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# Welcome to EHM shutdown Contractor Management system



Tuesday, August 21, 2007



# Xstrata's Nth Qld Operations



Ernest Henry is a modern open-cut copper/gold operation located approximately 40km north of Cloncurry, North-West Queensland. The site began commercial production in 1997, and produces some 115,000 tonnes of copper in concentrate and 120,000 ounces of gold in concentrate annually.

The EHM concentrator processes approximately 11 million tonnes of ore annually. The concentrator is a single-line plant that contains a gyratory crusher, SAG mill, ball mill, floatation cells (rougher and 3-stage cleaning process), as well as a pressure filter. Approximately 80 people work in the EHM concentrator

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## Shutdown overview



### **Typically at EHM we have 4 shutdowns per year as to align with;**

- Semi Autogenous (Sag Mill) reline.
- Ball Mill reline as required.
- All other areas where a dedicated work order has been implemented as work required.
- Equipment that requires general checks and servicing that cannot be done 'in situ'.

*"Success is the result of preparation, hard work and learning from our past experiences"*

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## Shutdown overview (Cont)



- 270-300 Individual tasks
- Potentially 100-150 Contractors
- Many pieces of Individual equipment e.g. cranes, forklifts  
'lighting towers etc

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## Key components to success



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### **To achieve a successful shutdown incorporates three key components:**

- Safe completion of all tasks.
- Environmentally responsible behaviours of all personnel.
- Timely completion of tasks within the allocated budget.

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# Xstrata copper-7 phase shutdown model



**To provide a 'best practice' approach to shutdown preparation and execution of the shutdown.**

**To achieve these goals, the EHM shutdown management system contains seven key aspects;**

- Shutdown strategy (form a steering group in advance)
- Preliminary development of the shutdown plan (agendas and key objectives developed)
- Develop and refine the shutdown plan (preliminary job list, cost and duration)
- Finalise the shutdown plan (second pass at the plan)
- Pre Shutdown (Finalisation of the plan)
- Shutdown (Monitoring)
- Post shutdown (review)

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# Shutdown Management system



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**To achieve these goals, the EHM shutdown management system contains six key aspects:**

- Integrated Planning and Logistics
- Contractor Management
- Pre-Shutdown Training
- Supervisory Hosts
- Safety Management Systems
- Monitoring
- Review

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## Planning and logistics



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### **Starts directly after the last shutdown involved are;**

- Concentrator Personnel
- Supply
- Health and Safety
- Contractor Management
- Catering

Everybody is involved from the beginning

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## Planning and logistics (Cont)



- Tasks are identified from long term maintenance strategy (relines)
- Dedicated work orders devoted to the tasks.
- Work is accepted up until 6 weeks before the shutdown (then approval process is implemented)
- Shutdown meetings every 2 weeks involving all stakeholders to review all schedules
- Risk assessments completed prior to the job start, then *completed in real time* with the persons working on the job
- Critical path identified

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# Contractor Management Shutdown



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## **The majority of the preparation involves the management of our Contractors.**

- Locally based companies supply labour and support staff
- Primary Contractors devote considerable time before the shutdown to identify extra personnel that may be required (Riggers, Scaffolders, Crane Drivers and consumables)
- Shutdown packs are sent to Contractors to enhance communication
- Ticket verification (Medicals, Confined space, OH&S)

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## Pre shutdown training



### **Orientation session elements include;**

- Both Site and Concentrator Inductions
- Incident reporting
- Fit for work
- Risk management
- Isolation, tag and lockout
- Review lessons learnt from previous shutdowns
- Confined space training

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## Supervisory Hosts



**We empower our people.**

**Fitters ,Electricians and Operations personnel are elevated the role of Supervisory Hosts. Responsibilities;**

- Ensure they adequately planned and resourced the job
- Monitor the arrival of parts
- Organization of the required parts e.g. tooling, consumables
- Ensures that the dedicated shutdown tool boxes adequately stocked

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## Supervisory Hosts (cont)



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- Review, update and or create a JSA for each job
  - Identify and organise or create associated permits
  - Monitor and report on working progress and job status
  - Supervisory hosts allow our line Supervisors to concentrate on the big picture

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# Safety Management



## **Some key hazards that are presented during the shutdown include**

- Overseeing a large group of people, ensuring a large percentage have worked at EHM previously
- Lifting equipment
- Mobile plant
- Power tools
- Confined space
- Environmental factors (Working in hot weather)

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## Safety Management (cont)



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### **Some examples of EHM's hazard Management system include;**

- All equipment must have a pre-start
- All lifting equipment and heights safety equipment is tested and tagged by an accredited testing company
- Mobile equipment is tested and tagged as to meet a select criteria before entering the EHM site
- Confined space is managed through pre- shutdown orientation sessions
- Dedicated Permit issuers and spotters are assigned to each Confined space

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# Safety Management (cont)



- Permit audits (Confined space, Hot work, JSA's)
- Fitness for work (BAC testing, random drug tests,
- Fatigue and hydration testing
- Rotation of personnel if working in direct sunlight (Temps can reach 50 degrees)
- Safety is monitored by Supervisory and Safety personnel
- Contractors provide safety advisors
- Safe work observation (How can we do the job safer)
- Safety advisors may take photographs (with the consent of the person involved) of safety both good and bad so that we may identify future opportunities

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# Shutdown Monitoring



- All crews attend a pre shift safety meeting.
- EHM Line Management, Contractor and health and safety attend shutdown meetings twice daily- Agenda.
- A system review of any incidents, audits and inspections.
- A review of good work practices.
- A review of all work groups
- Review the critical path (Sag –Ball Mill)
- Are extra resources required to get the job done
- Positive reinforcements are actively encouraged

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## Post Shutdown review



**Attended by EHM Line Management, Contractor management and all EHM personnel that were involved in the shutdown. Meeting agenda;**

- Summary and review of any incident reports
- Execution of permit systems
- Review of safe work observations and recommendations
- Other findings from a “Did well - do differently” analysis
- Recommendations are entered risk management system for assigned people to complete before next shutdown
- A review of good work practices for future shutdowns



## Summary



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### **EHM'S shutdown management system has shown to be effective in meeting our key aims**

- This Contractor methodology has seen a year by year improvement in the identification and control of hazards and overall safety improvement.
- Property damage is being detected during pre- start.
- Improvement in Safety culture shows SWO's opportunities for improvement have halved whilst the number of good practices have doubled
- The improvement in the culture is also shown by the number of safety innovations that are developed based on SWO's

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# Safety observations



Lifting of the load was well controlled. The Supervisory Host ensured the area was clear as the load was descending

Lifting area was barricaded and a spotter present



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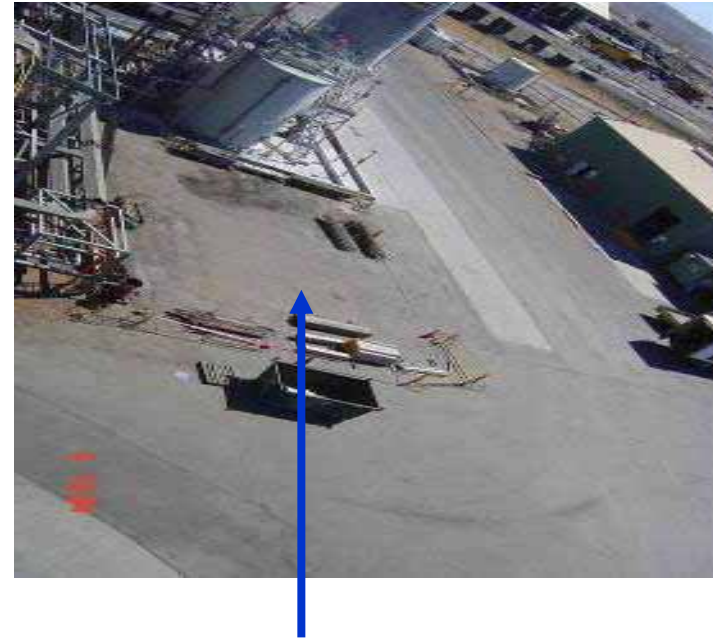


# Safety observations



Working at heights – The two workers were wearing the correct PPE.

The worker in front was grinding and was wearing a full face shield, sleeves rolled down, harness, lanyard and hard hat. The area below them was barricaded.



The area set aside for scaffolding that is not in use was clean tidy and demarcated as earmarked for future improvements from the previous shutdown.

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# Typical Innovations



Breakers could be locked out in the open or closed position.

Same breakers after rework



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# Typical Innovations



Great innovation  
walkway across  
crusher

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## Summary (cont)



### **Environmental**

- Responsibility is demonstrated through the low number of incidents that occur
- Environmental responsibility is also observed in the behaviour of contractors who keep both their work area clean and also whilst back at the camp
- EHM has a proud environmental reporting culture

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## Summary (cont)



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### **Timely completion of tasks is the final consequence of success (Results)**

- Last 12 months 4 shutdowns completed planned down time hours were 338 versus an actual of 325
- The early completion of the tasks has resulted in significant benefit to EHM and compliments the Safety and Environmental performance.

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