

**Emergency Preparedness and Response Plan  
Supplementary Lender's Information Package (SLIP)  
Dundee Precious Metals Ada Tepe Deposit  
Krumovgrad Gold Project, Bulgaria**






Submitted to  
**Dundee Precious Metals**



Submitted By  
**AMEC Earth & Environmental UK Ltd.**



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## 1.0 BACKGROUND

Dundee Precious Metals (DPM) has negotiated an amended financial package with a consortium of banks for which the European Bank for Reconstruction and Development (EBRD) acts as environmental agent. According to the EBRD's Environmental and Social Policy (2008), and its associated Performance Requirements (PRs), a project of this type and scale requires a full Environmental and Social Impact Assessment (ESIA). The Project undertook a local national environmental impact assessment (EIA) to Bulgarian standards in 2010 and an environmental permit No. 18-8, 11/2011 was issued. Following an independent review of the local EIA reports, the EBRD required a number of supplementary environmental and social studies and documents to fill the gaps necessary to meet the EBRD PRs and international good practice. In addition to the EBRD PRs, some of the consortium banks refer to the Equator Principles and therefore the Project also references the IFC's Performance Standards (2012). The package of supplementary environmental and social documents as well as the local EIA reports together form the Project ESIA. The Project ESIA is summarised in a Non-Technical Summary.

Part of the additional information required is an Emergency Preparedness and Response Plan relevant to the Project. This Plan is set out below. It is based largely on an existing Plan prepared by DPMK in September 2010 under requirements set down by the Bulgarian Disaster Protection Act.



## 2.0 INTRODUCTION

### 2.1 Regulatory Background

This Plan has been prepared to conform to the Bulgarian Disaster Protection Act (No. 102/19.12.2006, with subsequent amendments). Article 35 of the Act sets out the obligations for companies such as DPMK in disaster management for projects such as the Krumovgrad Gold Project:

*“Article 35. (1) Legal persons and sole proprietors, owners and users, conducting any activity at facilities, representing construction projects of Category One, Two and Three within the meaning of Article 137 of the Spatial Development Act, which creates a danger of occurrence of disaster, shall develop emergency action plans for the facility, containing:*

- The maximum possible consequences for the personnel, population and environment of an accident at the facility;
- Measures to contain and eliminate any consequences of an accident at the facility;
- Personnel protection measures;
- Distribution of responsibilities and the bodies and officials in charge of implementation of the measures envisaged;
- The means and resources, required for implementation of the measures envisaged;
- The lead time for response by the structures and officials;
- The procedure for notifying the bodies of the executive branch in case of need to activate disaster protection plans;
- The content of the emergency action plan may differ from that indicated in Paragraph 1, if so mandated by a special legislative act;
- Persons under Paragraph 1 shall;
- Approve and update the plan under Paragraph 1 in case of change in circumstances;
- Organise the conduct of practical training in implementation of the emergency action plan at least once a year;
- Provide the mayor of the municipality with information for preparing the municipal disaster protection plan concerning;
  - the sources of risk from their activity;
  - the likely consequences of accidents and the ways of remedying them;
  - the possible impacts on the population and the environment;
  - the measures, forces and means for conducting rescue and emergency repair and recovery works at the facility.

- Make available to the mayor of the municipality information for drawing up the municipal disaster protection plan concerning:
  - immediate start of rescue and emergency repair and recovery works;
  - immediate notification of any accident of the respective operations centre of the Fire Safety and Rescue Directorate General - MoI and the mayor of the municipality under direct threat;
  - making available to the respective component parts of the integrated rescue system information regarding explosives, hazardous chemicals, sources of ionising radiation, as well as other information on hazards for human life and health;
  - in case of participation of integrated rescue system teams - on assisting them in the process of eliminating the accident;
  - ensuring safe disposal of waste resulting from the accident and its elimination.
- Build and maintain local alerting systems;
- Set up, prepare and keep on standby forces and means for protection of workers at the territory of the facility;
- Perform instruction of employees in disaster protection.

## 2.2 Overview of the Environmental and Social Setting

The Krumovgrad Gold Project mining licence area is located in the East Rhodope, approximately 320 km (by road) southeast of Sofia, in the Kardzhali District immediately south of the regional township of Krumovgrad (25° 39' 15"E and 41° 26' 15"N). Krumovgrad is located approximately 12.5 km (direct line) north of the border with Greece.

The Project has a rural setting, is located 3 km south of Krumovgrad town and trends in a north south direction. The deposit area comprises of hilly topography abutting a major regional river system. Infrastructure in the area is good, with paved roads, power and water resources available within close proximity to the Project. Secondary roads are unsurfaced but generally accessible year round with four-wheel drive vehicles.

The average annual precipitation is 703.5 mm. The bulk of this falls in Autumn and Winter, occasionally as snow in the coldest months. The highest rainfall occurs in December (96.9 mm average) and the lowest in August (24.1 mm). Estimated 1:100 year rainfall events are 117.3 mm for 24 hours duration, and 184.1 mm for 72 hours. Probable Maximum Precipitation ("PMP") estimates are up to 383.4 mm for 24 hours and 605.4 mm for 72 hours. Average annual evaporation is 1050.8 mm, similar overall to annual rainfall in magnitude, but opposite in a seasonal sense.

Small villages are dispersed widely throughout the licence area with their inhabitants involved in subsistence farming, particularly livestock and the growing of tobacco and vegetables on the poorly developed soils characteristic of the Region. Many of the



hamlet dwellings have seasonal occupancy only. The other main land category within the licence area is State controlled by the National Forestry Agency.

The population of Bulgaria is largely non-practicing Eastern Orthodox Christian (85%) with a Turkish Muslim minority predominantly residing in the southeast of the country, including the licence area.

## **2.3 Populations Susceptible to Potential Emergency Conditions**

### **2.3.1 Employees, Visitors, and Contractors on the Mine Site**

Although the future operations and maintenance staffing levels and estimates of potential contractor staff at the mine and mineral processing operations have not yet been finalised, preliminary estimates of staffing levels indicate that up to 300 individuals may be present on site during the construction phase; this figure is expected to drop to approximately 230 during operations, and will drop further to around 50 workers during the closure phase.

### **2.3.2 Populations Off the Mine Site**

Offsite populations susceptible to potential emergency conditions include those of Krumovgrad township and the village communities of Ovchari, Zvanarka, Dazhdovnik, Kuklitsa, Surnak and Edrino.

Further information regarding the transportation corridors for hazardous materials will be incorporated in updates to this *Plan* as transportation/logistics planning is developed.

## **2.4 Scope of the Emergency Preparedness and Spill Contingency Plan**

This Plan is intended for use by the DPMK emergency response organisation and DPMK employees on the Project site. It will address the following emergency response elements:

- Identification of potential emergency scenarios;
- Emergency incident classification;
- Emergency response organisation and responsibilities;
- Co-ordination with external/governmental emergency response organisations;
- Emergency alarms and communication systems;
- Emergency response procedures;
- Emergency and media communication procedures;
- Evacuation procedures;
- Emergency response equipment;
- Post emergency recovery;



- Post emergency mitigation;
- Spill prevention measures;
- Emergency preparedness inspections, training and drills;
- Maintenance and control of this Plan.

It should be emphasised that this Plan is designed to provide guidance for anticipated emergencies. This Plan cannot provide all necessary details for all possible emergency situations. Therefore, appropriate, responsible and trained personnel representing all stakeholders will be expected to make and execute spontaneous decisions to react effectively to unexpected emergencies. The planning and resource identification provided herein is designed to provide important and useful guidance in any emergency.

In the event of emergency situations that could impact the environment and or populations off the Project site, this Plan is intended to be applied in conjunction with any established community emergency plans, which may be maintained by appropriate officials from the communities adjacent to the mine site. DPMK will keep a current copy of any community emergency plan(s) at the Project site.

### 3.0 PROJECT DESCRIPTION

#### 3.1 Overview

The Krumovgrad Project is a proposed open pit gold mine located in Southern Bulgaria (Figure 3-1) designed to extract 850,000 tonnes of gold ore per year over an 8 year life. The ore will be processed using physical separation techniques to produce a gold ore concentrate that will be transported off-site for further treatment and refinement in a remote facility already permitted for that purpose. Waste rock and mineral process wastes will be deposited on-site in an Integrated Mine Waste Facility designed to minimise footprint and maximise stability and acceptability, after closure as a permanent landscape feature.

The process facilities and mine will be developed, constructed, and operated by DPMK, a wholly owned subsidiary of DPM. The size of the Project footprint (the area it physically will occupy) has been minimised through several stages of design and re-design in order to limit the total operational area, including a perimeter buffer zone. This footprint covers approximately 85 ha of State-owned land.

**Figure 3-1: Location Plan of the Krumovgrad Gold Project Area**



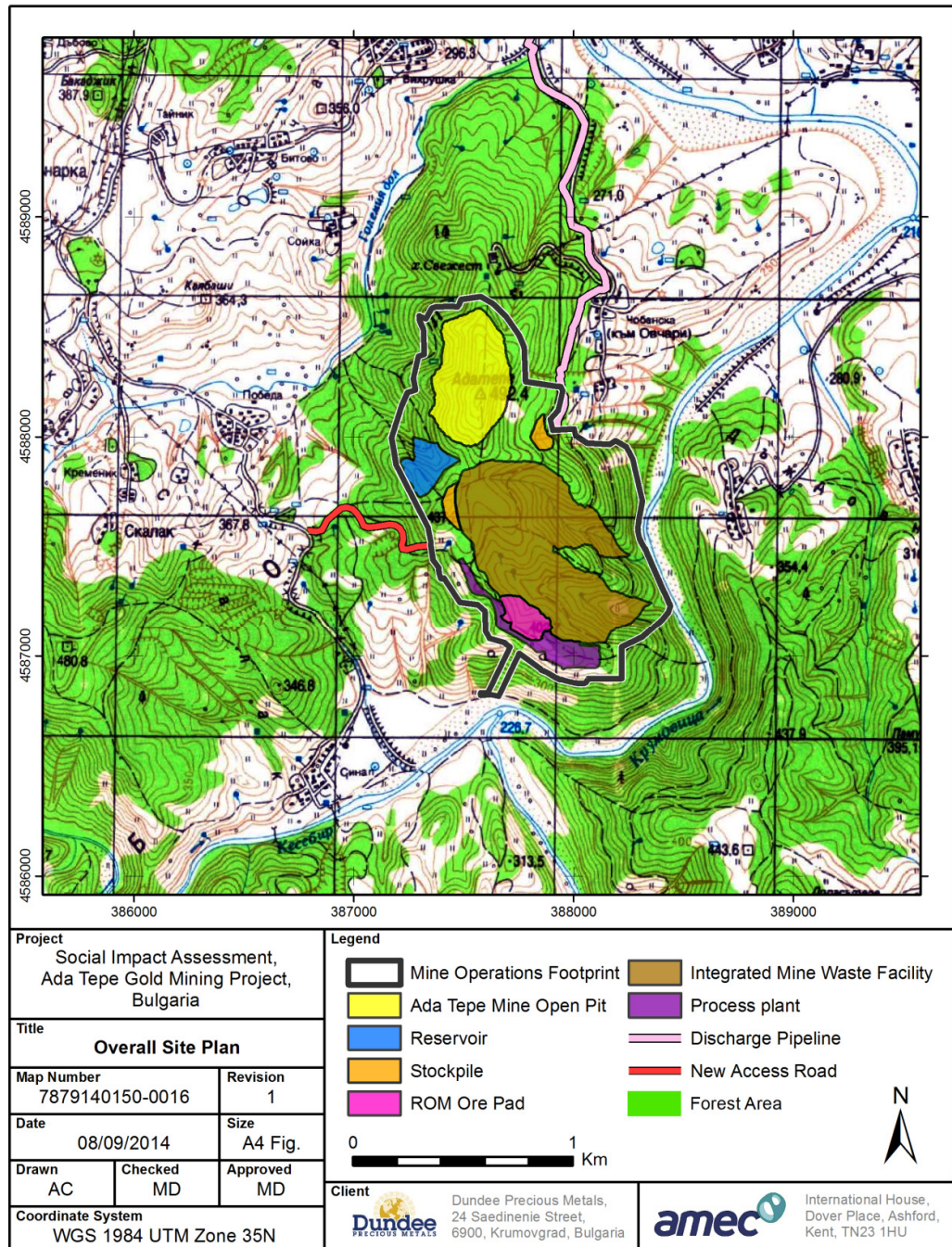
### **3.2 Development and Operations**

The timeframe for implementing the Project, once all necessary permitting is in place from start through to practical completion of the process plant in readiness for ore commissioning is estimated to take 125 weeks (approximately 2.5 years).

Over the 8 year life of mine, 686,000 ozs. of gold will be produced within a mineral concentrate. The plant is planned to treat 0.85 Million tonnes per year (Mtpa) of ore over the 8 year mine life, including the processing of stockpiled low grade ore at the end of the Project. The overall site plan is presented in Figure 3-2.



Figure 3-2: Overall Site Plan



The operation is planned to use conventional open pit mining methods to mine ore, low grade ore and waste rock. The mining equipment proposed for the mining operation includes a 23.7 m<sup>3</sup> back hoe excavator and off-highway haul trucks with a payload capacity of 40 tonnes. Provision has been made for drilling and blasting from the initial benches. The open pit will operate two daytime shifts each day to minimise the noise impacts on the local communities.

The process selected as a result of a test work program comprises crushing and milling of the mined ore followed by froth flotation to produce a gold and silver bearing concentrate. The process plant will operate 24 hours per day, 7 days per week, except for ore crushing which will operate only for 12 hours per day to avoid night-time noise intrusion.

The project will employ directly approximately 300 people during the construction period, falling to 230 people on site during the operational phase. Approximately 50 people will be retained in the closure and rehabilitation period.

The process plant will be located on the side of the Ada Tepe hill, adjacent to the Integrated Mine Waste Facility (“IMWF”) and approximately 1 km south of the open pit. The milling and flotation areas will be in a building which also incorporates maintenance facilities for the plant, as well as warehousing, plant offices and change rooms. The mining fleet and other company vehicle maintenance will be done in a separate building located about 600 m north of the process plant.

Process plant tailings (mineral residue in slurry form from the concentration process) will be thickened to a paste and will be disposed of in the IMWF, along with waste rock from the open pit mine.

### **3.3 Process Design**

#### **3.3.1 General Design Basis**

The complete plant flowsheet is illustrated in

Figure 3-3. This reflects the overall facilities, the most important ones of which are described below. It should be noted that the process involves physical separation techniques. Use of aggressive and highly toxic chemicals and high temperatures and pressures is not required.

#### **3.3.2 Crushing**

Ore from the open pit mine will be transported by haul truck to a run-of-mine ore pad. This stockpile allows ore to be drawn at a steady rate into the process plant by a front-end loader. The ore is then discharged into a jaw crusher to produce a crushed product that can be fed onto a conveyor belt to transfer the product to the Coarse Ore Silo for storage prior to the grinding circuit.

#### **3.3.3 Grinding Circuit**

Ore will be withdrawn from the silo and fed onto the grinding circuit feed conveyor. The grinding circuits comprise of a single stage open circuit grinding mill that produces a powder that is mixed with water to create a slurry which is then fed to vertical grinding mills for fine grinding. The grinding circuits are



arranged so that unwanted “trash” can be removed and coarse particles re-circulated for further grinding to optimise performance in the next stage of the process.

#### **3.3.4 Flotation Circuit**

Flotation will be the main process for recovery of a gold and silver concentrate from the ground ore. The process is performed in flotation banks, where the recovery is achieved by conditioning the surfaces of the mineral grains based on the different surface chemistry of the precious metal and rock particles. Air is introduced to the bottom of the banks and dispersed by an impeller driven by an electric motor. The air bubbles rise through the mineral slurry to the surface of the flotation cell colliding with the particles. The hydrophobic particles attach to the rising air bubbles to form froth on the surface, which overflows the flotation cell and advances to the next stage.

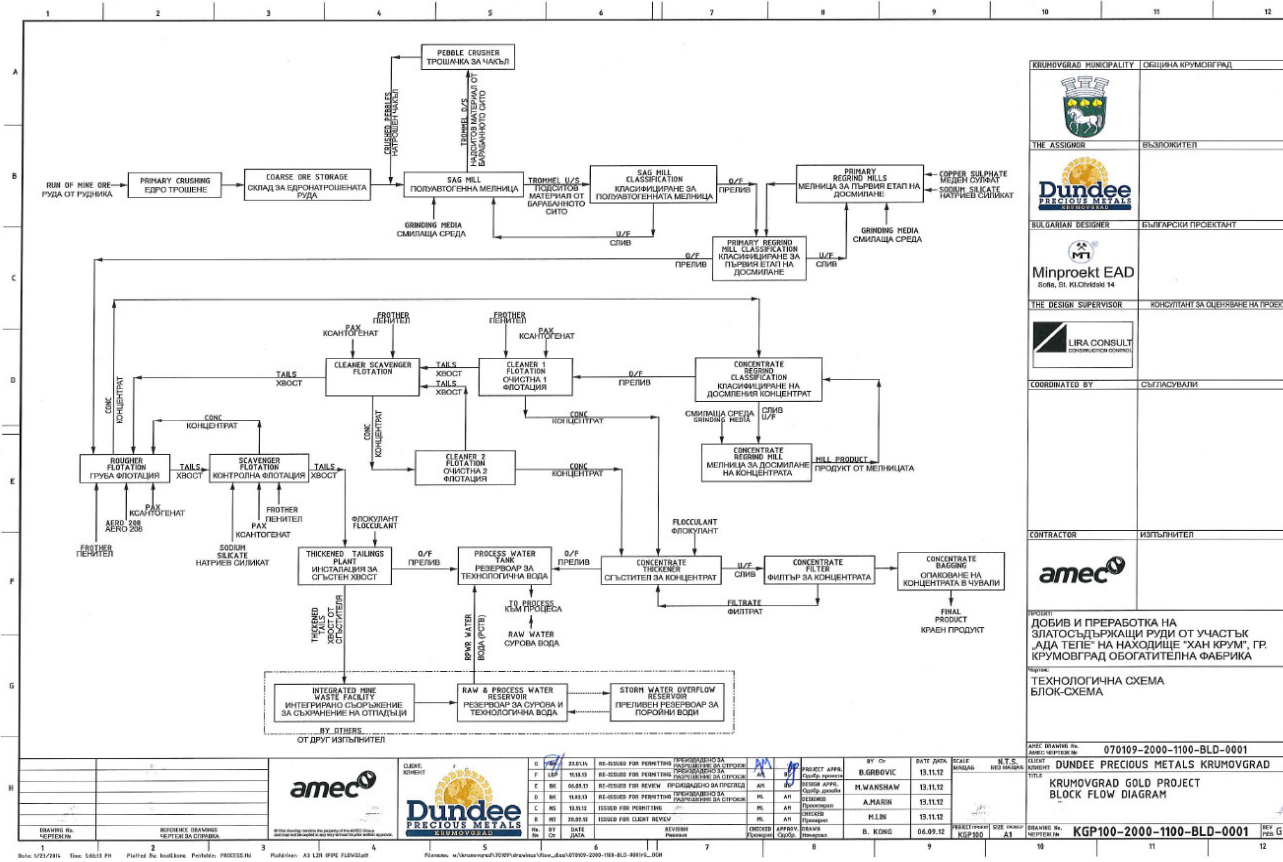
The conditioning of the mineral particles prior to discharge to the flotation banks is achieved by addition of a reagent for sulfidising the particles' surface (Copper Sulphate). Flotation then requires application of a range of reagents to enable bubbles to readily form and be robust enough to collect the target minerals. These reagents include potassium amyl xanthate; dithiophosphate (Aerofloat 208); Frother (Cytec OrePrep F 549) and sodium silicate dispersant ( $\text{Na}_2\text{OxSiO}_2$ , also known as water glass or liquid glass).

#### **3.3.5 Concentrate Handling**

Final concentrate will be dewatered in a pressure filter with the product being stored in bags prior to shipment from site in sealed containers.

#### **3.3.6 Tailings**

The discharge from the Scavenger Flotation bank will be dewatered to a thick slurry and conveyed by pipeline, combined with mine rock waste and placed in the disposal area of the IMWF. Water reclaimed from the tailings will be recycled to the process plant.



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**PROJECT** / **ДОБИВ И ПРЕРАБОТКА НА ЗЛАТОСЪДЪРЖАЩИ РУДИ ОТ УЧАСТЪК "ЛА ТЕПЕ" НА НАХОДИЩЕ "ХАН КРУМ", ГР. КРУМОВГРАД ОБОГАТИТЕЛНА ФАБРИКА**

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**KRUMOVGRAD GOLD PROJECT BLOCK FLOW DIAGRAM**

**AMEC DRAWING No.** / **KGPI00-2000-1100-BLD-0001**

Figure 3-3: Overall Plant Flowsheet

### **3.4 Integrated Mine Waste Facility (IMWF)**

#### **3.4.1 Background and Site Selection**

Disposal of mining wastes has considered disposal methods involving a conventional tailings impoundment as well as alternative disposal methods that can minimise the footprint of the waste facility in a safe and stable manner. The adopted design falls into the latter category and IMWF will receive both thickened tailings and mine waste rock from the Ada Tepe pit. Two sites were initially identified for a potential IMWF, located north and south of the open pit respectively. Preliminary capacity assessments as well as optimisation of the mine and road layout resulted in selection of the south site.

#### **3.4.2 General Description**

The concept of the IMWF is to place thickened tailings into cells constructed from mine rock. The mine rock provides strength required for overall stability and also internal drainage. Water drained from these cells will be recycled to the processing plant. The IMWF will be constructed within two small valleys, being operated as two separate facilities early in the life of the project and later merging into a single facility as operations progress. Rehabilitation of the lower slopes of the IMWF will begin during the early stages of mine operation. DPMK holds an approved mine waste management plan issued by the Ministry of Economy and Energy.

The IMWF structures required for commencement of mining operations will be constructed from the soil and rock excavated to create the platform for the process plant and the roads on the mine site. Once the mining operation begins, the mine rock will be trucked from the open-pit to the IMWF, dumped and spread to construct containment cells for the tailings.

The IMWF will be constructed from the bottom up, with mine wastes placed on starting platforms at the bottom of the valley at approximately 300 m elevation and then progressively built up in benches during the mine life to elevation 450 m. This will allow the lower, completed sections of the facility to be rehabilitated and vegetated during the life of the mining operation.

Some 15.1 million tonnes of mine rock and 6.2 million tonnes of tailings will be stored within the IMWF by the end of the 8 year life of the mine.

### **3.5 Water Management**

#### **3.5.1 Introduction**

The project water management plan is central to maintaining an appropriate environmental and operational performance for the project. The principle adopted for site surface water management is to intercept and divert away water flowing towards operational areas and intercept and collect water in contact with operational areas. This

contact water may then be used in the Project or discharged, after treatment, in line with the discharge permit. In operation, the process plant will source its water mainly from recycle of water drained from the IMWF supplemented by water harvested from other operational areas. Any additional water (make-up water) needed (see Section 3.5.2 below) will be taken from a borehole well located approximately 0.3 km southwest of the process plant near the Krumovitsa River. The IMWF will be a fully drained facility and will not contain a water pond.

A dual reservoir system has been developed which has resulted in the mine being able to adopt a zero discharge water management strategy. One of the reservoirs will be used to store water used on the project (water that is recycled and make-up water) and the second reservoir will be used to manage storm water and water that flows into the open pit. This allows the Project to harvest and recycle water and deal with rainstorm events in a safe manner that avoids downstream pollution.

Should it be required that water must be discharged to the environment, all such water will be treated in a waste water treatment facility to meet the drinking water quality standard.

### **3.5.2 Water Supply**

The water balance is forecast to be positive on an annual basis under normal conditions, i.e. the project will harvest and recycle sufficient water to be able to operate through collection of precipitation over its operational footprint. However, any additional fresh water will be supplied from a borehole well located southwest of the process plant near the Krumovitsa River. A Water Consumption Permit to cover this has been obtained by DPMK for a 10 year period.

### **3.6 Communications**

The mine site will be linked to the Public communications network in the town of Krumovgrad using fibre optic cable which will support both data and voice communications. A repeater system will provide the infrastructure to enable hand-held and mobile radio sets to communicate around the site.

### **3.7 Access Road and In-plant Construction**

The proposed access road to the plant site is an existing Public secondary paved road approximately 2 km in length which connects with the main Public road leading to the town of Krumovgrad. In anticipation of increased traffic on the section of this secondary road which runs between Zvanarka and Pobeda, seven passing points will be constructed to ease vehicle flow and the road bed will be upgraded to accommodate heavy vehicles. The second portion of the access road from the paved road to the plant will follow the line of an existing unpaved track for approximately 950 m. This road will be widened and paved to minimize dust emission.

Within the Project site, a 950 m long internal road will connect to an exit from the mine open-pit and provide access to the crusher area. This will be constructed to carry heavy haulage vehicles with limited Public access. This road will be surfaced with gravel maintained by frequent grading and water sprinkling.

The IMWF embankment access roads (with no Public access) will provide access from the open pit to the two water management embankment dams. One road will be 1.9 km length and will connect the open pit with the north embankment construction site. A second road 760 m long will connect to the south embankment construction. It will be surfaced with gravel maintained by frequent grading and sprinkled as necessary.

### **3.8 Effluent**

Sewage from the various plant site buildings will be treated by means of a packaged Tertiary Wastewater Treatment System. Waste such as hydrocarbons from equipment maintenance will be stored for collection by contractors who will remove it from site and dispose of in accordance with the applicable regulations. General waste including office waste and waste from the meals areas will be collected by a licensed waste contractor.

### **3.9 Fuel Storage and Distribution**

Diesel fuel storage will be provided to supply fuel to process equipment, light vehicles, the mining fleet and mobile plant and equipment. All fuel required at the plant site will be delivered in tanker trucks by commercial suppliers. The fuel storage area will be bunded to prevent spillage of fuel contaminating the site area or watercourses. Minor quantities of petrol that may be required can be obtained from local fuel distributors.

### **3.10 Vehicle Washdown Facilities**

A vehicle washdown facility will be provided adjacent to the diesel fuel refuelling area. It will comprise a bunded concrete slab sloping to a settling sump. Captured rainfall and diesel spillage from the adjacent diesel refuelling facility will also be directed to this sump. A sump pump will transfer dirty water to an oil/water separator.

### **3.11 Power Supply and Reticulation**

The plant electrical power will be supplied by the power distribution company via a proposed underground high voltage cable supplied from the Krumovgrad 110 kV / 20 kV Substation. A 20 kV main substation will be established at the plant site to facilitate power distribution to various areas within the plant.

### **3.12 Buildings**

Infrastructure buildings are classified as either architectural, control rooms or industrial. Architectural buildings include administration offices and ablution facilities. Control rooms include the crusher control room and the main process plant control room. Industrial buildings include workshops, warehouses and buildings that house process equipment.

The assessment of building requirements has been based on the number of personnel and the functions required in each particular area. These buildings will be constructed of reinforced block-work or brick. Roofing will be corrugated steel and elevated floors of timber, with concrete on ground floors. Locally-derived construction materials will be used to the maximum extent possible.

### **3.13 Fire Protection**

Fire protection will consist of the provision of fire hydrants, fire hose reel cabinets and fire extinguishers placed strategically around the facilities in accordance with the requirements of the relevant regulations. Fire-fighting water will be supplied from a reserved volume in the fresh water reservoir.

### **3.14 Security**

All persons entering the Process Plant and mine facilities areas will be required to pass through the continuously manned boom gate adjacent to the administration building on the access road. Security guards located within the administration building will control entry and exit of vehicles and personnel. Search and inspection of personnel, bags and items leaving the plant will be carried out at this facility.

A stock fence will be constructed around all project facilities including the process plant, Integrated Mine Waste Facility, mine, and water reservoirs. Security fencing with lockable access gates will be installed locally around the remote pumping facilities.

### **3.15 Closure and Rehabilitation**

#### **3.15.1 Objectives**

The aim of the proposed decommissioning and rehabilitation of the Project is to achieve the following objectives:

- Establish a beneficial after-use;
- Protect Public health and safety;
- Mitigate or eliminate environmental damage and provide for sustainable environmental development;
- Minimise any adverse social and economic impact.



The adopted closure strategy will allow the site to be left in a condition that meets the following criteria:

- Physical stability – any remaining structures must not be an unacceptable hazard to Public health or safety, or to the immediate environment;
- Chemical stability – any remaining materials must not be a hazard to future users of the site, to the Public health, or to the immediate environment;
- Biological/community stability that enables establishment of an appropriate land-use that is harmonised with the adjacent areas and with the needs and desires of the Community.

A plan for closure of the open pit, the ore processing plant, the IMWF, the ancillary facilities and unnecessary infrastructure was prepared by DPMK together with the construction and operation designs. In order to assess the further and ongoing requirements of stakeholders (principally, the local community), consultation will be carried out with appropriate community representatives.

DPMK is ready to lodge a proposed financial guarantee for closure and rehabilitation activities on the basis of the Closure and Rehabilitation Plan approved by Ministry of Economy and Tourism.

The key features of the Plan are set out below.

### **3.15.2 Open Pit**

The following was adopted for the closure of the open pit:

- The final pit walls and slope gradients ensure safety and stability;
- Technical and biological rehabilitation of the open pit site;
- Continuous monitoring of the quality of surface and groundwater flows to assist in the design of mitigation measures;
- Environmentally sound use ensured by means of all necessary engineering and drainage works, and establishing a suitable vegetation cover where practicable;
- Progressive Rehabilitation of IMWFM during operational stage.

Different options for the open pit closure and its incorporation into the surrounding environment will be considered and discussed during the project operation, consistent with the requirements and wishes of the local community and the scope and objectives of protection established for the East Rhodopes Protected Area.

### 3.15.3 Process Plant and Infrastructure

Surface installations and foundations will be demolished and removed from the site.

The surface of the process plant area will be reshaped and revegetated as appropriate to the surroundings and to the proposed end use of the site at that time. Alternatively, buildings, roads and other infrastructure may be retained as required for any further end-use.

### 3.15.4 IMWF

Closure of the Krumovgrad IMWF will involve conventional practice for mine waste rock facilities.

Drainage into the IMWF will be collected in an under-drain system that prevents the build-up of a water table within the rock and tailings. Water draining from or through the IMWF will exit at the toe of the underlying natural ground gulley forms. During operations, water reporting to the sumps at the toe of the gulleys will be recycled to the process plant. Following operations, the quality of water reporting to the sumps will be monitored.

The IMWF will be constructed from the bottom up with horizontal benches at 10 m vertical intervals with the intervening slope constructed at 2.5H: 1V. During operations, the external faces of the completed portions of the IMWF can be covered with topsoil and vegetated. This means that the majority of the IMWF can be rehabilitated prior to the end of the mining operations.

## 3.16 Raw and Other Materials Required for the Operation Stage: Qualitative and Quantitative Characterisation

### 3.16.1 Raw Materials

The main raw material that will be used in the project is the auriferous ore from the Ada Tepe open pit.

Table 3-1 gives the average chemical composition of the mineable ore.

**Table 3-1: Average Concentration of Major and Trace Elements in the Khan Krum Ore, Ada Tepe Prospect.**

	Au	Ag	Co	As	Fe	Cu	Zn	Pb	Ni	Cr	Mn	Cd
Prospect	g/t	g/t	g/t	g/t	%	g/t	g/t	g/t	g/t	g/t	g/t	g/t
Ada Tepe	5	2	14	145	3.1	10	34	<5	43	250	509	<5

The results of the whole rock chemical analyses (WRA) of the mineable ore are presented in Table 3-2.

**Table 3-2: WRA of Ada Tepe Ore**

Type	Unit	Fresh	Oxidised	Average for the deposit
SiO <sub>2</sub>	%	69.80	81.00	80.20
Al <sub>2</sub> O <sub>3</sub>	%	4.70	6.96	5.90
CaO	%	8.63	1.59	2.85
Fe <sub>2</sub> O <sub>3</sub>	%	2.75	3.51	3.28
K <sub>2</sub> O	%	2.19	3.18	2.60
MgO	%	1.53	0.17	0.44
Na <sub>2</sub> O	%	0.09	0.11	0.14
TiO <sub>2</sub>	%	0.22	0.37	0.30
MnO	%	0.07	0.08	0.08
BaO	%	0.02	0.03	0.03
SO <sub>3</sub>	%	1.02	0.10	0.22
P <sub>2</sub> O <sub>5</sub>	%	0.04	0.07	0.06
Loss on ignition	%	8.74	2.75	3.65
Total				99.75%

### 3.16.2 Materials

A licensed explosives manufacturer will supply the blasting materials. Explosives will be safely delivered from the explosives manufacturing plant to the mine site by a designated MMU vehicle (mobile manufacturing unit). This vehicle will deliver the products to the pit blasting area, where they will be mixed to form explosives and immediately poured into the blast holes. The blasting works will be fully compliant with the requirements of the Blasting Safety Ordinance issued by the Ministry of Labour and Social Works (SG issue 3/10.02.1997). DPMK **will not construct and operate** an explosives magazine.

The mining and processing of the raw material (gold ore) to an end product (flotation concentrate) in the process plant for production of gold-silver concentrate will involve the following reagents and consumables: potassium amyl xanthate, copper sulphate, sodium silicate, dithiophosphate, frother, flocculant, grinding balls, explosives and blasting consumables, and water (fresh and returned).

The reagents that will be used in the ore processing must be provided with Safety Data Sheets (SDS), which should contain information about:

- Chemical composition
- Emergency response
- Emergency phone
- Other information from the manufacturer.

### 3.16.3 Compatibility of Chemical Substances

The characterisation of the chemical substances is presented in Table 3. According to the provisions under the Protection against Harmful Impact of Chemical Substances,

Preparations and Products Act, the chemical substances are classified on the basis of their principal properties. The classification is done to enable risk assessment of their impact on human health and the environment.

**Table 3-3: Characterisation of the Chemical Substances – that will be used in Ore Processing**

Hazard Symbol	Description	Chemical and physical properties	R-phrases	S-phrases	Quantity
Xn– harmful; Xi - irritant	Potassium amyl xanthate	Appearance: powder, flakes or pellets; Colour: pale yellow, grey-yellow, yellow-green; Odour: strong, unpleasant	R22 R36/37/38	S26, S36	14-15 kg/h
Not classified as hazardous to humans and the environment	Sodium silicate	Liquid, almost transparent, odourless, soluble in water and other solvents.	Not available	Not available	15 kg/h
Xi - , C - Corrosive	Dithiophosphate	Yellow to amber liquid, stable	R41, R34 R3, R35	S26, S45, S50A, S36/37/39	2 kg/h
Not classified as hazardous to humans and the environment	Frother	Colour: yellow to brown Appearance: liquid Odour: light ether-like	Not available	Not available	0.5-1 kg/h
Xn – Harmful	Copper sulfate pentahydrate	Solid, odourless, blue substance Stable under normal conditions of use and storage	R: 22- 36/38- 50/53	S (1/2-) 22-60-61	11 kg/h
Not classified as hazardous to humans and the environment	Flocculant	Organic Colourless and odourless	Not available	Not available	1-2 kg/h

The fuel used on the site must be certified for concentrations of lead, sulphur and other environmentally hazardous substances. The project considers storage facilities and tanks for storage of raw materials, intermediary products and products under normal operating conditions, and secondary containment arrangements for emergencies. The access to the storage areas will be restricted.

The stock of chemical substances and products listed in Table 3-3 should not exceed the maximum allowable stock levels under the law.

## **4.0 ANTICIPATED SITE DISASTERS AND ACCIDENTS POTENTIAL**

### **4.1 Introduction**

This Plan considers a range of disaster and accident scenarios, as follows:

- Accidents and Emergencies as a consequence of natural events:
  - Earthquake
  - Extreme weather events
  - Naturally occurring fires.
- Accidents and emergencies arising from human intervention:
  - Radiation events
  - Man-made fires.

These situations have potential to give rise to a range of emergency conditions arising from the presence of the Krumovgrad mining project that are summarised in the following section. However, major accidents can potentially also occur under “blue sky” conditions without influence from an external disaster. “Blue sky” project accidents are also addressed in Section 4.0.

### **4.2 Potential Disasters**

#### **4.2.1 Earthquake**

Earthquakes are unpredictable natural disasters. Earthquakes are of short duration but the consequences are severe. The most dangerous seismically active areas with the highest possible magnitude in Bulgaria are the Kresna area, the Blagoevgrad area, the Sofia area, the Gorna Oryahovitsa area and the Shabla area. Earthquakes are natural disasters that cannot be prevented. Measures including earthquake-proof construction, compliance with the construction regulations, readiness to provide timely and adequate reaction in case of emergency and remediation of the consequences have to be taken in order to avoid human fatalities and heavy damages of property.

Bulgaria is located within the Aegean seismic region which is part of the Mediterranean seismic belt. Based on the seismic region, earthquakes in Bulgaria are of tectonic origin with more than 250 epicentres, most of which are located in southern Bulgaria.

**Table 4-1: Anticipated Losses in Case of Earthquake with VIII Shakeability Degree o the MSK-64 Scale at the Site of DPMK**

Personnel	Footprint	Personnel Casualties			Assets Losses
		Medical Injuries	Fatalities	Total	
250	6 000 m <sup>2</sup>	1	2	3	2 000 m <sup>3</sup>

**Table 4-2: Digging up Causalities**

Victims buried beneath collapsed facilities	Man-hours	Machine-hours	Protective Equipment of Rescue Units	Equipment
4	24	10	28	5

**Table 4-3: Emergency Response and Stabilisation of Constructions**

Man-hours	Machine-hours	Personnel	Equipment
80	8	350	5

**Table 4-4: Ensuring Order and Security**

Man-hours	Machine-hours	Personnel	Equipment
80	8	35	5

## 4.2.2 Radioactive Contamination

Despite the strict security measures for the different types of nuclear reactors and the availability of automated systems for management, control and protection, their operation showed that the occurrence of emergency situations that are accompanied by an uncontrolled release of radioactive substances in the surrounding area is possible. The analysis of the emergency situations shows that often they are caused by errors of the maintenance and operating personnel, i.e. - mainly human factors.

Radioactive contamination may occur when:

- There is an emergency accident at the Kozloduy Nuclear Power Plant resulted in uncontrolled release of gaseous radionuclides to the environment;
- Transboundary radioactive contaminations;
- An accident with a vehicle transporting radioactive materials.

The forecasting of a possible radioactive contamination resulted from nuclear reactor emergency includes the term "Maximum Credible Accident" (or "Design Basis Accident"), which would activate the protective systems and ensure the safe stopping



of the installation. Subjective effects and other random factors can cause melting of the reactor core section and uncontrolled release of radioactive substances.

The radiation environment and the radiation risk potential for the population are determined by many factors:

- The amount (activity) and radionuclide composition of the radioactive substances released in the surrounding area;
- Weather conditions during the accident;
- The season;
- Distance to settlements;
- The construction development pattern and the population density of the settlements;
- The meteorological, hydrological and soil characteristics of the area;
- Type of the crops;
- The water supply;
- Population's food provision.

The radiation impact is mainly due to the beta and gamma rays in the atmosphere and the deposition of radionuclides on the ground.

Immediately after the accident, the main radionuclides are the radioactive isotopes of iodine (aerosols, simple gaseous iodine and organic iodine compounds) and primarily iodine-131, which contributes at the most to the internal exposure during the first days and weeks following the accident.

If radioactive isotopes of rare gases (argon, krypton, xenon) get into the environment, the radiation hazard will be determined by external irradiation by these chemically inert radionuclides contained in the passing radioactive cloud.

The population's exposure to alpha-sources of radiation may be more significant in case of discharge into the atmosphere of significant amounts of plutonium, which depends on the type of reactor, the duration of its operation after the last refuelling of nuclear fuel and the type and extent of the accident. Experience from previous more severe accidents with several different types of nuclear reactors shows that population's exposure to sources of alpha radiation is unlikely.

#### **4.2.3 Flood**

In view of the varied topography of Bulgaria, floods are possible only at sites located in the lowlands and river valleys. Normally, floods may occur due to swiftly or slowly water level raise or due to extreme storm event. In the first case the floods may form silt

deposits and damage of materials and equipment, which would eventually lead to temporary suspension of site's operation till the water level decrease. In addition to the damages from the first case, the second one includes the destructive force of the flood wave which would eventually destroy buildings and equipment.

Flood risk may occur in case of unusually heavy rain or snowmelt that would mainly impact the open pit and mining waste facility and water reservoirs. No catastrophic flood event is anticipated since the open pit itself and the cells for depositing the thickened tailings will be designed and constructed to handle extreme rainfall events up to the legally required maximum. Water management will be carried out in a controlled manner through pumps installed in the pit and through the IMWF sumps.

#### **4.2.4 Hurricane Winds, Snowdrifts, Icing**

Windstorm exceeding significantly the design wind load is a rare event, but it may occur.

The characteristics of the continental climate are the main cause for snowdrifts. They could cause heavy snow drifts which may slow down the site communications. This can create dangerous situation in case of a site emergency that would require an external assistance.

Icing is a natural disaster that occurs in case of a sharp temperature drop below 0°C, rainfall, snowfall, slush, fog and high air humidity, that are accompanied by cold wind resulting in the formation of an icy cover on the ground, objects or equipment. Icing formations may occur on the mine site access and exit roadways.

Atmospheric icing occurs under the similar conditions as the icing and is expressed in the accumulation of significant amounts of ice on open-air installations.

Icing on the Company's overhead power lines, steel structures, structural components of facilities and equipment may occur under certain weather conditions. In case of an atmospheric icing, the external power network would be the most vulnerable infrastructure, especially if the large ice formations combine with a windstorm.

No design or other measures are required considering the rare occurrence of such disasters; however, organizational readiness to respond to such events needs to be established.

### **4.3 Potential Accidents**

#### **4.3.1 Mine Site Fire**

The possible causes for fire at the site of DPMK are non-compliance with the operational requirements, natural disasters or external malicious actions that could lead to a fire at the mine site.

Fire could be caused by failures of electrical equipment, unauthorized use of heaters or an open fire at the mine site.

Fire can result from many incidents: lightning if the lightning protection is faulty, sparks during repair and welding works, mechanical charging loose explosives, in case of human negligence while servicing the equipment, during emergency response and/or repair works, use of naked flame and/or smoking, short circuit, breakdown of insulating material, overheating due to overloading and faulty over-voltage protections, high transient resistance, as well as a terrorist act.

Fire can result from thermal impact of high temperatures of outside fires in dangerous proximity to the site, such as a fire on the forest land near the mine site.

#### **4.3.2 Adjacent-Site Fire Event**

Fire at adjacent sites or vehicles poses a risk to the Company and unless it is brought under control or extinguished, it may spread to the site and have additional consequences, such as fire on the DPMK's mine site facilities. There are no other industrial enterprises located near the mine site; however, there are privately owned land plots.

The release of toxic gases is likely during a fire. Then the site will endanger the adjacent sites with possible expansion of the fire and the risk of intoxication.

#### **4.3.3 Large scale reagent or fuels spillage**

Reagent - Chemical spills include liquid and solid spills. Fuel spills include diesel and machine oil /unrefined or mildly refined base oil/ spills.

In all chemical and hazardous material emergency situations, the primary concern is the protection of personnel. The secondary concern is to confine the contamination. The safe clean-up of a chemical/fuel spill requires some knowledge of the properties and hazards posed by the chemical, and any added dangers posed by the location of the spill. Spill kits with instructions, absorbents, neutralizing agents if applicable, protective equipment, and waste buckets should be present in exact places of the mine site.

Major or large scale spills may result in a fire or explosion, or present a risk of a fire or explosion, and result in personnel requiring medical attention.

Minor spills may occur inside store facilities, may not result in a fire or explosion, or present a risk of a fire or explosion, and may not result in personnel requiring medical attention.

Possible scenarios:

- A) Spills within the permanent storage facilities for chemicals and fuels or within the working area for preparation of the chemical mixtures, or during loading and unloading.
- B) Traffic accident related spills over the plant area while transporting chemicals and fuels.

#### **4.3.4 Large scale tailings spills**

Large scale tailings spills may occur as a result of the following scenarios:

- C) Rupture of the tailing berm or cell caused by overflow, erosion, rupture of pipes or man-made threats to the integrity of the cell.
- D) Overflowing of the active cell/cells and/or berm caused by extreme rainfall or snowmelt, incorrectly specified backup volume or poor water management, leading to overflow.
- E) Rupture of the tailings pipeline outside of the working area of the tailings facility caused by corroded pipes, physical damage, rockfall, flooding, breaking welds and connections or freezing.
- F) Increased infiltration from or around the IMWF - infiltration through the berm/cells of the facility over the design values. Possible cause - improper design/construction.

#### **4.3.5 Explosives accident**

DPMK will not construct and operate an explosives magazine. Explosives accident may occur as a result of the following scenarios:

- A. Explosion of blasting materials during transportation to the area of blasting (mine). Possible cause may be unidentified combustion sources, traffic accident, and contamination of raw materials.
- B. Prematurely unexpected explosion or explosions at the site of blasting. Possible cause may be unidentified combustion sources, uncontrolled sources of radio waves, contamination of raw materials.

#### **4.3.6 Failure of open pit wall**

Possible emergencies in the mine may occur as a result of collapse of the mine wall due to inappropriate design, presence of excessive amount of water, heavy vehicle accident, blasting accident, etc.

## **4.4 Conclusions Based on the Potential Situation and Main Tasks Arising**

### **4.4.1 In Case of Disasters**

#### ***Earthquake***

All buildings and facilities are designed to resist an earthquake up to a degree IX on the MSK-64 scale. It is expected that magnitudes above degree IX would damage or destroy only single components of the constructions. It is assumed that under this scenario, the power supply and the water supply will be cut off as well.

In case of high intensity tremors, the personnel of DPMK will act as per the **Emergency Response to Major Earthquakes Plan**.

#### ***Radioactive Contamination***

As a result of uncontrolled environmental release of radionuclides during nuclear reactor accidents, the population may be exposed to a radiation by several means in the following sequence:

- Total external irradiation by the passing radioactive cloud, more precisely by gamma-radiation of iodine isotopes of rear gases and other nuclear fuel fission products;
- Internal exposure due to inhalation of radionuclides from the cloud;
- Contact irradiation due to radioactive contamination of the skin and the clothes;
- Total body external exposure to radionuclides deposited on the soil, buildings, communication routing or elsewhere in the environment;
- Internal exposure due to inhalation of deposited radionuclides reoccurring in the atmosphere after deposition (i.e. dust inhalation);
- Internal exposure due to consumption of radioactively contaminated food and water - this type of radiation can affect any individuals who live in very remote areas from the accident site and were not subjected to the other types of radiation.

In case of radioactive contamination, the mine site personnel should act as per the **Emergency Response to Radioactive Contamination Plan**.

#### ***Flood***

Flooding of the open pit area may occur in case of heavy rainfall or snowmelt. Such flooding is unlikely to have catastrophic effects due to the availability of sufficient containment capacity and runoff diversion drains to handle the runoff from the probable maximum precipitation.

In case of floods, the personnel should respond in accordance with the **Flood Response Plan**.

***Hurricane winds, snowdrifts, icing***

Windstorms can destroy the power supply system. In this case there is a potential risk of a local fire that may spread dangerously due to the windstorm.

Snowdrifts can impede any external assistance in case of emergency.

The main task of the personnel is to maintain sufficient trafficability of the site access and exit roadways.

The icing of the access roadways to the DPMK's open pit and process plant poses a risk of truck collisions and could mechanically impact their fuel tanks integrity and hence the risk of occurrence of local fires.

The main task of the personnel in case of icing is to treat all access roads to the site and the buildings with sand.

In case of icing the primary task of the personnel is to cease work and take action to eliminate the risk of accidents and traumas during movements and traffic in the site area, and to prevent power failure.

These extreme conditions are rare in the Krumovgrad area and can be mitigated through organizational readiness to minimize the adverse impact using materials at hand.

#### **4.4.2 In Case of Accidents**

***Mine Site Fire***

In case of a local fire, all employees and workers shall cease all other activities in a safe manner immediately and take actions to extinguish the fire with the available fire-fighting equipment.

If the personnel are unable to extinguish the fire, they should call the competent authorities for assistance, while taking actions to secure the access ways to the burning site and prevent spreading of the fire inside and outside the site.

In case of fire or a potential risk of fire, the personnel should act in accordance with the **Accident/Fire Emergency Response Plan**.

### ***Fire Beyond the Mine Site***

In case of fire beyond the site area, the main task of the personnel is to inform the respective competent authorities and take actions to prevent fire spreading on Company buildings and facilities.

### ***Large scale reagent and fuel spills***

In case of reagent/chemicals or fuels spillage the following steps should be followed:

- Identification of the source, type of the substance and scale of the spill
- Notification of the Emergency group
- Confine the contamination and warning for possible risks
- Evacuation of people concerned
- Identification of injured people and first aid
- Implementation of the details from the Emergency response plan.

### ***Large scale tailings spills***

For scenario A: Alert and evacuation of the personal working near by the unstable berm of the IMWF, notification of the management of the company, local and regional rescue services.

For scenario B: Alert and evacuation of the personal working near by the unstable berm of the active or completed cell of IMWF, notification of the management of the company, local and regional rescue services. Apply activities for switching tailings delivery. Commence activities for stabilizing the berm/cell of the IMWF.

For scenario C: Notification of the management of the company and discontinue the tailings delivery. Alert the affected population, evacuate possible impacted working areas lower than the affected area and inform the competent authorities. Cleaning and restoration of the polluted areas.

For scenario D: Notification of the management of the company and the competent authorities of the problem. Elaboration of detailed design for limitation of the infiltration or for other options for treatment of the infiltrated waters.

### ***Explosives accidents***

For scenario A: Evacuation of the people from the area and alert the rescue services. First aid to injured people. Implementation of the Emergency Response plan.



For scenario B: Evacuation of the people from the area and notification the rescue services. First aid to injured people.

#### **Failure of the pit wall**

Evacuation of all employees in the mine. Notification of the management of the company and the relevant competent authorities. Stabilization plan development for defective area and action plan for restoration.

### **4.5 Plan Arrangements and Implementation**

The arrangement and the implementation of the Plan requires preliminary familiarization of the personnel with it. Each employee needs to become familiar with the **Plan in advance - on an annual basis and prior to joining the Company, signing off on a register.**

The Plan's arrangements and the implementation require the provision of the necessary equipment, tools and materials for conducting activities to protect the Company's employees and customers.

Each member of the personnel is obliged to know his/her mandatory duties in case of critical emergency situation on site. Emergency drills for the respective rescue and protective actions of the personnel shall be carried out according to a schedule on special trainings.

The rescue operations at a given site shall be supervised by the **responsible person in charge** of the respective work shift.

The manpower conducting the rescue operations are limited to the members of one work shift and the appointed by order of the Executive Director of DPMK:

**Emergency rescue team;**

**Emergency rescue volunteer crews.**

The Company will provide the means needed for conducting the rescue operations, unless these means are very specific or are in short supply in the site area - in such cases the means will be provided by the Rescue Headquarters, District Fire Safety and Civil Protection Service or other competent authorities.

#### ***List of Risk Potential Facilities on Site***

The risk potential facilities are the Fuel and Lubricants Store, diesel fuel tanks, reagents shop, assay laboratory. There is a risk of ignition and fire attached to these facilities. The facilities are „B“fire safety category and „P-I“class as per the electrical equipment classification.

## **4.6 Natural Disaster Risk Assessment**

### **4.6.1 Predicting Possible Emergency Situations**

Critical situations on site could be caused by:

- Earthquake
- Nuclear power plant accident, crossborder radioactive contamination or accident with a vehicle transporting radioactive material; accidents with ionizing radiation sources
- Accident and/or fire
- Floods
- Terrorist acts.

### **4.6.2 Determining the Amount of Work Required (Man Hours, Machine Hours)**

The workload depends on the specific situation. It will be heaviest in a case of earthquake since such situation will require preliminary probable estimation and analysis of the workload.

### **4.6.3 Identification of Required Personnel and Equipment to be Available on the Site - Man Hours and Machine Hours.**

The Company employs 220 people. In case of an emergency, each member of the work shift during which the accident occurred will participate in the rescue operations. The number of the personnel is relatively constant, so it won't reflect on the different emergencies response plans.

The required personnel and equipment to be available on site has been determined for each plan type in compliance with an order by the General Manager of the Company. Beside the predetermined rescue groups, the personnel from the work shift during which the accident occurred will also participate in the rescue operations, using the provided available first aid means and fire-fighting equipment.

### **4.6.4 Management of Rescue Operations**

An accountable emergency response manager will supervise the rescue operations until the arrival of special emergency response team. The accountable manager may authorize a deputy manager with some of his/her powers. Each member of the respective work shift shall be acquainted with his/her responsibilities during rescue operations in accordance with the type of impact on the site.

Upon arrival of the special rescue teams, the supervision shall be taken over by a senior manager. In that case the accountable manager shall follow his/her instructions on the site personnel rescue activities.

#### **4.6.5 Personnel's Training for Emergency Response**

Site emergency response drills should be regularly delivered to the personnel. Such drills create certain mindsets and help the personnel to develop practical skills on the usage of PPE, as well as behaviour models.

Rescue operations shall be carried out by the emergency rescue teams and the personnel on whose shift the accident, emergency, catastrophe or terrorist act has occurred. The number of rescue personnel will increase after calling the employees involved in emergency response teams that are at rest. The plan envisages that the personnel will use equipment and tools available on site (tools from the fire-extinguisher cabinets; other suitable tools and materials in place, including the first-aid kits with the Rescue Service). Equipping the cabinets with the necessary tools shall be done as per the fire safety requirements and shall be financed by the Company.

#### **4.7 Plan Sections (Disasters and Accidents)**

The sections of the Internal Emergency Response Plan are divided by type of disasters and accidents as separate parts - plans attached to this master plan.

#### **4.8 Funding and Equipment**

##### **4.8.1 Materials**

There are first aid medicines available at the site - see *Appendix 07*, sand for gritting in case of snowdrifts and icing, as well as other materials available at the emergency store.

##### **4.8.2 Tools**

There are available trenching tools, fire-extinguisher cabinets, snow shovels, sanding shovels and other rescue and recovery tools stored at the emergency store. Their quantity and type are in accordance with the *Appendix 02*.

##### **4.8.3 Transport and Special Equipment**

The Company has its own special equipment - emergency fire truck, ambulances and heavy equipment - front loaders, dozers and dump trucks. The personnel company vehicles could be used for support if necessary.

##### **4.8.4 Emergency Rescue Equipment**

Emergency rescue equipment is available at the site.

#### **4.8.5 Degassing and Deactivating Agents, Detergents**

There are degassing agents available at the site.

#### **4.8.6 Fuel**

The mine site is supplied with large quantities of diesel fuel that will be enough for all needs in case of a disaster or an accident.

#### **4.8.7 Food**

The food supplies on site are limited to those stored at the canteen and the canteen store. The quantity of food supplies vary as they are subject to trade and depend on the suppliers.

#### **4.8.8 Clothing**

Clothing is limited to the workforce's clothing and the clothing kept at the store.

#### **4.8.9 Required Financing**

The financial resources of the Company that owns or uses the site are allocated to its business activities. During the investment project proposal stage, part of the resources were spent on purchasing of mandatory fire fighting equipment and other equipment required by the law.

### **4.9 Communication and Information Support**

Site communications are delivered through:

- Cable telephony - with the competent and special authorities;
- Stand-alone radios using a proprietary frequency;
- Cell phone connection - with the competent and special authorities;
- Verbal communication - the responsible person or the person that has identified the hazard on site communicate the information to the personnel.

An operator at the Control Centre will notify the site personnel in case of an emergency situation.

In case of interruptions of the above telecommunications, the respective competent and specialized authorities shall be notified in writing or verbally by a person designated by the official responsible for the site or his/her deputy.

On-site information is provided with:

- Signs that indicate the type of hazard within the specified area;
- Signs that indicate the available emergency exits;
- Wall boards with site safety and emergency response instructions.

#### **4.10 Procedure for Requesting Assistance in Various Emergency Situations**

The order and priority of requesting assistance to handle different disastrous situations are set in the respective emergency response plan and in an appendix to this Plan.

#### **4.11 Procedure for Informing the Population**

On the grounds of art. 35(3), item 3 and 4 of the Disasters Protection Act regarding impending hazards as a result of accidents and, the Municipal Rescue Headquarters and the mayors of Krumovgrad shall be immediately notified for any accident of the respective operations centre of the Fire Safety and Rescue Directorate General - Mol and under direct threat by calling 112 (national emergency number).

In case of immediate danger to the life of the population in the vicinity of the mine site, the responsible site official shall send Company employee/employees to notify the population verbally.

#### **4.12 Procedure for Implementing the Plan**

The emergency response plan is enforced upon a specific order by the responsible person on the instructions of the competent and special emergency protection authorities or upon emergency ascertainment by the personnel. The order should include information on the accident, emergency or disaster risk for the site, on the condition of the site and directions on which plan (with the respective responsible person) should be implemented.

**The site employees will review this Plan and will sign to confirm they are familiar with it.**

## **5.0 INDIVIDUAL DISASTER/INCIDENT PLANS**

The following plans have been prepared to cover specific disaster/incident scenarios:

- Earthquakes
- Radiation release
- Fire
- Flood
- Hazardous substances leak
- Terrorist attack
- “Blue sky” accidents.

These plans are set out in the Appendices attached to this report.





## APPENDICES

Appendix 1 Major Earthquakes

Appendix 2 Radiation Release

Appendix 3 Fire Response

Appendix 4 Flood Response

Appendix 5 Response Plan for Cases of Accidental Leak of Hazardous Chemical Substances

Appendix 6 Emergency Response to a Terrorist Act.

Appendix 7 Blue Sky Accidents

**Appendix 1 – Major Earthquakes**  
**Emergency Preparedness and Response Plan**  
**Dundee Precious Metals Krumovgrad EAD**  
**Krumovgrad Gold Project, Bulgaria**



Submitted to  
**Dundee Precious Metals**



Submitted By  
**AMEC Earth & Environmental UK Ltd.**



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## 1.0 RESPONSE CONCEPT

### 1.1 Forecasting the Potential Situation

DPMK will operate in a highly seismic area influenced by the heavily faulted structures of the Eastern Rhodopes mountains, its cellular-like structure and the earth's crust movements which occur at various rates. The area is within a 9th degree earthquake region - a 9th degree earthquake is likely to occur once in 1000 years (MSK-64).

**Table 1-1: Medvedev-Sponheuer-Karnik Scale (MSK-64)**

Intensity degree	Description	Effects on humans	Effects on structures	Geological effects
I	Micro-earthquakes	Not felt	—	—
II	Very light	Felt occasionally	—	—
III	Weak	Felt by a few	—	—
IV	Largely observed	Felt indoors	Windows rattle	—
V	Fairly strong	Felt outdoors	Cracks in plaster; shaking of furniture; hanging objects swing	—
VI	Strong	People are frightened	Visible damage to chimneys and masonry structures	Separate cracks
VII	Very strong	People try to run outdoors	Chimneys collapse; serious damage to buildings	Small landslides
VIII	Damaging	Panic	Structures partially collapse; damage to irrigation canals	Changes in the flow rate of springs; rockfalls
IX	Destructive	General panic	Substandard structures sustain considerable damage; underground pipelines ruptured	Ground fracturing, widespread landslides
X	Devastating	Widespread panic	Masonry buildings destroyed	Distorted railway tracks; water bodies may be overtopped; formation of new water bodies
XI	Catastrophic	—	Most buildings and structures collapse	Widespread ground disturbances, tsunamis
XII	Very catastrophic	—	All surface and underground structures completely destroyed	Landscape generally changed tsunamis

A seismic coefficient  $K_c = 0.27$  is deemed appropriate for the intensity degree and adopted for anti-earthquake building (Bruchev, Il., 1994).

A strong earthquake may cause significant damage and create the following situations on the Company site:

- Demolition of buildings and facilities, terror and panic among the population, landslides, ground fracturing, repeated changes in the flow rate of wells, masonry or reinforced concrete buildings are partially or completely destroyed;
- Any falling building elements, wall plaster or pieces of equipment can cause injuries or death to employees or visitors on the Company site;
- Possible damage to communications, transport, power and water supply, telephone lines;
- Disruption of processes, leakage of hazardous substances, fires, explosions;
- Possible epidemics in the affected areas due to deteriorating sanitary conditions;
- Attempted robbery.

## 1.2 Main Tasks

A) Timely accident notification of the competent authorities and personnel:

- Notifying the Municipality, RIEW-Haskovo and Basin Directorate - in case of an accident at the IMWF;
- Setting up crews to conduct rescue operations on the Company site;
- Compliance with the hygiene requirements by lending assistance to the Regional Health Inspection;
- Ensure the security on the Company site through increased security measures and working jointly with the District Police Department;
- The management of DPMK will organize the overall activity of the units involved in the managing, planning and conducting of the rescue operations, focusing the main efforts and resources on the most earthquake affected structures and facilities, and will conduct the rescue operations jointly with the relevant municipal authorities, provide first aid to injured persons, evacuates injured persons from the disaster-affected area and rush them to hospital, eliminate any leakage of toxic substances, extinguish fires, continue working by organizing engineering and chemical reconnaissance, and remove any movables from the affected administrative and production facilities;
- The management of DPMK will organize rescue operations to be managed by a rescue headquarters (Permanent Site Committee) set up by DPMK.



Upon detecting any uncontrolled release of a chemical substance or diesel fuel the main efforts should be focused on:

- Stopping the leakage of a chemical substance/ diesel fuel at the stop cocks and preventing further leakage;
- Disclosing information to the endangered employees located within the affected area;
- Accident notification of the District Fire Safety Department, Civil Protection Regional Office, and Emergency Medical Care by dialling the universal emergency number 112.

In the event of a fire or explosion the Company's management will focus efforts on:

- Immediate evacuation of employees and contractors;
- Accident notification of the District Fire Safety Department, Civil Protection Regional Office, and Emergency Medical Care by dialling the universal emergency number 112;
- Conducting rescue operations and saving people from the rubble, providing first aid and specialist medical care, and putting out fires jointly with the Emergency Response authorities.

B) Rupture of the tailings pipeline before the cells for depositing the thickened tailings.

- Immediately stop the tailings delivery by shutting down the pump until the pipeline is repaired;
- Inform the employees in the affected area;
- Inform and evacuate, if necessary, those living close by the DPMK's mine site;
- Notify – the Emergency Response authorities by dialling 112, municipal officer on-duty at the Krumovgrad Municipality, Basin Directorate and RIEW.

## 2.0 SETTING UP EMERGENCY RESCUE CREWS

DPMK will set up the following emergency response crews:

- Rescue operations managing authority
- Emergency response crew - to provide accident response and rescues injured employees
- Reconnaissance and rescue team – reconnaissance and rescue of injured employees
- First-aid team - to provide first aid to injured employees
- Emergency Rescue Service – put out fires
- The crew members will be drafted from the employees.

Manpower of the authorities providing a joint response to an earthquake event according to the complexity of the situation:

- Manpower and equipment of the Civil Protection department
- Manpower and equipment of the ERS with DPMK
- Manpower and equipment of the Fire Safety department
- Manpower and equipment of the District Police department
- Manpower and equipment of the Emergency Medical Care
- Manpower and equipment of the Ministry of Defence
- Manpower and equipment of the Road Maintenance Service
- Manpower and equipment of other departments, agencies or companies (utilities, energy distribution, water supply and wastewater systems, etc).

To ensure good organization, the Company site should be divided into areas according to the damage the earthquake caused and any secondary damage (fires, spillages of flammable liquids, etc.).

### **3.0 TASKS**

#### **3.1 Tasks of officials involved in the emergency response operations. Method of action**

Executive Director, DPMK:

- Becomes familiar with the situation;
- Designates a location for meeting and directing the manpower and equipment;
- Provides directions for the actions of the emergency response units;
- Requests additional manpower and equipment, if necessary;
- Specifies measures ensuring the safe performance of the emergency response operations;
- Supervises the task performance;
- Reports to the Control Centre on the progress of the emergency rescue operations;
- Sets up a roster for on-call and after-hours duty and designates an accountable manager in charge of the emergency response after hours.

Department Manager:

- Reviews the statuses of the production processes and ensures the conditions required for normal operations or shutting down;
- Implements any instructions the accountable manager may give;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the accountable manager;
- Takes over the duties of an accountable manager in the absence of the Department Manager.

DPMK's mechanic:

- Receives information about the situation and suggests measures for emergency response and recovery of damaged equipment;
- Ensures the equipment, materials and manpower required for conducting the emergency recovery operations are available;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager;
- Implements any instructions the accountable manager may give.

Power Engineer /Instrumentation Mechanic :

- Receives information about the situation and suggests measures for emergency recovery and repairs of damaged electrical equipment and instrumentation;
- Ensures the power supply is turned on/off depending on the situation, as agreed with the accountable manager; ensures the equipment operation as required for the emergency response;
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager;
- Implements any instructions the accountable manager may give.

Employees of DPMK :

- Notify the appropriate persons and agencies as envisaged in the plan;
- Take action to rescue injured persons;
- Apply emergency response measures to address the incident or limit the scope of the incident envisaged in the plan;
- Inform the accountable manager about the measures implemented;
- Implement any instructions the accountable manager may give;
- Carry out any tasks the managing authority may assign.

### **3.2 Carry out any tasks the managing authority may assign**

#### **3.2.1 In the event of uncontrolled release of a chemical substance or diesel fuel.**

- Organizes and manages the accident notification of the Company employees, incl. the operator at the Control Centre;
- Organizes the notification of the emergency response units at a municipal level;
- Takes immediate steps for evacuation of the personnel according to the evacuation arrangements in the event of any threat to personnel's lives or health;
- Makes the manpower and emergency response units ready for action;
- Drafts a report about the coordination of the rescue operations for the municipal Rescue Headquarters.

### 3.2.2 In the event of fire or explosion

- Organizes the accident notification of the local emergency response units;
- Organizes and manages the immediate evacuation according to the evacuation arrangements;
- Makes the emergency response units ready for action, setting rescue, fire fighting and emergency repair tasks to save any personnel affected by fire or explosion, rescues people from the rubble, provides first aid to injured persons and rushes them to the hospital;
- Organizes the tasks for the emergency response crews through interaction with the Emergency Response authorities;
- Drafts a report about the coordination of the rescue operations and submit it to the Chairperson of the Municipal Rescue Headquarters.

The whereabouts of the rescue operations managing authority will be: designated by the respective manager, depending on the specific situation.

### 3.2.3 Leakage of tailings from the TMF

- Organizes and manages the accident notification of the Company employees, incl. the operator at the Control Centre;
- Organizes the accident notification of the local emergency response units;
- Inform and keep informed Basin Directorate and RIEW for the situation;
- Takes immediate steps for evacuation according to the Evacuation Plan;
- Makes the manpower and emergency response units ready for action;
- Drafts a report about the coordination of the rescue operations for the municipal Rescue Headquarters.

The whereabouts of the rescue operations managing authority will be: designated by the respective manager, depending on the specific situation.

## 3.3 Tasks of the Company emergency response resources

### 3.3.1 In the event of uncontrolled release of diesel fuel or a chemical substance

Tasks of the operating personnel - after a spillage of a chemical or diesel fuel has been identified:

- Accident notification as per the accident notification arrangements
- Takes measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- Emergency rescue Service (ERS) - makes the fire protection equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed.

### **3.3.2 In the event of fire or explosion**

See Section 5 of this procedure

Tasks of the service personnel:

- Accident notification
- Take measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the fire protection equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed.

### **3.3.3 Leakage of tailings from the TMF**

Tasks of the service personnel:

- Accident notification
- Takes measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the fire protection equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed.





The equipment that will be used in eliminating the consequences of the emergency situation includes the tools in the fire boards and other available appropriate tools and materials - e.g. the first aid kits in the shops and office rooms.

Fixed phone lines, cell phones and two-way radios that use proprietary frequency are among the telecommunication equipment available at the site. In case these communication systems are down, two or more persons must be designated to communicate with the authorities, either verbally or in writing.

In case the situation requires so, at the discretion of the District Fire Safety and Civil Protection Service, special materials, tools and equipment may be provided for the emergency operations.

#### **4.0 ANNOUNCEMENT AND ALERT CALL FOR DEPLOYMENT OF MANPOWER AND EQUIPMENT**

The attenuation of tremors will be the time to start the accident notification.

The manpower and equipment will be alerted for action following a decision of the DPMK's Rescue Headquarters, either by the site security or callers through alert calls on the telephone. The Permanent Site Committee will gather at the Emergency Control Centre in the Mine building or elsewhere, as approved by the Chairperson of the Permanent Site Committee.

The decision to call emergency preparedness will be immediately reported to the municipal emergency headquarters to enable coordination with of the rescue operations at Krumovgrad.

In the event of an earthquake, the relevant information (time of the event, epicenter, intensity degree) will be announced on both the Bulgarian National Radio and Television.

Both the regional radio and television stations will broadcast news reports on the consequences; the speaker of the municipal headquarters coordinating the rescue operations will give advice on how one should act.

The site managing authority should notify the personnel about the danger at the first signs of an earthquake and make both the emergency response crews and site personnel ready for actions, then establish a connection with the municipal headquarters to jointly coordinate the rescue operations through the Operations Communications and Information Centre, tel. 112.

Upon instructions of the person in charge, the response unit and site personnel will prepare the available equipment for action. Tasks will be clarified and defined for each member of the rescue unit and site personnel. Warning will be given to all external personnel on the minesite, along with the instructions of the competent authorities.

If the tremor is weak the response crews must stay on alert for new and more powerful tremors.

## 5.0 ORGANIZATION OF EMERGENCY RESPONSE ACTIONS

### 5.1 Information disclosure and notification of employees about the situation

The Company employees will be informed by telephone, radio or callers as per the instructions of the Chairperson of the Municipal Rescue Headquarters.

### 5.2 Reconnaissance observation and continuous monitoring of affected areas

The reconnaissance observation is aimed to provide operational information about the situation in the earthquake area and support the units involved in the search and rescue operations.

The reconnaissance observation will take place in two stages:

**First stage** – beforehand, in order to obtain operational information about the situation in the affected areas. It will begin immediately with registering the earthquake after the first tremor.

**Second stage** – aimed to ensure joint actions (of DPMK's crews, Civil Protection Dept., Regional Fire Safety Dept.) during the rescue operations and elimination of emergency situations. It will begin immediately after the emergency response manpower and equipment is made ready for action. A reconnaissance and rescue crew will be involved in organizing and conducting reconnaissance observation. Its task is to clarify the actual situation in the affected area, reporting any destruction or fires.

Rescue operations comprise:

- Immediate suspension of production processes and power shutdown;
- Putting out fires - fires can be caused by a breach in the processes, mechanical damage, negligence. To provide timely warning of fires one should first clarify the situation, what is burning, and the fire fighting access. Both the ERS and Regional Fire Safety Dept. will be involved in most of the activities;
- Eliminating accidents in diesel fuel storage areas. The core operations are a responsibility of the Civil Protection Dept., Regional Fire Safety Dept., etc.;
- Accessing and rescuing of workers trapped in collapsed facilities - will be done by uninjured Company's employees, ERS, Civil Protection Dept., Regional Fire Safety Dept., etc.;
- Providing first aid - self-help or mutual assistance provided by the first-aid team. The ERS, Civil Protection Dept., and Regional Fire Safety Dept. may also provide first aid. Medical care will be provided by the Emergency Medical Service and the hospitals. Injured persons will be taken to the Krumovgrad Hospital;

- Supply of water and foods - water distribution points will be set up at the Company site; both municipal and private companies will be involved in the provision of foods for the population. The Municipal Rescue Headquarters will organize these activities;
- Providing the security of assets and cordoning off the area - prevent any outsiders from entering the Company site or any persons from going in areas with collapsed facilities - the Company security officers and local police officers will do this;
- Repairs to the site roads and access points – to ensure the access of the emergency response units to the affected area (clearing the site roads and access points of any collapsed walls or structures, plant and equipment, electric cables, etc.).

### 5.3 General requirements to the organization of rescue operations

The organizational arrangement of the rescue operations require that all personnel of a given shift are familiarized beforehand with their duties in case of an accident, fire or explosion. All firefighting and emergency response tools and other equipment need to be prepared in advance to ensure the timely response to the situation.

Rescue operations will include two phases:

**Phase One:** Rescue operations, isolation of the accident scene and putting out fires;

**Phase Two:** Recovery operations.

Isolation of the accident scene and fire suppression will depend on the type of the accident and its consequences. In general, what may occur is:

A) Accident with a gas spill with no involvement of a fire or explosion:

Such situation may occur in case of ruptured or collapsed pipelines or other facilities, which may cause gas spill whose concentration level could be explosive. In such case, an explosion or fire may occur any moment.

The following steps must be followed in such cases:

- Notify the emergency services and the respective special authorities and ask for help if required at the discretion of the accountable manager;
- Have the firefighting equipment ready for action;
- Cease any other operations and focus on the emergency response;
- Make efforts to mitigate the impact and isolate the accident scene. Use the available protective equipment and safe tools;
- Ensure that the special authorities and emergency equipment have access to the scene;
- Whenever required, upon a decision of the accountable manager, evacuate all personnel.

Other measures may be required upon the discretion of the accountable emergency response manager who will apply their best judgment of the situation at hand and the fire and technical safety requirements.

The site may resume the normal operations following:

- A thorough survey of the technical condition completed by the regional department of the State Technical Supervision and the District Department of the Labour Inspection;
- Successful completion of all recovery works (by the repair teams).

**B) Accident involving fire or explosion:**

An accident accompanied by a fire or explosion may occur in case the service personnel does not follow the fire safety instructions or in case of failure of the fire safety systems. In this situation:

- Notify the emergency services and the entire personnel about the accident;
- Issue an emergency alert to the emergency teams designated for response to accidents, catastrophes and fire. Emergency teams will prepare for immediate rescue and firefighting operations jointly with the teams of the Regional Department of Fire Safety and Population Protection;
- Evacuate all personnel, visitors and contractors;
- Provide first aid and professional medical care to any injured persons jointly with the teams of the Emergency Medical Care and the Regional Department of Fire Safety and Population Protection;
- Shut off the main power supply.

## **5.4 Organization of emergency rescue operations**

The Company emergency teams (for response to disasters, accidents and catastrophes) will immediately start emergency response operations including fire mitigation and first aid.

Once the emergency response crews and equipment of the Regional Fire Safety Dept., Civil Protection Dept., and emergency medical care arrive at the area of the accident, they will immediately start the emergency response and fire fighting operations.

The Company personnel and visitors will be immediately evacuated to a safe place following the emergency call.

Following successful completion of the rescue and fire-fighting operations, the teams will launch recovery operations including construction and repair works.

#### 5.4.1 Organization and implementation of rescue operations

##### Feeling the early signs of the earthquake:

- Feeling the early signs of the earthquake the accountable manager will issue a warning of the danger and give brief instructions on how one should act;
- In the event of mild tremors the power supply is shutdown and the site (building) is evacuated - people move outside to an open space where there is no danger of buildings collapsing;
- In the event of strong tremors the accountable manager instructs the personnel not to avoid panic but get close to the interior walls of the building, and if possible - shutdown the power supply and evacuate the building.

##### Following the first tremor:

- Following the first tremor any work on the site is suspended and everyone is warned of the danger and instructed on how to act.

The personnel should do the following:

- Turn off immediately all electrical appliances and lighting
- Shutdown the power supply
- Shutdown the water supply
- The personnel should take their cars away from the buildings at a distance equal at least to the height of the building, avoiding parking under power grids. The personnel should move in the middle of streets or on park areas, if possible.

##### Following the earthquake:

- Return to the site only after authorization by the competent authorities (District or Municipal headquarters in charge of the rescue operations);
- Use water for drinking only with the permission of the competent authorities to avoid the danger of epidemics due to disrupted water supply and wastewater disposal in the affected area;
- All must follow the instructions issued by the Municipal Rescue Headquarters.

#### 5.4.2 Actions in the event of an earthquake

In the event of an earthquake causing much damage - destruction, people under the rubble, disrupted municipal power grid, fires, industrial pollution with toxic substances, contamination from radioactive sources, floods, landslides, disrupted communications, many affected people left without homes, possibility of biological contamination,

conditions for the emergence of epidemics, etc. - rescue operations should be conducted.

Rescue operations will be carried out jointly with the major rescue crews in the earthquake affected area.

Perform reconnaissance to determine:

- Routes to the affected area
- Locations for auxiliary and main access roads
- Locations of residence buildings with many people to start immediately search and rescue
- Disruption of the power grid and secondary damage caused
- Outbreaks of fire
- Present contamination with radioactive sources, industrial toxic substances, biological contamination
- Buildings beyond repair at risk of collapsing
- Present concentrations of explosive and flammable gases in the air above limit values
- Condition of roads and road facilities
- Condition of hydro engineering structures
- Locations suitable for Internal Fire Fighting Group
- Suitable locations for keeping bodies
- Locations of Heliports
- Locations for setting up tent camps
- Locations for setting up field kitchens
- Distribution points for food, water, medicines, etc.
- Locations for setting up field hospitals
- Extent and nature of disruption
- Present people under the rubble; possibility of using various means of communication
- Locations suitable for setting up control stations
- Finding designs, blueprints, drawings or other information about the collapsed buildings
- Survivors that can provide useful information
- Epidemiological situation



- Locations suitable for setting up checkpoints to and from the affected area
- Available social institutions that could be involved in the elimination of consequences
- Sites that immediately require security
- Condition of embassies and buildings where expatriates are staying
- Condition of sites that could cause environmental pollution.

The reconnaissance-rescue team's involvement in the reconnaissance is in the form of performing tasks assigned by the rescue headquarters and using own resources.

The access to the site where rescue operations are conducted is restricted by personnel of the Ministry of Interior to deny access to any persons not involved in the rescue.

The accountable manager for the rescue operations evaluates the situation based on reconnaissance data, assigns tasks to the groups, determines the method of working and delivers safety instructions.

Rescue operations start with the execution of urgent strengthening works in semi-ruined or burning buildings or facilities to evacuate people and finding those under the rubble by using the building blueprints.

Clearing of collapsed structures is carried out top-down, avoiding the equipment moving on top of the collapsed structure during clearing of the rubble.

Passages (both horizontal and vertical) are dug to rescue people buried under the rubble.

The general shape of the collapsed structure should be considered when digging passages; precautions for avoiding injuring the trapped persons and strengthening the structure should be taken when drilling or reaming of holes is required. Sinking of vertical shafts may be required to reach the trapped persons.

Strengthening of structures will often require the use of materials (timber, etc.). Air-lifting bags can provide temporarily strengthening when the injured person is near the outer edge of the collapse structure. This method is applied to relatively tough and resistant structures, provided that there are no repeated tremors of high intensity.

Rescue operations are conducted through step-by-step clearing when secondary tremors are likely or in the case of collapsed unstable structures not suitable for digging of passages or sinking of shafts, with the focus placed on the places where people are buried under the rubble.

Geophones, thermo-cameras, sonar, and rescue dogs are used in the search for people buried under the rubble.

The operation of plant and equipment is suspended at regular intervals to pick up any signals sent by trapped people.

Following detection of a trapped person they are contacted to clarify the exact location, health status and ambient environment. This information is necessary to prepare the rescue team for the rescue.

The trapped person must clearly understand that they have been found and rescue teams are working to rescue them. The trapped person is contacted at regular intervals to avoid over exhaustion. Air is provided, if necessary.

Rescuing trapped people may require manual operations rather than using plant and equipment. Manual rescue operations are often required in the case of a person trapped in a solid structure.

No force should be applied to separate items, nor should any wires, cables, rebars, etc. be pulled when conducting rescue operations.

Comply with the gas poisoning safety measures, sanitary and anti-epidemic measures when operating small plant and equipment to dig passages or sink shafts.

The operation of heavy plant (bulldozers, excavators, cranes, loaders, etc.) will be supervised by the person in charge of the emergency rescue crew with the Civil Protection Dept. or any such authorized person.

## **6.0 MANAGEMENT OF EMERGENCY RESPONSE OPERATIONS**

The management of all localization, isolation, emergency response and rescue operations in case of an earthquake will be a responsibility of the Permanent Site Committee.

The immediate supervision over the rescue crew and other personnel involved in the emergency and rescue operations in case of an earthquake will be a responsibility of the accountable site manager, who will also interact with the Municipal Rescue Headquarters of Krumovgrad. Upon arrival of the special forces, the accountable manager must communicate to their senior manager all available information about the situation on the site and follow their instructions.

The Municipal Rescue Headquarters will be in charge of the overall management of the rescue operations in the event of an earthquake in the Krumovgrad area. Any orders issued by the Chairperson of the Municipal Rescue Headquarters will be mandatory for both the accountable manager and employees of DPMK.

The management will be supported by land line communications (the national telecommunication network) or radio communications.

## 7.0 SUPPORT

### 7.1 Reconnaissance.

Tasks of the managing authority and the rescue teams:

- Provide thorough and objective information on the type, scope and location of the property damage caused by the earthquake and any secondary damage involved (by subsequent fire, chemical spills etc.);
- Methods to address fire risks and property damage;
- Bypass routes to access affected areas.

These tasks will be a responsibility of the reconnaissance-rescue team, ERS, Civil Protection Dept., and Regional Fire Safety Dept.

### 7.2 Medical assistance

The purpose of the medical assistance is to provide first aid to any injured employees and visitors.

The main task is to arrange for timely medical assistance (any type required) to the injured persons.

These services will be provided by the first-aid team, ERS, Civil Protection Dept., and Regional Fire Safety Dept. Medical care will be provided by the Emergency Medical Service and the hospitals.

### 7.3 Engineering Support

The engineering function in case of rescue operations in response to an earthquake will be limited to road cleanup and ensuring access to all affected areas.

Whenever rescue operations are to take place in environment with hazardous chemicals, which involve a risk of explosion, the rescue crews will need to use spark-free tools and explosive-safe lighting, equipment and facilities.

The monitoring of any hazardous substances in the area of the accident will be performed with the sampling equipment of the Company and if no such equipment is available, with equipment of the Civil Protection Dept or the Regional Health Inspection.

Tasks of the engineering support:

- Supply of PPEs for the rescue teams - the Company will keep PPEs on stock – see Appendix 04;
- Construction and maintenance of access points and roads to impact areas;

- Repairs to any interrupted power supply, water supply and internal communication systems;
- Provision of sufficient water supply for the fire-fighting operations;
- Air supply to victims in collapsed structures.

These are tasks of the main forces involved in the rescue operations and any additional forces (regional road maintenance service, power supply company personnel, water and sewage company personnel, etc.).

#### **7.4 Ensuring public order**

Ensuring public order and preventing panic of the Company employees or theft is a task of the site security and the local police department.

#### **7.5 Materials logistics**

The purpose is to deliver water, food and other basic supplies to all personnel involved in the rescue operations. Temporary water-dispensing points will need to be set up using locally available water trucks. Both municipal and private companies will be involved in the provision of foods for the population. The Municipal Rescue Headquarters will organize these activities. The protection of the population and the economy are financed under a specific procedure, according the Disaster Protection Act.

## **8.0 INTERACTION ARRANGEMENTS**

If the emergency response crews find out that they cannot handle the situation without external help in the course of the rescue operations, they must seek help from the Civil Protection Dept, and if need be, from the Regional Fire Safety Dept.

If the earthquake causes a fire, fire suppression will be a responsibility of both the accountable manager at the minesite and ERS.

If the site personnel are unable to suppress the fire, they will request assistance from the Regional Fire Safety Dept.

## **9.0 PROCEDURES FOR RESUMING NORMAL OPERATION OF THE SITE**

Once the emergency response operations to address a strong earthquake are completed (including fire), a committee will be set up to determine the required recovery and construction works. The committee will visit, inspect and assess the status of the site buildings and facilities in order to establish the parameters of their full compliance with the process requirements and fire safety.

The site commissioning will follow the process requirements following coordination with the fire safety and other special authorities.

## **10.0 FINAL PROVISIONS**

The action plan for earthquakes will be coordinated with the Mayor of Krumovgrad. The site employees will review this Plan and will sign to confirm they are familiar with it.



**Appendix 2 – Radiation Release  
Emergency Preparedness and Response Plan  
Dundee Precious Metals Krumovgrad EAD  
Krumovgrad Gold Project, Bulgaria**



Submitted to  
**Dundee Precious Metals**





Submitted By  
**AMEC Earth & Environmental UK Ltd.**





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## 1.0 RESPONSE CONCEPT

Nuclear power is used worldwide and Bulgaria is no exception. Accidents with nuclear power have occurred worldwide, resulting in more or less radioactive contamination. The risk of an accident with a nuclear power plant may also be linked with a terrorist act which could also result in radioactive contamination. A possible accident involving a truck carrying nuclear fuel, spent nuclear fuel or other radioactive substances also poses a threat of radioactive contamination. All this makes preparation for a possible radioactive contamination necessary, especially for the personnel of an industrial site.

A radioactive cloud could reach, depending on the weather conditions, the Krumovgrad Municipality in the event of a radiological emergency or trans boundary contamination with radioactive substances, and affect the site of DPMK within a few hours in case of an accident with the Kozloduy NPP or in 2-3 days in case of a nuclear accident abroad.

The exposure of the population to radioactive elements in the air can be in the form of:

- Total external irradiation by the passing radioactive cloud, more precisely by gamma-radiation of iodine isotopes and other decay products;
- Internal exposure due to inhalation of radionuclides from the cloud;
- Total external exposure due to radionuclides deposited on the soil or else in the environment. The irradiation will decrease with time due to the radioactive decay, leaching and seepage in the earth;
- Internal exposure due to consumed radioactively contaminated products and water.

The objectives of the Plan for protection of the site personnel from radioactive contamination resulting from a nuclear accident are:

- Provide the resources required for conducting rescue operations
- Make the personnel familiar with the alert call and notification method
- Ensure the best organizational arrangements for conducting rescue operations
- Ensure the rescue operations are efficiently coordinated and managed
- Provide a procedure for resuming the normal operations.

## 2.0 GROUPING OF EMERGENCY RESPONSE MANPOWER AND EQUIPMENT

*DPMK* will set up the following **emergency response crews**:

- **Management team** for emergency rescue operations at DPMK
- **Emergency response team** - emergency response and first aid to injured employees
- **Reconnaissance and rescue team** – reconnaissance and rescue of injured employees
- **First-aid team** - first aid to injured employees
- **Emergency Rescue Service** – put out fires.

These crews are set up on the basis of 220 DPMK employees (personnel on payroll).

Manpower of the authorities providing a joint response to radioactive emergency situation according to its complexity:

- Manpower and equipment of the Civil Protection Dept
- Manpower and equipment of the Regional Fire Safety Dept
- Manpower and equipment of the District Police Department
- Manpower and equipment of the Emergency Medical Care
- Manpower and equipment of other departments, agencies or companies (utilities, energy distribution, water supply and wastewater systems, etc.).

The resources that will be used for prevention of the consequences of radioactive contamination are ensured by the Civil Protection Dept.

The telephone will serve as primary communication means. In case these communication systems are down, two or more persons must be designated to communicate with the authorities, either verbally or in writing. For that purpose, there must be a vehicle at their disposal and if impossible to use a vehicle, these persons will walk to communicate with the authorities as necessary.

In case the situation requires so, at the discretion of the Municipal Rescue Headquarters, special materials, tools and equipment may be provided for the emergency operations.

The managing authorities in case of a possible radiation accident are the Permanent Site Committee of DPMK set up by order of the Director of DPMK and Municipal Rescue Headquarters of Krumovgrad.

### **3.0 TASKS TO COMPLETE**

The tasks to complete in accordance with this Plan depend on the specific radiological situation but can be generally formulated as follows:

- Ensure in advance the resources required for protective and preventive actions (if possible) and for provision of first aid;
- Regularly check the suitability of the resources for protective and preventive actions and those for provision of first aid;
- Provide notification equipment and maintain it in good repair;
- Perform a practical exercise for preparing the site for actions in the event of radioactive contamination;
- Optimize the protection arrangements for the site;
- Clarify the procedure for resuming the operations at the site, if the operations are suspended.

### **4.0 ANNOUNCEMENT AND ALERT CALL FOR DEPLOYMENT OF FORCES AND EQUIPMENT**

Upon receiving an alert call, the accountable manager for the rescue operations at DPMK will inform the personnel about a possible danger of radioactive contamination; they will contact the Municipal Rescue Headquarters and comply with their instructions. The site personnel will prepare the available equipment for action upon instructions of the accountable manager. Tasks will be clarified and defined for each member of the site personnel.

## 5.0 ORGANIZATION OF EMERGENCY RESPONSE ACTIONS

Measures must be taken to protect the site personnel from exposure resulting from radioactive contamination, depending on the radiation situation, anticipated radiation dose and the time elapsed since the accident.

The radiation protection measures are as follows:

1. Limit deploying personnel in the open to reduce primarily the external exposure;
2. Sealing off the work areas (closing of doors, windows, vents, chimneys);
3. Respiratory and skin protection. The greatest exposure of employees is in the first hours and days following the radioactive cloud. The following measures must be taken to protect the respiratory system and skin:
  - Breathe mostly through the nose
  - Use respirators, dust masks, damp cloth; wash hands, hair and feet more frequently or take a full bath
  - Avoid drying of laundry in the open
  - Clean frequently by wiping with a damp cloth;
4. Avoid dust generation and inhalation when working or staying in the open;
5. Take medications that prevent or reduce the incorporation of certain radionuclides (for example, the so called "stable iodine prophylaxis") - done at the direction of the competent authorities. The Deputy Mayor will confirm the available potassium iodide on stock and ensure the necessary distribution arrangement;
6. Limit the use of water from surface water reservoirs or snow for household and drinking purposes;
7. Processing (washing, soaking and changing the water frequently, peeling) of food products (primarily vegetables) contaminated with radioactive substances;
8. Limit or stop altogether the intake of food with containing unacceptably high concentrations of radionuclides - as instructed by the competent authorities;
9. The Executive Director of the minesite will organize the sealing off of any surface water sources;
10. Provision of drinking water for the population from underground water sources;
11. Precipitation by adding coagulants;
12. Ensure effective filtering.

Taking the decision to send an alert call and start implementing this Radioactive Contamination Response Plan depends on the evaluation of the specific radioactive situation by the competent authorities and scale of the accident in the first hours.

All activities for protection from radioactive contamination of the site personnel and visitors are supervised by the Municipal Rescue Headquarters of Krumovgrad.

## **6.0 MANAGEMENT**

The overall management of the rescue operations on the site is a responsibility of the Municipal Rescue Headquarters and the Permanent Site Committee with DPMK.

The immediate supervision of the personnel involved in the emergency and rescue operations will be a responsibility of the accountable site manager until the arrival of special rescue crews. Upon arrival of the special radiation protection crews, the accountable manager must communicate to their senior manager all available information about the situation on the site and follow their instructions.

The manager in charge of the radiation protection will assume the functions of a senior manager of the special crews. Any orders issued by the senior manager will be mandatory for both the accountable manager and personnel.



## **7.0 SUPPORT**

The Municipal Rescue Headquarters will ensure the protection of the site personnel from radioactive contamination.

PPEs must be provided in a radiological emergency - gas masks, breathing apparatus, skin protection (gloves, boots), etc. The distribution of PPEs will be done at the base.

### **7.1 Medical assistance**

In the event of a radiation accident with a source of ionizing radiation the radiation control specialists at the Regional Health Inspections and/or specialists at the National Center of Radiobiology and Radiation Protection will be involved in:

- Measurements of radiation parameters in the work areas and the environment required to assess and control the exposure, and interpretation of results;
- Estimates of possible health effects on the affected persons, population and special emergency rescue teams.

The main task is to arrange for timely medical assistance (any type required) to the injured persons.

This assistance will be provided by the first-aid team, Civil Protection Dept, Regional Fire Safety Dept, Emergency Medical Service and hospitals. Injured persons will be taken to the Krumovgrad Hospital.

### **7.2 Ensuring Public order**

The main task is to restrict the movements of unprotected people and motor vehicles.

This is a task for the site security team.

### **7.3 Materials logistics**

The purpose is to deliver water, food and other basic supplies to the employees in case of prolonged radiation pollution. These activities will take place at the direction of the Municipal Rescue Headquarters.

## **8.0 INTERACTION ARRANGEMENTS**

If the Company cannot provide to the personnel the preventive and protective equipment for radioactive contamination, the accountable manager in charge of the rescue operations at DPMK must request such equipment from the Municipal Rescue Headquarters of Krumovgrad.

## **9.0 PROCEDURES FOR RESUMING NORMAL OPERATION OF THE SITE**

Resuming normal site operations will be coupled with lifting the emergency measures taken to protect the population. The actual radiation doses absorbed are further assessed during this stage and decisions are taken concerning future site operations.

Resuming site operations is subject to permission from the relevant competent authorities. The latter will provide instructions on how the personnel should act during the performance of their duties at the site, specifying the mandatory protection measures to be taken.

Resuming normal site operations must take place only following an explicit resolution of the competent radiation protection authorities.

## **10.0 FINAL PROVISIONS**

The Mayor of Krumovgrad will approve the plan for radiation protection of the Company employees.

The site employees will review this Plan and will sign to confirm they are familiar with it.

**Appendix 3 - Fire Response**  
**Emergency Preparedness and Response Plan**  
**Dundee Precious Metals Krumovgrad EAD**  
**Krumovgrad Gold Project, Bulgaria**




Submitted to  
**Dundee Precious Metals**



Submitted By  
**AMEC Earth & Environmental UK Ltd.**



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## 1.0 RESPONSE CONCEPT

Fire is uncontrolled burning of substances or materials, releasing heat and combustion products (smoke, carbon monoxide and other toxic substances).

DPMK is an operation for mining and processing of gold ores. The mining method involves the use of explosives and diesel-propelled mining plant. Diesel fuel is a highly flammable liquid. The ore treatment uses reagents some of which are inflammable substances.

The sites are fire safety category B as per the Regulation 2.

The electrical facilities at the site of DPMK are class II-I facilities.

The normal operation of process equipment and compliance with the fire safety minimize the likelihood of fire at DPMK. The potential for a large fire on the Site is related to five main hazards:

- Fires caused by electrical equipment or cables
- Fires started in stores for fuel and lubricants
- Fires caused by chemicals used on the Site
- Fires on-board transport vehicles
- Fires caused by burning vegetation.

Fires and/or explosions may occur in various emergency situations (faulty measuring and control equipment or safety devices, depressurisation of tanks or piping, short circuits or high transient resistance in electrical systems, static electricity, non-compliance with process instructions, violation of the fire safety rules, negligence, etc.) and in various locations including fuel oil tanks, process equipment and pipelines, electrical panels and transformer stations, stores, laboratory, administrative facility, boiler room and repairs shop, etc.

Hazardous fire comprises heat and smoke mixed with toxic products that can cause burns, suffocation and/or deaths of the affected people, collapsing of structures and facilities. Toxic combustion products can reach neighboring sites or villages, depending on the wind direction.

Immediate evacuation of both personnel and visitors, firefighting, cooling down of plant and equipment, and rescue operation will be needed in the event of a fire at the DPMK site. A system of pipelines and tanks is available at DPMK to suppress fires at the Company site.

The water level in the tanks is checked by the plant operator and his team.



The Company can promptly switch to system of reservoirs with maximum collection volume of 130,000 m<sup>3</sup> tanks to ensure the process water supply.

The rescue operations plan must be in place to ensure the following:

- The required manpower and resources are provided
- The personnel are familiar with the alert call and notification method
- Best organizational arrangements are made to support the operations
- Tasks are efficiently coordinated and managed
- A procedure is followed for resuming normal operations.



## 2.0 GROUPING OF MANPOWER AND EQUIPMENT

DPMK will set up the following emergency response crews:

- Managing authority DPMK
- Emergency response team - emergency response and first aid to injured employees
- Reconnaissance and rescue team – reconnaissance and rescue of injured employees
- First-aid team - first aid to injured employees
- Firefighting unit – for extinguishing fires.

These teams are set up on the basis of the number of the workers and emergency rescuers at DPMK.

Manpower of the authorities providing a joint response to fire emergency situation according to its complexity:

- Manpower and equipment of the **ERS with DPMK**
- Manpower and equipment of the **Civil Protection Dept**
- Manpower and equipment of the **Regional Fire Safety Dept**
- Manpower and equipment of the **District Police Department**
- Manpower and equipment of the **Emergency Medical Care.**

To ensure good organization, the Company site can be divided into areas according to the damage the fire caused and any secondary damage (fires, spillages of flammable liquids, etc.).

The means that will be used are tools and equipment for extinguishing fires as specified in the fire code, and means for providing first aid.

**DPMK** will provide the means required to conduct rescue operations.

### 3.0 TASKS TO COMPLETE

Rescue operations on the site in case of an accident or fire have the following main tasks:

- Notification of the competent authorities about the case of accident/fire if the site personnel is unable to handle it without support;
- Extinguishing fires with fire fighting means available at the Company site (with the involvement of the ERS) until the arrival of the crews of the Regional Fire Safety Dept;
- The Company doctor and ERS will provide first aid to those injured until the arrival of the Emergency Medical Care team, if called;
- Evacuation of all contractors, visitors and motor vehicles on the Company site to a safe distance from the site;
- Barricading of fuel, chemical or acid spills from areas with a high temperature;
- Gas removal for spilled fuels, chemicals or acids, if their chemical composition suggests generation of toxic fumes;
- Localization of any property damage;
- Recovery operations where property was demolished or damaged;
- Resumption of normal operations on the site.

### 3.1 Tasks of Officials Involved in the Emergency Response Operations. Method of Action

Relevant area manager (for the Process Plant or Mine) or Company's emergency response supervisor :

- Becomes familiar with the situation;
- Arranges for accident notification both the ERS and at a municipal level according to the Accident Notification Plan;
- Designates a location for meeting and directing the manpower and equipment;
- Provides directions for the actions of the emergency response units;
- Requests additional manpower and equipment, if necessary;
- Specifies measures ensuring the safe performance of the emergency response operations;
- Supervises the task performance;
- Reports the progress of emergency rescue operations to the chairperson of the Permanent Site Committee in charge of the rescue operations at DPMK;

- Sets up a roster of on-call and after-hours duty and designates a person (from the DPMK's management team) in charge of emergency response after hours.

Deputy Department Manager (a member of the management team):

- Reviews the status of production processes and ensures that the conditions required for normal operations are in place;
- Implements any instructions the accountable manager may give;
- Assumes the duties of a person in charge of the emergency response teams as per a roster approved by the accountable manager;
- Takes over the duties of an accountable manager in the absence of Area Manager.

Process Plant or Mine Mechanic:

- Receives information about the situation and suggests measures for emergency response and recovery of damaged equipment;
- Ensures that the equipment, materials and manpower required for conducting emergency recovery works are in place;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager;
- Implements any instructions the accountable manager may give.

Power Engineer (Mine or Process Plant):

- Receives information about the situation and suggests measures for emergency recovery and repairs of damaged electrical equipment and instrumentation;
- Ensures the power supply is turned on/off depending on the situation, as agreed with the accountable manager; ensures the equipment operation as required for the emergency response;
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager;
- Implements any instructions the accountable manager may give.

Employees of DPMK:

- Notifies the appropriate persons and agencies as envisaged in the plan;
- Takes actions to rescue injured persons;

- Apply emergency response measures to address the incident or limit the scope of the incident envisaged in the plan;
- Informs the accountable manager about the measures taken and implements any instructions the emergency response supervisor may give.

### **3.2 Tasks of Emergency Response Management Personnel in Case of Fire or Explosion:**

The overall management of the rescue operations on the site is a responsibility of the Municipal Rescue Headquarters and the Permanent Site Committee with **DPMK**.

The accountable manager will directly manage the personnel involved in the rescue operations and jointly with the municipal emergency response teams will organize the emergency rescue teams and recovery works.

Centre of operations of the Permanent Site Committee: The EMERGENCY CONTROL CENTRE in the Mine building or a place designated by the manager, depending on the specific situation.

Centre of operations of the managing team of DPMK: Company's EMERGENCY CONTROL CENTRE or as instructed by the Chairperson of the Permanent Site Committee, depending on the particular situation.

### **3.3 Task of the Company's Emergency Response Personnel in Case of Fire or Explosion:**

#### **3.3.1 Tasks of the Service Personnel:**

- Take measures as per the operating instructions
- Notification of relevant authorities.

#### **3.3.2 Tasks of the Emergency Response Units:**

Task of the **reconnaissance-rescue** team: Immediately start observation of the situation, notify the entire personnel about the evacuation order issued by the Manager along with any other instructions issued.

Task of Company doctor: Receive materials and medicines and immediately start to provide first aid to injured persons;

Task of the Emergency Rescue Service (ERS) team: Immediately start fire suppression, evacuate any personnel from the premises close to fire, rescue people from collapsed buildings.



The tools and equipment to be used for emergency response include: tools from the fire-extinguisher cabinets; other suitable tools and materials in place, including the first-aid kits with the Emergency Rescue Service.

The telecommunication equipment comprises fixed and cell phones and radios available on the Company's site. In case these communication systems are down, two or more persons must be designated to communicate with the authorities, either verbally or in writing. For that purpose, there must be a vehicle at their disposal and if impossible to use a vehicle, these persons will walk to communicate with the authorities as necessary.

In case the situation requires so, at the discretion of the Municipal Rescue Headquarters, special materials, tools and equipment may be provided for the emergency operations.

#### **4.0 ANNOUNCEMENT AND ALERT CALL FOR DEPLOYMENT OF FORCES AND EQUIPMENT**

Any employee is required to notify about an emergency situation using the sirens and assist in the evacuation of the persons affected. Immediate notification of the Emergency Control Centre – tel. [to be added], Regional Fire Safety Dept – tel. 160, ERS – [to be added],/ Area Manager. After receiving the information the Emergency Control Centre will notify the Municipal Rescue Headquarters or dial the single emergency number **112** to declare the emergency.

#### **5.0 ORGANIZATION OF EMERGENCY RESPONSE ACTIONS**

The organizational arrangement of the rescue operations at the Company site require that all personnel of a given shift are familiarized beforehand with their duties in case of an accident and/or fire. A timely response to an emergency situation on the Company site will require to have the relevant tools available in the fire cabinet, as well as other means for fire fighting or limiting spills.

Rescue actions will include:

- Clarifying the situation to ensure complete and objective information about the location and consequences. This is done jointly by the reconnaissance-rescue team, manpower and equipment of the ERS, Regional Fire Safety Dept and Civil Protection Dept;
- Quickly and safe evacuation of employees, contractors and visitors from the site of DPMK, as per the evacuation plan – done by the reconnaissance-rescue team, or if the evacuation is not possible (corridors filled with smoke or other obstacles) - by the Regional Fire Safety Dept;
- Notification of the neighbouring villages that may be affected by the fire and/or explosion - done as per the Plan;
- Search for injured persons and taking them to a safe place – done by the reconnaissance-rescue team, ERS, Regional Fire Safety Dept and Civil Protection Dept;
- Shutting down the power supply of the affected area - done by the Company's emergency response team;
- Suspending any handling of flammable liquids - for the personnel working in the relevant facilities;
- Taking away motor vehicles, equipment, stock items - done by the reconnaissance-rescue team, ERS, Regional Fire Safety Dept and Civil Protection Dept;
- Extinguishing or limiting the fire by using fire fighting and personal protective equipment done by the ERS;
- Providing first aid – done by the Company doctor and ERS;

- Personal protective equipment are kept with the ERS and Lamp Room, and are always available.

The rescue operations at the site will include two phases:

- *Phase I:* Isolating the scene and extinguishing fires
- *Phase II:* Recovery operations.

Isolation of the accident scene and fire suppression will depend on the type of the accident and its consequences. Generally speaking, the following may occur at the site:

- Fire without an accident and associated damage or spillage of fuel or chemicals
- Accident with significant spillage but no fire
- Accident with spillage and fire.

## 5.1 In Case of Fire

Do the following in case of fire on the Company site:

- The fire alarm or extinguishing system is triggered by pressing one of the fire buttons - activating both the surface hydrants and fire sprinkler systems;
- The personnel will aid the fire suppression system with the available fire extinguishing equipment;
- Provide first aid to injured persons;
- Suspend all operations at the minesite;
- Shut off the main power supply;
- Immediate notification of the Emergency Control Center – tel. [to be added], Regional Fire Safety Dept – tel. 160, ERS – [to be added], [to be added], Area Manager, operating communications center, single emergency number **112**;
- Evacuation of all contractors, visitors and motor vehicles on the Company site to a safe distance from the site;
- Provide access for the special equipment of the ERS and Fire Safety Dept to sources of water;
- Provide assistance to the personnel of the ERS and Fire Safety Dept with the extinguishing of the fire;
- If in doubt of gassing, use only self-contained closed circuit breathing apparatus until the damage is removed. Do not use filtering gas masks.



## **5.2 In Case of an Accident involving Spillage of Fuel, Chemicals or Acids but no fire**

In case of an accident involving damage but no fire - one would anticipate damage to equipment or pipelines, resulting in spillage of fuel, lubricants or chemicals at the mine site, or gassing with combustible gases or fumes. In such case, an explosion or fire may occur any moment.

The resulting damage could cause gassing, fire or explosion, therefore it is necessary:

- Provide first aid to injured persons;
- Inform the relevant special authorities to get immediate help and the Chairperson of the Permanent Site Committee with DPMK, if deemed necessary by the Company's accountable manager;
- Have the firefighting equipment ready for action;
- Cease any other operations and focus on the emergency response;
- Arrange for all persons and motor vehicles not involved in the emergency recovery works to leave the site;
- Make efforts to mitigate the impact and isolate the accident scene. Use the available protective equipment and safe tools;
- Stop the movements of motor vehicles in the destruction area and adjacent roads (if necessary);
- Ensure that the special authorities and emergency equipment have access to the destruction area and/or spillage;
- Gas removal at the spillage areas;
- Access to the destruction and/or spillage areas will be granted to individuals only with the permission of the accountable manager for the base.

Other measures may be required upon the discretion of the accountable emergency response manager who will apply their best judgment of the situation at hand and the fire and technical safety requirements.

The state of emergency will be lifted only following:

- The complete elimination of accident consequences
- Thorough examination of the technical condition of the site
- Repeated analysis for explosive gases or fumes in concentrations hazardous to human health.

### **5.3 In Case of an Accident Involving both Spillage and Fire**

Perform the activities listed above if the accident involves significant spillages and fire. Any other rescue operations depend on the accident and the resulting fire situation on the site.

The priority of each rescue operation is determined by the Company's accountable manager following the approval of the Chairperson of the Permanent Site Committee until the arrival of the special emergency crews. The special emergency crews will take over the management of the relevant rescue operations.

## 6.0 MANAGEMENT

The overall management of the rescue operations on the site is a responsibility of the Permanent Site Committee with DPMK.

The immediate supervision over the rescue crew and other personnel involved in the emergency and rescue operations in case of fire will be a responsibility of the accountable area manager or mine superintendent, who will also interact with the Municipal Rescue Headquarters.

If the emergency units in the work shift are not able to perform the necessary activities and require the assistance of the emergency response services, the rescue operations management will be taken over by the Municipal Rescue Headquarters.

The Company's emergency response supervisor should do the following upon the arrival of the fire fighting squad:

- Inform the most senior fire fighter about the fire
- Ensure the safe work of the fire fighting units.

The most senior fire fighter will become the person in charge of the fire fighting since that moment.

Any orders issued by the special authorities within their competence are mandatory for both the site supervisor and personnel.

The overall management is a responsibility of the Municipal Rescue Headquarters of Krumovgrad.

The management will be supported by land line communications (the national telecommunication network) or radio communications.

## 7.0 SUPPORT

The actions to prevent accident and/or fire consequences on the Company site will be supported with manpower and equipment available on the site. Use all available fire extinguishing means - equipment and tools available in the fire cabinets on the site.

Fire suppression starts with activating the fire alarm and using the available fire extinguishing means, and informing the Municipal Rescue Headquarters about the scale of the fire.

The personnel in the shift when the accident and/or fire occurred will take part in the rescue operations.

### 7.1 Medical Assistance

The purpose of the medical assistance is to provide first aid and professional medical care to employees with burns or gas affected employees.

The provision of first aid is arranged by the ERS, Company doctor, and the crews of the Civil Protection Dept and Regional Fire Safety Dept. Medical care will be provided by the Emergency Medical Service and the hospitals. Injured persons will be taken to the Krumovgrad Hospital.

### 7.2 Engineering Support

The engineering function in case of an accident will be limited to road cleanup and ensuring access to all fire-affected areas, and support to the firefighting operations.

Tasks of the engineering support:

- Construction and maintenance of access points and roads to the outbreaks of fire
- Provision of sufficient water supply for the firefighting operations
- Repairs of disrupted communications and damaged facilities.

Whenever rescue operations are to take place in environment with fumes, diesel fuel, chemicals and explosives, which involve a risk of explosion, rescue teams need to use spark-free tools and explosive-safe lighting, equipment and facilities.

The monitoring of any hazardous substances in the area of the accident will be performed with the sampling equipment of the Company and if no such equipment is available, with equipment of the Civil Protection Dept or the Regional Health Inspection.

These are tasks of the main forces involved in the rescue operations and any additional forces (ERS, Civil Protection Dept, Regional Fire Safety Dept, regional road

maintenance service, power supply company personnel, water and sewage company personnel, etc.).

### **7.3 Ensuring Public Order.**

The main tasks are:

- Avoid panic among employees
- Seal off the fire area
- Redirect traffic on bypass routes.

These are tasks of the security personnel. More complicated situations may require involvement of the local police.

### **7.4 Materials Logistics**

The purpose is to deliver water, food and other basic supplies to all personnel involved in continuous rescue operations.

## 8.0 RECONNAISSANCE.

Tasks of the managing authority and the rescue teams:

- Provide complete and objective information about the fire
- Ways and means to cross danger areas
- Bypass routes to reach the outbreak of the fire.

These tasks will be a responsibility of the ERS and the crews of the Civil Protection Dept and Regional Fire Safety Dept.

## 9.0 INTERACTION

The Chairperson of the Permanent Site Committee in charge of the rescue operations will make the relevant arrangements through the Company's accountable manager, specifying the following issues:

- Unit dispatching sequence
- Deployment in the area of fire
- Precautions taken.

The interaction is arranged together with the Municipal Rescue Headquarters.

Interaction arrangements:

In the event of an accident not involving a fire or large spills of fuels or chemicals, the Company's accountable manager will assess the emergency, discuss it with the Chairperson of the Permanent Site Committee with DPMK, and if it is deemed that the personnel in the work shift will not be able to cope with the emergency - will request the assistance of the Municipal Rescue Headquarters.

If the accident involves large spills of fuels or chemicals, the Company's accountable manager will inform the Municipal Rescue Headquarters about the need of gas removal or any other treatment of the affected areas. The management is taken over by the special emergency response team of the Civil Protection Dept upon its arrival.

If the accident involves a fire, the direct management of the firefighting operations is taken over by the Company's accountable manager. The available manpower and equipment is used.

If the Company personnel are not able to extinguish the fire, the Company's accountable manager immediately notifies the Municipal Rescue Headquarters to call for special assistance.

Upon the arrival of the special crews of the Fire Safety the senior fire fighter will take over the direct management of the fire fighting operations. The Company's accountable manager will maintain continuous contact with the senior fire fighter, providing any assistance with the manpower and equipment available on the site.

If other special units are needed to repair damaged water pipes, sewerage, heating, power lines, telephone connections, etc., the Company's accountable manager will provide full support of the repairs carried out with the available manpower and equipment.

## **10.0 PROCEDURES FOR RESUMING NORMAL OPERATION OF THE SITE**

A committee is convened following the elimination of accident and/or fire consequences with members being representatives of relevant authorities, and with the task to assess the site conditions and decide what repair works are required before resuming the normal operations.

The committee inspects and assesses the condition of facilities, equipment, piping, ventilation, power lines, lighting and systems to check for the full compliance with the process and fire safety requirements.

Resuming the operations is done in compliance with the technical specifications and in a sequence that will ensure the fire safety, following the approval of the relevant special agencies and competent authorities.

An environmental committee will be designated by the environmental regulator in order to assess the environmental impact.

The site will not resume operation before the recovery and repair works are completed.

## **11.0 FINAL PROVISIONS**

The Plan for emergency rescue and repair works in the event of an accident and/or fire should be approved by the Krumovgrad Mayor and the Chief of the Regional Fire Safety Dept.

The site employees will review this Plan and will sign to confirm they are familiar with it.



**Appendix 4 – Flood Response  
Emergency Preparedness and Response Plan  
Dundee Precious Metals Krumovgrad EAD  
Krumovgrad Gold Project, Bulgaria**





Submitted to  
**Dundee Precious Metals**



Submitted By  
**AMEC Earth & Environmental UK Ltd.**



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## 1.0 RESPONSE CONCEPT

A flood is a temporary overflowing of water onto a substantial part of normally dry land. Catastrophic flood is a flood where the water level rises by more than one meter.

The Krumovitsa River passes through Krumovgrad and could cause flooding due to seasonal high waters or the erosion conditions along the riverbanks. In general, DPMK is not part of the low area which the river could flood and therefore floods cannot be expected on the site as a result of high precipitations and river overflow. Only the IMWF sumps could potentially be affected. The water from these sumps is not chemically contaminated.

The average annual precipitation in the Krumovgrad area is 703.5 mm. The town's sewerage system discharges into the Krumovitsa River downstream of the site.

Flooding of facilities in the open pit area and beyond may occur in case of heavy rainfall or snowmelt and damage (blockage) of the sewerage system.

The situation following high precipitations entails the following:

- Obstructed storm water gutters along the main roads and streets (leaves and litter)
- The storm water does not go through the sewage
- Vehicle traffic obstructed by storm water running on the roads
- Flooded sections on the roads
- Flooded building basements.

If the minesite is flooded, the personnel will have to be evacuated as part of the rescue and recovery activities.

The flood response plan must be in place to ensure that:

- The required manpower and resources are available
- Personnel are made familiar with the alert call and notification method
- Best organizational arrangements are made to support the operations
- Response tasks are efficiently coordinated and managed
- A procedure for resuming normal operations is established.

## 2.0 GROUPING OF MANPOWER AND EQUIPMENT

*DPMK* will set up the following emergency response crews:

- Rescue operations managing authority
- Emergency response team - performs accident response and rescues injured employees
- Reconnaissance and rescue team – reconnaissance and rescue of injured employees
- First-aid team - provide first aid to injured employees
- Emergency Rescue Service (ERS) – suppress fires.

These crews are set up on the basis of 220 *DPMK* employees.

The manpower of the authorities providing a joint response to an earthquake event according to the complexity of the situation is as follows:

- Manpower and equipment of the Civil Protection Dept
- Manpower and equipment of the Fire Safety Dept
- Manpower and equipment of the District Police Dept
- Manpower and equipment of the Emergency Medical Care
- Manpower and equipment of other departments, agencies or companies (utilities, energy distribution, water supply and wastewater systems, etc).

To ensure good organization, the Company site can be divided into areas according to the damage the flooding caused and any secondary damage (accidents, spillages of reagents and fuels, etc.).

### 3.0 TASKS

Rescue operations on the site in case of flooding or subsequent accident must address the following main tasks:

- Notification of the competent authorities about the case of emergency/accident if the site personnel is unable to handle it without support;
- Monitor the water level and the condition of the hydraulic engineering facilities; keep a record;
- Carry out emergency activities on the hydraulic engineering facilities - open or close water outlet, sluices, etc., make spillways deeper, clean up debris blocking bridges, culverts, footbridges, etc;
- Raise existing berms and construct new temporary berms and dikes by modular units, built of sandbags or other inert material;
- Barricade and remove noxious industrial materials, radioactive sources etc, from the flood potential areas, which may cause harm to humans or the environment;
- Seal tanks and waste collection traps for oil and chemical products to prevent any overflow into storm and river water;
- Provide first aid to injured persons before the arrival of ambulance(s);
- Evacuate all contractors and vehicles to safe locations;
- Isolate any fuel and chemical spills from the flood hazards;
- Locate any property damage;
- Implement recovery operations where property was demolished or damaged;
- Resume normal operations on the site.

### 3.1 Tasks of Officials Involved in the Emergency Response Operations. Method of Action

Process Plant Manager:

- Becomes familiar with the situation
- Designates a location for meeting and directing the manpower and equipment
- Provides directions for the actions of the emergency response units
- Requests additional manpower and equipment, if necessary
- Specifies measures ensuring the safe performance of the emergency response operations
- Supervises the task performance



- Reports to the Permanent Site Committee on the progress of the emergency rescue operations
- Sets up a roster for on-call and after-hours duty and designates an accountable manager in charge of the emergency response after hours.

Deputy Head of Department :

- Reviews the status of the production processes and ensures the conditions required for normal operations or shutting down
- Implements any instructions the accountable manager may give
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Takes over the duties of an accountable manager in the absence of the Process Plant Manager.

Process Plant Mechanic:

- Receives information about the situation and suggests measures for emergency response and recovery of damaged equipment
- Ensures that the equipment, materials and manpower required for conducting emergency recovery works are in place
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Implements any instructions the accountable manager may give.

Power Engineer/Mechanic:

- Receives information about the situation and suggests measures for emergency recovery and repairs of damaged electrical equipment and instrumentation
- Ensures the power supply is turned on/off depending on the situation, as agreed with the accountable manager; ensures the equipment operation as required for the emergency response
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Implements any instructions the accountable manager may give.



Operator of a flooded facility:

- Notifies the appropriate persons and agencies as envisaged in the plan
- Takes actions to rescue injured persons
- Apply emergency response measures to address the incident or limit the scope of the incident envisaged in the plan
- Informs the accountable manager about the measures implemented
- Implements any instructions the accountable manager may give.

### **3.2 Tasks of the Managing Authority**

- Organizes and manages the emergency notification of the Company employees, incl. the Permanent District Committee
- Organizes the notification of the emergency response units at a municipal level
- Takes immediate steps for evacuation of the personnel according to the evacuation arrangements in the event of any threat posed to the life or health of the personnel
- Makes the manpower and emergency response units ready for action
- Drafts a report about the coordination of the rescue operations and submit it to the Chairperson of the Municipal Rescue Headquarters.

### **3.3 Tasks of the Company Emergency Response Resources**

Tasks of the operating personnel:

- Accident notification as per the accident notification arrangements
- Takes measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- Fire fighting team - prepares the fire protection equipment for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed.

The tools and equipment to be used for emergency response include: tools from the fire-extinguisher cabinets; other suitable tools and materials in place, including the first-aid kits with the Emergency Rescue Service.



Communication systems include: land lines, cellular phones and radios in place on the minesite. In case these communication systems are down, two or more persons must be designated to communicate with the authorities, either verbally or in writing.

In case the situation requires, at the discretion of the Civil Protection Dept, special materials, tools and equipment may be provided for the emergency operations.

#### **4.0 ANNOUNCEMENT AND ALERT CALL FOR DEPLOYMENT OF MANPOWER AND EQUIPMENT**

The manpower and equipment will be alerted for action following a decision of the DPMK's Rescue Headquarters, either by the site security or callers through alert calls on the telephone. The Permanent Site Committee will gather in the conference room of the Emergency Control Center or elsewhere, as approved by the Chairperson of the Permanent Site Committee.

The decision to call emergency preparedness will be immediately reported to the Municipal Rescue Headquarters to enable coordination of the rescue operations in the Krumovgrad area.

Upon instructions of the person in charge, the response unit and site personnel will prepare the available equipment for action. Tasks will be clarified and defined for each member of the rescue unit and site personnel. Warning will be given to all external personnel on the minesite, along with the instructions of the competent authorities.

## 5.0 ORGANIZATION OF EMERGENCY RESPONSE ACTIONS

Rescue actions will include:

- Reconnoitre property damage, which is a task of the reconnaissance and rescue team, manpower and equipment of the Regional Fire Safety Dept and Civil Protection Dept;
- Clear intersections and congested road sections from stuck vehicles - task of the response team, manpower and equipment of the Regional Fire Safety Dept, Civil Protection Dept, and other forces and equipment involved in the rescue operations;
- Identify the status of the power supply and water and sewage systems. Whenever required, shut down the power supply to the flooded area - task of the reconnaissance and emergency teams;
- Once the reconnaissance is completed, identify the scale of the flood and obtain valid information; the accountable manager will determine on the spot the evacuation route and destination point. If there is an approved evacuation route that is not in conflict with the reconnaissance data, people should be directed to that route;
- Evacuate people from the flooded areas;
- Accident localization and response actions in the site buildings – task of the emergency team, manpower and equipment of the Regional Fire Safety Dept, Civil Protection Dept, and other forces and equipment involved in the rescue operations;
- Cleanup roads, storm water gutters and utility sumps from sediments, mud, trees etc. - task of the reconnaissance and rescue team, manpower and equipment of the Regional Fire Safety Dept, Civil Protection Dept, and other forces and equipment involved in the rescue operations;
- Administer first aid (first-aid team and forces of the Regional Fire Safety Dept); injured people must be taken to the Krumovgrad Hospital;
- Secure the flooded areas - task of the site security personnel;
- Issue a ban on any activities which may obstruct the emergency response operations;
- Ban vehicle traffic - company and personal vehicles; regulate and direct traffic to designated routes, set up checkpoints;
- Build sandbag berms/dikes to protect any reservoirs, tanks and pump facilities;
- Drain premises - task of the reconnaissance-rescue team, manpower and equipment of the Regional Fire Safety Dept, Civil Protection Dept, and other forces and equipment involved in the rescue operations;
- If noxious industrial substances or other substances are in place in the flooded area and there is a risk of causing damage or environmental pollution, the team will

reconnoitre the storage facilities and will take measures to prevent pollution where possible;

- Assess damage and the required funds and manpower for recovery works - task of the Permanent Site Committee of DPMK;
- Recovery works and preparation to resume normal operations - tasks of construction and repair teams of DPMK or contractors.

### **5.1 Actions before Flood (pending Flood)**

- Monitor the water level and the condition of the hydraulic engineering facilities; keep a record;
- Carry out emergency activities on the hydraulic engineering facilities - open or close water outlet, sluices, etc., make spillways deeper, clean up debris which is blocking bridges, culverts, footbridges, etc., preventing any surface runoff water or river water from entering the open pit;
- Raise existing berms and construct new temporary berms and dikes by modular units, build of sandbag dikes or pile other inert material;
- Barricade and remove noxious industrial materials, radioactive sources etc, from the flood potential areas, which may cause damage to humans or the environment;
- Seal tanks and waste collection traps for oil and chemical products to prevent any overflow into storm and river water.

### **5.2 Actions at the time of the Flood**

- Reconnoitre the flood area and areas where people or property may be blocked by the flood;
- Evacuate people and property from the flooded areas;
- Inspect roads and access points to the flooded area and inaccessible buildings and facilities due to flooded roads;
- If noxious industrial substances or other substances are in place in the flooded area and there is a risk of causing damage or environmental pollution, the team will do reconnaissance at the storage facilities and will take measures to prevent pollution where possible;
- Rescue operations will start with:
  - arrangements to shut down the power supply in the flooded area
  - actions to rescue people from the flooded area
  - pumping water or lowering the water level

- Once people are evacuated, emergency actions must ensure oil (and oil derivatives) spill prevention; removal of noxious industrial materials, radioactive sources etc, from the flood potential areas, which may cause damage to humans or the environment. Rescuers will set action priorities and inspect on the spot to determine:
  - a) removal method and sequence
  - b) destination point after removal
  - c) teams, equipment and tools required for the removal
  - d) neutralization or other special requirements to mitigate their negative effects
  - e) whether special medical teams may be required
  - f) methods, manpower and equipment required for the removal
  - g) extra safety measures for each individual case
- Rescue any stuck vehicles or other equipment.

### **5.3 Actions after the Flood**

Once the water returns to its normal level, the teams will assist the resumption of the normal operations as follows:

- Search (for missing people);
- Drain industrial buildings and facilities; inspect the static parameters of foundations and tanks and the ground hardness around them;
- Affected roads will be cleared by special equipment; only licensed operators may operate this equipment. Safety induction will be delivered before commencement of this job;
- Whenever the team removes dead animals, flooded food or items, which involve biological contamination risk or risk of epidemics, rescuers will use PPEs at all times.

## **6.0 MANAGEMENT**

The management of all localization, isolation, emergency response and rescue operations in case of flood on the minesite will be a responsibility of the Permanent Site Committee with DPMK.

The immediate supervision over the rescue crew and other personnel involved in the emergency and rescue operations in case of flooding will be a responsibility of the accountable site manager, who will also interact with the Municipal Rescue Headquarters of Krumovgrad.

The management will be supported by land line communications (the national telecommunication network) or radio communications.



## **7.0 SUPPORT**

### **7.1 Reconnaissance.**

Tasks of the managing authority and the rescue teams:

- Provide thorough and objective information on the type, scope and location of the property damage caused by the flood and any secondary damage involved (by subsequent fire, chemical spills etc.)
- Methods to address fire risks and property damage
- Bypass routes to access affected areas.

These tasks will be a responsibility of the reconnaissance-rescue team, and the crews of the Civil Protection Dept and Regional Fire Safety Dept.

### **7.2 Medical Assistance**

The purpose of the medical assistance is to provide first aid to any injured employees and visitors.

The main task is to arrange for timely medical assistance (any type required) to the injured persons.

These services will be provided by the first-aid team and the crews of the Civil Protection Dept and Regional Fire Safety Dept. Medical care will be provided by the Emergency Medical Service and the hospitals.

### **7.3 Engineering Support**

The purpose of the engineering support in case of flood is limited to operations as clearing and drainage of flooded areas and removal of any structural hazards.

This is a task of the main flood rescue forces (emergency and reconnaissance - rescue teams of DPMK, Civil Protection Dept, Regional Fire Safety Dept, and any additional forces.

### **7.4 Ensuring Public Order**

Ensuring public order during floods is a main task. Panic among employees must be prevented and access to risky sites and areas restricted.

This is a task of the site security and the local police department.



## **7.5 Materials Logistics**

The purpose is to deliver water, food and other basic supplies to all personnel involved in the rescue operations.

The protection of the population and the economy are financed under a specific procedure, according the Disaster Protection Act.

## **8.0 INTERACTION ARRANGEMENTS**

If the emergency response crews find out that they cannot handle the situation without external help in the course of the rescue operations, they must seek help from the Civil Protection Dept, and if need be - from the Regional Fire Safety Dept.

## **9.0 PROCEDURES FOR RESUMING NORMAL OPERATION OF THE SITE**

Once the emergency response operations are completed, a committee will be set to determine the required recovery and construction works. The committee will visit, inspect and assess the status of the site buildings and facilities in order to establish the parameters of their full compliance with the process requirements and fire safety.

The site commissioning will follow the process requirements following coordination with the fire safety and other special authorities.

The environmental committee will be designated by the environmental regulator in order to assess the environmental impact.

The site will not resume operation before the recovery and repair works are completed.

## **10.0 FINAL PROVISIONS**

The employees of DPMK EAD will review this Plan and will sign to confirm they are familiar with it.

## Appendix 5 - Response Plan for Cases of Accidental Leak of Hazardous Chemical Substances

### Dundee Precious Metals Krumovgrad EAD Krumovgrad Gold Project, Bulgaria



Submitted to

**Dundee Precious Metals**






Submitted By

**AMEC Earth & Environmental UK Ltd.**



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## 1.0 RESPONSE CONCEPT

Possible accidents involving spill of hazardous chemical substances may include:

- Release of hazardous chemicals as a result of spill/leak of noxious industrial substances
- Release as a result of ruptured or damaged tanks with chemical liquid or gas
- Accompanied by fire, explosives, property damage and involving environmental pollution with and toxic products resulted from combustion
- Related to disturbed process flows, generation of explosive mixtures, causing fires where noxious or toxic substances are released
- As a result of moving or handling of chemical substances at production premises and areas on the minesite.

Industrial accidents may occur on the minesite, disturb the process flows and impose threats on employees' health and lives and the environment.

Faulty automation or valves, damaged tank or pipe seals, faulty units of machine/facilities, violation of operational instructions, mechanical damage, human error, etc. may cause spills of dangerous amounts of hazardous chemicals.

When chemicals are spilled indoors or outdoors, the liquid starts to evaporate. The evaporation rate is proportional to ambient temperature and the size of the opening/crack which releases the liquid. Evaporation may create an explosive environment if there is no ventilation. Vapour-air mix and its distribution outdoors also depends on the spilled amount, the surface it spreads on (asphalt, soil etc.), the wind speed and direction, and the land relief.

No industrial accidents are likely to occur in the adjacent areas.

### Objectives

The purpose of the emergency response plan for cases involving spill of hazardous chemicals is as follows:

- Provide the required means to protect people's health
- Make personnel familiar with the alert call and notification method
- Provide the best organizational arrangements to support the operations
- Response tasks are efficiently coordinated and managed
- Provide a procedure for resuming the normal operations.



## 2.0 SETTING UP EMERGENCY RESCUE CREWS

*DPMK* will set up the following **emergency response crews** -see *Appendix 03*:

- **Managing authority** at DPMK
- **Emergency response team** - emergency response and first aid to injured employees
- **Reconnaissance and rescue team** – reconnaissance and rescue of injured employees
- **First-aid team** - first aid to injured employees
- **Emergency Rescue Service** – fire fighting.

### **Manpower of the authorities providing a joint response to emergency situation according to its complexity:**

- Manpower and equipment of the **Civil Protection Dept**
- Manpower and equipment of the **Emergency Rescue Service**
- Manpower and equipment of the **Fire Safety and Civil Protection Regional Service**
- Manpower and equipment of the **District Police Department**
- Manpower and equipment of the **Emergency Medical Care**
- Manpower and equipment of other departments, agencies or companies (utilities, energy distribution, water supply and wastewater systems, etc).

### **3.0 TASKS**

#### **3.1 Tasks of Officials Involved in the Emergency Response Operations. Method of Action**

Operations Manager of DPMK (accountable manager):

- Becomes familiar with the situation
- Arranges for accident notification at a municipal level according to Accident Notification Plan
- Designates a location for meeting and directing the manpower and equipment
- Provides directions for the actions of the emergency response units
- Requests additional manpower and equipment, if necessary
- Specifies measures ensuring the safe performance of the emergency response operations
- Supervises the task performance
- Sets up a roster of on-call and after-hours duty and designates a person (from the DPMK's management team) in charge of emergency response after hours.

Production area supervisor (member of the management team):

- Reviews the status of production processes and ensures that the conditions required for normal operations are in place
- Implements any instructions the accountable manager may give
- Assumes the duties of a person in charge of the emergency response teams as per a roster approved by the accountable manager
- Takes over the duties of an accountable manager in the absence of the DPMK's Manager.

Mechanic - DPMK:

- Receives information about the situation and suggests measures for emergency response and recovery of damaged equipment
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Implements any instructions the accountable manager may give.

Power Engineer (Chief Power Engineer; Process Plant Power Engineer; Automation Engineer):

- Receives information about the situation and suggests measures for emergency recovery and repairs of damaged electrical equipment and instrumentation;
- Ensures the power supply is turned on/off depending on the situation, as agreed with the accountable manager; ensures the equipment operation as required for the emergency response;
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager;
- Implements any instructions the accountable manager may give.

Employees of DPMK:

- Notify the appropriate persons and agencies as envisaged in the plan
- Take actions to rescue injured persons
- Apply emergency response measures to address the incident or limit the scope of the incident envisaged in the plan
- Inform the accountable manager about the measures implemented
- Follow the instructions of the accountable manager of the rescue operations.

### **3.2 Tasks of the Managing Authorities; Response to Diesel or Chemical Spills.**

The overall management of the rescue operations on the site is a responsibility of the Municipal Rescue Headquarters and the Permanent Site Committee with DPMK.

The direct operational management of the rescue personnel is a responsibility of the accountable manager on the site who interacts with the emergency response forces at a municipal level, organizes the operations of the emergency teams for response to disasters, and accidents, rescue and emergency recovery operations and provides assistance to the Technical Supervision Authorities to establish the reason for the breakdown.

Centre of operations of the Permanent Site Committee: The Emergency Control Centre in the Mine building or a place designated by the manager, depending on the specific situation.

Centre of operations of the managing team of DPMK: Company's EMERGENCY CONTROL CENTRE or as instructed by the Chairman of the Permanent District Committee for Emergency Rescue, depending on the particular situation.

### **3.3 Tasks of the Company Teams. Response to Diesel or Chemical Spills**

#### **3.3.1 Tasks of the Service Personnel:**

- Take measures as per the operating instructions
- Notification of authorities.

#### **3.3.2 Tasks of the Emergency Response Units:**

Task of the **reconnaissance-rescue** team: Immediately start observation of the situation, notify all personnel about the evacuation order issued by the Manager along with any other instructions issued.

Task of the **first-aid** team: Receive materials and medicines and immediately start to provide first aid to injured persons;

Task of the **Emergency Rescue Service** (ERS) team: Immediately start fire suppression, evacuate any personnel from the premises close to fire, rescue people from collapsed buildings.

The tools and equipment to be used for emergency response include: tools from the fire-extinguisher cabinets; other suitable tools and materials in place, including the first-aid kits with the Emergency Rescue Service.

### **4.0 EMERGENCY NOTIFICATION AND ALERT CALL**

Any member of the Company personnel must immediately notify the site manager if an incident or fire occurs. Once an emergency notification is received, the Emergency Rescue team must be immediately notified by calling, the universal emergency number **112** and the Municipal Rescue Headquarters.

## **5.0 ORGANIZATION**

### **5.1 Clarify the Situation.**

The emergency team will conduct visual inspection of the affected area in order to collect full and objective information about the type, scope and original location of the incident, and the impact (demolitions, victims, chemical spills etc.).

### **5.2 Protection of Employees and Population**

Accidents involving spills of flammable liquids will require evacuation of employees and visitors from impact areas according to evacuation plans. Employees must be evacuated opposite the wind direction. The muster point must be situated on the leeward side of the area.

PPEs must be used by rescue teams where high concentrations of hazardous substances are in place. PPEs will include breathing apparatus, skin protection, protective glasses, gloves, etc.

### **5.3 Isolation of the Accident Scene**

Isolation will be applied to limit the impact of chemical spills as follows:

- Cease any handling of hazardous chemical substances
- Activate all shut off valves at the facility
- Isolate the spill with sand or lime, manually collect the spilled material, place in buckets or bins and if still usable, use accordingly. Any residual traces of the material will be treated with sand and sawdust to the point where the area is completely dry and clean. Any waste from the cleaning will be kept in bins at the temporary storage facility for later treatment.

These operations are a responsibility of the emergency team, emergency rescuers and manpower and equipment of the ERS, Regional Fire Safety Dept, Civil Protection Dept, and other forces and equipment involved in the rescue operations.

### **5.4 Rescue Operations**

Rescue operations include:

- Search and evacuation of victims to a safe place. This is a task of the reconnaissance-rescue team of the Company, together with manpower and equipment of the ERS, Regional Fire Safety Dept, Civil Protection Dept, and other forces and equipment involved in the rescue operations;

- Administration of first aid - task of the first-aid team together with manpower and equipment of the ERS, Regional Fire Safety Dept, and Civil Protection Dept;
- In case of hazardous chemical spill, take the victims out, place comfortable and expose to fresh air; loosen any tight clothing. Apply CPR or oxygen breathing apparatus where necessary. Immediately remove any contaminated clothes. Rinse any affected body parts with plenty of water and soap. In case of eye contact, flush victim's eyes with water for 10-15 minutes while making sure the eye lids are kept open with the thumb and the index finger and eyeballs are rolling around. To transport a victim who is at risk of seizure, place them in a stable position sideways;
- Gas removal from rooms or sites - task of the emergency team together with manpower and equipment of the ERS, Regional Fire Safety Dept, and Civil Protection Dept;
- Fire suppression – see FIRE PLAN.

In case of hazardous chemical spill, if a source of ignition is in place, it may cause fire and/or explosion, which may take victims and damage property. This is mostly a responsibility of the Company's fire fighting unit and the Regional Fire Safety Dept;

## **5.5 Recovery and Construction Works**

Include a full review of the status of any damaged facilities at their recovery following completion of the rescue operations. These works are a responsibility of the DPMK's repair teams or external contractors.

**Table 5-1: Operations Plan for Rescue and Immediate Emergency Recovery Operations in Case of Spill**

No.	Work area/Possible incident.	Rescue operations as part of the emergency response	Responsible persons	Location of emergency response equipment and tools	Actions of the emergency services
1	DPMK - fuel spill (chemical spill)	1. The emergency notification will follow the steps in Appendix 1	Operator: Dispatcher on duty at the Emergency Control Center	Telephone	<u>Reconnaissance-rescue team; first-aid team and ERS</u> 1. Perform reconnaissance 2. Remove any injured persons out of the gas impact area 3. Administer first aid 4. Mark the gas impact area <u>Regional Fire Safety Dept.</u> 1. A team arrives at the incident scene 2. Perform reconnaissance and identifies the fire potential 3. Conduct preliminary dislocation of forces 4. Assist the accountable manager to ensure the fire safety and use of the special firefighting equipment as part of the emergency response
		2. Prepare PPE	All managers/supervisors	Available at all times at the locker room	
		3. Check for injured people and if any, provide air breathers and remove them from the area	Emergency Rescue Service	Emergency Rescue Service	
		4. Suspend are all hazardous activities and evacuate any unauthorized persons	Operator: security guards	DPMK	
		5. Shut off the power supply at the respective workshop/work area if required	Shift Boss	DPMK	



No.	Work area/Possible incident.	Rescue operations as part of the emergency response	Responsible persons	Location of emergency response equipment and tools	Actions of the emergency services
		6. Shut off the power supply of any buildings and facilities or the entire site if required	Electrical technician on duty	substation	operations <u>Emergency Medical Services (EMS)</u> 1. Provide emergency medical services 2. Transport victims to medical facilities 3. Monitors the health condition of emergency team members and provides assistance in case of injuries <u>Local Police Department</u> 1. Cordon off the gas impact area 2. Provide access to persons involved in the emergency response only 3. Perform visual inspection and collects evidence to identify the cause of the accident.
		7. Summon an emergency team	Operator:	Telephone	
		8. Brief the emergency team about the specific measures to isolate the accident and the relevant hazards and inspect their PPE	Rescue operations accountable manager	DPMK	
		9. Collect the spilled material and clean the area	Emergency response team	DPMK	
		10. Identify recovery measures, provide safety induction and access to repair and construction work teams	Rescue operations accountable manager	DPMK	

No.	Work area/Possible incident.	Rescue operations as part of the emergency response	Responsible persons	Location of emergency response equipment and tools	Actions of the emergency services
		11. Accept repair/construction works and authorize reopening of the facility	Area Manager	DPMK	
		12. Investigate the cause and suggest measures to prevent recurrence	Committee	DPMK	
		13. Final recovery measures	Area Manager	DPMK	
2.	Mine - waste rock/ product spill	1. Notification of the entire personnel	Operator: Dispatcher on duty at the Emergency Control Center	Telephone in an operations room out of the explosive impact area	<u>Reconnaissance-rescue team; ERS</u> 1. Perform reconnaissance 2. Remove any injured persons 3. Administer first aid
		2. Discontinue haulage.	Operator:	Mine site	
		3. Summon the emergency response team of DPMK	Accountable manager; Operator:	Operator's office	
		4. Check equipment and PPE of the emergency response team	Accountable manager;	DPMK	<u>Emergency Rescue Service</u> 1. A team arrives at the incident scene
		5. Arrange for monitoring of the scene; discontinue hazardous activities and keep unauthorized persons off the site	Patrol personnel Security personnel	accident scene	2. Perform reconnaissance and identifies the fire potential 3. Conduct preliminary dislocation of

No.	Work area/Possible incident.	Rescue operations as part of the emergency response	Responsible persons	Location of emergency response equipment and tools	Actions of the emergency services
		6. In case the incident scene has not been identified, perform reconnaissance by: notifying the rescue team and patrolling minesite areas involving an emergency response team in the patrol	Security: Operator: Accountable manager;	check point contact number: Operator's office contact number: Cell phone:	forces 4. Assist the Executive Director to ensure the fire safety and use of the special firefighting equipment as part of the emergency response operations <u>Emergency Rescue Service</u> 1. Provide emergency medical services 2. Transport victims to medical facilities 3. Monitors the health condition of emergency team members and provides assistance in case of injuries <u>Local Police Department</u> 1. Cordon off the gas impact area 2. Provide access to persons involved in the emergency response only 3. Perform visual inspection and collects evidence to identify the cause of the accident.
7. Check for injured people and if any, provide air breathers, remove them from the area and transport to emergency medical service	Accountable manager;	accident scene			
8. Assess the incident and any risk for humans and the environment	Accountable manager;	accident scene			
9. Assessment report including requirements for additional equipment and forces for emergency localization, isolation and response	Accountable manager;	accident scene			
10. Provide extra equipment and forces	Dispatcher on-duty departmental manager				
11. Brief the emergency team about the specific measures to isolate the accident and the relevant hazards and inspect their PPE	Accountable manager;	accident scene			
12. Collect and haul the spilled material	Accountable manager;	accident scene			

No.	Work area/Possible incident.	Rescue operations as part of the emergency response	Responsible persons	Location of emergency response equipment and tools	Actions of the emergency services
		13. Accept repair/construction works and authorize reopening of the facility	Accountable manager;	accident scene	
		14. Investigate the cause and suggest measures to prevent recurrence	Committee	DPMK	
		15. Final recovery measures	Manager of DPMK		

## 6.0 MANAGEMENT

The overall management of the rescue operations on the site is a responsibility of the Permanent Site Committee with DPMK.

The immediate supervision over the rescue crew and other personnel involved in the emergency and rescue operations in case of chemical spills will be a responsibility of the accountable site manager, who will also interact with the Municipal Rescue Headquarters of Krumovgrad.

The accountable manager of the rescue operations at the base will report to the Municipal Rescue Headquarters which coordinates the rescue operations about:

- Changes to the situation – immediately
- Commencement of emergency response actions
- Performed rescue operations – every 2 hours
- Termination of the emergency situation.

The overall management is a responsibility of the Municipal Rescue Headquarters of Krumovgrad.

## **7.0 SUPPORT**

### **7.1 Re-reconnaissance**

#### **7.1.1 Reconnaissance Objectives**

The purpose of the reconnaissance is to provide timely and valid information about the situation as required for making an informed decision about the performing adequate rescue and emergency response operations at the accident area.

#### **7.1.2 Reconnaissance Tasks**

Obtain valid information in real time in order to support the rescue operations.

Determine and post signs at safe areas for evacuation of personnel and population from the source of impact.

#### **7.1.3 Reconnaissance Concept**

These efforts must be focused on clarifying the situation at the site, together with the site authorities, and on the direction of chemical spill dispersion. Later, safe areas must be established to evacuate the population and site personnel.

#### **7.1.4 Reconnaissance Organization**

This is a responsibility of the reconnaissance-rescue team with DPMK.

Reconnaissance data will be reported in a timely manner to the accountable manager of the rescue operations at the Company and the Permanent Site Committee for management of rescue operations with DPMK.

Water control is a responsibility of the Environmental Department of DPMK and the Regional Environmental Inspection. Without their authorization, the site may not resume operations when the emergency response operation is completed.

Following reconnaissance, the team will perform partial clean-up and treatment away from the impact area.

#### **7.1.5 Reconnaissance Tasks**

- Inspect, observe and constantly monitor the situation

- Identify shortest and safest access routes for the emergency teams and equipment to the impact area in order to perform emergency response and rescue operations
- Identify the direction of cloud dispersion, if generated, and impact area growth
- identify impact boundaries.

## **7.2 Chemical Reconnaissance**

### **7.2.1 Purpose of Chemical Support**

The purpose of chemical support is to ensure timely clarification of the chemical situation, prevent any damage, ensure that employees are in good condition and enable the emergency and rescue operations.

### **7.2.2 Main Tasks of the Chemical Support**

Protection of the population and employees who are at risk from uncontrolled release of hazardous chemical substances.

Chemical support to emergency and rescue teams.

### **7.2.3 Concept of Chemical Support - Organization and Performance**

Terms of chemical support, the emergency and rescue teams must focus their efforts on notification about the chemical hazards, clarification of the situation and efforts to limit the dispersion of the chemical cloud.

### **7.2.4 Organization of Chemical Support**

#### Notification of population and employees at risk

The emergency notification is a responsibility of the site personnel on duty. The person on duty will notify the accountable manager of DPMK and the dispatchers at the Emergency Control Centre and Operating Communication and Information Centre.

The Municipal Coordination Headquarters will evaluate the situation on the basis of the data provided by DPMK and depending on the spill/cloud's dispersion speed and direction the headquarters will make a decision to notify and or evacuate the population at risk.

#### Chemical reconnaissance



This reconnaissance will focus on identifying the scope of the spill/cloud dispersion and the boundaries of any concentrations in excess to the regulated limits.

#### Information gathering, prognoses and analyses

The Permanent Site Committee with DPMK will set up groups (within the emergency team) of two persons whose task will be to gather information, analyze the situation and suggest options for the implementation of the emergency and rescue operations.

#### Provision of chemical protection equipment, chemical reconnaissance devices and gas neutralization substances

The Company keeps PPEs on stock - such as helmets, oxygen breathers, skin protection (boots and gloves), protective glasses etc. PPEs will be delivered by the store supervisor.

### **7.3 Weather Information Support**

Main tasks of the weather information support:

- Provide data from the surface weather station at the moment the emergency situation occurs and during the emergency operations;
- Provide weather updates every two hours, and in case of abrupt change - immediately;
- Forecast any changes in the weather conditions over the next hours and days;
- The weather information will be constantly monitored by the weather station of DPMK.

### **7.4 Engineering Support**

Purpose of engineering support:

- Enables the isolation of the accident scene and assists the emergency operations.

Main tasks of the engineering support:

- Conducts engineering reconnaissance and assists the access of any emergency equipment and personnel to the accident scene to enable site isolation and emergency response.

Concept of engineering support:

- The main focus will be on assisting the special teams in their efforts to rescue any victims of the accident, isolate and address the emergency.

Engineering support organization:

- Notification about the accident
- Engineering reconnaissance
- This is a responsibility of the engineering teams for the purpose of providing timely information on the nature and scope of any property damage at the work areas. The engineering support will use the access route to the accident scene and immediately the source of damage.

The engineering reconnaissance process will determine:

- Victims' location, number and pending risks, if any
- Shortest and safest access routes to victims trapped in collapsed structures, if any
- Nature and scope of property damage including buildings and facilities
- Amount and methods of the required engineering works, including any clean-up required to enable victims' evacuation
- Estimate number of personnel and equipment required for the emergency operations at a core damage area
- Status of water sources, contamination level, possibility to use such water for fire suppression and any other technical purposes
- Possibility to perform blasting (if required).

## 7.5 Information Support

Main tasks of the information support:

- Familiarize with the alert signals of various hazards/risks and performance of regular emergency drills in order to build behaviour, habits and skills required in various critical situations
- Train employees to properly use PPE
- Exercise control to ensure proper emergency behaviour
- Whenever an emergency situation occurs, will provide timely information to the managing authorities about the type and scale of the accident and the initiated actions.

Whenever rescue operations are to take place in environment with flammable vapors, which involve risk of explosions, rescue teams need to use spark-free tools and explosive-safe lighting, apparatus and facilities.

This task is a responsibility of the core rescue teams: DPMK's emergency response teams, regional fire safety department, and any additional forces such as regional health inspection, teams of the power distribution company, water and sewage company etc.

- The information support team will focus on gathering and processing of the required information and its delivery to the managing authorities in view of immediate performance of rescue operations in order to save people and property.

## **7.6 Ensuring Order and Security**

Order and security must be ensured throughout the site, along with securing the accident scene, an traffic control to support the effective emergency and rescue operations.

Order and security tasks:

- enhance the security
- secure/barricade the accident scene
- guide access of emergency personnel to the accident area
- establish the identity of any bodies
- take part in the emergency and rescue operations.

These are tasks of the security personnel. More complicated situations may require involvement of the local police.

## **7.7 Medical Assistance**

The purpose of the medical assistance is to provide first aid to any injured employees.

The main task is to arrange for timely administration of first aid and any required medications.

These services will be provided by the first-aid teams of the ERS, Civil Protection Dept and Regional Fire Safety Dept. Medical care will be provided by the Emergency Medical Service and the hospitals. Injured persons will be taken to the Krumovgrad Hospital; for treatment by medical specialists.

## **7.8 Provision of Transport, Materials and Equipment**

The purpose of this support is to enable the adequate and timely provision of any special equipment, PPE, food, drinking water, special automation and tools, communication devices, oil and fuel, medical supplies, engineering materials, supporting and construction materials in order to enable the timely and effective emergency response operations and resumption of the production process, transportation of the rescue teams' personnel, delivery of construction materials, food, water and other basic items for the employees, and rescue team members and also support the evacuation process.

Tasks:

- Supply of materials for the company employees and rescue teams
- Oil and fuel supply for the vehicles and special equipment
- Supply of medical equipment, neutralizing substances and provision of their transportation
- Transportation of employees away from the accident scene
- Transportation of food supplies for the emergency response teams
- Provision of vehicles for the emergency response teams
- Arrangements to accommodate regular vehicles for transportation of injured persons.

## **7.9 Financial Support**

The purpose of the financial support is to provide funding for the purchase of any required inventory to support the emergency operations including employee life protection, rescue and emergency response operations.

Tasks:



APPENDIX 5 – RESPONSE PLAN FOR CASES OF ACCIDENTAL  
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- Provision of funds to ensure food supplies for the emergency and rescue teams
- Provision of funds for preventive measures and emergency preparedness for cases of natural disasters and industrial accidents.

In cases of natural disasters and industrial accidents, all costs associated with the emergency and rescue operations will be paid by DPMK.

## **8.0 COORDINATION**

If, in the course of the rescue and emergency response operations, the emergency response team and other personnel establish that they cannot handle the situation without help, they must seek help from the Municipal Headquarters.

## **9.0 PROCEDURES FOR RESUMING NORMAL OPERATION OF THE SITE**

Once the emergency response operations to address industrial accident are completed (including fire), a committee will be set to determine the required recovery and construction works. The committee inspects and assesses the condition of facilities, equipment, piping, ventilation, power lines, lighting and systems to check for the full compliance with the process and fire safety requirements.

The site commissioning will follow the process requirements following coordination with the fire safety and other special authorities.

## **10.0 FINAL PROVISIONS**

The emergency response plan for cases of industrial accidents involving spill of hazardous chemical substances will be coordinated with the Mayor of Krumovgrad.

The site employees will review this Plan and will sign to confirm they are familiar with it.



**Appendix 6 - Emergency Response to a Terrorist Act**  
**Dundee Precious Metals Krumovgrad EAD**  
**Krumovgrad Gold Project, Bulgaria**



Submitted to

**Dundee Precious Metals**



Submitted By

**AMEC Earth & Environmental UK Ltd.**



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## 1.0 RESPONSE CONCEPT

There is a potential risk of a terrorist act on the DPMK’s minesite, tailings pipeline, and Integrated Mine Waste Facility (IMWF). The Company’s employees and operations can be impacted, depending on the ill-intended actions of the perpetrator. In case explosives are planted and activated, the explosion may cause production flows interruption, injuries, fatalities and environmental pollution. A terrorist act may cause fires and industrial accidents.

Having in mind the complicated international situation and the specifics of the Company operations, there is a risk of encroachment on the stores or facilities, vehicles and administrative buildings and a risk of taking hostages.

An anonymous terrorist threat may be made by the telephone, on a slip of paper, on the Internet or verbally.

The following actions need to be undertaken when a terrorist threat is made:

- Remain calm
- Make the calling person feel comfortable so they could talk long enough for you to trace the call
- Take a note of the exact language of the threat, when, where and what explosive will be activated
- Find out whether the calling person is familiar with the site, considering the explanation they give you about the location where the explosive is planted
- Where possible, identify any distinctive features of the person, land whether local or long-distance call, any distinct background noises according to the tables below
- Make your best effort to contact the local police on another telephone line while still keeping the person on the telephone.

Gender	Age	Connection
male	child	local
female	teenager	long distance
	middle-aged	long distance, international
	adult	cellular

VOICE	SPEECH	ACCENT	LANGUAGE	MANNER	NOISES
high	fast	local	perfect	calm	music
shrill	clear	foreign	good	sensible	street
hoarse	stuttering	dialect	poor	composed	train
drunk	hesitant		obscene	angry	airplane
soft	drawl		good	unreasonable	crowd
deep	deviant		poor vocabulary	disrespectful	silence
polite	slow		Other	emotional	voices
Other	lisp			joking	Other

Basic actions to be undertaken in case of suspicious cargo, baggage or package on the minesite:

- Try to identify any potential owner
- If no owner is found, cordon off the area
- Do not approach or move such suspicious cargo, baggage or package
- Wait for the arrival of the special police squad.

## 2.0 GROUPING OF MANPOWER AND EQUIPMENT

*DPMK* will set up the following **emergency response teams**:

- **Managing authority** - DPMK
- **Emergency response team** - emergency response and first aid to injured employees
- **Reconnaissance and rescue team** – reconnaissance and rescue of injured employees
- **First-aid team** - first aid to injured employees
- **Emergency Rescue Service** – fire fighting.

**Manpower of the authorities** providing a joint response to terrorist emergency situation according to its complexity:

- Manpower and equipment of the Civil Protection Dept
- Manpower and equipment of the Emergency Rescue Service
- Manpower and equipment of the Fire Safety and Civil Protection Regional Service
- Manpower and equipment of the District Police Department
- Manpower and equipment of the Emergency Medical Care
- Manpower and equipment of other departments, agencies or companies (utilities, energy distribution, water supply and wastewater systems, etc).

### **3.0 TASKS TO COMPLETE**

#### **3.1 Tasks of Officials Involved in the Emergency Response Operations. Method of Action**

Executive Director of DPMK / accountable manager of DPMK:

- Becomes familiar with the situation
- Designates a location for meeting and directing the manpower and equipment
- Provides directions for the actions of the emergency response units
- Requests additional manpower and equipment, if necessary
- Specifies measures ensuring the safe performance of the emergency response operations
- Supervises the task performance
- Sets up a roster of on-call and after-hours duty and designates an accountable manager in charge of emergency response after hours.

Department Manager:

- Reviews the status of production processes and ensures that the conditions required for normal operations are in place
- Implements any instructions the accountable manager may give
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Takes over the duties of an accountable manager in the absence of the Department Manager.

Mechanic:

- Receives information about the situation and suggests measures for emergency response and recovery of damaged equipment
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager.

Power Engineer:

- Receives information about the situation and suggests measures for emergency recovery and repairs of damaged electrical equipment and instrumentation

- Ensures that the power supply is switched on / off depending on the situation, as agreed with a DPMK's manager; ensures the equipment operation as required for the emergency response
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager.

Store Supervisor:

- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Provides the required equipment, materials and special forces for the implementation of the emergency and recovery operations associated with structures, buildings, excavation works etc.

Employees of DPMK:

- Notify the appropriate persons and agencies as envisaged in the plan
- Takes actions to rescue injured persons
- Apply emergency response measures to address the incident or limit the scope of the incident envisaged in the plan
- Informs the DPMK's accountable manager about the measures implemented.

### **3.2 Tasks of the Managing Authorities**

In the event of uncontrolled release of hazardous chemical substances or fuel:

Management of DPMK:

- Organizes and directly manages the emergency notification of the Company employees;
- Takes immediate steps for evacuation of the personnel according to the evacuation arrangements in the event of any threat posed to the life or health of the personnel;
- Organizes the notification of the municipal emergency response teams by calling the universal emergency number 112;
- Drafts a report about the coordination of the rescue operations and submit it to the Chairperson of the Municipal Rescue Headquarters;
- Makes the manpower and emergency response units ready for action.



In the event of fire or explosion:

Management of DPMK:

- Organizes and manages the immediate evacuation according to the evacuation arrangements;
- Organizes the notification of the municipal emergency response teams by calling the universal emergency number 112;
- Drafts a report about the coordination of the rescue operations and submit it to the Chairperson of the Municipal Rescue Headquarters;
- Makes the emergency response units ready for action, setting rescue, firefighting and emergency repair tasks to save any personnel affected by fire or explosion, rescue people from the rubble, provide first aid to injured persons and rush them to the hospital.

In cooperation with the municipal emergency forces, organizes the operations of the emergency response teams (according to an order issued by the manager).

Assists the State Technical Supervision authorities to identify the cause of the accident.

Office of the Committee: the office is to be designated by the Director, depending on the specific situation.

### **3.3 Tasks of the Company Emergency Response Resources**

In the event of uncontrolled release of hazardous chemical substances or fuel:

Tasks of the operating personnel after detecting leakage of diesel fuel:

- Takes measures as per the operating instructions
- Notify the DPMK's manager and ERS by calling
- Notify the Operational Communication and Information Center (OCIC)
- Notify about the emergency by calling 112.

Tasks of the emergency response units:

- Task of the reconnaissance-rescue team: Immediately start observation of the situation, notify the entire personnel about the evacuation order issued by the Manager along with any other instructions issued;
- Task of the first-aid team: Receive materials and medicines and immediately start to provide first aid to injured persons;

- Task of the Emergency Rescue Service (ERS) team: Immediately start fire suppression, evacuate any personnel from the premises close to fire, rescue people from collapsed buildings.

In the event of fire or explosion:

Tasks of the service personnel:

- Takes measures as per the operating instructions
- Notify about the emergency by calling the universal emergency telephone number 112
- Notify the Operational Communication and Information Center (OCIC).

Tasks of the emergency response units:

- Task of the reconnaissance-rescue team: Immediately start observation of the situation, notify the entire personnel about the evacuation order issued by the Manager along with any other instructions issued;
- Task of the first-aid team: Receive materials and medicines and immediately start to provide first aid to injured persons;
- Task of the Emergency Rescue Service (ERS) team: Immediately start fire suppression, evacuate any personnel from the premises close to fire, rescue people from collapsed buildings.

The tools and equipment to be used for emergency response include: tools from the fire-extinguisher cabinets; other suitable tools and materials in place, including the first-aid kits with the Emergency Rescue Service.

Communication systems include: land lines and cellular phones in place on the minesite. In case these communication systems are down, two or more persons must be designated to communicate with the authorities, either verbally or in writing. For that purpose, there must be a vehicle at their disposal and if impossible to use a vehicle, these persons will walk to communicate with the authorities as necessary.

In case the situation requires so, at the discretion of the Civil Protection Dept, special materials, tools and equipment may be provided for the emergency operations.

#### **4.0 ANNOUNCEMENT AND ALERT CALL FOR DEPLOYMENT OF FORCES AND EQUIPMENT**

The start of the notification to the managing authorities is the moment a telephone call is made or message sent about the terrorist act.

Upon receipt of information of a terrorist act on the DPMK's minesite, the security officer on duty will immediately notify the special police forces by calling **112**, the management of the Permanent Site Committee in charge of the emergency operations at DPMK.

At the first sign of a terrorist act, the accountable manager of the site rescue operations will notify the personnel about the threat and will prepare anything required to address the emergency situation.

Warning will be given to all external personnel on the minesite, along with the instructions of the competent authorities.

The decision to call emergency preparedness will be immediately reported to the Municipal Rescue Headquarters to enable coordination with the rescue operations in the Krumovgrad area.

## 5.0 ORGANIZATION OF EMERGENCY RESPONSE ACTIONS

Information disclosure and notification of employees about the situation:

- Clarification of the situation (injured persons, casualties or damage, if any), including reconnaissance operations and constant monitoring of any areas of actual or potential impact.

*Reconnaissance will be performed:*

- Beforehand, in order to obtain operational information about the situation in the affected/potentially affected areas
- Aimed to ensure joint actions (of the DPMK's crews, Civil Protection Dept., Regional Fire Safety Dept.) during the rescue operations and elimination of emergency situations. Begins immediately after the emergency response manpower and equipment is made ready for actions. A reconnaissance and rescue team is involved in organizing and conducting reconnaissance observation. Its task is to clarify the actual situation in the affected area, reporting any destruction or fires.

*Rescue operations:*

- Immediate suspension of production processes and power shutdown;
- Search and evacuation of victims to a safe place – This is a task of the rescue teams of ERS, Civil Protection Dept, Regional Fire Safety Dept, and other forces involved in rescue operations;
- Administration of first aid - including self-help and helping each other. First aid will be provided by the ERS, Civil Protection Service and the Regional Fire Department. Medical care will be provided by the Emergency Medical Service and the hospitals. Injured persons will be taken to the Krumovgrad Hospital.

Firefighting: the core operations will be a responsibility of the ERS with DPMK and the Regional Fire Department in Krumovgrad (see FIRE PLAN).

Isolation and emergency response at fuel storage and handling areas The core operations are a responsibility of the Civil Protection Dept, Regional Fire Safety Dept, etc.

## 5.1 General Requirements to the Organization of Rescue Operations

The organizational arrangement of the rescue operations require that all personnel of a given shift are familiarized beforehand with their duties in case of an accident, fire or explosion. All firefighting and emergency response tools and other equipment need to be prepared in advance to ensure the timely response to the situation.

Rescue operations will include two phases:

- Phase One: Reconnaissance and rescue operations, isolation of the accident scene and fire suppression
- Phase Two: Recovery operations.

Isolation of the accident scene and fire suppression will depend on the type of the accident and its consequences.

In general, what may occur is:

**Accident with a gas spill with no involvement of a fire or explosion.**

Such situation may occur in case of ruptured or collapsed pipelines or other facilities, which may cause gas spill whose concentration level could be explosive. In such case, an explosion or fire may occur any moment.

*The following steps must be followed in such cases:*

- Notify the emergency services and the respective special authorities and ask for help if required at the discretion of the accountable manager of the rescue operations
- Have the firefighting equipment ready for action
- Cease any other operations and focus on the emergency response
- Make efforts to mitigate the impact and isolate the accident scene. Use the available protective equipment and safe tools
- Ensure that the special authorities and emergency equipment have access to the scene
- Whenever required, upon a decision of the accountable manager, evacuate all personnel.

Other measures may be required upon the discretion of the accountable emergency response manager who will apply their best judgment of the situation at hand and the fire and technical safety requirements;

*The site may resume the normal operations following:*

- A thorough survey of the technical condition completed by the regional department of the State Technical Supervision and the District Department of the Labor Inspection;
- Successful completion of all recovery works (by the repair teams).

### **Accident involving fire or explosion:**

An accident accompanied by a fire or explosion may occur in case the service personnel does not follow the fire safety instructions or in case of failure of the fire safety systems. In this situation:

- Notify ERS by calling, the emergency services (by calling **112**) and the entire personnel about the accident;
- Issue an emergency alert to the emergency teams designated for response to accidents, catastrophes and fire. Emergency teams will prepare for immediate rescue and firefighting operations in cooperation with the ERS, Civil Protection Dept, Regional Fire Safety Dept;
- Evacuate all personnel and customers;
- Provide first aid and professional medical care to any injured persons jointly with the teams of the ERS, Emergency Medical Care, Civil Protection Dept, Regional Fire Safety Dept;
- Shut off the main power supply.

## **5.2 Organisational Arrangements and Implementation**

The Company emergency teams (for response to disasters, accidents and catastrophes) will immediately start emergency response operations including fire mitigation and first aid.

Once the emergency response teams and equipment (ERS, Civil Protection Dept, Regional Fire Safety Dept, and emergency medical service) arrive at the area of the accident, they will immediately start the emergency response and fire fighting operations.

The Company personnel and customers will be immediately evacuated to a safe place following the emergency call.

Following successful completion of the rescue and firefighting operations, the teams will launch recovery operations including construction and repair works.

- The rescue and emergency recovery operations must be organized and structured in a manner which enables maximum efficiency of the earthquake impact prevention or mitigation. Drills will be performed for that purpose on an annual basis and documented in a report.

## **6.0 MANAGEMENT**

The direct supervision of the emergency team and all personnel involved in the rescue operations in case of a terrorist act will be a responsibility of the accountable rescue operations manager for the site under the management of the Permanent Site Committee with DPMK. Upon arrival of the special forces, the accountable manager must communicate to their senior manager all available information about the situation on the site and follow their instructions.

The overall management is a responsibility of the Municipal Rescue Headquarters of Krumovgrad. The role of accountable manager of the rescue operations on the site will be assumed by the site manager who is in charge of the integrated rescue system. Their instructions will be followed by the personnel of the base.

The management will be supported by land line communications (the national telecommunication network) or radio communications.

## **7.0 SUPPORT**

### **7.1 Reconnaissance**

Tasks of the managing authority and the rescue teams:

- Provide thorough and objective information on the type, scope and location of the property damage caused by the terrorist act and any secondary damage involved (by subsequent fire, chemical spills etc.)
- Methods to address fire risks and property damage
- Bypass routes to access affected areas.

These tasks will be a responsibility of the reconnaissance-rescue team, and the crews of the Civil Protection Dept and Regional Fire Safety Dept.

### **7.2 Medical Assistance**

The purpose of the medical assistance is to provide first aid and professional medical assistance to any injured employees and visitors.

The main task is to arrange for timely medical assistance (any type required) to the injured persons.

These services will be provided by the first-aid team, ERS, Civil Protection Dept and Regional Fire Safety Dept. Medical care will be provided by the Emergency Medical Service and the hospitals.

### **7.3 Engineering Support**

The engineering function in case of a terrorist act will be limited to road cleanup and ensuring access to all affected areas.

The monitoring of any hazardous substances in the area of the accident will be performed with the sampling equipment of the Company and if no such equipment is available, with equipment of the Civil Protection Dept or the Regional Health Inspection.

Tasks of the engineering support:

- Supply of PPE for the rescue teams - the Company keeps a reserve . PPE will be delivered by the store supervisor of the base;
- Construction and maintenance of access points and roads to impact areas;
- Repairs to any interrupted power supply, water supply and internal communication systems;



- Provision of sufficient water supply for the firefighting operations;
- Air supply to victims in collapsed structures.

These are tasks of the main forces involved in the rescue operations and any additional forces (regional road maintenance service, power supply company personnel, water and sewage company personnel, etc.)

#### **7.4 Ensuring Public Order**

The main task in case of a terrorist act is to ensure public order, prevent panic of the Company employees and any theft.

This is a task of the site security and the local police department.

#### **7.5 Materials Logistics**

The purpose is to deliver water, food and other basic supplies to all personnel involved in the rescue operations. Both municipal and private companies will be involved in the provision of foods for the population.

The protection of the population and the national economy are financed by the government and municipal budgets under a specific procedure, from their own revenues and from donations and aid.

## **8.0 INTERACTION ARRANGEMENTS**

In case fire starts as a result of the terrorist act, the firefighting operations will be managed by the accountable manager of the site rescue operations.

If the site personnel is unable to suppress the fire, they will request assistance from the regional fire department by calling 112.

## **9.0 FINAL PROVISIONS**

The action plan for cases of a terrorist attack will be coordinated with the Mayor of Krumovgrad.

The site employees will review this Plan and will sign to confirm they are familiar with it.

**Appendix 7 - “Blue Sky” Accidents**  
**Dundee Precious Metals Krumovgrad EAD**  
**Krumovgrad Gold Project, Bulgaria**



Submitted to  
**Dundee Precious Metals**



Submitted By  
**AMEC Earth & Environmental UK Ltd.**



**REPORT ISSUE FORM**

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## 1.0 RESPONSE CONCEPT

### 1.1 Forecasting the Potential Situation

During construction and operation of the Project, various hazardous chemical substances, mixtures, explosives and fuels will be used. Open pit mining, transportation of materials, operating facilities like the IMWF and tailings pipeline may be sources of major accidents occurred under "blue sky" conditions without influence from an external disaster and include such scenarios as a minesite or adjacent-site fire event, large scale reagent/chemical or fuels spillage, large scale tailings spills, explosives accident, accidents with waste rock stockpile and failure of a mine pit wall.

Table 1-1 describes the possible potentially adverse impacts during operation and accidents involving all of the above, which may impact people and the environment, as well as the required measures to prevent that impact.

**Table 1-1: Potential adverse impacts from the use of hazardous chemical substances and measures for their mitigation**

Environmental/Social media	Possible impact	Impact mitigation measures
Humans	Inhalation, ingestion of chemicals and gases	Observe operating safety instructions and the requirements for safety at work for each hazardous substance. Require suppliers to provide safety data sheets for the chemical substances. Provide preventive training to personnel to raise their safety awareness of activities and operations that are not part of their job profile. Ensure strict management control and make no compromise on safety.
Groundwater, basement rock	Pollution caused by uncontrolled spillages and accidents	The mixing tanks in the reagents preparation areas will have secondary containment arrangements. Any spillage of reagent solutions will be collected in sumps and pumped back into the process.
Surface waters	Pollution	Since nearly 100% of the process water will be recycled, the risk of surface waters pollution with chemical substances and suspended solids will be reduced significantly.



Environmental/Social media	Possible impact	Impact mitigation measures
Lands and soils	Pollution	Ensure maximum safety during transportation of chemical substances including proper signage and labelling. Select suppliers carefully. Secure proper packaging of materials to ensure minimum risk of accidental spills. Familiarization of suppliers with traffic management plan and measures that must be implemented during transport of chemicals.
Flora and Fauna	Damage to plant and animal species resulting from accidental pollution and project-related fire	Ensure maximum safety during transportation and use of chemical substances including proper signage and labelling. Select suppliers carefully. Secure proper packaging of materials to ensure minimum risk of accidental spills. Adoption and maintenance of fire-prevention and control measures.

## 1.2 Main Tasks

The objective of emergency response planning is to establish efficient systems for forecasting natural disasters, major accidents and incidents and their consequences, and successful implementation of measures for protection of human life and health and the environment through:

- Planning, approval and implementation of measures for prevention, mitigation and control of the consequences of major emergencies which may impact human life and health, the environment and property;
- Supply of information from the operator to the competent authorities and affected population in the area adjacent to the company site in an emergency;
- Coordinated response to any emergency from the Site Emergency Centre and the local (municipal or district) Coordination Centre;
- Planning and provision of funds and resources to combat major emergencies and rehabilitate the environment.

The Site Emergency Response Plan should take account of:

- Availability of suitable materials, gear and equipment required to combat emergencies and their consequences
- Site arrangements for training personnel in emergency response
- Ways in which an emergency is declared and personnel is alerted

- Management of personnel response and action
- A procedure for activating the ERP and notifying the competent authorities
- Means, ways and procedures for warning/alerting the neighbouring communities that are potentially at risk
- Procedures for performing rescue operations and carrying out urgent remedial works on the site
- Procedures for resuming normal operation.

Timely accident notification of the competent authorities and personnel:

- Notifying the Municipality, RIEW-Haskovo and Basin Directorate - in case of an accident under "blue sky" conditions justifying notification;
- Setting up crews to conduct rescue operations on the Company site;
- Compliance with the hygiene requirements by lending assistance to the Regional Health Inspection;
- Ensure security on the Company site through increased security measures and working jointly with the District Police Department;
- The management of DPMK will organize the overall activity of the units involved in the managing, planning and conducting of the rescue operations, focusing the main efforts and resources on the most affected structures and facilities, and will conduct the rescue operations jointly with the relevant authorities /where appropriate/, provide first aid to injured persons, evacuates injured persons from the affected area and rush them to hospital, eliminate any leakage of toxic substances and extinguish fires;
- The management of DPMK will organize rescue operations to be managed by an emergency headquarters (Permanent Site Committee) set up by DPMK.

Upon detecting any uncontrolled release of a chemical substance or fuel the main efforts should be focused on:

- Stopping the leakage of a chemical substance/fuel at the stop cocks and preventing further leakage;
- Disclosing information to the endangered employees located within the affected area;
- Accident notification of the District Fire Safety Department, Civil Protection Regional Office, and Emergency Medical Care by dialling the universal emergency number 112;
- Emergency response group will provide first aid to injured persons, and evacuate injured persons from the affected area to hospital.

In the event of a fire or explosion the Company's management will focus efforts on:



- Immediate evacuation of employees and contractors;
- Accident notification of the District Fire Safety Department, Civil Protection Regional Office, and Emergency Medical Care by dialling the universal emergency number 112;
- Conducting rescue operations and saving people from the rubble, providing first aid and specialist medical care, and putting out fires jointly with the Emergency Response authorities.

Rupture of the tailings pipeline before the cells for depositing the thickened tailings.

- Immediately stop the tailings delivery by shutting down the pump until the pipeline is repaired
- Inform the employees in the affected area
- Inform and evacuate, if necessary, those living close by the DPMK's mine site
- Notify – the Emergency Response authorities by dialling 112, municipal officer on-duty at the Krumovgrad Municipality, Basin Directorate and RIEW.

## 2.0 SETTING UP EMERGENCY RESCUE CREWS

DPMK will set up the following emergency response crews:

- Rescue operations managing authority
- Emergency response crew - to provide accident response and rescue injured employees
- Reconnaissance and rescue team – reconnaissance and rescue of injured employees
- First-aid team - to provide first aid to injured employees
- Emergency Rescue Service – put out fires
- The crew members will be drafted from the employees.

Manpower of the authorities providing a joint response to a "blue sky" accident event according to the complexity of the situation:

- Manpower and equipment of the Civil Protection department
- Manpower and equipment of the ERS with DPMK
- Manpower and equipment of the Fire Safety department
- Manpower and equipment of the District Police department
- Manpower and equipment of the Emergency Medical Care
- Manpower and equipment of the Ministry of Defence
- Manpower and equipment of the Road Maintenance Service
- Manpower and equipment of other departments, agencies or companies.

To ensure good organization, the Company site should be divided into areas according to the technological specific features of the mine area.

### **3.0 TASKS**

#### **3.1 Tasks of officials involved in the emergency response operations. Method of action**

Executive Director, DPMK:

- Leads and manages activation of Emergency Response Plan
- Becomes familiar with the situation
- Designates a location for meeting and directing the manpower and equipment
- Provides directions for the actions of the emergency response units
- Requests additional manpower and equipment, if necessary
- Specifies measures ensuring the safe performance of the emergency response operations
- Supervises the task performance
- Reports to the Control Centre on the progress of the emergency rescue operations
- Sets up a roster for on-call and after-hours duty and designates an accountable manager in charge of the emergency response after hours.

Department Manager:

- Reviews the status of the production processes and ensures the conditions required for normal operations or shutting down
- Implements any instructions the accountable manager may give
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the accountable manager
- Takes over the duties of an accountable manager in the absence of the Department Manager.

DPMK's mechanic:

- Receives information about the situation and suggests measures for emergency response and recovery of damaged equipment
- Ensures the equipment, materials and manpower required for conducting the emergency recovery operations are available
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager
- Implements any instructions the accountable manager may give.

Power Engineer /Instrumentation Mechanic :

- Receives information about the situation and suggests measures for emergency recovery and repairs of damaged electrical equipment and instrumentation;
- Ensures the power supply is turned on/off depending on the situation, as agreed with the accountable manager; ensures the equipment operation as required for the emergency response;
- Ensures the availability of the equipment, materials and manpower required for conducting the emergency recovery works;
- Assumes the duties of a person in charge of the emergency response crews as per a roster approved by the emergency rescue manager;
- Implements any instructions the accountable manager may give.

Employees of DPMK :

- Notify the appropriate persons and agencies as envisaged in the plan under control of responsible managers;
- Take action to rescue injured persons;
- Apply emergency response measures to address the incident or limit the scope of the incident envisaged in the plan;
- Inform the accountable manager about the measures implemented;
- Implement any instructions the accountable manager may give;
- Carry out any tasks the managing authority may assign.

### **3.2 Carry out any tasks the managing authority may assign**

#### **3.2.1 In the event of minesite fire or adjacent-site fire**

- In case of a local fire, all employees and workers shall cease all other activities in a safe manner immediately and take actions to extinguish the fire with the available fire-fighting equipment;
- Organizes the notification of the local competent authorities for assistance, while taking actions to secure the access ways to the burning site and prevent spreading of the fire inside and outside the site;
- Organizes and manages the immediate evacuation /if necessary/ according to the evacuation arrangements;
- Makes the emergency response units ready for action, setting rescue, fire fighting and emergency repair tasks to save any personnel affected by fire, rescues people from the rubble, provides first aid to injured persons and rushes them to the hospital;

- In case of fire beyond the site area, the main task of the personnel is to inform the respective competent authorities and take actions to prevent fire spreading on Company buildings and facilities;
- Drafts a report about the coordination of the rescue operations for the Municipal Rescue Headquarters.

### **3.2.2 In the event of large scale reagent/chemical or fuels spillage.**

- Identification the source, type of the substance and scale of the spill;
- Organizes and manages the accident notification of the Company employees, incl. the operator at the Control Centre or head of the Emergency group;
- Organizes the notification of the emergency response units at a municipal level;
- Takes immediate steps for confining the contamination and evacuation of the personnel according to the evacuation arrangements in the event of any threat to personnel's lives or health;
- Makes the manpower and emergency response units ready for action;
- Identification of injured people and first aid;
- Drafts a report about the coordination of the rescue operations for the municipal Rescue Headquarters.

### **3.2.3 In the event of large scale tailings spills**

- Organizes and manages the accident notification of the Company employees, incl. the operator at the Control Centre;
- Organizes the accident notification of the local emergency response units;
- Inform and keep informed Basin Directorate and RIEW-Haskovo for the situation;
- Takes immediate steps for evacuation the personal working near by the instable berm or completed cell of the IMWF according to the Evacuation Plan;
- Makes the manpower and emergency response units ready for action;
- Apply activities for switch tailings pipeline to another prepared cell for tailings fill or discontinuance the tailings pipeline system;
- Start activities for stabilizing the berm/cell of the IMWF, clean and restoration of the polluted areas;
- Drafts a report about the coordination of the rescue operations for the municipal Rescue Headquarters.

### **3.2.4 In the event of explosion**

- Organizes the accident notification of the local emergency response units;

- Organizes and manages the immediate evacuation according to the evacuation arrangements;
- Makes the emergency response units ready for action, setting rescue, fire fighting and emergency repair tasks to save any personnel affected by the explosion, rescues people from the rubble, provides first aid to injured persons and rushes them to the hospital;
- Organizes the tasks for the emergency response crews through interaction with the Emergency Response authorities;
- Drafts a report about the coordination of the rescue operations for the Municipal Rescue Headquarters.

### **3.2.5 In the event of accidents with waste rock stockpile**

- Organizes the accident notification of the local emergency response units;
- Organizes and manages the immediate evacuation according to the evacuation arrangements;
- Makes the emergency response units ready for action, setting rescue, emergency repair tasks to save any personnel affected by the accident, rescues people from the rubble, provides first aid to injured persons and rushes them to the hospital;
- Organizes the tasks for the emergency response crews through interaction with the Emergency Response authorities;
- Drafts a report about the coordination of the rescue operations for the Municipal Rescue Headquarters.

### **3.2.6 In the event of demolition of the mine wall**

- Organizes the accident notification of the local emergency response units;
- Organizes and manages the immediate evacuation according to the evacuation arrangements;
- Makes the emergency response units ready for action, setting rescue, emergency repair tasks to save any personnel affected by the accident, rescues people from the rubble, provides first aid to injured persons and rushes them to the hospital;
- Organizes the tasks for the emergency response crews through interaction with the Emergency Response authorities;
- Drafts a report about the coordination of the rescue operations for the Municipal Rescue Headquarters.

The whereabouts of the rescue operations managing authority will be designated by the respective manager, depending on the specific situation.

### **3.3 Tasks of the Company emergency response resources**

#### **3.3.1 In the event of minesite fire and adjacent-site fire**

Tasks of the service personnel:

- Accident notification
- Take measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the fire protection equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed
- Stop unauthorised access to accident area.

#### **3.3.2 In the event of large scale reagent/chemical or fuels spillage**

Tasks of the operating personnel - after a spillage of a chemical or fuel has been identified:

- Accident notification as per the accident notification arrangements
- Takes measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- Emergency rescue Service (ERS) - makes the fire protection equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed
- Stop unauthorised access to accident area.

#### **3.3.3 In the event of large scale tailings spills**

Tasks of the service personnel:

- Accident notification

- Takes measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the technical equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed
- Stop unauthorised access to accident area.

**3.3.4 In the event of explosion**

Tasks of the service personnel:

- Accident notification
- Take measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the technical equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed
- Stop unauthorised access to accident area.

**3.3.5 In the event with waste rock stockpile**

Tasks of the service personnel:

- Accident notification
- Take measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the technical equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation



- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed
- Stop unauthorised access to accident area.

### **3.3.6 In the event of demolition of the mine wall**

Tasks of the service personnel:

- Accident notification
- Take measures as per the operating instructions.

Tasks of the emergency response units:

- Emergency response team
- ERS - makes the technical equipment ready for action
- Reconnaissance and rescue team - immediately starts monitoring the situation
- First-aid team - receives materials and medicines, and maintains readiness to provide first aid to injured persons as needed
- Stop unauthorised access to accident area.

The equipment that will be used in eliminating the consequences of the emergency situation includes the tools in the fire boards and other available appropriate tools and materials - e.g. the first aid kits in the shops and office rooms.

Fixed phone lines, cell phones and two-way radios that use proprietary frequency are among the telecommunication equipment available at the site. In case these communication systems are down, two or more persons must be designated to communicate with the authorities, either verbally or in writing.

In case the situation requires so, at the discretion of the District Fire Safety and Civil Protection Service, special materials, tools and equipment may be provided for the emergency operations.

#### **4.0 ANNOUNCEMENT AND ALERT CALL FOR DEPLOYMENT OF MANPOWER AND EQUIPMENT**

The manpower and equipment will be alerted for action following a decision of the DPMK's Rescue Headquarters, either by the site security or callers through alert calls on the telephone. The Permanent Site Committee will gather at the Emergency Control Centre in the Mine building or elsewhere, as approved by the Chairperson of the Permanent Site Committee.

The decision to call emergency preparedness will be immediately reported to the municipal emergency headquarters to enable coordination with of the rescue operations at Krumovgrad.

The site managing authority should notify the personnel about the danger at the first signs of a "blue sky" accident and make both the emergency response crews and site personnel ready for actions, then establish a connection with the municipal headquarters to jointly coordinate the rescue operations through the Operations Communications and Information Centre, tel. 112.

Upon instructions of the person in charge, the response unit and site personnel will prepare the available equipment for action. Tasks will be clarified and defined for each member of the rescue unit and site personnel. Warning will be given to all external personnel on the minesite, along with the instructions of the competent authorities.

## 5.0 ORGANIZATION OF EMERGENCY RESPONSE ACTIONS

### 5.1 Information disclosure and notification of employees about the situation

The Company employees will be informed by telephone, radio or callers as per the instructions of the DPMK's Rescue Headquarters.

### 5.2 Reconnaissance observation and continuous monitoring of affected areas

The reconnaissance observation is aimed to provide operational information about the situation in the affected area and support the units involved in the search and rescue operations.

The reconnaissance observation will take place in two stages:

**First stage** – beforehand, in order to obtain operational information about the situation in the affected areas. It will begin immediately with registering the accident.

**Second stage** – aimed to ensure joint actions (of DPMK's crews, Civil Protection Dept., Regional Fire Safety Dept.) during the rescue operations and elimination of emergency situations. It will begin immediately after the emergency response manpower and equipment is made ready for action. A reconnaissance and rescue crew will be involved in organizing and conducting reconnaissance observation. Its task is to clarify the actual situation in the affected area, reporting any fires, spillage, destruction, etc.

Rescue operations comprise:

- Immediate suspension of production processes and power shutdown;
- Putting out fires - fires can be caused by a breach in the processes, mechanical damage, negligence. To provide timely warning of fires one should first clarify the situation, what is burning, and the fire fighting access. Both the ERS and Regional Fire Safety Dept. will be involved in most of the activities;
- Accessing and rescuing of workers trapped in collapsed facilities - will be done by uninjured Company's employees, ERS, Civil Protection Dept., Regional Fire Safety Dept., etc.;
- Providing first aid - self-help or mutual assistance provided by the first-aid team. The ERS, Civil Protection Dept., and Regional Fire Safety Dept. may also provide first aid. Medical care will be provided by the Emergency Medical Service and the hospitals. Injured persons will be taken to the Krumovgrad Hospital;
- Providing the security of assets and cordoning off the area - prevent any outsiders from entering the Company site or any persons from going in areas with collapsed facilities - the Company security officers and local police officers will do this;
- Repairs to the site roads and access points /if necessary/ – to ensure the access of the emergency response units to the affected area (clearing the site roads and

access points of any collapsed walls or structures, plant and equipment, pipelines, storage facilities, electric cables, etc.).

### **5.3 General requirements to the organization of rescue operations**

The organizational arrangement of the rescue operations require that all personnel of a given shift are familiarized beforehand with their duties in case of an accident, fire or explosion. All firefighting and emergency response tools and other equipment need to be prepared in advance to ensure the timely response to the situation.

Rescue operations will include two phases:

**Phase One:** Rescue operations, isolation of the accident scene and putting out fires.

**Phase Two:** Recovery operations.

Isolation of the accident scene and fire suppression will depend on the type of the accident and its consequences.

Other measures may be required upon the discretion of the accountable emergency response manager who will apply their best judgment of the situation at hand and the fire and technical safety requirements.

The site may resume the normal operations following:

- A thorough survey of the technical condition completed by the regional department of the State Technical Supervision and the District Department of the Labour Inspection;
- Successful completion of all recovery works (by the repair teams).

### **5.4 Organization of emergency rescue operations**

The Company emergency teams (for response to disasters, accidents and catastrophes) will immediately start emergency response operations including accident mitigation and first aid.

Once the emergency response crews and equipment of the Regional Fire Safety Dept., Civil Protection Dept., and emergency medical care arrive at the area of the accident, they will immediately start the emergency response and fire fighting operations.

The Company personnel and visitors will be immediately evacuated to a safe place following the emergency call.

Following successful completion of the rescue and fire-fighting operations, the teams will launch recovery operations including construction and repair works.

The reconnaissance-rescue team's involvement in the reconnaissance is in the form of performing tasks assigned by the rescue headquarters and using own resources.

The access to the site where rescue operations are conducted is restricted by personnel of DPMK to deny access to any persons not involved in the rescue.

The accountable manager for the rescue operations evaluates the situation based on reconnaissance data, assigns tasks to the groups, determines the method of working and delivers safety instructions.

Rescue operations start with the execution of urgent strengthening works in semi-ruined or burning buildings or facilities to evacuate people and finding those under the rubble by using the building blueprints.

Clearing of collapsed structures is carried out top-down, avoiding the equipment moving on top of the collapsed structure during clearing of the rubble.

The general shape of the collapsed structure should be considered when digging passages; precautions for avoiding injuring the trapped persons and strengthening the structure should be taken when drilling or reaming of holes is required.

Strengthening of structures will often require the use of materials (timber, stone, etc.). Air-lifting bags can provide temporarily strengthening when the injured person is near the outer edge of the collapse structure.

Geophones, thermo-cameras, sonar, and rescue dogs or other proper tools are used in the search for people buried under the rubble /if any/.

Rescuing trapped people may require manual operations rather than using plant and equipment. Manual rescue operations are often required in the case of a person trapped in a solid structure.

No force should be applied to separate items, nor should any wires, cables, rebars, etc. be pulled when conducting rescue operations.

Comply with the gas poisoning safety measures, sanitary and anti-epidemic measures when operating small plant and equipment to dig passages.

The operation of heavy plant (bulldozers, excavators, cranes, loaders, etc.) will be supervised by the person in charge of the emergency rescue crew with the Civil Protection Dept. or any such authorized person.

## **6.0 MANAGEMENT OF EMERGENCY RESPONSE OPERATIONS**

The management of all localization, isolation, emergency response and rescue operations in case of a "blue sky" accident will be a responsibility of the DPMK's Rescue Headquarters.

The immediate supervision over the rescue crew and other personnel involved in the emergency and rescue operations in case of an accident will be a responsibility of the accountable site manager, who will also interact with the Municipal Rescue Headquarters of Krumovgrad. Upon arrival of the Special Forces, the accountable manager must communicate to their senior manager all available information about the situation on the site and follow their instructions.

The Municipal Rescue Headquarters and other specialized authorities /such as Fire command and hospital/ will be in charge of the rescue operations also. Any orders issued by the Chairperson of the Municipal Rescue Headquarters will be mandatory for both the accountable manager and employees of DPMK.

## **7.0 SUPPORT**

### **7.1 Reconnaissance.**

Tasks of the managing authority and the rescue teams:

- Provide thorough and objective information on the type, scope and location of the property damage caused by the accidents and any secondary damage involved;
- Methods to address fire risks and property damage;
- Bypass routes to access affected areas.

These tasks will be a responsibility of the reconnaissance-rescue team, ERS, Civil Protection Dept., and Regional Fire Safety Dept.

### **7.2 Medical assistance**

The purpose of the medical assistance is to provide first aid to any injured employees and visitors.

The main task is to arrange for timely medical assistance (any type required) to the injured persons.

These services will be provided by the first-aid team, ERS, Civil Protection Dept., and Regional Fire Safety Dept. Medical care will be provided by the Emergency Medical Service and the hospitals.

### **7.3 Engineering Support**

The engineering function in case of rescue operations in response to a "blue sky" accident is not only limited to insure technique for clean up of the affected/polluted territories and ensuring access to all affected areas but also elaboration of detailed design for restoration of the damaged facilities.

Whenever rescue operations are to take place in environment with hazardous chemicals, which involve a risk of explosion, the rescue crews will need to use spark-free tools and explosive-safe lighting, equipment and facilities.

The monitoring of any hazardous substances in the area of the accident will be performed with the sampling equipment of the Company and if no such equipment is available, with equipment of the Civil Protection Dept or the Regional Health Inspection.

Tasks of the engineering support:

- Supply of necessary technique for the rescue teams
- Construction and maintenance of access points to impact areas

- Repairs to any interrupted power supply, water supply and internal communication systems
- Provision of sufficient water supply for the fire-fighting operations
- Air supply to victims in collapsed structures.

#### **7.4 Ensuring public order**

Ensuring public order and preventing panic of the Company employees or theft is a task of the site security and the local police department.

#### **7.5 Materials logistics**

The purpose is to deliver water, food and other basic supplies to all personnel involved in the rescue operations if the operation continues longer.



## **8.0 INTERACTION ARRANGEMENTS**

If the emergency response crews find out that they cannot handle the situation without external help in the course of the rescue operations, they must seek help from the Civil Protection Dept, and/or from the Regional Fire Safety Dept.

## **9.0 PROCEDURES FOR RESUMING NORMAL OPERATION OF THE SITE**

Once the emergency response operations to address an accident are completed, a committee will be set up to determine the required recovery and construction works. The committee will visit, inspect and assess the status of the site buildings and facilities in order to establish the parameters of their full compliance with the process requirements and fire safety.

The site commissioning will follow the process requirements following coordination with the fire safety and other special authorities.

## **10.0 FINAL PROVISIONS**

The action plan for "blue sky" accidents will be coordinated with the Mayor of Krumovgrad.