



# **Atyrau Refinery Modernisation Project, Atyrau region, Kazakhstan**

## **Non-Technical Summary**

3 June 2021

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## Acronyms and Abbreviations

<b>Name</b>	<b>Description</b>
BWWTP	Biological wastewater treatment plant
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
KMG	KazMunaiGaz JSC
MWWTP	Mechanical wastewater treatment plant
NGO	Non-governmental organisation
NTS	Non-Technical Summary
SEP	Stakeholder Engagement Plan
WWTP	Wastewater treatment plant

## 1. INTRODUCTION

Atyrau Refinery LLP (“the Project Developer”) is a subsidiary of JSC “KazMunaiGaz” (KMG) and a largest oil refinery plant in Kazakhstan with installed crude oil refining capacity of 5.5 mln. tons per year, producing up to 35 types of oil products. The Atyrau refinery was constructed and started operations in 1945. The raw material being refined is a crude oil with a high paraffin content, from Mangyshlak oil deposits of the western regions of Kazakhstan. Its initial refinery capacity was 800,000 tons of oil per year.

### **1969 - 1971 - the first stage of modernization.**

In August 1969, a technological unit for atmospheric oil refining and vacuum distillation of fuel oil ELOU-AVT-3 was put into operation.

In December 1971, a catalytic reforming unit LG-35-11 / 300-95 was put into operation, designed to produce a high-octane component of debutanized gasoline, hydrogen-containing gas and dry gas. The refining capacity of the unit is 300 ths tons of raw materials per year.

### **1980 - 1989 - the second stage of modernization.**

In 1980, the first delayed coking unit (DCU) in Kazakhstan was built at the plant. The design annual capacity was 600 ths tons of raw material. The delayed coking unit ensured the production of 120 ths tons of coke per year, including 54 ths tons of electrode coke per year.

In 1989, a petroleum coke calcining unit (PPCU) was put into operation for the production of calcined coke, which is a raw material for the aluminium industry. The initial design capacity of the PPCU was 140 ths tons per year of raw coke.

In 1992, the Atyrau Refinery for the first time carried out a trial processing of Tengiz oil - a new type of oil with a significantly higher content of light fractions

### **2002 - 2006 - the third stage of modernization**

The project of the Atyrau Oil Refinery Reconstruction was developed by Marubeni Corporation (Japan) and JGC Corporation (Japan) with the involvement of Kazakhstani design institutes such as CJSC KazNIPIEnergoprom (Almaty), OJSC NIPi KazMunayGas, NIPi Caspian Engineering & Research, Kazakhstan Institute of Oil and Gas (Aktau), Shymkent Center DGP “RNITsBHP” (Shymkent), Energy Institute (Almaty).

**2012-2016 - the fourth stage of modernization** - construction of the Complex for the production of aromatic hydrocarbons and the Complex for deep oil refining.

Atyrau Refinery LLP has plans for modernization of its wastewater treatment facilities and for remediation of the existing wastewater discharge channel and evaporation fields (the Tazalyq Project). The European Bank for Reconstruction and development (EBRD) is considering providing financing support to the Atyrau refinery in realization of the Project. The Project will need to comply with EBRD’s Environmental and Social Policy (ESP) (2014) including Environmental and Social Performance Requirements (PR).

## 2. INTRODUCING THE PROJECT

### 2.1 Where the Project will be located?

The Project is located within the industrial area of Atyrau city in its south-eastern part, in the Atyrau Region of the Republic of Kazakhstan. The Project location is presented in *Figure 2-1* below. The Project will be connected to municipal wastewater treatment plant (WWTP), which is located northeast the Refinery.

The nearest to the Refinery residential area of Atyrau city is located 450 m west and 730 m. The Project location in relation to the nearest settlements is illustrated in *Figure 2-2* below.

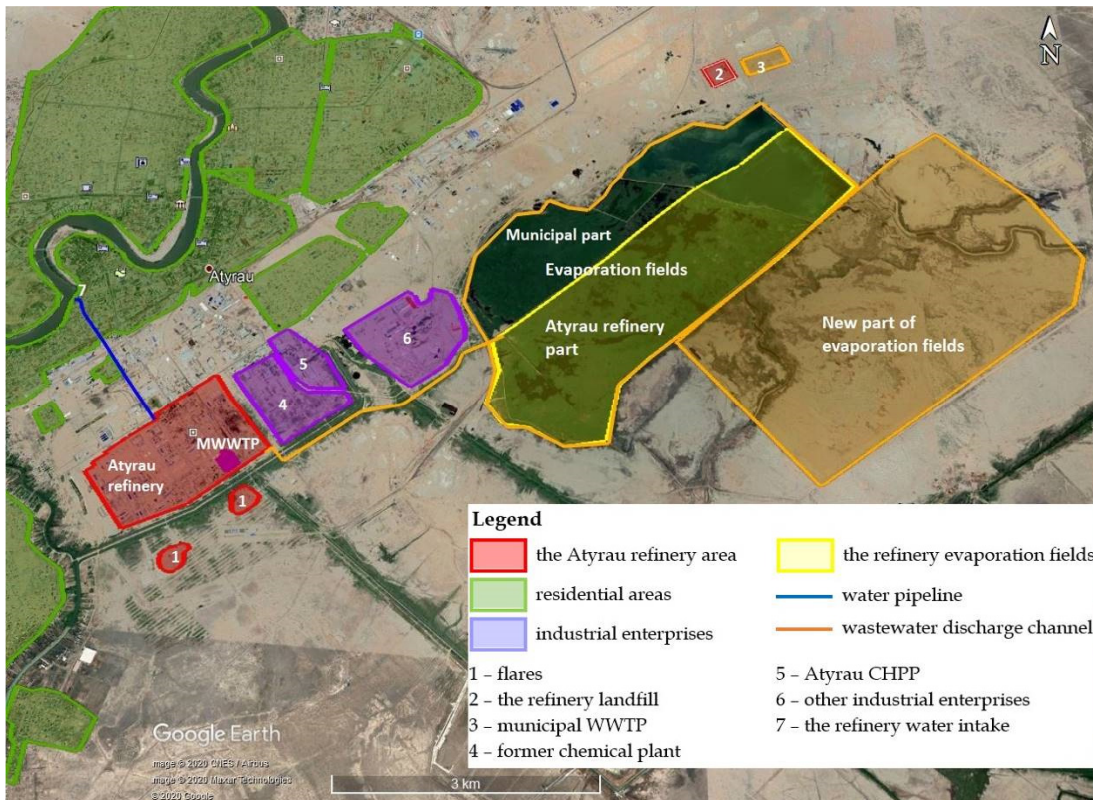


**Figure 2-1 Project Location Map**



Source: Encyclopaedia Britannica, Inc

**Figure 2-2 Project location in relation to nearest surroundings**



Source: Google Earth.

## 2.2 What are the main Project components?

The Project consists of the following components:

- Modernization of a mechanical wastewater treatment facilities (MWWTP).
- Modernization of a biological wastewater treatment facilities (BWWTP). Based on the results of the implementation of the MWWTP sub-project, an analysis of the quality of wastewater will be carried out and, based on which decisions will be made on the need to implement the design and construction of BWWTP.
- Remediation of the evaporation fields of 860 ha and construction of a new effluent pipeline extending from the refinery for 3.5 km to a municipal wastewater treatment plant instead of existing open wastewater discharge channel

In accordance with the Project solutions, wastewater streams generated at the refinery will pass through two-step treatment at the new MWWTP and existing BWWTP. After treatment some of the wastewater will be recirculated back to the refinery while the rest will be discharged via new effluent pipeline to the municipal wastewater treatment plant, which is currently under construction. Upon the completion of the modernization of mechanical treatment facilities, part of wastewater sent to the municipal WWTP in amount of approx. 15% is planned to be reverted back to the refinery to be used in its water recirculation system.

## 2.3 Temporary Facilities for the Project

All construction activities will be conducted on the land already secured for the Project.

## 2.4 Social considerations in the Project planning

The Project facilities will be placed within the existing footprint of the Atyrau Refinery. Therefore no additional land withdrawn will be required for the planned facilities.

As part of the closed discharge channel construction (the third Project stage) two additional land plots of 3 (three) ha and 4.3 (four point three) ha will be temporary withdrawn for the purpose of construction of a corridor of engineering networks until February 27, 2023. Contracts for temporary land withdrawn (lease) of land plots have been concluded. Based on the provided documents the land plots are of settlements land category designated for industrial use.

The Project also considers the location of the construction and accommodation camp(s). At the moment the exact location and area was not yet defined by the design documentation. However given the Project located within the industrial area, no private or agricultural land owners is expected to be affected in case of additional land acquisition.

## 2.5 What is the Project schedule?

The Project should be implemented in three stages. The indicative Project schedule is as follows:

1. Modernization of MWWTP: 2019 – 4<sup>th</sup> quarter 2022
2. Modernization of BWWTP: based on the results of the implementation of the MWWTP sub-project
3. Remediation of the evaporation fields: 2019 – 4<sup>th</sup> quarter 2023

At present, design solutions available only for the first stage of the Project (for MWWTP).

Design documentation for the reconstruction of the canal of normatively treated effluents and the remediation of evaporation fields has been developed and is currently being considered by the State Expertise RSE.

### **3. HOW WILL THE PROJECT AFFECT THE ENVIRONMENT AND THE COMMUNITY?**

The main effects of the Project on the environment and local communities are summarised in the following sections.

Impacts associated with the Project will be mitigated and managed through the implementation of an Environmental and Social Action Plan (ESAP) to structure the Project and Company performance (including the Refinery's operations) in line with the EBRD Performance Requirements (PRs). The mitigation and management measures recommended in the ESAP will include among others:

- Performing of focused environmental and social assessments and studies for the Project in line with international good practice and EBRD's Performance Requirements;
- Establishing a Project Environmental and Social Management System (ESMS), which will be based on existing management system of the Refinery supplemented by the policies, management programs and plans;
- Developing and implementing a set of environmental and social management plans;
- Ensuring Project development in line with EU Best Available Techniques (EU BAT).

#### **3.1 Air quality impacts**

The nearest residential area of Atyrau city is located at a distance of approximately 450 m west and 730 m northwest from Atyrau Refinery. The Project facilities located at the distance of more than 1,000 m from the nearest residential area. Based on the results of air emissions dispersion modelling performed as part of the design documentation development construction and operation of Project facilities as well as remediation works at the evaporation fields would not result in exceedance of the established sanitary norms with regard to air quality within the nearby residential area. The Project designs includes measures aimed at minimize air quality impacts.

#### **3.2 Noise and vibration impacts**

Main noise and vibration sources is expected during Project construction stage and will be associated with the operation of construction machinery and equipment as well as from transportation of construction materials. However given the distance from the Project facilities are more than 1000 m they are not expected to be significant. The Project provides measures aimed at minimize noise impacts from the equipment.

Project operation is not expected to generate significant noise and vibration levels at the operational stage. Therefore no exceedances of noise levels are expected within the residential areas.

#### **3.3 Greenhouse Gasses and Climate Change**

The Project will have a positive impact on climate change by the reduction of GHG emissions by 10,600 tons of CO<sub>2</sub>-equivalent on average per year.

#### **3.4 Resource efficiency**

Implementation of the Project will not increase existing water consumption of the refinery, otherwise will result in reduction of water intake from the Ural River due to reuse of wastewater after treatment.

#### **3.5 Impact on lands**

The land planned for construction of the Project WWTP facilities is a modified surface that is historically being used for industrial purposes.



The main impact on the geological environment and soil cover will be observed during construction and will be associated with operation of construction equipment and vehicles, consolidation of soil, potential pollution of soils and ground with sanitary wastewater and domestic waste.

General measures to avoid contamination during construction have been outlined in the design documentation and include the following: construction strictly within the boundaries of the allocated territory, movement of construction equipment along the existing access roads, prohibition to operate construction machinery with leaking fuels and lubricants, regular removal of wastes and sanitary wastewater.

### **3.6 Biodiversity**

The Project area is already modified due to the historical and current industrial activities with no potential to sustain natural values of flora and fauna species. Therefore the Project site can be characterised as noncritical habitat with low potential of endangered / endemic flora and fauna species presence at the Project location or in the near vicinity. At the same time, the territory of the existing evaporation fields subject to remediation is densely overgrown with reeds, which currently serve as a habitat and nesting place for birds and small mammals.

The Company will conduct biodiversity baseline and impact assessment for the Project third stage (remediation of evaporation fields) and provide adequate mitigation and conservation measures to avoid and/or minimize impacts on existing species.

### **3.7 Waste management**

All waste categories resulting from construction works related to the low hazardous and non-hazardous wastes and will be handled by specialized companies. Special areas designated for temporary waste storage will be organized within the construction sites.

The EIA reports include information on waste generation and management practices, which have been already implemented at the refinery and therefore will be applied for the Project facilities.

### **3.8 Cumulative Impacts**

Cumulative impacts associated with the Project in combination with the municipal wastewater treatment facilities may relate to increased air and noise emissions, as well as land use, soil and groundwater contamination in relation to new municipal evaporation fields with the total area of 2,080 ha. The Company will undertake a cumulative impact assessment and develop and implement respective mitigation measures.

The remediation of the existing evaporation fields with the total area of 860 ha will reduce the expected cumulative impacts associated with the soil and groundwater contamination and additional land withdrawal for the new municipal evaporation and biological fields land use.

### **3.9 Cultural heritage**

The Project site located within the existing boundaries of the Atyrau Refinery. No cultural heritage/high value archaeological sites are located on the Project site since it represents an industrial area with over 75 years of operation.

### **3.10 Socio-economic**

The Project is unlikely to result in significant long-term adverse social impacts. Relevant socio-economic impacts which are associated with the Project development include:

- community health impacts generated by traffic movement during construction; deterioration of ambient air quality, noise and vibration levels; these have been presented for the Project, along with defined mitigation, under Sections 3.1- 3.4 above;

- Impacts related to the presence of shift workers. The Project construction personnel is expected to be accommodated in the shift camp. According to the design documentation the total number of personnel for the Project construction works (first and third stages) will be 134. Given the local based workers supposed to participate in the construction, as well as their insignificant outman, no impact on the local communities and social facilities is expected.

Mitigation measures are identified in the ESAP to minimise these potential impacts. The socio-economic benefits of the Project include:

- Discontinuation of the current practice of discharging wastewater to the evaporation fields.
- Improvement of the environmental and health situation of the population of the Atyrau city, who will benefit from the improved wastewater management in combination with the municipal wastewater treatment facilities.
- Fulfilment of strategic objectives defined in the wastewater management in the Atyrau city at state level.
- Fulfilment of the provisions of the local legislation and Order of the President of the Republic of Kazakhstan N219-0 1-7.22 dated 04.06.2019 with regard to remediation of the evaporation fields “Tukhlaya Balka”.
- Increased employment opportunities for local population during the wastewater treatment facilities construction and operation period.

#### 4. ENGAGING STAKEHOLDERS

Atyrau Refinery provides periodic updates regarding the status of the Project only through media (news websites and Atyrau Refinery internet platforms) and conducts regular meetings with NGO and mass media representatives as part of the scientific and technical conferences. The last conferences were took place on 17 of May and 4 of November of 2019, the general discussions were related to Tazalyq Project.

A public hearing was held on 5 November 2020, within the framework of the environmental impact assessment for remediation of wastewater evaporation fields (Project third stage). This hearing was attended by representatives of the Atyrau Refinery, Design Company, the local state authority, local companies, NGO and mass media representatives.

A Stakeholder Engagement Plan (SEP) was developed for the Project and will be implemented by the Atyrau Refinery across all Project phases. Activities included as part of this SEP refer to engaging with the affected communities to ensure relevant information is disclosed in a meaningful way and their key concerns in relation to the Project are recorded, understood and adequately addressed. Additionally, the SEP includes a grievance mechanism to be implemented by the Atyrau Refinery to allow external stakeholders, particularly community members, to submit and seek resolution for any grievances they may have with regard to the Project.

- Company’s Hotline: 8 800 080 30 30; 8 702 075 30 30
- Contact person: Community Liaison Officer Atyrau Refinery
- Address: Atyrau city, 1 Zeinolla Kabdolov Avenue, Atyrau Refinery LPP, 060001
- Phone: +7 (7122) 259 667
- E-mail: ref@anpz.kz
- Online grievances: [https://www.anpz.kz/blog/written\\_requests/](https://www.anpz.kz/blog/written_requests/)