



## Smart Services in Support of Benchmark Longwall Production



CREATING  
**VALUE**



AngloAmerican

**JOYGLOBAL**

# Benchmark Mining Systems For AngloAmerican

2013

**Lay The Foundation  
Top 5 world rank – 8Mtpa**

**A sustainable Longwall 100 capability**

- 100 hrs @ 1500 t/h
- Moving towards Zero Harm

2016

**Achieve Underground  
Excellence  
No 1 world rank – 12Mtpa**

**Best-in-class Longwall operations  
Fully automated >10 Mtpa ROM**

- 120 hrs @ 2200 t/h
- Achieving Zero Harm

2016+

**Leverage Underground  
Excellence**

**Maintain industry leadership in  
underground coal mining**

- Bring on new Anglo resources at benchmark levels
- Sustaining Zero Harm

**Complete  
Mining  
System**

**Smart  
Service**

**Performance  
& Life Cycle  
Management**

**Risk & Reward sharing**

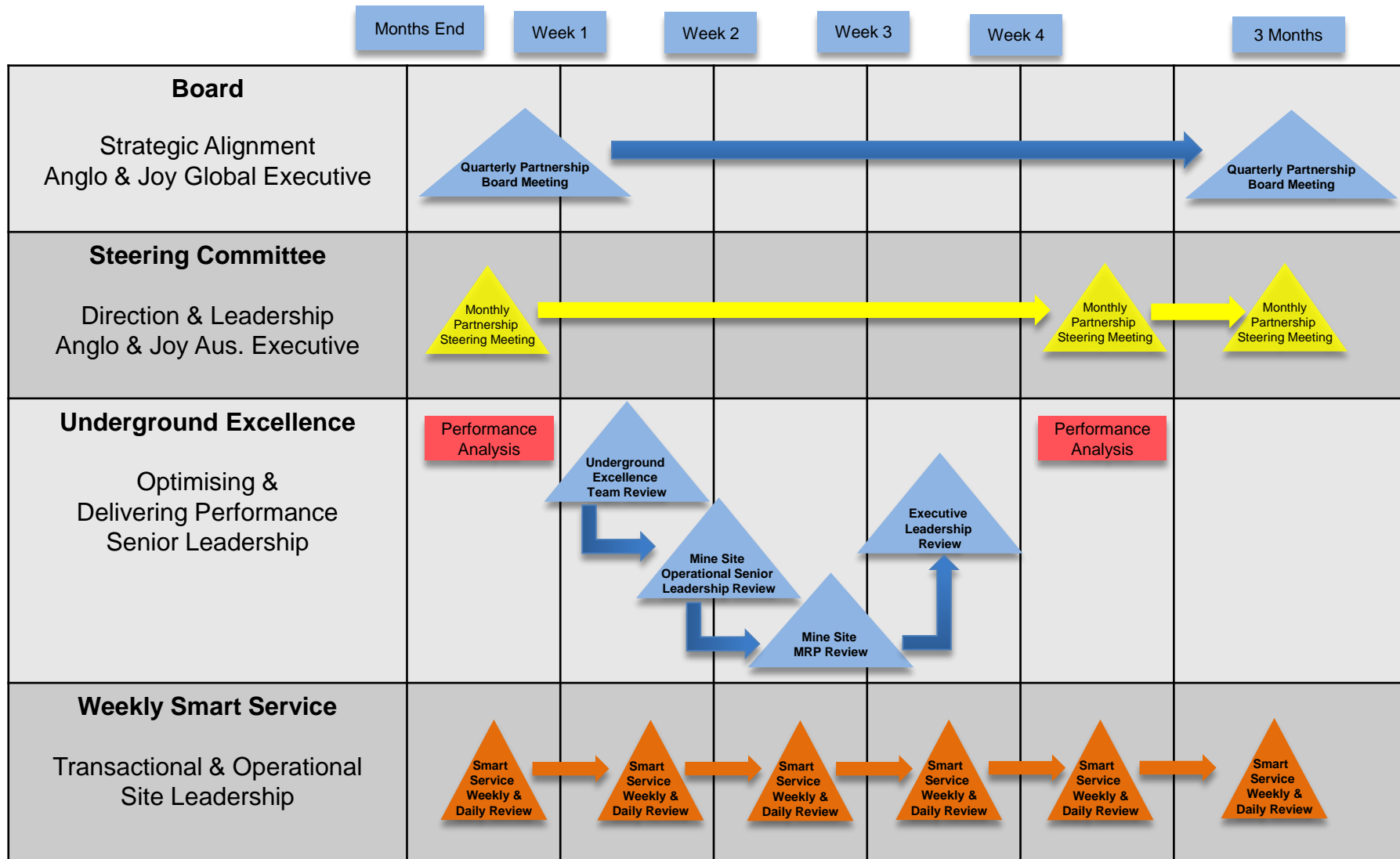
**One scorecard, shared KPI's**

**Process optimization via Operational Excellence**

**Innovations that will lead to: Zero Harm, Highest Production & Lowest Cost/Ton**

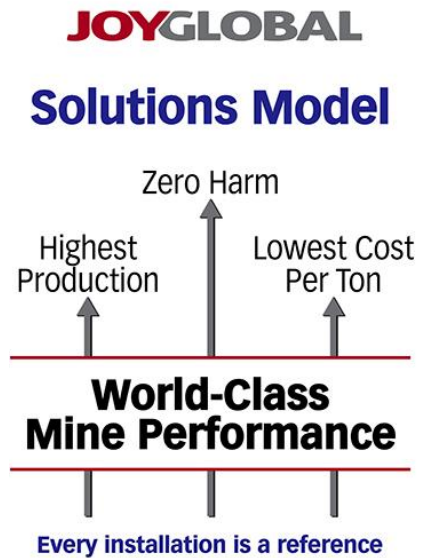
**World class products, processes, and talent to drive profitable growth**

# People & Process Architecture





# Smart Services – Mine of the Future



# Data – Information – Action – Results

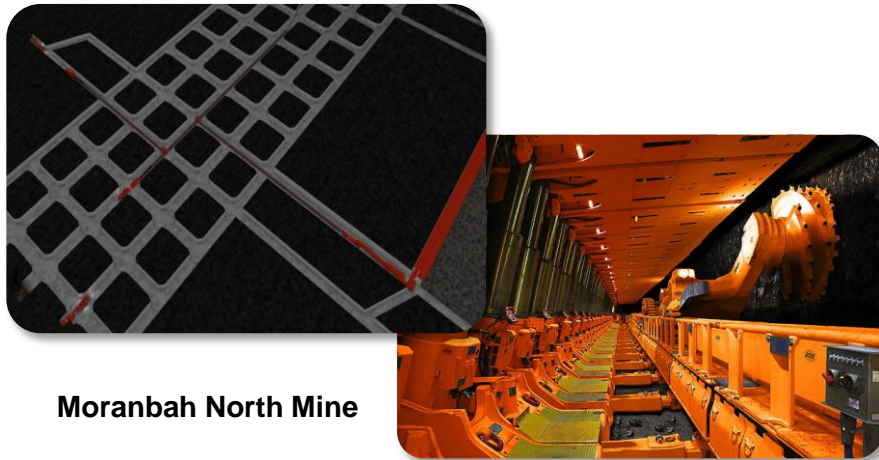
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**Step 1 Online data from operations continuously**

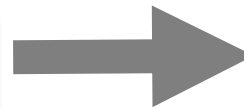
Step 2 Data analysed and recommendations formulated

Step 3 Recommendations and remedial work planning fed back to site

Step 4 Aligned with agreed KPI's



Moranbah North Mine



24/7 Remote Health Monitoring



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# Data – Information – Action – Results

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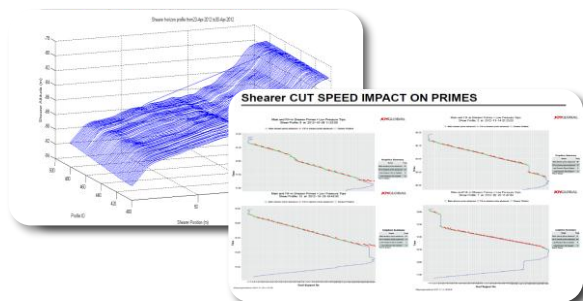
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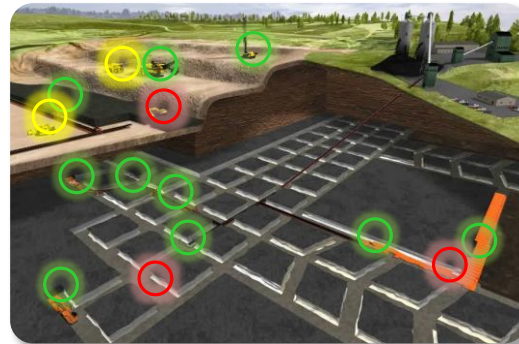
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## Breakdown Root Cause Analysis



Repetitive alarms, Shift reports and Prognostic rules

## Major Delay Elimination



Optimizing reliability

## Performance optimization



Driving reliability & productivity



# Data – Information – Action – Results

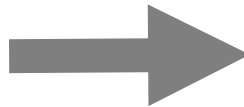
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Responsive Technical Support  
close to the action



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# Data – Information – Action – Results

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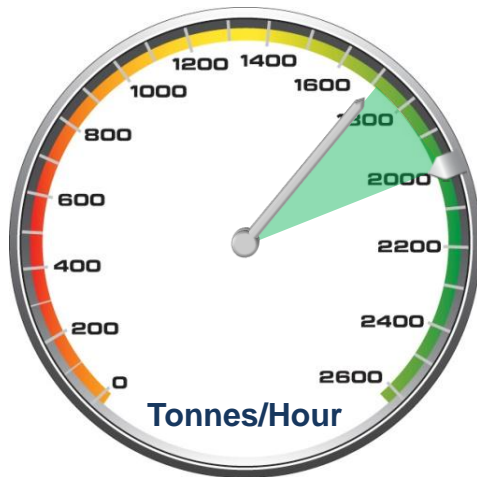
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## *Top 5 WorldRrank – 8Mtpa Longwall*



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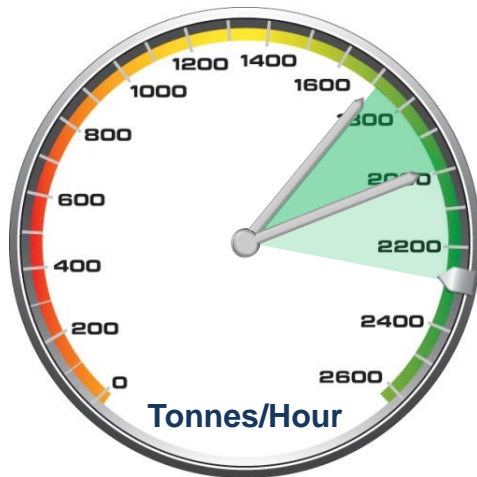
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*#1 World Rank – 12Mtpa Longwall*

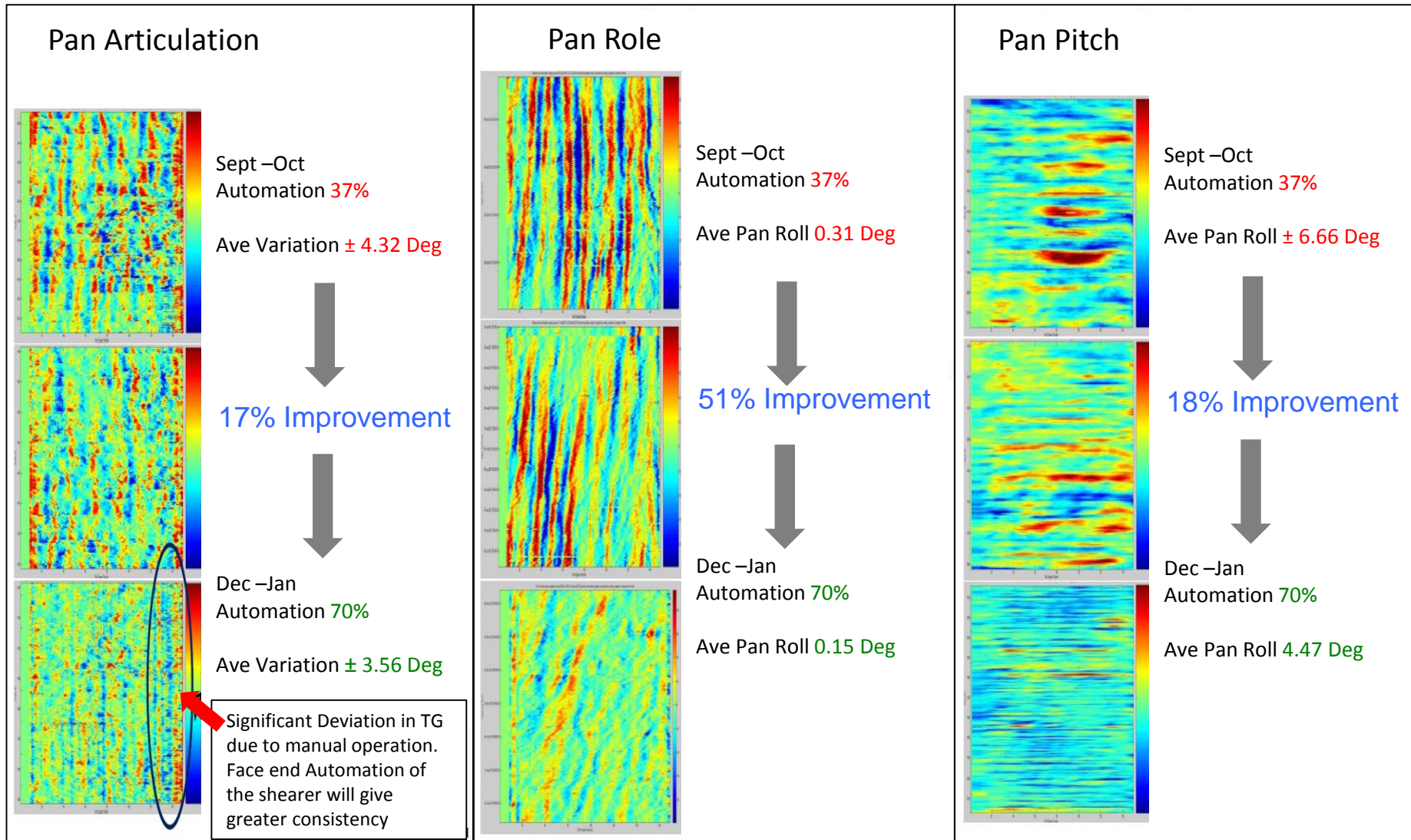


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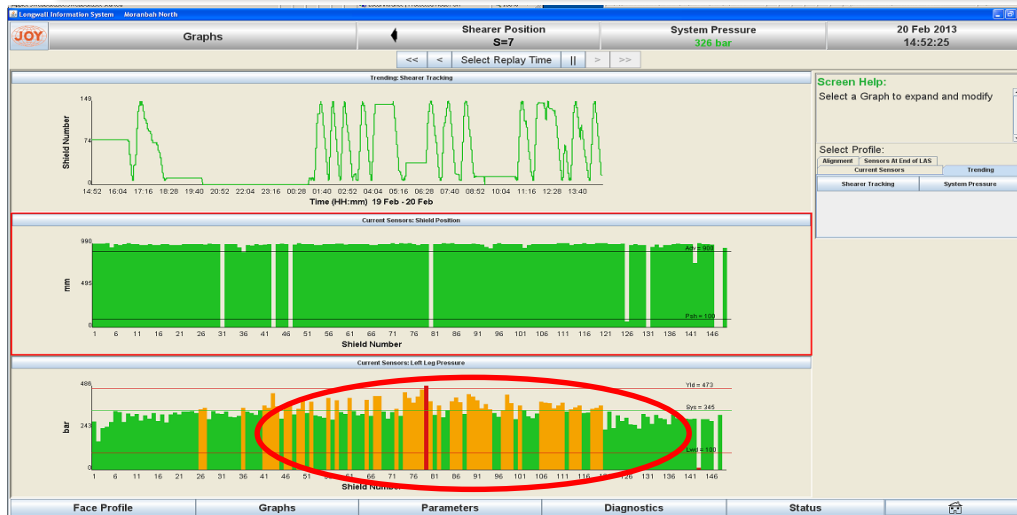
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# Automation For Improved Horizon Control - AFC

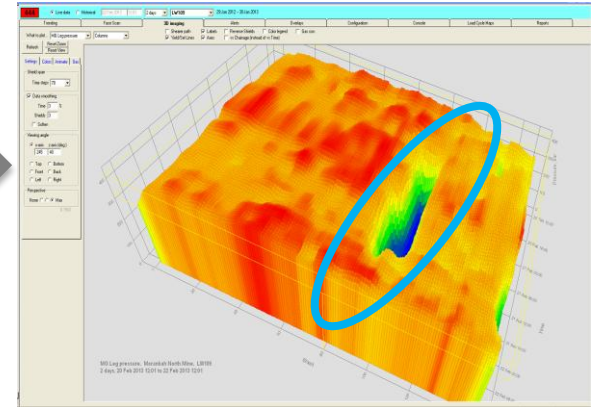


# Example of Hi Set Pressure Incident

## Event Detected



Cavity Forms within 12 Hours



## Response to Incident Detection

### Alert Generated

PreVail Health Management Alert

Event Occurred: Apr 29 2013 8:28PM  
Anglo American : Moranbah North Coal : LW1002  
TagName: PRS\_1011E

Alert: Multiple RS Not Achieving Set Pressure

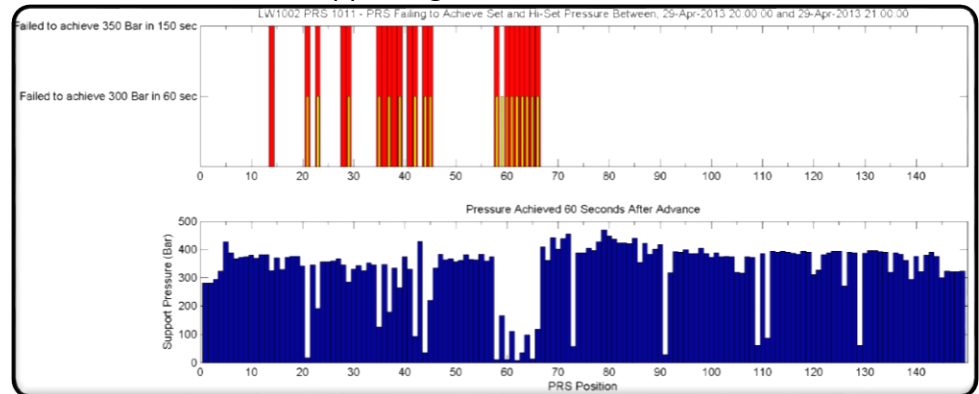
Priority: Very High

Component: PRS

Parameter: AT: Consecutive RS 66 to 58

Event Created: Apr 29 2013 11:08PM

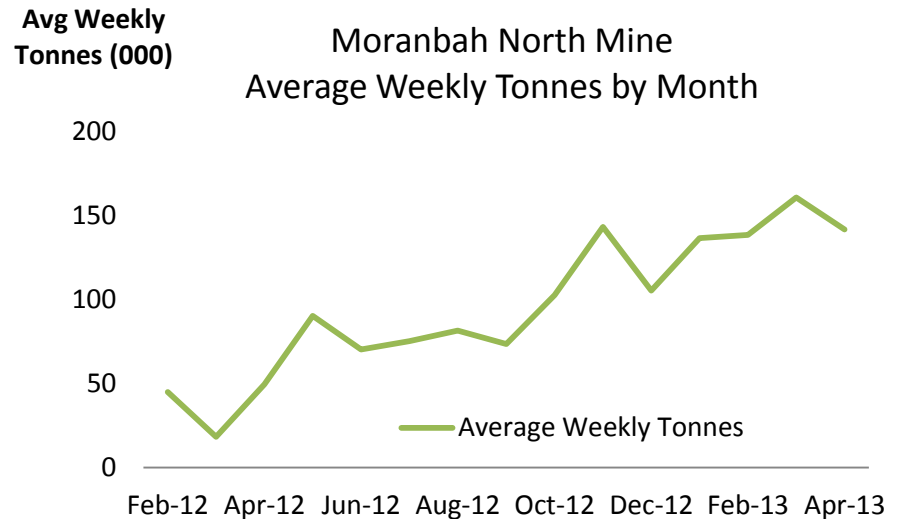
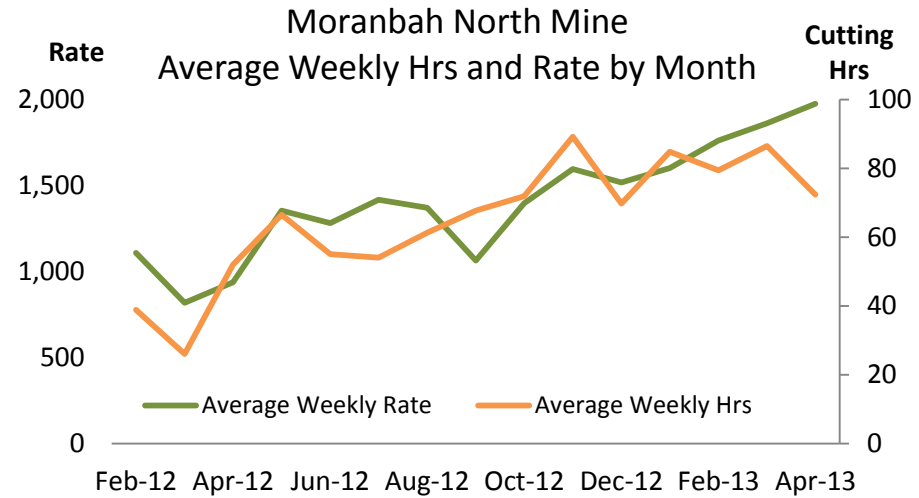
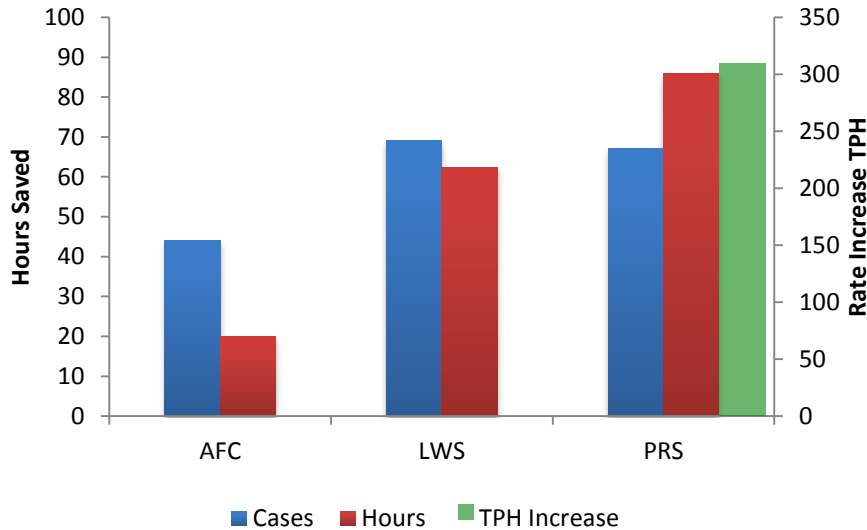
### Supporting Information



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# Results



Completed 180 cases

Saved 168 Hours

Rate increase 309 Tonnes per Hour

Value in Tonnes/Year = 1,85 M Tonnes

Note: Value calculated on 100Hr's per week at 1500Tons per Hour



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