



ПЕРВОУРАЛЬСКИЙ
НОВОТРУБНЫЙ
ЗАВОД



ГРУППА ЧТПЗ

Mini-Mill Development at JSC Pervouralsky Novotrubny Zavod

Environmental and Social Impact Assessment (ESIA) Non-Technical Summary

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NON-TECHNICAL SUMMARY

The Pervouralsk New Pipe Plant (PNTZ) is located in the city of Pervouralsk, Sverdlovsk Oblast. It is located on the Chusovaya River, 39 km west of Ekaterinburg. The company produces over 25,000 types of pipes, using around 250 steel grades. The plant is part of the ChTPZ Group, Russia's second largest pipe producer, which accounts for about 24% of Russia's overall pipe production, and employs more than 25,000 workers. The PNTZ site produced 743,000 tonnes of products in 2005. Around 15% of the produce was exported.

At present all of the steel used on the PNTZ site is imported from other steel mills. However, the company now proposes the development of a steel "mini-mill" which will produce 950,000 tonnes of steel from scrap metal. Around 600,000 tonnes per year of this steel will be used at PNTZ; the remaining 350,000 tonnes will be transported by rail to Chelyabinsk to be used at the sister plant, ChTPZ. The mini-mill will supply around 80% of the PNTZ site's requirements for steel. The remaining 20% will still come from other steel mills because the mini-mill cannot produce all types of steel used by PNTZ.

The plant will be fed by scrap metal supplied by ChTPZ Meta, a sister company. The total input of scrap will be around 1 million tonnes per annum. This scrap will come from a wide area, predominantly from industrial sources. It will be transported to PNTZ mostly by rail, with a small amount (amounting to fewer than one vehicle per hour) transported by road.

The mini-mill investment is being supported by The European Bank for Reconstruction and Development (EBRD). The EBRD classifies the project as "Category A", which means that it has the potential to have significant environmental and social impacts. The EBRD requires such projects to have a full independent assessment of all potential social and environmental impacts. Accordingly, this assessment (known as an "ESIA") has been prepared by Atkins in support of the mini-mill project. The ESIA is completed in addition to the assessment required under Russian law (which is known as an OVOS).

This Environmental Statement (ES) documents the outcome of the Environmental and Social Impact Assessment (ESIA). Its primary purpose is to assist the Bank in its decision as to whether they should provide financial support for the construction of the proposed facility. The findings of the ESIA will also contribute to the OVOS being undertaken by PNTZ to support the local Russian legislative requirements for development permissions and operating permits.

This summary explains the key elements of the Environmental Statement in non-technical terms. The impacts of the development have been considered in relation to the construction, operation and decommissioning phases of the mini-mill.

The Environmental Statement:

- provides a description of the proposed facility and the existing environmental conditions at the proposed development site;
- assesses the impact of the proposed development on the existing environment;
- recommends measures to limit these impacts (the mitigation measures); and
- describes the extent of the residual environmental impact following the implementation of the proposed mitigation measures.

Obtaining Copies of the Full Environmental Statement

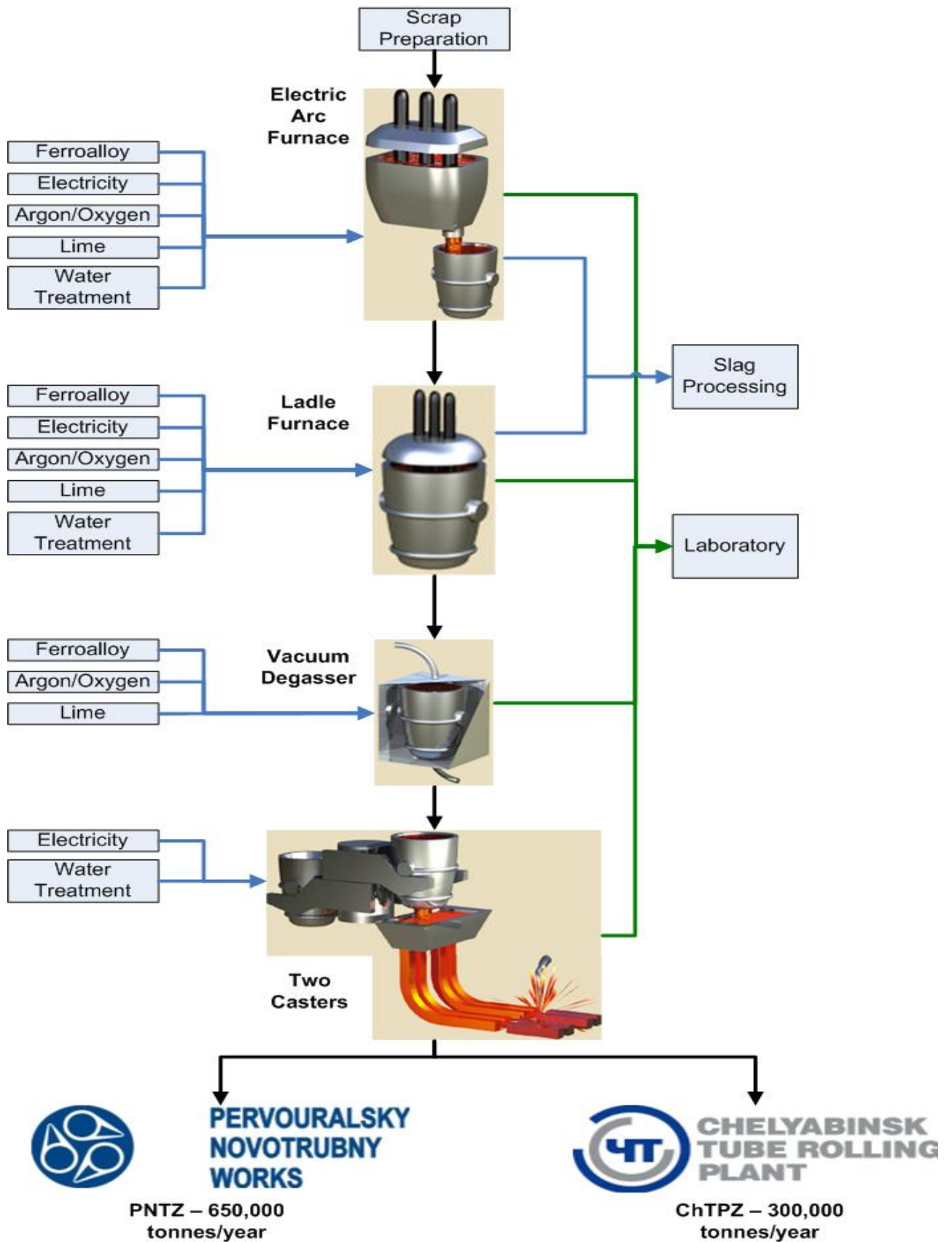
The Non-technical summary will be placed on the EBRD website (www.ebrd.com), which will also contain information on where the full ESIA documents will be available and a link to the company's website.

The full ESIA documentation and a non technical summary (NTS) will both be available in English and Russian at the PNTZ Environment office (1 Torgovaya Street, Pervouralsk, Sverdlovsk Region, Russia 623112, care of Viktor Kutnezov, Environmental Manager, Telephone 7 34392 7 43 82) and in the office of the newspaper "Uralsky trubnik". The hard copies of the materials will also be available at the EBRD regional offices in Ekaterinburg (Karla Libknekhta, 22, Office 413) and Moscow (6 Gasheka Street; Dukat Place III, 123056 Moscow).

What is a mini-mill?

A mini-mill is an industrial plant that produces steel product from scrap metal. A mini-mill will have an electric arc furnace for scrap melting, a ladle furnace for processing the molten metal, a vacuum degasser for further treatment of the molten metal and casters for converting molten steel to a solid form which in this case will be in the form of round billets. Figure 1 shows a diagram illustrating the main processes of the mini-mill:

Process Flow Diagram



Why is the mini-mill needed?

The Project will ensure a guaranteed supply of high quality steel for around 80% of site operations at PNTZ without reliance on external sources. The mini-mill will enable the achievement of the long term development programme of the ChTPZ company at both the Pervouralsk and Chelyabinsk sites.

There is also a requirement to close the existing open hearth furnaces at ChTPZ, as these furnaces are at the end of their useful life and are a source of significant air pollution. They are also very inefficient in terms of energy usage and do not produce the high quality steels that are required at PNTZ in the long term. It would be uneconomical to re-furbish them.

What alternatives have been considered?

There are several alternatives to the proposed development which are outlined in the table below. The location proposed by the company was chosen based on the availability of land and the final product requirements.

Project Alternatives

Option	Description	Location	Comments
0	Do nothing	-	This would require the open-hearth furnaces to continue operation at ChTPZ for a longer period. Increase in the amount of imported steel as the site develops.
1	Mini-mill	PNTZ – Alternative location	Potentially further from residents, but no site of adequate size identified. Brownfield site of suitable size.
2	Mini-mill	PNTZ – Final location	Easy access to infrastructure. The planned mini-mill protection zone will be within the existing site. Reduced transport of steel product as majority of steel will be used at PNTZ.
3	Mini-mill	Chelyabinsk	Increased transport of steel products compared to site at PNTZ as majority of output to be utilised at PNTZ.

What will the new mini-mill facility include?

The mini mill project site will occupy an area of 26 hectares located inside the PNTZ site. There will be a single 45 m high main building which will house most of the plant and some auxiliary buildings, including a scrap storage yard facility, slag cooling areas, energy supplies and technical gas generation.

The mini-mill will consist of the following main elements:

- Scrap metal yard with scrap metal transfer equipment
- Scrap drying unit
- Electric arc furnace (120 tonne capacity)
- Ladle furnace
- Vacuum degassing plant
- Ladle handling and repair shop
- EAF shell handling and repair shop
- Material handling system
- Dedusting plant
- Ladle relining house
- Slag cooling area
- Carbon silo
- Two continuous casting machines and billet storage area
- Tundish maintenance & repair shop and Tundish relining house
- Mould and segment maintenance and repair shop
- Scale pit

Auxiliary plant and equipment will include:

- Fire fighting pump and water tank area
- Laboratory
- Maintenance workshop
- Oil & lubrication and spare part storage
- 220/35kV Station

- Water treatment plant
- Air separation plant
- Steam generation plant
- Compressed air plant
- Lime preparation plant

Other associated buildings will include:

- Control building
- Administration building
- Office building
- Laboratory building
- Transformer building

The mini-mill de-dusting plant will collect off-gases from the plant. This facility will ensure that all gases released are cleaned of particulate matter before release to air. The process air will be discharged to atmosphere via a single 90 m high stack.

As part of the development, the PNTZ site will require a new connection to the electricity grid which will require the installation of a new power line. The installation work will be undertaken by RAO-UES. This aspect of the development is outside the scope of this ESIA.

What design standards will be used for the new mini-mill facility?

From the outset, the new facility will be designed to meet international standards and will comply with the full requirements of local Russian regulations as well as European Union (EU) Directives. The most important EU Directive in relation to environmental control is the Integrated Pollution Prevention and Control (IPPC) Directive. IPPC is a regulatory system that uses an integrated approach to the control of environmental impacts from industrial sites.

The IPPC Directive is not based upon fixed emissions limits but involves the determination of appropriate equipment design and operation to protect the environment through the application of “Best Available Techniques” (BAT). This means that emissions to air, water (including discharges to sewer) and land, plus a range of other environmental impacts must be considered together. Operators have to assess emissions to all environmental media in the design of the whole plant using ‘clean technology’ rather than relying on ‘end-of-pipe’ techniques.

To assist the designers and operators of such facilities the EU has produced a number of BAT Reference notes (known as the “BREF notes”) that describe BAT for each industry sector within IPPC. The Guidelines applicable to this development is the BREF note for the

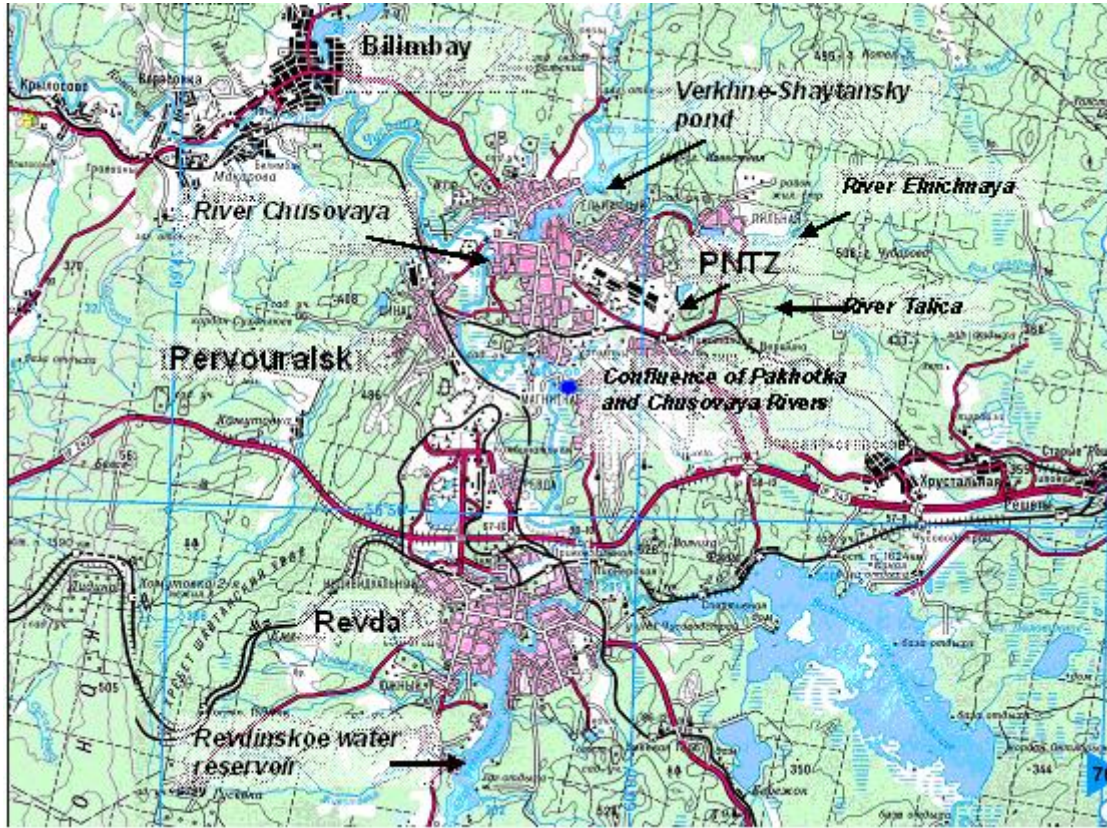
“Production of Iron and Steel”. Although the IPPC Directive does not apply in Russia, the guidance provided by the Production of Iron and Steel BREF has been used as a benchmark standard for undertaking the ESIA associated with the assessment of this development. The BREF note not only contains information about the basic design of the facility but also how it should be operated, suggested Emission Limit Values and how the facility emissions should be monitored. The BREF also includes guidance concerning the restoration of sites when industrial activities cease. These requirements have been taken into account in the consideration of the future closure of the PNTZ Mini-Mill Development. In addition to the BREF note the Draft Environmental Health and Safety Guidelines for Integrated Steel Mills produced by the International Finance Corporation (February 2007) have also been used to provide indicative design and operation requirements for the type of facility proposed.

The ESIA has concluded that the design of the proposed facility will comply with the general requirements of the EU BREF note and IFC guidelines. Where insufficient design information was available the EU BREF note has been used to establish the recommended mitigations and a future Environmental Monitoring Plan.

Where will the mini-mill facility be located?

The mini-mill will be located on the main PNTZ site in Pervouralsk City. The Ural region is rich in mineral resources and highly industrialized with a dense presence of such industries as ferrous and non-ferrous steel works, chemical plants and manufacturing industries.

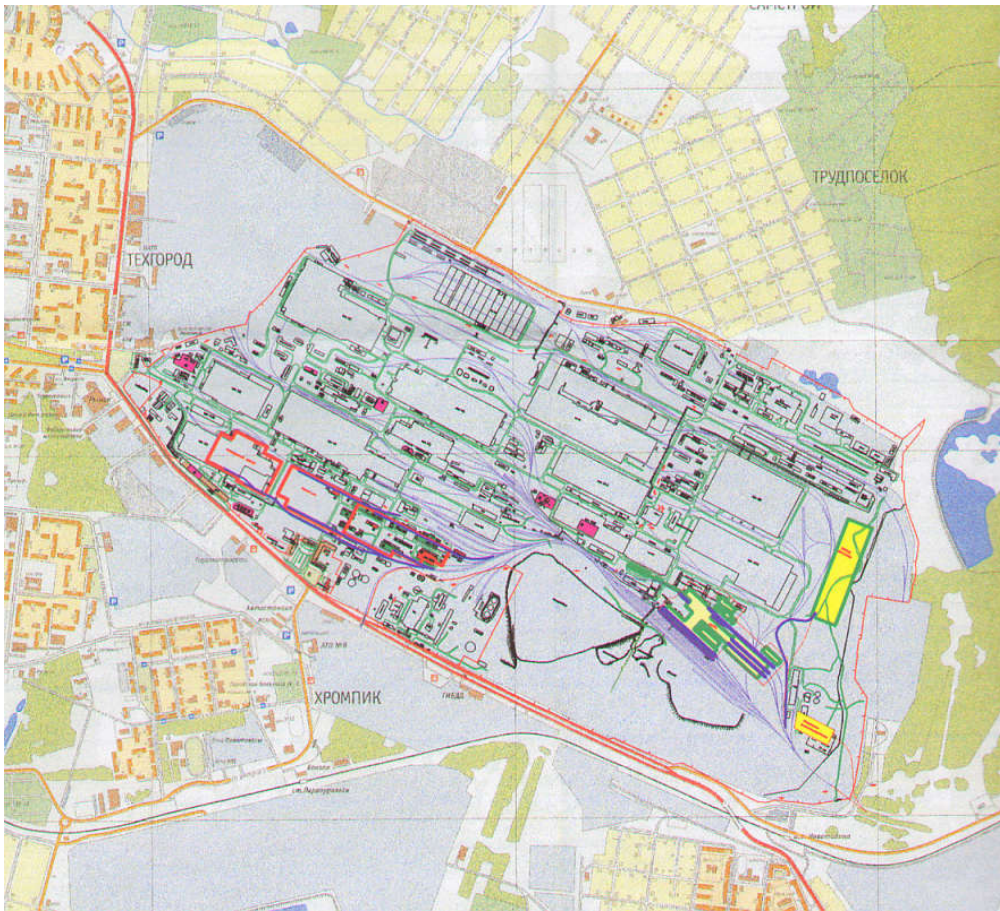
Site Location within the Region



The existing PNTZ site has a well developed infrastructure of roads, railway lines and services, and consists of a series of workshops and other buildings surrounded by open areas. The main workshops are located in the western and central area and the waste disposal areas are located in the south-eastern part of the site.

The proposed development is located in the south-eastern part of the PNTZ site at Pervouralsk. The area was formerly used for the storage of steel. The proposed site has been cleared in preparation for the development.

Development Location within the PNTZ Site



What is the condition of the existing environment?

The PNTZ site has been used for the production of steel pipes for over 70 years. The site already has in place many buildings and other industrial structures of the same or similar appearance to the one proposed.

The nearest residential area is located 795 m to the south of the mini-mill development site. A 500 m sanitary protection zone (measured from primary emission sources) was established around the PNTZ site in 1991 as per the requirements of the sanitary rules 245-71 on the design of industrial facilities. No residential properties are located within the current protection zone. The nearest houses at the Trudposelok residential area are located approximately 100 m outside the protection zone boundary.

There has been no detailed testing of the ground at the site, but there are likely to be areas of local contamination as a result of the activities that have been previously undertaken. Analysis of the groundwater indicates that there is some contamination with metals and oil products, although this is not significant.

The site is located on the watershed between the rivers Elnichnaya and Talica, both tributaries of the Chusovaya River. The distance from the proposed mini-mill site to the

Elnichnaya is 2.2-2.8 km and 1-1.4 km to the Talica. Analysis of water from the Chusovaya River indicates that concentrations of oils, nitrites, iron, chromium, copper and manganese are above the national maximum allowable concentrations. This pollution arises from a number of industrial sources in the area and is not related to conditions on the development site.

The nearest sites associated with sensitive ecological receptors are at an appreciable distance from the PNTZ site and the assessment found them to be unaffected by the development.

What will be the effects during construction?

The main contractor for new mini mill development is SMS-Demag from Germany. The main subcontractor for the civil engineering and construction works is Gama, based in Turkey. SMS-Demag is responsible for the plant design, based on a specification provided by PNTZ. Gama is responsible for most of the site activities.

The construction activities will include:

- Demolition and site clearance (already completed);
- Fill importing/exporting and site levelling;
- Utilities and services connections to site;
- Foundation piling/excavations and installation of concrete footings;
- Erection of building steel frames and cladding;
- Installation of equipment;
- Ancillary facilities erection;
- Services, gas and utilities connections;
- Building fitting-out; and
- Commissioning (due for November 2008).

It is expected that approximately 1,500 workers will work on site at the peak time in March 2008. It is planned that they will live on-site in a specially constructed camp. The camp will be located adjacent to the construction site to the east within the PNTZ site and will have all relevant facilities, including recreational facilities. The construction camp will consist of several pre-fabricated buildings and necessary infrastructure.

Construction activities can generate dust that can cause a nuisance to local residents and cause a health risk to construction workers. As the nearest residential receptors are approximately 795m from the development site, the main risk is considered to be the exposure of workers on site. Dust control measures, together with the use of appropriate personal protective equipment will be used to mitigate this impact. The impact of emissions of vehicle exhaust gases on air quality is considered negligible.

Water on the construction site can become polluted by the mobilization of existing contamination present in the ground and/or as a result of escapes of materials used during construction. These risks will be reduced by removing any areas of gross contamination as they are found for appropriate disposal at suitably engineered off-site hazardous waste disposal sites. Potentially polluting materials will be carefully stored in suitable containment in order to reduce the risk of pollution incidents from spills and leaks.

Due to the nature of the surrounding industrial setting, the transitory visual impacts of construction works are expected to be negligible to minor from areas to the east of the site. The visual impact from other viewpoints is expected to be less as direct views of the site are interrupted and partially to completely obscured by other elements of the site and intervening buildings. Also, the visual impact is in keeping with the already developed nature of the area.

The effects of the traffic generated by the construction phase are likely to be negligible when considered within the context of the large volumes of traffic that enter and leave the site daily.

Due to the level of industrial activity on the site background noise levels are likely to be fairly high and any noise associated with construction activities such as piling are likely to have negligible impact. Measures to reduce construction noise levels will be included in the Environmental Management Plan and Monitoring Programme.

Overall, construction activities are transitory, and are considered likely to have a minor adverse impact on dust levels and visual impact.

What changes will there be to the local air quality?

A detailed air dispersion modelling study was undertaken for the proposed mini-mill development at the PNTZ Works. The aim of the study was to assess the effects of the routine stack discharges during the operation of the plant in terms of ground level pollutant concentrations. These changes in local air quality were then considered in the context of the Russian national air quality standards, the EU limit values and international WHO guidelines.

The emissions to the atmosphere were modelled using the latest version of the US Environmental Protection Agency (EPA) atmospheric dispersion model AERMOD. This is internationally recognised as an advanced dispersion model and is widely used for regulatory purposes. The model was used with five years of local hourly weather information and it takes account of the influence on dispersion of the major plant structures and the local topography.

The operation of the electric arc furnace, ladle furnace and the vacuum de-gasser are batch processes with variations in pollutant emission rates throughout the process cycle. The manufacturer provided a range of emission rates derived from measurements at similar plant, and the air quality assessment used the upper bound of these ranges, an inherently conservative approach. The emissions of oxides of nitrogen, sulphur dioxide, carbon monoxide and particulates (dust) were modelled.

The existing air quality in the town is acknowledged to be poor. Consequently the environmental regulator requires that increments to pollutant concentrations in the town should not exceed ten percent of the relevant ambient air quality standards. The plant design therefore incorporates a relatively high 90 metre stack to promote dispersion of the discharge and to further mitigate the effects of the residual emissions from the de-dusting plant.

The maximum modelled hourly average concentrations of sulphur dioxide, nitrogen dioxide and particulate concentrations were found to be less than two percent of EU limit values. The maximum modelled daily average concentrations of all pollutants are less than 0.2 % of the Russian national standards (equivalent to 0.002 of the share of the standard) as are the maximum annual average sulphur dioxide concentrations. The maximum annual average concentrations of nitrogen dioxide and particulates (dust) are less than 0.1% (equivalent to 0.001 of the share of the standard) of the Russian national standards.

These very small effects on local air quality in the forest to the north and east of the plant are assessed as being insignificant. Potential exposures in residential areas will be lower still and are also regarded as being insignificant.

What changes will there be to the emissions of greenhouse gases?

The mini mill project is being implemented as a new installation, not replacing any existing activities in PNTZ. It is planned to increase operating efficiency of the plant by on-site steel melting from scrap. As such it will increase greenhouse gas (GHG) emissions produced by the PNTZ.

However, the development of the mini-mill at PNTZ will allow the closure of the open hearth furnaces at Chelyabinsk. These furnaces are near the end of their useful life and are very inefficient. Therefore there will be significant greenhouse gas reductions associated with the closure of these furnaces and there will be a net reduction in overall GHG emission from ChTPZ as a whole.

An assessment of the proposed technologies to be implemented at the site indicates that the specific energy use of the PNTZ mini-mill compares favourably against international industry data, and is indeed below the best practice benchmark stipulated in guidance quoted in this assessment.

What other operational effects will there be?

Many of the environmental effects of the proposed facility are considered to be negligible when placed within the context of the site as whole. These other operational effects are summarised below:

- Noise
 - (i) Noise levels at the nearest residential receptors as a result of the proposed operations have not been calculated as part of this assessment but are not expected to be significant issue during operation.
- Landscape and visual
 - (i) The development will appear as a large profiled steel clad industrial building, with a 90m high stack and collection of smaller industrial buildings housing the ancillary plant and equipment. This is in keeping with the appearance of the other industrial plant at the site.
 - (ii) The most sensitive viewpoints of the site development will be from residential receptors located to the south of the site, specifically the highest floors of four storey blocks of flats.
 - (iii) Since the area can be defined as hilly and some recreational areas (gardens) are located high on the hills (mainly to the north and east of the site) it can be expected that the installation will be viewed from high elevated sites.
 - (iv) However, due to the nature of the surrounding industrial setting, the visual impacts are expected to be negligible.
- Materials use and waste management
 - (i) Most of the wastes generated by the operation of the mini mill are expected to be similar in type to the waste currently generated by the PNTZ metallurgical operations. However, the new plant will generate significant quantities of wastes which are new to the site.
 - (ii) The most significant change in PNTZ waste management will be associated with generation of large quantities of metallurgical slag (approximately 120,000 tonnes per year) and filter dust from de-dusting (approximately 26,000 tonnes per year), which may be hazardous to environment.
 - (iii) A strategy for managing these wastes has not yet been finalised; but PNTZ will develop a robust plan to ensure that these wastes are managed correctly and reused/recycled where possible. A monitoring and management programme for these wastes will be developed prior to commissioning of the plant.
- Traffic and Transport
 - (i) The majority of raw materials (including scrap) will be transported to the site by rail. The small amount of materials moved by road equates to less than

- one lorry movement per hour, which represents an insignificant increase over current levels.
 - (ii) There will be an increase in traffic associated with the additional workers for the plant. These will mostly use buses, so the increase will be insignificant
 - (iii) All steel transported to Chelyabinsk will be by rail.
- Ecology
 - (i) There are no sensitive ecological receptors in the vicinity of the site.

What will be the impacts during decommissioning?

No detailed assessment of environmental impacts associated with decommissioning can be made at present. The plant has an expected lifespan of over 25 years and so only general principles can be established at the present time.

In broad terms, the process of decommissioning is likely to give rise to impacts similar to those experienced in the construction phase. The methods and techniques selected are expected to be in accordance with national and international standards prevailing at the time of decommissioning. Decommissioning will require the:

- Removal of all surface equipment and units;
- Potential removal of hardstanding and surface cover;
- Abandonment of sub-surface utilities or filling and abandonment as appropriate;
- Reinstatement of the site and all project areas to pre-construction conditions.

PNTZ will develop a site closure plan during detailed project design and maintain the plan throughout the life of the development. The plan should include arrangements for decommissioning the plant in a manner which avoids any pollution and return the site to an acceptable state. In addition any decommissioning plan should take into account the social and economic impacts and include mitigation measures where necessary.

Overall, decommissioning activities are transitory, and are likely to be similar in magnitude to construction impacts.

What will be the impact of the facility on socio-economic issues?

As the proposed facility will be inside the existing PNTZ site the social impacts will be minimised. There will be no requirement for any re-settlement as the existing sanitation zone is adequate for the expansion. The main impacts associated with this development are as follows:

- Need for a construction camp of 1500 people, mainly from Turkey and neighbouring countries, over a 23 month period. The camp is to be located on site and is well equipped for residential purposes including dining and leisure activities.

- There will be benefits to the local economy due to the presence of a large number of contractor's staff.
- Employment during operation of approximately 700 workers (mostly skilled) having a positive impact on the local and regional economy.
- The implementation of new technology in the area will enhance/develop the skills base, providing a more positive and modern image to an area which has previously employed traditional technologies to undertake industrial activities.

Summary

In summary the main potential environmental effects resulting from the development are likely to be associated with the following:

- Emissions to water. The development will not have significant amounts of water discharges, but will provide an additional load to the existing system. This system already results in some discharge of pollutants to the Chusovaya River in excess of limits.
- Emissions to ground, specifically as a result of potential for leaks from lubrication and hydraulic systems containing oil and local ground contamination, and potential ground contamination by leakage or leachate from storage of hazardous substances, contaminated scrap metal or slag.
- Production of wastes including significant volumes of solid waste.
- Positive socio-economic impacts on the local and regional area.

A summary of these effects, the mitigation measures and the environmental monitoring plans are found in the tables below.

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Summary of Construction Phase Impacts

Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Landscape and visual impact due to the use of cranes and other equipment	None proposed due to industrial surrounding obscuring the area of construction activities	Not altered	Negligible
Air quality - dust emissions during construction and ground works	Development of procedures for : <ul style="list-style-type: none"> - water spraying roads and dusty materials stockpiles - sheeting vehicles carrying dusty materials on leaving the site to prevent materials being blown from the vehicles - speed limits on unmade surfaces on site to limit dust - dust emission monitoring in selected points 	Dust propagation will be limited to construction area and will not influence local community. However workers should be supplied with dust masks especially in dry days.	Minor adverse
Discharge of silty and contaminated storm water via PNTZ sedimentation ponds to the Chusovaya river	<ul style="list-style-type: none"> - potentially polluting materials such as fuels and oils will be stored in dedicated storage areas with spillage protection - procedures for handling any finding contaminated material encountered during excavations will be established - covering and damping of excavated materials 	Ground contamination and storm water contamination will be limited on site by proper handling and storage of materials and equipment. Storm water will be treated in PNTZ sedimentation ponds, the impacts on overall quality of discharge waste water will be minor	Minor adverse
Ground contamination by leakages from machines	<ul style="list-style-type: none"> - All equipment will be subject to periodic maintenance. - machines and equipment will be located on hard surface 	Risk of ground contamination by leakages from storage or machines will be minimised	Minor adverse

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Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Removal of contaminated soils during the excavation	<p>Bunds and drip trays will be used where appropriate..</p> <ul style="list-style-type: none"> - all storm water will go via PNTZ sedimentation ponds and oil separation - appropriate storage and disposal of contaminated material if found will be granted and appropriate procedures implemented 	Risk of impact reduced.	Minor adverse
Discharge of sanitary waste water from workers camp via PNTZ sewer to municipal collector	None.	Waste water will be discharge via PNTZ sewer to municipal networks and municipal waste water treatment plant. Increase of waste water amount <4% of total PNTZ sanitary waste water	Negligible
Solid waste generation	<ul style="list-style-type: none"> - Separation of uncontaminated soil for reuse - introduction of waste storage and control procedures - segregation and recycling of waste 	<p>Solid waste will be passed to PNTZ service and disposed according to PNTZ permits.</p> <p>Ground will be dumped for reuse</p>	Minor adverse
Noise and emissions generated by vehicles	<ul style="list-style-type: none"> - new gate to avoid transportation via town centre - delivery hours scheduled to avoid peak traffic hours and night-time - traffic management plan - Use of rail traffic for bulk transportation and abnormal 	<p>Most of heavy traffic (like that carrying excavated material) will take place inside the PNTZ limits. Other transportation, like deliveries, will be directed through new gate close to the site. Gates located in the town centre will not be used. Temporary problems may arise on the road Pervouralsk-Ekaterinburg.</p>	Moderate adverse

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Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Emergency situations during construction works	<ul style="list-style-type: none"> - Emergency procedures to be developed and implemented - PNTZ fire and emergency squads available on-site - availability of PNTZ and contractors inspectors on site 	Procedures for prevention and actions to be taken in emergency situations (including fire, spills etc) will be implemented. Proper training and equipment need to be delivered to the staff.	Minor adverse
Construction workers	<ul style="list-style-type: none"> - On site facilities for migrant workers - Employment opportunities for local workers - Education and training of contractors - Health and safety monitoring 	Workers will be housed on site. They will be provided with all necessary facilities. There is expected to be some interaction with local population, but some economic benefits are expected for local businesses.	Moderate beneficial

Summary of Operational Phase Impacts

Environmental Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Excessive pollutants loads in waste water discharged from PNTZ to Chusovaya river	<ul style="list-style-type: none"> - PNTZ has elaborated and agreed the water management improvement programme, one of three tasks for main plant are already finished - PNTZ programme implementation needs to be supervised with the investment to avoid problems with waste water evacuation 	<p>Amount of waste water discharge could be potentially decreased by 70-80% (depends on the share of water from natural precipitation and successive implementation of the programme).</p> <p>Quality of discharged waste water is compliant with local legal requirements.</p>	Severe adverse
Blow down water from closed water loops are discharged into industrial-storm water system of PNTZ	<ul style="list-style-type: none"> - possibilities for reuse of blow down water (especially from "clean" circuits) should be sought 	<p>Amount of blow down water from mini mill discharged to PNTZ's industrial and storm water system is decreased significantly.</p>	Minor adverse
Additional amounts of storm water will be generated from roofs, hardened surfaces and roads	<ul style="list-style-type: none"> - Housekeeping and materials storage measures will be implemented to minimise storm - oil separators should be installed in the areas for vehicles parking and maintenance 	<p>The loads of suspended solids and oil are significantly reduced in discharged storm water. This issue is also important because current PNTZ treatment system is not efficient.</p>	Minor adverse
Potential for leaks from lubrication and hydraulic systems containing oil and local ground contamination.	<ul style="list-style-type: none"> - Oil handling systems need to be fully contained within the main mini mill structure, and the oil reservoirs need to have appropriate secondary containment. - Pipework of lubrication, 	<p>No risk of leakage of oils to the ground from the systems</p>	Minor adverse

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Environmental Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
<p>Potential ground contamination by leakage or leachate from storage of hazardous substances, contaminated scrap metal or slag</p>	<p>hydraulic, waste water systems need to be a subject to periodic leakage inspections.</p> <ul style="list-style-type: none"> - Oils, water treatment chemicals will be stored in roofed or closed storage areas with hardstanding, isolated from surface water drains or in paved areas. Chemicals will generally be held in either purpose built tanks or with drummed supplies where this is not required. - Scrap metal should be stored on hardstanding and roofed areas (scrap yard, scrap bay) isolated from the ground. Scrap can be potentially contaminated with oils and other chemical substances. - The slag and filter dust should be stored in isolation from the ground on hard surfaces. Water from slag cooling should be used in closed cycle and excess waste should be discharged to waste water system. Dust generated in the slag cooling process should be minimised by suitable handling to prevent secondary soil contamination. 	<p>All hazardous substances, scrap metal, slag, filter dust are stored in isolation from the ground</p>	<p>Minor adverse</p>
<p>Storage of solid waste (inert and</p>	<ul style="list-style-type: none"> - on-going monitoring and inspection of on-site landfill 	<p>Landfills are controlled, proper actions are undertaken in case of</p>	<p>Minor adverse</p>

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Environmental Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
non-hazardous on PNTZ landfills)	sites	necessity	
Waste management	<ul style="list-style-type: none"> - Arrangement (update) of all solid waste management licences and permits - Establishment of slag processing techniques and choice of contractor - Establishment of filter dust handling procedures and choice of the contractors - Oily scale disposal techniques including the briquetting need to be decided - Review of waste minimisation and recycling options for all wastes generated by new mini mill 	<p>Waste management of the mini mill is fully covered by internal procedures, legal status is regulated</p> <p>Increased quantity of waste to be landfilled on site.</p> <p>Increase in recycling/reuse of waste generated.</p>	Moderate adverse
Increased heavy vehicles traffic in the neighbourhood of new gate for the mini mill	<ul style="list-style-type: none"> - Planning scrap metal transportation by the means of rail transportation instead of cars - Maximise the use of the rail network for bulk deliveries and abnormal loads. - Restricting delivery hours to reduce noise nuisance; avoid heavy truck movements in the night hours - Considering whether deliveries should be scheduled to avoid 	<p>Traffic from the mini mill does not cause congestion problems on local roads and no complaints from local residents are reported.</p>	Minor adverse

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Environmental Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Emergency situations	<p>peak times to reduce congestion;</p> <ul style="list-style-type: none"> - Heavy construction traffic will be subject to a traffic management plan, as necessary; - New mini mill needs to be covered by PNTZ safety procedures (update required) - Safety certificate needs to be updated - Training needs to be provided to mini mill staff as well as to PNTZ emergency services 	<p>The mini mill is covered by all safety procedures and emergency services (fire fighting, gas emergency service) from the first day of operation</p>	<p>Minor Beneficial</p>
Social Impacts	<ul style="list-style-type: none"> - Generation of long term skilled jobs - Economic security for company - Closure of polluting furnaces in Chelyabinsk resulting in loss of employment 	<p>The mini-mill will provide economic benefits to the area</p>	<p>Substantial benefit</p>

Summary of Decommissioning Phase Impacts

Environmental Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Emission prevention	- development of Site Closure Plan	Updated information on risks and requirements is available at site closure	Minor Beneficial
Dust emissions during ground works	<ul style="list-style-type: none"> - water spraying roads - sheeting vehicles carrying dusty materials - speed limits on unmade surfaces - dust emission monitoring in selected points 	Dust propagation will be limited to demolition area and will not influence local community. However, workers should be supplied with dust masks especially in dry days	Minor adverse
Discharge of silty and contaminated storm water via PNTZ sedimentation ponds to the Chusovaya river Ground contamination by leakages from machines	<ul style="list-style-type: none"> - potentially polluting materials will be stored in dedicated storage areas - machines and equipment technical condition will be reviewed periodically - machines and equipment will be sited on hard surfaces - all storm water will go via PNTZ sedimentation ponds and oil separation - procedures for finding contaminated material during excavations will be established - covering and damping of excavated materials - appropriate storage of contaminated material if found 	Ground contamination and storm water contamination will be limited on site by proper handling and storage of materials and equipment. Storm water will be treated in PNTZ sedimentation ponds, the impacts on overall quality of discharge waste water will be minor	Minor adverse

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Environmental Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
Solid waste generation	<ul style="list-style-type: none"> - segregation and recycling of waste and proper storage in isolation from the ground 	Solid waste will be passed to contractors and disposed according to their permits.	Minor adverse
Noise and emissions generated by vehicles	<ul style="list-style-type: none"> - traffic management plan - use of rail traffic for bulk transportation for abnormal loads 	Local traffic congestion problems avoided.	Moderate adverse
Emergency situations	<ul style="list-style-type: none"> - local fire and emergency squads available on-site - availability of PNTZ and contractors inspectors on site 	Procedures for prevention of handling with emergency situations will be implemented. Proper training and equipment need to be delivered to the staff.	Minor adverse
Social impacts	<ul style="list-style-type: none"> - There will be job losses 	Plans to re-deploy workers will be developed	Moderate adverse

Construction Phase Environmental Monitoring Plan

Items	Measures	Responsibility	Schedule	Limits
Noise	<p>Boundary noise measurements to be undertaken by competent person using standard methodologies with approved and calibrated equipment:</p> <ul style="list-style-type: none"> • Baseline study prior to construction • Day-time measurements • Night-time measurements 	GAMA	<ul style="list-style-type: none"> • Suitable monitoring locations to be established near receptors. • One-off survey prior to site works to obtain background. • Monthly day time boundary measurements. • Monthly night time boundary measurements. 	<p>To be established in consultation with the regulators</p>
Dust	Dust monitoring and visual inspection of site roads and other external areas. Records to be maintained of inspections	GAMA	<ul style="list-style-type: none"> • Weekly inspection during seasons where there is no snow. 	
Communications	Compile and maintain register of environmental communications including complaints	GAMA	<ul style="list-style-type: none"> • Suitable preventive and corrective action to be taken if required. Actions to be recorded in register. 	
Accidents and Incidents	Compile and maintain register of environmental accidents and incidents	GAMA	<ul style="list-style-type: none"> • Suitable preventive and corrective action to be taken if required. Actions to be recorded in register. 	
Waste	Visual inspection of waste storage, collection and disposal areas. Records to be maintained of inspections.	GAMA	<ul style="list-style-type: none"> • Monthly inspections. Suitable preventive and corrective action to be taken if required 	

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Items	Measures	Responsibility	Schedule	Limits
Storage areas	Visual inspection of all materials (including fuel) storage areas. Records to be maintained of inspections.	GAMA	<ul style="list-style-type: none"> Monthly inspections. Suitable preventive and corrective action to be taken if required 	
Water pollution	Visual inspection of construction waste water drainage systems and reservoirs. Records to be maintained of inspections.	GAMA	<ul style="list-style-type: none"> Monthly inspections. Suitable preventive and corrective action to be taken if required 	

Operational Environmental Monitoring Plan

Items	Measures	Responsibility	Schedule	Limits
Emissions to air from main stack	<ol style="list-style-type: none"> 1. Continuous monitoring will be provided for the following parameters: Particulates, NO_x, CO and oxygen. 1. Sampling: Periodic sampling of the stack emissions during full load are to be undertaken for PCDD/PCDF 2. Ambient monitoring: Periodic monitoring of contaminant concentrations on the boundary of the sanitary protection zone. 3. All equipment used for continuous monitoring to be subject to routine maintenance and calibration according to the manufacturer's instruction. 4. All sampling and ambient monitoring to be undertaken using standard approved methods by accredited contractors or laboratories using suitably calibrated and maintained equipment. 	PNTZ	<ul style="list-style-type: none"> • Frequency and methods will be determined before the beginning of the work of the plant. Frequency and methods will satisfy the requirements of Russian environmental legislation and EBRD/IFC/World Bank guidelines on air quality. • A report shall be made immediately in case of deviation from legal or best practice limits. • All monitoring data and a statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders. 	To be agreed with regulators

Items	Measures	Responsibility	Schedule	Limits
Fugitive air emissions	1. Monitoring of workplace particulates, CO, fume	PNTZ	<ul style="list-style-type: none"> • Frequency and methods will be determined before the beginning of the work of the plant. Frequency and methods will satisfy the requirements of Russian environmental legislation and EBRD/IFC/World Bank guidelines on air quality. • A report shall be made immediately in case of deviation from legal or best practice limits. • All monitoring data and a statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders. 	To be agreed with regulators
Waste	1. For all waste streams (solid and liquid) data should be kept of: <ul style="list-style-type: none"> • Waste quantities • Physical form and containers used/packaging • Disposal/treatment route • Final disposal point 	PNTZ	<ul style="list-style-type: none"> • Monitoring data and a statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders. 	To be agreed with regulators

Items	Measures	Responsibility	Schedule	Limits
Noise	<ul style="list-style-type: none"> • Recycled/reused quantities <ol style="list-style-type: none"> 2. All in house waste disposal/treatment facilities suitable monitoring/inspection in accordance with the relevant permit/licence and Russian legislation. 3. Any breaches of legal requirements, including permits must be reported immediately. <ol style="list-style-type: none"> 1. Evaluation of noise risk zones shall be undertaken by a programme of measurements inside and outside of the development. The evaluation will result in a map of noise impacts with designation of zones of increased noise and the designation of main sources of noise. 2. Noise control and decrease of the noise level <ul style="list-style-type: none"> • a noise decrease programme shall be developed on the basis of risk evaluation, including the availability of engineering decisions on the noise decrease on the main noise sources • a condition on noise is included into all contracts for delivery of new equipment, i.e., the maximum noise level shall be 70 dB or less at 1m 3. A programme of worker protection against noise shall be implemented. 	PNTZ	<ul style="list-style-type: none"> • Monitoring data and a statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders 	To be agreed with regulators

Items	Measures	Responsibility	Schedule	Limits
	<ul style="list-style-type: none"> • personnel are trained in use of PPE and informed of the hazards • PPE shall be given to all personnel for use in the workplace • all visitors and contractors shall be notified of zones of increased noise, and protection means provided by the plant 			
<p>Noise: Health and Safety</p>	<ol style="list-style-type: none"> 1. Personnel examination <ul style="list-style-type: none"> • audiometry shall be included in medical examination during employment (including temporary employees) • regular audiometry shall be performed for the employees submitted to action of the increased noise level • data on the results of the audiometry programme statistical data shall be used to review the effectiveness of preventive measures in place. 2. All monitoring to be undertaken using standard approved methods by accredited contractors or laboratories using suitably calibrated and maintained equipment. 	<p>PNTZ</p>	<p>To be agreed with regulators</p>	<p>To be agreed with regulators</p>

Items	Measures	Responsibility	Schedule	Limits
Waste waters	<ol style="list-style-type: none"> All wastewaters discharged from the plant shall be monitored to demonstrate compliance with legislation. Regular inspection of drainage will be included in the wastewater monitoring plan. 	PNTZ	<ul style="list-style-type: none"> Frequency and methods will be determined before the beginning of the work of the plant. Frequency and methods will satisfy the requirements of Russian environmental legislation and EBRD/IFC/World Bank guidelines on air quality. Monitoring data and a statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders 	To be agreed with regulators
Energy	<p>Regular internal energy inspections on the plant; testing and tuning of burners, boilers, metallurgical furnaces and so on will be undertaken annually by competent experts with further setting:</p> <ul style="list-style-type: none"> Annual goals for continuous improvement of energy use; Purchasing preference to energy-efficient tools and equipment for use where available; Plans for the purchase of environmental friendly power equipment for use where available. 	PNTZ	<ul style="list-style-type: none"> Monitoring data and statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders 	N/A

Items	Measures	Responsibility	Schedule	Limits
Water	<ol style="list-style-type: none"> 1. The Plant will develop a water management programme to ensure continuity and quality of water supply. 2. Conduct an initial Water Usage Assessment and identify opportunities to utilize water resources more efficiently. 	PNTZ	<ul style="list-style-type: none"> • Monitoring data and statement on compliance with this EMP shall be reported in the Annual Monitoring Report to Lenders 	To be agreed with regulators