Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	8
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Alba Iulia, 31.07.2006
RMGC internal unique code	MMGA_0037
Proposal	An assessment of the phenomenon called "cyanide rain"
Solution	It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere. The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the followings: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h; - The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety; - The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU)

legislation on the Air Quality don't stipulate standard values for the population's health protection;

- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	118
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Alba Iulia, 31.07.2006
RMGC internal unique code	MMGA_0271
Proposal	The questioner makes the following comments: the nature must be maintained clean as it was left by God. At Rosia Montana there are some issues, but good things must be done, and we mustn't reach to a situation where we will breathe polluted and vitiated air. There are old people who have seen the results of pollution at Copsa Mica and in other areas, where people have honestly worked and suffered. This is not the good way. Romania owns the resources and foreigners come and teach us what to do.
Solution	Atmospheric pollutants are everywhere in the ambient air, with lower or higher concentrations, their emission sources being both anthropic (human activities) and natural. In regards to the atmospheric pollutants generated by the mining activities proposed by Roşia Montană Project, we specify that Piatra Albă area, although relatively close to the industrial perimeter, is a part of its external areas and is exposed to the lowest extent to these pollutants. The sole pollutant which could influence, to a certain extent, the air quality from Piatra Albă area is represented by particles. Maximum concentrations of particles from the air within the Piatra Albă area will be of 4 up to 20 times lower than the standard values for population's health protection. Concentrations of other pollutants generated by the future mining activities into the Piatra Albă area's air will be insignificant. Please note that in the perimeter of any locality, irrespective of the industrial activities, the air quality is influenced by inherent local sources of day-to-day life, namely: heating, cooking, traffic etc. The polluting level of the atmosphere in Piatra Albă area, by particles, due to the future local sources together with the mining activities will be below the standard values established for the population's health protection. The model of atmospheric dispersion has been developed using the *Best Available Techniques,* in order to simulate the transport of the pollutants generated by the mining activities outside the Project area. Modern concepts related to the flow and dispersion in complex terrains are incorporated in AERMOD by using a new and simple approach. If this is not necessary, the plume is modelled, either having a path that impacts the terrain or with a path that follows the terrains' topography. AERMOD can forecast concentrations of pollutants from multiple sources for a wide variety of sites, meteorological conditions, types of pollutants and mediation periods. For this project, the concentrations on short term have been calculated using the maximum hourly rates of emission for activities developed simultaneously and for the averages calculated for intervals of 1 hour, 8 hours and 24 hours. The annual concentrations have been calculated using all active sources during the respective year. The measures taken for the control of the dust emissions resulting from the pits and ore / waste rock haulage roads are: - The use of a new blasting technology: millisecond delay blasting which reduces drastically the height of the dust front and dispersion area; - Ceasing of the activities generating dust during the periods with intense winds or when the automatic monitor for particles installed in Roşia Montană protection area indicates an alert situation; - Implementation of a program for dust control on the unpaved roads during the drought seasons by means of watering trucks and inert substances for dust suppression. These measures will reduce the dust emissions by 90%;

- Minimize the height when doing the maneuvers o f unloading / placing the materials;
- Establish and implement speed limits in traffic;
- Implement a schedule for periodical maintenance of vehicles and equipments, subject to monitoring;
- Automatic monitoring of the air quality and meteorological parameters;
- Implement extra measures to control the dust emissions: the ore and waste rock is sprinkled with water when loaded in trucks.

Details: The Report on the Environmental Impact Assessment (EIA) Study (Vol. 12 – Chapter 4.2, Sub-chapter 4.2.4) and Air Quality Management Plan (Vol. 24, Plan D) include, in detail, the technical and operational measures in order to reduce/eliminate the dust emission generated by the Project activities.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	189
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Cluj Napoca, 07.08.2006
RMGC internal unique code	MMGA_0366
Proposal	The questioner believes that the movie that was presented causes a huge damage to the company, because nobody can believe that by using these sprinkles no grains of sand would get in the hair or the in the houses of locals.
Solution	The modeling on the atmospheric dispersion was conducted by using the best available techniques. It simulates the transport of the pollutants generated by the mining activities outside the Project area. AERMOD incorporates through a new and simple approach the current concepts regarding the flowing and dispersion in complex terrains. If needed, the plume is modeled either with a trajectory impacting the terrain or with a trajectory following the terrain topography. AERMOD may forecast concentrations of pollutants from multiple sources for a wide variety of sites, meteorological conditions, types of pollutants and mediation periods. For this project, the concentrations on short term have been calculated using the maximum hourly rates of emission for activities developed simultaneously and for the averages calculated for intervals of 1 hour, 8 hours and 24 hours. The annual concentrations have been calculated using all active sources during the respective year. The measures taken for the control of the dust emissions resulting from the pits and ore / waste rock haulage roads are: - The use of a new blasting technology: millisecond delay blasting which reduces drastically the height of the dust front and dispersion area; - Ceasing of the activities generating dust during the periods with intense winds or when the automatic monitor for particles installed in Roşia Montană protection area indicates an alert situation; - Implementation of a program for dust control on the unpaved roads during the drought seasons by means of watering trucks and inert substances for dust suppression. These measures will reduce the dust emissions by 90%; - Minimize the height when doing the maneuvers of unloading / placing the materials; - Establish and implement speed limits in traffic; - Implement a schedule for periodical maintenance of vehicles and equipments, subject to monitoring; - Automatic monitoring of the air quality and meteorological parameters; - Implement extra measures to control the dust emissions: the ore and waste rock is sprinkled with water when loaded in trucks. Details: The Report on the Environmental Impact Assessment (EIA) Study (Vol. 12 – Chapter 4.2, Sub-chapter 4.2.4) and Air Quality Management Plan (Vol. 24, Plan D) include, in detail, the technical and operational measures in order to reduce/eliminate the dust emission generated by the Project activities.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	211
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Cluj Napoca, 07.08.2006
RMGC internal unique code	MMGA_0423
Proposal	The report doesn't include an assessment of the phenomenon called cyanide rain, which is generated by cyanide evaporation from the TMF, and the questioner quotes from the air management plan / conditions report pct. 85, where it is admitted that there is development of certain toxic aerosols at the surface of the facility, the evaporation process having a permanent character and the cyanide concentration in air could reach as high as 4-80mg/m3. The questioner wants to receive references regarding the pages where it is specified the cyanide rainfalls' impact or the reason why this is missing.
Solution	It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere. The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the followings: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h; - The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;

- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;
- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	446
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Deva, 23.08.2006
RMGC internal unique code	MMGA_0950

Proposal	The questioner mentions the tailings pond in Certej, where dust clouds formed frequently, covering the commune and the surrounding area. If a similar accident were to happen at the tailings pond in Corna (for which the company gave numerous guarantees) and if the dust cloud were to spread over the entire area, wouldn't we be faced with a second Chernobyl?
Solution	The design of the Project includes the stipulation that the discharge of the tailings will be done by making sure the permanent humidity of the tailings dam is maintained, so avoiding the possibility of occurrence of dry surfaces. As a result, the effect of the wind erosion of these surfaces and the emission of particles will be removed. The operational measures to prevent the emission of particles provide: - Permanent monitoring of the tailings management facility's condition in order to prevent the occurrence of dry surfaces during the droughty or of very high temperature; - Humidify the areas and improve the tailings storage systems. The tailings management facility will be covered and rehabilitated (by means of vegetation) right after the mining activities are shut down. Please note that the Roşia Montană tailings management facility will be a valley dam; its lateral embankments are natural slopes bordering the Corna Valley. The dam will be built of rocks. Thus, the tailings management facility could be identified to a lake to be filled gradually. Potential dry tailings areas could occur only on the horizontal, uncovered surface of the tailings dam. Before the dam is completely filled, the embankments will represent physical obstacles which will prevent the dispersion of the particles carried by the wind from potentially dry surface onto the neighboring areas. The incidental or short time potential dust dispersion can only affect the air quality within the areas neighboring the tailings management facility, at distance of few hundred meters at the most, meaning the industrial perimeter. Details: The Report to Environment Impact Assessment Study (Vol.12 – Chapter 4.2, Sub-chapter 4.2.4) and Air Quality Management Plan (Vol. 24, Plan D) contain details on the technical and operational measures established to mitigate / eliminate the dust generated by the Project activities.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	452
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Deva, 23.08.2006
RMGC internal unique code	MMGA_0960

Proposal	The EIA report is not credible as the dispersion analysis is incomplete, showing only 4 substances released in the atmosphere. It includes a small map showing the atmospheric dispersion of the noxious emissions.
Solution	The maximum impact experienced outside the Project area has been evaluated by referencing to the limit values established for each pollutant and each mediation interval. Also the impact has been analyzed for each of the 15 sensitive communities located around the Project site: Roşia Montană (protected area), Abrud, Bisericani, Bucium Sat, Coasta Henții, Dogăreşti, Floreşti, Gârda Bărbuleşti, Gura Roşiei, Heleşti, Iacobeşti, Ignăteşti, Petreni and Vârtop. The mathematical modeling of the concentration fields was performed for a number of ten pollutants, the results being presented in 68 tables and 43 dispersion maps endorsed by analyses and comments. The modeling on the atmospheric dispersion was conducted by using the best available techniques. It simulates the transport of the pollutants generated by the mining activities outside the Project area. The methods established for atmospheric modeling, used in the assessment process, in compliance with the criteria imposed by Regulations, were subject to important changes in the last years, including: 1) substantiation of the atmospheric dispersion on the concepts of structure and scale of turbulences from the planetary limit layer; 2) taking into account and refining of the surface and altitude sources and 3) Incorporation of simple and complex algorithms for terrain simulation. The AERMOD modeling program is based on a stationary plume model. The distribution of concentrations within the stable limit layer is considered to be Gaussian both on horizontal and vertical plan. The distribution on horizontal plan within the convective limit layer is considered Gaussian, and the vertical distribution is described with a density function of bi-Gaussian probability. This behavior of concentration distribution within the convective limit layer was demonstrated by Willis and Deardorff (1981) and by Briggs (1993). In addition, within the convective limit layer, AERMOD takes into account a so-called "ascending plume" through which a part of the plume mass generated by a source lifts and remains close to the upper part of the limit layer before mixes up into the convective limit layer. AERMOD monitors also any plume penetrating into the stable high layer allowing then to re-enter into the limit layer when and if appropriate. AERMOD incorporates through a new and simple approach the current concepts regarding the flow and dispersion in complex terrains. If need, the plume is modeled either with a trajectory impacting the terrain or with a trajectory following the terrain topography. This approach has been conceived as being realistic from physical point of view, easy to implement and avoiding the necessity to discern between simple, medium and complex topographies, as the regulations in force impose. Thus, AERMOD eliminates the necessity to define regimes of complex topography. All types of terrains are treated in a unitary, continuous and simple manner, in the same time keeping the division concept of the streamline in conditions of stable stratification (Snyder, et al., 1985). The American Meteorological Society – AMS and United States Environmental Protection Agency – US EPA developed the Regulating Model AMS/EPA (AERMOD) which incorporated these modifications. This model has been selected to evaluate the impact generated by the mining operations due to: 1) efficient use of local meteorological data collected every hour; 2) capability to calculate concentrations on short and long term from several sources of diverse types; 3) capability to incorporate topographical data, identified for the impact estimation on complex terrains and 4) public availability of this system, already validated by numerous experimental programs.

The AERMOD modeling system contains three components: AERMET, version 99211 (AERMOD meteorological pre-processor); AERMAP, version 99211 (AERMOD topographical pre-processor) and AERMOD, version 99351 (for dispersion modeling).

The hourly meteorological data were obtained for calendar year 2003 from the National Meteorological Administration. The data refer to the Roşia Montană meteorological station (situated at approximately 1 km North-North-East of Roşia Montană locality). These hourly meteorological measurements have been used by AERMET program to generate certain input data corresponding to the dispersion model (both for high atmospheric layer parameters and surface parameters). The set of the processed meteorological data has been analyzed from the accuracy point of view.

In order to estimate the impact generated by the Project activities, a network of receptors has been chosen. This network consists of 2115 discrete points placed on the nodes of a grid sized 250 x 250 m, beginning at about 4,400 m South-West of Abrud and continuing up to a point situated at about 3,000 m North of Birdeşti. The AERMAP program has been used to estimate the critical topographical elevations for each receptor, using the geodesic network data provided by SNC Lavalin. AERMOD uses the critical topographical elevations combined with hourly registered meteorological parameters in order to determine the pollutant plume concentrations treatment in high terrains conditions.

AERMOD can forecast concentrations of pollutants from multiple sources for a wide variety of sites, meteorological conditions, types of pollutants and mediation periods. For this project, the short term concentrations have been calculated using the maximum hourly rates of emission for activities simultaneously developed and for the averages calculated for intervals of 1 hour, 8 hours and 24 hours. The annual concentrations have been modeled using all active sources from respective year.

The mathematical modeling of the concentration fields has been performed for **a number of ten pollutants: total suspension particles (TSP), particles with diameter smaller than 10 μm (PM_{10}), NO_2, SO_2, CO, hexavalent Cr, Ni, Cd, polycyclic aromatic hydrocarbons (HAP) and HCN**. It is specified that the main pollutants specific for Roşia Montană Project activities are: TSP, PM_{10}, NO_2, SO_2 and CO. The other pollutants haxevalent Cr, Ni, Cd and HAP, even having very low emissions, have been taken into account especially due to their cancerous potential.

Please note that the pollutants standardized by the European Union (EU) Directives (the Framework Directive and the first three daughter Directives transposed into the Romanian legislation (Ministerial Order no. 592/2002) are: PM_{10}, NO_2, SO_2, CO, Pb and benzene.The fourth daughter Directive 2004/107/EC of the European Parliament and European Council of December 15 2004 was enforced by the Member States in February 2007. This Directive imposes limit values for average long term concentrations for heavy metals (Ni, Cd) and HAP [as benzo(a)piren]. The TSP concentrations are standardized by STAS 12574/1987.

Each pollutant had its concentrations ratio modeled for each mediation interval that has an associated limit value.

The mathematical modeling was made for: the baseline conditions, one year representing the construction period of the project objectives; four year representing the operations' phase of the Project, and one year representing the closure and environment rehabilitation period. The concentrations ratios were modeled for each of these years, for Total Suspended Particles (TSP), PM_{10}, PM_{10}, NO_2, SO_2 and CO, and in addition to this, the modeling for HCN, hexavalent Cr, Ni, Cd and HAP were modeled for the operations' phase. Also, the risk of cancer occurrence, due to the exposure of the population to the pollution by hexavalent Cr, Ni, Cd and HAP was calculated for the 15 localities.

Details: Report on the Environment Impact Assessment Study, Vol. 12, Chapter 4.2

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1778, 1779, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1864, 10/D;5465/B, 15/D;5470/B, 16/D;5471/B, 17/D;5472/B, 18/D;5473/B, 5599, 5600, 5601, 5602, 5603, 5604, 5605
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110754/25.08.2006 and No. 76073/05.09.2006, No. 110753/25.08.2006andNo. 7607405.09.2006, No. 110982/25.08.2006andNo. 165076/07.09.2006, No. 110981/25.08.2006andNo. 165077/07.09.2006, No. 110980/25.08.2006andNo. 165078/07.09.2006, No. 110979/25.08.2006andNo. 165079/07.09.2006, No. 110978/25.08.2006andNo. 165080/07.09.2006, No. 110977/25.08.2006andNo. 165081/07.09.2006, No. 110976/25.08.2006andNo. 165082/07.09.2006, No. 110975/25.08.2006andNo. 165083/07.09.2006, No. 110974/25.08.2006andNo. 165084/07.09.2006, No. 110939/25.08.2006, No. 114722/31.08.2006, No. 114730/31.08.2006, No. 114729/31.08.2006, No. 114728/31.08.2006, No. 114734/08.09.2006, No. 112999/25.08.2006, No. 113000/25.08.2006, No. 112929/25.08.2006, No. 112988/25.08.2006, No. 112954/25.08.2006, No. 112953/25.08.2006, No. 112877/25.08.2006
RMGC internal unique code	MMGA_1075

Proposal	The EIA report does not comprise an assessment of the impact of "the cyanide rain" phenomenon generated by the evaporation of the cyanide from the tailings pond. SEE CONTENT CONTESTATION TYPE 3
Solution	It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere. The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the followings: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations

being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;

- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;
- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	159, 188, 189, 191, 192, 193, 194, 202, 203, 205, 221, 230, 232, 233, 234, 242, 243, 245, 246
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 108794/02.08.2006 and No. 74346/02.08.2006, No. 108853/03.08.2006 and No. 74388/04.08.2006, No. 108852/03.08.2006 and No. 74389/04.08.2006, No. 108854/03.08.2006 and No. 74391/04.08.2006, No. 108856/03.08.2006 and No. 74392/04.08.2006, No. 108857/03.08.2006 and No. 74393/04.08.2006, No. 108858/03.08.2006 and No. 74394/04.08.2006, No. 108863/03.08.2006 and No. 74402/04.08.2006, No. 108864/03.08.2006 and No. 74403/04.08.2006, No. 108866/03.08.2006 and No. 7440504.08.2006, No. 108882/03.08.2006 and No. 74421/04.08.2006, No. 108959/04.08.2006 and No. 74435/07.08.2006, No. 108959/04.08.2006 and No. 74437/07.08.2006, No. 108957/04.08.2006 and No. 74438/07.08.2006, No. 108956/04.08.2006 and No. 74439/07.08.2006, No. 108949/04.08.2006 and No. 74447/07.08.2006, No. 108947/04.08.2006 and No. 74448/07.08.2006, No. 108944/04.08.2006 and No. 74450/07.08.2006, No. 1089493/04.08.2006 and No. 74451/07.08.2006
RMGC internal unique code	MMGA_1083
Proposal	The EIA report does not comprise an assessment of the impact of "the cyanide rain" phenomenon generated by the evaporation of the cyanide from the tailings pond. Nor does it comprise a description of the transboundary impact in case of an accident affecting important natural areas, such as KOROS MAROS national park located in Hungary, along the Mures Valley. SEE CONTENT CONTESTATION TYPE 3
Solution	It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere. The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the following: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low

pressure, resulting ammonia;

- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 $\mu g/m^3/h$;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 $\mu g/m^3$, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;
- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

On the basis of the above presented information, it is very clear that HCN emissions may have a certain local impact on atmosphere quality, restricted to well within legislated limits as described above, but their implication within a possible trans-boundary impact on air quality is excluded.

Also, the specialty literature doesn't comprise information related to the effects of a potential exposure of the vegetation or ecosystems to HCN and neither the effects of the fauna health as a result of inhaling the HCN polluted air.

For details referring to the use of cyanide in the technological processes, the cyanides balance as well as the cyanide emission and impact of the cyanides on the air quality, please see the Environmental Impact Assessment (EIA) Report, Chapter 2, Chapter 4.1 and Chapter 4.2 (Section 4.4.3).

The EIA Report (Chapter 10 Transboundary Impacts) assesses the proposed project with regard to potential for significant river basin and transboundary impacts downstream which could, for example, affect the Mureş and Tisa river basins in Hungary. The Chapter concludes that under normal operating conditions, there would be no significant impact for downstream river basins/transboundary conditions.

The issue of a possible accidental large-scale release of tailings to the river system was recognized to be an important issue during the public meetings when stakeholders conveyed their concern in this regard. As a result, further work has been undertaken to provide additional detail to that provided in the EIA Report on impacts on water quality downstream of the project and into Hungary. This work includes modelling of water quality under a range of possible operational and accident scenarios and for various flow conditions.

The model used is the INCA model developed over the past 10 years to simulate both terrestrial and aquatic systems within the EUROLIMPACS EU research program (www.eurolimpacs.ucl.ac.uk). The model has been used to assess the impacts from future mining, and collection and treatment operations for pollution from past mining at Roşia Montană.

The modelling created for Roşia Montană simulates eight metals (cadmium, lead, zinc, mercury, arsenic, copper, chromium, manganese) as well as Cyanide, Nitrate, Ammonia and dissolved oxygen. The model has been applied to the upper catchments at Roşia Montană as well as the complete Abrud-Arieş-Mureş river system down to the Hungarian Border and on into the Tisa River. The model takes into account the dilution, mixing and phsico-chemical processes affecting metals, ammonia and cyanide in the river system and gives estimates of concentrations at key locations along the river, including at the Hungarian Boarder and in the Tisa after the Mureş joins it.

Because of dilution and dispersion in the river system, and of the initial EU Best Available Techniques (BAT) - compliant technology adopted for the project (for example, the use of a cyanide destruct process for tailings effluent that reduces cyanide concentration in effluent stored in the TMF to below 6 mg/l), even a large scale unprogrammed release of tailings materials (for example, following failure of the dam) into the river system would not result in transboundary pollution. The model has shown that under worse case dam failure scenario all legal limits for cyanide and heavy metals concentrations would be met in the river water before it crosses into Hungary.

The INCA model has also been used to evaluate the beneficial impacts of the existing mine water collection and treatment and it has shown that substantial improvements in water quality are achieved along the river system under normal operational conditions.

For more information, an information sheet presenting the INCA modelling work is presented under the title of the Mureş River Modelling Program and the full modelling report is presented as Annex 5.1

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	308
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 74537/09.08.2006
RMGC internal unique code	MMGA_1119

Proposal

The EIA report does not include an assessment of the phenomenon called "cyanide rain".

Solution

It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere.

The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the followings:

- The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH;
- The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN;
- The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings;
- The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound;
- The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system;
- The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission;
- Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia;
- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU)

legislation on the Air Quality don't stipulate standard values for the population's health protection;

- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	377
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 109205/14.08.2006 and No. 74616/14.08.2006
RMGC internal unique code	MMGA_1124

Proposal

-The hydrogen cyanide formation mechanism at the surface of the tailings pond and its consequences.

Solution

The dispersion into atmosphere of the hydrocyanic acid (HCN) emissions from Roşia Montană project was modeled and evaluated. The two main sources for these emissions are: the tailings management facility and the processing plant site, especially the CIL and thickener tanks.

There were taken into consideration the impact of the tailings management facility surface, as well as the impact of the weather. The average surface of the tailings management facility has been estimated as being 300,274 m^2. The model has taken into account two seasonal conditions. The first condition, a summer scenario, when the entire surface of the tailings management facility is used, and also the emission rate is higher due to higher temperatures. In order to take into consideration higher temperatures leading to an increase of the volatilization speed, it has been assumed that the ratio of volatilization, more intense is of 1.5 times off the annual ratio. The second condition took into account 50% of the tailings dam's surface in order to consider the ice layer and an volatilization rate of 50% of the average annual rate.

The model of atmospheric dispersion has been developed using the *Best Available Techniques,* in order to simulate the transport of the pollutants generated by the mining activities outside the Project area. Modern concepts related to the flow and dispersion in complex terrains are incorporated in AERMOD by using a new and simple approach. If this is not necessary, the plume is modelled, either having a path that impacts the terrain or with a path that follows the terrains' topography.

AERMOD can forecast concentrations of pollutants from multiple sources for a wide variety of sites, meteorological conditions, types of pollutants and mediation periods. For this project, the concentrations on short term have been calculated using the maximum hourly rates of emission for activities developed simultaneously and for the averages calculated for intervals of 1 hour, 8 hours and 24 hours. The annual concentrations have been calculated using all active sources during the respective year.

The reasons for which we state the a potential impact due to the HCH emissions from the tailings management facility will not occur are the following:

- The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH;
- The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN;
- The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings;
- The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound;

- The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system;
- The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission;
- Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia;
- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;
- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	71, 153, 154, 155, 156, 157, 161, 162, 166, 207, 208, 214, 216, 248, 290, 291, 292, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 333, 339, 438, 439, 442, 443, 445, 450, 546, 907, 923, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1240, 1242, 1243, 1244, 1246, 1248, 1249, 1250, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1383, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1419, 1420, 1481, 1482, 1486, 1487, 1488, 1490, 1491, 1493, 1497, 1498, 1499, 1500, 1511, 1512, 1521, 1522, 1523, 1524, 1525, 1526, 1528, 1529, 1557, 1559, 1565, 1566, 1567, 1613, 1683, 1696, 1699, 1702, 1703, 1705, 1708, 1709, 1718, 1719, 1720, 1721, 1747, 1794, 1798, 1799, 2592, 2595, 2619, 2620, 2621, 2622, 2749, 3252, 3253, 3254, 3255, 3256, 3615, 3616, 11/D;5466/B, 12/D;5467/B, 13/D;5468/B, 14/D;5469/B, 5485
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 108614/25.07.2006 and No. 74234/AF/28.07.2006, No. 108787/02.08.2006 and No. 74340/02.08.2006, No. 108788/02.08.2006 and No. 74341/02.08.2006, No. 108789/02.08.2006 and No. 74342/02.08.2006, No. 108790/02.08.2006 and No. 74343/02.08.2006, No. 108791/02.08.2006 and No. 74344/02.08.2006, No. 108797/02.08.2006 and No. 74348/02.08.2006, No. 108798/02.08.2006 and No. 74349/02.08.2006, No. 108795/02.08.2006 and No. 74353/02.08.2006, No. 108868/03.08.2006 and No. 74407/04.08.2006, No. 108869/03.08.2006 and No. 74408/04.08.2006, No. 108875/03.08.2006 and No. 74414/04.08.2006, No. 10887703.08.2006 and No. 74416/04.08.2006, No. 108941/04.08.2006 and No. 74453/07.08.2006, No. 109037/07.08.2006 and No. 74507/08.08.2006, No. 109038/07.08.2006 and No. 74508/08.08.2006, No. 109005/07.08.2006 and No. 74509/08.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109117/09.08.2006 and No. 74539/09.08.2006, No. 109108/09.08.2006 and No. 74548/09.08.2006, No. 109102/09.08.2006 and No. 74554/09.08.2006, No. 109296/15.08.2006 and No. 74684/16.08.2006, No. 109297/15.08.2006 and No. 74685/16.08.2006, No. 109300/15.08.2006 and No. 74688/16.08.2006, No. 109301/15.08.2006 and No. 74689/16.08.2006, No. 109303/15.08.2006 and No. 74691/16.08.2006, No. 109308/15.08.2006 and No. 74696/16.08.2006, No. 112878/25.08.2006 and No. 165454/12.09.2006, No. 110068/22.08.2006 and No. 75184/23.08.2006, No. 110102/22.08.2006 and No. 75218/24.08.2006, No. 113004/25.08.2006, No. 110324/24.08.2006, No. 110325/24.08.2006, No. 110326/24.08.2006, No. 110327/25.08.2006, No. 110498/24.08.2006, No. 110497/24.08.2006, FR.No. and No. 7532028.08.2006, No. 109900/22.08.2006, No. 109901/22.08.2006, No. 109902/22.08.2006, No. 109903/22.08.2006, No. 109904/22.08.2006, No. 109905/22.08.2006, No. 109906/22.08.2006, No. 109908/22.08.2006, No. 109911/22.08.2006, No. 109912/22.08.2006, No. 109913/22.08.2006, No. 109915/22.08.2006, No. 109917/22.08.2006, No. 109918/22.08.2006, No. 109919/22.08.2006, No. 110383/24.08.2006, No. 110382/24.08.2006, No. 110381/BIS24.08.2006, No. 110381/24.08.2006, No. 110380/24.08.2006, No. 110379/24.08.2006, No. 110378/24.08.2006, No. 110377/24.08.2006, No. 110607/25.08.2006, No. 110811/25.08.2006, No. 110810/25.08.2006, No. 110809/25.08.2006, No. 110808/25.08.2006, No. 110807/25.08.2006, No. 110806/25.08.2006, No. 110805/25.08.2006, No. 110804/25.08.2006, No. 110803/25.08.2006, No. 110802/25.08.2006, No. 110800/25.08.2006, No. 110801/25.08.2006, No. 110794/25.08.2006, No. 110793/25.08.2006, No. 110642/25.08.2006, No. 110640/25.08.2006, No. 110637/25.08.2006, No. 110636/25.08.2006, No. 110635/25.08.2006, No. 110633/25.08.2006, No. 110632/25.08.2006, No. 110630/25.08.2006, No. 110626/25.08.2006, No. 110625/25.08.2006, No.

	110624/25.08.2006, No. 110623/25.08.2006, No. 111062/25.08.2006, No. 111061/25.08.2006, No. 111052/25.08.2006, No. 111051/25.08.2006, No. 111050/25.08.2006, No. 111049/25.08.2006, No. 111048/25.08.2006, No. 111047/25.08.2006, No. 111045/25.08.2006, No. 111044/25.08.2006, No. 111016/25.08.2006, No. 111014/25.08.2006, No. 111008/25.08.2006, No. 111007/25.08.2006, No. 111006/25.08.2006, No. 110990/25.08.2006, No. 110790/25.08.2006, No. 110712/25.08.2006, No. 110709/25.08.2006, No. 110706/25.08.2006, No. 110703/25.08.2006, No. 110703/25.08.2006, No. 110700/25.08.2006, No. 110699/25.08.2006, No. 113005/25.08.2006, No. 112971/25.08.2006, No. 112972/25.08.2006, No. 112973/25.08.2006, No. 110755/25.08.2006, No. 110738/25.08.2006 and No. 76089/05.09.2006, No. 110734/25.08.2006 and No. 76093/05.09.2006, No. 110733/25.08.2006 and No. 76094/05.09.2006, No. 111376/25.08.2006, No. 111387/25.08.2006, No. 112379/25.08.2006, No. 112378/25.08.2006, No. 112377/25.08.2006, No. 112376/25.08.2006, No. 112324/25.08.2006, No. 111108/25.08.2006, No. 111136/25.08.2006, No. 111135/25.08.2006, No. 111129/25.08.2006, No. 111128/25.08.2006, No. 114290/25.08.2006, No. 111137/25.08.2006, No. 114718/31.08.2006, No. 114719/31.08.2006, No. 114720/31.08.2006, No. 114733/31.08.2006, No. 112991/25.08.2006
RMGC internal unique code	MMGA_1139
Proposal	The EIA report does not include an assessment of the "cyanide rain" phenomenon.SEE CONTENT CONTESTATION TYPE 2
Solution	It is stated precisely that a “cyanide rain” phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn’t make any mentions related to the so-called “cyanide rains” phenomenon, but only “acidic rains” phenomenon which can’t be generated by the cyanic compounds breaking down in the atmosphere. The reasons for making the statement that ‘cyanide rains’ phenomenon won’t occur are the followings: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN

released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;

- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for labor protection;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for labor protection – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;
- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, the cyanides balance as well as the cyanide emission and impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1262
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110435/22.08.2006
RMGC internal unique code	MMGA_1153

Proposal	How is hydrogen cyanide released in the atmosphere, what is the dispersion area and what is the impact on environment and human health?
Solution	The dispersion into atmosphere of the hydrocyanic acid (HCN) emissions from Roşia Montană project was modeled and evaluated. The two main sources for these emissions are: the tailings management facility and the processing plant site, especially the CIL and thickener tanks. There were taken into consideration the impact of the tailings management facility surface, as well as the impact of the weather. The average surface of the tailings management facility has been estimated as being 300,274 m^2. The model has taken into account two seasonal conditions. The first condition, a summer scenario, when the entire surface of the tailings management facility is used, and also the emission rate is higher due to higher temperatures. In order to take into consideration higher temperatures leading to an increase of the volatilization speed, it has been assumed that the ratio of volatilization, more intense is of 1.5 times off the annual ratio. The second condition took into account 50% of the tailings dam's surface in order to consider the ice layer and an volatilization rate of 50% of the average annual rate. The model of atmospheric dispersion has been developed using the *Best Available Techniques,* in order to simulate the transport of the pollutants generated by the mining activities outside the Project area. Modern concepts related to the flow and dispersion in complex terrains are incorporated in AERMOD by using a new and simple approach. If this is not necessary, the plume is modelled, either having a path that impacts the terrain or with a path that follows the terrains' topography. AERMOD can forecast concentrations of pollutants from multiple sources for a wide variety of sites, meteorological conditions, types of pollutants and mediation periods. For this project, the concentrations on short term have been calculated using the maximum hourly rates of emission for activities developed simultaneously and for the averages calculated for intervals of 1 hour, 8 hours and 24 hours. The annual concentrations have been calculated using all active sources during the respective year. The maximum impact experienced outside the Project area has been evaluated by referencing to the limit values set up for each pollutant and each mediation interval. Also the impact has been analyzed for each of the 15 sensible receiving communities situated around the Project site: Roşia Montană (protected area), Abrud, Bisericani, Bucium Sat, Coasta Henții, Dogărești, Florești, Gârda Bărbulești, Gura Roșiei, Helești, Iacobești, Ignătești, Petreni şi Vârtop. The mathematical modeling of the concentration fields was performed for a number of ten pollutants, the results being presented in 68 tables and 43 dispersion maps accompanied by analyses and comments. The potential sources of hydrocyanic acid, the way it forms and its effects on ambient air quality are as follows: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN;

- The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings;
- The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound;
- The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system;
- The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission;
- Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia;
- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;
- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

In what regards the effects of HCN pollution of the air impacting the human health, it is specified that the national and European Union (EU) legislation concerning the air quality does not stipulate limit values for the population's protection which could be used as reference values. The national legislation stipulates limit values of HCN, but these refer to the air quality at work places (1000 μg/m^3 for short term exposure). At the same time, the Health World Organization (H.W.O.) establishes in most cases the limit values for population's health protection on the grounds of the studies regarding the exposure at work places. Therefore, in certain situations, the limit values of atmospheric pollutants for population's health protection are 10 – 100 times lower than the limit values imposed for work places.

In consideration to the short term levels of concentration within the areas neighboring the industrial site, it is appreciated that the potential pollution of the ambient air by HCN will not affect the population's health.
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Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1262
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110435/22.08.2006
RMGC internal unique code	MMGA_1154

Proposal

What happens with the total emissions resulting from the preparation plant and how will they affect environment and human health?

Solution

The evaluation of the impact on the air quality, caused by the pollutants resulting resulted from the Rosia Montana Project activities has been performed taking into account the emissions resulted from all active sites of the Project, including the processing plant. It was considered that these activities take place concurrently.

The reasons for which this approach has been adopted are as follows:

- The pollutants resulting from mining activities are common for all sites, excepting HCN which may be generated only from the processing plant area and the tailings management facility;
- The influence of the pollutants' emission on the air quality, generated from all active sites, accumulates. A pertinent evaluation of the possible impact on sensitive receptors must take into consideration the contribution of all sources which generate pollutants at one certain time;
- The consideration that the emissions associated to the multitude of stationary and mobile sources from project area are simultaneous, even if in reality no all emissions will take place simultaneously, allows the evaluation of the maximum possible potential on atmosphere quality, respectively on sensitive receptors, taking the risk to over-estimate the impact.

Therefore, the assessment of the impact generated only by the sources within the processing plant site, and considering that there are other sources generating the same pollutants, and sometimes at higher emission rates, it would determine erroneous results that would severely underestimate the level of the impact on the air quality.

Please note that the assessment of the impact on the ambient air quality was made for all main pollutants generated by the project's activities and which have associated limit values as stipulated by the law. Moreover, the assessment of the HCN impact on population's health was done, even if this pollutant is not standardized by the regulations in force regarding air quality for population's health protection.

The assessment results of the impact of the atmospheric pollutants in each locality from those 15 communities neighboring the project area, was done by referencing to the limit values stipulated by the national legislation (which transposes EU Directives regarding air quality) for protection of sensitive receptors (population, vegetation and ecosystems), emphasized the following:

- The pollutants' concentration will be well below the awareness threshold values for the population's health protection at short, medium and long term exposure;
- The pollutant's concentrations which may affect the vegetation or ecosystems will be below the limit values for the protection of these receptors;
- The risk of cancer as a result of population's exposure to heavy metals (hexa-valence chromium, nickel, cadmium) and aromatic and polycyclic hydrocarbons is negligible.

In what regards the effects of HCN pollution of the air impacting the human health, it is specified that the national and European Union (EU) legislation concerning the air quality does not stipulate limit values for the population's protection which could be used as reference values. The national legislation stipulates limit values of HCN, but these refer to the air quality at work places (1000 $\mu g/m^3$ for short term exposure). At the same time, the Health World Organization (H.W.O.) establishes in most cases the limit values for population's health protection on the grounds of the studies regarding the exposure at work places.

Therefore, in certain situations, the limit values of atmospheric pollutants for population's health protection are 10 – 100 times lower than the limit values imposed for work places. In consideration to the short term levels of concentration within the areas neighboring the industrial site, it is appreciated that the potential pollution of the ambient air by HCN will not affect the population's health.

Details: Report on the Environment Impact Assessment study, Vol. 12, Chapter 4.2

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1262
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110435/22.08.2006
RMGC internal unique code	MMGA_1155

Proposal	What exactly is the impact area for the evaporated hydrogen cyanide?
Solution	The mathematical modeling of the Hydrocyanic Acid (HCN) concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions generating ammonia) emphasized **the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant**. The maximum concentration is of 382 $\mu g/m^3/h$. The highest HCN concentrations within the ambient air will be 2.6 times lower than the limit value stipulated by the national legislation for occupational safety. The HCN concentrations within the ambient air from the populated areas **located up to 2 km south-east of industrial site** will be of 4 to 80 $\mu g/m^3$, over 250 – 12.5 times lower than limit value stipulated by the national legislation for occupational safety - the national legislation and European Union (EU) legislation on the Air Quality don't stipulate limit values for the population's health protection. The areas outside the industrial site located elsewhere but the south-east sectors and at distances higher than 2 km south-east of site perimeter, will have the HCN concentration in the ambient air below 4 $\mu g/m^3$, being of over 250 times lower than the limit value for the occupational safety stipulated by national legislation. Thus, in certain situations, the limit values of the atmospheric pollutants for the population's health protection are 10 – 100 times lower than the limit values stipulated for work places. Taking into account the short term concentration levels from area neighboring the industrial site, it is considered that the possible pollution of the ambient air will not affect the population's health. Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983). The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project to be significantly higher than the background values (0.2 ppb) is extremely low. Details: Report on the Environment Impact Assessment Study, Volume 12, Chapter 4.2.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1496
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110627/25.08.2006
RMGC internal unique code	MMGA_1206

Proposal

The lack of the impact assessment of the phenomenon called "Cyanide rain".

Solution

It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere.

The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the following:

- The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH;
- The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN;
- The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings;
- The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound;
- The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system;
- The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission;
- Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia;
- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU)

legislation on the Air Quality don't stipulate standard values for the population's health protection;

- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3)

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	262, 263, 265, 266, 267, 269, 301, 302, 303, 325, 326, 327, 328, 330, 335, 336, 337, 341, 342, 343, 344, 345, 346, 347, 348, 349, 351, 352, 356, 358, 359, 378, 379, 381, 385, 386, 387, 388, 389, 395, 396, 397, 398, 399, 400, 401, 402, 403, 412, 417, 419, 423, 424, 425, 426, 427, 428, 429, 431, 432, 434, 435, 457, 458, 461, 463, 464, 465, 466, 467, 468, 469, 470, 473, 474, 477, 871, 872, 880, 1440, 1441, 1442, 1443, 1456, 1484, 1504, 1505, 1509, 1515, 1516, 1517, 1518, 1519, 1520, 1530, 1539, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1556, 1558, 1560, 1598, 1599, 1600, 1601, 1602, 1604, 1605, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1688, 1694, 1695, 1701, 1781, 1782, 1783, 1787, 1788, 1789, 1790, 1831, 1832, 1833, 1835, 1836, 1837, 1838, 1839, 1888, 1896, 1902, 1919, 1921, 1926, 1927, 2269, 2602, 2614, 2615, 2616, 2617, 2867, 2868, 2989, 2990, 2991, 2992, 2993, 3015, 3016, 3019, 3022, 3025, 3026, 3028, 3034, 3064, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3075, 3075BIS, 3076, 3130, 3131, 3132, 3133, 3136, 3197, 3198, 3199, 3200, 3231, 3243, 3610, 3611, 3612, 3613, 3614, 1/D;5456/B
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 109011/07.08.2006 and No. 74479/08.08.2006, No. 109013/07.08.2006 and No. 74480/08.08.2006, No. 109008/07.08.2006 and No. 74482/08.08.2006, No. 109009/07.08.2006 and No. 74483/08.08.2006, No. 109010/07.08.2006 and No. 74484/08.08.2006, No. 109014/07.08.2006 and No. 74486/08.08.2006, No. 109048/07.08.2006 and No. 74518/08.08.2006, No. 109049/07.08.2006 and No. 74519/08.08.2006, No. 109050/07.08.2006 and No. 74520/08.08.2006, No. 109116/09.08.2006 and No. 74540/09.08.2006, No. 109115/09.08.2006 and No. 109117/09.08.2006 and No. 74541/09.08.2006, No. 109114/09.08.2006 and No. 74542/09.08.2006, No. 109117/09.08.2006 and No. 74543/09.08.2006, No. 109112/09.08.2006 and No. 74545/09.08.2006, No. 109106/09.08.2006 and No. 74550/09.08.2006, No. 109106/09.08.2006 and No. 74551/09.08.2006, No. 109104/09.08.2006 and No. 74552/09.08.2006, No. 109120/11.08.2006 and No. 74573/11.08.2006, No. 109121/11.08.2006 and No. 74574/11.08.2006, No. 109122/09.08.2006 and No. 74575/11.08.2006, No. 109123/11.08.2006 and No. 74576/11.08.2006, No. 109124/11.08.2006 and No. 74577/11.08.2006, No. 109125/11.08.2006 and No. 74578/11.08.2006, No. 109142/11.08.2006 and No. 74579/11.08.2006, No. 109143/11.08.2006 and No. 74580/11.08.2006, No. 109144/11.08.2006 and No. 74581/11.08.2006, No. 109146/11.08.2006 and No. 74583/11.08.2006, No. 109147/11.08.2006 and No. 74584/11.08.2006, No. 109152/11.08.2006 and No. 74588/11.08.2006, No. 109173/11.08.2006 and No. 74590/11.08.2006, No. 109174/11.08.2006 and No. 74591/11.08.2006, No. 109215/14.08.2006 and No. 74617/14.08.2006, No. 109215/14.08.2006 and No. 74618/14.08.2006, No. 109218/14.08.2006 and No. 74620/14.08.2006, No. 109222/14.08.2006 and No. 74625/15.08.2006, No. 109223/14.08.2006 and No. 74626/15.08.2006, No. 109224/14.08.2006 and No. 74627/15.08.2006, No. 109225/14.08.2006 and No. 74628/15.08.2006, No. 109226/14.08.2006 and No. 74629/15.08.2006, No. 109232/14.08.2006 and No. 74635/15.08.2006, No. 109233/14.08.2006 and No. 74636/15.08.2006, No. 109234/14.08.2006 and No. 74642/15.08.2006, No. 109235/14.08.2006 and No. 74643/15.08.2006, No. 109236/14.08.2006 and No. 74644/15.08.2006, No. 109237/14.08.2006 and No. 74645/15.08.2006, No. 109238/14.08.2006 and No. 74646/15.08.2006, No. 109239/14.08.2006 and No. 74647/15.08.2006, No. 109240/14.08.2006 and No. 74648/15.08.2006, No. 109249/14.08.2006 and No. 74657/15.08.2006, No. 109254/14.08.2006 and No. 74662/15.08.2006, No. 109256/14.08.2006 and No. 74664/15.08.2006, No. 109260/14.08.2006 and No. 74668/15.08.2006, No. 109261/14.08.2006 and No. 74669/15.08.2006, No. 109262/14.08.2006 and No. 74670/15.08.2006, No. 109263/14.08.2006 and No. 74671/15.08.2006, No. 109264/14.08.2006 and No. 74672/15.08.2006, No. 109265/14.08.2006 and No. 74673/15.08.2006, No. 109266/14.08.2006 and No. 74674/15.08.2006, No. 109268/14.08.2006 and No. 74676/15.08.2006, No. 109269/14.08.2006 and No. 74677/15.08.2006, No. 109271/14.08.2006 and No. 74679/15.08.2006, No. 109276/15.08.2006 and No. 74680/16.08.2006, No. 10931515.08.2006 and No. 74703/16.08.2006, No. 109316/15.08.2006 and No. 74704/16.08.2006, No. 109320/15.08.2006 and No. 74707/16.08.2006, No. 109322/15.08.2006 and No.

74709/16.08.2006, No. 109323/15.08.2006 and No. 74710/16.08.2006, No. 109325/15.08.2006 and No. 74711/16.08.2006, No. 109326/15.08.2006 and No. 74712/16.08.2006, No. 109327/15.08.2006 and No. 74713/16.08.2006, No. 109328/15.08.2006 and No. 74714/16.08.2006, No. 109329/15.08.2006 and No. 74715/16.08.2006, No. 109330/15.08.2006 and No. 74716/16.08.2006, No. 109333/15.08.2006 and No. 74719/16.08.2006, No. 109334/15.08.2006 and No. 74720/16.08.2006, No. 109490/16.08.2006 and No. 74723/16.08.2006, No. 109828/21.08.2006 and No. 75147/22.08.2006, No. 109829/21.08.2006 and No. 75148/22.08.2006, No. 109885/21.08.2006 and No. 75156/22.08.2006, No. 111970/25.08.2006, No. 110513/25.08.2006, No. 110512/25.08.2006, No. 110511/25.08.2006, No. 75724/31.08.2006, No. 110638/25.08.2006, No. 110413/24.08.2006, No. 110414/24.08.2006, No. 109927/22.08.2006, No. 111058/25.08.2006, No. 111057/25.08.2006 and No. 75910/04.09.2006, No. 111056/25.08.2006, No. 111055/25.08.2006, No. 111054/25.08.2006, No. 111053/25.08.2006, No. 111043/25.08.2006, No. 111034/25.08.2006, No. 111032/25.08.2006., No. 111031/25.08.2006, No. 111030/25.08.2006, No. 111029/25.08.2006, No. 111028/25.08.2006, No. 111027/25.08.2006, No. 111026/25.08.2006, No. 111025/25.08.2006, No. 111024/25.08.2006, No. 111023/25.08.2006, No. 111022/25.08.2006, No. 111021/25.08.2006, No. 111020/25.08.2006, No. 111019/25.08.2006, No. 111017/25.08.2006, No. 111015/25.08.2006, No. 111013/25.08.2006, No. 111005/25.08.2006, No. 111004/25.08.2006 and No. 75963/04.09.2006, No. 111003/25.08.2006 and No. 75964/04.09.2006, No. 111002/25.08.2006 and No. 75965/04.09.2006, No. 111001/25.08.2006 and No. 75966/04.09.2006, No. 110999/25.08.2006 and No. 75968/04.09.2006, No. 110998/25.08.2006 and No. 75969/04.09.2006, No. 110988/25.08.2006, No. 110987/25.08.2006, No. 110986/25.08.2006, No. 110985/25.08.2006, FR.No. and No. 75983/04.09.2006, No. 110984/25.08.2006, No. 110983/25.08.2006, No. 110785/25.08.2006, No. 110714/25.08.2006, No. 110713/25.08.2006, No. 110706/25.08.2006, No. 110751/25.08.2006 and No. 7607605.09.2006, No. 110750/25.08.2006 and No. 7607705.09.2006, No. 110749/25.08.2006 and No. 7607805.09.2006, No. 110745/25.08.2006 and No. 76082/05.09.2006, No. 110744/25.08.2006 and No. 76083/05.09.2006, No. 110743/25.08.2006 and No. 76084/05.09.2006, No. 110742/25.08.2006 and No. 76085/05.09.2006, No. 110972/25.08.2006 and No. 165086/07.09.2006, No. 110971/25.08.2006 and No. 165087/07.09.2006, No. 110970/25.08.2006 and No. 165088/07.09.2006, No. 110968/25.08.2006 and No. 165090/07.09.2006, No. 110967/25.08.2006 and No. 165091/06.09.2006, No. 11096625.08.2006 and No. 165092/07.09.2006, No. 110965/25.08.2006, No. 110964/25.08.2006, No. 110915/25.08.2006, No. 112974/25.08.2006, No. 110720/25.08.2006, No. 110905/25.08.2006, No. 110903/25.08.2006, No. 110898/25.08.2006, No. 110897/25.08.2006, No. 112975/25.08.2006, No. 112396/25.08.2006, No. 112384/25.08.2006, No. 112383/25.08.2006, No. 112382/25.08.2006, No. 112381/25.08.2006, No. 112989/25.08.2006, No. 112976/25.08.2006, No. 112983/25.08.2006, No. 112984/25.08.2006, No. 112985/25.08.2006, No. 112986/25.08.2006, No. 112987/25.08.2006, No. 112887/25.08.2006, No. 112890/25.08.2006, No. 112894/25.08.2006, No. 112904/25.08.2006, No. 111776/25.08.2006, No. 111762/25.08.2006, No. 111763/25.08.2006, No. 11087/25.08.2006, No. 112881/25.08.2006, No. 112876/25.08.2006, No. 112156/25.08.2006, No. 112157/25.08.2006, No. 112127/25.08.2006, No. 112128/25.08.2006, No. 112882/25.08.2006, No. 112961/25.08.2006, No. 112990/25.08.2006, No. 112949/25.08.2006, No. 112892/25.08.2006, No. 112158/25.08.2006, No. 112161/25.08.2006, No. 112160/25.08.2006, No. 112159/25.08.2006, No. 112955/25.08.2006, No. 112967/25.08.2006, No. 112968/25.08.2006, No. 112969/25.08.2006, No. 113003/25.08.2006, No. 111371/25.08.2006, No. 111120/25.08.2006, No. 111096/25.08.2006, No. 111091/25.08.2006, No. 111130/25.08.2006, No. 111092/25.08.2006, No. 111421/25.08.2006, No. 114734/08.09.2006

RMGC internal unique code	MMGA_1228
Proposal	S.C. Rosia Montana Gold corporation S.A. does not comply with the provisions of the art.11 from the Mining Law 85/2003The EIA report does not contain an impact assessment of the phenomenon "cyanide rain" caused by the cyanide evaporation from the tailings management facility and a description of the trans-boundary impact in case of accident on some natural important areas such as Koros Maros National park from Hungary located along the Mures valley
Solution	The possibility for a "cyanide rain" phenomenon to occur doesn't exist. Moreover, the specialty literature does not indicate a phenomenon called "cyanide rain"; it is known and researched only the "acid rains" phenomenon that has no connection with the behavior of the cyanide compounds in the atmosphere. The reasons for stating that no "cyanide rains" phenomenon will ever occur are the followings: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution can not occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/l within the leaching tanks up to 7 mg/l (total cyanide) at the discharge point into the tailings management facility; the drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of cyanide chemistry and on the grounds of past experiences, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant; the maximum concentration being of 382 μg/m^3/h; - The highest HCN concentrations within the ambient air will be 2.6 times lower than the limit value stipulated by the national legislation for labor protection; - The HCN concentrations within the ambient air from the areas situated up to 2 km towards the north-eastern vicinity of the industrial site will be of 4 to 80 μg/m^3/h , more than 250 – 12.5 times lower than limit value stipulated by the national legislation for labor protection; - Once released in the air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). HCN is weak water-soluble at partial, low pressures (feature of the gases released in open air), and the rain will not effectively reduce the concentrations in the air (Mudder, et al., 2001, Cicerone and Zellner, 1983); - The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project to be higher than the background values (0.2 ppb) is extremely low. **On the basis of the above presented information, it is very clear that HCN emissions may have a certain local impact on atmosphere quality, restricted to well within legislated limits as described**

above, but their implication within a possible trans-boundary impact on air quality is excluded.

Also, the specialty literature doesn't comprise information related to the effects of a potential exposure of the vegetation or ecosystems to HCN and neither the effects of the fauna health as a result of inhaling the HCN polluted air.

For details referring to the use of cyanide in the technological processes, the cyanides balance as well as the cyanide emission and impact of the cyanides on the air quality, please see the Environmental Impact Assessment (EIA) Report, Chapter 2, Chapter 4.1 and Chapter 4.2.

The EIA Report (Chapter 10, Transboundary Impacts) assesses the proposed project with regard to potential for significant river basin and transboundary impacts downstream which could, for example, affect the Mures and Tisa river basins in Hungary. Chapter concludes that under normal operating conditions, there would be no significant impact for downstream river basins/transboundary conditions.

The issue of a possible accidental large-scale release of tailings to the river system was recognized to be an important issue during the public meetings when stakeholders conveyed their concern in this regard. As a result, further work has been undertaken to provide additional detail to that provided in the EIA Report on impacts on water quality downstream of the project and into Hungary. This work includes modelling of water quality under a range of possible operational and accident scenarios and for various flow conditions.

The model used is the INCA model developed over the past 10 years to simulate both terrestrial and aquatic systems within the EUROLIMPACS EU research program (www.eurolimpacs.ucl.ac.uk). The model has been used to assess the impacts from future mining, and collection and treatment operations for pollution from past mining at Roşia Montană.

The modelling created for Roşia Montană simulates eight metals (cadmium, lead, zinc, mercury, arsenic, copper, chromium, manganese) as well as Cyanide, Nitrate, Ammonia and dissolved oxygen. The model has been applied to the upper catchments at Roşia Montană as well as the complete Abrud-Arieş-Mureş river system down to the Hungarian Border and on into the Tisa River. The model takes into account the dilution, mixing and phsico-chemical processes affecting metals, ammonia and cyanide in the river system and gives estimates of concentrations at key locations along the river, including at the Hungarian Boarder and in the Tisa after the Mureş joins it.

Because of dilution and dispersion in the river system, and of the initial EU BAT-compliant technology adopted for the project (for example, the use of a cyanide destruct process for tailings effluent that reduces cyanide concentration in effluent stored in the TMF to below 6 mg/l), even a large scale unprogrammed release of tailings materials (for example, following failure of the dam) into the river system would not result in transboundary pollution. The model has shown that under worse case dam failure scenario all legal limits for cyanide and heavy metals concentrations would be met in the river water before it crosses into Hungary.

The INCA model has also been used to evaluate the beneficial impacts of the existing mine water collection and treatment and it has shown that substantial improvements in water quality are achieved along the river system under normal operational conditions.

For more information, an information sheet presenting the INCA modelling work is presented under the title of the Mureş River Modelling Program and the full modelling report is presented as Annex 5.1.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1920
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110904/25.08.2006
RMGC internal unique code	MMGA_1245
Proposal	Also, the evaporation, water infiltration or barrage failure would have a trans-frontier impact on the natural protected areas from Hungary;
Solution	**The emissions of the HCN could have a strictly local level impact on the quality of the atmoshpere, but their involvement in a potential transboundary impact on the quality of air is out of the question. In order to emphasise the above mentioned information, please see below some details related to potential HCN sources, the way it forms, and its effects on the quality of the air:** - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h; - The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety; - The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health

protection;

- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Also, the specialty literature doesn't comprise information related to the effects of a potential exposure of the vegetation or ecosystems to HCN and neither the effects of the fauna health as a result of inhaling the HCN polluted air.

For details referring to the use of cyanide in the technological processes, the cyanides balance as well as the cyanide emission and impact of the cyanides on the air quality, please see the Environmental Impact Assessment (EIA) Report, Chapter 2, Chapter 4.1 and Chapter 4.2.

With regards to the dam failure potential, the EIA describes how the dam will be built with rockfill materials, engineered drain and filter materials and a low permeability core to control seepage. The facility is being designed and engineered by MWH, one of the leading dam designers in the world. In addition, the feasibility level designs have been reviewed and approved by certified Romanian dam experts and by the Romanian National Committee for the Safety of Large Dams. Prior to operation, the dam must again be certified for operations by the National Commission for Dams Safety (CONSIB).

The TMF dam is rigorously designed to incorporate all European Union (EU), Romanian and international criteria to reduce the risk of failure. These design criteria allow for significant rainfall events and prevent dam failure due to overtopping. Specifically, the facility has been designed to store for the run off from two Probable Maximum Precipitation (PMP) events. This is generally referred to as the Probable Maximum Flood (PMF). The design criterion for TMF includes storage for two PMF flood events, more rain than has ever been recorded in this area

Additionally, an emergency spillway for the dam will be constructed in the unlikely event that the site rainfall exceeds two PMPs. The TMF design therefore very significantly exceeds required standards for safety. This has been done to ensure that the risks involved in using Corna valley for tailings storage are well below what is considered safe in every day life.

In order to avoid any seepage and to prevent the ground water contamination an engineered liner is included in the design of the TMF basin to be protective of groundwater. Specifically, the Roşia Montană Tailings Management Facility has been designed to be compliant with the EU Groundwater Directive (80/68/EEC), transposed as Romanian GD 351/2005. The TMF is also designed for compliance with the EU Mine Waste Directive (2006/21/EC) as required by the Terms of Reference established by the MEWM in May, 2005. The following paragraphs provide a discussion of how the facility is compliant with the directives.

The TMF is composed of a series of individual components including:

- the tailings impoundment,
- the tailings dam,
- the secondary seepage collection pond,
- the secondary containment dam, and
- the groundwater monitoring wells/extraction wells located downstream of the Secondary Containment dam.

All of these components are integral parts of the facility and necessary for the facility to perform as designed.

The directives indicated above require that the TMF design be protective of groundwater. For the Roşia Montană project (RMP), this requirement is addressed by consideration of the favorable geology (low

permeability shales underlying the TMF impoundment, the TMF dam, and the Secondary Containment dam) and the proposed installation of a low-permeability (1x10-6 cm/sec) recompacted soil liner beneath the TMF basin. Please see Chapter 2 of EIA Plan F, "The Tailings Facility Management Plan" for more information.

The proposed low permeability soil liner will be fully compliant with the Best Available Techniques (BAT) as defined by EU Directive 96/61 (IPPC) and EU Mine Waste Directive. Additional design features that are included in the design to be protective of groundwater include:

- A low permeability (1x10-6 cm/sec) cut off wall within the foundation of the starter dam to control seepage,
- A low permeability (1x10-6 cm/sec) core in the starter dam to control seepage,
- A seepage collection dam and pond below the toe of the tailings dam to collect and contain any seepage that does extend beyond the dam centerline,
- A series of monitoring wells, below the toe of the secondary containment dam, to monitor seepage and ensure compliance, before the waste facility limit.

In addition to the design components noted above specific operational requirements will be implemented to be protective of human health and the environment. In the extremely unlikely case that impacted water is detected in the monitoring wells below the secondary containment dam, they will be converted to pumping wells and will be used to extract the impacted water and pump it into the reclaim pond where it will be incorporated into the RMP processing plant water supply system, until the compliance is reestablished.

The EIA Report (Chapter 10 Transboundary Impacts) assesses the proposed project with regard to potential for significant river basin and transboundary impacts downstream which could, for example, affect the Mureş and Tisa river basins in Hungary. The Chapter concludes that under normal operating conditions, there would be no significant impact for downstream river basins/transboundary conditions.

The issue of a possible accidental large-scale release of tailings to the river system was recognized to be an important issue during the public meetings when stakeholders conveyed their concern in this regard. As a result, further work has been undertaken to provide additional detail to that provided in the EIA Report on impacts on water quality downstream of the project and into Hungary. This work includes modeling of water quality under a range of possible operational and accident scenarios and for various flow conditions.

The model used is the INCA model developed over the past 10 years to simulate both terrestrial and aquatic systems within the EUROLIMPACS EU research program (www.eurolimpacs.ucl.ac.uk). The model has been used to assess the impacts from future mining, and collection and treatment operations for pollution from past mining at Roşia Montană.

The modeling created for Roşia Montană simulates eight metals (cadmium, lead, zinc, mercury, arsenic, copper, chromium, manganese) as well as Cyanide, Nitrate, Ammonia and dissolved oxygen. The model has been applied to the upper catchments at Roşia Montană as well as the complete Abrud-Arieş-Mureş river system down to the Hungarian Border and on into the Tisa River. The model takes into account the dilution, mixing and phsico-chemical processes affecting metals, ammonia and cyanide in the river system and gives estimates of concentrations at key locations along the river, including at the Hungarian Boarder and in the Tisa after the Mureş joins it.

Because of dilution and dispersion in the river system, and of the initial EU BAT-compliant technology adopted for the project (for example, the use of a cyanide destruct process for tailings effluent that reduces cyanide concentration in effluent stored in the TMF to below 6 mg/l), even a large scale unprogrammed release of tailings materials (for example, following failure of the dam) into the river system would not result in transboundary pollution. The model has shown that under worse case dam failure scenario all legal limits for cyanide and heavy metals concentrations would be met in the river water before it crosses into Hungary.

The INCA model has also been used to evaluate the beneficial impacts of the existing mine water collection and treatment and it has shown that substantial improvements in water quality are achieved along the river system under normal operational conditions.

For more information, please see included in the Annex 5.1 the Fact Sheet presenting the INCA modeling work, entitled "*Mureş River Modeling Program*" together with the full modeling.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	2984
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 111777/25.08.2006
RMGC internal unique code	MMGA_1270
Proposal	The manner in which the dust emissions derived from the big scale activity in open pit and from the wind erosion from the open pit walls and low grade ore and waste rock dumps is not realistic specified
Solution	Atmospheric pollutants are everywhere in the ambient air, with lower or higher concentrations, their emission sources being both anthropic (human activities) and natural. In regards to the atmospheric pollutants generated by the mining activities proposed by Roşia Montană Project, we specify that Piatra Albă area, although relatively close to the industrial perimeter, is a part of its external areas and is exposed to the lowest extent to these pollutants. The sole pollutant which could influence, to a certain extent, the air quality from Piatra Albă area is represented by particles. Maximum concentrations of particles from the air within the Piatra Albă area will be of 4 up to 20 times lower than the standard values for population's health protection. Concentrations of other pollutants generated by the future mining activities into the Piatra Albă area's air will be insignificant. Please note that in the perimeter of any locality, irrespective of the industrial activities, the air quality is influenced by inherent local sources of day-to-day life, namely: heating, cooking, traffic etc. The levels of pollution by particles of the air neighboring the industrial perimeter, due to the effect of the local sources together with the future mining activities, will be lower than the limit values for population's health protection. For the dust emission control from open pits and haulage roads of ore and waste rock, the following measures have been taken: - Utilization of a new blasting technology, namely the sequential blasting technology which reduces drastically the height of the dust plume and dispersion area; - Ceasing of the activities generating dust during the periods with intense winds or when the automatic monitor for particles installed in the Roşia Montană protection area indicates an alert situation; - Implementation of a program for dust control on the unpaved roads during the drought seasons by means of watering trucks and inert substances for dust restraining. These measures will reduce the dust emissions with 90%; - Minimizing of the unloading height at manipulation / discharge of materials; - Prescribing and application of speed limitation on traffic; - Implementation of a program of periodically maintenance of vehicles and motorized equipments; - Automatic monitoring of the air quality and meteorological parameters - Implementation of additional measures for dust emission control: ore and waste rock watering at the loading into trucks. Control measures for dust emission generated by low grade ore and waste rock dumps: - Cleaning and watering the work platforms during the drought seasons; - Limitation of the activities taking place at the stockpiling areas in order to avoid the disturbance of new surfaces which might generate dust dispersion due to Aeolian erosion. Please note that as the ore mining activities proceed, the pit go deeper (depths of 250-300 m will be reached by comparison with the present levels); their walls represent physical obstacles for the the dust dispersion into the area surrounding the pits.

Details: The report on Environment Impact Assessment Study (Vol.12, Chapter 4.2, Sub–chapter 4.2.4) and Air Quality Management Plan (Vol. 24, Plan D) include details regarding the technical and operational measures for mitigation/elimination of the dust dispersion generated by Project activities.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 901, 911, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1880, 1885, 1886, 1887, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1910, 1911, 1913, 1914, 1915, 1916, 1917, 1918, 2994, 2995, 2996, 2997, 2998, 2999, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3017, 3018, 3031, 3032, 3033, 3036, 3037, 3063, 3074, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3117, 3119, 3120, 3121, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3167, 3168, 3169, 3170, 3171, 3172, 3173, 3174, 3175, 3176, 3177, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3248, 3249, 3250
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RMGC internal unique code	MMGA_1348
Proposal	The EIA report does not contain an evaluation of the phenomenon so-called “cyanide rain” nor a description of the trans-frontier impact on some natural important areas in case of accident SEE THE CONTENT OF THE TYPE 2 CONTESTATION
Solution	The possibility for a “cyanide rain” phenomenon to occur doesn’t exist. Moreover, the specialty literature does not indicate a phenomenon called “cyanide rain”; it is known and researched only the “acid rains” phenomenon that has no connection with the behavior of the cyanide compounds in atmosphere.

The reasons for stating that no "cyanide rains" phenomenon will ever occur are the followings:

- The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH;
- The cyanide volatilization from a certain solution can not occur under the form of free cyanides, but only under the form of HCN;
- The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings;
- The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound;
- The cyanide concentrations within the handled solutions will decrease from 300 mg/l within the leaching tanks up to 7 mg/l (total cyanide) at the discharge point into the tailings management facility; the drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system;
- The knowledge of cyanide chemistry and on the grounds of past experiences, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission;
- Once released, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia;
- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant; the maximum concentration being of 382 μg/m^3/h;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the limit value stipulated by the national legislation for labor protection;
- The HCN concentrations within the ambient air from the populated areas close by industrial site will be of 4 to 80 μg/m^3 , more than 250 – 12.5 times lower than limit value stipulated by the national legislation for labor protection - the national legislation and European Union (EU) legislation on the Quality of Air, don't stipulate limit values for the population's health protection);
- Once released in the air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partial, low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001, Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project to be higher than the background values (0.2 ppb) is extremely low.

On the basis of the above presented information, it is very clear that HCN emissions may have a certain local impact on atmosphere quality, restricted to well within legislated limits as described above, but their implication within a possible trans-boundary impact on air quality is excluded.

Also, the specialty literature doesn't comprise information related to the effect of air-borne HCN emissions on fauna and flora.

For details referring to the use of cyanide in the technological processes, the cyanides balance as well as the cyanide emission and impact of the cyanides on the air quality, please see the Environmental Impact Assessment (EIA) Report, Chapter 2, Chapter 4.1 and Chapter 4.2 (Section 4.4.3).

The EIA Report (Chapter 10, Transboundary Impacts) assesses the proposed project with regard to potential for significant river basin and transboundary impacts downstream which could, for example, affect the Mureş and Tisa river basins in Hungary. The Chapter concludes that under normal operating conditions, there would be no significant impact for downstream river basins/transboundary conditions.

The issue of a possible accidental large-scale release of tailings to the river system was recognized to be an important issue during the public meetings when stakeholders conveyed their concern in this regard. As a result, further work has been undertaken to provide additional detail to that provided in the EIA Report on impacts on water quality downstream of the project and into Hungary. This work includes modelling of water quality under a range of possible operational and accident scenarios and for various flow conditions.

The model used is the INCA model developed over the past 10 years to simulate both terrestrial and aquatic systems within the EUROLIMPACS EU research program (www.eurolimpacs.ucl.ac.uk). The model has been used to assess the impacts from future mining, and collection and treatment operations for pollution from past mining at Roşia Montană.

The modelling created for Roşia Montană simulates eight metals (cadmium, lead, zinc, mercury, arsenic, copper, chromium, manganese) as well as Cyanide, Nitrate, Ammonia and dissolved oxygen. The model has been applied to the upper catchments at Roşia Montană as well as the complete Abrud-Arieş-Mureş river system down to the Hungarian Border and on into the Tisa River. The model takes into account the dilution, mixing and phsico-chemical processes affecting metals, ammonia and cyanide in the river system and gives estimates of concentrations at key locations along the river, including at the Hungarian Boarder and in the Tisa after the Mureş joins it.

Because of dilution and dispersion in the river system, and of the initial EU Best Available Techniques (BAT) – compliant technology adopted for the project (for example, the use of a cyanide destruct process for tailings effluent that reduces cyanide concentration in effluent stored in the TMF to below 6 mg/l), even a large scale unprogrammed release of tailings materials (for example, following failure of the dam) into the river system would not result in transboundary pollution. The model has shown that under worse case dam failure scenario all legal limits for cyanide and heavy metals concentrations would be met in the river water before it crosses into Hungary.

The INCA model has also been used to evaluate the beneficial impacts of the existing mine water collection and treatment and it has shown that substantial improvements in water quality are achieved along the river system under normal operational conditions.

For more information, an information sheet presenting the INCA modelling work is presented under the title of the Mureş River Modelling Program and the full modelling report is presented as Annex 5.1

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	3115
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 112129/25.08.2006
RMGC internal unique code	MMGA_1385
Proposal	The questioner request the MMGA not to emit the environment permit for the Rosia Montana gold and silver mining project formulating the following remarks, questions and comments: However much afforested would be the Piatra Alba resettlement area, the risk Of contamination with atmospheric pollutants can not decrease up to zero
Solution	Atmospheric pollutants are everywhere in the ambient air, with lower or higher concentrations, their emission sources being both anthropic (human activities) and natural. In regards to the atmospheric pollutants generated by the mining activities proposed by Roşia Montană Project, we specify that Piatra Albă area, although relatively close to the industrial perimeter, is a part of its external areas and is exposed to the lowest extent to these pollutants. The sole pollutant which could influence, to a certain extent, the air quality from Piatra Albă area is represented by particles. Maximum concentrations of particles from the air within the Piatra Albă area will be of 4 up to 20 times lower than the standard values for population's health protection. Concentrations of other pollutants generated by the future mining activities into the Piatra Albă area's air will be insignificant. Please note that in the perimeter of any locality, irrespective of the industrial activities, the air quality is influenced by inherent local sources of day-to-day life, namely: heating, cooking, traffic etc. The polluting level of the atmosphere in Piatra Albă area, by particles, due to the future local sources together with the mining activities will be below the standard values established for the population's health protection. It is mentioned that atmospheric pollutants occur everywhere in the ambient air, with lower or higher concentrations, their emission sources being both anthropic (human activities) and natural.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	3234
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 111435/25.08.2006
RMGC internal unique code	MMGA_1415

Proposal	The dust with content of radon and other noxious radioactive elements which will be spread over long distances
Solution	Radon is a radioactive gas of natural origin generated by the uranium natural disintegration. Uranium is an element which practically occurs everywhere in earth's crust. Radon comes into atmosphere by means of the air rising to surface trough fissures from terrestrial crust. Radon may generate problems if its concentration in the air inhaled by people is high. These problems may occur inside the closed spaces where the air with radon content penetrates through pores and small fissures present in any foundation and especially inside the houses without efficient systems of ventilation. Thus, the radon concentrations in these houses may increase more than 10 times compared to the concentrations from the outer air. Within Roşia Montană area there are no radioactive ore deposits. According to the measurements performed by the National Research – Development Institute for Environment Protection – ICPM Bucharest, the radioactivity of the environment around the Cetate and Cârnic open pits from Roşia Montană is within the natural background limits. It is specified that the gold and silver ore mining in open pit begun in 1970. The mining has been continued until 2006 in two open pits (Cetate and Cârnic) by CNCAF MINVEST SA – Deva – Roşiamin subsidiary. Also, in this area, the Aprăbuş secondary crushing station as well as processing plant has run since 1960. All these objectives together with the two waste rock dumps (Valea Verde and Hop) and the two tailings management facilities with dried surfaces (Valea Saliştei and Gura Roşiei) have constituted sources of dust emission. For these sources there are no implemented measures to reduce dust emissions. The surfaces of Cetate and Cârnic open pits, waste rock dumps and tailings management facilities continue to be sources of dust emission because although CNCAF MINVEST SA – Deva – Roşiamin subsidiary's activity ceased, their perimeters were not rehabilitated. As for the dust generated by the activities proposed by Roşia Montană Project we made the following mentions: - The dust will have a composition similar to that one emitted into atmosphere in over 35 years' time as a result of the mining in Cetate and Cârnic open pits and processing in the old processing plant. This affirmation relies on the fact that the Project proposes to continue the mining in Cetate and Cârnic open pits and to open Orlea and Jig new open pits of which rocks have a composition similar to those from Cetate and Cârnic open pits; - The dust emitted from the old mining activity does not contain radioactive material above natural background limits and therefore it is not anticipated that future activity will produce dust containing radioactive materials; - The radioactivity of the dust emitted in future, will be comparable with that one registered during the last 35 years, a level situated within the natural background limits; - Roşia Montană Project provides the implementation of a rigorous air quality management plan, including a monitoring programme?, so that the concentration of total particles in suspension and of those inhaled by people from the surrounding localities will be maintained far below the limit values for population's health protection; - According to dispersion maps (obtained through mathematical modeling) for the total particles in suspension (TSP) and particles with equivalent aerodynamic diameters below 10 μm (PM_{10}) it is observed that the concentration decrease is rapid depending on the distance from source, so that the localities outside the industrial site will have concentrations 4 – 20 times lower than

limit values on distances from 0 km to 2.5 / 4 km towards the site perimeter. At higher distances, concentrations will be over 20 times lower than limit values.

Details regarding the aspects referring to the dust generated by mining activities: Environmental Impact Assessment (EIA) report, Vol. 3 – Air Quality Baseline Study, Vol.12 – Chapter 4.2.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	3593, 3594, 3595, 3596, 3816
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 111127/25.08.2006, No. 111126/25.08.2006, No. 111125/25.08.2006, No. 111124/25.08.2006, No. 111121/25.08.2006
RMGC internal unique code	MMGA_1450

Proposal

An evaluation of the phenomenon "cyanide rain" is not presented;

Solution

It is stated precisely that a "cyanide rain" phenomenon will not exist. Neither was encountered in other places or situations. Moreover, the specialty literature doesn't mention the so-called "cyanide rains" phenomenon, but only "acidic rains" phenomenon which can't be generated by the cyanic compounds breaking down in the atmosphere.

The reasons for making the statement that 'cyanide rains' phenomenon won't occur are the following:

- The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH;
- The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN;
- The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings;
- The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound;
- The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system;
- The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission;
- Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia;
- The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h;
- The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety;
- The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU)

legislation on the Air Quality don't stipulate standard values for the population's health protection;

- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	35
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 116015/08.12.2006
RMGC internal unique code	MMGA_1482
Proposal	As a result of the mountain stripping, noxious radiations might occur;
Solution	No. There are no radioactive ore deposits within area. According to the measurements carried out by The National Research – Development Institute for Environmental Protection – ICIM Bucharest, the environment radioactivity is situated within the natural background limits, in the context in which the Roşia Montană gold and silver mining in open pit began in the Cetate open pit in 1970 (until now the height of Cetate peak has decreased with about 300 m, as compared to its initial altitude due to the ore mining) and has also been extended to the Cârnic open pit. The ore mining and processing activities in Cetate and Cârnic open pits were performed by CNCAF MINVEST SA Deva – a Roşiamin subsidiary, continually, during the period 1970 – 2006.

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	56
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 114674/02.10.2006
RMGC internal unique code	MMGA_1502
Proposal	The quantity from air of the cyanide and sulphuric acid vapors is by far higher than the value presented within report;
Solution	It is mentioned that from technological processes or from the surface of the tailings management facility there will be no emissions of "cyanide vapors", but only eventual emissions of hydrocyanic acid into air. On the whole, the aspects related to this subject are as follows: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution cannot occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/L within the leaching tanks up to 7 mg/L (total cyanide) at the discharge point into the tailings management facility. The drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of the cyanide chemistry and on the grounds of the past experience, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released into air, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant. The maximum concentration is of 382 μg/m^3/h; - The highest HCN concentrations within the ambient air will be 2.6 times lower than the standard value stipulated by the national legislation for occupational safety; - The HCN concentrations within the ambient air in the populated areas close by the industrial site will be of 4 to 80 μg/m^3, more than 250 – 12.5 times lower than standard value stipulated by the national legislation for occupational safety – the national legislation and European Union (EU) legislation on the Air Quality don't stipulate standard values for the population's health protection;

- Once released in air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partially low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project be significantly higher than the background values (0.2 ppb) is extremely low.

Details referring to the use of cyanide in the technological processes, to the cyanides balance as well as to the cyanide emission and the impact of the cyanides on the air quality are contained in the Environmental Impact Assessment (EIA) Report, Chapter 2, Subchapter 4.1 and Subchapter 4.2 (Section 4.2.3).

Domain	AIR
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	870
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 109827/21.08.2006 and No. 75146/22.08.2006
RMGC internal unique code	MMGA_1548
Proposal	The EIA report doesn't comprise an assessment of the "cyanide rains" phenomenon impact, which is generated by the cyanide evaporation from the TMF, neither a description of the transboundary impact if an accident happens, affecting certain natural areas, such as the National Park in Hungary, KOROS MAROS, located along Mures Valley. PLEASE SEE CONTESTATION TYPE 3 Also, the Questioners mention their disagreement with covering the cemeteries, churches and the entire historical area by a big lake of cyanide.
Solution	The possibility for a "cyanide rain" phenomenon to occur doesn't exist. Moreover, the specialty literature does not indicate a phenomenon called "cyanide rain"; it is known and researched only the "acid rains" phenomenon that has no connection with the behavior of the cyanide compounds in atmosphere. The reasons for stating that no "cyanide rains" phenomenon will ever occur are the followings: - The sodium cyanide handling, from the unloading from the supplying trucks up to the processing tailings discharge onto the tailings management facility, will be carried out only in liquid form, represented by alkaline solutions of high pH value (higher than 10.5 – 11.0) having different sodium cyanide concentrations. The alkalinity of these solutions has the purpose to maintain the cyanide under the form of cyan ions (CN^-) and to avoid the hydrocyanic acid formation (HCN), phenomenon that occurs only within environments of low pH; - The cyanide volatilization from a certain solution can not occur under the form of free cyanides, but only under the form of HCN; - The handling and storage of the sodium cyanide solutions will take place only by means of some closed systems; the only areas/plants where the HCN can occur and volatilize into air, at low emission percentage, are the leaching tanks and slurry thickener, as well the tailings management facility for the processing tailings; - The HCN emissions from the surface of the above mentioned tanks and from the tailings management facility surface can occur as a result of the pH decrease within the superficial layers of the solutions (that helps the HCN to form) and of the desorption (volatilization in air) of this compound; - The cyanide concentrations within the handled solutions will decrease from 300 mg/l within the leaching tanks up to 7 mg/l (total cyanide) at the discharge point into the tailings management facility; the drastic reduction of the cyanide concentrations for discharging into the Tailings Management Facility (TMF) will be done by the detoxification system; - The knowledge of cyanide chemistry and on the grounds of past experiences, we estimated the following possible HCN emissions into air: 6 t/year from the leaching tanks, 13 t/year from the slurry thickener and 30 t/year (22.4 t, respectively 17 mg/h/m^2 during the hot season and 7.6 t, respectively 11.6 mg/h/m^2 during the cold season) from the tailings management facility surface, which totals 134.2 kg/day of HCN emission; - Once released, the hydrocyanic acid is subject to certain chemical reactions at low pressure, resulting ammonia; - The mathematical modeling of the HCN concentrations within the ambient air (if the HCN released in the air is not subject to chemical reactions) emphasized the highest concentrations being at the ground level, within the industrial site namely within the area of the tailings management facility and within a certain area near the processing plant; the maximum concentration being of 382 μg/m^3/h; - The highest HCN concentrations within the ambient air will be 2.6 times lower than the limit value stipulated by the national legislation for labor protection;

- The HCN concentrations within the ambient air from the populated areas close by industrial site will be of 4 to 80 μg/m^3 , more than 250 – 12.5 times lower than limit value stipulated by the national legislation for labor protection - the national legislation and European Union (EU) legislation on the Quality of Air, don't stipulate limit values for the population's health protection;
- Once released in the air, the evolution of the HCN implies an insignificant component resulted from the reactions while liquid (water vapors and rain drops). The reactions are due to HCN being weak water-soluble at partial, low pressures (feature of the gases released in open air), and the rain not effectively reducing the concentrations in the air (Mudder, et al., 2001; Cicerone and Zellner, 1983);
- The probability that the HCN concentration value contained by rainfalls within and outside the footprint of the Project to be higher than the background values (0.2 ppb) is extremely low.

On the basis of the above presented information, it is very clear that HCN emissions may have a certain local impact on atmosphere quality, restricted to well within legislated limits as described above, but their implication within a possible trans-boundary impact on air quality is excluded.

Also, the specialty literature doesn't comprise information related to the effect of the HCN air-borne emissions on fauna and flora.

For details referring to the use of cyanide in the technological processes, the cyanides balance as well as the cyanide emission and impact of the cyanides on the air quality, please see the Environmental Impact Assessment (EIA) Report, Chapter 2, Chapter 4.1 and Chapter 4.2 (Section 4.4.3).

Chapter 10 of the EIA Report (Transboundary Impacts) assesses the proposed project with regard to potential for transboundary impacts which could, for example, affect the Mureş Valley in Hungary. This Chapter concludes that under normal operating conditions, there would be no significant transboundary impact. The project design also reduces the risk of large scale accidents to a very low level and this is explained in Chapter 5 (Risk Cases).

The issue of a possible accidental large-scale release of tailings to the river system was recognized to be important and the public meetings conveyed stakeholder concern in this regard. As a result, further work has been undertaken to provide additional detail to that provided in the EIA Report on impacts on water quality downstream of the project and into Hungary. This work includes modeling of water quality under a range of possible accident scenarios and flow conditions and confirms that the design of the project, in line with the new EU Mining Wastes Management Directive and associated Best Available Technique documentation, performs satisfactorily and safely.

Because of the mitigation measures adopted (for example, the use of a cyanide destruct process for tailings effluent that reduces cyanide concentration in effluent stored in the TMF below 10 mg/l), even a large scale unprogrammed release of tailings materials (for example, following failure of the dam) into the river system would not result in transboundary pollution that could significantly affect sensitive receptors in Hungary.

It is also worth noting that because it IS designed in line with the applicable EU Directive, the proposed Roşia Montană TMF design avoids the problems that arose at Baia Mare, and it is a significantly safer design so that failure is conceivable under conditions that exceed the known long-term extremes of weather and seismic activity. Under such conditions, sensitive receptors downstream of the project will likely be heavily impacted by events that will be unrelated to the Roşia Montană gold project, e.g. extreme flood conditions or earthquake-induced land instability.