



APPROVED
GENERAL MANAGER

Spill Prevention and Control Plan

ENDORSED:

**Executive Director
Systems Director**

Permitting, Compliance and Management

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CONTENTS

1. CHAPTER I - GENERAL	5
1.1. AIM.....	5
1.2. SCOPE.....	5
1.3. LEGAL BASIS	5
1.4. DEFINITIONS.....	5
2. CHAPTER II – TECHNICAL MEMORANDUM	7
2.1. USE IDENTIFICATION DATA	7
2.2. SITE. SCOPE OF ACTIVITY [09], [11]	7
2.3. WATER SUPPLY [10], [18]	9
2.3.1. <i>Drinking Water Supply</i>	9
2.3.2. <i>Process Water Supply</i>	9
2.4. WASTEWATER TREATMENT PLANTS, AND DISCHARGE SEWERS FOR DOMESTIC, INDUSTRIAL AND STORM WATERS [10], [18].....	10
2.4.1. <i>Domestic and industrial wastewaters</i>	10
2.4.2. <i>Storm Waters</i>	10
2.5. DECISION OF THE COMPANY MANAGEMENT TO APPOINT A SPILL CONTROL TEAM [01]	11
2.6. MAIN ELEMENTS OF ACCIDENTAL SPILLS [01]	11
2.7. ACTION IN CASE OF ACCIDENTAL SPILL OCCURRENCE OR IN THE EVENT OF IMMINENT POLLUTION OF WATER RESOURCES	11
2.7.1. <i>Spill Prevention and Control Plans [01]</i>	11
2.7.2. <i>The Spill Warning System</i>	11
3. CHAPTER III - SPILL PREVENTION AND CONTROL PLANS FOR EACH ACTIVITY SECTOR OR FIELD	12
3.1. BRIEF TECHNICAL PRESENTATION MEMORANDUM OF THE INSTALLATIONS THAT MIGHT GENERATE ACCIDENTAL POLLUTION	12
3.1.1. <i>The Spill Warning System Presented in the Accidental Spill Warning Procedure</i>	12
3.1.2. <i>Action of the Spill Prevention and Control Responsible Personnel</i>	12
3.1.3. <i>Spill Prevention Measures and Related Works (Table No. 4)</i>	12
3.2. CRITICAL POINT AREA PLAN	12
3.3. PROCESS CHART WITH INDICATION OF CRITICAL POINTS	12



ANNEXES AND TABLES	13
Annex No. Methodology for the development of Spill Prevention and Control Plans	14
Annex No. Operational Procedure for the Spill Warning System	16
Annex No. Flow chart of the Procedure for the Spill Warning System	20
Annex No. Table of the Competent Authorities that Need to be Notified in case of Accidental Water Pollution	21
Table No. 1 Composition of the accidental spill control team [01], [16], [21]	23
Table No. 2 List of critical points on the site that might generate accidental spills [01], [10], [11], [12], [19], [20], [21]	29
Table No. 3 Potential pollutant sheet [01], [06], [07], [17], [20].....	34
Table No. 4.0.0. Scheduled measures and works for the prevention of accidental spills for : (b) on-Site transport [01], [11], [12], [16], [21].....	38
Table No. 4.0 Scheduled measures and works for the prevention of accidental spills for : (A) Mine areas [01], [11], [12], [16], [21].....	38
Table No. 4.1. Scheduled measures and works for the prevention of accidental spills for : (C1) Sodium cyanide solution holding tank [01], [11], [12], [20].....	39
Table No. 4.2. Scheduled measures and works for the prevention of accidental spills for : (C2) Hydrochloric acid holding tank [01], [11], [12].....	40
Table No. 4.3. Scheduled measures and works for the prevention of accidental spills for : (C3) Leaching tanks [01], [11], [12], [20]	40
Table No. 4.4. Scheduled measures and works for the prevention of accidental spills for : (C4) Tailings Thickener [01], [11], [12], [20]	42
Table No. 4.5. Scheduled measures and works for the prevention of accidental spills for : (C5) DETOX Cyanide Neutralization Facility [01], [11], [12], [20]	42
Table No. 4.6. Scheduled measures and works for the prevention of accidental spills for : (C6) Rich solution holding tank [01], [11], [12], [20].....	44
Table No. 4.7. Scheduled measures and works for the prevention of accidental spills for : (C7) Metabisulphite solution storage tank ; Copper sulphate solution storage tank [01], [11], [12]	44
Table No. 4.9. Scheduled measures and works for the prevention of accidental spills for : (C9) Sodium hydroxide solution holding tank [01], [11], [12].....	45
Table No. 4.10. Scheduled measures and works for the prevention of accidental spills for : (C10) Lime wash holding tank [01], [11], [12]	45
Table No. 4.11. Scheduled measures and works for the prevention of accidental spills for : (C11) Wet grinding [01], [11], [12], [20]	47
Table No. 4.12. Scheduled measures and works for the prevention of accidental spills for : (C12) Desorption Area [01], [11], [12], [20].....	47
Table No. 4.13. Scheduled measures and works for the prevention of accidental spills for : (C13) Process water holding tank; Sodium Hypochlorite storage containers [01], [11], [12], [20]	49
Table No. 4.14. Scheduled measures and works for the prevention of accidental spills for : (C14) ARD Neutralization Plant – Lime Wash Reactor ; Settling Tank [01], [11], [12].....	49
Table No. 4.15. Scheduled measures and works for the prevention of accidental spills for : (C15) Fuel holding tank [01], [11], [12]	51
Table No. 4.16.a. Scheduled measures and works for the prevention of accidental spills for : (C16) Cyanide solution handling systems ; Cyanide containing slurry handling and/or preparation systems ; Cyanide containing solution/suspension handling systems - (pipes, connections, pumps) [01], [11], [12], [20]	51
Table No. 4.16.b. Scheduled measures and works for the prevention of accidental spills for : (C16) Hydrochloric acid solution handling systems ; Sodium hydroxide solution handling systems (pipes, connections, pumps) [01], [11], [12].....	53
Table No. 4.17. Scheduled measures and works for the prevention of accidental spills for : (D) Slurry mains; Settled TMF water handling pipe; ARD transport pipe from Cetate Dam to the Neutralization Plant (ARD) [01], [11], [12], [18], [19], [20], [21]	54



Table No. 4.18. Scheduled measures and works for the prevention of accidental spills for : (E) The TMF [01], [11], [12], [18], [19], [20], [21]	55
Table No. 4.19. Scheduled measures and works for the prevention of accidental spills for : (F) ARD Containment Dam [01], [10], [11], [12], [18], [21].....	56
Table No. 4.20. Scheduled measures and works for the prevention of accidental spills for : (G) Waste rock stockpile [01], [10], [11], [12], [18], [21].....	57
Table No. 5. COMPOSITION OF RESPONSE TEAMS [01]	58
Table No. 6. List of necessary facilities and equipment in stopping accidental spills [01], [21]	59
Table No. 7. Annual training schedule for the workers in critical points and response teams [01], [16], [21]	60
Table No. 8. Management responsibilities [01], [16], [19], [21]	61
Table No. 9. List of the support providing units in case of accidental spill occurrence	62
Table No. 10. List of potentially impacted downstream users.....	64
DISTRIBUTION LIST FOR THE SPILL PREVENTION AND CONTROL PLAN	65
Table of updates and revisions	66
REFERENCES	67

ATTACHED DOCUMENTS - PLATES

(Plan No. 1) General Site Plan of the Company, with the location of the main facilities sc. 1:25000

(Plan No. 2) General process flow chart, with critical point location



1. CHAPTER I - GENERAL

1.1. Aim

A Spill Prevention and Control Plan is developed in order to protect water resource quality. [01]

1.2. Scope

A Spill Prevention and Control Plan is developed by any potential polluting user or for uses where events may cause accidental pollution of the water resource. [01], [02], [03]

The Spill Prevention and Control Plan is an integral part of the Water Management Permit issued by NA "Romanian Waters" or its local branches. [02]

1.3. Legal Basis

- **EGO 195/2005** on environmental protection, as amended (EGO 164/2008, EGO 114/2007, EGO 57/2007, Law 265/2006);
- **Law No. 107/1996** – the Water Law, amended by L 146/2010, EGO 3/2010, EGO 130/2007, EGO 12/2007, **Law No. 112/2006** and **Law No. 310/2004**;
- **Joint Ministerial Order No. 638/2005 of the MEWM and 420/SB/2005 of the MIA** approving the Regulations for the Management of Emergencies generated by floods, hazardous weather events, accidents involving hydrotechnical structures an accidental pollution and the Framework Norms for he supply of operative response material and equipment for floods, ice and accidental spills
- **Order 278/1997 of the MWEP** approving the framework methodology for the development of accidental pollution prevention and control plans for potentially polluting water uses;
- **RGD No. 2288/2004** approving the distribution of the main support positions provided in the ministries, other central organizations, and non-governmental organizations in emergency prevention and management;
- **EGO 21/2004** on the National Emergency Management System, approved and amended by Law 15/2005;
- **Order 161/2006 of the MWEP** approving the Norms for the classification of surface water quality in order to establish the ecological state on water bodies

1.4. Definitions

Accidental pollution – any change of the physical, chemical, biological or bacteriological properties caused by an accident, failure, or other similar factor, following an error, omission, negligence or natural calamity and making the water improper for the same use as prior to pollution; As a rule, accidental pollution is high intensity and short term. [01]

Accidental pollution of surface and ground water resources is a type of risk that generates **emergencies**. [03]

State of emergency – exceptional, non-military event, that by its size or intensity, poses a threat to the life and health of the population, the environment, important material and cultural assets, and where the re-establishment of normality requires the adoption of urgent measures and actions,



allocation of additional resources and consistent management of the deployed forces and facilities .
[05]

Management of emergencies generated by accidental spills – identification and monitoring, stakeholder notification, public warning, assessment, containment, removal or mitigation of risk factors [03]

State of alert – refers to immediate implementation of action plans and preventative measures, public warning, containment and removal of an emergency's effects; [05]

Critical points – points within the facility where products spills may occur (semi-processed, intermediate substance in various process stages, finished products, fuels or other solid or liquid materials) that, once penetrating into the storm sewerage, water supply, sewerage systems, in the soil or into direct water discharges into natural receptors might cause accidental environmental pollution; [01]

Potential pollutants – substances that may cause pollution ;[02]

State of alert in spill situations – a state declared in cases of imminent threat or occurrence of water resource pollution and refers to immediate implementation of action plans and preventative measures, public warning, containment and removal of an accidental pollution; [01], [05]

Prevention and control of water resource accidental pollution – all the measures and actions involving: preventative measures, response preparedness and control structures and devices, operative action in tracking the pollution wave, containment, collection, neutralization and destruction of the pollutants, measures to resume the normal situation and the ecological balance.[01], [02], [03]



2. CHAPTER II – TECHNICAL MEMORANDUM

2.1. Use Identification Data

User: RMGC
Water use: RMGC
Address: Str. Piață, nr. 321, Roșia Montană-517615, jud. Alba
SRN: Commercial Register:
Telephone:
Fax :
Hotline:
Watercourse collecting the wastewater discharges (please specify cadastre code):
- p. Corna - IV-1.081.10.02.00.0
- p. Rosia Montana - IV-1.081.10.04.00.0
- p. Abrud - IV-1.081.10.00.00.0

Water user cadastre code: TBD by SGA Alba, only after the completion of waterside or water-related facilities and/or commissioning thereof

2.2. Site. Scope of Activity [09], [11]

RMGC is located in the jurisdiction of Rosia Montana Commune, and Abrud Town, County of Alba, in the watershed of Abrud stream, a right-hand side tributary of the Aries River.

The Company is accessible by DJ 742 la DN 74 Alba Iulia – Abrud - Brad (via Corna) and DN 74A Abrud – Campeni (via Rosia Montana). DN 74A road provides connection to DN 75 Turda – Oradea.

The scope of activity is gold and silver exploration and mining on the Rosia Montana site (in the Metaliferi Mountains) and the metallurgical processing of such ores.

The Process Flow mainly consists of the following processes, in Company owned production capacities:

- Open cast mining works in four mines, (Cetate, Carnic, Orlea, Jig), of which the first three already contain historic mines.

- Ore extraction proper, by blasting in drilled holes
- Loading by excavators and 19.5 m³ cup front loaders and on-site transportation of the ore from the mine to the processing plant, waste rock piles of low grade ore piles in 150t trucks.
- Water drainage in the open cast mines via drainage canals, drainage wells and sub-horizontal gravitational drains

Ore preparation, at the Processing Plant, in order to extract the metal (gold and silver) content by conventional cyanide leaching processes, electrolytic metal recovery and metallurgical processing of gold and silver alloy (doré) ingots.

A. Main processes

- Extracted ore grinding and grading
 - primary ore crushing;
 - two –step wet grinding (semi-autogenous mill in step I and two ball mills in step II)
 - ground material grading by hydro-cyclons and volumetrically;
 - metal extraction using the cyanide ore concentration technology (CIL procedure)
 - sodium cyanide leaching of the ground ore, in the CIL tanks;
 - gold and silver adsorption on activated carbon, in the CIL tanks;



- Gold and silver elution-stripping from the activated carbon, and storage of the rich solution
 - hydrochloric acid washing in acid rinsing towers, of the activated carbon with the adsorbed metals, to remove chalk deposits;
 - precious metal stripping from the activated carbon surface in elution towers, with an alkaline cyanide solution and directing the pregnant solution to the concentrate elute tank..
 - activated carbon regeneration, in reactivation furnaces;
- Recovery of gold and silver from the concentrated elute;
 - concentrated elute processing by electrolysis, with stainless steel electrodes;
 - electrode washing under water jet and press filter dehydration of the resulting sludge; mercury recovery from the filter cake using a thermal procedure, in the mercury retort;
 - metallurgical processing of the precipitate containing precious metals in the retort, by smelting in induction electrical furnaces;
 - doré ingot pouring and recovery of the smelting slag
- Tailings thickening and transport to the neutralization plant;
 - mixing of the tailings slurry from the CIL leaching circuit with flocculants (Magnafloc 155), to assist in settling of the solids;
 - directing the resulting overflow to the wet grinding circuit, in order to recover and reuse the cyanide content;
 - directing thickened tailings to the neutralization (DETOX) plant;
- Tailings slurry detoxification based on INCO procedure, SO₂/air oxidation;
 - dilution of the thickened slurry with water from the wastewater treatment plant;
 - slurry treatment with SO₂ provided as a metabisulfite solution and compressed air bubbled into the plant reactors;
 - providing the catalytic copper ions for the oxidation reaction, by adding copper sulfate solution;

B. Ancillary processes

- Transport of materials, finished products and waste
 - transport from the suppliers to the site;
 - transport from the site to the beneficiaries;
 - on-site transport;
 - pipe tailings transport
 - solid (domestic ad industrial) waste transport off site
- Energy and utilities services
 - water supply – water abstractions, water treatment plants, water transport systems;
 - electricity supply
 - fuel supply;
 - domestic wastewater discharge – domestic sewers, storm water drains and WWTPs;
- Storage of materials, finish products and waste
 - cyanide storage;
 - storage of various reagents;
 - explosives storage;
 - fuel and lubricant storage
 - Heating Plant fuel storage
 - mercury storage;
 - low grade ore storage – in low grade ore stockpiles;
 - waste rock disposal – in waste rock piles;
 - tailings disposal - into the settling pond (TMF)



2.3. Water Supply [10], [18]

2.3.1. Drinking Water Supply

Abstraction sources and installations:

- the drinking water source is the same as for process water, i.e. the Aries River;

Treatment installations

- treatment of some fresh water after softening will be provided in a drinking water treatment plant including filtering, chlorination and ultraviolet treatment;

Distribution facilities

- pumping station, drinking water storage tank, distribution system for internal users

2.3.2. Process Water Supply

Abstraction sources and installations

Process water supply sources include:

a) Aries River, via a riverbed abstraction upstream of the discharge into the Abrud, i.e. a seepage gallery below the river bed, directing the water into the admission chambers of a pumping station;

- pumping station directing the water to the site, located in the abstraction area, and equipped with three pumps, of 175 m³/h pumping rate each;
- steel pipe for fresh water transport from the pumping station to the Process Plant, 250 mm in diameter and 11.6 km long;
- fresh water tank, located in the Process plant, 40 m diameter and 12 m high– volume : 15,000 m³;

b) Settled water circuit from the Corna Valley TMF via floating hydraulic pumps located in the TMF lagoon and directing the settled water to an ancillary pumping station, and on to the process water tank at the Process Plant, through a 1.6 km long PN 8 HDPE pipeline;

c)- ARD dam Cetate (maximum volume 508,000 m³), via floating hydraulic pumps that direct the ARD to the ARD/WWTP located in the Process Plant, through a 356 mm diameter. 1.8 km long mains;

d)- Drainage collection dam on Carnic stockpile, of 10,000 m³ maximum volume, where the water is pumped on to the WWTP;

e)- Storm water collection dam at the Process Plant, of 16,500 m³ maximum storage volume, where the water is pumped on to the Process plant, for use in the technological process;

Treatment installations

a) Fresh water abstraction from Aries River.

- filters, softening plant
- softened water storage tank

b) Recycled process water from the decant pond of the TMF is not additionally treated before storage into the process water tank ;

c) Cetate Dam water is treated at the ARD/WWTP by neutralization/ lime precipitation treatment

d) Carnic pile drainage Dam water is treated at the ARD/WWTP

e) water in the storm water collection dam at the Process Plant is not treated, and is used for tailings dilution prior to pumping into the TMF;



Distribution facilities

- a) pumping stations, storage tanks, distribution system for internal users

2.4. Wastewater Treatment Plants, and discharge sewers for domestic, industrial and storm waters [10], [18]

2.4.1. Domestic and industrial wastewaters

- a)- Domestic wastewaters will be directed through the domestic WWTP and then discharged into the TMF through a connection to the neutralized slurry TMF discharge pipe;
- b)- ARD from historic mine workings, waste rock piles and low ore stockpiles of the operating mines, after passing through the WWTP will discharge into either the Corna or the Rosia Montana Valleys, should additional water be needed to provide the minimal discharge thereof;
- c) Wastewaters from the cyanide leaching circuit will discharge into the TMF with the DETOX neutralized slurry and then recycled into the process water supply system;
- d) Settled TMF water will be recycled as process water and discharged into the Corna stream after treatment in a secondary cyanide removal plant only in case of extreme weather conditions, i.e. occurrence of two consecutive Maximum Probable Precipitation events.

2.4.2. Storm Waters;

- a) Storm waters on the Process Plant site will be collected into a dam located on the site, in order to be used, without treatment, in the grinding process.
- b) Surface runoff from the two slopes of Rosia Montana valley and underground seepage through historic galleries are collected in the Cetate Dam, and then treated at the ARD WWTP.
- c) Storm waters on the Carnic area are collected into the Cardic residual drainage holding dam and directed to the ARD/WWTP.
- d) Storm waters from areas surrounding the TMF will collect into its lagoon.
- e) Storm waters off site are diverted by drains, so as to circumvent the site and potentially contaminating areas, then gravitationally discharged into the Rosia Montana and Corna streams, downstream of the two dams.



2.5. Decision of the company management to appoint a spill control team [01]

The General Manager will decide on the establishment of the spill prevention team, to be attached to this plan.

A table listing the nominal composition and responsibilities of this team shall be attached to this decision. (**Table No. 1**)

2.6. Main elements of accidental spills [01]

- Critical Points – water pollution (**Table No. 2**)
- Potential pollutants – presentation sheets (**Table No. 3**)

2.7. Action in case of accidental spill occurrence or in the event of imminent pollution of water resources

2.7.1. Spill Prevention and Control Plans [01]

Methodology for the development of Spill Prevention and Control Plans

The methodology shows how to develop of accidental pollution prevention and control plans for each sector or field of activity involving accidental spills, according to **Annex No. 1**, based on an inventory of the activities, work places, and installations identified as Critical Points in **Table No. 2**, and the potential pollutant sheets presented in **Table No. 3**;

General Site Plan of the Company, with the location of the main facilities sc. 1:25000 (Plan no. 1)

General process flow chart, with critical point location (Plan no. 2)

2.7.2. The Spill Warning System

Presentation of the operational procedure for the Spill Warning System (POM) (Annex no.2)

Flow chart of the procedure for the Spill Warning System (Annex no.3)

Table with the designated persons at various levels of responsibility in the Company that need to be notified in case of spill occurrence (Table no. 1) and in every activity sector or field (Table no. 8)

Table of the competent authorities that need to be notified in case of accidental spill occurrence (Annex no. 4)

Table of the support providing units in case of accidental spill occurrence (Table no. 9)

Table of downstream units that may be impacted by accidental pollution (Table no. 10).



3. CHAPTER III - Spill Prevention and Control Plans for Each Activity Sector or Field

3.1. Brief Technical Presentation Memorandum of the Installations that Might Generate Accidental Pollution

3.1.1. The Spill Warning System Presented in the Accidental Spill Warning Procedure

3.1.2. Action of the Spill Prevention and Control Responsible Personnel

- a) Remove the causes of spill generation in order to stop pollution
- b) Contain spreading
- c) Remove pollutants
- d) Collect, transport and intermediate environmentally safe storage (**Table No. 5, 6, 7, 8**)

3.1.3. Spill Prevention Measures and Related Works (Table No. 4)

3.2. Critical Point Area Plan

3.3. Process Chart with Indication of Critical Points

NB: This chapter to be detailed based on the detailed technical projects, the completion of the SOPs and the final organizational structure upon commissioning. In finalizing, detailed major accident scenarios of extreme impact on local water resources and downstream propagation will also be developed.



ANNEXES AND TABLES

<i>Annex No. 1</i>	Methodology for the Development of Spill Prevention and Control Plans
<i>Annex No. 2</i>	Operational Procedure for the Spill Warning System
<i>Annex No. 3</i>	Flow chart of the Procedure for the Spill Warning System
<i>Annex No. 4</i>	Table of the Competent Authorities that Need to be Notified in case of Accidental Water Pollution

Table No. 1	Composition of the accidental spill control team
Table No. 2	List of Critical Points that might generate accidental pollution
Table No. 3	Potential pollution sheets
Table No. 4	Scheduled measures and works for the prevention of accidental spills
Table No. 5	Composition of response teams
Table No. 6	List of necessary facilities and equipment in stopping accidental spills
Table No. 7	Annual training schedule for the workers in critical points and response teams
Table No. 8	Management responsibilities
Table No. 9	List of the support providing units in case of accidental spill occurrence
Table No. 10	List of potentially impacted downstream users



Annex No. Methodology for the development of Spill Prevention and Control Plans

Based on the need to organize spill prevention and control activities, under the relevant laws, for the facilities that use water or conduct water- related operations, Spill Prevention and Control Plans (PPCPAs) have to be developed and/or updated, as the Company is a potential polluter of the local water resources, with regional and, under extreme conditions, even transboundary impacts.

In this regard, activities, sectors of activity (work places) and installations – hereinafter called Critical Points – that may cause accidental pollution to the environmental medium **WATER** have to be inventoried and reviewed.

Consideration must be given to all installations, permanent and temporary storage facilities of substances and materials used in the technological processes, permanent and temporary waste disposal facilities for company generated waste, where product loss might occur and cause accidental pollution of ground or surface waters if in any way washed into wastewater or storm drainage sewers, or into natural watercourses.

Based on this inventory, Critical Points will be established and included in the Company PPCPA making the object of specific plans.

Critical Point inventory shall be made by the environmental responsible personnel of the respective activities or sectors, while Critical point review and establishment in view of specific plan development must be conducted by the Environmental Department together with the Technical Management of the Company.

Once Critical Points have been established, the specific Spill Prevention and Control Plans for each activity or sector of activity will be developed.

Each specific PPCPA shall include:

1. Technical Memorandum – brief presentation of the activity/sector, and of the Critical Points where spills might occur, and how to act in case of accidental spill, as follows:

- Specify that the warning system for accidental spill is that presented in the Operational Procedure on Warning, a procedure that must be drilled with the entire personnel.
- Show how the spill control personnel will act and what they will have to do to:
 - Remove the causes of the spill;
 - Contain the spread of pollutants;
 - Remove the contaminants by use of adequate technical devices;
 - Collect, transport and temporarily safely store the pollutants for further use or neutralization/disposal, as applicable.

2. Tables – fill out Tables 1 – 8 of. Order 278/1997

3. Layout Plan – A4 format presentation of a plan showing the location for which the plan was developed (to include sections, workshops, access ways, sewerage systems and drains, etc.)

4. Process flow diagram – A4 or A3 format presentation of the process flow in the installation, with indication of critical points.

This methodology to be communicated to the coordinators of all activities and sectors of activity in the Company that may cause accidental spills.

The Environmental Department shall provide additional information on how to develop correct specific plans whenever asked to do so.

Specific PPCPAs shall be signed for every activity by: the technical coordinator of the respective process, the environmental responsible person and the person who developed it, then submitted to the Environmental Department for validation.

The Company PPCPA must be signed by the General Manager, Executive Director, and the Permitting, Compliance and Management Systems Director





Annex No. Operational Procedure for the Spill Warning System

1. PURPOSE

This procedure aims to establish the methods, responsibilities, and information flow that implement the spill warning system. This Procedure is part of the Spill Prevention and Control Plan of RMGC

2. SCOPE

These procedures shall apply to all activities or sectors of activity in the Company where accidental spills may occur, or where responsibilities have been provided in relation to the spill warning system.

3. DEFINITIONS AND ACRONYMS

3.1. Definitions

Critical points – points within the facility where products spills may occur (semi-processed, intermediate substance in various process stages, finished products, fuels or other solid or liquid materials) that, once penetrating into the storm sewerage, water supply, sewerage systems, in the soil or into direct water discharges into natural receptors might cause accidental environmental pollution;

Accidental pollution – any change of the physical, chemical, biological or bacteriological properties caused by an accident, failure, or other similar factor, following an error, omission, negligence or natural calamity and making the water improper for the same use as prior to pollution;

Accidental pollution of surface and ground water resources is a type of risk that generates **emergencies**.

Level I emergency – no impact off site, may be solved by the site personnel, without the intervention of special teams (EP, HAZMAT, EM) ;

Level II emergency – no impact off site, may be solved by the site personnel, with the help of the intervention of special teams (EP, HAZMAT, EM);

Level III emergency – no impact off site, may be solved by the site personnel, with the help of the intervention of special teams (EP, HAZMAT, EM), but requires evacuation of the site personnel;

Level IV emergency – potential offsite impact posing threat to the environment and public health; cannot be solved by the site personnel and the special intervention teams (EP, HAZMAT, EM) and requires the help of extreme emergency response teams, while action is correlated with the actions included in the Emergency Plans for Flood Control and for Hazardous Weather, Accidents Involving Hydrotechnical Works and Accidental Spills of the affected communities;

Competent authorities to be notified in case of accidental pollution: AR TU, GM AB, IJSU AB, DSP AB.

Company management General Manager, Executive Director, Community Relations Director, Permitting, Compliance and Management Systems Director

3.2. Acronyms

1. AR TU – A.N. Apele Romane - S.G.A. Alba – S. H. Aries-Turda
2. GM AB – National Environmental Guard – Alba Commissariat
3. IJSU AB – Alba County Inspectorate for Emergencies
4. DSP AB – Public Health Directorate
5. PPCPA – Spill Prevention and Control Plan
6. DM – Environmental Department
7. DSS – Health & safety Department
8. DSEC – Security Department
9. DI – Maintenance Department
10. DO – Operations Department



11. CSU – Emergency coordinator
12. CI – Fire Commander
13. CCOM – Communications coordinator
14. EP – Fire Brigade
15. HAZMAT–Emergency Response Team for Hazardous Materials
16. EM–Medical Emergency Response Team

4. REFERENCE DOCUMENTS. RELATED DOCUMENTS

Law No. 107/1996 – the Water Law, amended by L 146/2010, EGO 3/2010, EGO 130/2007, EGO 12/2007, **Law No. 112/2006 and Law No. 310/2004;**

Joint Ministerial Order No. 638/2005 of the MEWM and 420/SB/2005 of the MIA approving the Regulations for the Management of Emergencies generated by floods, hazardous weather events, accidents involving hydrotechnical structures an accidental pollution and the Framework Norms for he supply of operative response material and equipment for floods, ice and accidental spills;

Order 278/1997 of the MIA approving the framework methodology for the development of accidental pollution prevention and control plans for potentially polluting water uses;

RGD No. 2288/2004 approving the distribution of the main support positions provided in the ministries, other central organizations, and non-governmental organizations in emergency prevention and management;

EGO 21/2004 on the National Emergency Management System, approved and amended by Law 15/2005;

Order 161/2006 of the MWEP approving the Norms for the classification of surface water quality in order to establish the ecological state on water bodies

EGO 195/2005 on environmental protection, as amended (EGO 164/2008, EGO 114/2007, EGO 57/2007, Law 265/2006);

5. RESPONSIBILITIES

According to **Table No. 1**

6. OPERATING PROCEDURE

6.1. A person who notices an accidental pollution event must immediately notify (according to the pre-established communication flow), on special telephone line or by radio, using dedicated frequency, the Security Officer at the Security Department (DSEC) of the Company, who must provide a person on duty round the clock (24/7) or the Emergency Coordinator (CSU) directly.[21]

All RMGC personnel will be trained on information and information flow in case of observed flaws in the equipment, risk situations that may trigger a negative environmental impact or any accidental spill that may occur, as they will be individually and solidarily liable for the effects of events involving serious impacts on human life and health. They will also be informed on how to act and behave in the case of an accidental spill in which they are/are not involved.[16]

The employee will then immediately report the incident to his/her direct supervisor.

Employees not adequately trained will not try to respond to the accident in attempting to stop the spill, collect spilled materials or clean up the premises. [21]

6.2. The Security Officer will immediately notify the Emergency Coordinator (CSU) or one of his/her replacements, by telephone or radio, as well as the Head of the respective department on the occurrence of an accidental spill and also fill out Form 1.0 – First emergency response log [21]

Once the CSU has been directly notified of an accidental spill, he/se will contact the Security Officer to perform the registration of the incident related data, to be kept in the database.[21]

At the request of the CSU, the latter will notify the DSEC Director to call on more security officers, in order to secure the pollution impacted site ant to organize and supervise the evacuation of the site personnel.



The Security Officer shall ensure transport of the persons responsible for accidental spill control to/from the Company, if the accidental spill occurs outside normal working hours.

6.3. The Emergency Coordinator shall contact the Head of the department where the accidental spill has occurred and the DM Manager, then notify (using the pre-established communication flow) the Permitting, Compliance and Management Systems Manager, and the Executive Director about the occurrence of pollution, and the latter will inform the General Manager.

Company management will convene a meeting of the company level committee organized for accident spill control to review the situation, based on its seriousness.

6.4. At the same time, the CSU shall collect all the information from those who were the first to notice the incident, from the Heads of Departments and from other sources, if necessary, in order to assess the emergency level, decide on the type of response and start the necessary and appropriate alarms.

For Level I or Level II emergencies, CSU may decide to fill the position of Incident Commander (CI) as well, and in this case will notify the appropriate response teams (EP, HAZMAT, EM) directly or via the DSEC to intervene at the accident site and will mobilize the necessary forces and resources to resolve the situation.[21]

For Level III or Level IV emergencies, he/she will speedily designate and notify the Incident Commander from among the persons nominated to fill this office on every shift. The CI will immediately call the appropriate special response teams (EP, HAZMAT, EM) and lead them in their response ;

The Head of Department and the DM will be informed on the emergency level, type of response and CI nomination.

6.5. In parallel, the Department Head will collect all the information from the department personnel present on the incident site, as well as from those who first noticed the incident (if the latter are from outside the department), in order to review the situation, and will call their own response team, in accordance with the pre-established tasks and responsibilities detailed in the procedures and training, and act in cooperation and under the coordination of the Incident Commander. These to be established based on th detailed technical projects, the completion of the SOPs and the final organizational structure upon commissioning.

The DM will fill out Form 2.0 – Incident Report for the spill and, if necessary, Form 3.0 – Agency Notification Report, to be forwarded to the competent authorities after approval by the Company management.

6.6. The Company management will notify the competent authotrities on the accidental spill occurrence. Annex No. 3 shows the appropriate telephone and fax numbers.

Moreover, the potentially impacted units downstream will be notified of the occurrence of the accidental spill, according to Table No. 10 of the PPCPA as well as the local authorities of jurisdiction over the site.[01]

6.7. The CSU and Department Heads will ensure the undertaking of pollution control activities according to the specific PPCPA for the critical point where pollution occurred. Throughout the accidental pollution control actions, they will inform the Company management, the accident pollution control team, the DM on the response actions, while the Comoaany management and the DM will keep in contact with the competent authorities in order to inform them on the deployment of pollution stoppage and control and impact mitigation measures.

6.8. The Company management will inform the competent authorities on the stop of accidental pollution, once the causes of pollution have been removed and the threat of spreading contaminants has stopped.

6.9. Should pollution stoppage, spread containment and impact mitigation measures not be achievable with own resources, they will call on the support of other organizations, as listed in the appropriate Table of the PPCPA (Table No. 9) with which the Company has concluded written agreements; the Company management will contact the contact personnel in order to initiate joint intervention.

6.10. Should pollution spread towards adjacent or downstream areas, the potentially impacted units and the respective local governments will be notified in order to adopt their own accidental spill prevention and control measures. Warning to be done for the units listed in the appropriate Table of



the PPCPA (Table No. 10), and to be ensured by the Company management in cooperation with the competent authorities that manage accidental spills.

6.11. Once the emergency has been completely resolved, the DM and the representatives of the department where the accidental spill has occurred, as well as those of DSS, DI, DO will draft a findings report to contain the following information:

- the site where the spill occurred (critical point);
- date and time of the incident;
- description of the incident;
- cause of the accidental spill;
- magnitude of the event;
- response measures to remove the causes of the spill;
- response measures in containing contaminant spill;
- response measures in removing the contaminants by the use of adequate techniques;
- response measures in collection, transport and intermediate environmentally and health safe storage of the pollutants for subsequent neutralization or destruction;
- corrective measures in solving similar incidents;
- preventive measures to avoid reoccurrence.

6.12. DM will monitor the measures recorded in the findings report;

6.13. The Company management will designate those responsible for accidental spill prevention and control to cooperate with the competent authorities in establishing liabilities and the guilty parties for the accidental spill event.

7. REVISION

These procedures shall be revised every 2 years or whenever necessary.

8. RECORDS

8.1. Form 1.0 – First emergency response log: original to be kept by the DSEC and a copy by DM.

8.2. Form 2.0 – Spill event report: original to be kept by the DM and a copy in the section/sector.

8.3. Form 3.0 – Agency Notification Report: original to be kept by the Permitting, Compliance and Management Systems Director, and a copy by DM;

8.4. Findings Reports – originals to be kept in the sections and copies by DM;

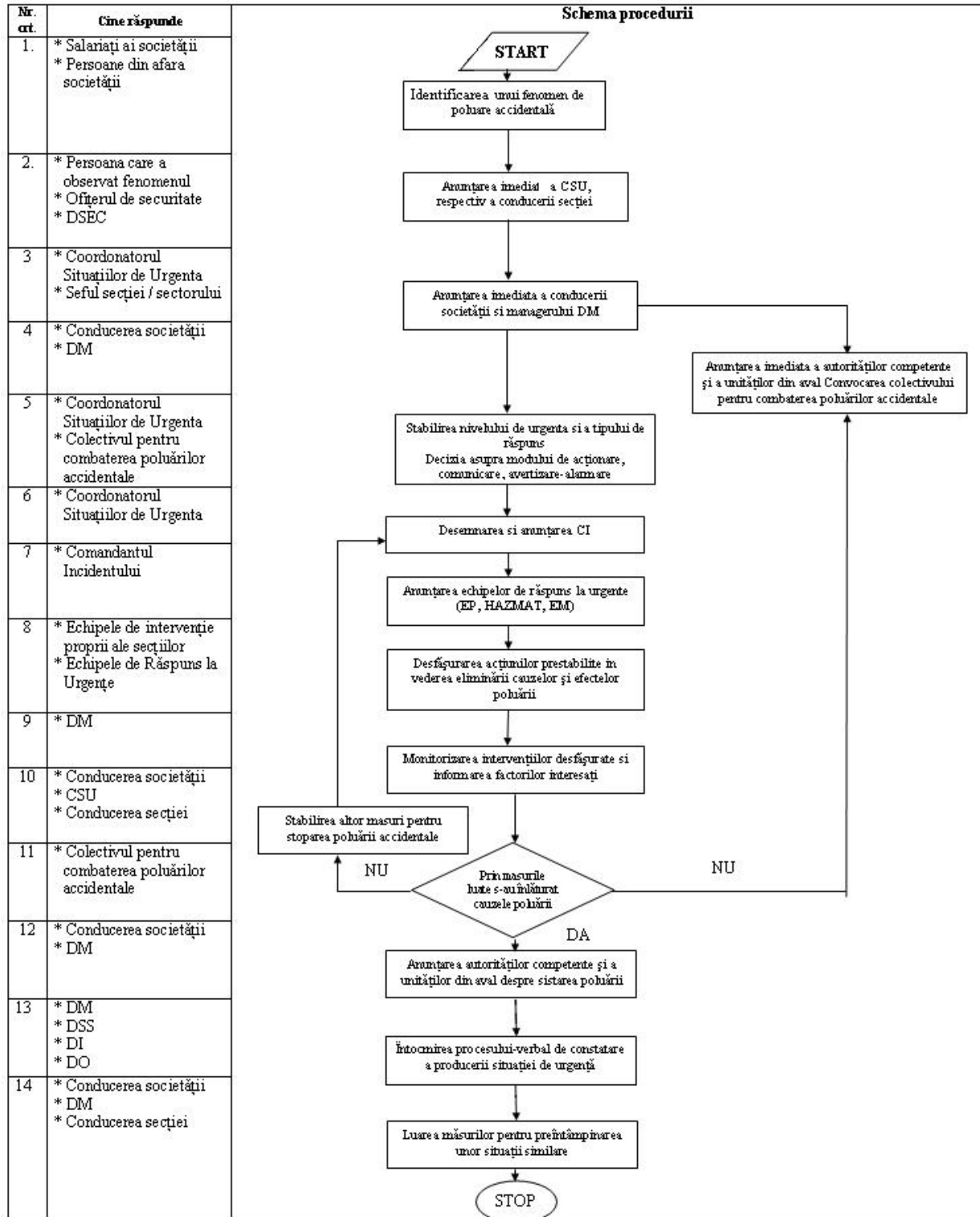
8.5. Monitoring Reports – originals to be kept by DM and copies in the sections;

8.6. PPCPA Distribution LIST – kept by the DM;

8.7. Table of updates and revisions – kept by the DM



Annex No. Flow chart of the Procedure for the Spill Warning System





Annex No. Table of the Competent Authorities that Need to be Notified in case of Accidental Water Pollution

Competent authority	Address and Telephone no.	Round the Clock Dispatcher
AR TU – A.N. Apele Române-S.G.A. Alba- S.H. Arieş-Turda [Local Water Authority]	Turda, Str. Stadionului, Nr.12, Jud. Cluj Tel. 0264 313461 0264 313463 Fax 0264 313462	0264 313461
GM AB – Garda Națională de Mediu – Comisariatul Judetean Alba [Alba County Environmental Guard]	Alba Iulia, Str. Lalelelor, 7A Tel. 0258 816834 Fax 0258 830002	-
Inspectoratul pentru Situații de Urgentă „Unirea” al județului Alba [Alba County Emergency Inspectorate]	Alba Iulia, Str. A.I.Cuza, 10 Tel. 0258 810411 0258 810497 Fax 0258 810425	0258 810497
DSP AB – Direcția de Sănătate Publică Alba [Public Health Directorate]	Alba Iulia, Bld. Revoluției, 23 Tel. 0258 835243 Fax 0258 834600	-
PR ABR – Primăria oraş Abrud [Mayor’s Office]	Abrud, Str. Piata Eroilor, Nr. 1 Tel. 0258 780519 Fax. 0258 780265	
PR RM – Primăria com. Roşia Montană [Mayor’s Office]	Rosia Montana, Str. Principala, Nr. 184 Tel. 0258 783101 Fax. 0258 783 102	

Note:

- Under Water Law No. 107/1996 tis activity is organized by Regia Autonoma "Apele Romane" through its River Basin branches, both based river-basin wide plan, and on th own plans od the potentially polluting water users. [01]
- Under Law No. 310/2002 – amending by Law No.107/1996 [02] :
 - “Romanian Waters” National Administration , through its Water Directorates, organizes and conducts accidental pollution prevention and remediation activities based on plans developed based on the specific circumstances of those watersheds and on the nature of the pollutants that might be spilled.
 - Legal entity users of water or of water-related uses shall develop their own spill prevention and control plans, for pollution events that might be caused by their activities, and implement them as needed.
 - Legal entity users of water or of water-related uses who caused a pollution event shall take immediate measures to remove the causes thereof, limit and contain their effects and immediately inform the nearest water management unit on this pollution.
 - The owners of specific spill response equipment for water pollution shall make use thereof, irrespective of the cause of the pollution event.
 - The polluter shall also bear the costs entailed by pollution wave monitoring, by the determination of the type of pollutant, and by the findings on the pollution impacts.
- Under **Joint Ministerial Order No. 638/2005 of the MEWM and 420/SB/2005 of the MIA** approving the Management Regulations for emergencies arising during floods, hazardous weather events, accidents involving hydrotechnical structures an accidental pollution [3]:
 - Strategy implementation and the professional technical implementation, at the national, river-basin or county level, of preventive and operative action in flood control, hazardous weather events, accidents in hydrotechnical structures and **accidental spills** shall be provided by “Romanian Waters” National Administration and its territorial units.



- Legal entity users of water or of water-related uses who caused a pollution event shall take immediate measures to remove the causes thereof, limit and contain their effects and immediately inform the nearest water management unit. Any expense generated by pollution containment and control actions shall be borne by the polluters, under the “polluter pays principle”.
- The owners of specific spill response equipment for water pollution shall make use thereof, irrespective of the cause of the pollution event, at the decision of the County Emergency Committee.



Table No. 1 Composition of the accidental spill control team [01], [16], [21]

No.	Name and surname	Position	Address and Telephone no.	Responsibilities
1.		General Manager		<ul style="list-style-type: none"> decides to call the spill control team to review the situation and trigger the alert situation decides to notify the SGA and other competent authorities on the occurrence of an accidental spill, and on the regular information thereof on the deployment of action until the pollution has stopped asks for external support if it is found that the available own forces and resources are not sufficient to stop pollution and/or mitigate its effects
2.		Executive Director		<ul style="list-style-type: none"> notifies the managing director on the occurrence of a spill and decides, in force majeure situations, to stop the operation of certain installations, production sections, sectors that contribute to the ongoing generation of pollution or may cause accidents with serious impacts on the environment and the population
3.		Community Relations Director		<ul style="list-style-type: none"> provides coordination of own response actions with the community response plans ensures public communication of the emergency for accurate information thereon decides data collection and the participation of the Communication Coordinator in formulating answers related to the causes of the spill, in order to provide accurate information to the external agencies, the media, the families of the people involved, and the public in general
4.		Permitting, Compliance and Management Systems Director		<ul style="list-style-type: none"> decides on the evaluation of the causes and monitoring by the DPM of the actions to remove the causes of the spill and mitigate the effects of accidental pollution decides on investigating the incident and monitor the site personnel or public protection and rescue operations by the DSS provides coordination of the response teams from company departments, if necessary, in case of serious accidental pollution
5.		<u>Emergency Coordinator</u> (CSU) (2 replacements are also designated for this office, as these responsibilities need to be fulfilled 24/7)		<ul style="list-style-type: none"> evaluates the level and type of emergency determined by the spill, and decides the type of response and the appropriate warning/alarm decides on the need to appoint an Incident Commander, to be called in for operative action notifies the Executive Director, the Permitting, Compliance and Management Systems Director, and the Community Relations Director on the occurrence of the spill calls on the response teams (EP, HAZMAT< EM and other special additional teams) to stop the causes of pollution and mitigate its effects provides the necessary response equipment and materials on and off site



No.	Name and surname	Position	Address and Telephone no.	Responsibilities
				<ul style="list-style-type: none"> collaborates efficiently with the external response organizations in the impacted communities, either local or regional, if required to respond in the control of pollution
6.		Environmental Department Manager (DM)		<ul style="list-style-type: none"> provides CRU assistance in determining the nature and causes of the spill, and its potential impacts on the environment and humans on site and on adjacent areas, and on those located downstream or downwind . provides monitoring by the DM of the actions to remove the causes of the spill and mitigate its effects ensures the formulation of a competent answer, both technical and for the public, based on the analysis and interpretation of all the available information on the generation of the spill regularly communicates to the management and to the spill control team any serious event that might occur and how the response has been deployed ensures notification of the competent authorities on any substantial hazardous discharge into the environment, and on the generation or potential generation of water pollution on and off site ensures sampling and laboratory analysis of the specific pollution indicators, registration, result analysis and communication to the competent authorities provides technical support for environmental remedial action, rehabilitation or cleanup after any spill that has occurred ensures communication of pollution stoppage to all the stakeholder authorities within and outside the company
7.		Health & Safety Department Manager (DSS)		<ul style="list-style-type: none"> provides CSU assistance in determining the nature and causes of the spill, as it relates to non-compliance with the H&S techniques, and its potential impacts on other installations, on humans on site and on adjacent areas, and on those located downstream or downwind of the pollution provides monitoring personnel and public rescue operations ensures the formulation of a competent answer, both technical and for the public, based on the analysis and interpretation of all the available information on the generation of the spill, the H&S technical norms and health issues raised by the spill ensures collaboration with external response and rescue organizations regularly communicates to the management and to the spill control team any serious event that might occur and how the specific response has been deployed
8.		Security Department		<ul style="list-style-type: none"> ensures organization of receipt, registration and dissemination of (telephone and



No.	Name and surname	Position	Address and Telephone no.	Responsibilities
		Manager (DSEC)		<ul style="list-style-type: none"> radio) messages related to emergencies using a special telephone line or dedicated frequency decides on ensuring site security, impacted site personnel evacuation and the access control to the incident site provides spill control personnel transport to/ from the company
9.		<u>Incident Commnder</u> (CI) (designated by the Emergency Coordinator based on the type and magnitude of the incident) This is a temporary position and only filled during emergencies		<ul style="list-style-type: none"> together with the CSU, reassesses resource needs and the need to involve additional emergency response teams, within the company or among the external response organizations coordinates operative actions of own response teams and collaborates with external response teams together with the CSU, initiates and decides on evacuation of the impacted site (locally, across the entire company site, from adjanet sites or downstream of the pollution wave) supervises and directs the use of equipment during response actions stays in control until it is considered that the emergency has finished and any other emergency is under control, with minimal probability of occurrence participates in emergency investigation and evalution, in adoptin corrective and preventive measures
10.		Communications Coordinator: (CCOM)		<ul style="list-style-type: none"> collects information from the critical points and informs the DM and the Community Relations Director, and helps formulate answers related to the pollution assists the Emergency Coordinator in communicating with the public and other stakeholders, acting as contact person in elation to the mass media, the competent authorities, external emergency response organizations, personnel families, etc.
11.		Head of Section/Sector/ Area of activity		<ul style="list-style-type: none"> mobilizes the response teams in the critical points of the respective section and provides the necessary response equipment and facilities; notifies the DM, DSS and Executive Director on the occurrence of a spill; collaborates with the CSU in determining the causes and nature of the spill, and of its impacts collaborates with the DPM, DSS, and CCOM in pollution monitoring, investigations of how it occurred, and in formulating answers related to the generation of the spill
12.		Shift Head Technician		<ul style="list-style-type: none"> notifies own response teams and directs them in operative actions under the coordination of the Incident Commander; provides own response equipment and facilities;



No.	Name and surname	Position	Address and Telephone no.	Responsibilities
13.		Maintenance Department Manager		<ul style="list-style-type: none"> informs the Department Head on the response deployment; coordinates checks of the buildings and utility control devices in order to ensure safety in occupation thereof and of neighboring facilities provides additional utilities/ facilities to the emergency response personnel; provides construction services if required as emergency measures; ensures the repair of equipment and facilities after pollution containment, in order to reset production operations;
14.		Operations Department Manager		<ul style="list-style-type: none"> ensures cessation of utility services (gas, water, electricity supply) according to pre-established procedures, and notifies the suppliers thereof provides additional emergency preparedness equipment ensures resumption of normal operating parameters of the facilities and operations according to pre-established procedures coordinates and ensures performance of the cleanup operations;
15.		Fire Brigade Leader (EP)		<ul style="list-style-type: none"> ensures regular inspection and testing of the emergency response equipment involving hazardous substances and the maintenance of the operational state of the technology acts under the instructions of the Incident Commander in situations that involve: discharges or spills of chemicals, hazardous materials or waste, independently, or in collaboration with the other response teams mobilizes the response team and provides the necessary response materials, equipment and tools for the deployment of specific actions performs research in establishing the extent of contamination, defining the impacted area and estimating the number of affected persons provides operative action at the accident site in order to remediate any flaws or breakdowns, evacuate the personnel of the contaminated area and contain the impact of pollution, in strict compliance with the specific operational procedures or as instructed by the <i>incident commander</i>
16.		HAZMAT Team Leader		<ul style="list-style-type: none"> ensures regular inspection and testing of the emergency response equipment involving hazardous substances and the maintenance of the operational state of the technology acts under the instructions provided by the Incident Commander in situations that involve: discharges or spills of chemicals, hazardous materials or waste, independently, or in collaboration with the other response teams mobilizes the response team and provides the necessary response materials, equipment and tools for the deployment of specific actions



No.	Name and surname	Position	Address and Telephone no.	Responsibilities
				<ul style="list-style-type: none"> performs research in establishing the extent of contamination, defining the impacted area and estimating the number of affected persons provides operative action at the accident site in order to remediate any flaws or breakdowns, evacuate the personnel of the contaminated area and contain the impact of pollution, in strict compliance with the specific operational procedures or as instructed by the <i>incident commander</i> and participates in sampling in the impact area
17.		Medical Team Leader (EM)		<ul style="list-style-type: none"> acts as decided and instructed by the Incident Commander mobilizes the medical assistance team and provides the necessary response materials, equipment and tools for the deployment of specific actions organizes and provides first medical aid and transport of the wounded to the assembly and evacuation points ensures the installation of assembly, triage and evacuation points for the wounded and the contaminated participates in the application of prophylactic and epidemics control actions fulfills other actions and missions in the impacted area: <ul style="list-style-type: none"> participates in providing the necessary water, food and medicine supplies; participates in the removal of disaster consequences and the medical rehabilitation of the impacted area; implements the technical and medical measures of decontamination in corpse containing areas ensures sample collection in the contaminated sector (water, animal products, vegetal products) and sample transfer to the nearest health laboratory

General Manager,

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NB: The final version and level of detail to be established based on the detailed technical projects, the completion of the SOPs and the final organizational structure upon commissioning



GOLD
CORPORATION
Roşia Montană

Spill Prevention and Control Plan ROŞIA MONTANĂ PROJECT

*September
2010*



Table No. 2 List of critical points on the site that might generate accidental spills [01], [10], [11], [12], [19], [20], [21]

No.	Point where a spill may occur	Potential causes of pollution	Potential pollutants	
			Name	Comments
a	<i>Mining Operations Areas</i>	The appearance of an aquifer in the operations area and failure to adequately capture it.	Suspensions ARD	
		Damage to the pit/quarry equipment and potential spill of fuel onto the soil	Oil products	
		Break, resulting in the spillage of the contents.	Ammonium Nitrate	
b	<i>On site transport</i>	Potential fuel spills on soil	Oil products	
c	<i>Process plant</i>			
1	<u>Sodium Cyanide solution holding tank</u>	Severe damage, resulting in the spillage of the contents. It may occur during a terrorist or armed attack cracks in the tank wall due to high mechanical stress	NaCN	Soil 20 %
	<u>ISO transport container</u>	Break, resulting in the spillage of the contents.	NaCN	Solid
2	<u>HCl solution holding tank</u>	Severe damage, resulting in the spillage of the contents. It may occur under terrorist attack, as a fissure in the tank due to high mechanical stress (seism, accidental hitting, accidental break of the bottom nozzles, of the discharge piping, faulty material).	HCl	32 % solution
	Hydrochloric acid transport tanker	Failure resulting in spilled content May occur during on-site transport or unloading.	HCl	32 % solution
3	Leaching tanks	Severe damage, resulting in the spillage of the contents. It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (seism, important contraction/expansion of the tank building material at abnormally low/ high temperatures, break of the screws that fasten the manhole cover, etc.).	Slurry	Suspensions with about 200 mg/l free cyanide
4	Thickener	Severe damage, resulting in the spillage of the contents. It may occur under terrorist attack, or a crack developing in the tank walls due to very high mechanical stress (seism, important contraction/expansion of the tank building material at abnormally low/ high temperatures, break of discharge nozzle).	Slurry	Suspensions with about 150 mg/l free cyanide
5	DETOX plant	Serious damage to the slurry treatment tanks, resulting in the spillage of the entire content of one or both reaction vessels It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (important contraction/expansion of the tank building material at abnormally	Slurry	Suspensions with about 10-100 mg/l WAD cyanide



No.	Point where a spill may occur	Potential causes of pollution	Potential pollutants	
			Name	Comments
		low/ high temperatures, break of the screws that fasten the manhole cover, break of the discharge nozzles).		
		Inadequate slurry treatment before discharge (high cyanide content) due to operating errors and/or flaws in the controls of physical and chemical parameters in the slurry	Slurry	Suspensions with more than 10 mg/l WAD cyanide in the TMF discharge
6	Rich solution holding tanks	Severe damage, resulting in the spillage of the contents. It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (seism, important contraction of the tank building material at abnormally low temperatures).	Rich solution:	3 % NaCN 2 % NaOH
7	Copper sulphate solution holding tank	Break resulting in spilled content It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (seism, important contraction of the tank building material at abnormally low temperatures).	Copper sulphate solution	15% CuSO ₄
	Metabisulphite storage tank	Failure resulting in spilled content It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (seism, important contraction of the tank building material at abnormally low temperatures).	Metabisulphite solution	20% Na ₂ S ₂ O ₅
8	Reagent storage	Accidents in the storage areas resulting in spills onto the soil in the handling areas (bag or bottle break)	Copper Sulphate Metabisulphite Sodium hypochlorite Sodium hydroxide	Original packaging
9	Sodium Hydroxide solution holding tank	Severe damage, resulting in the spillage of the contents. thereof and /or of the dissolving vessel It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (earthquake, important contraction of the building material at abnormally low temperatures compounded by freezing of the entire contents, especially of the screws that fasten the manhole cover).	Sodium hydroxide	20 % NaOH
10	Lime wash holding tanks	Severe damage, resulting in the spillage of the contents. of lime wash preparation vessel It may occur under terrorist attack, or a crack developing in the tank walls due to very high mechanical stress (seism, important contraction/expansion of the tank building material at abnormally low/ high temperatures, break of discharge nozzle).	Lime wash	15 % CaO
11	Wet grinding:	Failure of the ore grinding and/or grading equipment resulting in	Cyanide containing water	total cyanide maximum



No.	Point where a spill may occur	Potential causes of pollution	Potential pollutants	
			Name	Comments
		spills of handled suspensions	suspensions	219 mg/l
12	Desorption/ Processing Area	Failure of the ore elution and/or electrolysis equipment resulting in spills of hazardous fluids	Rich solution: Diluted HCl solutions Diluted NaOH solutions	3 % NaCN 2 % NaOH
13	Process water storage tank	Severe damage, resulting in the spillage of the contents. It may occur under terrorist attack, or a crack developing in the tank wall due to very high mechanical stress (important contraction/expansion of the tank building material at abnormally low/ high temperatures, break of the screws that fasten the manhole cover, break of the discharge nozzles).	Process Water	Max. 5 mg/l total cyanide pH= 8-11
	Sodium hypochlorite solution storage containers	Break caused by knocking on plastic barrels or leaks during poor handling	Sodium hypochlorite	12 % active chlorine
14	ARD Neutralization Plant – Lime Wash Reactor	Damage, resulting in the spillage of the contents. It may occur under terrorist attack, or a crack developing in the vessel walls due to very high mechanical stress (seism, important contraction/expansion of the tank building material at abnormally low/ high temperatures, break of discharge nozzle).	Lime wash	15 % CaO
	ARD –Clarifier	Damage resulting in the spillage of the entire content thereof. It may occur during a terrorist or armed attack due to very high mechanical stress (seism).	Suspensions	
15	Fuel tanks	Breakdown and/or fire due to terrorist attack or incompliance with the operating rules of=r faults in the protection systems.	Oil products	Diesel Petrol
16	Cyanide solution handling systems (pipes, fittings, pumps)	Failure resulting in spills that may occur throughout the operating period, especially during pump startup and in areas provided with sealing devices glands, flanges)	NaCN	Soil 20 %
	Cyanide containing slurry handling and/or preparation systems (pipes, fittings, pumps)	Failure resulting in spills that may occur throughout the operating period, especially during pump startup and in areas provided with sealing devices glands, flanges)	Slurry	Suspensions with about 150 mg/l free cyanide
	Cyanide containing solutions/suspension handling systems (pipes, fittings, pumps)	Failure resulting in spills that may occur throughout the operating period, especially during pump startup and in areas provided with sealing devices glands, flanges)	Slurry Process Water Rich solution:	Suspensions with about 10-100 mg/l WAD cyanide Max. 5 mg/l total cyanide pH= 8-11 3 % NaCN 2 % NaOH



No.	Point where a spill may occur	Potential causes of pollution	Potential pollutants	
			Name	Comments
	Hydrochloric acid solution handling systems (pipes, fittings, pumps)	Failure resulting in spills that may occur throughout the operating period, especially during pump startup and in areas provided with sealing devices glands, flanges)	HCl	32 % solution
	Sodium hydroxide solution handling systems (pipes, fittings, pumps)	Failure resulting in spills that may occur throughout the operating period, especially during pump startup and in areas provided with sealing devices glands, flanges)	Sodium hydroxide	20 % NaOH
d	<i>Pipeline routes</i>	Slurry pipeline crack due to wear or erosion, especially in sensitive areas (elbows, flanges, equilibrators, valves)	Slurry	Suspensions with max. 10 mg/l WAD cyanide
		Crack in the clarified TMF to Process Plant water pipeline due to wear or tear of the flexible pipe (between the barge and the fixed pipe on the ground) also due to the fast and sizeable oscillations of the free liquid levels in the TMF.	Process Water	about 6 mg/l WAD cyanide
		Breakdown in the ARD piping system from the Cetate Dam to the ARD wastewater treatment plant may be caused by faults in the material, malfunction of the guidance systems or expansion compensators, or by “water hammer” at pump start.	ARD	pH below 4 sulphates heavy metals
e	<i>Tailings Management Facility TMF</i>	Development of breaches in the dam wall due to potential hypothetical causes: a. Overload b. Seismic Events c. Structural Faults, Foundation Failure d. Suffusion e. Erosion and slope Instability f. Liquefaction g. Armed or Terrorist Attack	Process solution, potentially containing suspended matte	Max. 10 mg/l WAD CN
		Breakdown resulting in dam overflow It may only occur if the operating parameters (of the beach and minimal clearance) fail to be complied with systematically and over the long term and/or if the drainage or decant water discharge systems become damaged for long periods of time.	Process solution	Max. 10 mg/l WAD CN
		Failure of the secondary containment dam or exceeded containment capacity and discharge of excess water into the receiving water (Corna Valley)	Process solution	Max. 10 mg/l WAD CN
f	<i>Cetate ARD Catchment Dam</i>	Dam break resulting in the development of breaches may occur in case of terrorist attacks or a classic or nuclear attack, an earthquake, etc.	ARD with potential suspensions	pH below 4 sulphates heavy metals



No.	Point where a spill may occur	Potential causes of pollution	Potential pollutants	
			Name	Comments
		Failures resulting in dam overflow may only occur if the operating parameters are not complied with and are compounded by extreme weather conditions (heavy rain, extremely low temperatures)	ARD	pH below 4 sulphates heavy metals
g	<i>Waste rock piles</i>	Accidents involving the break or siltation of the storm water drains, resulting in spills of such waters into the diversion channels and then into the receiver	Suspensions, in potentially acid rock drainage	

Unit Manager
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Table No. 3 Potential pollutant sheet [01], [06], [07], [17], [20]

No.	Pollutant name	Acceptable limits			Handling hazards		Control (disposal) options	
		Surface Water mg/l	Potable water mg/l	Ground water	Hazardous characteristics <i>Risk phrases</i>	Precautionary Measures <i>Safety phrases</i>	Action	Required means
1	<i>Sodium cyanide</i> - Total Cyanides. - Free cyanides		0,05 0,01		Very toxic R26/27-28-32-50/53	Avoid contact with acid solutions. <i>S: 7/9-16-36/37-38-45-60-61</i>	Collection Neutralization	Containment Detox Plant
2	<i>Hydrogen Chloride</i> - Chlorides - pH	100 6,5-8,5	250 6,5-9,5		Corrosive <i>R 34-37</i>	Avoid contact with cyanide. <i>S 26-45</i>	Collection Neutralization	Containment ARD Plant
3	<i>Sodium hydroxide</i> - pH - sodium		6,5-9,5 200		Corrosive <i>R 35</i>	<i>S 26-37/39-45</i>	Collection	Containment
4	Cyanide containing slurry - Total Cyanides. - Free cyanides - pH - Copper - Zinc - Cadmium	6,5-8,5 0,02 0,1 0,001	0,05 0,01 6,5-9,5 0,1 5 0,005		Not classified as hazardous under GD 1408/2008.	Avoid contact with acid solutions. <i>S: 36/37-38-45-60-61</i>	Collection Neutralization	Containment Impoundments Detox Plant
5	<i>Cyanide rich solution;</i> - Total Cyanides. - Free cyanides - pH - sodium	6,5-8,5 50	0,05 0,01 6,5-9,5 200		Toxic T, R23/24/25, 36/38, 52/53	Avoid contact with acid solutions. <i>S: 36/37-38-45-61</i>	Collection Process recycling Neutralization	Containment Pumping sump Detox Plant
6	Process Water - Total Cyanides. - Free cyanides - pH - Copper - Zinc - Cadmium - sulphates	6,5-8,5 0,02 0,1 0,001 150	0,05 0,01 6,5-9,5 0,1 5 0,005 250		Not classified as hazardous under GD 1408/2008.	Avoid contact with acid solutions. <i>36/37-38-45-61</i>	Collection Process recycling Neutralization	Containment TMF impoundment Pumping sump Barge Detox Plant



No.	Pollutant name	Acceptable limits			Handling hazards		Control (disposal) options	
		Surface Water mg/l	Potable water mg/l	Ground water	Hazardous characteristics <i>Risk phrases</i>	Precautionary Measures <i>Safety phrases</i>	Action	Required means
7	<i>Ammonium Nitrate</i> - nitrates - Ammonium	3 0,3	50 0,5		Not classified as hazardous under GD 1408/2008 .	Avoid contact with diesel.	Collection Safe storage	Special storage
8	Lime wash - pH - Calcium	6,5-8,5 150	6,5-9,5 -		Not classified as hazardous under GD 1408/2008 .		Collection	Containment Collection tank
9	Diesel - Oil hydrocarbons - PAH	100 -	- 0,0001		Dangerous for the environment R40-65-66-51/53	No open fire <i>S 16- 33- 61</i>	Collection	Containment Impoundments Absorbent materials
10	Petrol - Oil hydrocarbons - PAH	100 -	- 0,0001		Extremely flammable R12-45-46-65-67-51/53	No open fire <i>S 16 -33 -61</i>	Collection	Containment Impoundments Absorbent materials
11	Sodium hypochlorite - pH - sodium - Chlorides - free residual chlorine	6,5-8,5 50 100 -	6,5-9,5 200 250 0,5		Corrosive R31 -34	Avoid contact with solid cyanide. <i>S 28-45-50-61</i>	Collection	Containment
12	Metabisulphite - pH - sodium - sulphates	6,5-8,5 50 150	6,5-9,5 200 250		Harmful R: 22-31-41	<i>S 22-60-61</i>	Collection Process recycling	Containment Pumping sump



No.	Pollutant name	Acceptable limits			Handling hazards		Control (disposal) options	
		Surface Water mg/l	Potable water mg/l	Ground water	Hazardous characteristics <i>Risk phrases</i>	Precautionary Measures <i>Safety phrases</i>	Action	Required means
13	Copper Sulphate - pH - Copper - sulphates	6,5-8,5 0,02 150	6,5-9,5 0,1 250		Harmful, dangerous for the environment R: 22-36/38-50/53	S 22-60-61	Collection Process recycling	Containment Pumping sump
14	ARD - pH - sulphates - Copper - Iron - Manganese - Cadmium - Arsenic - Zinc - Lead	6,5-8,5 150 0,02 0,1 0,05 0,001 0,005 0,1 0,005	6,5-9,5 250 0,1 0,2 0,05 0,005 0,01 5 0,01		Not classified as hazardous under GD 1408/2008.	Avoid contact with cyanides.	Collection Neutralization	Cetate Pond Containment Collection tank ARD Plant

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Risk phase meaning

R12	Extremely flammable
R22	Harmful if ingested.
R28	Very toxic if ingested.
R31	Releases toxic gases in contact with acids.
R32	Releases very toxic gases in contact with acids.
R34	Causes burns.
R35	Causes severe burns.
R37	Respiratory system irritant
R40	Potential carcinogenic effect – insufficiently proven
R41	Risk of severe eye lesions.
R45	May cause cancer
R46	May cause hereditary genetic changes
R65	Harmful: may cause pulmonary diseases if ingested.
R66	Repeated exposure may cause skin dryness or cracking
R67	Inhalation of vapours may cause drowsiness and dizziness.

RISK PHRASE COMBINATIONS

R23/24/25	Toxic if inhaled, in contact with the skin, and if ingested.
R26/27	Very toxic if inhaled and in contact with the skin.
R36/38	Eye and skin irritant
R50/53	Very toxic for aquatic life, may cause long-term adverse impacts on the aquatic environment
R51/53	Toxic for aquatic life, may cause long-term adverse impacts on the aquatic environment
R52/53	Harmful for aquatic life, may cause long-term adverse impacts on the aquatic environment

Safety Phase Meaning

CAUTIONARY RECOMMENDATIONS REGARDING HAZARDOUS SUBSTANCES AND PREPARATIONS

S16	Keep away from any flame or source of sparks – No smoking.
S20	Do not eat or drink during use.
S26	In case of contact with the eyes, immediately wash with plenty of water and see a doctor.
S28	In case of contact with skin, immediately wash with plenty of ... <i>(suitable product, to be specified by the manufacturer)</i> .
S33	Special precaution to avoid electrostatic discharges
S38	With insufficient ventilation, wear adequate respirator
S45	In case of accident or symptoms of disease, see doctor immediately <i>(If possible, show label)</i> .
S50	Do not mix with ... <i>(specified by the manufacturer)</i> .
S60	This product and its package (container) must be disposed of as hazardous material.
S61	Avoid dispersal into the environment. Consult special instructions/ technical safety sheet.
S7/9	Keep package (container) sealed, in a well ventilated place.
S36/37	Wear Personal Protection Equipment and suitable gloves.
S36/39	Wear suitable gloves and protection mask for the eyes/face.

**Table No. 4.0.0. Scheduled measures and works for the prevention of accidental spills
for: (b) on-Site transport [01], [11], [12], [16], [21]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular vehicle checks and compliance with the maintenance and repairs schedules	Fuel and lubricant leak prevention and removal	Relevant head of sector or department for these vehicles To establish the relevant sector or department for these vehicles	Monthly or Based on. specific SOP	Idem

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**Table No. 4.0 Scheduled measures and works for the prevention of accidental spills for :
(A) Mine areas [01], [11], [12], [16], [21]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Additional checks of the mine areas in order to detect unknown water accumulations	Prevent or remove leaks from aquifers encountered in the mining area	Relevant head of sector or department for these activities To establish the relevant sector or department for these activities	Monthly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Regular vehicle checks of mining equipment and compliance with the maintenance and repairs schedules	Fuel and lubricant leak prevention and removal	Idem	Monthly or Based on. specific SOP	Idem
3	Regular checks of AMFO explosive preparation equipment storage and handling of ammonium nitrate	Prevent ad remove ammonium nitrate spills in contact with water	Idem	Monthly or Based on. specific SOP	Idem



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**Table No. 4.1. Scheduled measures and works for the prevention of accidental spills for :
(C1) Sodium cyanide solution holding tank [01], [11], [12], [20]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the tank and its supports, containment vat, ISO containers transporting solid cyanide	Sodium cyanide solution leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator	Prevent overflow of the holding tank and sodium cyanide leaks	Idem	Quarterly or Based on. specific SOP	Idem
3	Check the integrity of the protective enclosure of the cyanide unloading and storage area	Prevent unauthorized access that might cause breakdown or deterioration of the tank or containers	Idem	Monthly or Based on. specific SOP	Idem

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**Table No. 4.2. Scheduled measures and works for the prevention of accidental spills for :
(C2) Hydrochloric acid holding tank [01], [11], [12]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the tank, its supports, containment vat	Hydrochloric acid leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check and maintenance of the tank level indicator	Prevent overflow of the holding tank and hydrochloric acid leaks	Idem	Quarterly or Based on. specific SOP	Idem
3	Check hydrochloric acid tanker	Hydrochloric acid leak prevention or removal	Idem	Daily or Based on. specific SOP	Idem

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**Table No. 4.3. Scheduled measures and works for the prevention of accidental spills for :
(C3) Leaching tanks [01], [11], [12], [20]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the CIL tanks, its supports, containment vat	Cyanide containing slurry leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator and	Prevent overflow of the tank and remove cyanide	Idem	Quarterly or	Idem

	containment vat	containing slurry leaks		Based on. specific SOP	
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Table No. 4.4. Scheduled measures and works for the prevention of accidental spills for : (C4) Tailings Thickener [01], [11], [12], [20]

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the feeding tank, thickener and their supports, containment vat	Cyanide containing slurry leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator and containment vat	Prevent overflow of the tank and remove cyanide containing slurry leaks	Idem	Quarterly or Based on. specific SOP	Idem

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Table No. 4.5. Scheduled measures and works for the prevention of accidental spills for : (C5) DETOX Cyanide Neutralization Facility [01], [11], [12], [20]

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the feeding tank, reactors and their supports, containment vat	Cyanide containing slurry leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator and containment vat	Prevent overflow of the tank and remove cyanide containing slurry leaks	Idem	Quarterly or Based on. specific SOP	Idem
3	Check pH control system	Inspect slurry cyanide neutralization process before	Idem	Daily or	Idem

	Spill Prevention and Control Plan ROȘIA MONTANĂ PROJECT	<i>September 2010</i>
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		directing it the TMF		Based on. specific SOP	
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**Table No. 4.6. Scheduled measures and works for the prevention of accidental spills for :
(C6) Rich solution holding tank [01], [11], [12], [20]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the tank, its supports, containment vat	Prevent or remove leaks of gold and silver rich solution (with sodium cyanide and sodium hydroxide content)	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator and containment vat	Prevent overflow of the holding tank and sodium cyanide leaks	Idem	Quarterly or Based on. specific SOP	Idem

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**Table No. 4.7. Scheduled measures and works for the prevention of accidental spills for :
(C7) Metabisulphite solution storage tank ; Copper sulphate solution storage tank [01], [11], [12]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the solution preparation reactors and their supports	Metabisulphite and copper sulphate solution leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check and maintenance of the reactor level indicators	Prevent tank overflow and remove metabisulfite and copper sulphate solution spills	Idem	Quarterly or Based on. specific SOP	Idem

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**Table No. 4.9. Scheduled measures and works for the prevention of accidental spills for :
(C9) Sodium hydroxide solution holding tank [01], [11], [12]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the tank, its supports, dissolving vessel, containment vat	Sodium hydroxide solution leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check and maintenance of the tank level indicator	Prevent overflow of the holding tank and hydrochloric acid leaks	Idem	Quarterly or Based on. specific SOP	Idem

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**Table No. 4.10. Scheduled measures and works for the prevention of accidental spills for :
(C10) Lime wash holding tank [01], [11], [12]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the lime wash preparation and holding tank and its supports	Lime wash leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check and maintenance of the tank level indicator	Prevent overflow of the lime wash holding tank and lime wash leaks	Idem	Quarterly or Based on. specific SOP	Idem

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**Table No. 4.11. Scheduled measures and works for the prevention of accidental spills for :
(C11) Wet grinding [01], [11], [12], [20]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the mills, hydro cyclones, supports thereof, containment vat	Cyanide containing slurry leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator and containment vat	Prevent vat overflow and remove cyanide containing slurry leaks	Idem	Quarterly or Based on. specific SOP	Idem

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**Table No. 4.12. Scheduled measures and works for the prevention of accidental spills for :
(C12) Desorption Area [01], [11], [12], [20]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the filters, elution towers, electrolytic cells, mercury retort, and their supports, containment vat	Hydrochloric acid, sodium hydroxide diluted solution or rich solution leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tower and cell level indicators	Prevent overflow of the installations and remove hazardous substance acid leaks	Idem	Quarterly or Based on. specific SOP	Idem



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Spill Prevention and Control Plan ROŞIA MONTANĂ PROJECT

*September
2010*

Unit Manager
Stamp

**Table No. 4.13. Scheduled measures and works for the prevention of accidental spills for :
(C13) Process water holding tank; Sodium Hypochlorite storage containers [01], [11], [12], [20]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the process water tank, its supports, containment vat	Prevent or remove leaks of process water (with low cyanide content) recycled from the TMF	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Check and maintenance of the tank level indicator	Prevent overflow of the tank and remove cyanide containing recycled water spills	Idem	Quarterly or Based on. specific SOP	Idem
3	Check sodium hypochlorite storage containers	Prevention or removal of sodium hypochlorite spills	Idem	Weekly or Based on. specific SOP	Idem

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**Table No. 4.14. Scheduled measures and works for the prevention of accidental spills for :
(C14) ARD Neutralization Plant – Lime Wash Reactor ; Settling Tank [01], [11], [12]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular check of the lime wash neutralization reactors, settling tanks	Lime wash or neutralization sludge leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check and maintenance of the dispensing and control installations	Prevent overflow of the reactors and lime wash or sludge leaks	Idem	Quarterly or Based on. specific SOP	Idem

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Table No. 4.15. Scheduled measures and works for the prevention of accidental spills for : (C15) Fuel holding tank [01], [11], [12]

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the diesel tank, its supports, , petrol tank, containment vat	Fuel leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check and maintenance of the tank level indicators	Prevent overflow of the holding tanks and fuel leaks	Idem	Quarterly or Based on. specific SOP	Idem

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Table No. 4.16.a. Scheduled measures and works for the prevention of accidental spills for : (C16) Cyanide solution handling systems ; Cyanide containing slurry handling and/or preparation systems ; Cyanide containing solution/suspension handling systems - (pipes, connections, pumps) [01], [11], [12], [20]

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the pipes, replacement of flanges, replacement of blocked or faulty connections	Cyanide containing solution or slurry leak prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Daily or Based on. specific SOP	Special checking forms to be filled out for each inspection [20]
2	Regular checks of process pumps handling cyanide containing slurry or solutions, change presets, repair or replace the electric drive motors	Prevent or remove leaks of solution or slurry during pump operation	Idem	Daily or Based on. specific SOP	Idem
3	Label and check the operation of pipelines and containment tanks for breakdown situations	Cyanide containing solution or slurry leak prevention or removal	Idem	Weekly or Based on. specific SOP	Idem

Unit Manager

	Spill Prevention and Control Plan ROȘIA MONTANĂ PROJECT	<i>September 2010</i>
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Stamp

	Spill Prevention and Control Plan ROȘIA MONTANĂ PROJECT	September 2010
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**Table No. 4.16.b. Scheduled measures and works for the prevention of accidental spills for :
(C16) Hydrochloric acid solution handling systems ; Sodium hydroxide solution handling systems (pipes, connections, pumps) [01], [11], [12]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the pipes, replacement of flanges, replacement of blocked or faulty connections	Hydrochloric acid or Sodium hydroxide solution spill prevention or removal	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Daily or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Regular checks of process pumps handling cyanide solutions, slurry containing high or low cyanide levels, change glands, repair or replace the electric drive motors	Prevention or removal of hydrochloric acid or sodium hydroxide solution spills during pump operation	Idem	Daily or Based on. specific SOP	Idem
3	Label and check the operation of pipelines and containment tanks for breakdown situations	Hydrochloric acid or Sodium hydroxide solution spill prevention or removal	Idem	Weekly or Based on. specific SOP	Idem

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**Table No. 4.17. Scheduled measures and works for the prevention of accidental spills for :
(D) Slurry mains; Settled TMF water handling pipe; ARD transport pipe from Cetate Dam to the Neutralization Plant (ARD) [01], [11], [12], [18], [19], [20], [21]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Periodical check of pipelines, especially at crossing points over diversion canals and storm water drains	Prevent or remove leaks of cyanide containing slurry, recycled process water from the TMF, or ARD transported to the neutralization plant	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Daily or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Change leaking flanges, compensators, faulty vanes, worn pipe sections or beds, restore welding	Prevent or remove leaks of cyanide containing slurry, recycled process water from the TMF, or ARD transported to the neutralization plant	Idem	Daily or Based on. specific SOP	Idem
3	Check containment tanks along the pipelines	Prevent overflow of the containment tanks and remove fluid leaks	Idem	Weekly or Based on. specific SOP	Idem
4	Check pipe pressure drop detection systems	Prevent or remove pipe leaking	Idem	Weekly or Based on. specific SOP	Idem
5	Regular checks of the pipe transport pumps handling cyanide containing slurry, recycled process water from the TMF, ARD, change gland valves, repair or replace the electric drive motors	Prevent or remove leaks during pump operation	Idem	Daily or Based on. specific SOP	Idem

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**Table No. 4.18. Scheduled measures and works for the prevention of accidental spills for :
(E) The TMF [01], [11], [12], [18], [19], [20], [21]**

No.	Measure or Work	Purpose	Responsibility	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the main dam, slopes, high water spillways, dam behaviour monitoring devices, water diversion channels	Prevent or repair failures that may cause cyanide containing tailings or cyanide containing settled water spills	TMF Manager	Daily or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Ongoing checks of the operation of drainage systems, quantitative and qualitative water monitoring systems in the TMF area, the TMF settled water recycling systems	Prevent overflow of the (main and secondary containment systems) and remove tailings or water spills	Idem	Daily or Based on. specific SOP	Idem
3	Strict compliance checks of TMF operation, maintenance and repair work schedule for the different TMF components	Prevent or repair failures that may cause cyanide containing tailings or cyanide containing settled water spills	Idem	Monthly or Based on. specific SOP	Idem

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	Spill Prevention and Control Plan ROȘIA MONTANĂ PROJECT	September 2010
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**Table No. 4.19. Scheduled measures and works for the prevention of accidental spills for :
(F) ARD Containment Dam [01], [10], [11], [12], [18], [21]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the dam, slopes, high water spillways, dam behaviour monitoring devices, water diversion channels	Prevent or repair failures that may cause ARD spills	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Daily or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Ongoing checks of the operation of the water diversion systems, drainage systems, quantitative and qualitative water monitoring systems in the dam area, the ARD to WWTP pumping systems	Prevent overflow and ARD spills	Idem	Daily or Based on. specific SOP	Idem
3	Strict compliance checks of TMF operation, maintenance and repair work schedule for the different TMF components	Prevent or repair failures that may cause ARD spills	Idem	Monthly or Based on. specific SOP	Idem

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**Table No. 4.20. Scheduled measures and works for the prevention of accidental spills for :
(G) Waste rock stockpile [01], [10], [11], [12], [18], [21]**

No.	Measure or Work	Purpose	Responsibilities	Due date, Inception/ p.i.f.	Remarks
1	Regular checks of the stockpiles, adjacent slopes, stockpile behaviour monitoring devices, water diversion channels and drainage system operation	Prevention or removal of breaks or siltation of the storm water drainage and collection systems, resulting in spills of such waters into the diversion channels and then into the receiver	Relevant head of sector or department for these systems To establish the relevant sector or department for these systems	Weekly or Based on. specific SOP	Special checking forms to be filled out for each inspection
2	Check on strict compliance with the regulated disposal of the waste in stockpiles	Prevent or control material slides from the stockpiles into the diversion or stockpile runoff drainage systems	Idem	Monthly or Based on. specific SOP	Idem

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Table No. 5. COMPOSITION OF RESPONSE TEAMS [01]

No.	Name and Surname	Address/ Telephone no.	Comments

NB: The final version and level of detail to be established based on the detailed technical projects, the completion of the SOPs and the final organizational structure upon commissioning.

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Table No. 6. List of necessary facilities and equipment in stopping accidental spills [01], [21]

No.	Equipment/ material name	Place of origin (name of section, workshop, etc.)	Who operates the equipment (mane, workplace)	Who provides the material
1.	Emergency response equipment lockers	- Agents building - Office buildings - Warehouses - ARD treatment plant - Fuel storage area - Primary crusher - Gravel crusher - Mine area - storm water dam		- Section head - Shift technician
2.	Vehicles	- Mining Operations Areas		- Permitting, Compliance and Management Systems Manager - Section head - CSU - Shift technician
3.	Power Equipment	- Mining Operations Areas		- Permitting, Compliance and Management Systems Manager - Section head - CSU - Shift technician
4.	Emergency lighting equipment	- DSEC - Mining Operations Areas - Defence stock		- CSU - Shift technician
5.	Special vehicles (for fire and hazardous pollution control)	- DSEC		- CSU
6.	Response materials and equipment for accidental pollution mitigation	- Own defence stock		- CSU - Permitting, Compliance and Management Systems Manager - DM Manager

NB: The final version and level of detail to be established based on the detailed technical projects, the completion of the SOPs and the final organizational structure upon commissioning.

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Table No. 7. Annual training schedule for the workers in critical points and response teams [01], [16], [21]

No.	Training date	Location	Name of trainer	Participants
1	Semi-annually	Critical Points Training	DM Manager DSS Manager Permitting, Compliance and Management Systems Director	Response teams and teams who service the activity where critical points have been established
2	Annually	Critical Points Simulation	Environmental Manager DSS Manager Production Manager	Response teams and teams who service the activity where critical points have been established

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Table No. 8. Management responsibilities [01], [16], [19], [21]

No.	Name of critical point	Unit Sector/ Scope of work	Name and Surname of the manager/ operator	Responsibilities
a	<i>Mining Operations Areas</i>	Pit		<ul style="list-style-type: none"> - <u>Section head (manager)</u> - investigates why and how the spill occurred - mobilizes own response teams to the critical point where the spill occurred - collaborates with the CI to remove the causes and minimize the effects of the spill - informs the Company management, the DM, and the spill control team on the ongoing response actions - ensures and participates in investigating the causes of the spill and in establishing liabilities of the guilty parties - <u>Department Head (Manager)</u> - participates in investigating the causes of the spill, in adopting the specific department measures in the conduct of operative actions and implementation of preventative measures after the conclusion of the spill incident - <u>Shift Technician</u> - notifies response teams and directs them in operative actions under the coordination of the CI; - provides own response equipment and facilities; - informs the Department Head on the response deployment
b	<i>On site transport</i>	Pit		Idem
c	<i>Process plant</i>	Process plant		Idem
d	<i>Pipeline routes</i>	Process Plant (slurry) TMF (clarified water) Utilities (ARD)		Idem
e	<i>Tailings Management Facility TMF</i>	TMF Decant Pond		Idem
f	<i>Cetate ARD Catchment Dam</i>	Utilities		Idem
g	<i>Waste rock piles</i>	Pit		Idem

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NB: The final version and level of detail to be established based on the detailed technical projects, the completion of the SOPs and the final organizational structure upon commissioning.



Table No. 9. List of the support providing units in case of accidental spill occurrence

No.	Entity Name	Address	Telephone/ Fax	Contact person
1	S.G.A. Alba –S.H.Arieş – Turda	Turda Str. Stadionului 12	0264 313461 0264 313463/ 0264 313462	Dispatcher- 0264 313461
2	S.G.A. Alba	Alba Iulia Str. Lalelelor 7A	0258 833356/ 0258 834428	Dispatcher- 0258 833578
3	G. N. M. – Comisariatul Judeţean Alba	Alba Iulia Str. Lalelelor 7A	0258 816834/ 0258 830 002	
4	Inspectoratul pentru Situaţii de Urgentă Alba „Unirea” al judeţului Alba [Emergency Inspectorate]	Alba iulia Str. A.I. Cuza 10	0258 810411 0258 810497/ 0258 810425	Dispatcher-0258 810497
5	Instituţia Prefectului Judeţului Alba [Prefect’s Office]	Alba Iulia P-ta I.C. Brătianu 1	0258 811179/ 0258 811382	
6	Comitetul Local pentru Situaţii de Urgentă al Oraşului Abrud [Local Emergency Committee]			
7	Comitetul Local pentru Situaţii de Urgentă al com. R. Montană [Local Emergency Committee]			
8	Poliţia Oraşului Abrud [Police]	Abrud, Str. Copiilor, Bl. B4, Sc. 2	0258 780504/ 0258 780504	
9	Poliţia Com. Roşia Montană [Police]	Rosia Montana, Str. Principala, Nr. 180	0258 783105/	
10	Inspectoratul Judeţean de Poliţie Alba [Police]	Alba Iulia, Str. I. C. Brătianu nr. 1 B	0258 806161/ 0258 810683	
11	Spitalul Orăşenesc Abrud [Hospital]	Abrud, Str. Republicii, Nr. 13	0258 780045 0258 780615 0258 780614	
12	Spitalul Orăşenesc Câmpeni [Hospital]	Campeni, Str. Horea, Nr. 63	0258 771717	
13	Direcţia de Sănătate Publică Alba [Helath Directorate]	Alba Iulia Bld. Revoluţiei 23	0258 835243/ 0258 834600	
14	S.C. Cuprumin S.A. Abrud	Abrud P-ta Petru Dobra 1	0258 780710 0258 780712/ 0258 780296	Dispatcher-0258 780712 / 223

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NB: Contact persons and contact telephone numbers to be filled out upon commissioning



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CORPORATION
Roşia Montană

Spill Prevention and Control Plan ROŞIA MONTANĂ PROJECT

*September
2010*

Table No. 10. List of potentially impacted downstream users

No.	Entity Name	Address	Telephone/ Fax	Activity profile
1	S.C. Cuprumin S.A. Abrud - Priza de apa Garde	Abrud P-ta Petru Dobra 1	0258 780710 0258 780712/ 0258 780296	Copper ore extraction ad processing
2	Compania de Apa Aries S.A. – Sucursala Turda	Turda, Str. Bogata, nr. 1C	Tel. :0264 311771 Fax.: 0264 311772	Local utilities
3	A.N.I.F. Cluj – Sistem Irigații Mihai Viteazu – Priza de apă Moldovenești	Com. Mihai Viteazu		Irrigations
4	S.C. Holcim S.A. Turda – Priza de apă Turda	Turda, Str. Stefan cel Mare, Nr. 4	Tel.: 0264 305 210 Fax.: 0264 305200	Cement manufacturing
5	S.C. Electroceramica S.A. Turda – Priza de apă Turda	Turda, Str. Stefan cel Mare, Nr. 19	Tel.: 0264 312350 0264 312351 0264 312352 0264 312353 Fax.: 0264 317045	Insulation manufacturing
6	S.C. Mechel S.A. Câmpia Turzii- Priza de apă Arieș [Water abstraction]	Câmpia Turzii Str. Laminoriștilor, 145	Tel.: 0264 305305 Fax.: 0264 305 308	

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DISTRIBUTION LIST FOR THE SPILL PREVENTION AND CONTROL PLAN

No.	Institution/ Service (section, compartment, etc.)	Name and surname	Date	Signature on receipt	Comments
1.	DISPATCHER				
2.	ENVIRONMENTAL DEPARTMENT				
3.	HEALTH & SAFETY DEPARTMENT				
4.	EMERGENCY COORDINATOR				
5.	ALBA WATER MANAGEMENT SYSTEM				
6.	ALBA COUNTY INSPECTORATE FOR EMERGENCIES				

Table of updates and revisions

No.	Issue No.	Date of update/ revision	Chapter, page updated/ revised	Person who operated it	Description of change
	3	Sept 2010	1.3, p.. 7-8	Viorel Cosara – Oconecorisc SRL Turda	Update legislative references (EGO 195/2005, Law No. 107/1996 and EGO 21/2004)
	3	Sept 2010	Annex 4, p. 24		Update contact data Table and legislative references(Law No. 107/1996)
	3	Sept 2010	Tab. 3, p.47 -51	Viorel Cosara – Oconecorisc SRL Turda	Correlation with GD `408/2008 on the classification and designation of risk and safety phrases
	3	Sept 2010	Tab. 9, p. 79		Data updating
	3	Sept 2010	Tab. 10, p. 80		Actualizare date
	3	Sept 2010	References	Viorel Cosara – Oconecorisc SRL Turda	Update legislative references (EGO 195/2005, Law No. 107/1996, GD 1408/2008 and EGO 21/2004)

REFERENCES

01. **Order 278/1997 of the MWEP** approving the framework methodology for the development of accidental pollution prevention and control plans for potentially polluting water uses;
02. **Law No. 107/1996** – the Water Law, amended by L 146/2010, EGO 3/2010, EGO 130/2007, EGO 12/2007, **Law No. 112/2006** and **Law No. 310/2004**;
03. **Joint Ministerial Order No. 638/2005 of the MEWM and 420/SB/2005 of the MIA** approving the Regulations for the Management of Emergencies generated by floods, hazardous weather events, accidents involving hydrotechnical structures an accidental pollution and the Framework Norms for he supply of operative response material and equipment for floods, ice and accidental spills
04. **RGD No. 2288/2004** approving the distribution of the main support functions provided in the ministries, other central organizations, and non-governmental organizations in emergency prevention and management;
05. **EGO 21/2004** on the National Emergency Management System amended and approved by Law No. 15/2005;
06. **GD 1408/2008** on the classification, packaging and labelling of hazardous substances
07. **Order 161/2006 of the MWEP** approving the Norms for the classification of surface water quality in order to establish the ecological state on water bodies
08. **EGO 195/2005** on environmental protection, as amended (EGO 164/2008, EGO 114/2007, EGO 57/2007, Law 265/2006);
09. **EIA Report for Rosia Montana Project, Chapter 1- General Information, Vol. 7, May 2006 ;**
10. **EIA Report for Rosia Montana Project, Chapter 4- Potential Impacts including transboundary impacts, on the environmental media and mitigation measures, Chapter 4.1, Water, vol. 11, May 2006;**
11. **EIA Report for Rosia Montana Project, Chapter 2- Processes Vol. 8, May 2006;**
12. **EIA Report for Rosia Montana Project, Chapter 7- Risk Situations, Vol. 18, May 2006;**
13. **EIA Report for Rosia Montana Project, Chapter 3- Waste, Vol. 10, May 2006;**
14. **EIA Report for Rosia Montana Project, Chapter 6- Monitoring, Vol. 17, May 2006;**
15. **EIA Report for Rosia Montana Project, Chapter 10- Transboundary Impacts, Vol. 20, May 2006;**
16. **Rosia Montană Project Management Plans, Plan A - Environmental and Social Management Plan, Vol. 21, May 2006;**
17. **Rosia Montană Project Management Plans, Plan A - Waste Management Plan, Vol. 22, May 2006;**
18. **Rosia Montană Project Management Plans, Plan C - Water Management and Erosion Control Plan, Vol. 23, May 2006;**
19. **Rosia Montană Project Management Plans, Plan F - TMF Management Plan, Vol. 25, May 2006;**
20. **Rosia Montană Project Management Plans, Plan G - Cyanide Management Plan, Vol. 22, May 2006;**
21. **Rosia Montană Project Management Plans, Plan I - Emergency Prevention and Control Plan, Vol. 28, May 2006;**
22. **Rosia Montană Project Management Plans, Plan N - Environmental and Social Management Plan, Vol. 21, May 2006;**