

**SIBUR**

## Environmental and Social Impact Assessment

### Non-Technical Summary

Amur Gas Chemical Complex  
(Svobodnensky District, Amur Region)

Data: 30 June 2020

Project No.: 0536221

Document Details	
Document title	Environmental and Social Impact Assessment Non-Technical Summary
Document subtitle	Amur Gas Chemical Complex (Svobodnensky District, Amur Region)
Project No.	0536221
Date	30 June 2020
Version	1.0
Author	ERM Eurasia
Client Name	Amur GCC LLC

#### Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	1.0	Svetlana Komarova	Alexandra Leman	Sergey Bourtsev	30.06.2020	First revision for Lender's and ECA's comments

---

## Signature Page

30 June 2020

# Environmental and Social Impact Assessment

## Non-Technical Summary

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

---

Sergey Bourtsev  
Project Director

Alexandra Leman  
Project Manager

ERM Eurasia Limited  
123001, Moscow, Trekhprudny Pereulok, 11/13 building 3

© Copyright 2020 by ERM Worldwide Group Ltd and/or its affiliates ("ERM").  
All rights reserved. No part of this work may be reproduced or transmitted in any form,  
or by any means, without the prior written permission of ERM.

**NON-TECHNICAL SUMMARY**

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

**CONTENTS**

<b>CONTENTS</b> .....	<b>I</b>
<b>ACRONYMS AND ABBREVIATIONS</b> .....	<b>II</b>
<b>2. ENVIRONMENTAL IMPACTS</b> .....	<b>8</b>
2.1 Overview of the Environmental Impacts.....	8
2.2 Air Quality Impacts.....	9
2.3 Greenhouse Gases Emissions .....	10
2.4 Noise .....	11
2.5 Impacts on geology and groundwater .....	12
2.6 Impacts on surface water.....	13
2.7 Impacts on topsoil.....	14
2.8 Impacts on vegetation.....	15
2.9 Impacts on wildlife .....	16
2.10 Impacts on Ecosystem Services .....	17
<b>3. SOCIAL IMPACTS</b> .....	<b>18</b>
3.1 Socio-economic Impacts.....	18
3.2 Community Health and Safety .....	19
3.3 Land Use .....	20
<b>4. ACCIDENTS AND EMERGENCY SCENARIOS</b> .....	<b>21</b>
<b>5. CUMULATIVE IMPACTS</b> .....	<b>22</b>
<b>6. DISCLOSURE</b> .....	<b>23</b>

**NON-TECHNICAL SUMMARY**

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

**ACRONYMS AND ABBREVIATIONS**

<b>Name</b>	<b>Description</b>
AGCC	Amur Gas Chemical Complex
AGPP	Amur Gas Processing Plant
BAP	Biodiversity Action Plan
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
EAP	Environmental Action Plan
EBD	Extended Base Design
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
FEED	Front End Engineering Design
GHG	Greenhouse Gases
ha	hectare
IFC	International Finance Corporation
km	kilometre
KTPA	Thousand tonnes per annum
LAO	Linear Alpha-Polymers
LARP	Land Acquisition and Restoration Plan
LPG	Liquefied Petroleum Gases
MFCU	Multi-Fuel Cracker Unit
Mt CO <sub>2e</sub>	Million tonnes of carbon dioxide equivalent
MTPA	Million tonnes per annum
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
NTS	Non-Technical Summary
OAO	Open Joint Stock Company
OPL	Overhead Power Line
PE	Polyethylene
PM	Particulate Matter
PP	Polypropylene
SO <sub>2</sub>	Sulphur dioxide
TWC	Temporary Workers Camp
UI&O	Utilities, Infrastructure and Offsites
WHO	World Health Organization
WRF	Weather Research and Forecasting

**NON-TECHNICAL SUMMARY**

**Amur Gas** Chemical Complex (Svobodnensky District, Amur Region)

## 1. INTRODUCTION

This document is a Non-Technical Summary (NTS) of the Preliminary Environmental and Social Impact Assessment (Pre-ESIA) Report for the Amur Gas Chemical Complex (hereinafter referred to as “the Project”).

The purpose of the NTS is to provide the public with simple and accessible basic information on the Project and the outcomes of the Pre-ESIA.

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

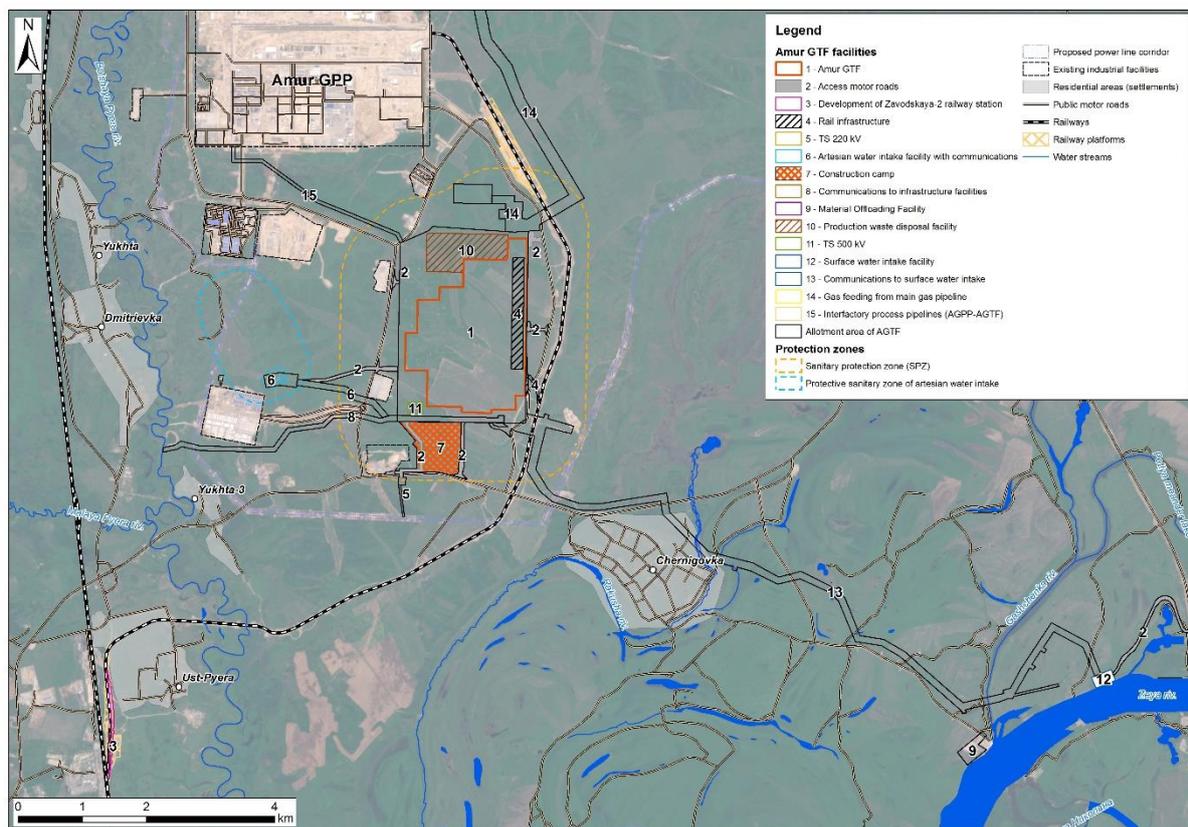
## 2. PROJECT OVERVIEW

Amur Gas Chemical Complex (Amur GCC) Project will produce polymers of various grades by processing the ethane fraction and liquefied petroleum gas supplied from the Amur Gas Processing Plant (Amur GPP).

The designed annual capacity of the Amur GCC is preliminarily estimated at 2.3 MTPA of polyethylene and 0.4 MTPA of polypropylene. Feedstock for Amur GCC (up to 2 MTPA of ethane, 738 KTPA of propane, and 362 KTPA of butane fractions) will be supplied under an agreement with Gazprom.

To date, the front end engineering design (FEED) phase of the Amur GCC Project has been completed and the Project configuration, composition, and capacity of process units have been determined. The design documentation for the process units is being developed based on the licensors' extended base designs (EBD): Linde, Univation Technologies, Chevron Phillips, and Axens.

The main Project site is located in Zheltoyarovsky Rural Council, Svobodnensky Municipal District, Amur Region.



The Project includes the following groups of facilities:

- Gas chemical complex within the boundaries of the Site, which consists of main processing units and Utility, Infrastructure and Offsites (UI&O);
- AGCC external infrastructure facilities located outside of the Site.

Ethane and LPG will be supplied to Amur GCC via inter-plant industrial pipelines with the connection point located at the southwestern boundary of the Amur GPP site.

**NON-TECHNICAL SUMMARY**

**Amur Gas** Chemical Complex (Svobodnensky District, Amur Region)

Fuel gas will be supplied via a buried gas pipeline from the 'Power of Siberia' pipeline. The tie-in point will be located 5.5 km north of the AGCC Site.

Technical/ process water for the Project needs will be supplied from a surface water intake that will be built 10 km southeast of the Site, on the right bank of the Zeya River. The Site will be connected with the water intake by two water lines, overhead power line (OPL), and communication lines. An access road will connect the water intake site with Highway R297 ('Amur'), located 1 km eastward.

Utility and drinking water supply will be provided from artesian wells that will be built 2 km west of the Site boundary. Water from the wells will be supplied to the Site via two buried water lines. In addition to the water lines, the artesian wells will be connected to the Site via other utilities, e.g. OPL, communication lines, and an access road.

Treated effluents from the Amur GCC will be transferred via two buried collector pipes to a filter outlet for discharge into the Bolshaya Pyora River 4 km southwest of the Site

Construction workers will be accommodated in a temporary workers camp (TWC). The TWC site and associated services will be adjacent to the southern boundary of the Site.

Power supply during construction will be provided from the Stroitel'naya Substation 220/10 kV that will be built 1 km south of the Site, including a 220 kV OPL to the point of connection to the 220 kV power line which passes 0.5 km further south.

Large-size cargo items for construction of the Amur GCC will be delivered by water and unloaded at a temporary wharf on the Zeya River, 9 km southeast of the Site. A temporary wharf for the Amur GPP project is located there too.

Railway station Zavodskaya-2, located 6 km south-west of the Site and built as part of the Amur GPP, will be expanded for the Project's purposes.

The Amur GPP Project also provides for the construction, along the southeastern boundary of the Site, of a branch railway connecting Zavodskaya and Zavodskaya-2 railway stations and an access railway to the Amur GCC.

The Site will be connected with the nearest highways by access roads. These roads will be used already during the construction phase.

The Project's infrastructure facilities include a housing estate in Svobodny for the accommodation of personnel during the operation.

### Project Timeframe

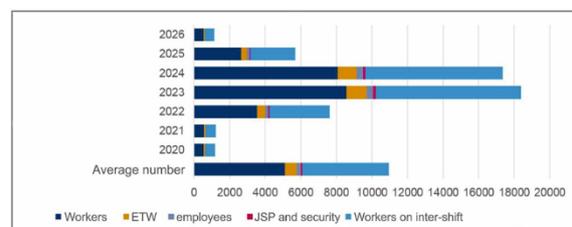
- Construction: 2020 – 2026;
- Operation: 2026 - 2051
- Decommissioning: approx. 2051

### Associated Facilities

- AGCC power supply facilities:
  - OPL 500 kV
  - TS 500 kV (Khimkombinat)
- Industrial waste disposal facility for the AGCC and AGPP needs
- Housing estate in Svobodny

### Personnel

Up to 11 thousand people can simultaneously be on the Project site during construction (in 2023 and 2024, the peak years of construction) and no less than 1,000 people during operation.



## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

### 3. APPLICABLE REQUIREMENTS

#### ■ National legislation of the RF



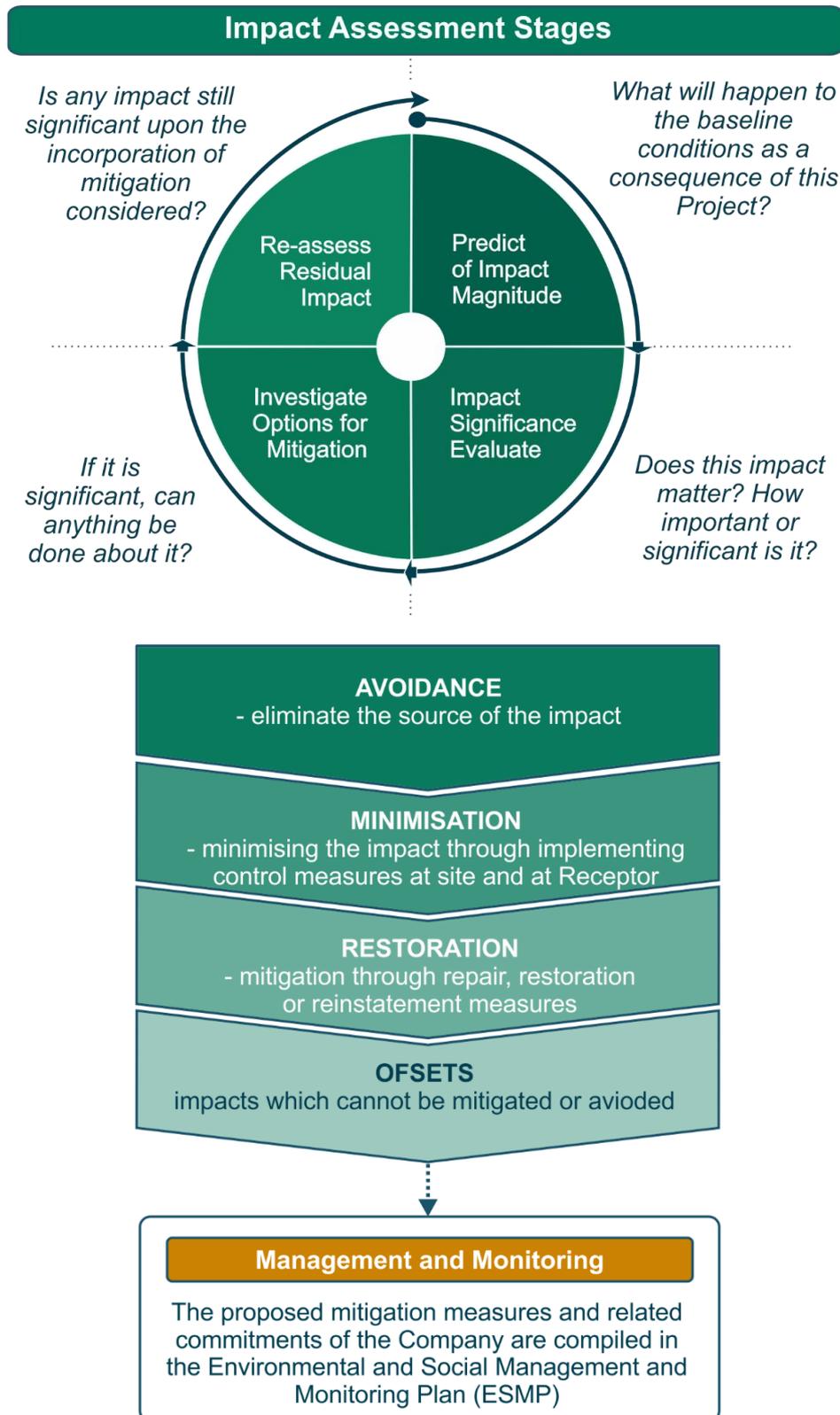
#### ■ Requirements of potential Lenders and ECAs



NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

4. IMPACT ASSESSMENT APPROACH



**NON-TECHNICAL SUMMARY**

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5. ENVIRONMENTAL IMPACTS

### 5.1 Overview of the Environmental Impacts

Being a large-scale petrochemical facility, the Project will be associated with typical industry-specific environmental impacts during its construction and operational phases. This Environmental and Social Impact Assessment study has identified and assessed the Project's impacts to various environmental components, including ambient air, climate, acoustic environment, surface water bodies, topsoil, biodiversity values, geology and groundwater.

During the construction phase, the Project will be associated with the environmental issues that are most common to most large industrial facilities. These include the following

- Air emissions from vehicles, equipment, and machinery
- Noise
- Removal of topsoil and vegetation clearance
- Alteration and loss of terrestrial and aquatic habitats
- Minor impact on the geological environment, groundwater and surface water.

During the operational phase, the environmental impacts of the Project are expected to be less intense compared to those of the construction, for all relevant environmental components except for ambient air and climate. Potential environmental issues associated with the Project operation include the following:

- Air emissions
- Greenhouse gas emissions
- Noise
- Disturbance of wildlife and aquatic species
- Wastewater
- Hazardous materials and wastes
- Minor impact on the geological environment and groundwater

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.2 Air Quality Impacts

The Air Quality Impact Assessment for the Amur Gas Chemical Complex (AGCC) considers the emissions associated with the operation of the Project.

A modelling analysis was conducted to evaluate ambient impacts of all applicable pollutants from the Project for comparison with the Russian MPC and IFC/WHO air quality standards. ERM completed the modelling analysis using the meteorological, source, and receptor information. The latest version of the AERMOD model and associated processors were used, along with five years of meteorological data developed from the WRF prognostic meteorological model.

The modelling shows that the peak impacts occur immediately next to the emitting sources, inside the Project boundary and they rapidly decrease with distance. The model does not indicate excess of the standards and the presence of major impacts off-site with the exception of NO<sub>2</sub> and SO<sub>2</sub> emissions.

Of note that the NO<sub>2</sub> baseline is very likely to be overestimated and in practice it is highly unlikely that the baseline is degraded. On this basis, the impacts beyond the site boundary are expected to be 'small'. A more accurate representation of results would be achievable with site specific baseline monitoring.

Construction	Operation
<i>Major sources:</i> construction works	<i>Major sources:</i> AGCC process units
<i>Major pollutants:</i> NO <sub>x</sub> , SO <sub>2</sub> , CO, carbon black and suspended solids (the latter two were added together to represent particulate matter or PM <sub>10</sub> )	
<i>Receptors/ areas:</i> residential areas (Chernigovka, Yukhta-3, Dmitrievka, Yukhta, Ust-Pyora), AGPP shift camp	
<i>Impact:</i> Temporary dust and pollutant emissions near construction sites due to construction works, vehicles movement and onsite power generation	<i>Impact:</i> Pollutant concentrations are expected to be below the applicable air quality standards at receptors outside the main Project site
<i>Significance:</i> Modelling hasn't been conducted due to limited data on construction phase	<i>Significance:</i> Medium to High
<i>Limitations:</i>	
<ul style="list-style-type: none"> <li>■ Limited data on construction phase;</li> <li>■ High baseline concentrations of pollutants: air quality impacts may be overestimated;</li> <li>■ Heights of buildings and structures are taken based on similar facilities;</li> <li>■ Source term is based on the similar facilities;</li> <li>■ Modeling have been conducted for the pollutants of concern (NO<sub>x</sub>, PM, CO, SO<sub>2</sub>), other pollutants have been scoped out.</li> </ul>	

## NON-TECHNICAL SUMMARY

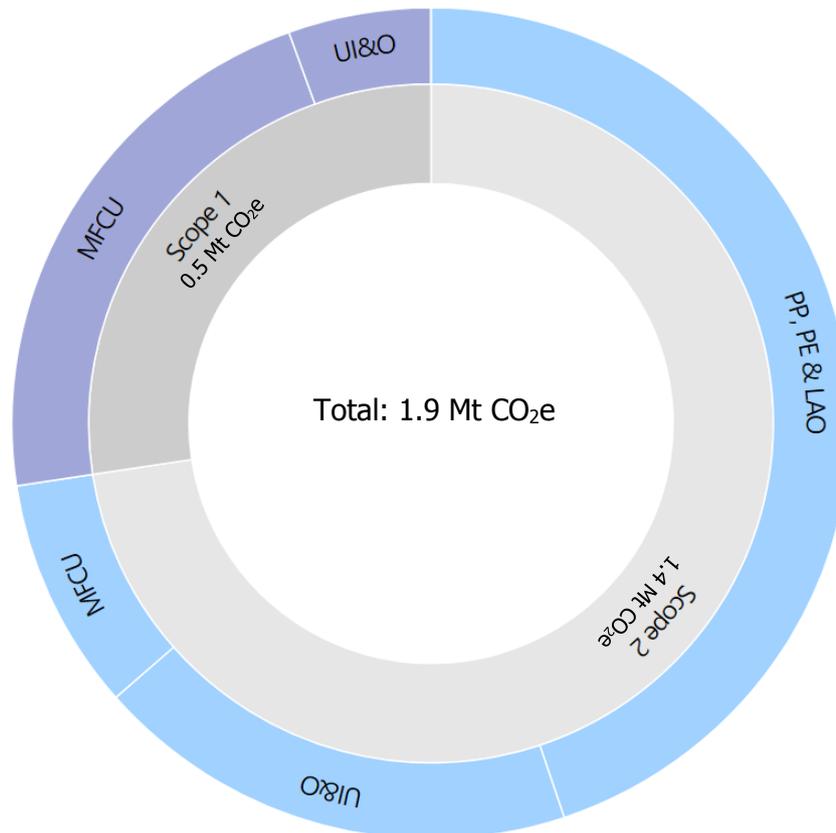
Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

### 5.3 Greenhouse Gases Emissions

Emissions of the Greenhouse Gases (GHG) have been preliminary evaluated for the Project based on the internationally recognised methodology developed by the Intergovernmental Panel for Climate Change (IPCC) and according to the Greenhouse Gas Protocol Corporate Standard.

The calculation has been performed based on the Project-specific data where available. Some pieces of the Project-specific information were unviable due to the early design stage; in such cases, data from the similar facility, the Western-Siberian Petrochemical Complex (ZapSib-2 Project), were used.

The Project will be a major GHG emitter; its annual aggregate direct and indirect GHG emissions will comprise 1.9 Mt CO<sub>2</sub>e:



The main sources of the Project's direct (scope 1) GHG emissions are fuel combustion (heat and flaring) and fugitive emissions from the stationary equipment (e.g., gas venting, leaking valves, etc.). The main source of the indirect (scope 2) GHG emissions is the consumption of the electric power by the Project.

Being a major GHG emitter, the Project will have to quantify and report its emissions annually. It is recommended that the Project's performance in the field of GHG emissions and climate change issues to be embedded into the Project's management system.

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.4 Noise

The Project will be associated with increased noise pollution of the area caused by construction and continuous operation of the AGCC. Noise impacts are expected to be of minor and negligible significance both during the construction and operation. The settlements that will experience the highest noise levels are the closest ones to the main Project site and the railway: Chernigovka and Yukhta-3.

Construction	Operation
<i>Major sources:</i> vehicles, construction machinery and equipment	<i>Major sources:</i> process equipment, ventilation and air conditioning equipment, access motor roads, the 10K-195 motorway, and the railway.
<i>Period of the maximum impact:</i> construction, 2023	<i>Period of the maximum impact:</i> not applicable, noise levels assumed similar during the overall operational phase
<i>Receptors/ areas:</i> residential areas (Chernigovka, Yukhta-3, Dmitrievka, Yukhta, Ust-Pyora), AGPP shift camp	<i>Receptors/ areas:</i> residential areas (Chernigovka, Yukhta-3, Dmitrievka, Yukhta, Ust-Pyora), AGPP shift camp
<i>Impact:</i> no exceedance of the standards at all control points	<i>Impact:</i> no exceedance of the standards at all control points
<i>Significance:</i> Negligible to Minor	<i>Significance:</i> Negligible to Minor
<i>Mitigation measures:</i> <ul style="list-style-type: none"> <li>■ Application of state-of-the-art equipment and mechanisms with low noise power levels;</li> <li>■ Monitoring of compliance with construction processes and procedures;</li> <li>■ Vehicular traffic control, prevention of uncontrolled vehicular traffic, minimization of cargo transportation at night where possible;</li> <li>■ Ban on parking of construction machinery and vehicles with running engine during prolonged stops and interruptions in work.</li> </ul>	<i>Mitigation measures:</i> <ul style="list-style-type: none"> <li>■ Installation of noisy equipment in separate buildings and open areas where no permanent workplaces are in place;</li> <li>■ Provision of ventilation facilities with noise suppressors;</li> <li>■ Compressors, pumps, and fans must operate in automatic mode with remote control;</li> <li>■ Workers must wear hearing protection equipment (helmets with earmuffs) when working near compressor units or other process facilities with high noise radiation.</li> </ul>

### Limitations:

- The AGPP impact analysis at all reference points was not performed during this stage of the assessment. A rough estimate can be made based on calculations performed as part of the EAP<sup>1</sup> development only for reference point RP5 (Yukhta), a residential area most closely located to the AGPP. A more comprehensive evaluation can be undertaken at the next stage of the ESIA;
- Additional noise measurements within the subject areas and the assessment of the AGPP contribution are required for a more accurate evaluation of the cumulative impact;
- The submitted design documents do not describe the procedure and quantity of the equipment to be involved in train sorting at Zavodskaya-2 railway station. The scale of impact in areas adjacent to the railway station may be assessed differently once such equipment is taken into consideration.

<sup>1</sup> Environmental Action Plan. Book 0059.2018-02-4-OOC1.1

**NON-TECHNICAL SUMMARY**

**Amur Gas** Chemical Complex (Svobodnensky District, Amur Region)

## 5.5 Impacts on geology and groundwater

The Project will have limited impact on geology and groundwater. The impact of the highest significance will be associated with artesian water abstraction by the Project from Buzulinsky aquifer.

Within the Project Area the stability of the geological environment to man-made impacts is largely determined by the resistance of groundwater to pollution. This parameter was estimated for the exploited Buzulinsky aquifer, which is classified as reliably protected due to its deep occurrence and overlap with a large width horizon with low filtration properties.

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.6 Impacts on surface water

The Project will affect the surface water bodies in various ways. A process water intake will be built on the Zeya River, and dredging works will be made near the wharf, downstream the water intake. This will affect the floodplain and riverbed, and will temporary increase the turbidity of the Zeya waters. Project's effluents during the operation will be treated and discharged to the Bolshaya Pyora River, a Zeya's tributary. Construction of the discharge facility will affect the floodplain and the river water quality will be affected by the treated effluent.

Construction	Operation
<i>Major sources:</i> soil removal in watercourses during earthworks, water intake and sewage treatment	<i>Major sources:</i> water intake and sewage treatment
<i>Receptors:</i> <ul style="list-style-type: none"> <li>■ River Zeya</li> <li>■ River Bolshaya Pyora</li> <li>■ River Gashenka</li> <li>■ River Rakusha</li> <li>■ Nameless creek – right-bank tributary of the Rakusha river</li> </ul>	<i>Receptors:</i> <ul style="list-style-type: none"> <li>■ River Zeya</li> <li>■ River Bolshaya Pyora</li> </ul>
<i>Impact:</i> The main impact of the construction phase associated with the deterioration of surface water and sediment quality will be soil removal in watercourses during earthworks. Impact significance, considering, is assessed as <i>Minor</i> as the construction area occupies 24.8 % of the catchment area of the Bolshaya Pyora river.	<i>Impact:</i> Wastewater outlet's treated effluents will be the main source of changes in the hydrological and hydrothermal regimes, both for the construction and operation periods. Due to the relatively small discharge (3.2 % of the lowest estimated winter low water flow rate (95% coverage) and 1.6 % of the lowest estimated summer and autumn low water flow rate (95% coverage)), the impact on the hydrological regime is estimated as <i>Negligible</i> . Despite this the <i>sensitivity</i> of the Bolshaya Pyora river to temperature changes is <i>high</i> and the impact on the hydrothermal regime is defined as <i>Medium</i> .
<i>Significance:</i> Negligible to Minor	<i>Significance:</i> Negligible to Medium
<i>Mitigation measures:</i> <ul style="list-style-type: none"> <li>■ Carrying out work strictly within the boundaries of the territory allotted for the construction;</li> <li>■ Storage of soil dumps and building materials, taking into account the absence of obstacles to normal water disposal from the territory of the construction site;</li> <li>■ Sewage discharge to specialized tanks, followed by transfer to treatment facilities;</li> <li>■ Quality control of wastewater treatment;</li> <li>■ Temperature parameters monitoring of discharged wastewater;</li> <li>■ Surface water monitoring;</li> <li>■ Condition monitoring of water protection zones.</li> </ul>	
<i>Limitations of impact assessment:</i> <ul style="list-style-type: none"> <li>■ The assessment is based on the compliance of treated water quality with the standards for aquatic objects of fishery importance;</li> <li>■ Limited data on the risks of fuel and lubricants getting into watercourses;</li> <li>■ Limited data on the risks of exposure to chlorine-containing substances during pipeline disinfection;</li> <li>■ Pollutant discharge parameters will be specified at the next stage of the ESIA.</li> </ul>	

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.7 Impacts on topsoil

About 1,300 ha of topsoil will be stripped off during the Project sites preparation. This will represent the most significant of the Project's impacts on topsoil. During the operational phase, topsoil will be mainly affected by the precipitated pollutants emitted by of the Project.

Construction	Operation
<i>Major sources:</i> site grading/ levelling, earth-moving work, off-road traffic	<i>Major sources:</i> precipitation of pollutants from air emissions generated by the AGCC operation
<i>Major impacts:</i> Loss of topsoil and structural disturbance of vegetation cover during land clearance and earthworks	
<i>Receptors/ areas:</i> soil on the construction site	<i>Receptors/ areas:</i> not expected
<i>Impact:</i> Potential adverse effects of the Project on topsoil will mainly take the form of topsoil loss and degradation of soils due to deposition of airborne contaminants. All expected impacts will have a local extent.	
<i>Significance:</i> <ul style="list-style-type: none"> <li>■ Topsoil loss is <i>High</i></li> <li>■ Degradation of soil cover during the Construction and Operation phases is <i>Low</i> and does not require a separate assessment</li> </ul>	<i>Significance:</i> <ul style="list-style-type: none"> <li>■ Topsoil loss <i>is not expected</i></li> </ul>
<i>Mitigation measures:</i> <ul style="list-style-type: none"> <li>■ Strict observance of boundaries of the territory allotted for construction and installation works;</li> <li>■ Exclusion of un-organised travel of vehicles, machines and mechanisms with travel beyond the limits of the established ways of movement for them, leading to mechanical damage to the soil and plant layer;</li> <li>■ Reclamation of lands that were seized during the construction period for technological needs, on which the natural vegetation and soil cover were disturbed;</li> <li>■ Continuous linear control and monitoring of erosion, suffosion, geo-cryological, landslide processes;</li> <li>■ Monitoring the restoration of plant communities on reclaimed land;</li> <li>■ Parking and maintenance of construction equipment only within the boundaries of specially designated areas;</li> <li>■ Refueling of machines and mechanisms, the discharge of fuels is carried out at specially designated sites;</li> <li>■ Collection of waste oil products, engine oils, etc. in special pallets;</li> <li>■ Regular monitoring of soil pollution and degradation in the area of influence of construction works;</li> <li>■ Use materials that are inert and meet environmental safety requirements during construction;</li> <li>■ Fencing of landscaping areas with borders, excluding the flushing of soil on the road surface;</li> <li>■ Ban on the use of faulty or unregulated equipment;</li> <li>■ Storage of bulk materials in specially equipped temporary storage sites;</li> <li>■ Organisation of a drainage system from pits;</li> <li>■ Continuous linear control and monitoring of erosion, suffosion, geo-cryological, landslide processes;</li> <li>■ Regular monitoring of gas stations to detect possible fuel leaks.</li> <li>■ Exclusion of fuel and oil spills on the soil surface.</li> </ul>	
<i>Limitations:</i> <ul style="list-style-type: none"> <li>■ Receptors, their value, sensitivity and susceptibility will be determined in later versions of the report once results of the investigations to be performed by ERM in the summer of 2020 become available. Accordingly, the ultimate significance of the impact will be determined at a later stage;</li> <li>■ The severity of the impact depends on the scale of direct impacts on the soil cover. Exact extent of topsoil losses and structural disturbance of vegetation cover will be determined in later versions of the report once results of the investigations to be performed by ERM in the summer of 2020 become available and once the temporary and permanent land withdrawal data are provided.</li> </ul>	

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.8 Impacts on vegetation

The main impact on vegetation in the Project area will be imposed during the site preparation, when topsoil and vegetation cover will be stripped off on the Project sites, and vegetation in the adjacent areas will be affected by construction dust. During the operational phase, the Project's impact will be associated with precipitated pollutants.

Of note that a limited data on the plant communities on the Project sites was available for the assessment. These are to be obtained by the surveys in the summer of 2020.

Construction	Operation
<i>Major sources:</i> site clearance, traffic of vehicles and machinery	<i>Major sources:</i> precipitation of pollutants from air emissions generated by the AGCC operation
<i>Major impacts:</i> vegetation clearance, dust pollution	<i>Major impacts:</i> pollution/ deterioration of growth conditions
<i>Receptors/ areas:</i> vegetative cover on the construction site and in adjacent areas	<i>Receptors/ areas:</i> Yukhtinsky pine forest, Buzulinskaya green grove, Iversky State Nature Reserve
<i>Impact:</i> pollution of stems and leaves by precipitating dust and pollutants (soot, hydrocarbons, oil products, etc.) from construction machinery and vehicles	<i>Impact:</i> critical concentrations of pollutants will not be exceeded, but definitive conclusions can be made only after obtaining the results of the summer survey

*Significance:* Will be defined upon the results of the summer survey

*Mitigation measures:*

- Technical and design solutions (e.g. low noise equipment, equipment for treatment of emissions, discharges, etc.);
- Compliance with rules and regulations (e.g. fare safety, speed limits, etc.);
- Land Remediation (seeds of native plants, mechanical - immediately after construction, biological - as the first growing season following the end of construction);
- Reforestation;
- Support regional initiatives to conserve and increase the area of habitats of rare and protected plant species in the Svobodnensky District;
- ESMPs, ESMS, Commitment Register, Land Remediation Plan, BAP;
- Monitoring Plan.

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.9 Impacts on wildlife

The project will have various impacts on terrestrial and aquatic life through alteration of habitats, disturbance factor and potential introduction of synanthropic species.

Recipients and their value will be determined after receiving the results of surveys to be conducted by ERM in the summer of 2020.

Construction	Operation
<i>Major sources:</i> construction works, presence of personnel and traffic of machinery and vehicles	<i>Major sources:</i> operation of flares, AGCC and its facilities (noise)
<i>Major impacts:</i> disturbance factor, destruction of individual species and habitats, introduction of synanthropic (domesticated or human associated) species	<i>Major impacts:</i> death of birds in flare systems, death of fish in rivers Zeya and Bolshaya Pyora, disturbance factor, habitat transformation
<i>Receptors/ areas:</i> animal populations and habitats within the construction site and in the vicinity	<i>Receptors/ areas:</i> animal population of the Yukhtinsky pine forest, Buzulinskaya green grove, Iversky State Nature Reserve, birds flying over the Project site
<i>Prediction:</i> most pronounced effects will be associated with introduction of synanthropic species (rats, crows, dogs, etc.) and destruction of habitats on the proposed construction site. Given the absence of mammals listed in the Red Book, the overall impact will be less pronounced.	<i>Prediction:</i> in compliance with the safety requirements and the implementation of all planned mitigation measures environmental destruction of living organisms is not expected. Nevertheless, it is necessary to calculate the loss compensation for species such as the Amur sturgeon ( <i>Acipenser baerii</i> ) and kaluga ( <i>Huso dauricus</i> ) for river Zeya.
<i>Impact significance:</i> Will be defined upon the results of the summer survey	
<i>Mitigation measures:</i>	
<ul style="list-style-type: none"> <li>■ Prohibition of certain types of activities (e.g. execution of construction work at spring nesting period, hunting, import and loose-keeping of dogs, etc.);</li> <li>■ Technical and design solutions (e.g. low noise equipment, equipment for treatment of emissions, discharges, etc.);</li> <li>■ Compliance with rules and regulations (e.g. fare safety, speed limits, etc.);</li> <li>■ Release into the basin of the Zeya River of juvenile carp;</li> <li>■ Reforestation;</li> <li>■ Support regional initiatives aimed at the restoration of populations of rare and protected fish species, e.g. Kaluga and Siberian sturgeon and aimed at restoration of populations of commercial fish species;</li> <li>■ Monitoring Plan.</li> </ul>	

## NON-TECHNICAL SUMMARY

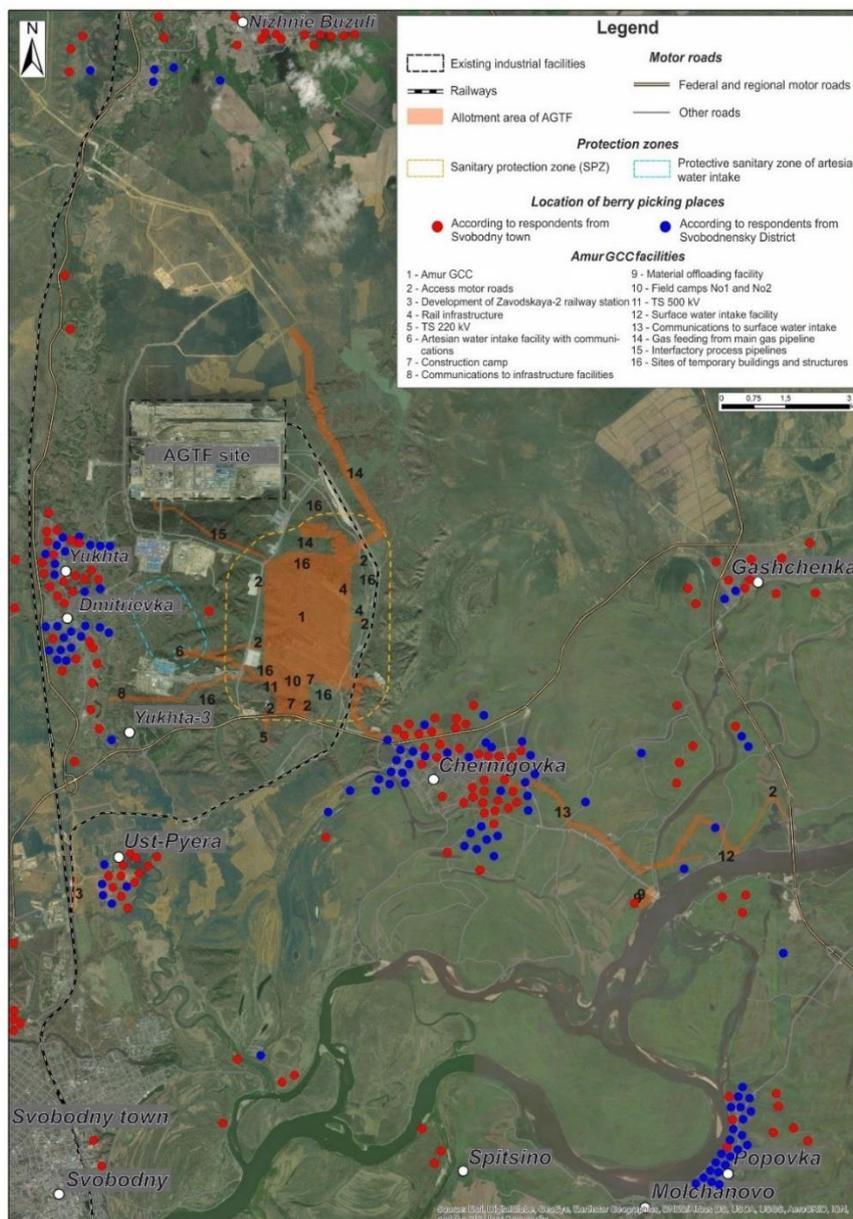
Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 5.10 Impacts on Ecosystem Services

Since the Project will have an impact on the ecosystems in its Area of Influence, it will also affect the ecosystem services, i.e. the benefits that these ecosystems provide to the local communities and business. These benefits might be of different nature and value to their users, and in the Project's area of influence include:

- Recreation (e.g. providing areas for leisure and outdoor recreation);
- Wild plant gathering (e.g. berry, mushroom, herbs, etc.);
- Hunting.

The Project will to some extent restrict access to recreational facilities and areas of wild plant gathering. Loss of habitats for the Project sites and disturbance from the Project activities will reduce hunting resources in the Area of Influence.



Since the temporary allotment areas can not be reinstated until the end of the Project's lifespan, offset measures should be developed, e.g. so as to compensate for the loss of biodiversity and ecosystem services of natural habitats.

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 6. SOCIAL IMPACTS

### 6.1 Socio-economic Impacts

Project will have positive and negative impacts on the local economy.

During the construction, Project will have multiplier effect in the economy through development of the related industry sectors, creating additional jobs and tax payments to the budget. At the same time, workers influx and road transportation will cause the increase in the load on the healthcare, education, infrastructure and utility services in Svobodny and Svobodnensky District.

Project's operational phase will be associated with creation of permanent jobs, development of social infrastructure services, increase of town population, development of residential areas in Svobodny, but also with the increased load on the healthcare facilities.

Construction	Operation
<i>Impact sources:</i> construction works, transportation, contracting, workers influx	<i>Impact sources:</i> new jobs, contracting, workers influx
<i>Receptors:</i> local businesses, budget, households	<i>Receptors:</i> local businesses, budget, households
<p><i>Positive impact:</i> Multiplier effect in the economy, the development of related industries, additional jobs, tax deductions to the budget</p> <p><i>Negative impact:</i> Impacts on health care, education, road infrastructure, utility services in Svobodny town and Svobodnensky District</p>	<p><i>Positive impact:</i> Creation of permanent jobs, development of social infrastructure services, increase of town population, development of residential areas in Svobodny town, improving economic development</p> <p><i>Negative impact:</i> Increased load on the healthcare facilities</p>
<p><i>Mitigation measures:</i></p> <ul style="list-style-type: none"> <li>■ Priority employment of local staff, exclude accommodation of rotational personnel in Svobodny town;</li> <li>■ Detours for roads in Svobodny town / Construction of temporary access road;</li> <li>■ Provide for consumer goods store, bankable services within the construction camp site;</li> <li>■ Provide an alternative passage for driving cattle through the linear facility</li> </ul>	<p><i>Mitigation measures:</i></p> <ul style="list-style-type: none"> <li>■ Develop a grant program for attraction of recent medical school graduates for work during the Project construction and operational stages;</li> <li>■ Cooperating with the local materials suppliers and service providers.</li> </ul>

## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 6.2 Community Health and Safety

Large-scale projects may have significant impact on the health and safety of the local communities. Project's impact will be related to various factors, including workers influx, transportation, and the overall operation of the AGCC.

Construction	Operation
<i>Impact sources:</i> construction works, transportation, workers influx	<i>Impact sources:</i> AGCC operation, transportation, workers influx
<i>Receptors:</i> local residents	<i>Receptors:</i> local residents
<p><i>Impact:</i> The movement of construction machinery and equipment, the influx of shift workers can lead to health and safety risks (infectious diseases, conflicts and road accidents)</p> <p>The main social problems that concern local residents during the construction of the AGPP are the following:</p> <ul style="list-style-type: none"> <li>■ "Residence of foreign migrants in their localities" (46.1%),</li> <li>■ "Pollution of rivers and reservoirs" (42.2%),</li> <li>■ "Increase in prices for goods and services" (38.8%),</li> <li>■ "Deterioration of road quality" (35.0%),</li> <li>■ "Littering of the territory" (23.5%).</li> </ul>	<i>Impact;</i> Similar to construction, but less intensive.
<p><i>Mitigation measures:</i></p> <ul style="list-style-type: none"> <li>■ Grievance redress mechanism;</li> <li>■ Medical services, shops, leisure infrastructure in construction camps;</li> <li>■ Code of conduct for employees of the Project should apply to contractors and subcontractor;</li> <li>■ Participation of citizens in meetings of the public Council of AGPP/AGCC</li> </ul>	

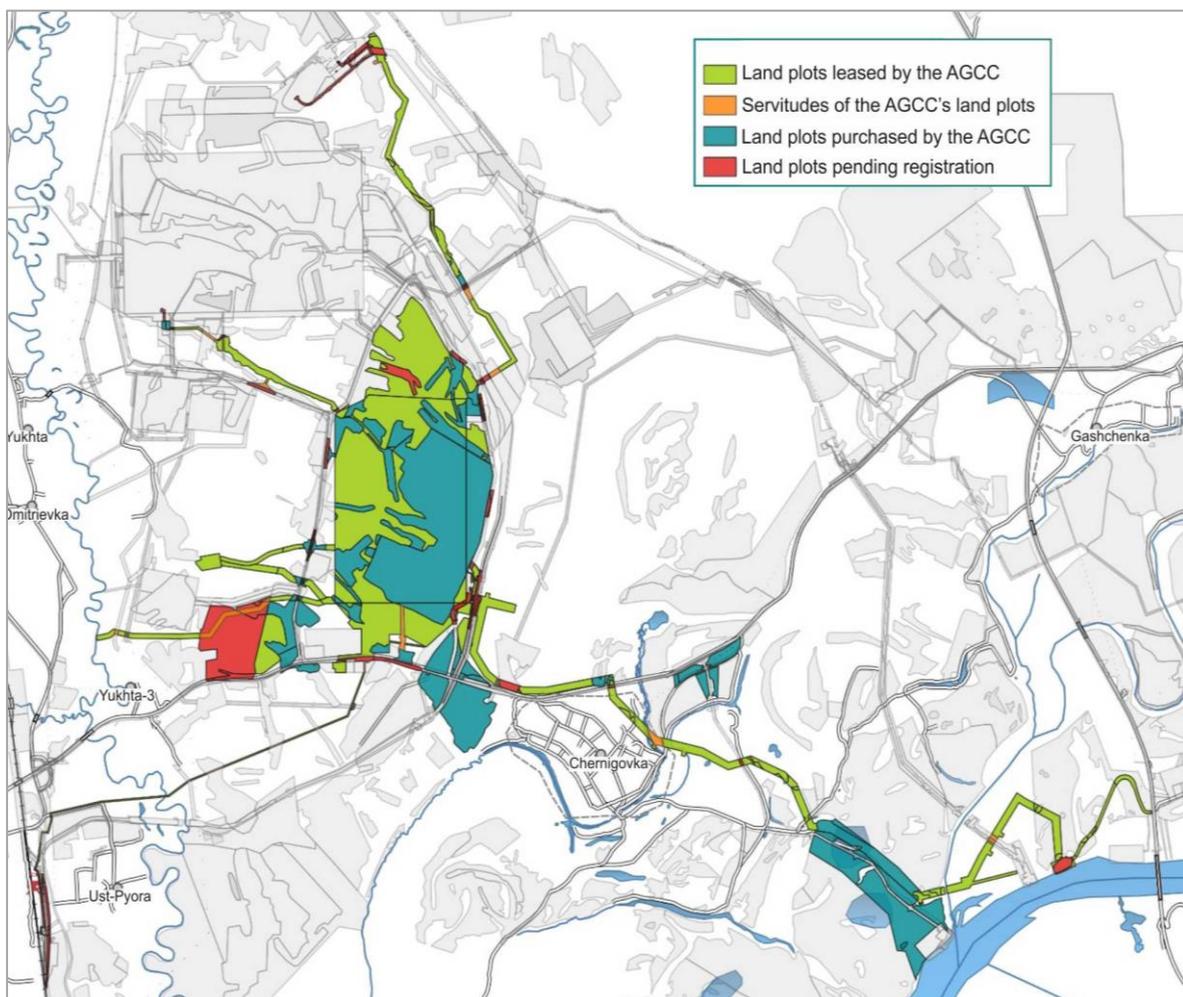
## NON-TECHNICAL SUMMARY

Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 6.3 Land Use

Most land use issues are relevant to the land acquisition:

- Buyout of land plots:
  - 16 plots were purchased by the Amur Gas Chemical Complex (AGCC) (an area of about 749 ha) from private land users;
- Lease:
  - 33 public plots were leased by the AGCC (an area of about 722 ha);
  - 7 public plots are pending registration (an area of 24 ha).
- Servitudes: public and private land plots
- Meetings with land owners are to be held.



**NON-TECHNICAL SUMMARY**

**Amur Gas** Chemical Complex (Svobodnensky District, Amur Region)

## 7. ACCIDENTS AND EMERGENCY SCENARIOS

The ESIA study has identified the main accident scenarios and impact receptors for the Project.

Most of the accident scenarios are related to flammable liquids on construction sites.

Accident scenarios related to flammable gases and liquids, combustible dust and corrosive substances.

Of note that these are preliminary scenarios, and a proper hazard identification and assessment is to be conducted.

## NON-TECHNICAL SUMMARY

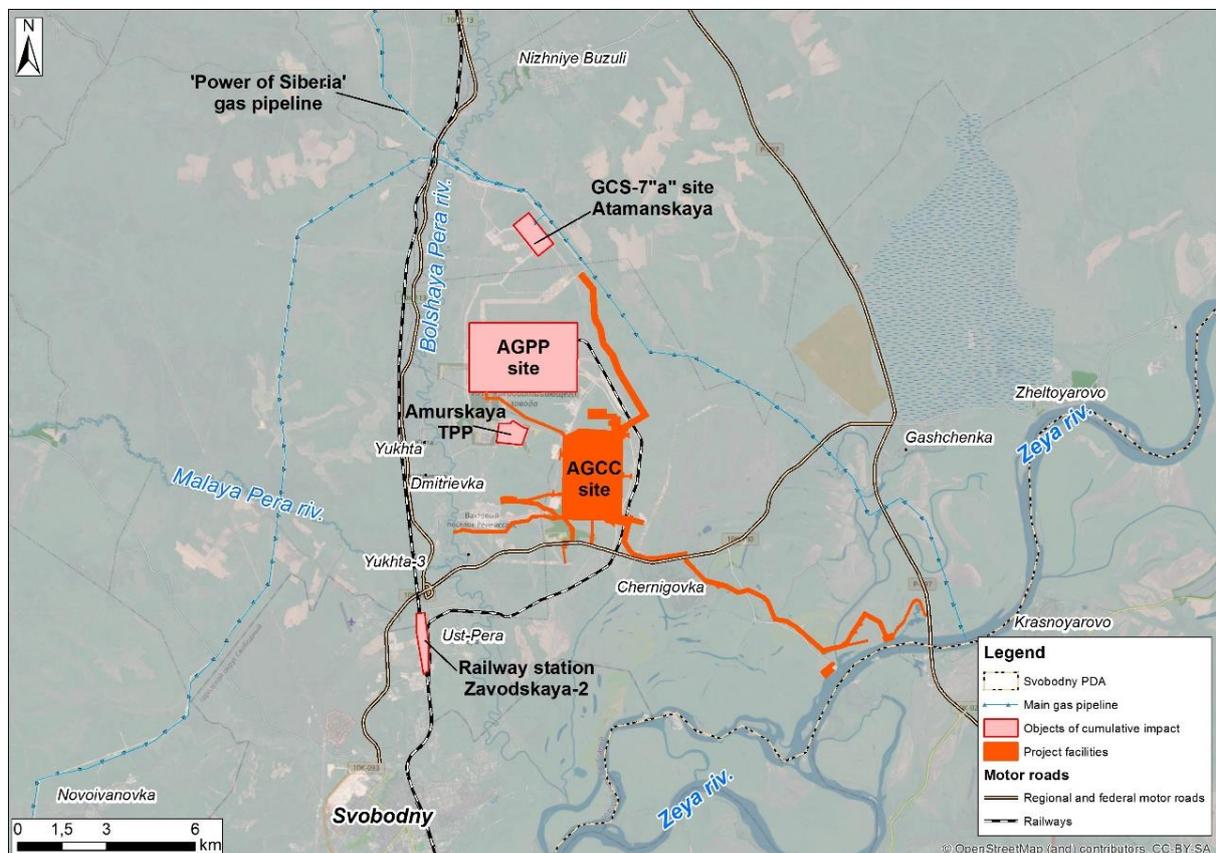
Amur Gas Chemical Complex (Svobodnensky District, Amur Region)

## 8. CUMULATIVE IMPACTS

Cumulative impacts are those that result from the incremental impact, on areas or resources used or directly impacted by the Project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

The Projects' area of influence is overlapped with areas of other projects. The main ones are:

- "Power of Siberia" gas pipeline
- Amur gas Processing Complex and its associated facilities, - Amurskaya TPP, "Atamanskaya" GSC-7 "a"
- Objects of OAO "Russian Railways" near Zavodskaya-2 station
- Reconstructed health facilities in Svobodny town,
- Reconstructed transport infrastructure facilities



The main components that will be cumulatively affected by the projects are as follows:

- Air quality
- Surface water of the B. Pyora River
- Biodiversity
- Community health and safety
- Community cohesion of Ust' Pyora rural settlement
- Social and transport infrastructure facilities

**NON-TECHNICAL SUMMARY****Amur Gas** Chemical Complex (Svobodnensky District, Amur Region)

## 9. DISCLOSURE

Hardcopies of the full ESIA package will be available in:

- The AGCC office:
  - Svobodny town, Lenina st. 70/2
  - Blagoveschensk, Pionerskaya street, 2
- Administration of Svobodnensky District:
  - Svobodny town, 50 Let Oktyabrya st. 14

Hardcopies of NTS, SEP and LARP will be available in the AGCC office:

- Chernigovka rural settlement, Oktyabr'skaya str.18 V, office 9

The documents will be available for download on the Project website, to be developed.

Project hotline number is 8-800-222-04-84

---

**ERM has over 160 offices across the following countries and territories worldwide**

Argentina	The Netherlands
Australia	New Zealand
Belgium	Norway
Brazil	Panama
Canada	Peru
Chile	Poland
China	Portugal
Colombia	Puerto Rico
France	Romania
Germany	Russia
Ghana	Senegal
Guyana	Singapore
Hong Kong	South Africa
India	South Korea
Indonesia	Spain
Ireland	Sweden
Italy	Switzerland
Japan	Taiwan
Kazakhstan	Tanzania
Kenya	Thailand
Malaysia	UAE
Mexico	UK
Mozambique	US
Myanmar	Vietnam

**ERM's Moscow office**

Russia  
Moscow  
Trekhpudny Pereulok  
11/13 building 3

T: +7 (495) 234-31-77  
F: +7 (495) 234-31-78

[www.erm.com](http://www.erm.com)