

ADRIATIC METALS PLC VARES PROJECT AIR QUALITY AND GHG MANAGEMENT PLAN

OCTOBER 2022



## Contents

AIR (	QUALITY AND GHG MANAGEMENT PLAN	3
INTR	ODUCTION	1
1.0.	Purpose and Scope	1
2.0. 2.1.	Legislative Requirements and Standards National Legislation	2 2
2.2.	International requirements	3
3.0.	Roles and Responsibilities	8
4.0. 4.1.	Air Quality and GHG Plan Potential air emissions	9 9
4.2.	Mitigation Measures for Air Quality Impacts	13
4.3.	Residual Impacts to Air Quality	14
4.4.	Mitigation Measures of GHG and residual impacts	16
4.5.	Projected Physical Risk of Climate Change Impacts on Project	18
5.0.	Monitoring and reporting	22
6.0.	Training	25
7.0.	Review and Update	26



#### AIR QUALITY AND GHG MANAGEMENT PLAN

This document has been developed/revised as indicated below and described in the revision record on the following page. Please destroy all previous revisions.

Revision	Date	Authors	Reviewed	Pages
1.0	August 2021	Goran Prajo	Vildana Mahmutović Kate Harcourt	23
2.0	October 2021	Goran Prajo Vildana Mahmutović	Vildana Mahmutović	24
3.0	October 2022	Goran Prajo	Vildana Mahmutović	26+3 Attachment

ISSUED FOR: X Design X Construction X Operations Other



## INTRODUCTION

## 1.0. Purpose and Scope

Eastern Mining d.o.o. is owned and operated by Adriatic Metals PLC and located in Bosnia and Herzegovina (BiH). Eastern Mining d.o.o. is the holder of a concession for exploration and exploitation in Vareš (BiH). The ultimate goal is to revive the mining industry in the municipality of Vareš, by exploiting new and existing ore deposits. The project, named Vares Project is polymetallic mine, and has attracted reputable foreign investors in BiH. In many ways, this research project is unique in post-war BiH, both in terms of investment size and development potential.



Figure 1.1. Map showing location of the Vares Project

The purpose of the Air Quality and GHG Management Plan (AQGHGMP) is to describe the potential risks to air quality, which are related to project activities, and to consider and determine protection measures that would prevent or mitigate negative impacts. The plan contains information on how the procedures, their effectiveness and measures will be



monitored in case of exceeding the limit values. The aim of this plan is to achieve compliance with the standards related to air emissions and ambient air quality and to mitigate long-term effects on sensitive receptors (human and ecological) through several exposure routes. The scope of the plan will apply to all works and activities related to the Eastern Mining project, that is to the concession area of the project, including employees, contractors, and subcontractors working for Eastern Mining.

This plan is in compliance with other management plans like with

- Traffic Management Plan
- Contractor Management Plan

The Plan is in compliance with national legislation, requirements of international financing institutions (e.g. IFC Performance Standards, EBRD Performance Requirements) and other applicable good practices. This Plan is a living document, and the responsibilities, procedures and compliance actions should be updated as appropriate.

# 2.0. Legislative Requirements and Standards

Eastern Mining intends to implement practices in accordance with international practices in addition to local law legislation, respecting principles and policies of the European Bank for Reconstruction and Development (EBRD) and International Finance Corporation (IFC).

## 2.1. National Legislation

- Environmental Protection Law ("Official Gazette of the Federation of BiH", No. 15/21)
- Law on Air Protection ("Official Gazette of the Federation of BiH", No. 33/03 and 4/10)
- Rulebook on air quality monitoring ("Official Gazette of the Federation of BiH", No. 12/05 and 9/16)
- Rulebook on monitoring of air pollutant emissions ("Official Gazette of the Federation of BiH", No. 9/14 and 97/17)
- Rulebook on Emission of Volatile Organic Compounds ("Official Gazette of the Federation of BiH", No. 12/05)
- Rulebook on Air Emission Limit Values from Combustion Plants ("Official Gazette of the Federation of BiH", No. 3/13 and 92/17)
- Rulebook on Limit Values for Emissions of Pollutants into the Air ("Official Gazette of the Federation of BiH", No. 12/05)
- Rulebook on gradual exclusion of ozone depleting substances ("Official Gazette of the Federation of BiH", No. 39/05)



- Rulebook on conditions for measurement and control of sulphur content in fuel ("Official Gazette of the Federation of BiH", No. 6/08)
- Rulebook on the manner of monitoring air quality and defining the types of pollutants, limit values and other air quality standards ("Official Gazette of the Federation of BiH", No. 1/12, 50/19 and 3/21).

### 2.2. International requirements

Air quality guidelines for mining activities are set out in the IFC guidelines on general EHS. They were adopted from the World Health Organization (WHO) Guidelines on Air Quality and Interim Air Quality Targets. The EBRD's E&S policy refers to the standard set out in the relevant European Union directives (Directive 2008/50/EC).

WHO and EU standards focus on PM10 and PM2.5 because, according to health research, their guidelines suggest that this particle size poses the greatest risk to human health. Total suspended particles (TSP) are generally associated with unpleasant effects such as soiling, visual influences and deposition in the eyes and nose. They are not considered to pose the same health risks and no WHO/EU guidelines have been published specifically for the TSP.

This plan also follows the Requirements of the European Bank for Development and Reconstruction (EBRD), regarding guidelines.

Table 1. EBRD Guidelines	
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PR 3: Resource Efficiency and Pollution Prevention and Control	This PR outlines an approach to climate impacts and greenhouse gas (GHG) emissions, resource management and pollution, in addition to		
	minimize and managing risks and impacts associated with hazardous substances.		

This plan also follows the Requirements of IFC, regarding guidelines:

- IFC PS1: Assessment and Management of Environmental and Social Risks and Impacts,
- IFC PS3: Resource Efficiency and Pollution Prevention,
- IFC PS4: Community Health, Safety, and Security,
- IFC General EHS Guidelines: 1.1 Air Emissions and Ambient Air Quality, April 30,2007

Air Quality standards relevant to the Project and to be used for the ESIA are determined based on the most stringent values applicable to the Project. These are defined in table 2. and 3. below.



Table 2: Ambient Air Quality Guidelines Applicable to the Project						
Pollutant	National Standards	EU Air Quality Standards <sup>1</sup>	WHO/IFC Guideline <sup>2</sup>			
Dust Deposition Rates	200 mg/m²/day 350 mg/m² measured over a 4-week period	-	-			
Total Suspended particles (TSP)	-	-	-			
PM <sub>10</sub>	40µg/m <sup>3</sup> annual mean 50µg/m <sup>3</sup> 24 hour mean	40µg/m <sup>3</sup> annual mean 50µg/m <sup>3</sup> 24 hour mean	20µg/m³ annual mean 50µg/m³ 24 hour mean			
PM <sub>2.5</sub>	20µg/m <sup>3</sup> Annual mean	25µg/m <sup>3</sup> 24 hour mean	10µg/m³ annual mean 25µg/m³ 24 hour mean			
SO <sub>2</sub>	<i>50μg/m³ annual mean</i> 125μg/m³ 24hour mean 350μg/m³ 1-hour mean	125μg/m <sup>3</sup> 24hour mean 350μg/m <sup>3</sup> 1-hour mean	20µg/m³ 24-hour mean 350µg/m³ 1-hour mean			
NO <sub>2</sub>	40µg/m <sup>3</sup> annual mean 85µg/m <sup>3</sup> 24hour mean 200µg/m <sup>3</sup> 1-hour mean	40μg/m <sup>3</sup> annual mean 200μg/m <sup>3</sup> 1-hour mean	40μg/m³ annual mean 200μg/m³ 1-hour mean			
Carbon Monoxide (CO)	3 mg/m <sup>3</sup> annual mean 5 mg/m <sup>3</sup> 24hourmean 10 mg/m <sup>3</sup> 8-hourly mean	10 mg/m <sup>3</sup> 8-hourly mean	30 mg/m <sup>3</sup> 1hour mean 10 mg/m <sup>3</sup> 8-hourly mean			
Lead (Pb) in total dust	0.1 (4-week period)	-	-			
Cadmium (Cd) in total dust	0.002(4-week period)	-	-			
Zinc (Zn) in total dust	0.4(4-week period)	-	-			
Titanium (Ti) in total dust	0.02(4-week period)	-	-			
Arsenic (As) in total dust	0.004(4-week period)	-	-			
Nickel (Ni) in total dust	0.015(4-week period)	-	-			
Mercury (Hg) in total dust	0.001(4-week period)	-	-			
Wood Dust	-	3 mg/m³ 8-hourly mean	-			

<sup>&</sup>lt;sup>1</sup> European Union, Air Quality Standards under Directive 2008/50/EU

<sup>&</sup>lt;sup>2</sup> World Health Organization (WHO). Air Quality Guidelines Global Update, 2005



Table 3: Emission Limit Values						
Parameter	EU Medium Combustion Plants Directive (mg/Nm³) <sup>3</sup>	EU Industrial Emissions Directive (mg/Nm <sup>3</sup> ) <sup>4</sup>	IFC's Emission Guidelines for Small Combustion Facilities Emissions (3MWth – 50MWth) <sup>5</sup>			
Sulphur oxides	400	400	0.5 percent Sulphur or lower percent Sulphur if commercially available without significant excess fuel cost			
Nitrogen Oxides	300	300	N/A			
Total suspended particulates	20	30	96 ppm (Electric generation) 150 ppm (Mechanical drive)			

*Table 4. IFC Performance Standards and EBRD Performance Requirements - Key Relevant Requirements Roles and Responsibilities* 

Table 4: IFC Performance Standards and EBRD Performance Requirements - Key Relevant Requirements					
	Greenhouse Gases	Climate Change Mitigation & Adaption			
IFC	PS1	PS1			
Performance	"The risks and impacts identification	"The risks and impacts identification process			
Standards	process will consider the emissions of	will consider the emissions of greenhouse			
	greenhouse gases, the relevant risks	gases, the relevant risks associated with a			
	associated with a changing climate and the	changing climate and the adaptation			
	adaptation opportunities, and potential	opportunities, and potential transboundary			
	transboundary effects, such as pollution of	effects, such as pollution of air, or use or			
	air, or use or pollution of international	pollution of international waterways."			
	waterways."				
		PS4			
	PS3	"Performance Standard 4 recognizes that			
	"Performance Standard 3 recognizes that	project activities, equipment, and			
	increased economic activity and	infrastructure can increase community			
	urbanization often generate increased	exposure to risks and impacts. In addition,			
	levels of pollution to air, water, and land,	communities that are already subjected to			
	and consume finite resources in a manner	impacts from climate change may also			
	that may threaten people and the	experience an acceleration and/or			
	environment at the local, regional, and	intensification of impacts due to project			
	global levels. There is also a growing	activities. While acknowledging the public			
	global consensus that the current and	authorities' role in promoting the health,			
	projected atmospheric concentration of	safety, and security of the public, this			
	greenhouse gases (GHG) threatens the	Performance Standard addresses the client's			
	public health and welfare of current and	responsibility to avoid or minimize the risks			

<sup>&</sup>lt;sup>3</sup> Directive (EU) 2015/2193 of the European Parliament and the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants

<sup>&</sup>lt;sup>4</sup> Directive 2010/75/EU of the European Parliament and the Council on industrial emissions

<sup>&</sup>lt;sup>5</sup> IFC's General EHS Guidelines: Environmental - Air emissions and ambient air quality

	Adriatic Eastern Mining	Metals
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future generations. At the same time, more

and impacts to community health, safety, and

	efficient and effective resource use and pollution prevention and GHG emission	security that may arise from project related- activities, with particular attention to
	avoidance and mitigation technologies and	vulnerable groups."
	practices have become more accessible and	"The project's direct impacts on priority
	achievable in virtually all parts of the	ecosystem services may result in adverse
	world."	health and safety risks and impacts to
		Affected Communities. With respect to this
	"In addition to the resource efficiency	Performance Standard, ecosystem services are
	measures described above, the client will	limited to provisioning and regulating services
	consider alternatives and implement	as defined in paragraph 2 of Performance
	technically and financially feasible and cost-	Standard 6. For example, land use changes or
	effective options to reduce project-related	the loss of natural buffer areas such as
	GHG emissions during the design and	wetlands, mangroves, and upland forests that
	operation of the project. These options may	mitigate the effects of natural hazards such as
	include, but are not limited to, alternative	flooding, landslides, and fire, may result in
	project locations, adoption of renewable or	increased vulnerability and community safety-
	low carbon energy sources, sustainable	related risks and impacts. The diminution or
	agricultural, forestry and livestock	degradation of natural resources, such as
	management practices, the reduction of	adverse impacts on the quality, quantity, and
	fugitive emissions and the reduction of gas	availability of freshwater, may result in health-
	flaring.	related risks and impacts. Where appropriate
	For projects that are expected to or	and feasible, the client will identify those risks
	currently produce more than 25,000 tonnes	and potential impacts on priority ecosystem
	of CO2-equivalent annually, the client will	services that may be exacerbated by climate
	quantify direct emissions from the facilities	change. Adverse impacts should be avoided,
	owned or controlled within the physical	and if these impacts are unavoidable, the
	project boundary, as well as indirect	client will implement mitigation measures in
	emissions associated with the off-site	accordance with paragraphs 24 and 25 of
	production of energy used by the project.	Performance Standard 6.
	Quantification of GHG emissions will be	
	conducted by the client annually in	
	accordance with internationally recognized	
FBRD	PR3	Section III: Scope
Performance	"This Performance Requirement (PR)	"EBRD recognises the importance of
Requirements	outlines a project-level approach to climate	addressing both the causes and the
-	impacts and greenhouse emissions,	consequences of climate change in its
	resource management and pollution	countries of operations. EBRD will engage,
	prevention and control. It builds on the	whenever appropriate, in innovative
	mitigation hierarchy, the principle that	investments and technical assistance to
	environmental damage should as a priority	support no/low-carbon investments and
	be rectified at its source, and the "polluter	climate change mitigation and adaptation
	pays" principle. The project related risks	opportunities, as well as identify opportunities
	and impacts associated with resource use,	to avoid, minimise or reduce greenhouse gas
	and the generation of waste and emissions	emissions in projects. EBRD will require its
	need to be assessed in the context of	clients to assess risks caused by climate
	project location and local environmental	change to the projects. EBRD will also support
	conditions. Appropriate mitigation	its clients in developing climate adaptation

measures, technologies and practices

measures and climate resilient investments as



should be adopted for efficient and effective resource use, pollution prevention and control and avoidance, minimisation and reduction of greenhouse gases (GHG) emissions."

"The client's environmental and social assessment process will consider alternatives and implement technically and financially feasible and cost-effective options to avoid or minimise projectrelated GHG emissions during the design and operation of the project. These options may include, but are not limited to, alternative project locations, techniques or processes, adoption of renewable or low carbon energy sources, sustainable agricultural, forestry and livestock management practices, the reduction of fugitive emissions and the reduction of gas flaring."

"For projects that either (1) have, or are expected to have, gross emissions in excess of 100,000 tonnes CO2-equivalent annually, or (2) are expected to result in a net change in emissions, positive or negative, of more than 25,000 tonnes of CO2-equivalent annually post-investment, the client will quantify these emissions in accordance with EBRD Protocol for Assessment of Greenhouse Gas Emissions. The scope of GHG assessment shall include all direct emissions from the facilities, activities and operations that are part of the project, as well as indirect emissions associated with the production of energy used by the project. Quantification of GHG emissions will be conducted by the client annually and reported to EBRD."

well as in managing risks caused by climate change."

#### PR1

"... risks caused by climate change to the project shall be considered throughout the assessment process."

#### PR3

"The client will, as part of its environmental and social assessment process, consider the potential cumulative impacts of water abstraction upon third party users and local ecosystems. This assessment will also consider the potential effects of climate change. Where adverse risks and impacts are identified, the client will implement appropriate mitigation measures to mitigate such risks and impacts in accordance with the mitigation hierarchy approach and GIP."

#### PR4

"The client will identify and assess the potential risks caused by natural hazards, such as earthquakes, droughts, landslides or floods as these relate to the project. This may require the clients to undertake an assessment of the vulnerability of the project to risks caused by the climate change and identify appropriate climate resilience and adaptation measures to be integrated into the project design."

#### PR6

"The baseline assessment will consider, but will not be limited to relevant risks to biodiversity and ecosystem services, focussing... impacts relevant to climate change and adaptation."

"In accordance with GIP, the assessment will consider: (i) the project's potential impacts on ecosystem services, including those that could be exacerbated by climate change; (ii) the use of, and dependence on, these ecosystem services by potentially affected communities and/or indigenous peoples; and (iii) the project's dependence on these ecosystem services."



# 3.0. Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below.

Roles	Responsibilities
Executive Director	<ul> <li>Ensure adequate resources are provided for implementation of this Plan.</li> <li>Ensure the Plan is distributed to all relevant Contractors and subcontractors.</li> </ul>
Environmental Manager	<ul> <li>As required, review and update the Plan (in coordination with Environmental Associate).</li> <li>Ensure technical support is provided to Contractors for implementation of the Plan.</li> <li>Ensure related trainings are provided by the contractors and the Project Company, through review of training records and related training documents.</li> </ul>
Environmental associate	<ul> <li>Main responsibility for ensuring the Implementation of the Plan and reporting Implementation performance of the Plan to the upper management. As required, review and update the Plan. Collect data from the air quality management practices, developed and implemented actions and performance of actions.</li> </ul>
All stuff	<ul> <li>Participate in trainings required.</li> <li>Ensure self-competency in terms of implementation of this plan.</li> </ul>
Contractors	<ul> <li>Responsible for reading, understanding, and implementing this management plan within their areas of work and responsibility.</li> <li>Communicate the contents of this management plan to their workforce and provide the necessary training.</li> <li>Ensure that the procedures established in this management plan are complied with by their workers and any subcontractors.</li> <li>Ensure that any environmental incidents are reported to Eastern Mining, according to procedures.</li> </ul>



## 4.0. Air Quality and GHG Plan

#### 4.1. Potential air emissions

Potential air quality emissions considered within this air quality management plan are categorised as:

- Fugitive dust:
  - Particulate matter generated from mining operations, earthmoving, material transport and handling, and unpaved road traffic, crushing and screening of ore;
- Combustion emissions:
  - Internal combustion engines (heavy and light vehicles, equipment motors, back-up generators); and
- Nuisance odours:
  - Non-health-related gaseous emissions affecting employees or nearby residents.

Project activities will include use of significant quantities of fuel for plant, equipment and machinery operation, resulting in greenhouse gas emissions during construction and operation phase of the Project. These greenhouse gas emissions will be monitored as the project continues. Diesel generators are used at Rupice until location has access to grid power from local power grid, and at VPP, power from the power grid will be used (supplemented by solar energy production at the administrative building in Veovača).

Table 5. shows the list of generators installed at Rupice, which are currently in daily operation. Generators are used to power the offices, to power works in the portals, and infirmary in Rupice and pumps for water supply system. The table shows average monthly consumption, which was calculated based on a four-month monitoring of diesel fuel consumption.

Table 5. List of generators and their consumption				
Concrator	Average monthly			
Generator	consumption (liter/month)			
22 kva	890 l/m			
50 kva	2110 l/m 840 l/m			
45 kva				
500 kva	9780 l/m			
5 kva	40 l/m			
6 kva	164,5 l/m			
1000 kva 11713 l/m				

During construction earth works associated with surface infrastructure and initial earth movements at Rupice, as well as along the haul route, at the Veovaca plant site and within the TSF area could all lead to the potential emission of fugitive dust.



The Vares Project comprises of the polymetallic underground Rupice Mine and the Vares Processing Plant (VPP) with associated infrastructure. The following infrastructure is associated with the Project:

- > Rupice Infrastructure, comprising:
  - Underground workings, including ventilation shafts and primary crusher;
  - Waste Rock Stockpile;
  - Three Run-of-mine (ROM) stockpiles of varying grade;
- Haul Route: 24.5 km long haul route, connecting the Rupice mine to the Vares Processing Plant utilising existing (sealed and unsealed) roads, new planned roads and forest tracks.
- > Vares Processing Plant Comprises of:
  - Grinding facility with 3 stage crushing;
  - Emergency stockpile and crushed ore receiving hopper (enclosed with dust collector);
  - Coarse ore day bins with conveying system (dust collector at transition points); and
  - Dry-stack Tailings Storage Facility (TSF).

During operations, the potential for dust and fine particulate matter emissions from the mine activity at Rupice is very low as the work will take place below ground. Some dust will be generated from the handling of ore and waste rock from stockpiles to be transported either to VPP or to the backfill plant.

Crushed ore will be transported by haul road to the Vares Processing Plant to the southeast, where it will be stockpiled before being processed.

The erosive action of vehicle traffic on haul roads is considered to be a significant potential source of dust as the mechanical action of wheels on the road surface causes dust lying on the road surface to be thrown up and become entrained in a moving airflow. The deposition of this dust is dependent on the particle size and meteorological conditions. The erosivity of unsealed haul roads depends on the number and size of wheels, vehicle speeds and the moisture content of the surface material.

During closure, the demolition and removal of buildings at Veovaca processing plant could lead to dust emissions, though as earth works will be limited, these are not expected to be significant. Earth works at Rupice may lead to some short-lived dust emissions. As the haul route will not be altered post-closure no additional dust emissions are expected to occur.

Combustion Emission Sources could include emissions from diesel fired back up power generators (Mains power from the nearby electricity grid, supplemented with solar power will be utilised by the project). The use of plant equipment and machinery for mine operations will



also result in emissions of nitrogen oxides, particulate matter, sulphur oxides and carbon monoxide.

Nuisance odours during construction and operations could be generated from improperly managed domestic waste (storage and haulage) and domestic wastewater treatment/disposal.

Table 6. below presents a summary of the various types of emissions that could affect air quality during construction and operations, by Project component.

Table 6: Potential Sources of Air Quality Emissions						
Project	Releases and	Fugitive	Combustion	Nuisance	Other	Characteristics
Construction	Effects	Dusi	Gases	Outurs		
Earthworks, site clearance and construction	<ul> <li>Dust and dust blow from exposed surfaces.</li> <li>Vehicle</li> </ul>	Х	X			Fugitive dust generated by truck movements and earth moving equipment; short duration.
	emissions		A			diesel particulates; short duration.
Crushing, loading, hauling of aggregates used in construction	<ul> <li>Mobile crushing plant</li> </ul>	Х				Fugitive dust from mobile crushing plant, controlled by fitting plant with water spray to reduce emissions.
	<ul> <li>Dust generated by loading and vehicle entrainment</li> </ul>	X				Fugitive dust generated from haul trucks on haul roads and construction access roads. Controlled with frequent maintenance of haul road surface and water sprays to dampen the surface in potentially dusty conditions.
	<ul> <li>Vehicle exhaust emissions</li> </ul>		Х			NO <sub>x</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub> , and particulate emissions
Mining						1
Drilling and blasting	Dust from     drilling	Х				Fugitive dust generated during drilling activities, mitigated by dust filters and contained within the mine.
	Dust from blasting	Х				Fugitive dust generated instantaneously during blasting; intermittent and contained within the mine.
	Blasting gas		Х			Combustion gases from blasting.
Loading, hauling and	<ul> <li>Dust generated by</li> </ul>	Х				Fugitive dust from ore/waste rock may



related mine traffic	<ul> <li>loading and vehicle entrainment</li> <li>Vehicle exhaust emissions</li> </ul>		Х			contain low concentrations of metals; only emitted during dry periods; controlled with watering of haul roads and at load out areas NO <sub>x</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub> , and particulate emissions.
Crushing and Ore	Preparation					
Crushing Plant	• Dust	Х				Fugitive dust escaping from crusher; controlled with water sprays and enclosure (dust extraction).
Loading, hauling, and fine ore deposition	<ul> <li>Dust generated by loading and vehicle entrainment</li> </ul>	Х			Х	Fugitive dust from fine ore may contain low concentration of metals; only emitted during dry periods; controlled with watering of haul roads, at load out areas and inherent moisture in the heap
	<ul> <li>Vehicle exhaust emissions</li> </ul>		Х			NO <sub>x</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub> , and particulate emissions.
Support Infrastruc	ture					
Domestic wastewater treatment	Nuisance     odours			X		Septic tanks and wastewater treatment plant.
Process plant and supporting infrastructure and traffic movements on roads	Dust	Х				Dust generated from demolition activities, earthworks. Water spray where necessary.
Closure of Rupice and demolition of surface infrastructure	Dust	Х				Dust generated from demolition activities, earthworks. Water spray where necessary.

The most significant source areas considered likely to contribute to dust emissions from the Project during construction have been identified as fugitive dust emissions from earthmoving activities taking place including the construction of haul roads.

Dust emission rates from construction and closure activities have not been separately calculated, because they would be short term, temporary and the dust emissions will follow the same dispersion patterns as the dust from operational activities.

The most significant sources of air emissions during operations are considered to be:



- Dust emissions from material haulage, tipping and crushing activities; and
- Vehicle exhaust gases (mobile and static plant fuelled by diesel), with emissions including NOx, particulates (PM<sub>10</sub>) and CO<sub>2</sub>.

### 4.2. Mitigation Measures for Air Quality Impacts

- Fugitive Dust Mitigation Measures

To decrease potential impacts to air quality to the extent practical, substantial fugitive dust controls have been incorporated into the engineering design, which include:

- Enclosure of primary and secondary crusher with dust extraction and filtration devices;
- Use of water sprays at material stockpile/hopper loading points and other identified dust emission points, updated as required by the AQMP
- Dust raised from unpaved road surfaces during haulage has been identified as the most significant emission source. In order to remove the risk of unacceptable impact, it will be necessary to provide and maintain sections of hard surfaced road near residential locations and near to particularly sensitive habitats. These will be identified in the detailed design of the haul road.

Additional dust control measures will be systematically utilised by the Project during construction and operations, as set out in the AQMP; and include:

- Road control programmes Appropriate dust suppression techniques will be undertaken, including spraying roads/vegetation with water and/or application of stabilising agents such as salt (winter), gravel, or environmentally inert chemicals, as appropriate. In addition, adequate equipment and personnel will be supplied to maintain road surfaces to control dust on the haul and access roads;
- Speed and off-road restrictions Establishing and enforcing Project safety rules, including the posting and enforcement of speed limits on the haul and access roads and restricting off-road travel to the maximum practical extent will limit the potential for additional fugitive dust emissions, as well as public safety hazards. Those employees whose jobs include driving, as well as haulage contractors, will be advised of the safety rules and that driving off established roadways is not allowed. Instruction on driving safety and observation of speed limits will be included in the new employee orientation and annual refresher training and in task training for specific job assignment. This aspect is developed further in the Traffic Management Plan.
- Combustion Mitigation Measures

Combustion emissions have been reduced for the Project in the following ways:

• Use of modern, energy efficient electrical equipment and mobile plant with fuelefficient engines;



- Use of equipment exhaust controls. Exhaust controls on mobile equipment must be properly installed, positioned, maintained, and replaced as needed throughout the useful life of the equipment. Procurement of updated equipment with emissions controls and proper operation, care, and maintenance of the equipment will reduce combustion emissions to acceptable levels for vehicles and generators, as well as allowing the equipment to run more efficiently and increasing its operational lifespan.
- Nuisance Odour Mitigation Measures

To reduce impacts from nuisance odours sewage treatment and waste storage facilities will be operated properly and monitored for operational performance, including nuisance odours.

- Project facilities will incorporate appropriate waste storage and handling procedures; and
- Sewage treatment facilities will be operated properly and monitored for operational performance, including nuisance odours.

### 4.3. Residual Impacts to Air Quality

Without appropriate mitigation, nuisance dust and fine particulates could have a moderate adverse impact upon on employees and sensitive receptors in the immediate vicinity of the site (humans residing close to the project haul roads and adjacent habitats). The AQMP will therefore be implemented to minimise nuisance dust emissions and control fine particulates. With appropriate mitigation measures it is considered that the impact on flora, employees and human receptors will be of negligible to minor significance in both the short term and the long term.

With appropriate management of sewage and waste management facilities, nuisance odourrelated impacts are considered negligible and not significant, as little putrescible waste will be produced. With appropriate mitigation measures applied, the residual impact is considered negligible in both the short term and the long term for all sensitive receptors.

Table 7. presents a summary of the anticipated air quality impacts, relevant operational phase and planned mitigation measures.

Table 7: Summary of Air Quality Impacts					
Impact	Mining Stage	Impact before mitigation	Key Mitigation	Residual Impacts	
Fugitive Dust and PM10 emissions from earth works, loading, haulage,	Construction	Minor	<ul> <li>Enforce speed limits for heavy equipment and general traffic on unpaved roads.</li> <li>Restrict off-road travel unless absolutely necessary.</li> <li>Limit number of trips with efficient loading procedures for material transport.</li> <li>Apply stabilizing agents on high dust areas.</li> <li>Top-wet truckloads of dusty material.</li> </ul>	Negligible	



crushing			<ul> <li>Spray water on unpaved roads and traffic areas.</li> <li>Maintain gravel/laterite cover on unpaved roads and traffic areas.</li> <li>Install dust suppression / control equipment at loading/unloading, storage, and material transfer points.</li> <li>Crusher contained within a purpose designed building.</li> </ul>	
	Operation	Minor/Moderate	<ul> <li>All of the above mitigation measures.</li> <li>Use employee personal protective equipment where required and occupational medical monitoring.</li> <li>Provide sections of hard surfaced road near residential locations and along the section of road within/near to the mountain hay meadow and hydrophilous tall herbaceous vegetation habitats.</li> </ul>	Negligible
	Closure	Minor	• All of the above mitigation measures.	Negligible
Combustion	Construction	Minor	• Enforce speed limits for heavy equipment and	Negligible
emissions	Operation		general traffic on unpaved roads.	
from Engine sources (mobile plant and other vehicles) Emissions	Closure		<ul> <li>Train operators and drivers about maximum idling times.</li> <li>Install appropriate emissions control equipment on vehicles.</li> <li>Perform regular maintenance and inspection of vehicles and mobile equipment, including their emissions control systems.</li> </ul>	
Nuisance Odours	Operations	Minor	<ul> <li>Practice appropriate waste reduction and recycling procedures to minimise waste.</li> <li>Incorporate appropriate waste handling and storage procedures, as per the Waste Management Plan.</li> <li>Operate sewage treatment facilities properly and monitor operational performance (including odours).</li> </ul>	Negligible



## 4.4. Mitigation Measures of GHG and residual impacts

GHG emissions have already been reduced through the design of the Project as follows:

- minimizing the land clearance for project facilities;
- minimise tree felling (only trees needing to be removed for safety reasons above the haul road will be felled);
- providing improved building fabrics for buildings to minimize heat losses as well as reducing noise impacts;
- use of modern, energy efficient electrical equipment and mobile plant with fuelefficient engines.
- A 32.4kWp roof-mounted solar PV array has been included at the VPP admin building. According to the application that monitors operation of solar panels for a monitoring period of one year, the saving is 30.8 tCO<sub>2</sub>e.
- We are working on a detailed energy audit with measurements for existing Administration Building, which will ultimately define measures for energy efficiency of the building itself, and replacement of greenhouse gases through reduction of energy needs (through a more efficient system of heating, lighting, ventilation and insulation). Measurements and analyses that will be carried out in addition to creating a detailed energy audit are:
  - Analysis of construction characteristics of the building
  - Analysis of thermal characteristics of the building cover
  - Analysis of all existing thermo-technical systems in the building
  - Review and analysis of data on consumption of heat and electricity, water for an optimal 36 months
  - Calculations in terms of heat transfer, maximum surface humidity, internal condensation, calculation of dynamic thermal characteristics
  - Calculation of required heat for heating and cooling
  - Assessment of energy efficiency and identification of energy saving measures
  - Air permeability measurement
  - Blower door test
  - Thermal imaging
  - Measurement of area illumination and
  - Creation of a detailed energy audit with techno-economic analysis for proposed energy efficiency (EE) improvement measures.
- We are working on researching of potential and possibilities for other types of renewable energy sources, the British company Alfa energy has been engaged, which works on creation and implementation of "Zero Emissions - Net Zero", SBTi submission, creation of reports - SECR, LCA, TCFD Gap Analysis, Sustainability Report Gap Analysis, CDP Certification Support, ISO9001 certification.



GHG mitigation opportunities are also being explored further as the project design is advanced and operational activities are further developed. These include:

- Although haulage works are likely to be undertaken by contractors, consideration will be given to the choice of vehicles used for both the mine fleet and the haulage fleet. Where possible fuel efficiency will be a factor in the selection of vehicles as this will not only reduce emissions but also reduce operating costs. There is currently considered to be limited potential for the use of biodiesel to help reduce emissions, however the Project will continue to monitor potential options;
- In addition to the efficiency of the fleet itself, opportunities will be sought for improving the use of the vehicles. Scheduling of excavation and haulage activities to optimize activities and avoid double handling, where this is operationally practical. As the mine logistics and scheduling are progressed, consideration will be given to the optimisation of vehicle and equipment movements to improve efficiency and reduce overall CO<sub>2</sub> emissions; and
- The upgrading of energy-intensive machinery over time will be used to improve efficiency and reduce CO<sub>2</sub> emissions compared to plant that has been removed. Further energy efficiency opportunities will also be investigated.

The Project will continue to seek to reduce its GHG emissions throughout its lifecycle. Reporting, in compliance with IFC requirements, which will be undertaken prior to commencement of development and annually for the duration of operations, will allow targeted efforts to improve efficiency and reduce emissions.

Table 8. presents a summary of the anticipated GHG impacts and planned mitigation measures. It is acknowledged that whilst the main impact associated with GHG emissions is their contribution to climate change, the Vares Project is one of a myriad of human sources impacting the emissions of GHGs and contributing to climate change, and projected changes in local, regional, and global climate cannot be attributed in isolation to the proposed Project.

Table 8: Summary of Mitigation and Residual Impacts					
Impact	Mining Stage	Impact before mitigation	Key Mitigations	Residual Impacts	
Greenhouse Gas emissions from onsite power generation, onsite stationary and mobile plant, heating plant and explosives emissions, tree felling and vegetation clearance, and use of imported grid electricity.	All	Significant Adverse (in absolute terms – 3.753.61 1kgCO <sub>2</sub> e) Neutral (in relative terms compared to global average emissions for gold and silver recovery)	Energy efficiency measures incorporated into engineering design. Require use of modern, energy-efficient mobile plant. Implement logistics management of haulage and excavation activities to minimise idling and double-handling. Perform regular maintenance on mobile plant. Installation of 32.4kWp solar PV array on administration building Seek additional opportunities for GHG emissions reduction throughout Project lifecycle, including consideration of	Significant Adverse (in absolute terms – less than 3.753.611kgCO 2e) Neutral (in relative terms compared to global average emissions for gold and silver recovery)	
-			additional renewable energy opportunities.		



	During detailed design, energy-intensive uses such as the crusher plant will be assessed for energy efficiency opportunities.
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In Table 8, the number was changed from 557,000t CO<sub>2</sub>e to 3,753,611 CO<sub>2</sub>e because there were changes in the design of plant and equipment, and accordingly a new calculation was made. Also, preparation of "Full Carbon Footprint" by company "Alfa energy" is underway, as well as development of the "Net Zero Scope I Report", which is expected by the end of June 2023.

## 4.5. Projected Physical Risk of Climate Change Impacts on Project

To assess the physical risks that Climate Change poses to the project the following matrix has been developed to identify what those risks are, how serious a threat they pose and any potential mitigation or adaptation that can be used to address the risk.

Table 9: Projected Physical Risk of Climate Change Impacts on Project						
Climatic	General Impact	Component/sub	Vulnerability	Adaptation		
Factor		structure impacted				
Soil Drying	Increase will affect water tables and could potentially adversely affect foundation structures.	Increased risk of basement heave or subsidence, water ingress, consequential damage to finishes and stored items. Ground shrinkage can lead to failure of electrical, gas and water pipes,	Low The finishes are likely to be of low importance in an industrial setting but alertness to possible physical	Regular monitoring and maintenance of site infrastructure will be undertaken to identify early signs of failings and take corrective action.		
		foundations and sub- structures.	damage should be high.			
Temperatur e	Maximum and minimum changes will affect heating, cooling and air conditioning costs. Frequency of cycling through freezing point will affect durability. Daily maximum and minimum temperature will affect thermal air movement.	Existing air conditioning and ventilation loads may increase. Overheating of mechanical and electrical equipment effecting lifespan, reliability and potential health and safety issues. Plastic materials will have a reduced lifespan. Structure/cladding/roof ing membranes, sealants, pavements and roads have increased risk of cracking. Reduced	Medium Average monthly temperatures in Bosnia and Herzegovina are projected to increase by between 1-2°C over the next 20yrs based on current levels of warming (using the RCP8.5 scenario, which is looking increasing	Additional air conditioning will be considered in areas where increased temperatures may adversely affect the workforce or vulnerable machinery and equipment. Adequate provision will be made to ensure explosive stores and fuel stores are maintained at safe operating temperatures. Ensure proactive monitoring and maintenance procedures in place for building materials and site infrastructure. Provision of potable and non- potable water will be increased as required to		



Table 9: Projected Physical Risk of Climate Change Impacts on Project						
Climatic Factor	General Impact	Component/sub structure impacted	Vulnerability	Adaptation		
		power lines (there is no external connection to the power transmission grid, but overheating may be an issue even on the local onsite connections). Building overheating (due to increased fabric efficiency and incorrect implementation). Decreased labour productivity.	summer in particular, temperatures could increase by as much as 3°C which would be significant. Drier environment and potential heat waves could mean higher risk of fires as well as dehydration and heatstroke.	ensure workers and processes are sufficiently hydrated. Monitoring of fire risk will be routinely undertaken and active steps to remove possible ignition sources and fuel sources, particularly in dry weather will be undertaken.		
Relative Humidity	Increase will affect condensation and associated damage or mould growth.	Timber framed construction may be vulnerable. Internal walls, finishes and stored items.	Low	Monitoring will be undertaken for any mould growth, which has potential to cause health and safety issue. High levels of humidity can make heat stroke more likely, so provision will be made to ensure workforce safety.		
Precipitatio	Increase and decrease will affect water tables; durability and risk of water ingress will be affected by combination of precipitation increase and gales.	Increased risk of roof failure, increased chances of flooding. Structure/ cladding/ roofing membranes and sealants have increased risk of cracking due to different moisture movements. Potential damage to foundations and basements. Delays in construction and increased costs. Increased risk of subsistence.	Low The median rainfall levels are projected to fall although the intensity of individual events may increase. Higher intensity events may lead to more risk of flooding and potentially landslides and mud slides.	The VPP site elevation creates a ground surface fall away from the nearby Tisovici settlements. Stormwater and runoff is collected by onsite and perimeter drains which outflow to the Mala river. The potential for an intense thunderstorm event to overwhelm the site drainage is low as the drainage has been designed for a 1 in 100 year recurrence interval. Further information can be found in the Hydrology and Hydrogeology chapter at Section 5.7.3.1) At Rupice, during construction, sedimented run- off from site clearance and earthworks will drain to settlement ponds with decant to the Vruci Potok (Hot Stream) valley. Surface infrastructure and groundworks are all located on the western side of the Kiprovac ridge, below the		



	Table 9: Pro	jected Physical Risk of Clim	ate Change Impact	s on Project
Climatic	General Impact	Component/sub	Vulnerability	Adaptation
Factor		structure impacted		
Climatic Factor	Table 9: Pro General Impact	jected Physical Risk of Clim Component/sub structure impacted	ate Change Impacts Vulnerability	s on Project Adaptation ridge line and therefore no expected overland flow routes are present connecting to the Borovicki river. The Vruci Potok is currently subject to frequent heavy sedimentation and turbidity from non-project related forestry activities. One of the first scheduled construction activities will be the excavation and lining of the non-contact water settlement pond which is located at the foot of the site and within a natural drainage line that collects from the site footprint. The settlement pond is designed to retain two days residence water collected from the site and has sufficient capacity to hold a design stormwater flow. Where appropriate, the use of flood-proof barriers in doorways will be considered. Any vulnerable electrical infrastructure will be elevated to a safe height to prevent water ingress. The stability of banks and hillsides in working areas of the mine as well as the processing areas and access tracks will be regularly assessed to confirm it is safe to operate near them. Similar consideration will be given to the haul route to ensure it is not at risk of flooding or of
				landslides/mudslides. The monitoring regime will be stepped up during periods of
				prolonged or intense rainfall.
Gales	Increase will	Increased risk of	Low	Wind speeds will be
	affect need for	damage to roofing and	<b>T</b> I I ''	monitored for climate-related
	weather	higher risk of failure.	The baseline	increases. If observed
	tigntness, risk	increased risk of materials and dust	assessment	appropriate action should be taken
	ingress	blowing around	average wind	נמגבוו.
	effectiveness of	Risk of damage to	speeds and even	
	air	property or life either	maximum gusts	
	conditioning,	through direct wind	are not expected	



	Table 9: Projected Physical Risk of Climate Change Impacts on Project						
Climatic Factor	General Impact	Component/sub structure impacted	Vulnerability	Adaptation			
Radiation	energy use, risk of roof failures.	action or through trees being blown over. Delays to work. Window specification	to be a significant issue in this location.	If this is found to be a			
	affect need for solar glare control.	and glare control requirement.	Glare is unlikely to be an important consideration in this situation.	problem, it would be relatively easy to retrofit tinted coverings to glass or issue sunglasses.			
Cloud	Increase/decrea se in seasonal lighting needs.	Changes in lighting systems and glare control requirement.	Low Most operations will either be underground or indoors. Either way, lighting systems will be available to ensure safe operation can continue.	If this effect is observed, then lighting may need to be improved either by installing brighter bulbs or more lights, but this is not expected to be a significant risk to the project.			
Snow fall	According to the CCKP, winter precipitation rates are not predicted to vary significantly over the LoM, however the temperatures are expected to increase consistently by 1-2oC so this may increase the risk of flooding.		Medium Winter precipitation is not expected to vary significantly but the warmer temperatures may mean this is more likely to fall as rain rather than snow. If it does fall as snow and then temperatures rise sharply, there may be a greater chance of flooding from snow melt.	Active measures to minimise the risk of flooding, particularly during winter will be implemented where necessary. Flood-proof barriers in doorways will be installed if the risk of flooding increases. Any vulnerable electrical infrastructure will be elevated to a safe height to prevent water ingress.			



# 5.0. Monitoring and reporting

Monitoring of air quality and GHG will be undertaken to determine whether construction or operational activities are causing adverse impacts upon the surrounding environment. Monitoring points are defined in Table 10. Monitoring and reporting are defined in Table 11.

After a year of air quality monitoring in the areas directly or indirectly affected by the Project, this amendment to the AQGHGMP was made. Amendments and additions to this Plan were made according to reports and analyses of air quality monitoring. In the period between October 2021 and October 2022, active works were conducted on Rupice and on the VPP, and at the beginning of September 2022, works on the LOT 1 of haul road. The works themselves at these two locations did not create a significant impact on air quality, and during annual monitoring no excessive values were recorded at the air quality monitoring locations. Attachment 1 contains the results of measurements over course of a year, with Gradko tubes, Bergerhoff precipitators and measurements with a mobile station.

In the continuation of the Plan, new considered monitoring locations are proposed, and were selected according to most sensitive receptors, that is, locations that are under direct impact of the Project.

Table 10: Monitoring points					
Location	Monitoring Location	Latitude/Longitude	Approximate number of inhabitants	Distance	Source
Semizova Ponikva	AQ1	44°10'19.23"N 18°17'37.87"E	2	60-170m	Haul Road
Vareš	AQ2	44° 9'45.05"N 18°19'35.50"E	>100	280- 1000m	Haul Road
Južno od Vareša	AQ3	44° 8'31.27"N 18°19'36.92"E	20-30	80-300m	Haul Road
Bijelo Borje	AQ4	44° 8'16.14"N 18°20'2.96"E	4	7-100m	Haul Road
Tisovci	AQ5	44° 8'29.40"N 18°20'53.09"E	20	60-90m	Haul Road and Processing Plant
Pržići	AQ6	44° 8'38.22"N 18°21'11.84"E	10-20	400-800m	Processing Plant
Rupice - Mine	AQ7	44°11'48.19"N 18°14'7.41"E	15	1200m	Mine and Haul Road





Map 1. Air quality monitoring locations

In addition to these locations, additional temporary monitoring locations (at each active site) will be included in the monitoring on a weekly basis.

Table 11: Air Quality Monitoring and Reporting						
	Air quality, Monitoring and Reporting programme and procedures					
Monitoring approach	Baseline	A programme of ambient air sampling has data available from 2020-2021 in order to establish baseline conditions at key locations within the Project licence area				
Level 2 Management Plan	Level 2The Plan provides the details of mitigation measures to control emissions of dust, particulates and combustion gases, associated with mobile plantPlan					



	Air quality, monitoring and Reporting programme and procedures					
Level 3 Standard Operating Procedures	<ul> <li>The Plan will be underpinned by five Standard Operating Procedures that will provide specific guidance on sampling locations and procedures during the construction, operational and closure phases. The level 3 procedures will include the following:</li> <li>Visual inspection – routine visual monitoring to identify sources of dust emission, these inspection position will be determined to demonstrate coverage of identified sources of dust, including haul roads, crushing plant and load out points.</li> <li>Meteorological stations – location, download procedures, analysis of results and persons responsible for data collection and dissemination. The maintenance requirements for the met stations will also be identified together with non-conformance procedures.</li> <li>Location, collection, replacement and analysis of SO<sub>2</sub> and NO<sub>2</sub> samples, to include the</li> </ul>					
	<ul> <li>Execution, conection, repracement and analysis of SO2 and NO2 samples, to include the procedures for the collection of active tubes (sample number, date, time and location reference), procedure to ensure that tubes are not contaminated between the sampling location and site offices, and procedures for shipment to accredited laboratory. Chain of custody documentation.</li> <li>Location, collection and replacement of DustScan sticky pads, to follow similar procedures as those for SO<sub>2</sub> and NO<sub>2</sub> sampling.</li> <li>Environmental sampling and maintenance procedures for periodic TSP, PM10, and PM2.5 monitoring.</li> <li>The location of the monitoring instruments will be determined in a revision of the Level 2 AQMP. Dependent on suitable positions, this SOP will therefore be informed by an audit of the site at the onset of the operational phase, when the final details of the plan will be designed. The SOP will define the monitoring requirements and periods for the use of the equipment, which will be directed towards areas of the operation where the effectiveness of mitigation measures can be determined, thus providing feedback to the aims and</li> </ul>					
Monitoring str	ategy					
Visual inspection	Environmental staff	Routine observations developed against a graded system for inspecting and determining whether dust suppression techniques are sufficient or require further action.	<ul> <li>Organize trainings of environmental staff, shift supervisors and mine management to develop a consistent approach to auditing dust emissions before start of construction works.</li> <li>Organize trainings for contractors and subcontractors before start of construction works.</li> <li>Ensure that any environmental incidents are reported to Eastern Mining, according to procedures.</li> <li>A record to be made of any exceptional events that trigger additional dust management should be kept together with approach to mitigation.</li> </ul>			
NO <sub>x</sub> and SO <sub>x</sub>	Gradko tubes (or equipment with similar specifications for continuous monitoring)	Acrylic tubes designed for passive sampling of airborne gases. The tube contains an adsorbent material which can then be analysed by UV/Visible Spectrophotometry with reference to a UKAS (United Kingdom Accreditation	Recommended exposure length typically in the order of 4 weeks, after which time they are removed from their sampling location and returned to the manufacturer's accredited laboratory for analysis. Continuous use, reviewed annually.			

Table 11: Air Quality Monitoring and Reporting



Air quality, Monitoring and Reporting programme and procedures										
Dust	Using Bergerhoff dust collector	Bergerhoff's device for collecting total sediment consists of a container for collecting sample and a stand with a protective wire mesh, which serves to accommodate the container and to protect against birds. The vessel stands in a stand for a month and sediment and precipitation are collected in it. A plastic/glass container is used as a container for collecting total sediment and precipitation. Due to fact that in winter at temperatures below 0°C, and also during manipulation, it can happen that the glass container (preferably made of polyethylene) of the same shape and dimensions is used more often. As the efficiency of capturing the total sediment depends on the diameter of the inlet and the shape of vessel, it is important that the same vessels are used within one measuring network.	The sample collection container with the mark of the measuring point and the date of installation is placed in a rack, unfolded and left exposed for a period of 30 days, which means that 12 samples are collected at each measuring point in a year. At the end of the sampling period, the sample containers are collected, tightly closed and replaced with new, clean ones to collect next sample. In an upright position, the vessels are carefully delivered to the laboratory to determine the amount of total sediment and to determine the chemical composition of the total sediment.							
Particulates	Mobile Sampling	Mobile sampling equipment designed to measure particulates using low volume sampling pumps, which can also recover SO <sub>2</sub> , NO <sub>x</sub> , CO, O <sub>3</sub> , H <sub>2</sub> S.	Periodic deployment of a mobile air quality monitoring station Quarterly, subject to review of results.							
Data on GHG gases	Data collecting	Collect data such as grid power used, generator use, diesel consumption etc.	For annual reporting on GHG emissions.							

#### Table 11: Air Quality Monitoring and Reporting

## 6.0. Training

A number of training programs will be provided for the project personnel working with air quality, as well as the environmental team, and relevant contractors and subcontractors. This will include training in data collection and reporting as well as implementing practical measures.

Regular internal inspections will be made to ensure that the mitigation measures indicated in this Plan are applied during project.



# 7.0. Review and Update

The results of monitoring will be reported to responsible parties to ensure that the project activities comply with the national legislation and international standards.

Incident reporting will be managed in accordance with the ESMS and SEP. Incidents will be logged, assessed and reported to the ESG Committee. All incidents will be publicly disclosed, in accordance with the Stakeholder Engagement Plan and Emergency Preparedness and Response Procedure.

Annual ESG reporting will be undertaken by Adriatic in line with the GRI requirements and will be informed by an annual materiality assessment. This will include a section dedicated to ESG performance in the Annual Report to shareholders and, in line with the evolving scale of the Company's social and environmental impacts and stakeholder expectations, a dedicated Sustainability Report.

Depending on the monitoring results, The Air quality and GHG Plan will be reviewed and updated as necessary.



# Attachment 1. Monitoring results and analyses

	Octob	er 2021	November 2021		December 2021		Janua	ry 2022	Februa	iry 2022	March 2022		
	SO2	NOX	SO2	NOX	SO2	NOX	SO2	NOX	SO2	NOX	SO2	NOX	
Location	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	µg/m³*	
AQ1	5.04	3.34			<1.52	1.72	5.22		7.78	1.02	8.27	1.51	
AQ2	24.61	20.07			17.05	12.30	31.82	16.70	32.32	16.79			
AQ3	4.01	10.16			3.92	5.93	12.84	8.83	12.86	8.29	10.57	4.57	
AQ4	4.65			/	<1.52	2.57	10.95	3.01	9.77	2.89	9.20	1.64	
AQ5	9.05				4.01	2.97	11.88	3.21	7.98	2.74	11.79	2.47	
AQ6	7.44				3.73	3.06	11.95	3.46	7.05	2.95	11.03	2.87	
AQ7	6.43	6.97	/		3.37	3.70	12.04	4.41	9.15	7.21	9.43	2.48	
	April 2022		May 2022		June 2022								
	Apri	2022	May	2022	June	2022	July	2022	Augus	st 2022	Septem	ber 2022	
	April SO2	2022 NOX	May SO2	2022 NOX	June SO2	2022 NOX	July SO2	2022 NOX	Augus SO2	st 2022 NOX	Septem SO2	ber 2022 NOX	
Location	April SO2 μg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup>	May SO2 μg/m <sup>3</sup> *	2022 NOX μg/m <sup>3</sup> *	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup>	July SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup>	Augus SO2 μg/m <sup>3</sup> *	st 2022 NOX μg/m <sup>3</sup> *	Septem SO2 µg/m <sup>3</sup> *	ber 2022 NOX μg/m <sup>3*</sup>	
Location AQ1	April <mark>SO2</mark> μg/m <sup>3*</sup> 7.67	2022 NOX μg/m <sup>3</sup> * 1.91	May <u>SO2</u> μg/m <sup>3*</sup> 2.99	2022 NOX μg/m <sup>3</sup> *	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3</sup> *	July SO2 µg/m <sup>3*</sup> 7.08	2022 NOX μg/m <sup>3</sup> * 2.21	Augus	st 2022 NOX μg/m <sup>3</sup> * 5.33	Septem SO2 µg/m <sup>3*</sup> 4.11	ber 2022 NOX μg/m <sup>3*</sup> 1.49	
Location AQ1 AQ2	April SO2 μg/m <sup>3</sup> * 7.67	2022 NOX μg/m <sup>3</sup> * 1.91	May SO2 μg/m <sup>3</sup> * 2.99 <1.42	2022 NOX μg/m <sup>3</sup> * 1.15 12.39	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3</sup> * 1.79 16.26	July SO2 μg/m <sup>3</sup> * 7.08 3.98	2022 NOX μg/m <sup>3</sup> * 2.21 15.80	Augus SO2 μg/m <sup>3</sup> * 6.60 3.86	st 2022 NOX μg/m <sup>3</sup> * 5.33 19.95	Septem SO2 µg/m <sup>3*</sup> 4.11 2.74	ber 2022 NOX μg/m <sup>3</sup> * 1.49 14.62	
Location AQ1 AQ2 AQ3	April SO2 μg/m <sup>3</sup> * 7.67 5.61	2022 NOX μg/m <sup>3*</sup> 1.91	May SO2 μg/m <sup>3</sup> * 2.99 <1.42 3.59	2022 NOX μg/m <sup>3*</sup> 1.15 12.39 2.72	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup> 1.79 16.26 3.03	July SO2 μg/m <sup>3*</sup> 7.08 3.98 4.49	2022 NOX μg/m <sup>3*</sup> 2.21 15.80 4.37	Augus SO2 μg/m <sup>3</sup> * 6.60 3.86 4.57	st 2022 NOX μg/m <sup>3*</sup> 5.33 19.95 3.54	Septem SO2 μg/m <sup>3</sup> * 4.11 2.74 2.21	ber 2022 NOX µg/m <sup>3*</sup> 1.49 14.62 4.42	
Location AQ1 AQ2 AQ3 AQ4	April SO2 μg/m <sup>3</sup> * 7.67 5.61 5.99	2022 NOX μg/m <sup>3*</sup> 1.91 4.74	May SO2 µg/m <sup>3*</sup> 2.99 <1.42 3.59 3.17	2022 NOX μg/m <sup>3*</sup> 1.15 12.39 2.72 1.20	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup> 1.79 16.26 3.03 2.63	July SO2 μg/m <sup>3*</sup> 7.08 3.98 4.49 7.36	2022 NOX μg/m <sup>3*</sup> 2.21 15.80 4.37 2.43	Augus SO2 μg/m <sup>3*</sup> 6.60 3.86 4.57 6.72	st 2022 NOX μg/m <sup>3*</sup> 5.33 19.95 3.54 1.99	Septem SO2 µg/m <sup>3*</sup> 4.11 2.74 2.21 2.60	ber 2022 NOX μg/m <sup>3*</sup> 1.49 14.62 4.42 1.47	
Location AQ1 AQ2 AQ3 AQ4 AQ5	April SO2 μg/m <sup>3</sup> * 7.67 5.61 5.99 7.74	2022 NOX μg/m <sup>3*</sup> 1.91 4.74	May SO2 μg/m <sup>3</sup> * 2.99 <1.42 3.59 3.17 3.71	2022 NOX μg/m <sup>3*</sup> 1.15 12.39 2.72 1.20 2.11	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup> 1.79 16.26 3.03 2.63 7.06	July SO2 μg/m <sup>3*</sup> 7.08 3.98 4.49 7.36 7.49	2022 NOX μg/m <sup>3*</sup> 2.21 15.80 4.37 2.43 2.11	Augus SO2 μg/m <sup>3</sup> * 6.60 3.86 4.57 6.72 9.27	st 2022 NOX μg/m <sup>3*</sup> 5.33 19.95 3.54 1.99 2.41	Septem SO2 μg/m <sup>3*</sup> 4.11 2.74 2.21 2.60 3.66	ber 2022 NOX μg/m <sup>3*</sup> 1.49 14.62 4.42 1.47 1.82	
Location AQ1 AQ2 AQ3 AQ4 AQ5 AQ6	April <u>SO2</u> μg/m <sup>3*</sup> 7.67 5.61 5.99 7.74 6.58	2022 NOX μg/m <sup>3</sup> * 1.91 4.74 6.99	May SO2 μg/m <sup>3*</sup> 2.99 <1.42 3.59 3.17 3.71 2.69	2022 NOX μg/m <sup>3*</sup> 1.15 12.39 2.72 1.20 2.11 1.85	June SO2 µg/m <sup>3</sup> *	2022 NOX μg/m <sup>3*</sup> 1.79 16.26 3.03 2.63 7.06 5.55	July SO2 μg/m <sup>3*</sup> 7.08 3.98 4.49 7.36 7.49 6.43	2022 NOX μg/m <sup>3*</sup> 2.21 15.80 4.37 2.43 2.11 2.75	Augus SO2 μg/m <sup>3*</sup> 6.60 3.86 4.57 6.72 9.27 7.97	st 2022 NOX μg/m <sup>3*</sup> 5.33 19.95 3.54 1.99 2.41 3.13	Septem SO2 µg/m <sup>3*</sup> 4.11 2.74 2.21 2.60 3.66 2.88	ber 2022 NOX µg/m <sup>3*</sup> 1.49 14.62 4.42 1.47 1.82 5.14	

Table 1. Gradko tubes



#### Table 2. Periodic measurement of air quality

			NO2	2	No <sub>x</sub>		H₂S*		SO2	со		O3	PM2,5	Mjern	a nesig.	PM <sub>10</sub>	Mjerna nesig.
MJERNO	O MJES	STO	[µg/m	1 <sup>3</sup> ]	[µg/m	l₃] [†	ıg/m³]	[µį	g/m³]	µg/m³]	[]	µg/m³]	[µg/m³]	% []		[µg/m³]	%
AQ1 25/26.10.2021.	Se	mizova Ponikva	2.901	1	13.89 1.		1.94	4 6.61		0.084	64.8		7.21	3.4	40%	8.46	3.48%
AQ2 26/27.10.2021.	Vare	eš- Osnovna Škola	3.888		15.5		3.282	2	4.01	0.397		46.97	40.27	3.4	47%	42.51	3.47%
AQ3 27/28.10.2021.	Z	Zagarski potok	5.892	2	16.51 2		2.44	1	2.72	0.175		44.38	24.63	3.4	47%	27.01	3.47%
AQ4 22/23.10.2021.		Bijelo Borje	3.943	3	15.61 1		1.56 4		4.54	0.387		52.69	8.02	3.4	49%	27.01	3.47%
AQ5 20/21.10.2021.		Tisovci	6.482	2	17.74	4	2.39	9	.911	0.297		79	10.08	3.4	48%	12.2	3.47%
AQ6 21/22.10.2021.	Tis	sovci Spomenik	3.451	1	14.7	5	2.517	1	0.11	0.407		91.17	8.14	3.4	49%	9.18	3.48%
AQ7 23/24.10.2021.		Pržiči	3.284	4	15.8		3.08	)8 18.79		0.276		57.88	4.35	3.5	54%	5.5	3.51%
	Gra	anična vrijednost	85 μg/	m³		5	µg/m³	125	µg/m³	iμg/m³	12	20 μg/m³ 2	15 μg/m³	25 µ	ıg/m³	50 μg/m³	50 μg/m³
	Tole	rantna vrijednost	93 µg/	m³		10	µg/m³	125	µg/m³	iμg/m³		25	5.5 μg/m³	25.5	µg/m³	55 μg/m³	55 μg/m³
II kvartal 14.02.202 21.02.2022.	I kvartal 14.02.2022 21.02.2022.			N	IO2	No <sub>x</sub>	H₂	s*	SO₂	со		O₃	PM	2,5	Mjerna nesig.	PM <sub>10</sub>	Mjerna nesig.
Mjerna mjesta		[μg/m³]		[µg	ıg/m³] [μg/m³]		[µg/	/m³]	[µg/m³]	[µg/m	3]	[µg/m³]	[µg/	′m³]	%	[µg/m³]	%
AQ5 14/15.02.202	22.	Tisovci		15	15.23 2		2.	23	24.01	0.709	)	38.7	4.2	24	3.54%	5.27	3.51%
AQ6 15/16.02.202	22.	Tisovci Spom	enik	13	13.26 20.66		2.	47	21.62	0.733	3	37.2	10.	07	3.48%	12.13	3.47%
AQ7 16/17.02.202	22.	Pržići		4.3	3245	i 11.27		18	11.64	0.451	L	34.59	4.0	01	3.55%	4.81	3.52%
AQ2 17/18.02.202	22.	Vareš- Osnovna	a škola	3.	3.196 11.61		1.	93	25.81	0.551	L	48.5	5.9	96	3.50%	7.33	3.49%
AQ1 18/19.02.202	22.	Semizova Por	nikva	- 14	14.28 33.12		3.	46	13.53	0.606	5	35	6.4	41	3.50%	7.56	3.49%
AQ3 19/20.02.202	.2022. Južno od Vareša- Zagarski		eša-	5	.47	13.44	13.44 1.7		8.755	0.475	5	32.75	3.4	14	3.58%	4.35	3.53%
AQ4 20/21.02.202	22.	Bijelo Borj	je	6.	861	25.67	2.	54	7.851	0.487	7	56	29.	88	3.47%	33.2	3.47%
		Granična vrije	dnost	85 (µ	ug/m³]		5 (µg	g/m³]	125 [µg/m	³] 5 [µg/n	n³] :	120 [µg/m <sup>1</sup>	³] 25 [μg/	5 m³]	25 [μg/m³]	50 [μg/m³	] 55 [μg/m³]
		Tolerantna vrij	ednost	93 [µ	ug/m³]		10 [µ	g/m³]	125 [µg/m	³] 5 [µg/n	n³]				25.5 [μg/m³]	55 [μg/m³	] 55 [μg/m³]



III kvartal 25.05.2022- 01.06.2022.		NO2	Nox	H₂S*	SO₂	со	O3	PM <sub>2,5</sub>	Mjerna nesig.	PM <sub>10</sub>	Mjerna nesig.
Mjerna mjesta	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	%	[µg/m³]	%
AQ5 25/26.05.2022.	Tisovci	7.833	18.91	2.13	6.782	0.183	41	17.51	3.47%	19.23	3.47%
AQ6 26/27.05.2022.	Tisovci Spomenik	14.65	22.31	3.22	23.23	0.278	80.5	20.26	3.47%	21.98	3.47%
AQ7 27/28.05.2022.	Pržići	11.26	20.67	2.46	16.32	0.312	76.2	18.02	3.47%	20.15	3.47%
AQ4 28/29.05.2022.	Bijelo Borje	9.121	17.37	2.37	11.45	0.248	49.01	4.58	3.53%	5.72	3.51%
AQ1 29/30.05.2022.	Semizova ponikva	5.665	19.12	3.55	20.35	0.22	41.05	11.46	3.48%	13.51	3.47%
AQ3 30/31.05.2022.	Zagarski potok	9.817	19.76	2.86	11.46	0.234	41.45	8.7	3.48%	10.53	3.48%
AQ2 31/01.06.2022.	Vareš Osnovna škola	18.32	24.47	4.04	37.14	0.292	39.83	7.9	3.49%	9.84	3.48%
	Granična vrijednost	85 [μg/m³]		5 [μg/m³]	125 [µg/m³]	5 [μg/m³]	120 [µg/m³]	25 [μg/m³]	25 [μg/m³]	50 [µg/m³]	55 [μg/m³]
	Tolerantna vrijednost	93 [μg/m³]		10 [µg/m³]	125 [µg/m³]	5 [µg/m³]			25.5 [μg/m³]	55 [μg/m³]	55 [μg/m³]

IV kvartal 05.09.2022 12.09.2022.		NO2	Nox	H <sub>2</sub> S*	SO₂	со	O3	PM2,5	Mjerna nesig.	PM <sub>10</sub>	Mjerna nesig.
Mjerna mjesta	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	[µg/m³]	%	[µg/m³]	%
AQ1 05/06.09.2022.	Semizova Ponikva	15.23	20.21	2.23	24.01	0.709	38.7	4.24	3.54%	5.27	3.51%
AQ2 06/07.09.2022.	Vareš- Osnovna škola	7.91	8.19	3.83	15.96	0.452	30.92	2.38	3.47%	23.4	3.47%
AQ3 07/08.09.2022.	Južno od Vareša- Zagarski	5.202	8.35	2.37	14.1	0.261	29.57	8.92	3.48%	10.9	3.48%
AQ7 08/09.09.2022.	Pržići	2.48	3.862	3.14	16.74	0.306	80.1	15.22	3.47%	16.62	3.47%
AQ6 09/10.09.2022.	Tisovci Spomenik	5.249	7.057	3.38	58.09	0.338	54.47	7.79	3.49%	9.57	3.48%
AQ5 10/11.09.2022.	Tisovci	1.928	7.588	2.57	41.43	0.344	66.37	7.79	3.51%	6.55	3.50%
AQ4 11/12.09.2022.	Bijelo Borje	1.5	6.568	4.04	68.2	0.257	50.83	5.04	3.52%	6.3	3.50%
	Granična vrijednost	85 [μg/m³]		5 [μg/m³]	125 [µg/m³]	5 [μg/m³]	120 [µg/m³]	25 [μg/m³]	25 [μg/m³]	50 [μg/m³]	55 [μg/m³]
	Tolerantna vrijednost	93 [μg/m³]		10 [µg/m³]	125 [µg/m³]	5 [μg/m³]			25.5 [μg/m³]	55 [μg/m³]	55 [μg/m³]