Standard 2

2 CYANIDE MANAGEMENT

2.1 STANDARD

The purpose of this Standard is to define the requirements to ensure that the on-site storage, handling and use of cyanide are protective of human health and the environment.

This Standard applies to the purchase, transportation, handling, mixing, storage and the operation of on-site cyanide mixing and storage facilities.

This Standard is largely derived from the July 2012 version of the International Cyanide Management Code (the Cyanide Code) and includes controls to manage cyanide at sites. This B2Gold Cyanide Management Standard should also be used in conjunction with the B2Gold Environmental and Biodiversity Performance Standard 3 – Tailings Management.

This Standard is applicable to B2Gold sites that use cyanide. References to the requirements of the International Cyanide Management Code within this Standard are provided to assist sites to comply with requirements specified in the Cyanide Code but not necessarily achieve or secure third-party certification to the Code.

2.2 CRITERIA AND REQUIREMENTS

2.2.1 Regulatory Compliance

Sites shall manage cyanide in compliance with all relevant in-country regulatory requirements, licences and any other applicable requirements.

2.2.2 2.2.2 Cyanide Management Code

As far as practicable, sites shall aim to comply with the requirements and Standards of Practice listed under each principle and clause of the International Cyanide Management Code (July 2012).

2.2.3 Secondary Containment

Bulk cyanide containers, process solution tanks and pipelines shall include secondary containment that is graded to enable any potential releases to drain into a sump (see Clause 4.7 of the Cyanide Code). Secondary containment shall have a typical water permeability equivalent to untreated concrete. The containment area shall have the capacity of at least 110% of the capacity of the largest mixing and/or storage tank.

Storage areas for solid cyanide shall prevent any contact of solid cyanide product with water or other chemicals. The area surrounding the secondary containment of each bulk cyanide storage area shall be suitably sloped and drained to prevent the ingress, drainage and accumulation of stormwater within the storage area.

Piping/vessels containing liquid cyanide shall have the correct international colour-coding and labelling and have adequate secondary containment or deflection systems to avoid releases.

2.2.4 Cyanide Use

Sites shall operate their process plants to minimise cyanide use as much as practical, thereby limiting concentrations of cyanide in mill tailings and process solution ponds (see Clause 4.2 of the Cyanide Code).

2.2.5 Environmental Protection

Site purchasing, storage and use of cyanide shall be conducted to:

- protect birds, other wildlife and livestock from any adverse effects of cyanide process solutions (see Clause 4.4 of the Cyanide Code);
- protect aquatic resources and wildlife from direct and indirect discharges of cyanide process solutions to surface water (see Clause 4.5 of the Cyanide Code);
- prevent/manage seepage that contains cyanide; and
- protect groundwater resources from any cyanide seepage (see Clause 4.6 of the Cyanide Code).

2.2.6 Cyanide Supplier Contracts

Within contracts with cyanide suppliers, distributors and transporters, sites shall define clear lines of responsibility for safety, security, release prevention, training, emergency response, releases/spills clean up, compensation and liabilities of potential cyanide releases (see Clause 2.1 of the Cyanide Code).

2.2.7 Cyanide Transport

Contracted transportation personnel shall have appropriate cyanide/hazardous materials training.

Sites shall verify that cyanide transporters have readily available emergency response plans and capabilities which are current and of an acceptable standard (see Clause 2.2 of the Cyanide Code).

Contractors involved with the transportation and delivery of cyanide shall complete a formal risk assessment including route evaluation and selection prior to commencing transportation activities.

Sites shall verify that cyanide transporters remain licensed by the appropriate regulatory authorities.

2.2.8 Cyanide, Unloading, Storage and Mixing Facilities

Sites shall ensure that all cyanide unloading, storage and mixing facilities are operated and maintained according to: sound, accepted engineering practices, quality control and quality assurance procedures, release prevention and release containment measures (see Clause 3.1 of the Cyanide Code).

Sites shall operate unloading, storage and mixing facilities using proactive inspection processes, preventive maintenance and contingency plans to prevent and/or contain releases, and control and respond to worker exposures (see Clause 3.2 of the Cyanide Code).

Sites shall implement management and operating systems designed to protect human health and the environment including contingency planning, inspection and preventative maintenance programs (see Clause 4.1 of the Cyanide Code).

Sites shall manage process solutions via a water management program to avoid any unintentional releases of cyanide (see Clause 4.3 of the Cyanide Code).

2.2.9 Monitoring

Sites shall implement monitoring programs to proactively monitor and detect any adverse effects to wildlife and surface water and groundwater quality due to the use of cyanide (see Clause 4.9 of the Cyanide Code).

2.3 TERMS AND DEFINITIONS

Relevant key terms and definitions that relate to B2Gold's Cyanide Management Standard are provided below:

Monitoring: The gathering, analysis (especially for trends) and interpretation of information for the assessment of performance.

Examples of monitoring subjects are: occupational health and safety, air, soil and water quality, flora and fauna, reclamation, social aspects including complaints, operational dust, noise, vibration, property damage, community health, community investment, historical and cultural sites.

Monitoring may be continuous, short-term or long term and may be undertaken manually or automated.

Reclamation: The return of disturbed land to a physically and chemically stable, self-sustaining condition compatible with future land use objectives.

2.4 REFERENCE MATERIAL

International Cyanide Management Code for the Gold Mining Industry, July 2012, International Cyanide Management Institute (www.cyanidecode.org).

2.5 DOCUMENT CONTROL

Revision	Approved	Date	Description
Final	Ken Jones	17th August 2014	Original 2014 issue of the B2Gold Environmental and Biodiversity Performance Standards
Final	Ken Jones	24th May 2018	2018 revision, update and issue of the original 2014 B2Gold Environmental and Biodiversity Performance Standards