

DESCRIPTION OF MINE AND PREVIOUS ACTIVITY

Main activity of Livezeni Coal Washing Plant is: Washing of had coal. It is extended on a surface of 2.4 Hectares including mine curtilages, waste tips and ancillary activities. The activity was ceased in 1990 Associated with former mining operations there is 1 Waste tips, containing 243000 cubic meters of mine waste, there are not tailing storage facilities.

The nearest community is Petrosani Town situated at 200 m from mine, having 50000 inhabitants and local water course is River Jiu (East) situated at 10 m from mine boundary.

The Mine Water does not reach the surface.

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, removing of scrap metal and demolition of 44 buildings and structures, having a total volume of 59000 cubic meters of demolition materials (mainly concrete and bricks) which will be decontaminated and disposed off at waste tips
- Collection of contaminants and contaminated materials and disposed off at 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.
- Closing of boreholes or minor mine workings connected with surface.
- Excavating and moving of 5000 mc. of material from waste tips, curtilages, benches and slopes.
- Reshaping of all mine waste dumps to slope angles below 1/3. Construction of erosion fences and gabion walling to ensure long term stability and erosion control.
- Seeding of 2 Ha, and planting of 0.4 Ha with local species of trees or shrubs
- Protection of rehabilitated surfaces and affluent river by guard ditches and drainage systems in total length of 500 m.

KEY ENVIRONMENTAL ISSUES DURING THE CONSTRUCTION

Based on works, equipment and methods used for execution of works 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
- Potential underground water pollution by contaminated material used for filling of underground workings
- 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

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

**ANNEX 1 – MITIGATION PLAN
LIVEZENI WASHING PLANT**

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
1 CONSTRUCTION			
A Demolition Works			Contractor
(a) Blasting of buildings and structures	<ul style="list-style-type: none"> i. Noise: - Restriction of blasting program to 8:00 – 18:00 o’clock, Monday to Saturday; - Informing of the affected community LIVEZENI Town 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 and smoke: - Dust suppression measures (wet blasting) - Restriction of blasting when wind drive dust and smoke over the PETROSANI Town; 	Contract	Engineer of Contract
(b) Processing of demolition materials	<ul style="list-style-type: none"> i. Dust: - Dust suppressors (wet processing) ii. Noise: - Location of the processing facilities not less than 1Km far from PETROSANI 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; 	Contract	Engineer of Contract
(c) Haulage/deposition of demolition materials	<ul style="list-style-type: none"> i. Mud - Keeping the lorries clean while working on or outside of the site area; ii. Dust - Sprinkling of demolition materials on lorries and at dumping location; - Cover of lorries if the haulage is through inhabited area PETROSANI 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; - Each equipment should be inspected by the Engineer monthly. Equipment which will not pass the inspection will be removed from the site; 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 Prescription appended (TP – C**), 1997 edition; - Fencing and barriers around of unstable areas;	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 lorries 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;	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; - Cleaning of site at the end of each day;	Contract	Engineer of Contract
D General Works			Contractor
(a) Working adjacent over or in water course East Jiu	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 river	Contract	Engineer of Contract

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
(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 from the buildings and disposal at landfill;	Contract	Engineer of Contract
(b) Storage, handling/ using of explosives	i. Accidents involving explosives - Using of proper storage facilities (existing explosive storage facilities); - Using containers and lorries approved by the Engineer of the Contract	Contract	Engineer of Contract
(c) Storage using distributing of fuel and lubricants	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 iii. Fire on storage facilities - method of construction for fuel storage facilities as approved by the engineer; - fire extinguishing equipment as regulation for fire fighting and control asks	Contract	Engineer of Contract

**ANNEX 2 – MONITORING PLAN
LIVEZENI WASHING PLANT**

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: <ul style="list-style-type: none"> • Blasting; • heavy machinery • lorries 	<ul style="list-style-type: none"> • On site and inhabited area 	Noise measurement equipment (dB-meter)	Daily	The Engineer of the Contract
ii. Vibration generated by: <ul style="list-style-type: none"> • Blasting; • heavy machinery • lorries 	<ul style="list-style-type: none"> • near sensitive buildings 	Visual	During the blasting and transport within the inhabited area	The Engineer of the Contract
iii. Dust generated by: <ul style="list-style-type: none"> • blasting • traffic and equipment and lorry's 	<ul style="list-style-type: none"> • On site and inhabited area 	Visual	Daily	The Engineer of the Contract
iv. Smoke generated by: <ul style="list-style-type: none"> • blasting • equipment and lorry's engines 	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • traffic on site and public roads 	<ul style="list-style-type: none"> • On site and inhabited area 	Visual	Daily	The Engineer of the Contract
vi. Soil pollution by fuel oil <ul style="list-style-type: none"> • Fuel and lubricants (tank leaks, engines leaks, other operations involving fuel and lubricants) • Cement or concrete 	<ul style="list-style-type: none"> • 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
vii. Water pollution <ul style="list-style-type: none"> • Fuel and lubricants • Suspensions carried out by rain fall 	<ul style="list-style-type: none"> • Where working near or in Jiu River; • Monitoring points on Est Jiu 	Laboratory analysis for <ul style="list-style-type: none"> - Suspensions - pH 	Monthly during the	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
			works	
B. POST CLOSURE				
i. vegetation - vegetation density - vegetation	- Grassed and planted surfaces on curtilage and waste tips	Visual	Yearly	Conversmin
ii. stability of waste tips or impoundments - settlement of impoundments; - erosion of land	- Stabilised or deposition areas	Visual and topographic survey	Yearly	Conversmin