AIR POLLUTION MANAGEMENT

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1. INTRODUCTION

Air is often a significant and easily observed pathway for the transport of pollutants liberated from site activities to the environment, including neighboring communities. Air quality is an important environmental aspect at GNCC Capital, Inc. ("GNCC") sites and is often closely regulated. In several jurisdictions, in addition to point source emissions standards, ambient air quality standards are increasingly being specified at the site boundaries, recognizing the cumulative effect of point source emissions and fugitive emissions.

In the context of this document, air quality management refers to the management of all contributory sources of degraded ambient air quality, including point source emissions and fugitive emissions.

2. OBJECTIVE

To ensure that point source and fugitive air emissions are proactively managed in accordance with host country requirements, the Values and Business Principles of GNCC Capital, Inc., and where relevant, community requirements.

3. ACCOUNTABILITY AND RESPONSIBILITY

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

4. SCOPE

This standard presents systematic requirements relating to the management of air quality impacts and is applicable to GNCC managed activities during all phases of the mine lifecycle.

Where GNCC 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.

This standard excludes the management of air quality emissions that can potentially impact on the health of employees in the workplace, since these are managed under the occupational health requirements of GNCC Capital, Inc.

5. REQUIREMENTS

Legislative and Other Requirements

5.1.1 The management of air quality at GNCC Capital, Inc. sites must be in compliance with applicable international treaties, national laws and regulations, environmental license conditions and any other binding obligations.

5.2. Assessing Air Quality Impacts

5.2.1 A baseline (**1)** assessment (**2)** must be conducted to assess actual and potential air quality impacts resulting from point and fugitive emission sources operated at the site. This may require the development of an air dispersion model capable of predicting ambient air quality changes both locally (on the fence-line) and at a distance (e.g. in nearby communities).

5.2.2 Potential air quality impacts arising from the installation of new processes and the development of new projects must be assessed and the requisite authorization/s must be obtained in advance of commissioning any equipment that produces air emissions which are controlled by a regulator.

5.2.3 The parameters to be assessed must be appropriate to the geographic setting, climate and the nature of activities and may include, but are not limited to:

i. Particulates (TSP, PM10, PM2.5, as appropriate).

ii. Nitrogen Oxides (NOx).

iii. Sulphur Oxides (SOx).

iv. Volatile Organic Carbons (VOC).

v. Heavy Metals (As, Hg, Pb, Zn, etc).

vi. Carbon Oxides (COx).

vii. Ozone Depleting Substances (ODS).

5.3. Defining Applicable Air Quality Performance Standards

5.3.1 Where air emissions and/or ambient air quality requirements are not stipulated by host country regulators in permits/licenses or other applicable environmental authorizations, the relevant air quality performance guidelines as stipulated in the (**1)** In this context, ***baseline*** assessment refers to the initial qualitative and/or quantitative assessment conducted at the site. It may be conducted during any phase of the project. It establishes the status quo with respect to impacts generated from site activities. Current version of the IFC Environmental, Health, and Safety General Guidelines (**3)** must be adopted.

The format of this assessment can be in any effective format, for example; a desktop assessment combined with more a focused emissions inventory.

5.3.2 The monitoring and control points applicable to point source emissions and ambient air quality performance standards should be explicitly identified.

5.4. Air Quality Management Plans

5.4.1 GNCC managed activities must develop an Air Quality Management Plan, which includes strategies, operational controls (**4)**, management practices **(5)**, monitoring requirements and performance review mechanisms for ensuring adherence to applicable air quality performance standards.

5.4.2 Responsibility for the implementation of the air quality management plan must be documented.

5.4.3 To facilitate communications and to maintain good relationships with communities whose ambient air quality is potentially worsened by GNCC activities, relevant community engagement processes must be maintained.

5.5. Air Quality Monitoring and Analysis

5.5.1 Air quality monitoring (**6)** must be conducted where significant potential for air quality impacts has been identified in the baseline assessment, or as regulatory conditions stipulate (**7)**.

Maintenance and calibration (or verification) of air quality monitoring equipment must be conducted to ensure the integrity of the collected monitoring data.

Where applicable, conformance to air quality performance standards must be modeled at the facility boundary using a relevant air quality dispersion model. Sites should maintain a weather station to facilitate air dispersion modeling, unless reliable alternative data sources are readily available.

Non-compliance to ambient and/or emission standards must be identified and communicated as appropriate, for example through the site's incident reporting system, in order to develop and implement corrective actions.

3 These Guidelines can be obtained at the following URL, http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_GeneralEHS/$FILE/Final+-+General+EHS+Guidelines.pdf

4 This may include emissions control equipment such as scrubbers, electrostatic precipitators, vacuum hoods, vegetative screening and wetting down of haul roads, etc., as appropriate.

Including planned maintenance schedules.

This may be source or receptor based monitoring, depending on the prevailing situation. Suitable locations of ambient air quality monitoring stations including upstream and downstream locations and should be derived from the results of the baseline assessment.

7 Sites must develop and implement monitoring/inspections programs to verify that air emission controls are operating properly.

5.6. Information Management and Reporting

5.6.1 Information generated as a result of air quality management activities, including monitoring, shall be maintained for communication to internal and external parties, as may be required.

5.6.2 Reporting on air quality management statistics must be done in accordance with regulatory requirements, and where relevant, GNCC Capital, Inc. Corporate office requirements, including but not limited to, incident reporting requirements and the relevant Global Reporting Initiative's G3 Environmental Performance Indicators.

6. Glossary

Point sources are discrete, stationary, identifiable sources of emissions that release pollutants to the atmosphere. They are typically located in processing plants.

Fugitive source air emissions refer to emissions that are distributed spatially over a wide area and not confined to a specific discharge point. They originate from activities where exhausts (e.g. diesel smoke) are not captured and passed through a stack. Fugitive emissions have the potential for much greater ground level impacts per unit than stationary source emissions, since they are discharged and dispersed close to the ground, such as dust from TSF's.

Mine lifecycle encapsulates all stages of a mine project, from exploration to operation and closure.

Operation refers to a producing mine.

Project refers to an exploration project or a new mine expansion.

Site is used when referring collectively to gold producing operations and to exploration and expansion projects.

7. **References:**

IFC & World Bank Group Environmental, Health, and Safety Guidelines GENERAL EHS GUIDELINES, April 30, 2007.