



ADRIATIC METALS PLC
VARES PROJECT
WASTE AND HAZARDOUS MANAGMENT PLAN
FEBRUARY 2022

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WASTE 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
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2.0	Additional measures (ARD treatment plant)	14/02/22	Appropriate measures for management of sludge generated from the ARD treatment plant, page 11, <i>Disposal of water treatment slimes</i>

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 Vareš (BiH). Since 2017, ADT has been conducting research at several sites in the municipality of Vareš, 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 Vareš, 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.

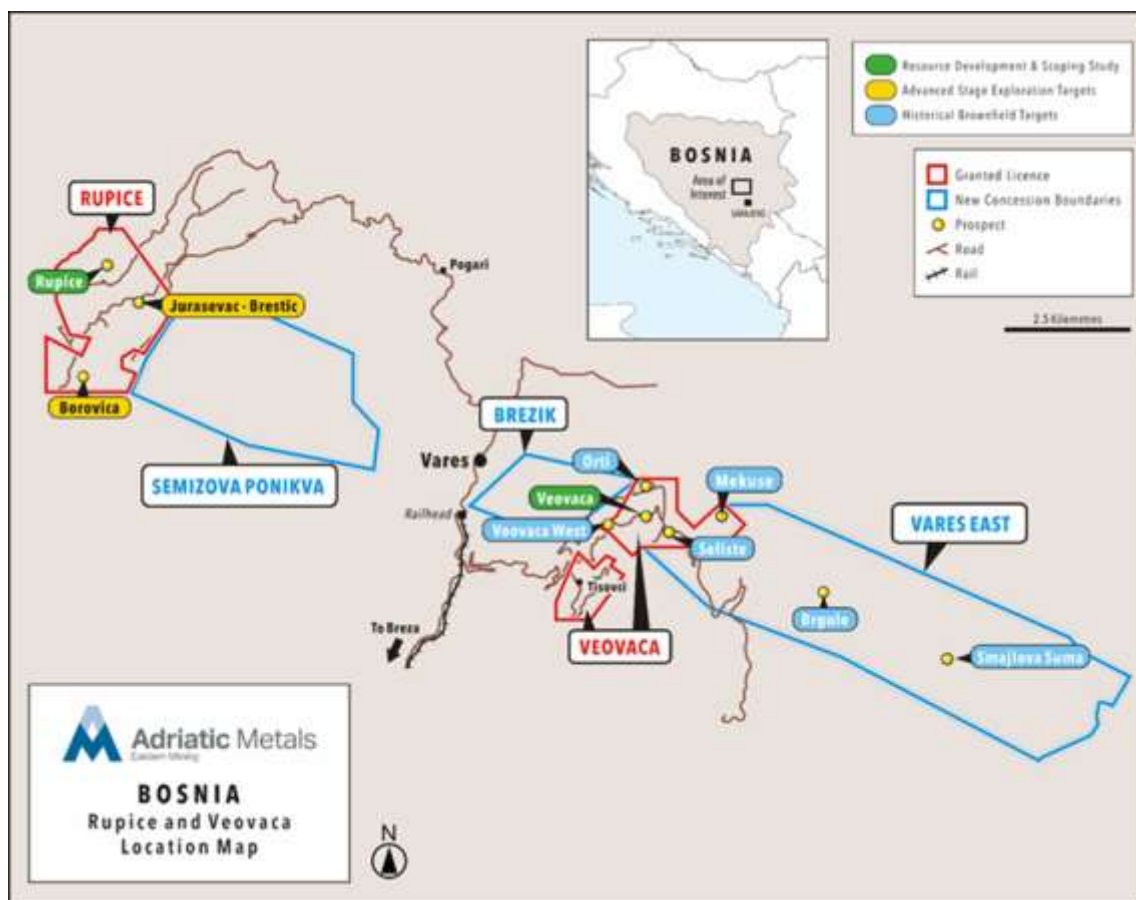


Figure 1.1. Map showing the location of the Vares Project

This Waste and Hazardous Waste Management Plan (WHWHWMP) aims to identify measures for minimizing impacts of waste and hazardous waste disposal and to finding the best tools to minimize, recycle, collect, store, segregate, process, transport, and safely dispose of wastes which will be generated during all phase of Vares Project.

The Waste and Hazardous Waste Management Plan will be applied during all phases of the project. During the different phases, different types of waste will be generated. The goal of this WHWMP is to find the most acceptable way for collection, segregation, storage, handling, transportation, and disposal of all types of wastes generated from the Vares project in the best acceptable way in order to protect community health and safety and to protect the environment.

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 International Industry Practices (GIIPs). This Plan is a living document, and the responsibilities, procedures and compliance actions will be updated as appropriate.

2.0 Legislative Requirements and Standards

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

2.1 National Legislation

- Law on Environmental Protection ("Official Gazette of the Federation of BiH", No. 15/21)
- Law on Waste Management (" Official Gazette of FBiH ", number: 33/03 and 72/09)
- Rulebook on waste categories with lists ("Official Gazette of the Federation of BiH", No. 9/05)
- Rulebook on Issuance of Permits for Small Business Activities in Waste Management ("Official Gazette of the Federation of BiH", No. 9/05)
- Rulebook on the necessary conditions for the transfer of obligations from producers and sellers to the operator of the waste collection system ("Official Gazette of the Federation of BiH", No. 9/05)
- Rulebook determining the treatment of hazardous waste that is not on the list of waste or whose content is unknown ("Official Gazette of the Federation of BiH", No. 9/05)
- Rulebook on the content of the waste adaptation plan for existing waste treatment or disposal facilities and activities undertaken by the competent authority ("Official Gazette of the Federation of BiH", No. 9/05)
- Decree on Types of Financial Guarantees Ensuring Transboundary Carriage of Hazardous Waste ("Official Gazette of the Federation of BiH", No. 41/05)
- Decree on Financial and Other Guarantees to Cover the Costs of Risk of Possible Damage, Cleaning and Procedures after Landfill Closure ("Official Gazette of the Federation of BiH", No. 39/06)
- Decree on Selective Collection, Packaging and Labelling of Waste ("Official Gazette of the Federation of BiH", No. 38/06)
- Decree regulating the obligation to report to operators and waste producers on the implementation of the program of supervision, monitoring and record keeping according to the conditions from the permit ("Official Gazette of the Federation of BiH", No. 31/06)
- Rulebook on Form, Content and Procedure for Notification of Important Characteristics of Products and Packaging by Manufacturers ("Official Gazette of the Federation of BiH", No. 6/08)
- Rulebook on animal waste and other non-hazardous materials of natural origin that can be used for agricultural purposes ("Official Gazette of the Federation of BiH", No. 8/08)
- Rulebook on Medical Waste Management ("Official Gazette of the Federation of BiH", No. 77/08)
- Rulebook on Packaging and Packaging Waste Management ("Official Gazette of the Federation of BiH", number: 88/11, 28/13, 8/16, 54/16, 103/16 and 84/17)

- Rulebook on Waste Management from Electrical and Electronic Products ("Official Gazette of the Federation of BiH", No. 87/12, 107/14, 8/16, 79/16 and 12/18)
- Rulebook on Conditions for Operation of Waste Incineration Plants ("Official Gazette of the Federation of BiH", No. 12/05)
- Rulebook on transboundary movement of waste ("Official Gazette of the Federation of BiH", number: 07/11, 39/15 and 25/19)
- Decree on Fees for Plastic Track Bags ("Official Gazette of the Federation of BiH", No. 9/14)
- Decree on Waste Management Information System ("Official Gazette of the Federation of BiH", No. 97/18)
- Rulebook on construction waste ("Official Gazette of the Federation of BiH", number: 93/19)

2.2 Environmental permit measures related to waste management applicable to project

Waste management measures from environmental permits (permits number: UPI 05/2-02-19-5-60/20 SC and UPI 05/2-23-11-195/19) that will be applied on the project are:

- Carry out frequent and controlled disposal of municipal and hazardous waste in the manner prescribed by the Law on Waste Management ("Official Gazette of the Federation of BiH", No. 33/03, 72/09 and 92/17) and under the legal acts of the above-mentioned Law, i.e. prohibit any temporary or permanent disposal of the above mentioned waste material on the surrounding soil, and provide impermeable waste containers,
- Implement all provisions of the Waste and Hazardous Waste Management Plan, which contains measures for proper waste management, both for solid and liquid waste, and for hazardous and non-hazardous waste,
- Implement measures to reduce the amount of waste, as well as measures to keep records of the amount of waste,
- prohibit final disposal for special categories of waste (waste oils, car batteries, tires, etc.) and any hazardous waste,
- engage a third party to perform the final disposal of the above-mentioned types of waste,
- classify and separate related types of construction material into individual groups as early as during construction,
- all other waste (uncontaminated) should be used at the location for possible filling and / or levelling of the terrain, or disposed of at the municipal waste landfill (it is possible to use it for local roads),
- collect all metal (non-contaminated) waste separately and classify it as secondary raw materials and dispose of it through an authorized company,
- If, during the execution of works, waste of unknown composition, i.e. hazardous waste, is found, it should be collected in containers on watertight and covered terrain without the possibility of drainage into water or soil,

- waste must be stored in such a way as to prevent scattering, spillage, spreading dust, etc. Records of the types and quantities of waste found and stored and of all extraordinary events must be kept. For safe waste management, the facilities must be equipped with appropriate safety equipment and secured from unauthorized access, and a procedure plan for the event of an emergency (accident) must be displayed in a visible place. Vessels should be closed and constructed in accordance with fire protection, occupational health and safety and environmental protection regulations and relevant bylaws,
- after collecting the appropriate amount of unidentified waste, examine it and hand it over to the company registered for the collection and disposal of the specified type of waste.

During the exploitation:

The reduction of waste generation at the location of the "Rupice" pit plant and the technological process of exploitation will be carried out according to the following:

- rational use of resources,
- careful manipulation and use of devices,
- separate collection of recyclable materials from waste (separation of useful components),
- separated collection and adequate temporary storage of hazardous and non-hazardous waste

Specific actions to prevent waste production and recovery of useful material from waste include:

- Reclamation of degraded areas,
- Separate collection and temporary storage of waste, and delivery to authorized companies for the management of certain types of waste,
- Use of returnable packaging,
- Educating employees about the types of waste, separate collection of different types of waste and proper temporary disposal until final disposal, i.e. handing over for further disposal to authorized companies.
- Dispose of waste from the separator through the engagement of third parties, who are authorized to dispose of hazardous waste. It is also necessary to keep records on the generation of these types of waste and to keep an archive of transport sheets for each drop off of these types of waste.
- The rock waste landfill should be constructed in such a way as to satisfy the stability, which primarily refers to the stability of slopes, which must not exceed 1: 2 for this type of waste. Also, along the perimeter of the landfill, make peripheral canals that will have the function of collecting external rainwater, and thus minimize erosion.

The investor is obliged to obtain special permits for the disposal of inert waste generated by excavation/approval for disposal of excavation materials at the concerned locations by the competent authorities. Landfills for disposal of surplus soil material generated during exploitation, in this particular case, cannot be treated as landfills in terms of the provisions of the Law on Waste Management ("Official Gazette of the Federation of BiH" No 33/03, 72/09 and 92/17). Regarding the obligation to obtain a Waste Management Permit, in accordance with the regulation of Article 6 (Subgroups and types of waste) of Rulebook on Construction Waste ("Official Gazette of the Federation of BiH", No. 93/19), waste categories in this case will be:

- 17 05 - earth (including excavated earth with polluted/contaminated sites), stones and excavator excavation
- 17 05 03 * - earth and stones containing dangerous substances
- 17 05 04 - earth and stones other than those mentioned in 17 05 03
- 17 05 05 * - excavated earth from the operation of an excavator containing dangerous substances
- 17 05 06 - excavated earth not listed under 17 05 05
- 17 05 07 * - gravel containing dangerous substances
- 17 05 08 - gravel other than mentioned in 17 05 07.

Article 13 of the Regulation (Preparation for reuse and treatment of construction waste) stipulates that the Investor and / or the contractor may process construction waste generated on the construction site only if he has the Environmental Permit and / or the Waste Management permit.

2.3 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.

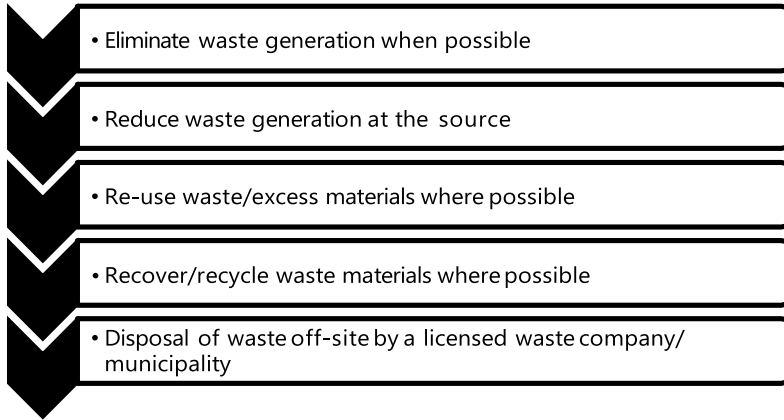
Table 1. Roles and Responsibilities

Roles	Responsibilities
Executive Director	<ul style="list-style-type: none"> • Ensure adequate resources are provided for implementation of this Plan. • Ensure the Plan is distributed to all relevant Contractors and subcontractors.
Environmental and Social Manager	<ul style="list-style-type: none"> • As required, review and update the Plan (in coordination with the Project Company Environmental and Social Management Associate). • Ensure technical support is provided to Contractors for implementation of the Plan. • Ensure related trainings are provided by the contractors and the Project Company, through review of training records and related training documents.
Environmental and Social Management Associate	<ul style="list-style-type: none"> • Implementation of monitoring and mitigation measures defined in the Waste and Hazardous Waste Management Plan.
All personnel	<ul style="list-style-type: none"> • Participate in trainings required. • Ensure self-competency in terms of implementation of this plan.

4.0 Waste Management

4.1 Waste and Hazardous Waste Management Approach

This Waste and Hazardous Waste Management Plan will be based on the following:



In order to reduce the impact on the local community and increase resource efficiency, these practices will be implemented:

- Reduction of all waste types where possible
- Separation of hazardous and non-hazardous waste
- Segregation of different types of hazardous and non-hazardous wastes
- Selective collection and storage of hazardous and non-hazardous waste
- Waste recycling where possible, initially on-site opportunities and then off site
- Reduction of using hazardous materials where possible
- Employees who are handling hazardous materials will be trained
- Spills of hazardous materials will be prevented with documented procedures and careful handling
- Daily inspections of storage for hazardous materials will be carried out and records kept
- Equipment will be checked regularly before use
- Waste will not dispose of at work sites other than in designated containers/areas

4.2 Classification of Wastes

This management plan provides for all type of waste that will be generated during all phases of Vares project. That waste includes:

Non-hazardous waste:

- Demolition waste
- Waste metals

- Waste tires
- Inert building materials
- Packaging waste (cardboard, wood, plastic)
- Office waste (paper, card)
- Food waste from kitchens and canteen

Hazardous waste:

- Waste oils and lubricants, hydraulic hoses and filters
- Contaminated packaging wastes and other wastes that came into contact with hazardous materials
- Electrical waste
- Light bulbs including fluorescent tubes
- Paint cans, spray cans and leftover paints
- Contaminated soil
- All wastes contaminated with hazardous substances

Information about waste types, with codes are provided below.

Table 2. Waste types and codes ¹

Waste Type	Waste Code	Definition of Waste Codes
Hazardous Wastes	08 03 17	Printer toners containing hazardous material
	13 01 13	Hydraulic oils
	13 02 08	Engine, transmission and lubricant oil
	13 05 06	Oil generated from oil / water separators
	15 01 10	Packaging wastes contaminated with hazardous substances
	15 02 02	Absorbents, filter materials, cleaning cloths and protective clothing contaminated with hazardous substances
	16 01 07	Oil filters
	16 01 13	Brake fluid
	16 01 14	Antifreeze fluids containing hazardous substances
	16 06 01	Lead batteries and accumulators
	17 04 09	Metal wastes contaminated with hazardous substances
	20 01 21	Fluorescent tubes and other mercury-containing wastes
	20 01 26	Oil and grease other than 20 01 25
	20 01 35	Waste electrical and electronic goods other than 20 01 21 and 20 01 23
Non-Hazardous Wastes	16 01 03	End of life tires
	16 01 12	Brake lining other than 16 01 11
	16 01 17	Iron metals
	17 04 07	Mixed Metals
	17 04 11	Cables other than 17 04 10

¹ Rulebook on waste categories with lists ("Official Gazette of FBiH", number: 09/05)

Waste Type	Waste Code	Definition of Waste Codes
	20 01 40	Metals
Medical Wastes	18 01 01	Cutters other than 18 01 03
	18 01 03	Wastes subject to special collection and disposal to prevent infection.
Packaging Wastes	15 01 01	Paper and cardboard package
	15 01 02	Plastic package
	15 01 03	Wood package
	15 01 04	Metallic package
	15 01 06	Mixed package
	15 01 07	Glass package

4.3 Implementation

Waste will be separated by the type (hazardous and non-hazardous waste) and category and stored in specially designed and secured areas for specific types of waste.

Management and disposal of non-hazardous wastes will be as follows:

- At each location where waste is generated, special containers according to the type of wastes present will be provided to facilitate safe and environmentally sound temporary storage. This includes underground work areas and rest areas.
- Non-recyclable waste from offices, canteen and rest areas, warehousing, maintenance areas, workshops, processing plant and mine facilities will be collected in special bins and temporarily stored on site at Rupice and Vares PP
- Waste for recycling will be stored on each site in special places for that purpose
- Segregated wastes will be moved from Rupice to Vares PP by ADT and consolidated for disposal off site, to avoid contractors waste collection vehicles travelling to the mine
- Registered waste disposal contractors will collect the waste from VPP. Appropriate documentation will be maintained.
- Registered recycling contractors will collect recyclable materials (glass, plastic, cardboard, metal, waste oils etc)²

Management and disposal of hazardous wastes will be as follows:

- Storage of hazardous waste will be in accordance with international standards and international common practice. Containers for storage of hazardous waste will be designed as leak-proof, secure and appropriate and sited so they are not damaged accidentally

² List of licenced companies available at: <https://www.fmoit.gov.ba/bs/okolis/upravljanje-otpadom>

- All containers for waste will have a clear information and description for the waste type in accordance with international symbols This will contain all necessary information for safe handling and transfer of waste. Any unidentified wastes will be considered as hazardous waste. All waste labels will include information about waste type
- All containers for hazardous waste will be checked regularly for damage or spillage
- Containers for hazardous waste will be closed and waste will be stored in the best way to prevention chemical reactions due to degradation or between materials
- Hazardous waste other than that listed below (waste oil, electrical and medical) will be disposed of periodically to licenced facilities in neighbouring countries.
- Waste oil will be disposal of separately in special containers. Containers for storage of oil will be designed as leak-proof, safe and appropriate and non-damaged and containers will have "Waste Oil" sign. They will be stored in a bunded building or area, with the bund 110% of the volume of all the containers and give to licenced companies for further treatment.
- Electrical waste will be stored separately and collected by licenced companies
- Medical waste will be stored separately and collected by licenced companies
- Waste explosives will be stored separately in their original container and marked as explosive waste and collected by licenced companies³

Disposal of Water Treatment Slimes

One of the products of the water treatment process will be a gypsum and iron hydroxide sludge, enriched in metals and sulphates that co-precipitated with the iron hydroxides during the neutralization process. The quantities that will be generated and the chemistry of this material is currently being deduced from ongoing water treatment test-work, but it can be assumed that it will constitute hazard waste and will need specific disposal methods to be derived.

Two options exist for the disposal of these slimes; on-site and off-site.

On-Site Disposal

The TMF will be built in a small, narrow valley. Upstream of the TMF, at the very top of this valley, a small reservoir could be built by damming and lining the valley, possibly with HDPE, possibly using the same clay-rich material that is to be used as the periodic capping and sealing medium on the TMF, derived from the local geology. Under this scenario the sludge would be transported by truck from the Rupice site, dumped and be allowed to settle within the confines of this reservoir. The upstream side of the dam would be lined with the same clay mentioned above. Any water seepage through this dam would be caught in the TMF capture and return system which is an integral part of the TMF design. The sludge pond would be capped and sealed together with the TMF at the end of mine-life.

³ List of licenced companies available at: <https://www.fmoit.gov.ba/bs/okolis/upravljanje-otpadom>

Off-Site Disposal

The same company that disposed of the slimes from the old settlers during demolition of the old Veovaca process plant will remove the slimes directly from the Rupice site and take responsibility for disposal. The amounts and chemical composition of the slimes is currently being derived during ongoing water treatment test-work, to ensure that the company have the relevant authorization and capacity to dispose of the material.

5.0 Monitoring and Reporting

All waste types collected separately from all work areas will be recorded on a monthly basis. Waste generated waste and final destination will be recorded for each waste type, each time it leaves site for final disposal. A sample waste log form is provided in Appendix A. Weekly inspections of waste management areas and source segregation will be provided during all phases of project. A sample checklist for these inspections is provided in Appendix B.

6.0 Training

A number of training programs will be provided for all Eastern Mining employees, as well as the environmental team, and all contractors and subcontractors, as part of their site induction, and thereafter, refresher training bi-annually. The management tools for waste management will be discussed with employees, contractors and subcontractors. 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 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.

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

Sample form Appendix A, Waste log form

Month:

Waste Log Form No:

No	Date	Type (Hazardous/ Non-hazardous)	Sub-type	Waste (ton or m ³)	Transporter	Disposer	Disposal Method
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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16							
17							
18							
19							
20							

Sample form Appendix B, Waste management inspections checklist

Inspection Date:

Inspection Location:

Control Measure	Compliance (Yes/No)	Comment
<p>Are all waste streams being properly separated and labelled into the following categories?</p> <ul style="list-style-type: none"> - Hazardous Waste - Non-hazardous waste <p>- Sub categories according to work area – paper and card, glass, cans, plastic bottles, food waste, scrap metal, oily rags, hoses and filters, wood, light bulbs etc</p> <p>Is the area being kept free of litter?</p> <p>Are containers overflowing?</p> <p>Are there visible spills of liquid around the containers</p>		
<p>Is the site waste inventory current and up to date?</p>		
<p>Are hazardous and non- hazardous wastes being stored at separate locations?</p>		
<p>Has a map been produced showing the correct waste storage locations which are visible to all workers</p>		
<p>Are all waste storage containers appropriately labelled to prevent cross contamination of waste materials?</p>		
<p>Are all waste labels complete with the appropriate information to include:</p> <ul style="list-style-type: none"> - Waste stream (Hazardous, non-hazardous, etc.) - Type of waste (solid, liquid or sludge) - Amount of waste <p>- Known environmental, health and safety hazards (e.g. MSDS forms)</p> <ul style="list-style-type: none"> - Personal protection equipment (PPE) required 		
<p>Are licenses of companies contracted for waste transport and waste disposal valid and up-to-date?</p>		

Are copies of National Waste Transport Forms kept as part of monthly waste log forms?		
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