

# Balama Graphite Project—Twigg Exploration & Mining Ltd

# ENVIRONMENTAL AUDIT REPORT – OPERATIONAL PHASE

January 2021



# AUDIT REPORT FOR THE BALAMA GRAPHITE PROJECT – TWIGG EXPLORATION AND MINING LTD

**Audit reference:** Environmental Audit – operational phase

**Report status:** Final Report (25.01.2021)

Standards: Environmental and Social Management Plan and Monitoring

Program;

Environmental, Social and Health Impact Assessment

Date of Audit 15 – 18 December 2021

**Auditors**: Luciana Santos and Herberto Nhampanze







Signed by:

Lucianatiladolanto

(Luciana Santos, Independent Lead Auditor) (Herberto Nhampanze, Independent Co-auditor)

Thompange

Approved by

(John Hatton, Impacto Representative)

Maputo, 25 January 2021

## **Table of Contents**

1	Introduction
1.1	Project Overview7
1.2	Project Process Description Error! Bookmark not defined.
1.3	Scope of the Work9
1.4	The Auditor11
2	Methodology11
2.1	Audit Steps11
2.2	Assessment Categories
2.3	Audit Plan12
2.4	Staff interviewed14
3	Audit Findings
4	Conclusions and recommendations44
A	nnexes
Α	nnex A: Opening Meeting Agenda50
A	nnex B: Opening Meeting Attendance List51
Α	nnex C: Closeout Meeting Agenda52
A	nnex D: Closeout Meeting Attendance List53
A	nnex E: List of Documents Reviewed54
List	of Figures
Figu	re 1 Location of the concession area, including the graphite mine
Figu	re 2 Google Earth satellite image of the processing plant, west pit, tailings dam (TSF) an
cam	p
Figu	re 3 EMP compliance diagram 4

#### **List of Tables**

Table 1 Compliance with the requirements of the EMP approval letter	15
Table 2 Compliance with biophysical requirements	18
Table 3 Compliance with socioeconomic, health and safety requirements	35

#### **Acronyms and Abbreviations**

EHS Environmental Impact Assessment Environmental Health and Safety

**ERP** Emergency Response Plan

**ESIA** Environmental and Social Impact Assessment

**ESIS** Environmental and Social Impact Study

**ESMP&MP** Environmental and Social Management Plan and Monitoring Plan

HIV Human Immunodeficiency Virus

HR Human Resources

**HSMP** Health and Safety Management Plan

MITADER Ministry of Land, Environment and Rural Development

MT Million Tonnes

MTA Ministry of Land and Environment

Myosh Twigg Internal Database and Management Software

PAC Project Affected Communities
PPE Personal Protective Equipment

**RAP** Resettlement Action Plan

**ROM** Right of Mine

**SDAE** District Services for Economic Activities

**SE** Southeast

**SOP** Standard Operating Procedures

**Stakeholders** Interested & Affected Parties (I&Aps)

**STP** Sewage Treatment Plant

**SUP** Superintendent **TpA** Tons per annum

TSF Tailing Storage Facility
TWG Technical Working Group

Twigg TWIGG Exploration & Mining Ltd

VIPs Ventilated Improved Pit

WRD Waste Rock Dump

#### **EXECUTIVE SUMMARY**

TWIGG Exploration & Mining Ltd (TWIGG) is developing a graphite mining project on 30 km<sup>2</sup> (3000 hectares) in Balama District, Cabo Delgado Province. The mining site is approximately 7 km from the town of Balama and 470 km by road south-west to the Port of Nacala, the deepest port in Southern Africa.

TWIGG mines and refines graphite, through an open pit, extracting 2 million TpA of graphite ore. The process of extraction requires a conventional flotation processing. The processing plant has a feed rate of 2 Mt per annum and based on an average head grade of approximately 19% TGC (Total Graphite Content) over the first 10 years of operations, approximately 350,000 tonnes of graphite concentrate will be produced per annum.

This is the fifth independent environmental audit of the project, third after the beginning of operations.

Due to the COVID-19 outbreak, as well as access restrictions to the project site, auditors conducted remote auditing using online platforms such as Teams (for meetings and interviews) and whatsapp video calls to visit key locations. It should be noted that the audit was carried out by the same team that conducted the previous audits, and therefore had detailed knowledge of all Twigg project facilities.

The environmental audit, virtual site inspections, interviews and document review (from 15-18 December 2020) were carried out by Impacto Lda staff, Luciana Santos (lead auditor) and Herberto Nhampanze (co-auditor).

It should be noted that the Environmental Management Plan was updated last year, and the audit focused on its compliance. However, the updated EMP is silent on health and safety issues, so the criteria established in the previous EMP for these aspects were therefore used.

As overall findings, TWIGG demonstrated a high level of commitment in effort and resources to designing and installing facilities for environmental protection, including the TSF, fuel farm and power plant, in line with international standards. A total of 143 criteria were audited against compliance (99 biophysical, 32 social and 11 related to the requirements set out by the MTA in the updated EMP approval letter), and there were found zero non-compliances, three partial-compliance and 10 criteria were found to be not applicable. It is therefore concluded that 91%

of the requirements of the EMP are in compliance. The following graph shows the level of compliance with the EMP.

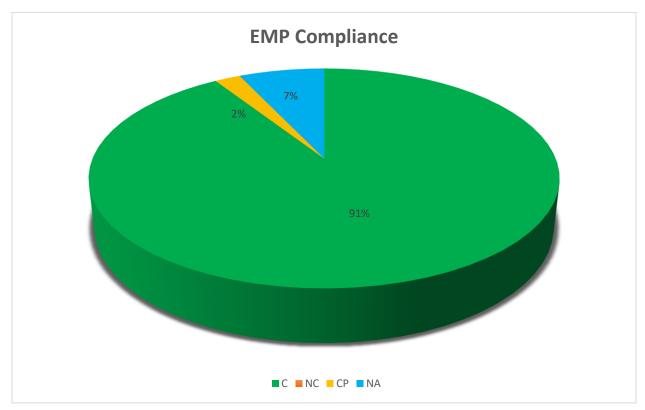


Figure i: Degree of compliance with the EMP

Twigg have been recently certified ISO 14001 and OHSAS 18001 compliant, and have an integrated Environmental, Health and Safety Management System in place. They have recently been recertified (2019) as per ISO 14001:2015 and migrated from OHSAS 18001 to ISO 45001:2018. In 2020, an audit of the ISO 14001:2015 was also carried out.

Additionally, the continued sincerity in efforts to engage with stakeholders, and improve conditions and livelihoods for communities, were highlights, which need to be maintained.

To conclude, it is recommended that an action plan is prepared based on the recommendations of this audit.

#### 1 Introduction

TWIGG Exploration and Mining Ltd., a subsidiary of Syrah Resources Ltd., holds a 106 km² (10600 hectares) Prospecting License in Balama District, and a Mining License for the Balama Graphite Project, which is currently developing over an area of 30 km² (3000 hectares), approximately 7 km away from the town of Balama. The mining license application was granted for a period of 23.5 years, with an option to extend the term for a further 25 years. The plant operates 365 days per year.

In terms of the environmental approval for the project, and according to Mozambican Legislation, TWIGG must have an external compliance audit undertaken annually to assess compliance against the Environmental License, Environmental and Social Management Plan and Monitoring Program (ESMP&MP) approved by the Ministry of Land, Environment and Rural Development (MITADER), Environmental, Social and Health Impact Assessment (ESHIA), Mozambican Legislation, and applicable international standards and guidelines.

By the end of 2019, Twigg had updated its Environmental Management Plan, which was approved by the MTA on 27 December 2019.

Twigg has been recently (2019) re-certified ISO 14001:2015 and migrated from OSHAS 18001 to ISO 45001:2018. In 2020 an audit was carried out as part of the ISO 14001:2015 certification.

#### 1.1 Project Overview

TWIGG is operating a graphite mine in the District of Balama. The processing plant has a feed rate of 2 Mt per annum and based on an average head grade of approximately 19% TGC over the first 10 years of operations, approximately 350,000 tonnes of graphite concentrate will be produced per annum. This production profile will make Balama the largest producer of graphite globally, and ideally positioned to meet the anticipated increase in demand from lithium ion battery applications, as well as servicing traditional graphite markets (http://www.syrahresources.com.au/overview).

The land use in the area of the project site is primarily for subsistence agriculture and this remains the case in the surrounding areas. Crops such as maize, cotton, ground nuts, sesame seed and

cassava are grown on the flatter areas, which are cleared using slash and burn techniques. Figure 1 shows the location of the concession area of the graphite mine in Balama.

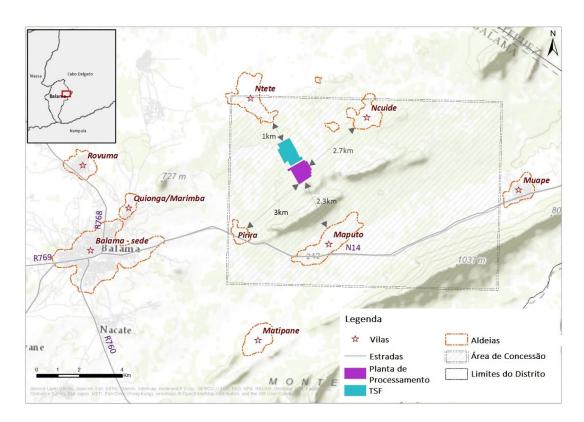


Figure 1 Location of the concession area, including the graphite mine

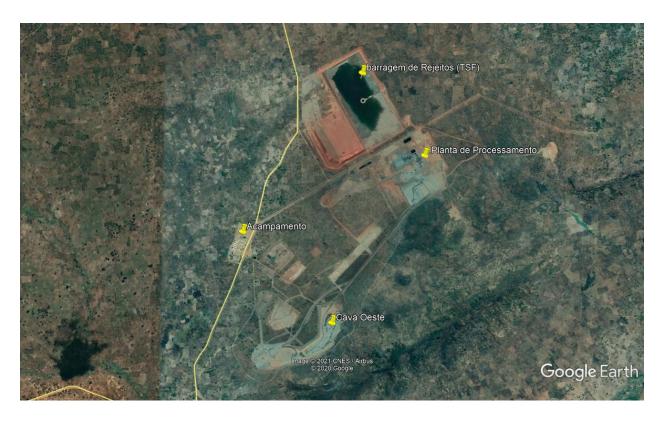


Figure 2 Google Earth satellite image of the processing plant, west pit, tailings dam (TSF) and camp

#### 1.2 Project Process Description

TWIGG mines and refines graphite through an open pit. The process of extraction requires conventional flotation processing.

The Chipembe dam, located at approximately 13 km northwest of the project site, is the primary source of water (through a pipeline) for the flotation process. It is estimated that 1m³ of water will be required per tonne of processed ore and it has been confirmed that Chipembe dam can supply 2 million m³. Most of the process water is recovered and used again. The Tailing Storage Facility (TSF) is completely lined, with the water being pumped again to the process water tank. The process water tank has a capacity of 5 thousand m³ and the only water intake directly from Chipembe is in the beginning of the graphite processing, because this is when the water needs to be free from any residue. The recovery system on the TSF is being refined to increase the rate of reused water and decrease the need of water withdraw from Chipembe Dam.

#### 1.3 Scope of the work

This independent environmental audit sought to review the following: previous audit findings (2019) actions and close out; potential impacts on the environment and public health caused by

mining routine activities; the risks of accidents and contingency planning for evacuation and protection of workers and communities living nearby; compliance with environmental license approval conditions; training programs and records of those responsible for the operation and maintenance of systems and equipment; waste management practices, hazardous materials, noise, dust and vibration records; emergency preparedness and response; and review of plans, programs, reports, as well as other relevant documents related to health, safety, environmental and social performance; visits and interviews in all Twigg Project areas.

It is worth noting that the Environmental Management Plan was updated last year, and the audit focused on its compliance. However, the updated EMP is silent on health and safety issues, so the criteria established in the previous EMP for these aspects were therefore used.

Aspects also assessed taking into account the Environmental Audit Process Decree no. 25/2011, dated June 15, article 4 were:

- The impacts caused on the environment and public health by construction routine activities;
- The risk of accidents and the contingency plans for evacuation and protection of workers and communities living nearby;
- The degree of compliance with approval conditions;
- The level of sources of pollution or environmental degradation resulting from construction activities;
- The conditions of operation and of maintenance of equipment and systems to control and prevent of pollution;
- Measures taken to reinstate the environment and protect human life;
- Training of those responsible for the operation and maintenance of systems and equipment;
- Waste management, hazardous materials, noise and vibration within and outside the site;
- Contingency and Emergency Response Plans in the event of an accident.

#### 1.4 The auditor

The company: Impacto Lda.

Impacto, Projectos e	Impacto	<b>•</b> 11424.670
Estudos Ambientais	Rua de Kasswende 296	PROJECTOS E ESTUDOS AMBIENTAIS
	T. +258 21499636 F.+258 21463019	

#### Audit team:

NAME	POSITION	QUALIFICATION
Luciana Santos	Lead Auditor	BSc Hons. Env. Sciences (UFPR); MSc Env. Management and Auditing (FUNIBER)
Herberto Nhampanze	Co-Auditor	BSc Hons. Agronomy (Eduardo Mondlane University);

### 2 Methodology

Due to the COVID-19 outbreak, as well as access restrictions to the project site, auditors conducted remote auditing using online platforms such as Teams (for meetings and interviews) and whatsapp video calls to visit key locations. It should be noted that the audit was carried out by the same team that conducted the previous audits, and therefore had detailed knowledge of all Twigg project facilities.

#### 2.1 Audit Steps

The audit methodology observed the following steps

- Pre-audit preparations:
  - o Establish communications between Auditee and Auditor;
  - Auditor review of the ESMP&MP, ESHIA and 2019 Action Plan;
  - Auditor review of previous audit reports;
  - o Preliminary agreement between Auditee and Auditor on an audit plan;
  - Auditor compilation of an audit checklist;
- Site virtual visit:
  - Audit opening meeting between the audit team and key site staff using the Teams Meetings platform;

- Observations via video call by audit team of conditions and practices within the active project site, with interviews by audit team with key site staff from the Auditee (via Teams);
- Review by audit team of documents, records and data associated with project activities;
- o Discussion of preliminary audit findings between audit team and Auditee.
- Preparation of the Independent Environmental Audit report, which provides assessment
  of compliance against approval conditions. Where full compliance was not found, the
  report provides recommendations aimed at achieving full compliance and improving
  environmental and social performance of the project.

#### 2.2 Assessment Categories

Four performance categories where defined for the assessment of compliance:

CATEGORY	DESCRIP	TION										
Compliant	(C)	In conformity with relevant plans, approvals, commitments, or legislation. The										
		intent and all specific requirements of the conditions have been met.										
Partially	(PC)	Complying only to some of the conditions, representing minor deficiencies										
Compliant		and/or low risk.										
Non-Compliant	(NC)	Presenting inadequacy to the relevant plans, approvals, conditions,										
		commitments or legislation										
Not-Applicable	(NA)	Not applicable to the current operations or stage of the project.										

Partially compliant and non-compliant findings are classified according to the extent to which an action has deviated from the ESMP&MP, ESHIA, Environmental License conditions or other relevant approvals or local legislation.

#### 2.3 Audit Plan

Schedule followed for the audit process:

DATES	ACTIVITIES								
PRE-AUDITING									
		Document (EMP and 2019 Action plan) review;							
Mack of 7	Dranaratani	Definition of scope of work							
Week of 7 December	Preparatory activities	Identification of key areas;							
December	activities	Preparation of checklist and questionnaires;							
		Definition of Interview Schedule with TWIGG Technicians and/or Managers.							
REMOTE AUDIT	ING – ACTIVITIES								
		Attendees:							
	Opening	IMPACTO:							
	Meeting	Luciana Santos, Lead Auditor;							
	Meeting	Herberto Nhampanze, Co-Auditor.							
15 December									
13 December		Audit opening meeting between the audit team and key site staff to introduce the							
		auditors and discuss the scope of the auditing process and methods to be employed.							
	Meeting with	Discussion of the Audit Plan and Interview Schedule with TWIGG technicians and/or							
	HSE staff	Managers, as well as the methods for collecting information.							
	1102 303								
16 December	Interviews	Interviews with TWIGG key staff, including Environmental Manager and Area							
		Manager.							
17 December	Interviews and	Further interviews with TWIGG key staff as necessary. Document review.							
	Document								
	Review								
18 December	Closeout	The closeout meeting is to provide an overall feedback, including a broad discussion							
	Meeting	of the main audit findings.							
POST-AUDIT AC	CTIVITIES								
20 December	Report	Data analysis, document review and preparation of the audit report.							
– 15 January	переге								

#### 2.4 Staff interviewed

The following staff was interviewed during the audit:

- Environmental Superintendent;
- Social Superintendent;
- Geology Superintendent;
- Emergency Services Superintendent.

# 3 Audit Findings

Table 1 Compliance with the requirements of the EMP approval letter

N.º	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
1	Full compliance with the mitigation measures listed in the EISR, as well as the Environmental Management Plan previously approved by MITADER and the current Environmental Management Plan.					TWIGG has a Health, Safety and Environment Department which is responsible for ensuring compliance with environmental and health and safety management measures. The mitigation measures included in the EIA Report and in the EMP are part of the activities carried out by this department.	
2	Compliance with the recommendations of the National Atomic Energy Agency regarding radioactivity safe limits to public health, both during the exploration phase and the ore transportation phase.					TWIGG holds a License for the use of radioactive sources, in accordance with Decree 71/2018 of 16 November.  All personnel who handle radioactive materials have received specific training, including health and safety procedures, and have been authorised by ANEA. These workers also use specific Personal Protective Equipment.  TWIGG continuously monitors air quality, which also serves to assess whether there are any radioactive emissions at the site.	handle radioactive materials  Attendance list of training session on radiation protection held on 2 April
3	Monitoring of possible risk sources for public health and the environment.					Monitoring of risk sources includes other associated risk sources such as malaria, dust and noise, in addition to radioactive sources.	Sustainability Report, November 2020 page 8 section 2.5.3; Source Radiation Monitoring Data, page 9 section 2.6 Malaria
4	Compliance with Decree 94/2014 of 31 December (Regulation on Urban Solid Waste Management) and Decree 83/2014 of 31 December (Regulation on Hazardous Waste Management)					There is a waste management procedure which contains the list of waste and its classification. Classification is made according to segregation and the country's waste regulations. The Management Plan refers to waste that can be recycled and reused, such as wood (reused by local institutions for fuel), metal (sold to a company that reuses it), cooking oil	

N.º	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
						(reused for making soap), rubber tyres (reused by the Agricultural Institute for slope stabilization). Water bottles are reused by an NGO in Pemba to build houses.	
5	Implementation of the Biodiversity Management Plan to ensure conservation and help maintain the benefits of ecosystem services.					TWIGG does not have a formal Biodiversity Management Plan. However, measures that fall under this scope are being implemented, such as the Aquatic and Terrestrial Flora and Fauna Monitoring, which was carried out in 2019. In fact, the EMP recommends that it should be carried out every 5 years.	Riverine Resources in the vicinity of the Balama Graphite Mine Project, Cabo
6	Ensuring the smooth operation of the sanitation systems.					All project infrastructure has been built to international quality standards. The sanitation systems are operating properly.	-
7	Training of workers on disease prevention, with emphasis on tuberculosis, STI/HIV-AIDS, cholera, malaria, including personal and community hygiene practices.					TWIGG has conducted training sessions for its workers, not only for disease prevention, with emphasis on tuberculosis, ITS/HIV-AIDS, cholera, malaria, but also to prevent the spread of Covid-19.	meeting held on 27 <sup>th</sup> of August 2020
8	Compliance with the Environmental Regulation for Mining Activities, approved by Decree 26/2004 of 20 August, with regard to the Environmental Guarantee.					TWIGG has been complying with this legal requirement by paying an annual fee; the last payment will be due in December 2020.	1
9	Compliance with Decree 25/2011 of 15 June, approving the Regulation on the Environmental Audit Process.					This report is the result of another audit carried out by TWIGG.	Contract between TWIGG and Impacto
10	Emergency situations in a Category A Project require coordination with external parties. Any unforeseen event should be reported to the District Administration and					Communications with the authorities include the Central authorities concerned, namely AQUA and the National Mining Institute.	

N.º	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
	to the Provincial Government through DPREME, in addition to MIREME and MITADER (currently MTA), in order to make communication and reaction of stakeholders more efficient.						June 2020, Ref:346/07/TWIGG-IRCS/2020. Date: 29/07/2020
11	Submission of biannual environmental monitoring reports to AQUA, National Directorate of Environment, National Mining Institute, Provincial Directorate of Land and Environment in Cabo Delgado and Balama District Authorities.					The biannual environmental monitoring reports are submitted to AQUA, National Directorate of Environment, National Mining Institute, Provincial Directorate of Land and Environment in Cabo Delgado and Balama District Authorities.	Report Submission Letter - January to June 2020, Ref:346/07/TWIGG-
12	All documents related to Social Responsibility initiatives.					All social responsibility initiatives were defined in the Community Development Agreement signed in 2017, between TWIGG, Balama District Authorities and local Communities. Compliance with these initiatives is recorded and documented in the Environmental and Social Performance reports, which is also shared with AQUA, National Directorate of Environment, National Mining Institute, Provincial Directorate of Land and Environment in Cabo Delgado and Balama District Authorities.	Report - January to June 2020

Table 2 Compliance with biophysical requirements

No.	Reference (in EMP)	Requirement	С	NC	РС	INC/ NA	Audit Finding	Evidence
	Water	Waterproofing the tailings dam and					The tailings dams and all the dams for storing water	Visual observation
	Resources	dams intended to store water from the					are duly waterproofed.	
1.	Management	runoff of the ore piles with high sulphur						
	Program	content, in order to prevent the						
		infiltration of contaminants into the						
		groundwater system;						
		Build around the waste dumps and the					There are drainage channels around all waste rock	Visual observation
		tailings dam or other sources of					dumps and tailings dams.	
		contaminants, drainage channels and						
2.		sedimentation basins for the						
		management of rainwater runoff						
		(separating clean waters from						
		potentially contaminated).						
		Ensure that the effluent from the toilets					There are two water treatment plants on the site,	Monthly monitoring report of the
3.		(black water) is treated before its final					where the water is treated and reused for keeping	water produced by the STP (Intertek)
		disposal, and ensure its reuse whenever					roads moist within the concession area.	dated 16.11.2020
		possible.						
		To privilege the reuse of water by					Processing is a closed system, where water is always	Design of the plant
		decanting the tailings in the tailings dam					recycled. Water reuse occurs in a cycle of closed loop	
4.		(TSF), treating effluent, capturing and					with no discharge into the environment.	
		storing rainwater from the runoff from						
		the operational areas.						
		Establish a network for monitoring the					Surface and underground water quality monitoring is	Surface water quality monitoring
		quality of surface and ground water					carried out every three months.	report (Intertek) dated 11.12.2020
_		(monitoring holes) in order to verify the						Groundwater quality monitoring
5.		effectiveness of the existing						report (Intertek) dated 20.11.2020
		environmental control systems and						
		operational procedures on the						
		protection of water quality.						

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		Establish a hydrogeological model of the mine (Project) and update it regularly with intervals not exceeding 24 months.					Terms of Reference have been drawn up to carry out the work and a consultant has already been identified to perform the work. A gap analysis was undertaken	and geochemical model, dated
6.		with intervals not exceeding 24 months.					in March 2020 in order to go ahead with the design of the model. Due to travel and site access restrictions imposed by the Covid-19 pandemic the work cannot be completed in 2020 and is therefore scheduled for completion in 2021.	Gap analysis: brief hydrogeology, geochemistry and surface water review of Balama Graphite Mine.
7.		Maintain updated the surface water pollution control systems design (drains and dams) whenever new work / mining fronts begin, to ensure that there is sufficient capacity to prevent rainwater draining over the mine's operational area from being drained for the environment.					Within the scope of the environmental monitoring plan, drainage monitoring is carried out, especially during the rainy season. This work is done regularly and always precedes the opening of new work fronts.	
8.		Waterproofing the base of the ore storage area (RoM) with a layer of clay or other material to prevent the infiltration of the water that flows over the RoM into the water table.					During construction of the RoM base, the soil was moistened and compacted. Clay material is used to waterproof the area.	
9.		Ensure that areas / activities with the potential to generate hydrocarbon spills are duly taken care of to contain accidental spills or spills through appropriate and appropriate mechanisms for each situation.					There are detention ponds and spill kits in all these areas. Spill kits are properly sealed to ensure they contain the necessary equipment.	Visual observation
10.		The washing of mobile equipment must be carried out in a dedicated place and the place must have a mechanism for separating water and oil from the effluent from this activity.					Mobile equipment is washed at designated locations. There is always an oil/water separator at these designated locations.	Visual observation

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
11.		Ensure that the material with the potential to form acid, better known as PFA, is identified during mining and when possible encapsulated with the non-acid forming material - NFA in the mine waste deposit.					Mining materials are analysed in the laboratory. The sulphur content is duly analysed. The material with acid-forming potential has a sulphur content of 7 - 9 %. This material is extracted and used in the plant. In order to avoid acid drainage, the plant operating procedure specifies that all material in the RoM must be used before the rainy season. There is a plan in the pipeline to waterproof the drainage channels that have the potential to discharge acid mine drainage (along the RoM and adjacent areas).	,
12.		Monitor groundwater quality as established in the monitoring plan of this program.					Monitoring is carried out every three months.	Groundwater quality monitoring report (Intertek) dated 20.11.2020
13.		All personnel who carry out inspection and maintenance at the tailings dam, dams and drains must be properly trained to identify abnormal situations in this environmental control system, such as pipeline leaks, abnormal levels of water in the dam, slope integrity, infiltration signs, integrity of drainage systems, etc.					training to Twigg staff. New workers undergo regular training.  There is an internal procedure in place for the Inspection of the tailings dam and dams.  Maintenance of the drainage system is done internally as needed to remove all debris, leaves, logs, etc.	procedures BAL-PR-PR-0005 Rev 0, dated 23 October 2020 Tailings dam: construction report. Advisian. 09.10.2018 Verbal communication: Návia Chongo.
14.		Monitor groundwater quality in the 30 sites defined in Table 6 of the EMP.					There is a Groundwater Quality Monitoring Plan in place and monitoring is carried out every three months.	
15.		Monitor surface water quality at the 10 sites defined in Table 7 of the EMP.					There is a Surface Water Quality Monitoring Plan in place and monitoring is carried out every three months.	, ,

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
16.		Monitor underground water quality, on a three-month basis, according to the parameters defined in Table 8 of the EMP.					There is a Groundwater Quality Monitoring Plan in place and monitoring is carried out every three months.	
17.		Monitor surface water quality, on a three-month basis, according to the parameters defined in Table 9 of the EMP.					There is a Surface Water Quality Monitoring Plan in place and monitoring is carried out every three months.	
18.		Monitor water from the Effluent Treatment Plant (ETE) on a monthly basis. (Domestic, workshop and service stations ETE), according to the effluent parameters defined in Table 10 for domestic wastewater emissions and Table 11 for workshop and service stations.					There is a Monitoring Plan in place to monitor the water from the ETE on a three-month basis.	Monthly monitoring report of the STP water (Intertek) dated 16.11.2020 Water/oil separator monitoring report (Intertek) dated 16.11.2020
19.	Air Quality Management Program	Moisten unpaved roads in the project area, especially those that are used frequently by project equipment and vehicles and all other locations identified as high risk for fugitive dust emission.					Water trucks are used to minimize dust.	Visual observation
20.		Preserve the vegetation between the project's operational area and the nearest communities to serve as a buffer zone.					There is a "conservation area" around the mine to act as a curtain. Revegetation campaigns are carried out.	Visual observation
21.		Adequate preventive maintenance of the vehicle and equipment fleet according to the recommendations of the manufacturers in order to avoid excessive emission of particulates (smoke) and pollutants.					Maintenance is done regularly. There is a maintenance plan in place and the vehicle fleet follows this plan.	=

No.	Reference (in EMP)	Requirement	С	NC	РС	INC/ NA	Audit Finding	Evidence
		Limit the speed of vehicles and					Speed limit outside operational areas is 40km/h.	Visual observation
		equipment in the project area to					Inside the mine and operational areas limit is 10 or	
22.		minimize the emission of particulates					20km/h. Inside localities the limit is 30km/h. Speed	
		on the roads.					limit control is done within the concession area and	
							on the road between the plant and the camp.	
		Recovery of vegetation cover of					In some concession areas revegetation is underway in	Visual observation
		exposed areas already mined, slopes of					places that have been subject to uncontrolled	
23.		the tailings dam, slopes of mine waste					burning.	
		deposits as soon as possible.					Recovery of vegetation cover of exposed areas	
							already mined has not yet begun, as there are no	
							exposed areas that have already been mined.	
		Choose clean technologies to reduce					The control of dust emission is achieved by keeping	Visual observation
		gas and particulate emissions and use					roads moist.	
24.		wet processing technology as an option					There has been a decrease in the emission of gases	
		for dust control.					from the incinerator, because some of the waste,	
							such as plastic bottles, is now being recycled instead	
							of incinerated.	
		Ensure that in the existing incinerator					Water bottles are recycled.	Safe disposal certificates
25		only waste is incinerated according to					Hazardous waste is managed by Moz Environmental	(MozEnvironmental), dated
25.		the technical specifications of the					and is never disposed of in the incinerator.	25.08.2020
		incinerator, and avoid incinerating						
		hazardous waste.						
26.		Strictly follow the maintenance plan for					Regular maintenance of the incinerator is carried out	Online registration of the
26.		the incinerator according to the					according to the maintenance plan.	maintenance plan and incinerator
		manufacturer's recommendations.						maintenance report
		Ensure that the height of the piles in the					In the RoM, the front end loader carries material up	Detailed design study. Snowden
		ore storage area (RoM), piles of sterile					to a maximum of 6m. As such, the piles of the RoM	Group. August 2015
27.		material as well as topsoil are not too					should have a maximum height of 6m.	Stockpile Report. Snowden, March
		high to the point that they are exposed					A topographic survey of the piles is done weekly	2020
		to risks of wind erosion and create					and/or monthly (weekly for the RoM and monthly for	
		dispersion of large dust.					the other piles).	Heights Diagram

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
28.		Inventory of the sources of fugitive emissions of particulates and gases throughout the enterprise and assessment of the respective risk. Keep the inventory up to date.					Risks related to fugitive emissions are dealt with in the risk register.	Risk register 23.10.2020
29.		Progressive rehabilitation of the dry tailings deposition area as soon as it reaches the maximum expected height, without necessarily waiting for the landfill to be completely full.					The dry waste disposal area is a new project and has not yet been implemented. Therefore, at the time of this audit, this requirement was not applicable.	
30.		Ensure that the transport and dry deposition of tailings is carried out while the tailings have moisture to avoid emitting dust.					The dry waste disposal area is a new project and has not yet been implemented. Therefore, at the time of this audit, this requirement was not applicable.	
31.		Choose low sulfur fuels available on the local market to supply project equipment.					The most commonly used fuel in the plant is 50 ppm diesel, as there is no alternative. There is no low sulphur fuel in the local market.	Certificate of fuel quality
32.		Use of refrigerant gases free of substances that deplete the ozone layer, and gradually abandon the use of R22 refrigerant and start using alternative refrigerants, as established in the Vienna Convention and respective amendments.					R22 is not used in any of the plant areas. The gases used are R410, R404, R407, 134A.	Gas MSDS
33.		Establish an air quality monitoring network and install a weather station in the project area.					There is an internal procedure in place for Air Quality Management. $PM_{10} \ \ \text{and} \ \ PM_{2.5}, \ \ \text{dust} \ \ \text{deposition} \ \ \text{and} \ \ \text{greenhouse}$ gases are monitored. There is a meteorological station in the project area.	dated 22 October 2020 BAL-PR-EN-
34.		Give priority to the implantation of the monitoring points, mainly in places with					Currently, there are 4 monitoring points in Ntete, Maputo, Pirira and Nquide (surrounding communities).	Air Quality Management Procedure dated 22 October 2020 BAL-PR-EN- 0008 Revision 1

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		sensitive receivers such as the surrounding communities for example.						
35.		Monitor air quality according to the monitoring plan presented in this EMP.					The air quality management procedure has been updated to include the current monitoring plan.	Air Quality Management Procedure dated 22 October 2020 BAL-PR-EN- 0008 Revision 1
36.		Monitor air quality in compliance with the frequency and parameters set out in Table 13 of the EMP.					The air quality management procedure has been updated to include the current monitoring plan.	Air Quality Management Procedure dated 22 October 2020 BAL-PR-EN- 0008 Revision 1
37.		Ambient Air Quality Monitoring Standards/limits must be in accordance with Table 14 of the EMP.					The monitoring reports show that the values are within the established limits.	Air quality monitoring report.  TrackPro report dated 21.11.2020
38.		Parameters/limits of precipitation/ deposition of particulates for the project must be in accordance with Table 15 of the EMP.					The monitoring reports show that the values are within the established limits.	Air quality monitoring report.  TrackPro report dated 21.11.2020
39.		Maximum Allowable Emissions of Air Pollutants Emissions - Mobile Sources or Motor Vehicles must be in accordance with Table 15 of the EMP.					Monthly report showing the estimated gas emissions based on the fuel consumption values.	Monthly sustainability report, November 2020.
40.	Noise and Vibration Management Program	Ensure periodic maintenance of equipment / machinery that causes the emission of noise and use silencers where necessary.					All equipment is subject to periodic maintenance, as well as surveys and inspections.	Online registration of the maintenance plan and vehicles and equipment maintenance report
41.		Whenever possible, avoid carrying out activities that are noisy or create vibrations at night.					Non-stop activities during plant operation. Workers exposed to occupational noise use PPE. Camp generators are enclosed in order to minimise noise emission.	Visual observation
42.		Establish noise barriers or curtains in case noisy operations are affecting neighboring areas.					Conservation areas along the perimeter of the concession area act as acoustic curtains.	Visual observation

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		Location of sources that generate noise					The location of the plant is quite distant from the	
43.		away from sensitive receivers, such as					camp and surrounding villages. The acoustic	research plc) dated 28.11.2020 for
		residential or other, in order to comply					monitoring results show there are no noise impacts	the towns of Ntete, Maputo, Pirira
		with permissible emission levels.					on the communities as a result of the activities.	and Nquide
		Map and signal operational areas with					Signs indicating the mandatory use of hearing	Visual observation (Photo)
44.		high noise levels (above 85 dBA).					protection equipment in all operational areas where noise levels are high.	
		Blasting activity is carried out taking into					Blasting activities comply with the monthly blasting	Blasting Management Plan. BAL-PL-
		account the aspects of noise and					plan, however this is not a frequent activity.	EN-0002_1. Rev 1 dated 17 October
		vibration propagation.					Communities and workers are duly informed of all	2020
45.							blasting activities.	
							Measurement of noise and vibration emissions during	
							blasting activities in the communities of Pirira and	
							Maputo.	
4.6		Whenever possible, ensure that blasting					All blasting activities occur during daytime only.	Blasting Management Plan. BAL-PL-
46.		is carried out during the day.						EN-0002_1. Rev 1 dated 17 October
								2020
		Notification/ communication of					At the entrance of the mine there is a board with	
		surrounding communities about the					specific information about all blasting activities. This	_
47		blasting program, in order to minimize					board has precise information about the date and	2020
47.		the surprise effect.					time of the blasting. The Communication Department	
							is responsible for internal communication, as well as	
							communication with the communities, and this	
							information is also broadcasted on the radio.	
		Define exclusion areas for the safety of					No one is allowed to walk in the vicinity of the blasting	-
		people and animals for each blasting					site during this activity. Blasting usually occurs during	
48.		event and ensure the signaling and					periods of low activity to ensure there is no activity	2020
40.		control of movement of people in these					taking place in the vicinity.	
		areas.					Distances have been defined for equipment (200m	
							from the blasting source) and for people (500m from	
							the blasting source).	

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
49.		A maximum of two blasts are allowed per day. There can only be more than 2 blasts per day in exceptional cases.					The blasting management plan establishes a maximum of two blasts per day, except in special situations involving technical issues and the material to be blasted.	EN-0002_1. Rev 1 dated 17 October
50.		Develop a detailed plan for each blasting event to maximize its efficiency and minimize the emission of fumes and dust, vibration, and rock projection.					This plan applies to each blasting.	Blast Procedure Presentation
51.		Monitor ambient noise levels on a monthly basis in the communities nearest to the mining activities according to the Points presented in Table 18 of the EMP.					Monitoring is carried out monthly at all points established in the EMP.	Noise monitoring report (Cirrus research plc) dated 28.11.2020 for the towns of Ntete, Maputo, Pirira and Nquide
52.		Ambient noise emission standards must be within the levels shown in Table 19 of the EMP.					Levels are within limits.	Noise monitoring report (Cirrus research plc) dated 28.11.2020 for the towns of Ntete, Maputo, Pirira and Nquide
53.		Noise and vibration monitoring must be carried out during blasting activities.					Noise and vibration levels are provided for in the blasting plan. However this year no noise and vibration levels were measured as there was no blasting activity.	
54.		Noise and vibration monitoring during blasting activities must be carried out according to the paragraphs indicated in Table 20.					This year noise and vibration levels related to blasting were not measured as there was no blasting activity.	
55.		Vibration Parameters during blasting activities must be in accordance with the values shown in Table 21.					This year noise and vibration levels related to blasting were not measured as there was no blasting activity.	
56.		Blasting activities must be carried out taking into account the aspects related to noise and vibration propagation.					The conditions required to minimise the propagation of noise and vibration are taken into account while drafting the blasting plan.	Blast Procedure Presentation

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
	Waste	Carry out the waste inventory and					There is a waste management procedure which	Waste Management Procedure BL-
	Management	classify it (according to Decree 94/2014,					contains a list of waste and its classification.	PR-EN-0001 Rev 3, dated 16 October
57.	Program	of 31 December - Urban Solid Waste					Classification is based on segregation and on the	2020
		Management Regulation) and indicate					national regulation on waste.	
		the appropriate final destination for						
		each type of waste.						
		Identify and implement alternatives to					The Management Plan refers to waste that can be	
		reduce or eliminate waste production.					recycled and reused, such as wood (reused by local	, -
58.							institutions for fuel), metal (sold to a company that	
							reuses it), cooking oil (reused for making soap),	
							rubber tyres (reused by the Agricultural Institute for	
							slope stabilization). Water bottles are reused by an NGO in Pemba to build houses.	
	_	Provide containers of an appropriate					There are appropriate containers for waste disposal	Visual observation
59.		size for the disposal and handling of					thorughout the entire plant and camp area. These are	Visual Observation
		waste.					placed in appropriate locations.	
	-	Containers must be properly identified					Containers have different colours according to the	BAL-ST-EN-0001- Waste labels
		and must ensure adequate conditions of					waste that is to be disposed of, as specified in the	
		tightness and hygiene.					internal waste management procedure (Annex 2).	Visual observation
60.							Currently, due to the unavailability of some colours of	
							containers, the labels for each type of waste have a	
							specific colour and this must be the colour followed	
							during segregation.	
		The points for locating the waste					All waste collection points or container locations are	Visual observation
61.		collection containers must be					positioned at a safe distance from the storm drain	
		positioned at least 100 meters away					lines.	
		from the storm drain lines and rivers.					Note that there is no river in the concession area.	
62		Waste containers must be clearly					See sections 57 and 60 above.	BAL-ST-EN-0001- Waste labels
62.		identified and waste must be						standard
		segregated.						Visual observation

No.	Reference (in EMP)	Requirement	С	NC	РС	INC/ NA	Audit Finding	Evidence
		The waste produced should be removed					MozEnvironmental collects general waste that cannot	MozEnvironmental Waste Manifest
		frequently to an appropriate location					be incinerated on site, such as cardboard boxes,	Certificate, dated 25.11.2020
		using a means of transport appropriate					cement bags, etc. The final destination of the waste is	
63.		to the type of waste.					either the incinerator or the dump in Pemba.	
							Transport is carried out in appropriate vehicles.	
							Waste is collected according to demand. If the	
							incinerator is unable to meet the demand,	
							MozEnvironmental takes the waste to Pemba.	
		Only the types of waste prescribed in					The waste management procedure has a section	Waste Management Procedure BL-
		the incinerator specifications should be					about the operation and management of the	PR-EN-0001 Rev 3, dated 16 October
64.		incinerated in the existing incinerator.					incinerator.	2020
							In order to ensure the efficiency of the incinerator,	Incinerator Standard Operating
							only suitable waste is incinerated in accordance with	Procedure BAL-SOP-RL-0001 Rev1,
							the incinerator standard operating procedure.	dated 04 September 2020
		The ash generated in the incinerator					The landfill is the final destination of the ashes from	Waste Management Procedure BL-
		must be deposited in the existing					the incinerator.	PR-EN-0001 Rev 3, dated 16 October
		landfill.						2020
CE								Incinerator Standard Operating
65.								Procedure BAL-SOP-RL-0001 Rev1,
								dated 04 September 2020
								Landfill Management Procedure BAL-
								PR-EM _0007 Rev 0, dated 5
								December 2017.
		Hazardous waste must be segregated					The Waste Management Plan identifies hazardous	Waste Management Procedure BL-
		according to the classification contained					waste in accordance with its classification.	PR-EN-0001 Rev 3, dated 16 October
		in Annex III and IX of Decree No.					Hazardous waste is segregated as appropriate and	2020
66.		83/2014, with the proponent or the					separated from other waste. Moz-Environmental	•
		entity handling the same having at least					collects the hazardous waste and provides safe	
		the technical conditions for packaging					disposal certificates.	25.08.2020
		the waste in their possession.						

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		Hazardous waste must be packaged or					There is an appropriate location for the disposal of	Waste Management Procedure BL-
		packed according to technical standards					hazardous waste (waste contaminated with	PR-EN-0001 Rev 3, dated 16 October
		to be established by specific instructions					hydrocarbons, grease and oils, and corresponding	2020
67		on the packaging of hazardous waste.					containers). When this site is full, MozEnvironmental	Safe disposal certificates
67.							collects the waste.	(MozEnvironmental) dated
							There is a container at Total for used oils with a	25.08.2020
							capacity of 30 thousand litres. When this container is	
							full, Refinery Oasis is called to collect it. This company	
							also provides safe disposal certificates.	
		The containers must be properly					There are several containers at the site where	Visual observation
68.		identified and include the symbols					hazardous waste is stored and where waste is	
		defined in Decree nº 83/2014.					segregated. However, there is no proper designation	
							of the waste that is inside each container.	
		The points for locating the waste					The hazardous waste storage site is a safe distance	Visual observation
69.		collection containers must be					away from any drainage lines.	
		positioned at least 100 meters away						
		from the storm drain lines and rivers.						
		Provide the waste management team					The maintenance team and the environment team	Visual observation
		with the necessary occupational safety					are responsible for the management of the waste	
		equipment for handling hazardous					store, allowing access to those who need to store	
70.		waste.					specific hazardous waste.	
							The use of appropriate PPE is compulsory when	
							handling this type of waste.	
							The waste management procedure should include	
							the appropriate PPE when handling hazardous waste.	
		Hazardous waste must have a place for					There is a place for the temporary storage of	Visual observation
		temporary storage. This place must					hazardous waste. The site is properly fenced, aired	
71.		have adequate conditions for the					and the floor is waterproof. Liquid hazardous waste	
		storage of these residues to avoid					such as grease is stored inside detention ponds.	
		contamination of the soil and water, the						
		place must have cover, waterproofed						

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		floor, duly signposted and with restricted access.						
72.		The handling and storage of hazardous substances must be done in accordance with the applicable requirements of Decree nº 83/2014.					The waste management procedure includes specific measures for the handling and storage of hazardous waste.	Waste Management Procedure BL- PR-EN-0001 Rev 3, dated 16 October 2020
73.		The transport of hazardous waste within Twigg's facilities to the storage location must be carried out using appropriate equipment and vehicles capable of containing it (these must allow for proper washing and disinfection).					The workers who transport the waste to the storage site have adequate PPE such as gloves.  Transport is done manually, in closed containers, from the department where it is produced to the storage site.  Hazardous waste produced at the camp is properly secured before being transported in pick-up trucks to the hazardous waste storage site.	-
74.		The transport of hazardous waste outside TWIGG's facilities can only be carried out by an entity licensed by MITADER and must obey the basic rules and procedures established in the applicable legislation.					Transport of hazardous waste outside Twigg premises is carried out by MozEnvironmental which is duly registered with the MTA.	
75.		When collecting hazardous waste, a manifest must be completed, in quadruplicate, mentioning the quantities, quality and destination of the collected waste (according to Annex VI of Decree No. 83/2014), of which a copy must be kept by the entity waste generator, another copy by the waste carrier, the third copy to be kept by the recipient of the product and the fourth sent to MITADER.					Manifests are duly filled in.	MozEnvironmental Waste Manifest Certificate, dated 25.11.2020

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
76.		Raising workers' awareness of the need to reduce waste production, and promoting the use of reusable products.					Awareness-raising campaigns are carried out regularly. Environmental, health and safety issues are discussed on a weekly basis.	WIS – Weekly Information Sharing. Week 13-18 July, Focus: Proper waste management
77.		Training of workers for the classification, correct segregation, handling and transportation of waste.					New workers go through general induction and waste management issues are addressed during recycling inductions.	Attendance list of training course on effective management and disposal of waste, dated 21.02.2020 Attendance list of training course on waste management, dated 26.07.2020
78.		Sensitizing workers to the use of personal protective equipment necessary for handling hazardous waste.					There is no specific team for hazardous waste management. However, everyone is aware that the use of PPE is a key requirement when handling hazardous waste (induction addresses PPE issues, as well as awareness raising).	PR-EN-0001 Rev 3, dated 16 October
79.	Waste Management Program - Tailings and rock waste management	Regularly inspect the integrity of the tailings dam and the waste dump by technically qualified persons.					TSF management has a maintenance and inspection plan. Inspections are done on a daily or weekly basis. The consultants who provided support during the construction of the tailings dam also provided initial training to Twigg staff. New workers undergo regular training.	Emergency Response Plan for the TSF BAL-PL-EM-0068 Rev0, dated 16 October 2020 Environmental Safety Plan for the tailings dam GNS.PSA001/19, dated October 2019 Maintenance and inspection plan for the TSF
80.		The waste dump and the tailings dam must be located in a place where, in the event of its closure, soil and water					The tailings dam is waterproofed and regular monitoring is conducted to assess pollution issues.	TSF inspection form, dated 12.11.2020

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		pollution as well as physical risk to communities is minimized.					The nearest community is Ntete, however it is at a safe distance (8km) in the event of closure.	
81.		The choice of sterile material storage locations should have minimal impacts on vegetation, soils and water resources.					The impacts arising from the waste rock dump are addressed in the waste and effluent assessment report.	
82.		Establishment of the tailings dam safety plan in accordance with Decree 50/2017 of 31 October.					The Environmental Safety Plan for the tailings dam was also drawn up within the scope of the EMP review.  There is also an internal procedure: the TSF Emergency Response Plan.	BAL-PL-EM-0068 Rev0, dated 16 October 2020
83.		Ensure that the sterile and mineralized material with the potential to form acidic drainage is encapsulated by non-acid-forming mining waste.					The acid drainage management procedure provides guidance for the adequate storage of material with the potential for acid drainage.	Acid drainage management procedure BAL-PR-EN_0010 Rev 0, dated 5 December 2017
84.	Waste Management Program - Monitoring	Record the volumes of solid urban waste, hazardous waste and those resulting from the mining process generated in the project.					There is a database on waste generated.	Sustainability Report, November 2020
85.	and/or Verification Action	Record the volumes of urban and hazardous solid waste deposited in the landfill, recycled, reused, incinerated and stored.					There is a database on waste generated and final destination. A brief report containing the type of waste generated and the method of disposal is produced monthly.	
86.		Carry out periodic visual inspection of the places where the waste collection containers are placed, to check the adequacy of the existing containers to the volume of waste produced, the correct segregation and packaging of					Weekly visual inspections are carried out, and more detailed inspections are carried out once a month. During the inspections the listed issues are taken care of.	•

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		the waste and the existence of spills and contamination.						
87.		Ensuring that workers undergo an environmental induction where waste management is addressed, among other topics.					New workers go through general induction and waste management issues are addressed during recycling inductions.	•
88.	Ecology Management Program - FAUNA	Protect the local fauna and flora and establish programs for the recovery and rehabilitation of areas disturbed by the project's activities.					A nursery has been provided. Revegetation campaigns are carried out at the beginning of each year. The 2020 campaign covered an area of approximately 5 hectares. During this last revegetation campaign, around 6838 seedlings of native species were planted.	Semi-annual report on environmental and social performance from January to June
89.		Prohibition of hunting or harassment of animals within the concession area.					The hunting ban is announced. This is addressed at induction and at weekly information sharing sessions.	Weekly information sharing. Week of 23 - 29 March. Focus: International Day of Forests
90.		When building roads, where possible, incorporate underground passages and manholes to allow animals to move in order to avoid being run over.					There is hardly any no record of animals being run over.  The roads include underground passages and manholes.	Visual observation
91.		Monitor the fauna according to the established monitoring plan.					Fauna monitoring should be carried out every 5 years. This year no monitoring was planned.	
92.		Ensure that deforestation of mining areas or other related activities is carried out only when necessary to allow habitat availability to local fauna.					An internal procedure for deforestation has been established.	Procedure for deforestation BAL-PR-EN-0015 Rev 0, dated 24 November 2019
93.		Protect abiotic habitats, such as rocky outcrops, which are home to many species of small mammals.					These habitats are protected under the Conservation Area projects.	Conservation Area and Sustainable Livelihood Procedures BAL-PR-EN- 009 Rev1, dated 22 October 2020
94.	Ecology Management	Establish a conservation area within the concession area in order to preserve the					A conservation area has been established along the concession boundary which meets the overall	

No.	Reference (in EMP)	Requirement	С	NC	РС	INC/ NA	Audit Finding	Evidence
	Program -	local vegetation and provide a refuge					objective. There are also procedures in place for	
	<u>FLORA</u>	area for local fauna.					sustainable livelihoods and conservation area.	
		Prohibit the introduction of flora					An internal procedure concerning invasive plants has	Invasive plant management
		species that are invasive or exotic					been established.	procedure TWG-PR-EN-0004 rev0,
95.		without prior environmental						dated 15 December 2017
		assessment and necessary						
		authorization in accordance with						
		current legislation.						
96.		Compile a detailed inventory of existing					There is a flora inventory included in the	Terrestrial Faunal Impact Asessment.
		flora within the concession area.					Environmental Impact Assessment.	CES, December 2013
	Ecology	Prevent contaminated water from					All these systems are fully implemented in the plant.	Visual observation
	Management	processing facilities from reaching					There are two STPs, tailings dam, mini-dams (return	
0.7	Program –	watercourses and drains by					and settling water).	
97.	AQUATIC	implementing environmental control						
	ECOLOGY	systems such as tailings dam, domestic						
		effluent treatment plant and other						
		necessary measures.						
98.		Mine water and runoff from mining					All surface run-off water is directed to the settling	Visual observation
		areas and the processing plant will be					pond.	
		retained in sedimentation ponds.						
99.		Ecological Monitoring must be					Due to the Covid 19 pandemic, it has not been	Previous reports.
		conducted in accordance with the					possible to comply with the ecological monitoring	
		parameters and frequency shown in					plan this year. However, monitoring is conducted in	from the conservation areas in
		Table 26.					accordance to specific parameters and frequency.	Balama, Cabo Delgado, March 2019,
								UEM

Table 3 Compliance with socioeconomic, health and safety requirements

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
100.	Recruitment and Training Program	Promote the public disclosure of the vacancies offered, indicating the location for registration of workers, number of vacancies, function and assignments, taking into account the time necessary for submission to the training of those selected.					TWIGG has a recruitment procedure that outlines the steps necessary to recruit employees.	-
101.		Whenever possible, use local agencies and channels to disseminate information on permanent or seasonal vacancies, including the use of local leaders.					Initially, all Balama Graffiti Project vacancies were advertised on local radio (Notícias Radio), on the Twigg information board (at the District Administration), as well as specific recruitment posts. However, it became clear that using the local radio station to advertise job opportunities created too many expectations among people, encouraging a large number of applicants from different parts of the district and elsewhere to flock to Twigg offices in search of job opportunities. This prompted TWIGG to hire a service provider to recruit workers for the company, but always in accordance with TWIGG recruitment policy.	
102.		Prioritize the local workforce whenever possible, especially in positions that do not require specialized skills.					Although the workforce recruitment services have been outsourced, priority continues to be given to the recruitment of local workforce.	
103.		Manage job expectations to mitigate immigration in the project area by providing accurate information on available vacancies and the qualifications of personnel required.					Expectations can be managed more effectively by having a recruitment company handle all recruitment and selection matters.	

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
104.		Create a database with local staff of working age and their skills or technical skills useful for project activities.					Although the recruitment process is outsourced, the social team has a database of jobseekers from neighbouring communities, which is updated and shared with the recruitment company whenever necessary.	Interview with the Community Relations Superintendent
105.		The training and technical qualification of new employees in the workplace will be through informative and demonstrative lectures on the tasks that the workers will perform and continuous training in the workplace.					Every employee/worker who joins TWIGG staff first undergoes induction and then technical training.  The Health and Safety Management Plan specifies that all employees and contractors must be adequately trained and have the necessary skills to ensure they are aware of their responsibilities regarding health and safety, and workplace hazards, and that they are able to identify and implement controls to perform their tasks in a safe manner.  This plan also specifies that the worker/employee or subcontractor must first undergo induction training before the real work can begin.	Relations Superintendent  Health and Safety Management Plan. TWG-PL-SA-0001, Revision 4. Dated 18 January
106.		Establish partnerships with professional training institutions for the training of staff, oriented to the needs of the project whenever possible.						Relations Superintendent  Semi-annual Environmental and Social Performance Report, January to June 2020 TWG-RP-ES-0001_0_pt, dated 15 July 2020  Firefighting training certificate

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
							Hazard and Risk Management, Fatigue Management, Human Rights and Leadership in the field.	of Public Safety on 6 January 2020
107.		Monitoring of the expected results of this plan should be carried out twice a year and should be achieved through the use of questionnaires, among other indicators, such as:  • Estimated hours of work (internship, training and per employee);  • Number of workers recruited monthly;  • Percentage of local employees in relation to the total number of workers;  • Vacancy announcements published locally per year;  • Partnerships established with professional training centres.					TWIGG monitors the results of the recruitment program and these results are provided in the Semi-annual Environmental and Social Performance Report. According to this report, in the first half of the year, Twigg recorded 4510 hours of training and the attendance of more than 1915 participants in the main courses.	and Social Performance Report, January to June 2020 TWG-RP- ES-0001_0_pt, dated 15 July
108.	Environmental Education Program	Induction of new workers immediately after they become part of TWIGG staff and promotion of dialogues on environmental issues throughout the course of the work.					Anyone entering the premises of the Balama Graphite Mine must undergo an induction session. The content of the induction depends on the location that is to be visited. New workers/employees undergo comprehensive induction which covers health, safety and environmental issues.	
109.		Educational messages on environmental issues that bring relevant themes to the workplace and the community in general, raising environmental awareness.					Information and education sessions on environmental issues have not taken place only during meetings. Alternatives to avoid the concentration of workers in a single room, so	

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
							as to reduce the spread of Covid 19, are pamphlets, magazines and newspapers.	
110.		Assistance in the training of primary education and adult literacy teachers on environmental education, management practices and sustainable development.					Due to the constraints caused by the Covid-19 pandemic, it was not possible to implement live training programmes, because schools were either closed or had restricted access.	·
111.		Encouraging the involvement of traditional leaders, teenagers, cultural groups, community associations, religious organizations and NGOs in facilitating public participation and environmental awareness.					Due to the constraints caused by the Covid-19 pandemic, it has not been possible to implement environmental awareness activities involving traditional leaders, teenagers, cultural groups, community associations, religious organizations and NGOs.	-
112.		Support for the inclusion of content on environmental education in the workforce training program, with an emphasis on the importance of preserving the environment.					All those working for TWIGG undergo the following training phases: induction, specific training and refresher training. All these phases address issues regarding the importance of preserving the environment.  Issues related to environmental education and the importance of preserving the environment are not only conveyed to the workers during training sessions, but also in leaflets, newspapers and posters.	Superintendent
113.		Celebration of certain dates, such as 5 June (World Environment Day), to promote environmental well-being, thus allowing interaction between company and community.					Important dates related to environmental well-being have not gone unnoticed at the Balama Graphite Mine. This year, due to the restrictions mentioned above, these dates were not celebrated as usual. On 21 May, International Day of Forests, TWIGG published	Week 13: 23 - 29 March 2020

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
							information on forests and local biodiversity via its Weekly Information Sharing protocol.	
114.		Monitoring of the expected results of this plan should be carried out annually. The main indicators will be: the number of environmental incidents registered in the project and the number of events related to environmental education carried out in partnership with the company in the surrounding communities and at the District level.					TWIGG has been monitoring the results of the Environmental Education Program every six months. Theres results are then published in the sustainability report. However, this year, due to Covid-19 Pandemic Constraints, it was not possible to implement environmental education activities in the surrounding communities and at District level.	•
115.	_	Develop the investment plan that will be negotiated between the company, the local government and the affected community.					A community development agreement was signed in 2017 between TWIGG, Balama District Government and local Communities to promote development in the mining concession area to improve the well-being of the surrounding populations. However, there is no investment plan.	Agreement signed by TWIGG, Balama District Government and the Communities in May
116.		The provincial government of Cabo Delgado and/or of the district of Balama will be responsible for approving the agreement and for ensuring that the negotiations are fair and follow the procedures defined in the guide.					The community development agreement was also signed by the Balama District Government in 2017 and, as such, one can conclude that the District Government has approved the agreement.	Agreement signed by TWIGG, Balama District Government
117.		The plan will be established in writing, in the form of a Memorandum of Understanding or Local Development Agreement (ADL) and will be signed by the main stakeholders, namely the Provincial Government or District Administrator,					The community development agreement was signed by TWIGG, the Balama District Government and local communities in 2017, but the Provincial Government was not involved. However, there is a recommendation in this regard in the EMP which was drafted	Agreement signed by TWIGG, Balama District Government and the Communities in May

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		Twigg as the concessionaire and the representative(s) of the target community(ies).					subsequent to the signing of the agreement. Nevertheless, clause nine of the agreement provides for a review of the agreement every 5 calendar years, so there is room to include the Provincial Government in the next review of the agreement.	
118.		The representative(s) of the covered Community(ies) are elected during a community meeting and recognized by the District Administrator.					The task of selecting Community representatives is a process which is not within the remit of TWIGG.	
119.		MIREME and MITADER are the ministries that endorse the proposal for designation of the affected communities.					The process of identifying the communities covered by the project began during the Environmental Impact Assessment phase. During this phase, MIREME and MITADER, by approving the EIA Report, agreed on the identification of the affected communities.	
120.		The identification of affected communities is updated every 5 years, or sooner if circumstances so dictate.					The agreement was last revised in 2017 and there was no need to remove and/or add new communities.	
121.		The Local Development Agreement and Memorandum of Understanding are only negotiated and signed after the communities concerned are duly identified and approved.					The community development agreement was negotiated and approved after the completion of the studies and the due identification of the communities.	health Impact Assessment for

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
								Balama in Northern Mozambique, February 2015
122.		The social investment amount is established by way of a contract, concession agreement or memorandum of understanding signed between the Ministry responsible for overseeing the Mineral Resources and the rightholders or concessionaires, as provided for in the Mining Law and the Petroleum Law, or by way of local development agreements and memorandums of understanding entered into between the Provincial Government or District Government and the company.					•	' '
123.	Cultural Aspects Management Plan	Increase the degree of awareness of the various segments that make up the workforce with respect to the importance of actions to preserve the historical and cultural heritage.					During induction training, the importance of actions to preserve the historical and cultural heritage is also highlighted.	
124.		The dissemination of elementary notions about the regional historical and cultural context and about the importance of being preserved.					In addition to induction training, cultural heritage preservation messages are also conveyed to workers via pamphlets and newspapers.  Some sites that are classified as historical heritage are marked with appropriate signs.	·
125.		Dissemination of information to workers involved in the mine on the importance of preserving the cultural and natural heritage there, as well as on the means that will be					Information sessions were held for workers on the importance of preserving cultural and natural heritage. On the other hand, archaeologists have not identified any archaeological site in the project area.	health Impact Assessment for the proposed Balama Graphite Mine in the Cabo Delgado

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
		applied by archaeological prospecting and rescue, if applicable.					However, some of Twigg workers have received training on how to identify an archaeological site.	
126.	Safety and Security	Vehicle drivers must obey the speed limits.					All drivers first undergo general induction, then training on company standards and procedures and finally training in defensive driving.	
127.		Details of accidents will be documented in the Emergency Response and Management Plan.					All accidents are documented in an accident report drawn up by a qualified team working for TWIGG.	
128.		Security staff will receive adequate training on the use of force and appropriate conduct.					ChelsiaGroup has been hired to provide security services in the mine area. An updated procedure defines the basic principles on the use of force and specifies training requirements.	
129.		A code of conduct for security personnel will be prepared, in line with the UN Code of Conduct for Law Enforcement Officials.					There is a code of conduct for security personnel, in line with the UN Code of Conduct for Law Enforcement Officials.	Code of Professional Ethics
130.		Trucks with abnormal loads will be escorted by at least two vehicles (one in front and one behind).					Transport of abnormal loads is outsourced. Subcontractors are required to obtain licences under Article 58 of the Road Traffic Code. Provisions require police escort.	-

No.	Reference (in EMP)	Requirement	С	NC	PC	INC/ NA	Audit Finding	Evidence
131.	Health	Workers/employees shall be subject to periodic medical examinations as part of occupational health and safety, taking into account exposure to risks.					Pre-employment, annual and post- employment medical assessments are carried out for all employees taking into account exposure to risks. The same procedure is used for malaria control and to prevent the spread of Covid-19: all workers/employees must be tested for malaria upon arrival or when leaving the plant. In addition, all workers must be tested for Covid-19, placed under quarantine for the specified number of days and comply with the measures defined to prevent the spread of Covid-19.	

## 4 Conclusions and Recommendations

The Balama Graphite Mine has been in operation since 2018. During this period, Twigg has been implementing several social projects, not only to comply with the requirements and recommendations of the Environmental Management Plan and/or Resettlement Plan, but also as part of its Social Responsibility.

The audit findings show that TWIGG has a high level of commitment in environmental and social awareness. General housekeeping both at plant site and camp site was highly improved from previous audits.

A total of 142 criteria were audited against compliance (99 biophysical, 32 social and 11 related to the requirements set out by the MTA in the updated EMP approval letter).

Regarding biophysical aspects, 99 elements were audited, divided into 5 different categories. The results are summarized below.

	Category	Criteria	Compliant	Non compliant	Partially compliant	Not applicable
	Water Resources Management Program	18	17	0	1	0
	Air Quality Management Program	21	19	0	0	2
•	Noise and Vibration Management Program	17	15	0	0	2
	Waste Management Program	31	30	0	1	0
	Ecology Management Program	12	11	0	0	1
	TOTAL	99	92	0	2	5

The assessment carried out during the audit revealed zero non-compliances, two partial compliances and five criteria were found to be not applicable.

The partial compliances are related to:

 Hydrogeological model of the mine: A gap analysis was conducted in March 2020 in order to proceed with the development of the model. However, due to travel and site access restrictions imposed by the Covid-19 pandemic, the work cannot be completed in 2020, so its completion is scheduled for 2021. Hazardous waste - containers with hazardous waste must be properly identified and
include the symbols defined in Decree No. 83/2014. There are several containers at the
site where hazardous waste is stored and where waste is segregated. However, there is
no proper designation of the waste that is inside each container.

### The non-applicable requirements relate to:

- Dry tailings deposition: Progressive rehabilitation of the dry tailings deposition area as soon as it reaches the maximum expected height, without necessarily waiting for the landfill to be completely full. The transport and dry deposition of tailings is carried out while the tailings have moisture to avoid emitting dust. The dry waste disposal area is a new project and has not yet been implemented. Therefore, at the time of this audit, this requirement was not applicable.
- Noise and vibration monitoring during blasting activities must be carried out according to the paragraphs indicated in Table 20 and vibration parameters must be in accordance with the values shown in Table 21. No blasting events occurred in 2020; and
- Fauna monitoring in line with the established monitoring plan: the plan stipulates that monitoring should take place every 5 years and no need for monitoring in 2020.

Regarding socioeconomic aspects, 32 elements were audited, divided into 6 different categories. Note that the health and safety category is consistent with the previous EMP, as the updated EMP does not address these issues. The results are summarized below.

	Category	Criteria	Compliant	Non compliant	Partially compliant	Not applicable
	Recruitment and Training Program	8	7	0	0	1
U	Environmental Education	7	5	0	0	2
Socioeocnomic	Program Program for the Promotion of	8	5	0	0	2
0e0c	Local Development Cultural Aspects	٥	5	Ü	Ü	5
Soci	Management Plan	3	3	0	0	0
	Safety and Security	5	5	0	0	0
	Health	1	1	0	0	0
	TOTAL	32	26	0	0	5

The assessment found 0 non-compliances and 0 partial compliance. The 5 Non Applicable criteria are related to:

- Promoting public disclosure of the vacancies offered, indicating the location for registration of workers, number of vacancies, functions and assignments, taking into account the time necessary for submission to the training of those selected. TWIGG decided not to adopt this measure to avoid a large number of people flocking to Twigg offices from different parts of the province and elsewhere in search of job opportunities.
- Assisting the training of primary education and adult literacy teachers on environmental education, management practices and sustainable development. Due to the constraints caused by the Covid-19 pandemic, it was not possible to implement live training programmes, because schools were either closed or had restricted access.
- The Program for the Promotion of Local Development will be established in writing, in the form of a Memorandum of Understanding or Local Development Agreement (*ADL*) and will be signed by the main stakeholders, namely the Provincial Government or District Administrator, Twigg as the concessionaire and the representative(s) of the target community(ies). The community development agreement was signed by TWIGG, the Balama District Government and local communities in 2017, but the Provincial Government was not involved. However, there is a recommendation in this regard in the EMP which was drafted subsequent to the signing of the agreement. Nevertheless, clause

- nine of the agreement provides for a review of the agreement every 5 calendar years, so there is room to include the Provincial Government in the next review of the agreement.
- Encouraging the involvement of traditional leaders, teenagers, cultural groups, community associations, religious organizations and NGOs in facilitating public participation and environmental awareness. However, due to the constraints caused by the Covid-19 pandemic, it has not been possible to implement environmental awareness activities involving traditional leaders, teenagers, cultural groups, community associations, religious organizations and NGOs.
- The representative(s) of the covered Community(ies) are elected during a community
  meeting and recognized by the District Administrator. The task of selecting community
  representatives is the sole responsibility of the communities and not within the remit of
  TWIGG.

The 12 requirements contained in the EMP approval letter issued by the MTA were also audited in order to verify whether or not they were being complied with and all had been met.

In summary, a total of 142 criteria were audited against compliance (99 biophysical, 32 social and 11 related to the requirements set out by the MTA in the updated EMP approval letter). With regard to compliance, there were found zero non-compliances, three partial compliances and 10 criteria were found to be not applicable. It is therefore concluded that 91% of the requirements of the EMP are in compliance. The following graph shows the level of compliance with the EMP.

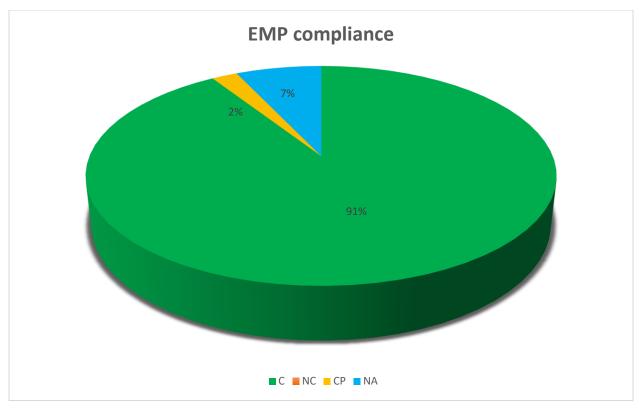
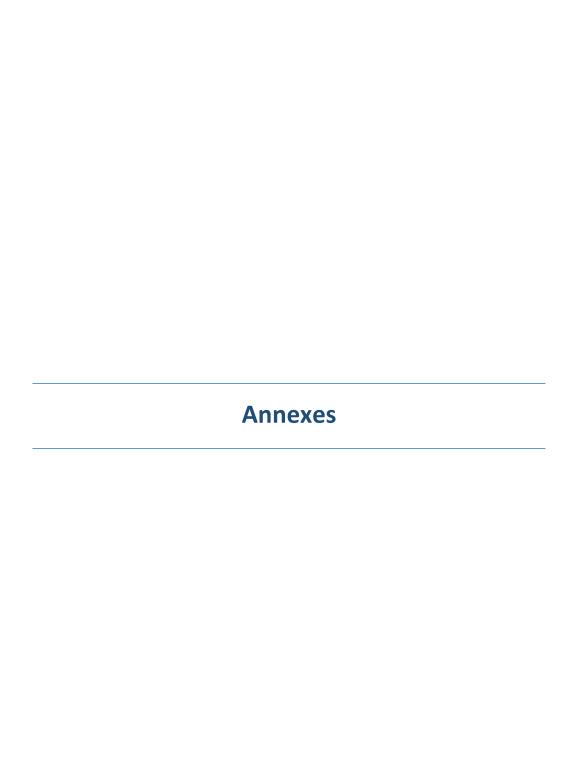


Figure 3 EMP compliance diagram

Main recommendations arising from this audit are the following:

- Continue the positive work and effort throughout the implementation of the measures contained in the Environmental Management Plan.
- Hazardous waste containers must be adequately identified.
- Include the required PPE for handling different types of waste in the Waste Management Plan.



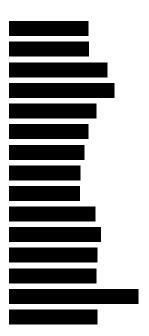
## Annex A: Opening Meeting Agenda

15 December 10.00 – 10.30 Teams platform for online Meeting

#### **AGENDA**

- Introduction of meeting participants
- Roles of auditor; auditee; guide; observer
- Audit objective (purpose or reason for the audit)
- Audit scope (coverage of areas; processes; clauses)
- Audit criteria (applicable requirements)
- Agenda plan (agenda; assignments; meetings; times)
- Audit methods (observation; interviews; questionnaires)
- Communications (auditee to be kept well-informed)
- Language (to be used during the audit)
- Confidentiality (results only to the auditee)
- Concerns or questions (ready to begin audit?)

Annex B: Opening Meeting Attendance List



# Annex C: Closeout Meeting Agenda

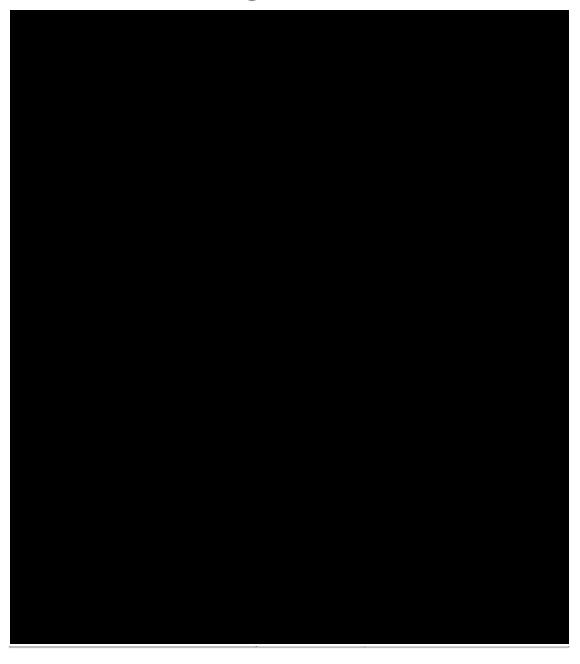
18 December 10.00-10.30 Teams platform for online Meeting

#### **AGENDA**

- Introduction of new participants
- Thanks (time and cooperation)
- Scope of audit
- Criteria (ESMP&MP, Environmental Approval, IFC performance standards)
- Conformity areas (strengths, positive aspects)
- Parcial conformities
- Conclusions (conformity, effectiveness)
- Report
- Thanks

# Annex D: Closeout Meeting Attendance List

# meeting Attendance List



### Annex E: List of Documents Reviewed

- Community Development Agreement signed by TWIGG, Balama District Government and the Communities in May 2017
- Induction presentation Environmental Management Twigg, 2017
- BAL-ST-EN-0001- Waste labels standard
- Tailings dam: construction report. Advisian. 09.10.2018
- Blast Procedure Presentation
- Environmental and Social Performance Report Submission Letter January to June 2020, Ref:346/07/TWIGG-IRCS/2020. Date: 29/07/2020
- Certificate of fuel quality
- Safe disposal certificates (MozEnvironmental) dated 25.08.2020
- Road Traffic Code, Decree No. 1/2011 of 23 March
- MozEnvironmental Waste Manifest Certificate, dated 25.11.2020
- Detailed design study. Snowden group. August 2015
- Environmental, Social and health Impact Assessment for the proposed Balama Graphite
   Mine in the Cabo Delgado Province in the District of Balama in Northern Mozambique,
   February 2015
- TSF inspection form, dated 12.11.2020
- Gap analysis: brief hydrogeology, geochemistry and surface water review of Balama Graphite Mine. Geostratum, March 2020
- Health and Safety Management Plan. TWG-PL-SA-0001, Revision 4, dated 18 January 2019.
- ICOPAL Mission Report
- MozEnvironmental Environmental License
- Licence for use of radioactive sources issued in December 2020
- Attendance list of training course on waste management, dated 26.07.2020
- Attendance list of training course on effective management and disposal of waste, dated 21.02.2020
- Attendance list of training course on chemicals and hazardous chemicals, dated 14.10.2019
- Attendance list of training session on radiation protection held on 2 April 2019
- Gas MSDS
- Weekly information sharing. Week 13: 23 29 March 2020

- Blasting Management Plan. BAL-PL-EN-0002 1. Rev 1 dated 17 October 2020
- Maintenance and inspection plan for the TSF
- Emergency Response Plan for the TSF BAL-PL-EM-0068 Rev0, dated 16 October 2020
- Environmental Safety Plan for the tailings dam GNS.PSA001/19, dated October 2019
- Monthly plan: Waste Rock Dump Heights Diagram
- Air Quality Management Procedure dated 22 October 2020 BAL-PR-EN-0008 Revision 1
- Invasive plant management procedure TWG-PR-EN-0004 rev0, dated 15 December 2017
- Waste Management Procedure BL-PR-EN-0001 Rev 3, dated 16 October 2020
- Landfill Management Procedure BAL-PR-EM 0007 Rev 0, dated 5 December 2017.
- Incinerator Standard Operating Procedure BAL-SOP-RL-0001
- Procedure for deforestation BAL-PR-EN-0015 Rev 0, 24 November 2019
- Tailings dam and dam Inspection procedures BAL-PR-PR-0005 Rev 0, dated 23 October 2020
- Conservation Area and Sustainable Livelihood Procedures BAL-PR-EN-009 Rev1, dated 22
   October 2020
- Recruitment, Human Resources and Training Procedure. TWG-PR-HR-0004\_2\_Pt. Dated 20 May 2020
- Procedure on the Use of Force, (CGM/SOP) dated June 2019
- Online registration of the maintenance plan and vehicles and equipment maintenance report
- Online registration of the maintenance plan and incinerator maintenance report
- Stockpile Report. Snowden, March 2020
- Waste and Effluent Assessment Report. CES, December 2015
- Groundwater quality monitoring report (Intertek) dated 20.11.2020
- Surface water quality monitoring report (Intertek) dated 11.12.2020
- Air quality monitoring report. TrackPro report dated 21.11.2020
- Drainage monitoring report (Intertek) dated 21.01.2020
- Noise monitoring report (Cirrus research plc) dated 28.11.2020 for the towns of Ntete,
   Maputo, Pirira and Nquide
- Water/oil separator monitoring report (Intertek) dated 16.11.2020
- Monthly monitoring report of the water produced by the STP (Intertek) dated 16.11.2020
- Aquatic Ecology Assessment Report on Riverine Resources in the vicinity of the Balama
   Graphite Mine Project, Cabo Delgado, July 2019
- Monthly Sustainability Report, November 2020

- Report or protocol of delivery of material for recycling
- Semi-annual report on environmental and social performance from January to June 2020
- Sustainability Report, November 2020
- Environmental inspection reports, dated 20.03.2020
- Noise and vibration monitoring reports: Pirira blasting monitoring, dated 20.07.2019
- Risk register 23.10.2020
- ToR for designing a hydrogeological and geochemical model, dated September 2019
- Terrestrial Faunal Impact Asessment. CES, December 2013
- The Graphitizer TWIGG Communication, Issue 53 7 April 2020
- Training Attendance Register from the meeting held on 27 of August 2020
- WIS Weekly Information Sharing. Week 13-18 July, Focus: Proper waste management