:
  - Rope wire rod
  - Bedding wire
  - PC strand
  - Hose wire
  - Bead wire
7. Black bar
8. Bolt and Nut, Chain making
9. Direct Forging (Re-rolling)
10. Special Steels: Mine roof support, Hollow drill
11. ArcelorMittal South Africa Vereeniging Steel transfers

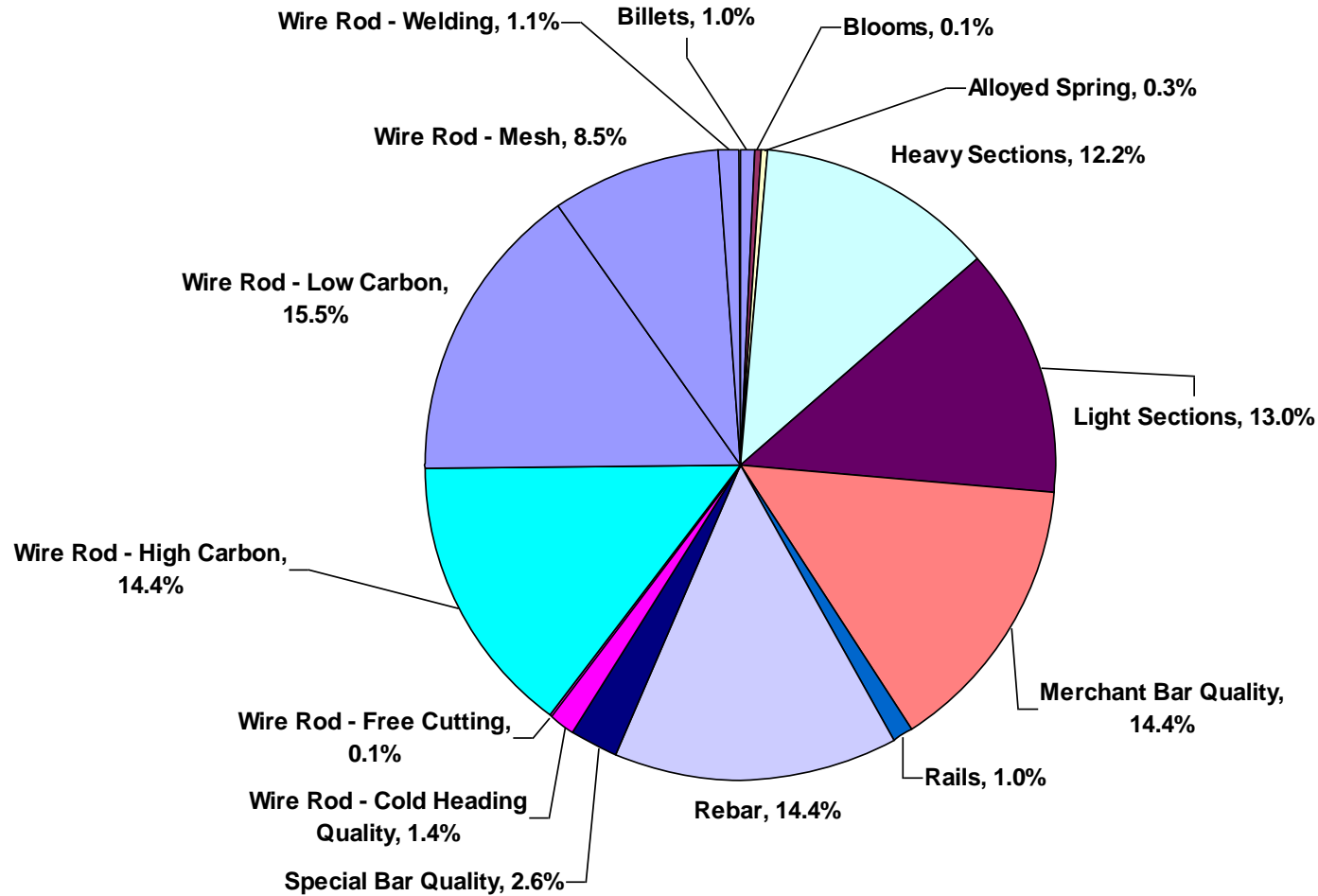
# Market Distribution



# Local Sales per Product Group Newcastle Works

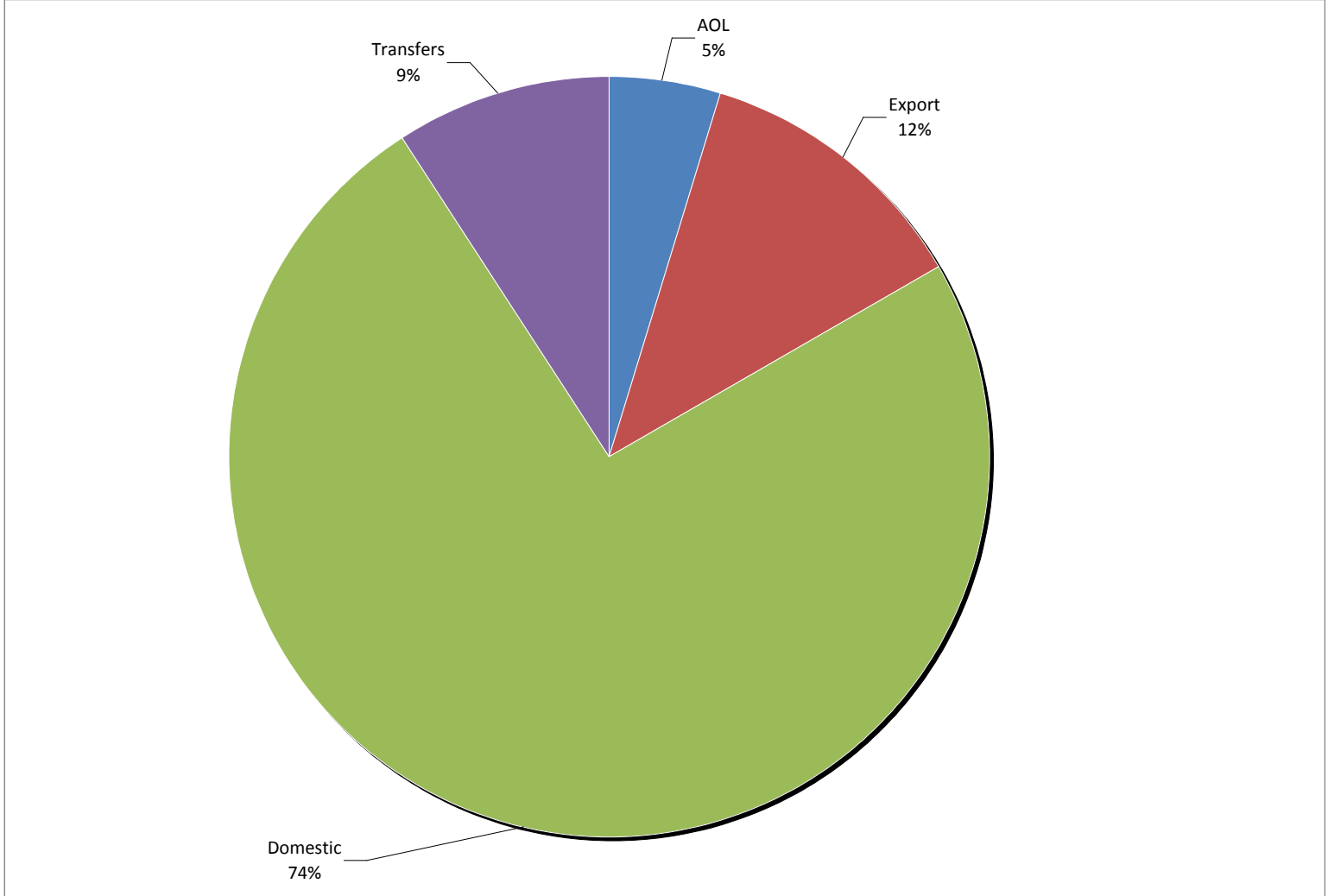


2011 Actual



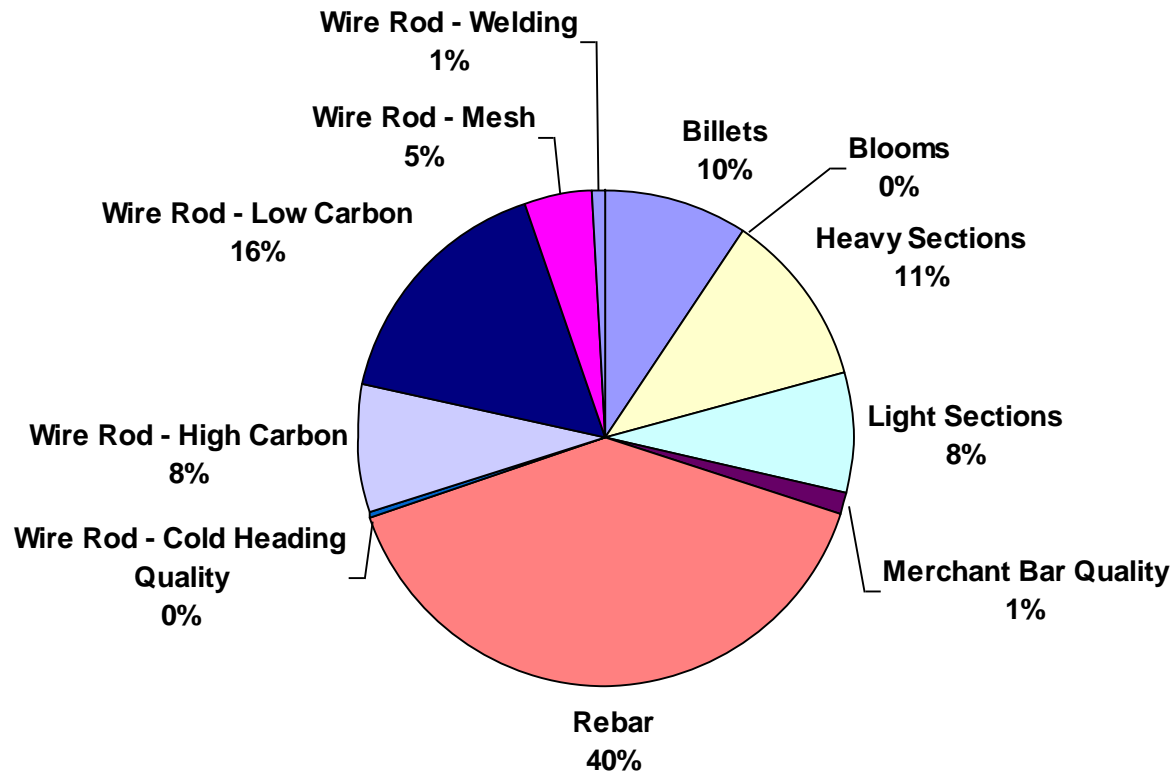


# Despatches per Market - 2011



# Export Sales per Product Group Prime including Africa Overland

Actual 2011





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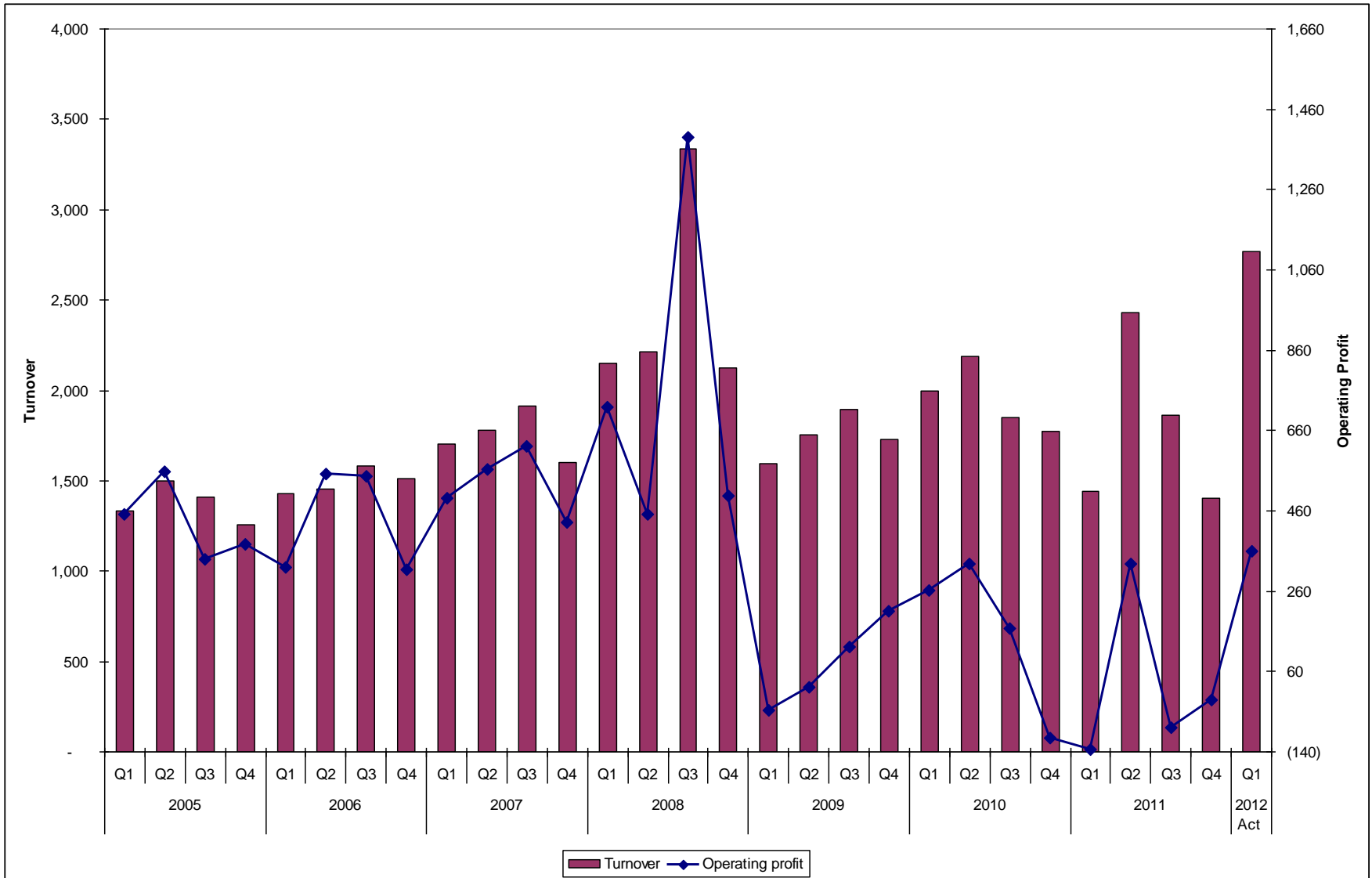
# FINANCIALS



# Turnover vs. Operating Profit

R'mil

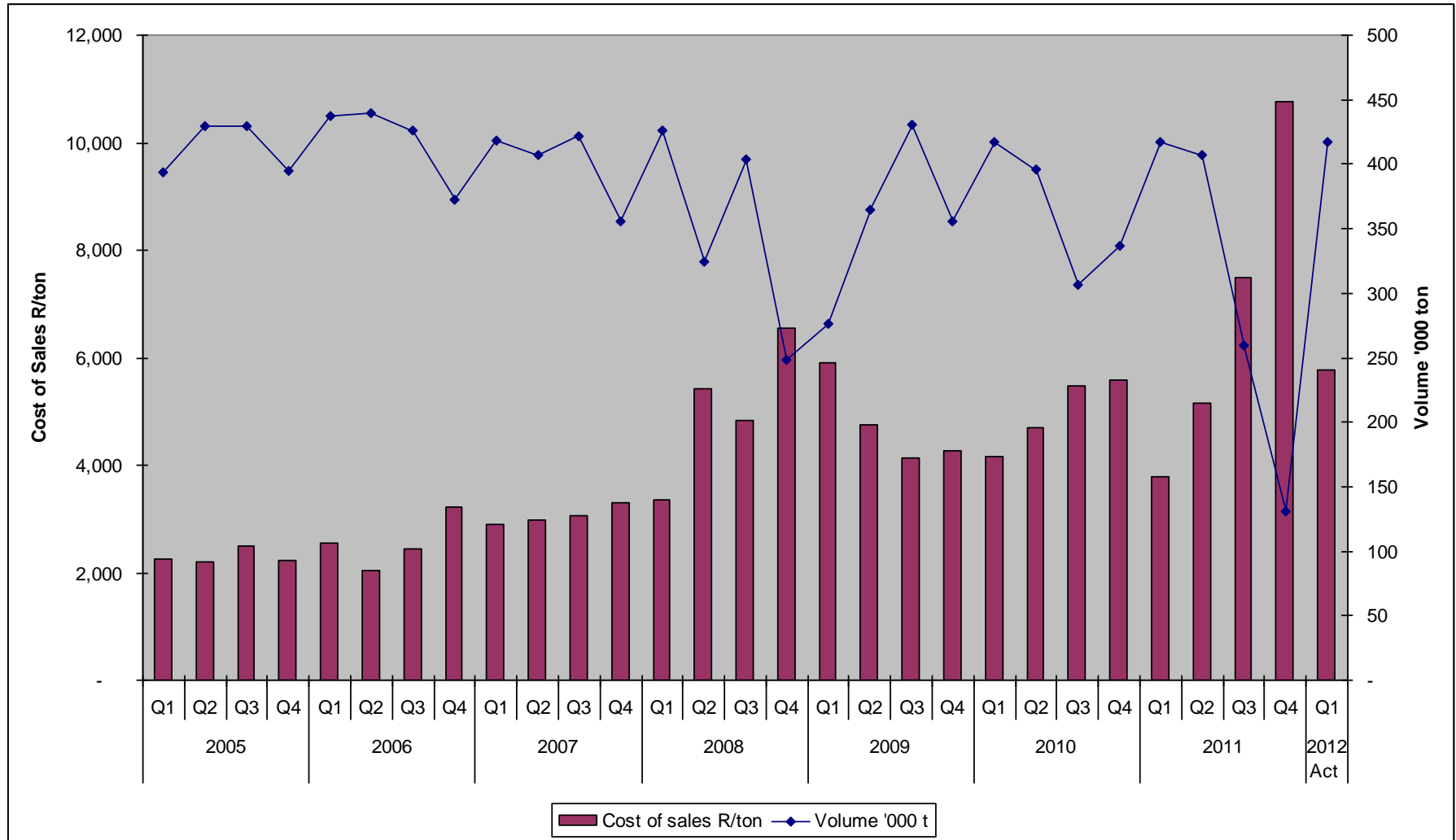
R'mil



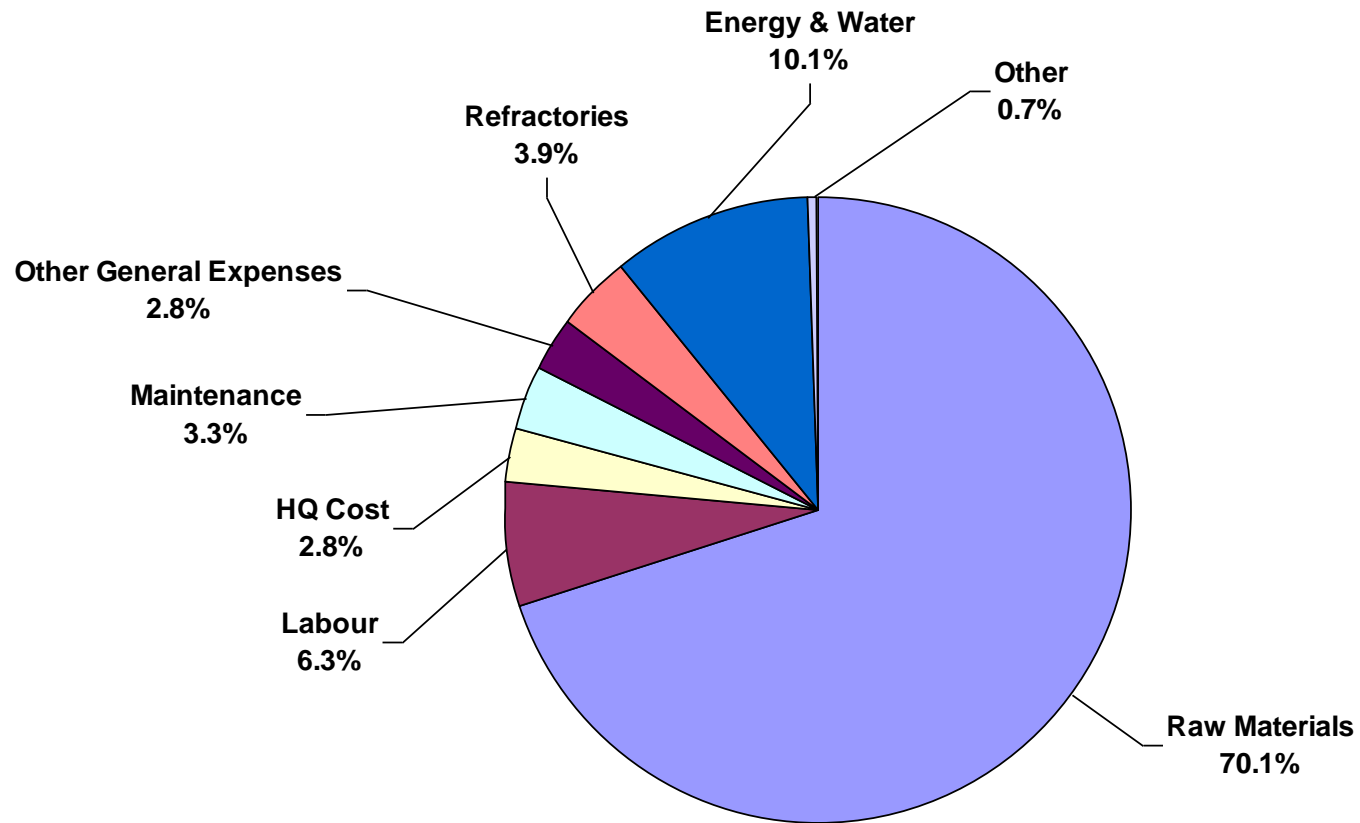
# Cost of Sales vs. Volume



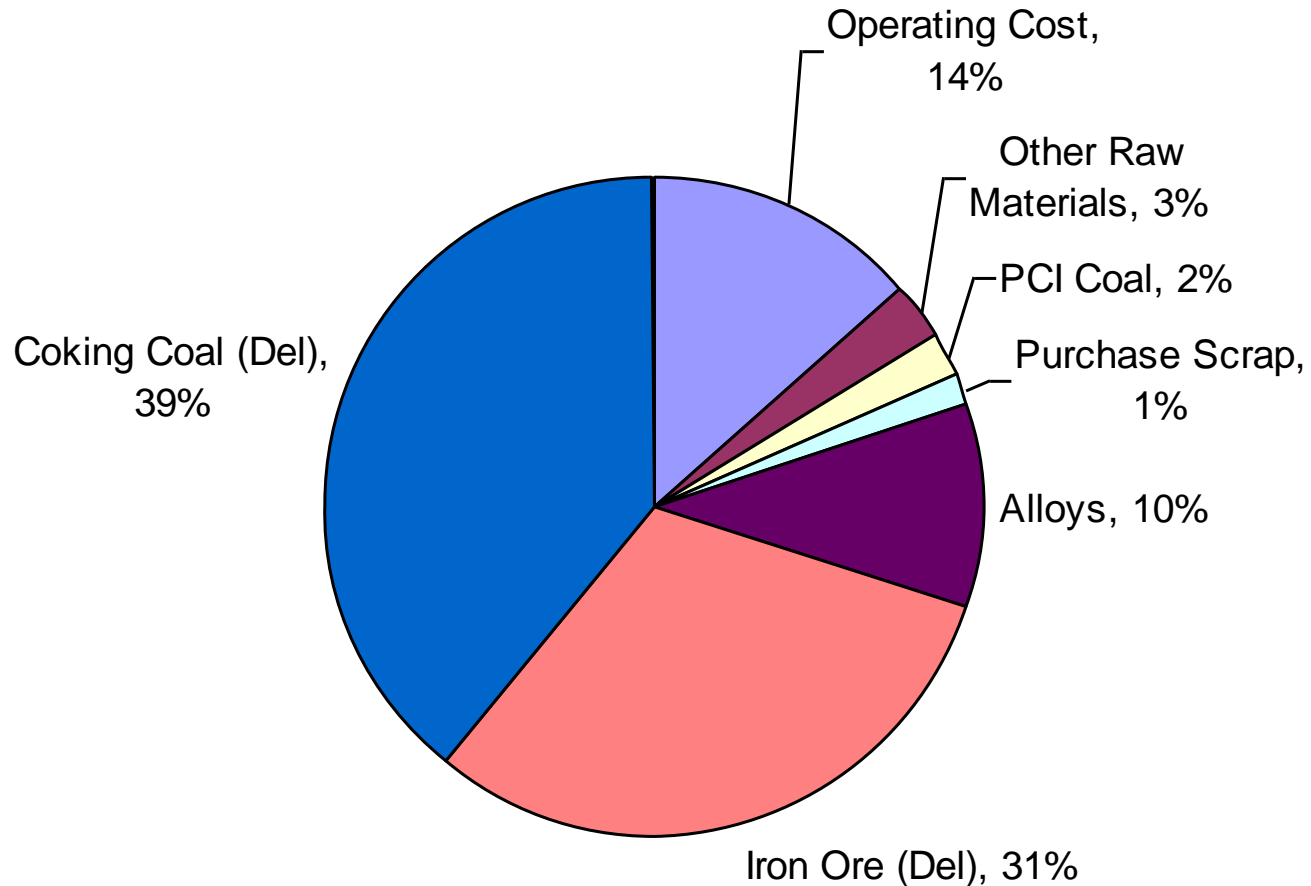
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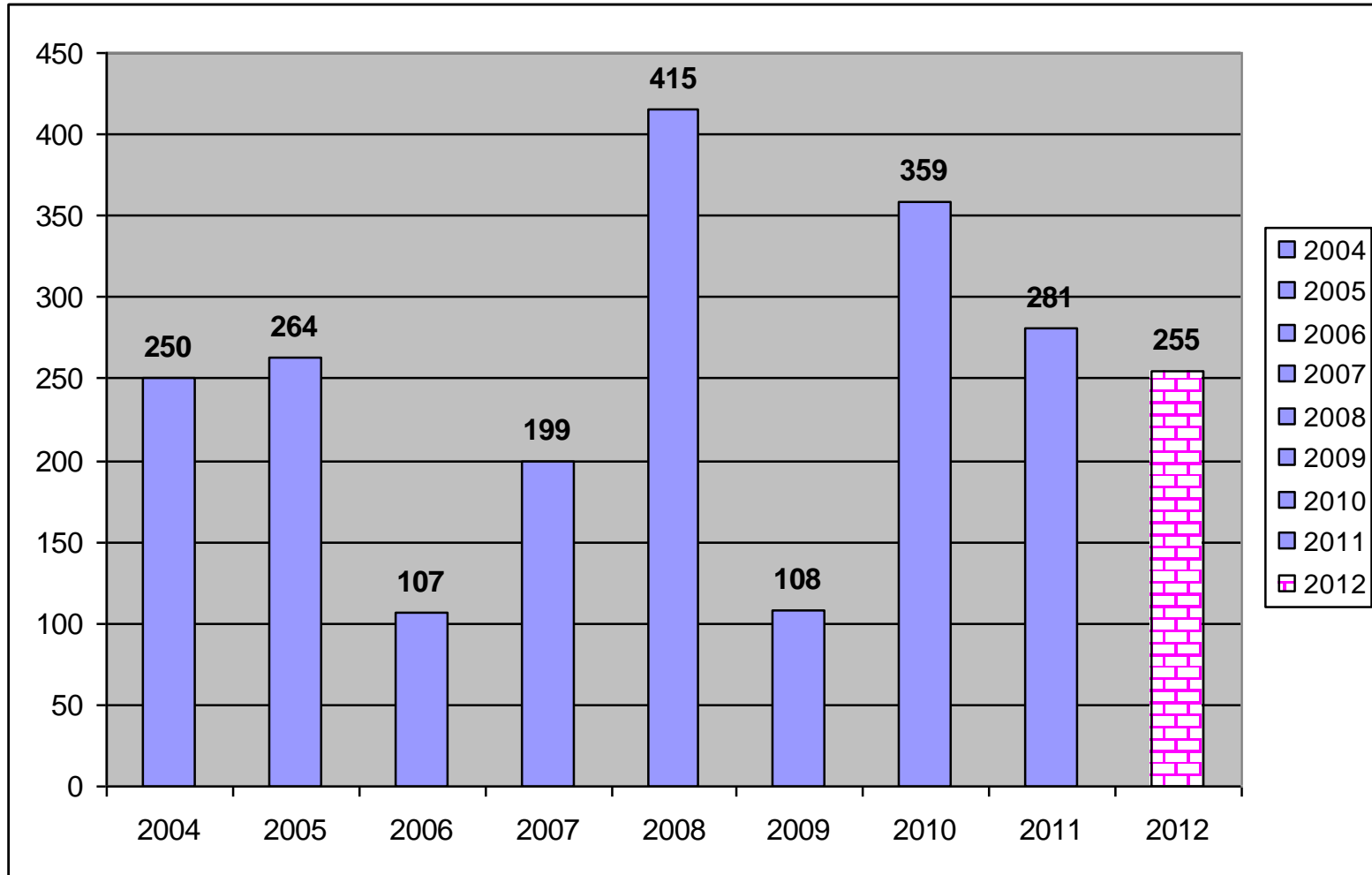
# Analysis of Cash Cost Allocation (2011)



# Analysis of Cash Cost Allocation - Variable (2011)



# CAPEX – R'mil







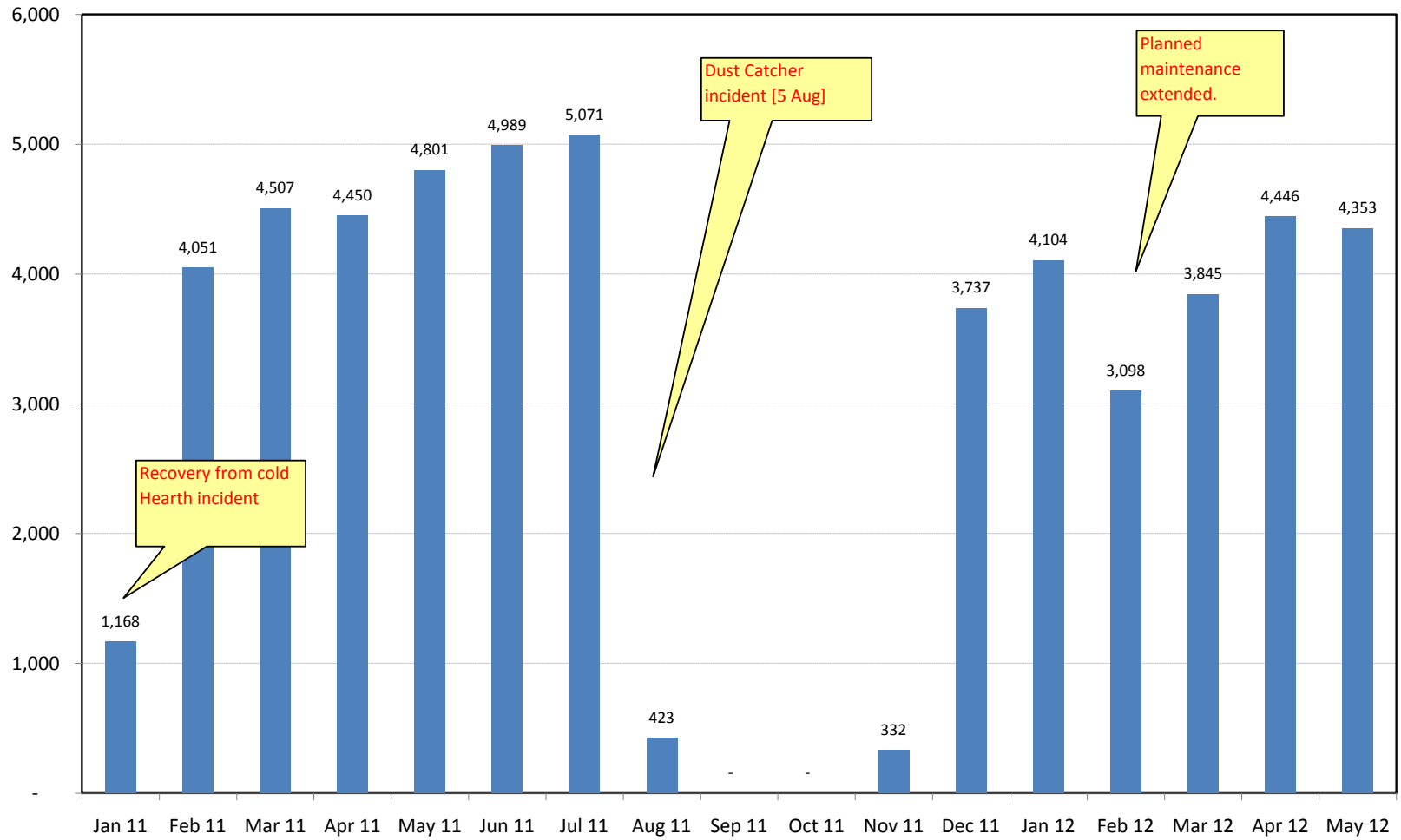
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# Blast Furnace N5 Cold Furnace and Shell Burn Through

December 2010

## NEWCASTLE WORKS

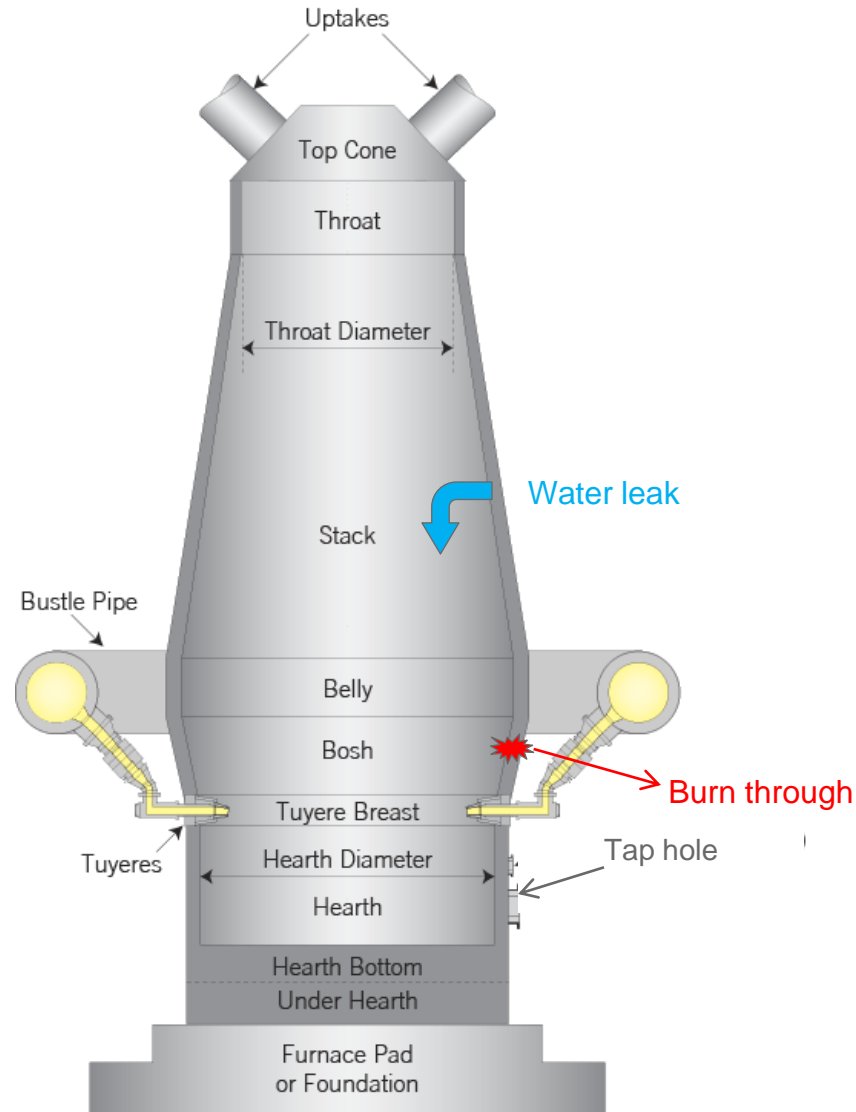
### *Blast Furnace Average Tonnage per Day*



# Cold Furnace – Short description

- Closed cooling water leak (identified as a tuyere)
- Stop for Planned Maintenance (51hrs)
  - Found another water leak on inspection hole
  - First time ever to find an inspection hole leaking water
- Unstable burden descent after start-up
- Stop to replace 3 damaged blow-pipes
- Stop to replace 1 blow-pipe
  - While stopping filled 24 blow-pipes with slag
  - Change 18 blowpipes
- After start-up freeze trough #1 skimmer (couldn't lance open)
- Freeze trough #3 skimmer
- Start preparations to Cast on Trough #2
  - All preparations as for cold furnace

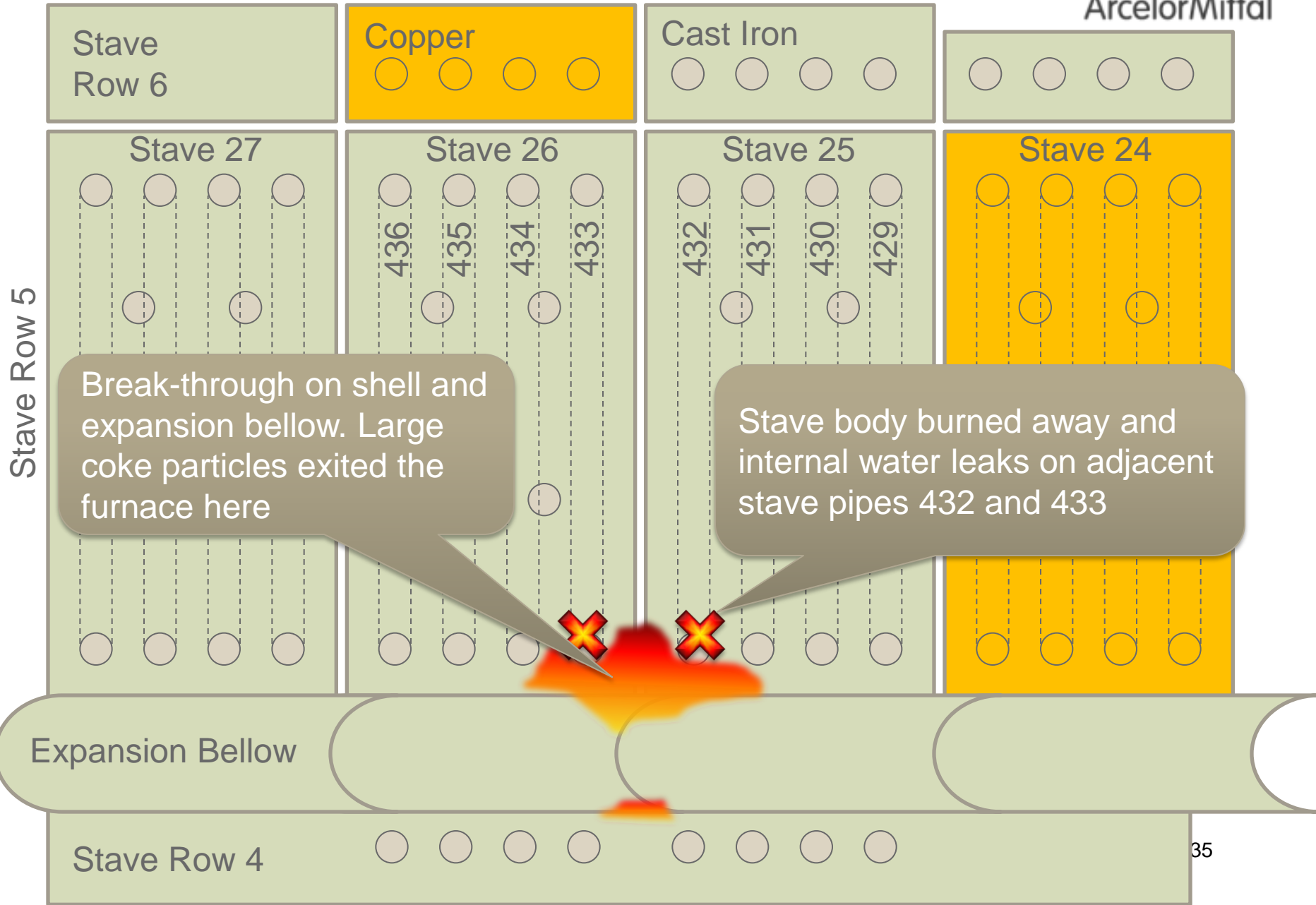
# Typical Blast Furnace Layout



# Burn-through 26 Dec



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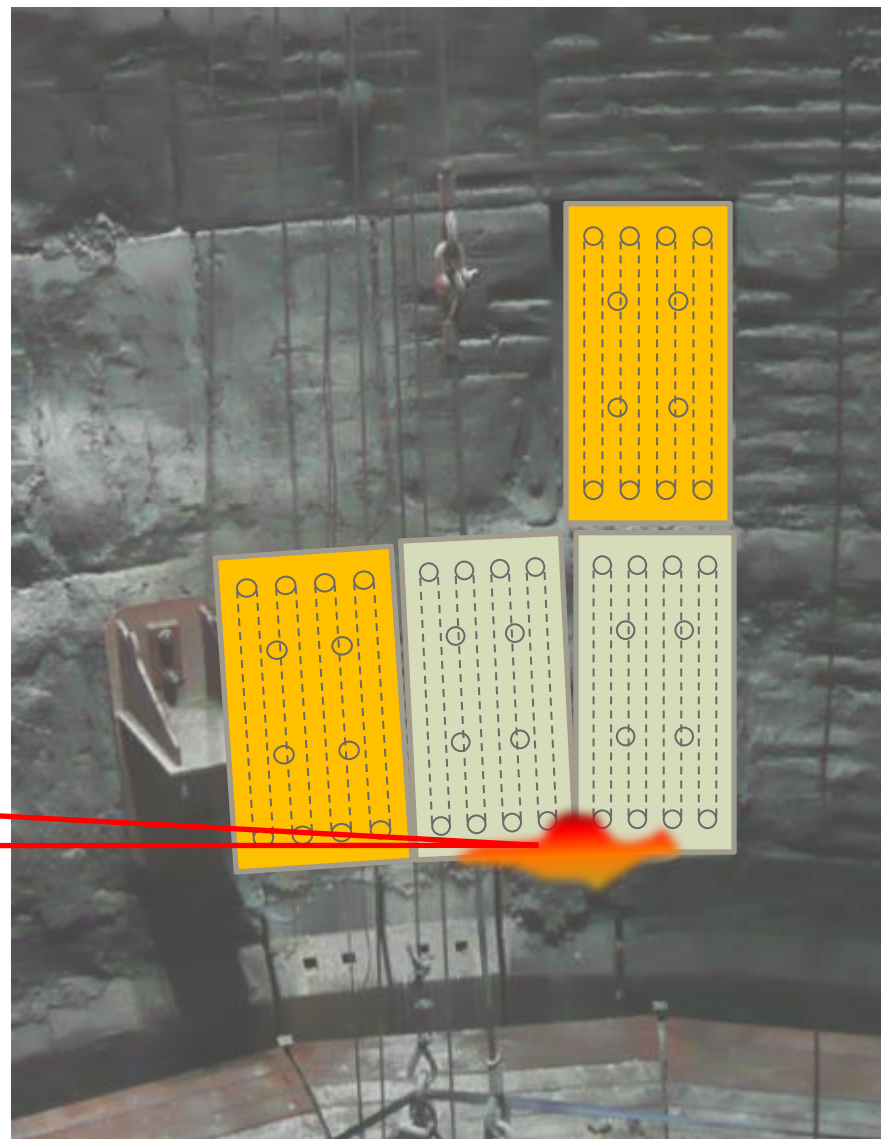


# Burn-through 26 Dec



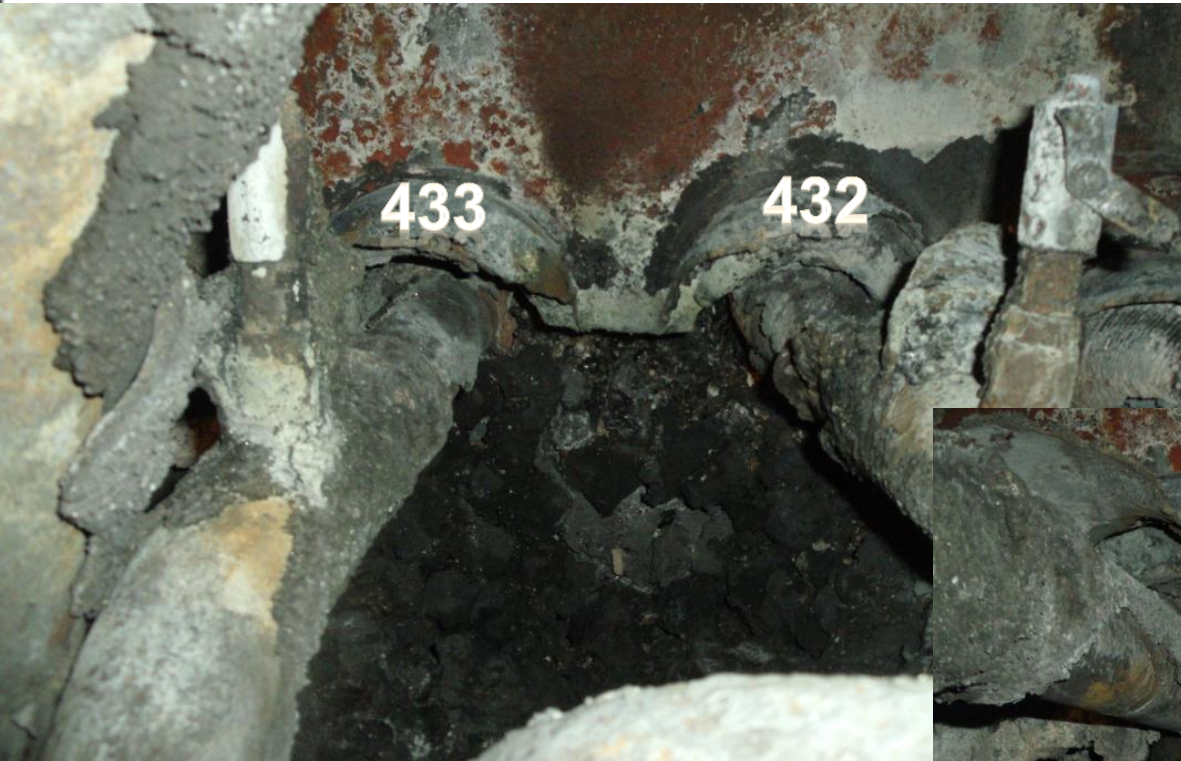
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Photo from mini-reline during 2008





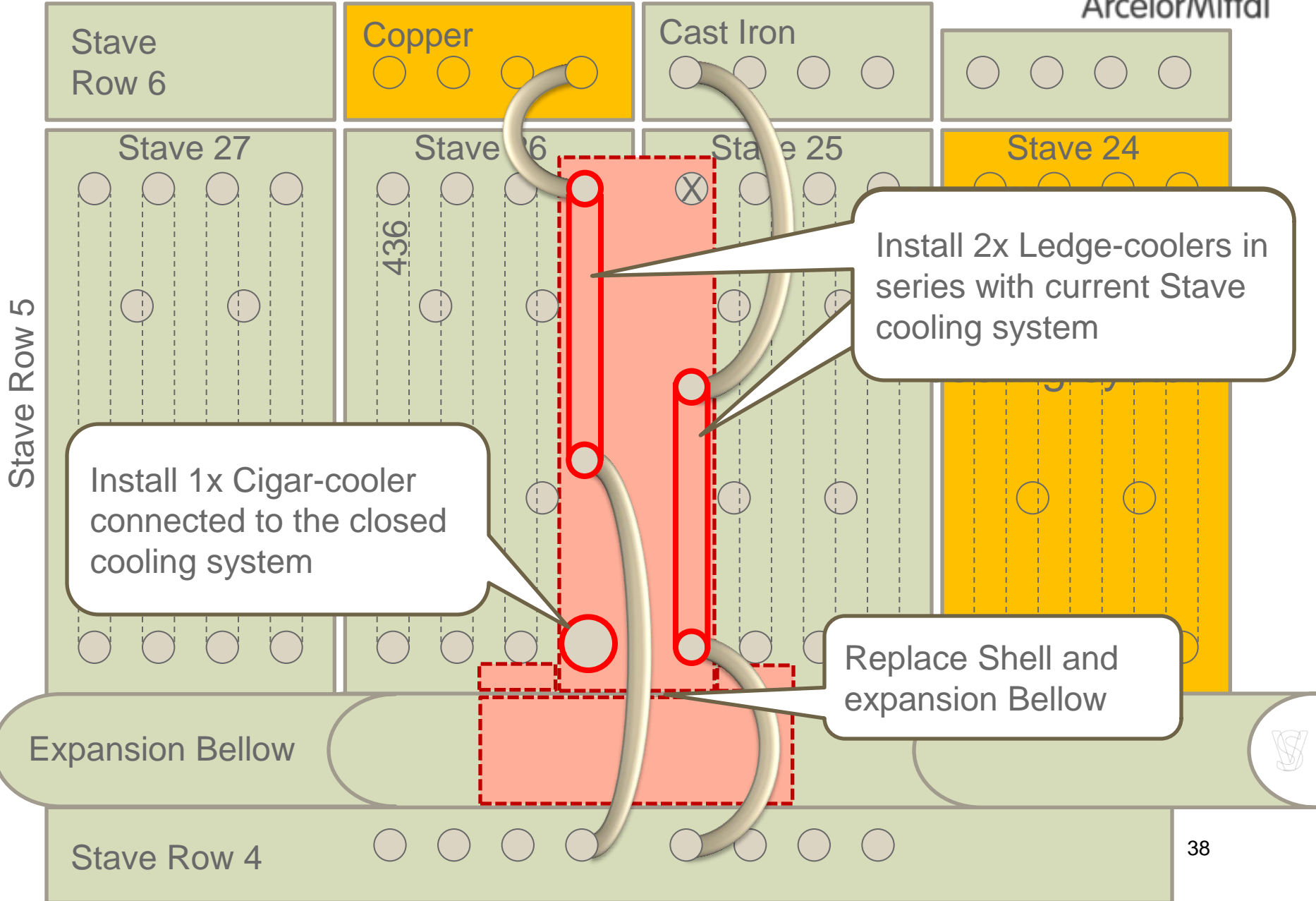
# Burn-through 26 Dec



# Repair Plan



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# Lessons learnt

- Water leak was not deemed excessive
  - In future the furnace will be restarted immediately after finding water leak.
- Coke burdening to be more aggressive
  - Stay on all coke (no PCI or gas) operation for longer before and after shut downs
- Abnormal failure of blow pipe doors
  - Implement program to do more detailed inspection and replacement of doors
- Modify blower operating procedure
  - Re-evaluate the blower operational point during stopping and starting of furnace.
  - This will ensure a more robust supply of cold blast air.
- All furnace stoppages to be kept as short as possible in duration
  - Especially in the light of the works only having one iron making unit



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# Blast Furnace N5 Dust Catcher Failure

August 2011



## *Newcastle Works – Blast Furnace Dust Catcher Failure*

### **Event-**

- Dust catcher failed on 5 August 2011 while starting up the Blast Furnace after a 39 hour maintenance stop.

### **New cyclone vessel-**

- By 8 August 2011, we had been sent photos of a cyclone vessel that could be made available to us from within the ArcelorMittal group.
- By 27 September 2011, the cyclone had been delivered to site in Newcastle.

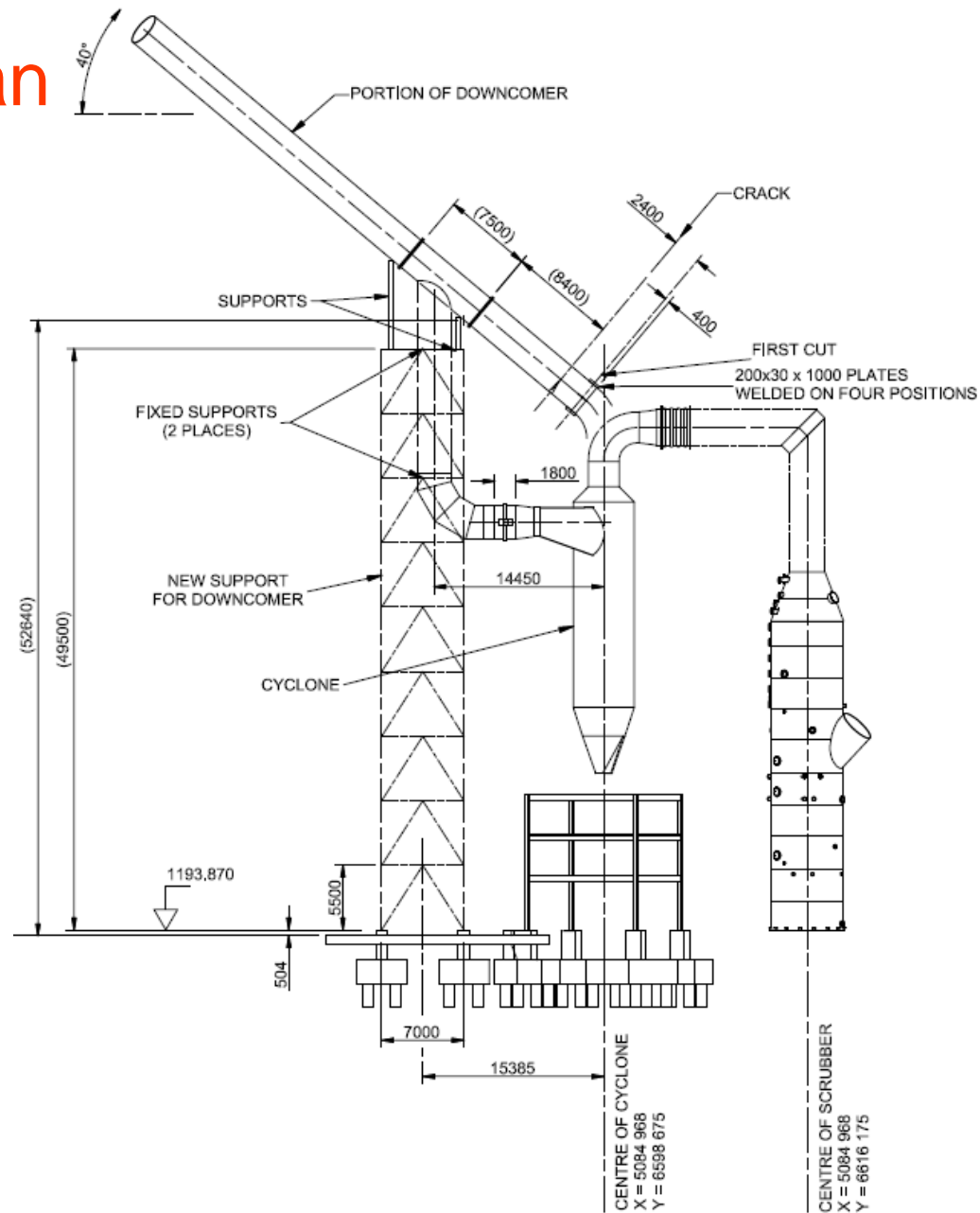
### **Plant Stop-**

- The furnace was out of operation for around 3.5 months.
- The new vessel was successfully installed and commissioned.
- The Oxyfuel burner was used from 21 to 23 November 2011 and first liquids were cast on 24 November 2011.

# Overview of Damage



# Repair Plan







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# Management Drives



# Newcastle Master Plan



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## Work streams

2011				2012				2013		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
				Saving Ideas (Fixed, Var., Income)						
				Management Gains						
		Standardization, Std Meetings, Visual Management								
		5S Program and Cedac								
		SD			SD					
				Work Force Planning						
				Implementation						
				Procurement and Contracts						
		FPS Implementation and maintenance, JTZ								
			Preparation Phase			Implementation Phase				
		BF Reline								
		Energy Strategy								
		Environmental Master Plan								

## Method

## Impact

1

### Cost Savings

Ideas

EBITDA Gains

2

### Management Processes

- Implement OMI / DRM
- Implement Supporting Tools
- Review of all KPIs (Shake Down)

PM

P; Q; C; S

3

### HR Project

- FTEs vs. Costs
- FTE Productivity plan

Own  
(based on AVA)

Optimum Manning

4

### Procurement Focus

Problem Solving

TCO

5

### Safety

- FPS
- JTZ and OSH Act. requirements

LTIFR;  
FPS Level

6

### Maintenance

- Implement Improvement Strategy

Availability;  
Stability

7

### Capital Projects

PM

Per Project

## *Newcastle Works – Major Projects*

### **Blast Furnace Reline**

- Tenders have been received for a number of long lead items;
- Preparing detail costing and scope to get overall approval;
- Reline duration planned for 100 days, starting 5 May 2014;
- Attention is given to the major problem with shortage of skilled resources.

### **Sinter Plant Reline**

- Preparing detail costing and scope to get overall approval;
- Attention is given to the major problem with shortage of skilled resources.

### **Steel Making**

- Good progress made with the Hollow Jet project.
- Desulphurization plant being commissioned, many design flaws being addressed.



## *Newcastle Works – Major Projects*

### **Mills**

- The rolling cycles and stock holding is being adjusted for market conditions.
- Re-bar straightening capacity is increased to exploit market opportunities.

### **ZED**

- Delay in Group approval – additional information required about the overall coke oven gas cleaning. Application approval now planned for May 2012
- Reconsidering turn key approach as tenders based on EPCM approach proved expensive.
- Still aiming to complete by end 2013 but the timeline is tight.



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Thank you