

DESCRIPTION OF MINE AND PREVIOUS ACTIVITY

- Main activity of Lupeni Coal Washing Plant was: Washing of hard coal. It extends on a surface of 80.3 Hectares including mine curtilages, waste tips and ancillary activities. The activity will be ceased in 2004
- Associated with former mining operations there are: 2 Waste tips, containing 4 700 000 cubic meters of mine waste, There are not tailing storage facilities.
- The nearest community is Lupeni Town situated at 10 m from mine, having 20000 inhabitants and local water course is River Jiu (West) 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, removal of scrap metal and demolition of 38 buildings and structures, having a total volume of 530400 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.
- Closing of boreholes or minor mine workings connected with surface.
- Excavation and removal of 1 000 000 mc. of material from waste tips, curtilages, benches and slopes.
- Reshape of all mine waste dumps to appropriate slope angles below 1/3. Construction of erosion fences and gabion walling to ensure long term stability and erosion control.
- Top soiling, cultivation and grassing of 61,3 Ha, and planting of 42,2 Ha with local species of trees or shrubs, including waste dumps;
- Protection of rehabilitated surfaces and Affluent river by guard ditches and drainage systems in total length of 1500 m.

The above proposals are included and development on Technical Mine Closure Plan a part of civil works contract.

KEY ENVIRONMENTAL ISSUES DURING THE CONSTRUCTION

Depending on the 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 fining 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
- Potential soil or water pollution by spillage of tailing material from lorries or while working on tailing storage.

COMMUNITY CONSULTATION (See annex “Consultarea comunitatilor – Obiective scanate”)

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
(b) Excavation and loading of materials	<ul style="list-style-type: none"> - Restriction of blasting when wind drive dust and smoke over the LUPENI Town; i. Lubricant and/or fuel spillage; - Each equipment should be inspected¹ for technical compliance with safety and 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 Prescription appended (TP – C**), 1997 edition; - Fencing and barriers around of unstable areas; 	Contract	Engineer of Contract
(c) Haulage/deposition spread/level/place	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> i. Concrete outside of construction areas: - Using only mechanical batching equipment for preparing of concrete; - Location of batching facilities for concrete to be approved by the site Engineer; 	Contract	Engineer of Contract
(b) haulage of concrete	<ul style="list-style-type: none"> 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 West Jiu	<ul style="list-style-type: none"> i. Surface waters pollution - Working with equipment that present no leakage of fuel, oil, lubricants in vicinity of 	Contract	Engineer of Contract

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
<p>(b) Cultivating re-vegetation and curing of existing vegetation</p> <p>(c) Operation of site offices, workshops</p>	<p>river;</p> <ul style="list-style-type: none"> - Fencing or erecting of barriers near river; <p>ii. Rainfall control</p> <ul style="list-style-type: none"> - Construction of guard ditches to control runoff and to protect r rivers <p>i. Pollution with unacceptable pesticides</p> <ul style="list-style-type: none"> - Using only approved fertilizers approved by the Engineer of the contract - topsoil, subsoil or natural fertilizer will be tested by laboratory analyses to be free of pesticides heavy metals or any other unaccepted materials; <p>ii. Damage of existing vegetation</p> <ul style="list-style-type: none"> - 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. <p>i. Pollution of the area adjacent of offices, workshops and storage facilities</p> <ul style="list-style-type: none"> - construction of site facilities on approved areas by the Engineer of the Contract, having all necessary facilities to deal with domestic and industrial waste; - industrial and domestic waste should be disposed off daily at site landfill 	<p>Contract</p> <p>Contract</p>	<p>Engineer of Contract</p> <p>Engineer of Contract</p>
E Hazardous materials			Contractor
<p>(a) Decontamination of buildings by oil and lubricants</p> <p>(b) Storage, handling/ using of explosives</p> <p>(c) Storage using distributing of fuel and lubricants</p>	<p>i. Accidents involving contaminated materials</p> <ul style="list-style-type: none"> - Storage of hazardous chemicals, in areas approved by the Engineer of the contract; - Collection of contaminated materials from the buildings and disposal at land fill as it was approved by the Environmental Permit <p>i. Accidents involving explosives</p> <ul style="list-style-type: none"> - Using of proper storage facilities (existing explosive storage facilities); - Using containers and lorries approved by the Engineer of the Contract <p>i Spill of lubricants and/or fuel</p> <ul style="list-style-type: none"> - Using of spillage collection vessels in storage facilities. Cleaning of the storage area every day disposing off any contaminated material. - Security of storage, authorized access only <p>ii. Fuel/oil spillage during refilling operations</p>	<p>Contract</p> <p>Contract</p> <p>Contract</p>	<p>Engineer of Contract</p> <p>Engineer of Contract</p> <p>Engineer of Contract</p>

Phase/Operation	Issue - Mitigation Measure	Cost	Institutional Responsibility / Approval and inspection
	<ul style="list-style-type: none"> - 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 <ul style="list-style-type: none"> - method of construction for fuel storage facilities as approved by the engineer; - fire extinguishing equipment as regulation for fire fighting and control asks² 		

**ANNEX 2 – MONITORING PLAN
LUPENI 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 if blasting is carried out closer than 500 m 	Vibrometer	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: <ul style="list-style-type: none"> • blasting • traffic and equipment and lorry's 	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 	On site and inhabited area	Visual for blasting; Specialised equipment for engines	Monthly and when a new equipment is	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
			bring on site	
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	<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 • Fuel and lubricants • Suspensions carried out by rain fall	<ul style="list-style-type: none"> • Where working near or in water course West Jiu; • Monitoring points on receptor river West Jiu 	Laboratory analysis	Monthly during the works or as specified in monitoring program	The Engineer of the Contract
B. POST CLOSURE				
i. vegetation - vegetation density - vegetation	- Cultivated and planted surfaces on curtilage 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

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.

² Depend on size of storage facilities the fire extinguish equipment and means must be supplied. Fire extinguishers (water, CO₂, 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.