



**ADRIATIC METALS PLC**  
**VARES PROJECT**  
**HAZARDOUS MATERIALS MANAGMENT PLAN**  
  
**AUGUST 2021**

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HAZARDOUS MATERIALS 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.

Version	Date	Authors	Reviewed	Pages
1.0	August 2021	Vildana Mahmutovic	Kate Harcourt	11

ISSUED FOR:  Design  Construction  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 Vares (BiH). Since 2017, ADT has been conducting research at several sites in the municipality of Vares, for the first time since the 1980s. The company's focus is on exploring minerals that have the potential to grow the company. The ultimate goal is to revive the mining industry in the municipality of Vares, by exploiting new and existing ore deposits. New potentials have been identified in Rupice, where research and exploitation of lead, zinc and barite have been carried out before. The deposits were further expanded and subjected to extensive research and contained significant amounts of lead, zinc, silver, gold, copper and barite. 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.

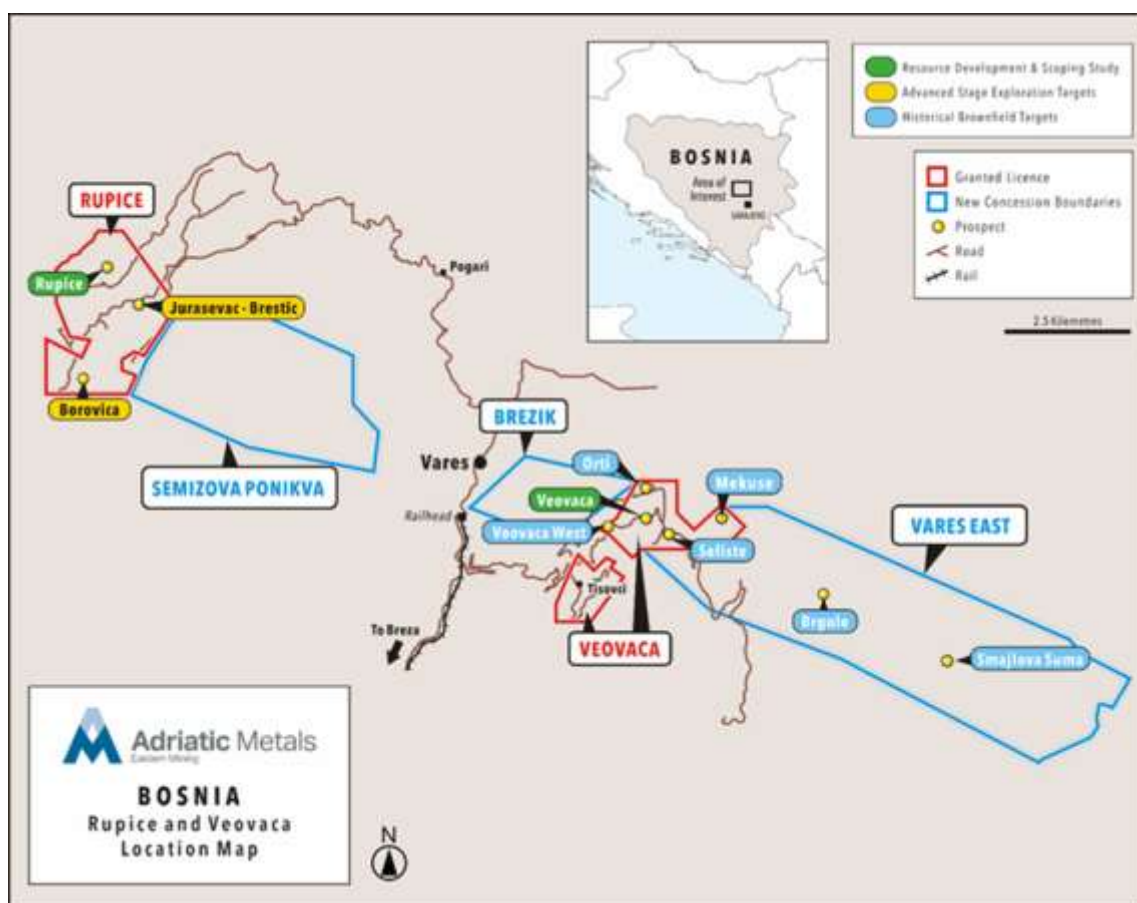


Figure 1.1. Map showing the location of the Vares Project

The goal of the Hazardous Materials Management Plan is protecting all employees and community members from exposure to materials that may harm their health and preventing the spillage of dangerous substances into the environment. All environment components (air, soil, water) must be protected from the unwanted deleterious effects of hazardous materials on ecosystem function.

The most important aims for this plan are:

- Comply with national and international requirements and good practice
- Reduction of using hazardous materials where is possible
- Avoid using chemicals and hazardous materials which are the subject of international bans or phase-outs (for example, ozone depleting substances)
- Using substitutes for hazardous materials with less toxic materials where this is feasible
- Prevent the release of hazardous materials into the environment as a result of their transport, storage, handling, use or disposal
- Assess and mitigate hazards and risks to human health and the environment associated with the transportation, handling, storage, use and disposal of hazardous materials
- Creating emergency plans in case of spills of hazardous materials that present a risk to human health and the environment

The Plan is in compliance with national legislation and requirements of international financing institutions (e.g. IFC Performance Standards, EBRD Performance Requirements). 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 Special permit conditions applicable to project

Special conditions from project permits (water consent, environmental permit) that will be applied to the project are:

- The project documentation should define that hazardous materials and waste, both during the execution of works and during the operation of the planned ore processing plant, may not be temporarily disposed of on the particle "water good" (meaning of water good is defined in Law on waters "Official Gazette of the Federation of BiH", No. 70/06)
- When performing works, use equipment and machines that are well maintained and properly functioning, without leaks of liquid fuels, lubricants, hydraulic oils, etc
- Keep fuel tanks in watertight bunds of the same or larger capacity or install double-walled tanks according to special regulations
- Spill response equipment must be provided at working areas in case of an engine oil or hydraulic fluid spill
- In the event of a risk of water pollution, take all necessary measures to prevent and mitigate the effects of the incident
- Applying all mitigation measures relating to water, air and soil protection, safety at work and fire protection, health status of the local population identified in the impact assessment process
- Fuels, oil and lubricants and other chemicals should be stored indoors and in a bunded warehouse, which is not accessible to third parties
- Before the commencement of the works, the contractor is obliged to prepare a procedure for the case of leakage of fuels and lubricants, which should be integrated into the Site Organization Plan
- Properly manage all hazardous substances on the construction site to prevent accidental contamination of soil, vegetation, surface water and groundwater systems
- Collect and temporarily dispose of contaminants caused by spillage of hazardous substances in containers / containers intended for this purpose before final disposal using a licensed contractor
- Prevention of any leakage or uncontrolled spillage of fuel, oil and lubricants from construction and transport devices by regular maintenance and monitoring
- Store hazardous substances on sealed surfaces in bunded containers where applicable

- In case of spillage of hazardous substances, the substrate should be thoroughly cleaned, and the generated waste should be disposed of in the prescribed manner
- Marking and special handling with prescribed instructions of hazardous and flammable materials

## 2.1 National Legislation

- Law on Environmental Protection ("Official Gazette of the Federation of BiH", No. 15/21)
- Law on waters ("Official Gazette of the Federation of BiH", No. 70/06)
- Law on Waste Management (" Official Gazette of FBiH ", number: 33/03 and 72/09)
- Law on the transport of dangerous goods ("Official Gazette of SFRY", No. 27/90 and 45/90")
- Mining law ("Official Gazette of the Federation of BiH", No. 26/10)

## 2.2 International requirements

- European Bank for Reconstruction and Development (EBRD) Performance Requirement (PR) 1
- European Bank for Reconstruction and Development (EBRD) Performance Requirement (PR) 3
- European Bank for Reconstruction and Development (EBRD) Performance Requirement (PR) 4
- 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: 1.5 Hazardous Materials Management, April 30,2007,
- IFC General EHS Guidelines: 1.6 Environmental Waste Management, April 30,2007,
- Equator Principles IV (July 2020).

### 3.0 Roles and Responsibilities

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

Table 1. Roles and Responsibilities

Roles	Responsibilities
Executive Director	<ul style="list-style-type: none"> <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 and Social Manager	<ul style="list-style-type: none"> <li>• As required, review and update the Plan (in coordination with the Project Company Environmental and Social Management 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 and Social Management Associate	<ul style="list-style-type: none"> <li>• Development and updating of the Hazardous Materials Management Plan, defining measures to improve the prevention of hazardous materials.</li> <li>• Implementation of the Hazardous Materials Management Plan</li> </ul>
All personnel	<ul style="list-style-type: none"> <li>• Participate in trainings required.</li> <li>• Ensure self-competency in terms of implementation of this plan.</li> </ul>



## 4.0 Hazardous Materials Management Plan

Hazardous materials will be used during all phases of Vares project. Most materials will be consumed on site but some materials will require disposal after use (hydraulic fluid, batteries). This Hazardous materials management plan describes the regulatory arrangements for transportation of these products to and from the Project site, and their proper and safe storage, handling and use.

Lead, mercury and thallium are also present in the ore and may become concentrated in the VPP, therefore specific requirements regarding the exposure of workers to these materials are detailed in the site-specific H&S Management Plan which will be developed for the operational phase.

### 4.1 Dangerous Goods and Hazardous Materials

The Feasibility Study identifies the following reagents which will be used in the metallurgical processing flowsheet, assuming a throughput of 800,000tpa:

Reagents	Consumption (g/t)	Consumption (t/y)
Lime (Quicklime)	605	484
Depressant (SMBS)	1,350	1,080
Depressant (Zinc Sulphate)	675	540
Activator (Copper Sulphate)	350	280
Collector (Aerophine 3418A)	85	68
Frother (MIBC)	120	96
Collector (SIPX)	175	140
Flocculant (Concentrate)	20	16
Flocculant (Tailings)	40	32

These will be appropriately stored and handled in accordance with local permit requirements and international good practice, including the use of internationally recognised warning symbols. It is planned that shipments of reagents, consumables, spare parts etc. will be delivered in containers to the railhead for onward movement to Rupice Mine and Vares Processing Plant using the haul-road.

#### Transport

These Hazardous materials will be transported based on the following:

- Eastern Mining will monitor storing conditions and proper handling with all dangerous goods and hazardous materials
- Non compatible materials will be transported in separate shipments
- Fire extinguishers and fire prevention materials will be adequate and appropriate for the material being transported
- Containers will be adequate for materials that are being transported
- All containers will be checked regularly in order to check for damage or leakage
- Containers for transporting of hazardous materials will be closed
- All containers for hazardous materials will have clear information and description for that material type in accordance with international symbols/codes. These labels will contain all necessary information for safe handling and transfer of hazardous materials, the risks they pose, MSDS codes and emergency response information
- Drivers will be trained and equipped to manage spills, first response and adequate communication

### Actions to Avoid, Control and Mitigate

Inventory of hazardous materials is a key element of this plan. The inventory will list all materials on site and their locations and will include all information about products to ensure that all project employees have all necessary information for their safe transportation, storage, handling, use, and disposal, including risks posed and PPE requirements.

Table 2. Typical Dangerous Goods and Hazardous Materials on Site by Project Phase

Product	Phase			
	Construction	Operation	Closure	Post-closure
<b>Diesel fuel</b>	Used throughout; stored at the Mine Site in up to 200 L barrels, double-wall tanks, or fabric bladders with secondary containment	Used throughout; stored at the main fuel storage facility at the Mine Site	Used in decreasing amounts as components are decommissioned; stored at the main fuel storage facility at the Mine Site	Use in small quantities within vehicles associated with monitoring, no on-site storage
<b>Lubricating oil</b>	Used throughout; stored at the Mine Site	Used throughout; stored at maintenance shops in bulk tanks with secondary containment	Used in decreasing amounts as components are decommissioned; stored at maintenance shops in bulk tanks with secondary containment	Use in small quantities within vehicles associated with monitoring, no on-site storage
<b>Lubricants, greases</b>	Used throughout; stored at the Mine Site	Used throughout; stored at maintenance shops in bulk tanks with secondary containment	Used in decreasing amounts as components are decommissioned; stored at maintenance shops in bulk tanks with secondary containment	Use in small quantities within vehicles associated with monitoring, no on-site storage

Product	Phase			
	Construction	Operation	Closure	Post-closure
<b>Batteries</b>	Used throughout; stored at the Mine Site and maintenance shops on pallets with secondary containment	Used throughout; stored at the Mine Site and maintenance shops on pallets with secondary containment	Used in decreasing amounts as components are decommissioned; stored	Used throughout; stored at the Mine Site and maintenance shops on pallets with secondary containment
<b>Solvents</b>	Used and stored at the maintenance shops; stored in up to 200-L barrels with secondary containment	Used and stored at the maintenance shops; stored in up to 200-L barrels with secondary containment	Used in decreasing amounts as components are decommissioned; stored at maintenance shops in up to 200-L barrels with secondary containment	Not required

Table 3. Typical Dangerous Goods and Hazardous Materials on Site by Project Phase (completed)

Product	Phase			
	Construction	Operation	Closure	Post-closure
<b>Lime</b>	Used at temporary and permanent Water Treatment Plant (WTP); stored in large bulk bags at each plant and otherwise in bulk	Used at WTP; stored in large bulk bags at each plant and otherwise in bulk	Used in decreasing amounts as WTP is	Not required decommissioned; stored in large bulk
<b>Flocculent</b>	Used at temporary and permanent WTP; stored in 25-kg bags at each plant and otherwise in bulk	Used at WTP and process plant; stored in bulk	Used in decreasing amounts as WTP is	Not required decommissioned; stored in bulk
<b>Surfactant</b>	Not required	Used at process plant; stored in bulk	Not required	Not required
<b>Domestic cleaning products</b>	Stored and used primarily at camps and kitchens for cleaning	Used primarily at camps and kitchens for cleaning	Used primarily at camps and kitchens for Not required cleaning	Stored and used primarily at camps and kitchens for cleaning
<b>Laboratory chemicals</b>	Preservatives for environmental samples; stored in 1-L to 5-L containers	Preservatives for environmental samples, reagents for laboratory analyses; stored in 1-L to 5-L containers	Preservatives for environmental samples; Used as preservatives for	Preservatives for environmental samples; stored in 1-L to 5-L containers

Product	Phase			
	Construction	Operation	Closure	Post-closure
<b>Process Plant reagents</b>	Not required	Dry reagents will be stored in bulk bags up to 1 tonne in size, liquids in tanks	Not required	Not required

## 4.2 Implementation

Minimizing impacts on the environment, workers and communities will include the following:

- Inventory all materials on site to include all information about products to ensure that all project employees have all necessary information for their safe transportation, storage, handling, use, and disposal
- Naming responsible persons for managing hazardous materials
- Understanding all hazardous materials and the environmental impacts associated with their transportation, storage, handling, use, and disposal
- Minimizing use or generation of hazardous materials when possible
- Storage of hazardous materials will be in accordance with international standards and international practice
- Storage for hazardous materials will be designed as a leak-proof, safe and appropriate and non-damaged
- Emergency plans will be in place in case of uncontrolled spills, in order to protect against potential environmental impacts
- Monitoring all discharges and reporting unplanned discharges should they occur
- Reporting accidents to Emergency or Spill Response Teams with all relevant information.
- Training Spill/Emergency Response Teams as well as all relevant staff in minor spills.

Storage for hazardous materials will be designed as safe and appropriate within suitably contained areas. All reagents will be stored and prepared in storage facility in a containment area. The reagent storage tanks will have indicators and instrumentation which will prevent spills from occurring during operation. Ventilation and fire and safety protection will be provided. The following measures for adequate handling of dangerous goods and hazardous materials will be implemented:

- Manufacturers will provide safe packaging and labelling of materials as a part of purchase agreements
- Storage for hazardous materials will be ventilated and dry
- Containers for storage of hazardous materials will be closed until required to prevent accidental leakage and/or spillage
- Incompatible chemicals will be stored separately in order to prevent chemical reactions
- Chemical storages will be designated as a non-smoking and storage away from food; eating and drinking will be prohibited

- Employees who are handling hazardous materials will be trained and provided with appropriate personal protective equipment

#### Actions to Avoid, Control, and Mitigate during Operation

The Hazardous Materials Management Plan will be continually updated in line with the inventory of all dangerous goods and hazardous materials on the Project site, along with all necessary information. It will be kept in a visible and easily accessible location at each site where the relevant dangerous goods and hazardous materials are stored. New employees who are handling with hazardous materials will be trained and provided with appropriate personal protective equipment and existing employees will receive refresher training.

#### Actions to Avoid, Control, and Mitigate during Closure

During the closure phase all risks will decline other than for disposal of surplus materials. Surplus materials will be adequate collected, labelled and disposed at the planned site disposal facilities.

#### Actions to Avoid, Control, or Mitigate during Post-closure

The needs of materials will be reduced during the phase of post-closure. Fuel using by the vehicles for monitoring still be used. Procedures will be modified for the management of products for the lower level of activity during post-closure. Monitoring and inspection will continue on a regular basis.

## 5.0 Monitoring and Reporting

Storage for hazardous materials will be inspected regularly to check the status of leak-proof, safe and appropriate and non-damaged storage. Inspections will include tanks, pipelines, connections, valves, gauges and meters, sumps and separators, and inventory records. With reference to the management of explosives, manifests for delivered explosives components and products will be reviewed by the contractor to ensure that all explosives and related materials are accounted for. Routine recording according to a schedule of monitoring inspections will be undertaken in a structured manner such that the storage and use of hazardous materials can be accurately tracked. Inspections will cover on-site facilities such as tanks, pipelines, connections, valves, gauges and meters, sumps and separators, as well as related documentation such as inventories, manifests, and logbooks. Daily inspections regarding on-site management of hazardous materials will be conducted during the construction and operation phase.

A sample checklist for subjects to be covered during inspections is provided in Appendix A. In addition to these inspections, internal audits will be conducted quarterly during the construction phase and annually during the operation phase. Results of inspections and monitoring will be provided to the upper management. Based on monitoring and audit results, corrective and / or enhancing actions will be designed and implemented. Performance of these actions will also be monitored and reported.

## 6.0 Training

The required number of training programs will be provided for all Eastern Mining employees, as well as the environmental team, and relevant contractors and subcontractors. Management tools for hazardous materials management will be discussed with employees, contractors and subcontractors on a regular basis. Materials for trainings will be created and updated by the Environment and Social team.

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

Depending on the monitoring results, the Hazardous Materials Management Plan will be reviewed and updated when necessary.

Sample form Appendix A, Hazardous Materials Management Inspection Checklist

Inspection Date:

Inspection Location:

Control Measure	Compliance (Yes/No)	Comment
Are all hazardous materials being properly stored?		
Are tanks, pipelines, connections, valves, meters and counters, troughs and separators working properly?		
Are hazardous materials being stored at separate location?		
Are guidelines for storage of hazardous materials visible to all workers?		
Are inventory records made properly?		