Tome 2

TAC Observations and Answers

Observations of the Technical Analysis Committee to the Environmental Impact Assessment Report and Answers by R.M.G.C.

Contents:

1. Ministry of Environment and Forestry

Question:

1. With regard to pollution control, we request the following:
The documentation should take into account the Reference Document on the Best Available Techniques specific to mining, as approved by the European Commission in January 2009.
In terms of the review of alternative techniques, the chapters in the documentation presenting this information are very dense and contain multiple references.
Therefore, a comparative overview of the techniques proposed by BREF should be presented, highlighting the BAT specific requirements, showing which of the techniques feasible for this ore can be applied, including a prioritization and scoring system that will lead to the reasoned and sound selection of the best available technique for the given situation (type of raw materials, technological flows, local environment conditions, type and quantities of waste generated/reused, transferred/untransferred, energy consumption, type and quantities of pollutants emitted, need for monitoring, economic effects, cross-sectoral effects and others).
An assessment of the materials (including the related emitted pollutants) should be presented for each possible, feasible technique for such raw materials, applicable on the given site, accompanied by a cost estimate per technological flow.
Considering that the documentation submitted insists mainly on the advantages of obtaining the concentrate, the environmental advantages and disadvantages of each technique should also be presented and quantified.
The documentation should include a clear, concise, complete and comparative presentation of the technical alternatives feasible on the site. This analysis should highlight the basic aspects regarding the environmental impact, in particular with regard to:
a) Human health, wildlife;
b) Soil, water, air, climate, landscape;
c) Interaction between the two aspects;
d) Material assets and cultural heritage;
correlated with the IPPC requirements and implicitly with the requirements of the reference documents (BREFs).
The documentation should also contain:
a) The clear presentation of cyanide management, as well as of TMF and mining waste management;
b) Assessment of materials (including emitted pollutants) for each possible and feasible technique for such raw materials, applicable on the given site, accompanied by a cost estimate per technological flow and assessment of the environmental impacts;
c) Forecasts regarding the effects for the environment and human health, in normal operating conditions, as well as in the most unfavorable environmental conditions, for each analyzed technique;
d) Presentation of the measures to be taken to prevent accidents and incidents of any kind and presentation of the impact of potential accidents on the environment and human health;

Introduction

Chapter 3 of the document presents the mineralogy and petrography of the orebodies, the extraction and ore processing techniques. The document also refers to the most important factors in waste rock and process tailings management, highlighting their characteristics, the management methods, the measures taken to ensure the safety of the facilities and accident prevention, as well as the closure and monitoring plans. Subchapter 3.1.6 refers to precious metals – gold and silver – as follows:

- Orebody mineralogy and extraction techniques
- Ore processing
- Process tailings management
- Waste rock management
- Current emissions and consumption levels

The information mentioned above is summarized in two tables (except for the current emissions and the consumption levels), and reference will be made below to the section "precious metals" (gold and silver). In the case of precious metals, several aspects are taken into consideration; for each of them, several solutions considered as BAT are discussed, as follows:

- Orebody mineral and extraction techniques – complex sulfides, native gold, oxidized orebodies etc.; in terms of extraction technologies, surface and underground exploitation methods are presented;
- Ore processing – cyanide leaching, spirals, shaking tables
- Process tailings management – storage in the tailings management facility, with the prior destruction of cyanides. The following details are also requested: risk analysis, stability calculations, planning by external experts, independent audit, OSM manuals, installation of piezometers, and monitoring inclinometers.
- Waste rock management – in heaps, for dam construction or backfilling surface exploitations.

As regards the Roşia Montană Project, the gold and silver mineralization is anchored in various petrographic types, sometimes in association with sulfides or in extremely low quantities in the form of free gold, rich gold veins having already been exploited in the past. The proposed extraction method is conventional open pit mining, and ore processing will be done using cyanide leaching. Process tailings will be stored in a tailings management facility, and prior to being discharged in the TMF, they will go through a treatment and neutralization station, so that the content of easily dissociable cyanides should be lowered to 5-7 mg/l, which is below the 10 mg/l limit provided by Government Decision 856/2008, on extractive waste management. It should be mentioned that the following approvals have been obtained for the TMF system and for the acid water catchment of Cetate:

- ***Agreement no. 27 of 29.06.2010 –*** on the safe operation of the dam for the storage of industrial waste and the secondary retention dam (infiltration dam) from the Corna TMF system, located on Corna Valley, Alba County; design phase of a new dam. Issuing authority: Ministry of Environment and Forestry.
- ***Approval no. 27 of 25.06.2010 –*** on the assessment documentation related to the safe operation of the dam for the storage of industrial waste, and the secondary retention dam (infiltration dam) from the Corna TMF system, located on Corna Valley, Alba County; design phase of a new dam. Issuing authority: Ministry of Environment and Forestry
- ***Agreement no. 28 of 29.06.2010 -*** on the safe operation of the ARD retention dam from the Cetate ARD accumulation system, located on Rosia Valley, Alba County; design phase of a new dam. Issuing authority: Ministry of Environment and Forestry.
- ***Approval no. 28 of 25.06.2010 –*** on the assessment documentation related to the safe operation of the ARD retention dam from the Cetate ARD accumulation system, located on Rosia Valley, Alba County; design phase of a new dam. Issuing authority: Ministry of Environment and Forestry.

Corna tailings management facility was also assessed by a commission of experts coordinated by the Norwegian Geotechnical Institute (NGI). The report is named **Assessment of risks associated with the Corna Tailings Management Facility** and has been submitted to the competent environmental protection authority, together with several other documentations developed after 2006.

The waste rock will be stored in two heaps: Cetate and Carnic. Additionally, about 45 million tons of waste rock (which is not likely to generate acid rock drainage) will be used to build the tailings dam, and three of the four pits (Cârnic, Orlea and Jig) will be backfilled with the waste rock resulting from the exploitation. More details are contained in the **Mine closure and environmental rehabilitation management plan (Plan J),** which was submitted to the competent environmental protection authority together with the EIA Report.
The comparison between the methodology described in the BAT document and the methodology proposed to be applied at Rosia Montana, reveals that the latter fully complies with the methodology examined in the BAT document.

Description of the technologies proposed in the BREF and how these technologies can be applied in the case of the Rosia Montana orebody

There are three types of accepted technologies described in the BREF on gold mining (BAT technologies):

1. Gold recovery with vibrating (shaking) tables
2. Gold recovery with spirals
3. Gold recovery with cyanide leaching

The 3 technologies only differ in terms of the technological phase of ore processing. Even in this case, there are similarities: the first two phases, i.e. crushing and grinding of the ore to a fineness which allows for gold extraction, are all the same in the three BAT technologies. The other phases – exploitation, storage of process

tailings and waste rock – are identical, with one exception: in the case of the first two BAT technologies, which do not use cyanide in the technological flow, the process tailings will not go through the detoxification station for the reduction of the cyanide content.

The common and specific phases for each BAT technology are presented below, followed by a table summarizing the conclusions resulting from the comparison of the 3 BAT technologies.
In the pits, the rocks are dislocated in a process which involved the drilling of blasting holes, in a well-established network, filling of the holes with explosive and delayed blasting. The material thus dislocated is loaded in large capacity trucks and transported to a crusher, where the primary crushing of the ore takes place. In order to obtain proper particle size for the recovery of gold and silver, the crushed ore is then passed through a grinding system, consisting of semi-autogenous mills and ball mills.
The finely ground ore can be treated using one of the three technologies, all described in the BREF:
1 – gold recovery using cyanide – the product finely sorted by particle size goes through a battery of CIL tanks (Carbon-in-Leach), provided with agitators, where it is subject to a continuous cyanide leaching process. Gold and silver adsorption is done using activated carbon in the CIL tanks, followed by the separation of the loaded carbon and the eluation of gold and silver from the activated carbon in pressure vessels. This is followed by the electrolytic recovery of gold and silver, stripped from the activated carbon, in the form of a slurry of precious metals, and the melting of this slurry to obtain gold and silver alloy ingots (doré alloy). The process tailings are discharged in a thickener, where they are thickened, following by the recirculation of the cleared water to supply the semi-autogenous mill. Before the process tailings leave the retention area of the process plant, the residual cyanide from the process tailings is detoxified. The detoxified tailings are then stored in a tailings management facility. The last phase of the technological process consists in the recovery of water from the TMF, for recirculation and reuse.
2 – gold recovery using spirals – principles and constructions: spirals consist of a helical trough with a modified, semicircular cross section. The ground ore is fed into the top of the spiral and, during its helical course, the grains are stratified, as a consequence of various mechanisms such as: differential settling rates, centrifugal forces and interstitial trickling through the flowing particle layer. The different particle sizes are separated by adjustable splitters along the helix and/or at the lower discharge end of the spiral. Nowadays, there are different types of spirals used for gravity concentration, all derived from the original "Humphrey's spiral". This technique is applicable to gold-bearing orebodies, where free gold is found in large quantities. The procedure cannot be applied for the Rosia Montana orebody, as free gold is found there in extremely small quantities, the maximum possible extraction output being around 15 – 25%. This method **does not recover the silver** which is found in significant quantities in the Rosia Montana orebody. This type of gold recovery also allows for the processing of small ore quantities, which is not feasible in the case of disseminated orebodies such as the one at Rosia Montana.
3 – gold recovery with shaking tables (vibrating plates) – principles and construction: the shaking table can be described as a platform deck with a slight inclination, riffles and a rectangular or rhomboid shape. Water and solids are fed onto its upper edge. The table vibrates longitudinally as a result of forward strokes and quick returns. The minerals move slowly along the table, under exposure to two forces. The first force is caused by the deck movement, while the second is caused by a streaming film of water. The outcome is that the minerals separate on the deck, the lighter, bigger grains being taken to the tailings launder, whereas the denser and smaller ones, as it is the case with gold particles, are carried to the concentrate launder at the far end of the deck. The concentrate can be divided into different products, such as a middling fraction and a high grade concentrate, by adjustable splitters. The shaking table has various designs and operating variables regulating the process. This technique is similar to the spiral technique and is applicable to the gold-bearing orebodies where free gold is found in large quantities. The process cannot be applied at the Rosia Montana orebody, as free gold is found there in extremely small quantities, the maximum possible extraction output being around 15 – 25%. This method **does not recover the silver** which is found in significant quantities in the Rosia Montana orebody. This type of gold recovery also allows for the processing of small ore quantities, which is not feasible in the case of disseminated orebodies such as the one at Rosia Montana

Phases related to BAT technologies

Sequence of phases	**Shaking tables** Gold recovery with vibrating (shaking) tables	**Spirals** Gold recovery with spirals	**Cyanidation (CIL)** Gold recovery with cyanide leaching
1	Crushing of the entire ore mass	Crushing of the entire ore	Crushing of the entire ore

		mass	mass
2	Grinding of the entire ore mass	Grinding of the entire ore mass	Grinding of the entire ore mass
3	The raw ore is conveyed to the main shaking tables (approx. 400 units minimum, but their number can reach up to 800)	The raw ore is conveyed to the main spiral (approx. 400 to 600 units minimum)	The raw ore is solubilized in the CIL process
4	The main concentrate is conveyed to the first purification tables (approx. 20 – 40 units)	The main concentrate is conveyed to the first purification spirals (approx. 40 units)	Activated carbon is eluated and the solution is electrolyzed.
5	The concentrate obtained after the first purification is conveyed to the secondary purification tables (approx. 5 units)	The concentrate obtained after the first purification is conveyed to the secondary purification spirals (approx. 5 units).	The electrolytic sludge is filtered (small volume of high purity gold)
5	Drying of the concentrate obtained after the second purification	Filtration and drying of the concentrate obtained after the second purification.	
6	Mixing and loading of the flow (at low scale).	Mixing and loading of the flow	Mixing and loading of the flow (at low scale).
7	Melting ("initial" melting furnace) – doré alloy.	Melting (big melting furnace) – doré alloy.	Melting ("initial" melting furnace) – doré alloy.
8	Collection of residual gas	Collection of residual gas (large units)	Collection of residual gas
9	Tailings resulting from the gravitational circuit conveyed to the tailings thickening circuit	Tailings resulting from the gravitational circuit conveyed to the tailings thickening circuit	Tailings resulting from the ore solubilization circuit conveyed to the tailings thickening circuit
10			Cyanide detoxification
11	Thickened tailings conveyed to the tailings management facility	Thickened tailings conveyed to the tailings management facility	Thickened tailings conveyed to the tailings management facility

The sections highlighted in gray are identical phases of the BAT technologies.

BAT specific requirements for ore processing are described in Chapters 2 and 3 of BREF – ore processing section: "The purpose of mineral processing is to transform raw ore into a commercial product". Various ore processing technologies are used, as not all techniques are good for any mineralogy. Depending on the gold pattern in the ore, different technologies are needed to separate and extract it. Free gold can be concentrated gravimetrically and recovered. Refractory gold may require an oxidation process, such as bio-oxidation, to separate it and make accessible for cyanide leaching.

Determination of the best available techniques for the Rosia Montana orebody, using BAT specific requirements

The feasible BAT techniques established by BREF are listed in the table below, using a prioritization and scoring system

		1		**2**		**3**	
BAT technology		**Shaking tables**		**Spirals**		**Cyanidation (CIL process)**	
Aspects considered for the classification	**Weighted average**	**Score**	**Sub-total**	**Score**	**Sub-total**	**Score**	**Sub-total**
Generation of gross earnings	**5**	**1**	5	**1**	5	**3**	15
Site capital costs	**5**	**3**	15	**3**	15	**3**	15
Process-related risk	**5**	**1**	5	**1**	5	**3**	15
Requires testing	**2**	**1**	2	**1**	2	**3**	6

BAT technology		1 Shaking tables		2 Spirals		3 Cyanidation (CIL process)	
Aspects considered for the classification	**Weighted average**	**Score**	**Sub-total**	**Score**	**Sub-total**	**Score**	**Sub-total**
Complexity of the technological flow	**1**	**2**	2	**2**	2	**3**	3
Quantity of total tailings (process tailings and waste rock)	**3**	**2**	6	**2**	6	**2**	6
Quantity of material subject to cyanidation	**5**	**2**	10	**2**	10	**1**	5
Quantity of tailings to be stored	**3**	**2**	6	**2**	6	**2**	6
Tailings potential to generate acid	**5**	**2**	10	**2**	10	**3**	15
Energy consumption							
Grinding	**5**	**2**	10	**2**	10	**2**	10
Solubilization/gravitational circuits	**2**	**3**	6	**3**	6	**3**	6
Tailings processing	**2**	**2**	4	**2**	4	**1**	2
Others	**1**	**3**	3	**3**	3	**3**	3
Emissions on the site							
Noise	**3**	**1**	3	**1**	3	**2**	6
Air	**3**	**3**	9	**3**	9	**3**	9
Water	**3**	**3**	9	**3**	9	**1**	3
Solids (no tailings)	**3**	**2**	6	**2**	6	**2**	6
Monitoring requirements							
Noise	**1**	**2**	2	**2**	2	**2**	2
Air	**1**	**2**	2	**2**	2	**2**	2
Water	**1**	**2**	2	**2**	2	**2**	2
Solids (no tailings)	**1**	**2**	2	**2**	2	**2**	2
Tailings	**1**	**2**	2	**2**	2	**2**	2
Reagents							
Cyanide	**5**	**2**	10	**2**	10	**1**	5
Calcium oxide	**1**	**3**	3	**3**	3	**1**	1
Calcium hydroxide	**1**	**3**	3	**3**	3	**1**	1
Sodium metabisulfite	**1**	**3**	3	**3**	3	**1**	1
Flocculant	**1**	**2**	2	**2**	2	**2**	2
Water purification	**1**	**2**	2	**2**	2	**2**	2
Potential impact							
Biodiversity	**3**	**2**	6	**2**	6	**3**	9
Social	**3**	**2**	6	**2**	6	**2**	6
Soils	**3**	**2**	6	**2**	6	**3**	9
Water resources	**3**	**2**	6	**2**	6	**3**	9
Air	**3**	**2**	6	**1**	3	**3**	9
Landscape use during the project	**3**	**2**	6	**2**	6	**2**	6
Post-project landscape use	**3**	**2**	6	**2**	6	**2**	6
Archeology	**3**	**2**	6	**2**	6	**2**	6
Patrimony	**3**	**2**	6	**2**	6	**2**	6
Cultural patrimony	**3**	**2**	6	**2**	6	**2**	6
Closure aspects							
Process tailings	**3**	**1**	3	**1**	3	**3**	9
Site rehabilitation	**3**	**2**	6	**2**	6	**2**	6
Waste rock heaps	**3**	**2**	6	**2**	6	**2**	6

BAT technology		1 Shaking tables		2 Spirals		3 Cyanidation (CIL process)	
Aspects considered for the classification	**Weighted average**	**Score**	**Sub-total**	**Score**	**Sub-total**	**Score**	**Sub-total**
Water sources	**3**	**2**	6	**2**	6	**2**	6
Water discharge	**3**	**2**	6	**2**	6	**3**	9
Sustainable development							
Business generation at the local level	**3**	**2**	6	**2**	6	**2**	6
Skills development at the local level	**3**	**2**	6	**2**	6	**2**	6
Project development skills	**3**	**2**	6	**2**	6	**2**	6
Potential impact – normal operating conditions	**3**	**2**	6	**2**	6	**2**	6
Potential impact – worst case scenario	**3**	**3**	9	**3**	9	**2**	6
Emergency preparedness	**3**	**2**	6	**2**	6	**2**	6
Total score		**270**		**267**		**297**	
Classification		**2**		**3**		**1**	

Conclusion

BAT technologies were classified based on several criteria, including those considered as consistent and compliant with the various European documents on BAT processes, the methodology for establishing BAT methods and BREF documents. The criteria considered to be identical for the different technological flow options are highlighted in gray. The exploitation process, the quantity of tailings generated by the mining exploitation, and the quantity of tailings to be stored are identical for all options. Thus, these criteria are highlighted in red. However, it should be noted that these criteria which are the same for all options do not influence the classification.

Each of these technological flow options received a score from 1 to 3 for each of these criteria. The higher the score, the better the result. For example, the two processes used in the gravitational technologies, i.e. shaking tables and spirals, received "3" for the use of cyanide, as they do not use this substance, whereas the solubilization (leaching) option received "1".

As certain aspects are more important than others, the weighted average for these criteria was calculated. The weighted average received a maximum value of „5", for what was considered to be a more important aspect, whereas less important aspects received „1". For example, the use of cyanide was considered an important aspect, and therefore received a weighted average of „5".

The weighted average was multiplied with the score in order to obtain a comparative sub-total for each aspect considered and for each BAT technology. A maximum result of 3 x 5 = 15 and a minimum result of 1 x 1 = 1 were obtained for each criterion and for each option for which weighted averages were calculated.

Sub-totals were added up for each BAT technology in order to calculate an aggregate score and therefore allow for the classification of each BAT technology. **The result of this calculation clearly and obviously shows that the best technology to process ores at Rosia Montana is the cyanidation of the whole ore mass.**

The table below presents a summary of the specific BAT requirements, as set out in the reference document for the mining sector, and how they were implemented in Plan P.

No	Specific BAT requirements, as set out in the reference document for the mining sector, adopted in January 2009	Presentation of how these requirements were considered/implemented in the Project
1	As mentioned in the introductory part of chapter 5 of the BREF document, approved in January 2009, technologies used on a mining site will be considered BAT if they: • apply the general principles set out in section **4.1 of the BREF** • apply a lifecycle management approach as set out in section 4.2 The lifecycle management covers all the phases of a site's life, including: The design phase (Section **4.2.1.**) • Environmental baseline 4.2.1.1) • Physical-chemical characterization of tailings and waste rock (Section 4.2.1.2) TMF studies and plans (Section 4.2.1.3**.**), covering the following aspects: • site selection documentation • environmental impact assessment • risk assessment • emergency preparedness plan • deposition plan • water balance and management plan • closure and rehabilitation plan Design of TMF and associated structures (Section 4.2.1.4**.**) • control and monitoring (Section **2.5.5.2**) The construction phase (Section **4.2.2.**) The operational phase (Section **4.2.3.**), with the following elements: • OSM manuals (Section **4.2.3.1.**) • auditing (Section **4.2.3.2.**)	***Project lifecycle management*** Through the Project, RMGC commits to apply risk mitigation techniques in the design, construction, operation, closure and post-closure phases of the TMF and with regard to process tailings, in accordance with the best available techniques. The solutions and techniques considered for the entire Project lifecycle, corresponding to BAT and BEP, are presented below. **In the design phase:** A wide range of studies, tests and modeling were performed in order to ensure proper assessment of the Project baseline: **Studies on environmental baseline:** ▪ Studies on the initial conditions and quality of the environment factors. ▪ Study on the shaping and modeling of mineral resources. ▪ Land studies: geotechnical, geological, hydrogeological, hydrological, topographic, biodiversity, socio-economic (occupations, culture, demographics, health etc.) ▪ Climate studies **Studies on the characterization of process tailings** These studies were conducted to establish how tailings should be managed during the operational phase (deposition techniques, protection measures etc.), during closure and in the post-closure period (forecasts of long-term behavior). As indicated in the EIA Report – baseline study tome, the following types of studies were developed: ▪ characterization of the ore, depleted ore, waste rock and borrow rock: mineralogy, chemical properties, physical and geomechanical properties, ARD generation potential, dissoluble contaminants, particle size; ▪ characterization of the process tailings: balance of the process tailings per years of operation, mineralogy, particle size distribution, slurry dilution (% solid), physical and geomechanical properties of solids, chemical and geochemical properties of solids, chemical properties of liquids, ARD generation potential, sedimentation and compaction behavior; ▪ studies on the processing technology: reagents (concentrations, quantities), recirculation of process water, cyanide treatment. **Studies and plans of the Corna tailings management facility cover BAT aspects as follows:** • site selection documentation – EIA Report, chapter 5 – Review of Alternatives, Section 3.3 • environmental impact assessment – EIA Report, chapter 4 – "Potential Impact" and the whole EIA Report. • risk assessment – EIA Report, chapter 7 – "Risk Situations" and assessment of risks associated with the Corna TMF – NGI 2009 - *Annex NE_cap 7_01*

No	Specific BAT requirements, as set out in the reference document for the mining sector, adopted in January 2009	Presentation of how these requirements were considered/implemented in the Project
	The closure and after-care phase (Section **4.2.4.**), with the following elements: • long-term closure objectives (Section **2.5.5.3**) • Specific closure issues (Section **4.2.4.2.**) for o heaps o ponds, including : ponds/water covered ponds, dewatered ponds, water management facilities; Other BAT requirements are to: • reduce reagent consumption (Section 4.3.2) • prevent water erosion (Section 4.3.3) • prevent dusting (Section 4.3.4) • carry out a water balance (Section **4.3.7.**) and use results to develop a water management plan **4.2.1.3.**) • management of surface runoff/rainfalls (Section 4.3.9) • monitor ground water around all TMFs or waste rock heaps (Section 4.3.12).	• emergency preparedness plan – EIA Report, Management Plans – Plan I and update. • deposition plan – EIA Report, Management Plans – Plan B and Plan F. • water balance and management plan - EIA Report, chapter 4.1 Water and Management Plans – Plan C – water management and erosion control; • closure and rehabilitation plan – EIA Report, Management Plans – Plan J – site closure and rehabilitation. **Design of TMF and associated structures:** • control and monitoring – EIA Report, Chapter 6 Monitoring and Management Plans – Plan A Social and Environmental Management Systems and Plan N – Social and Environmental Monitoring; The construction phase *is detailed below, in the specific section – TMF construction* The operational phase the following elements: • OSM manuals – *detailed below, in the specific section – TMF operation* • auditing *is detailed below, in the specific section – TMF operation* **Closure and after-care phase (Section 4.2.4.), with the following elements:** • long-term closure objectives – *presented in the EIA Report – Management Plans – Plan J* • specific closure-related issues (Section **4.2.4.2.**) for: • heaps - *presented in the EIA Report – Management Plans – Plan J - section 5.2* • ponds, including : ponds/water covered ponds, dewatered ponds, water management facilities - *presented in the EIA Report – Management Plans – Plan J - 4.6* Other BAT requirements are to: • reduce reagent consumption – *presented in the EIA Report – Management Plans – Plan C- Water Management and Erosion Control and Plan G – Cyanide Management.* • prevent water erosion - *presented in the EIA Report – Management Plans – Plan C – Water Management and Erosion Control.* • prevent dusting - *presented in the EIA Report – Management Plans – Plan D – Air Quality Management Plan.* • carry out a water balance and use results to develop a water management plan - *presented in the EIA Report Chapter 4.1 Water and Management Plans – Plan C - Water Management and Erosion Control* • management of surface runoff/rainfalls - *presented in the EIA Report Chapter 4.1 Water and Management Plans – Plan C - Water Management and Erosion Control*

No	Specific BAT requirements, as set out in the reference document for the mining sector, adopted in January 2009	Presentation of how these requirements were considered/implemented in the Project
		• monitor ground water around all TMFs or waste rock heaps - *presented in the EIA Report Chapter 4.1 Water and Management Plans – Plan C - Water Management and Erosion Control, Plan F- TMF Management*
	ARD (acid rock drainage) management The physical-chemical characterization of process tailings and waste rock (Section **4.2.1.2.** in conjunction with Annex 4) includes the determination of the potential of process tailings and/or of the waste rock resulting from exploitation to generate acid waters. If there is a potential for acid waters to be generated, it shall be considered as BAT to prevent the formation of ARD in the first place (Section **4.3.1.2.**), and if ARD generation cannot be prevented, then its impact should be controlled (Section **4.3.1.3.**), or treatment solutions should be applied (Section **4.3.1.4.**). A combination of these solutions is often used (Section **4.3.1.6.**). All prevention, control and treatment options can be applied both for existing installations and new ones. However, the best closure result will be obtained when site closure plans are developed from the very beginning, in the design phase (mine lifecycle management). The applicability of these options mainly depends on the site conditions. Factors like: water balance, existence of a closing/covering system, level of groundwater – influence the option to be applied on a certain site. Section **4.3.1.5** offers a tool to decide on the best option in case of site closure.	The conformity with these provisions was highlighted in the EIA Report, chapter 3 Waste, chapter 4.5 Geology and Related Management Plans – Plan B – Waste Management Plan, and Plan J – Closure and Rehabilitation Management Plan. A comprehensive testing program was conducted to assess the geochemical characteristics of the waste rock. This is presented in the EIA Report, *chapter 4.5 Geology*. The testing consisted of: ▪ mineralogical tests; ▪ testing of the acid-base ration (ABA) of the samples taken of the waste rock, process tailings, depleted ore and construction rock; ▪ lab tests regarding the long-term column leaching of waste rock samples ; ▪ field tests regarding the long-term column leaching of a representative range of waste rock types; ▪ lab tests in wet cells on process tailings from different ore compositions, still ongoing. These tests are aimed at providing site specific data with regard to the potential generation of acid and (if necessary), the start date of the ARD generation process, which should be reflected in the operational planning. The tests conducted so far have produced sufficient results to allow for the characterization and development of the Project plans. ***Acid Rock Drainage (ARD) management*** The manner in which these provisions were complied with is described in the EIA Report, Chapter 3 Waste, chapter 4.1 Water and related management plans, Plan B – Waste Management, Plan C – Water Management and Erosion Control and Plan J - Closure and Rehabilitation Management Plan. Measures are taken in the Project to prevent, reduce and control ARD. In the operational phase, due to the fast deposition of the process tailings in the TMF and to the fact that most of the TMF is flooded, it is not expectable that significant ARD would be generated. The waters retained in the secondary dam are recirculated in the TMF. Waste rock will be classified depending on its potential to generate ARD and will be stored in special places to minimize this phenomenon. In order to minimize the formation of acid water, RMGC will implement a separation and encapsulation strategy, which is described below: ▪ Waste rock heaps will be elevated using a combination of slope stockpiling and bench stockpiling. Embankment stockpiling will be used for the base of the stockpiles and the outer contour of the stockpile, where NGA material is used (Non-Generating Acid), while bench stockpiling, which achieves a greater degree of compaction, will be used for the inner parts of the stockpile, where the PGA material is stocked (Potential Generating Acid). The compaction achieved by the bench stockpiling minimizes exposure to oxygen and water around the mass of compacted PGA material. Bench stockpiling allows for the use of a relatively thin top cover layer, without strict requirements applied to the waste rock heaps.

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		▪ PGA material will be stored at the end, on a limited part of the outer edge of the heaps and will be covered with a less permeable covering system than the (bigger) portion of the NGA material, where water and oxygen penetration is less serious. Whenever possible from a technological viewpoint, the PGA material stored at the end, according to the extraction plans, will be covered and encapsulated with NGA material moved after the closure of the exploitation, in order to minimize the soil and fertile soil requirement for more complex coverage. ▪ The material backfilled in the pit will be sorted so that the PGA rock should be placed especially on the bottom of the pit, or covered with at least 10 m of NGA material, so as to minimize its contact with oxygen. *The EIA Report Plan J –Closure and Rehabilitation Plan* contains more details regarding the selective waste rock stockpiling system. The ARD generation process after closure is slowed down, by lowering the process tailings dewatering front and covering. ARD occurring after closure is subject to semi-passive treatment, using passive methods in cells/lagoons precipitating heavy metals. The modeling done for contaminant transport led to the result that ARD can be kept under control, to the extent that it is generated and treated until the accepted parameters for discharge are reached.
	Runoff management (Section 2.5.14) The location for the process tailings and waste rock management installations should be chosen so as to avoid an additional impermeabilization system (liner). However, if this is not possible, and the runoff is contaminated and/or the runoff discharge rate is too high, then it is necessary to prevent, reduce (Section 2.5.10.1) or control (Section 2.5.10.2) runoff. A combination of these measures is often used.	BREF provisions were considered as early as in the design phase. The implementation/application of these provisions is detailed in the EIA Report – Management Plans, Plan B – Waste Management Plan, Plan F – TMF Management Plan and Plan J – Closure and Rehabilitation Management Plan. Based on the comparative analysis performed for the identified alternatives, the preferable location for the setup of the Project TMF is Corna Valley. The tailings management facility (TMF) project provides for a sealing layer in order to protect the underground water. In concrete terms, the TMF from Roşia Montană (TMF or the "facility") was designed in accordance with the BREF and the EU Directive on Underground Water (80/68/EEC), transposed in the Romanian legislation by Government Decision 351/2005. TMF is also designed according to GD 856/2008, as required by the Terms of Reference established by MMGA (Ministry of Environment and Water Management) in May 2005. Some aspects regarding the compliance of the TMF project with the provisions of BREF_MWTR are presented below. In brief, the overall water management strategy for Corna Valley, in normal operating conditions, will include the following components: ▪ The runoff from the TMF will be collected by the runoff collection system (secondary retention system or SRS) which will also include the secondary retention dam downstream. This TMF is actually a sump which will be used to lower the level of the groundwater and act as a hydraulic collector. ▪ A series of three to five monitoring wells will be installed downstream of the secondary retention dam, in order to check whether the water in the TMF is retained by the secondary retention system. If any compounds from the TMF are ever detected in the monitoring wells, the recovery of underground waters will become a component of the runoff collection system. ▪ The runoff water collected in the retention secondary system will be pumped back into the recirculation pond to be used in the technological process. The TMF consists of a series of individual components, which include : • tailings pond bottom,

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		• tailings dam, • secondary runoff collection pond ; • secondary retention dam and • hydro-observation drillings/extraction drillings for the monitoring of underground water, located downstream of the secondary retention dam. All these components are integral parts of the TMF, being required for its operation at the designed parameters. BREF provides that the TMF design should ensure the protection of underground water. In the Project, this requirement is fulfilled taking into account the favorable geological conditions (foundation layer of the TMF basin, TMF dam and secondary retention dam, consisting of low permeability shale) and the achievement of a sealing layer made of re-compacted low permeability soil ($1x10^{-6}$ cm/sec), underneath the bottom of the TMF. For more information, see Chapter 2 of Plan F of the EIA Report, "TMF Management Plan". The sealing layer made of low permeability soil will comply with BAT, as defined by EU Directive 96/61 (IPPC) and EU Directive on Mining Waste. The TMF design also includes other measures for the protection of underground water, as follows: • A sealing diaphragm made of low permeability material ($1x10^{-6}$ cm/sec) in the foundation of the starter dam for runoff control, • A low permeability core ($1x10^{-6}$ cm/sec) in the starter dam for runoff control, • A dam and runoff collection pond under the base of the tailings dam for the collection and retention of runoff discharges which reach beyond the dam axis, • A series of hydro-observation drillings, downstream of the base of the secondary retention dam, for runoff monitoring and for ensuring compliance with the regulations in force, in the area occupied by the TMF. In addition to the design components mentioned above, specific operational measures will be implemented to protect the environment and human health. In the highly unlikely event that polluted water is detected in the hydro-observation drillings, downstream of the secondary retention dam, the drillings will be transformed into pumping wells to recover the polluted water and pump it back into the tailings management facility, where it will be incorporated in the water recirculation system of the ore process plant, until the limits allowed by the regulations in force are achieved. The possibility of lateral runoff discharged around the secondary retention systems was analyzed in the technical design documentation. Hydrogeological studies in the Corna Valley indicated that the underground water is drained to the bottom of the valley, and the final level of the TMF surface is lower than the existing level of the underground water. Therefore, it is considered that there will be no

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		underground water discharge gradient towards the adjacent valleys. The underground water levels on the sides of the TMF bottom were monitored for 5 years and only small seasonal variations were observed.
	Wastewater BAT requires the following: • recirculation/reuse of water in the technological process (see Section 2.5.11.1) • mixing of process waters with other effluents containing dissolved metals (see Section 2.5.11.3) • installation of sedimentation basins to control erosion (see Section 2.5.15.4.1) • (mechanical, physical-chemical) treatment/purification of wastewaters before the effluent is discharged into the emissary (Section 2.5.15.4) The sections in chapter 3 regarding emission levels and consumption offer some examples of levels which have been reached. A correlation could not be made between the applied techniques and the available data on the emissions. Therefore, no conclusions can be formulated in this document regarding the BAT associated with the emission levels. The following techniques are considered BAT for the treatment of acid effluents (Section 2.5.15.5): • Active treatment: o addition of lime (calcium carbonate), hydrated lime or slaked lime; o addition of caustic soda for ARD with a high content of manganese. • Passive treatments: o swamps/lagoons; o open canals of calcium carbonate/ limestone drains; o deviation wells. Passive treatment systems are a long-term solution after site closure, but only when used as a mitigation/neutralization stage, combined with other	The integration of these criteria to comply with the BAT provisions is detailed in the EIA Report, chapter 4, subchapter 4.1 Water and the Water Management and Erosion Control Plan. To implement the BAT provisions, the following criteria/minimum design requirements were taken into account for the water management system: Operational criteria: ▪ to the extent possible, clean surface seepage will be directed far from the areas where it could be polluted by the Project activities, in order to be discharged in points located downstream of the Project area; ▪ reduction of the existing/historical level of water pollution in the area affected by the Project; ▪ protection of structures, heaps and active areas (e.g. plant premises, offices or pits) against flooding; ▪ interception and storage of polluted surface seepage in view of its recirculation in the technological process or discharge in the surface receivers, after prior treatment, according to the water quality standards provided by the legislation in force (NTPA 001/2005); ▪ securing the storage of the volume of two probable maximum precipitations (PMP) in the tailings management facility; ▪ monitoring and purification of all wastewater discharges released in the receiver throughout the Project duration; ▪ preventing the pollution of underground and surface waters; ▪ ensuring the water volume necessary for the mining exploitation, throughout the Project, while minimizing the consumption of fresh water; ▪ maintenance of a clean discharge in the Corna and Rosia Valleys and ▪ ensuring sustainable water management after mine closure. In order to fulfill these objectives, RMGC will develop surface water deviation structures, catchment dams, repumping systems, water treatment installations, process water recirculation systems, fresh water supply system, all according to technological requirements, as well as other water management systems or structures. *Application of BAT provisions for the installation of sedimentation basins for erosion control (see Section 2.5.15.4.1- BREF)* During the Project construction phase, BREF provisions on water management will be applied specifically to each constructions site. The main objective of the best water management practices will be to combat erosion and the displacement of sediments, to the maximum extent possible at the source. The implementation of the BREF provisions on water management will include: controlled and successive embankment works; set up of sediment retention structures, such as wattleworks, berms, sediment basins, drainage channels made of ripraps with settling thresholds; sediment clearing basins for decantation prior to discharge in the natural receiver. The implementation of these specific BREF provisions is presented in section 4.0 of Plan C – Water Management and Erosion Control in the EIA Report.

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	(preventive) measures.	*Application of BAT provisions for water recirculation/reuse in the technological process (see Section 2.5.11.1); mixing of process waters with other effluents containing dissolved metals (see Section 2.5.11.3); (mechanical, physical-chemical) treatment/purification of wastewaters before the effluent is discharged into the emissary (Section 2.5.15.4).* Water management strategy in the Rosia valley: the water from the non-affected areas will be directed/deviated around the mining installations and discharged in the Rosia stream as clean conventional water. This will help maintain a clean discharge in the Rosia stream and will reduce the water amount to be actively managed by the Project. As the mining activities expand to the Rosia Valley, the location of the deviation channels will be modified so as to avoid the mixing of clean water with mine waters. The discharges from the depleted ore deposit, Cetate waste rock heap, gallery 714 and the extraction pits will be caught behind the acid water catchment dam of Cetate. The water from this pond will be pumped to the ARD treatment station. The purified effluent from the station will be used to supply a large part of the process water. Alternatively, the purified effluent from the ARD treatment station will be used to supplement the flow rates of the Rosia and Corna valleys. In brief, the overall water management strategy for the Corna valley, in normal operating conditions, will include the following components: ▪ The runoff from the TMF will be collected by the runoff collection system (secondary retention system or SRS) which will also include the secondary retention dam downstream. This TMF is actually a sump which will be used to lower the level of the groundwater and act as a hydraulic collector. ▪ A series of three to five monitoring wells will be installed downstream of the secondary retention dam, in order to check whether the water in the TMF is retained by the secondary retention system. If any compounds from the TMF are ever detected in the monitoring wells, the recovery of underground waters will become a component of the runoff collection system. The runoff water collected in the retention secondary system will be pumped back into the recirculation pond to be used in the technological process. ▪ The tailings slurry discharged in the TMF is foreseen to contain below 10 mg/l weak acid dissociable (WAD) cyanides, so as to comply with Directive 2006/21/EC on mining waste. A process of natural degradation of cyanide will take place in the TMF, which will result in the reduction of the cyanide concentration in the water from the water recirculation pond and, to a smaller extent, in the pores of the sedimented tailings mass. ▪ It will be allowed that the surface seepage and runoff from the Carnic waste rock heap would end up in the TMF, if the water quality is not significantly affected by acid waters. If the water quality is affected by the presence of acid waters, seepage and runoffs will be caught and pumped into the ARD treatment station. ▪ The clean discharge will be maintained using purified water from the ARD treatment station, meeting the requirements set out by NTPA 001/2005 and/or water from the fresh water system, if necessary. ▪ In the operational phase, a secondary purification system will be built to purify the waters with a low cyanide content, so as to observe the limit cyanide values provided by NTPA 001 (0.1 mg/l total cyanides). This system will be used to treat and discharge, if needed, the water surplus with cyanide content from the water balance. Such discharged water should be purified also in terms of sulphate and dissolved solids and will therefore have to be mixed with the incoming flow of the ARD treatment station of Rosia.

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		Part of the runoff waters can be used also for pilot tests of the runoff treatment system, and if the effluent treated via this system falls within the allowed limits, it can be discharged in the Corna valley and become a permanent component of the water management system. If the effluent does not meet these criteria, it will be repumped in the TMF, during the development of the purification system. The system will play a major role in the closure phase, also for the management of rainfall waters accumulated in the tailings pond. **Collection and use of acid waters in the technological process after prior treatment.** The water catchment pond of Cetate will be located in Rosia valley, downstream of the waste rock heap of Cetate and the mining pits (Cetate, Cârnic, Orlea and Jig). The purpose of this facility is to collect the polluted waters from the areas affected by past and current mining activities drained into the Rosia valley, as well as to prevent any water pollution as a result of the Project, beyond its limits. This pond will be constructed on a proper location suitable for the collection of surface seepage from old mining waste, the waste rock heap of Cetate, the water pumped from the pits and the water seeping from gallery 714. Gallery 714 is an underground gallery coming out to the surface at 714 m above sea level, draining the area under the site of the proposed pits towards this pond. In the exploitation flowchart proposed for the pits, this gallery will be controlled through a safety valve incorporated in a hydraulic cofferdam mounted in the gallery portal. The water accumulated in the pi twill drain off by gravity in the water catchment dam of Cetate, from where it will be pumped to the industrial wastewater treatment station. **Active treatment** The use of lime to neutralize acid waters is BAT[i], by the addition of iron salts to remove arsenic. However, the exclusive use of lime precipitation does not allow for the observance of the limits provided by the Romanian standards for sulphate and calcium (nor for total dissolved solids which, as a cumulative parameter, is tightly connected to the first two). For this reason, additional treatment technologies have been examined and compared, in addition to simple lime precipitation. Chapter 5 of the EIA Report contains a detailed assessment of the feasible technologies, as well as the preferred technological option given the current level of knowledge. The following treatment options were considered for the treatment of acid waters, runoffs generated by waste rock heaps and the TMF, in terms of pH correction, heavy metal precipitation and reduction of sulphate and calcium content: A. Treatment with lime and carbon dioxide B. Treatment with lime and carbon dioxide followed by precipitation of calcium and sulphate in the

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		form of ettringite C. Treatment with lime and carbon dioxide followed by reverse osmosis for the removal of calcium and sulphate D. Reverse osmosis Out of these options, the last three fully meet the requirements of NTPA 001 (except for cyanides and their degradation products). Option B turned out to be the optimal solution, which consists of: 1) pH correction and heavy metal precipitation with lime, at pH=10.5, and separation of the resulting sludge (mainly gypsum); 2) Precipitation of sulphate and calcium in the form of ettringite in the presence of calcium aluminate, at pH=11.5, with the separation of the sludge from the ettringite; 3) pH recorrection with carbon dioxide, with the precipitation of aluminum hydroxide and remaining ettringite. **Semi-passive treatment** The semi-passive treatment system will be made of a series of two cells and a pond. The cells and the pond will be operated serially, with an anaerobic cell for initial treatment, followed by an aerobic cell and the mixture pond. The mixture pond will be used to ensure a single discharge point, where the runoffs from the site and the treated effluents of the ARD treatment station can be mixed and released in the environment. In the anaerobic cell, the pH will be increased, and the processes will focus on metal pollutants, sulphates and cyanides. The anaerobic conditions will be obtained by using organic matter, which will create a strongly reducing environment and will stimulate the development of bacteria active in the chemical transformation of metals, sulphate and cyanides. The water will percolate a layer of organic compost and then a layer of limestone gravel, being then released in the environment. The organic layer will act as a reducing environment, whereas the limestone layer will correct the pH, in case acid waters are present. At the same time, the anaerobic conditions will help in the denitrification of nitrates resulting as cyanide degradation products. The aerobic lagoon will adjust water quality in terms of the content of pollutants and oxygen, before being discharged in the mixture pond. The aerobic lagoon will also eliminate the metals by the sedimentation of compounds flocculated in suspension, their filtration through plant stems, adsorption by specialized plant species, precipitation of metallic hydroxides on plant stems or direct assimilation by the plants. Common reed species such as *Typha latifolia* and *Phragmites australis* are frequently used in such aerobic lagoons. Nitrogen compounds, resulting as cyanide degradation products, will act as plant fertilizers and will be assimilated by them.

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		The mixture pond will be used to mix the water coming from the aerobic lagoon with the water from the Corna river, acting as a final sedimentation basin. After the mixture of the two types of water in the pond, the resulting water will be discharged back into Corna valley. The design criteria for the passive treatment system will be established more accurately in the testing period. Given the large number of systems commissioned recently, by various research program, for biological treatment or the semi-passive elimination of cyanides[ii], it can be estimated that more advanced treatment procedures may appear in the next years. Even if the estimates regarding cyanide treatment outputs, established in the Engineering Review Report, will have to be modified, there is enough space to accommodate larger lagoons. Additionally, after closure, the flow rate of runoff taken over by the lagoons will decrease significantly, as a result of the covering of the TMF. More details about water management in the various phases of the Project are presented in the EIA Report, chapter 4 subchapter 4.1 Water and Plan C – Water Management and Erosion Control.
	Dam design In addition to the measures described in Section **4.1 and** Section **4.2**, during the **design phase** (4.2.1**.**) of the **tailings management facility,** BAT means: • using the maximum probable flash flood every 100 years, at the sizing of the emergency storage/overflow capacity for a pond with a low/reduced risk. • using the maximum probable flash flood every 5000 – 10,000 years, at the sizing of the emergency storage/overflow capacity for a pond with a high/increased risk.	A detailed description of the compliance with the BAT provisions and their integration in the design of Corna and Cetate dam sis included in the EIA Report, chapter 2 – Technological Processes, chapter 4.1 – Water and related management plans (Plan F – Tailings Management Facility, Plan C – Water Management and Erosion Control). ARD dam Cetate The water catchment dam of Cetate will collect the polluted waters from the pits, the waste rock heaps and the pre-existing system of underground galleries. The water catchment dam of Cetate will include a central core, with low permeability, as well as transition and filtration areas downstream, protected by ripraps. The material of which the dam is built will not generate acid waters. In the corresponding base rock, a low permeability entrenchment will be excavated, ensuring runoff control. The surface will be covered with a concrete layer, and sealed by injection, as needed for the preparation of the foundation. Cetate dam is designed in compliance with the following criteria: ▪ Cetate dam imposes the monitoring of the sediment layer and possible cleaning during the mine operation and closure phases; ▪ Cetate dam is sized to store a 24-hour flash flood event, likely to occur 1:100 years (class II of importance according to Romanian regulations); ▪ The overflow is designed to withstand a 24-hour flash flood event, likely to occur 1:1.000 years (class II of importance according to Romanian regulations). ▪ Upstream and downstream embankments are at 2H (horizontal): 1V (vertical); ▪ The preparation of the foundation will include cleaning, deforestation, stripping and storage of the vegetal soil (average depth 0.15 m) under the dam perimeter. ▪ The alluvial material from the dam perimeter upstream of the core entrenchment will be excavated. ▪ The volume to be stored is the related to a 24-hour flash flood event likely to occur 1 in 100 years, i.e. 508,000 m^3.

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		▪ The total catchment area of Cetate dam is 4.9 km^2, calculated for year 7 of the site development. **Tailings management facility** The design parameters chosen for Corna TMF ensure the total storage of flash flood waters, including two consecutive phenomena of maximum probable precipitations (PMP, with an occurrence probability of 1:10000 years) in the first two years. During the remaining life duration, the storage capacity of the TMF will be large enough to retain the water generated by several consecutive PMP events. • TMF is designed to withstand an earthquake of 8 degrees on the Richter scale. • The TMF dam will be made of high quality ripraps (andesite and breccia), and will have a highly robust downstream embankment with the slope of 3:1(H:V). • The tailings from the leaching circuit will have cyanide levels detoxified down to levels which are much lower than required by the legislation in force, due to the use of the BAT on cyanide detoxification (cyanide concentration will be around 5 – 7 ppm, which is already significantly different from prior mining exploitations). • Any discharges in the emissary will be done in observance of the Romanian and European standards in the field. • In order to avoid introducing fresh water in the circuit, the waters will be recirculated in the TMF – thus minimizing the volume of polluted waters requiring treatment.
	Dam construction In addition to the measures described in Section 4.1 **and** Section **4.2**, during the **construction phase** (Section 4.2.2) of the **tailings management facility,** BAT means: • stripping of the vegetal layer under the footprint of the TMF, vegetation and humus soils (Section 4.4.3) • choice of a dam construction material appropriate for this purpose, which will not lose its qualities as a result of the operating and climate conditions (Section 4.4.4).	A detailed description of the compliance with the BAT provisions and their incorporation in the design of Corna and Cetate dams is to be found in Chapter 2 – Technological Processes, chapter 4, subchapter 4.1 – Water and related management plans (Plan F – TMF Management, Plan C – Water Management and Erosion Control). According to the global practice in similar projects, the management method chosen consists in the storage of the tailings in a tailings management facility (TMF), the solution being also recommended by BAT (The Best Available Techniques for Management of Tailings and Waste-Rock in Mining Activities) and the Best Environmental Practices (BEP), also mentioned in the European Directive on Extractive Waste Management. The initial dam will be made of ripraps with low permeability clay core, which will be achieved in the Project construction phase, before the start of the mining operations. The initial dam is designed as a water storage dam, which will operate, in the first 15 months of the operational phase, as a water storage dam required to supply the water needed for the technological processes. The initial dam is designed with a central core of low permeability, with filtration and transition zones, with a bentonite mud wall and filling riprap zone upstream and downstream (dam prism). The foundation of the dam is to be prepared up to the rocky land, with proper treatment, including watertight diaphragm. The initial dam will be built of inert materials which do not generate acid rock drainage.

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		Corna dam – the main TMF dam – will be built in stages, using NGA waste rock as construction material. The use of waste rock as building material requires a certain approach for the aggradation of the main TMF dam during operation. The optimal use of waste rock, correlated with stability and underground water protection considerations led to the choice of an axis aggradation of a permeable dam, on top of the initial dam crest. However, it is foreseen that at least two downstream aggradations will be done at the beginning, to allow for the necessary time to develop a proper shoreline before starting the axis aggradations. The use of waste rock for the dam aggradations, after the building of the initial dam, serves two goals. The first is to allow for the storage of waste rock without creating new heaps. The second is to supply the necessary material for dam construction, without extending the borrow areas (quarries for ripraps). Before the start of the initial dam construction, the existing vegetation and the soil layer will be stripped from the footprint area of the initial dam. The vegetation will be deposited outside the limits of the TMF basin. The vegetal soil and the subsoil stripped down to the low permeability layer will be stockpiled for use in the closure and progressive reclamation period. The surface colluvial layer in the TMF basin, which will be stripped after the removal of the vegetal soil, will be used to seal the TMF basin. The compacted colluvial layer will have a permeability of maximum 10^{-8} m/sec. The preparation of the basin will be extended in the operational phase, depending on the evolution of the TMF and the aggradation. The preparation of the basin complies with BAT and BEP. The compacted layer is meant to act as a barrier to reduce runoffs from the TMF basin. In the areas where the colluvial layer was eroded or not present, colluvial material available inside the basin as well as from the construction areas of the roads will be used to cover these areas. The colluvial material laid on these areas will be compacted to reach the same permeability as the native material. Thus, a continuous layer/barrier will be created on the entire surface of the basin. In order to ensure the retention of the process tailings and process water, underground drains will be set up near the downstream foot of the dam and in the TMF basin. In order to collect the waters drained from the TMF basin, a sump is provided, which will be constructed at the same time as the cofferdam. Lateral drains will be installed on the slopes, connected to a main drain.
	Dam elevation In addition to the measures described in Section **4.1 and** Section **4.2**, during the construction and operation phase (Sections 4.2.2 and 4.2.3) of the **tailings management facility,** BAT means: • assessing the risk of an excessive fluid pressure in the pores and monitoring the pressure of fluids in the pores	A detailed description of the compliance with the BAT provisions regarding the stability of fluid pressures, seismic loads, as well as their incorporation in the design of Corna and Cetate dams, is included in the EIA Report chapter 2 – Technological Processes, chapter 4, subchapter 4.1 – Water, chapter 5 – Review of Alternatives and related management plans (Plan F – TMF, Plan C – Water Management). TMF parameters show that, in terms of the flash flood storage capacity, it is 2 PMF, assuming that the operating level in the TMF is 95% and that a maximum probable flash flood occurs. The probability of occurrence of such an event in a timeframe of only a few months before the first

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	before and during each increase. The assessment should be conducted by an independent expert. • using conventional dams (Section **4.4.6.1**) in the following conditions, when: • the tailings are not appropriate for the construction of dams • the dam is needed for water accumulation • the tailings management facility is in a remote and inaccessible location • it is necessary to keep the water produced by the tailings for a long period of time after the decomposition of the toxic element (e.g. cyanide) • the natural inflow into the dam is too large or big variations or water accumulation are needed to control it • using the upstream method (Section 4.4.6.2), in the following conditions, when: • there is a low seismic risk • tailings are used to build the dam: at least 40 – 60 % material with a particle size between 0.075 and 4 mm for the entire tailings (not applied for decantation tailings) • using the downstream method for the construction (Section 2.6.6.3), in the following conditions, when sufficient quantities of construction materials are available (e.g. process tailings or waste rock) • using the central construction method (Section **4.4.6.4.**), in the following conditions, when the seismic risk is low.	aggradation is very low and can be assessed at 0.0000001%, which, statistically, corresponds to an event which may occur once in 100 million years. **The secondary retention dam** will be located immediately downstream of the main dam and will consist of a sump dug at 11 m deep in the altered rock. The riprap dam will be around 11 m high above the river bed, so that the total storage dam height will be about 22 m, capable of retaining the runoffs from the accumulation of tailings and the flash floods which may appear once in 500 years. The flow rates of the overflows which may occur once in 500 years, 1000 years or the probable maxim flash flood can be in the range of 0.6 m^3/s; 2.5 m^3/s and respectively 25 m^3/s. The impermeabilization barrier underneath the dam and the dam construction materials are chosen so as to minimize the possibility of leaching of the materials and contamination of the natural waters. The area of the secondary retention dam is around 54 ha and includes the downstream side of the main dam. In the **secondary retention basin,** there will be a low pressure float pumping station, which will repump the water from the sump on a short distance, into the supply basin of a high pressure pumping station. From there, through a pipeline of approx. 1 km, with the outer diameter of 219 mm, made of steel, the water will be discharged in the retention basin of the main dam. The stages of aggradation of the main dam took into account two major factors, i.e.: ▪ maintaining a tolerance between the tailings depositions on the dam crest and its aggradation and ▪ maintaining proper freeboard, subject to safety standards, for the protection against two consecutive probable maximum precipitations (PMP) and protection against ice dams. The stages of dam aggradation for an annual cycle consist of tailings discharge in the pond in the first part of the year, followed by the aggradation of the dam at year-end. The optimization of this cycle requires that the basin level should be 20 mm lower than the dam crest at the end of the second operational year, such difference decreasing to 10 m at the end of the third year of operations. **Construction data. Construction stages.** The tailings dam will be a dam with different permeability areas, developed in stages, depending on the necessary volume for the accumulation of process tailings and the meeting of the design criteria. The initial dam and the secondary retention dam will be made of inert materials, which do not generate acid rock drainage. The dam aggradations will be made of waste rock which have the potential of generating ARD, such acid waters being caught behind the secondary retention dam and managed in accordance with quality requirements, as follows: if the water discharge standard is fulfilled, the waters will be discharged in the Corna Valley, and if such requirements are not met, the water will be pumped back into the recirculation basin. There are two reasons for using the waste rock resulting from mining extraction to elevate the dam:

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		lowering the amount of process tailings from the mining activity, by reusing them, also resulting in the diminution of the stockpiling areas for the storage of waste rock, on the one hand, and reducing the borrow areas requirement (rock quarries) to supply the material needed to build the dam, on the other hand. **The final dam** (Corna dam) **will be elevated in stages,** using waste rock as building material. The optimal use of this material, correlated with stability, safety and underground water protection considerations, resulted in the choice of the **axis elevation** of a permeable dam, on top of the initial dam crest. At the beginning, there are two **downstream** aggradations foreseen, in order to allow for the necessary time to develop a proper shoreline before starting the axis aggradations. The water catchment dam of Cetate will collect and retain acid drainage from the current site, as well as potential new surface seepage and acid runoffs from the hydrographic basin of Rosia valley. Most of the water collected in the pond will be made of seepage from the old underground mining works from gallery 714. In the late stages of the exploitation, when the pit bottom is lowered below the level of gallery 714, the storage capacity will be used to store the water pumped from the mining pits. The water stored behind the Cetate dam will be pumped to the industrial wastewater treatment station. A possible addition to this system might be the sealing of gallery 714 with a portal provided with a water evacuation system. This system could allow for the controlled evacuation of water from the old underground mining works or could prevent the water accumulated in Cetate pond to overflow into the pits, once the pits' bottom is lowered below the level of gallery 714. The water catchment dam of Cetate will collect polluted waters from mining pits, waste rock heaps and the pre-existing system of underground galleries. The water catchment dam of Cetate will include a central core, with low permeability, as well as transition and filtration areas downstream, protected by the riprap prism. The material of which the dam is built will not generate acid waters. In the corresponding base rock, a low permeability entrenchment will be excavated, ensuring runoff control. The surface will be covered with a concrete layer, and sealed by injection, as needed for the preparation of the foundation.
	Exploitation of the TMF In addition to the measures described in Section 4.1 and Section 4.2, during the operational phase (Section **4.2.3.**) of a **tailings dam**, BAT means: • monitoring stability, as explained hereafter; • providing for solutions to empty the pond if there are any problems; • providing other discharge installations, possibly in another dam; • providing secondary decantation installations (e.g. in	A detailed description of the compliance with the BAT provisions as well as their incorporation in the design of Corna and Cetate dams, is included in the EIA Report chapter 2 – Technological Processes, chapter 4, subchapter 4.1 – Water and related management plans (Plan F – TMF, Plan C – Water Management). The tailings dam will be a dam with different permeability areas, developed in stages, depending on the necessary volume for the accumulation of process tailings and the meeting of the design criteria. The initial dam and the secondary retention dam will be made of inert materials, which do not generate acid rock drainage. The dam aggradations will be made of waste rock which have the potential of generating ARD, such acid waters being caught behind the secondary retention dam and managed in accordance with quality

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	case of flooding, section 4.4.9) and/or barges with pumps prepared for emergencies, if the level of free water in the pond reaches the pre-established minimum freeboard (Section **4.4.8.**); • measuring land movements with proper instruments (inclinometers) for depth and knowing the fluid pressure in the pores; • developing proper drainage (Section 2.6.10); • preserving records of the design and construction and any updates/changes to the design/construction; • observing the dam safety manuals, as described in Section **4.2.3.1,** in conjunction with the independent audits mentioned in Section 4.2.3.2; • providing proper staff training.	requirements, as follows: if the water discharge standard is fulfilled, the waters will be discharged in the Corna Valley, and if such requirements are not met, the water will be pumped back into the recirculation basin. There are two reasons for using the waste rock resulting from mining extraction to elevate the dam: lowering the amount of process tailings from the mining activity, by reusing them, also resulting in the diminution of the stockpiling areas for the storage of waste rock, on the one hand, and reducing the borrow areas requirement (rock quarries) to supply the material needed to build the dam, on the other hand. The project water balance and the hydrogeological studies confirm that TMF can be managed both in conditions of water deficit and water surplus, depending on the climate conditions, throughout the project lifecycle. The TMF basin will retain and store all the runoffs in the event of a probable maximum flash flood. During and after flooding events involving large quantities of water, the water in excess of the processing needs will be stored in the TMF basin to be used later for processing. The TMF will be managed to avoid releases or, if necessary, protocol will be developed so that treatment – down to acceptable standards, and release in the environment can be initiated and monitored. The water will be recirculated from the TMF to the plant, with the help of pumps mounted on a floating barge located in the N-E part of the basin tail. The discharge points for treated tailings will be managed to maintain clear water around the recirculation barge, at a possible maximum distance from the shoreline near the dam. TMF parameters show that, in terms of the flash flood storage capacity, the TMF was designed to store 2 PMPs. The probability of occurrence of such an event in a timeframe of only a few months before the first aggradation is very low and can be assessed at 0.0000001%, which, statistically, corresponds to an event which may occur once in 100 million years. ▪ the crest overflow on the main dam crest, which is 5 m wide, is designed for a flow rate of a precipitation which could occur once in 10 years, immediately after 2 PMPs. ▪ the height of the initial dam crest was designed to allow the storage of process tailings and water in the first 15 operational months (storage of 95% of the decanted water volume and probable maximum flash flood); ▪ the maximum height of the tailings dam crest was designed to take over 214.9 million tons of tailings, which include also 34 million tons (unforeseen) as reserve capacity, as well as the necessary capacity to manage the water from two consecutive PMPs; ▪ the retention basin of the initial dam and the tailings dam were designed to have a sufficient capacity above the normal maximum operating capacity, and take over the volume of two probable maximum flash floods for 24 hours; ▪ the provision of a failure crest overflow to protect the dam in the case of events with unforeseen climatic conditions or operational difficulties. This should have the capacity to cope with a flash flood that has a probability of occurrence of 1:10 years; ▪ the recirculation of cleared waters from the TMF basin for use in the process plant; ▪ the use of waste rock for dam aggradation to the maximum level; ▪ the minimum safety factors for static load conditions during the construction of the initial dam and during the

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		aggradations are 1.3 and respectively 1.5; ▪ the seismic load is based on an earthquake with a probability of occurrence of 1:475 years: a = 0.082g for the end of the initial dam and a = 0.14g for the aggradation periods and the end of the dam; ▪ the minimum safety factory for seismic load is 1.1.[28] ▪ **The secondary retention basin** was designed taking into account the following criteria: ▪ the storage capacity of a 24-h discharge volume, in the case of an event which can appear once in 100 years, above the normal maximum operating level; ▪ runoffs and seepage collected are repumped in the tailings basin; ▪ development of a failure overflow with a designed capacity for a 24-h flood, with a probability of occurrence of 1:1000 years, generated by climatic conditions or operational difficulties. ▪ the secondary retention basin has the capacity to store a precipitation which may appear once in 100 years and would last 24 hours, without overflowing; **The secondary retention dam** is designed taking into account the following criteria: ▪ the use of inert and non-reactive materials for building it; ▪ the minimum safety factors are 1.3 for the end of the construction and 1.5 for the operational and closure period, and 1.1 for seismic load related to pseudo-static load; ▪ the seismic load is based on an earthquake with a probability of occurrence of 1:475 years: a = 0.082g for the end of the initial dam and a = 0.14g for the operational and closure period. ▪ the crest overflow of the secondary dam, which is 27 m wide, is designed to take over the biggest flash flood that could occur. **The secondary retention dam** will be located immediately downstream of the main dam and will consist of a sump dug at 11 m deep in the altered rock. The riprap dam will be around 11 m high above the river bed, so that the total storage dam height will be about 22 m, capable of retaining the runoffs from the accumulation of tailings and the flash floods which may appear once in 500 years. ▪ The flow rates of the overflows which may occur once in 500 years, 1000 years or the probable maxim flash flood can be in the range of 0.6 m^3/s; 2.5 m^3/s and respectively 25 m^3/s. The impermeabilization barrier underneath the dam and the dam construction materials are chosen so as to minimize the possibility of leaching of the materials and contamination of the natural waters. The area of the secondary retention dam is around 54 ha and includes the downstream side of the main dam. In the **secondary retention basin,** there will be a low pressure float pumping station, which will repump the water from the sump on a short distance, into the supply basin of a high pressure pumping station. From there, through a pipeline of approx. 1 km, with the outer diameter of 219 mm, made of steel, the water will be discharged in the retention basin of the main dam. The stages of aggradation of the main dam took into account two major factors, i.e.: ▪ maintaining a tolerance between the tailings depositions on the dam crest and its aggradation and ▪ maintaining proper freeboard, subject to safety standards, for the protection against two consecutive probable maximum precipitations (PMP) and protection against ice dams.

No	Specific BAT requirements, as set out in the reference document for the mining sector, adopted in January 2009	Presentation of how these requirements were considered/implemented in the Project
		▪ The stages of dam aggradation for an annual cycle consist of tailings discharge in the pond in the first part of the year, followed by the aggradation of the dam at year-end. The optimization of this cycle requires that the basin level should be 20 mm lower than the dam crest at the end of the second operational year, such difference decreasing to 10 m at the end of the third year of operations. **Monitoring during operation** Ever since the execution period, the impact on the environmental factors and the quality of the works performed need to be monitored. In the operational and closure phases, monitoring will continue with regard to environmental factors, quality of the works and condition of the equipment. The monitoring, inspection and reporting/recording activity will be conducted based on specific procedures to be developed. TMF is provided with measurement and control instruments, as follows: ▪ wire piezometer; ▪ hydraulic piezometer; ▪ inclinometers; ▪ deformation monitoring stations; ▪ piezometer stations to monitor underground waters; ▪ flow meter with a "V" cross section. Six wire piezometers will be installed in three lift points of the starter dam core. Additionally, two wire piezometers will be installed at two different levels in the foundation, immediately downstream of the central cement diaphragm. Two other piezometers will be installed in the downstream liner of the dam, to determine whether there is an unexpected increase of the saturation line in this area. These piezometers will control the subdrainage system of the dam. Nine hydraulic piezometers will be installed on the shores of the decantation pond, located approx. 200 m one from the other, in a cross section on the valley. Five piezometers will be located 100 m upstream of the dam axis, and three others 200 m further, on the shores of the pond, one of them being placed closer to the right end of the dam. The hydraulic piezometers installed on the shores will be raised as the tailings shoreline advances. The purpose of these piezometers is to determine the saturation line in the body of the tailings deposit and the rate of water level decrease after the relocation of the tailings discharge pipelines in other pond areas. It is foreseen to install two temporary inclinometers on the downstream embankment of the starter dam and on the lower berm of the final dam. The purpose of these inclinometers is to check any potential deformation due to shearing in the superficial layers of the base rock. On each slope of the Corna valley, upstream of the dam, permanent piezometers will be installed to monitor the level and quality of underground water. One of these units is already installed on the left slope, and another one will be mounted on the right slope. A flow meter with a "V" cross section will be located along the valley line, upstream of the secondary dam. In long draughty

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		periods, the flow rate registered here will indicate the runoff rates through and under the main dam of the TMF. In the secondary retention dam, two sets of wire piezometers will be installed, both upstream and downstream of the watertight diaphragm. These piezometers will give indications of the retention capacity of the secondary dam. Additionally, deformation control stations will also be installed on the dam, in order to monitor any potential displacement of the structure. Downstream of the dam, the monitoring of the level and quality of the underground water will be done using an existing piezometric station. Table 6.2. in the EIA Report – Plan F – TMF presents the frequency and parameters monitored to assess TMF performance, and flowchart 2.50 indicates the locations of the instruments to be installed.
	Removal of the cleared water from the pond (Section 2.6.7.1) BAT means: • using an overflow channel for valley ponds	Water management in relation to the TMF will consider the following operational and environmental criteria: At any time, in the TMF, a proper storage capacity will be ensured to accommodate the flow rates generated by two phenomena of probable maximum flash flood. A probable maximum flash flood event can generate around 2.7 million m^3 of water, as a result of a PMP event combined with snow melting with a volume of 440 mm in 24 hours, flow coefficient 90% and total catchment area of 6.9 km^2. ▪ The tailings management facility will be designed to prevent accidental overflows or discharges. However, if such events do occur, emergency response protocols will be activated, as indicated in the EIA Report, *Plan J – Emergency Response Plan.* Before the start of ore processing, the TMF baseline should be able to ensure sufficient water storage capacity to commission the grinding circuit and secure supply for the first few months of operations. For the commissioning, an initial pond volume of about 0.5 to 2.1 million m^3 should be ensured. The volume necessary during the operational phase is estimated at 0.5 to 1.0 million m^3. ▪ For the supernatant to be used in the grinding circuit or comply with the requirements of the environmental and operational permits, it shall meet specific water quality standards, as indicated in the standard operating procedures or in the relevant authorizations. **Water recovery from the TMF** The water recovery system will ensure the transfer of water from the TMF to the process water tank within the process plant. The system is designed to be adapted to the increasing level of the TMF during the project lifecycle. The floating hydraulic pressure pumps located on the surface of the pond will ensure short-distance water transport to the auxiliary pumping station serving the aspiration basin, through a flexible hose with a length of 150 m and a 680-meter long HDPE pipe. Two-step pumps will be connected directly to the aspiration basin. In order to cope with the increasing pond level, an auxiliary high level pumping station and a low level pumping station will be built, to meet the pumping requirements for the entire project duration. The auxiliary high level pumping station will be implemented in year 4 of the mine life. The main pipeline will consist of a pipe section of 429 m made of PN 16 HDPE and a pipe with the length of 1,600 m made of PN 8 HDPE. The system is protected for medium and maximum values of the discharge flow rates of 1,520 m^3/h (420 l/s) and respectively 1,820

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		m^3/h (505 l/s) and will supply most of the process water requirement.
	Operation of waste rock heaps and TMFs In addition to the measures described in Section **4.1. and** Section **4.2**, during the **operational phase** (Section **4.2.3**) **of any tailings and waste rock management facilities,** BAT means: • deviating rainfalls around the site (Section 4.4.1) • solving the problems related to the tailings/waste rock management/storage by pit storage (Section 4.4.1). In such situations, the stability of the slopes/embankment or the stability of the dam is no longer an issue • applying a stability factor of at least 1.3 for all heaps and dams during the operational phase (Section 4.4.13.1) • ensuring progressive reclamation/rehabilitation of the vegetation (Section 4.3.6).	**Waste rock heaps** Drainage systems will be built for each heap. The foundation layers of the heaps, at surface level and in the depleted ore pile will consist of black shale; surface soils will consist of colluvia and/or altered shale. The heaps will all have at the base a layer built to ensure drainage. The drainage layer will be made of durable rocks of bigger particle size, resulting from the stripping of the extraction surfaces or waste rock. These gross materials, with free drainage, will ensure a permeability contrast with the natural low permeability soil, while facilitating lateral runoff drainage towards the heap edges. The deviation channels around the waste rock heaps will catch the potential seepage from the surface of the heaps and will direct it towards the outside. Seepage from the surface of waste rock heaps will enter the water management system and will be collected in the tailings pond or another water management pond, from where it will be pumped to the treatment station or to the process plant. The water from the non-affected areas will be directed around the mining installations and discharged in the Rosia stream. This will help maintain a clean discharge in the Rosia stream and will reduce the water amount to be actively managed by the Project. As the mining activities expand to the Rosia Valley, the location of the deviation channels will be modified so as to avoid the mixing of clean water with mine waters. The discharges from the depleted ore deposit, Cetate waste rock heap, gallery 714 and the extraction pits will be caught behind the acid water catchment dam of Cetate. The water from this pond will be pumped to the ARD treatment station. The purified effluent from the station will be used to supply a large part of the process water. Alternatively, the purified effluent from the ARD treatment station will be used to supplement the flow rates of the Rosia and Corna valleys. Given the expansion of the mining perimeter in year 7 of operations and the reduction of the water volumes to be deviated around the mining works, it may be necessary to expand the processing capacity of the ARD treatment station. **Water management in Rosia valley – normal operating conditions** ▪ The waters from the affected areas in Rosia valley (pits, waste rock heaps, gallery 714, depleted ore pile) will be pumped directly from these areas or collected in Cetate dam and pumped to the ARD treatment station; ▪ The seepage waters from the non-contaminated areas will be deviated around Cetate dam and discharged into the Rosia valley; ▪ The effluent discharges estimated to reach the ARD treatment station in the years 1 to 7 will be about 400 m³/hour; ▪ Discharges for years 7 to 16 are estimated around 650 m³/hour; ▪ Acid waters will be treated in the ARD treatment station and will meet the criteria set out by NTPA 001/2005; ▪ Water discharges in Rosia valley will comply with the requirements of NTPA 001/2005. These discharges will be used to maintain the water balance and supplement clean biological discharges in the Rosia valley, depending on the needs. ▪ After the first two years, the dam aggradation will ensure a storage capacity for an increased flash flood volume, until year

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		14, when this capacity will decrease slightly towards the end of the operational period. The cofferdam for the initial dam was designed to manage a 24-hour rainfall, with the probability of occurrence of 1 : 10 years; ▪ The height of the initial dam crest was designed to allow for the storage of process tailings and water in the first 15 months of operation (storage of 95% of the decanted water volume and probable maximum flash flood); ▪ The maximum height of the tailings dam crest was designed to take over 215 million tons of tailings, which include also 34 million tons (unforeseen) as reserve capacity, as well as the necessary capacity to manage the water from two consecutive PMPs; ▪ the retention basin of the initial dam and the tailings dam were designed to have a sufficient capacity above the normal maximum operating capacity, and take over the volume of two probable maximum flash floods for 24 hours; ▪ Provision of a failure crest overflow to protect the dam in the case of events with unforeseen climatic conditions or operational difficulties. This should have the capacity to cope with a flash flood that has a probability of occurrence of 1:10 years; ▪ Classification of the TMF dam in class I of importance - category B, according to Romanian standards on the classification of hydrotechnical works; ▪ Recirculation of cleared waters from the TMF basin for use in the process plant; ▪ Use of waste rock for dam aggradation to the maximum level; ▪ The minimum safety factors for static load conditions during the construction of the initial dam and during the aggradations are 1.3 and respectively 1.5; ▪ The seismic load is based on an earthquake with a probability of occurrence of 1:475 years: a = 0.082g for the end of the initial dam and a = 0.14g for the aggradation periods and the end of the dam; ▪ The minimum safety factory for seismic load is 1.1. ▪ **The secondary retention dam** is designed taking into account the following criteria: ▪ classification in class I of importance – category B according to Romanian standards; ▪ use of inert and non-reactive materials for building it; ▪ the minimum safety factors are 1.3 for the end of the construction and 1.5 for the operational and closure period, and 1.1 for seismic load related to pseudo-static load; ▪ the seismic load is based on an earthquake with a probability of occurrence of 1:475 years: a = 0.082g for the end of the initial dam and a = 0.14g for the operational and closure period. the crest overflow of the secondary dam, which is 27 m wide, is designed to take over the biggest flash flood that could occur: ▪ in 500 years, with a discharge of 0.6 m^3/sec.; ▪ in 1000 years, with a discharge of 2.5 m^3/sec.; ▪ Probable Maximum Precipitation, with a discharge of 24.7 m^3/sec. [5]. TMF will catch and retain all potentially contaminated seepage from Corna valley basin, resulting from mining activities. The tailings slurry resulting from the process plant is treated in a neutralization installation, to reduce the concentration of cyanide and WAD cyanides (easily dissociable compounds). The treatment of the slurry with SO_2/air reduces cyanide concentration as a result of oxidation and

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		transformation into WAD compounds, reaching the maximum allowable concentration of 10 mg/l, in accordance with the European requirements, before the tailings slurry leaves the process plant [5]. The solid fraction of the tailings slurry is about 49% in the mass. A detailed description of the compliance with the BAT provisions as well as their incorporation in the design of Corna and Cetate dams, is included in the EIA Report chapter 2 – Technological Processes, chapter 4, subchapter 4.1 – Water and related management plans (Plan F – TMF, Plan C – Water Management).
	Stability monitoring BAT means: • monitoring the tailings basin/dam (Section 4.4.14.2): o water level o quality and quantity of seepage flow through the dam (Section 4.4.12) o position of the phreatic surface o pore pressure o movement of dam crest and tailings o seismicity, to ensure stability of the dam and supporting strata (Section 4.4.14.4) o dynamic pore pressure and liquefaction o soil mechanics o tailings placement procedures • monitoring the heap (Section 4.4.14.2): o bench/slope geometry o sub-tip drainage o pore pressure • also carrying out: In the case of the tailings basin/dam: o visual inspections (Section 4.4.14.3) o annual reviews (Section 4.4.14.3) o independent audits (Section **4.2.3.2.** and Section 4.4.14.3) o safety evaluations of existing dams (SEED) (Section 4.4.14.3) in the case of heaps:	A detailed description of the compliance with the BAT provisions as well as their incorporation in the design of Corna and Cetate dams, is included in the EIA Report chapter 2 – Technological Processes, related management plan – Plan F- Tailings Management Facility. ***Monitoring of the TMF*** Measurement instruments will be installed both on the tailings dam and on the secondary retention dam. The types of instruments currently planned for installation are the following: ▪ vibrating wire piezometers; ▪ hydraulic piezometers; ▪ slope indicators (inclinometers); ▪ deformation monitoring stations; ▪ piezometer batteries to monitor underground water; ▪ flow meters with "V" cross section ▪ Six vibrating wire piezometers will be installed in each of the three levels of the starter dam core. Additionally, two vibrating wire piezometers are planned at two different levels in the foundation, immediately downstream of the central isolation wall. Vibrating wire piezometers will be installed in two points downstream of the embankment/liner of the dam, to determine whether there is an unexpected increase of the saturation line in this area. These piezometers will control the subdrainage system of the dam. ▪ Nine hydraulic piezometers will be installed on the tailings shoreline. In principle, they will be installed approx. 200 m one from the other, across the width of the valley. Five piezometers will be located 100 m upstream of the dam axis, and three others 200 m further from the shoreline, one of them being planned closer to the right buttress. The hydraulic piezometers will be installed on the shores before the elevation of the tailings shoreline. The purpose of these piezometers is to determine the tailings saturation line and the rate of water level decrease after the relocation of the tailings discharge pipelines in other areas. Temporary inclinometers will be installed, according to plan, on the downstream slope of the starter dam and on the lower berm of the final dam. The purpose of these inclinometers is to check any potential deformation downstream due to shearing in the superficial layers of the base rock. On each slope of the Corna valley, upstream of the tailings dam, permanent piezometers will be installed to monitor the level and quality of underground water. One of these units is already installed on the left slope, and another one will be mounted on the right slope. ▪ A flow meter with a "V" cross section will be located in the valley bed, upstream of the sump. In long draughty periods, the flow rate registered here will indicate the runoff rates through and under the base of the tailings dam. ▪ Two sets of vibrating wire piezometers will be installed in the secondary retention dam, both upstream and downstream of

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	o visual inspections (Section 4.4.14.3) o geotechnical reviews (Section 4.4.14.3) o independent geotechnical audits (Section 4.4.14.3).	the watertight diaphragm downstream. These piezometers will evaluate the retention capacity of the secondary dam. Deformation control stations will also be installed on the dam, in order to monitor any potential displacement of the structure. Downstream of the dam, the monitoring of the level and quality of the underground water will be done using the existing piezometric network. The water catchment dam of Cetate will collect the polluted waters from the pits, the waste rock heaps and the pre-existing system of underground galleries. The water catchment dam of Cetate will include a central core, with low permeability, as well as transition and filtration areas downstream, protected by riprap prisms (see **Flowchart 06 – EIA Report – Plan C – Water Management and Erosion Control).** The material of which the dam is built will not generate acid waters. In the corresponding base rock, a low permeability entrenchment will be excavated, ensuring runoff control. The surface will be covered with a concrete layer, and sealed by injection, as needed for the preparation of the foundation. Cetate dam is designed in compliance with the following criteria: ▪ Cetate dam imposes the monitoring of the sediment layer and possible cleaning during the mine operation and closure phases; ▪ The normal operating level of the pond is close to 710 mdM; ▪ Cetate dam is sized to store a 24-hour flash flood event, likely to occur 1:100 years (class II of importance according to Romanian regulations); ▪ The cofferdam is designed to withstand a 24-hour flash flood event, likely to occur 1:10 years ▪ The overflow is designed to withstand a 24-hour flash flood event, likely to occur 1:1.000 years (class II of importance according to Romanian regulations ▪ Upstream and downstream embankments are at 2H (horizontal): 1V (vertical); ▪ The preparation of the foundation will include cleaning, deforestation, stripping and storage of the vegetal soil (average depth 0.15 m) under the dam perimeter. The alluvial material from the dam perimeter upstream of the core entrenchment will be excavated (see **Flowchart 04 – EIA Report – Plan C – Water Management and Erosion Control).** ▪ The volume to be stored is the related to a 24-hour flash flood event likely to occur 1 in 100 years, i.e. 508,000 m^3. Measurement, control and monitoring equipment It is planned to install a number of three vibrating wire piezometric cells in the dam core. It is also planned to install three more vibrating wire piezometric cells in the foundation, downstream of the foundation entrenchment, to check any excessive water pressure in the pores, accumulated on the downstream side of the foundation entrenchment. The piezometric wires will be connected to a permanent monitoring station located downstream of the dam, to perform remote readings of the phreatic water level inside the dam. It is planned to install inclinometer tubing on the downstream embankment of the dam, along the upper berm. The purpose of this inclinometer is to check any potential deformation caused by shearing in the

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		superficial layers of the base rock. In is planned to install six deformation indicators (three on the crest and three on the downstream berm). They will be monitored by planned inspections. It is planned to install a "V" cross section flow meter immediately downstream of Cetate dam, to monitor the quality and quantity of the flow rate. Flow rate and water quality measurements in draughty periods should be representative for the seepage through the dam body. **Inspection and reporting** Operational inspections on the TMF will be conducted at regular intervals, according to the flowchart in TF-04 „TMF – Inspections". This procedure will be developed before the start of the operations and refer to the inspection requirements and inspection schedule with regard to: embankments; basin; guarding trenches; ▪ deviation channels ; ▪ tailings transport and discharge system; ▪ cleared water recirculation system; ▪ degree of compaction of the waste rock filling used for dam aggradation; ▪ angle of the dam downstream embankment; ▪ monitoring instruments. Most of the inspections will involve the evaluation of the good physical and operational condition of these systems. Standard reports will be filled out in accordance with the protocols presented in Procedure **TF-05 "TMF - Reporting**" which summarizes all inspections to be conducted in various TMF phases. Reporting will be done in standard form (TF-05) to make sure that all TMF elements are inspected correctly and that there is consistency and comparability between inspections, even when such inspections are conducted by different persons. After the reports are filled in, they will be filed in accordance with MP - 12 "Recording in the Environment and Social Management System". Additionally, the reports mentioned in the authorizations will be submitted to the regulatory authorities according to MP-02 "Identification of regulatory and legal requirements" .
	Mitigation of accident risks	The scope of accident or incident safety measures is presented in the EIA Report, chapter 7 – Risk

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	BAT means: • developing an emergency response plan (Section 4.6.1) • assessing and following up incidents (Section 4.6.2) • monitoring pipelines (Section 4.6.3).	Situations and related management plan – *Emergency Response and Accidental Spills and updated version enclosed in the annex with additional studies and reports, version 2010.* In the operational phase, a detailed plan on the interventions in cases of major accidents will be developed, as part of the *Emergency Response and Accidental Spills Plan,* based on protocols recognized at the national and international level **Monitoring of pipelines** Operational TMF inspections will be conducted at regular intervals, according to the schedule set out in TF-04 „TMF – Inspection". This procedure refers to the inspection requirements and inspection schedule with regard to: the tailings transport and discharge system; the cleared water recirculation system. Most of the inspections will involve the evaluation of the good physical and operational condition of these systems. Standard reports will be filled out in accordance with the protocols presented in Procedure **TF-05 "TMF - Reporting**" which summarizes all inspections to be conducted in various TMF phases. Reporting will be done in standard form (TF-05) to make sure that all TMF elements are inspected correctly and that there is consistency and comparability between inspections, even when such inspections are conducted by different persons After the reports are filled in, they will be filed in accordance with MP - 12 "Recording in the Environment and Social Management System". Additionally, the reports mentioned in the authorizations will be submitted to the regulatory authorities according to MP-02 "Identification of regulatory and legal requirements".
	Footprint reduction BAT means: • if possible, preventing and/or reducing the generation of waste rock/process tailings (Section **4.1.**) • Backfilling of the exploited area with process tailings (Section **4.5.1**), in the following conditions, when: o backfilling is done during operation (Section 4.4.1.1) o the additional backfilling cost is at least offset by the high degree of recovery of the useful substance o in open pit mining, if process tailings can be easily dehydrated/dewatered (by evaporation, filtration and drainage), thus avoiding the	The preferred reclamation option for the Project mining pits is a **progressive backfilling/reclamation strategy,** consisting of (a) complete backfilling of Jig pit; (b) partial backfilling of Orlea and Carnic pits, all by transfer of material and (c) flooding of Cetate pit. Jig, Orlea and Cârnic pits will be covered with a layer of soil and vegetation. Due to the filling regime, consisting of the placement of PGA materials on the bottom and coverage hereof with at least 10 m of NGA material, the possibility of acid generation will be limited. The strategy chosen in this regard is presented in the EIA Report, Plan J – *Closure and Rehabilitation Management Plan.* **Elimination of part of the waste rock volume by backfilling Carnic pit and revegetating the waste rock heaps:** partial elimination of the top cover layer and waste rock by backfilling Carnic pit will lead to the reduction by about 26% of the amount of waste rock to be stockpiled. All waste rock heaps will be reprofiled, covered with vegetal soil and revegetated according to the EIA Report, *Closure and Rehabilitation Management Plan* (see EIA Report, **Plan J** in the **Environment and Social Management Plans).**

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	construction of a decantation pond or reducing the area of an existing pond (Sections 4.5.1.2, 4.5.1.3, 4.5.1.4, 4.4.1) o backfill material is available in the nearby pits (Section 4.5.1.5) • backfilling of large cavities in underground mines (Section 4.5.1.6). Cavities filled with process tailings will require drainage (Section 4.5.1.9). It is also possible to add binders to increase stability (Section 4.5.1.8) • backfilling with waste rock, in the following conditions (Section 4.5.2), when: o the underground exploited area can be backfilled o there is one or more already exploited pits nearby (transfer mining - transport of waste rock to backfill exploited area) o pit mining is done in such a way so that the backfilling of the exploited area is possible without disturbing the exploitation operations; • investigating possible uses of tailings and mining sediments (Section 2.7.3).	**Stockpiling of the vegetal soil reserve in view of environmental rehabilitation and reclamation on the mining site:** Conservation of the vegetal soil with a view to environmental rehabilitation is a major element of the EIA Report, Plan J – *Closure and Rehabilitation Management Plan*. Prevention of vegetal soil losses during stockpiling is also an important part of the *Water Management and Erosion Control Plan* of the Rosia Montana Project (see EIA Report, **Plan C** in the **Environment and Social Management Plans).**
	Closure and after-care In addition to the measures described in Section 4.1 and Section 4.2, during the **closure and after-care phase** (Section **4.2.4**) of any **TMF or waste rock heap,** BAT means: • develop closure and after-care plans during the planning phase of operations, including cost estimates, and then update them periodically (*Section **4.2.4***). However, the rehabilitation requirements develop through the lifetime of an operation and can first be considered in details only in the closure phase of a TMF • apply a safety factor of at least 1.3 for the final embankment slopes (heaps and dams) after closure (Sections **4.2.4. and** 4.4.13.1), although there are split	A detailed description of the compliance with the BAT provisions as well as their incorporation in the design of the closure and environmental rehabilitation works is included in the EIA Report chapter 2 – Technological Processes, chapter 3 – Waste and related management plans (Plan F- Tailings Management Facility, Plan C – Water Management, EIA Report Plan B – Waste Management, Plan J – Closure and Rehabilitation). The preferred reclamation option for the Project mining pits is a **progressive backfilling/reclamation strategy,** consisting of (a) complete backfilling of Jig pit; (b) partial backfilling of Orlea and Carnic pits, all by transfer of material and (c) flooding of Cetate pit. Jig, Orlea and Cârnic pits will be covered with a layer of soil and vegetation The mine closure and rehabilitation plan (Plan J in the EIA Report) drafted by RMGC establishes a series of measures aimed at making sure that the mining activity will have a minimum impact on the landscape at Rosia Montana. Such measures include: • Covering of waste rock heaps with vegetal layer, to the extent they are not used as pit backfill material • Backfilling of the pits, except for Cetate, which will be flooded and transformed into a lake

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	views concerning the flooding of pits (see Chapter 7). For the closure and after-care phase of the TMFs, BAT is to construct the dams so that they remain stable on the long term, in case water flooding is chosen for closure (Section 4.2.4.2).	• Covering with vegetal layer of the tailings pond and dam areas • Dismantling of decommissioned production facilities and environmental rehabilitation of the decommissioned areas • Water treatment by semi-passive systems (with classical treatment systems as backup) until the levels of all effluents are within the accepted limits and no longer require further treatment • Maintenance of the vegetation, combating erosion and monitoring the whole site, until RMGC proves that all rehabilitation objectives were achieved in a sustainable manner. The environmental rehabilitation level of the mining site will meet or even exceed the requirements set out by the EU Directive on mining waste, which requires RMGC to "rehabilitate the land to a satisfactory state, granting special attention to the quality of soil, wildlife species, natural habitats, hydrographic networks, landscape and corresponding beneficial uses". The objectives set for environmental rehabilitation considered the regulatory requirements, the specific site aspects, RMGC's policies and the best practices of the industry, including: ▪ protection of health and public wellbeing; ▪ agreement on the objectives regarding the use of lands in the post-closure phase; ▪ geotechnical stabilization of the facilities associated with the mining exploitation; ▪ rehabilitation of the landscape factors in order to minimize the transport of sediments, erosion and potential environmental degradation; ▪ quality and quantity protection of water resources; ▪ air quality protection. ▪ Safety and security objectives include: safe environment on the long term, for people and wildlife; ▪ permanent securing of mine wells, galleries and underground cavities close to the surface ; ▪ stabilization of the subsidence areas created by the underground works; ▪ evaluation of the stability of the other remaining mining cavities, in order to establish the potential of appearance of future land movements, and the necessary control measures, such as barriers and barrages; ▪ slope stabilization (e.g. embankments of pits, waste rock heaps, dams) so as to remove any danger for the public after the closure; ▪ temporary restriction of access to certain areas where it is necessary to protect machinery and facilities, or to allow for the free development of the vegetation which needs care and maintenance for several years. On the long term, there will be no public access restrictions, as all hazards to safety, assets and health will have been removed. ▪ The downstream slope of the tailings dam will be terraced during the operational phase, in order to minimize erosion and facilitate access to the dam monitoring instruments. On the downstream slope of the dam, a cover layer will be placed, similar to the one used for waste rock heaps. Progressive reclamation (placement of vegetal soil and revegetation) will be initiated in the final years (approx. Year 16) of the operational phase, on the finalized benches, close to the dam foot. The water volumes directed to the Cetate water catchment dam will diminish in time, and the quality of

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		effluents will improve with the placement of the covers on top of the waste rock heaps and tailings pond, and with the implementation of other closure measures. The waters from gallery 714 and the underground mining works will be intercepted upstream, in the Cetate pit lake, and the historical ARD sources will be largely eliminated. Based on the experience acquired, it is anticipated that, by the end of year 21, the water from the pond created after piercing Cetate dam will have characteristics that will allow for treatment in a semi-passive system. This type of system will be installed at the end of year 14, downstream of Cetate dam. The semi-passive system will become a water treatment system between the end of year 14 and the final closure, operating in conjunction with the ARD treatment station. As an additional safeguard, in addition to the two semi-passive treatment systems, a collection and repumping system will be set up in year 21 downstream of Cetate water catchment dam. This system will collect and pump the water to the treatment station of Cetate pit lake, only if the semi-passive treatment station turns out to be insufficient.
	Gold leaching using cyanide In addition to the general measures set out in Section 5.2, for all mines where gold is leached using cyanide, BAT means taking the following measures: • reduce the use of cyanide, by applying: o operational strategies to minimize the addition of cyanide (Section 4.3.2.2); o automated cyanide control (Section 4.3.2.2.1); o if applicable, prior treatment with peroxide (Section 4.3.6.2.2); • destruction of the free cyanides remaining after the discharge in the basin (Section 4.3.11.8). Table 4.13 presents examples of CN levels achieved in several stations in Europe • implementation of the following safety measures (Section 4.4.15): o the cyanide destruction circuit will be sized to have a double capacity compared to the real need; o a backup system will be installed for the addition of limestone o backup electricity generators will be provided.	The Project complies with the strict BAT requirements set out in section 4.3.2.2 concerning the operational strategies to reduce cyanide consumption. As indicated in the EIA Report, chapter 2 – Technological Processes, and Management Plan G – Cyanide Management, the following measures will be applied: • **computerized control of technological processes;** • **retaining the cyanide in the circuit prior to being discharged in the pond.** Thickening of the process tailings and recirculation of cleared water to supply the semi-autogenous mill; • **strict control of fresh water addition;** • **automated control of cyanide addition;** • **treatment of process tailings.** Prior to leaving the process plant, process tailings will be decanted, the cleared water containing cyanides will be recirculated to supply the semi-autogenous mill, and the thickened tailings will be treated by the INCO system, with SO_2/air, to destroy cyanides below the limits set out by the regulations in force. RMGC will design, build, operate, monitor, inspect and maintain its production facilities so as to prevent cyanide emissions and exposure of the workers and public, as well as to minimize the impact of such emissions, if they occurred. The information demonstrating that the installations are designed, built, operated and maintained so as to prevent major accidents will be included in the *Safety Report* to be submitted to the competent authorities, subject to EU Directive Seveso II. According to the law, detailed SOPs and training programs for the workers managing cyanide in the production process will be implemented in order to further minimize the risks and the impact of uncontrolled releases or exposures to cyanide. These measures are detailed below.

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		Inspection of cyanide discharge and storage facilities Monthly inspection will be carried out with regard to the cyanide discharge and storage facilities, according to the inspection matrix, provided by SOP CN-04, "Inspection of cyanide tanks, pipelines and other cyanide facilities". Procedure CN-04 describes the manner in which these inspections will be conducted and documented, based on checklists (see document 1 enclosed to this plan) and the way in which follow-up and correction measures are implemented. The purpose of the detailed checklists is that the inspectors should focus on the specific aspects to be observed. Inspection of tanks and pipelines will focus on structural integrity, corrosion signs and leakages, as well as on the existence of clear visible markings regarding the content of the pipelines or tanks, and the flow direction through the pipelines. Secondary retention systems and the components of the related supply and discharge pipelines will be inspected for integrity, cracks or leakages, presence of fluids and available capacity. If necessary, the cyanide solution can also be colored with environmental-friendly fluorescent paint, which will help in the inspections and facilitate the identification of leakages of any kind. Any cyanide solution emissions or any suspicion regarding less safe conditions observed during the inspection will lead to immediate corrective or prevention actions, as needed, to solve the situation. Such examples of actions could be pumping the solution into the production process, repairing the equipment presenting leakages (and inspecting similar equipment to prevent leakages), increasing the frequency of testing/inspections, performing more thorough tests to detect leakages or taking other measures appropriate for the nature and importance of the emissions observed. Due to the critical nature of these systems for the safe operation of the plants, any such situations observed will be recorded as non-compliance and corrective and preventive measures will be taken according to procedure MP-10 „Corrective and Preventive Actions for Non-Compliances in the Environment and Social Management System". The Project production facilities will be designed and constructed according to technical specifications corresponding to the International Cyanide Management Code, *Reference Document on the Best Available Techniques for the Management of Tailings and Waste Rock in Mining* (EU, July 2004), other international best practices on management and all local, regional and national regulations (see Section 3). All tanks and pipelines will be made of steel and HDPE or any other materials compatible with the cyanide-containing tailings. Such tanks and pipelines will be colored and marked according to the coding requirements in force. The sections of the process plant where slurry containing cyanide is used (solid cyanide or cyanide solution) will be placed in secondary retention systems made of concrete, having a sufficient capacity to retain at least 110% of the capacity corresponding to the largest tank in the retention area, and any piping for discharge back into the tank. Secondary retention structures of the tanks outside the buildings will have

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		an additional capacity to retain seepage at the designed capacity. The sumps in the retention areas will be provided with special extraction pumps which will recirculate any slurry discharge or any solution in the technological process. In the key points of the secondary retention systems, floating switches will be installed, as well as other types of overflow indicators, to identify the presence of slurry or solution and to alert the operators in the control room. Technological pumps will be connected to automated shutdown systems in order to prevent any spills in case of failure of a downstream pump. On the site, RMGC will provide portable electric generators, as backup for pumps, engines and control systems with a critical role, in case of a blackout. SOP CN-08 „Emergency generators for cyanide handling equipment" describes the frequency of maintenance and testing works on generators and the procedures on the automatic start and backup energy supply for maintaining in operation the pumps and equipment having a critical role, in case there is any blackout. The process plant will be fenced and access will be controlled so as to prevent the unauthorized exposure to cyanide or other hazardous situations on the site. The process plan is located within the safety perimeter of the overall site, access to the plant and other critical areas being strictly controlled in accordance with procedure EM-07 „Site Safety". The fencing and security measures will be inspected at least every month in order to check the safety and legibility of the restriction signs. The contractual terms for the contractors in charge with designing and constructing the process installations will specifically set out the requirements on the implementation of quality assurance/control programs, meeting internationally recognized standards, in order to ensure a high degree of confidence that the installations will operate according to the design. Records on quality assurance/control in design and construction and the „as built" certificates for these installations will be kept in accordance with procedure MP-11 „Data Management in the Environment and Social Management System". **Cyanide solution management in production** Standard Operating Procedure CN-02, „Exploitation of the carbon leaching installation" sets out specific instructions for the operation of the carbon leaching installation within the process plant. In addition to a description of how the installation should be operated, this procedure also identifies risks related to cyanide, lists the personal protection equipment, provides for pre-job safety inspections and staff training requirements. This procedure also describes contingency actions in case there are any malfunctions in the operation of the processing installations. As mentioned in CN-02, RMGC's policy is that no physical or operational changes can be made to any portion of the cyanidation circuit without the prior notification of the Environment and Safety Departments, and without determining: 1) whether the modification is permitted by the applicable authorizations and licenses; and 2) whether these modifications could increase exposure to or emissions of cyanide. It also refers to changes proposed to the process of handling cyanide, reagents and technological

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		solutions, as well as to the SO_2/air installation for tailings detoxification. Routine maintenance activities, equipment replacements, and modification of the processing rates are within the limits of the designed parameters and the authorization limit values and do not require any notifications. Approval of any changes to the processing installations relating to the cyanide circuit will lead to a revision of this *Cyanide Management Plan and Emergency Response and Accidental Pollution Plan* in terms of adequacy and accuracy. Cyanide-containing gas detectors will be placed in the following areas of the process plant: Carbon leaching tanks; ▪ Thickener area; ▪ Detoxification installation; ▪ Carbon desorption area and ▪ Cyanide discharge/storage area. The detectors will emit an evacuation alarm and will start a warning light when the concentration of cyanhydric acid reaches the strictest limits for worker exposure established by the Romanian Government or the EU, or recommended by the International Cyanide Management Institute. All these detectors will send an alarm signal to the operators in the control room. A kit containing cyanide antidote, medical oxygen and resuscitation equipment (which can be only used by the medical staff or the members of the intervention team specially trained for this purpose) will be available in the process plant in such situations. Drinking water sources, eye irrigation stations/safety showers and dry-powder fire extinguishers will also be available in strategic points across the plant. The staff working in the process areas requiring the handling of cyanide will be trained with regard to the fulfillment of their job duties so as to minimize exposure and uncontrolled cyanide release. The training sessions will be conducted in accordance with MP-93 „Training on the Environment and Social Management System". The response procedures for emergencies or in cases of cyanide emissions or exposure to cyanide in the process plant are discussed in section 12 of this plan and in the EIA Report *Plan I Emergency Response and Accidental Spills Plan* of the Project.

e) estimated viability of this type of industry on the European/world market (also given the conditions of the world recession);

Answer:
The viability of the gold miniming industry on the European and world market is given by the importance of the extracted raw material both in the demand for this material and by its positive socio-economic impact. Ulike other raw materials, gold not only has a vast range of industrial uses, but also an intrinsic value, as a metal that can be treasued. With the economic and financial instability caused by the global recession, gold is one of the few reliable and predictible investments, of recognised and guaranteed value, irrespective of the political-economic, exchange rate or socio-cultural context. Glbally, the demand for gold is rising. Asia, the Indian sb-continent and the Middle East account for 70% of the deman, with 55% of the demand being covered by 5 countries: China, Turkey, Inda, the USA and Italy, each of the markets being driven by a different set of ocio-economic and cultural factors.
The total level of gold production worldwide as been 2,485 tons/year on average for the past 5 years, with new mines largely used to replace current production instead of generating a global increase. According to some, gold production peaked in 2001, when the global output was 26,000 tons, and has since gone down by about 20%, due to the depletion of the largest available deposits. Medium- and long-term access to gold resources has become strategic while the forecasts of banks and international financial institutions show a contiuous rise in the proce of this metal in the future (gold prices already having exceeded all the histric maximums).
The reasons for the massive demand for gold on the stock markets are supported by the predictions that demand for gold will exceed the supply, providing a strong argument in favour of investing in gold. One of the most important elements of investing in gold is the capacit of gold to insure against uncertainty and instability and to protect against economic-financial risks. In 1990, the central banks signed an agreement stating that gold will remain an important element of the monetary reserves internationally, and limiting to 500 tons the quantity of gold that can be sold by the central banks during one year. The agreement was amended in 2009, with the quantity of gold capped at 400 tons/year. Since 2009, for the first time in the past 20 years, the central banks have started to increase their gols reserves by 900 tons, while China declared that they will increase their gold reserve by 10,000 tns in the next 10 years
In a socio-economic perspective, the recession facing the world economy detemined, among other things, a decline in production, paralleled by an alarming increase in unemployment rates, with most states resorting to anti-crisis measures. Gold mining operations are an important catalyst for the communities in which they are active, contributing to their social and economic development, by creating jobs and economic opportunities, substantial contributions to the local budgets, rehabilitating infrastructure, and preserving and enhancing he historic ad cultural heritage.
In conclusion, the states that can ensure constant and responsible exploration and extraction of heir gold resources, in observance of the sustainabe development principles, will benefi from a viable and privileged economic development.

f) *presentation of the technical and operational altenrnatives and rmediation for contingent situations (e.g.*
g) *replacing the cyanide ore concentration method), potentially with emerging techniques;***Answer:**
A detailed presentation of the technical operational alternatives is provided in Volume 1: Explanatoy Note to Chapter 5 – Review of the Alternatives and Chapter 5 – Analysis of Alternatives in the EIA Report. Also, details on the ore concentration methods are given in Chapter 2 – Technological Processes of the EIA Report and in the answers provided in Volume 2: CAT Comments and Answers.

h) criteria in avoiding mono-industrialisation, in order to ensure the viability of the area before closure;

Answer:
First, when the Project closes, the area will be completely cleaned up, with a far better infrastructure at all levels (roads, sewerage, power and telephone lines, water supply), with a restored historic centre, that will have been operating as a tourist operatod by then,for both the industrial and thecultural and mountain components of the site

(Vol. 53 of the Answers Annex of the EIA). A number of already existing programs thet will continue throughout the development of the mining Project aim to improve the educational profile and skills improvement levels, in order to meet the needs of the Project and encourage the people to think of other ways of making a living than mining. The vocational training program is one of these programs. Business training is part of the vocational training program. A business incubator is also being implemented.
In January 2007, RMGC established the Rosia Montana MicroCredit, under the name of "IFN Gabriel Finance SA", to encourage local investment. This micro-lender aims to provide the necessary funding and resources to the people of Rosia Montana, Abrud, Campeni and Bucium, in view of supporting the locals create micro-enterprises or expand existing ones.
The closure plan for the Rosia Montana Project has also been designed so as to restore the mine site to public uses for productive purposes. Support provided to sustainable development will continue through partnerships, under the guidance of various relevant organisation such as the UN Development Program (UNDP). For example, the negative effect mitigation measures and enhancement of socio-economic benefits willbe run under the guidance of the Socio-Economic Research Centre Roşia Montană (info@rmserc.ro), who, in its turn, partners the local authorities. This will provide transparent evaluation of the efficiency of support granted to the sustainable development process and make a forum available for the implementation of the necessary improvements. Other partnerships supporting the sustainable development process are presented in Volume 53, Annex to the EIA Report, and the Initial Tourism Proposal for Rosia Montana. Also, please consult the Sustainable Development Acton Plan that has been made available as additional documentation.
Apart from immediate direct and indirect benefits, the presence of the Rosia Montana Project as a major investment will improve the economic climate of the region, which in its turn will encourage and promote the development of economic activities not related to mining. It is expected that this improvement of the investment and economic environment will create business opportunities to be developed in parallel to the Project even if it goes beyond the scope of activities directly related to the mine. Economic development diversification is an important benefit of investment generated in implementing the Project.

i) – how the project adapts to the potential changes of legislation and/or enforcement of new regulations.

Answer:
In regard to how the project adapts to potential changes of legislation and/or enforcement of new regulations, RMGC will comply with any change of legislation at any time during any of the Project phases.

2. From the point o view of air quality, we request:

a) An update of the current situation of the air emission sources impacting air quality in the Project area and the estimated quantities of air pollutants released in relation to the latest EU regulations.

b) An update of the existing situation of air quality in the Project area for all the pollutants that might affect public health and the environment, as regulated by the national legislation in force on air quality.

Answer:
An update of the current situation of the air emission sources and of the existing situation in regard to air quality in the Project area are being developed and will be made available to the CAT members at the earliest opportunity. More details on air emissions impacting air quality are given in Volume 1, Explanatory Note to Chapter 4.2 – Potential Impact – Air.

Question:

c) A more detailed presentation of the Project activities and work sites generating emissions of mercury ad mercury compounds, and of the prevention and control of their dispersion into the ambient air.

Answer:
A more detailed presentation of the Project activities and work sites generating emissions of mercury ad mercury compounds, and of the prevention and minimisation of their dispersion into the ambient air is detailed in Volume 1, Explanatory Note to Chapter 4.2 – Potential Impact – Air.

Question:

Please attach the following:

a) Updated graphical representations of the air emission sources impacting the air quality in the Project area for all the air pollutants regulated under the air quality national legislation in force, for the situation before project implementation, during construction, and after completion.

b) Graphic representations of the distribution of concentrations for each regulated air pollutant and averaging time provided in the relevant air quality national legislation, as resulted from dispersion modelling at the local and medium-range scale, for the baseline situation.

c) Graphic representations of the distribution of concentrations for each regulated air pollutant and averaging time provided in the relevant air quality national legislation, as resulted from dispersion modelling at the local and medium-range scale, considering the cumulative effect of the existing emission sources before Project implementation and the Project-related ones, during the construction period.

d) Graphic representations of the distribution of concentrations for each regulated air pollutant and averaging time provided in the relevant air quality national legislation, as resulted from dispersion modelling at the local and medium-range scale, considering the cumulative effect of the existing emission sources before Project implementation and the Project-related ones, during the operations period.

Answer:

An update of the current situation of the air emission sources and of the existing situation in regard to air quality in the Project area are being developed and will be made available to the CAT members at the earliest opportunity. More details on air emissions impacting air quality are given in Volume 1, Explanatory Note to Chapter 4.2 – Potential Impact – Air.

Question:

3. From a biodiversity point of view, the EIA Report should be supplemented with the following:

a) *a mine impact assessment study based on the presence in the area of wild flora and fauna, habitats and protected areas of national or community interest, according to Article 28 of EGO No. 57/2007 on the regime of natural protected areas, wild flora and fauna, and natural habitats, as further amended. We recommend that the "Biodiversity Management Plan" include not just general data from the literature, but provide detailed information on the biodiversity of the Project area.*

b) Cumulated Impact

c) Residual impacts

d) The descriptive part of the methodology used in assessing the impact on wild flora and fauna and their habitats

e) The Project site layout plan in relation to natural protected areas, including neighbouring ones

f) Presentation in Excel format of the Stereo 70 coordinates of:

- *the protection boundary of the industrial area*
- *the current boundaries of the mining license.*

Answer:

A detailed answer to the above questions can be found in Volume 1, Explanatory Note to Chapter 4.6 – Potential Impact – Biodiversity, and in the annexes attached to the Explanatory Note in Volume 3.

Question:

4. In respect of flood risk management, we request:
Under the Emergency Preparedness and Spill Contingency Plan, take into consideration the provisions of the Regulation on the Management of Emergencies Generated from Floods, Extreme Weather Events, Accidents in Hydro-Engineering structures and Spills, approved by Order 638/420/2005 of the Minister of Administration and Internal Affairs and the Minister of Environment and Water Management, as further amended.

Answer:

The first draft of the Emergency Preparedness and Spill Contingency Plan was submitted in 2006, along with the EIA Report. An updated version of the plan was submitted in 2007, as an attachment to the form presenting the solutions to problems raised by the interested public (Volume 55)
The updated version of the Plan is included in Volume 3 – Additional Reports and Studies, as an attachment to Explanatory Note to Chapter 7 – Risk Situations. Please note that Order 638/420/2005 was considered in the development of this Plan.

Question:

5. From the point o view of the forestry legislation in force:
For the areas involving major changes of the forestry conditions, such as the pits, waste rock piles, landfills, etc., the beneficiary must apply for a final exclusion of such land from the national forestry stock.
For areas not entailing major change, the Beneficiary may choose to occupy them temporarily.
Under art.38 para.(l) of Law No.46/2008 – Forestry Law, as amended, "land excluded from the national forestry stock shall be transferred into the Beneficiary's ownership at the time of the transfer and shall be used as indicated in the application for exclusion as approved" and under art.37 para.(3) of Law No.46/2008 – Forestry Law, as amended, the Beneficiary shall provide in compensation "....land worth five time the value of the land excluded from the forestry stock, and the area of land given in compensation may not be smaller than three times the area of land to which the exclusion application refers"
In order to obtain approval for the final exclusion from the forestry stock, the Beneficiary shall develop the documentation and pay the applicable monetary dues, as provided by the law.

Answer:

The procedure for final exclusion of some land from the national forestry stock and the conditions for applying for it are regulated in detail under Law No. 46/2008 – the Forestry Law, as amended, and by Order No. 25/2009 approving the Methodology for establishing the equivalent value of land and calculating the monetary obligations for final exclusion or temporary occupation of land from the national forestry stock.
In order to obtain the building Permit for the Project, RMGC will have to prove that it owns real rights over the land subject to the construction works. To this end, RMGC will apply to the competent authorities to exclude from the forestry stock the areas of land required for the implementation of construction works and will follow the procedure as provided by the law.
Since the use of land for Project development, including land that is currently part of the national forestry stock, will only be possible if EMGC obtains the preliminary approvals and licenses required for Project implementation, the legal procedure for the exclusion of land from the national forestry stock, or temporary use of land, respectively, will be followed only once such preliminary approvals and licenses have been obtained. Once the legal procedure has been followed and real rights over the land has been obtained, RMGC will apply for a Building Permit in order to execute the construction works related to the Project.

2. Ministry of Regional Development and Tourism

"MRDT has officially requested from the Alba County Council a copy of Urbanism Certificate No. 87 of 30.04.10, the document issued in view o developing the documentation for the Building Permit related to the Mine at Rosia Montana.

I. Mining facilities – construction works, decommissioning works, proposed provisional construction works and

II. Heritage objects – research, protection and conservation of historic monument buildings

Under the legislation in force, in order to implement the proposed investments, urban development regulations are required in the form of a Zoning Plan, developed, endorsed and approved under the law. Thus, article 32 of Law350/2001 on land use planning and urbanism, provides that:
" (1)If the application for an urbanism certificate relates to a change to the provisions of the urbanism documentation approved for the respective zone, or if the specific conditions, the location or nature of the investments require it, the local public authority may, under the urbanism certificate:
a) reject the application on justified grounds;
b) request the development of a zoning plan only based on a preliminary endorsement of the opportunity developed by the specialist structure led by the Architect-in-chief and approved by the Mayor of the community, or the General Mayor of Bucharest, as applicable, to establish:
1. the territory to be regulated by the Zoning Plan;

2. the functional category(es) of the development and potential rights of way;

3. mandatory regulations or necessary public interest facilities;

c) to request the development of a Detailed Plan.
(2) In the absence of the specialist structures as mentioned above, the endorsement of opportunity shall be issued by the relevant urbanism structures of the county councils and approved by the County Council President.
(3) After the approval f the Zoning or Detailed Plan, as applicable, the technical documentation must be developed in order to obtain a Building Permit.
As you know, under Directive 2001/42/EC (the SEA Directive), transposed into the national legislation under GD No. 1.076 of 8 July 2004 on establishing the procedure for the environmental assessment of plans and programmes, zoning plans must be subject to a strategic environmental assessment procedure(SEA).
După parcurgerea procedurii SEA şi a obţinerii tuturor avizelor prevăzute de lege, pentru propunerea de plan de urbanism zonal făcută de iniţiator, precum şi după aprobarea în consiliul/consiliile locale a planului urbanistic zonal, se poate trece la elaborarea propunerii de proiect care respectă întocmai reglementările aprobate prin PUZ, implicit şi la faza de evaluare a impactului asupra mediului.
In the strategic assessment of the urbanism plan, alternative scenarios of potential development are reviewed, along with the relation with the hierarchically superior territorial level, the ways to protect and regulate the territory, with consideration for cumulative, trans-sectoral and indirect effect.s
Environmental impact assessment does not ensure a multi-disciplinary analysis and urban regulation of a complex territory, but an investment inserted into an already regulated urban framework, looking at specific, detailed, cause-and-effect relations between the proposed Project and the environmental components, for a clearly defined solution that is in line with all the urban development obligations and constraints (functional, municipal, traffic, legal land transfer, monument and alignment protection regulations and rules) as enforced under the approved urbanism documentation. Thus, the impact assessment stage is subsequent to the strategic environmental assessment.
In order to formulate the point of view of our institution in the light of our responsibilities, we request compliance with the sequence of steps ad provided by the current legal framework for urbanism and

building permitting, as provided by the law, under the above-mentioned article and as specified in Urbanism Certificate No. 87/30.04.10 issued ALBA County Council.
We therefore consider that it is absolutely necessary that in the next meeting of the Technical Review Committee (CAT) we should be informed on the state of development and approval of the urbanism documentation initiated based on Urbanism Certificate No. 87 of 30.04.10.
We stress that this is required because in the urbanism documentation approval process, according to the law, the urban development solution proposed by the applicant may be altered under technical requirements enforced by various endorsers.
In view of the foregoing we deem it premature to state our position in reference to the proposed solution..

Answer:
In December 2004 RMGC applied for an Environmental Agreement for the Project and submitted to the competent environmental authorities the documentation specified in Government Decision No. 918/2002 on establishing the framework environmental impact assessment procedure for certain public and private projects and the list of public or private projects subject to this procedure **("GD No. 981/2002")** – the regulation in force at the date RMGC submitted the application.
During the screening step, conducted in accordance with the procedure as regulated under GD No. 918/2002, the competent environmental authority verified the location of the Project-related facilities on the ground, identified the media that might be potentially impacted by the Project and developed the guidelines or the environmental issues that had to be dealt with in the impact assessment. This procedure for the identification of potentially impacted environmental media involved a careful review of the Project characteristics and of all the elements that might be influences by the future development thereof. During this step, the review conducted by the competent environmental authority is not limited to a verification of the urbanism documentation in force (such as a zoning plan for the industrial development zone of Rosia Montana Gold Corporation SA, approved by the Commune of Rosia Montana and the Town of Abrud in 2002), but considers all the data related to the site.
After submitting the Project Presentation Memorandum to the competent authorities, RMGC operated some changes to the technical design project, in order to reduce the potential environmental impacts and improve the protective measures to be implemented in regard to the historic monuments. The amendments mainly aimed to reduce the areas related to some of the industrial facilities and relocate some access routes. These changes in the technical design operated before 2006 were communicated to the competent environmental authority during the environmental impact assessment procedure and were considered by the experts in their assessment studies, and reflected in the EIA Report submitted in 2006.
In 2006, RMGC initiated the development of zoning plan-type urbanism documentation for the industrial development zone of Roşia Montană - "Roşia Montană Industrial Zone ", aiming to detail and amend some of the regulations included in the zoning plan for the industrial development zone of Roşia Montană Gold Corporation S.A. approved in 2002. These details and amendments will be required in obtaining the Building Permit for some of the Project facilities. Based on the development of the environmental report attached to this plan, following completion of the public hearings with both the Romanian interested public and the stakeholders in Hungary, as well as the analysis conducted by the Special Taskforce, in May 2010, the Regional Environmental Protection Agency in Sibiu asked RMGC for an updating of the draft plan an environmental report. Currently, the above documents are in the updating process, and will be submitted with the application for the Environmental License to the draft plan, in order to move forward the endorsement and subsequent approval process. Urbanism Certificate No.87/2010 also lists this PUZ-type urbanism documentation among the necessary documents to be attached to the Building Permit application, together with, *inter alia*, the Environmental Agreement.

3. Ministry of Transport and Infrastructure

Road Transport

The Project contains aspects that may affect the national road transport infrastructure:

1. the transport of cyanide, in convoys of 12 lorries 20 t each, on a weekly basis, which involves higher risk of injury to the road users, from accidents or potential cyanide spills.

- destruction of the road structure of national roads used for such cyanide transports;

Answer:

Based on a complex and full risk analyses associated to cyanide transport in general and road transport in particular, the EIA Report identified and defined complex risk minimisation and safety improvement measures. The risks associated to the road transport of the chemical compound will be reduced to the lowest level possible by the implementation and enforcement of these measures, and may be considered insignificant.

By way of example, the following are eloquent information in regard to the aspects related to risk mitigation in the road transport of cyanide:

- Sodium cyanide will be carried in special SLS containers – with ISO certification – that are sealed and shock resistant in the event of an accident (the containers and protected by a special metal framework designed so as to maximise protection); this method is recognised as BAT;
- The sodium cyanide will be transported in solid state (briquettes) and not as a liquid.
- All the carriers will be subject to strict monitoring and auditing systems, in order to guarantee compliance with the International Cyanide Management Code.
- By using the transport containers at maximum capacity, the number of transports will be reduced.
- Continuous communication for the whole duration of the transport will ensure monitoring of the progress of individual shipments via planned routes; means of emergency communications regarding road conditions, mechanical problems, weather hazards, and other transportation issues will also be provided.
- Co-operative spill emergency response mobilisation schemes will be established with the local and regional authorities along the transportation routes.
- On delivery, the cyanide will be liquefied and pumped into storage tanks out of the transport containers, without any interim handling or storage.

As detailed in Chapter 4.10 of the EIA Report, in the Section on potential impacts during the operations stage, and in Chapter 7 – Risks, in the Section on Hazards and Risks Associated to Transport and in the Section on Potential Major Accidents, the risks and potential impact of the transport and handling of sodium cyanide for the operation of the process plant have been carefully considered. The risks associated with this activity will be substantially reduced through the implementation of measures to minimise the likelihood of the accidental release of sodium cyanide, and these measures are described in the above-mentioned sections and in the following plans: Roşia Montană Project Environmental and Social Management Plan, and Cyanide Management Plan (see Plans A and G). RMGC will comply with the national and EU legislation in the filed and will also enforce these obligations to its suppliers, in order to ensure that all the requirements for the safe transport of any hazardous materials have been complied with.

RMGC and its suppliers will adhere to the standards of the EU Cyanide Sector Group (CEFIC) for the storage, handling and distribution of alkaline cyanides. CEFIC sets the standards and demands compliance with the EU Directives on the transport of thousands of hazardous substances of all kinds that transit the EU territory on a daily basis, with the required ADR permit (ADR is the European Agreement on the Road Transport o hazardous Materials).

Gabriel Resources, the majority shareholder of RMGC, signed the International Cyanide Management Code (ICMI), an internationally recognised practice for the management of cyanides in the gold mining industry; RMGC will also ask its suppliers to sign and abide by the ICMI, ad the activities of the process plant at Roşia Montană will also be certified by ICMI. It will also follow a regular, thorough and independent audit of the cyanide management system. The International Cyanide Management Code contains, among others, the following two relevant provisions:

- To protect the communities and the environment during the transport of cyanide;
- To establish, under written agreements, clear responsibilities in relation to safety, security, prevention, preparedness and emergency response;
- It requires cyanide carriers to implement adequate emergency response plans and commit to adequate measures in the management of cyanides.

In reference to the potential impact on the road infrastructure of the national road system, we can say that, during the transportation activity, the operators selected to providing such services will comply with all the relevant

legal provisions for this activity. Moreover, by paying for the transport licenses, fuel and road fees, other financial contributions under protocols signed by RMGC with the authorities of Abrud Town and other local governments, RMGC will help create the necessary funds for the construction and maintenance of roads and transport infrastructure used during the construction and operations stages of the Project.

2. existence of more noise sources. National road users on DN 74 and DN 74A will be affected by the following sources of noise:

- *mining operations at the pits (drilling, blasting and excavation)*
- *vehicle traffic in the site area (haul trucks, bulldozers, other heavy equipment, etc.)*
- *off-site traffic;*
- *other noise and vibration generating activities;*

Answer:
The conclusion derived from the complex predictive analysis of the potential noise and vibration sources in the area and outside the site for various stages of mine development is that the users of national roads DN 74 and DN 74A will not be affected by the activities carried out during the construction of Rosia Montana mining project.
An analysis of the Project impact in regard to noise and vibrations over the surrounding area is presented in Section 4.3 Noise and Vibrations. The information in this section were obtained from predictive noise level determination considering the cumulative effects of the diverse activities on the Project site area (mining, heavy traffic on and off site) and taking into account the overlapping of some activities at various times during the Project lifetime.
The analytical result is shown in graphical format on the plates attached to this section, and allow an estimation of impacts over the entire area surrounding the Project, and on the road users in particular, along DN 74 and DN 74A in the project site area.
Interpretation of the graphical information presented on plates 4.3.1 and 4.3.10 shows that there will be no impact on DN 74 and DN 74A caused by noise and vibrations generated from mining activities.
This Section also shows specific mitigation measures for impacts associated to the construction and operation activities by implementing best available techniques as included in the "Noise and Vibrations Management Plan", a document that will be continuously updated based on information obtained from the monitoring these factors at different locations on the Project site, and based on the community response to the efficacy of such measures.

3. the presence of the TMF along DJ 74(it is not clear how far this is from the road area) involves two risks:

- *overfilling;*
- *or dam failure, affecting the road area.*

Please give technical details related to the connections of access roads and bypasses to the national road system, in regard to on site heavy traffic over the road area of DN 74 and 74A, including the proposed distance from the TMF to DN 74.

Answer:
Based on the risk assessment of the TMF dam at Corna and the study of potential effects in case of failure, and taking into account the position of national road DN74 in relation to the Corna Dam, the conclusion was that even in the very unlikely case where the dam might fail, the structure of national road DN 74 will no be exposed to any potential impact, and there will be no risk in this regard.
Chapter 7 of the EIA Report, Section 6.4.3 – the TMF, reviews that potential dam failure scenarios and studies in detail the potential effects that might be generated from the (scarcely probable) occurrence of such failures.
After receiving the express of concerns of the interested parties, RMGC decided to continue and refine the analysis and commissioned a further study, titled "Assessment of the Risks Associated to the Corna TMF system" The study, developed by the Norwegian Geotechnical Institute, was completed in May 2008 and RMGC submitted it to the competent Romanian authorities (Ministry o Environment and Regional Environmental Protection Agency) in June 2009.

The purpose of the study was to provide a risk assessment and estimate the probability of malfunction in the Corna TMF dam system in Rosia Montana. The risk analyses were conducted using the "event tree" method, so as to determine if the dam safety is sufficient for he dam to cope with "uncontrolled" spills of tailings and water during its lifetime in operation. This technique identifies the potential failure mechanisms and determines how a number of events might lead to dam failure. The probability associated to each scenario was quantified for each triggering event.
Risk assessment using the event tree approach considered the dam at different times during its development and calculated the probability of malfunctioning. It defined dam malfunctioning as an uncontrolled spill of tailings and water beyond the dam over a given period of time. The spill might be determined by either a breach in the dam crown, or by a dam overspill without breach. Analyses took into consideration critical scenarios, including all the possible ways in which Corna dam might malfunction under extreme triggering events, such as an unusually strong and extremely rare earthquake and an extreme precipitation effect occurring in a 24 hour period. The probabilities were associated wit the possible consequences of dam failure or overspill.
Detailed risk assessments based on event tree analyses are aimed at refining the previous extreme scenarios developed for the cases of dam failure and included in Chapter 7 "Risks" of the EIA Report.
The probability of such an extreme scenario (previously presented as the way in which dam failure may occur), was considered to be much too low for the initial scenarios to be realistic, considering the technical design and proposed characteristics of the TMF and its dam system.
Therefore, other scenarios of a higher probability of occurrence were determined and used in the event tree –type analysis. Instead, event tree analyses took into consideration the most plausible scenarios, including the possible ways in which Corna dam might malfunction under extreme triggering events, such as a one in 10,000 years earthquake event and extreme precipitation.
The analyses had the following results:

- None of the strings of plausible accidents would result in a probability of the dam malfunctioning, higher than 10^{-6} in a year (once in a million years).
- The highest probability of malfunction (about 1:1 million years) was associated with an earthquake causing wall instability in the Corna dam and static liquefaction of the tailings during the construction period (years 9-12), and the internal erosion of he starter dam. Scenarios with a once in a million years probability of occurrence might result in material damage and limited contamination, both in close proximity of the dam. There would be no trans-boundary effects.
- The low probabilities of occurrence calculated suggest that no mitigation measure will need to be implemented. Instrumentation and monitoring during the dam construction and operation are probably the most efficient methods to further reduce the risk associated to this facility.

The estimated probabilities of dam malfunctioning are 100 times lower than those used as a reference criterion in any dam or structures of this kind worldwide, and lower than the probabilities associated to the malfunctioning of any civil structure. The vent sequence with the highest probability of occurrence will result in considerably lower volumes of spilt materials than it had been assumed in the failure scenarios included in the EIA Report. In particular, in regard to the extent of the tailings spill in a highly improbable event, it may be noted that its extreme tip will reach 200 m downstream of the Secondary Containment dam of the Corna dam system, and the DN 74 alignment, located some 1000 m distant from the dam will not therefore be exposed to any risk.

<u>Railroad</u>

1. The records of the Romanian Railway Authority do not contain any record of the narrow gauge railway route (Rosiamin) either as a permitted industrial railway, or for the provision of service-operation, handling, or rolling stock registration.

Answer:
The railway segment of Gura Minei Aprăbuş referred to (exact name "NARROW GAUGE RAILWAY Gura Minei Aprăbuş") is not part o the Roşia Montană Project and has not been considered as a Project transport option. The segment used to cover a distance of 3 km, being classified as an industrial railroad, was included in the Rosiamin inventory as an immovable asset, then retired and sold by Rosiamin.
Please note that this railroad was exclusively used to transport ore from Gura Minei – 714 Adit to the crushing plant at Aprăbuş, as part of the technological process of the mine operated by Rosiamin.

2. In the chapter on the Impact of Heavy Equipment Delivery, Roşia Montană Gold Corporation SA - RMGC considered commissioning a preliminary alternative assessment study of the rail transport options for mining equipment that had been assessed in the preliminary study conducted by RMGC and were considered unsuitable, due to the inadequacy of the handling infrastructure for such sizes and

weights, and that prior to commissioning the investment, a further evaluation of the rail infrastructure will be undertaken;

3. In he chapter on Additional Impacts during Operations, cyanide shipments might induce both the potential sodium cyanide spill from broken containers, leading to traffic accidents with negative impacts in public health and the environment, and the interference of protest or criminal/terrorist activities. In choosing the best option, several combinations of rail/road transport alternatives have been suggested, and the use of railways was agreed as it would minimise travel on the Romanian road system. Thus, container terminals were investigated at the transfer stations of Deva, Alba-Iulia and Cluj-Napoca. Alba Iulia does not have a connection to the terminal, and this activity has been closed. Each of the alternative routes described in the Report will be further evaluated prior to the final determination of the route for initial shipments of sodium cyanide at the end of the construction period, and to account for potential improvements in the Romanian railway transport.

4. In the chapter on Summary Risk of Transport Activities, in evaluating the consequences of major accidents involving the transport of hazardous substances, several accident scenarios were investigated, including a more detailed analysis of sodium cyanide shipments, for the delivery of which various route alternatives were identified, with one of the goals being maximising rail transport. Although Roșia Montană Gold Corporation, in the Cyanide Management Plan, provides for risk minimisation, by including maximum safety conditions, there is still a residual accident risk.

5. in the chapter related to transport alternatives, we identified the following:
a) SHLO transport routes, the option is considered unsuitable, due to the unsuitable infrastructure for the handling of oversize and overweight freight, as pointed out before.
b) *in relation to the route alternatives for cyanide haulage, there are two preferred alternatives of delivering sodium cyanide briquettes from international sources: sea/road and rail/road shipment. Following discussions with the licensed carriers in the region, rail transport was recommended to be used to the greatest extent possible. As for comparing the container terminals, in the Deva and Cluj-Napoca points of transfer, they were not available or analysis at the time of the study.*

Although the combined rail/road transport option through Deva or Cluj Napoca is preferable, in further assessments of route alternatives for cyanide transport we recommend that the stakeholders consider all the vulnerability aspects, including railroad safety, the safety of loading/unloading operations, the emergency response capacity, etc., as specified in the Report.
Should it be considered that the optimum cyanide transport option is by rail, the Romanian Railroad Authority, AFER, will monitor compliance with the relevant legislation in force.

Considering that in the environmental impact assessment stage cyanide transport will not have been established, AFER considers that cyanide rail shipment is a real environmental risk.

Answer:
In relation to the above-mentioned issues, as derived from the information included in Chapter 4.10 – Potential Impacts – Transport and Chapter 5 – Alternative Review – section on transport options of the EIA Report, RMGC reassert their intention to re-commission the combined transport options assessment at a time prior to the commissioning of the Project construction and operations works. Under this assessment, together with the Contractors selected for the operation of transport as necessary for the Project development and operation, special attention will be devoted to maximising, to the extent possible, the use of rail transport for the purpose of optimising the travel time and improving safety, as well as in view of reducing traffic on the national road transport system, with due consideration for all the aspects related to railroad safety, in both the transport itself, and in the loading/unloading operations.
In assessing the risks associated to transport activities, we included all the materials required for the Project construction and operation, with special attention devoted to substances classified as hazardous, such as: ammonium nitrate, sodium cyanide, aluminium hydroxide, sodium hydroxide, sodium metabisulphite, blast initiators, hydrochloric acid, other process reagents, hazardous waste.
RMGC will assess and select specialised and permitted transport service providers of good reputation and experience for each of the categories of freight, and enforce detailed contractual requirements and responsibilities in order to maximise safety in operation. Moreover, RMGC conduct its own inspections and audits of transport activities.

For the sake of risk minimisation, there will be a tight scheduling of shipments, to avoid delivery of hazardous substances on the same routes at the same time, avoid overlaps with shipments of heavy equipment or special transports, and consideration will be given to continuous monitoring and reporting on the state of ongoing transport operations. To the same end, the logistics strategy considers the maximised use of the supplier and operator networks and distribution systems, in the idea of avoiding additional handling whenever possible.
Especially, taking into account the necessary quantities (abut 12,000 tons a year), the delivery and transport of cyanide will be carefully planned together with the selected supplier and carrier, in order to avoid interference with the delivery of other hazardous substances, oversize or overweight equipment. As recommended by licensed contractors in operating transport of this substance (CyPlusGMBH, Hoyer), who conducted studies of the supply logistics options, the functional condition will be re-assessed and maximum use will be made of the European and national rail structure in order to increase safety in the transport operations.
RMGC commits to comply with the national and EU legislation in the filed of transport and also to enforce these obligations to its suppliers, in order to ensure that all the requirements for the safe transport of any hazardous materials have been complied with.
In particular, we want to stress again on the fact that all the risks of potential impacts from the transport and handling of sodium cyanide required for the operation of the process plant have been very carefully considered. The risks associated with this activity, and its potential impacts, will be substantially reduced through the implementation of measures to minimise the likelihood of accidental release of sodium cyanide, and these measures are described in the above-mentioned section of the EIA Report and integrated in the following plans: Roşia Montană Project Environmental and Social Management Plan, and Cyanide Management Plan (Plans A and G). By the implementation and enforcement of these measures, the risks associated to the road transport of the chemical compound will be reduced to the lowest level possible and may be considered insignificant.
As a signatory of the International Cyanide Management Code (ICMI), an internationally recognised practice for the management of cyanides in the gold mining industry; Gabriel Resources, through RMGC will also ask its suppliers to sign and abide by the ICMI, ad the activities of the process plant at Roşia Montană will also be certified by ICMI. Throughout Project operations, regular, thorough independent audits of the cyanide management system will be conducted, with special attention to the operations involved during transport, in any of the combined options that will be used.

4. Ministry of Agriculture and Rural Development

1. Considering the framework documentation of the National Rural Development Programme (PNDR), and for assistance to small enterprises, we propose that specific measures under this programme should also be targeted.

In order to ensure the sustainability of its proposed community development programmes, RMGC is coordinating with development programmes run by other actors in its operating area, and especially with the governmental strategies and programmes.

RMGC has indeed considered harmonising its proposed assistance measures for the development of small enterprises with the specific measures of the National Rural Development Programme [PNDR].
The development directions presented in the National Rural Development Strategic Plan, and the National Rural Development Program for 2007-2013, respectively, have been considered in the development of the mining project at Roşia Montană a in the development of development programs addressed by RMGC to target the Project impact area.
The main objective of the mining project itself – to facilitate the implementation of an industrial activity in Rosia Montana Commune, and the beneficial effects of this activity on the social and economic environment of the area ultimately aims to develop an underprivileged mountain area, in convergence with the PNDR objectives.
Thus, Project implementation will contribute to:

- the development and diversification of economic and service activities, based on the requirements of ore extraction and processing;
- have the local population acquire new skills and competences;
- clean up the sites and historically polluted environmental media;
- protect the environment and human health;
- increase the general welfare in the community by creating new employment and increasing budget revenues;
- create the conditions for tourism development by protecting and capitalising on the heritage assets;
- create public-private partnerships.

RMGC is also considering other measures and programmes targeting integration with the directions of action provided in the PNDR, such as supporting community members become eligible for PNDR programs.
In the light of the measures proposed under Annex 3 of the PNDR, a number of programs already run by RMGC – the Heritage Restoration and Enhancement Program the Community Revival through Tradition Initiative, the Vocational Training Program (for the competences required in Project development, but also non-mining skills), the support for small enterprise development, are perfectly harmonised – in both philosophy (aiming to provide economic diversification of mono-functional areas), and action pathways (local partnerships) – with the measures included in Axis 3 of he PNDR.
RMGC is also considering other measures and programmes targeting integration with the directions of action provided in the PNDR, such as participation as a private actor in one of the Local Action Groups proposed for the Project impact area – especially in the direction of measures to revive villages and promote tourism. RMGC also proposes to support the development of small businesses as suppliers and contractors for the mine, but also for non-mining operations, by integrating measures of the PNDR with the RMGC programs for small enterprises (e.g. supporting people in the community to become eligible for PNDR programs by using he micro-loan provided by RMGC as a source of attracting co-financing where necessary, etc.). In January 2007, RMGC established the "Non-banking Financial Institution [IFN] Gabriel Finance SA", to encourage local investment. This micro-lender aims to provide the necessary funding and resources to the entrepreneurs of the Mining Project impact area, in view of supporting the locals create micro-enterprises or expand existing ones.
IFN Gabriel Finance S.A. is a business under the control of the National Bank of Romania and permitted, under its scope of activity, to conduct lending activities, including by providing assistance and micro loans.

2. Please present the technical evaluation of the implications that might result from the closure of Minvest operations, which was still ongoing n 2004.

In regard to the mining activities on the Rosia Montana site, they are carried out under Concession Licence No. 47/1999 ("The License"), where RMGC is the Titleholder, according to Order No. 310/2000 on the transfer of the concession License for operation No. 47/1999.
Lack of economic profitability of the mining activity conducted at Roşia Montană by C.N. a Aurului, Cuprului şi Fierului Minvest S.A. Deva („**Minvest**"), through its Roşiamin Branch, and the impossibility to unbind the ore

concentrates obtained from its own activity, caused Minvest to cease production operations associated to the Roşiamin operations at Cetate Pit as of 16.05.2006. Closure of production activities was justified by the fact that the operation of ore reserves was unprofitable from an economic point of view, and the conditions of article 51 letter c) of Mine Law No. 85/2003 had been met. Thus, for RON 1,000 worth of output, the expenses had registered RON 3,380 in 2005 and RON 3,500 in 2006.
After obtaining the endorsement of ANRM and the Ministry o Economy, the closure of the mine was approved under GD No. 644/2007 on the approval of final closure and post-closure environmental media monitoring of some mines and pits, stage X, and the amendment f certain regulations regarding the closure of mines and quarries ("GD No. 644/2007"). The Minvest mining operation at Rosia Montana is included as item 41 of Annex No. 1 of GD No. 644/2007, with the total state budget expenses provided for the closure amounting to RON 98,701,298, plus annual expenses for conservation of RON 5,823,868 and post-closure monitoring worth RON 1,689,630. In this situation, the implementation of the technical mine closure program and the ecological restoration of the environmental impacts from mining activities conducted by Minvest will take into consideration the fact that the Rosia Montana License Titleholder is RMGC< whose mining project is currently in the stage of environmental impact assessment.
Minvest Closure Plan (PIA) – Rosia Montana Branch has taken into consideration the option of developing the RMGC mining project and contains clear provisions related to it. The PIA will be followed by a technical design project for the closure (recently initiated) that will have to go through a similar endorsement procedure to the PIA. The technical project also contains a public consultation component to decide on the destination and use of land after closure.
Thus, according to the PIA, the general estimate of closure expenses has been structured into two separate parts: expenses related to the environmental restoration of Minvest sites and facilities outside the RMGC proposed Project impact area, and expenses related to the restoration of areas within the footprint of the future Mining Project as proposed by RMGC. Closure and ecological restoration woks for the facilities on the Project impact area will be correlated with the implementation of the Project by the Rosia Montana License Titleholder. Thus, if RMGC fails to obtain the necessary permits for the Project, closure and environmental reconstruction works for the facilities associated to the Minvest mine will be conducted under the relevant approved budget. Should the RMGC Titleholder obtain the necessary permits, under the law, the closure and environmental reconstruction will target the facilities included in the Project impact area, with important savings to the state budget and avoiding unjustified reduction of financial resources available to the Romanian State.
Therefore, there is no incompatibility between the closure of the mine operate by the Minvest Branch and the permitting and implementation of the Project proposed by RMGC as Rosia Montana License Titleholder, as the execution o closure and cleanup works will be phased in, depending on the development o the mining project proposed by RMGC. Also, a number of galleries will stay open and preserved to allow continuation of the archaeological research program.

3. We propose the study of using renewable energy and the sludge from wastewater treatment to obtain biogas.

Answer:
Responsible use of resources required for the development of the Project was one of the criteria considered from the very first stages of the design thereof. In order to be aware of the potential of using renewable energy resources, that might be available for the Project, we have investigated this potential in recent years. The conclusions of this investigation are presented below.

Wind Power Potential in the Apuseni Mountains
The elevation of the terrain and the dominant direction of air masses play a key role in capitalising wind power resources. By reviewing the terrain particularities, a few mountain areas may be identified in the west of Alba County, where there is potential for the use of wind power resources, i.e. the Apuseni Mountains area. This area was identified as having wind power potential based on the western climate influences, with permanent winds. According to some modelling exercises conducted by the Regional Development Agency Centre, under the RENERG – EUREG Project, the results of which were presented as part of the study titled „ANALYSIS OF THE MAIN RESOURCES AND EXISTING POSSIBILITIES IN THE CENTRE REGION FOR THE SHORT- AND MEDIUM-TERM PRODUCTION OF ENERGY", air dynamics is dominated by the movement of air masses of oceanic origin from the west and north-west, which intensify and become more constant with the elevation. In the highest reaches of the mountains, with low morphological fragmentation, the air movement has the dynamic characteristics of the free atmosphere, which is proven both by the very rare frequency of recorded atmospheric calm situations. The physical characteristics of external climate influences, the orogroaphical features (local topography) determine both the general climate pattern of the Carpathians and the regional differences thereof. At the local level, the air mass circulation is strongly influenced, however, by the mountain morphology. As

elevation decreases, and the degree of fragmentation is stronger, the ridges and the variously orientated valley channels break down and divert the main air flows.
In the Apuseni Mountain region, the dominant wind direction is from the west, with some changes along the valleys (as determined by the terrain features). Thus, along the valleys, the frequency of atmospheric calm is very high, reaching 40-50% annually, unlike the highest mountain ridges, where the wind blows constantly (atmospheric calm being a rare event, at, 5-6% annually), and average speeds and very high, with up to 5-6 m/s in the cold season, and 4-5 m/s during June-August
According to the above study developed by the Regional Development Agency Centre, there are areas where the wind potential could be harnessed by the installation of small-scale power capacities, of up to 10 kW. There is also potential for the use of point equipment for local users (remote households, weather stations, seasonal work stations such as construction sites, developments etc.). According to a wind power potential map of Romania, publicly accessible at source: energiaeoliana.wordpress.com), the Apuseni Mountains have been classified, for a highland , to have a potential for 700 – 1200 w/mp, while for the hilly region the identified potential was 100 – 150 w/mp.
Another wind power potential map shows the situation based on the annual number of hours in which the wind speed is higher than 4 m/s. This is an important criterion, as the higher output wind turbines will only start at a wind speed of 4 m/s. According to this criterion, the area of concern contains two zones, i.e. one in which the number of hours a year when wind speed higher than 4 m/s is up to 2500 h and another where this indicator reaches 5000 h. By corroborating the three studies we may come to the following conclusions:

- The Apuseni Mountains area has medium wind power potential;
- There are zones, especially at higher elevations, where wind speed and constancy allow for feasible investments in wind power, from the point of view of output. In these areas, additional investment costs generated by remoteness should be considered (transport, assembly, connection to the national grid);
- Most areas do not have any wind power potential, but may allow local solutions, with low output high sensitivity turbines (start up at 1 m/s) for households, household groups, remote locations, possibly in a sustainable system, associated with photovoltaic panels and batteries.
- The actual potential in each area, especially if industrial use is envisaged, must be assessed on the ground, based on measurements that have to be conducted for a minimum of 12 months.

Solar/Photovoltaic Power Potential in the Apuseni Mountains
No significant potential was identified in the area of concern, either in regard to photovoltaic power or solar power. Investments required for the development of facilities to generate power from these renewable sources would be very high, and would lead to the inefficient use of that energy for industrial purposes. However, the two power generation solutions using solar radiation may be alternative solutions for point applications, with backup systems, as they may no provide self-sufficiency.

- solar panels – preparation of domestic hot water for houses and public interest buildings – schools, offices, community centres – in combination with classic heating plants;
- photovoltaic panels – production of electricity in sustainable systems – in combination with small scale high sensitivity wind turbines, with batteries – for street lighting, display boards, houses or groups of remote houses, small industrial applications.

Hydropower Potential in the Apuseni Mountains
To date, the hydropower potential of the Aries Catchment and Aries River has not been capitalised upon. There is only one reservoir – the Mihoieşti dam– administered by SC APA CTTA SA Alba that is used as a water resource and flood control structure, with no use of its power generating potential.
In 2006, the Ministry of Economy and Commerce financed a study titled “Assessment of the Romanian Hydropower Micro-Potential”, or the purpose of identifying locations for the development of investment in this sector. In general, the study started calculating the micro-potential in the area where the watercourse provides permanent flow throughout the year, i.e. a multi-annual flow rate of t least 50 l/s and a gradient of more than 10 m/km, on rivers that have not been included in the large hydropower development schemes.

The recommended technical solutions avoided the classic approach to dams and reservoirs, which would be too expensive for such developments.
Therefore, three possible options are available:

1. micro hydropower plants with abstraction and 1-2 MWh turbines;
2. in flow spiral-type micro hydropower plants (may be used for remote locations);
3. turbines replacing the head break tanks along headraces.

Thus, the available maximum output for the Aries River would be 15.1 MWh. The result needs to be weighted, however, given the assumptions used by the authors of the study. Thus, after weighting, the hydropower potential is even higher, amounting to about 24 MWh installed output. This should be compounded by the potential of permanent streams that may be capitalised on using power capturing solutions operating at a nominal flow rate of 0.5-5 m^3/s, a head of 0.5-10 m and which, depending on the head, might generate about 100 – 300 kWh.

Biomass

Waste generated in wood processing is of special interest in the mountain areas, namely tree bark, sawdust, dead wood, branches, etc. Much of this waste is generated by pollution – sawdust dumped on the water banks will increase the acidity of river water – and its use for energy would not only reduce the use of conventional energy, but will also contribute to the environmental rehabilitation of such areas.

Another scenario involves extensive plantation of fast-growing trees. For example salix (the energy willow) may yield up to 40t/ha in the third year, with a calorific power of 4900 kcal/kg, converted to about 20.5 MJ/kg. For a hectare planted with salix, the methane gas equivalent after three years would be about 820000 MJ.

Another important source of bio-fuels is plants.

A co-generation power plant using biomass will generate 4 MWh hat power for every 1 MWh electricity. A general estimate of the available biomass quantities in the area shows that the installation of facilities at 10 MWh output capacity is possible.

Conclusion

Based on the above information and conclusions, we consider that, for the Project operation, the development of energy generation capacity for renewable sources is not economically feasible. However, in the Project implementation stage, for non-industrial developments (e.g. residential, office buildings, relocation sites) we will resume and refine the analysis of this potential, aiming to define and review concrete options, that we will propose for implementation should they prove feasible.

Use of Domestic Wastewater Treatment Plant Sludge in the Rosia Montana Project

A Domestic Wastewater Treatment Plant will be established to treat effluent from showers, toilets, sinks, and washing machines in the administrative areas of the Project. In order to support waste minimisation efforts, Domestic Waste Water Treatment Plant sewage sludge may be used as a soil amendment or fertiliser in agriculture provided it is sampled and analysed on a regular basis for heavy metal content and is used in accordance with all requirements in EU Council Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture which has been transposed into Romanian legislation under the *Ministerial Order of Minister of Environment and Water Management no. 344/2004 and of Minister of Agriculture, Forests and Rural Development no. 708/2004 on approving the Technical Norms on protecting the environment, and especially soils, when wastewater treatment sludge is used in agriculture,* as amended by Order No. 27/2007 amending some regulations that transpose the environmental Acquis Communautaire. RMGC will investigate the possibility of making the sludge available to the local farmers, if testing will prove the environmental acceptability of such uses. The sewage sludge could also be used for land rehabilitation in areas affected by mining activities conducted by Roşiamin S.A. – during the construction and operation phases of the Project until closure activities will start and by RMGC until the decommissioning of the Domestic Wastewater Treatment Plant. Prior the use of sludge for agriculture or land rehabilitation, the chemical characteristics of the soil (which will be amended with sludge) will be tested to ensure their compatibility with the sludge. If the Domestic Wastewater Treatment Plant sludge will not be suitable for use in land rehabilitation or agriculture application, it will be deposited in the TMF, especially during the closure phase (disposal in the upper layer of tailings) which would have the additional advantage of providing organic substance which leads to reducing conditions due to biological oxygen-consumption. This will contribute to the prevention of acidification of the tailings.

4. Under "Gases with global impact and greenhouse gases" we propose that a GHG balance should be developed for the introduction of renewable energy sources.

Answer:

RMGC does not operate facilities for the production of energy from renewable sources. For the future, RMGC proposes the study and capitalise on the potential of obtaining energy from renewable sources in order to improve the performance in this regard.

5. In the tables of potential soil pollutants and activity with impact generation potential during the Project construction, operation and closure stages, there should be focus on the soil and vegetation

reclamation phase in the Project impact area and surrounding areas, especially as the investment will cover such an extensive area.

Answer:

A detailed answer to the above questions can be found the EIA Report, Chapter 4.4 – Soil, in the Mine Closure and Rehabilitation Plan and in Volume 1, under Explanatory Note to Chapter4.4 – Potential Impacts – Soil, as well as in the annexes to this Explanatory Note, included in Volume 3.

6. The Section on "Monitoring the Performance of Social Management", emphasis should be placed on the idea that the RMGC social programme performance monitoring requirements are based on the legal provisions in force throughout the lifetime of the Project.

Answer:

The EIA Report, Environmental and social Management Plan, the Section on "Monitoring and Measurement" (Plan A) provides specific provisions for the measurement of progress in the Social Management Programs and compliance thereof with the legislation (procedure MP-02 "Identification of the Legal, Regulatory and Other Requirements" and MP-09 "Checks on Regulatory Compliance").

7. Justification of the surface area discrepancies between the Urbanism Certificate and the Project development documentation.

Answer:

The difference between the 1257.31 hectare area of the plot that forms the object of Urbanism Certificate No. 87/31.04.2010 and the surface area of 1061.61 hectare cumulating the total land area to be occupied by industrial facilities (as mentioned in Chapter 4.4 – Soil and Chapter 4.7 - Landscape) is given by the sum of surface areas not affected by the industrial facilities that are to be implemented under the Project. These are areas adjacent to one or several industrial facilities. For the sake of clarity, the table below shows a comparison of the surface areas related to the Project facilities as mentioned in the EIA Report and in Urbanism Certificate No 87 of 30.04.2010

FACILITY NAME	Project areas in the EIA Report	UC 87 / 2010	Difference UC 87 – EIM Report
PERMANENT STRUCTURES	**8,964,553**	**8,964,553**	0
CETATE PIT	690,836	690,836	0
CIRNIC PIT	728,443	728,443	0
ORLEA PIT	450,425	450,425	0
JIG PIT	184,956	184,956	0
SULEI ROCKFILL QUARRY	113,278	113,278	0
PARAUL PORCULUI SANDSTONE QUARRY	45,465	45,465	0
CETATE LANDFILL	382,119	382,119	0
INERT WASTE LANDFILL	5,879	5,879	0
CIRNIC LANDFILL	1,391,606	1,391,606	0
PROCESS PLANT	513,778	513,778	0
CORNA TAILINGS MANAGEMENT FACILITY	3,631,375	3,631,375	0
PLANT ACCESS ROAD	117,800	117,800	0
EXPLOSIVES STORAGE	2,000	2,000	0
INDUSTRIAL ROADS	230,315	230,315	0
INDUSTRIAL WATER SUPPLY	58,420	58,420	0
CETATE WATER IMPOUNDMENT AND DAM	168,320	168,320	0
COLLECTING DITCHES / WATER DIVERSION	222,582	222,582	0
PROTECTED AREA ACCESS ROAD	26,958	26,958	0
DECOMMISSIONING/DIVERSION WORKS	**1,107,055**	**1,107,055**	0
ROAD DJ 472 DECOMMISSIONING	148,352	148,352	0
LVL (low voltage line)DECOMMISSIONING	213,498	213,498	0
ROAD DJ 472 DIVERSION	448,810	448,810	0
LVL (low voltage line)DIVERSION	296,395	296,395	0

FACILITY NAME	Project areas in the EIA Report	UC 87 / 2010	Difference UC 87 – EIM Report
TEMPORARY STRUCTURES	**835,140**	**835,140**	0
PROCESS HAUL ROADS	115,114	115,114	0
LOW-GRADE ORE STOCKPILE	269,744	269,744	0
SITE LOGISTICS CAMP	11,756	11,756	0
EXCAVATION SOIL FROM THE PLANT SITE	41,081	41,081	0
TOPSOIL STOCKPILES	397,445	397,445	0
CUMULATED AREA OF PROPOSED FACILITIES	**10,906,748**	**10,906,748**	**0**
AREAS SHARED BY SEVERAL FACILITIES	**290,648**	**290,648**	**0**
TOTAL AREA OF PROPOSED FACILITIES	**10,616,100**	**10,616,100**	**0**
NON-AFFECTED AREAS BETWEEN PROPOSED FACILITIES	**1,957,064**	**1,957,064**	**0**
TOTAL MINING SITE AT ROȘIA MONTANĂ	**12,573,164**	**12,573,164**	**0**

8. Please correct the discrepancies between the different documentations related to the quantities of gold and silver that can be extracted.

Answer:

RMGC have conducted the most extensive and detailed exploration program ever done in Romania in relation to a mining project, and we can say that this deposit is now known in the greatest detail.

Thus, after exploration conducted by RMGC in 1997-2006, a reserve of 215 million tons of ore containing an average 1.46 g/t gold and 6.9 g/t silver and a total quantity of 314.11 t Au and 1,480.36 t AG *in situ*. Ore processing, estimating an average extraction efficiency of about 80% for Au and about 61% for Ag, would result in a quantity of gold of 247.7 t, and 899 t silver. Also, if we look at the period before the public hearings, when the environmental impact assessment procedure was initiated for the Project, and when the Technical Summary was submitted, the total quantity of processible ore had been estimated at about 218 million t, at an average content of 1.52 g/t gold and 7.47 g/t silver and a total amount of 331 t Au and 1626 t Ag *in situ*. Ore processing, estimating an average extraction efficiency of about 80% for Au and about 61% for Ag, would result in a quantity of gold of 272 t, and 945 t silver.

Under the environmental assessment procedure, following public consultation and the establishment of the need to designate more extensive protected area, all the pits deigned for ore extraction have been reconfigured in order to ensure better protection to the protected zones identified at Rosia Montana, including the Historic Centre. This reconfiguration of the pits was done after the Technical summary had been submitted, but was reflected in the EIA Report. As a consequence of pit reconfiguration, the sizes were smaller, and hence the extractible reserves contained in them downsized from 218 million ton to 215 million tons of ore, with the metal content of the ore decreasing accordingly, based on the calculations presented above. Chapter 1 – General Information, Table 1.1 and Chapter 2 of the EIA Report – Technological Processes, Table 2.2 (section on Construction Stage) reflect the current situation, with the reserves estimated taking account of the designated protection areas and of the comments received from the public.

The reserve calculation as developed by RMGC for the deposit of Rosia Montana is based on a very elaborate research program which involved the collection of 191,320 samples from boreholes, underground works and surface outcrops. Every sampled meter was tested for gold and silver. The database, containing more than 400,000 test reports, has been reviewed by independent experts both from Romania and from overseas. Among the Romanian companies, we note SC IPROMIN SA, who conducted three feasibility studies for the Rosia Montana Project. These feasibility studies also include resource and reserve calculations and were submitted to the National Agency of Mineral Resources for checking and type-approval.

Both the resources and the reserves have calculated in accordance with GD No. 1208/2003 approving the Implementation Norms for the Mining Law No. 85/2003, as amended by GD No. 431/2004 on amending the Implementation Norms for the Mining Law No. 85/2003, approved by GD No. 1208/2003, the UE Codes (Mineral Reporting Code, 2002) and international regulations (Canadian National Instrument 43-101). These results were independently verified and audited as required by the legal provisions in force.

9. Analyse the possibility of using renewable energy (wind, solar, photovoltaic, biomass, biogas) for the Project – in the construction, operation, closure stages.

For an answer to this question, please see the answer to question 3 above.

10. In reference to the approach to the agreed objectives for land use after mine closure, we propose that the Mine Closure and Rehabilitation Plan, he objective regarding impacted land should be formulated as follows: "Reclamation of the impacted land so as to allow for their sustainable use in the future, as soon as possible, but no longer than 24 months after closure.

The Mine Closure and Environmental Restoration Plan of the EIA Report, Plan J, details the mine closure stages, including future use of the land after closure, of which we quote a few provisions, as well as an implementation schedule of the closure works. The Mine Rehabilitation and Closure Plan outlines a plan for decommissioning the installations and for mitigating the impacts once the mining operations have ended. As part of the permitting and licensing procedures for the Project, the closure plan implementation requirements will be defined and agreed upon, along with the execution schedule and the structure of the financial guarantees.

This approach to mine planning recognizes that mining, while permanently changing some of the local topography, represents temporary land use, and that appropriate closure of the operations is in accordance with the sustainable use of natural resources. The principal objective of the closure plan and design process is to ensure that the potential environmental, safety and health impacts associated with the mine decommissioning and reclamation activities (together with their associated financial and legal liabilities) are quantified and estimated at an incipient stage. These impacts may then be minimised, following the actions undertaken at the design, execution and operation stages of the Project.

Objectives for rehabilitation need to address regulatory requirements, site-specific aspects, RMGC policies and best industry practice, which include:

- Protection of public health and welfare;
- Achievement of the goals established in agreement with the community and the authorities regarding the post closure land use;
- Geotechnical stabilization of mine-related structures (pit slopes, waste rock stockpiles etc.);
- Reclamation of landscape to minimise subsidence, erosion, and potential environmental hazards; and,
- Water quality protection.

Based on these approaches, the objectives of the Mine Rehabilitation and Closure Plan are to:

- Ensure the protection of public health and safety during and following closure of the mine and associated facilities;
- Allow for the progressive closure and rehabilitation of the activities before production ceases;
- Reduce or eliminate potential environmental impacts;
- Restore disturbed land to its initial condition as soon as practical;
- Minimise, to the extent possible, immobilisation of any remaining mineral resources; and,
- Allow an open dialog between the stakeholders and the Company representatives, in relation to planning the Project life cycles and closure

Rehabilitation and reclamation activities will commence in the period midway through the Mine lifetime. As soon as some landfills or roads will cease to be used for operational purposes, the environmental rehabilitation works will be initiated. It is expected that the potential needs and interests of the local community, related to land use in the post-closure period, and other specific issues of other stakeholders may change during the mine lifetime. Therefore, the *Mine Closure and Rehabilitation Plan* will be reviewed and updated on a regular basis, in order to respond to any such changes.:

11. In reference to the Table titled "Categories of Land Use" in the EIA Report, we request verification of the surface areas being classified as old growth forests, areas designated for ecosystem or rare species protection,, biodiversity rich pastures, wetlands, in which case greenhouse gas emission balances would be required for any change of land use.

Answer:

According to the Biodiversity Baseline Study, a detailed analysis of the tree stand structure of the national forestry stock was performed. In this regard, a correlation was also made between the fundamental type of wood and the national habitat types (according to Donita et al. 2005-2006), i.e. the Natura 2000 habitat types, as defined in the dedicated Manual (Interpretation Manual of European Union Habitats). In the EIA Report the analysis also includes other types of habitats, showing that the extended (spatial and temporal) impacts make it impossible for habitats of the natural (primary) facies, involving preservation of natural functional balances to exist.

Primary old growth forests have been replaced by secondary stands that represent transitional (or degraded) states toward types of habitats that, with good management, may meet the definition requirements relevant for natural-type habitats. It should not be forgotten that the Project footprint overlaps a site that was impacted by historic mining, affected not only by the industrial-type impacts, but also by a complex set of activities of the farming

type (especially livestock management), forestry operations, etc. The limited value for eco-conservation was also amply demonstrated by the rejection of the proposal to include some sites in the Natura 2000 network, for the very reason that some elements (habitats/species) with a key role for conservation were missing. Therefore, the land impacted by the Project is classified as neither primary forest, ecosystem or rare species protection areas nor as biodiversity rich pastures or wetlands.

12. We propose an economic assessment of the area after the completion of the Project, the respective development perspectives and the economic-financial and social effects that are expected to obtain.

Answer:

Upon closure, the Project area will remain as a completely rehabilitated zone, with a much better infrastructure at all levels (roads, sewerage, electricity and telephone networks, water supply), with a restored historic centre. A number of already existing programs that will continue throughout the development of the mining Project aim to improve the educational profile and skills improvement levels, in order to meet the needs of the Project and encourage the people to think of other ways of making a living than mining. The vocational training program is one of these programs. Business training is part of the vocational training program. A business incubator is also being implemented.

In January 2007, RMGC established the Rosia Montana MicroCredit, under the name of "IFN Gabriel Finance SA", to encourage local investment. This micro-lender aims to provide the necessary funding and resources to the people of Rosia Montana, Abrud, Campeni and Bucium, in view of supporting the locals create micro-enterprises or expand existing ones.

The closure plan for the Rosia Montana Project has also been designed so as to restore the mine site to public uses for productive purposes. Support provided to sustainable development will continue through partnerships, under the guidance of various relevant organisation such as the UN Development Program (UNDP). For example, the negative effect mitigation measures and enhancement of socio-economic benefits will be run under the guidance of the Socio-Economic Research Centre Roşia Montană who, in its turn, partners the local authorities. This will provide transparent evaluation of the efficiency of support granted to the sustainable development process and make a forum available for the implementation of the necessary improvements. Other partnerships supporting the sustainable development process are presented in Volume 53, of the Annex to the EIA Report, and the Initial Tourism Proposal for Rosia Montana. Also, please consult the Sustainable Development Acton Plan (Plan L).

Apart from immediate direct and indirect benefits, the presence of the Rosia Montana Project as a major investment will improve the economic climate of the region, which in its turn will encourage and promote the development of economic activities not related to mining. It is expected that this improvement of the investment and economic environment will create business opportunities to be developed in parallel to the Project even if it goes beyond the scope of activities directly related to the mine. Economic development diversification is an important benefit of investment generated in implementing the Project.

13. Considering that the literature mentions that in gold bearing areas rare metals can also be found, such as titanium, vanadium, cobalt, molybdenum, wolfram, etc, we would like you to specify if there is any estimated presence of such metals in the Project area, in point of both quantity and value.

Answer:

Every deposit has unique characteristics in both geological context and mineralogical association of occurrence and, implicitly in the content of elements. The literature typically presents the general characteristics of classes and types of deposits, without, however, considering this information valid and strictly usable for every individual deposit. Under the deposit research program for Roşia Montană, RMGC analysed more than 190,000 individual 1 m samples for Au and Ag. These samples were collected from both existing and reopened underground mine works and from boreholes drilled by RMGC across the whole operating license site of Rosia Montana.

Although the useful mineral substances for which the license was issues were gold and silver, the current international research practice for this type of deposits provided that, apart from the 2 elements, a further 47 chemical elements should be tested by independent laboratories: ALS Chemex and Bondar Clegg, Canada. The analytical method was ICP-MS Inductively coupled plasma - mass spectrometry), and for mercury cold vapour generation and atomic absorption finishing. The 47 elements were tested on 1224 samples collected from boreholes drilled across the entire deposit site. The 1224 samples are composite samples obtained by cumulating 5 consecutives m of sample and the 47 tested elements are as follows: Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr.

None of these elements show anomalous values that might be recovered in the ore processing. Most of the contents was close to the average levels of that element in the earth crust (natural background) often even less, which makes a quantitative estimation unnecessary.
There are some cases where, although the values are higher than the average crust levels, the elements are not recoverable if compared to the recoverable contents, thousands or tens of thousands higher than the content in Rosia Montana. All these elements are unrecoverable because of their low content. The statistics for the 47 elements tested in the Rosia Montana deposit is presented in the table below, with the following data:

- Unit of measure in the determination
- Detection limit
- Average in the Rosia Montana deposit
- Natural background in the Earth crust
- Number of samples tested out of the entire Rosia Montana deposit for each individual element
- Number of samples with contents below the detection limit
- The minimum extractible content – for the purpose of information, as the economic efficiency conditions will depend on a range o variable, such as: the prices on the international markets, the quantity of reserve in the deposit (its size), the necessary process flows in recovering the respective elements and the associated investment costs of mine operation (e.g. closure and environmental rehabilitation costs), etc. A comparison may be done, however, between the orders of magnitude of the Rosa Montana contents and the minimum extractible contents of those elements.

No.	Element	Symbol	Unit of measure	Lower detection limit	Average	Natural background in the Earth crust	Analysed samples:	Samples with contents below the detection limit	Minimum extractible content (for information, in ppm)
1	Aluminium	Al	%	0.01	7.73	7.45	1224	28	185000
2	Arsenic	As	ppm	0.2	89.51	1.8	1224	29	1000
3	Barium	Ba	ppm	0.5	313.8	425	1224	29	
4	Berylliu m	Be	ppm	0.05	1.57	2.8	1224	29	2000 - 20000 BeO
5	Bismuth	Bi	ppm	0.01	0.225	0.17	1224	314	>500
6	Calcium	Ca	pct	0.01	1.49	3.25	1224	28	
7	Cadmium	Cd	ppm	0.02	0.48	0.2	1232	96	>200
8	Cerium	Ce	ppm	0.01	39.6	60	1224	29	400 Monasite 2500-15000 Monasite
9	Cobalt	Co	ppm	0.1	9.46	25	1224	29	2000
10	Chromiu m	Cr	ppm	1	23.58	100	1224	32	320000 Cr2O3
11	Caesium	Cs	Ppm	0.05	16.23	3	1224	29	400
12	Copper	Cu	Ppm	0.2	59.68	55	1224	29	4000-10000
13	Iron	Fe	%	0.01	2.95	4.2	1224	28	>150000
14	Gallium	Ga	Ppm	0.05	17.26	15	1224	29	>150 in gold deposits
15	Germaniu m	Ge	Ppm	0.05	0.21	1.5	1224	29	>10
16	Hafnium	Hf	Ppm	0.1	0.88	3	1224	29	200 - 300ZrO2
17	Mercury	Hg	ppm	0.01	0.08	0.08	1224	135	1000
18	Indium	In	ppm	0.005	0.051	0.1	1224	29	>10-20
19	Potassiu m	K	%	0.01	4.41	2.35	1224	28	>100
20	Lantana	La	ppm	0.5	19.11	30	1224	29	400 Monasite 2500-15000 Monasite
21	Lithium	Li	ppm	0.2	28.67	20	1224	29	1000 Li2O
22	Magnesiu m	Mg	%	0.01	0.6	2.35	1224	28	250000
23	Mangane se	Mn	ppm	5	2353.54	950	1224	29	180000- 350000
24	Molybde num	Mo	ppm	0.05	1.27	1.5	1224	29	4000 100-150
25	Sodium	Na	%	0.01	0.36	2.4	1224	28	
26	Niobium	Nb	ppm	0.1	7.4	20	1224	29	>200 (Nb,Ta)2O5
27	Nickel	Ni	ppm	0.2	21.8	75	1224	29	9000 >1000

No.	Element	Symbol	Unit of measure	Lower detection limit	Average	Natural background in the Earth crust	Analysed samples:	Samples with contents below the detection limit	Minimum extractible content (for information, in ppm)
28	Phosphorus	P	ppm	10	466.22	0.12	1224	28	150000 - 250000
29	Lead	Pb	ppm	0.5	42.63	12.5	1224	29	25000
30	Rubidium	Rb	ppm	0.1	231.84	90	1224	30	2000
31	Rhenium	Re	ppm	0.002	0.0039	0.0005	1224	693	10
32	Sulphur	S	%	0.01	1.82	0.1	1224	31	
33	Antimony	Sb	ppm	0.05	5.63	0.2	1224	29	150000 - 200000 1000
34	Selenium	Se	ppm	1	1.35	0.05	1224	497	30 - 100
35	Tin	Sn	ppm	0.2	1.6	2	1224	29	>100 >1000
36	Strontium	Sr	ppm	0.2	93.14	375	1224	28	
37	Tantalum	Ta	ppm	0.05	0.53	2	1224	30	>200 (Nb,Ta)2O5
38	Tellurium	Te	ppm	0.05	0.44	0.001	1224	469	>15 With Se
39	Thorium	Th	ppm	0.2	6.07	10	1224	29	400 Monasite 2500-15000 Monasite
40	Titanium	Ti	%	0.01	0.224	0.57	1224	28	100000
41	Thallium	Tl	ppm	0.02	3.53	0.45	1224	29	500 >20 >20
42	Uranium	U	ppm	0.1	1.43	2.7	1224	29	1000
43	Vanadium	V	ppm	1	83.16	135	1224	28	4000 1000
44	Wolfram	W	ppm	0.1	5.13	1.5	1224	29	1000 WO3 300
45	Yttrium	Y	ppm	0.1	13.07	30	1224	29	400 Monasite 2500-15000 Monasite
46	Zinc	Zn	ppm	2	135.33	70	1224	28	5000
47	Zirconium	Zr	ppm	0.5	22.33	165	1224	29	2000 - 3000 ZrO2

5. Ministry of Culture and National Heritage

The documentation submitted for assessment by the Technical Review Committee (CAT) states a number of general and specific commitments that the investor will assume in protecting the cultural heritage in the mining project impact area.

These commitments are stated on a generic level, but need to be detailed specifically, taking into account both the heritage assets that will be stored in a museum and those that will be relocated or for which replicas are proposed. Please present also the research and documentation methodology for the heritage assets that will be destroyed by the mining project.

Areas of concern include:

1. *Updating the information related to the cultural heritage as provided by the legislation in force*

Answer:

For an answer to this question, please refer to Explanatory Note to Chapter 4.9 – Potential Impacts – Cultural Heritage in Volume 1 – Explanatory Notes.

2. *Monitoring of the state of conservation of all the historical monuments, including the churches and buildings in the protected area*

Answer:

To date, RMGC owns 28 buildings in Rosia Montana that have been classified as historical monuments. They were acquired in compliance with the legal procedures contained in Law 422/2001on the protection of historic monuments, as amended. At the time of procurement these assets were under different stages of conservation,

which was recorded in both the sale and purchase agreements and in various photographic documentation taken on the date of procurement. RMGC also owns a further 233 buildings out of a total 317 structures located in the protected area o Rosia Montana Historic Centre.
Having regard to the obligations placed in the care of owners of buildings classified as historic monuments, including the provisions of article 38 of Law No. 422/2001 on the protection of historic monuments, as amended, to date RMGC has mainly undertaken maintenance work on the built heritage assets in its ownership. In order to monitor and undertake maintenance, design and restoration works on the built heritage assets at Rosia Montana, the Titleholder is working with companies and natural persons certified by the Ministry of Culture and National Heritage, as well as with an intervention team now consisting of 50 workers. Maintenance works conducted on historic monuments owned by RMGC include: roof repairs, removal of cemented areas in the foundation areas to stop degradation, providing building ventilation, current repairs, etc. To date, for the procured historic monument buildings the Company has stopped the degradation process and maintenance works are ongoing, as they will be included in a restoration and re-functionalisation program passed over 10 years.

In the past, based on monitoring of the state of conservation, RMGC took steps to prevent irreversible degradation of the cultural heritage, such as:

- restoration of and organising a mining exhibition in house No. 325 located on the central alignment of the square in the Historic Centre of Roşia Montană.
- completion of the design documentation for all the 11 historic building monuments in the Rosia Montana Square area;
- emergency interventions in more than 130 houses currently uninhabited, to stop their degradation. Details on these works are illustrated in *Annex_QA_01* of Volume III – Studies and Reports – i.e. "The State of Maintenance of the Buildings in the Historic Centre of Rosia Montana and Annual Planning of Rehabilitation Works over a Period of 10 Years".
- design and development of the scaffolding around the gate of House M.I. No. 372 to stop it from leaning over;
- change of House M.I. 392 into office space, by changing its initial residential use;
- building of a support scaffolding and protection structure for historic monument building RM 326, an architectural emblem of the Central Square of Rosia Montana.
- completion of a wooden structure for the protection and primary conservation of the Roman funerary precinct at Tău Găuri.

On the other hand, the protected area of the Historic Centre of Rosia Montana Commune will cover according to Urbanism Plan currently under consideration, and area of more than 130 hectares and will include 35 historical monuments and other architectural assets in the locality, RMGC will contribute to the restoration and enhancement of these assets and to the organisation of a modern Mining Museum, to include geological, archaeological, ethnographical (including an open space area), industrial heritage displays and an important underground component around the Catalina Monulesti Gallery.
The RMGC objective is to protect and promote all the existing cultural assets in the Rosia Montana area, and in order to meet this objective, special measures will be implemented (restoration, reinforcement, conservation), both within the protected area of the Historic Centre of Rosia Montana Commune and on the industrial Project site (use of special blasting technologies, creating buffer zones between the 2 sites, continuous monitoring of vibrations and adjusting the blasting based on wave propagation speed, etc.).
In order to identify specific impact mitigation measures for the blasting on historic monument buildings, specialist studies have been conducted, and the results thereof are given in *Annex NE_Cap 4.3_01 and Annex NE_Cap 4.3_02* of Volume 3 – Additional Reports and Studies – i.e. "Assessment Study of the Seismic Effects of Rock Blasting on Protected Assets and Blasting Seismic Impact Mitigation Measures—Control and Monitoring Procedures" and "Technical Documentation on the Blasting Technology near the Protected Areas of Rosia Montana mining project, in Alba County".
In order to quantify the impact of blasting operations of the buildings of the protected area of the Historic Centre of Rosia Montana Commune and on other heritage buildings outside it, a monitoring system involving a stationary network of digital seismographs will be implemented, with three components located near the main facilities that need to be protected and a mobile system with three portable seismographs located in a longitudinal profile between the protected facility and the focal point of the explosion. The design of the seismograph network aims to provide permanent monitoring of the amplitude of oscillations in order to use adequate blasting technologies in line with the norms for the seismic protection of buildings. Thus, the blasting technologies will be continuously harmonized so as not to exceed the maximum acceptable oscillation velocities at the building front.
In regard to Piatra Corbului and Piatra Despicata, they have been classified under Law 5/2000, on the approval of the national territory development plan – Section III – Protected Areas under the section including National Interest Protected Areas and Natural Monuments, items 2.8 (Piatra Despicată) and 2.83 (Piatra Corbului). At the

same time, as a result of archaeological research conducted at Rosia Montana under the Alburnus Maior National Research Program, funded by RMGC under the law, Piatra Corbului has been declared a protected area from an archaeological point of view (registered with the List of Historic Monument List published in Official Monitor No. 646 bis, of 16.07.2004, item 146).

In the project proposed by RMGC, Piatra Corbului will not be affected. All impact mitigation technical measures throughout the operational stages of the project in this area will be adopted so that its integrity might not be affected. As for Piatra Despicata, this is a volcanic bomb, located in secondary position at the base of the Carnic Massif, a few metres above a industrial-village road. This andesite block weighing a few tons, approximately, may change its location due to natural causes (landslides, slope erosion) at any time. In 2002, the Natural Monuments Protection Commission of the Romanian Academy, based on the documentation submitted by Agraro Consult, approved the relocation of this monument to a different site, that will not be impacted by future mining activities under the Project. Therefore, with the help of strictly normal gauge technical equipment, and under expert guidance and surveillance, Piatra Despicată may be relocated to a site approved by the expert commission of the Romanian Academy and the Ministry of Culture and National Heritage, preferably to the protected area of the Rosia Montana Historic Centre.
The restoration program and the measures proposed by the Titleholder are described in the EIA Report (Vol. 33) and Plan M, respectively, - Cultural Heritage Management Plan, Part II – Management Plan for the Historical Monuments and Protected Areas in Rosia Montana.

The Churches in the Protected Area of Rosia Montana
In developing the technical design project, the principle of lowest impact n churches has been taken into consideration: Thus, all the possible options have been considered and, where feasible and necessary, the location of industrial facilities was changed so as to minimize the Project impact on churches and cemeteries. In the protected area of the historic centre, there are 3 churches, including: The Reformed Church (only used occasionally, for lack of a congregation), the Evangelical Uniate Church and the Roman Catholic Church, the only one classes as a historic monument. The state of conservation and maintenance is good for the Roman Catholic Church and the Uniate-Evangelical Church and poor for the Reformed Church that requires emergency intervention to stop deterioration. None of these churches will be affected by the implementation of the mining project. The churches, along with the other historic monuments of Rosia Montana, will be included into a complex monitoring and restoration programme, with the acceptance of the local religions and congregations. Details on the current state of conservation of all the churches in Roşia Montană and of the measures proposed or implementation are given in Table 5.1 of Plan M, Part III, Cultural Heritage Management Plan of the EIA Report.

3. The restoration, maintenance and enhancement program (both in the Historical Centre and in the industrial zone) for the historic monuments protected under the law;

Answer:
The restoration program and the measures proposed by the Titleholder are described in the EIA Report (Vol. 33) and Plan M, respectively, - Cultural Heritage Management Plan, Part II – Management Plan for the Historical Monuments and Protected Areas in Rosia Montana. Note in this respect that none of the historical monument houses within the footprint of the proposed RMGC Project will be negatively affected, and all the 41 historical monument houses – on the industrial site and in the protected zone – will be included under a comprehensive rehabilitation and restoration program. This program is absolutely necessary if we want these houses not to vanish completely - whether the Project is implemented or not - considering their current advanced state of degradation.
The RMGC objective is to protect and promote all the existing cultural assets in the Rosia Montana area, and in order to meet this objective, special measures will be implemented (restoration, reinforcement, conservation), both within the protected area of the Historic Centre of Rosia Montana Commune and on the industrial Project site (use of special blasting technologies, creating buffer zones between the 2 sites, continuous monitoring of vibrations and adjusting the blasting based on wave propagation speed, etc.).
In order to identify specific impact mitigation measures for the blasting on historic monument buildings, specialist studies have been conducted, and the results thereof are given in *Annex NE_Cap 4.3_01 and Annex NE_Cap 4.3_02* of Volume 3 – Additional Reports and Studies – i.e. “Assessment Study of the Seismic Effects of Rock Blasting on Protected Assets and Blasting Seismic Impact Mitigation Measures—Control and Monitoring Procedures” and “Technical Documentation on the Blasting Technology near the Protected Areas of Rosia Montana mining project, in Alba County”.
In order to quantify the impact of blasting operations of the buildings of the protected area of the Historic Centre of Rosia Montana Commune and on other heritage buildings outside it, a monitoring system involving a

stationary network of digital seismographs will be implemented, with three components located near the main facilities that need to be protected and a mobile system with three portable seismographs located in a longitudinal profile between the protected facility and the focal point of the explosion. The design of the seismograph network aims to provide permanent monitoring of the amplitude of oscillations in order to use adequate blasting technologies in line with the norms for the seismic protection of buildings. Thus, the blasting technologies will be continuously harmonized so as not to exceed the maximum acceptable oscillation velocities at the building front.
Work scheduling in restoring and re-commissioning the houses in the protected area of the Historic Centre was estimated by specialists to cover a period of 10 years, given the large number of houses requiring intervention and the need for specialised material and human resources. In this respect, also please consult *Annex_QA_01* of Volume 3 – Additional Reports and Studies – namely "State of Maintenance Works on the Assets in Rosia Montana Historic Centre and Annual Scheduling of Rehabilitation Works for a Period of 10 Years" as well as Plan M – Cultural Heritage Management Plan, Part II – Management Plan for the Historic Monuments and Protected Areas in Rosia Montana a document submitted as part of the EIA Report.

Historic Monuments on the Industrial Site of the Project
The historic monuments located on the future industrial site are currently part of the emergency works and maintenance program developed by RMGC. The 6 historic monument buildings located outside the Protected area - the Historic Centre of Rosia Montana Commune – will not, however, be affected by any major industrial facility of the Project. Specialist urbanism documentation of the PUZ-CP type will establish protection areas for such historic monuments, as provided by the law.
In regard to the proposed restoration program for the houses and historic monuments in the protected area owned by RMGC, detailed information is contained in Plan M - Cultural Heritage Management Plan, Part II – Management Plan for the Historic Monuments and Protected Areas in Rosia Montana, a document submitted with the EIA Report.

4. *the management plan for the historic centre;*

Answer:
The Cultural Heritage Management Plan developed for and attached to the EIA Report provides the general framework for the minimisation of the potential Project impacts on the existing cultural heritage of the Rosia Montana area as described in the Chapter 4.9 of the EIA Report. For a good assessment of the management measures this plan includes significant baseline information and data regarding the regulatory context, as well as a number of considerations on specific roles and responsibilities.
The Cultural Heritage Management Plan establishes the framework for achieving a balance between the apparently competing needs of conservation, sustainable economic development and the interests of the local community. The measures included in the Cultural Heritage Management Plan are not meant to replace the legal provisions, but aim to bring together the information on the characteristics and significance of the historic monuments in the Rosia Montana area (in the broad sense), identify the organisations and natural persons whose interests relate to this area, identify the risks and opportunities of cultural heritage conservation and development, and outline a global strategy for reaching a common goal.
The Romanian law does not provide a mandatory requirement for private entities to develop a management plan for historic monuments. The exception regards historic monuments included on the World Heritage List, for which the Ministry of Culture and Religions, through its subordinated institutions, implements a five-year "protection and management program", detailed through annual programs whose completion is part of the County Council's obligations.
In this context, the Cultural Heritage Management developed by RMGC contains a framework of guiding policies. Achievement of the goals of conservation and sustainable development will depend on how all the stakeholders involved in the management of the local cultural heritage will coordinate their actions.
The structure and contents of the Cultural Heritage Management Plan are based on the requests formulated by Ministry of Environment and Water Management, as expressed in Note 8070/24.05.2005, as well as on examples of similar documents prepared for sites and monuments included on the UNESCO World Heritage List[1].
The Management Plan for the Roşia Montană Historical Centre has the following main goals:

- to formulate objectives for the management of the landscape and environment of which the landscape forms an integral part, taking into account all the components of such landscape, ranging from natural elements and architectural-urban complexes to the archaeological and industrial heritage, to individual monuments and a diversity of isolated structures;

[1] Especially:. Hadrian's Wall; Mining Landscape; Stonehenge, Bath.

- to stimulate the public's knowledge of, and interest in Rosia Montana, and to promote the educational and cultural value of the environment as a whole;
- to define a management strategy guided by the principles of sustainable development, aiming to achieve a balance between the conservation of the cultural and natural values, tourism uses and exploitation of the natural resources;
- to identify the potential economic and cultural benefits of the Rosia Montana area and to stimulate the participation of local actors in maximizing these benefits without endangering the cultural resource;
- to propose a program of feasible priority actions that would contribute to the conservation and enhancement of Rosia Montana area.

We will quote some of the projects and programs proposed under the Management Plan for Historical Monuments and Protected Areas of Roşia Montană:

- Sensitising all the actors in regard to the significance o the historic monuments and the protected area and informing them on all the characteristics thereof
- Inventory and classification of the local material resources
- Identification of potential re-use potential of the abandoned buildings in the protected area
- Exhaustive evaluation o the state of conservation of the heritage assets, establishing priorities of intervention, developing an emergency response strategy
- Establishing a monitoring program for the state of conservation and structure behaviour over time Establishing a set of measures and rules for the maintenance of the built heritage
- Safe conservation, appointment and valorisation of representative sections of the Roman, mediaeval and modern galleries that are already known or will be discovered (such as the modern and roman section of the Catalina-Monulesti gallery, Paru Carpeni mining sector, the Piatra Corbului area, the Jig-Vaidoaia area)
- Conservation and restoration of the structural and technical components of the ponds in the protected area (control mechanisms, lock control tower, dams)
- Conservation and restoration of the terrain adjustment features (dry stone boundary terrace walls) and property boundary markers (fences, boundary plantations, etc.)
- Rehabilitation of pavements and other surface treatments
- Revigoration of existing functions and reactivation of lost ones, introduction of new functions
- Organisation of the Mining Museum, in an adequate space in the Square area
- Valorisation of research under educational programs at various levels and through dissemination programs
- Re-distributing road access (directing traffic along a bypass street around the centre, with vehicle access in the central zone, within the limits of the morphological features of the street network, only allowed to residents and supply vehicles)
- Creating an integrated public transport system, free of discontinuities, to provide access to the site from different regional centres, (Deva, Alba Iulia, Cluj-Napoca), based on combined tickets (train, bus / train - narrow gauge train – mine train) and coordinated schedules for the different vehicles
- Providing parking spaces for both the local community (proximity parking) and visitors (main tourist parking in the Square area and at secondary hubs)
- Providing access from the Historic Centre to all the components of the site (archaeological, buildings, monuments, natural attractions)
- Revising and extending the water supply system and ensuring the required flow rate by identifying and capturing additional sources
- Providing a complete sewerage system and a wastewater treatment plant
- Restoring and extending the power distribution and TV, telephone and data transfer systems, using sunken cables
- Promoting community involvement in achieving the management objectives and the implementation of site development and valorisation programs
- Promoting the cultural assets of the site nationally and internationally, through information and advertising campaigns
- Developing visit routes and programs and activities for experimenting, learning and understanding the characteristics of the site
- Developing a visitor centre, with information and documentation and secondary tourist information points at the main attractions
- Cleaning up the Roşia Montană Area

The Management Plan for the Historic Monuments and Protected Areas of Rosia Montana is an integral part of the EIA Report and may be consulted under Plan M, Part II Management Plan for the Historic Monuments and Protected Areas of Rosia Montana.

5. Monitoring of mining works by an independent archaeological team throughout the Project lifetime;

Answer:
RMGC has committed to provide for the monitoring of mining works by an independent archaeological team who will be present on the site on a permanent basis, and this obligation will be implemented under a plan titled "Rosia Montana – Protocol on Chance Finds" (PPDI), presented as *Annex_QA_02* of Volume III _ Studies and Reports, which is an integral part of this documentation.
The first step n identifying suitable means of protection was the development of a comprehensive baseline study, which investigated, from an archaeological perspective, the areas included in the industrial site of the Project. For most of these areas, where archaeological heritage asses had been identified, the Ministry of Culture and National Heritage issued Archaeological Discharge Certificates. Project development related activities that may have an impact on potentially unknown archaeological resources are associated to pit operation, road and other industrial infrastructure building works (dams, process plant, etc.), as well as to topsoil stripping. Topsoil stripping required for the preparation of the waste rock landfills, and other industrial facilities, will be based on specific archaeological surveillance and research procedures (of the save by study type) aiming to ensure adequate management of such issues, so as to prevent any loss or destruction of archaeological relics potentially unknown to date.
In consultation and in cooperation with the archaeological surveillance team, RMGC will develop standard operating procedures in developing quarterly training strategies for operators, foremen and supervisors. Although all construction and operations works will be conducted under the strict supervision of the independent archaeological monitoring team, the courses will train the mine staff to recognise voids that might have an archaeological significance. The staff will be especially trained to recognize specific conditions, as they will be defined in the standard operating procedures further to be developed. The areas were chance archaeological finds might occur may be exposed by routine mining excavations. Identification of such cavities is important from the point of view of operator safety. Following identification of such cavity or underground working, the operator must immediately inform the Operations Director in order to follow the detailed procedures of the "Protocol for Chance finds".
The training of mine foremen and heads of works will help support the potential find of cavities that might contain heritage assets and increase the capacity of the department to assess safety conditions in authorizing non-mining personnel access in view of site assessment.
Information collected by RMGC for the baseline study, as well as information contained in the archaeological reports for the issuance of archaeological duty of care removal certificates are a valuable information resource that may be consulted in determining the significance of chance finds. An understanding and knowledge of the local topography and of the historic cultural potential, will allow for a classification of the areas within the industrial Project site based on the potential of chance finds occurring within them. Thus, the areas will be classified as low, medium and high potential for archaeological chance finds, based on the following set of criteria:

- **Low:** areas in which the potential occurrence of additional archaeological relics to those already identified and researched is low, due to the current land use and where the soil had been disturbed prior to Project implementation.
- **Medium**: areas where few archaeological relics have been found and where the soil as already been disturbed by moderate intervention in the past.
- **High**: areas where the archaeological relics have been documented by the authorities, and soil disturbance a minimal and previous research was not possible for objective reasons.

These risk maps have already been developed and are part of the "Protocol for chance finds" and will be communicated to the Contractors and mine operators together with the Operating Manual for PPDI Implementation. Meetings with contractor personnel will be organized before the start of excavation and scraping operations, to inform them of the type of archaeological relics that might be discovered and on how to identify them.
The archaeological surveillance team will be present on the site on a permanent basis for all the activities conducted in areas identified by a "high" potential and will constantly monitor the areas classified as "medium" or "low". The map will be regularly updated by the archaeological surveillance team, as they will consider necessary to reflect any new information obtained during the project progress. All these procedures will be developed under the standard operating provisions to be developed and under the specific legal provisions contained in Government Ordinance No. 43 / 2000 on the protection archaeological heritage and the designation

of certain archaeological sites as areas of national interest, as republished and amended as well as under the Orders issued by the Minister of Culture and National Heritage.
The professional groups on the independent archaeological team will provide supervision of construction works associated to Project development, and wherever necessary, will request a temporary stoppage of works until archaeological investigation is completed.
In the case of chance finds, RMGC will take the necessary steps to fence off the affected area and suspend activities therein, also notifying the relevant authorities, as provided by Governmental Ordinance No. 43 / 2000 on the protection archaeological heritage and the designation of certain archaeological sites as areas of national interest, as further amended.

6. Developing a protocol on chance finds during the mining project

Answer:
The "Protocol for Chance Finds" is an essential component of the Cultural Heritage Management Plan, which shows how RMGC will ensure proper identification and management of the archaeological relics that may be discovered throughout the Project lifetime.
The "Protocol for Chance Finds" was devised by Gifford – a specialist company in the UK – and further amended by the specialists of MNIR, and is the first document of this kind in Romania. This first working framework proposed in the document will have to be approved by the competent authority and further developed as an Operations Manual.
The Protocol for Chance Finds will be guided by the following principles:

- archaeological surveillance for the potential identification of archaeological relics
- professional training, warning, alertness and competence of the personnel involved in mining works;
- quick assessment of the significance of a find;
- adequate recording and documentation of chance finds;
- internal and external communication of chance finds;
- legal procedures and special norms in the management of chance finds;
- reporting on non-compliance with the Protocol provisions and further corrective and preventative action and compliance with the applicable legal provisions on chance finds (under Governmental Ordinance No. 43 / 2000 on the protection archaeological heritage and the designation of certain archaeological sites as areas of national interest, as further amended)

The provisions and procedures proposed in the Protocol for Chance Finds will become active once all the protection and valorisation measures included in the Archaeological Heritage Management Plan for the Rosia Montana area have been reviewed by the Ministry of Culture and National Heritage under the permitting process established for the environmental permitting of the Project. This document – "Protocol for Chance Finds " – has the statute of specific operations policy for the Project. The "Protocol for Chance Finds" is presented as *Annex_QA_02* of Volume 3 – Additional Reports and Studies, attached to this documentation.

7. Providing for the Mining Museum operation under the legislation in force

Answer:
Considering the current state of conservation of the archaeological relics, and the results of archaeological research conduced at Rosia Montana to date, we consider that the organisation of a Mining Museum is an absolute must for he valorisation of the cultural heritage and tourism potential of Rosia Montana Commune.
The RMGC proposal for the establishment of a Mining Museum, developed based on the model of other similar large European museums considers the following types of displays for this institution:

- A documentary exhibition developed around three major topics: geology, archaeology and history-ethnography,
- Open-air exhibitions including ethnographical and industrial heritage elements,
- An underground exhibition consisting of the Gallery at Catalina – Monulesti (which preserves traces of mining from all the historical ages, from ancient (Roman) times to the contemporary age) supplemented by 1:1 replicas of the most important ancient mining structures identified in the mountains of Rosia Montana, but not typologically found in the Catalina-Monulesti gallery. By creating such replicas, the visitors may gain a complete and coherent insight of the typology of underground works at Rosia Montana.
- Archaeological relics preserved *in situ*.

RMGC proposes that the future Mining Museum should also include, apart from these archaeological heritage assets, some movable heritage assets. Thus, it could host many of the more than 10,000 artefacts discovered during the archaeological research conducted since the year 2000. In reference to the location and outline

proposal for the organisation of this Museum, please consult also *Annex_QA_03* of Volume 3 – Additional Reports and Studies – namely "Concept of the Mining Museum in Rosia Montana"
RMGC also proposes that in organising the future Mining Museum consideration should also be given to the cultural heritage assets located on the site of the former State Mine – RosiaMin Branch of C.N. a Cuprului, Aurului si Fierului Minvest S.A. Deva.

RMGC has committed to provide, under the implementation of the Rosia Montana mining project, the necessary financial support and any other type of assistance that might be requested in establishing the future Mining Museum subordinated to the relevant local and/or central authorities. In establishing the Mining Museum, the necessary permitting procedure will be followed in relation to the National Commission for Museums and Collections, as regulated by Order No. 2297/2006 of the Minister of Culture and Religions, as amended, and accreditation by the Ministry of Culture and National Heritage, as provided by Order No. 2057/2007 as subsequently amended. In this respect, RMGC will propose to the local authorities a suitable location for the operation of the future Mining Museum, will make available the necessary funds and will become actively involved in the Museum organisation itself. The establishment of the future Mining Museum will help tourism development in the Rosia Montana area, and well as the valorisation and better public awareness of the national cultural heritage assets present in this area.

6. Ministry of Health

The Ministry of Health considers that the data/documentation presented for the years 2004-2005 does not faithfully reflect the situation in 2010, and therefore asks SC Rosia Montana Gold Corporation to update and detail the 2 documents

Answer:

The baseline public health conditions and the potential impacts of the Project on public health were updated under the "Public Health Impact Study for the Protected Area in Order to Establish the Activities and Furnish the Protected Area and the Health Impact Study for the Zone2 developed in August 2007 and attached to the Explanatory Note to Chapter 4.8 – "Potential Impact, Social and Economic Environment" , *Annex NE_Cap 4.8_01*.

Updates to the study of August 2007 have not pointed to any change from those of the Baseline Condition Studies of the EIA Report, but are correlated to those. Also, in accordance with expert recommendations, the public health in the Project impact area will be monitored throughout all its implementation stages.

The public health baseline study developed in 2006 by the Environment and Health Centre in Cluj was resumed in 2007 and is attached in *Annex_NE_Cap 4.8_01*. For 2009 a number of subjective and objective health indicators and a range of indicators related to access to the health system were included in the monitoring of the general socio-economic condition of Roşia Montană Commune (Report on the Socio-Economic Condition of Roşia Montană Commune – Socio-economic Research and Development Centre "Munţii Apuseni", 2009); some of the conclusions of the study are listed below:

According to the self-evaluation, the state of health is considered good by 37.7% of the respondents, and satisfactory by 21%, while at the other end, poor and very poor health totals 14.8% of the responses, i.e. 11.6% poor and 3% very poor. Compared to 2008, health conditions worsened for 16.3% of the cases, while for 63.5% of the respondents it has not changed. Note that 61.2% of the surveyed respondents think that they do not suffer from any disease.

From the point of view of a pathological picture, according to medical records available, at the top of this potential scale, by groups of diseases, are arterial hypertensive patients (234 subjects), valvular and ischemic cardiopaths (113 subjects), followed by psychic conditions (86 cases, mostly anxious-depressive syndromes), and obstructive broncho-pneumopathic conditions (65 case) associated with tuberculosis (10 subjects, treated cases).

From the point of view of the sociological survey, the pathological picture indicates rheumatologic conditions ranking highest at 16.3%, followed by hypertension (11.1%), associated with heart condition (a further 11%), pulmonary diseases (4.5%), gastro-duodenal diseases (4.3%), kidney diseases (3.7%), diabetes (2.1%) and psychic diseases (1.5%). We may see obvious discrepancies between the situation as reflected in the official medical statistics and the self-evaluation results. In the latter case, rheumatoid conditions rank highest.

Access to medical services and hospital units is difficult, primarily due to distance.

Currently Roşia Montană has 1 general practitioner and 1 dentist or a population of 2589.

7. Ministry of Administration and Internal Affairs – General Inspectorate for Emergency Situations

Requests:

1. An update o legislation throughout the document, in regard to the prevention of major accidents involving hazardous substances

Answer:

As requested by the Technical Review Committee, we have proceeded to review the legislative developments that are relevant to Chapter 7 "Risk", the Safety Report and the Spill Prevention and Control Plan included in the EIA Report. These are detailed in Explanatory Note to Chapter 7 – Risk Situations.

2. Submittal for evaluation of the Safety Report and Internal Contingency Plan as required by GD 804/2007 according to the latest methodologies developed by the General inspectorate for Emergencies

Answer:

The first draft of the Safety Report was submitted in 2006, along with the EIA Report. Following your request, we included in Volume 3, as an annex to the Explanatory Note to Chapter 7 – Risk Situations, an updated version of the Safety Report developed in compliance with GD 804/2007, Art. 10, para. 6, "the Safety Report shall be regularly revised or updated as follows:

a) very 5 years
b) at the initiative of the operator, or as requested by the competent authorities, if justified by new circumstances in the operation of the site or considering the new technologies in security generated, for example, from the analysis of accidents, or any dysfunctions occurring in operating activities, and from scientific developments in the field."

RMGC will update the Safety Report prior to commissioning the construction activities. Under GD 804/2007, Art. 12, the Operator must develop an internal contingency plan prior to commencing the construction, in compliance with the environmental impact assessment procedure, under the specific legislation. The Internal Contingency Plan will be developed based on the latest methodologies promoted by the General inspectorate for Emergencies and submitted in the near future.

3. Redrafting the industrial risk assessment in a systematic manner, using the internationally recognised methodologies - HAZOP, Fault Tree, Event Tree, Bow Tie etc.

Answer:

A more detailed analysis of certain major accident hazards was performed following the public consultation stage. The main (credible and reasonable) scenarios were approached using systematic qualitative methods, matrix analyses, logical trees (Event Tree). For details, please refer to Explanatory Note to Chapter 7 – Risk Situations and its associated annexes.

4. Submit for evaluation the Major Accident Prevention Plan in the management of mining waste, the safety management system , internal contingency plan

Answer:

According to Article 15, para. (1) of GD 856/2008, quoted below, corroborated with the provisions of art. 16 (2), developing the above documents must be completed before commissioning the operations, therefore at the environmental permitting/integrated permitting stage (not in the environmental agreement application process):
"Art. 15 (1) In order to comply with the provisions of the norms provided in art. 14, every operator shall have the following obligations prior to commissioning operations:

a) to develop a major accident prevention **plan** for the management of mining waste
b) to implement a safety management system in implementing the plan mentioned under letter a), in accordance with the elements mentioned at item 1 of Annex No. 1;
c) to implement an internal contingency plan including the measures to be taken on a site in case of accident".

Under Directive 2006/21/EC, RMGC has developed a major accident prevention policy and a safety management system, included in the Safety Report attached to Explanatory Note for Chapter 7 – Risk Situations.

8. National Agency for Mineral Resources

In relation to mining waste, the harmonised national legal framework has been improved in recent years by the inclusion of the following regulations:

1. GD No. 856/2008 on the management of mining waste, transposing into national law the provisions of Directive 2006/21/EC of the European Parliament and Council of 15 March 2006 on the management of mining waste and the amendment of Directive 2004/35/EC.

2. Decisions adopted by the European Commission that are directly applicable:

Commission Decision of 20 April 2009 on defining the classification criteria for waste management installations according to Annex III of Directive 2006/21/EC of the European Parliament and Council on the management of mining waste. (2009/337/EC)

- *Commission Decision of 30 April.2009 completing the technical requirements for waste characterisation laid down by Directive 2006/21/EC of the European Parliament and of the Council on the management of waste from extractive industries.*
- *Commission Decision of 30 April.2009 completing the definition of inert waste in implementation of Article 22(1)(f) of Directive. 2006/21/EC of the European Parliament and of the Council on the management of waste from extractive industries (2009/359/EC).*
- *Commission Decision of 20 April.2009 on technical guidelines for the establishment of the* financial guarantee *in accordance with Directive 2006/21/EC of the European Parliament and of the Council on the management of waste from extractive industries (2009/335/EC).*

Considering the above, it will be necessary to develop a mining waste management plan according to the provisions of GD 856/2008 transposing Directive 2006/21/EC and the relevant Commission Decisions adopted in the implementation of this Directive.

Thus, the waste management plan, as part of the submitted documentation, will require updating and submittal for endorsement/approval to the relevant competent authorities, as provided by GD 856/2008, i.e. the ANRM and the MEF

Answer:

The provisions of Directive 2006/21/EC had already been taken into consideration in the development of the EIA Report and the Waste Management Plan (Plan B) submitted with the EIA Report. As requested by the Technical Review Committee, we have proceeded to review the legislative developments that are relevant to Chapter 3 "Waste". These are presented in Explanatory Note to Chapter 3 – Waste.

It is also necessary to update the provisions regarding the financial guarantee, based on the above legal amendments

Answer:

Information on the Environmental Restoration Guarantee is given in Annex 1 of the "Mine Rehabilitation and Closure Management Plan"- Plan J. Thus, in Romania, the establishment of an environmental guarantee is required in order to ensure that there will be adequate financial resources available and provided by the mining company for environmental rehabilitation works. In the mining sector, the obligation to set up an environmental rehabilitation guarantee is established under art. 22 (1) b) and art. 39 (1) s) of Mine Law No. 85/2003 establishing that (I) initiation of mining activities must be permitted in writing by the competent authority, based on the submittal, among others, of a proof of establishment of the financial guarantee for environmental restoration; and (II) throughout operations the Titleholder has the obligation to maintain the financial guarantee for environmental restoration. Therefore, after obtaining the Environmental Agreement, in order to actually commence mining activities based on the future Building Permit, the National Agency for Mineral Resources will have the legal obligation to refrain from issuing the endorsement or the commissioning of mining activities until RMGC has established the financial guarantee for environmental restoration. As a result, from a legal point of view, the necessary legal mechanism is in place to guarantee that the Mining License Titleholder, who has been issued an Environmental Agreement, may not commissioned the works without establishing the environmental restoration guarantee. Moreover, failure to maintain this guarantee will entitle the supervising competent authority – the National Agency for Mineral Resources – to decide on suspending the activity and/or even cancel the operating License.

It should be noted that the Titleholder has the obligation to establish the environmental restoration guarantee in order to commission the activities, not in order to obtain the environmental agreement, or as part of the environmental impact assessment procedure. The application procedures for the endorsement of the National Agency for Mineral Resources are subsequent to and conditional on obtaining the Environmental Agreement and the Building Permit. Furthermore, the way in which the mine Titleholder will restore the environment and close down the mining activities is regulated in detail by the legal provisions in force and by the documents approved

by the National Agency for Mineral Resources for each individual project – the specific mine closure plan – and the Titleholder only has to comply to them. Further to the obligations stated under the Mine Law, based on the transposition into national legislation of the Mining Waste Directive through Government Decision No. 856/2008 the Project Titleholder, RMGC also has the obligation to establish the financial guarantee prior to commissioning any activity involving the accumulation or disposal of mining waste at a waste installation. Commission Decision of 20 April 2009 on technical guidelines for the establishment of the financial guarantee in accordance with Directive 2006/21/EC specifies the elements on which financial guarantee calculation is based and states that "an assessment of the costs necessary to ensure land rehabilitation, at closure and after closure including, if necessary after closure monitoring or treatment of contaminants (art.1(1), letter (g)) shall be performed by independent and suitably qualified third parties and shall take into account the possibility of unplanned or premature closure". Based on the requirements of Commission Decision 2009/335/EC and in the absence of national procedures for the establishment of the financial guarantee (as approved by GD No. 856/2008 art. 50 (3)), updating the financial guarantee for Rosia Montana is the result obtained by the experts who worked on drafting Decision 2009/335/EC for the European Commission and who used the example of Rosia Montana mine as a case study in the application of this Decision.
As any other Romanian nationality entity conducting activities on the Romanian territory, RMGC will be bound by the Romanian legal provisions that it shall observe thoroughly. Therefore, since the provisions of Government Decision No. 856/2008 will have been implemented through norms of the National Agency for Mineral Resources and/or of another competent regulatory authority in regard to the approach, procedure, amount, terms and conditions for the establishment of his additional guarantee, RMGC shall comply with these provisions and will establish such a guarantee under the law before commissioning the activities.

To conclude, at this moment – the environmental impact assessment and the analysis of the Report's quality phase – RMGC can only restate its commitment to fully observe the current in force regulations on future duties that need to be observed after securing the environmental permit and before launching the activity (i.e. before the actual impact on the environment through the proposed project). The budgeted cost for closure and environmental rehabilitation for Rosia Montana mine has been established based on the following activities:

- Covering and re-vegetating the waste dumps;
- Backfilling the pits, except for Cetate Pit that is to be flooded so as to form a lake;
- Covering and re-vegetating the Tailings Management Facility (TMF) and the areas of its dam;
- Decommissioning of the production facilities and re-vegetation of rehabilitated areas;
- Treatment of waters until all effluents reach the legal standards for discharging and they do not require further treatment;
- Maintenance of the vegetation, erosion control and monitoring the entire site until the fact that all environmental rehabilitation targets have been reached in a sustainable manner it has been proven.

While the aspects regarding the closure and rehabilitation are many, the earthworks are in fact the works that determine the closure and rehabilitation costs. The cost associated with these earthworks may be properly estimated considering the fact that the technical design and the technologies used to cover with vegetation are establishing correctly the shape of the future rehabilitated area, together with the material volume that needs to be handled. The US $ 76 million amount presented within the EIA Report has been based on the technical design and the unit price established at the end of 2005. Since 2006 and until mid 2008, the costs associated with equipments, materials, consumables and assets have increased at an unprecedented value. This required from the company to review its cost estimations associated with the project, to include operation costs, as well as initial, sustaining and closure costs.
Although the technical design and the technologies used to cover with vegetation assumed within the EIA Report remain the same, the methodologies to be used to perform earthworks and the contracting procedure for these works have also been reviewed and updated. Since early 2006 and until mid 2008, the costs associated with equipments, materials, consumables and assets increased greatly. This required from the company to review its cost estimations associated with the project, to include operation costs, as well as initial, sustaining and closure costs. Based on these elements, the updated closure costs that have been updated in March 2009 amounted to approx. US$ 128 million. These costs are presented in detail in *Annex NE_Cap 2_01*. This is the initial capital cost necessary for closure that is to be spent during the entire mine life and during closure. The continuous operational costs for years 22 and 26 are estimated to amount to US$ 18 million, but this amount shall be spent during active closure period.
The independent costs assessment is conducted on annual basis. These updates shall allow that in a very improbable case of an early closure of the Project, at any given time, each environmental guarantee to reflect the environmental rehabilitation costs. If these annual updates shall result in an estimate different from current value of this estimate of approx. US$ 128 million, which shall be necessary to conduct mine closure, then that estimate

is to be appropriately corrected. In accordance with the terms provided within the environmental guarantee, the Government of Romania has no financial liability associated with the environmental rehabilitation to be performed for Rosia Montana Project.

9. Geologic Institute of Romania

We hereby require answers to the following questions:

1. After the brief presentation of the project during the TAC meeting from 22.09.2010, it results that the total quantity of gold is being estimated at about 10 million ounces. The report mentions 8 million ounces of gold and 28.8 million ounces of silver. What is the reality? Were there any mining works conducted after 2006? Have any other reserve calculations been made?

Answer:

Tables presenting the minable reserves for each pit in part or fully are found within Chapter 2 of EIA Report, together with the metal quantities both the existing quantities within the reserve and the quantities forecasted to be obtained at the Processing Plant. RMGC conducted the most extensive and detailed exploration program that has ever been conducted for a mining project in Romania, and we may say that this deposit is known in detail. Thus, following the exploration work conducted by RMGC between 1997 and 2006, a reserve of 215 million t of ore having an average grade of 1.46 g/t Au and 6.9 g/t Ag and a total quantity of 10.1 million ounces of gold (equal to 314.11 t Au) and 47.6 million ounces of silver (equal to 1480.36 t Ag) *in situ*. By processing the ore and estimating a processing output of approx. 80% for Au and approx. 61% for Ag, the gold that is to be obtained is 7.9 million ounces of gold (equal to 247.7 t), and the silver that is to be obtained is 28.9 million ounces of silver (equal to 899 t). To conclude, both figures are correct, the first one represents the gold quantity present *in situ* and the second one represents the gold obtained after conducting ore processing. The reserves calculation prepared for Rosia Montana Ore Deposit is based on an extensive exploration program that collected 191,320 samples from drillings, underground mining works, and surface outcrops. Each meter that has been sampled has also been tested for gold and silver. The database that includes over 400,000 tests has been verified by independent experts both from Romania and from abroad. Among Romanian companies for this work we would like to mention SC Ipromin SA that has conducted three feasibility studies for Rosia Montana Project. These feasibility studies also include resources and reserves calculation and have been forwarded to National Agency for Mineral Resources (NAMR) in order to be verified and homologated.

After 2006, the exploration works continued at a slower pace and they were aimed at thickening the drillings network in order to increase knowledge. The results confirmed the existing information as well as the quality of the previously estimated resources. Due to the fact that the volume of these works is reduced, the information obtained did not impose an update of the resources and reserves presented within the EIA Report.

Both the resources and the reserves have been calculated in accordance with the Methodological Norms established by the Mining Law (85/2003) in Romania, EU Codes (*Minerals Reporting Code*, 2002) and international regulation (NI 43-101). These results have been independently verified and audited, as requested by all these laws.

2. Is there an entity belonging to the Romanian state which has received splittings of the samples taken into consideration for calculating reserves for conducting control testing? Some data from the presentation are hard to believe (for instance the presence of such a low grade of copper within an ore that includes, according to the project, 1-2% sulphides).

Answer:

Gabriel Resources and RMGC aimed and they are still aiming to cooperate with the major services providers both at national and international levels for all aspects of the mining Project (designing, geology, studies and assessments etc).

External control tests have been conducted for Rosia Montana Ore Deposit for all mining and exploration stages of the deposit. All these tests have been conducted at independent laboratories, certified and known at international level for mining industry, each sample being tested both by ALS Chemex Laboratory and by Analabs-Balcatta. Taking into account that Gabriel Resources is listed on Toronto Exchange Market, all requirements and regulations on the collection, verification and assessment of ore deposits have been fully observed in order to report to the Exchange Market; and these provide among other issues the fact that tests conducted for grades must be performed by internationally certified laboratories. Currently, the mining law and its enforcement norms provide for the requirement to conduct external control tests, but with no stipulations where to conduct such tests, and therefore there is no duty to perform such tests within Romanian Government Institutions.

In the case of Rosia Montana Ore Deposit, the main sulphide is pyrite. The other sulphides are occurring rarely. Please find below the mineralogical composition for 3 composite metallurgic samples, representative for Rosia Montana ore:

Mineral	RM1	RM2	RM3A
Apatite	0.20%	0.16%	0%
Baryte	0%	0%	0%
Chalcopyrite	0.05%	0%	0%
Fe and Mn Carbonates	1.30%	0.80%	0%
Galen	0%	0.12%	0%
Muscovite	10.90%	12%	13%
Orthoclase	60.50%	59.10%	67.20%
Pyrite	4.70%	5.10%	2.30%
Quartz	22.10%	22.40%	17.50%
Rutile	0.22%	0.38%	0.13%
Sphalerite (Blende)	0.08%	0%	0%

As it can be noticed, chalcopyrite that is usually associated with copper deposits is occurring in extremely low quantities within only one sample; this mineral is not usually present within Rosia Montana Mineralization.

3. During the presentation of the project it has been talked about an environmental guarantee that is to be submitted in parallel with the development of the mining operation. Did you take into consideration during the calculations as a value of this guarantee the neutralization value for the cyanidation residue (the site decontamination) as it was the similar case in France (Salsigne)?

Answer:

As shown in answer of Question 2 ANRM, the information regarding the Environmental Rehabilitation Guarantee are presented in Annex 1 of "Mine Rehabilitation and Closure Management Plan"- Plan J. Thus, in Romania, the environmental guarantee is necessary to ensure the fact that there will be adequate funding provided by the mining company so as to properly develop the environmental rehabilitation. For the mining field of activity, the duty to establish an Environmental Rehabilitation Guarantee is established by art. 22 (1) b) and art. 39 (1) s) of Mining Law no. 85/2003 that provide that (I) *the competent authority shall authorize in writing the commencement of the mining activities upon submission of proof of establishing the financial guarantee for environmental rehabilitation, among others*; and that (II) during mining operations the titleholder has the duty to maintain the financial guarantee for environmental rehabilitation. Thus, after obtaining the environmental permit necessary to launch the mining activities based on the future construction permit (s), NAMR is legally bound not to issue the permit on launching the mining activities if RMGC has not previously established an environmental rehabilitation guarantee. Therefore, from legal point of view, there is a legal mechanism implemented to warrant that a license titleholder that has an environmental permit shall not launch its activity with no Environmental Rehabilitation Guarantee in place. Moreover, the need to maintain this guarantee gives the supervising competent authority NAMR the right to impose suspension of the activity and/or even the annulment of the Mining License. It must be underlined the fact that the titleholder must establish the Environmental Rehabilitation Guarantee in order to launch its activities, and not in order to secure its environmental permit or during the environmental permitting procedure. The development of the necessary procedures to obtain the endorsement of NAMR represents a subsequent procedure that depends on the obtainment of the environmental permit and of the construction permit. At the same time, the way in which the titleholder shall rehabilitate the environment and shall close the mining works is fully regulated by current in force regulations and documents endorsed by NAMR for each project – the specific mine closure plan – and the titleholder remains only to comply with all these. Moreover, additionally to the requirements imposed under the Mining Law, and after transposing the Mine Waste Directive into domestic legislation through Governmental Decision no. 856/2008, the Project titleholder, RMGC, must establish a financial guarantee before launching any operations involving the accumulation or storage of extractive wastes within a wastes installation. Committee Decision 2009/335/EC of 20 April 2009 – on establishing the technical orientations on the establishment of financial guarantee in accordance with Directive 2006/21/EC – states the elements on which the calculation of the financial guarantee is made and states "an assessment of the costs necessary to ensure land rehabilitation, closure and after closure including possible after closure monitoring or treatment of contaminants" (art 1 (1), letter (g)) shall be performed by "independent and suitably qualified third parties and shall take into account the possibility of unplanned or premature closure". Considering the requirements under Commission Decision 2009/335/EC and in the absence of a national procedure on the establishment of a financial guarantee (endorsed in accordance with Governmental Decision no. 856/2008, art. 50 (3)), the update of the Rosia Montana financial guarantee represents the result obtained by the experts that have drafted the Decision 2009/335/EC for the European Commission and have used the example of Rosia Montana Mine as a case study in applying this Decision.

Like any other Romanian entity developing its activity within Romanian territory, RMGC is governed by the Romanian legal provisions that need to be fully observed. Thus, once the provisions under Governmental Decision no. 856/2008 shall have implementing norms issued by NAMR and/or by any other regulatory authority competent on the mode, procedure, amount, terms and conditions for establishing this additional guarantee, RMGC shall observe those provisions and shall establish such a guarantee in accordance with legal provisions before launching its activities.

To conclude, at this moment – the environmental impact assessment and the analysis of the Report's quality phase – RMGC can only restate its commitment to fully observe the current in force regulations on future duties that need to be observed after securing the environmental permit and before launching the activity (i.e. before the actual impact on the environment through the proposed project). The budgeted cost for closure and environmental rehabilitation performed for Rosia Montana mine has been established based on the following activities:

- Covering and re-vegetating the waste dumps;
- Backfilling the pits, except for Cetate Pit that is to be flooded so as to form a lake;
- Covering and re-vegetating the Tailings Management Facility (TMF) and the areas of its dam;
- Decommissioning of the production facilities and re-vegetation of rehabilitated areas;
- Treatment of waters until all effluents reach the legal standards for discharging and they do not require further treatment;
- Maintenance of the vegetation, erosion control and monitoring the entire site until it is proven the fact that all environmental rehabilitation targets have been reached in a sustainable manner.

While the aspects regarding the closure and rehabilitation are many, the earthworks are in fact the works that determine the closure and rehabilitation costs. The cost associated with these earthworks may be properly estimated considering the fact that the technical design and the technologies used to cover with vegetation are establishing correctly the shape of the future rehabilitated area, together with the material volume that needs to be handled. The US$ 76 million amount presented within the EIA Report has been based on the technical design and the unit price established at the end of 2005. Since 2006 and until mid 2008, the costs associated with equipments, materials, consumables and assets have increased at an unprecedented value. This required from the company to review its cost estimations associated with the project, to include operation costs, as well as initial, sustaining and closure costs.

Although the technical design and the technologies used to cover with vegetation assumed within the EIA Report remain the same, the methodologies to be used to perform earthworks and the contracting procedure for these works have also been reviewed and updated. Since early 2006 and until mid 2008, the costs associated with equipments, materials, consumables and assets increased greatly. This required from the company to review its cost estimations associated with the project, to include operation costs, as well as initial, sustaining and closure costs. Based on these elements, the updated closure costs that have been updated in March 2009 amounted to approx. US$ 128 million. These costs are presented in detail in *Annex NE_Cap 2_01*. This is the initial capital cost necessary for closure that is to be spent during the entire mine life and during closure. The continuous operational costs for years 22 and 26 are estimated to amount to US$ 18 million, but this amount shall be spent during active closure period.

The independent costs assessment is conducted on annual basis. These updates shall allow that in a very improbable case of an early closure of the Project, at any given time, each environmental guarantee to reflect the environmental rehabilitation costs. If these annual updates shall result in an estimate different from current value of this estimate of approx. US$ 128 million, which shall be necessary to conduct mine closure, then that estimate is to be appropriately corrected. In accordance with the terms provided within the environmental guarantee, the Government of Romania has no financial liability associated with the environmental rehabilitation to be performed for Rosia Montana Project.

The Project from France that is referenced is a mining project that was operational before extractive wastes management legislation or the BREF Document on mining Best Available Techniques were implemented at European level or in Romania. Rosia Montana Project is a modern project meeting all new mining legal provisions and is including operating, closure and environmental rehabilitation measures considered as BAT. In the case of Salsigne (France) mining area, the rehabilitation program has been established with a governmental involvement based on a regulation governing the remediation of polluted areas and for which there is no responsible entity to be held liable for these pollutions.

Unlike the rehabilitation project conducted in France that has been launched as a program after mine closure and abandonment of the respective mining perimeters, in the case of Rosia Montana Project, the closure and environmental rehabilitation stage is an integrant component of the Project and shall be fully funded by the company with no implication of the Romanian Government at all. RMGC complied with the current in force

legislation that provides for the duty to prepare an environmental rehabilitation plan and a corresponding budget even from the permitting stage of the mining project.

4. There is a normal concern regarding the huge quantity slurry containing cyanides that the project will generate, based on a technology that involves the cyanidation of the entire mining mass. Have there been any tests conducted on the technological samples in order to attempt the pre-concentration of the ore in order to reduce the cyanide mass? Do you know any other similar tests taking into account the fact that our institution has succeeded during the 80's to retain within the concentrate 93% thereof after micro-flotation? Out of the 12 processing technologies that have been assessed (according to your statements), how many of them did have as basis the collection of technological samples?

Answer:

Under Chapter 5 "Review of the alternatives" of EIA Report, the processing methods that may be used for the Rosia Montana ores are presented. All these metallurgical tests have been conducted by internationally certified laboratories on representative technological samples (ores mixture) for the mineralization to be processed at Rosia Montana. Starting with 2001, RMGC conducted several technological tests on how to process the ore, testing both the mineralogical composition of samples and the technological flow sheets to be applied so as to obtain more efficient outputs both for gold and for silver. The particularities of the ore deposit influence directly the technological flow sheets applicable in case of ore processing. In short, these particularities are described as follows:

- Rosia Montana ore deposit is a large deposit with low grades. The processing method must allow processing of large quantities so as to ensure suitable economic benefits to result and a sustainable mining project that will not be impacted by the changing economical conditions.
- Rosia Montana ores, except for gold, contain significant silver grades. The technological flow that is selected must allow also the recovery of silver.
- Rosia Montana ores contain gold and silver associated with host rocks both with and without sulphides contents. A procedure applied for only treating the host rock (silicates) or only sulphides shall result in low extraction outputs and poor resource development.

12 options of technological flow sheets have been analyzed to process Rosia Montana ores, some of these methods forecasting a prior concentration of ore before cyanide-in-leach:

1) Processing the whole ore by applying the Carbon-in-Leach Procedure (CIL);
2) Flotation of the whole ore, re-grinding the concentrate to reach 150 µm in size and leaching it;
3) The flotation of the whole ore, re-grinding it down to 10 µm and leaching the concentrate;
4) Flotation on the whole ore, re-grinding the concentrate to reach 150 µm and cyanide leaching of both concentrate and the flotation tailings;
5) Flotation on the whole ore, re-grinding the concentrate to reach 10 µm and cyanide leaching of both concentrate and the flotation tailings;
6) Concentrating the whole ore through flotation at an elevated output through oxygen addition under pressure, re-grinding the concentrate to 150 µm and cyanide leaching of the concentrate;
7) A concentration of the whole ore through flotation at an elevated output through oxygen addition under pressure, re-grinding the concentrate down to 150 µm and cyanide leaching of the concentrate and of the flotation tailings;
8) A gravitational concentration, grinding the concentrate down to 50 µm and intensive gravitational cyanide of the concentrate and leaching of the tailings;
9) A gravitational concentration, grinding the concentrate down to 10 µm and intensive gravitational cyanide of the concentrate and leaching of the tailings;
10) Stockpile (Heap) Leaching of the ore;
11) Flotation and transportation of concentrate to a foreign third party;
12) Alternative leaching agents (lixiviants) (like thiosulphate, filtering, copper precipitation or similar).

The comparative tests and analyses indicate the fact that the CIL alternative for the whole ore is considered to be the best from the analyzed alternatives. Moreover, this alternative is considered as BAT in accordance with the BREF documents endorsed by the European Commission in 2009. Cyanide and its compounds shall be detoxified by applying INCO procedure (DETOX) that is also considered in accordance with BREF documents as BAT technology and the processing tailings shall be sent to the Tailings Management Facility in accordance with EU Directive 2006/21/EC on the management of waste from extractive industries that was transposed into the domestic legislation through Governmental Decision no. 856/2008.

Most of the cyanide is recovered at the plant as presented in Drawing 4.1.15 and under Section 2.3.3, Chapter 4.1 Water of the EIA Report. But, a residual quantity shall remain in the tailings. The detoxified tailings represent the only source of process residual water of the Project. The residual cyanide concentrations in the treated tailings shall have to meet the provisions under Governmental Decision no. 856/2008 on mining wastes, which enforce a maximum value of 10 mg/l CN WAD (weak acid dissociable). The modeling of the concentrations forecasted to be present at the TMF showed that the treated tailings are expected to contain 2 – 7 mg/l of total cyanides. Through subsequent degradation, the concentrations shall decrease down to values well below the values established for surface waters (0.1 mg/l) within 1 to 3 years from closure. A collateral effect of this treatment is the removal of several metals that may occur within the technological wastes waters flow. The assessment of the chemical composition probable within the tailing levigate based on conducted tests is summarized in Table 4.1-18 (Section 4.3.), Chapter 4.1 Water of EIA. After decanting, the water is recirculated within the process; at the TMF, during the entire decanting period, several processes are developed: cyanide natural degradation/decomposition, hydrolysis, volatilization, photo-oxidation, bio-oxidation, complexing/decomplexing, adsorption on precipitates, dilution due to precipitation etc. According to the data obtained from different mines, during their operational stages, different efficiencies are obtained for reducing cyanides (from 23-38% to 57-76% for total cyanides, and from 21-42% to 71-80% for WAD cyanides), depending on the season (temperature). In average, it has been considered that an approx. 50% reduction of CNt at the TMF shall occur during operations. In accordance with the model prepared for degradation/decomposition process, after mine closure, it is possible to reduce cyanide down to levels as low as 0.1 mg CNt/l. Most of (90%) the degraded cyanide (the 50% average) is performed through hydrolysis/volatilization as hydrogen cyanide. The mathematical model of the hydrogen cyanide concentration at the TMF leads to a maximum hourly concentration of 382 $\mu g/m^3$.

5. Is there a backup scenario if during the lifetime of the project the amendment of the legislation at national level entails the renouncement at cyanide? What would happen to the mining operation in this situation?

Currently at the level of the European Union there is a modern legislation on mining; this legislation is also implemented in Romania and allows the use of cyanide in leach technology in mining to extract gold. Any alteration of the legislation requires a long period of time until it is effectively implemented and shall mandatorily contain compliance terms for existing mines in order to meet the new legislative requirements. For instance, Governmental Decision no. 856/2008 on mining wastes management provides that existing mines have 10 years at their disposal to alter their technologies so as to reach the standard value of max. 10 ppm cyanides in the tailings reaching the TMF. RMGC shall comply with any legislative amendment occurring during the project. At European level, a Resolution of the European Parliament is not a regulatory deed; it is not included in the community acquis and is not subject of being implemented.

Through that resolution the European Commission has been requested to analyze the possibility and opportunity of altering the legislative framework. The commission has complete freedom in expressing its point of view during decision making process, without being conditioned in any way by the contents of the respective resolution. Within its point of view on the opportunity of banning cyanide based technologies, the European Commission shows that the measure proposed by the European Parliament is not justified. The Commission concluded that due to the lack of better (in the sense of causing less impact on the environment) alternative technologies, a general ban on cyanide use would imply the closure of existing mines operating in safe conditions. This would be detrimental to employment without additional environmental and health added value. Moreover, the community regulations on mining provide a sufficient protection level; the maximum concentrations accepted for cyanides upon discharging are so low than most of them are practically destroyed before being stored as wastes. The position of the Commission is posted also on the European Parliament website (http://www.europarl.europa.eu/oeil/DownloadSP.do?id=18364&num_rep=8113&language=fr) and as an answer issued by Mr. Janez Potočnik, Environmental European Commissioner (http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=P-2010-3589&language=EN).

We hereby ask for:
1. The update of the information and bringing the documentation to date, including the presentation (a picture is given as an example of the cyanidation unit from El Valle – Rio Narcea from Spain as being in preservation, even if it is on the list of those that are to be decontaminated after demolition).

Answer:
In accordance with the requirements presented in the letter sent by Ministry of Environment and Forests, through which it is stipulated that at the submission date of the documentation and alterations have been made to the

environmental legislation until now, RMGC asked experts to analyze all alterations on each field, preparing a document for the purpose of updating the EIA Report. This document is forwarded to th Ministry of Environment and Forests as an answer to the respective letter, and it shows that the legislative alterations do not lead to the alteration of the conclusions presented under EIA Report.
With respect to the picture of the El Valle – Rio Narcea Cyanide-in-Leach Unit, this is merely an example of the way in which a modern plant looks like, having no connection with its potential conservation or demolition.

2. Compliance of the project with the new legislation, not only the national one but also with those of other countries which will be involved into the establishment of the conditions and work costs for the project (for example: the legislation from countries as Germany and Hungary have made the costs of cyanide transportation on their territories almost prohibitory).

Answer:
During 2010, a new law has been passed in Hungary on banning extraction and processing of ores by using cyanides within its territory. There is no limit regarding cyanide use within other industries and regarding cyanide transport within Hungarian territory. Therefore, there is no impact of this new piece of legislation from Hungary on Rosia Montana Project, i.e. on the transport costs for cyanide being brought in from Czech Republic or Germany. Germany is currently the largest producer of cyanide from Europe, and there is no law banning production, marketing or transport of cyanide within the territory of this country. As a matter of fact, please find below several formal data on cyanide use within Hungary in industries other than mining, as published on the website of The European Pollutant Emission Register, with the stipulation that in Hungary there are no gold-silver ore deposits requiring cyanide in leach processing:
Thus, several formal data regarding concentrations and quantities of cyanide compounds discharged in environment through the wastes waters resulted from the following industrial uses of cyanide in Hungary are presented on the abovementioned website (The European Pollutant Emission Register):

- Ferrous and non-ferrous metal processing industry – 0.54 t per year
- Pharmaceutical industry – 0.05 t per year.

(source:
http://eper.ec.europa.eu/eper/emissions_pollutants.asp?CountryCode=HU&EmissionSelectionAir=on&EmissionSelectionWaterDirect=on&EmissionSelectionWaterIndirect=on&Year=2004&PollutantId=52)

3. Conducting preparation pilot-tests, in order to follow the opportunity to adopt the in integrum cyanidation technology that has been proposed.

Answer:
For this answer please consider the answer provided for the 4th question, presented below.

4. Including a comparative economic analysis as an element of the project, by taking into consideration the decontamination costs after the mining operations have been completed ("zero pollutants" option).

Answer:
This is a modern project, observing all new pieces of legislations adopted for the mining industry, as it is the legislation adopted on extractive industry wastes management and this is a project that implements during all its stages – construction, operation, closure and rehabilitation – the Best Available Techniques (BAT) and Procedures, which are considered as BAT in accordance with the BREF document on BATs available specifically for mining. In accordance with current in force legislation it is mandatory to prepare a Closure and Environmental Rehabilitation Plan, together with a suitable budget for this plan as an integrant part of any mining project. There is no alternative of economic analysis of a project without considering closure, environmental rehabilitation and monitoring costs pertaining to that project.
The budgeted costs for closure and environmental rehabilitation of Rosia Montana mine have been established based on the following activities:

- Covering and re-vegetating the waste dumps;
- Backfilling the pits, except for Cetate Pit that is to be flooded so as to form a lake;
- Covering and re-vegetating the Tailings Management Facility (TMF) and the areas of its dam;
- Decommissioning of the production facilities and re-vegetation of rehabilitated areas;
- Treatment of waters until all effluents reach the legal standards for discharging and they do not require further treatment;
- Maintenance of the vegetation, erosion control and monitoring the entire site until it is proven the fact that all environmental rehabilitation targets have been reached in a sustainable manner.

While the aspects regarding the closure and rehabilitation are many, the earthworks are in fact the works that determine the closure and rehabilitation costs. The cost associated with these earthworks may be properly estimated considering the fact that the technical design and the technologies used to cover with vegetation are establishing correctly the shape of the future remediated area, together with the material volume that needs to be handled. The US$ 76 million amount presented within the EIA Report has been based on the technical design and the unit price established at the end of 2005. Since 2006 and until mid 2008, the costs associated with equipments, materials, consumables and assets have increased at an unprecedented value. This required from the company to review its cost estimations associated with the project, to include operation costs, as well as initial, sustaining and closure costs.
Although the technical design and the technologies used to cover with vegetation assumed within the EIA Report remain the same, the methodologies to be used to perform earthworks and the contracting procedure for these works have also been reviewed and updated. Since early 2006 and until mid 2008, the costs associated with equipments, materials, consumables and assets increased greatly. This required from the company to review its cost estimations associated with the project, to include operation costs, as well as initial, sustaining and closure costs. Based on these elements, the updated closure costs that have been updated in March 2009 amounted to approx. US$ 128 million. These costs are presented in detail in *Annex NE_Cap 2_01*. This is the initial capital cost necessary for closure that is to be spent during the entire mine life and during closure. The continuous operational costs for years 22 and 26 are estimated to amount to US$ 18 million, but this amount shall be spent during active closure period.

5. *Taking into account the ore concentration and gold concentrate export as a most advantageous option for the Romanian state (which would apply royalty to the rare metals existing in ores, which would otherwise be present into the slurry).*

Answer:
The calculation of the Mining Royalty is regulated by Law 262/07.06.2009 endorsing the Governmental Emergency Ordinance no. 101 of 4 October 2007 for altering and mending the Mining Law no. 85/2003 and Oil Law no. 238/2004. Thus, under art. 45 a), it is provided the fact that for noble metals the mining royalty due to the state budget is established at 4% of the value of the mining production. Moreover, the Order issued by NAMR President no. 198/2009 has been published on October 1, 2009 on the endorsement of the technical instruction regarding the records, reporting, calculation and payment of the mining activity tax and mining royalty, stipulating that for noble metals the calculation base of the mining royalty shall be represented by the value of the marketable mining production, and as a calculation model, the royalty is provided by the value of the mining production calculated based on delivery prices and the quantities of mining products marketable during reporting regardless of their marketability state (raw or processed).
Based on the abovementioned facts it results that in case a gold concentrate is obtained that is to be exported, the royalty shall be calculated based on the marketable mining production value that depends only on the concentrate delivery prices. Therefore, the royalty has no relation with the value or the quantity of metals contained by the concentrate, but only with the selling value of the actual concentrate. The metals are not sold in this case, but the concentrate. Due to the fact that after selling, concentrates are to be submitted to other technological processes to extract gold and silver, the delivery price of such a concentrate is significantly lower than the prices obtained through direct selling of gold and silver bars. It is therefore obvious that if gold concentrate would have been produced at Rosia Montana, the royalties paid to the state would have been significantly lower than the royalties paid by a project as it is proposed currently; the project shall sell dore gold bars as mining products.

10. The Romanian Academy

The project does not represent a public interest work and therefore does not explain the collateral negative effects and the risks implicated by the project.
This standpoint is based on the following arguments:
1. The Romanian Academy considers that the gold and silver reserves existing in Apuseni Mountains represent a non-renewable strategic resource, the capitalization of which must be treated with a lot of responsibility.

Answer:
The Projects aimed at mining the gold resources based on sustainable and responsible development principles have a major positive impact on long term on local, regional and national economies. In the case of Rosia Montana Project, the experts have calculated a direct contribution of over US$ 4 billion to the Romanian economy and a total potential indirect contribution of US$ 19 billion, calculated at a gold price of 900 US$/ounce.
It must be stated that all elements in the Project are prepared in full compliance and they are observing the current legal provisions from Romania. Thus, the provisions under art. 135 of Romania's Constitutions establishing the principles of mining the mineral resources, the provisions of the Mining Law no. 85/2003, the Development Strategy of Mining Industry prepared by the Romania's Government, as well as other legal provisions pertaining to different components of the Project are fully observed.
The development of the gold and silver resources existing within Rosia Montana Perimeter through a mining leasehold license granted to RMGC has been decided upon conclusion of the License Agreement. We are now at the moment when RMGC asks for an assessment of its EIA Report with the application of the criteria provided under specific legislation, and not through the consideration of several general, biased and non-quantifiable statements.
The proposed mine is to be implemented within the conditions imposed by the Romanian law, based on a Mining License granted by the Romanian state, as well as on the permits and endorsements that need to be secured from the state authorities in accordance with current in force legislation. The project proposed by RMGC at Rosia Montana is a project of responsible mining that is considering with equal importance all existing components and implications: economic, social, environmental and heritage.

2. The mining operation that is designed for a period of 17-20 years does not represent a sustainable development solution and it does not solve the social and economic issues of the area; the number of jobs that are created during the operational period (500) do not cover the local need.

Answer:
Project life
The preliminary activities conducted to develop the Project have been launched in 1997 by performing geological explorations within the area. After securing all necessary permits, the mine construction stage is going to be launched, and it is to last for a period of approx. 2 years. After that, the operational stage is launched (16 years), followed by the closure and environmental rehabilitation stage (5-7 years). These periods total a minimum Project life of 35-37 years.

The sustainability feature of the development model for the Rosia Montana area proposed through the Project.
Sustainability conditions
The Action and Management Plans included in the EIA Report are reported to the standards established by the Equator Principles (especially Principle no 2 on reaching the economic performance of development projects; by continuous improvement of social and environmental performance thereof; the duty to approach in a systematic and integrant manner the Environmental and Social Impact Assessment and Management), the standards of the World Bank Group and of International Finance Corporation (IFC) on the *sustainability conditions in projects with environmental and social impact*. These standards are mainly aimed at: the contribution of these projects to the sustainable development of the areas in which they operate in an integrated manner with the efforts of the other actors involved in the sustainable development; the duty of operators to consult and engage the stakeholders emphasizing the increase of community capacity in designing its development and in implementing development programs; the duty to observe human rights and to plan the management of adverse impact through sustainable development projects; the preparation of sustainable development policies must be based on relevant and constantly updated social and economical data, and the progresses must be monitored and reported. The Rosia Montana Project represents a proposal of sustainable development of Rosia Montana area starting with the existing potential and aiming its improvement at the end of the mining operation in an integrant manner – to include all three dimensions of sustainable development: environment, economy, and society. The Community

Sustainable Development Plan submitted by RMGC within the EIA Report establishes the general framework and the base principles on RMGC involvement during the Project within the sustainable development process of the community and of the broader area Rosia Montana. RMGC proposed, starting with this general framework, several concrete programs, measures and actions through the updated version of the Sustainable Development Action Plan, to include the result of the consultations with stakeholders.

The mining element of the Project

The development of the Project shall result in economic benefits that are either direct or indirect, as follows:

- During the 16 years of mine operation, it is expected that the Project shall generate total incomes from selling gold and silver of approx. US$ 7.5 billion, at 900 US$/gold ounce and 12.50 US$/silver ounce.
- During this period, the direct contribution to the state incomes (to include taxes, royalties, duties and dividends) it is estimated to amount US$ 1.72 billion.
- The construction costs associated with the first years of the Project, together with RMGC costs during operations and closure stages shall amount to US$ 1.96 billion representing direct costs with assets and services in Romania during the Project life.
- Including also the labor costs, the direct impacts of the Project shall add US$ 4 billion into Romanian economy. This amount equals 53% of the total forecasted incomes of the Project.

Aside the direct impact of the Project, the mine shall generate effects consisting of substantial indirect and induced costs. These are additional costs that are generated by the abovementioned direct costs, which will not exist provided that the mine would not be built and operated. Analyzing the Project from the point of view of its impact on Romania's GDP and considering both the direct costs and the indirect and induced costs of the Project l, the reports prepared by Oxford Policy Management (OPM) and James Otto (December 2009) estimate the fact that Rosia Montana Project may have an impact on Romania's GDP of approx. 0.5% per year or the equivalent of US$ 19 billion during the 18 years of construction and operation.

The project shall have a major contribution to Foreign Direct Investments (FDI) in Romania. A capital inflow of US$ 440 million shall be paid during the 1st year of mine construction and US$ 860 million USD during 2nd year of mine construction. These values, together with the investments made to date and with the investments to be made during operations shall amount to a total contribution to the FDI of US$ 2.1 billion.

In order to establish the percentage from the cash flows generated by the Project available to the public sector, an Effective Tax Rate (ETR) has been calculated for the Project. Following those calculations, the value of the ETR is ranging between 44% and 48%, depending on the estimated incomes and expenditures (fixed, increased by 3 or 10%). If the additional costs of US$ 280 million are added that is estimated by titleholder to be used in order to build public infrastructure networks during the Project, than the ETR value increases to 51-55%. If one considers the fact that RMGC must invest initially in the Project a US$ 2 billion capital and if this investment is firstly paid back (with a capital interest of 4.25 – 4.5%), so as the state share is measured as percentage of the value generated by the Project, than the ETR value increases up to 64%. These values are obtained from the "base model" of the Project and they may vary together with future evolutions of the gold price, lower or higher mineral recovery rates, and variable production costs. The nature of the fiscal regime in Romania with fixed contributions ensures the fact that a significant share of the incomes generated by the Project is clearly reaching the public budget, and the public interest is ensured and protected against risks in this manner.

For the business environment, the Project creates several opportunities:

- It shall re-launch the mining industry in Romania on a certain, modern and economic base, providing a valuable precedent for other potential mining investments.
- It may stimulate new investments in several services industries that have potential in Romania. The economic activities from fields like constructions, earthworks, transport and logistics shall benefit from real opportunities.
- Romania, with the help and momentum provided by the Project, may have a significant positive contribution in meeting the EU objective in ensuring safe and efficient sources of mineral resources.

Finally, the mining project shall generate additional social benefits for local communities as well as at national level:

- New significant local infrastructure networks: estimated value of approx. **US$ 128 million**
- Rehabilitation of former polluting mine sites that have been abandoned: estimated value of **US$ 37 million**
- Restoring, maintaining and developing cultural heritage sites, together with their research: estimated value of **at least US$ 35 million**
- New facilities for local community: estimated value of **US$ 31 million**

- Education and vocational programs to improve the labor abilities of locals, together with community programs and services within the following fields of activity: sanitary, social and cultural: estimated value **US$ 49 million**
- Re-establishment of a **modern and economic mining sector**
- **Stimulation of spinoff industries** supplying the Project for which other market opportunities may develop and support.

It is estimated the fact that these activities shall have direct costs that are to be paid by RMGC, **totaling approx. US$ 280 million**. Together with the forms of direct impact previously mentioned, these shall provide a significant social value for Romania. All these direct and indirect costs generated by the Project are meeting the directions of sustainable development identified through strategies and action plans established for the sustainable development of the area.

The non-mining elements of the Project

The strategy of economic diversification of Rosia Montana area

The non-mining development directions proposed by RMGC to be promoted together with the development of the Project are approached together with the Development Strategy of Rosia Montana Commune (2008-2013), as well as the relevant strategies, programs and action plans established for the sustainable development of the operating area.

These strategies are aimed on their turn to the construction of a necessary framework for the diversification of the economy and progressive passage of the mono-dimension community (based on a single sector, either mono-industrial or agriculture) to multi-dimensional communities whose potential is identified and developed within an integrated and sustainable manner.

The five "capitals" of sustainable development

Financial Capital

Includes: impact on the economic development, and on fiscal, taxes, and duties administration, provided by:

- An average number of 2338 jobs during construction for a period of two years, most of them being filled by local labour force;
- 842 jobs during operational stage for a period of 16 years, most of them being filled by local labour force;
- 270 jobs during closure stage for a period of 5-7 years, most of them being filled by local labour force;
- Approx. 4200 indirect jobs during construction stage generated at local and regional levels;
- Approx. 2300 indirect jobs during operational stage generated at local and regional levels;
- Approx. 1500 indirect jobs during closure stage generated at local and regional levels;
- US$ 1.75 billion, representing the share of Romanian Government from the profits, profit taxes, royalties and other duties and taxes due toward local, regional and national authorities of Romania;
- US$ 2.42 billion, representing the value of assets and services obtained from Romania

RMGC also cooperates with stakeholders for the initiation of their own business so as to diversify and develop the economic opportunities provided by the Project, through:

- The establishment in the area of a micro-bank that allows access to finance under advantageous conditions;
- Creation of a business centre and incubators to offer support, training (entrepreneurial, business plans, administrative and fiscal management, etc.), legal, financial and administrative consultancy, necessary to promote the development of local and regional business environment. This is necessary both for provision of assets and services to the Project and for encouraging the entrepreneurial spirit of locals so as to be prepared for the sustainable development needs after completion of the Project.

Material Capital

Infrastructure – to include buildings, power supply, transport, water supply and waste management:

- Income growth for governmental agencies, totalling US$ 1 billion for more 20 years (construction-production-closure activities), which will constitute supplementary funds that may be allocated by authorities for the improvement of community infrastructure;
- After consulting the community that wants to resettle from Rosia Montana, RMGC has built La Recea Quarter in Alba Iulia and shall build the new administrative center of the locality that shall include a new civic centre, commercial and residential areas. The Relocation and Resettlement Action Plan (RRAP) contains all details related to these initiatives.

Human Capital

Includes: health and education:

• Improvement of the health infrastructure – construction of a modern clinic in the new administrative center of Rosia Montana, available to the entire community; modernization of a wing of Abrud Hospital, available for the entire community;
• Improvement of the medical emergency system in the region through the support provided for partnerships with relevant institutions;
• Improvement of basic educational infrastructure – construction of a new school and of a new civic and residential centre;
• Improvement of human capital through sports and health and environmental education;
• Partnerships with educational organizations and NGOs on improvement of educational facilities in the region and access to education.

Social Capital
Includes:
• Strengthening community engagement, development of participatory mechanisms of making decisions with consequences in the community life;
• Programs aimed at developing community relations, social cohesion, social networks and institutional capacity to support these relations;
• Preservation of the immaterial cultural heritage by supporting and encouraging the community to participate in programs aimed at maintaining the heritage alive;
• Development and promotion of cultural heritage in Rosia Montana both for transforming Rosia Montana a place where citizens intend to remain and to increase the tourism attraction capital;
• Continuous training programs; education opportunities for adults and improvement of their skills through training programmes, educational funds and scholarships, in order to increase the chances to secure a job both directly with RMGC and indirectly – RMGC is a partner in the Rosia Montana Professional and Vocational Training Programme;
• Improvement of the social infrastructure through centers of social counseling; programs developed for assisting vulnerable individuals and groups and for consolidating social network, especially in Rosia Montana – RMGC is a partner in the Rosia Montana Good Neighbor Programme managed by a local NGO, Pro Rosia Montana;
• RMGC supports the partnership managed by NGOs working with youths in the area for the improvement and upgrade of the community potential.

Natural Capital
Includes: landscape, biodiversity, water quality, ecosystems:
• Measures included in the management plans of RMP and in the Standard Operating Procedures for the prevention of accidents and emergencies management (SOP) shall result in the mitigation of environmental impact and improvement of environmental conditions, as stipulated under EIA Report;
• Improvement of environmental conditions aimed at increasing the quality of life at Rosia Montana;
• Training and support provided for the integration of environment quality issues into the business plans;
• Awareness campaigns on having environmental protection measures included in economic activities;
• Imposing environmental standards when granting loans through micro-financing, to include monitoring of environmental protection measures throughout the entire payback period of these loans;
• Business Conduct Code through which all RMGC suppliers are requested to observe the standards imposed on environmental protection.

The mission of RMGC regarding social and economic benefits of the Project is presented in detailed within the Community Sustainable Development Plan (Plan L), as well as in Chapter 4.8 – Social and Economic Environment of EIA Report. To this aim, RMGC has already conducted an extensive consultation program, consisting of 1262 individual meetings and interviews, distribution of questionnaires to which over 500 answers have been received, 18 group meetings and 65 public meetings, aside meetings with governmental authorities, non-governmental organizations and involved potential shareholders. The comments raised by the stakeholders have been used to prepare the Management Plans referenced within the EIA Report. The support provided to the sustainable development of the area shall be given within public-private partnerships and within other partnerships, to include as much as possible all actors involved in the regional or local sustainable development.

3. A serious mutilation of the landscape as a consequence of both the open pit mining operation conducted in four open pits and the creation of a TMF behind a 180 m dam, closing Corna Valley.

Answer:

The mining activities are activities with environmental impact and consequently with landscape impact. To that aim, it must be considered the fact that the Rosia Montana area is already impacted by mines. The measures proposed through the Project are designed to reduce/limit the potential impact of the Project within the boundaries of the industrial perimeter, and to provide a partial restoration of the landscape through a progressive ecologic reconstruction. After completing the closure and environmental rehabilitation works, there will be no visible marks due to the mining project on those 584 hectares (of the total 1646 hectares of the industrial perimeter of the Project, included in the Zonal Urbanism Plan entitled "Industrial Development Area – Rosia Montana") of the areas located between the pits and the ore processing installations, as well as the buffer zone. The infrastructure works (roads, waste waters treatment plants, etc.) shall remain behind to be used by the local community. In the case of those 1062 hectares below the industrial sites footprint, although altered, they will be on their turn redone (re-profiled, covered with topsoil and seeded with grass) so as to fit as much as possible in the surrounding environment. The mine closure and environmental rehabilitation plan prepared by RMGC (Plan J) is establishing several measures that will ensure the fact that the mining activity shall impact as little as possible the landscape from Rosia Montana area. These measures include:

- Placing topsoil on waste dumps provided that these are not used as backfill at the pits;
- Backfilling the pits, except for Cetate Pit that shall be flooded and transformed in a lake;
- Placing topsoil on the TMF and on the surface of dams;
- Dismantling the production installations that have been decommissioned and the environmental rehabilitation of the decommissioned areas;
- Treatment of waters by using semi-passive systems (with classic treatment systems in place as backups) until the indicators of all effluents are meeting the standards and require no further treatment;
- Maintaining the vegetation, fighting against erosion and monitoring the entire site until RMGC proves the fact that all rehabilitation objectives are met in a sustainable manner.

The level of environmental rehabilitation for the Project shall fully comply with the requirements imposed under Directive 2006/21/CE, implemented through Governmental Decision no. 856/2008 on extractive wastes management that imposes titleholders to "restore the land to a satisfactory state, with particular regard to soil quality, wild life, natural habitats, freshwater systems, landscape and appropriate beneficial uses the land". The development of a modern mining activity within Rosia Montana area, already heavily polluted, shall improve the quality of the environmental factors. For instance, once the Project is operational, the water treatment system established by RMGC shall stop the existing pollution. Even without other measures, this treatment station shall greatly reduce the metals and acid waters resulted from ancient pollution sources and discharged into the river. Moreover, the Project shall remove those ancient pollution sources – especially the underground mining works located below the proposed pits that are a major ARD source.

With respect to the alterations of the relief due to the development of the mining project in the close vicinity of the Rosia Montana Historic Center, the British firm - Terra Firma Consultancy Ltd - expert in assessing and restoring landscapes, has conducted a study regarding the visual impact of alterations brought to relief on the Rosia Montana Historic Center. Upon preparing the study, the firm used a methodology compliant with the "Guidelines on visual and landscape impact assessment studies" second edition (2002), prepared by the Landscape Institute and the Environmental Management and Assessment Institute from UK, two institutes that are official partners of Terra Firma. In accordance with this study, out of those approx. 12 main sites indicated by the landscape documentation presented within the EIA Report as having direct impact on landscape, only half of them would be visible from Historic Center, as follows:

- Cetate and Carnic Pits
- Jig and Orlea Pits
- Sulei Stone Quarry and topsoil stockpile

In accordance with the elements included in the Biodiversity Management Plan and Landscape Restore Strategy presented within EIA Report, one can establish a list of factors that would consider any future planning related to the landscape from Historic Center area; for instance:

Accompanying dwelled area

- The architectural designs prepared for the restoration of the Historic Center
- Improvement of the urban infrastructure
- Individual restoration of buildings
- Yards, gardens
- Public green spaces

Accompanying surroundings

The development of pastoral landscape based on traditional/existing landscape models:

- Outlining the boundaries so as to establish the landscape and the biodiversity corridors; tall grass footpath, hedges, trees curtains
- Improvement and extent of the access paths for entertainments (walks and cycling): surfaces, hedges, signs and works conducted to improve the biodiversity conditions.
- Sustaining the decommissioned lands regeneration process.
- Pastures developed for agriculture in harmony with the wild fauna.
- Forested surfaces and forests managed in a responsible manner.
- Development of water bodies for biodiversity and entertainment.
- Preserve and develop the monuments from specific cultural heritage areas.

Landscape existing at high grounds
- Protecting and developing open mountain landscape
- Preserve and manage the forests, waters, pastures, rocky outcrops, flora and fauna

Mining areas
- Proposals achieved through cooperation – aimed at remediating the mining areas
- Surveillance of all activities during their development, and the landscape restoration works shall be conducted in compliance with the documentation regarding biodiversity and landscape.

Although certain visual features are lost, there is a chance to improve other visual features and certainly to improve other major factors for the general quality of landscape, like ecology, soils and the hydrology of these areas, which all need an immediate improvement. In general, the adverse impact forms of the works developed in Orlea, Jig and Sulei may be successfully mitigated by applying the proposed remediation measures and, although it is unavoidable to have a transformation, this transformation should be mainly positive from landscape and biodiversity points of view. With respect to Carnic and Cetate, the situation is somehow different. Again, positive results may occur due to the treatment of a heavily polluted landscape and improvement of the landscape aspect and biodiversity. In the case of these works, the visual impact on Rosia Montana Historic Center is considered as elevated/average at Carnic and average to low at Cetate, after conducting the proposed remediation works. The proposed remediation works provide an opportunity to mitigate the visual impact forms from Historic Center area (and of course of the surrounding landscape) through positive designing aimed not only at restoration. Considering the degradation of most landscape elements that are currently visible, adverse landscapes may be improved. In physical terms, an exclusive restoration would be in most cases unpractical. For instance, the materials required to rebuild a hilly mountain slope, like Carnic slopes, have not yet been identified.

After assessing all landscape reconstruction options and considering the future touristic development options, the not so minor costs required for reconstruction and monitoring processes, to which RMGC committed, the study performed by Terra Firma Consultancy proposes that an ecologic and landscape reconstruction to be performed, requiring partial backfilling of Carnic Pit and foresting the SE slope of the resulted pit benches. Thus, a flat space shall result inside the former Carnic Pit and a forested slope, and tourist sites may be developed here, together with proper conditions for performing different sports (ski, bicycling, football pitch, tennis, shows stage etc). Looking forward, the recommended action would be welcoming the economic and ecologic development opportunities offered by the Project and to ensure a viable strategy to restore the landscape, together with a powerful philosophy on detailed designing of landscape remediation works. The disappearance of traditional mining operations in early 50s, removal of private properties within the mining industry during the second half of XXth Century, to which the opening of the pit in the 70s have resulted in a significant impact on the cultural landscape of Rosia Montana, where currently only an industrial landscape exists that is continuously polluting the environment.

4. There are no certain guarantees to ensure the environmental rehabilitation costs at the end of works and upon mine closure.

Answer:
The information regarding the Environmental Rehabilitation Guarantee is presented in Annex 1 of "Mine Rehabilitation and Closure Management Plan" – Plan J.
Thus, in Romania, the establishment of an environmental guarantee is necessary in order to ensure the fact that there are sufficient adequate funds on behalf of the mining company to develop the environmental rehabilitation. The duty to establish an environmental rehabilitation guarantee is regulated for mining by art. 22 (1) b) and art. 39 (1) s) of Mining Law no. 85/2003 that provide: (I) the competent authority shall authorize in writing the commencement of the mining activities upon submission of proof of establishing the financial guarantee for

environmental rehabilitation, among others; and that (II) during mining operations the titleholder has the duty to maintain the financial guarantee for environmental rehabilitation. Thus, after obtaining the environmental permit necessary to launch the mining activities based on the future construction permit (s), NAMR is legally bound not to issue the permit on launching the mining activities if RMGC has not previously establish an environmental rehabilitation guarantee. Therefore, from legal point of view, there is a legal mechanism implemented to warrant that a license titleholder that has an environmental permit shall not launch its activity with no Environmental Rehabilitation Guarantee in place. Moreover, the need to maintain this guarantee gives the supervising competent authority NAMR the right to impose suspension of the activity and/or even the annulment of the Mining License.

It must be underlined the fact that the titleholder must establish the Environmental Rehabilitation Guarantee in order to launch its activities, and not in order to secure its environmental permit or during the environmental permitting procedure. The development of the necessary procedures to obtain the endorsement of NAMR represents a subsequent procedure that depends on the obtainment of the environmental permit and of the construction permit. At the same time, the way in which the titleholder shall rehabilitate the environment and shall close the mining works is fully regulated by current in force regulations and documents endorsed by NAMR for each project – the specific mine closure plan – and the titleholder remains only to comply with all these.

Moreover, additionally to the requirements imposed under the Mining Law, and after transposing the Mine Waste Directive into domestic legislation through Governmental Decision no. 856/2008, the Project titleholder, RMGC, must establish a financial guarantee before launching any operations involving the accumulation or storage of extractive wastes within a wastes installation. Committee Decision 2009/335/EC of 20 April 2009 – on establishing the technical orientations on the establishment of financial guarantee in accordance with Directive 2006/21/EC – states the elements on which the calculation of the financial guarantee is made and states "an assessment of the costs necessary to ensure land rehabilitation, closure and after closure including possible after closure monitoring or treatment of contaminants" (art 1 (1), letter (g)) shall be performed by "independent and suitably qualified third parties and shall take into account the possibility of unplanned or premature closure". Considering the requirements under Commission Decision 2009/335/EC and in the absence of a national procedure on the establishment of a financial guarantee (endorsed in accordance with Governmental Decision no. 856/2008, art. 50 (3)), the update of the Rosia Montana financial guarantee represents the result obtained by the experts that have drafted the Decision 2009/335/EC for the European Commission and have used the example of Rosia Montana Mine as a case study in applying this Decision.
Like any other Romanian entity developing its activity within Romanian territory, RMGC is governed by the Romanian legal provisions that need to be fully observed. Thus, once the provisions under Governmental Decision no. 856/2008 shall have implementing norms issued by NAMR and/or by any other regulatory authority competent on the mode, procedure, amount, terms and conditions for establishing this additional guarantee, RMGC shall observed those provisions and shall establish such a guarantee in accordance with legal provisions before launching its activities.
To conclude, the legal mechanisms exist to ensure that the Project cannot be developed without establishing an environmental rehabilitation guarantee after securing the environmental permit, and also there is a guarantee that RMGC shall establish this Environmental Rehabilitation Guarantee in any of the assumptions that may occur in the future (accident, closure, bankruptcy, completion of the mining operation etc.).

5. *Alburnus Maior archaeological area is gravely impacted by the proposed mining operation.*

Answer:
Through the "Alburnus Maior" National Research Program, funded in compliance with the legal provisions by RMGC, the cultural heritage from Rosia Montana is finally known and shall be preserved through museal exhibitions and by developing protected areas *in situ*. The restoration of the built heritage and of the Catalina Monulesti and Paru Carpeni Galleries, the organization of tourist routes and their development for the benefit of the local community is also a major element proposed through the development of the Project. Thus, the cultural heritage shall be in fact saved and developed by the mining operation and not endangered.

In accordance with legal provisions, archaeological research and saving works have been developed at Rosia Montana on the archaeological sites and assets that shall be exposed in a museum or preserved/restored *in situ*. The cultural heritage issues from Rosia Montana have been approached by all parties even from beginning in good faith, responsibility and in full compliance with national and international legislation applicable to this specific filed of activity. RMGC proposes, within the context of the future Project to continue these works, to publish the results and to develop Rosia Montana cultural heritage, all these to be able to support the development of tourism based on this element at the level of European standards. All new elements, details and the scope of the cultural heritage (archeological and architectural) from Rosia Montana, as are they outline at this

moment, occur as a result of the implementation and development of "Alburnus Maior" National Research Program, launched in 2001 by the Ministry of Culture and coordinated by Romania's National History Museum; 21 expert institutions from Romania and 3 foreign institutions participated in this program. This program has been fully funded in compliance with legal provisions by Rosia Montana Gold Corporation.
The preventive archaeological research developed within the Project area has been conducted by using the specific techniques, i.e. surveying all areas that were accessible and at the same time suitable for dwelling, considering the information obtained from specific literature and the observations made during surveying campaigns, the geophysical studies and the photogrammetric aerial analyses. The development of the researches at surface has been conducted within areas where the archaeological realities required it. The archaeological researches have been developed at Rosia Montana within wide areas. Through the preventive archaeological researches conducted between 2001 and 2006 13 archaeological sites have been outlined and researched; for some of them – after completing the exhaustive researches – it has been decided to be archaeologically discharged and in other cases it has been decided to preserve those sites *in situ* – the Tau Gauri Funerary Monument, the roman vestiges from Carpeni Hill or the underground mining sector from Piatra Corbului.
The funerary archaeology is most likely the domain where, in the case of Rosia Montana, researches produced essential clarifications and they were remarkable. During the six years of researches, the archaeological research (that became from preventive research a systemic one) discovered 5 necropolises and funeral areas and over 1,400 funeral complexes that have been surveyed to date. These are the ones from Hop Gauri, Taul Corna, Tarina, Taul Secuilor, Gombos Piciorag, as well as from funeral areas Carpeni and Szekely. Considering the results of the researches, the opinions raised by experts and the decisions issued by competent authorities, the budget provided by RMGC for conducting research, preservation and restoration of Rosia Montana cultural heritage during the following years provided that the mining project is developed is estimated to be over US$ 35 million.
Thus, it is aimed especially the establishment of a modern mining museum with exhibits on the following domains: geology, archaeology, industrial and ethnographic heritage, development of touristic access into Catalina Monulesti Gallery and into Tau Gauri Funeral Monument, but also the preservation and restoration of 41 historic monument buildings and the protected area entitled "Rosia Montana Historic Center", as well as the continuance of the archaeological researches within Orlea area.

The mining archaeological researches started in 1999 and continued until 2006 by an expert team with experts from several fields of activity belonging to the Toulouse Le Mirail University (France) coordinated by Dr. Beatrice Cauuet aimed the development for the first time in Romania of a detailed study on such types of archaeological vestiges, i.e. the ancient mining galleries of antic age and even older. Ample researches and studies of the cultural heritage conducted between 2000 and 2006 allowed the outline of a comprehensive image of these values belonging to the national cultural heritage, but also the adoption of several specific measures on their protection. The Roman galleries from Rosia Montana have not been studied until 1999 by experts on mining archaeology although their presence has been know for more than 150 years. These types of archaeological vestiges were practically a great unknown before 2000 from the perspective of scientific approach. The other archaeological vestiges in the area were also not surveyed adequately before 2000, much of the information on this site being resulted from random discoveries occasioned by the agricultural works, road constructions and mining infrastructure construction. The study of these structures signified in fact to better know them and resulted mostly in taking pertinent decision on their preservation and development. Based on the results of the researches conducted to date (completed for Cetate, Carnic, and Jig and in development of Orlea depending on the development of the Project), it is proposed that the following ancient mining works to be preserved and developed:

- Catalina Monulesti gallery – a gallery located in the Historic Center of Rosia Montana village, where, in the past, the most significant series of waxed tablets have been discovered together with an ancient mine waters drainage system
- Paru Carpeni mining sector – located in the south eastern area of Orlea, here a system of overlapping rooms has been discovered; endowed with Roman wood installations (wheels, channels etc.) that were used by Romans for performing drainages
- Piatra Corbului area – located in the south western side of Carnic; here the traces of ancient and medieval mining methods with fire and water are preserved.

With respect to historic mining galleries dating as back as Roman era found at Catalina Monulesti and Paru Carpeni, ample reopening, consolidation and development works are provided so as to allow their preservation *in situ* and their development for a public visiting circuit. This decision has considered the value and the significance of the exceptional archaeological vestiges found within these galleries, i.e. Roman wood drainage systems (the so-called "Roman wheels"). At the same time, Catalina Monulesti Gallery is known as being the one

where in the middle of the XIXth century the most significant series of waxed tablets have been found (in accordance with the historic archives, it is about 11 items from a total known to date of 32 such artifacts). Most of the ancient mining works from Carnic, but also from the other mining sectors, are accessible under difficult conditions only to experts, being practically impossible to be accessed by public. Moreover, the safety norms regulating public activities of visiting museums throughout European Union and that are to be adopted by Romania are not compatible with the integral transformation of the Roman galleries into visiting sites, due to the fact that these galleries are constantly exposed to elevated risk factors, and that would be a public space dedicated to tourists. We would like to underline the fact that there will be consistent portions of Roman galleries that are to be preserved *in situ.* As a measure of minimizing the impact on this category of archaeological vestiges, the experts believed that aside the full research and publication of the results it must be established a 3D graphical model of these structures, as well as the development of some 1:1 replicas of these galleries that are to be exhibited in the future Rosia Montana Mining Museum.

To conclude, under no circumstances it is about destroying the archaeological vestiges from Rosia Montana or the mere replacement of these vestiges with replicas. The research – known as preventive/saving archaeological research – is conducted all over the world in close relation with the economic interest for certain areas, and the costs associated with the development and maintenance of these areas are paid by the investors, performing a public-private partnership in order to preserve the cultural heritage, in accordance with the provisions under Malta European Convention (1992) on the protection of the archaeological heritage[2]. As a specific measure of minimizing the potential impact on the archaeological heritage, the archaeological surveillance procedure has been enforced both in construction and in operation stage, in accordance with the legal provisions. Thus, the protocol on random subsequent discoveries shall be implemented to identify, document and preserve the artifacts and archaeological structures that may be identified during construction. The soil stripping works (to include the opening of pit benches) shall be supervised by qualified archaeologists and the construction works are to be performed in full compliance with the protocol on random subsequent discoveries.

For summary information on the history of researches and the main discoveries related to the historic galleries from Rosia Montana, as well as to know the conclusions of the experts on this matter, but also the assessments conducted to establish a tourist circuit dedicated to mining structures from Carnic or the views expressed in 2004 by Mr. Edward O'Hara, General Rapporteur on the Cultural Heritage of the Parliamentary Assembly of the Council of Europe, please read the document entitled "Information on Rosia Montana Cultural Heritage and its Management". Detailed information the complex issue of the study of ancient mining works from Rosia Montana, of the results of these researches and the possibilities of developing them are available within the EIA Report, vol. 6 – Baseline conditions study, p. 26, 32-53, 79-105. The Cultural Heritage Management Plans included in the EIA Report bring information on the development measures taken for the entire cultural potential from Rosia Montana (see EIA Report, vol. 32, Rosia Montana Cultural Heritage Management Plan - Archaeology, p. 21-22, 47, 52-53, 66-67 and vol. 33, Cultural Heritage Management Plan - Historical Monuments and Protected Areas from Rosia Montana, p. 28-29, 48-50, 52-53, 64-65, p. 98 – Annex 1). All these commitments publicly assumed by RMGC are detailed in the EIA Report, vol. 33, Cultural Heritage Management Plan.

6. *Numerous individual and collective protests of the civil society, of certain scientific, religious (Romanian Orthodox Church), cultural institutions from the country and from outside the country as well as of some notable figures and men of science and culture cannot be ignored.*

Answer:
The company is complying both with the national legislation requirements and with the best practices available worldwide regarding the consultation of stakeholders and including their points of view in the improvement of the social and environmental performance of the Rosia Montana Project. During the 14 public meetings organized in accordance with the law after submitting the EIA Report both in Romania and in Hungary, RMGC answered 5610 questions and 93 contestations raised by the stakeholders. The points of view raised by stakeholders were the bases of some improvements brought to the social and environmental management system. After obtaining the environmental permit, RMGC shall continue its efforts to build and maintain the social license – the social model accepted for the mining project proposed at Rosia Montana through a continuous dialogue with stakeholders.

[2] The text of the convention is available at the following web address
http://conventions.coe.int/Treaty/Commun/QueVoulezVous.asp?NT=143&CM=8&DF=7/6/2006&CL=ENG

RMGC restates its wish to communicate with the respective institutions and the representatives of civil society, launching an invitation to these stakeholders to establish an independent platform for performing verifications on the mining project development, the social and the environmental performances throughout the entire Project life.

II) Trans-boundary consultations

As far as the debates with Hungary, based on Art. 5 of Espoo Convention, we hereby notify you that the requirement of the Hungarian party as a result of the bilateral debates that took place between 30-31 of July 2007, has been sent to you through the official letter of the Ministry of Environment and Sustainable Development no. 93478/AF/29.08.2007. Taking into account that the answer to this request the Ministry of Environment and Forests has not been remitted within the procedure developed for the project, we hereby attach the aforementioned official letter.
On the other hand, as a result of the trans-boundary procedure that has been applied to the Zonal Urbanism Plan for "Rosia Montana Industrial Area", the Hungarian party has made the following punctual observations with respect to the project;
1. for Hungary the most important risk is the dam stability and the cyanides concentration level

Answer:
The dam has been designed by Montgomery Watson Harza Pty Ltd (MWH), which is currently one of the three top firms worldwide on the experience on dam designing (**Engineering News-Record Top 500 Design Firms Sourcebook', 6 July, 2009).** The Hazard Analysis has been performed by the renowned Norwegian Geotechnical Institute (NGI). Please find below a summary description of the technical justification on the stability of the TMF dam as well as the design criteria and measures mitigating the hazards.

Technical reasoning on the stability of TMF Dam
The TMF Management Plan (ESMS Plans, Annex F of EIA) is the first form of the plan that is to be implemented by RMGC in order to minimize the hazards associated with the operation of TMF. The TMF Management Plan is prepared in accordance with the Romanian and international applicable standards and describes the general concept of designing, constructing, operating, monitoring, and closing the Tailings Management Facility. It considers the specific measures to be adopted by RMGC in order to manage the TMF under safe and environmentally responsible conditions, both on short term as well as during the mine operational stage. The TMF Management Plan presents the features of the site impacting designing and the TMF performance parameters, as well as the designing characteristics. Specifically, this documentation details the designing details of the dam and the way in which all international, European and Romanian designing criteria are observed. Moreover, the TMF Management Plan details the analyses on the specific dam stability that have been performed at different loads so as to confirm the fact that the dam shall observe the established safety factor. Subsequent to the submission of EIA Study, a dam safety study has been performed by an independent expert on dam safety, Prof. Dan Stematiu. This study has verified the existing documents prepared by MWH and the previous consultants and reach the conclusion that the dam meets all established stability criteria. The study regarding the dam safety has been endorsed by the National Committee on Dam Safety (CONSIB) from Romania in April 2007, being reconfirmed in March 2008. This study has been submitted with a request at the Ministry of Environment so as to obtain the Dam Safe Operation Permit. This permit has been secured in mid 2010.

RMGC commissioned the Norwegian Geotechnical Institute (NGI) in 2008 to conduct a Hazard Analysis on the risk associated with the non performance of the dam based on the current designing documentations. The study performed by NGI indicated the fact that the TMF dam has a very low non performance probability (lower than 1 to a million) even if the TMF is extremely loaded. Please see the document entitled "Hazard Assessment of Corna Dam in Tailings Management Facility (TMF)" performed by NGI in May 2009. The behavior of the Corna Dam has been assessed by using an event-tree analysis. The hazard analyses of this type considered the dam at different stages of development and calculated the non performance probability. The analyses show the following non performance probabilities:

Starter dam presents a 10^{-6}/year probability of non performance resulting in a small spill of tailings and water due to the internal erosion phenomenon. This spill shall result only in a small pollution of the immediate downstream area.
Final dam presents a 10^{-6}/year probability of non performance resulting in a spill of maximum probable volume of 250,000 m^3 of tailings and 26,000 m^3 of water in the conditions of an earthquake or due to the failure of a waste rock dump, a landslide due to natural causes of the slopes or a static liquefaction of tailings present a 10^{-6}/year probability of a tailings and water spill. No sequence of plausible accidents results in a non performance probability higher than 10^{-6} per year (one in a million years). These non performance probabilities are lower than the probabilities accepted for dams at international level. None of the probabilistic analyses suggest consequences more serious than some material damage and limited contamination, both only in the vicinity downstream of the dam, with no trans-boundary effects.

All these studies performed by independent expert designers and specialists in dam designing and safety, and in hazard assessments indicate the fact that the TMF dam meets or exceeds all international, European, and Romanian criteria for this field. The Corna TMF consists of the following main elements:

- TMF Dam placed transversal on the Corna Valley. The dam shall consist of a starter dam built from low permeability material on top of which the final dam is raised up to the final level by applying successive dam raises.
- The Secondary containment Dam (SCD) is placed downstream of the main dam;
- The tailings accumulation/decanting pond placed behind the main dam;
- The secondary containment pond placed behind the secondary dam;
- The tailings transport and distribution system within TMF;
- The decant water recirculation system travelling from the TMF to the Processing Plant;
- The seepage recirculation system from the SCD back into the TMF;

The mining activities developed within the Rosia Montana Project shall generate processing tailings at 13 million t/year rate for a period of 16 years. The TMF from water management point of view is aimed at accumulating technological water in a manner that allows maximization of its recirculation towards the processing plant. The TMF shall retain and store al polluting drainages from Corna Valley areas that are impacted by the mining activities.
The tailings slurry resulted from the Processing Plant is treated within a detoxification unit aimed at mitigating the cyanide and the WAD cyanide concentrations. The WAD cyanide concentrations from the tailings slurry shall be mitigated by applying the SO_2/air oxidation procedure, down to levels accepted by the European Union of 10 p.p.m. (mg/l), before being released at the TMF. The main elements of the TMF are described below:

- **Main dam (Corna dam) of the TMF**

Zones of different permeability will be raised in lifts throughout the Roşia Montană Project life to accommodate the storage of tailings, process water, runoff from the PMP event and floods and provide freeboard for wave and ice protection. The TMF main dam will consist of:

  - starter dam and final dam;
  - tailings delivery and distribution system;
  - tailings impoundment (TMF pond);
  - reclaim decant water system;
  - secondary containment dam and secondary containment sump.

- **Starter Dam**

The main dam will have a low permeability core; the starter dam will be developed during the first stage of construction prior to initiation of mining operations. The starter dam will have a maximum height of 99 m and a crest length of approximately 540m. The upstream and downstream dam faces will have an overall slope of 2H:1V and 2.25H:1V, respectively. The starter dam crest will be 10m wide.
The starter dam is designed as a low permeability dam with appropriate foundation preparation and seepage control measures for adequate structural and hydraulic stability in agreement with the best available techniques (BAT). The starter dam design involves a central low permeability core with filter/transition zones, bentonite slurry wall and upstream and downstream rockfill zones (rockfill dam shells). The dam foundation will be prepared down to the bedrock surface with appropriate foundation treatment, including injection grouting. The Starter Dam will be initiated with the construction of a cofferdam for retention of the Corna Valley surface water, located upstream of the starter dam with potential to discharge water downstream to the starter dam.

- **TMF Final Dam**

The TMF main dam - Corna Dam - will be raised in stages using mine waste materials in accordance with the design criteria. The use of mine waste materials dictates a certain design approach for raising the tailings dam during operations. The optimum use of mine waste materials, in conjunction with stability and groundwater protection considerations, resulted in selection of the centre-line method of construction and a pervious dam design above the Starter Dam crest level. However, at a minimum, two downstream lifts will be constructed initially to allow time for adequate beach development prior to starting the centre-line lifts. The Corna dam final crest height will be approximately 200m with a crest length of approximately 1,182 m. The downstream face will have an overall slope of 3H:1V, and the crest width will be 20m. Prior to starter dam construction, all vegetation and topsoil will be removed within the footprint of the starter dam. Vegetation will be disposed of outside the limits of the TMF basin. Topsoil will be stockpiled for use during closure and reclamation. Within the TMF basin the surface of the colluvial layer, will be exposed after stripping the topsoil and used to seal the TMF basin. The

compacted colluvial layer will achieve a relatively low permeability (10^{-8} m/sec). The extent of the basin preparation will be extended with the construction of each lift.

- **TMF basin**

The TMF basin preparation method is in agreement with BAT and complies with Best Available Techniques (BAT) and the Best Environmental Practices. The compacted layer is intended to provide a barrier layer to reduce seepage from the TMF basin. In areas where the colluvial layer has been eroded or is not present, excess colluvial material within the basin and road construction areas will be used to cover these areas. The placed colluvial material will be compacted to achieve that same permeability as the native materials. This will result in a continuous barrier layer through the basin. To provide containment of the tailings and process water, a series of under-drains will be installed near the downstream toe of the dam and throughout the TMF basin. A sump is provided to collect the TMF basin drainage constructed with the cofferdam. Side-slope riser pipes will be installed to allow pumps to be installed in the base of the under-drains and allow consolidation water to be removed as quickly as possible.

- **TMF Operation**

The Project water balance and supporting hydrological studies confirm that the TMF can be managed in both water deficit and water surplus conditions under all climatic conditions throughout the life of Project Adequate storage will be provided in the TMF to contain the runoff from a PMP event. During spring runoff and after storm events, water in excess of process requirements will be stored in the TMF for later use in the process. The TMF will be managed to avoid discharges, however, should it become necessary, protocols will be developed, such that treatment to acceptable standards and the release to the environment can be initiated and monitored. The construction schedule for embankment and basin staging will be completed to ensure that PMP storage requirements are available throughout the project life. The tailings pond will collect waters from direct precipitation and runoff that is not captured in the Cârnic waste drainage holding pond or the overflow of clean water from the diversion channels. Water will be recycled from the TMF to the process plant via a floating barge located at the northeast end of the basin. The discharge points for the treated tailings will be managed to keep the tailings supernatant pond centered around the reclaim barge and, to the extent possible, away from the tailings embankment. Minor seepage through the Corna main dam is expected which will be collected directly in the SCD sump and pumped back into the TMF.

Designing Criteria and Measures that mitigate hazards

The company committed already in observing the highest environmental and safety standards. Please find below some of the technical, technological, safety and organizational measures taken by the company so as to mitigate hazards:

- TMF is designed to store the volume of two consecutive Probable Maximum Floods (PMF).
- TMF is designed to hold against an earthquake of 8° on Richter scale.
- The TMF Dam shall be a rock-filled dam and shall have a downstream slope of 3:1, very robust.
- The tailings resulted from the CIL circuit shall be detoxified down to levels lower than the levels required under the EU legislation by using the best available detoxification technology (the concentration of the cyanide shall be around 5 – 10 ppm, already significantly different from the previous mining operations).
- The cyanide detoxification technology to be used is a worldwide recognized technology as the most efficient procedure of processing tailings with cyanide contents, being the predominant technology used in over 100 gold mines worldwide.
- A tailings thickener has been provided in order to recycle a volume as large as possible of cyanide, reducing in this manner the cyanide and heavy metals contents from TMF, reducing at the same time the cyanide and other reagent volumes that need to be hauled to the site.
- The project shall contain and treat acid waters resulted from previous mines, stopping in this manner the heavy metals pollution of downstream water courses.
- During closure, the issue of acid waters is to be managed in an appropriate manner so as the drainages are to be stopped with no continuous maintenance works.
- Any discharges shall be performed in full compliance with Romanian and European standards for this field of activity.
- In order not to use fresh water within the flow, waters are to be re-circulated from the TMF, reducing to a minimum level the volume of polluted waters requiring treatment.
- Cyanide shall be hauled, processed, dosed and managed in full compliance with International Cyanide Management Code (to which RMGC is a signatory party). The intent of Rosia Montana Project to obtain

and haul cyanide in a solid and safer state, as briquettes, to use containers designed to resist to impacts and the decision to follow the recommendations issued for the Project to maximize the railway transportation due to safety reasons.

- RMGC shall observe the Romanian and European legislation on this matter and shall imposed its observance by its suppliers so as to ensure that all transport requirements are to be observed for a safe transport of cyanide and of other hazardous materials.
- The Processing Plant shall be designed by observing the provisions under the International Cyanide Management Code. Moreover, the International Cyanide Management Code provides also for the periodic verification and the certification in accordance with its high standards; these shall be performed by independent experts appointed by its organization.
- New technologies are to be implemented, as these are developed and as established as applicable for an ore processing plant and for its safe operation.
- The mercury that may form compounds with cyanide is present in small quantities and shall be recovered during the processing flow and thus removed from the environment.

Levels of cyanide

The limit value of the maximum concentration of WAD Cyanide present in mining wastes is established by EU Directive on mining wastes (2006) and it clearly stipulates that this level must not exceed 10 ppm in the waste waters. This level has been established after conducting extensive researches and debates.

The pilot detox testing conducted by Rosia Montana Project, by using the Best Available Technique on the ores from the Project site resulted in deed in levels of WAD Cyanide lower than 2 ppm. The levels obtained after conducting these tests are as low as the ones observed by the technical team of RMGC during several testing programs conducted on different types of ores from worldwide and that suggests that the Rosia Montana ore is very suitable for performing the detoxification process, but there are practical limits. Each type of ore is different and one cannot expect that cyanide concentrations obtained for one site to be identical with the concentrations obtained at another site. In the case of Rosia Montana Project, even when the processing flow sheet is designed at reaction times twice the times used during testing, as well as the dosage systems for the detox reagent that are dosing 50% more reagent than during testing, the designing documentation and the hazard assessments comprehensively assume that under industrial operation regime, the tailings shall exit the Processing Plant and enter the TMF at a maximum concentration of 5 – 7 ppm. This is a conservative concentration and may be considered taking into account the results of the testing and the realities existing at industrial mines against laboratory conditions. It is likely for the Rosia Montana Project to have in fact a better performance that it is assumed and the Project shall try to achieve this. However, the possibility of ensuring lower levels of concentrations to volumes and in the conditions of industrial operations are practical limits determined by the characteristics of the materials and other conditions specific to the site.

The European regulatory bodies who have established the 10 ppm concentration for WAD Cyanides would not assume irresponsible hazards with respect to public safety. (In fact, an average weight person would have to consume over 20 liters of water with WAD Cyanides at concentrations similar to the ones forecasted to be present at the TMF, i.e. 5 – 7 ppm, within a very short period o time – a physical impossibility – in order for this concentration to represent a life threat). There are hundreds of mines managing under safe conditions tailings with cyanide concentrations significantly higher. Currently, in accordance with the EU Directive, the mines already permitted to operate must obtain WAD Cyanide levels of 50 ppm. Even this level that is five times higher than the level imposed to the Rosia Montana Project is considered to have a minimum impact on environment.

The safety of Processing Plant employees is a separate issue that is also carefully treated. The fear regarding higher concentrations of cyanide, over 5 -7 ppm, at the TMF following the failure of the detox unit is unfounded considering the fact that the effluent shall be constantly monitored. In case of failure or design error for the detox unit, the Project operation shall be ceased. Moreover, considering the large volume of water stored at the TMF, there is an elevated dilution potential and consequently the unit should operate at high concentrations for a long period of time so as to elevate the cyanide concentrations at the TMF. The effluent entering the TMF shall be monitored to find any such different concentrations. This warrants the fact that any alteration of the operational parameters shall be noticed before the concentrations at TMF shall increase substantially. Moreover, a monitoring and sampling program for the surface and underground waters shall be implemented to discover any such differences at the respective sites. The authorities shall be informed on any differences with respect to the safety conditions (this shall be imposed by the Ministry of Environment within the conditions of the Environmental Permit). In case of incompliance, the Romanian environmental legislations provides penalties ranging from fines and as high as suspension and even annulment of the environmental permit.

2. The cyanides seepages that may occur from the Tailings Management Facility (TMF) cannot be stopped by applying a clay layer on the TMF sink, and seepage collection and pumping is not a satisfactory solution (these measures do not constitute a perfect barrier in order to prevent cyanides seepage). This is why, the proposed protection measure must be more strict and to secure the TMF and to provide the dam safety.

Answer:

The engineering design of the Tailings Management Facility (TMF) provides for the use of a lining in order to protect the underground waters. Concretely, Rosia Montana TMF has been designed in compliance with the provisions under EU Directive on underground waters (80/68/EEC) transposed into Romanian legislations through Governmental Decision no. 351/2005. TMF is also designed in compliance with the EU Directive on mining wastes (2006/21/EC), as it is imposed under the Terms of Reference issued by Ministry of Environment and Water Management in May 2005. Several compliance aspects are presented in the following paragraphs pertaining to these directives. TMF consists of several individual elements as follows:

- Tailings pond basin,
- TMF Dam,
- Secondary containment pond to collect seepage,
- Secondary Containment Dam (SCD), and
- Observation drillings/extraction drillings to monitor underground waters placed downstream of the SCD.

All these elements are an integrant part of the TMF, being necessary for its proper operation at the design parameters. The abovementioned Directives impose that the design of the TMF to provide protection to the underground waters. In the case of Rosia Montana Project, this requirement is met by considering the favorable geological conditions (the baserock layer of the TMF basin, dam and SCD consisting of shales with low permeability) and the preparation of a re-compacted lining layer consisting of low permeability soil ($1x10^{-6}$ cm/sec) that will be placed below TMF basin. For additional information please see Chapter 2 of the Plan F of EIA Report entitled "Tailings Facility Management Plan". The lining layer shall observe the Best Available Techniques (BAT), as they are defined by EU Directive 96/61 (IPPC) and by EU directive on mining wastes. The TMF design comprises additional measures on the protection of underground waters, as follows:

- A lining diaphragm consisting of low permeability material ($1x10^{-6}$ cm/sec) placed on the foundation of the starter dam to control seepage;
- A low permeability core ($1x10^{-6}$ cm/sec) of the starter dam to control seepage,
- A dam and pond established to collect seepage located below the toe of the TMF Dam that will collect and retain all seepage crossing the centerline of the dam,
- A series of observation drillings located below the toe of the SCD shall be performed to monitor seepage and to ensure compliance with the current in force regulations within the TMF perimeter.

Aside the above mentioned designing elements, specific operational measures are to be implemented to protect the population health and the environment. In the less probable case of detecting polluted water downstream of the SCD, these wells shall be transformed into pumping units to recover the polluted water and for pumping it back into the TMF where it will be introduced in the recovering circuit of water resulted from the Processing Plant of Rosia Montana Project, until it has the limits required by the current in force regulations.

The possibility of having lateral seepage draining aside the SCD has been considered within the engineering design. The hydrogeological studies from Corna Valley indicated the fact that the underground water is running towards the bottom of the valley, and the final level of the pond surface is lower than the level of the existing underground waters. Therefore, it is considered that a certain gradient for the underground waters to allow their flow towards adjacent valleys does not exist. The level of the underground waters existing on the sides of TMF basin sides have been monitored for a period of 5 years when only small seasonal variations have been observed. The water reaching the TMF shall not be acid upon storage in the TMF basin. In fact it will be lightly alkaline. The tailings do not present ARD potential. Due to flooding and rapid settling of tailings at TMF , it is not probable for a significant oxidation to occur that will create suitable conditions for ARD generation. The presence of some fissures in the baserock is known, and these have been described in the Hydrogeology Baseline Report (volume 2). These fissures are, however, widely encountered in the upper part of the baserock from Corna Valley being superficial as mentioned in the Hydrogeology Baseline Report. This surface fissuration, as well as the colluviums and alluviums represent the main source of underground water ensuring a limited water resource accessed through springs and shallow wells. The deep baserock is relatively impermeable. As stipulated under the Hydrogeology Baseline Report, section 4.4.1, a special attention was paid to the presence of several faults occurring in depth within Corna Valley and that have been considered as potential drainage channels from the TMF. However, the geological mapping and the hydraulic testing conducted within this area indicated the fact

that the hydraulic conditions is low (10^{-6} cm/sec), this being a typical feature of the base rock. Therefore, the water pollution hazard is low. The technical analysis establishes the fact that the high impermeability layer consisting of natural clay that is to be placed on the bottom of the pond, the continuous testing of underground water and an action plan to respond in case of infiltrations, if they would occur, provide the safety of the project and certainly there is no risk for Hungary.

3. Taking into account the existence of two proposed projects within the same drainage basin area (Rosia Montana Project and Certej Project, within Mures river drainage area) the cumulated impact of these projects must be submitted to assessment, including here the risk and the consequences of producing a simultaneous accident with potential trans-boundary effects.

Answer:

Following the assessment of a risk associated with the production of a simultaneous accident both at Rosia Montana and at Certej, which is placed within the area of the same hydrographic basin, but much closer to the Hungarian border, the following conclusions resulted:

- The risk associated with the production of a simultaneous accident is so low than it can be considered as implausible.
- The detailed technical analysis of the most severe accident plausible at Rosia Montana establishes the fact that any measurable volume of contaminated water that may result due to the accident would dilute long befor reaching the area of Certej Project.

This last statement is justified within the document entitled "Environmental Rehabilitation Strategu, Hazard Assessment and Analysis for accidental spills at Rosia Montana" – enclosed to the Explanatory Note of Chapter 10 – Transboundary Impact, summarized below. The impact of developing a new gold mine at Rosia Montana has been carefully reviewed in order:

- To quantify the beneficial effect of the proposed rehabilitation of the current continuous pollution from the site produced by the former mine, currently abandoned; and
- Assessment of the risk for producing an accident and its consequence on the hydrographic basin from mine site to Hungarian border located 595 km downstream.

In order to perform these assessments, RMGC asked Mr. Paul Whitehead a professor with Reading University from UK and Mr. Steven Chapra professor with Tufts University in Boston, USA to conduct modeling studies of rivers and water quality and to the Norwegian Geotechnical Institute (NGI) to conduct a hazard assessment by applying an event tree analysis for the TMF. Mr. Patrick Corser, chief mining sector with MWH contributed with its experience in both aspects of this work, together with recommendations issued by cyanide experts. The joint conclusions of these works are:

- The proposed environmental rehabilitation would achieve an almost complete removal of the present pollution resulting from the site, a clear ecologic benefit of the project;
- The probability of a non performance at the TMF that would result in a toxic spill is a very low one (1 in 1 million years). The spill produced by an accident would not result in exceeds of the accepted limits imposed for surface and drinking waters not even in the waters from the immediate vicinity of the site – except for the case in which a very low flow occurs within the hydrographic network. It has been established that such a combined conditions case presents an even lower probability (1 in 4 million years). In this case, the waters will have temporary and limited values of cyanide concentrations that exceed the accepted limits for waters for a distance of approx. 80 Kms downstream.

The cyanide concentration in these circumstances is not dangerous to human, animal, bird and most aquatic life. Only the most vulnerable of fish species (the river trout) – and only the most vulnerable individual specimens, rather than this entire species in the river or in the area – would potentially be affected. This is because of the limited level of toxic materials that would be discharged by an accident and the limited duration of exposure as the wave of contaminated water passes. As cyanides are not bio-accumulated, once the contaminated water passes, any adsorbed toxins will quickly be excreted or oxidised by partially affected organisms such that they will make a rapid and full recovery in a short time. In most water flow conditions, the dilution and dispersion in the river would reduce the toxic concentration immediately at the point of discharge into the river to a level that complies with the regulated standards.

- these remote and limited impacts from an accident are based on the worst case assumption that the discharge is not contained within the industrial area nor diluted by emergency procedures, both of which are possible mitigating measures; and,
- given the very robust design, large capacity and the conservative operating criteria of the containment facilities, any worse discharge is unrealistic. The event tree analyses show that the probability of non-

performance of the TMF is about 100 times lower than the probability of failure for containment dams, based on the performance observed for dams around the world.

The following table summarizes the key conclusions:

Event	**High Flow river conditions**	**Low Flow river conditions**
Overtopping of the dam due to extreme rain or snow melt - two 1 in 10,000 yr rainfall in 24 hours followed by 1 in 10 yr flood (probability of occurrence less than 1 in 100 million years)	No breach of water standards	Not considered. Extreme rainfall and low flow condition in river would not occur at same time.
Dam breach caused by large earthquake or other triggers (probability of occurrence 1 in 1 million years)	No breach of water standards	Standards exceeded for 80 km downstream, only for extreme concurrence of events (probability of occurrence of 1 in 4 million years). • Temporary and limited consequences • potentially mitigated
Environmental Impact Assessment (EIA) hypothetical dam breach cases – unrealistic. (probability of occurrence 1 in 100 million years or less)	Not realistic Theoretically exceeds standards	Not realistic Theoretically exceeds standards

Therefore, the accident risk at this second location in Certej is an issue to be analyzed separately and distinctly, with no impact on the assessment of Rosia Montana Project.

4. To propose a communication mechanism between the operators of the two activities (Certej and Rosia Motnana) as well as between them and the environmental authorities; based on it, the activity from Rosia Montana can be stopped, upon the request of the environmental authority, in case an accident takes place at Certej, until any hazard that can impact the environment or the health of the population has been removed

Raspuns:
During the environmental impact assessment stage, RMGC has taken several commitments and it is ready to discuss with all stakeholders other partnerships and modalities to achieve these commitments.
As described in detailed within the EIA Report, the followings have been included within the engineering design and within the operational plans:

- Several monitoring devices to detect the water quality, the chemistry of tailings, the levels of water creating hydrostatic pressures and any other structural deformation or movement of the dam;
- Regular reporting of results and immediate disclosure to public of exceptional and different conditions to the regular situation, to include to any relevant authorities and organization responsible with the response in such cases;
- The emergency response procedures are also part of the operational plans involving the use of APELL procedures from UNEP so as to ensure the presence of objectives, capacities and procedures to alarm parties, authorities and organizations that are also relevant for implementing pre-planning measures suitable for mitigating the impact and to correct any accidental event, if it occurs;

- In order to ensure the fact that any impacted party that suffers personal damages, property damages or damages on their economic interests will have all the means to recover their damages regardless of the good will of the company or of any authority, the company has taken the commitment to conclude a suitable insurance and to contract international arbitrage to establish the actual damages;

In order to ensure even further the implementation of all commitments taken by the company, we have proposed the implementation of an independent participatory monitoring process of the social and environmental performances that have been taken through the EIA Report of the Rosia Montana Project so as to ensure liability and compliance with the proposed standards. For this we have stated our full availability to conclude a protocol where all commitments (environmental, social, economic, financial and heritage) are to be stipulated and suitable procedures are to be established so as the project is to be periodically monitored and audited under the control of a group of independent experts. We believe that the communication mechanism would be an efficient one provided that the participatory monitoring program and an APPEL (Action Plan for Emergency at Local Level) program are implemented.

5. *To propose a monitoring system according to the results of which the Certej titleholder can be notified, if an accident takes place at any of the components that have risk exposure.*

Answer:
The Project committed to a thorough monitoring system that has been presented within the Management Plan from EIA Report. Specific monitoring plans have been prepared for monitoring the TMF parameters indicating the behavior of thereof with respect to the stability and the retention capacity and shall allow preventive actions before any failure, if that becomes a serious issue. The TMF engineering design and the proposed operational procedures warrant a very low probability of non performance of the TMF. However, in the very unlikely case something will occur, preventive warning procedures and an emergency response plan have been prepared. The plan comprises a detailed description of the role and responsibilities of the RMGC personnel with respect to the response in case of an unforeseen event. Moreover, the plan identifies individual/authorities from downstream communities that need to be contacted immediately after an event has been reported. The monitoring system is relevant in the vicinity of the Project considering the fact that it has been demonstrated that there is no impact that could reach the Certej Project site.

III) Observations, comment and questions of the civil society, received by the Ministry of Environment and Forests during March – September 2010

We hereby send you the observations, comments and questions of the following representatives of the civil society, received by the Ministry of Environment and Forests during March-September 2010, to be solved and sent to us in a new Volume entitled "Form for presenting the solutions for the issues raised by stakeholders" as an addendum to the Environmental Impact Assessment Report:

1. *Ad- Astra Association of the Romanian scientists, number of pages: 10;*
2. *The group established for the salvation of Rosia Montana from Academy of Economic Sciences – the report of the commission of this group, number of pages: 31;*
3. *Greenpeace Romania, with respect to Carnic Massif, number of pages: 3;*
4. *Alburnus Maior, submitted at the National Archaeology Commission a request not to issue a new archaeological discharge permit for Carnic Massif, number of pages: 3.*

Answer:

In accordance with the legal provisions applicable to this procedure – Order no. 860/2003 – public disclosure and engagement in the EIA Procedure are performed in all procedural stages (framing, defining, assessing the report quality, decision making). But, this engagement is conducted within an organized setting and only at certain particular moments/terms in the procedure and each assessment stage and not anytime and anyplace. If the public does not participate at the terms and under the conditions provided under the law (for instance within 5 days since publishing the decision on the framing stage, the public is entitled to present justified proposals to the authority), than that will result in losing the right offered by the law (that right cannot be exerted in a valid manner).
Considering the fact that the EIA procedure of the Project is now at the stage of analyzing the quality of that report, in accordance with legal provisions, the public participates in this stage by being present at the public meetings organized with this occasion and by submitting comments, questions from justified proposals until the date of the public meetings organized for the report.
In this case, the public meetings have been organized and the answers and proposals to the public concerns have been submitted. Thus, at this stage in the procedure, any comments, observations or questions of the public related to the report or to the project, received by the competent authority between March and September 2010 can no longer be received/accepted as part of the assessment procedure. All questions and comments were to be submitted until the date of the public meetings. To answer now, after the meetings have been ended, to these questions, observations or comments would place the assessment procedure outside the legal framework and even if answers are offered, both questions and answers have no legal effect (being raised and submitted outside the legal procedure). However, after reading the respective documents, we noticed the fact that the questions, observations and comments submitted between March and September 2010 are nothing else but a duplication of the same questions, observations and comments that have already been submitted and to which answers have been given during the public meetings stage. To constantly submit and ask again and again answers for the same questions, observations and comments represents a misunderstanding of their rights by the stakeholders, especially the limits of these rights as compared to the rights of the other stakeholders.
In the end, we would like to emphasize the fact that the stakeholders still have the possibility to express their views on the permitting procedure, at a later date, i.e. after the date of the announcement on the issuance of a new environmental permit when they have the right to submit observations and comments that may or may not determine the competent authority to request continuance of the investigations.

To conclude, the rights of the public and its concerns have been fully exercised within the applicable legal framework throughout the entire procedure and they shall be exercised further with no restrictions, except for the limits imposed by the law with respect to exerting those rights.

[i] Best Available Techniques for Management of Tailings and Waste-Rock in Mining Activities. EUROPEAN COMMISSION, DIRECTORATE-GENERAL JRC JOINT RESEARCH CENTRE, Institute for Prospective Technological Studies, Technologies for Sustainable Development, European IPPC Bureau, Final Report, July 2004 (http://eippcb.jrc.es/pages/FActivities.htm), Section 5.2

[ii] See, for example, the website of Fraunhofer Institute in Germany: www.igb.fraunhofer.de/WWW/GF/Bioremediation/dt/GFBU_24_Cyanid.dt.html