

ANGLO GOLDASHANTI

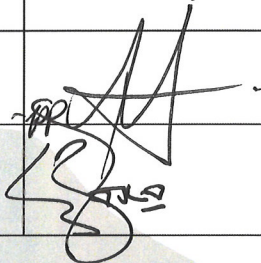
MANAGEMENT STANDARD		
CHEMICALS		
DOCUMENT CUSTODIAN	Group Environment: Sustainability	DATE: 6 July 2017
REVIEWED BY	AGA Environment Steering Committee	
REVISION APPROVED BY	D.C. Noko Executive Vice President Sustainability	
BRIEF DESCRIPTION OF CHANGES		
<p>Revision 02:</p> <ul style="list-style-type: none"> • Condensing the requirements of Revision 1 • Removal of performance assessment framework • Title change (replacement of "Guideline" with "Standard") • Modification of document identification nomenclature <p>Revision 03:</p> <ul style="list-style-type: none"> • Cyanide management is no longer excluded from the scope of the Management Standard • Minor clarifications and text edits • Removal of 'guidance'-type footnotes • Inclusion of a definition for 'chemicals' in the Glossary • Inclusion of EHC disposal, EHC packaging, and / or EHC bearing material in environmental monitoring programmes, including inspections and reporting (section 5.8.1) • Update of template 		

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1. INTRODUCTION

Many different chemicals are used in the mining and extraction process. The chemicals used can vary greatly in the degree of hazard they pose to the environment. In particular the potential negative impacts of hazardous chemical use must be anticipated and avoided through appropriate controls, or where feasible, substituting them with low hazard chemicals. In cases however, where no economically viable substitutes are available, hazardous chemicals must be responsibly and carefully managed, whilst deriving maximum efficiency from their use.

2. OBJECTIVES

The objectives of this document are:

- 1.1 To provide an assessment framework for identifying those chemicals being used at the AngloGold Ashanti (AGA) managed sites that can be harmful to the environment.
- 1.2 To set out key elements of a proactive approach to the management of Environmentally Hazardous Chemicals¹, thereby preventing potentially negative impacts on the environment from the use of chemicals.

3. ACCOUNTABILITY AND RESPONSIBILITY

Overall accountability for implementing this standard lies with the Manager² of the site. Responsibility for its implementation can be delegated to a designated person(s) who clearly understand their role(s) and responsibilities.

4. SCOPE

- 4.1 This standard defines the AGA approach to the management of Environmentally Hazardous Chemicals. It relates to the identification, selection, purchase, transportation, handling, storage, use and disposal of such chemicals.
- 4.2 Onsite contractors and subcontractors must adopt this standard unless they have an alternative chemicals management standard approved in writing by AGA.
- 4.3 Where AGA has no operational responsibility but a significant equity stake, and an equivalent standard is not in place, this standard must be made available to the operator for application.
- 4.4 This standard does not apply to radioactive substances, and mineralised ore and associated waste rock and tailings.

¹ This term is explained in section 5.3.

² The Manager in direct control of the entire site.

5. REQUIREMENTS

5.1. LEGISLATIVE AND OTHER REQUIREMENTS

5.1.1 The management of chemicals at AGA sites must be in compliance with applicable international treaties, national laws and regulations, environmental licence conditions and any other binding obligations.

5.2. REGISTER OF CHEMICALS

5.2.1 A Chemicals Register must be developed and maintained for the site, which inventories all reactive organic and inorganic chemical substances purchased, stored and used. This Register must include gasses, liquids, gels, emulsions, powders and solid chemicals that are used on the site including by contractors.

5.2.2 For each chemical used at the site, the Chemicals Register should include the following information;

- i. the chemical name or its major constituents, if it is a mixture;
- ii. the UN number, if available;
- iii. the (Dangerous Goods) class to indicate special precautions in its handling;
- iv. whether a Material Safety Data Sheet (MSDS) is available;
- v. the primary areas where each chemical is stored and used;
- vi. typical quantities maintained;

5.2.3 Before a new chemical is introduced at an AGA site, the chemical must be classified according to environmental risk³ based on information on its inherent health, safety and environmental risks, including the MSDS.

5.3. CLASSIFICATION ACCORDING TO ENVIRONMENTAL RISK

This standard adopts a risk-based approach to the management of chemicals.

5.3.1 A risk assessment must be conducted for each chemical listed on the Chemicals Register that considers: potential environmental risk based on the likelihood of exposure; characteristics such as concentration and toxicity; and the volumes used on site.

5.3.2 The risk assessment must identify chemicals which are classified as Environmentally Hazardous Chemicals (EHC's) as an outcome.

³ In accordance with the risk based classification described in section 5.3

5.4. RISK AVOIDANCE DURING THE SELECTION AND PURCHASE OF EHCs.

- 5.4.1 The risk introduced to the site by the use of EHCs should be avoided at the selection and purchase stage by considering alternative chemicals with a lower risk, where possible.
- 5.4.2 An approval process must be implemented to oversee and manage the purchase of new EHCs. This process must consider the cost of environmental risk mitigation resulting from the responsible use of the chemical and consider the use of viable, lower risk substitutes.

5.5. MITIGATING THE RISK OF USING EHCs

The risk associated with the use of EHCs must be mitigated through controls that are flexible and proportionate to the level of risk presented by each substance. This includes controls to be applied whilst transporting, storing, handling and using EHCs, and when disposing of unused or expired EHCs and their packaging.

5.6. MANAGING EHCs DURING DECOMMISSIONING

The management of EHC inventories during the decommissioning of an entire site or part thereof requires upfront planning to minimise the potentially expensive post-closure disposal of EHCs. Equally important is that planning and executing the decontamination of plant and equipment and the safe disposal of EHC residues is undertaken whilst trained personnel and appropriate resources are still on site. The decommissioning activities described in the site Closure Plan must include the management of EHC's.

5.7. EMERGENCY PREPAREDNESS AND RESPONSE

- 5.7.1 Emergency preparedness and response plans must be maintained to ensure that appropriate responses are taken following incidents involving EHCs. Where appropriate, for example with transportation incidents, these plans must be coordinated with local and regional emergency response agencies.
- 5.7.2 Training and communication of procedures governing the management of EHCs and emergency response plans must be done in appropriate language that is easily understood by relevant employees.
- 5.7.3 Sites must ensure that the necessary emergency response equipment and response team skills are maintained.

5.8. MONITORING AND MEASUREMENT

- 5.8.1 Environmental monitoring programmes, including inspection and reporting programmes, must be established and maintained to assess whether EHCs are impacting upon the environment

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and ensure that disposal of EHC's, EHC packaging and / or EHC bearing materials is correctly undertaken.

5.9. REPORTING AND RECORD KEEPING

- 5.9.1 Reporting on EHC incidents and performance against host country and other requirements⁴ must be performed as required.
- 5.9.2 Records of community complaints, enquiries and responses involving EHCs must be maintained.

5.10. GENERAL

- 5.10.1 Each site should ensure that there is adequate financial and/or infrastructural provision made for the responsible management of EHCs as well as their residues and wastes before these chemicals are delivered.
- 5.10.2 Actual environmental incidents and high potential near miss environmental incidents involving EHCs shall be investigated and preventive measures developed and implemented.
- 5.10.3 Sites must ensure that EHC risk mitigation controls are included in the scope of their internal audit programmes.
- 5.10.4 Sites must ensure that during disposal of expired EHC's or empty containers of EHC's proper tracking is done to ensure disposal is done to standard practice.

6. GLOSSARY

- 6.1 **Chemicals** in this context refers to products used in the exploration, mining and extraction processes, supporting services, decommissioning and closure activities. These can exist as solids, liquids or gases. Examples can include cyanide, flocculants, hydrochloric acid, ammonium nitrate, emulsions and gels used in explosives, fuel, refrigeration system gases, silver nitrate, hydrogen peroxide, degreasing and lubricating products, oxy-acetylene, resins, pesticides and herbicides, oil and water based paints, thinners, etc.
- 6.2 **Manager** refers to the manager in direct control of the whole site.
- 6.3 **Operation** refers to a producing mine.
- 6.4 **Project** refers to an exploration project or a new mine expansion.
- 6.5 **Site** is used when referring collectively to gold producing operations, Greenfields and Brownfields exploration and expansion projects.

⁴ Including GRI environmental indicators.