

'"ZERO ACCIDENTS = ZERO INJURIES'



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SAFETY SYSTEMS AT NORTHAM'S BMRP

MMMA – The drive to stop the big five Safety Seminar

04 JUNE 2010

SAFETY PROGRAMME

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- METALLURGICAL SAFETY POLICY
- BMRP ANNUAL SAFETY OBJECTIVES
- METALLURGICAL INDUCTION FOR NEW AND EX LEAVE EMPLOYEES
- HAZARD IDENTIFICATION AND RISK ASSESSMENT TRAINING
- RISK ASSESSMENTS
- INCIDENT REPORTING AND COMMUNICATION
- HEALTH AND SAFETY REPRESENTATIVES
- PHYSICAL AUDITS AND CHECKLISTS
- EMERGENCY PREPAREDNESS
- POSITIVE BEHAVIOUR RE-ENFORCEMENT AND DISCIPLINE
- GENERAL



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METALLURGICAL SAFETY POLICY

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We believe it is the inherent right of all employees, visitors and contractors to work in a safe and healthy environment. Every employee, visitor and contractor is required to take all reasonable measures to ensure that the requirements of the Mine Health and Safety Act, 29 of 1996, as amended, are observed. It is the individual's duty to carry out lawful requirements as stipulated in the Mine Health and Safety Act, as well as in applicable legislation and Northam Platinum Ltd. Metallurgical Department Safety rules and procedures, which are prepared in accordance with legislative requirements, by identifying and rectifying;

- Unsafe Conditions
- Unsafe tools and Equipment, and
- Unsafe Human Acts

Should any person not be able to eliminate or reduce the risks associated to the identified safety hazards, the conditions must be reported to his supervisor immediately. Furthermore will no person be allowed to enter any metallurgical operation without training in the approved pre-plant entry Safety Induction.



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BMRP SAFETY OBJECTIVES

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- DRESSING STATION CASES <2
- LOST TIME INJURIES 0
- REPORTABLE INJURIES 0
- FATAL INJURIES 0
- ACHIEVE GREATER THAN 95% IN PHYSICAL AND ORGANIZATIONAL AUDITS



Metallurgical Safety Induction Part 1

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Mine Health and Safety Act/ Metallurgical Safety Policy

- Objectives of the Mine Health and Safety Act.
- Role of the employee.
- Role of the employee

Pipe and Service station Color Coding system

- Acid lines, Spent electrolyte, Compressed air , High Pressure steam, Process Reagents, Water

Plant specific Personal Protective Equipment

- Hard Hats, Acid Resistant Overalls, ,Safety Glasses/Goggles, Safety Boots, Earplugs



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Metallurgical Safety Induction Part 1

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Metallurgical Safety Induction Part 2

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BMRP Safety Hazards

- Explanation of hazards in the workplace.
- Noise, Moving Mechanical Parts, Moving Carriage (O/H Cranes), Slippery Floors, Chemical Storage, Uneven surfaces, High temperature water, Dangerous tools and equipment.

Reporting of Accidents

- Personnel must report accidents to their shift supervisors during their shift.
- An NPL 027 accident investigation document must be completed to determine the basic cause of the accident.

Evacuation Procedure in the event of Fire, Explosion, Rupture of a pressure vessel.

- In the event the evacuation alarm is sounded employees to evacuate to the assembly point.
- Emergency equipment should be collected on their way.
- Employees to remain at the assembly point until authorized to leave by supervisors.



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Lock out procedure and Permit to work system

- Under no circumstances may anyone work on equipment that has not been locked out and made safe.
- All employees intending to perform a repair to equipment must apply their own locks to isolators and retain the keys themselves.
- Permit to work system to be completed with safety checks ahead of confined space entry and regular maintenance/repair work.

Criterion test

- Competency on each of the required modules of the induction process must be obtained by virtue of a criterion test



BMRP Hazard Identification And Risk Assessment Training

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Hazard Identification and Management

- Each section will have its own recognized hazards to which a new employee will be exposed. The hazards are shown to a new employee in order for him to be able to recognize these hazards in the workplace when conducting his operational duties. Training is also given on the management of these hazards.
- The employee must show his competency from a criterion test before he is allowed to enter the plant to start on the job training.

Risk Assessment Training

- Each of the shift supervisors is a qualified assessor and as such can assess his subordinates in the performance of a standard task on which a risk assessment has been conducted. Formal risk assessment training is conducted monthly and assessed as part of a planned schedule based on the identified risk assessment's criticality.
- Accredited moderators in the plant will over inspect the formal risk assessments to ensure that the highest standards are maintained.



Risk Assessments

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The objective of the risk assessments is to identify hazards and evaluate the risk associated with standard operating tasks at Northam's BMRP and to provide controls to minimize accidents and equipment damage.

- Identify the task upon which the Risk Assessment is to be performed.
- Convene a group of experienced personnel from each discipline
- Identify individual task steps
- Identify the potential hazards for each task step and the controls in place to minimize the risk.
- Rate the risk from the risk matrix
- Continue with risk ranking of all the task steps
- Summarize the risks indicating the highest potential risk.
- Categorize Risk assessments for Risk and determine frequency of Risk Assessment Observation.



Risk Matrix

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CONSEQUENCE	A	B	C	D	E
1	1	2	4	7	11
2	3	5	8	12	16
3	6	9	13	17	20
4	10	14	18	21	23
5	15	19	22	24	25

1-6	HIGH
7-15	MEDIUM
16-25	LOW

PROBABILITY	COST	CONSEQUENCES
A – DAILY	> R1 000 000	1 CATASTROPIC / FATAL
B - WEEKLY	R500 000 TO 1 m	2 VERY SERIOUS / REPORTABLE
C – ONCE A MONTH	R100 000 TO R500 000	3 SERIOUS / REPORTABLE
D – SIX MONTHLY	R10 000 TO R100 000	4 MINOR / DRESSING CASE
E – ONCE A YEAR	< R10 000	5 TRIVIAL / NO INJURY



Risk Assessments

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TASK STEPS	POTENTIAL HAZARD	POTENTIAL CONSEQUENCE/HAZARD OUTCOME	P r o b	C o n s	RANKING		RECOMMENDED CONTROL
1. No BMR employee is allowed to perform any task in the plant if not found competent by a registered assessor on the Risk assessment pertaining to that specific task	Fumes, gases and smoke; Toxic chemicals H ₂ SO ₄ ; Eye Injuries; Slips, trips, falls	Serious or disabling injuries. Damage to equipment and potential loss of revenue	A	2	3	HIGH	As per the Mine Health and Safety Act section 22 you are responsible for your own health and safety and for the health and safety of your co-workers. Ensure that you have received the training before performing the task
2. Check safety showers in working condition before commencing to offload the Sulphuric acid. Check the waybills from the driver. Check that the delivery note indicates that the product to be offloaded is Sulphuric Acid. Sign receipt of the delivery as well as the discharge and analysis documents. Ensure that enough space is available in the Storage tank 7-TK-01 Issue instruction for off loading to commence	Road and transport; Heavy vehicle and light vehicle interface; Road and transport; Road vehicles; Collision; Road and transport; Road vehicles; Fire; Toxic chemicals H ₂ SO ₄	Incorrect product may be received from the supplier. Incorrect weights may be documented and accepted by the consumer. Incorrect Product could result in contamination as well as become a serious safety hazards.	B	2	5	HIGH	If no weighbills are received send the driver back to the store to weigh the truck and obtain a Weighbill. Only the authorized plant official may sign the documentation. Documentation to be passed on to senior Operations personnel.
3. Notify Control Room hazardous chemical to be off loaded. Correct PPE must be available i.e.: Hard hat, Acid resistant overall, Safety glasses, Ear Plugs, Safety Boots, Plastic Apron. Air brakes off the Tanker must be applied at all times during the off loading. Ensure that a hose connected to the Magalies water supply is available next to the Tanker. The water feed valve must be slightly open during the offloading process. Rinse the tanker after all valves are disconnected	Road and transport; Access roads; Road and transport; Heavy vehicle and light vehicle interface; Road and transport; Road vehicles; Collision; Road and transport; Road vehicles; Fire	Control room to monitor the level in 7-TK-01 Prescribed safety equipment may be insufficient, damaged, or not available. Respiratory irritations, Skin burns, eye injuries.	B	2	5	HIGH	All plant personnel should receive Induction training on hazardous chemicals. All plant personnel should know how to use the prescribed PPE and where to get replacements. Any spillage must be neutralised and removed with water. Safety bath and eye wash station must be operative. Shift supervisor to log level before offloading and level after offloading in the Supervisors report. Ensure that the stationary blocks are placed behind the truck wheels to prevent trucks running away.



Incident Reporting and Communication

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Incident Reporting

- All employees are encouraged to report sub-standard acts and conditions by the formal incident reporting structure.
- Each incident has a portion requiring the remedial action taken to be completed by the employee submitting the incident or by a higher level of supervision.
- Each incident is acknowledged by the Head of Department and Metallurgical Manager.

Incident Feedback

- If the company is unable to rectify a substandard act/condition immediately, the additional controls which are set in place are communicated to each of the shifts via the shift supervisor
- A summary of the incidents submitted during the month is given to all employees during the monthly departmental Health and Safety Meeting.

Safety Meetings

- Before the start of an operational shift, all of the personnel reporting for duty attend a 10 minute safety meeting to discuss a a specific daily safety topic or hazard in the workplace as per a laid out monthly schedule.
- The BMRP holds a formal Health and Safety Meeting with all the BMRP employees which covers all safety related items.



Sectional Safety Representatives

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- Each shift has a Health and Safety Representative and alternate who are elected by fellow workers on their shift. These employees are well acquainted with the conditions and activities in their designated work places. Their duties include:
- Promoting health and safety awareness to all shift personnel.
- Assisting with investigation of accidents
- Reporting to the shift supervisor of daily health and safety threats.
- Accompanying the Mine Safety officer during his monthly physical inspections
- Attending monthly Metallurgical Safety Meetings.
- Submitting a monthly report on the physical conditions in the workplace, highlighting substandard acts and conditions.



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Physical Audits and Checklists

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Physical Audits

- Monthly planned inspections of Physical Conditions of each section of BMRP by Senior operational staff. Identifying sub-standard conditions and recording action to be taken.
- Monthly Physical and Organizational Audits by the Mine Safety Officer

Checklists

- Monthly Checklists (Fire Extinguishers, Fire Hydrants and hoses, Portable Ladders)
- Weekly Checklists (Safety Harness')
- Daily Checklists(Mobile Machinery, Escape chambers, B. A. Sets and Cartridge Masks)
- Shiftly Checklists (Safety Showers)



Emergency Preparedness

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Emergency evacuation drills (six monthly)

- Management representative activates alarm.
- Record the movement of Personnel to the BMRP Assembly point.
- Confirms the collection of emergency equipment (fire extinguishers/stretchers/first aid boxes)
- Confirms the role call of personnel on duty.
- Confirms the evacuation of UHRA personnel to escape chamber.
- Release employees to return to their workplace.
- Submits written report of evacuation to HOD and Mine Safety Dept.



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Positive Behavior Re-enforcement and Discipline

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- Mine wide safety Challenge . Should the BMRP achieve 150 accident free days a nominal gift will be awarded to each employee in the department.
- Elected Safe Worker of the Month. Each Month the BMRP employees identify an outstanding performer within the workforce to receive a nominal gift
- Annual Recognition of Accident free operation. Each employee receives a gift on completion of an accident free year.
- Red and Yellow cards. A system has been implemented to ensure 100% compliance to minimum PPE requirements. An isolated incident will result in a yellow card as a warning to the employee. Repeated failure to use PPE will result in a red card the mine disciplinary procedure will be implemented.



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REPORTABLE ACCIDENT REPORT

First names: Mattheus Johannes
Date of accident: 2008-03-07
Surname: Willemse
Workplace: BMR Plant
Nature of Injuries: Open fractured elbow, fractured pelvis
Occupation: Fitter
Agency: Trip & Fall

Sequential step-by- step events leading up to the accident:

1. Busy doing maintenance.
2. Open manhole door.
3. Wash down the walkway of the copper stripping overhead crane.
4. Foot hooked behind hosepipe.
5. Injured lost his balance, in the process to correct his balance, he steps into the manhole and fell through.

Immediate causes:

Fell through manhole.



▪ **Basic causes:**

- 1. Trip and fall.

▪ **a) Sub-standard Acts / Job Factors:**

- Remove safety device - manhole door.
- Not wearing safety harness/belt.
- Over size harness not available.

▪ **b) Sub-standard Condition / Personal Factors:**

- Inadequate protective equipment.
- Physical - Abnormal body size.

▪ **Action taken to prevent re-occurrence:**

- Function of trapdoor obsolete. Weld trapdoor in place.
- Inspect all other installations and make modifications where necessary.
- Will be discussed on all safety meetings.



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Conclusion

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