
4.10 Transportation

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1 Introduction

Transportation of materials, personnel, and equipment to and from the Roşia Montană Project site represents a multitude of specific aspects of potential environmental and social impacts, associated with the use of national railways and especially national, regional, and local roads, that is separate and distinct from the local transportation-related air, noise, and vibration impacts discussed in Sections 4.2 and 4.3.

RMGC will encourage local authorities (and, to the extent possible, undertake its own reasonable and practical precautions) to prevent or mitigate transportation-related impacts. However, some conditions (such as road or weather conditions, or the driving skills and behaviour of other users of the same infrastructure) will always remain beyond the ability of RMGC to control or influence. It is therefore important that these potential impacts are recognised, and that appropriate mitigation measures are established to reduce the potential for occurrence of transportation-related accidents or incidents, and to respond rapidly and appropriately to transportation-related in case of emergencies, if they should occur.

2 Baseline Transportation Conditions

2.1 National Conditions

Road conditions vary greatly throughout Romania. While the major streets in larger cities and major inter-city highways are generally in fair to good condition, other roads may be in a state of disrepair, poorly lit, narrow, and often may not have marked lanes, graded shoulders, or stable facilities. Certain roads, particularly in rural areas, are also used by pedestrians, animals, bicyclists, and horse- or ox-drawn carts or wagons, which normally do not carry lights or other distinguishing safety markings. These types of transport are difficult for drivers to see, especially at night. In addition, the availability of roadside repair or medical emergency (ambulance) assistance can be quite limited, especially in mountainous rural areas.

Road travel can be particularly dangerous in mountainous regions, and there are sections of major and minor roads which contain many serpentine or switchbacks. In the winter months, mountain roads can experience many weeks of wet, snow-covered, or icy conditions. Snow-clearing equipment and appropriate de-icing treatments are only just becoming a norm for local road maintenance activities. Such improvements appear to be continuing faster, and overall improvement of such issues is expected in the future. Moreover, in recent years there has been an increase in public expenditure on road maintenance, which is resulting in noticeable improvements in the overall transportation infrastructure. The development of the Autostrada Transilvania (highway), which, when complete, will provide a high quality road from the Hungarian border to the Black Sea, is an example of such investment; and this will provide an important alternate road transport route for project supply both from the east and from west of the country.

It is notable that the vehicular accident rate in Romania is substantially higher than the European average. Fatality rates are roughly 4 times that the European Union (EU) average; although precise data are limited, some of the most important causes are the followings:

- road infrastructure,
- mechanical status of vehicles,
- driver education, training and, rate of fatigue and
- effectiveness and level of enforcement of traffic management regulations.¹

Although road safety is clearly an increasingly high priority for the Romanian government, the mobility needs of a growing economy will place additional demands on the current infrastructure. In recent years there has been a substantial increase in the level of road traffic in Romania, especially large transport vehicles, due to the significant increase in commerce that has occurred as a result of economic growth within the EU, the recent accession of neighbouring Hungary, and increased economic activity within Romania itself. Moreover, the transition of modes of personal transport from basic forms, from carriage pending to personal automobiles, continues at a rapid pace, and it is anticipated that this trend will continue into the future.

¹ See the *Sector Study Traffic Safety in Romania*, published by the Dutch Agency for International Business and Co-operation (EVD) at http://www.evd.nl/pdf/PSO/traffic_safety_romania.pdf.

2.2 Conditions in the Project Area

The Roşia Montană Project is situated in a mountainous region, and use of existing local transportation routes will be necessary to access the Project site. Potential access routes to the Project site are shown in Exhibit 4.10.1. Because of the mountainous terrain, weather conditions are more extreme than in low-lying regions; snow pack can be significant, and it is common for icy road conditions to exist for three to four winter months. Some roads in these rural areas are in poor condition and can be narrow and have many curves. These factors make the transportation of sensitive materials and large equipment items a challenging consideration.

A preliminary traffic survey was performed in 2003 on the existing road in Roşia Valley; the survey concluded that traffic to the plant site via the existing road would be excessive. As a result, a new access road along the existing (Roşiamin) narrow gauge rail haulage route will be constructed on the south side of the Roşia Valley.

Because local traffic volumes and patterns are expected to change rapidly, from external economic factors as well as the onset of construction activity, RMGC will perform an additional survey prior to construction to develop a more current and accurate understanding of existing traffic conditions. The survey will include consultation with the local population using the communications features of the *Public Consultation and Disclosure Plan* (Roşia Montană Project Environmental and Social Management System (ESMS) Plans, Plan K), as well as a baseline assessment of the condition of existing structures in the vicinity of the project and their potential vulnerability to vibration as a result of passing vehicles. The results of this survey will be reflected in appropriate updates to the monitoring program described in the *Noise and Vibration Management Plan* (ESMS Plans, Plan E) and other actions necessary to ensure that road conditions in the project area can safely and sufficiently meet the transportation needs of the project with a minimal impact on sensitive structures and the local populace. The survey will be repeated after construction, prior to the start of the operations phase of the project. Additional modifications or refinements to the *Noise and Vibration Management Plan* and other actions will be made where necessary and appropriate.

3 Anticipated Quantities of Transported Materials and Substances

Mining, processing and construction/closure activities at Roşia Montană Project will require import to the site of a broad range of materials and consumables involving environmental and health hazards, including hazardous and non-hazardous materials, process chemicals, reagents, fuels, sodium cyanide, explosives, heavy and oversized equipment (SHLO). Small amounts of recyclable and non-recyclable waste as well as final product will be transported off-site. The following table shows the annual transported quantities on off-site roads, for the main supplied or generated materials:

Table 4.10-1. Quantities Estimated to be Transported Annual

Name	Quantity
Activated Carbon	410 tonnes
Flocculant	510 tonnes
Hydrochloric acid	2,300 tonnes
Quicklime	54,000 tonnes
Sodium cyanide	13,000 tonnes
Sodium hydroxide	2,000 tonnes
Copper Sulphate	860 tonnes
Sodium metabisulphite	13,000 tonnes
Ammonium Nitrate	8,700 tonnes
Mineral oils	518 tonnes
Diesel fuel	16,500 tonnes
Gasoline	820 tonnes
Mercury	182.5 kg
Used hydraulic oil	35,040 litres
Used lubricant oil	70,080 litres
Used greasing petroleum products	17,520 litres
Used tires, batteries, electronic equipment	300 to (?)
Domestic WWTP sludge	2,059 kg
Municipal Waste	175 m ³

These quantities have been estimated at this time, and will be revised and optimized at the detailed engineering stage.

4 Anticipated Project Transportation Impacts and Mitigation/ Minimisation Measures

RMGC will establish a dedicated logistics group that is responsible for oversight and co-ordination of all mitigation measures associated with shipping and delivering activities related to Project development, operations and decommissioning/closure. The impacts that will be addressed by these specialists are discussed in the following paragraphs.

4.1 Impacts Shared in Construction, Operations, and Closure/Decommissioning Phases

As noted in Table 4.10-2, most transportation impacts are shared across all project phases and share a common set of mitigation or minimisation measures. Such impacts include:

- **Delivery of (Non-Sodium Cyanide) Reagents, Compressed Gas, and Fuel:** Mining and processing operations and other construction, operations, and closure/decommissioning phase activities will require a range of consumables (in addition to the sodium cyanide reagent transported in the operations phase; see Section 4.10.4.2) that are intrinsically dangerous to human health or the environment, and will require precautions in transportation in order to prevent or minimise potential impacts. Diesel fuel, gasoline, and liquefied petroleum gas (LPG) will be delivered and stored on site by commercial carriers, authorized for these sorts of transports. Process chemicals and reagents delivered in significant quantities may include:
 - pebble lime;
 - carbon dioxide;
 - flocculants;
 - water treatment reagents;
 - hydrochloric acid;
 - sodium metabisulphite; and
 - sodium hydroxide.

These will also typically be delivered by commercial carrier, authorized for these sorts of transports, in bulk or in various types of containers.

The potential impacts associated with transportation of reagents and other dangerous materials will be substantially reduced through the implementation of measures to minimise the likelihood of the accidental release in transit. These measures include:

- Detailed contractual requirements and responsibilities of supplier and transporter: RMGC will contract exclusively with authorized commercial carriers with a satisfactory safety record, effective driver training programs, and experience in safe and timely delivery of similar materials. As part of its contractual arrangements, RMGC will prepare written agreements with the supplier and transporter specifying which party will be responsible for specific health, safety and environmental issues during transportation. RMGC will also reserve the right to conduct its own inspections of supplier and transporter operations.
- Shipment controls: Process chemicals and reagents will arrive at the facility stored in appropriate containers (e.g. totes, drums, pails, and/or other bulk

packaging). The type of packaging, proper loading/unloading procedures and proper labelling practices must conform to international and Romanian standards for chemicals. Chemicals will be shipped in separate containers compatible with (and appropriately protective of) their contents. Chemically reactive or incompatible materials will not be shipped together in the same load.

- **Reporting:** The logistics group will report daily to affected management staff with regard to major shipments due and deliveries expected;
 - **Selection of best alternative route:** To the extent practicable, RMGC will use the safest route possible for transporting dangerous materials to the project site, considering all areas of concern including emergency response capabilities, avoidance of congested urban areas, traffic impacts, and road conditions. Negotiation of the use of the Roşia Poeni access road will be evaluated as an appropriate alternate route for certain types of SHLO shipments.
 - **Scheduling:** Transportation routes may go through a number of urban or village centres. The probability of an accident occurring due to heavy traffic conditions will be reduced considerably by scheduling transport in non-peak traffic times.
 - **Tracking systems:** GPS or communications- based tracking systems may be used by RMGC or individual transportation contractors to monitor progress and ensure rapid responses or adjustments to changing weather, road conditions, or accidents. Where necessary, RMGC will also schedule project site deliveries and outgoing shipment vehicles so that they do not interfere with the transport of SHLO equipment, sodium cyanide, waste materials or other shipments or deliveries using the same thoroughfares.
 - **Maintenance of driver communications:** RMGC may require two-way contact with drivers via cellular telephone or other electronic means. This will enable monitoring of the progress of individual shipments via planned routes; as well provide a means of emergency communications regarding road conditions, mechanical problems, weather hazards, and other transportation issues.
 - **Consultation with local authorities:** RMGC will engage in consultation with authorities from the local communities to discuss the transportation of process chemicals and reagents. The communications protocols described in the *Public Consultation and Disclosure Plan* will be applied, and RMGC will work closely with the communities to develop alternate routes and to mitigate any other impacts that may be identified.
 - **Liaison with national, local, and regional authorities:** RMGC will establish of co-operative spill response mobilisation schemes with local and regional authorities along all affected transportation routes, in accordance with the Roşia Montană Project *Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)*.
- **Explosive Deliveries:** Blasting operations require the use of substantial quantities of explosives, and rigorous handling practices and precautions are needed to ensure it is safely handled and transported. Raw materials used in bulk explosives preparation, (i.e. ammonium nitrate and fuel oil), high explosive initiators, blasting

caps, primer cord, and other materials, will be delivered to the Project site by a speciality contractor via truck delivery, potentially several times a month. The mitigation measures for explosive deliveries are generally the same as those listed above for delivery of (non-sodium cyanide) reagents, compressed gas, and fuel. In addition, the following mitigation measures apply:

- **Supplier Control:** Only qualified and duly authorised suppliers will be contracted for the delivery of explosives and associated blasting support services; and,
 - **Shipping Control:** Bulk shipments of blasting agent components (i.e. ammonium nitrate and fuel oil) will be shipped in physically separate loads in appropriately rated containers and vehicles. Blasting caps, primer cord, and initiating agents will also be individually shipped in separate loads.
- **Offsite Transportation of Municipal and Hazardous Waste:** As noted in Chapter 3, RMGC will collect and periodically ship trucks, trailer-mounted skips, or containers of municipal waste to a licensed landfill in Sibiu, pending the potential development of a regional municipal landfill near the mine site. Shipments of hazardous waste accumulated at the Temporary Hazardous Waste Storage Facility may also be made, at a low frequency, once a licensed disposal source is identified in Romania. Shipments of both municipal and hazardous waste have the potential for spillage as a result of traffic accidents, which could result in impacts on human health or the environment. Other impacts associated with such shipments include potential traffic congestion and nuisance noise in urban and village centres along the transportation route.

Mitigation measures for this set of impacts include:

- **Detailed contractual requirements for supplier and transporter:** RMGC will contract exclusively with commercial carriers that have a satisfactory safety record, effective driver training programs, and experience in safe handling and transport of waste materials. RMGC will also reserve the right to conduct its own inspections of carrier operations. Any carrier of hazardous wastes must also be properly licensed in accordance with Romanian regulations.
- **Definition of responsibilities during transport:** As part of its contractual arrangements, RMGC will prepare written agreements with the carrier specifying which party will be responsible for specific health, safety and environmental issues during transportation.
- **Tracking systems:** Communications- based tracking systems may be used by RMGC or the waste carrier to monitor progress and ensure rapid responses or adjustments to changing weather or road conditions or accidents. Where necessary, RMGC will also schedule outgoing shipment vehicles so that they do not interfere with SHLO, sodium cyanide, or other major inbound deliveries or shipments using the same thoroughfares.
- **Scheduling:** Scheduling and the selection of routes will be integrated with those of the deliveries to the project to minimise traffic on any one route or during any particular period. Transportation routes will go through a number of urban or village centres. The probability of an accident occurring, due to heavy traffic conditions, is reduced considerably by scheduling transport in non-peak traffic times (congested traffic).

- **Maintenance of driver communications:** RMGC will require drivers of municipal and hazardous waste shipments to confirm delivery via telephone. Periodic check-in contacts may also be required to enable monitoring of the progress of individual shipments via planned routes, and provide a means of communication for road conditions, mechanical problems, weather hazards, disruptions, and other issues.
 - **Liaison with national, local, and regional authorities:** RMGC will establish co-operative spill response mobilisation schemes with local and regional authorities along the transportation routes, in accordance with the Roşia Montană Project *Emergency Preparedness and Spill Contingency Plan*.
- **Non-Critical Deliveries and Workforce Transportation:** Other minor potential traffic congestion and nuisance noise impacts in urban and village centres may occur in relation to routine deliveries of non-critical consumable supplies and to general workforce transportation to and from the project site. If timing is not optimal (e.g. shift change traffic occurs at the same time as an inbound SHLO, explosives, or sodium cyanide shipment), the potential for an accident may be increased.

Mitigation measures for this impact include:

- **Scheduling:** The probability of an accident occurring due to heavy traffic conditions will be reduced considerably by scheduling transport in non-peak (e.g., non- shift change) traffic times.
 - **Employee training:** All RMGC employees will be trained in basic driving safety considerations (e.g. speed limits and rules of the road), on and off the mine site, and especially in the rights-of-way to be provided to large mining vehicles, SHLO shipments, other large trucks, ambulances, or security vehicles.
 - **Separation of workforce and visitor traffic:** Separate parking areas for visitors and employees will be provided that will be designed to minimise interference by workforce/visitor traffic with regular shipment/delivery access.
- **Heavy Equipment Delivery Impacts:** As with any mining project, heavy equipment is necessary to support all phases of mine life. Heavy equipment deliveries that will be required specifically for the construction and operation of the Project include mill shells, mill drives, crushers, pumps, etc.. A wide range of mobile mining equipment including haul trucks, water trucks, wheel loaders, tracked dozers and more, will be required (for details, see Table 2.5). Delivery of heavy equipment will take place mainly during the construction and operational phases of the project and redundant equipment will be transported from the site during decommissioning or closure, for scrap/recycle, sale or reuse.

A preliminary study was conducted at the request of RMGC in order to assess alternatives for shipping SHLO mining equipment to the Roşia Montană Project site from various entry ports in Romania, while also evaluating documentation and customs clearance procedures.² Barging and rail options were also evaluated, but are currently considered unsuitable due to the inadequacy of infrastructure to handle the given dimensions and weight. At this time it is

² See ASB Pan-Projects, 2002: "Transportation Route Survey", incorporated as Appendix A of *Basic Engineering Transportation Study Review*, SNC-Lavalin, 2003.

planned that SHLO shipments will be made by road haulage from the Port of Costanza and from other European countries to the east. Non-SHLO mining equipment will also be delivered over roadways, via Constanţa and other potential European land routes depending on equipment source.

Rail and river haulage infrastructure systems are improving slowly as Romania develops further as a market economy. A further assessment of the rail and river infrastructure will be performed before construction begins to properly define the most appropriate routes for the different types of equipment and in an attempt to minimise the amount of road traffic. It is possible that a combination of rail or river haulage connecting to road traffic may be suitable in some cases when the source locations of equipment have been finalised.

The transport of certain components of the large mining equipment is expected to require oversize trucks and trailers, or load widths that are wider than average lane width in Romania. Such circumstances will also require transport through urban and village centres. As previously noted, road conditions are such that transporting large equipment can be difficult due to poor road conditions, weather and mountainous terrain. Therefore, impacts may include traffic hazards from slow-moving trucks carrying abnormal wide loads at the beginning and the end of the Project. Potential traffic congestion and nuisance noise may also occur in urban and village centres along the transportation route.

It should be noted, however, that the existing neighbouring Roşia Poieni mine was built using the same local transportation routes. Negotiated use of the Roşia Poieni access route will be considered for SHLO shipments, as appropriate, in order to minimise potential impacts at Câmpeni, Abrud, and Gura Rosiei. The actual use of the road requires the consent of the Roşia Poieni owners and implementation of a suitable agreement.

Mitigation measures for this set of impacts include the following:

- performance of local traffic surveys and structural integrity inspections of key structures prior to the start of the construction and operations phases of the project; updates to the *Noise and Vibration Management Plan* and other actions as necessary to address the outcome of the *PCDP* process;
- evaluation and selection of only reputable SHLO transport contractors with well-trained drivers, modern equipment, and acceptable safety records;
- detailed contractual requirements for the selected supplier and transporter with regard to driver training requirements, communications, use of pilot vehicles, and other precautions as described in this list;
- assessment of potential for dismantling of equipment into smaller, more easily shipped components to more readily effect shipment, giving due consideration to the effects of increasing the total number or shipments
- selection of best alternative route to ensure that it is the safest, considering current road conditions and weather situations;
- strategic planning, scheduling and varying of the routes of deliveries to use the most appropriate access routes to minimise congestion with regular and other project related deliveries and accounting for the seasonal weather, road conditions, and minimisation of the concentration of traffic; to the extent possible, urban centres and other high risk areas will be avoided;

- scheduling transport through urban centres in non-peak traffic times to reduce the possibility of an accident occurring due to heavy traffic condition;
- use of pilot vehicles (ahead of and behind the affected SHLO load), auxiliary vehicle warning lights, and signs;
- regular (twice daily) programmed communications with SHLO shipment drivers and pilot vehicle drivers to ensure rapid response to changing weather or road conditions or accidents; the type and frequency of such communications will be established dependent on the type of load and will be agreed with the transport company;
- establishment of GPS- or communications- based tracking systems to monitor progress and ensure rapid responses or adjustments to changing weather or road conditions or accidents; Alternatively, delivery transport operators may be requested to check in at various scheduled times or locations using mobile telephones or radios; and
- scheduling of SHLO deliveries and returning vehicles so that they do not interfere with sodium cyanide or other critical shipments using the same thoroughfares.

4.2 Additional Operations-Phase Impacts

Several additional potential transportation impacts are unique to the operations phase of the project and are described as follows:

- **Sodium Cyanide Delivery:** It is estimated that approximately 13,000 tonnes of sodium cyanide per year will be consumed during the processing of ore. Approximately two truck deliveries per day (each with one 16 t container of solid form sodium cyanide) will be required to accommodate processing needs for the 16-year operational life of the mine. Transportation requirements are therefore substantial and continue as long as the processing plant is in operation.

As discussed in Section 5.13.3, sodium cyanide may be purchased from European sources (e.g. Germany), the manufacturer delivering the product via overland transport, or from international sources delivered by marine transportation to the Romanian port of Costanţa. Regardless of the source, the potential exists for release of sodium cyanide from containers breached in marine, rail or traffic accidents, which, in inopportune environmental or chemical conditions could result in negative impacts to human health or the environment. A much less likely potential exists for similar impacts to occur from the interference of protest groups or criminal/terrorist actions. In addition, as for other types of truck shipments to the Project site, sodium cyanide shipments may also contribute to general traffic congestion and nuisance noise in urban or village centres along the selected transportation routes.

The potential impacts associated with sodium cyanide transport will be substantially reduced through the implementation of measures to minimise the likelihood of the accidental release of sodium cyanide in transit. These measures include:

- Specification of product form and shipping measures: Sodium cyanide will be purchased and transported only in a less reactive solid, briquette form; all sodium cyanide shipments will be made in dedicated, strengthened, returnable, and appropriately ISO-certified containers.

- Selection of best alternative route: RMGC is committed to using the safest route possible for transporting sodium cyanide to the Project site, considering all areas of potential concern including railway safety, unloading and loading safety, emergency response capabilities, urban area considerations, waterway safety, traffic impacts, and road conditions. Preferred routes may change in response to a variety of conditions; selection of alternatives must be balanced with the feasibility of reliably receiving the procured sodium cyanide as scheduled, the capabilities of the container terminals to receive and safely handle the sodium cyanide containers, customs clearance, weather, general road conditions, known traffic hazards, and other factors.

As noted in Section 5.13.3, two preferred alternatives exist for the delivery of sodium cyanide. One alternative assumes marine delivery from qualified international sources to Constanţa, followed by truck transportation to the project site over the preferred delivery route identified in the pan-projects SHLO equipment study³ (I.E. Routing from Constanţa to the project site via Slobozia, Bucharest, Chitila, Pitesti, Rimnicu Valcea, Sibiu, Sebes, Turda, and Abrud). In order to maintain a reliable supply of sodium cyanide and to maintain the flexibility to respond to changing road conditions or weather-related issues, both of these sources and routing alternatives will potentially be employed.

A preliminary transport and logistics survey⁴ evaluated various transport routes from potential European sources. Several different combined rail/road transport routes were suggested, as noted in Section 5.13.3. Based on discussions with licensed transport companies operating in the region, it has been suggested that rail transportation be used to the extent possible in order to minimise travel time on the Romanian road system, in some cases accepting longer transport times in order to avoid potentially dangerous road conditions.

Container terminals at three possible transfer stations from rail to road were analysed, which are: Deva, Alba Iulia, and Cluj-Napoca, Romania. They are nearer to the project site and thus preferable in order to minimise the travel distance on road. The road conditions from each of the three terminals to the project site were also surveyed. The survey report describes the distance, approximate length of time to travel, mobile phone coverage and identifies general road conditions, including proximity to waterways and other potential transportation risks. In general, road conditions range from a generally “good” condition at the point of entry to Romania to “poor” nearer to the mine site, due to poor road maintenance and the greater topographical relief near Roşia Montană. There are also several locations where waterways come very close to the route representing a potential for impact should an accident occur that results in a cyanide release.

Overall road travel time is minimised by use of the two Romanian transfer-point alternatives (Deva and Cluj-Napoca) or by employing marine delivery via the Black Sea to the Romanian port of Constanţa. As discussed in Section 5, each of these alternative routes will be further evaluated prior to the final determination of the route for initial shipments of sodium cyanide at the end of the construction period, and to account for potential improvements in the Romanian railway transport and road systems that may occur in the meantime. In order to maintain a reliable supply of cyanide and to maintain the flexibility to respond to changing road conditions or weather-related issues, all of the proposed alternatives will potentially be employed. However, RMGC will reassess shipping route alternatives on at least a biannual

³ *Ibid.*

⁴ Degussa: 2002; "Transport and Logistic Survey Prepared for Gabriel Resources (Roşia Montană Gold Project)", Degussa AG, October 2002

basis throughout the operations phase, with a view towards ensuring the selection of the most safe and reliable sodium cyanide transportation routes.

- Detailed contractual requirements for supplier and transporter: RMGC will contract exclusively with sodium cyanide suppliers and transporters whose practices comply with the requirements of the *International Cyanide Management Code*.⁵ Moreover, such suppliers must demonstrate their commitment to limiting the exposure of their work forces to sodium cyanide, and must have established measures proven to prevent, control, and/or rapidly and appropriately respond to releases of cyanide to the environment. RMGC will determine whether such companies meet the necessary requirements as a responsible sodium cyanide supplier or transporter by contractually requiring that the company periodically submits to a minimum of an annual independent third-party audit of its health, safety and environmental programs and procedures for sodium cyanide transport, in accordance with the requirements of the *International Cyanide Management Code*. The contract will be prepared and issued in accordance with applicable elements of the *Roşia Montană Project Environmental and Social Management Plan* and *Cyanide Management Plan* (see **ESMS Plans, Plans A and G**). The *Cyanide Management Plan* requires that an audit be conducted by an independent third-party auditor meeting the criteria for experience, expertise and lack of conflict of interest established by the International Cyanide Management Institute. The audit must also follow the protocol for sodium cyanide production facility audits established by the Institute [see *International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold* (International Cyanide Management Institute, May 2002)]. RMGC will retain record copies of the contract and all audit results in accordance with the *Roşia Montană Project Environmental and Social Management Plan*, the *Cyanide Management Plan*, and associated standard operating procedures. RMGC will also reserve the right to conduct its own inspections of contractor operations.
- Definition of responsibilities during transport: As part of its contractual arrangements, RMGC will prepare written agreements with the sodium cyanide supplier and transporter specifying which party will be responsible for specific health, safety and environmental issues during each phase of sodium cyanide transportation. RMGC personnel assigned specific responsibilities as a result of these agreements will also receive appropriate training under the requirements of the *Roşia Montană Project Environmental and Social Management Plan* and *Emergency Preparedness and Spill Contingency Response Plan*.
- Tracking systems: GPS tracking systems may be used by RMGC or the transportation contractor to monitor progress and ensure rapid responses or adjustments to changing weather or road conditions or accidents.
- Maintenance of driver communications: In addition to the aforementioned tracking systems, RMGC will maintain two-way contact with drivers of sodium cyanide shipments via cellular telephone or other electronic means. This will enable active monitoring of the progress of individual shipments via planned routes and any deviation from those routes, as well providing a means of

⁵ International Cyanide Management Institute, *op. cit.*

emergency communications regarding road conditions, mechanical problems, weather hazards, and other transportation issues.

- **Scheduling:** RMGC will also schedule sodium cyanide deliveries and (unloaded) returning vehicles so that they do not interfere with SHLO or other equipment deliveries using the same roads. Transportation routes may transit a number of urban or village centres. All deliveries to the Roşia Montană Project site will, to the maximum extent practical, be scheduled during daylight hours to reduce the potential for accidents, to enable a more effective response in the case an accident occurs and to minimise the potential for nuisance noise outside of normal working hours. The scheduling of sodium cyanide deliveries will be integrated with other deliveries to minimise traffic congestion, with emphasis on Câmpeni, Gura Roşiei and other nearby villages and communities. Consultation with the local authorities and communities will be performed to determine the appropriate scheduling of all deliveries to the project.
- **Liaison with national, local, and regional authorities:** RMGC will establish co-operative spill response mobilisation schemes with local and regional authorities along the transportation routes, in accordance with the Project *Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)*. RMGC will also maintain liaison contacts with local police or regional security organisations and work with them to evaluate and if possible avoid any credible threatened protest or terrorist actions that could disrupt a sodium cyanide shipment or breach a shipping container.
- **Mercury Waste Shipments:** Elemental mercury is an ore processing by-product; it will be captured as a waste stream from the gold recovery and carbon reactivation circuits, from which it will be volatilised and condensed into a retort at an estimated rate of 0.5kg/day. Mercury will be collected in sealed containers and will be accumulated at the Temporary Hazardous Waste Storage Facility until shipped from the site as discussed in Chapter 3. Spillage of mercury in transit to its offsite destination is a potential impact that must be addressed with the same care as afforded other hazardous wastes; mitigation measures will be the same as noted previously.
- **Doré Bullion Shipments:** During the operations phase, RMGC will make periodic shipments of doré bullion to a precious metal refinery for the final separation of gold and silver. Because of the intrinsically high value of such shipments, there is a certain potential for criminal theft or terrorist actions, with associated endangerment of drivers, pilots, security guards, and the public. Mitigation measures will include the following:
 - **Detailed contractual requirements for secure transport services:** RMGC will contract with a properly licensed and bonded secure transport service with experience in similar shipments, using surface transport or a combination of surface/secure air transport methods. RMGC will reserve the right to conduct its own inspections of contractor operations.
 - **Tracking systems:** GPS or communications- based tracking systems will be used by RMGC or the transportation contractor to precisely monitor shipment progress and ensure rapid responses or adjustments to changing weather or road conditions, incidents, accidents, or security threats, as necessary to ensure shipment security. To the extent possible, RMGC will also schedule doré shipments so that they do not interfere with inbound SHLO, sodium

cyanide, or other major material or equipment deliveries or shipments using the same routes.

- Maintenance of driver communications: In addition to the aforementioned tracking systems, RMGC will maintain two-way contact with representatives of the secure transportation contractor via cellular telephone or other electronic means. This will enable monitoring of the progress of individual shipments via planned routes, as well providing a means of emergency communications regarding road conditions, mechanical problems, weather hazards, potential security problems, and other transportation issues.
- Scheduling: Transportation routes may go through a number of urban or village centres. The probability of endangerment of the public due to interference with a bullion shipment may be reduced considerably by scheduling transport in non-peak traffic times, by using shipment methods that do not attract undue attention, and by maximising the use of secure air transport options.
- Liaison with national, local, and regional authorities: RMGC will maintain liaison contacts with local police or regional security organisations and work with them to evaluate and avoid all credible threatened protester, criminal, or terrorist actions that could disrupt a bullion shipment.

5 Summary of Potential Transportation Impacts and Mitigation Measures

Table 4.10-2 presents, in a tabular format, the following aspects:

- the general transportation-related impacts likely to be encountered during the project;
- the mitigation measures that will be invoked to prevent or minimise such impacts;and
- the specific management plans or practices that will govern the implementation of mitigation measures.

More detailed discussion of impacts and mitigation measures is provided in Section 4.10.3. A summary of the risk assessment, associated with transportation activities, is presented in Section 4.10.6, while the detailed risk assessment is presented in Chapter 7.

Table 4.10-2. Summary of Potential Transportation-Related Impacts

Potential Impact	Mitigation Measures	Applicable Management Plans
Construction, operation, and decommissioning/closure phases		
<p>Explosion or release of fuel or other liquid contaminants and subsequent harm to human health or the environment, from traffic/rail accidents associated with the delivery of intrinsically dangerous (non-cyanide) goods or materials, including fuels, solvents, reagents and chemicals</p>	<ul style="list-style-type: none"> • <u>Evaluation and selection of reputable supply and transport contractors:</u> RMGC will seek to contract exclusively with firms that demonstrate that they employ experienced drivers with appropriate hazardous materials training, modern equipment, and superior safety records. • <u>Detailed contractual requirements and responsibilities of supplier and transporter:</u> RMGC will prepare written agreements with the supplier and transporter specifying which party will be responsible for specific health, safety and environmental issues during transportation. RMGC will also reserve the right to conduct its own inspections of supplier and transporter operations. • <u>Shipment Controls:</u> Process chemicals and reagents will be purchased in appropriate containers; packaging, loading/unloading procedures, and labelling practices will conform to international and Romanian standards for the chemicals concerned. Incompatible chemical components will be separated in shipment to prevent cross-contamination or dangerous chemical reactions. • <u>Monitoring and reporting:</u> The RMGC logistics group will monitor deliveries of fuels, solvents, reagents and chemicals, and submit daily reports to management regarding anticipated arrivals. • <u>Strategic planning, scheduling and varying of delivery routes:</u> RMGC will adjust plans and schedules as necessary in order to use the most appropriate access routes, to minimise congestion with regular and other Project-related deliveries. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic concentration. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. • <u>Communications protocols:</u> Regularly programmed communications with drivers will be required to ensure rapid response to changing weather or road conditions or responses to accidents. • <u>Engagement of local authorities:</u> Authorities in affected communities will be consulted to discuss schedules and practices for the transportation of process 	<ul style="list-style-type: none"> • Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i>

Potential Impact	Mitigation Measures	Applicable Management Plans
<p>See above</p>	<p>chemicals and reagents and its potential timing; alternate routes and other potential mitigation measures will be developed as appropriate.</p> <ul style="list-style-type: none"> • <u>Co-operative spill/emergency response mobilisation schemes</u>: RMGC will work with local and regional authorities on affected transportation routes to establish co-operative spill/emergency response mobilisation schemes 	<p>See above</p>
<p>Explosion or release of potentially explosive material and subsequent harm to human health or the environment, as a result of traffic/rail accidents associated with the delivery of explosives</p>	<ul style="list-style-type: none"> • <u>Evaluation and selection of highly reputable explosives contractors</u>: RMGC will establish comprehensive explosives supply and service agreements with reputable suppliers/contractors operating to international best management practices (BMPs) and who have superior safety records. • <u>Detailed contractual requirements and responsibilities for the selected explosives contractor</u>: RMGC will prepare written agreements with the selected explosives contractor that define specific responsibilities for health, safety, and environmental issues during transportation. RMGC will also reserve the right to conduct its own inspections of contractor operations. • <u>Shipment Controls</u>: Explosives will be delivered in appropriate containers and appropriately rated vehicles; packaging, loading/unloading procedures, and labelling practices will conform to international and Romanian standards for the materials concerned. Detonators and primer cord will not be shipped with high explosive initiators or ammonium nitrate/fuel oil (ANFO) components. Ammonium nitrate will be shipped by itself in separate loads and appropriately rated containers. • <u>Monitoring and reporting</u>: The RMGC logistics group will monitor anticipated of deliveries of explosive materials, and submit daily reports to management regarding anticipated arrivals. • <u>Strategic planning, scheduling, and varying of delivery routes</u>: RMGC will adjust plans and schedules as necessary in order to use the most appropriate access routes and thereby minimise congestion with regular/ other Project-related deliveries. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic concentrations. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. 	<ul style="list-style-type: none"> • Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i>

4.10 Transportation

Potential Impact	Mitigation Measures	Applicable Management Plans
See above	<ul style="list-style-type: none"> • <u>Communications protocols</u>: Regularly programmed communications with drivers will be required to ensure rapid response to changing weather, road conditions, or accidents. • <u>Engagement of local authorities</u>: Authorities in affected communities will be consulted to discuss schedules and practices for the transportation of explosives; alternate routes and other potential mitigation measures will be developed as appropriate. • <u>Co-operative spill/emergency response mobilisation schemes</u>: RMGC will co-ordinate with local and regional authorities along transportation routes to establish co-operative spill/emergency response mobilisation schemes for potential accidents involving explosive materials. 	See above
Potential for spillage of municipal waste shipped for offsite disposal as a result of traffic accidents, and subsequent harm to human health or the environment	<ul style="list-style-type: none"> • <u>Evaluation and selection of reputable waste transport contractors</u>: RMGC will contract exclusively with waste transport contractors who can demonstrate that they have well-trained drivers, modern equipment, and acceptable safety records. • <u>Strategic planning, scheduling and varying of delivery routes</u>: RMGC will adjust plans and schedules as necessary in order to use the most appropriate access routes, to minimise congestion with regular and other Project-related deliveries and traffic. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic congestion. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. • <u>Communications protocols</u>: Regularly programmed communications with drivers will be required to ensure rapid response to changing weather, road conditions, or accidents. • <u>Engagement of local authorities</u>: Authorities in affected communities will be consulted to discuss schedules and practices for the transportation of municipal waste; alternate routes and other potential mitigation measures will be developed as appropriate. 	<ul style="list-style-type: none"> • Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i> • <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i>
Potential traffic congestion and nuisance noise in urban and	<ul style="list-style-type: none"> • <u>Training</u>: All employees will be trained regarding RMGC expectations for driving 	<ul style="list-style-type: none"> • <i>Section 4.2, Roşia Montană</i>

Potential Impact	Mitigation Measures	Applicable Management Plans
village centres from worker/visitor transport, as well as potential interference with delivery and shipment vehicles	<p>safety, observation of speed limits, and rules of the road</p> <ul style="list-style-type: none"> • <u>Designated parking areas</u>: Designated parking areas will be established for visitors and employees that minimise interference with regular shipment/delivery routes. 	<p><i>Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i></p> <ul style="list-style-type: none"> • <i>RMGC Occupational Health and Safety Plan</i>
Potential traffic congestion and nuisance noise in urban and village centres from shipment of equipment and general mine-related transportation of non-hazardous goods, materials, equipment, and wastes	<ul style="list-style-type: none"> • <u>Strategic planning, scheduling and varying of delivery routes</u>: RMGC will adjust plans and schedules as necessary in order to use the most appropriate access routes, to minimise congestion with regular and other Project-related deliveries and traffic. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic concentration. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. • <u>Engagement of local authorities</u>: Authorities in local communities will be consulted to discuss general transportation issues; alternate routes and other potential mitigation measures will be developed as appropriate. 	<ul style="list-style-type: none"> • Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i>
Traffic hazards from slow-moving trucks carrying super-heavy lift and over-dimensional (SHLO) mining equipment wider than the average Romanian highway lane width and potential traffic congestion and nuisance noise in urban and village centres from such shipment	<ul style="list-style-type: none"> • <u>Evaluation and selection of reputable SHLO transport contractors</u>: RMGC will seek to contract exclusively with firms that employ well-trained drivers, modern equipment, and superior safety records. • <u>Detailed contractual requirements and responsibilities of supplier and transporter</u>: RMGC will prepare written agreements with the supplier and transporter specifying which party will be responsible for health, safety and environmental issues during SHLO transportation. RMGC will also reserve the right to conduct its own inspections of supplier and transporter operations. RMGC will also assess the potential for dismantling of equipment into smaller, more easily shipped components to more readily effect shipment, giving due consideration to the effects of increasing the total number of shipments • <u>Shipment Controls</u>: Pilot vehicles with warning lights will be required, preceding and following each load; marking/signage practices will conform to international BMPs and Romanian standards. 	<ul style="list-style-type: none"> • Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i> • <i>Noise and Vibration Management Plan (ESMS Plans, Plan J)</i>

Potential Impact	Mitigation Measures	Applicable Management Plans
See above	<ul style="list-style-type: none"> • Monitoring and reporting: The RMGC logistics group will monitor deliveries of SHLO equipment and submit daily reports to management regarding anticipated arrivals. • Strategic planning, scheduling and varying of delivery routes: RMGC will adjust plans and SHLO equipment receipt schedules as necessary in order to employ the most appropriate access routes and minimise congestion with regular and other Project-related traffic. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic concentration. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. RMGC may also negotiate for the use of the Roşia Poieni access road as an alternate route for delivery of certain SHLO and other large, heavy loads. • Communications protocols: Regularly programmed communications with pilot cars and SHLO delivery truck drivers will be required to ensure rapid response to changing weather, road conditions, or accidents. The type and frequency of such communications will be established dependent on the type of load and will be agreed with the transport company. SHLO loads will typically be subject to twice daily communications, which will provide the means to mitigate specific delivery problems and provide the ability to re-route traffic as necessary. GPS- or communications-based tracking systems may also be employed to monitor progress and ensure rapid response to changing weather, road conditions, or accidents. 	<p>Plans, Plan E)</p> <p>See above</p>
Potential for spillage of hazardous wastes (including elemental mercury produced as smelting by-product) as a result of traffic accidents, and subsequent harm to human health or the environment ⁶	<ul style="list-style-type: none"> • Evaluation and selection of reputable waste transport contractors: RMGC will contract exclusively with reputable waste transport contractors with experienced drivers who have appropriate hazardous waste training, well as modern equipment and acceptable safety records. • Strategic planning, scheduling and varying of delivery routes: RMGC will adjust plans and schedules as necessary in order to use the most appropriate access routes, to minimise congestion with regular and other Project-related deliveries and traffic. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic concentration. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. 	<ul style="list-style-type: none"> • Sections 4.3, 4.6, and 5.3, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i> • <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i>

⁶ Until an appropriately permitted hazardous waste landfill is developed in Romania, RMGC will store hazardous wastes at a controlled interim hazardous waste storage facility on-site. The identified potential impacts and the mitigation measures related to hazardous waste transport apply only to the transport of hazardous waste off-site.

4.10 Transportation

Potential Impact	Mitigation Measures	Applicable Management Plans
See above	<ul style="list-style-type: none"> <u>Communications protocols</u>: Regularly programmed communications with hazardous waste drivers will be required to ensure rapid response to changing weather or road conditions or responses to accidents. <u>Engagement of local authorities</u>: Authorities in affected communities will be consulted to discuss schedules and practices for the transportation of hazardous waste; alternate routes and other potential mitigation measures will be developed as appropriate. 	See above
Operations phase only		
From sodium cyanide delivery, potential release of sodium cyanide from traffic accidents or potential protester or terrorist actions, and subsequent harm to human health or the environment	<ul style="list-style-type: none"> <u>Physical form requirements for sodium cyanide</u>: RMGC procurement documents will require sodium cyanide to be delivered in non-liquid (solid briquette) form, in certified containers. <u>Detailed contractual requirements and responsibilities of supplier and transporter</u>: RMGC will prepare written agreements with the supplier and transporter specifying which party will be responsible for specific health, safety and environmental issues during sodium cyanide transportation. Periodic third-party audit of supplier and transporter will be per the Project <i>Cyanide Management Plan</i> and the <i>International Cyanide Management Code</i>.⁷ RMGC will also reserve the right to conduct its own inspections of supplier and transporter operations. <u>Strategic planning, scheduling and varying of delivery routes</u>: RMGC will adjust plans and schedules as necessary in order to use the most appropriate access routes, to minimise congestion involving sodium cyanide shipments and other Project-related deliveries and traffic. Due consideration will be given to seasonal weather, road conditions, and minimisation of traffic concentration. The use of roads through urban and village centres will be avoided to the extent possible, especially during peak traffic conditions. Reassessment of delivery route alternatives will be conducted at least every 24 months. <u>Careful evaluation and avoidance of any credible protester or terrorist threats</u>: RMGC will monitor such threats through continued liaison and communications with local police or regional security organisations. 	<ul style="list-style-type: none"> Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i> <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i> <i>Cyanide Management Plan (ESMS Plans, Plan G)</i>

⁷ International Cyanide Management Institute, May 2002; *International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold*

Potential Impact	Mitigation Measures	Applicable Management Plans
See above	<ul style="list-style-type: none"> • <u>Use of automated tracking systems:</u> RMGC will employ GPS- or other communications- based tracking systems to monitor sodium cyanide shipment progress, and to better ensure rapid response to changing weather, road conditions, or accidents. • <u>Communications protocols:</u> Daily programmed communications with drivers will be conducted to ensure regular communications and rapid response to changing weather or road conditions or accidents, as necessary. • <u>Engagement of local authorities:</u> Authorities in affected communities will be consulted to discuss schedules and practices for the transportation of hazardous waste; alternate routes and other potential mitigation measures will be developed as appropriate. 	See above
Potential criminal or terrorist actions associated with offsite shipment of doré bullion for gold and silver separation, with associated endangerment of drivers, security guards, and the public	<ul style="list-style-type: none"> • <u>Selection of licensed and bonded transportation contractor/security service and strategic planning, scheduling and varying of delivery routes:</u> RMGC will select only license and bonded contractors, and will evaluate and select routes with best combination of weather, road conditions, and minimal traffic; urban centres/other high risk areas will be avoided if possible. • <u>Careful evaluation and avoidance of any credible protester or terrorist threats:</u> RMGC will monitor such threats through continued liaison and communications with local police or regional security organisations. • <u>Use of automated tracking systems:</u> RMGC will employ GPS- or other communications- based tracking system to monitor doré bullion shipment progress, and better ensure rapid response to changing weather, road conditions, or accidents. • <u>Communications protocols:</u> Daily programmed communications with drivers will be conducted to ensure regular communications and rapid response to changing weather or road conditions or accidents, as necessary. • <u>Co-operation with local authorities:</u> RMGC will establish co-operative emergency response mobilisation schemes with local and regional authorities along affected transportation routes. 	<ul style="list-style-type: none"> • Sections 4.3, and 4.6, <i>Roşia Montană Project Environmental and Social Management Plan (ESMS Plans, Plan A)</i> • <i>Emergency Preparedness and Spill Contingency Plan (ESMS Plans, Plan I)</i> • <i>Public Consultation and Disclosure Plan (ESMS Plans, Plan K)</i>

6 Summary of Risks Associated with Transportation Activities

In assessing the consequences of major accidents involving transportation of dangerous substances, several accident scenarios were considered and assessed in more detail, including:

- Road/railroad traffic accidents in the delivery of goods and materials
- Chemical/fuel spills associated with traffic/transport accidents
- Fires and explosions associated with traffic/transport accidents
- Potential release of sodium cyanide briquettes during transport to the RM Project site
- Road and occupational accidents
- Road/railroad traffic accidents in the delivery of goods and materials.

The results of qualitative risk analysis show that all the accident scenarios considered involve low or very low risks. However, it was considered useful and necessary to provide a more detailed analysis, based on a quantitative risk assessment for a scenario related to the transport of sodium cyanide during the operation phase of the project, for which consequences might be major, and therefore classify it as a potentially major accident.

Chemicals and reagents for the operational phase of the RMP may require importation and hence may present a transboundary risk. An example is sodium cyanide, a toxic material, currently used in many industries in Romania and neighbouring states and throughout the EU and North America. This is currently produced in Romania but there are questions over the reliability of its production and whether its production can meet the terms set by the international cyanide management code. The RMP would require sodium cyanide to be supplied at a rate of around 11,000 to 12,000 tonnes per year.

This transportation presents a hazard of spillage of sodium cyanide onto soils or into water with potential exposure of humans and wildlife to toxic levels of cyanide. The concentration and volume of CN that would need to be transported (20 tonnes/load) could result in a major impact if release of a full load were to occur.

Various route options for this delivery have been identified and one aim of the transport system will be to maximise the use of rail. The risk of accidental spillage to occur will be significantly reduced by adoption of the practices set down in the cyanide Code, as incorporated on site in the *RMGC Cyanide Management Plan*.

The basic control system to be employed to maximise safety and reduce risk as much as possible include:

- Sodium cyanide to be transported in state of the art, Hi-tech containerised ISO certified steel tankers that will be resistant to rupture in the event of an accident;
- CN will be in solid briquette form during transportation and not liquid;
- At delivery, CN will be liquefied and pumped to the storage tanks direct from the transport tanker with no intermediate handling or storage;

- All hauliers will be subject to strict control monitoring and audit systems to ensure they comply with the Code;
- Full load tanking and communication during transport to allow rapid response to any accidents.

While a risk of accident remains, the control systems, the route selection and the method of transport combine to reduce risk of any potential transboundary impacts to a minimum.