Borsa New Preparation Plant, Maramures County, Design: ICPM Baia Mare

DESCRIPTION OF MINE AND PREVIOUS ACTIVITY

Main activity of Borsa New Preparation Plant is: Preparation of copper, lead and zinc ore. It extends on a surface of 1,2 Hectares including mine curtilages, waste tips, tailing storage facilities and other ancillary activities. The activity will be cease in 2005

Associated with former mining operations there is 1 waste tips, containing 10000 cubic meters of mine waste. 2 tailing storage (there are 2 tailing dams, D1 and D3) facilities with a volume of 6800000 cubic meters, with total surface 21.3 ha.

The nearest community is Baia Borsa Town situated at 50 m from mine, having 12000 inhabitants and local water course is River Cisla situated at 10 m from mine boundary and Tailing Storage Facilities.

The mine water does not reach the surface.

The mine site has three separate areas: Mining site, Preparation plant and, Tailing Storage Facilities Area.

CULTURAL PROPERTY

It is not anticipated to be applicable. However, if there is an accidental find of something valuable, the Engineer of the Contract will stop any physical operations until competent authority (County Commission for Historical Monuments or Ministry of Culture and Religious Affairs) provides permission to continue.

PROPOSED WORKS

The mine closure and environmental remediation proposals:

- General site clearance, removal of scrap metal and demolition of 5 buildings and structures, having a total volume of 3000 cubic meters of demolition materials (concrete and bricks) which will be decontaminated and disposed off at waste tips

- Collection of contaminants and contaminated materials and disposal to a special constructed landfill. The location and size of landfill should be decided by the Engineer of the Contract based on quantity of unaccepted material identified on site. Three isolation layers shall be placed onto the compacted surface: a bentonite mattress 2.5 cm depth, a geomembrane layer of 2.5 mm and a geotextile layer of 5 mm. On completion of the final layer of unacceptable material the surface shall be domed to assist water run off. A gas ventilation pipe shall be placed at the highest point.
- Excavation and removal of 20000 mc. of material from waste tips, curtilages, benches and slopes.
- Reshape all mine waste dumps and TSF to appropriate slope angles, generally below 1/3. Construction of erosion fences and gabion walling to ensure long term stability and erosion control.
- Top soiling, cultivation and grassing of 10 Ha, and planting of 20 Ha with local species of trees or shrubs,

including waste dumps, TSF and other mine lands.

- Protection of rehabilitated surfaces and affluent river by guard ditches and drainage systems in total length of 5000 m.

- Rehabilitation of tailing storage facilities by:

- Fencing the lagoon(s)
- Draining off the water still contained in the tailing dam
- Strengthening the retaining structure
- Construction of deep perimeter drain, side and toe drains
- Regrading, capping and revegetation of the dam

KEY ENVIRONMENTAL ISSUES DURING THE CONSTRUCTION WORKS

Based on works, equipment and methods used for execution of works the following environmental issues might occur:

Noise, dust and mud generated by earthmoving equipment;

Noise, dust, smoke and vibrations generated by blasting operations;

Potential land pollution by fuel, oil or lubricants because spillage from earthmoving equipment or lorries;

Potential water pollution by fuel and oil because spillage from equipment while working above, adjacent or in watercourses;

Potential soil or water pollution by used waters generated by site activities in offices, workshops and messes;

Damage of existing vegetation from or adjacent of site because of negligent driving of equipment or site operations;

Damage of public roads because of traffic, equipment or site operations;

Potential soil or water pollution by spillage of tailing material from lorries or while working on tailing storage facilities.

COMMUNITY CONSULTATION (See annex "Consultarea comunitatilor – Obiective scanate")

ANNEX 1 – MITIGATION PLAN
BORSA GURA BAII SUPERIOR

Phase/Operation	**Issue** - Mitigation Measure	Cost	**Institutional Responsibility /** Approval and inspection
1 CONSTRUCTION			
A Demolition Works			**Contractor**
(a) Blasting of buildings and structures	**i. Noise:** - Restriction of blasting program to 8:00 – 18:00 o'clock, Monday to Saturday; - Informing of the affected community about blasting program **ii. Vibration:** - Restriction of the explosive quantity for each charge – 0.5Kg/blasting hole, minimum 1 second delay each other; **iii. Dust:** - Dust suppression measures (wet blasting)	Contract	Engineer of Contract
(b) Processing of demolition materials	**i. Dust:** - Dust suppressors (wet processing) **ii. Noise:** - Location of the processing facilities not less than 1Km far from BAIA BORSA Town area; - Noise screens around of processing equipment if necessary; **iii. Pollutants on or in demolition materials:** - Selection of the contaminants from demolition materials before being processed; - Contaminated materials will be disposed off separately at landfill;	Contract	Engineer of Contract
(c) Haulage/deposition of demolition materials	**i. Mud** - Keeping the lorries clean while working on or outside of the site area; **ii. Dust** - Sprinkling of demolition materials on lories and at dumping location; - Cover of lories if the haulage is through inhabited area BAIA BORSA town;	Contract	Engineer of Contract
B Earth Works			**Contractor**

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
(a) Excavation and loading of materials	**i. Lubricant and/or fuel spillage;** - The equipment should be inspected[1] for technical compliance with safety end environmental regulations, by the Engineer monthly. Equipment which will not pass the inspection will be removed from the site according with contractual clauses; **ii. Failure of benches or slopes during of works** - Each work bench for excavators and access roads on excavation place will be constructed to comply with Technical Prescriptions appended (TP-C**), 1997 edition; - Fencing and barriers around of unstable areas; - TSF slope construction: use appropriate excavation and support sequence during construction of retaining walls to avoid construction-induced failures	Contract	Engineer of Contract
(b) Haulage/deposition spread/level/place	**i. Noise during the transport on site or public roads;** - Restriction on haulage program to 8 o'clock 18 o'clock, Monday to Saturday; - Restriction of lorries speed to 30Km/h, or less as agreed with community; **ii. Mud and dust on public roads** - Cleaning of lorries wheel before emerging from loading/unloading location; - Suppress of any spillage from lories during the transport by sealing off; **iii. Noise** - Noise suppressors at the exhaust pipes;	Contract	Engineer of Contract
C Concrete works			**Contractor**
(a) Preparing and placing of concrete in situ	**i. Concrete outside of construction areas:** - Proper equipment for batching; - Location of batching facilities for concrete to be approved by the site Engineer	Contract	Engineer of Contract
(b) haulage of concrete	**i. Pollution of public roads because of concrete spillage during the transport** - Using only specialised lorries for haulage of concrete;	Contract	Engineer of Contract

[1] Inspection is referred to visual to identify possible oil or fuel spillage, level of noise and level of smoke produced by the equipment's engine (fummeter), status of tires and legal status related to periodic Technical Inspection as law asks for. (Note: according with Romanian Law for Public Road Circulation each vehicle should to pass periodic technical inspection. The inspection refers to: brakes efficiency, steering efficiency, emissions in exhaust system, lighting system, horns and noise. The vehicles, which pass the inspection, receive a licence). For other equipments used on site like Bulldozers, tractors, excavators this is not compulsory.

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
	- Cleaning of site at the end of each day;		
D General Works			**Contractor**
(a) Working adjacent over or in water course CISLA RIVER	**i. Surface waters pollution** - Working with equipment free of any pollutant in vicinity of river; - Fencing or erecting of barriers river; **ii. Rainfall control** - Construction of guard ditches to control runoff and to protect water courses	Contract	Engineer of Contract
(b) Cultivating re-vegetation and curing of existing vegetation	**i. Pollution with unacceptable pesticides** - Using only approved fertilizers (standard); - topsoil, subsoil or natural fertilizer will be tested by laboratory analyses to be free of pesticides heavy metals or any other unaccepted materials; **ii. Damage of existing vegetation** - The Engineer will keep the necessary records of number of trees and existing natural grassed areas. The contractor will restore on his own cost any damage on vegetation.	Contract	Engineer of Contract
(c) Operation of site offices, workshops	**i. Pollution of the area adjacent of offices, workshops and storage facilities** - construction of site facilities on approved areas, having all necessary facilities to deal with domestic and industrial waste; - industrial and domestic waste should be disposed off daily at site landfill	Contract	Engineer of Contract
E Hazardous materials			**Contractor**
(a) Decontamination of buildings by oil and lubricants	**i. Accidents involving contaminated materials** - Storage of hazardous chemicals, in areas approved by the Engineer of the contract; - Collection of contaminated materials still contained in the flotation building and equipment and disposal at landfill as it was approved by the Environmental Permit; - Washing of flotation equipment and location before to be demolished or decommissioned. The resulted materials will be disposed according to legislation; - Neutralizing of the equipment and their location with lime solution 10% before to be removed or demolished;	Contract	Engineer of Contract
(b) Storage, handling/ using	**i. Accidents involving explosives**	Contract	Engineer of

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
of explosives **(c) Storage using distributing of fuel and lubricants**	- Using of proper storage facilities (existing explosive storage facilities); - Using containers and lorries approved by the Engineer of the Contract; - Security of storage, authorized access only **i Spill of lubricants and/or fuel** - Using of spillage collection vessels in storage facilities. Cleaning of the storage area every day disposing off any contaminated material. ii. **Fuel/oil spillage during refilling operations** - construction and operate of fuel/oil repository - using only filling pump installed on refilling tank to refill equipment on site **ii. Fire on storage facilities** - construction for fuel storage facilities on location and according an approved by the engineer method of construction; - fire extinguishing equipment as regulation for fire fighting and control asks[2]	Contract Contract	Contract Engineer of Contract

[2] Depend on size of storage facilities the fire extinguish equipment and means must be supplied. Fire extinguishers (water, CO_2, foam etc). and hand shovels, picks, hook and 1 cubic meter of sand. For large fuel storage facilities is compulsory a permanent water source and necessary hoses etc.

ANNEX 2 – MONITORING PLAN
BORSA GURA BAII SUPERIOR

Issue	Where is parameter to be monitored	How is parameter to be monitored	Frequency of measurement	Responsible for the measurement
A. CONSTRUCTION				
i. **Noise** generated by: • Blasting; • heavy machinery • lorries	• On site and inhabited area	Noise measurement equipment (dB-meter)	Daily	The Engineer of the Contract
ii. **Vibration** generated by: • Blasting; • heavy machinery • lorries	• near sensitive buildings • at TSF, if blasting is carried out closer than 500 m	Visual	A measurement should be performed to establish level of blasting and transport along the inhabited area	The Engineer of the Contract
iii. **Dust** generated by: • blasting • traffic and equipment and lorry's	• On site and inhabited area	Visual	Daily	The Engineer of the Contract
iv. **Smoke** generated by: • blasting • equipment and lorry's engines	• On site and inhabited area	Visual for blasting; Specialised equipment for engines	Monthly and when a new equipment is bring on site	The Engineer of the Contract
v. **Mud** generated by • traffic on site and public roads	• On site and inhabited area	Visual	Daily	The Engineer of the Contract
vi. **Soil pollution** by fuel oil • Fuel and lubricants (tank leaks, engines leaks, other operations involving fuel and lubricants) • Cement or concrete	• Where fuel and lubricants are stored; • Where equipment is refilled; • Where equipment is maintained • Where fuel/lubricants are used; • Where concrete is prepared, transported, used	Visual	Daily	The Engineer of the Contract

Issue	Where is parameter to be monitored	How is parameter to be monitored	Frequency of measurement	Responsible for the measurement
vii. Water pollution • Fuel and lubricants • Suspensions carried out by rain fall • pH • Heavy metals	• Where working near or in CISLA River; • Monitoring points on CISLA River	Laboratory analysis	Monthly during the works	The Engineer of the Contract
B. POST CLOSURE				
i. vegetation - vegetation density - vegetation growth	- Cultivated and planted surfaces on curtilage, tailing storage facilities and waste tips	Visual	Yearly	Conversmin
ii. stability of waste tips or impoundments, tailing storage facilities - settlement of impoundments; - erosion of land - seepage line, phreatic surface	- Stabilised or deposition areas	Visual and topographic survey Standpipes and piezometers	Yearly	Conversmin