

# Iron Ore

Update on Performance Improvement

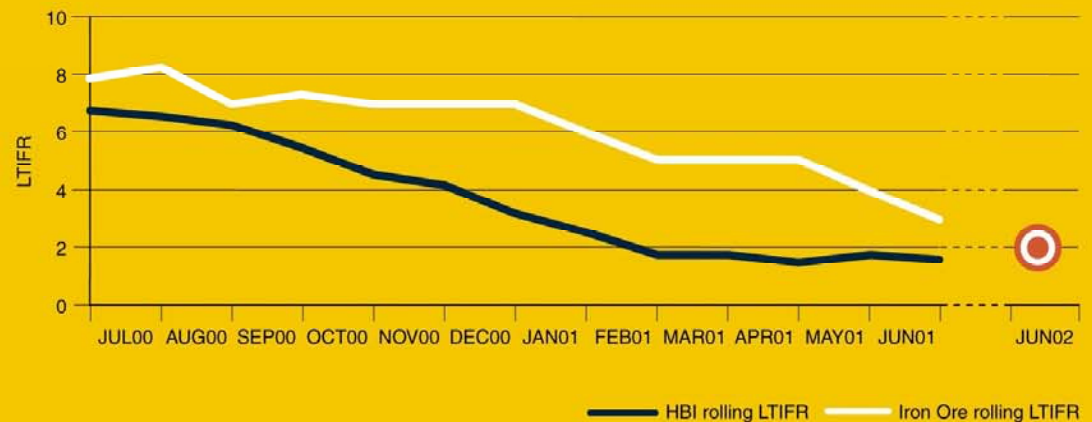


**bhpbilliton**

# BHP BILLITON OUR OCCUPATIONAL HEALTH & SAFETY

## OCCUPATIONAL HEALTH AND SAFETY

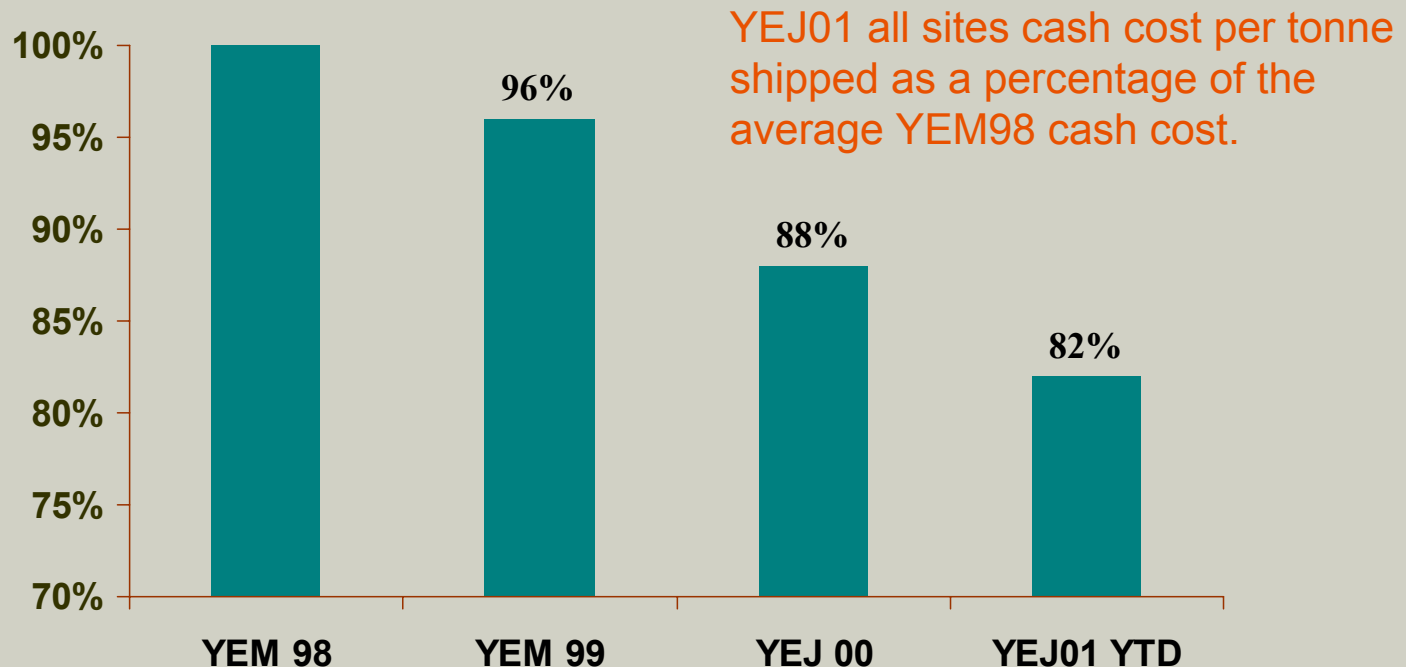
Safety is given the highest priority in all our operations. At June 2001 the Lost Time Injury Frequency Rate (LTIFR) was 3.74 for Iron Ore Operations and 1.8 for HBI. Our target is to bring the overall LTIFR to 2 in 2002. We will not be satisfied until our LTIFR reaches 0.



# BHP BILLITON IMPROVED PERFORMANCE

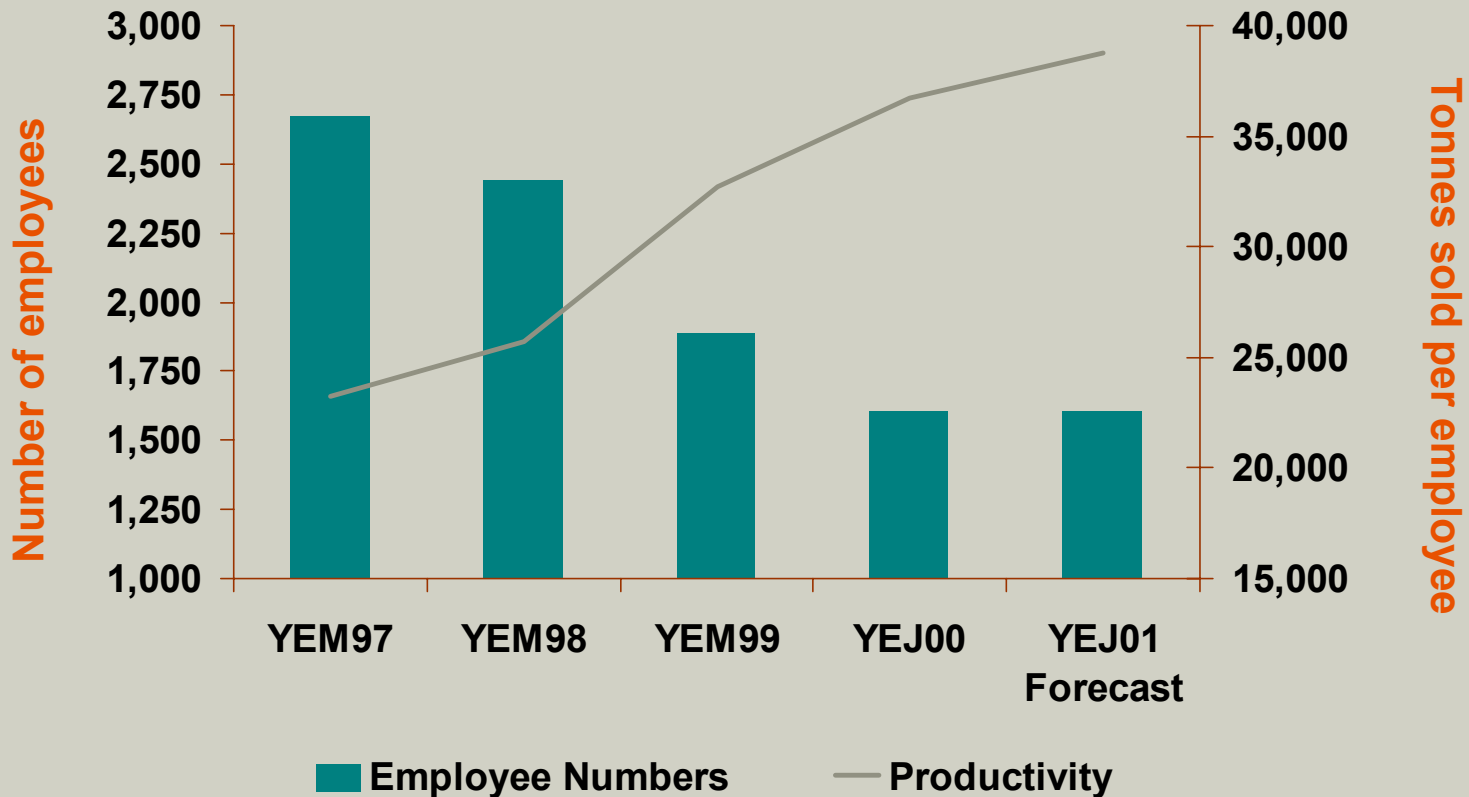
## Reduced Costs and Improved Benefits

BHP Billiton Iron Ore has significantly reduced costs over the past two years.

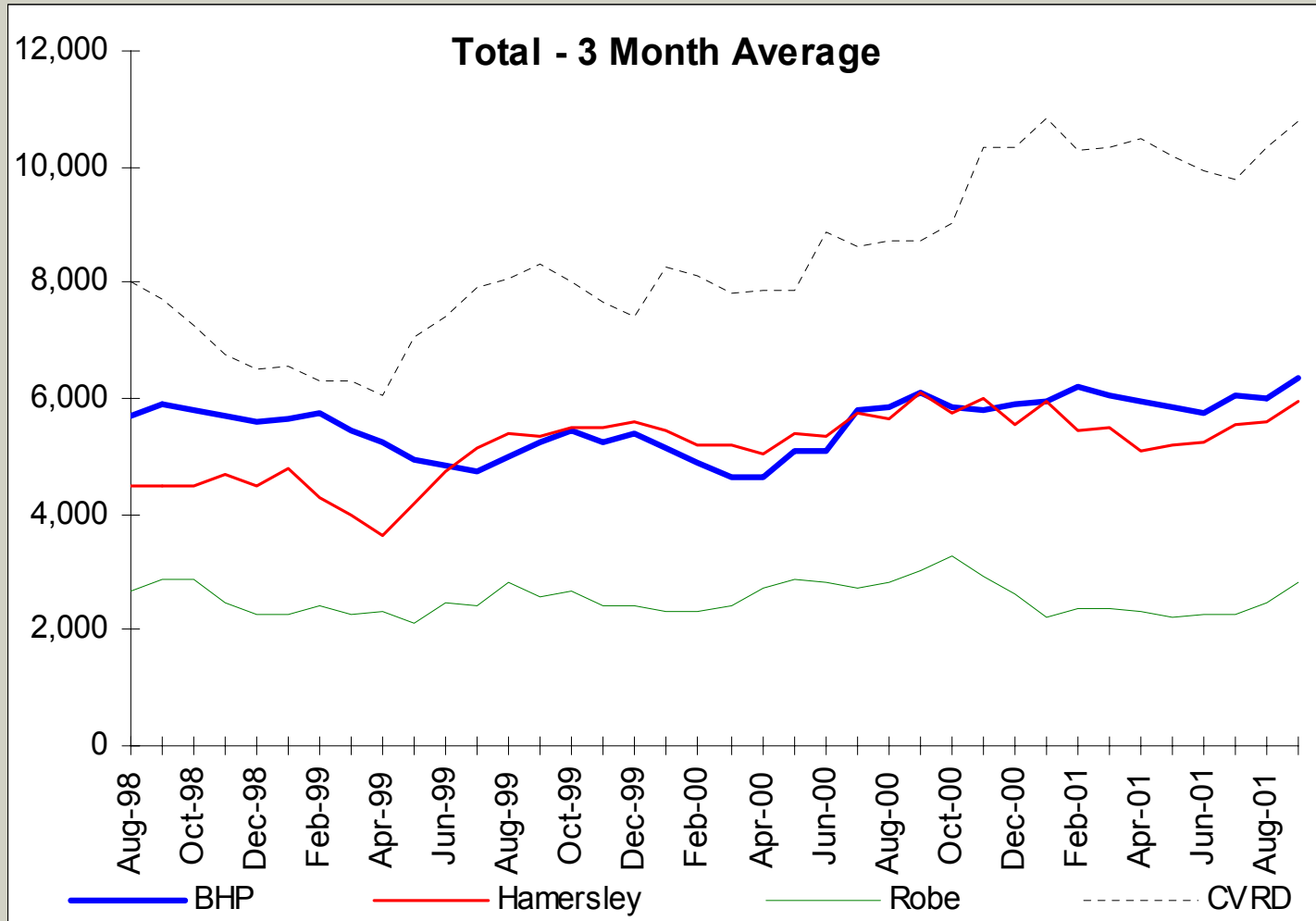


# BHP BILLITON IMPROVED PERFORMANCE

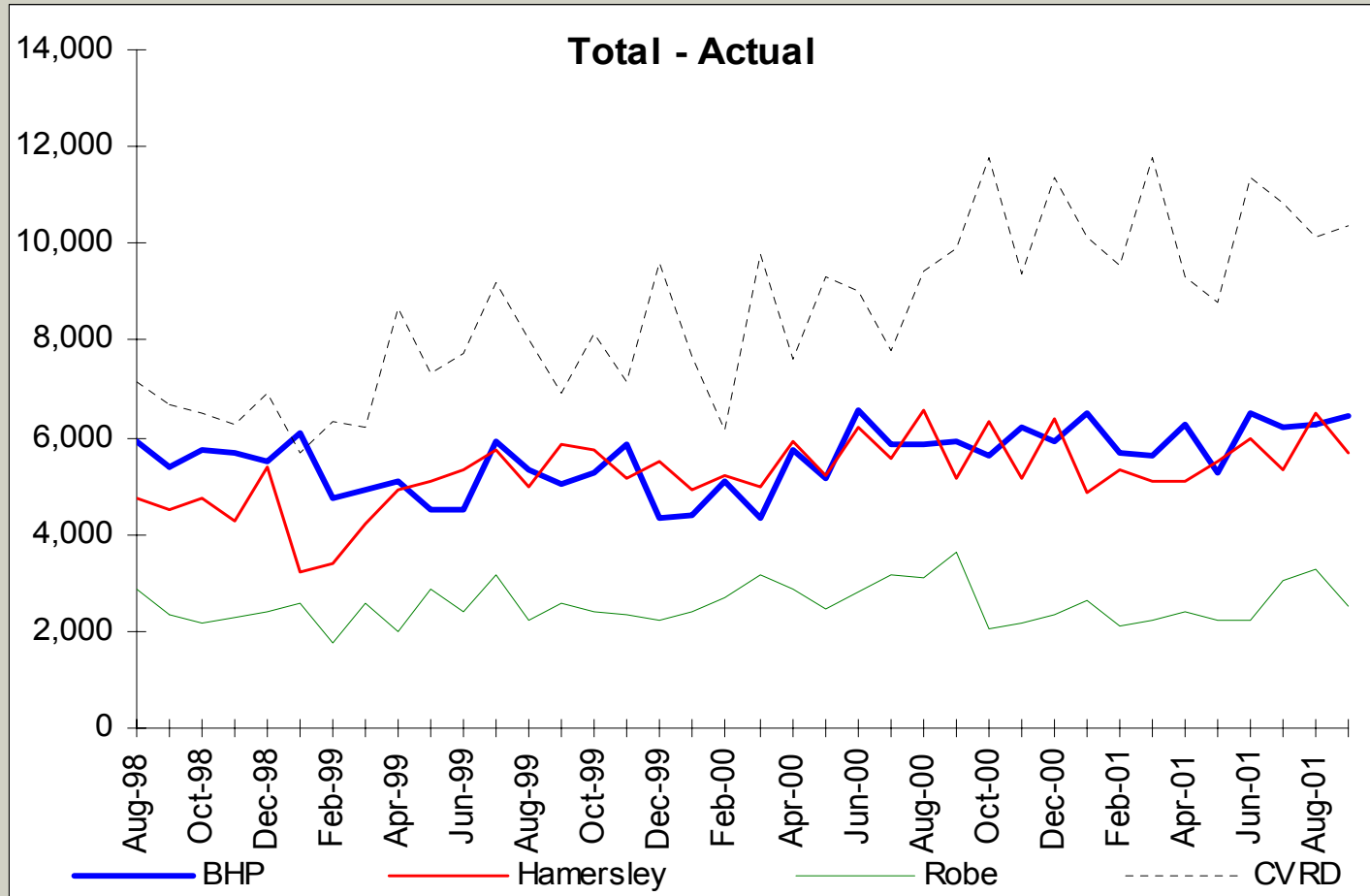
## Improved Productivity



# Shipments All Markets-by Supplier



# Actual Monthly Shipments All Suppliers



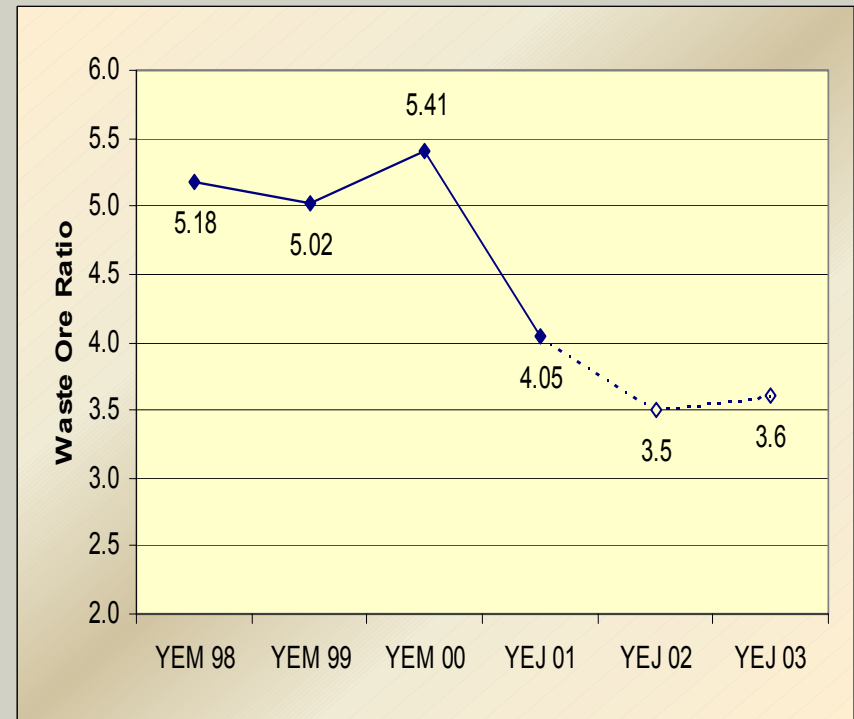
# Orebody Development Status Whaleback

## • Pit Development Strategy

- >15 Mt ore exposure
- Optimum availability of all ore types/zones for blend flexibility
- Revised HGO/Bene cut offs
- Bene capacity increased – bene feed equal planning driver

## • Pit Operating Strategy

- Equipment flexibility/optimum truck utilisation
- Maximum recovery of high grade ore
- Priority on mine face to crusher quality control

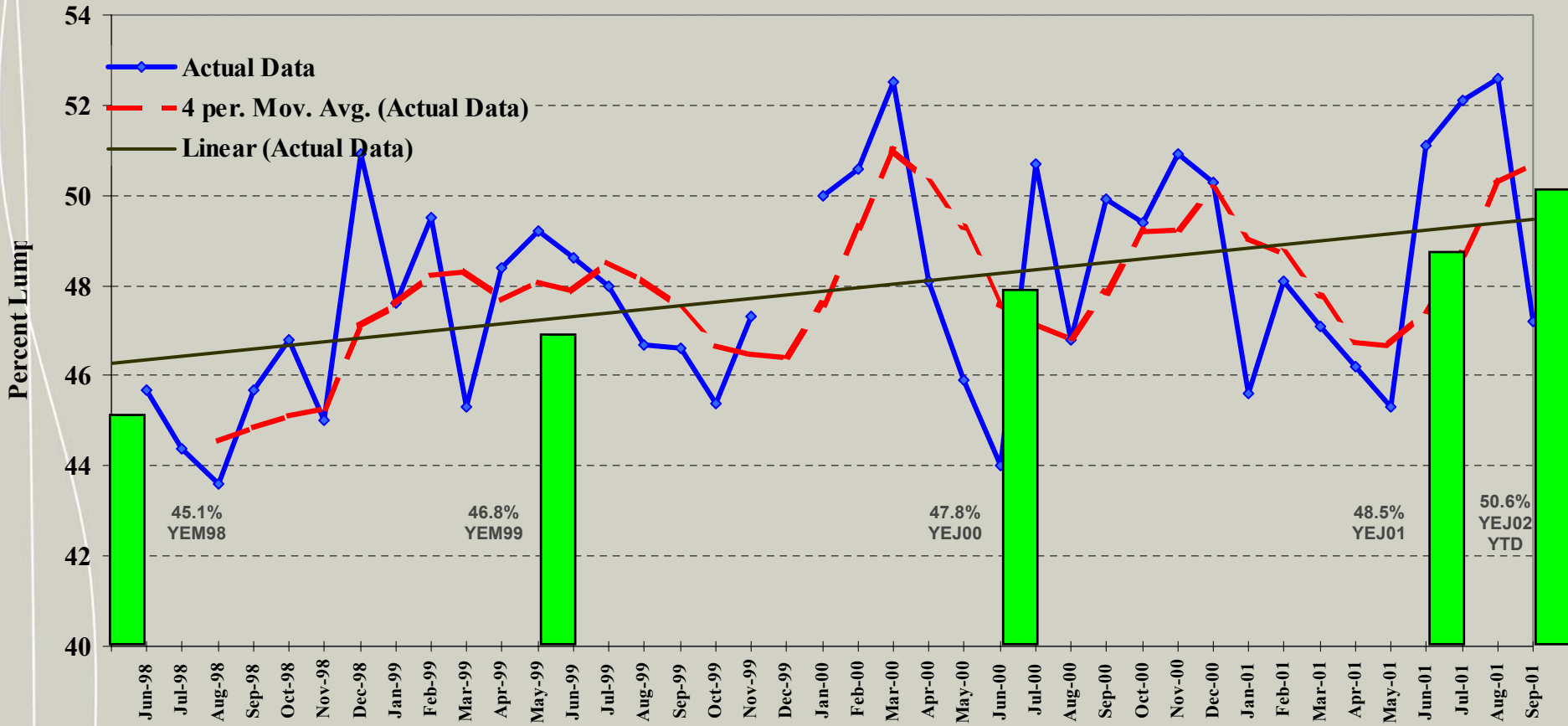


## • Waste/Ore Ratio

- Waste peak removed
- Continued reduction of w/o ratio to offset increased haul profiles

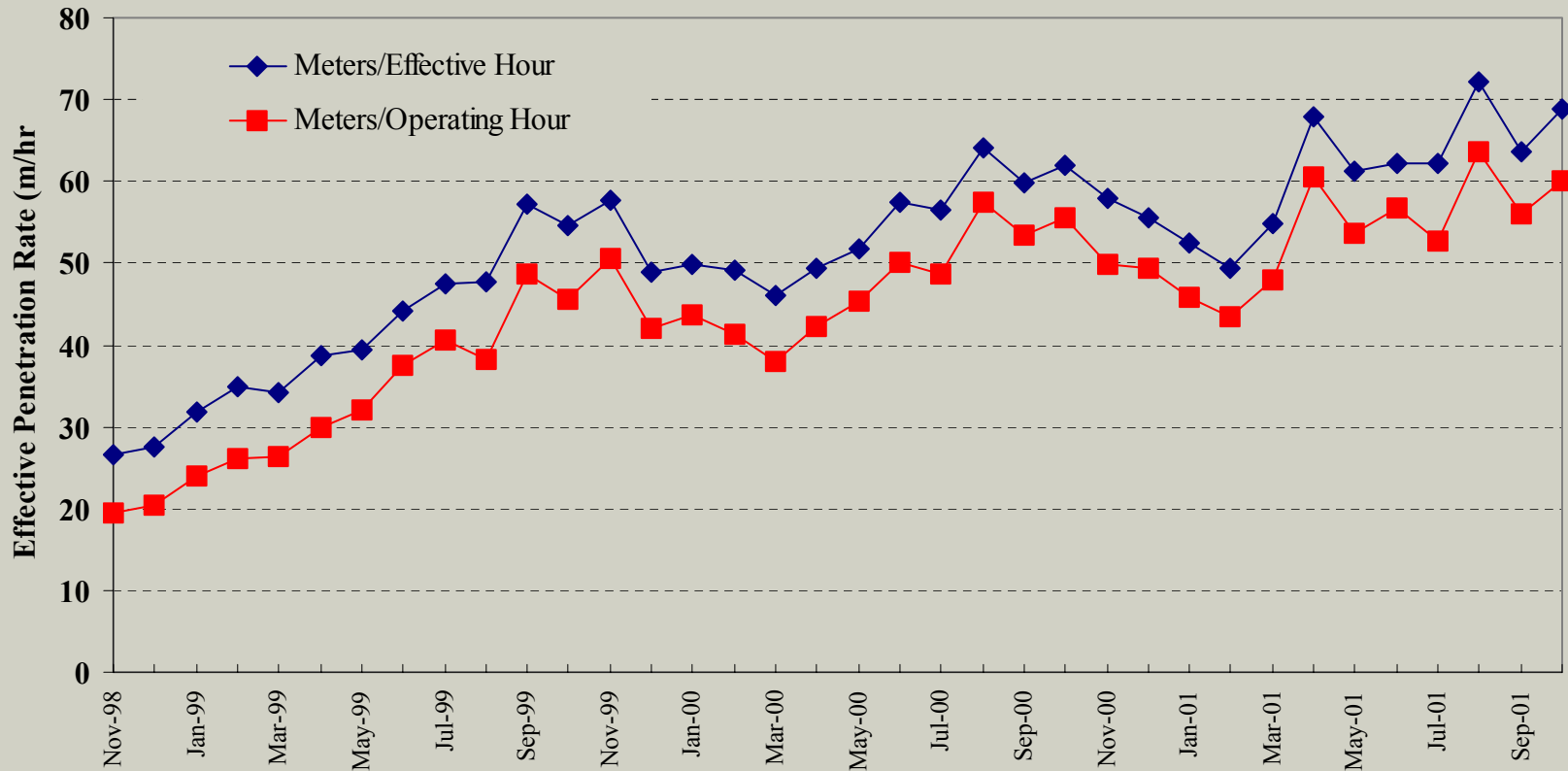
# NEWMAN JV LUMP RATIO

## Newman JV Lump Ratio after LRP with 4 Point Moving Average





# Whaleback Drill Productivity



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# Quality Improvement Upgrade NHGF

## **Objective –**

Improve Newman Fines grade to be more competitive in a changing market

## **How do we achieve –**

- Complete planned Bene Plant upgrades to increase capacity
- Optimise WB HGO cut off, reallocate friable and high alumina ore to Bene Plant
- This option incurs additional costs, other options available but at greater cost

## **Benefits –**

- Increase iron grade, and reduced silica and alumina

## **Positives –**

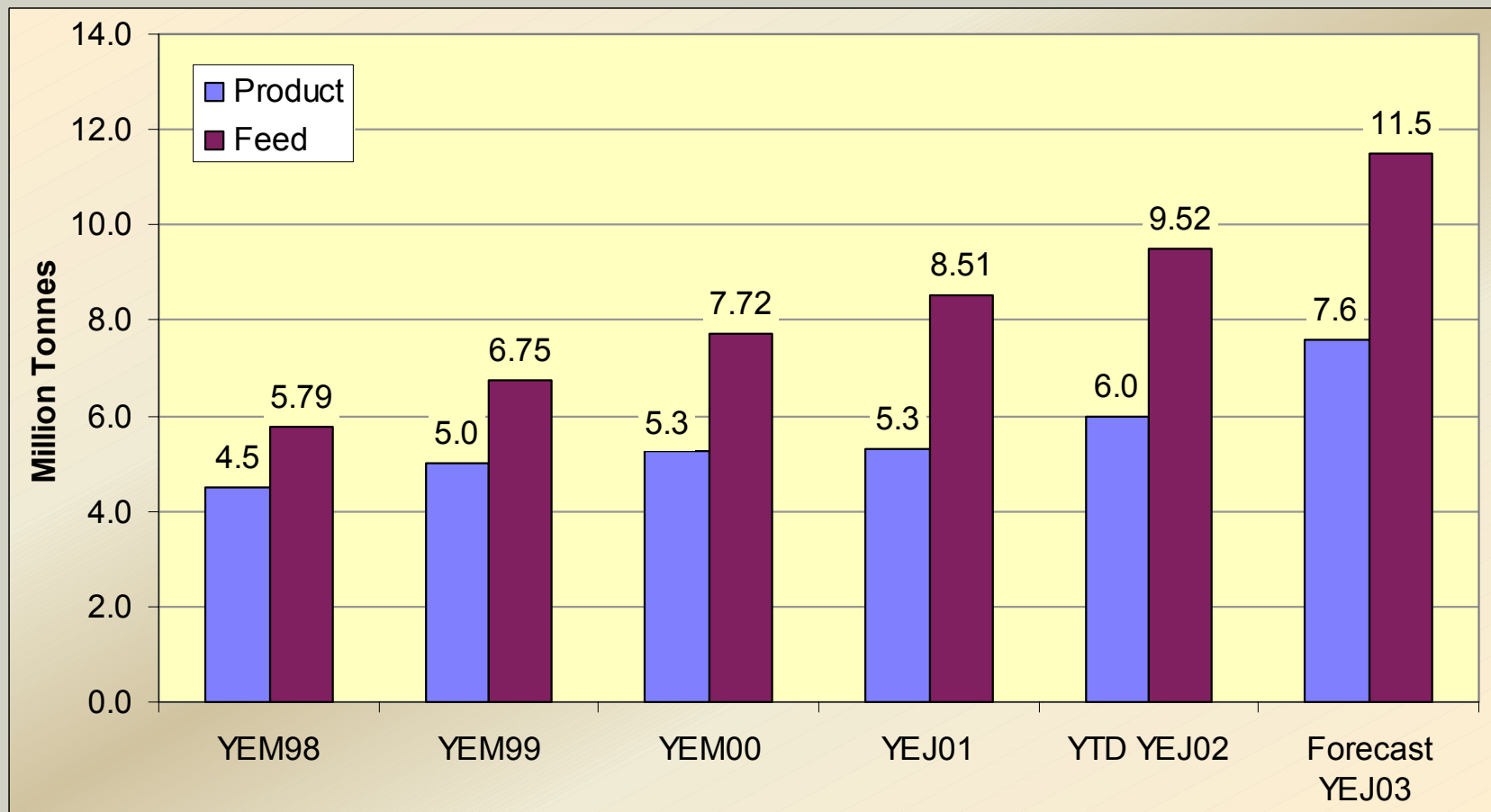
- Removed high waste peak in WB pit and have exposed all ore types
- Friable ore to bene plant improves physical properties of Lump & Fines

# Beneficiation Plant Performance

- Chart shows improvement in grades
- Productive tph target is 1600. Will achieve post Tailings upgrade

		YEM99	YEM00	YEJ01	YEJ02 YTD
Bene Feed Grade	Fe	58.8	56.9	56.4	57.6
	P	0.092	0.093	0.099	0.088
	SiO <sub>2</sub>	9.25	11.09	12.21	10.87
	Al <sub>2</sub> O <sub>3</sub>	3.44	3.84	3.80	3.80
Lump Product	Fe	65.2	65.5	65.8	66.3
	P	0.065	0.059	0.067	0.056
	SiO <sub>2</sub>	4.10	3.76	3.55	3.15
	Al <sub>2</sub> O <sub>3</sub>	1.10	1.14	0.93	0.85
Fine Product	Fe	64.6	63.1	65.4	65.9
	P	0.073	0.075	0.071	0.057
	SiO <sub>2</sub>	4.31	5.27	3.61	3.24
	Al <sub>2</sub> O <sub>3</sub>	1.71	2.02	1.29	1.15
% Availability		88.8	86.7	89.1	87.5
% Effective Utilisation		69.8	66.6	71.5	82.1
% Operation Efficiency		67.6	64.9	67.8	77.2
% Productive TPH		1244	1523	1525	1420

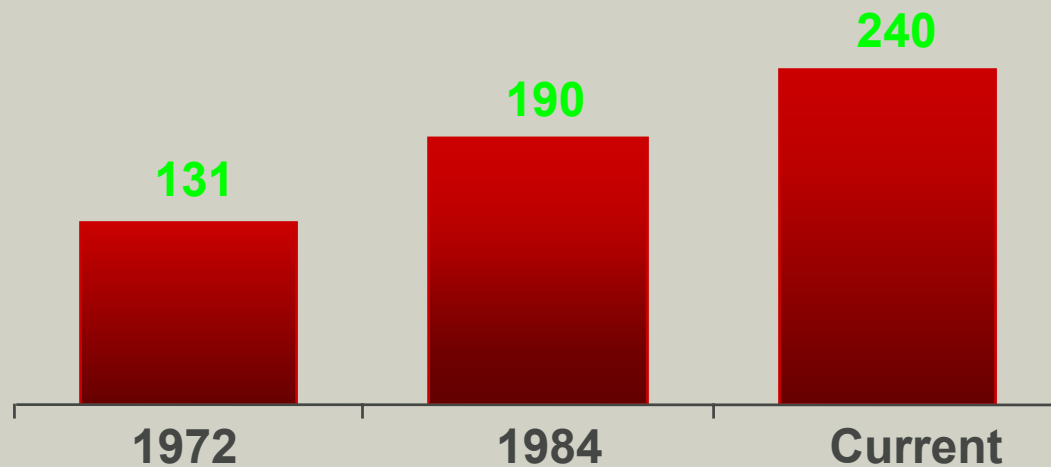
# Beneficiation Plant Performance Product & Feed tonnes



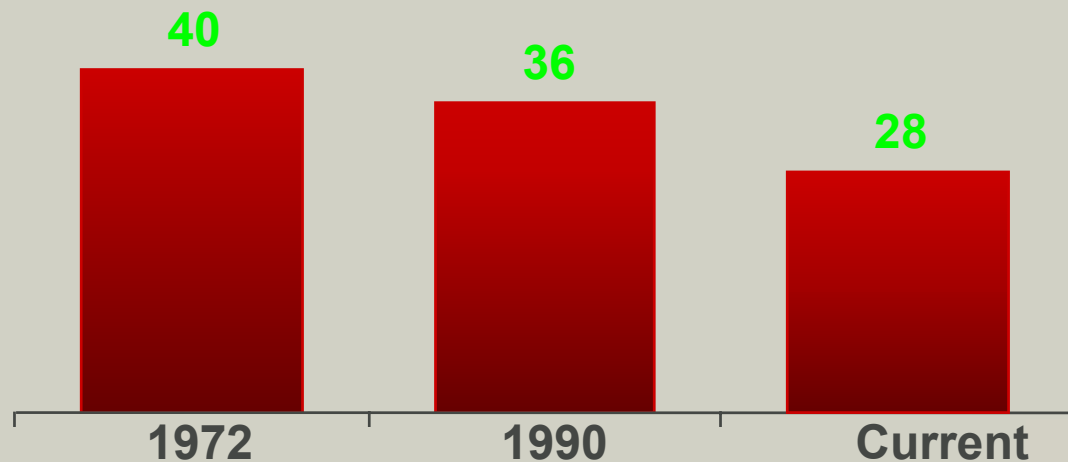
# BHP Iron Ore Railroad

## *Operating Improvements*

**Train Length  
(no of cars)**

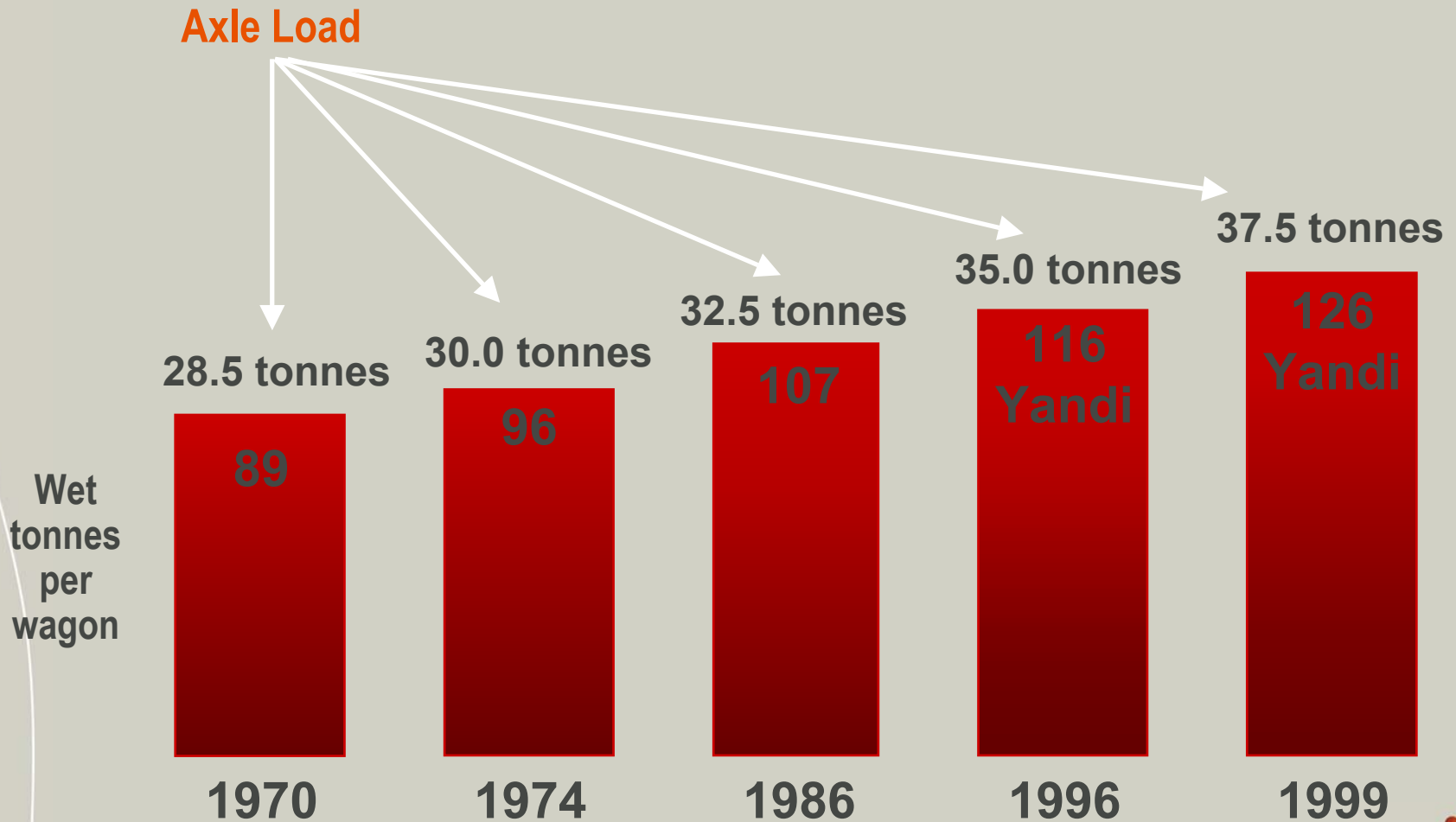


**Train Cycle Time  
(hours)**



# BHP Iron Ore Railroad

## *Operating Improvements*



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# BHP Iron Ore Railroad

**R&D into the rail/wheel interface allows for the useful life of assets to be extended**

## **Ore Car Wheel Life**

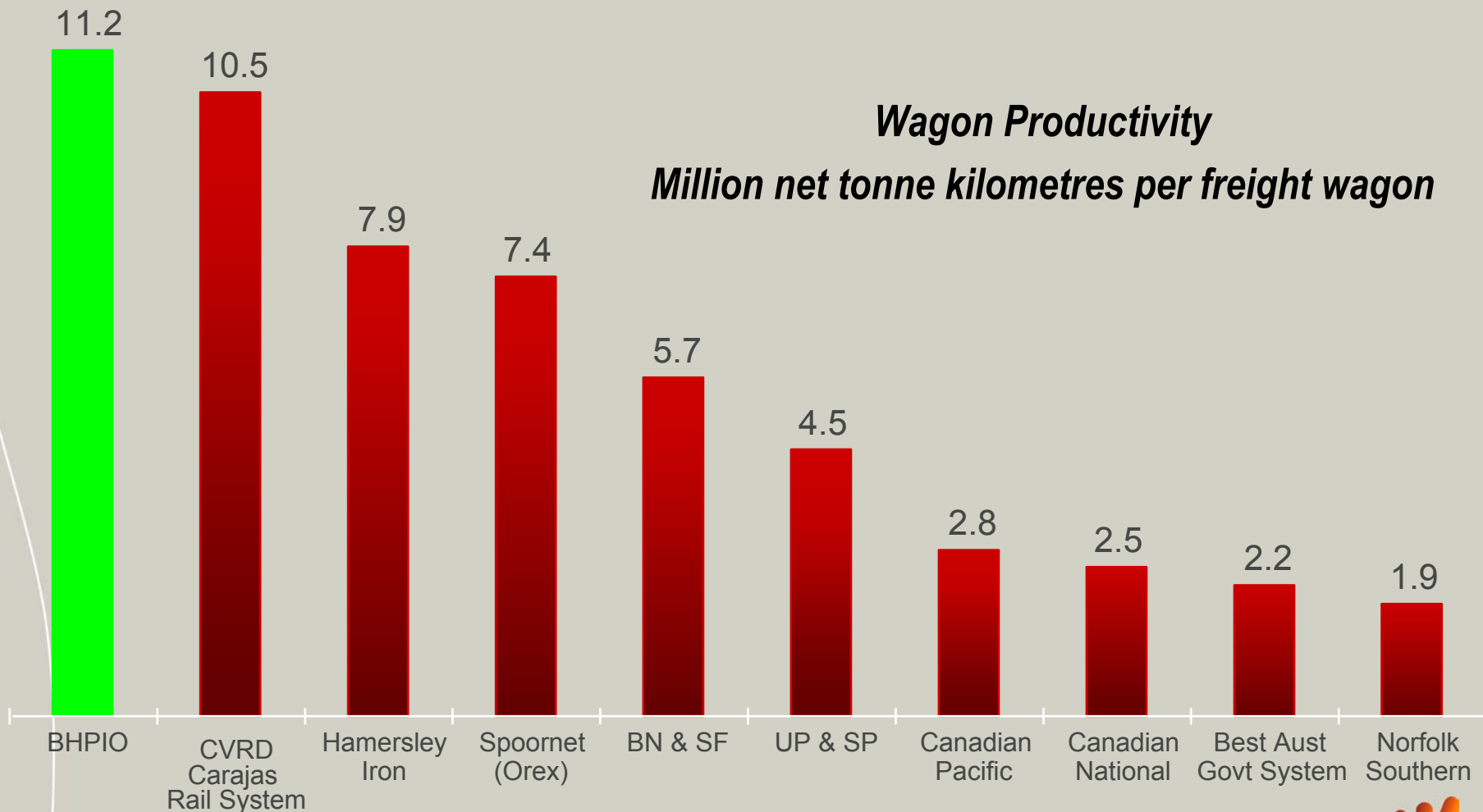
YEM 80 million km	YEJ 00 million km	Life extension
0.34	1.95	6.5 fold increase

## **Rail Life (Target Track)**

YEM 80 million gross metric tonnes	YEM 00 million gross metric tonnes	Life extension
350	1,200	3.4 fold increase

# BHP Iron Ore Railroad

## Rail Performance Benchmarks



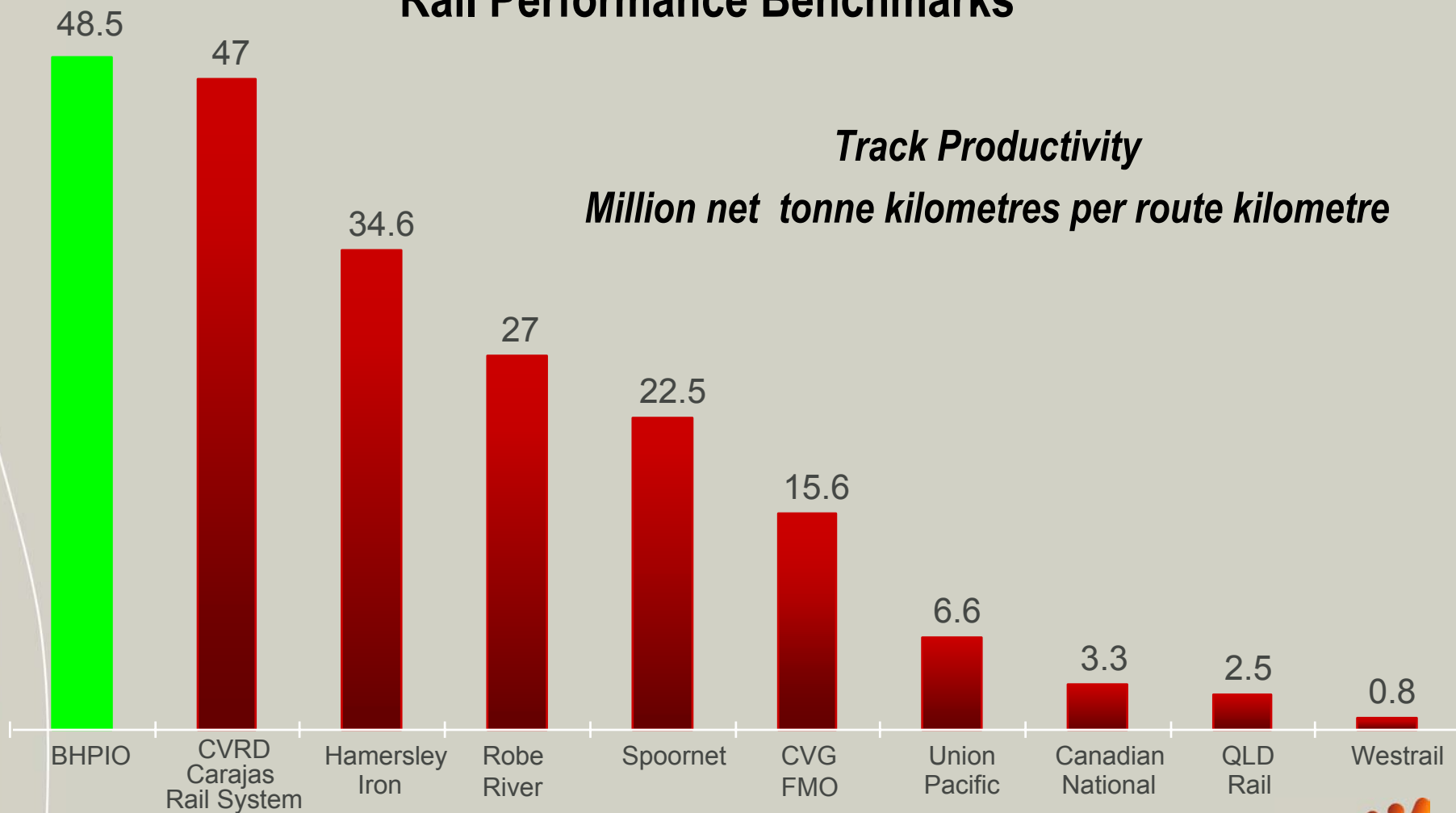
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Source: BAH/Indec Report



# BHP Iron Ore Railroad

## Rail Performance Benchmarks



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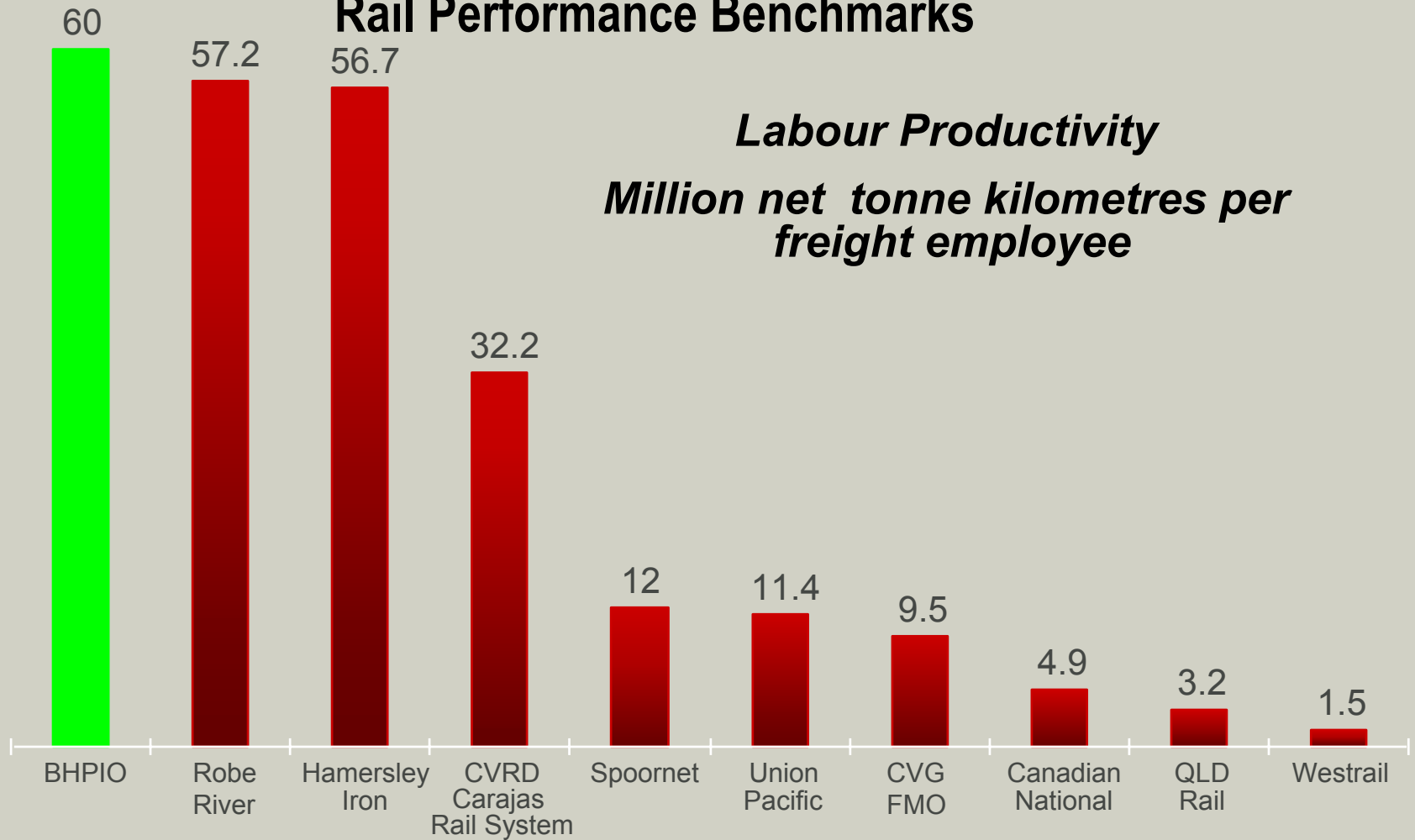
Source: BAH/Indec Report

# BHP Iron Ore Railroad

## Rail Performance Benchmarks

### *Labour Productivity*

*Million net tonne kilometres per freight employee*

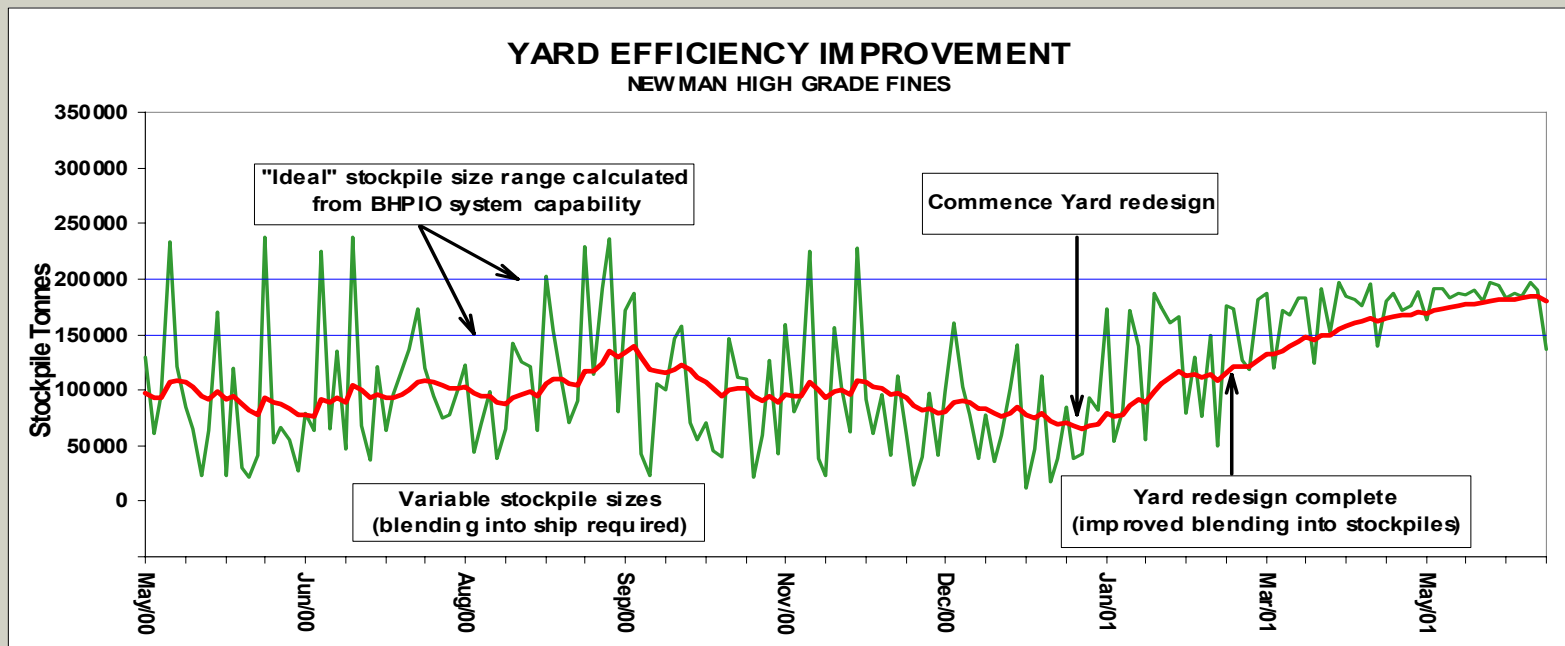


Source: BAH/Indec Report

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# Port Operations

- **Continuous Stockpile Management System - CSMS**
  - Stockpile grades controlled by the Mines
- **Stockpile size**
  - Determined by natural variability of ore blend
  - Expect further improvement when product balance is restored



# Port Operations Vessel Turnaround Improvement

- Yard management
  - Optimised to product demand
  - Interactive Stacking/Reclaiming & Maintenance Planning
  - Maximise capacity through minimising anti-collision zones
- Gross Loading Rate
  - Key Driver
  - Reliability of ship loading routes
  - Modified reclaiming practices

