ACACIA MINE OPERATIONS
GÖKIRMAK COPPER MINE
Waste Management and Pollution Prevention Plan
2017

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Table of Contents

LIST OF ABBREVIATIONS

AMI	Acacia Maden İşletmeleri A.Ş.
ARD	Acid Rock Drainage
EBRD	European Bank for Reconstruction and Development
EU	European Union
GCP	Gökırmak Copper Project
GIIP	Good International Industry Practices
HSE	Health Safety Environment
HWCR	Hazardous Wastes Control Regulation
IFC	International Finance Corporation
MSDS	Material Safety Data Sheet
MWCR	Medical Waste Control Regulation
PWCR	Packaging Waste Control Regulation
TSF	Tailing Storage Facility
WMP	Waste Management Plan
WOCR	Waste Oil Control Regulation
WRD	Waste Rock Dump

1. PURPOSE AND SCOPE

This Waste Management and Pollution Prevention Plan is prepared for the Gökırmak Copper Project (GCP or "the Project") and is developed to set out the primary applicable requirements associated with waste management 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). The plan will be applied systematically during construction, operation and rehabilitation phases of the Project. Throughout the project life, different types of wastes and materials will be generated, thus the activities within the scope of the Project should be conducted under the scope of this management plan.

The purpose of this plan is to guide and obtain the acceptable collection, segregation, storage, handling, transportation and disposal of mining and non-mining wastes generated from the Project activities in such a manner to minimize the impacts on human health and environment.

This Plan is a living document and the responsibilities, procedures and compliance actions should be updated as appropriate. It is the responsibility of the site HSE Manager to be fully aware of its contents, to provide relevant training to staff and to ensure that procedures are being implemented to achieve compliance with this Plan.

2. LEGISLATIVE FRAMEWORK

In this section, the legislative framework that is related to waste management is summarized.

2.1 National Requirements

The Environmental Law (No. 2872), which was published in the Official Gazette No. 18132 dated August 11, 1983 and revised in the Official Gazette dated May 29, 2013 (Law No. 6486) provides the legislative framework for the regulation of industries and their potential impact on the environment. Industrial projects are subject to varying levels of review that begin while projects are in the development phase. Additional regulations apply to facilities once they are in operation.

The Environmental Law authorized the promulgation of a number of regulations. Those that pertain to waste management and the Project have to comply with include the following:

2.1.1 Regulation on Waste Management

The Regulation on Waste Management is the implementing legislation aimed at aligning with the EU Waste Framework Directive and was published in the Official Gazette No. 29314 dated April 2, 2015.

The Regulation on Waste Management provides a single comprehensive framework for waste management. As of April 2015, it repealed and replaced the Regulation on Solid Waste Management and the Regulation on General Principles of Waste Management. As of April 02, 2016 it repealed and replaced Regulation on Control of Hazardous Wastes.

Article 9 of the Regulation stipulates the responsibilities of the waste generators and waste owners including the implementation of necessary measures to minimize waste generation, preparation and submission of waste management plan regarding generated wastes (with prevention and minimization measures), declaration of annual waste production latest by March every year via the web based system of the Ministry of Environment and Urbanization (http://online.cevre.gov.tr) and use of National Waste Transport Form for wastes that require its use (template is provided in Annex 9-A of the Hazardous Waste Control Regulation which is repealed and replaced by Regulation on Waste Management).

2.1.2 Regulation on Mining Wastes

Implementing legislation aligning with the EU Mining Waste Directive (2006/21/EC) was published in the Official Gazette No. 29417 dated July 15, 2015. This Regulation will be in force as of July 15, 2016.

The purpose of this Regulation is to manage all mining wastes (arising from exploration, extraction, preparation/processing or storage activities) from their generation to ultimate disposal in a way not to harm human health and the environment.

The Regulation requires a waste management plan to be prepared for the mining wastes in line with the requirements as set in its Annex-1.

2.1.3 Regulation on Control of Excavation, Construction and Demolition Wastes

Regulation on Control of Excavation, Construction and Demolition Wastes was published in Official Gazette No. 25406 dated March 18, 2004. Articles 10, 34, 35, 36, 37, 38, 39, 40, 41 and 42 regarding the storage of the wastes are repealed according to the Landfill Regulation published in Official Gazette No.27533 dated March 26, 2010.

The aim of this regulation is to set the principles and procedures firstly to minimize the excavation, construction and demolition wastes at the source of generation and to collect, temporarily store, transfer, recycle, reuse and dispose them in a manner not to cause harm to environment.

In accordance with Article 9 of the regulation, excavation, construction and demolition generating facilities are obliged to provide the waste management in a way that will minimize the adverse effects of wastes on the environment and human health. The facilities must acquire the necessary permissions that concern the generation, transportation and storage operations of the wastes. The facilities are not allowed to dump construction wastes to the sites/locations and facilities other than the permitted ones by the municipal or other authorities.

The regulation also stipulates that the project owner is responsible for having precautions in order to minimize noise or visual impacts and dust emissions during removal of excavation soil and for closing the sides of the operation area. In addition, planning should be done in a way that the amount of excavation soil is equalized to the filling volume and excavation soils are utilized within the operation area.

The Project should comply with the Excavation, Construction and Demolition Waste Control Regulation during the construction and operation phases.

2.1.4 Packaging Waste Control Regulation (PWCR)

PWCR was published in the Official Gazette No. 28035 dated August 24, 2011. The aim of the PWCR is to provide production of packages with certain environmental criteria, requirements and characteristics; to prevent direct and indirect release of package wastes causing environmental damage; to prevent formation of package wastes; and to reduce the amount of those, which cannot be prevented, by means of reuse, recycling and recovery methods.

Article 23 of PWCR states that the package wastes should be collected and stored separately from the other wastes at source in order to ensure their disposal without causing any environmental damage; to reduce environmental pollution; to benefit from the landfills at maximum levels; and to contribute to the economy. Packaging waste generating parties located in the boundaries of districts which conduct separate collection at source is obliged to deliver the packaging wastes to the responsible municipalities or their contracted and licensed collection/separation entities.

The Project should comply with the Packaging Waste Control Regulation during the construction and operation phases.

2.1.5 Hazardous Waste Control Regulation (HWCR)

HWCR was published in Official Gazette No. 25755 dated March 14, 2005 and lastly revised in Official Gazette No. 28812 dated November 5, 2013. The purpose of the HWCR is to prevent direct and indirect disposal of hazardous wastes in a manner that can adversely affect human health and the environment; control the production of and transportation of hazardous wastes; minimize production of hazardous wastes at the source and specify that disposal of hazardous wastes be at the closest appropriate location to the site of generation. The regulation aims to determine the principles and procedures in order to provide the management of solid wastes in conformity with the environment from the generation phase until the final disposal phase.

According to Article 9 of HWCR, the hazardous waste producers are obliged to take the required precautions in order to minimize hazardous waste generation; to provide waste management in a way that minimizes the adverse effects of wastes on human health and environment; to prepare 3-year waste management plan within six months from the issue date of this Regulation and obtain approval from the Governorate; to record the hazardous wastes generated; to fill in the waste declaration form by using the web based program (TABS) prepared by the Ministry of Environment and Urbanization with including the information belonging to the previous year until the end of March, approve, print out and keep it for five years; to provide proper packaging and labelling; and to dispose and transfer the hazardous wastes in conformity with the principles stated in the regulation.

According to HWCR, facilities are required to secure a permit from local Governorate in case of temporary onsite storage of their wastes. However, facilities producing less than 1,000 kg/month of hazardous wastes may store these waste temporarily onsite for up to 180 days without obtaining a permit from the local Governorate. In this situation, the total amount of the collected waste must not exceed 6,000 kg at any time.

In case of temporary onsite storage of hazardous wastes, the hazardous wastes should be stored in containers that are non-damaged, leak-proof, safe and appropriate for the international standards, on concrete place within the land of the facility, away from the plants and buildings. "Hazardous waste" label should be placed on the containers and this label should also indicate the amount of stored waste as well as the storage time of the hazardous waste. In case the containers are damaged, wastes should be transferred to the other containers with the same properties. Containers should be kept closed and wastes should be stored in a way that they will not go in chemical reactions.

Transportation of the wastes should be done according to the regulations that will be determined by the Ministry of Environment and Urbanization. Hazardous waste generators are obliged to fill in “National Waste Transport Form” as given in Annex 9-A of the HWCR.

HWCR is repealed and replaced by the Regulation on Waste Management on April 02, 2016.

The Project must comply with the requirements of the Hazardous Wastes Control Regulation.

2.1.6 Waste Batteries and Accumulators Control Regulation

Waste Batteries and Accumulators Control Regulation was published in Official Gazette No. 25569 dated August 31, 2004 and lastly amended in Official Gazette No. 29214 dated December 12, 2014. The purpose of this Regulation is to arrange legal and technical principles to determine principles, policies and programs for used batteries and accumulators from their production to their final disposal; to ensure production of batteries and/or accumulators with certain criteria and basic conditions and characteristics in terms of the environment; to prevent the discharge to the receiving environment directly or indirectly damaging human health and the environment; to ensure technical and administrative standards necessary in their management; to establish a collecting system for the recovery and final disposal of used batteries and accumulators and compose a management plan.

According to Article 13 of the Waste Batteries and Accumulators Control Regulation the battery and accumulator consumers are obliged to collect used batteries separately from household wastes, and deliver used batteries to the collection points to be established by enterprises engaged in the distribution and sales of battery products, or by municipalities; to deliver the old accumulator when replacing their vehicles’ accumulators to the temporary storage places established by the enterprises engaged in the distribution and sale of accumulator products and enterprises operating vehicle maintenance/repair sites free of charge; and pay a deposit if a new accumulator is to be purchased when delivering the old one and not to keep accumulators of benches, facilities, forklift, tractors and other motor vehicles, power supplies and transformers used in the production processes of consumer industrial facilities after the accumulators become a waste longer than 90 days on impervious ground within the factory site until they are delivered to the producer. According to the Article 15 of the Regulation, the transportation of waste accumulators from the point of collection to the temporary storage or to the disposal facility will be determined by the Ministry of Environment and Urbanization.

Some minor amount of hazardous waste will be generated during construction and operation of the Project. The Project must comply with the requirements of the Waste Batteries and Accumulators Control Regulation during construction and operation phases.

2.1.7 Waste Oil Control Regulation (WOCR)

WOCR was published in the Official Gazette No. 26952 dated June 30, 2008 and lastly revised in Official Gazette No. 28812 dated November 5, 2013. The purpose of the WOCR is to prevent direct and indirect disposal of waste oils to receiving environment; to ensure temporary storage, transportation and disposal thereof without causing harm to environment and human health; to set up necessary technical and administrative standards in management of waste oils; to determine the required principles and programs in order to establish temporarily storage, handling and disposal facilities and manage these facilities in an environmental friendly manner.

According to Article 9 of WOCR, waste oil producers are obliged to take required measures to minimize the generation of waste oils including waste motor oils and residues resulting from processing of waste oils. Waste oil producers must conduct waste oils analyses once at licensed laboratories in case there is no change in the oil type used, and declare to the Ministry of Environment and Urbanization. The waste oils of different category should not be mixed with each other, PCB and other hazardous wastes. The waste producers must obey the conditions of Hazardous Waste Control Regulation for disposal. All records including waste oil declaration forms, analyses report should be kept for at least five years. In order to transport waste oils, the regulations that will be determined by Ministry of Environment and Urbanization will be obeyed.

Waste oil should be collected in tanks/containers placed on an impermeable ground whose thickness is at least 25 cm and covered by epoxy, geomembrane and similar insulation materials and waste accumulation areas is should be protected from the rain. Furthermore it is required to store waste oils in red coloured tanks/ containers with a label of "Atık Yağ" (“Waste Oil”) on it. Waste oils of different categories should not be mixed with each other. Any foreign substance like water, gasoline, fuel-oil, dye, detergent, solvent, antifreeze and diesel oil should not be mixed with the oil in these tanks/containers.

The Project should comply with the requirements stated in the Waste Oil Control Regulation.

2.1.8 Medical Waste Control Regulation (MWCR)

MWCR was published in Official Gazette No. 25883 dated July 22, 2005 and revised in Official Gazette No. 28948 dated March 21, 2014. The purpose of the MWCR is to establish principles, policies, and programs along with legal, administrative, and technical fundamentals to prevent direct or indirect discharge of medical waste into receiving environment in any way that could harm the environment or human health. The Regulation also requires that medical waste must be collected separately at source and be transported, temporarily stored and disposed of without causing harm to environment or human health.

The Project should comply with the Medical Waste Control Regulation.

2.1.9 Waste Tires Control Regulation

Waste Tires Control Regulation was published in Official Gazette No. 26357 dated November 25, 2006 The regulation aims to prevent the direct and indirect delivery of waste tires to the receptor platforms which may harm the environment, installation of collection and carriage of them for recycle or dispose, establish a management plan.

Except for the bicycle and solid tyres, this regulation includes the legal and penalty causing responsibilities to be subjected, audits to be carried out, legal limitation and responsibilities for the import, export and transit, termination, gaining for re-usage, temporary storage, carriage and collection of the tyres which have completed their life cycles separately from the wastes.

2.1.10 Communiqué on Recovery of Some Non-Hazardous Wastes

Communiqué on Recovery of Some Non-Hazardous Wastes was published in Official Gazette No. 27967 dated June 17, 2011. According to this communiqué, the producers of the non-hazardous waste are obliged to minimize the non-hazardous waste generation, and prepare, implement the waste management plan related to the recovery of these wastes. The waste producers should store its wastes, in facility borders in leak proof, safe or similar containers in an area having impervious ground and roof, temporarily in accordance with Article 8 of the Communiqué. Non-hazardous wastes can be stored on site temporarily for one year until recovery. The

producers are also obliged to send their non-hazardous wastes to licensed collection and separation facilities or non-hazardous wastes to licensed recovery facilities. In addition, it is obligatory to prepare a three year waste management plan and submit to the Provincial Environment and Urbanization Directorate.

Furthermore, it is mandatory to fill the non-hazardous waste declaration form every year in March with the information of previous year and submit these forms digitally to Ministry. It is also stated that the copy of the forms should be kept for 5 years.

2.2 Requirements of International Financing Institutions

IFC Performance Standard 3 on Resource Efficiency and Pollution Prevention recognizes that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. The objectives of PS 3 are:

- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To promote more sustainable use of resources, including energy and water.

EBRD Performance Requirement 3 on Pollution Prevention and Abatement consists of general requirements on pollution prevention, resource conservation, energy efficiency, wastes, safe use and management of hazardous substances and materials, emergency preparedness and response and greenhouse gas emissions which are applicable to the Project. The impacts and issues associated with polluting activities need to be considered in all economic activities, and from effluents and emissions at the facility level, to impacts at a regional and global level where appropriate.

2.3 European Union (EU) Legislation and Related Documents

Waste Framework Directive 2008/98/EC

Directive 2008/98/EC sets some basic waste management principles: it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

In an effort to harmonize Turkish environmental protection standards with EU's Waste Framework Directive (2008/98/EC) and the European Commission Decision establishing a list of waste (2000/532/EC), the Turkish MoEU adopted a new regulation on waste management that will significantly affect companies that produce waste in Turkey. Waste management implementing legislation aimed at aligning with the Waste Framework Directive was adopted in 2015. Implementing legislation aligning with the Mining Waste Directive was also adopted. Work has continued to bring waste treatment facilities up to EU standards.

Directive 2006/21/EC on the Management of Waste from Extractive Industries – the Mining Waste Directive

Waste from extractive operations (i.e. waste from extraction and processing of mineral resources) is one of the largest waste streams in the EU. It involves materials that must be removed to gain access to the mineral resource, such as topsoil, overburden and waste rock, as well as tailings remaining after minerals have been largely extracted from the ore.

Some of these wastes are inert and hence not likely to represent a significant pollutant threat to the environment save for smothering of river beds and possible collapse if stored in large quantities. However, other fractions, in particular those generated by the non-ferrous metal mining industry, may contain large quantities of dangerous substances, such as heavy metals. Through the extraction and subsequent mineral processing, metals and metal compounds tend to become chemically more available, which can result in the generation of acid or alkaline drainage. Moreover, the management of tailings is an intrinsically risky activity, often involving residual processing chemicals and elevated levels of metals. In many cases tailings are stored on heaps or in large ponds, where they are retained by means of dams. The collapse of dams or heaps may have serious impacts on environment and human health and safety. Other likely significant impacts relate to the

physical footprints of waste disposal facilities and resulting loss of land productivity, effects on ecosystems, dust and erosion.

These impacts can have lasting environmental and socio-economic consequences and be extremely difficult and costly to address through remedial measures. Wastes from the extractive industries have therefore to be properly managed in order to ensure in particular the long-term stability of disposal facilities and to prevent or minimise any water and soil pollution arising from acid or alkaline drainage and leaching of heavy metals.

Reference Document on Best Available Techniques for Management of Tailings and Waste-Rock in Mining Activities

This document covers activities related to tailings and waste-rock management of ores that have the potential for a significant environmental impact. Mining techniques and mineral processing are only covered as relevant to tailings and waste-rock management. The main aim of the document is to specify activities that can be considered as examples of "good practice" and to raise awareness of such practices and promote their use across all activities in this sector.

3. ROLES AND RESPONSIBILITIES

Roles and responsibilities for E&S management for the GCP are described in detail in the Project ESMS. The Environmental and Public Relations Coordinator (and the related department's sub-level personnel including the Environmental Supervisor) will be responsible for implementation of the Waste Management and Pollution Prevention Plan.

4. WASTE MANAGEMENT

4.1 Waste Management Approach

Management of non-mining wastes will be based on the following hierarchy, in the order of decreasing preference:

- Eliminate waste generation where possible
- Reduce waste generation at the source
- Re-use waste/excess materials where feasible
- Recover/recycle waste materials where feasible
- Disposal of on-site waste by a licensed waste company

In order to minimize the volume of non-mining waste generated on site and manage these wastes and materials properly, the following good management practices will be used:

- Reduction, such as avoid using, is the primary goal of this plan.
- Recycling of wastes will be encouraged throughout all the project activities.
- Personnel that handle hazardous materials and wastes will be trained for proper handling and management.
- Non-hazardous wastes will be segregated from hazardous wastes.
- Effort will be made to minimize the quantity of hazardous materials used.
- Spills of hazardous materials will be prevented through careful and sensible management of the materials.
- Non-hazardous alternatives will be used in place of hazardous materials if possible.
- Regular inspections of storage areas will be conducted. If damaged or leaking containers are detected, they will be replaced.
- Preventive maintenance will be performed on equipment to avoid potential spills.

- Fuel tanks and waste storage areas will have secondary containment or spill trays.

4.2 Classification of Wastes

The Project activities will lead to the generation of both mining and non-mining wastes on site as classified below.

4.2.1 Non-Mining Wastes

4.2.1.1 Non-Hazardous Wastes

Typical non-hazardous wastes are given below.

- Domestic Wastes
- Recyclable Wastes (paper, glass, metals, wooden waste, trees, tin cans, textile etc)
- Packaging Wastes
- Waste Tires
- Excavation Wastes

4.2.1.2 Hazardous Wastes

A number of hazardous wastes given below may potentially be generated as a result of the project activities.

- Waste Batteries and accumulators
- Waste Vegetable Oils (from kitchens)
- Medical Wastes
- Waste Oil (from maintenance of equipment and vehicles, from transformers, etc.)
- Other wastes (Asbestos waste, explosive waste etc.)

4.2.2 Mining Wastes

- Waste Rock (from open-pit mine area)
- Tailings (from ore processing plant)

4.3 Waste Collection, Storage, Transportation and Disposal

In line with the legal requirements, an industrial (hazardous and non-hazardous) waste management plan will be prepared and submitted to the Provincial Directorate of Environment and Urbanization every 3 years. Also, it is mandatory to fill the waste declaration form every year in March with the information of previous year and submit these forms digitally to the Ministry of Environment and Urbanization.

4.3.1 Collection, Segregation and Storage

4.3.1.1 Non-Mining Wastes

Non-mining wastes will be segregated and temporarily stored in designated secured storage areas separately defined for hazardous and non-hazardous wastes. Transport and ultimate disposal is covered in Section 4.3.2.

Non-Hazardous Wastes

Management of non-mining non-hazardous wastes will be as follows:

- Domestic wastes will be collected in special trash bins and temporarily stored onsite in compliance with Regulation on Waste Management.

- Recyclable wastes will be separated and stored temporarily onsite.
- Packaging wastes will be collected separately from other wastes, will be stored in short-termed special reserved areas in compliance with Packaging Waste Control Regulation.
- In case when the tires of the project vehicles and the construction machines need to be changed, the changed tires will be kept in special reserved places Waste Tires Control Regulation
- The excavation, construction and demolition wastes will be reused where possible. In case they cannot be used they will be disposed to the disposal areas approved by Hanönü Municipality in compliance with the Excavation, Construction and Demolition Waste Control Regulation.
- Suitable waste containers will be provided at the places of waste generation to facilitate safe and environmentally sound temporary storage. All containers will be clearly marked according to its contents.

Hazardous Wastes

Hazardous wastes will be stored in containers that are non-damaged, leak-proof, safe and appropriate according to the international standards and international common practice at a dedicated area within the facility above a concrete floor. The hazardous waste containers will be checked regularly in order to determine whether they are damaged or any spill occurred. Hazardous waste containers will be kept closed and wastes will be stored in a way that they will not have chemical reactions. All waste containers that are being handled will have clear identification and accurate description of the type of waste. This will provide assistance to site and external personnel to handle and transfer the wastes safely. Any unidentified wastes will be considered as hazardous waste. Waste labels will include the information such as waste classification/category, volume of waste, MSDS, required personal equipments. Any old labelling on the containers will be removed or covered to avoid confusion.

Vehicles and construction machines will be used during the land preparation and construction periods of the project. Oil change of machine and equipment are planned to be performed outside the project site; at the qualified service providers. In case it is inevitable to perform oil change of the construction vehicles on site reserved areas for this work having appropriate drainage will be used. An impermeable cover will be laid under vehicles to prevent soil contamination and this activity will be conducted away from the water resources. All measures will be taken into consideration for possible leakage. When any oil/fuel/lubricant spill or leakage occurs at site, the contamination will be controlled by using absorbents and the contaminated soil (if any) will be stripped to the adequate depth and disposed as hazardous waste. In this regard, the provisions of the Regulation on Waste Management will be complied with for appropriate disposal. Absorbent material will be kept in all of the vehicles used for transportation against any leakage or spill. Information will be given to workers on the use and disposal of materials. Any contaminated waste arising from equipment/vehicle maintenance areas will be disposed of in line with the requirements of the Regulation on Control of Hazardous Wastes. Filters or materials saturated with petroleum products will be drained into an appropriate container to remove any free product prior to disposal. Hazardous materials, petroleum products, and used drained filters will be properly stored in containers that are clearly marked with the lids securely attached. Containers will be stored only in designated storage areas.

Waste oils will be temporarily stored, handled and disposed of in separate containers according to the categories referred to in the Waste Oil Control Regulation. Waste oil will be collected inside the containers placed on an impermeable surface. Different containers will be used for waste oils of different categories. Waste oil temporary storage containers will be red having “Waste Oil” sign on.

Waste vegetable oils will be collected in special containers temporarily.

Waste batteries and accumulators will be collected separately from household in compliance with Waste Batteries and Accumulators Control Regulation.

Medical wastes will be collected separately from the other wastes in compliance with Medical Waste Control Regulation.

Any asbestos waste discovered will be recovered and placed in sealed drums, by the Contractor or a third party sub-contracted, pending disposal to special landfill.

Waste explosives procured for use during the Project will be stored in their original type of container, but marked as explosive waste.

4.3.1.2 Mining Wastes

Waste Rock

Waste rock will be generated during the extraction of ore and will be deposited into the waste rock dump area (WRD).

For waste dump design, the Turkish mining regulations require that the final waste dump landform be stable in long term. Project design criteria were selected to ensure long term stability.

Interception channels will be constructed around the WRD to divert runoff and prevent surface runoff interaction with stored waste rock. This non-contact water will be drained to downstream surface waters.

Impervious sedimentation ponds will also be constructed and runoff that is in contact with waste rock and open pit walls will be captured and diverted to these ponds for further treatment. Water collected in sedimentation ponds will be discharged after treatment, only in case in the case its quality meets discharge criteria defined by EU Directive on Urban Waste Water Treatment (91/271/EEC), IFC Effluent Discharge Criteria for mine waters and National Discharge Standards specified in Turkish Water Pollution and Control Regulation – Table 7.1.

The proposed cover design for the closure phase is formed of a 'sandwich' of a lower layer of gravel (nominal thickness 15 cm), itself covered by a layer of clay (nominal thickness 0.5 m) with an additional upper layer of gravel (nominal thickness 10 cm). On top, the gravel layer is covered by soil/overburden to facilitate re-vegetation. Rainfall on the WRD will pass through the upper vegetated soil layer, some of it evaporating and a portion of the rainfall will be transpired into the atmosphere.

Non-mining wastes (waste batteries, domestic waste, waste tires, etc) should not be disposed of with waste rock in the WRDs. They will be stored and disposed of separately in line with the relevant legislation.

Any explosive that could not be blasted will be separated from the waste rock to be defused or reused in compliance with the related regulations.

Tailings

Extracted ore from open-pit mine will be processed with flotation method in the processing plant. Tailings produced after processing will be stored in two different tailings storage facilities (TSFs). Both TSFs will be lined with clay and a HDPE for sufficient impermeability, and equipped with collection systems.

The Kepezkaya TSF will have a maximum height of approximately 53 m from the foundation. The main embankment will be constructed from rockfill with a central interface drainage layer and a clay wedge on the upstream side, where the facility will be equipped with a composite liner. Foundation improvement measures consisting of a series of Continuous Flight Auger (CFA) piles were installed below main TSF embankment. (Risk Assessment for the Kepezkaya Tailings Storage Facility, April 2017, Golder).

The reservoir surfaces and the upstream face of the TSF dam and closing dyke embankments will be lined from top to bottom with a drainage geocomposite layer, a geomembrane layer, a Geosynthetic Clay Liner (GCL) layer and a drainage composite layer to ensure impermeability.

Drainage systems planned for Kepezkaya TSF include the following:

- A total of six intermittent stream collection structures and diversion channels around the reservoir are planned to divert the rainfall runoff within the valley catchment. The diversion channels will discharge the flows to the downstream side of the TSF with the aid of chute channels and energy dissipaters.
- The upper drainage system was designed to collect the contact waters leaching from the waste. All applied impermeable layers and dam embankment upstream face will be layered with a drainage geocomposite with the above mentioned specifications, as well as an additional mesh type drainage system. In addition, at least a 3° inclination will be ensured from the upstream side to the downstream side and also from left and right banks to the centre. The collected water will be diverted by the drainage

geocomposite and drainage system to the high strength HDPE perforated pipes installed at the bottom, below respective filters. These pipes will transfer the water to the upper drainage collection pond.

- The lower drainage system will collect and divert groundwater flow, especially increasing seasonally by melting of snow and/or heavy rain events, from below the impermeable layers to prevent any such flow's damage to the dam and installed impermeability structures. The system will consist of drainage trenches, which will also serve the purpose of anchorage for fixing the geosynthetics. The collected water will be transferred to lower drainage collection pond. The water in the pond will be tested and sent to the TSF in case it is determined to be contaminated, or will be discharged in case it is determined to be in compliance with discharge standards.

All materials for the impervious linings and drainage systems were selected by considering the chemical contents of the tailings and underground waters, which includes 100% polypropylene and HDPE geosynthetics and pipes.

The facility will be equipped with a concrete lined storm water management system which has been designed to collect a 1:500 year 24 hour event.

A total of 4 and a total of 5 monitoring wells have been constructed around Kepezkaya and Bağdere TSF locations respectively.

4.3.2 Transportation and Disposal

4.3.2.1 Non-Mining Wastes

Non-Hazardous Wastes

Domestic waste will be made available for Hanönü Municipality to be collected with trucks in compliance with Waste Management Regulation. Protocol will be signed with the Municipality before the transfer of domestic wastes.

Recyclable wastes will be transferred to the licensed companies.

Packaging wastes will be transported and disposed by the licensed companies in compliance with Packaging Waste Control Regulation.

Waste tires will be delivered to the licensed transportation and disposal/recycling companies in compliance with Waste Tires Control Regulation.

The excavation, construction and demolition wastes will be reused where possible. In case they cannot be used they will be disposed to the disposal areas approved by Hanönü Municipality in compliance with the Excavation, Construction and Demolition Waste Control Regulation.

Agreements of AMI with licensed waste facilities will be annexed to this MP.

Hazardous Wastes

Collected waste batteries and accumulators will be delivered to the collection points to be established by enterprises engaged in the distribution and sales of battery products, or by municipalities in compliance with Regulation on Control of Waste Batteries and Accumulators.

Waste vegetable oils will be collected in special containers to be sent to licensed companies for reuse/recovery. These waste oils will be disposed in compliance with Waste Vegetable Oil Control Regulation. The discharge of the waste oils to any receiving body or lavatory will definitely not be allowed.

Medical wastes will be sent to the nearby hospital under the responsibility of doctor in the infirmary in compliance with Medical Waste Control Regulation. Records regarding the transportation of medical wastes will be kept in mine site.

Waste oils will be transported by licensed transporters to the licensed processing and disposal facilities and National Transportation Form will be filled in case of transporting the waste oil out of the facility and waste oil declaration form will be submitted to relevant authorities annually.

Waste explosives will be handled and disposed of as recommended by the manufacturer, and in accordance with Turkish requirements.

Hazardous wastes, such as waste oils and batteries, will only be transported off site to licensed disposal facilities, if and when storage capacities on site are nearing maximum levels. Hazardous waste will be securely packed and labeled prior to removal from site, to ensure the waste can be transported safely to the approved disposal site without risk to those handling the waste or to the environment. All subcontractors will provide waste storage areas including Hazardous wastes and these areas will be placed within the laydown area. Solid wastes in the plant can be classified as domestic wastes, hazardous wastes, waste oils, herbal oil waste, battery and accumulators, medical wastes, treatment sludge, end-of-life tires. All of these wastes will be determined, collected, stored, recycled and discharged according to waste codes and stream chart.

Transportation of the wastes will be done by the persons and entities that are licensed for this work and by the vehicles appropriate for the properties of the transported waste. The hazardous wastes will be sent to a licensed disposal facility.

Agreements of AMI with licensed waste facilities will be annexed to this WMP.

4.3.2.2 Mining Wastes

Waste Rock

Waste rock and ore from the open-pit area will be transferred by different colored trucks to final destinations. Waste rock with high water content will not be transported by trucks. Speed limit will be obeyed by the trucks and the trucks will not enter bends and corners fast. Truck load will be balanced. Road widths and slopes should be suitable for the transport of waste rock. In case any waste rock is spilled to the roads accidentally, waste rocks will be transferred to the WRDs.

Any oil/fuel/lubricant spill or leakage from the vehicles at the open-pit mine area should be controlled before transfer to the WRDs. Maintenance of vehicles should not be performed in the open-pit mine area. In case this is the only option then the contamination should be controlled by using absorbents and the management of the spill should be made in compliance with relevant legislation.

Tailings

Potential tailings management measures that should be implemented during transportation of tailings are given below.

- The tailings from the processing plant will be sent via a pressurized pipeline and deposited into two TSFs. The pipeline should have the property to transfer the waste. Pipes that cannot meet the standards will not be used. The pipeline will be resistant to the physical and chemical impacts.
- The pumps should be continuously checked according to the specifications provided by the manufacturer. The pumps will be operated within the pressure range specified by the manufacturer.
- The maintenance of the pumps will be conducted during the maintenance period of the whole facility. If there is any risk identified, the activity in the facility will be stopped and the maintenance of the pumps will be conducted.
- The maintenance period of pumps will be taken into consideration and a spare one will be kept available at site.
- The flange point of the pipeline will have the high industrial quality.
- The pipeline will be closed through the whole route. Any point of the pipeline will not be exposed to external interference.
- Pipes with punctures or ruptures will not be used. Damage assessment will be conducted by a team established in case of any leakage, puncture or rupture of the pipeline. After the damage assessment study, the fixing/modification activities will be started. If it is not required to stop the work for fixing the pipeline due to leakage, the maintenance will be conducted not to stop the work. Otherwise the work will be stopped. The point where a leakage occurs might have high pressure. Necessary occupational health and safety precautions should be taken.

- Any leakage on HDPE and PE pipelines, the pipeline will be clamped from both the mining and TSF sides and the leakage will be stopped. The fixing of the pipeline will be conducted at the intermediary location.
- If there is any high pressure or waste in the pipeline cause to risk the health and safety of the workers any maintenance activity will not be conducted.
- The area contaminated by the leakage will be cleaned by stripping and disposed to the TSF. The contaminated area will be cleaned with hand tools or construction equipment.
- The pipe pieces occurred during the maintenance will be disposed to waste storage area.
- If there is any river-crossing, the section through the river will be double-walled since the maintenance in that section is difficult.
- The pipeline will be double-walled through the road-crossings.
- During the long-term shut-down period of the facility, the waste in the pipe will be pumped to TSF using clean water. Waste will not be remained in the pipe.
- The wastes generated in the facility will be pumped to TSF with high pressure resistant pipe. This pipe will also be resistant to physical and chemical corrosion.
- Wastes remaining in the pipe accumulate at the bottom and the pipe become dysfunctional. In order to prevent this situation during the change of the pipes in sequence it will be ensured that there is no waste in the pipe.

4.4 Waste Management Training

AMI must provide sufficient training to all its staff and subcontractors to ensure that they are aware of the relevant aspects of this plan and are able to fulfil their waste management roles and functions. Training of staff will be recorded in personnel records. Personnel working routinely with hazardous wastes and materials and implementing this plan, will receive additional specialized training detailing the specific handling, segregation, labeling, storage, spill response, and disposal requirements on site, in addition to the compliance requirements associated with Turkish Legislation an international standard.

4.5 Record Keeping and Inspection

Amount of wastes collected will be recorded with their types and classifications accordingly. Records for generated waste from time of generation to final destination will be maintained. All information relating to waste generation and disposal will be recorded with quantity and types on monthly basis. Waste log form is provided in Appendix 1. Annual waste declaration forms (online web based system of the Ministry of Environment and Urbanization, http://online.cevre.gov.tr) and National Waste Transport Forms (template is provided in Annex 9-A of the Hazardous Waste Control Regulation which is cancelled in April 02, 2016.) will be kept for 5 years onsite.

Internal inspections regarding on-site management of non-mining wastes should at least be made quarterly. A checklist is provided in Appendix-2.

5. HAZARDOUS MATERIAL MANAGEMENT

The explosives will be stored in a fenced area which is reserved for this purpose located away from social buildings in the field. Any explosive that could not be blasted will be separated from the waste rock to be defused or reused in compliance with the related regulations. The explosive area will be marked with safety signs. Safety measures will be assured prior to blasting around the area where blasting is applied. The transportation, deposition, arrangement and fitting of the explosives will be conducted by authorized personnel and/or entities permitted or certified for this purpose. The works related with the explosives will be conducted under the statements of Charter on the Measures to be Taken at the Works and Businesses which Utilize Flammable, Explosive, Hazardous and Detrimental Materials and Charter on the Procedures and Principles of the Production, Importation, Transportation, Preservation, Storage, Sales, Usage, Demolition and Supervision of Explosives Excluded from the Monopoly and Hunting Materials and Equivalents.

Chemicals will be provided with MSDSs. MSDSs for all chemicals used at the project area will be kept available for the concerned employees. Chemicals will be provided with labels. Oil and chemicals spill response plan will be prepared and implemented. Access to the chemical storage area will be restricted. The area will have sufficient space and be well organized, well lit and well ventilated. The area will have an impervious floor that is resistant to the chemicals use and is easy to clean. Tanks and containers will be kept in defined and bunded areas. Ignition sources will be eliminated.

If diesel is stored at the project area, the storage area will be impermeable, with shield to avoid rain and provided with appropriate drainage system.

Transformer will be provided with secondary containment to preserve the 110% of the oil content.

Appendix A Waste Log Form for Non-mining Wastes

Company:

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							
14							
15							
16							
17							
18							
19							
20							

Appendix B Waste Management Inspection Checklist for Non-mining Wastes

Inspection Date:

Inspection Location:

Control Measure	Compliance (Yes/No)	Comment
Are all waste streams being properly separated and labelled in to the following categories? - Hazardous Waste - Non-hazardous waste - Unidentified waste		
Is the site waste inventory current and up to date?		
Are hazardous and non- hazardous wastes being stored at separate locations?		
Has a map been produced showing the correct waste storage locations which are visible to all workers		
Are all waste storage containers appropriately labelled to prevent cross contamination of waste materials?		
Are all waste labels complete with the appropriate information to include: - Waste stream (Hazardous, non-hazardous, etc) - Type of waste (solid, liquid or sludge) - Amount of waste - Known environmental, health and safety hazards (e.g. MSDS forms) - Personal protection equipment (PPE) required		
Are licenses of companies in charge of waste transport and waste disposal valid and up-to-date?		
Are copies of National Waste Transport Forms kept as part of monthly waste log forms?		