

Appendix 4: Environmental Emergency Preparedness and Response


 ASSMANG MANGANESE BLACK ROCK MINE OPERATIONS	ASSMANG LIMITED Appendix 4: Environmental Emergency Preparedness and Response Document No: PRO-SHE-E-Ge-G-1519	Revision No.: 5.0 <hr/> Next Revision Date: 2016/08/26 <hr/> Effective Date: 2014/09/26
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1. Purpose

The purpose of this procedure is to:

- Identify the potential for and response to environmental accidents and emergency situations, referring to clauses dealing with emergency response in relevant procedures.
- Prevent and mitigate any environmental impacts that may occur as a result of such accidents and emergency situations.

2. Scope

This procedure is applicable to all employees working for and on behalf of Black Rock Mine Operations

3. References

- 3.1. STANDARD: ISO14001:2004 Clauses 4.4.7 & 4.3.3.4
- 3.2. SYSTEMS PROCEDURE: Incident Reporting Investigation Non-Conformity, Corrective and Preventative Actions – SYS-SHE-S-Ge-G-56
- 3.3. OPERATIONAL CONTROL PROCEDURE: Spill Management and Specifications for Bundwalls – PRO-SHE-E-Ge-G-1520
- 3.4. LEGAL:
 - Hazardous Substances Act (No 15 of 1973)
 - National Water Act (No 36 of 1998)
 - National Environmental Management Act (No 107 of 1998)
 - Minerals and Petroleum Resources Development Act (No 28 of 2002)

4. Abbreviations & Definitions

ISO: International Organisation for Standardisation

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5. Responsibilities

It is the responsibility of the Environmental Management Section to review and enforce this procedure. Line Management is responsible for undertaking actions as outlined in this procedure.

6. General

6.1. DEFINITIONS

6.1.1. Environment

The surroundings in which Black Rock Mines operate, including air, water, land, natural resources, flora, fauna, humans and their interrelation.

6.1.2. Environmental Aspect

The element of Black Mine operations' activities or products or services that can interact and may cause a change to the environment. It is the reason why the impact occurs.

6.1.3. Environmental Impact

The physical changes to the environment whether adverse or beneficial, resulting from Black rock Mine Operations' environmental aspects.

6.1.4. Environmental Management System (EMS)

The part of the overall management system that includes the organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, archiving, renewing and maintaining the Environmental Policy

6.1.5. ISO 14001: 2004 Standard

This is an international standard specifying the requirements of an Environmental Management System, enables an organisation to formulate a policy and objectives, taking into account legislative requirements and information about significant environmental impacts. It applies to those aspects, which the organisation can control and over which it can be expected to have an influence.


6.1.6. Pollution

Pollution means any change in the environment caused by

- Substances
- Radioactive or other substances, or
- Noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of service, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural on managed ecosystems, or on material useful to people, or will have such an effect in the future.

6.1.7. Emergency

- Any unplanned spill or release of a harmful substance to the environment.
- Any natural disaster such as flooding, fire or earthquake and the environmental consequences of such events.
- Any significant wastage of resources or unplanned physical damage to the environment.

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6.1.8. Emergency Co-ordinator

After hours, it will be the nearest most senior person in charge of the area most affected by an emergency. During office hours it will be the Environmental Specialist/alternate or the most senior person in charge of the area most affected by an emergency.

6.1.9. Fire Emergency Team

This will be mine personnel on each shift or Proto team, trained to do the first line firefighting.

6.1.10. Fire Team

This will be surface fire-fighting team. They will take charge of all firefighting on surface on their arrival at an emergency.

6.1.11. Emergency Assembly Point

This will be an identified place where all personnel must assemble for roll call after evacuation.

- Black Rock – Emergency assembly points as identified at each office;
- Nchwaning 2 and 3 - Emergency assembly points as identified; and
- Gloria - Emergency assembly points as identified.

6.1.12. Originator (The first person to witness an emergency incident, e.g. fire)

The Originator reports the matter immediately and verbally to his/her Supervisor or the area or to the Security Control Room or to the Environmental Management Section.

6.1.13. Responsible Person for relevant area

Acts on the emergency incident report immediately and implements preventive and/ or corrective measures where possible without endangering his/her safety or that of others,

Follows the steps in the prescribed incident reporting system to report the environmental incident

A serious event that could endanger the lives of the public or irreparably damage the environment (e.g. potential death or a sustaining impact on the environment) must be reported via the correct procedure to either the local or the national or the provincial government department. The following information must be reported:


- Nature of the Incident,
- Substances and quantities involved and effect on persons and the environment
- Initial measures taken to minimise impacts,
- Causes of the incident, and
- Avoidance measures

NOTE: The Senior General Manager must approve all external communications.

6.1.14. Environmental Specialist

Follows-up on environmental emergency incidents and reports it to the Black Rock Mine Operations Top Management.

Evaluates the success of the remedial action/s taken and reports this to the Management Review meeting.

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6.1.15. Emergency Drills

Emergency preparedness and procedures, where practical, must be practiced according to the annually reviewed schedule developed by the Environmental Specialist/alternate. Other drills are scheduled by the Safety and Occupational Hygiene Sections. Records are kept by the responsible persons.

The emergency preparedness drills can either be in the form of a desktop study or a physical exercise.

After each practice drill or actual emergency, the effectiveness of the procedure will be evaluated and revised where necessary during a post-mortem meeting/discussion.

A report of the emergency, the actions taken and the effectiveness thereof will be presented to top management for the more serious emergencies, at the discretion of the Environmental Specialist.


The less serious emergencies will only be reported via the incident reporting system. The seriousness of an emergency will be decided at the discretion of the Environmental Specialist.

6.1.16. Potential Environmental Emergency Table

The table includes all the potential environmental emergency situations for Black Rock Mine Operations that may lead to serious pollution or degradation of the environment, whether immediate or delayed.

Table 1: Environmental Emergency Incidents

Source	Aspect	Potential Impact	Reference to the EMS	Schedule for simulation
Hydrocarbon pipelines	Burst or major leak of pipes used to transport hydrocarbons to underground works	Soil & Groundwater pollution	Spill Management and Specification for Bund walls Procedure	Annually
Bulk hydrocarbons / fuel storage	Explosion of the fuel tanks / containers	Soil and groundwater pollution	Spill Management and Monitoring & Measurement Procedures	Annually
Bulk hydrocarbons / fuel storage	Fire and explosion	Air, soil and water pollution	Spill Management and Monitoring & Measurement Procedures	Annually
Sewerage Treatment Plant	Sewage effluent spillage due to burst pipes	Soil and groundwater pollution	Spill Management and Specification for Bund walls	Every 3 years
Sewerage Treatment Plant	Overflow of sewage effluent sumps or sequential batch reactors into the waste disposal site	Ground water pollution due to enhancing leachate generation	Spill Management and Specification for Bund walls	Every 2 years
Slimes dam	Slimes dam wall failure	Soil and groundwater pollution	Emergency Preparedness and Response	Every 3 years
Uncontrolled fires	Veld fires	Air pollution, habitat	Spill Management	Annually

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Source	Aspect	Potential Impact	Reference to the EMS	Schedule for simulation
		destruction and damage to the surroundings	and Specification for Bund walls Procedure	
Failed aircraft landing/take-off	Fuel spill and fire	Land and air pollution due to fuel spillages and fire	Emergency Preparedness and Response	Every 3 years
Instrumentation Workshop, Laboratory and Clinic	Spread of Nucleotides due to the eruption of fire	Air pollution and radio-active pollution	Spill Management and Specification for Bund walls Procedure	Annually
Explosives Magazines	Fire/explosion due to lightning or veld fires	Loss of resources, veld fire and air pollution	Emergency Preparedness and Response	Every 3 years
Section-specific Emergencies	Fires, small chemical spills, etc.	Soil, Water and Air Pollution	Spill Management and Specification for Bund walls Procedure	Annually
Waste Disposal Site	Spontaneous, accidental or intentional eruption of fire at the waste disposal site	Air pollution and destruction / disturbance of biodiversity and habitat	Emergency Preparedness and Response Plan for the Waste Disposal Site	Refer to plan

6.2. Revision of Procedure

This procedure shall be reviewed after the occurrence of accidents or emergency situations where necessary.

6.3. Periodic Testing of Procedure

This procedure shall be periodically tested where practicable.

7. Description of Procedure

7.1. Potential Emergencies

- Fires
- Spillage of potentially contaminated water (Surface Pipelines)
- Hydrocarbon spillages
- Explosions (fuel tanks, explosives magazine, etc.)


7.1.1. Basics steps to be taken Fires

- All fires are to be reported to the Control Room
- Procedure as per fire manual to be followed

7.1.2. Spillage of Potentially Contaminated Water

The person detecting the emergency should call the emergency number (4555)

- Notify the nearest most senior official
- Notify the Safety, Occupational Hygiene and Environmental Sections
- Mobilise possible equipment that can be used to contain spillage
- **Hazardous chemical substances spillages** Assess the site for your own safety;

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- Report the incident and ask for assistance;
- Stop the source (leak, close bund valve, etc.);
- Use oil / chemical spill kit to clean up spillages on impermeable surface;
- Spillages on bare soil should be treated by removing the contaminated soil and sending it to the hazardous waste transfer facility;
- Log the incident on IsoMetrix;
- Return to workplace after area has been declared safe

7.2. Emergency Contact Numbers

Refer to the updated Black Rock Emergency Telephone Numbers and Address List found on the Notice Boards

8. Records

No	Record	Ref.	Resp. Person	Storage	Retention Period	Disposition
1	Environmental Emergency Preparedness and Response Schedule	PRO-SHE-E-Ge-G-1519	Line Management	Environmental Management Offices and Sections	1 year	Normal Disposal
2	Drill Reports		Line Management	Environmental Management Offices and Sections	1 Year	Normal Disposal

9. Appendix

None