Komi Aluminium
Komi Aluminium Programme

PROPOSED EARLY WORKS PROGRAMME FOR THE PROPOSED SOSNOGORSK REFINERY SITE

Environmental Analysis
IN ACCORDANCE WITH INTERNATIONAL FINANCE CORPORATION AND EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT REQUIREMENTS

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1 INTRODUCTION

SUAL Group is presently in the planning stages of an integrated aluminium development in Komi Republic, Russian Federation ("Komi Aluminium Programme"). The Program will comprise an expansion in bauxite mining operations at the Middle Timan Bauxite Mine (MTBM), together with a greenfield alumina refinery in the Sosnogorsk area and a greenfield aluminium smelter. SUAL Group has approached International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD) for loan financing for the Programme.

A key condition of the IFC and EBRD approving funding for the project is that an Environmental and Social Assessment is undertaken for all phases of the project and that each phase receives positive approval from the Russian environmental authorities. A Declaration of Intent was submitted to the Komi Republic and Sosnogorsk authorities in March, 2004 as per Russian requirements. In addition, an Environmental and Social Impact Assessment (ESIA) will be completed as per the requirements of EBRD and IFC and an 'OVOS'[1] completed as per the Russian regulations. Both of these processes will be complete by September 2004 and disclosed into the public domain.

The economic viability of the overall programme is dependent on the early establishment of the refinery at the proposed Sosnogorsk site. Therefore, Komi Aluminium[2] is proposing to undertake an Early Works programme. This document provides a background, summary of the early works and the associated impacts of these activities.

2 SCOPE OF THE EARLY WORKS

The principle of the early works is to ensure that all further site investigations required for the refinery feasibility study that are practicably implementable, are completed before Winter, 2004. The refinery construction is then scheduled to start in the Spring of 2005. The scope of the early works, implemented on the basis of development and approval of project and working documentation per each type of works, will include the following:

- Preparation of the site for detailed geotechnical, topographic, engineering and eco-engineering investigations, involving felling trees, grubbing, as well as site leveling and melioration;
- Preparation works for railway spur line construction and site rail station establishment;
- Relocation of 35 kV power line;
- Organization of temporary water and energy supply at the site;
- Installation of perimeter fencing at refinery site, temporary camp for personnel, site main gate and check point.

[1] OVOS denotes a procedure of environmental impact assessment under the Russian law

[2] For details see paragraph 4.1

3 IMPACTS ASSOCIATED WITH THE EARLY WORKS

The following points give a list of the key impacts and the mitigation that is proposed:

- Fugitive dust: Only vegetation that is essential to accommodate construction activities will be removed, and site and access roads will routinely be sprayed with water;
- Combustion gases: On-site equipment will be fitted with catalytic converters, where possible, and mobile equipment will regularly be serviced to ensure proper operations;
- Sedimentation: The surface area affected by construction activities will be limited. The presence of diversion ditches up-slope of the disturbed areas are planned to minimize the quantity of surface water runoff that may become contaminated and require treatment. Settlement ponds will also be provided to trap suspended sediment and channel bed load;
- Impacts to water resources: The extraction of potable water from the Aiuva is relatively low (at $15m^3$/day), therefore, the impact on water flow regimes will not be significant (early works will be undertaken in spring);
- Impacts to birds and mammals: A firm "no" poaching policy will be implemented;
- Noise: Machinery will be fitted with noise suppression devices;
- Socio-economic impacts: Employment opportunities are likely to increase. Therefore there will be an increase in household incomes, spending on goods and services and skills levels and future marketability of people employed; and
- Impacts to vegetation: The total area to be transformed is relatively small and the surrounding vegetation is not significantly sensitive to disturbance.

The impacts associated with the early works activities are not likely to be significant and are largely restricted to the area directly affected by the early works activities /adjacent to the site. If the refinery does not proceed due to a decision by Komi Aluminium, as a result of future studies (such as hydro-geological impacts, detailed ESIA for the refinery, and the feasibility study for the refinery) not supporting implementation of the project or a negative conclusion by the SER, the project will not be pursued. In this case, all of the early works features will be reclaimed and returned to native conditions, and/or according to reasonable stakeholder requests.

4 BACKGROUND

Komi Aluminium is currently undertaking a feasibility study to determine the viability of developing an integrated aluminium complex in the Komi Republic (located to the northeast of Moscow in the Russian Federation) (Figure 1).

The integrated aluminium programme if it proves viable will include the expansion of the Middle Timan Bauxite Mine (MTBM), the development of a greenfield alumina refinery and the development of a greenfield aluminium smelter.

Figure 1: Map of Komi Republic showing the positions of Ukhta and Sosnogorsk as the proposed location for the refinery.

Prior to commencing with the integrated aluminium programme it is essential for Komi Aluminium to undertake a feasibility study for the proposed refinery. Should the refinery not prove feasible, it will have a major negative impact on the entire aluminium programme and may result in the programme being terminated. The purpose of this study is to ensure that the early works program will be environmentally and socially acceptable. The feasibility study is due for completion early in 2005. The economic viability of the overall programme is dependent on the early establishment of the refinery at the proposed Sosnogorsk site.

4.1 The developer

The project sponsor is the SUAL Group, a vertically integrated company that is ranked among world's top ten aluminium manufacturers and owns 19 enterprises located in various regions of Russia. The project developer is ZAO Komi Aluminium, which is a member of SUAL Group. Komi Aluminium is a new company, established to operate the planned integrated bauxite/alumina/aluminium project.

4.2 Environmental and social assessment studies

Assessing the environmental viability and social acceptability of the integrated aluminium complex is a legal requirement in the Russian Federation[3] as well as being a requirement of international lending agencies (including the International Finance Corporation[4] (IFC) and the European Bank for Reconstruction and Development[5] (EBRD).

The environmental assessment process for the integrated aluminium complex was initiated in September, 2003 with the preparation of an environmental audit of the current operations at the Middle Timan Bauxite Mine. The audit was completed in December 2003 and released for public review and comment. The hard copies of the documents were placed at the Komi Aluminium offices in Moscow, Ukhta and Syktyvkar, the IFC offices in Moscow and Washington and the EBRD offices in London. Electronic versions of the documents are available on the following website: http://www.sual.com/business/komi_aluminium/ecology/ and linked to from the following: http://ifcln001.worldbank.org/ and http://www.ebrd.com/projects/index.htm. All documents have been prepared in English and Russian.

Each of the projects that make up the programme will be subject to its own Environmental Assessment processes (including associated public participation exercise). A Public Participation and Disclosure Strategy, which provides a framework in which public consultation will be undertaken for the proposed Komi Aluminium Programme, has been formulated and disclosed in March 2004. A final PCDP for the refinery will be disclosed in the public domain in April, 2004.

The Environmental Assessment processes at the mine are ongoing with the preparation of an Environmental and Social Impact Assessment which was released for public in March 2004 and the preparation of an OVOS (due for completion at the end of September, 2004). Both of these assessment processes have been the subject of public participation programmes with public meetings held in February and March in Chinavoryk and Emva. A Public Consultation and Disclosure Plan was prepared for the mine Environmental Assessment processes and submitted for public comment and review in December, 2004. The public consultation programme for the Early Works activities is presented in Appendix A.

The ESIA and OVOS are currently underway to determine the environmental and social acceptability of the proposed refinery. The ESIA process was initiated in February 2004 with public meetings held in Ukhta, Sosnogorsk and Kerki. During the first week of March a series of public meetings was held on

[3] The State Law "On Environmental Protection", 2002 and The State law "On Environmental Review", 1995

[4] OP 4.01 Environmental Impact Assessment

[5] Environmental Policy (2003)

the proposed refinery. These meetings were held in Ukhta, Kerki and Sosnogorsk. The meetings were extremely well attended with approximately 200 people attending in total.

The following was presented at the meetings:

- An overview of the proposed alumina refinery highlighting the industrial process and the two sites being considered
- An overview of the site screening exercise showing the differences between the two proposed sites
- A description of the environmental assessment process that would be used
- An overview of the Terms of Reference and the public participation process

Key issues to emerge from the public meetings are listed below:

- The impact of the loss of the resource (i.e. 'giving up' the bauxite);
- The conservation value of the areas where the deposits occur
- The choice of refinery technology and its bearing on the use of high grade versus low grade bauxite
- Dust from the transport of the bauxite
- Jobs
- Social development – benefits that will accrue to people living in the area
- Use of local labour
- Air pollution emissions – in the context of the oil refinery in Ukhta
- Possible utilization of the red mud
- Establishing the refinery closer to the ore source
- Choice of environmental consultants i.e. why were Russian consultants not chosen
- Perceptions of health being poor as a result of the pollution load in the area
- Radioactivity in the bauxite

5 THE PROPOSED SITE

5.1 Location

The proposed alumina refinery will be constructed on a 2.5 km by 1.5 km plot with 350 and 370 hectares being allocated for the refinery and red mud pond respectively. The site will be located about 15km north east of the town of Sosnogorsk in an area between an existing railway line and a 110 kV power line. The land is currently owned by the State and a Land Allotment Process has been initiated by Komi Aluminium. A high-pressure gas pipeline as well as the Komi republic road is positioned in close proximity (5-7km) to the site together with an existing bulk potable water reservoir.

5.2 Site selection

As part of the pre-feasibility process a range of possible sites were initially considered for the refinery. Following further investigations these were narrowed down to two possible choices namely the so-called Ukhta and Sosnogorsk sites (the location of the sites is shown in Figure 2). Respective local authorities had previously identified the sites.

From an economic and technical point of view, the sites require reasonable proximity to transport infrastructure – especially rail but roads as well, energy sources including fuel and electricity, water sources and general services. At a regional scale there was little difference between the two sites, as they occur in similar biophysical and socio-economic environments. Both proposed sites are presented together with the surrounding geography in Figure 2. At the local scale, however, there were important differences between the two proposed sites. This influenced the selection of Sosnogorsk as the most suitable location for the refinery.

Therefore, from an environmental point of view the following criteria was used in identifying a preferred site:

- *Air quality impacts* –proximity of sensitive downwind receptors;
- *Water resource protection* –proximity of vulnerable surface water bodies or groundwater aquifers that could be affected by refinery activities;
- *Social impacts* – the vulnerability of existing settlements to the influx of a large construction force that makes demands on infrastructure and services;
- *Waste* – availability and proximity of waste sites for disposing of municipal and hazardous waste;
- *Biodiversity/ecology* – ecosystem integrity on the site and proximity of sensitive and/or protected areas;
- *Logistics* – transport of raw material to and finished product from, the refinery;
- *Noise* – proximity of receptors sensitive to noise disturbance;
- *Sanitary and water protection zones* – federal regulations dictate sanitary and water protection (buffer) zones that must be respected.

5.3 Factors influencing the choice of the Sosnogorsk site

5.3.1 Absence of Protected Areas

The Sosnogorsk site has no protected areas close to the proposed location of the refinery, whereas the Ukhta site has a forest reserve in close proximity and other reserves that could be directly affected by project activities.

5.3.2 Availability of Infrastructure

One of several key success factors for the refinery is the relatively low cost of transporting both the bauxite to the refinery and the alumina from the refinery to various customers. This is dependent on the rail links between the bauxite source and the refinery and the alumina customers and the refinery.

The Sosnogorsk site has established infrastructure including the adjacent railway line. On the other hand it will require the construction of a new 10km access road to the plant and a bridge to cross the Aiuva River. The Ukhta site will require an additional railway of 32 km as well as the upgrading of the existing access road.

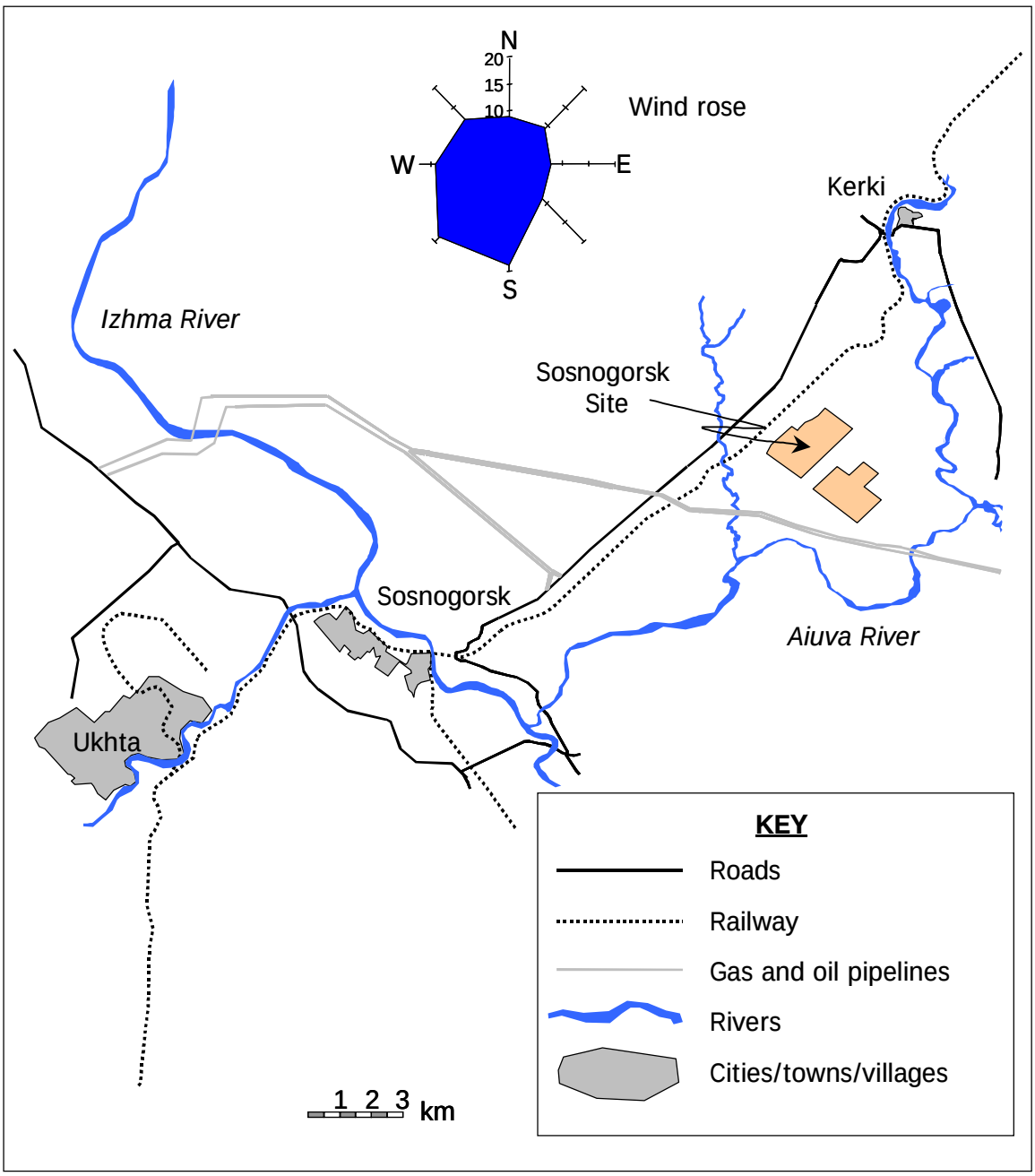

Figure 2: Map showing the relative positions of the two proposed sites together with key surrounding features.

5.3.3 Biodiversity Loss

In terms of the general biophysical environment of the sites, the Ukhta site was deemed preferable for the establishment of the refinery, since the Sosnogorsk site is homogeneous and relatively less transformed than the Ukhta site. This suggested that the loss of forest habitat at the Ukhta site would be less significant than the equivalent loss at the Sosnogorsk site. However, additional infrastructure requirement at the Ukhta site would result in a substantially larger 'footprint' in terms of potential biodiversity loss, than the Sosnogorsk site and in these terms the latter site was considered to be more favourable.

5.3.4 Availability of Water

The Sosnorgorsk site has the nearby Ajuva and Izhma Rivers where process water can easily be sourced, whereas at the Ukhta site process water would not be easily accessible and require further infrastructure development with related impact on the environment.

5.3.5 Socio-economic impacts

From a social impact point of view it is likely that Sosnogorsk would be more vulnerable to social impacts than Ukhta, simply by virtue of its size and the relatively fewer services that are likely to be available. Infrastructure in Sosnogorsk is similarly less extensive and thus the introduction of a large labour force is likely to result in impacts of greater significance to Sosnogorsk than to Ukhta. Similarly, Ukhta would be in a better position to supply labour to the project than Sosnogorsk thus increasing the ratio of locally sourced labour in the workforce.

That said it is important to recognise that Sosnogorsk and Ukhta are a short distance from one another and people living in Ukhta could relatively easily continue living there while working either at the operational refinery or as part of the construction team. Nonetheless the Ukhta site is deemed preferable to the Sosnogorsk site from a social impact point of view by virtue of the relatively greater vulnerability of Sosnogorsk to the demands of a large labour force and possible influx of work seekers.

5.4 The Sosnogorsk site

The Sosnogorsk site is situated some 15 km northeast of Sosnogorsk adjacent to the railway line (Moscow to Vorkuta) and some 6 km southwest of the village of Kerki. Sosnogorsk has a population of some 31 400 whereas the population of Kerki is 800. The official level of unemployment in Sosnorgorsk is 2,6% which is less than the Komi average. The site is relatively low lying and level, explaining the dominance of forest and the few wetland corridors traversing the area. Part of the site is marshy suggesting a high water table. The River Aiuva is close to the site (lying some 3 to 7 km from the railway line). There are no protected areas in the immediate area surrounding the proposed site.

The general environment is quite homogeneous. The forest, although clearly of a secondary nature (i.e. possibly affected by past forestry operations and/or the incidence of fire), is in a generally intact, un-fragmented and ecologically functional state. There is also the possibility that there are patches of indigenous forest within the area. This mixed reforestation is deemed third category forest excluding that occurring within the 500 m water protection zone around the river, which is first category forest.

Infrastructure at the Sosnogorsk site includes the railway line (Fig. 2), a road to the northwest of the railway line, power lines (which run along the railway line) and a gas pipeline that runs due south of the site (within 2 km). In addition, water required for the refinery can be sourced directly from the River Aiuva.

6 THE PROPOSED REFINERY

The development cost of the refinery is estimated to be about US$860 million. Construction is planned to start in the summer of 2005 with full production commencing in the first quarter of 2008. The refinery will include the following structural facilities: feedstock crushing and milling shop, calcination shop, maintenance shop (repair services), digestion shop, settling and filtering shop and mud pond. Mud pond will consist of three sediment ponds (disposal sites) and shall be designed in a manner that each pond shall be filled for 6 months with further settling of red mud for 12 months in the pond. After solidification of mud, sediment pond will be further filled with red mud. During construction of sediment ponds, a multilayer screen will be made (insulating materials – high-density polyethylene and bentonite).

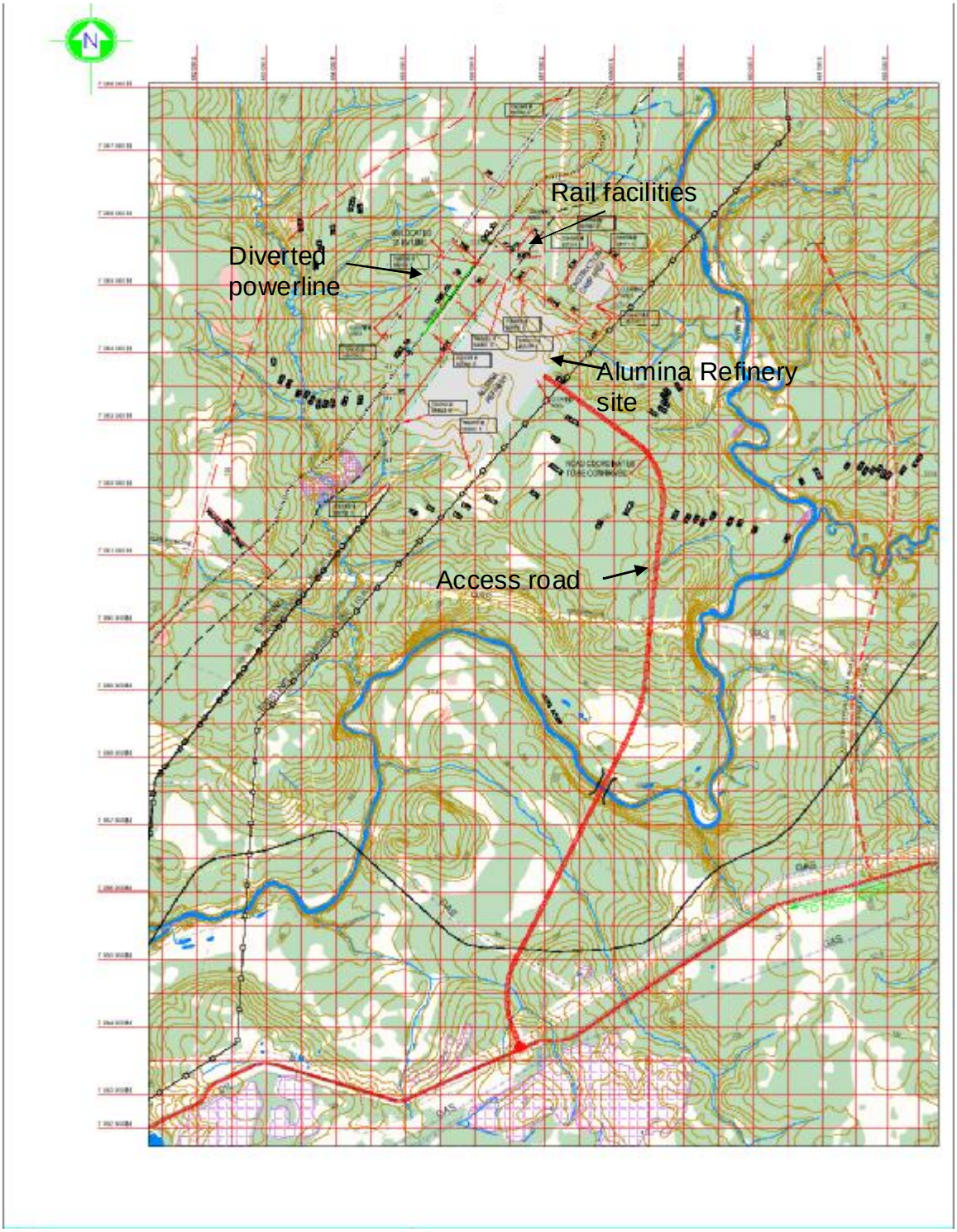

Figure 3: Plan of proposed refinery site "early works" (not to scale)

7 SCOPE OF PROPOSED EARLY WORKS

7.1 Site Preparation

In order to prepare the site for possible subsequent construction activities, the area of the refinery and the area of the construction camp will be cleared of all vegetation. The total footprint of the area to be cleared will be approximately 360ha.

7.2 Clearing Passage for Access Roads

The proposed route from Sosnogorsk to the refinery site is presented in Figure 3. The total length of the access road is approximately 9.5 km with an average width of 33 m. This translates to a total disturbance area of 313,500m^2 (31ha) this figure is based on an approximation of the site area reflected on the site plan (Figure. 3). The road alignment was selected so as to have a minimum disturbance on the Aiuva River.

Figure 3 reflects that the road will cross the River Aiuva requiring a bridge to be constructed. The construction of the bridge over the River Aiuva will be the subject of a more detailed environmental assessment study and, therefore, falls outside of the Scope for Early Works.

7.3 Establishment of Rail Facilities

The proposed rail platform and rail spur is presented in Figure 4.

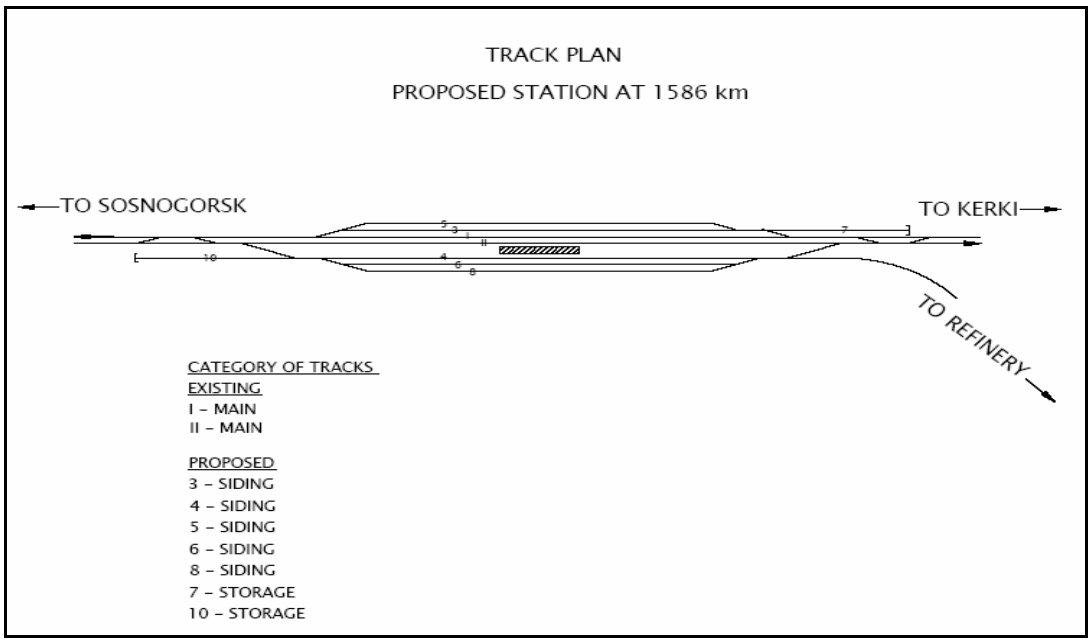

Figure 4: Proposed rail facilities at the proposed refinery site.

7.4 Investigations

Following the clearance of the areas (refinery and person camp, access road and railway spur line), detailed geo-technical investigations will be conducted, as follows:

a) Refinery site: Investigation will require drilling of boreholes;
b) Access road to the refinery: Investigation will require bore holes for the bridge supports and a number of test pits and bore holes to be defined along the 11.5 km long road alignment;
c) Railway spur line: Test pits and bore holes to be defined along the railroad spur alignment;
d) Detailed topographic survey will be required and conducted at the refinery site, railway spur and main access road.

7.5 Relocation of 35 kV Power Line

As per Figure 3, an existing 35 kV powerline traverses the proposed refinery site. In order to accommodate the refinery construction and operation, the powerline will be relocated directly north The relocation will run parallel with the site (on the opposite side of the railway line). The relocation will not involve any disturbance of vegetation and will be undertaken so as to not disturb any electrical supply.

8 Environmental and Social Impacts and Environmental Management Measures for Early Works Activities

8.1 Air quality impacts

8.1.1 Fugitive dust

Site clearance (for the refinery and personcamp, access road and railway spur line) is a source of dust emissions that may have substantial temporary impact on local air quality. Dust emissions are likely to vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing meteorological conditions. Based on field measurements of total suspended particulate (TSP) concentrations surrounding apartment and shopping center construction projects (considered to be of a similar nature to the proposed early works in terms of dust generation), the approximate emission factor for construction activity operations are [EPA-AP42]: E = 2.69 ton/hectare/month of activity.

Therefore, assuming a building area of 350 hectares and an early works period of 5 months the total suspended particulate emission can be estimated at approximately 6,457 tonnes for the early works period. Assuming a total disturbance area of 31ha for the road area, the total suspended particulate emission can be estimated at approximately 417 tonnes for the early works period.

The transportation of particles is governed by the initial injection height of the particle, the terminal settling velocity of the particle, and the degree of atmospheric turbulence. Theoretical drift distance, as a function of particle diameter and mean wind speed, has been computed for fugitive dust emissions. Results indicate that, for a typical mean wind speed of 16 km/hr (the approximate maximum wind speed at the Sosnogorsk site), particles larger than about 100 μm are likely to settle out within 6 to 9 meters from the edge of the road or other point of emission. Smaller particles that are 30 to 100 μm in diameter are likely to settle within a few hundred metres of the source. Smaller particles, particularly PM10 have much slower gravitational settling velocities and are much more likely to have their settling rate retarded by atmospheric turbulence and could settle significantly further from the site.

Given the distance of the proposed site and the access road from local residences, the retardation of wind velocity due to the surrounding vegetation and the settling of materials resulting from precipitation – the potential impact of dust as either a nuisance factor or for human health is extremely low. It is further unlikely that dust will impact on the functionality of vegetation in the impact area.

Despite the low likelihood of significant impacts, dust will be managed during the early works phase through:

- Ø Limiting traffic speeds on unpaved roads to 20 km/h; and
- Ø Spraying the site roads and access roads with water routinely to reduce dust.

Following the implementation of the management measures outlined above, the impacts resulting from dust will reduce significantly. In particular the dampening of soils will result in an order of magnitude decrease in the total dust emissions during the construction period.

8.1.2 Combustion gases

Combustion gases will be emitted from on-site mobile equipment. These emissions are difficult to predict due to the fact that there will be no set routes for most of the mobile equipment. Mitigation measures that will be taken to reduce emissions include:

- Ø Operational measures, such as limiting time spent with the engine idling by shutting down equipment when not in use;
- Ø Regular preventive maintenance to prevent emission increases due to engine problems;
- Ø Use of low sulfur and low aromatic fuel; and
- Ø On-site equipment will be equipped with catalytic converters where necessary.

8.2 Impacts on water resources

During the early works phase the impacts on water resources will be due to sediment washdown into the surrounding water courses and extraction for potable purposes.

8.2.1 Sedimentation

During the early works programme, the following water related management measures will, therefore, be applied:

- Implement measures to limit the surface area affected by construction activities, by restricting access and operational routes for construction vehicles.
- Provision of sanitary facilities and connection of these facilities to the local sewage collection network or transport of sewage waste by truck to the local sewage disposal facilities.

The Aiuva River has a water protection zone of 500 m in which no activities can take place and the refinery has a sanitary protection zone of 1,000 m. Although the water and sanitary protection zones may be waivered, according to legislation, the zones cannot overlap so that no point of the refinery boundary can be closer than 1500 m to the river. The sanitary protection zone will be respected for all of the early works activities.

This suggests that the potential for sedimentation to the Aiuva River is extremely low. As such the impact on downstream water users and river biota is both unlikely to occur and will be of very low intensity. In order to ensure that the potential for sedimentation is further minimised, diversion ditches

will be provided to minimize the quantity of surface water runoff that may become contaminated and require treatment. No bridge facilities will be constructed over the Aiuva River during the early works, therefore, no associated impacts will be experienced during this phase.

8.2.2 Water extraction

The extraction of potable water from the Aiuva is relatively low (at 15m^3/day), therefore, the impact on water flow regimes will not be significant particularly as much of the early works activities will start in spring immediately following the melt when base flow is at a peak.

The on-site activities will be at the surface and on-site storage facilities for solid and effluent waste management will be provided, therefore, no impact on groundwater resources will occur. On the basis of the implementation of mitigation measures presented here, the residual impact will be negligible (i.e. no sedimentation of the Aiuva River will occur during the early works activities and water extraction will not affect the availability of water in the River).

8.3 Loss of biological resources

8.3.1 Impacts to vegetation

The on-site vegetation is of an already disturbed homogeneous nature with no rare or endangered species present on the site[7]. The conversion of natural habitats to industrial land will result in a significant loss of biological resources. In the case of the early works, the total area to be transformed is relatively low and the vegetation that will be lost is not significantly sensitive to disturbance. In addition, impacts to vegetation may result from dust generated during the clearing and grubbing activities. These effects are minor and short-term. Nevertheless, vegetation clearing will be limited to only those areas where it is absolutely needed. As a result, the significance of loss of natural vegetation is considered to be low.

8.3.2 Impacts to birds and mammals

Impacts to birds and mammals can occur due to the footprint of the operations and the presence of additional people and equipment. This can lead to loss in habitat and upset of natural patterns. Given the already disturbed nature of the site, the limited size of the area to be affected and the fact that no rare or endangered species are known to occur in the area, it is unlikely that any birds or mammals will be significantly affected by the proposed early works.

In addition, the presence of people on the site could lead to poaching. A firm policy against hunting and poaching will be implemented by Komi Aluminium. The policy will serve to prevent any hunting by contractors so as to mitigate impacts to any large game species from poaching or hunting in the area. The policy will not apply to fishing except to state that fishing may not occur in protected areas. The policy will be enforced through the on-site manager responsible for environmental issues. Again the principle of restricting vegetation clearing to only those areas where is definitely needed, will serve to mitigate these potential impacts. The residual impact on birds and mammals, as a result of early works activities, is considered negligible.

8.4 Noise

Using standardised equipment and on-site operations, the noise that is likely to be generated during the construction phase are detailed below:

[7] In the absence of more detailed information, the vegetation in the area of the proposed refinery is assumed largely similar to that in the vicinity of the mine. As investigations continue the vegetation will be properly characterised.

Noise source	Distance from source	Noise level dB(A)	Community response
Earth works	At source	85-97	
	500m	65-77	None
	1 000m	59-71	None
	2 000m	53-65	None

During the early works programme, the noise levels are likely to fluctuate. Noise generated during this phase is of short duration and will not cause a disturbance due to the distance of the nearest community from the site, the noise mitigation provided by the local vegetation and that all machinery will be fitted with noise suppression measures. Noise may cause some initial disturbance to mammals living near to the proposed site. These mammals will move away from the site into similar habitats nearby – given the homogeneous nature of the nearby habitats the availability of suitable areas for the mammals to move into will not have a negative implication. The impact of noise will not cause disturbance to local residents or wildlife.

8.5 Socio-economic impacts

A detailed description of the socio-economic characteristics of Sosnogorsk is provided in Appendix D. As a result of the early works programme, employment opportunities are likely to increase in the Sosnogorsk area, resulting in the following potential impacts:

- Ø Increase in household incomes of those directly employed during the construction phase.
- Ø Increase in spending on goods and services.
- Ø Increase in skills levels and future marketability of people employed during the early works phase and the potential for ongoing employment in the later construction and operation phases.

Komi Aluminium will engage directly with the Sosnogorsk Municipality to manage social impacts. Komi Aluminium will ensure that job opportunities are created initially for local people and will work directly with the Sosnogorsk Municipality to determine the most effective mechanism to create and sustain jobs locally.

8.6 Summary of environmental and social impacts

Impact	Nature	Probability	Intensity	Spatial Scale	Duration	Significance
Dust generation	Negative	Likely	Low	Local	Short term	Low
Impact on water availability	Negative	Likely	Low	Regional	Short term	Low
Impact on water quality	Negative	Unlikely	Low	Regional	Short term	Low
Loss of biological resources	Negative	Definite	Medium	Regional	Short term	Medium
Noise	Negative	Definite	Low	Local	Short term	Low
Employment opportunities	Positive	Definite	Medium	Regional	Short term	Medium

Key:

- Ø Nature of impact: this reviews the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?".
- Ø Probability: This considers the likelihood of the impact occurring.
- Ø Intensity: Here it should be established whether the impact is destructive or innocuous, and should be described as either low (where no environmental functions and processes are

affected), medium (where the environment continues to function but in a modified manner) or high (where environmental functions and processes are altered such that they temporarily or permanently cease).

- Ø Spatial Scale: This should indicate whether the impact will be local extending as far as the site and its immediate surroundings, or whether the impact may be realised regionally, nationally or even internationally.
- Ø Duration: This reflects the lifetime of the impact, as being short term (0 - 5 years), medium (5 - 15 years), long term (where the impacts will cease after the operation of the site), or permanent.
- Ø Significance: The significance of each impact has been rated as either critical, high, medium, low, or not significant.

9 THE "NO GO" OPTION

The environmental and social suitability of the refinery is the subject of an ongoing Environmental Assessment process (which is due for completion in late-August 2004), therefore, it is possible that the project will not receive environmental authorisation. In addition, the feasibility study for the integrated aluminium complex is still underway. In the event that the project not receive authority approval or should it prove to not be feasible, Komi Aluminium will fully restore any disturbed areas, thereby, limiting the possibility for long term environmental degradation. In this regard, Komi Aluminium fully recognize the risks associated in undertaking the early works activities in that should the project not be feasible for technical, economic, social or environmental reasons, the early works will be sacrificial (i.e. to no avail).

An aggressive rehabilitation plan for all disturbed areas will be implemented and will include:

- Ø Removal of all structures constructed on-site (including: rail infrastructure, diversion drains and catchment ponds, temporary housing etc.);
- Ø Restoration of soil structures;
- Ø Replanting all disturbed vegetation.

A detailed restoration plan will be drawn up prior to commencement of rehabilitation activities and only in the event of the refinery not receiving environmental approval.

10 CONCLUSION

The impacts associated with the early works activities are not likely to be significant and are largely restricted to the area directly affected by the early works activities /adjacent to the site. For the small risks of impact that do exist, effective mitigation iteration can easily be implemented to ensure that the impacts are not manifest. In addition, if the refinery does not proceed because of Komi Aluminium's decision or is not authorized by TEO/OVOS regulators, Komi Aluminium they will reclaim/rehabilitate all the areas to the close land use that it was before and/or according to reasonable stakeholder requests.

The results of this study show that the possible impacts will be low or moderate, and mitigation measures proposed will ensure that all these impacts are kept low. This together with initiatives such as reducing the amount of vegetation to be removed mitigates the moderate impact of the loss of biological resources s request if deemed reasonable.

As part of the Komi Aluminium Programme, Komi Aluminium will implement an integrated Health, Safety, Environmental and Community Plan for the entire programme. The integrated programme will detail all activities that could potentially negatively impact on the environment, what must done to prevent such impacts and what Komi Aluminium must do to ensure that no such impacts manifest.

Appendix A: Public consultation and disclosure for the early works programme on the proposed Alumina refinery

Introduction

As part of the feasibility study for the refinery, it will be necessary to conduct so-called 'early works' on the site proposed for the alumina refinery. These early works will be used in support of examining the technical feasibility of establishing the refinery on the proposed Sosnogorsk site. This will mean that permission will be required for the early works programme *prior* to a final decision on the acceptability of the refinery. The public consultation and disclosure framework presented in this document will be used to provide opportunity for raising comments and concerns on the scope of the proposed early works, to ensure that the decision on the early works programme is an informed one. The principles described in the main body of the PCD Strategy will be used for the early works programme, the specifics of which are described below.

Public meetings

A single set of public meetings will be held in Ukhta, Sosnogorsk and Kerki. The draft environmental analysis of the early works will be presented at these meetings and opportunity provided for comment on the same. This will happen by distributing the draft documents at least 30 days prior to the meetings using the mechanisms and principles described in the PCD Strategy.

Newspaper articles and publications in popular media

An article will be written describing the early works programme and related environmental impacts and their significance. The article will also include details of the public meetings as well as contact details for acquiring further information. The article will be published in Knyazhpogost News as well as in regional newspapers.

Radio and television interviews and announcements

The public meetings will be advertised on local radio and television stations prior to the public meetings. The press will also be invited to attend the meetings and where required interviews will be given on the EA and public consultation and disclosure process. The following media will be used for this purpose: Gazeta "Ukhta", "Ukhtinskoe Radio", Sosnogorskoe Radio, Gazeta "Zarya Timana".

Internet

Supporting information on the proposed early works programme will be posted on the following internet site:
http://www.sual.com/business/komi_aluminium/ecology/.

Brochures and information sheets

An information sheet will be developed that summarises the key issues of the early works programme in easily accessible language. These information sheets will be distributed at least 2-weeks prior to the public meetings.

Reading rooms and information centres

The following reading rooms and information centres will receive the information outlined above:

	NAME	ADDRESS	TELEPHONE
City of Ukhta	Mr. Petr Novoselchenko, Deputy General Director of ZAO Komi Aluminium	Prospekt Lenina 26 b, Ukhta, 169300	+82147 67342
	Ms. Maria Kotova Ecologist, MTBM		+82147 13204
	Ms. Svetlana Strekalova Library of Domestic Reading (Visitor's Center)	Ul. Mira, 5 Ukhta, 169300	+82147 33546
City of Syktyvkar	Ms. Tatiana Evdokimova Institute of Biology, Komi Scientific Center, Russian Academy of Sciences	Ul. Kommunisticheskaya, 28 Syktyvkar, 167982	+8212 241247
City of Emva	Ms. Natalia Kravchuk City of Emva Administration (Visitor's Center)	Ul. Dzerzhinskogo, 81, Emva, 169200	+82139 21033
	Mr. Anatoly Shevelev Head of Knyazhpogost District Environmental Protection Committee	Ul. Dzerzhinskogo, 110 Emva, 169200	+ 82139 24977
City of Sosnogorsk	Elena Melekhina Sosnogorsk District Administration (Visitor's Center)	Ul. Zoi Kosmodemyankoi, 17 Sosnogorsk, 169500	+ 82149 54907

Stakeholders

The following stakeholder groups will be targeted:

Local communities

Various methods and instruments of information dissemination and feedback collection will be applied to draw local community members into the early works presentation. Communities from Sosnogorsk, Ukhta and Kerki will be targeted for direct involvement in the consultation and disclosure process.

Non-governmental (public) organizations (NGOs)

As a minimum, the following organisations will be notified of the early works presentations:

- Greenpeace Russia..
- "Save the Pechora" Committee.
- "The Memorial"
- Association of small business development.
- "Komi-Kotyr/Komi-Voityr"

Additional NGOs that may emerge during the EA process will also be included.

Other authorities

Bauxite Timana and Komi Aluminium will contact and consult with federal level state and municipal control agencies to identify the most significant environmental aspects of the early works.

Religious communities

The public consultation process on the early works will account for the concerns of the churches located in Sosnogorsk, Ukhta and Kerki communities.

Small and medium enterprises (SME) and SME-supporting structures

The business associations or SME supporting structures in the districts Sosnogorsk and Ukhta will be identified through the EA process and invited to the discussions on the proposed early works programme.

Indigenous people

The participation of indigenous people (Ukhta, Sosnogorks, Kerki, Ust-Ukhta, Pozhnya and other small villages in the area) in the early works programme presentations through indigenous people organizations will be promoted.

Other civil society structures

Other civil society structures that may be interested in discussions on the early works programme may include:

- Service providers;
- Media (local newspapers, radio stations TV);
- Leaders of local cooperatives community based organisations, women and youth organisations.

Mass Media

The following local mass media will be involved:

- Gazeta “Ukhta”
- “Ukhtinskoe Radio”
- Sosnogorskoe Radio
- Gazeta “Zarya Timana”

Grievance Mechanism

Any grievances that arise with regard to the early works programme can be raised through the following permanently available phone number and e-mail address:

e-mail address: info@komial.ru
telephone number: (82 147) 67342

Concluding statements

It is recognized that all of the principles and commitments presented in the PCD Strategy apply equally to the consultation and disclosure process for the early works programme even if they have not been pertinently listed.