

Environmental Monitoring Report

Project Number: 43439-033
January 2020

KAZ: CAREC Corridor 2 (Mangystau Oblast Section) Investment Program – Tranche 2

Prepared by the "SNS-2017" LLP for the Ministry of Investments and Development, Republic of Kazakhstan and the Asian Development Bank.

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Semiannual environmental monitoring report

LOAN No. 2967-KAZ

**Period: July-December 2019
January 2020**

**The Republic of Kazakhstan: MMF CAREC 2 Transport Corridor 2:
INVESTMENT PROGRAM, Project 2**

Financed by Asian Development Bank

Prepared by:

“SNS-2017” LLP, Kazakhstan

For:

the Committee for Roads of the Ministry of Industry and Infrastructural Development of the Republic of Kazakhstan and Asian Development Bank

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**COMMITTEE FOR ROADS
MINISTRY OF INDUSTRY AND INFRASTRUCTURAL DEVELOPMENT
REPUBLIC OF KAZAKHSTAN**

LOAN No.2967-KAZ

CENTRAL ASIA REGIONAL ECONOMIC COOPERATION (CAREC) TRANSPORT CORRIDOR 2

INVESTMENT PROGRAM, MANGISTAU REGION, PROJECT 2

**RECONSTRUCTION OF THE
“ZHETIBAY-ZHANA OZEN-KENDERLI-TURKMENISTAN BORDER” HIGHWAY
Section km 0 - km 73**

Financed by ADB through Multi-Tranche Financing Facility (MFF)



Semiannual Environmental Monitoring Report

(Period: July-December 2019)

January 2020



*Prepared by CSC “SNS-2017” LLP in
accordance with the reporting requirements of the Contract for Consultant’s Services
No. 05-ADB/CSC-2019 dated June 10, 2019*

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Appendix 3: Test report of noise and vibration measurement

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ABBREVIATIONS

| | |
|--------|--|
| ADB | Asian Development Bank |
| AOI | Area of Influence |
| DRE | Deputy Resident Engineer |
| MFF | Multi-Tranche Financing Facility |
| CAREC | Central Asia Regional Economic Cooperation |
| CoR | Committee for Roads |
| CSC | Construction Supervision Consultant |
| EHS | Environment Health and Safety |
| EIA | Environmental Impact Assessment |
| EMP | Environmental Management Plan |
| SSEMP | Site Specific Environment Management Plan |
| EPC | Environmental Production Control |
| FIDIC | Federation International Des Ingenieurs Conseils (the French acronym for International Federation of Consulting Engineers) |
| GPS | Global Positioning System |
| IEC | Important Environmental Components |
| MIID | Ministry of Industry and Infrastructural Development |
| EHS | Environment, Health and Safety |
| GRM | Grievance Redress Mechanism |
| MPD | Maximum Permissible Discharge |
| MPE | Maximum Permissible Emission |
| O&M | Operation and Maintenance |
| PMC | Project Management Consultant |
| PPE | Personnel Protective Equipment |
| IEA | Initial Environmental Assessment |
| RK | Republic of Kazakhstan |
| RoW | Right of Way |
| SPS | Safeguard Policy Statement |
| TOR | Terms of Reference |
| SHW | Solid household wastes |
| VO | Variation Order |
| SA-EMR | Semi-annual Environmental Monitoring Report |

1. INTRODUCTION

1.1. Preamble

1. This report is the semiannual environmental monitoring report for the project MFF CAREC Transport Corridor 2: Investment Program, Project 2.
2. This report is the **fourth semiannual report** for this project.

1.2. Key information

3. The project includes the reconstruction of the existing highway of 3rd category of republican significance "Zhetibay-Zhanaozen-Kenderli-border of the Republic of Turkmenistan", which is being reconstructed under category 1-B, and within the road junction, it transfers into category II.
4. The road passes through a desert-steppe environment, however, the project does not provide for a new road plan, all work will be carried out within the existing right of way (except for the construction of a bypass around Zhanaozen). The project provides for the construction of a new pavement of capital type, designed for a load of A2 on an axis of 13 tons. In addition, it envisages filling up and broadening the subgrade, the reconstruction and construction of new artificial structures - culverts, the construction of a new traffic interchange at two levels on the bypass of Zhanaozen, a new overpass of the traffic interchange at two levels on the bypass of Zhanaozen and a new overpass through the railway road for 175 km at PK 4-50 of the Zhetybai-Uzen haul, as well as measures for the arrangement and restoration of occupied lands. The main construction work has been completed for today, the following works being completed: i) the final layout of the roadsides and slopes of the embankment; ii) the installation of a barrier fence; iii) parking construction; iv) arrangement of bus pavilions and overpass painting, bio-toilets, RMD-58 in Shetpe; v) reinforcement of culverts.
5. The Mangistau region is located in the West part of Kazakhstan in the Caspian lowland and the eastern part of the Ustyurt plateau. The reconstructed section of the road passes through a desolate and sparsely populated area, there is not a single settlement all the way from the junction in Zhetibay settlement to the city of Zhanaozen. The projected road passes in the area of important utilities: the railway from Aktau to Zhanaozen, gas pipelines and oil pipelines, as well as high-voltage overhead lines and fiber-optic communication cables. All the entire length of the projected section, the road crosses a large number of utilities - gas pipelines, water pipelines, overhead power lines from 0.4 kV to 220 kV, and others.
6. Geomorphologically, the design area is a wavy plain with alternation of gentle ridges and flat plains. Extensive areas with a completely flat relief are confined to wide ridges of flat rises, valleys and separate hills up to 10 m high are stand out on their background. Area of designing is dry extensive depressions, often with steep slopes, dry beds of ancient and modern watercourses.

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project description

7. The Republic of Kazakhstan, acting through the Ministry of Industry and Infrastructural Development, implements a program on modernization the Zhetibay-Zhanaozen road under the Tranche 2 Central Asian Regional Economic Cooperation (CAREC) Investment Program (Mangistau region).
8. The project includes the reconstruction of the existing road between village Zhetibay and city Zhanaozen and construction of one new bypass around Zhanaozen.
9. The project is located in Mangistau region, the border of the Caspian Sea. The final point of this road project is Zhanaozen, which is an important economic center for export cargo, including terminals

for pipelines that supply regional oil products to Western Europe.

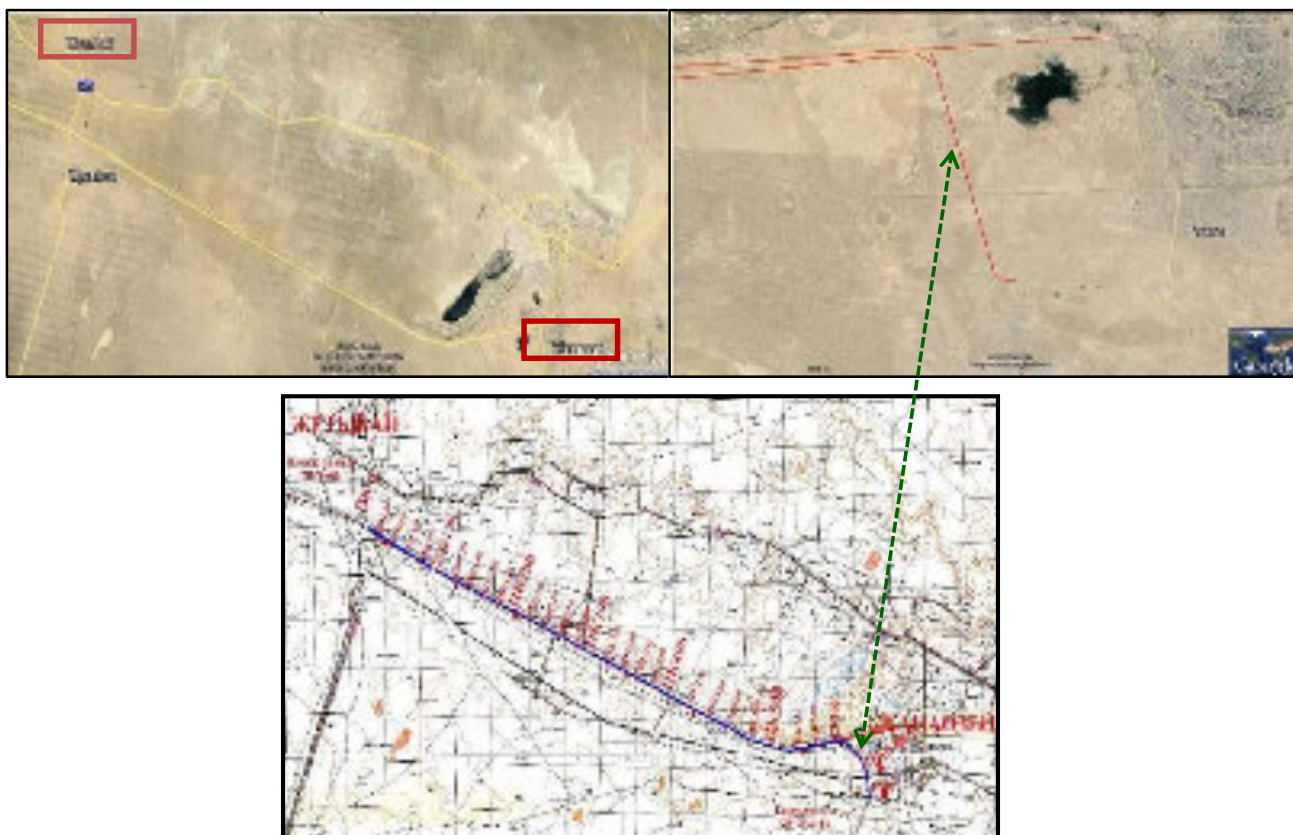
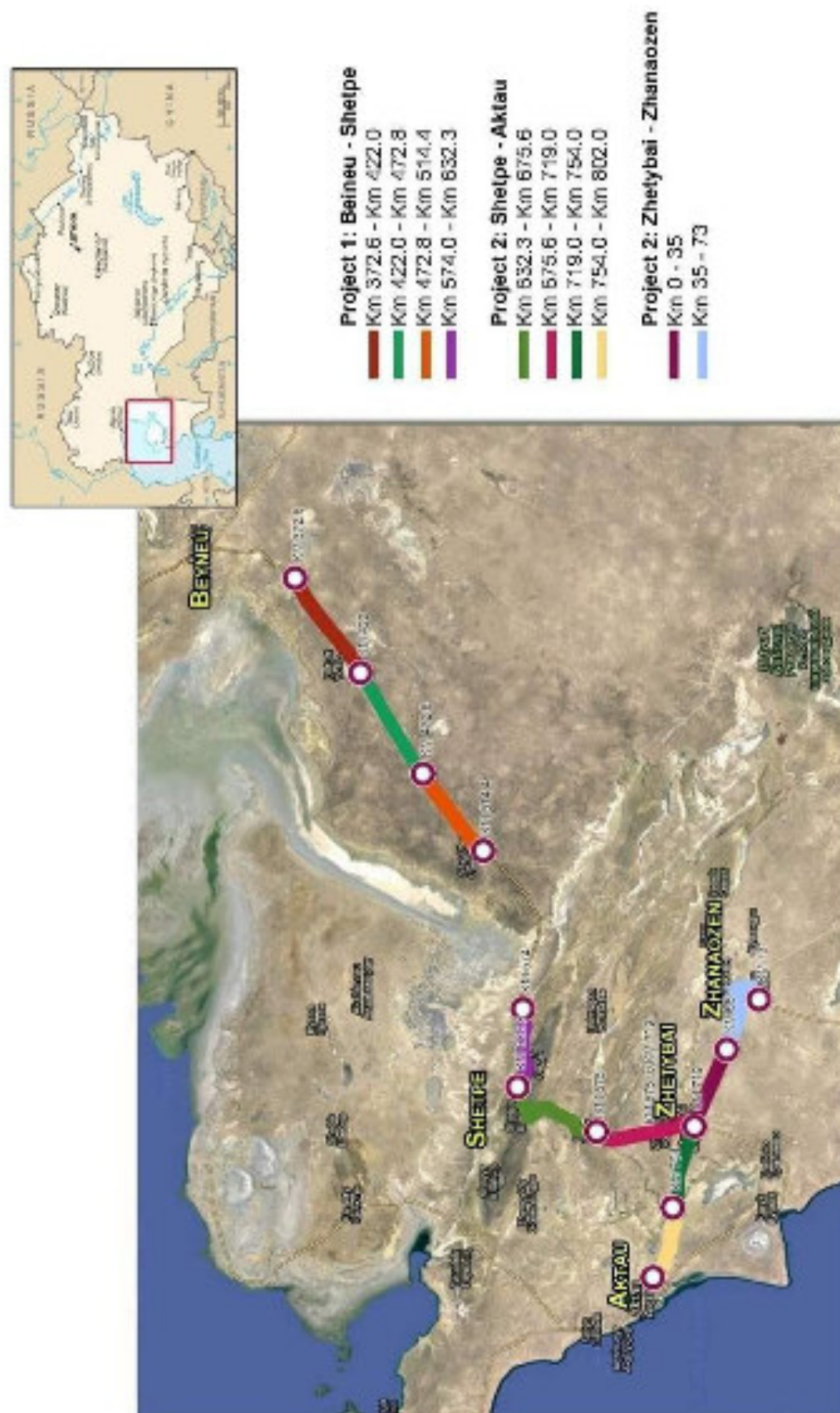


Figure 2.1 – Project road in scale of country

PROJECT LOCATION MAP



10. This report is the fourth semiannual environmental monitoring report prepared by the Project Engineer. This semiannual environmental monitoring report under Contracts 1 and 2 (km 0 - km 35 and km 35 - km 73) covers the period from July to December 2019 within the framework of the environmental part of the construction supervision. The main purpose of this monitoring is to ensure the implementation of measures to mitigate environmental impacts during construction through the Engineer supervision during the construction phase. Environmental problems should also be identified in advance in order to avoid untimely and to ensure the timely completion of the Project.

11. This semiannual environmental monitoring report has been prepared as a report in accordance with Contract requirements for the provision of construction supervision services of the Ministry of Industry and Infrastructural Development (MIID), the Committee for Roads of the Republic of Kazakhstan for CAREC Corridor 2 (road sections in Mangistau region), Investment Program, Project 2, led by Asian Development Bank, Loan 2967-KAZ.

12. According to the Initial Environmental Assessment (IEA) report, the project was classified as "B" category, based on cumulative environmental impacts. This Project may be attributed to Category B, i.e. a Project having some negative impact on the environment, which can be leveled or mitigated through a set of special measures. Therefore, this project requires the implementation of IEA. Under this Project, there is no need for land allocation or resident resettlement; therefore, in accordance with existing ADB policies, it also does not go beyond the established limits of Category B projects on the social front.

13. As mentioned in the TOR of construction supervision, the environmental aspects involves the environmental monitoring and management of project implementation and assistance in ensuring the implementation of environmental management practices at each stage of construction. In addition, the specialist has prepared an environmental audit protocol for the construction period, had developed a detailed environmental monitoring program and EMMP, regularly monitors the implementation of environmental monitoring and provides periodic reports based on monitoring and laboratory analysis data.

2.1.1. Objectives

14. The objective of the Semiannual Environmental Monitoring Report is to provide an information of the key issues relating to environmental issues during the past months (July 2019 to December 2019). The report includes an update on overall project progress, the status of EMP implementation, any progress made with environmental management, environmental monitoring results, and other relevant issues such as non-compliance and corrective actions, and monitoring of the Grievance Redress Mechanism (GRM). The report was prepared by "SNS-2017" LLP and was intended to inform ADB and any other interested parties of the status of environmental management of the project. The report was summaries; more detailed information were included in the monthly and quarterly report prepared by the Engineer and the Contractor.

15. The objective of this report is to comply with environmental security requirements of the Republic of Kazakhstan in accordance with ADB's Safeguard Policy Statement (SPS) 2009, as well as to fulfill the loan covenants as described in the loan and project agreement signed by the Government and ADB and to ensure that all environmental mitigation measures was given in PEA and EMP incorporating all the Environmental concerns of the project. The principle objectives of the project with respect to Environment were:

- to ensure environmentally compatible project implementation by avoiding and mitigation of negative impacts that are likely to arise from the project;

- to ensure that EMP recommendations are adequately followed and to meet the Environmental compliance of statutory requirements. The report was based on findings during the field visits, the monthly and annual environmental protection progress reports submitted by Contractor, information and discussions with consultant staffs, Contractor representatives and other relevant stakeholders.

2.1.2 Methodology

16. This Semiannual Environmental Monitoring Report has been prepared by reviewing and extracting key information from a number of sources, as follows:

- Contractors' Monthly and Semiannual Environmental Protection Reports;
- Contractors' and Consultants Grievance Registers Book;
- Engineer's Monthly and Quarterly Progress Reports;
- Engineer's Environmental Specialist's Reports and regular site visits;
- Contractors' Monthly instrumented monitoring results on air quality, water quality, soil quality and noise & vibration;
- Ad Hoc reports from the Contractors / consultants on training and stakeholder consultations;
- Correspondence between Engineer and Contractors relating to environmental issues;
- Consultations with number of stakeholders.

In addition, some information and opinion in the report results from site visits, technical meetings and public meetings and interviews over the previous 6 months.

2.1.3 The Project Area

17. The project involves reconstruction of the road between Zhetibay-Zhanaozen and construction of one new bypass road around Zhanaozen. The project is located within Mangistau Oblast bordering Caspian Sea. The end point of this road project is the city of Zhanaozen, an important economic hub and port for export goods, including terminal for pipelines delivering the regional oil products as far as Western Europe. The project consists of two sub-sections (Lot 1 and Lot 2), constructed separately. Location of the project road in terms of Contracts is shown in Fig. 2.2.

18. **Sub-Section 1: km 0 - km 35 (Zhetibay - Zhanaozen).** This sub section includes reconstruction of the existing road from Category I-B with a four-lane roadway, dividing strip and a roadway broadening. On this section, the direction coincides with the existing embankment of the roadbed. The total length of the projected section is 35 km.

The reconstruction project provides the construction of 2 covered bus stops and 3 recreational areas, as well as the construction of 12 culverts:

- construction of box culvert (cattle pass) in size 4x2.5 m at Pk195+07 and Pk331+91, Pk217+60;
- construction of a two-section culvert at Pk215+45;
- and construction of 8 pipe culverts.

19. **Section 2: km 35-km 73 (Zhetibay- Zhanaozen).** The total length of the project is 38 km. The reconstruction project provides:

- PK 350+00 – PK573+87 reconstruction of existing road in the parameters I-B technical category with four lanes carriageway and widening the roadway to 27.5 m.
- Construction of Interchanges in two levels at the intersection on access road of Zhanaozen, the II category road section from Pk574+00 to Pk644+40. Entrance to c. Zhanaozen Pk11+80 – Pk60+80. Exit road form c. Zhanaozen of the III category Pk00+ Pk11+80.

- Construction of railway overpass at Pk615+48 and construction of overpass at the interchange to Zhanaozen at Pk574+48;
- Construction of 12 pipe culverts and 1 cattle pass (4x2.5m)
- Lightening of transport interchange.

2.1.4 Technical Description of the Road Project

20. The scope of works mainly consists of:

- reconstruction of the pavement of the existing carriageway 35 km Lot 1 and 22.4 km Lot 2 together with geometric improvements of vertical and horizontal alignment, transferring the existing technical category III to IB (4-lanes);
- construction of the new carriageway with length of 6.293 km Category II (2 lanes);
- rehabilitation of the pavement by milling and overlays at the last 4.9 km section of the road to Zhanaozen;
- structural works involving construction / reconstruction / repair of bridges and construction / extension / repair / reconstruction of existing culverts;
- drainage works consisting of pavement edge gutters and road side drainages;
- relocation of existing utilities;
- construction of bus shelters, rest areas and car ramps;
- improvement of road safety by provision of guardrails, road signs and marking.

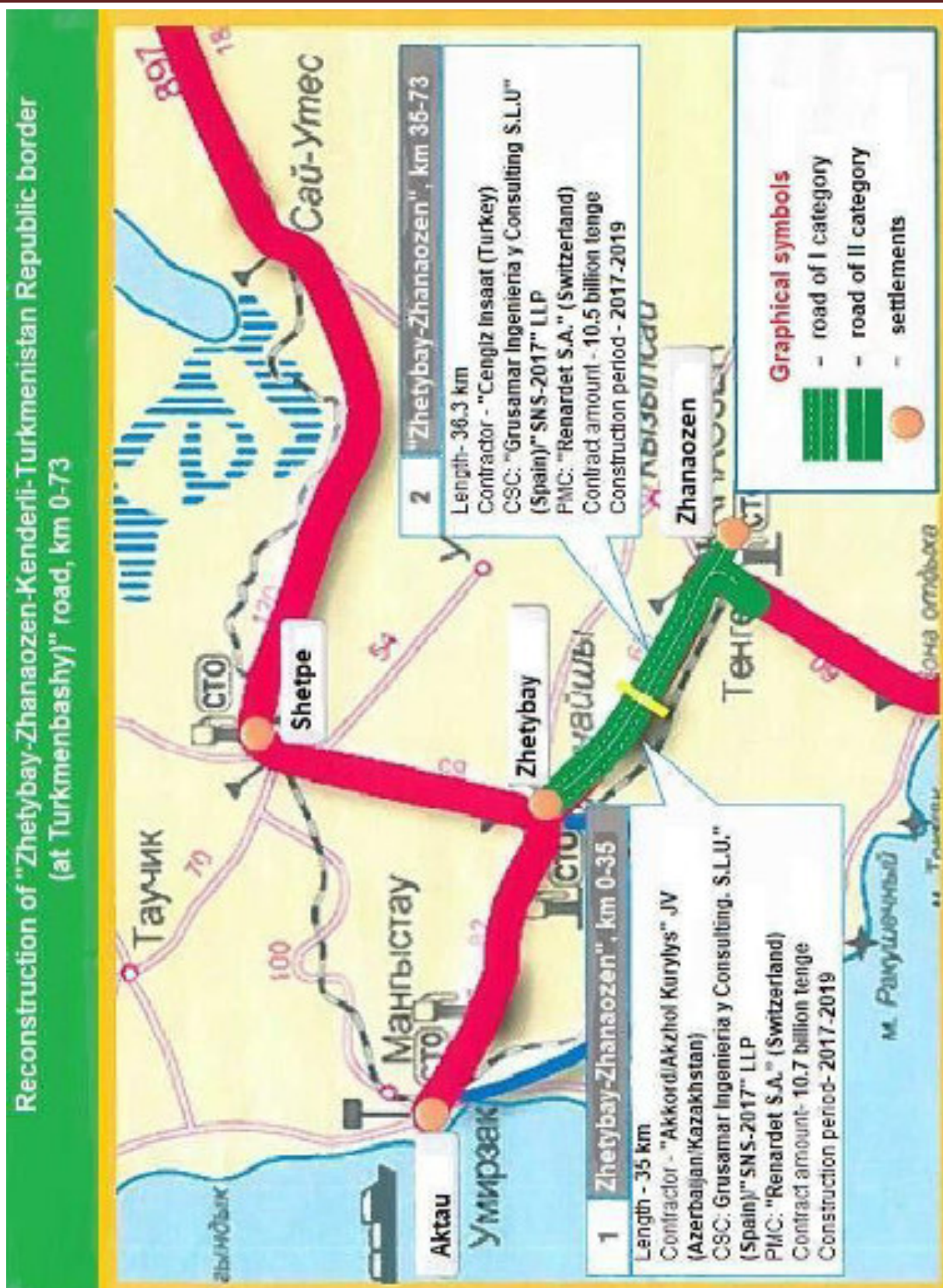


Figure 2.2 Location of the Project Road

2.1.5 Environmental Characteristics of the Project Area

21. Typical for vast desert and semi-desert zones, the main climatic features are (moderately) cold winters and hot summer periods. The amount of precipitation in the Project Area usually does not exceed 150 mm per year. Precipitation mainly falls as rain, and in winter as snowfall. Complete snow cover of large areas is usually lasting only for few weeks during wintertime (January- March). Thus driving condition in this road sections from climatic point of view is relatively good throughout the entire year. Low rainfall in the project site leads to extreme drought during the summer months. However, the long duration of the warm period is favorable for performing construction work during the year. Hail, snowstorms and sandstorms are rare.

22. Within the urban area of Zhetibay dust is a common problem that results from the soil and climatic conditions of the region. During the PEA preparation, consultations with villagers in Zhetibay revealed that they did not feel that dust from construction activities which would impact upon them significantly. The fact is that the existing naturally induced dust issues were considerably more of a problem than construction impacts would be. They also noted that construction would be occurring in bypass locations outside of the village which will be reducing further dust impacts to villagers. In addition, more than 90% of the road is uninhabited steppe. Dust impacts and air quality issues will not play any significant role in these uninhabited areas.

23. Water supply in Mangistau region remains one of the most acute social problems. There are 60 settlements in the region. Today, 17 of them are provided with centralized water supply, decentralized - 35. In the rest of settlements the imported water of the city of Aktau and Zhanaozen with adjacent settlements is used, because of the small number of inhabitants it is inappropriate to build a water supply system, and oil companies consume 93% of the total volume of water. All the rest of the settlements account for only 7%. Technical water will be supplied from the centralized water supply of Aktau and Zhetibay. Tank trucks will deliver water from pipelines to the relevant construction sites. Drinking water will be provided in five-liter bottles. There are other water supply centers, but it is unlikely that it will be used as drinking water. The contractor is responsible for the location of the site, for other non-technical waters and for obtaining mining permits.

24. According to the archaeological expertise published in the IEA, in the immediate vicinity of the project area there are no protected natural sites. Karakiya-Karakol State Nature Reserve and the State Regional Natural Park "Kyzylsai" lie in the distance at a distance of several tens of kilometers and will not experience any impact during the construction works. The state reserve Karakiya-Karakol (GZKK) is a reserve (Category 4), located in the Karakiyansky and Munayli districts of the Mangistau region. The reserve occupies the entire area of the lower Karakiya zone, the Ashyagar river valley, as well as the marine coastal areas to the south of the city of Aktau.

25. In the Project area there are no habitats of species included in the Red Book of Kazakhstan. However, since this territory is adjacent to the habitats of some animals listed in the Red Data Book, this fact should be taken into account when carrying out the Project Activities.

2.1.6 Scope of Works

26. The report reviews the compliances of environmental activities set in EMP during the period and processes practices/innovation leading to improved and sustainable environment in the future. The scope of works includes identification of environmental impacts during construction stage and implementation of environmental mitigation measures for various environmental components as given in technical specification in the contract. In addition, the construction supervision consultant has to undertake specific environmental safeguard measures during the execution of work.

27. The following activities has been considered for effective Environmental Safeguard Monitoring

27. The following activities has been considered for effective Environmental Safeguard Monitoring through periodic inspection and supervision during execution of works as per the General Requirement of the Technical Specification for construction of whole the work under clause 105 (Health and Safety) and clause 106 (Protection of the Environment):

- Loss of top soil;
- Soil erosion;
- Contamination of soil by fuel and lubricants and wastewater;
- Quarry and hot mix plant operations;
- Siltation into water bodies;
- Alteration of drainage;
- Dust Control-haulage road and work sites;
- Pollution from crusher, hot mix plant and batching plant;
- Noise from plant and equipment;
- Safety and accidental risks;
- Medical facilities;
- Traffic safety and control.

28. The environmental management and monitoring plan (EMMP) signifies the environmental action to be undertaken under Mangistau Oblast section in Project 2, delineating various mitigation measures/avoidance of negative impacts. The EMP also incorporates various environmental enhancement measures required for protecting the cultural properties in both contracts.

2.2 Agreements (contracts) for project implementation and management

29. The Government of the Republic of Kazakhstan, with the assistance of the Ministry of Industry and Infrastructural Development (MIID) under the CAREC Corridor-2 investment program conducted modernization of 503 km of roads in the Mangistau region. The reconstruction of the transport road, which is part of a larger project connecting East with the West, Corridor 2, will provide access to goods and markets, services for the poor in this region, as well as expand transport communication and increase safety for all road users.

30. The Asian Development Bank ("ADB") supported the government of Kazakhstan in contributing to the development of the national road network through the MFF CAREC Transport Corridor 2 (Mangistau oblast section), Investment Program, Project 2.

31. The Implementing Agency is the Committee for Roads of the Ministry of Investments and Development (MIID). The Implementing Agency hires a Project Management Consultant (PMC) "Renardet S.A." to assist the Committee in implementing the project. The Implementing Agency appointed the "NC "KazAutoZhol" JSC as his assistant for solving local issues related to the Contracts by the letters No. 23-23-02/686 dated 11.04.2019. Formerly this position was held by RSE "MangistauZholLaboratory". The project consists of 2 separately construction sections (Lot 1 and Lot 2).

32. Two contracts were awarded to the companies: JV Akkord/Akzhol Kurylys Lot 1 from km 0+000 to km 35+000 and Cengiz Insaat Sanayi Ticaret A.S. Lot 2 from km 35+000 to km 73+000. The Contract for construction was approved for all sites. Details on the two contracts are shown in Table-2.1:

Table – 2.1: Date of signing and name of companies for construction works

| Contract No. | Contractor | Length (km) | Date of signing the contract | Date of commencement-completion | Contract amount including VAT (tenge) |
|------------------------------|--------------------------------------|----------------|------------------------------|---------------------------------|---------------------------------------|
| 001-ADB/CW-2017 | JV Akkord/Akzhol Kurylys | 0+00 to 35+00 | May 30, 2018 | 20/02/2018 – 20/10/2019 | 10,734,179,712.45 |
| 002-ADB/CW-2017 | Cengiz Insaat Sanayi ve Ticaret A.S. | 35+00 to 73+00 | June 19, 2018.. | 20/02/2018 – 20/10/2019 | 10,554,145,149.12 |
| Total contract amount | | | | | 21,288,324,861.57 |

33. “SNS 2017” LLP (Consultant/Engineer) was appointed by the Employer to provide consulting services in the administration of Contracts and Construction Supervision. On June 10, 2019 the Contract between the Employer and the Consultant was signed.

34. The main responsibility of the Contractor is the development of the Site-Specific Environmental Management Plan (SSEMP) project based on the materials contained in the EIA report for May 2015. The contractor provided a detailed/specific Environmental Management Plan based on the report of the IEA, which corresponds to the contract documentation. In the course of the work, the Consultant shall monitor the compliance by the Contractor with the Environmental Management Plan and report on the arising consequences and the measures taken to mitigate the impact and provide further recommendations as necessary.

35. In general, as provided for in the TOR for the implementation of construction supervision on an environmental aspect, the Consultant should "Perform the following duties related to measures to mitigate environmental impacts during construction:

- ensure that all mitigation measures to be implemented are included in the contract documents;
- overseeing and monitoring the implementation of the EMP/negative impact mitigation plan;
- in the event of an unforeseen environmental impact occurrence, coordinate with the PMC to recommend the necessary actions to the Committee for Roads and ADB for further procedures. Based on this, the Environmental Protection Specialist establishes coordination work with the relevant Consultant and Contractor personnel to ensure that environmental problems are identified/detected before or during the execution of the work. The EMP for the project should be the basis for monitoring, and therefore, the Contractor submitted the EMP to the Engineer for approval (under Contracts 1 and 2).

36. Coordination communication channels should be established according to the following scheme of coordination work (Figure 2.3):

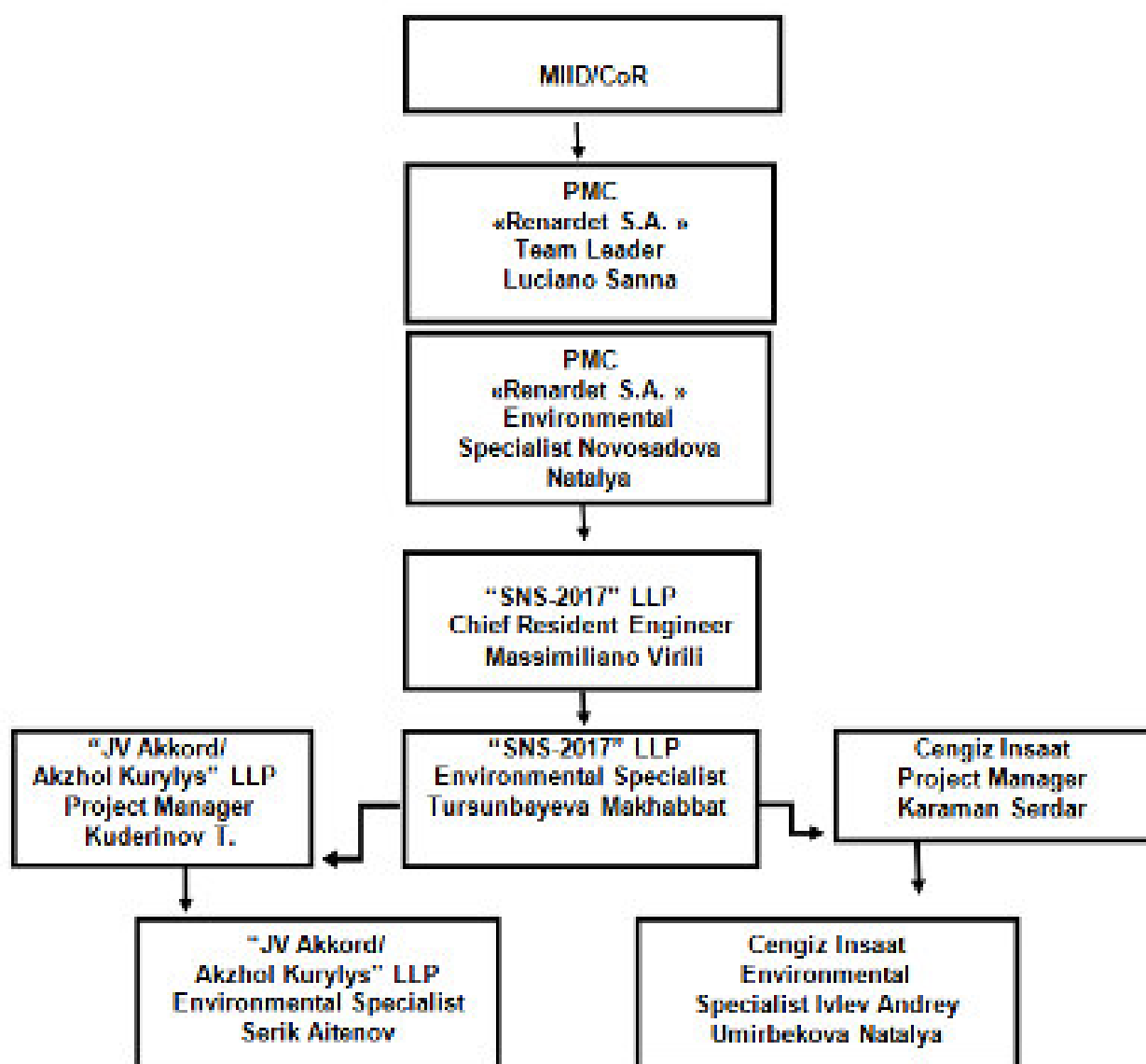


Figure 2.3: Organizational structure for environmental management of the project

2.3. Project Activities during the Current Reporting Period

37. **Contract 001, km 0-35 (Zhetibay - Zhanaozen).** The Contractor “JV Akkord/Akzhol Kurylys LLP” LLP provided 9 accommodations in Aktau and a furnished and equipped office on the territory of the working camp “Zhetibay”. All 9 units of transport have been provided.

38. The current number of personnel on the site reached 222, and total number of equipment is 122 units.

39. A land plot with a total area of 10 hectares was set up for the construction of the camp, asphalt plant, a bitumen storage facility with a volume of 7,000 tons, and electricity supply, wiring and all internal utilities were also performed in accordance with the contract agreement concluded. The Contractor purchased the second asphalt concrete plant, and the crusher plant has been also installed in Shetpe.

40. **Contract 002, km 35 - 73 (Zhetibay - Zhanaozen).** For provision of the working camp the following contracts were concluded: with SE "Turmys-Service" - for drinking water, with "KazTransGaz Aimak" LLP- for gas, with "Mangistau Zharyk" LLP - for electricity, with "Temirzholsu- Mangistau" LLP - for sewage, with "Caspiy Operating" LLP - for the export of solid waste, with "Landfil" LLP - for utilization of construction waste.

41. Also, the Contracts for the supply of drinking and industrial water with SE "OzenInvest". Crushing plants were input into operation on "Yerzhurek" borrow pits No.1 and No. 2. The concrete plant, the working camp "Zhetibay", in the territory of which there are dormitories for 290 people, a canteen for 80 people, a complete construction laboratory, the offices of the Engineer and the Contractor.

42. The Contractor provided the Engineer with accommodation, transport facilities and an office, equipped with furniture, equipment and office equipment, on the territory of the camp of Zhetibay.

43. In general, the mobilization work was carried out with the achievement of 100%. The current average indicator of the workforce is 558 workers, the total number of machines and equipment at the site is 350 units.

Table 2.2: Work description performed in Contract -001-ADB/CW-2017

| Work description | July | August | September | October | November | December | Performed in IIQ of 2019 | % of works performed from the beginning of project |
|---|-------|--------|-----------|---------|----------|----------|--------------------------|--|
| | 2019 | 2019 | 2019 | 2019 | 2019 | 2019 | | |
| Earthworks, thousand m3 | 0,00 | 31,69 | 6,90 | 0,00 | 0,00 | 0,00 | 38,59 | 100% |
| Sub base, km | 8,22 | 1,76 | 2,98 | 3,62 | 0,97 | 0,00 | 17,55 | 100% |
| Base course, km | 0,98 | 6,33 | 3,29 | 0,75 | 0,00 | 0,00 | 11,35 | 100% |
| High porous asphalt concrete, km | 8,43 | 5,42 | 1,60 | 2,57 | 0,16 | 0,00 | 18,18 | 100% |
| Binder course, km | 11,38 | 7,53 | 1,61 | 2,59 | 0,17 | 0,00 | 23,28 | 98% |
| Wearing course of SMA, km | 4,23 | 17,00 | 14,81 | 3,43 | 0,20 | 0,00 | 39,67 | 100% |
| Wearing course of fine graded asphalt concrete, km | 0,00 | 0,00 | 0,00 | 3,20 | 3,20 | 0,00 | 6,40 | 95% |

| | | | | | | | | |
|-----------------------------|------|------|-------|-------|----------|----------|-----------------|-------------|
| Culverts, pcs | 0,00 | 2,00 | 0,00 | 0,00 | 1,00 | 2,00 | 5,00 | 98% |
| Road marking, km | 0,00 | 0,00 | 47,73 | 56,07 | 53,24 | 0,00 | 157,04 | 100% |
| Road signs, pcs | 0,00 | 0,00 | 0,00 | 66,00 | 97,00 | 121,00 | 284,00 | 99% |
| Guard rails, m | 0,00 | 0,00 | 0,00 | 0,00 | 1 000,00 | 3 040,00 | 4 040,00 | 40% |

Table 2.2: Work description performed in Contract - 002-ADB/CW-2017

| Work descriptio n | July | August | Septembe r | October | Novem ber | Decemb er | Perform ed in IIQ of 2019 | % of works perform ed |
|--|----------------|----------------|-----------------------|----------------|----------------------|----------------------|--|--|
| | 2019 r. | 2019 r. | 2019 r. | 2019 r. | 2019 r. | 2019 r. | | |
| Earthwor ks, thousand m3 | 68,75 | 20,45 | 10,75 | 8,89 | 35,57 | 19,06 | 163,48 | 100,00 |
| Sub base, thousand m3 | 0,00 | 0,11 | 1,20 | 0,50 | 6,25 | 5,78 | 13,84 | 100,00 % |
| Base course, thousand m3 | 4,45 | 1,29 | 1,74 | 1,46 | 4,01 | 3,21 | 16,16 | 100,00 % |
| High porous asphalt concrete, thousand m3 | 1,10 | 1,35 | 1,25 | 1,30 | 2,50 | 2,50 | 6,07 | 100,00 % |
| Binder course, thousand m3 | 3,01 | 33,57 | 3,27 | 2,78 | 1,08 | 2,78 | 8,81 | 100,00 % |
| Wearing course of SMA, thousand m3 | 0,17 | 0,12 | 1,39 | 0,54 | 0,71 | 0,78 | 3,71 | 100,00 % |
| Bridges | 0,18 | 0,30 | 0,15 | 0,16 | 0,12 | 0,09 | 1,00 | 100% |

| and overpass es (%) | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|--------------|--------|
| Culverts, pcs | 4,00 | 0,00 | 2,00 | 3,00 | 0,00 | 0,00 | 9,00 | 100% |
| Road marking, km | 15,00 | 30,00 | 0,00 | 10,00 | 0,00 | 0,00 | 55,00 | 100,0% |
| Road signs, pcs | 10,00 | 5,00 | 25,00 | 60,00 | 47,00 | 47,00 | 194,0 | 100% |
| Guard rails, km | 10,50 | 5,00 | 2,30 | 7,20 | 4,21 | 4,00 | 33,21 | 100% |
| Reconstr uction of RMF | 0,12 | 0,18 | 0,09 | 0,16 | 0,05 | 0,30 | 0,9 | 75% |

2.3.1 Locating the construction camps

44. The Contractor Cengiz Insaat Lot 2 had a construction camp (from the previous project) in the village of Zhetybay (photo 2.1):

- The construction camp of Zhetybay (km 729.5) covers an area of $S=5600\text{m}^2$ for the accommodation of 544 people (offices, living quarters);
- Mobile asphalt plant "BENNINGHOVEN" MBA-2500 with a capacity of 200 t/h is used to prepare the necessary high-quality road pavement materials;
- Concrete installation MB-60M with a capacity of $60\text{ m}^3/\text{h}$;
- All equipment is installed in a specially designated area with a total area of 11 hectares (the plot is identified by the decision of the Akimat of Karakiyansky district No. 226 dd. 30/09/2014).



Photo 2.1: Construction camp and Consultant's office (Cengiz Insaat Sanayi ve Ticaret) in Zhetybay, December 2019

45. The installation of crushing, asphalt, concrete plants was carried out in accordance with the working projects that were agreed with the interested state bodies. The camp, in which the asphalt and concrete plants are located, is on 73 km of Aktau-Zhetybay road section and administratively belongs to the 16 territory of Karakiyansky district of the Mangystau region. The distance to the nearest settlements - Zhetybay and Munaishy village is about 12 km. The road section for the reconstruction is characterized by a complete lack of surface water. Temporary watercourses arise only during heavy rains or heavy

snowmelt. There are no permanent watercourses.

46. The office and the accommodations of the Engineering Service are located in Zhetybay camp. The Contractor mobilized all necessary equipment to the site. On the site of the camp there is a production laboratory and a warehouse for storing fuel. A crushing plant, an asphalt plant and a storage site for reinforced concrete are located nearby. Fresh water is available and in the camp there is a special sewage system directed to the septic tank.



Photo 2.2: Construction camp and Consultant's office (JV Akkord/Akzhol Kurylys LLP) in Zhetibay, August 2019

47. The septic tank and solid waste are collected regularly for disposal in an approved location. The camp includes offices for the Contractor and Consultant and accommodations for employees working in the Project. In the camp there are available mobile connections. Verify the availability of broadband 3G access. The medical service of the camp works full-time and has a fully equipped medical center.

48. Construction site of "JV Akkord/Akzhol Kurylys" LLP Lot 1 in Zhetybay locates in accordance with the approved project, coordinated with authorized state bodies. The site is located outside the water protection zone at a distance of more than 1 kilometer from the nearest inhabited territory. To reduce the impact on the environment and reduce the removal of pollutants from the territory of the construction site, the following measures were taken:

- a topsoil layer of soil was removed and measures taken to protect it from pollution: mixing with mineral soil, pollution, water and wind erosion;
- the territory of the site is covered with a protective insulating layer;
- regular cleaning and watering of the territory of the site;
- operation of the asphalt plant, concrete bond, production of mineral powder is carried out with dust and gas cleaning systems at treatment plants;
- on the territory of the construction camp there are all necessary firefighting means (a box with dry sand, a shovel, hooks, a fire bucket, a fire extinguisher).
- the construction site is fenced;

- the storage and transportation of loose and liquid materials is regulated. The contract for disinfection works was concluded.
- there is a medical center, equipped with bed, first aid means, and nurse is hired.

2.3.2 Information on the availability of environmental permitting documentation

49. Information on the availability of environmental permitting documentation in accordance with the requirements of the Legislation of the RK for the reconstruction of the road section "Zhetibay - Zhanaozen" (0-35 km) of "Akzhol Kurylys" LLP as of December 31, 2019.

Table 2.3: a) Information on the availability of permits for environmental protection under Contract-001-ADB / CW-2017

| The list of conclusions of the state environmental expertise | | |
|--|---------------|--|
| Expert report No. | Date of issue | Conclusion name |
| R01-0004/18 | 23/08/2018 | Conclusion of the state environmental expertise for working project "Construction of asphalt plant for the construction of the Zhetibay-Zhanaozen road in the Mangystau region (without estimate documentation) |
| KZ94VDC00069868 | 28/04/2018 | CONCLUSION OF THE STATE ENVIRONMENTAL EXPERTISE under the section "Environmental Impact Assessment" to the project "Industrial development of sand-gravel mixture, sand, clayey rocks and limestone (semi-rock) on 8 soil reserves for the reconstruction of the " Zhetibay-Zhanaozen" road km 0- km 35 CAREC-2 Corridor in the Karakiya district of the Mangystau Oblast of the Republic of Kazakhstan" |
| KZ32VDC00071566 | 09/07/2018 | CONCLUSION OF THE STATE ENVIRONMENTAL EXPERTISE as per section "Environmental Impact Assessment" to the project "Industrial development of sand and gravel mixture, sand, clay rocks in the Saukuduk-1, Kuryk central sections No. 2-7 for the reconstruction of the section of the Zhetybai-Zhanaozen road, km 0-35 CAREC-2 Corridor in the Karakiya District of the Mangystau Region of the Republic of Kazakhstan |
| KZ52VDC00070430 | 24/05/2018 | CONCLUSION OF THE STATE ENVIRONMENTAL EXPERTISE under the section "Environmental Impact Assessment" to the project "Industrial development of the construction stone of Shetpe manifestation - IV plots №1,2 (0-35 km) for the reconstruction of the section of the Zhetybai-Zhanaozen road of the CAREC-2 corridor Mangistau district of Mangistau region " |

| The list of permits for environmental emissions | | | | |
|---|------------------------|---------------|-----------------|--------------------|
| Name | Authorization number | Date of issue | Start of action | Date of completion |
| Reconstruction of the highway "Zhetibay- Zhanaozen-Kenderli-Turkmenistan Republic border" section km 0-35 | KZ37VDD00090407 | 06.03.2018 | 06.03.2018 | 31.12.2019 |

| | | | | |
|--|------------------------|------------|------------|------------|
| Industrial development of sand and gravel mixture, sand, clay rocks and limestone (semi-rock soil) on 8 soil reserves for the reconstruction of "Zhetibay-Zhanozen" road section, km 0-35, CAREC-2 in Karakiyansky District of Mangistau Region of RK | KZ00VDD00094662 | 01.06.2018 | | |
| Industrial development of the construction stone of Shetpe manifestation - IV plots №1,2 (0-35 km) for the reconstruction of the section of the Zhetybai-Zhanozen road of the CAREC-2 corridor Mangistau district of Mangistau region | KZ30VCZ00166691 | 14.06.2018 | 20.06.2018 | 31.12.2021 |
| Industrial development of sand and gravel mixture, sand, clay rocks in the Saukuduk-1, Kuryk central sections No. 2-7 for the reconstruction of the section of the Zhetybai-Zhanozen road, km 0-35 CAREC-2 Corridor in the Karakiya District of the Mangystau Region of the Republic of Kazakhstan | KZ34VDD00096475 | 13.07.2018 | | |
| Conclusion of the state environmental expertise for working project "Construction of asphalt plant for the construction of the Zhetibay-Zhanozen | KZ10VCZ00175684 | 23.08.2018 | 23.08.2018 | 31.12.2027 |
| PERMISSION to issues in environment for objects of IV category, heavy vehicle parking areas Construction on the roads of Republican value "Zhetybai-Zhanozen - Fetisovo - to the border, the Turkmenistan" (Turkmenbashi), site 0-35 km", Akimat of Mangistau oblast Department of natural resources and environmental control of Mangistau region | KZ42VDD00114761 | 19.03.2019 | | |

50. Information on the availability of permits on the environment protection in accordance with the requirements of the Legislation of the RK for reconstruction of "Zhetibay - Zhanozen" road section (35-73 km) "Cengiz Insaat" BJSC as of December 31, 2019.

Table 2.3: b) Information on the availability of permits for environmental protection under Contract- 002-ADB / CW-2017

| The list of conclusions of the state environmental expertise | | |
|--|---------------|--|
| Expert report No. | Date of issue | Name of conclusion |
| 04-08/1376 | 23/04/2015 | According to the working project "Reconstruction of the Beineu-Aktau highway section, km 632.3-719 (v. Shetpe-v. Zhetibay). Adjustment in terms of construction of mobile asphalt and crushing plants" |
| KZ44VDC00040795 | 30/09/2015 | under the project "Construction of a temporary camp in the Karakiya district of the Mangistau region at 730 km of the Beyneu-Aktau highway for employees of the Cengiz Insaat Sanayi Ve Ticaret Anonym Sirketi" BJSC in Aktau |
| KZ17VCY00072334 | 13/07/2016 | "Draft standards for maximum permissible emissions of pollutants into the atmosphere from sources of the BJSC "Cengiz Insaat Sanayi Ve Ticaret Anonym Sirketi (Shetpe construction site)" |
| KZ66VCY00076399 | 30/09/2016 | "Draft standards for maximum permissible emissions of pollutants entering the atmosphere from sources of the BJSC "Cengiz Insaat Sanayi Ve Ticaret Anonym Sirketi "(construction site in Zhetibay village)" |
| R3-0214/16 | 24/10/2016 | as per the working project "Construction of bitumen storage and emulsion installation on the territory of a construction site located in Karakiya district of Mangystau region" |
| KZ55VDC00066302 | 07/12/2017 | "The project to conduct a prospect evaluation surveys of clay rocks (loams, sandy loams) and sand of the soil sections 1, 2, 7, 7-2, 8, 8-1 located in the Mangystau region of the Republic of Kazakhstan for the reconstruction of the section of the highway "Zhetibay-Zhanaozen"(km 35-73)" |
| KZ31VDC00070711 | 04/06/2018 | as per "Environmental Impact Assessment (EIA) Project to a project for the industrial development of clay rocks (loams, sandy loams) of soil sections 1, 2, 7, 7-2, 7-3, 8, 8- 1 located in the Mangystau region of the Republic of Kazakhstan , for the reconstruction of sections of the highway "Zhetybai-Zhanaozen-Kenderli-border of the Republic of Turkmenistan" km 35-73 " |
| KZ88VDC00077445 | 28.02.2019 | According to the project "Technical recultivation of lands disturbed during the industrial development of clay rocks (loams, sandy loams) and sand of soil sections 1, 2, 7, 7-2, 7-3, 8, 8-1, located along the "Zhetybai- Zhanaozen-Fetisovo-border of the Republic of Turkmenistan" road km 35-73 in the Karakiy district and the city of Zhanaozen in the Mangistau region" |

| The list of permits for environmental emissions | | | | |
|---|----------------------|---------------|-----------------|--------------------|
| Name | Authorization number | Date of issue | Start of action | Date of completion |

| | | | | |
|---|------------------------|------------|---------------|---------------|
| Shetpe Construction Site | KZ70VCZ00095646 | 20.07.2016 | 20.07.2016 | 31.12.2025 |
| Zhetibay Construction Site | KZ25VCZ00108096 | 17.10.2016 | 20.10.2016 | 31.12.2025 |
| Operation of the bitumen storage and emulsion installation on the territory of the construction site located in Karakiyansky district of Mangistau region | KZ72VDD00061453 | 04.11.2016 | 01.01.2017 | 31.12.2020 |
| Operation of the camp in the Karakiyansky district | KZ23VDD00082317 | 30.11.2017 | 30.11.2017 | unlimited |
| Conducting prospecting and evaluation works of clay rocks (loams, sandy loams) and sand of soil sections 1,2,7, 7-2, 8, 8-1 located in Mangistau region of RK for the reconstruction of "Zhetibay-Zhanozen" road section (35-73 km) | KZ81VDD00089712 | 22.02.2018 | 22.02.2018 | unlimited |
| Construction work of "Cengiz Insaat" BJSC on the section on Zhetibay- Zhanozen road section (35-73 km) | KZ71VDD00091153 | 20.03.2018 | 20.03.2018 г. | unlimited |
| Industrial development of clay rocks (loams, sandy loams) of soil sections 1, 2, 7, 7-2, 7-3, 8, 8-1 located in the Mangystau region of the Republic of Kazakhstan , for the reconstruction of sections of the highway "Zhetybai-Zhanozen-Kenderli-border of the Republic of Turkmenistan" km 35-73 "км 35-73 | KZ34VDD00095311 | 15.06.2018 | 15.06.2018 г. | 31.12.2018 г. |

2.3.3 Changes in the project management and environmental management team

51. Implementing Agency is the Committee for Roads of the Ministry of Industry and Infrastructural Development of RK (MIID). Implementing Agency hires a Project Management Consultant (PMC) Renardet S.A. to assist the Committee in project implementation. Implementing Agency appointed "NC "KazAutoZhol" JSC as its assistant to resolve local issues related to contracts.

52. "SNS-2017" LLP (Consultant/Engineer) was appointed by the Employer to provide consulting services in Contract administration and construction supervision. On June 10, 2019, the Contract was signed between the Implementing Agency and the Consultant.

Table 2.4: Mobilization of Environmental specialists

| Organization | Position | Full name | Activity | Period |
|--------------|----------|-----------|----------|--------|
|--------------|----------|-----------|----------|--------|

| | | | | |
|---|--------------------------------|--|---|---|
| Contractor Cengiz Insaat | environmental specialist | Ivleyev Andrey Umirbekova Natalya | Compliance with obligations according to the terms of reference of the contract | Involvement on an ongoing basis April 20, 2018 |
| Contractor “SP Akkord/ Akzhol Kurylys” LLP | environmental specialist | Serik Aitenov | Compliance with obligations according to the terms of reference of the contract | Involvement on an ongoing basis April of 2018 |
| CSC | local environmental specialist | Tursunbayeva Makhabbat | Compliance with obligations according to the terms of reference of the contract | Involvement on an ongoing basis February 5, 2018 |
| PMC «Renardet S.A.» | environmental specialist | Novosadova Natalya | Compliance with obligations according to the terms of reference of the PMC contract | Involvement on an ongoing basis April 15, 2018 |

53. Coordination channels of communication should be established according to the following coordination scheme.

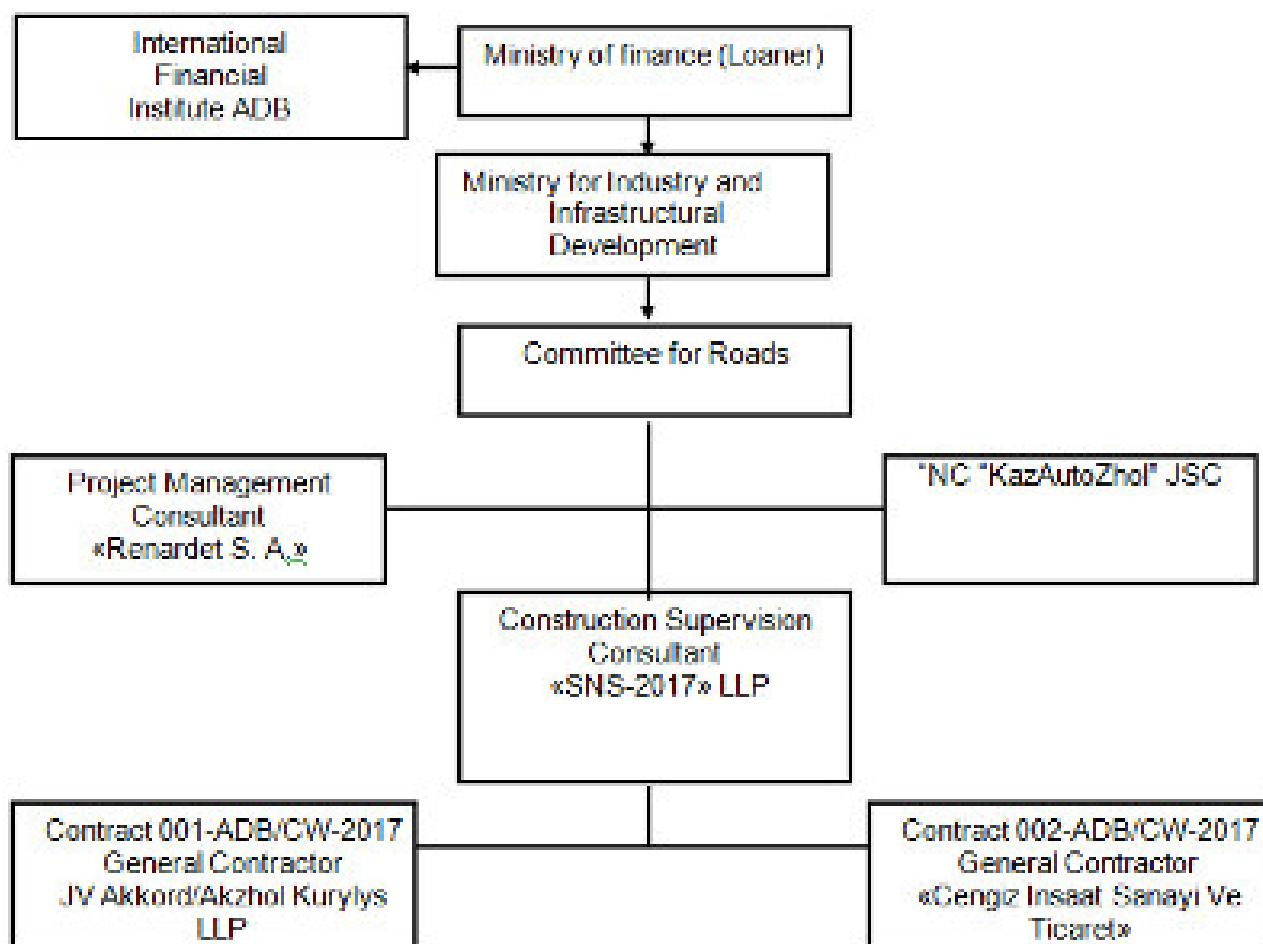


Figure 2.4: Organization of working coordination

2.3.4 Relationships between the Contractors, Owners, Lender, etc.

54. The relationship between Contractor, Engineer, Owner, and Lender is considered as normal working relationships. At the working level, coordination of environmental issues were good; the specialists mentioned in article 1.6 above are from frequent communication and consultation. While developing and implementing this MFF CAREC Corridor II (sections in Mangistau Oblast) Investment Program, Project 2 road construction project in Mangistau Oblast, the Contractor 1 (JV Akkord/Akzhol Kurylys LLP) and the Contractor 2 (Cengiz Insaat), and Implementing Agency/Lender are required to contract with and successfully manage a wide range of consultants, service providers, and equipment and materials suppliers. All of these parties are specialists in their respective trades, and as with any business enterprise, they operate with their own best interests in mind. For these professional contractors, “best interest” should include providing the Implementing Agency/Lender with the highest quality construction and performance possible in the most cost effective manner as indicated in Technical Proposals. However, the Construction Supervision Consultant (CSC), Implementing Agency and/or Lender have experience or knowledge to evaluate adequately some of the more specialized requirements of the project, or the resources to manage effectively.

55. For the successful implementation of the Project, consultations with environmental specialists took place: meetings, telephone calls and email correspondence.

56. In accordance with the contract 001-ADB / CW-2017 for Lot 1 with the Contractor JV Akkord / Akzhol Kurylys dated 30/05/2017 and 002-ADB / CW-2017 for Lot 2 with the Contractor Cengiz Insaat Sanayi ve Ticaret A.S. JSC dated 19/06/2017, Contractors provide a monthly report on environmental protection. During the period from July to December 2019, 6 reports were provided by Lot 1 and 5 reports were provided by Lot 2 in a timely manner.

57. Letters regarding environmental inspection and information provision were sent to the Contractors JV Akkord / Akzhol Kurylys and Cengiz Insaat Sanayi ve Ticaret A.S. JSC.

2.4 Description of Any Design Changes

58. There are no significant changes in the design of the project “Zhetibay-Zhanaozen-Kenderli-boarder of Republic of Turkmenistan” compared to those that were evaluated at the stage of environmental impact assessment and described in the IEA / EIA.

Variations

Lot 1

-Variation Order No. 1 “Additional quantity of works on the rest area from Pk313+20 to Pk314+80 of Nysan peasant household. The retaining walls with metal fences, Parking area, road from milled asphalt”. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

-Variation Order No. 2 “Additional quantity of works: U-turn from Pk265+00 to Pk270+00, Junction Pk263+63, Junction Pk4+00”. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

-Variation Order No. 3 “Additional volumes for “Parking lot for aircraft and helicopter landing sites, including rescue aviation at PK 270+00 - PK 302+00”. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

-Variation Order No.4 “Additional volumes on utilities”. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

Request for extension of time completion for 60 days for Contract-001 due to additional works as per Variation Order No. 3 “Parking lot for aircraft and helicopter landing sites, including rescue aviation at PK 270+00 - PK 302+00” was approved by the Employer and ADB with letter dated October 23, 2019.

Request for additional extension of time for completion for 108 days until March 30, 2020 in addition to

the already approved 60 days due to delay of works as per delay on completion of road furniture, in particular guardrails was sent to the PMC. 10/12/2019 ADB and 27/12/2019 Committee for Roads approved proposed 3 month extension of the civil works contracts completion dates for Lot 2 (till March 30, 2020).

Lot 2

-Variation Order No. 1 on the utilities not provided in the Project (in the amount of 12 pieces) was approved by the Engineer, PMC, COR and ADB. The amount of this Variation is 124 177 424,37 tenge including VAT.

-Variation Order No. 2 “Reconstruction of maintenance depot RMD58 in Shetpe village” was approved by the Engineer, PMC, COR and ADB. The amount of this Variation is 285 662 819, 27 tenge including VAT.

-Variation Order No. 3 “Repair of the road section inside the city of Zhanaozen km 64-73” was approved by the Engineer, PMC, Employer and ADB. The amount of this Variation is 389 612 047,62 tenge including VAT.

-Variation Order No.4 “Water drainage from the carriageway”. The amount of this Variation Order is 37 224 732.47 tenge including VAT. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

-Variation Order N.5 “expansion of the section “Entrance to the city of Zahanozen” with changing the technical category of the road from III to II”. The amount of this Variation Order is 181 612 829.00 tenge including VAT. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

-Variation Order No.6 “Revision of contract quantities according to actual quantities of road pavement and earthworks”. The amount of this Variation Order is 461 701 899.09 tenge including VAT. This Variation Order was approved by the Engineer, “KazAutoZhol” JSC, PMC, Employer and ADB.

Notice to Claim for extension of time completion for 60 days for Contract-002 due to additional works as per Variation Order No. 2 “Reconstruction of existing RMD-58 in Shetpe” was approved by the Employer and ADB with letter dated October 23, 2019.

Another Notice to claim for additional extension of time for completion for 109 days until March 31, 2020 in addition to the already approved 60 days due to delay of works as per Variation Order No. 2 “Reconstruction of RMD-58 in Shetpe village” was sent to the PMC. 10/12/2019 ADB and 27/12/2019 Committee for Roads approved proposed 3 month extension of the civil works contracts completion dates for Lot 2 (till March 30, 2020).

2.5 Description of Any Changes in Approved Construction Methods

59. No reasons for changing any construction processes have been identified for this reporting period in the course of construction works.

3. ENVIRONMENTAL PROTECTION ACTIVITIES

3.1 General Description of Environmental Protection Activities

60. The environmental monitoring system was based on the TOR for construction supervision, technical specifications, the IEA project for category B and ADB manual.

61. Environmental monitoring is a supervision function, and the goal is to ensure compliance with the EMMP. Monitoring is a day-to-day process that ensures deviations avoidance from the EMMP or correction, or quickly detection and elimination of any unforeseen consequences. Specific actions in the EMMP that are subject to control are included in the Monitoring Plan. During construction, environmental monitoring will require measures to ensure the preservation of hills, slopes and embankments from potential soil erosion, exploitation and restoration of quarries, identification of work sites and storage facilities for materials, placement of concrete mixing plant and asphalt concrete plant, especially close to populated areas points and reserves, and the preservation of religious areas, cemeteries or burials, public relations, as well as provisions for safety.

62. As provided in the Project Contract, the Contractor will adhere to the requirements of the environmental aspects of the contract document, in particular, the requirements in the General Conditions of the Contract (FIDIC) such as: 4.8: Security Order; 4.18: Environmental protection; 4.15: Access road; 4.24: Fossils; and 6.7: Health and Safety.

63. In addition, detailed requirements are established in the **Technical Specification**, in particular:

Section 106: Environmental protection

- A. Overview
- B. Fuel and chemical storage
- C. Water quality
- D. Air quality
- E. Noise
- F. Earthworks
- G. Ancient monuments preservation
- H. Environment enhancement
- I. Special conditions

64. Section 113: Bypass and traffic control measures -

Road Traffic Management Plan. The main responsibility of the Contractor is to develop a draft Environmental Management Plan (EMP) based on the materials contained in the IEA report for May 2015. The Contractor has provided a detailed / special Environmental Management Plan based on the IEA report, consistent with the contract documentation. During the works, the Consultant should monitor the compliance of the Contractor with the Environmental Management Plan and report on the consequences and measures to reduce the impact and provide further recommendations on the need.

65. In general, as provided for in the TOR for the implementation of construction supervision on the environmental aspect, the Consultant shall "Perform the following duties related to mitigation measures during construction:

- a) ensure that all mitigation measures to be implemented are included in the contractual documents;
- b) supervision and monitoring of the implementation of the EMP / mitigation plan;
- c) in the event of unforeseen environmental impact, coordinate with the PMC to recommend the necessary measures to the Committee for Roads and ADB for further procedures. On this basis, the Environmental Specialist establishes coordination work with the relevant personnel of the Consultant and the Contractor so that environmental problems are identified / revealed before or during the works performance. The project EMP should be the basis of monitoring and, therefore, the Contractor submitted to the Engineer for approval the EMP (for contracts 1 and 2).

3.2 FIELD INSPECTIONS

66. Periodic inspections of construction camps and construction sites of Lot 1 and Lot 2 were conducted during the construction period (from July to December 2019) and conditions of campuses and sites have been improved as a result of the inspection. Camps and sites will be regularly monitored during the construction period and special attention will be paid to the works along the road pavement of the Project.

67. Site inspections were carried out in various environmental aspects of the Project, inspections were conducted to prepare part of the Monthly Progress Report and the Quarterly Environmental Monitoring Report. During the audit, a number of environmental and safety issues were observed and noted. These problems were subsequently brought to the attention of the relevant personnel of the CSC, and also held discussions by the Contractor. These identified issues related in general to dust generation at Lot 1 and Lot 2, and the administrative works of the Contractor's construction camp Lot 1 and Lot 2. Following the instructions and advices of the CSC, Contractors should take corrective actions and monitor these activities to ensure their effectiveness.

3.2.1 Observed environmental non-conformances and mitigation measures

68. During the periodical mobilization and verification of the site by the CSC Environmental Protection Specialist in June 2019, he accepted the scope of work in coordination with Contractors Cengiz Insaat and JV Akkord/Akzhol Kurylys LLP for the project road. Observed environmental problems were noted and discussed with the Contractor's representatives for their clarification in the framework of the IEA, Contract provisions and technical specifications. Details of the work are given below:

- Field inspection of work sites, including premises and additional work sites. The field study included working places along the project's road sections, quarry area, access roads, bridges and culverts, channels, and base camps of Lot 1 and Lot 2.
- A detailed inspection was done on environmental issues and construction safety at the overpass construction site.

69. A detailed discussion with representatives of Contractors Lot 1 and Lot 2 was done on the status of the necessary Environmental Management Plan (EMP) and its mandatory updating. Environmental monitoring will be continued by the national environmental expert, his main responsibilities include monitoring the impact and monitoring the measures taken. It was found that there was not a single serious environmental impact on the Project territory, according to the site inspection during the period from July to December 2019. Below are the main environmental, health and safety problems in the area of the project sites identified during monitoring by the staff of the CSC and the specialist of the environmental protection of the PMC (Table 3.1).

*Table 3.1: Revealed issues during environmental inspection
(July-December 2019)*

| Description of Environmental Issues | Description of Proposed Measures |
|--|---|
| Dust pollution occurs in certain limited areas of base repair and maintenance. Water truck was used to minimize the consequences | To reduce dust during construction through watering. It was recommended to the Contractor's Environmental Specialist to schedule watering of the road, where it is necessary to prevent the effects of dust on the local residents. |

| | |
|--|---|
| <p>Wearing of protective clothing, safety gear and safety shoes:</p> <p>Some workers were provided with PPEs like helmets, reflective clothing, and signs to alert during traffic, there are controllers to give a signal to road users. However some workers do not use security measures during construction of the overpass:</p> <p>(1) Workers do not wear helmets and reflective clothing.</p> | <p>Required response from the Contractor:</p> <p>(i) The Contractor shall instruct each employee on the site to wear the prescribed helmets, reflective clothing and special footwear.</p> <p>(ii) The Contractor shall report compliance with the measures as soon as possible.</p> <p>It is recommended to wear safety shoes during working hours. The Contractor's Road Safety Engineer shall provide workers with PPE.</p> <p>It is recommended to comply strictly the policy of protective measures at all construction sites.</p> |
| <p>The Contractor uses traffic control techniques to limit interference to traffic and ensure traffic and pedestrian safety.</p> | <p>The Road Safety Engineer instructed the Contractor to strengthen safety and traffic control</p> |
| <div data-bbox="354 875 1286 1391" data-label="Image"> </div> <p>Photo 5.1: Containers for wastes on the territory of mechanical works (construction base camp Lot 1 Akzhol Kurylys)</p> | |

| | |
|--|---|
| <p>Possible impact on road user`s safety:</p> <p>All employees of the Contractor were acquainted fall with safety. The regulator is used for traffic control schemes and was provided to the Engineer for approval.</p> <p>Similarly, the safety of workers is monitored, a complaints were received during the reporting period.</p> | <p>The Contractor shall instruct the Subcontractors and workers, that they should wear PPE all the time in the workplace in order to minimize accidents and health hazards.</p> |
| <p>Pollution caused by domestic waste and solid waste:</p> <p>The Environmental Protection Checklist was distributed for monitoring during the execution of works and for the elimination of the environmental problem, if any.</p> | <p>Need to organize cleaning on the territory of construction base camps of LOT 1 and LOT 2.</p> |



Photo 5.2: Observed waste on the territory of construction base camp, Lot 2 Cengiz Insaat

70. According to the observations made during the inspection carried out by the specialist of environmental protection of the CSC and the PMC, further improvements were made at the sites during this period. Joint inspections of the Environmental Specialist with the Contractor, joint inspections with Traffic Safety Engineers and frequent meetings helped to identify the problems on the site. The following table shows brief information about the site visit in July to December 2019.

*Table 3.2: Summary of the Number and Type of Site Visits
(July to December 2019)*

| Date | Contract | | Audit objective | Environmental auditor name | Overview |
|------|-----------------------|------------------------|-----------------|----------------------------|----------|
| | Contract 1 km 0-35 | Contract 2 km 35-73 | | | |

| | | | | | |
|------------|---|---|--|--|--|
| 12.07.2019 | 1 | | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Aitenov S. Ecologist, Novosadova N.- Specialist on environmental protection | SGM construction for heavy vehicles, construction of the lower layer of the binder course of hot porous asphalt mix |
| 16.07.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Filling of the embankment of the road bed, leveling. Compaction of base course on a median strip |
| 26.07.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Dust removal from a bypass road, fixing of a barrier fence, application of a road marking |
| 07.08.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Road material loading, road bed compaction |
| 13.08.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Preparation of the existing surface for embankment, loading of road material |
| 15.08.2019 | 1 | | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Aitenov S. Ecologist, Novosadova N.- Specialist on environmental protection | Construction of HPA of the hot high porous coarse-grained asphalt mixture |
| 07.09.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection, Tursunbayeva M.- Specialist on environmental protection | Arrangement of a bus stop, construction of an asphalt concrete base, construction of water drainage from the roadway |

| | | | | | |
|------------|---|---|--|--|---|
| 11.09.2019 | 1 | | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Aitenov S. Ecologist, Novosadova N.- Specialist on environmental protection | Erection of pipe links and culvert headwalls |
| 20.09.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Filling the geogrid with vegetable soil, an arrangement of the shoulder |
| 15.10.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Recultivation, installation of barrier fencing, backfilling of geogrid |
| 17.10.2019 | 1 | | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Aitenov S. Ecologist, Novosadova N.- Specialist on environmental protection | Roadside reinforcements, median strip reinforcements |
| 21.10.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist Novosadova N.- Specialist on environmental protection | Installation of a barrier fence, installation of racks under traffic signs, filling the geogrid |
| 08.11.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist, Tursunbayeva M.- Specialist on environmental protection | Lighting installation, repair of culverts, the arrangement of roadside, installation of barrier fencing |
| 18.11.2019 | 1 | | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Aitenov S. Ecologist, Novosadova N.- Specialist on environmental protection | Road marking application, barrier fences, permanent road signs installation, construction of asphalt concrete on the sidewalks of the rest area |
| 21.11.2019 | | 1 | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Umirbekova N. – ecologist, Tursunbayeva M.- Specialist | Installation of lighting, construction of slopes, welding, installation of barrier fencing |

| | | | | | |
|------------|---|--|--|---|--|
| | | | | on environmental protection | |
| 19.12.2019 | 1 | | Site visit, monitoring and control over quality of atmospheric air and soil, noise and vibration | Aitenov S. Ecologist, Novosadova N.- Specialist on environmental protection | Shelter range on the rest area, installation of a sanitary unit, permanent road signs installation |

71. **ADB site visit:** Tasks of mission: Implement observation of project realization with implementation agency.

The mission was conducted in period from 30 September to 4 October 2019.

The mission team will comprise:

1. Mr. Dong-Soo Pyo, Director, CWTC/Mission Leader
2. Mr Jiangbo Ning, Principal Transport Specialist
3. Mr Nurlan Djenchurayev, Senior Environment Specialist
4. Ms Aida Satylganova, Social Development Specialist (Resettlement)
5. Ms Asem Chakenova, Project Officer
6. Ms Glenda Jurado, Associate Project Analyst
7. Ms Malika Babadjanova, ADB Consultant
8. Ms Safia Shafiq, ADB Consultant

ADB team visited the project Zhetibay-Zhanaozen with objective of review and discussion with the government and executing agency on implementation status of the project including:

- 1) progress/issue/quality of construction relating to each contract;
- 2) loan covenants compliance;
- 3) safeguard compliance;
- 4) contract awards and disbursements for project's remaining period; and
- 5) report submission.





Photo 3.1 Site visit of the ADB team (October 2019)

72. The purpose of the mission was review the progress on safeguards compliance ; (ii) make recommendations to ensure/improve compliance and address issues affecting implementation and preparation with respect to safeguards: Loan No.2967-KAZ:Investment Program Transport Corridor CAREC 2 MFF in Mangistau region (Zhetibay-Zhanaozen).

73. Following findings done and actions recommended:

Findings:

- Corrective action plan developed to resolve issues related to improvement of waste management has mostly been implemented.
- The fuel storage has no containment area although no spills of oil and lubricants observed.
- There are no issues with staffing: both Lots 1 and 2 Contractors have hired environmental specialists.
- Environmental documentation is complete and available.
- Instrumental monitoring has been conducted through certified laboratory.
- No incidents, accidents and complaints on environmental issues were recorded at the time of mission.
- Construction works on Lot 1 will be finalized by December

Actions required:

- Arrange containment area for fuel storage place.
- Conduct post-construction environmental audit of the construction sites for Lot 1 to be reinstated with filling and signing of checklist, which should be part of the next semi-annual environmental monitoring report.

3.3 ISSUES TRACKING (ON THE BASIS OF NON-COMPLIANCE NOTIFICATION)

74. The Contractor is responsible for the implementation of the EMP during the construction works and the Construction Supervision Consultant (CSC) is primarily responsible for the supervision of the monitoring of the implementation of the EMP.

75. During the reporting period of 2019, during the regular monitoring and inspections, the PMC specialist and the Engineer identified insignificant non-compliances such as insufficient dust control by Contractors Lot 1 and Lot 2, used tires on the construction site (Contract 2, lot 2), traces of oil on the territory of the asphalt concrete plant, the remnants of asphalt mixtures, area for solid household waste

container is not fenced, hazardous waste is not sorted.

76. In respect of all revealed non-compliances Notices of non-compliance were issued with recommendations to organize the collection and removal of used tires to the designated location, to organize the cleaning of the territory.

77. For the 2nd half of 2019 insignificant non-compliances have been identified, for which Notices were issued. Most of non-compliances are 50% dealt with the contamination of the construction territory, construction sites with waste. 25 % of the non-compliances are related to joint waste disposal and placement of waste in undesigned places, 12.5% of non-compliances – lack of dust control.

78. To eliminate non-compliances to the requirements of the EMP notices of non-compliance (letter) were issued given below (see *Table 5.4: Letters on environmental issues*)

79. Notices/instructions were issued for all non-compliances revealed. After the implementation of the recommendations specified in the notice by the Contractor's ecologist, re-inspections were carried out. The degree of effectiveness of issued instructions is 100%.

3.4 Trends (general directions)

80. Comparative analysis of identified non-compliances in the 2nd half of 2019 compared to the 1st half of 2019 on Lot 1 and on Lot 2.

| Number of inspection in 1 st half of 2019 | Total number of non-compliances in 1 st half of 2019 | Number of inspection in 2 nd half of 2019 | Total number of non-compliances in 2 nd half of 2019 |
|--|---|--|---|
| 24 | 15 | 16 | 9 |

81. The number of inspections in the 2nd half of 2019 compared with the 1st half of 2019 was relatively more. What is explained by the schedule of construction works. Unresolved issues include: pollution of the construction site; waste disposal in unidentified places; insufficient dust suppression.

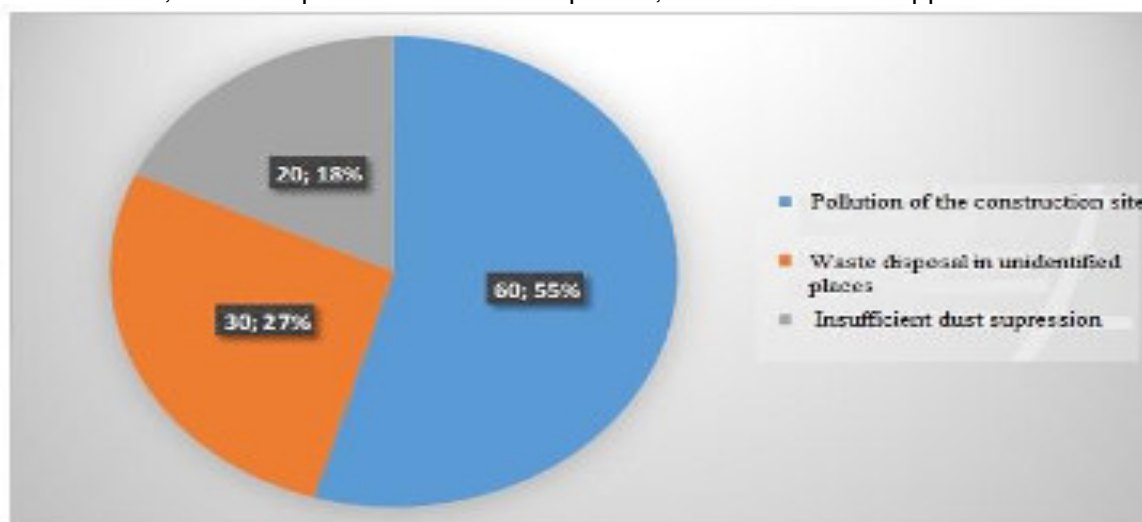


Figure 3.1: Analysis of the revealed violations for II half of 2019

3.5 Unforeseen environmental impacts or risks

82. Unforeseen environmental impacts during the reporting period were not identified.

4. ENVIRONMENTAL MONITORING RESULTS

4.1 General information on monitoring conducted during the current period

83. Under the guidance of the Consultant Engineer/the local environmental specialist, jointly with the Contractor's environmental specialist, conducted regular site inspections to identify environmental problems. The findings and results of their monitoring activities are included in the monthly report of the consultant and the quarterly report on environmental monitoring, and are also included in the first semi-annual report on environmental monitoring for the Project.

84. The environmental specialist of the consultant engineer constantly visits construction sites and notifies the Project Manager of environmental and nonconformance issues, as outlined in the EMP. In case of non-compliance, the necessary instruction is given to the contractor on the site and issues or requirements are solved through letters of procedure. Field inspections were carried out in various areas of impact, such as a borrow pit, an asphalt plant, quarry areas, as well as the location of the base camp of the Contractor and settlements located near the project road. Environmental issues were identified and presented to the Contractor as part of the consultation process, as a result of which these issues will be resolved. The effectiveness of mitigation measures is assessed after performing work on the site in order to determine whether such measures have been effective. According to environmental requirements, the Contractor's measures are considered acceptable for the initial stage of the project, but there will be more improvements needed for environmental activities. The Contractor is obliged to take measures to eliminate all environmental problems for further improvements.

4.1.1 Contractor's Environmental Monitoring Procedures

85. The contractor began monitoring the environment in the immediate vicinity of the project road in April 2018 and continues to monitor regularly on the project sites. Parameters that are measured: (i) noise and vibration, (ii) air quality, chemical soil analysis (iii). These indicators of the initial monitoring of parameters for the project road can be considered during the construction of the project road, as well as during its operation. In addition, the following sites are also monitored by the Contractor to detect any impact from construction work: quarries, bypass roads, bridge sites, Contractor's construction site and temporary subcontractor camps, concrete plant, crusher, asphalt plant, villages (along the bypass road) and cross roads. The impact will be recorded and reduced in accordance with the EMP. The basic procedures are described below:

86. **Air quality:** The quality of air is monitored at all road construction sites, Contractors camps, concrete plants, crushers, asphalt concrete plants, by obtaining parameters of the all indicators for the reporting period Lot 1 - 8 samples were taken at 4 monitoring points and Lot 2, 27 samples were selected at 9 monitoring points. The indicators of air quality meet the standards and do not exceed the maximum permissible concentration.

87. **Noise and vibration:** The noise and vibration level is measured on a monthly basis along the project road (camp, settlements, etc.), where impacts are expected in connection with the construction. The environmental protection regulations against noise and vibration comply with established standards. No excessive noise was detected in this section.

88. **Soil quality:** Soil quality control is carried out on a monthly basis for all road construction sites by obtaining indications at 9 monitoring points. Indications of soil quality meet the standards and do not exceed the maximum permissible concentrations. Results of air, noise, vibration and soil measurements are shown below (see tables 4.2, 4.3, 4.4, 4.5, 4.6, 4.7).

89. In April 2018, the Contractors submitted an Environmental Management Plan (EMP) to the Engineer. The Environmental Protection Specialist of the CSC issued to the Contractor Lot 1 comments on the EMP to correct and submit to the Engineer for approval. The EMP describes the mitigation and monitoring requirements, including how, when, where and by whom mitigation and monitoring measures should be implemented during the construction period. In the course of construction, mitigation measures will focus on ensuring that the Contractor undertakes to perform all environmental work, namely proper disposal of waste, control of the use of fuel and lubricants, clearing the territory of waste during the construction, careful management of water use and Contractors should be aware that it is necessary to make dust removal in the construction site, since dust can spread over long distances. The Contractor appointed specialists (Umirbekova Natalia, Environmental Protection Specialist of the Contractor, Contractor Lot 2, Aytenov Serik, Environmental Protection Specialist of the Contractor Lot 1) as a representative of the Contractor for environmental protection to fulfill responsibilities in the field of environmental protection activities of the project.

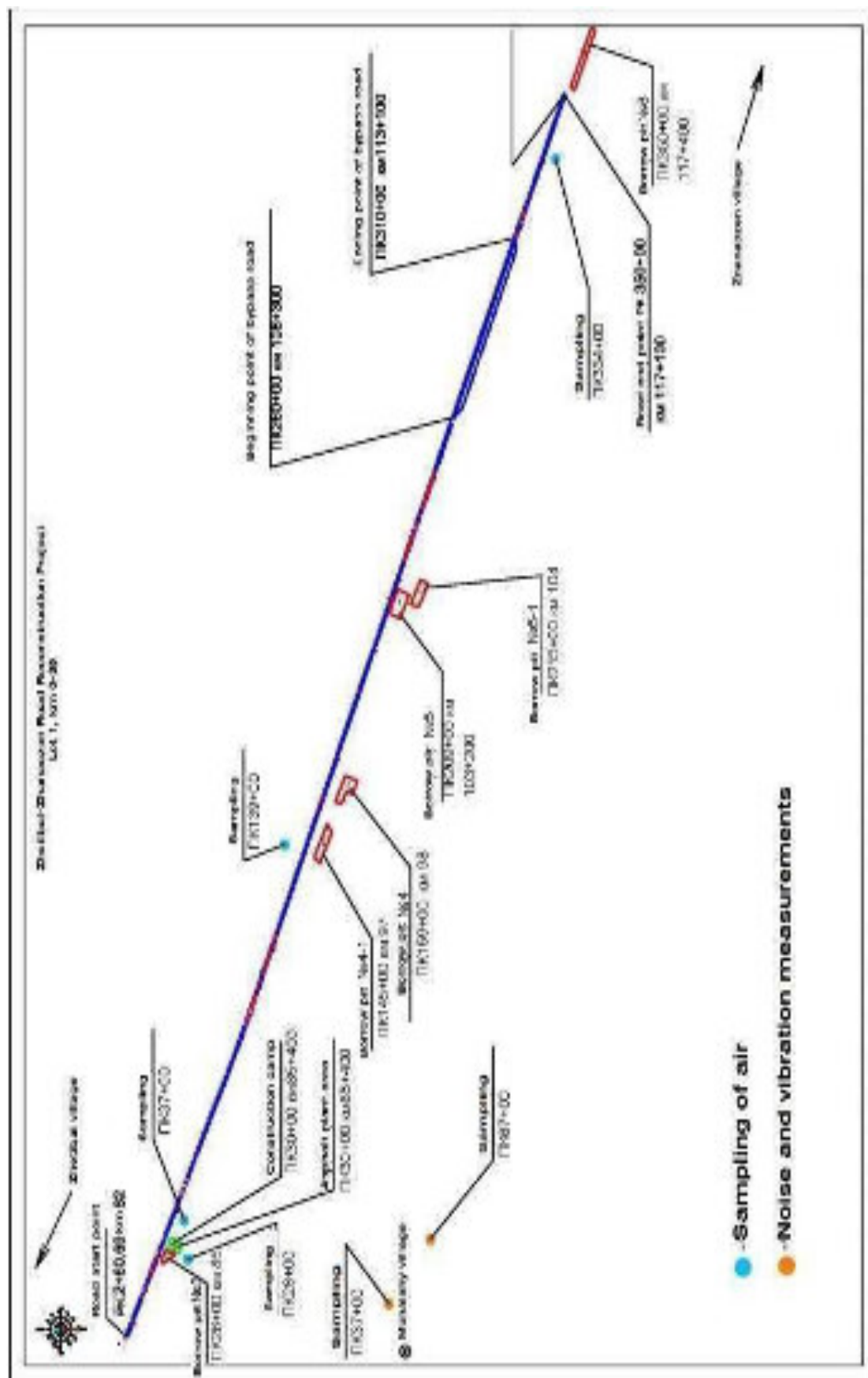
90. In accordance with the EMP and in addition to the Environmental Monitoring Plan, Contractors are required to perform measurements and observations of air quality, soil, noise level, vibration and social and cultural resources. The measurement locations were identified at the beginning of the project. Accordingly, the principles of monitoring were established, as shown below:

Table 4.1: (a) Principles for measuring parameters Lot 1

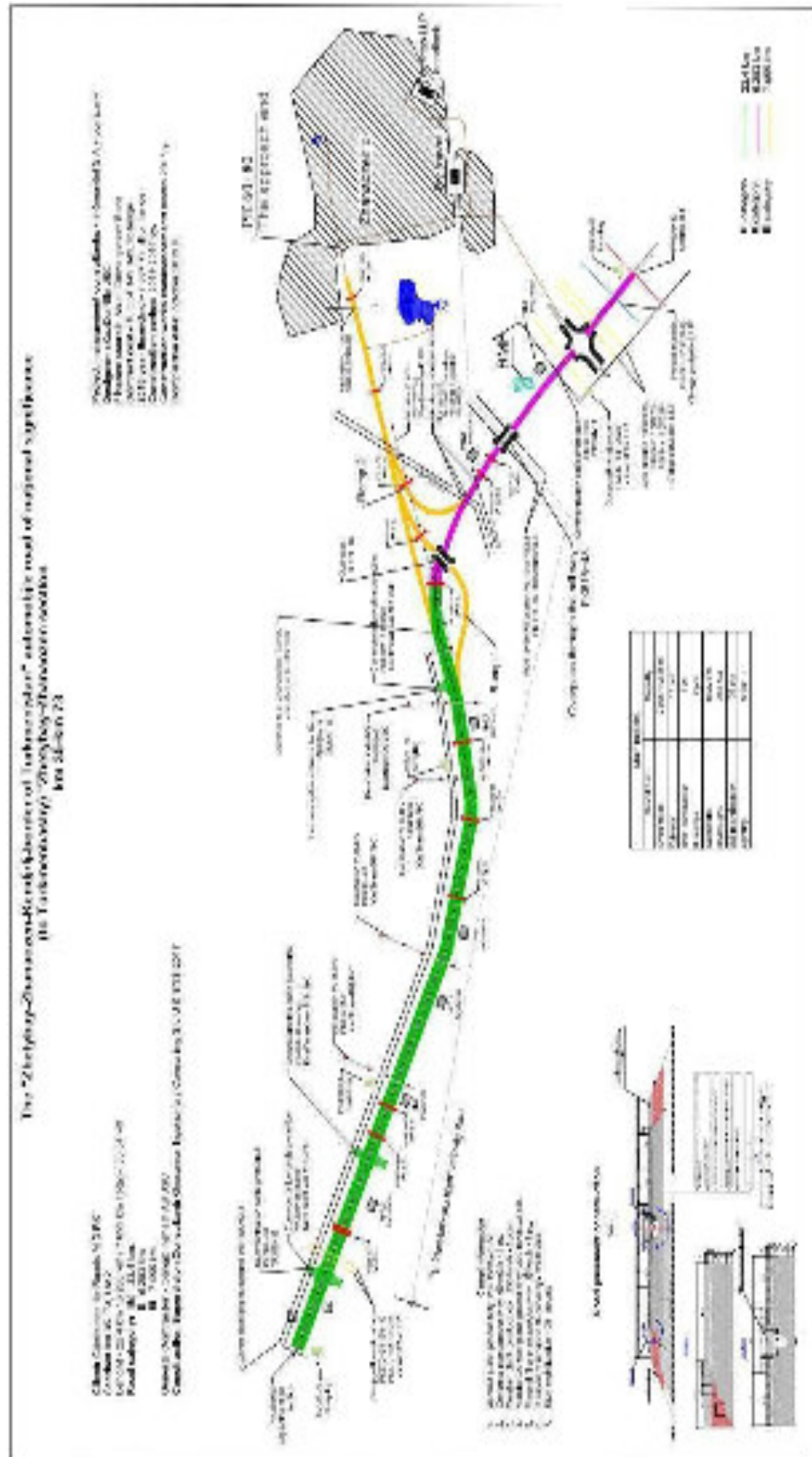
| Place of sampling | Point Numbers | Specific parameters | Frequency of monthly measurements |
|--|---------------|--|-----------------------------------|
| Chemical analysis of air | | | |
| Road section under reconstruction km 0-35 | 2 | Dust inorganic, carbon monoxide, nitrogen dioxide, sulfurous anhydride | 1 sample |
| The boundary of the SPZ of Asphalt concrete plant | 2 | | 1 sample |
| Chemical analysis of soil | | | |
| Road section under reconstruction km 0-35 | 2 | pH | |
| | | | |
| Place of sampling | Point Numbers | Specific parameters | Frequency of monthly measurements |
| The boundary of the SPZ of Asphalt concrete plant | 2 | petroleum products, cadmium, lead zinc | 1 sample |
| | | | 1 sample |
| | | | |
| Noise, vibration measurement | | | |
| Road section under reconstruction km 0-35 | 2 | Noise, vibration | 1 sample |
| The boundary of the SPZ of Asphalt concrete plant | 2 | | 1 sample |

b) Principles for measuring parameters Lot 2

| Place of sampling | Point Numbers | Specific parameters | Frequency of monthly measurement s |
|--|---------------|---|------------------------------------|
| Chemical analysis of air | | | |
| Along the road, every 10 km: | 4 | Dust inorganic, carbon monoxide, nitrogen dioxide, sulfurous, anhydride | 1 sample |
| Base camp Zhetibay | 4 | | 1 sample |
| The boundaries of Zhanaozen settlement | 1 | | 1 sample |
| Chemical analysis of soil | | | |
| Along the road, every 10 km: | 4 | petroleum products, cadmium, lead zinc | 1 sample |
| Base camp Zhetibay | 4 | | 1 sample |
| The boundaries of Zhanaozen settlement | 1 | | 1 sample |
| Noise, vibration measurement | | | |
| Along the road, every 10 km: | 4 | Noise, vibration | 1 sample |
| Base camp Zhetibay | 4 | | 1 sample |
| The boundaries of Zhanaozen settlement | 1 | | 1 sample |



| | |
|--|------------|
| | Date _____ |
|--|------------|



91. The monitoring program will include ongoing monitoring of construction activities for compliance with environmental requirements, in accordance with relevant laws, policies and regulations, standards, specifications and EMP.

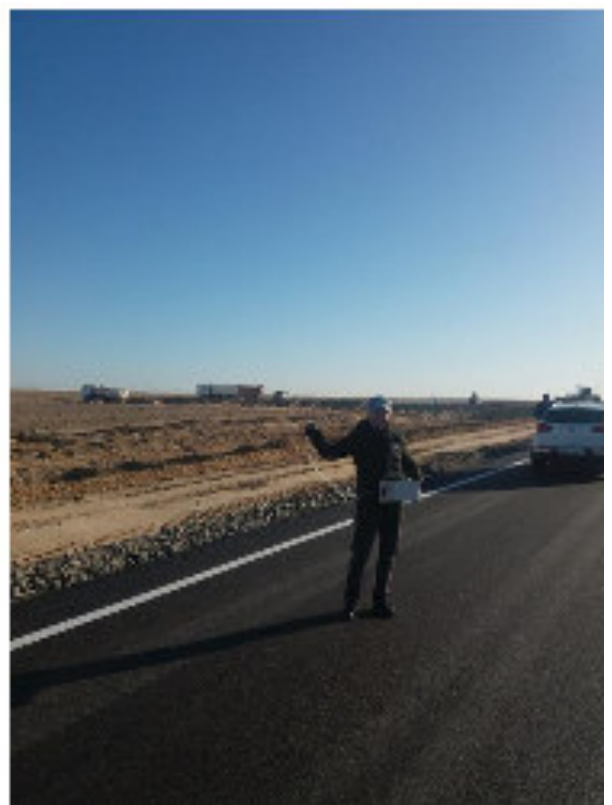
92. During construction, environmental monitoring will contribute to the preservation of slopes and embankments from potential soil erosion, ensure the restoration of quarries, working areas and materials storage sites, a sorting plant, concrete and asphalt plants, maintain public relations, and provide security measures.

4.1.2 Analysis of atmospheric air quality

93. The results show that air quality is below the limit (MPC - maximum permissible concentration), as shown in Tables 4.2 and 4.3, indicating that the project does not affect air quality in close proximity. Tables 4.2 and 4.3 show a comparative analysis: the measurement results for the reporting months from January to June 2019 and the maximum allowable concentration of pollutants.

94. It should be noted that the concentration of emissions will vary in accordance with meteorological conditions (speed and wind direction and relative humidity), by number and mechanical condition of construction equipment, and volume, vehicle type, direction of movement and traffic. The studies Protocol of atmospheric air for the period July-December 2019 are presented in **Appendix 2**.

95. Although concentrations are within the limit, the Contractor should continue the same work and increase the frequency of road irrigation to minimize the formation of dust from road traffic along roads that are not covered with asphalt. The measurements were carried out on a monthly basis at 2 sampling sites (photo 4.1, 4.2).



Atmospheric air sampling at Pk271+00, km 27.1



Atmospheric air sampling on the territory of SPZ AP
Photo 4.1: Air quality measurement (JV Akkord/Ak zhol kurylys). November, 2019

Table 4.2: Air quality measurement: Section 1: km 0-35 (Zhetibay-Zhanaozen)

| Point No. | Measu reme nt date | Measure ment time | CO | RSH methanethiol/ CH ₄ S | C ₁₂ -C ₁₉ | Dust suspended substances | Dust | Carbon |
|----------------|-----------------------------|-------------------------|-------------------|---|----------------------------------|---------------------------------|-------------------|-------------------|
| | | | MAC<5,0 | MAC<0,006 | MAC<1,0 | MAC <0,5 | MAC <0,5 | MAC <0,15 |
| | | | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ |
| T-1 (Pk30) | 15.02. 2019 | morning | <0,7 | <0,002 | <0,2 | <0,03 | <0,02 | <0,13 |
| | | afternoon | <0,8 | <0,002 | <0,1 | <0,03 | <0,02 | <0,13 |
| | | evening | <0,7 | <0,002 | <0,2 | <0,03 | <0,02 | <0,13 |
| T-2 (Pk220) | | morning | <0,7 | <0,001 | <0,2 | <0,03 | <0,02 | <0,025 |
| | | afternoon | <0,7 | <0,002 | <0,3 | <0,03 | <0,02 | <0,025 |
| | | evening | <0,7 | <0,002 | <0,2 | <0,03 | <0,02 | <0,025 |
| T-1 (Pk30) | 14.03. 2019 | morning | <0,8 | <0,002 | <0,2 | <1,3 | <1,2 | <0,11 |
| | | afternoon | <0,8 | <0,001 | <0,2 | <1,5 | <1,2 | <0,11 |
| | | evening | <0,8 | <0,001 | <0,2 | <1,8 | <1,2 | <0,11 |
| T-2 (Pk309) | | morning | <0,8 | <0,001 | <0,2 | <1,3 | <1,2 | <0,05 |
| | | afternoon | <0,8 | <0,001 | <0,3 | <1,2 | <1,2 | <0,05 |
| | | evening | <0,8 | <0,001 | <0,2 | <1,3 | <1,2 | <0,05 |
| T-1 (Pk231) | 18.04. 2019 | morning | <0,9 | <0,001 | <0,4 | <0,03 | <0,02 | <0,06 |
| | | afternoon | <0,9 | <0,001 | <0,4 | <0,02 | <0,02 | <0,07 |
| | | evening | <0,9 | <0,001 | <0,4 | <0,03 | <0,02 | <0,06 |
| T-2 (Pk30) | | morning | <0,8 | <0,001 | <0,4 | <0,03 | <0,02 | <0,06 |
| | | afternoon | <0,9 | <0,001 | <0,4 | <0,02 | <0,02 | <0,06 |
| | | evening | <0,9 | <0,001 | <0,4 | <0,02 | <0,02 | <0,07 |
| T-1 (shift | 22.05. 2019 | morning | - | - | - | <0,033 | <0,032 | - |
| | | afternoon | - | - | - | <0,033 | <0,034 | - |

| | | | | | | | | |
|------------------------|----------------|-----------|------|--------|-------|--------|--------|-------|
| camp) | | evening | - | - | - | <0,033 | <0,032 | - |
| T-2 (Pk30) | | morning | <1,0 | <0,002 | н/о | <0,033 | <0,028 | <0,06 |
| | | afternoon | <0,9 | <0,002 | н/о | <0,032 | <0,028 | <0,05 |
| | | evening | <0,9 | <0,001 | н/о | <0,030 | <0,027 | <0,04 |
| T-3 (Pk302) | | morning | <0,9 | <0,003 | н/о | <0,043 | <0,029 | <0,06 |
| | | afternoon | <1,1 | <0,004 | н/о | <0,068 | <0,032 | <0,06 |
| | | evening | <1,1 | <0,003 | н/о | <0,079 | <0,035 | <0,06 |
| T-1 (Pk153) | 18.06. 2019 | morning | 1,8 | 0,001 | 0,46 | <0,03 | <0,02 | н/о |
| | | afternoon | 1,9 | 0,001 | 0,44 | <0,03 | <0,02 | н/о |
| | | evening | 1,8 | 0,001 | 0,43 | <0,03 | <0,03 | н/о |
| T-2 (Pk30) | | morning | <2,0 | <0,001 | 0,01 | <0,02 | <0,02 | н/о |
| | | afternoon | <1,9 | <0,001 | 0,008 | <0,03 | <0,02 | н/о |
| | | evening | <1,9 | <0,001 | 0,005 | <0,03 | <0,02 | н/о |
| T-3 (shift camp) | | morning | - | - | - | <0,03 | <0,02 | - |
| | afternoon | - | - | - | <0,03 | <0,02 | - | |
| | evening | - | - | - | <0,03 | <0,03 | - | |
| T-1 (Pk 330) | 12.12. 2019 | morning | 1,1 | 0,003 | 0,5 | 0,03 | 0,2 | 0,08 |
| | | afternoon | 1,0 | 0,002 | 0,5 | 0,02 | 0,02 | 0,08 |
| | | evening | 1,2 | 0,002 | 0,5 | 0,03 | 0,02 | 0,08 |
| T-2 (Pk 30) | | morning | 1,2 | 0,003 | 0,8 | 0,02 | 0,02 | 0,08 |
| | | afternoon | 1,4 | 0,003 | 0,7 | 0,02 | 0,02 | 0,08 |
| | | evening | 1,3 | 0,003 | 0,8 | 0,02 | 0,02 | 0,09 |
| T-3 (shift camp) | | morning | | | | 0,02 | 0,02 | |
| | | afternoon | | | | 0,02 | 0,02 | |
| | | evening | | | | 0,02 | 0,02 | |



Photo 4.2: Air quality measurement (Cengiz Insaat).
Atmospheric air sampling at Pk350, Pk60+80, August, 2019

Table 4.3: Air quality measurement: Section 2: km 35-73 (Zhetibay-Zhanaozen)

| Characteristics of sampling points | | Concentrations of harmful substances,mg/m3 | | | |
|------------------------------------|---------------|--|-----------------|------------------|-------------------|
| Description | Sampling date | Dust | Carbon monoxide | Nitrogen dioxide | Sulphur dioxide |
| | | | | | |
| | | MPC values | | | |
| | | Not more than | Not more than 5 | Not more than | Not more than 0.5 |

| | | 0,5 | | 0,2 | |
|-------------------------------------|------------|-------|------|-------|-------|
| HIGHWAY | | | | | |
| Pk350 (191 km) | 19.07.2019 | 0,14 | <1,5 | <0,02 | <0,03 |
| Pk350 (191 km) | 13.08.2019 | 0,39 | <1,5 | <0,02 | <0,03 |
| Pk350 (191 km) | 13.09.2019 | 0,13 | <1,5 | <0,02 | <0,03 |
| Pk450 (181 km) | 19.07.2019 | 0,17 | <1,5 | <0,02 | <0,03 |
| Pk450 (181 km) | 13.08.2019 | 0,42 | <1,5 | <0,02 | <0,03 |
| Pk450 (181 km) | 13.09.2019 | 0,15 | <1,5 | <0,02 | <0,03 |
| Pk550 (171 km) | 19.07.2019 | 0,48 | <1,5 | <0,02 | <0,03 |
| Pk550 (171 km) | 13.08.2019 | 0,42 | <1,5 | <0,02 | <0,03 |
| Pk550 (171 km) | 13.09.2019 | 0,16 | <1,5 | <0,02 | <0,03 |
| Pk636+83 (163 km) | 19.07.2019 | 0,29 | <1,5 | <0,02 | <0,03 |
| Pk636+83 (163 km) | 13.08.2019 | 0,47 | <1,5 | <0,02 | <0,03 |
| Pk636+83 (163 km) | 13.09.2019 | 0,14 | <1,5 | <0,02 | <0,03 |
| Pk60+80 | 19.07.2019 | 0,44 | <1,5 | <0,02 | <0,03 |
| Pk60+80 | 13.08.2019 | 0,44 | <1,5 | <0,02 | <0,03 |
| Pk60+80 | 13.09.2019 | 0,17 | <1,5 | <0,02 | <0,03 |
| Basic values | Average | 0,314 | 2 | <0,02 | <0,03 |
| | Minimum | 0,3 | <1,5 | <0,02 | <0,03 |
| | maximum | 0,33 | 2,40 | <0,02 | <0,03 |
| For 2 nd half of 2019 | average | 0,294 | <1,5 | <0,02 | <0,03 |
| | minimum | 0,13 | <1,5 | <0,02 | <0,03 |
| | maximum | 0,48 | <1,5 | <0,02 | <0,03 |

| CONSTRUCTION CAMP ZHETIBAY (713 KM) | | | | | |
|-------------------------------------|------------|------|------|-------|-------|
| Pk120 (AK-23) | 19.07.2019 | 0,1 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-23) | 13.08.2019 | 0,33 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-23) | 13.09.2019 | 0,2 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-24) | 19.07.2019 | 0,12 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-24) | 13.08.2019 | 0,38 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-24) | 13.09.2019 | 0,18 | <1,5 | <0,02 | <0,03 |
| Pk120 | 19.07.2019 | 0,11 | <1,5 | <0,02 | <0,03 |

| | | | | | |
|--|----------------|---------------|----------------|-----------------|-----------------|
| (AK-25) | | | | | |
| Pk120 (AK-25) | 13.08.2019 | 0,41 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-25) | 13.09.2019 | 0,15 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-26) | 19.07.2019 | 0,11 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-26) | 13.08.2019 | 0,43 | <1,5 | <0,02 | <0,03 |
| Pk120 (AK-26) | 13.09.2019 | 0,16 | <1,5 | <0,02 | <0,03 |
| Basic values | Average | 0,3325 | 1,85 | <0,02 | <0,03 |
| | Minimum | 0,31 | <1,5 | <0,03 | <0,03 |
| | Maximum | 0,35 | 2,1 | <0,04 | <0,03 |
| For 2nd half of 2019 | Average | 0,22 | <1,5 | <0,02 | <0,03 |
| | Minimum | 0,1 | <1,5 | <0,02 | <0,03 |
| | Maximum | 0,43 | <1,5 | <0,02 | <0,03 |

*AK- name of sampling points, that have been saved from previous project Aktau-Shetpe.

4.1.3 Noise and vibration measurement

96. Regarding noise and vibration, Contractors Lot 1 and Lot 2 are required to conduct monthly monitoring of noise and vibration measurements along the project road. The noise level measurements were below the established level of 80 decibels. The noise measured at the sites is below the limit, which confirms that the noise is actually controlled by the Contractor. The contractor is instructed to reduce the amount of noise-generating equipment and to maintain them properly in order to reduce the noise level. However, there was no complaint about noise. Test report of noise and vibration measurement is presented in **Appendix 3**.



Noise and vibration measurement Pk271+00, km 27.1



Noise and vibration measurement on the territory of construction base camp Pk30+00, km 3.0

Photo 4.3: Noise and vibration measurement Lot 1

November, 2019

Table 4.4: Noise and vibration measurement results: Section 1: km 0 – 35 (Zhetibay-Zhanaozen)

| Date of measurement | The equipment for which was evaluated the effects of vibration | Type of vibration | | Equivalent corrective level of vibration acceleration, dB | Allowable equivalent corrective level of vibration acceleration, dB |
|---------------------|--|-------------------|-------|---|---|
| | | Total | Local | | |
| 15.07. 2019 | On the territory of residential base camp | + | | 95 | 118 |
| | | | | 82 | |
| | | | | 74 | |
| | On the Zhetibay-Zhanaozen road Pk 6 | + | | 89 | |
| | | | | 80 | |
| | | | | 70 | |
| 15.08. 2019 | On the territory of residential base camp | + | | 99,4 | 118 |
| | | | | 95,6 | |
| | | | | 97,8 | |
| | On the Zhetibay-Zhanaozen road Pk 8 | + | | 101,3 | |
| | | | | 99,8 | |
| | | | | 101,7 | |
| 10.09. 2019 | On the territory of residential base camp | + | | 96,4 | 118 |
| | | | | 98,7 | |
| | | | | 95,3 | |
| | On the Zhetibay-Zhanaozen road Pk 6 | + | | 102,4 | |
| | | | | 100,6 | |
| | | | | 104,8 | |
| 17.10. 2019 | On the territory of residential base camp | + | | 97 | 118 |
| | | | | 96 | |
| | | | | 95 | |
| | On the Zhetibay-Zhanaozen road Pk | + | | 100 | |
| | | | | 104 | |
| | | | | | |

| | | | | | |
|------------|---|---|--|-------|-----|
| | 8 | | | 101 | |
| 18.11.2019 | On the territory of residential base camp | + | | 93,7 | 118 |
| | | | | 92,0 | |
| | | | | 70,0 | |
| | On the Zhetibay-Zhanaozen road Pk 271 | + | | 92,4 | |
| | | | | 98,1 | |
| | | | | 88,8 | |
| 12.12.2019 | On the territory of residential base camp | + | | 95,3 | 118 |
| | | | | 93,4 | |
| | | | | 94,7 | |
| | On the Zhetibay-Zhanaozen road Pk 350 | + | | 101,7 | |
| | | | | 100,7 | |
| | | | | 101,9 | |
| | | | | 93,4 | |
| | | | | 94,7 | |

| Date of measurement | Measurement place | Additional information | Level of sound L _A (equivalent sound level) / Maximum sound level L _A , dBA | Allowable sound level звука L _A o norm/ Maximum allowable sound level L _A , dBA |
|---------------------|--|------------------------|---|---|
| 15.07.2019 | On the territory of working area Pk 5,5 km | 7.00-23.00 | 66,8 | 70 |
| | On the territory of residential base camp | | 66,9 | |
| 15.08.2019 | On the territory of residential base camp | 7.00-23.00 | 68,4 | 70 |
| | On the territory of working area Pk 6 | | 63,1 | |
| 10.09.2019 | On the territory of residential base camp | 7.00-23.00 | 63,7 | 70 |
| | On the territory of working area Pk 8 | | 67,6 | |
| 17.10.2019 | On the territory of residential base camp | 7.00-23.00 | 65 | 70 |
| | On the territory of working area Pk 280 | | 65 | |
| 20.11.2019 | On the territory of residential base camp | 7.00-23.00 | 52,9 | 70 |
| | On the territory of working area Pk 271 | | 60,6 | |
| 12.12.2019 | On the territory of residential base camp | 7.00-23.00 | 63,4 | 70 |
| | On the Zhetibay-Zhanaozen road Pk 350 | | 65,9 | |



Photo 4.4: Noise and vibration measurement at the border of Zhanaozen city (Lot 2), August, 2019

No noise excess detected at this site.

Table 4.5: Results of noise and vibration levels measurement: Section 2: km 35-73 (Zhetibay-Zhanaozen)

| Sampling point | Measurement date | Noise, dBa | | |
|----------------------------------|------------------|------------|---------|---------|
| | | equivalent | maximum | minimum |
| Entrance to Zhanaozen city | | | | |
| Pk60+80 (ЖЖК-5) | 19.07.2019 | 45 | 70 | 30 |
| Pk60+80 (ЖЖК-5) | 13.08.2019 | 49 | 74 | 44 |
| Pk60+80 (ЖЖК-5) | 13.09.2019 | 52 | 77 | 47 |
| Basic values | | 70 | 76 | 60 |
| For 2 nd half of 2019 | average | 48,6 | 73,7 | 40 |
| | minimum | 45 | 70 | 30 |
| | maximum | 52 | 77 | 47 |

| CONSTRUCTION CAMP ZHETIBAY (730 KM) | | | | |
|--|----------------|-----------|-----------|-----------|
| Pk120 (AK-23) | 19.07.2019 | 59 | 66 | 47 |
| Pk120 (AK-23) | 13.08.2019 | 51 | 74 | 38 |
| Pk120 (AK-23) | 13.09.2019 | 48 | 70 | 36 |
| Pk120 (AK-24) | 19.07.2019 | 48 | 72 | 32 |
| Pk120 (AK-24) | 13.08.2019 | 52 | 76 | 36 |
| Pk120 (AK-24) | 13.09.2019 | 48 | 72 | 32 |
| Pk120 (AK-25) | 19.07.2019 | 46 | 68 | 34 |
| Pk120 (AK-25) | 13.08.2019 | 48 | 72 | 36 |
| Pk120 (AK-25) | 13.09.2019 | 46 | 70 | 34 |
| Pk120 (AK-26) | 19.07.2019 | 44 | 72 | 32 |
| Pk120 (AK-26) | 13.08.2019 | 50 | 78 | 38 |
| Pk120 (AK-26) | 13.09.2019 | 48 | 76 | 36 |
| Basic values | average | 62 | 72 | 52 |

| | | | | |
|--|----------------|-----------|-------------|-------------|
| | minimum | 54 | 64 | 44 |
| | maximum | 70 | 80 | 60 |
| For 2nd half of 2019 | average | 48 | 71,6 | 36,6 |
| | minimum | 41 | 66 | 32 |
| | maximum | 59 | 78 | 47 |

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No vibration excess detected at this site.

| Sampling point | Measurement date | Vibration, dBa | | |
|----------------------------------|------------------|---------------------|---------|---------|
| | | equivalent | maximum | minimum |
| | | Standard value, 100 | | |
| Entrance to Zhanaozen city | | | | |
| Pk60+80 (ЖЖ-5) | 19.04.2019 | 65 | 75 | 60 |
| Pk60+80 (ЖЖ-5) | 15.05.2019 | 81 | 87 | 69 |
| Pk60+80 (ЖЖ-5) | 21.06.2019 | 82 | 89 | 66 |
| Basic value | | 75 | 80 | 68 |
| For 2 nd half of 2019 | average | 78,3 | 85,3 | 62,3 |
| | minimum | 77 | 84 | 61 |
| | maximum | 79 | 86 | 63 |

| | | | | |
|--|----------------|-------------|-------------|-------------|
| CONSTRUCTION CAMP ZHETIBAY (730 KM) | | | | |
| Pk120 (AK-23) | 19.07.2019 | 78 | 87 | 72 |
| Pk120 (AK-23) | 13.08.2019 | 79 | 87 | 73 |
| Pk120 (AK-23) | 13.09.2019 | 78 | 83 | 67 |
| Pk120 (AK-24) | 19.07.2019 | 82 | 85 | 70 |
| Pk120 (AK-24) | 13.08.2019 | 82 | 85 | 70 |
| Pk120 (AK-24) | 13.09.2019 | 80 | 82 | 67 |
| Pk120 (AK-25) | 19.07.2019 | 78 | 83 | 72 |
| Pk120 (AK-25) | 13.08.2019 | 76 | 81 | 71 |
| Pk120 (AK-25) | 13.09.2019 | 79 | 82 | 72 |
| Pk120 (AK-26) | 19.07.2019 | 78 | 83 | 71 |
| Pk120 (AK-26) | 13.08.2019 | 78 | 83 | 71 |
| Pk120 (AK-26) | 13.09.2019 | 79 | 83 | 72 |
| Basic values | average | 71 | 77 | 63 |
| | minimum | 68 | 74 | 60 |
| | maximum | 76 | 82 | 68 |
| For 2nd half of 2019 | average | 78,9 | 83,6 | 70,6 |
| | minimum | 76 | 81 | 67 |
| | maximum | 82 | 87 | 73 |

4.1.4 Soil quality monitoring

97. Soil monitoring involves the determination of concentrations of pollutants in the zone of active influence. The most accurate assessment of the impact on the state of the soil are direct measurements of pollutants. To this end, under an agreement with the Contractor, a specialized accredited environmental protection laboratory of Aktobe Plant of Chromium Compounds JSC during the second half of 2019 monitored the soil at the construction site. Selection points and frequency are defined in the monitoring program, which is a mandatory annex to the EMP. During the reporting period, 36 samples were taken at 9 control points.

98. In April 2018, basic measurements of soil samples were performed. Selected samples were compared: for lead with standard values - MPC maximum permissible concentration established by the regulatory requirements of the Republic of Kazakhstan. Due to the absence of standard values for other substances in regulatory documents of the Republic of Kazakhstan, generally accepted values for zinc are 23 mg / kg, for cadmium 0.5 - the average content in the soils of the world, standards for oil products have not been established.

99. A comparison of the average baseline results with the average data for the entire observation period showed a slight increase in zinc. At this site, no excess was detected for any of the controlled substances. At this site, no excess for any of the controlled substances was found. Test report of soil chemical analysis is presented in **Appendix 4**.



Photo 4.5: Soil sampling at Pk271+00, km 27.1 (Lot 1), November, 2019

Table 4.6: Soil testing results: Section 1: km 0 – 35 (Zhetibay-Zhanaozen)

| Measurement date | Name | Unit of measurement | Results | ND for test method |
|------------------|--------------|---------------------|---------|---------------------|
| 16.07.2019 | Oil products | mg/g soil | 60,5 | ПНД Ф. 16.1:2.21-98 |
| | Zink | mg/g soil | н/о | МУ 08-47/152 |
| | Lead | mg/g soil | 0,002 | МУ 08-47/152 |
| | Cadmium | mg/g soil | н/о | МУ 08-47/152 |

| | | | | |
|------------|--------------|-----------|-------|---------------------|
| 22.08.2019 | Oil products | mg/g soil | 33,3 | ПНД Ф. 16.1:2.21-98 |
| | | | н/о | МУ 08-47/152 |
| | Zink | mg/g soil | н/о | МУ 08-47/152 |
| | Lead | mg/g soil | 0,02 | МУ 08-47/152 |
| | Cadmium | mg/g soil | 33,3 | ПНД Ф. 16.1:2.21-98 |
| 16.09.2019 | Oil products | mg/g soil | 46,8 | ПНД Ф. 16.1:2.21-98 |
| | Zink | mg/g soil | 0 | МУ 08-47/152 |
| | Lead | mg/g soil | 0,01 | МУ 08-47/152 |
| | Cadmium | mg/g soil | 0 | МУ 08-47/152 |
| 24.10.2019 | Oil products | mg/g soil | 74 | ПНД Ф. 16.1:2.21-98 |
| | Zink | mg/g soil | н/о | МУ 08-47/152 |
| | Lead | mg/g soil | 0,004 | МУ 08-47/152 |
| | Cadmium | mg/g soil | н/о | МУ 08-47/152 |
| 20.11.2019 | Oil products | mg/g soil | 65 | ПНД Ф. 16.1:2.21-98 |
| | Zink | mg/g soil | н/о | МУ 08-47/152 |
| | Lead | mg/g soil | 0,001 | МУ 08-47/152 |
| | Cadmium | mg/g soil | н/о | МУ 08-47/152 |
| 18.12.2019 | Oil products | mg/g soil | 58,1 | ПНД Ф. 16.1:2.21-98 |
| | Zink | mg/g soil | н/о | МУ 08-47/152 |
| | Lead | mg/g soil | 0,002 | МУ 08-47/152 |
| | Cadmium | mg/g soil | н/о | МУ 08-47/152 |



Photo 4.6: Soil sampling at Pk350 Construction base camp (Lot 2), August, 2019

Table 4.7: Soil testing results: Section 2: km 35 – 73 (Zhetibay-Zhanaozen)

| Characteristics of sampling points | | Concentrations of harmful substances | | | | |
|------------------------------------|---------------|--------------------------------------|--------------|---------|-------------|-------------|
| Description | Sampling date | pH | Oil products | Cadmium | Lead, mg/kg | Zink, mg/kg |
| | | | mg/g | mg/kg | | |
| | | MPC values | | | | |
| | - | - | 0,5 | 32 | 23 | |
| HIGHWAY | | | | | | |
| Pk350 (191 km) | 19.07.2019 | 8,57 | <0,005 | 0,22 | 3,23 | 12,34 |

| | | | | | | |
|--|----------------|-------------|------------------|--------------|--------------|---------------|
| Pk350 (191 km) | 13.08.2019 | 8,5 | 0,005 | 0,15 | 2,95 | 11,27 |
| Pk350 (191 km) | 13.09.2019 | 8,06 | 0,006 | 0,18 | 2,37 | 12,33 |
| Pk450 (181 km) | 19.07.2019 | 8,32 | 0,007 | 0,19 | 4,4 | 18,54 |
| Pk450 (181 km) | 13.08.2019 | 8,62 | 0,006 | 0,18 | 3,82 | 17,95 |
| Pk450 (181 km) | 13.09.2019 | 8,49 | <0,005 | 0,17 | 4,98 | 15,5 |
| Pk550 (171 km) | 19.07.2019 | 8,37 | 0,008 | 0,13 | 3,73 | 20,13 |
| Pk550 (171 km) | 13.08.2019 | 8,5 | 0,005 | 0,11 | 2,42 | 16,57 |
| Pk550 (171 km) | 13.09.2019 | 8,65 | 0,007 | 0,13 | 2,7 | 11,78 |
| Pk636+83 (163 km) | 19.07.2019 | 8,22 | 0,005 | 0,16 | 6,57 | 19,54 |
| Pk636+83 (163 km) | 13.08.2019 | 8,12 | 0,005 | 0,17 | 6,94 | 17,63 |
| Pk636+83 (163 km) | 13.09.2019 | 8,52 | 0,007 | 0,19 | 5,21 | 19,93 |
| Pk60+80 | 19.07.2019 | 8,56 | 0,009 | 0,22 | 8,58 | 18,56 |
| Pk60+80 | 13.08.2019 | 8,67 | 0,007 | 0,17 | 6,82 | 17,95 |
| Pk60+80 | 13.09.2019 | 8,74 | 0,006 | 0,23 | 4,32 | 17,41 |
| Basic values | average | 8,86 | 0,029 | 0,144 | 6,852 | 18,314 |
| | minimum | 8,5 | 0,013 | 0,05 | 3,4 | 10,13 |
| | maximum | 9,4 | 0,081 | 0,21 | 11,27 | 21,32 |
| For 2nd half of 2019 | average | 8,46 | 0,0062 | 0,17 | 4,60 | 16,49 |
| | minimum | 8,06 | <0,005 | 0,11 | 2,37 | 11,27 |
| | maximum | 8,74 | 0,009 | 0,23 | 8,58 | 20,13 |

| Characteristics of sampling points | | Concentrations of harmful substances | | | | |
|-------------------------------------|---------------|--------------------------------------|--------------|---------|---------------|---------------|
| Description | Sampling date | pH | Oil products | Cadmium | Lead mg/kg | Zink mg/kg |
| | | | mg/g | mg/kg | | |
| | | MPC values | | | | |
| | | - | - | 0,5 | 32 | 23 |
| CONSTRUCTION CAMP ZHATIBAY (730 KM) | | | | | | |
| Pk120 (AK-23) | 19.07.2019 | 8,98 | <0,005 | 0,2 | 4,3 | 15,57 |
| Pk120 (AK-23) | 13.08.2019 | 8,64 | 0,007 | 0,22 | 4,54 | 13,44 |
| Pk120 (AK-23) | 13.09.2019 | 8,16 | 0,004 | 0,19 | 3,06 | 15,32 |
| Pk120 (AK-24) | 19.07.2019 | 8,82 | 0,005 | 0,2 | 3,7 | 14,48 |
| Pk120 (AK-24) | 13.08.2019 | 8,7 | 0,006 | 0,21 | 3,53 | 14,16 |
| Pk120 (AK-24) | 13.09.2019 | 8,39 | 0,002 | 0,19 | 2,98 | 13,12 |
| Pk120 (AK-25) | 19.07.2019 | 9,03 | 0,008 | 0,2 | 5,75 | 15,51 |
| Pk120 (AK-25) | 13.08.2019 | 9,08 | 0,01 | 0,24 | 4,38 | 11,93 |
| Pk120 (AK-25) | 13.09.2019 | 8,61 | 0,008 | 0,2 | 3,03 | 8,93 |
| Pk120 (AK-26) | 19.07.2019 | 9 | 0,005 | 0,21 | 5,57 | 17,04 |
| Pk120 (AK-26) | 13.08.2019 | 8,95 | 0,005 | 0,24 | 3,64 | 12,71 |
| Pk120 (AK-26) | 13.09.2019 | 8,22 | 0,006 | 0,22 | 3,29 | 14,99 |

| | | | | | | |
|---|----------------|-------------------|------------------|---------------|-------------|--------------|
| Basic values | average | 8,67 5 | 0,015 | 0,1925 | 5,83 | 18,1 |
| | minimum | 8,6 | 0,012 | 0,15 | 4,98 | 17,02 |
| | maximum | 8,7 | 0,023 | 0,25 | 6,36 | 19,72 |
| For 2nd half 2019 | average | 8,715 | <0,005 | 0,210 | 3,98 | 13,93 |
| | minimum | 8,16 | 0,002 | 0,19 | 2,98 | 8,93 |
| | maximum | 9,08 | 0,01 | 0,24 | 5,75 | 17,40 |

100. Information of borrow pits and soil reserves:

Table – 4.8 Soil borrow pits

Section 1: km 0 – 35 (Zhetibay-Zhanaozen)

| Borrow pit No. | Pk+ | Borrow pit area, thousand m² | Volume of excavated soil, thousand m³ | Excavations depth, m |
|-----------------------|------------|--|---|---------------------------------|
| 3 | 26+00 | 65,38 | 88,905 | 2,00 |
| 4-1 | 145+00 | 200,00 | 26,506 | 2,00 |
| 4 | 159+00 | 213,72 | - | - |
| 5 | 215+00 | 242,89 | 115,631 | 2,10 |
| 5-1 | 209+00 | 169,94 | - | - |
| 6 | 350+00 | 234,24 | 73,512 | 2,00 |
| Total | | 1126,17 | 80,342 | 304,554 |

Section 2: km 35 – 73 (Zhetibay-Zhanaozen)

| Borrow pit No. | Pk+ | Borrow pit area, thousand m² | Volume of excavated soil, thousand m³ | Excavations depth, m |
|-----------------------|--------------|--|---|---------------------------------|
| 1 | 166 (604+10) | 437,2 | 13100 | 0,03 |
| 2 | 164 (630+50) | 114,3 | 2300 | 0,02 |
| 8-1 | 171 (556+80) | 96,4 | 1900 | 0,03 |
| 8 | 174(528+40) | 86,4 | 1700 | 0,02 |
| 7-2 | 177 (494+50) | 96,4 | 2900 | 0,02 |
| 7 | 181 (452+00) | 98,5 | 3000 | 0,03 |
| Total | | 1029,2 | 26900 | 0,17 |

4.1.5 Management and monitoring of labor protection and safety of the Contractor

101. As provided for in item 105 - Occupational Health and Safety of General Specifications, the Contractor has the following duties:

- Ensuring that all Subcontractors and their personnel are fully involved in the activities provided for in this item on occupational safety and health of workers.
- Take all reasonable precautions to prevent unauthorized access to the site and to protect the public from any activity under its control.
- Notify the Engineer immediately of any unsafe incidents or accidents that lead to death, serious injury or can lead to disability for more than three days.
- Providing and ensuring all the Contractor's personnel with protective equipment.
- Take all necessary measures to protect health, including from sexually transmitted infections (STI) and HIV/AIDS, safety and well-being of the Contractor's personnel.

- In order to establish a health and safety department, the Contractor must appoint one responsible person from his staff who will work full time as health and safety specialist and he/she should/will notify the Engineer about it. A HS specialist should organize an orientation course on safety during the first week of his stay on site and the Contractor's personnel must attend this seminar.
- Conduct regular meetings, at least monthly, with local healthcare authorities/institutions.
- To keep such records and prepare such reports related to occupational safety and health issues, including sexually transmitted infections (STI) and HIV/AIDS, and the well-being of persons that the Engineer may from time to time demand and at the request of authorized representatives bodies.
- Provision with lighting (including backup facilities in case of electricity failure), especially where any work is being done at night to ensure safety at that workplace.
- Ensure that there are enough toilets and other sanitation facilities in the areas where work is being done.
- Ensuring that the work remains in a safe condition, in the event that the Contractor temporarily closes work on the site, seasonally or for any other reason.

In addition, the following security issues should be checked:

102. Use of personal protective equipment (including replacement in accordance with climatic conditions): summer and winter personal protective equipment (PPE) were provided. Managers should control and strictly monitor the safety of the worker, providing with special protective clothing and personal protective equipment, including monitoring the mandatory use of this clothing on the site. Violations of non-use of PPE, use of alcohol and drugs can lead to the immediate dismissal of on employee.

103. Dust and noise: Additional water carriers were mobilized to prevent dust during the summer period. Long-term adverse effects should be minimized, consisting of poor air quality, mechanical vibration (noise, vibration, ultrasounds and others) and emissions (ion, electromagnet, laser, ultraviolet rays and others) at workplaces.

104. Operation of equipment and machinery: For all equipment on the site there must be necessary copies of documents and test certificates. For dump trucks, there must be registration certificates, and drivers must have a driver's license. Every day, drivers should be checked for alcohol, blood pressure should be checked as well. The Contractor checks the technical condition of vehicles intended for the transportation of people and conducts systematic training for drivers on the rules of road traffic and road safety.

105. Construction Danger (height, electric shock, etc.): The Head of the Subcontractor issues instructions and orders for the observance of safety. Everywhere protection from electricity, from an electric tool, from gas are provided for the protection of workers and it is necessary to use seat belts.

106. Emergency procedures/Coordination with external medical institutions: For emergency situations, an action plan was developed to provide first aid and in such cases to deliver a victim to the city hospital in Aktau. The medical center was established in the contract base camp at the beginning of June 2018, and is fully operational since July 2018. In case of fire, it is necessary to fulfill the evacuation plan. Emergency telephone numbers and ambulance services were easily accessible.

4.1.6 Required Reporting on Environmental Protection issues

107. As mentioned in the item 106 of the Technical Specification: environmental protection of section 100: general requirements, the Contractor's environmental management plan should include a description and explanation of the communication procedures between personnel of construction and the environment, including (i) communications and regular contacts and reporting system.

108. As well as section 106 of the TS mentions: initial environmental report should be submitted in accordance with section 106. Based on this section, the initial monitoring program should be presented with the content of the basic environmental study (BES) (I) air quality; (II) water quality; and (III) the noise level. In addition, Environmental Reports should include brief weekly updates and be prepared for the Engineer's monthly reports. The Contractor will submit to the Consultant a semi- annual report on environmental monitoring as required. The Engineer should also be notified of any EMP activities, and effective communication should be established with all Subcontractors. Summary of these items should be a part of the Contractor's monthly environmental monitoring report.

109. For the first half of the year from January to July 2019 on Lot 1 provided 4 reports and Lot 2

provided 3 monthly reports. As indicated in the TOR, the consultant should submit a semi-annual report on environmental monitoring, compiled from monthly reports with relevant issues, activities and measures undertaken during this period. Therefore, this report is the third semiannual report on environmental monitoring for the Project. In addition, the local environmental specialist of the Consultant/Engineer will often monitor the environmental contractor's activities in accordance with the EMP and regularly prepare a monthly environmental monitoring report for the Project.

4.1.7 Flora and Fauna

110. There are no specially protected natural areas (SPNR) around the project area, vegetation cover is rare, desert type, and the project will not affect ecologically sensitive animal habitats.

4.2 Trends

111. Based on the results of environmental monitoring, it can be concluded that the measures taken by the Contractors to reduce the environmental impact are sufficient. The activities of the Contractors exert an acceptable load on the environment.

4.3 Summary of monitoring results

112. It is recommended to continue to carry out environmental monitoring in accordance with the previously agreed Environmental Monitoring Program at the approved points. Monitoring of air quality, noise and vibration, soil, flora and fauna, water during the reporting period shows that construction work from 82 km to 155 km had no impact on the environment.

4.4 Use of Material Resources

4.4.1 Current period

Table 4.9: Consumption of resources in the reporting period (July-December 2019)

Section 1: km 0- 35 (Zhetibay village-city of Zhanaozen):

| Resources | The number of consumed resources for the 2nd half of 2019 * |
|-------------------------------|---|
| Electricity, kW/h | 117896 |
| Natural gas, thousand/m3 | 1864,401 |
| Drinking water, m3 | 1040 |
| Water for technical needs, m3 | 10512 |

Section 2: km 35- 73 (Zhetibay village-city of Zhanaozen):

| Resources | The number of consumed resources for the 2nd half of 2019 * |
|-------------------------------|---|
| Electricity, kW/h | 1 361 991 |
| Natural gas, thousand/m3 | 1 194,010 |
| Drinking water, m3 | - |
| Water for technical needs, m3 | 22083 |

*since this report is prepared before the end of December 2019, the data in the table are presented excluding expenses in December 2019.

4.4.2 Cumulative use of resources

Table 4.10: Consumption of resources from the beginning of the project

Section 1: km 0-35 (Zhetibay-Zhanaozen)

| Resources | The number of consumed resources for the 1st half of 2018 * | The number of consumed resources for the 2nd half of 2018 * | The number of consumed resources for the 1st half of 2019 * | The number of consumed resources for the 2nd half of 2019 * |
|-------------------------------|---|---|---|---|
| Electricity, kW/h | 255558 | 798132 | 648777 | 117896 |
| Natural gas, thousand/m3 | 224,538 | 1630,383 | 1386,231 | 1864,401 |
| Drinking water, m3 | 1720 | 2850 | 3645 | 1040 |
| Water for technical needs, m3 | 8941,744 | 11462,196 | 8737 | 10512 |

Section 2: km 35-73 (Zhetibay-Zhanaozen)

| Resources | The number of consumed resources for the 1st half of 2018 * | The number of consumed resources for the 2nd half of 2018 * | The number of consumed resources for the 1st half of 2019 * | The number of consumed resources for the 2nd half of 2019 * |
|-------------------------------|---|---|---|---|
| Electricity, kW/h | 1 877 573 | 1 823 488,8 | 1 558 098 | 1 361 991 |
| Natural gas, thousand/m3 | 1 230, 744 | 1 491,269 | 892,108 | 1 194,010 |
| Drinking water, m3 | 26 983 | 18 331 | - | - |
| Water for technical needs, m3 | 39 494 | 34 185 | 28620 | 22083 |

4.5 Waste management

113. Contractor's activity is related to waste generation. To reduce the impact of waste on the environment, the following actions were taken:

- the requirements for the prevention of emergency situations associated with waste management were complied with,
- production and household wastes were collected, temporarily stored, then transported to sites for disposal or dumping,
- construction sites were equipped with special waste collection containers,
- all waste was stored in designated areas,
- waste passports were developed for waste generated,
- all production and consumption wastes were exported to specialized enterprises for further processing, utilization or dumping: Landfil LLP, "Mactanov S.K." IE - Lot 1; Landfil LLP and Caspy Operating LLP - Lot 2.

4.5.1 Current period

Table 4.11: List of wastes generated in the 2nd half of 2019 Lot 1 and Lot 2

| Waste name | Waste types | Source of waste | Amount of waste in second half of 2019 (tons) | | Method for removing / waste final disposal area |
|------------|-------------|-----------------|---|-------|---|
| | | | Lot 1 | Lot 2 | |

| | | | | | |
|--|-------------|--------------------------------------|--------|-------|--------------------------------|
| containers from PWM | Amber AD070 | repair work, fences painting | - | 1,45 | dumping / specialized landfill |
| soil impregnated with petroleum products | Amber AE020 | repair work | - | 2,9 | dumping / specialized landfill |
| used filters | Amber AC030 | motor vehicle service | - | 4,6 | dumping / specialized landfill |
| oily rags | Amber AC030 | repair work | - | 1,27 | dumping / specialized landfill |
| construction wastes | Green GG170 | construction works | - | 7,5 | dumping / specialized landfill |
| metal scrap | Green GA090 | residue from metal working process | - | - | dumping / specialized landfill |
| stubs of welding electrodes | Green GA080 | residue from technological processes | - | - | dumping / specialized landfill |
| SHW | Green CO060 | staff activity | 126,84 | 70,86 | dumping / specialized landfill |

114. During the reporting period, all waste generated was stored in specially provided containers and, as it was generated, was sent for disposal / dumping to specialized organizations.

Contractor “**Akzhol Kurylys**” LLP concluded the following contracts:

- “Landfil” LLP No. 27-2019 dated 09/01/2019 for the provision of services for the management of industrial waste (amber and green list);
- “ECO OPERATING” LLP No. 2019-60 dated 31/05/2019 for the disposal of mercury-containing lamps;
- “Ybrayev” IE No.5 dd. 04/01/2019 providing services for removal of domestic fecal water and disposal of solid waste.

The Contractor of **Cengiz Insaat Sanayi Ve Ticaret Anonymous Sirketi JSC** concluded the following contracts:

- “Landfil” LLP No. 73-2019 dated 22/05/2019 for the provision of services for handling industrial waste (amber and green list);
- “Realos” LLP No. 2018-26 dated 05/04/2018 for the provision of services for pumping, removal and disposal of domestic waste water;
- “Realos” LLP No. 2018-27 dated 05/04/2018 for the provision of services for the supply of industrial water.
- «Eco Servis Neftegas» № 2019-08 dd. 27.05.2019 for the provision of services on production wastes.
- «Caspi Y Operating» № AO-12C/19 dd. 27.04.2019 for the provision of services on solid waste disposal;

4.5.2 Total waste generation

Table 4.12: Results of cumulative waste generation Lot 1 and Lot 2

| Waste name | Class of hazard | | Source of waste | Amount of waste in first half of 2018 | Amount of waste in second half of 2018 | Amount of waste in first half of 2019 | Amount of waste in second half of 2019 |
|---|-----------------|-------|--------------------------------------|---------------------------------------|--|---------------------------------------|--|
| containers from PWM, ton | Amber | AD070 | repair work, fences painting | 0,7 | 0,24 | 1,16, | 1,45 |
| soil impregnated with petroleum products, ton | Amber | AE020 | repair work | 3,72 | 16,7 | 6,1 | 2,9 |
| used filters, ton | Amber | AC030 | motor vehicle service | 2,6 | 5,37 | 0,7 | 4,6 |
| oily rags, ton | Amber | AC030 | repair work | 2,22 | 1,04 | 0,16 | 1,27 |
| construction wastes, ton | Green | GG170 | construction works | 7,36 | 35,1 | 13,9 | 7,5 |
| metal scrap, ton | Green | GA090 | residue from metal working process | - | - | - | - |
| stubs of welding electrodes, ton | Green | GA080 | residue from technological processes | - | - | - | - |
| SHW, ton | Green | CO060 | staff activity | 136,4 | 188,5 | 141,5 | 197,7 |

According to the Environmental Code of the Republic of Kazakhstan dated January 9, 2007 No. 212 (Article 287. Classification of Hazardous Wastes), the above production wastes belong to a certain level of danger.

115. According to the results of monitoring and implementation of the EMP, it can be concluded that during the reporting period there were observations on the storage of waste, which were eliminated as soon as possible. All waste generated was timely disposed at specialized organizations.

4.6 HEALTH AND SAFETY

4.6.1 Public health and safety

116. Traffic management plan covers the basic safety instruction for the development and implementation of the traffic management and traffic safety plan with monitoring indicators.

117. During regular on-site inspections, the road safety engineer identified the following activities and non-compliances:

- Not all road signs and signal posts comply with ST RK 2607;
- Flagmen are not involved to control the traffic movement;
- In some places there is rutting and extruding of the pavement, as a result of which the roadway narrows;
- In places where the carriageway is reduced to 4.5 m - make widening;
- There are no flashing lights on dangerous sections of the road;

- Patrol inspection of the road is not conducted regularly.

118. In accordance with the revealed non-compliances, the Contractor was given instructions, notices/site instructions and letters:

- install all necessary road signs and signal posts according to ST RK 2607;
- flagmen to be involved;
- perform patching of the road;
- install signal lights according to the order for the right to perform work;
- perform a widening of the road.

119. Contractors have remedied all specified non-compliances within the prescribed time limits. The Traffic Safety Engineer pays close attention to this issue and gives timely gives directions and instructions for accident situation prevention.

Information on accidents and incidents for the reporting period (July-December 2019) is given in Table 4.13.

Table 4.13: Accidents / Incidents

| № | Accident time | Accident place | Accident description | Result |
|----------|--------------------------|--|--|--|
| 1 | 01.07.2019 23:30 p.m. | On the Zhetibay-Zhanaozen road at Pk334+00 | a traffic accident was occurred, the vehicle "Toyota Land Cruiser 100" state No. 848 MFA 12 moving from the city of Zhanaozen to the city of Aktau without observing the driving regulations entered the closed section, ignoring the prohibition of road signs (3.1, 5.32.3, 1.23, 1.31.2, 4.2.2) made a collision with special equipment parked along the closed road, namely, the rollers of BOMAK state number 142 R ACD, BOMAK state number 343 R ADD and asphalt paver VOGELE state number 958 R AED | As the result of accident, there are no victims |
| 2 | 07.07.2019 10:00 | On the Zhetibay-Zhanaozen road at Pk96+00 | a traffic accident was occurred, the vehicle "Lada Largus" state No. 023 DZA 12 made a collision at departure to the opposite carriageway with vehicle "Lada Priora" state No. 465 LDA 12 moving from Zhanaozen. | As a result of road accident, the passenger of vehicle "Lada Largus" got a leg injury and was hospitalized. |
| 3 | 23.08.2019 17:30 | On the Zhetibay-Zhanaozen road at Pk30-31 | a traffic accident was occurred, vehicle "Lexus ES 330", state No. 458 MWA 12, who was moving from the Zhanaozen city towards the Aktau city, having lost control of the steering, he went into the oncoming lane, thereby making a head-on collision with the "Nissan Patrol" car of the state No.503 MWA 12 traveling from Aktau | As a result of the road accident, the driver of vehicle "Lexus ES 330", received minor injuries; after first aid was given by emergency personnel, he was allowed to go home |

| | | | | |
|---|---------------------|---|--|---|
| 4 | 23.08.2019 18:18 | On the Zhetibay-Zhanozen road at Pk68-69 | A traffic accident was occurred, vehicle MERCEDES-BENZ state No. 36 AX 266, moving from the Zhanozen city towards the Aktau city, not observing the speed limit, having lost control of the steering, the control went into the oncoming lane and made a head-on collision with vehicle Toyota Land Cruiser 100 vx state No.332OMA12 who was moving from the side of the v.Zhetibay. | As a result of an accident, a passenger of a car MERCEDES-BENZ and passenger of a car Toyota Land Cruiser 100 vx received mild bodily injury, after first aid was provided by emergency workers of the Karakiy region, they were allowed to go home |
| 5 | 27.08.2019 16:00 | On the Zhetibay-Zhanozen road at Pk125 | A traffic accident was occurred, vehicle Gaz-2705 38 state. No. 280 MUA 12, moving from the c. Zhanozen towards the c. Aktau, not observing the speed limit, and also not observing the distance, he collided with a vehicle Howo Zz3257n3847a state No. A 819 HR, who also moved in the same direction in the village | As a result of an accident, a passenger of a car Gas was hospitalized in the v.Zhetybai diagnosed with a leg fracture |
| 6 | 11.10.2019 11:45 | On the Zhetibay-Zhanozen road at Pk85 | A traffic accident was happened, vehicle Daewoo Nexia state. No. 324 KFA 12, moving from Zhtibay towards the c. Zhanozen, made a head-on collision with a vehicle Toyota Land Cruiser 100 vx state No. 830 EAZ 12, who moving from the c. Zhanozen. Both drivers violated traffic rules by entering a closed section of the road and exceeding the speed limit | As a result of an accident, a driver of a Daewoo Nexia vehicle died on the spot from injuries |
| 7 | 13.10.2019 10:55 | On the Zhetibay-Zhanozen road at Pk117-118 | a traffic accident occurred, vehicle "Lexus RX 300", state No. 672 BNA 12, who was moving from the Zhanozen city towards the Aktau city, made a collision with the "Niva Chevrolet" car state No.525 AAA 12, who was moving from Zhanozen toward the Zhetibay village. According to the driver, the car Niva wanted to make a U-turn in an inappropriate place, which was the reason for the accident. | As a result of the road accident, the driver of vehicle "Niva Chevrolet", was hospitalized in the village Zhetybai with a diagnosis of rib fracture |
| 8 | 16.10.2019 13:45 | On the Zhetibay-Zhanozen road at Pk 352-353 | a traffic accident occurred, vehicle Howo state No. 744 AN 04 which was moving from city Zhanozen, wanted to make a U-turn, as a result of which the vehicle Nissan AM 35 SX 240 who was also moving in the same direction towards Zhetibay, not observing a safe distance, made a collision. | As a result of an accident, a passenger of vehicle Nissan was hospitalized before arrival of Safety Engineer |

| | | | | |
|----|---------------------|---|--|--|
| 9 | 19.12.2019 15.00 | On the Zhetibay-Zhanozen road at Pk 461-462 | a traffic accident occurred, Mercedes car with state No. 606 12 driven by c. Urbisinov S., born in 1986, moving from Zhetibay village towards the city of Zhanozen rolled over under unclear circumstances | In a result of road accident the driver died on the scene of accident, two injured passengers were delivered to hospital |
| 10 | 20.12.2019 10.00 | On the Zhetibay-Zhanozen road at Pk 352-353 | a traffic accident occurred, GAZelle vehicle with state number 710 MNA 12 that accompanied by special vehicle of the traffic police, hit a camel | As a result of the accident, 5 people were delivered to hospital |

120. Based on results of consideration of evidences received within the investigation of the causes of accidents and conducted monitoring for the full reporting period it can therefore be concluded that the accidents were not caused by the project activities (construction works) but are the consequence of non-compliance of driving regulations by vehicle drivers. The Contractors at Lot 1 and Lot 2 and CSC's Traffic Safety Engineer take all necessary measures in the full extent for ensuring traffic safety at road construction working sites.

4.6.2 Workers health and safety

121. According to the Consultant on Environmental Protective Measures of ADB regular training was recommended. The purpose of the measures is the management of hazardous waste, fire safety techniques, as well as ensuring the safety of roads and road safety on the road. According to ADB's Consultant on Environmental Protective Measures, trainings and audits are conducted.

4.7 Training

122. One of the functional responsibilities of an environmental specialist is to develop an environmental protection program to train the staff of the Consultant and the Contractor. The aims of the training program for environmental protection are environmental audits and monitoring of their compliance with the environmental reporting procedure, which is conducted with the assistance of the Environmental Specialist. It is the responsibility of the Environmental Specialist to develop a program to train the staff of the Consultant and the Contractor on the implementation of the EMP. In the reporting period (July-December 2019) no trainings were held.

5. EMP FUNCTIONING (SSEMP-SITE-SPECIFIC ENVIRONMENTAL MANAGEMENT PLAN)

5.1 Review of SSEMP

123. During the construction phase, certain situations can arise which may not have been anticipated by the Contractor. It is for this reason that the project SSEMP is considered as a dynamic document, which need to be revised by the Contractor as the need arises. The EMP will be continuously updated to include issues unforeseen during the formulation of the PEA. In relation to this MFF CAREC CORRIDOR II Project, efforts were made to avoid and reduce adverse environmental impacts in the Project Design, and additional recommendations to further avoid or reduce impacts are provided to Contractors, which should reflect in the EMP upgraded by the Contractors. Additionally, the Safeguard Policy Statement (ADB-SPS 2009) goes on to state that concerning mitigation and compensation, the EPMP should address “the following key components: Mitigation, Monitoring, Implementation, and Performance Indicators” through defined plans. As such, the Contractors should reflect the level of detail and complexity of the environmental planning documents and the priority of the identified measures and actions that commensurate with the project’s impacts and risks. Key considerations include monitoring and mitigation of potential adverse impacts to the level of “no significant harm to nature and humans”; the polluter pays principle, the precautionary approach, and adaptive management, etc.

124. An analysis of the implementation of the EMP requirements shows that the activities carried out are effective, as evidenced by the results of analytical monitoring of the environment, and there were no complaints during the reporting period. No changes to the EMP are required.

5.2 Implementation of the SSEMP

125. The Contractors are responsible for implementation of EMP during construction works and Construction Supervision Consultant (CSC) and primarily responsible for supervision of monitoring of the implementation of the EMP. The Committee for Roads engaged PMC as an external monitoring consultant’ to monitor implementation and supervision of EMP.

126. Site Specific Environment Protection Management Plan:

The IEA project requires the Contractor to prepare a Site-Specific Environment Protection Management Plan (SSEMP) to provide a guidance document for staff on the site at their request. The SSEMP was prepared by the Contractor, but another relevant management plan has not completed yet. The SSEMP is the main document on environmental protection at the project implementation stage, and supplemented by other environmental plans established in the IEA and indicated below in Figure 5.1.

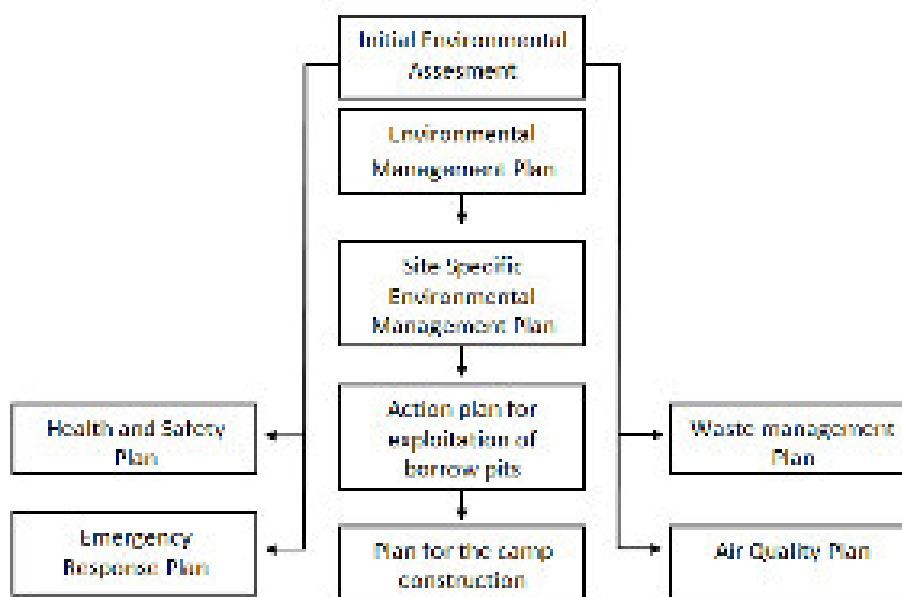


Figure 5.1: The SSEMP and its supporting documents

127. In accordance with the requirements of the contract prior to the work commencement the Contractor Lot 1 “JV Akkord/Akzhol Kurylys LLP” LLP developed an Environmental Management Plan which includes:

- Water quality management plan;
- Management plan for air protection and dust prevention activities;
- Management plan and borrow pits restoration;
- Soil management plan;
- Fuel and Chemical Management Plan;
- Solid waste management plan;
- Noise and vibration management plan;
- Historical and cultural heritage management plan.

128. The environmental management plan is designed to determine the consequences of planned economic and other activities for the environment, including health and safety of people, air, water sources, flora, soil, landscape, cultural and historical monuments and other material objects, the relationship between these factors, as well as developing recommendations for improving the environment preventing the destruction, degradation, damage to ecological systems and natural resources. Grusamar Ingenieria Y Consulting S.L.Y & “SNS-2017” LLP approved the submitted Environmental Management Plan and additional management plans by letter No. 0297 dated June 11, 2018.

129. In accordance with the requirements of the contract prior to the work commencement the Contractor Lot 2 “Cengiz Insaat” JSC developed an Environmental Management Plan which includes:

- Water quality management plan;
- Management plan for measures to protect the air and to prevent dust;
- Quarry Management and Recovery Plan;
- Soil (soil) management plan;

130. The Contractor developed and submitted for approval the Environmental Impact Reduction Plan and the Monitoring Program. Grusamar Ingenieria Y Consulting S.L.Y & “SNS-2017” LLP approved the submitted Environmental Management Plan and additional Management Plan by letter No. 0137 dated April 13, 2018.

Table 5.1: Status of environmental management plans Lot 1

| Management plan | Status |
|--|--|
| Environmental Management Plan | Submitted 11/04/2018 Approved 11/06/2018 |
| Noise management plan | Submitted 11/04/2018 Approved 11/06/2018 |
| Waste management plan | Submitted 11/04/2018 Approved 11/06/2018 |
| Water quality management plan | Submitted 11/04/2018 Approved 11/06/2018 |
| Air quality management plan | Submitted 11/04/2018 Approved 11/06/2018 |
| Construction noise and vibration management plan | Submitted 11/04/2018 Approved 11/06/2018 |
| Waste management plan | Submitted 11/04/2018 Approved 11/06/2018 |

131. Letter No. AAZK-CS-0079-2018 dated 11/04/2018. Provision of an Environmental Protection Plan / Lot 1. Submitted by the Contractor Lot 1 JV Akkord LLP / Akzhol Kurylys LLP The Environmental Management Plan / EMP / and additional management plans were approved by Engineer Grusamar

Ingenieria Y Consulting S.L.Y & SNS-2017 LLP by letter No. 0297 dated June 11, 2018.

132. Contractors submitted additional management plans to the Engineer in June 2018. The PMC environmental specialist was mobilized for the project on April 15, 2018, after reviewing the submitted EMPs / SSEMPs and plans to reduce environmental impacts verbal recommendations were given to CSC by the PMC Environmental specialist: Conditionally approve the EMP LOT 1 (Letter No. AAZK-CS-0079-2018 dated 11/04/2018) with the condition to finalize the EMP / SSEMP and submit Management Plans:

- historical and cultural heritage;
- fuel and chemicals;
- soil;
- quarriers restoration;
- dust.

Environmental Impact Reduction Plan EMP / SSEMP LOT 2 (Letter No. ZZO-CGZ-GI-2018-071 dated 03/30/2018) Additional Management Plans and Environmental Management Plan approved, that submitted by Contractor Lot 2 of Cengiz Inshaat Sanayi Ve Tijaret Anonymous Sirketi JSC environmental management were approved by Grusamar Ingenieria Y Consulting SLY Engineer & SNS-2017 LLP by letter No. 0137 dated April 13, 2018. After the provision of the adjusted EMPs by the LOT 1 Contractor, the PMC was reviewed and approved by the Grusamar Ingenieria Y Consulting S.L.Y Engineer & SNS-2017 LLP by letter No. 0297 dated June 11, 2018. CSC Letter No. 0297 dated June 11, 2018.

133. In accordance with the recommendations specified in the Guidelines for Monitoring the Implementation of Environmental Protective Measures, the EMP was updated and presented to the CSC and PMC LOT 1 - by letter AAZK-CS-0110-2019 dated 31/05/2019, LOT 2 dated 10.06.2019.

Table 5.2: Status of environmental management plans Lot 2

| Management plan | Status |
|---|---|
| Environmental Management Plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Water quality management plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Air Protection and Dust Prevention Management Plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Career Management and Recovery Plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Soil Management Plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Fuel and Chemical Management Plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Site management plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Solid Waste Management Plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Noise minimization control plan | Submitted 30/03/2018 Approved 13/04/2018 |
| Management Plan with Specific Building Operations | Submitted 30/03/2018 Approved 13/04/2018 |
| Management Plan with Historical and Cultural Heritage | Submitted 30/03/2018 Approved 13/04/2018 |

134. Letter No. ZZO-CGZ-GI-2018-071 dated 30/03/2018. Submission of an Environmental Protection Plan / Lot 2. The additional management plans and the Environmental Management Plan were submitted by Contractor Lot 2 approved by the Engineer Grusamar Ingenieria Y Consulting SLY & SNS-2017 LLP by letter No. 0137 dated April 13, 2018.

5.3 Corrective Action Plans

135. From July to December 2019, the environmental monitoring was carried out on the road under the Contract of the company LLP "SNS- 2017", for the sections of Mangistau Oblast connecting the road Zhetibay-Zhanaozen. This created a number of observed negative moments that the Contractor should minimize. In a number of cases, the Contractors of Lot 1 and Lot 2 were able to minimize some of the problems identified in the sites. This report also presents recommended mitigation measures that can be implemented by the Contractors to mitigate the observed situation and should be monitored by CSC Engineers. Issues arising during the periodic inspection were in the aspects of site safety, the organization of an asphalt plant, and the management of dust formation, road traffic obstruction and oil pollution. Works related to the environment, health and safety were raised during the period.

138. Most of the issues encountered during periodic inspections were identified in the initial stages of construction, such as safety issues, environmental issues, and documentation and dust pollution issues. Accordingly, mitigation measures were also recommended and included in this report. An intensive inspection was conducted by the Environmental Protection Specialist in May-June 2019 and the result was presented and discussed in the training program and meetings were held at the Engineer office of Lot 1 and Lot 2 (Zhetibay). Descriptions of the proposed measures are included in Table 5.2. The Contractors "Cengiz Insaat" and "JV Akkord/Akzhol Kurylys" LLP should decide the observed problems identified during the environmental inspection in the monthly environmental report. Inspectors of the CSC will have to regularly include these points during their regular site inspection. The above issues should be resolved timely by the Contractors. Some problems are easily solved and only a few needed to be promptly adjusted by the Contractor. In addition, the format of the Procedures for Monitoring the Environmental Inspectorate was previously provided to the Environmental Contractor Specialist by the Environmental Specialist as a guide to facilitate regular inspections and monitoring of environmental, health and safety.

136. In April, May and June 2019, the CSC mobilized the Environmental Protection Specialist for environmental inspection and auditing, as described in the ToR and for the preparation of the third semiannual environmental monitoring report (January to June 2019) for the supervision of the quality of construction works. The work was carried out with the participation and coordination of representatives of "Renardet S.A." PMC, Contractors "Cengiz Insaat" and "JV Akkord/Akzhol Kurylys LLP", local CSC Engineers on Road Safety, Health and Safety Engineers and other Project Engineers. The activities carried out by the environmental specialists are listed below:

- Discussion with the acting Team Leaders regarding their duties and obligations.
- Meeting with representatives of ADB, PMC, CSC and Contractors.
- Reviewing the monthly progress reports and other relevant documents on Environment and Safety.
- Acquaintance with ecological parameters and records on environment and safety prepared by the Contractors of Lot 1 and Lot 2.
- Meeting with representatives of the Contractors and discussing issues related to environmental protection, the mobilization of a specialist in environmental protection of Contractors, environmental monitoring procedures, monthly and semiannual reports on environmental monitoring.
- Meeting with CSC Engineers regarding the rehabilitation work on the borrow pit performed by the Contractors.
- Initiate an environmental inspection and carry out an inspection under Contracts 001 and 002 (with Road Safety Engineers).
- Meeting with the Acting Project Manager and with CSC Engineers to discuss the environmental

monitoring report.

- Subsequent inspections with regard to documentation are carried out as the identified environmental problems are resolved.

137. In addition, the EMP of the Contractors was approved, and the Contractors' monthly environmental reports are required further discussions of technical issues for clarification in presentation so that the Contractor can show solutions to these issues. The specialist made a note and instructed the Contractor to make further constructive improvements. The status of the implementation of the Corrective Action Plan recommended for the period from July to December 2019 is presented below in Table 5.3.

Table 5.3: Corrective action plan for Contracts 001 & 002 for July to December 2019

| No. | Description | Action Required | Period | Status |
|-----|--|--|--------------------|---|
| 1 | In connection with the implementation of construction work, violations of the EMP requirements were found (impact on air and soil quality) | The contractor complies with the work on the implementation of the EMP (to establish / increase the regularity of dust suppression, to ensure timely disposal of residual asphalt, waste tires). | July-December 2019 | fulfilled |
| 2 | Non-observance of safety measures at the facility, fire safety and road traffic safety | The contractor conducted training on compliance with safety and fire safety requirements, continues monitoring at the construction sites | July-December 2019 | fulfilled |
| 3 | Post-construction environmental audit | Auditing, filling out checklists, preparing a semi-annual monitoring report | July-December 2019 | In connection with the extension of the project time, the status of implementation is postponed to January March 2020 |

5.4 Notices and Letters

138. In the previous six months, the Environmental Consultant actively monitored the performance of the Contractor's work in environmental aspects. The issues were identified and communicated officially to the Contractor in the form of official letters. The list of such letters on environmental aspects and their status is indicated below:

Table 5.4: Letters on Environment Issues

| Ref. No. of letter | Date | From | To | Subject |
|----------------------|------------|---------------|------------------|--|
| ZZO-CGZ-GI-2019-0140 | 01/07/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0143 | 02/07/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental protection report for June |

| | | | | |
|---------------------------------|------------|-----------------------|------------------|---|
| AAZK-CS-0126-2019 | 02/07/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for June |
| ZZO-CGZ-GI-2019-0162 | 12/07/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| AAZK-CS-0141-2019 | 22/07/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for 1 st half of 2019 |
| ZZO-CGZ-GI-2019-0168 | 22/07/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Semi-annual Environmental protection report (report for 6 months) |
| ZZO-CGZ-GI-2019-0175 | 01/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| AAZK-CS-0150-2019 | 02/08/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for July |
| ZZO-CGZ-GI-2019-0178 | 05/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0181 | 06/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Air, water, soil sampling |
| ZZO-CGZ-GI-2019-0186 | 08/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0202 | 19/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| 05-ADB-CSC-2019-L2-08-2019-0869 | 23/08/2019 | CSC SNS-2017 LLP | Cengiz Insaat | Household waste Lot 2 |
| ZZO-CGZ-GI-2019-0204 | 22/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Removal of household waste Lot 2 |
| AAZK-CS-0173-2019 | 29/08/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for August |
| ZZO-CGZ-GI-2019-0217 | 22/08/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental protection report for August |
| ZZO-CGZ-GI-2019-0220 | 04/09/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0226 | 09/09/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Sampling of air, soil and water |
| ZZO-CGZ-GI-2019-0236 | 17/09/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| AAZK-CS-0199-2019 | 26/09/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for September |
| ZZO-CGZ-GI-2019-0247 | 04/10/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental protection report for September |
| ZZO-CGZ-GI-2019-0258 | 14/10/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |

| | | | | |
|------------------------------------|------------|-----------------------|--------------------------------------|--|
| ZZO-CGZ-GI-2019-0263 | 17/10/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| AAZK-CS-0218-2019 | 01/11/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for October |
| ZZO-CGZ-GI-2019-0272 | 04/11/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0273 | 04/11/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0284 | 11/11/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0289 | 19/11/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0298 | 25/11/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental monitoring check-list |
| ZZO-CGZ-GI-2019-0308 | 03/12/2019 | Cengiz Insaat | CSC SNS-2017 LLP | Environmental protection report for November |
| AAZK-CS-0228-2019 | 04/12/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for November |
| 05-ADB-CSC-2019-L1/L2-08-2019-1006 | 09/12/2019 | CSC SNS-2017 LLP | Cengiz Insaat; Akkord/Akzhol kurylys | Site clearance Lot 1-2 |
| 05-ADB-CSC-2019-L1/L2-08-2019-1018 | 19/12/2019 | CSC SNS-2017 LLP | Cengiz Insaat; Akkord/Akzhol kurylys | Site clearance Lot 1-2 |
| AAZK-CS-0239-2019 | 27/12/2019 | Akkord/Akzhol kurylys | CSC SNS-2017 LLP | Environmental monitoring report for December |

5.5. Complaints and consultations

139. A grievance mechanism was established to review complaints / suggestions of local people on the increased level of dust, noise, improper waste disposal and other environmental issues. The grievance mechanism is complementary to existing petitions in the form of letters and personal requests established by local authorities.

140. The Contractors of Lot 1 and Lot 2 maintain a recording complaints book, which is stored at work sites / construction sites and is accessible to members of the local community. Ms. Umirbekova Nataliya, an environmental specialist for Contractor of Lot 1 and Aitenov Serik, an environmental specialist for the Contractor of Lot 2, are responsible for collecting complaints about the project activities. There are no registered complaints and / or proposals for environmental issues for the reporting period.

141. The Environmental Specialist consulted with stakeholders from the local community and Akimats to provide them with information on the progress of construction and on upcoming construction activities. Construction work is carried out in rural areas, which have limited access to electronic media, such as the Internet. During the consultations, local residents were informed of the above by the staff of consultants and local authorities (the village Akimat), also directly by the Environmental Specialist.

142. During this reporting period, no difficulties or complaints were received from local residents.

6. ADVANCED METHODS AND OPPORTUNITIES FOR THEIR IMPROVEMENT

6.1 Advanced methods (good practices)

143. In implementing the EMP, advanced methods were not applied. All actions of the Contractors were in full compliance with the requirements of the EMP.

6.2 Opportunities for improvement

144. During the reporting period, no areas were identified that may be outside the official Non-Compliance Notice (NCN) process but which, with changes in construction methods, mitigation, etc., will lead to an improvement in environmental, health and safety indicators of the project.

7. BRIEF CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

145. This is the fourth Semiannual Environmental Monitoring Report (from July to December 2019), prepared in the form of a report with the requirements of the Contract for the provision of the Construction Supervision Service, the Ministry of Industry and Infrastructural Development (MIID), the Committee for Roads of the Republic of Kazakhstan for Loan 2967-KAZ: MFF CAREC Corridor 2 (sections in Mangistau Oblast), Investment Program, Project 2, under the leadership of the Asian Development Bank, Loan No. 2967-KAZ. This report is developed by the CSC Environmental Specialist on the basis of interaction and consultation with CSC Engineers, review of relevant environmental documents (IEA and the Project EMP, Monthly / Quarterly / Semiannual Reports prepared by the Contractors); site visits, the results of the necessary sampling, laboratory analysis and measurements.

146. Environmental problems identified during the period, usually regarding the operation of existing borrow pits, dust formation in a crushing plant, soil contamination due to a spillage of fuels and lubricants, aspects of septic tanks of Contractors camps, general safety and monitoring program, etc. Continuous tracking through inspections is one of the necessary processes to improve the environmental performance of the project in accordance with the requirements of the (Implementing Agency) and ADB (Financier). Training and competence development are carried out by an environmental specialist for the Contractor's personnel and Engineer staff through a series of discussion meetings, PowerPoint presentations, joint audits, development of checklists, instructions, etc. The meetings were useful in clarifying environmental issues, and facilitated the implementation of necessary measures.

147. During the reporting period from July to December 2019, the Contractor conducted monitoring of atmospheric air, soil, noise and vibration. In all aspects, the results of monitoring comply with the standards of the Republic of Kazakhstan.

148. During environmental monitoring, the followings were determined:

- Lack of serious environmental problems on the territory where construction works are conducted and construction base camps. Accommodation, office premises are ready in accordance with environmental requirements;
- Contractors take the necessary measures to implement the requirements of the EMP. Currently, necessary permits have been obtained from local authorities;
- Monitoring and checklists specified in the EMP are carried out regularly as required.

149. Grievance redressing mechanism is functioning and no complaints were registered during the reporting period. In addition, a list for the inspection procedure for environmental monitoring was provided by the CSC Environmental Specialist as a model to facilitate regular environmental inspections and monitoring.

7.2 Recommendations

150. Several site inspections conducted by the Environmental Protection Specialist identified a number of potential environmental problems. These issues were discussed with the Contractors, who promptly eliminated some of the identified elements. However, some issues remain unresolved and must be corrected by the Contractors within the further completion reporting period. In addition, it was noted that some issues, such as waste management, the storage of hazardous materials require continuous monitoring to ensure the requirements of the Contractor's SSEMP (and its additional plans). In order to minimize the negative impact on the environment, Contractor's monitoring should also be complied with all required measures till project completion.

151. The Contractor is also required to complete and submit environmental checklists (daily monitoring), submit monthly reports, a semiannual environmental monitoring report and today the Contractors have submitted a monthly reports for July, August, September, October, November and December 2019 and semiannual environmental monitoring report (from July to December 2019). The Contractor was instructed that the checklists, monthly and semiannual reports are the Contractor's obligation under the Contract and these reports / checklists must be filled daily, and a monthly report and a semiannual report on environmental monitoring should be timely provided for review to the Engineer.

Table 7.1: Corrective action plan for January-March 2020

| No. | Identified environmental issues | Necessary corrective action | Execution period | Responsible for execution / supervision |
|------------|--|---|---------------------------|--|
| 1 | Site clearance and recovery of working areas and reserves | It is necessary to restore working areas, reserves, construction camps, asphalt plants. Remove any contaminants and construction waste. | January-March 2020 | Contractor Lot 1 and Lot 2 CSC and PMC Engineer |
| 2 | Quarry restoration at the technical stage of land restoration | It is necessary to carry out work on the restoration of sections of soil pits (surface cleaning, slope formation, distribution of previously removed top soil). | January-March 2020 | Contractor Lot 1 and Lot 2 CSC and PMC Engineer |
| 3 | Site safety, fire safety and road traffic safety | Continue monitoring, take daily measures to ensure road safety at the construction sites. | January-March 2020 | Contractor Lot 1 and Lot 2 CSC and PMC Engineer |
| 4 | Post-construction environmental audit | Conducting an audit, filling out checklists, preparing a final semi-annual report on environmental monitoring | January-March 2020 | Contractor Lot 1 and Lot 2 CSC and PMC Engineer |

Appendices

Appendix 1: Environmental Monitoring Photos

Appendix 2: Air test report

Appendix 3: Test report of noise and vibration measurement

Appendix 4: Test report of soil chemical analysis

Appendix 1: Photo on environmental monitoring (Lot 1)



Rolling of porous asphalt concrete at Pk263+00



Arrangement of rest area at Nysan PH



Erection of curbs on the rest area at Pk311+45



Laying the silicate bricks on the bus stop at Pk334+65



Construction of median strip at Pk230+00



Loading the fine grained asphalt concrete at Pk272+00



Construction of trestle at the rest area at Pk314+00



Shoulders strengthening at Pk49+03 on the bypass road

Appendix 1: Photo on environmental monitoring (Lot 2)



Slope flattening 187 km (Pk 396+00)



Watering the road



Recultivation of soil pits, Pk452

Appendix 2: Air test report, Lot 1

| | |
|--|--|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKKBTU MES RK in Mangystau Region | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT

of research sample of atmospheric air populated area

№013-014

(form) a 12 x 07 2012

1. Place of the selection of an air sample - Ak Zhul Analyze LLP
2. Type of sample (single, daily average) single
3. Reference Documentation, according to which the sample was taken Order No. 237 dated 03/20/2015 Sanitary regulations "Sanitary-engineering documents for the establishment of the sanitary protection zone production facilities"
4. Date of research 12.07.2019 r.
5. Measuring instruments used in sampling Flexable gas-analyzer Gask-4, No. 1539, 1308 Meteorological meter MES-200 A, No 1799
6. Scope _____
7. Number of _____
8. Date of testing _____
9. Date of state research No 1799 rec. newspaper, 07.12.19r.
San. №1539, 1308 state believed to: 19.12.2019
10. Characteristics of the area: (city) flat _____
11. Woodland- _____ Height- _____ Distance from the source of pollution- 33,1000 m.
12. Nearest facility locality Zhetysay village
13. Height and power of emission _____
14. Type of fire _____
15. The scheme of the area, with an indication of the source of pollution and air sampling points - SZZ border 300 m. The northern side of the asphalt plant 3 km, PK No 30. Reconstruction road Zharykay-Zharykay section 23.1 km, PK No 31
Position, full name of the person performed the sample selection specialist Saburov R. Zh. (signature)
Position occupied as representative of the district, full name- Environmental engineer of Ak Zhul Analyze LLP S. Aitbayev (signature)

12

13

[illegible]

The numbers of absorbers and filters are copied from the log of the results of the study of atmospheric air

| The name of the analyte, ingredient | Units of measurement, concentration test result | | | | Regulatory documentation in accordance with which the research was conducted |
|-------------------------------------|---|--------------------------------|--------------------|-----------------------------|--|
| | Maximum one-time | | Average daily | | |
| | Discoversd mg / m3 | maximum concentration on limit | Discoversd mg / m3 | maximum concentration limit | |
| 14 | 15 | 16 | 17 | 18 | 19 |
| CO (carbon monoxide) | 2.7; 2.5; 2.4 | 5.0 | | | St RK 2.302-2011 |
| RSH (methanol) | 0.005; 0.003; 0.002 | 0.005 | | | PM 4215006565914092014 |
| C: 12-C: 18 (estimated hydrocarbon) | 0.08; 0.06; 0.07 | 1.0 | | | PM 4215006565914092019 |
| Dust suspended matter | 0.19; 0.15; 0.13 | 0.5 | | | PM 4215006565914092008 |
| Cement dust | 0.01; 0.005; 0.04 | 0.5 | | | PM 4215006565914092019 |
| Soot | 0.025; 0.023; 0.025 | 0.15 | | | PM 1215006565914092008 |
| CO (carbon monoxide) | 2.8; 2.6; 2.9 | 5.0 | | | St RK 2.302-2011 |
| RSH (Methanol) | 0.005; 0.003; 0.002 | 0.005 | | | PM 4215006565914092014 |
| Hydrocarbons limit With 12 C 18 | | 1.0 | | | PM 4215006565914092019 |
| Dust suspended matter | 0.09; 0.13; 0.11 | 0.5 | | | PM 4215006565914092019 |
| Cement dust | 0.04; 0.04; 0.04 | 0.5 | | | PM 4215006565914092008 |
| Soot | 0.015; 0.021; 0.017 | 0.15 | | | PM 1215006565914092008 |
| | | | | | |
| Dust suspended matter | 0.03; 0.04; 0.03 | 0.5 | | | PM 1215006565914092008 |
| Cement dust | 0.03; 0.03; 0.07 | 0.5 | | | PM 4215006565914092008 |
| | | | | | |

Sample studies were performed for compliance with reference documentation. The method of measurement is determined by the mass concentration of harmful substances in the atmospheric air, in the air of the working area, in industrial emissions by the gas analyzer St RK 2.302 - 2014 Order of the RK 10351311 and RK Ak 240 from 20.11.2014e.

"On approval of hygienic standards for atmospheric air in urban and rural areas" Order of the MNE RK 186 dated 02.25.2015 Applications # 2

Research conducted specialist Sabiev R. Zh

Surname, name, patronymic, signature of the head of the laboratory Duisenbayev
N.D.

Director (Deputy) of the branch of RSP on PMT "National Examination Center"
of the KKKBTU MD RK in Mangystau Region


signature

Rymshetov R.S.

Ministry of Health of the Republic of Kazakhstan

The organization code first issued: Class Set of Enterprises and Organizations (GGLCO)

The branch of RSE on PCUT National Examination Center of the EKERTU MS RK in Mangolun Region

Medical Documentation Form No. 105 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415

REPORT

of research sample of atmospheric air populated areas

№105/ 2019

(from) 01.06.2019 to 05.06.2019

1. Place of the selection of an air sample - «Ak Zhol Indys» LLP
 2. Type of sample (single, daily average, single)
 3. Reference Documentation, according to which the sample was taken: Order No. 237 dated 08/30/2015 Sanitary regulations (Sanitary-epidemiological requirements for the establishment of the sanitary protection zone production facilities)
 4. Date of research 15.06.2019 г.
 5. Measuring instruments used in sampling (Measuring instrument used for sampling) see annexes (Annex 4; Form No. 1308; No. 1339)
 6. Scope
 7. Number of _____
 8. Date of testing _____
 9. Data of state research No 1308 No 1339 statistical code - 19.19.2019
 10. Characteristics of the area (relief, flora)
 11. Woodland _____ Height _____ Distance from the source of pollution - 0.30 km
 12. Nearest facility (settlement) Kereyba village
 13. Height and power of emission _____
 14. Type of fire _____
 15. The scheme of the area, with an indication of the source of pollution and air sampling points - 877.1 m, 1000 m. The northern side of the asphalt plant 3 km, PK No.30, Baysanovskaya road Zhargai-Zhannysay section 0.6 km PK No.80
- Position, full name of the person performed the sample selection Specialist Seodim A. K. (signature)
- Position occupied as representative of the client, full name- Environmental manager of Ak Zhol Indys LLP S. Aitbayev (signature)

| Units of measurement, concentration test result | | | | | Regulatory documentation in accordance with which the research was conducted |
|---|----------------------|--------------------------------------|----------------------|-----------------------------------|--|
| The name of the analyte, ingredient | Maximum one-time | | Average daily | | |
| | Discerned mg / m3 | maximum concentration as limit | Discerned mg / m3 | maximum concentration limit | |
| | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 |
| CO (carbon monoxide) | 2.0; 2.5; 3.2 | 5.0 | | | ST RK 2.302-2014 |
| RSH (methanethiol) | 0.003; 0.003; 0.003 | 0.006 | | | PSG 421502665914092014 |
| C 12-C 19 (aromatic hydrocarbon) | 0.05; 0.06; 0.06 | 1.0 | | | PSG 4215007565914092009 |
| Dust suspended matter | 0.04; 0.05; 0.05 | 0.5 | | | PSG 4215005565914092010 |
| Cement dust | 0.04; 0.05; 0.04 | 0.5 | | | PSG 4215005565914092009 |
| Soot | 0.011; 0.012; 0.011 | 0.15 | | | PSG 4215005565914092010 |
| CO (carbon monoxide) | 2.2; 2.1; 1.9 | 5.0 | | | ST RK 2.302-2014 |
| RSH (Methanethiol) | 0.003; 0.003; 0.003 | 0.006 | | | PSG 421502665914092014 |
| Hydrocarbons limit With C 12-C 19 | 0.009; 0.01; 0.01 | 1.0 | | | PSG 4215007565914092010 |
| Dust suspended matter | 0.05; 0.07; 0.05 | 0.5 | | | PSG 4215005565914092010 |
| Cement dust | 0.05; 0.07; 0.04 | 0.5 | | | PSG 4215005565914092009 |
| Soot | 0.012; 0.012; 0.013 | 0.15 | | | PSG 4215005565914092010 |
| Dust suspended matter | 0.06; 0.05; 0.05 | 0.5 | | | PSG 4215005565914092009 |
| Cement dust | 0.03; 0.02; 0.02 | 0.5 | | | PSG 4215005565914092010 |
| | | | | | |

Sample studies were performed for compliance with reference documentation. The method of measurement is determined by the mass concentration of harmful substances in the atmospheric air, in the air of the working area, in industrial emissions by the gas analyzer ST RK 2.302 - 2014 Order of the FSKTRIMMI and RK № 249 from 20.11.2014r.

"On approval of hygienic standards for atmospheric air in urban and rural areas" Order of the MNE RK 168 dated 02.28.2015 Applications # 2

Research conducted specialist Saidin A.R.

Surname, name, patronymic, signature of the head of the Laboratory Dushabayev N.D.

Director (Deputy) of the branch of RSE on PVC "National Examination Center" of the KKKBTU MS RK in Mangistan Region


signature

Roymbetov R.S.

| | | |
|--|--|--|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU MD RK in Mangistau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT

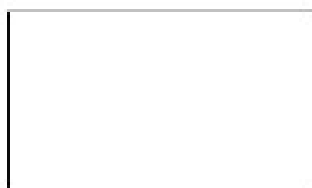
of research sample of atmosphere in populated areas

№ 009 310

(from) 01.06.09 2019

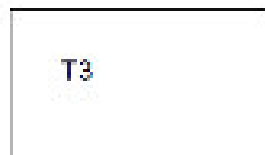
1. Place of the selection of an air sample - «Ak zhol kuryos» LLP
 2. Type of sample (single, daily average) single
 3. Reference Documentation, according to which the sample was taken. Order No. 237 dated 03/20/2015 "Sanitary regulations: "Sanitary-epidemiological requirements for the establishment of the sanitary protection zone production facilities"
 4. Date of research 10.08.2019 g.
 5. Measuring instruments used in sampling (Measuring instrument used for sampling) gas analyzer Gask-4;
Plant No. 1539; No. 3308
 6. Scope _____
 7. Number of _____
 8. Date of testing _____
 9. Date of state research No. 3308 No. 1539 state believed to: 19.12.2019
 10. Characteristics of the area: (relief) flat
 11. Woodland- _____ Height- _____ Distance from the source of pollution CEE 1000 m.
 12. Nearest facility locality Zherybai village
 13. Height and power of emission _____
 14. Type of fire _____
 15. The scheme of the area, with an indication of the source of pollution and air sampling points - SZZ border 1000 m. The northern side of the asphalt plant 3 km; PK No.30; Reconstruction road Zherybai Zhamayev section 0.5 km. PK No.8
- Position, full name of the person performed the sample selection specialist Sabiyev R Zh. (signature)
- Position occupied as representative of the district, full name- Environmental engineer of Ak Zhol Kuryos LLP S. Aganov
(signature) _____

T1



T2

T3



[illegible]

The numbers of absorbers and filters are copied from the top of the results of the study of atmospheric air

| The name of the analyte, ingredient | Units of measurement, concentration test result | | | | Regulatory documentation in accordance with which the research was conducted |
|-------------------------------------|---|--------------------------------------|-----------------------|-----------------------------------|--|
| | Maximum one-time | | Average daily | | |
| | Discovered mg / m3 | maximum concentration on limit | Discovered mg / m3 | maximum concentration limit | |
| 14 | 15 | 16 | 17 | 18 | 19 |
| CO (carbon monoxide) | 1.5; 1.8; 1.5 | 5.0 | | | St RK 2.302 2014 |
| RSH (methanethiol) | 0.001; 0.001; 0.001 | 0.006 | | | PM 4215005565914092004 |
| C 12-C 18 (saturated hydrocarbon) | 0.14; 0.12; 0.12 | 1.0 | | | PM 4215007545914092009 |
| Dust suspended matter | 0.03; 0.03; 0.03 | 0.5 | | | PM 4215005565914092009 |
| Cement dust | 0.02; 0.02; 0.02 | 0.5 | | | PM 4215005565914092009 |
| Soot | 0.015; 0.015; 0.015 | 0.15 | | | PM 4215005565914092009 |
| | | | | | |
| CO (carbon monoxide) | 1.2; 1.3; 1.2 | 5.0 | | | St RK 2.302 2014 |
| RSH (Methanethiol) | 0.001; 0.001; 0.001 | 0.006 | | | PM 4215005565914092004 |
| Hydrocarbon limit With C 12-C 18 | 0.7/0.5/0.8 | 1.0 | | | PM 4215007545914092009 |
| Dust suspended matter | 0.03; 0.03; 0.03 | 0.5 | | | PM 4215005565914092009 |
| Cement dust | 0.02; 0.02; 0.02 | 0.5 | | | PM 4215005565914092009 |
| Soot | 0.015; 0.015; 0.015 | 0.15 | | | PM 4215005565914092009 |
| | | | | | |
| Dust suspended matter | 0.03; 0.03; 0.03 | 0.5 | | | PM 4215005565914092009 |
| Cement dust | 0.02; 0.02; 0.02 | 0.5 | | | PM 4215005565914092009 |

Sample studies were performed for compliance with reference documentation. The method of measurement is determined by the mass concentration of harmful substances in the atmospheric air, in the air of the working area, in industrial emissions by the gas analyzer ST RK 2.302 - 2014 Order of the PKTRIMDI and RK № 240 from 20.11.2014.

"On approval of hygienic standards for atmospheric air in urban and rural areas" Order of the MINE RK 168 dated 02.28.2015 Applications # 2

Research conducted specialist Sabirova R.Zh.

Surname, name, patronymic, signature of the head of the laboratory Dusembayev N.D.

Director (Deputy) of the branch of RSH on PVC: "National Examination Center" of the KKKRITU, MH RK in Mangistan Region


signature

Rymbetova R.S.

| | | |
|--|--|--|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GKFO) |
| The branch of RSE on PVC "National Examination Center" of the KKKRTU MS RK in Mangystau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT

of research sample of atmospheric air populated areas

N-007-048

(from) 18 10 2019

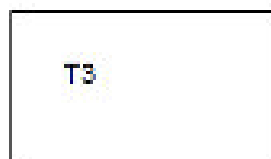
1. Place of the selection of an air sample «Ak Zhol Kurylya LLP»
 2. Type of sample (single, daily average) single
 3. Reference Documentation, according to which the sample was taken Order No. 237 dated 03/30/2015 Sanitary regulations "Sanitary-epidemiological requirements for the establishment of the sanitary protection zone production facilities"
 4. Date of research 17.10.2019 g.
 5. Measuring instruments used in sampling (Measuring instrument used for sampling) gas analyzer Gask 4; Plant No. 1539; No. 2308
 6. Scope _____
 7. Number of _____
 8. Date of testing _____
 9. Date of state research No 2308 No 1539 state belonged to 19.12.2019
 10. Characteristics of the area: (relief) flat
 11. Woodland: _____ Height: _____ Distance from the source of pollution 0.33 1000 m.
 12. Nearest facility locality Zheryba village
 13. Height and power of emission _____
 14. Type of fire _____
 15. The scheme of the area, with an indication of the source of pollution and air sampling points - Sc2 border 1000 m. The northern side of the asphalt plant 3 km; PK No.10; Reconstruction road Zheryba Zhanaozen section 0.3 km. PK No.8
- Position, full name of the person performed the sample selection specialist Sabirer R Zh. (signature)
- Position occupied as representative of the district, full name- Environmental engineer of Ak Zhol Kurylya LLP S. Aitman (signature)

T1



T2

T3



[illegible]

The numbers of absorbers and filters are copied from the log of the results of the study of atmospheric air

| The name of the analyte, ingredient | Units of measurement, concentration test result | | | | Regulatory documentation in accordance with which the research was conducted |
|-------------------------------------|---|---------------------------------------|------------------------|-----------------------------------|--|
| | Maximum one time | | Average daily | | |
| | Discoversal mg / m³ | maximum concentrations on limit | Discoversal mg / m³ | maximum concentration limit | |
| 14 | 15 | 16 | 17 | 18 | 19 |
| CO (carbon monoxide) | 0.8, 0.9, 0.8 | 5.0 | | | ST RK 2.302-2014 |
| RSH (methanethiol) | 0.002; 0.001; 0.001 | 0.006 | | | PM 4215006565914092014 |
| C 12 C 10 (saturated hydrocarbon) | 0.4, 0.4, 0.4 | 1.0 | | | PM 4215007565914092009 |
| Dust suspended matter | 0.06, 0.07, 0.06 | 0.5 | | | PM 4215006565914092009 |
| Cement dust | 0.04; 0.03; 0.03 | 0.5 | | | PM 4215006565914092009 |
| Soot | 0.07; 0.07, 0.07 | 0.15 | | | PM 4215006565914092009 |
| | | | | | |
| CO (carbon monoxide) | 1.1, 1.0, 1.0 | 5.0 | | | ST RK 2.302-2014 |
| RSH (disulfide) | 0.001; 0.001; 0.001 | 0.006 | | | PM 4215006565914092014 |
| Hydrocarbons limit With 12 C 10 | 0.6; 0.7, 0.6 | 1.0 | | | PM 4215007565914092009 |
| Dust suspended matter | 0.07; 0.08; 0.07 | 0.5 | | | PM 4215006565914092009 |
| Cement dust | 0.04; 0.03; 0.03 | 0.5 | | | PM 4215006565914092009 |
| Soot | 0.06; 0.04; 0.04 | 0.15 | | | PM 4215006565914092009 |
| | | | | | |
| Dust suspended matter | 0.07; 0.08; 0.08 | 0.5 | | | PM 4215006565914092009 |
| Cement dust | 0.04; 0.03; 0.03 | 0.5 | | | PM 4215006565914092009 |
| | | | | | |

Sample studies were performed for compliance with reference documentation. The method of measurement is determined by the mass concentration of harmful substances in the atmospheric air, in the air of the working area, in industrial emissions by the gas analyzer ST RK 2.302 - 2014 Order of the PKTRIMM and RK

№ 240 from 28.11.2014r.

"On approval of hygienic standards for atmospheric air in urban and rural areas" Order of the MINE RK 168 dated 03.09.2015, Application # 2

Research conducted specialist Sabiyeva R.Zh

Surname, name, patronymic, signature of the head of the laboratory Daishbayev
N.D.

Director of the branch of RSE on PVC "National Examination Center"
of the KKKRTU MS RK in Mangistan Region


signature

Raimulotova R.S.

Deputy of Director of the branch of RSE on PVC "National Examination Center"
of the KKKRTU MS RK in Mangistan Region

Nabiyev V.P.

| | | |
|--|--|--|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCUO) |
| The branch of RSE on PVC "National Examination Center" of the RKERTU MS RK in Mangystau Region | | Medical documentation Form No. 185 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 413 |

REPORT

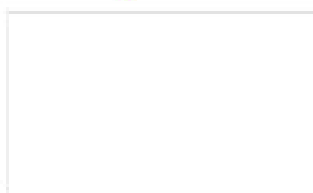
of research sample of atmospheric air populated areas

No.1139-1336

(from) a 19 to 11 2019

1. Place of the selection of an air sample «Ak zhol kurylys LLP
2. Type of sample (single, daily average) single
3. Reference Documentation, according to which the sample was taken Order No. 237 dated 03/20/2015 Sanitary regulations "Sanitary-epidemiological requirements for the establishment of the sanitary protection zone production facilities "
4. Date of research 18.11.2019 g.
5. Measuring instruments used in sampling (Measuring instrument used for sampling) gas analyzer Gask-4
Plant No. 1539 No. 2308
6. Scope _____
7. Number of _____
8. Date of testing _____
9. Date of state research No.1308 No.1339 state believed to: 18.12.2019
10. Characteristics of the area (object) flat _____
11. Woodland- _____ Height- _____ Distance from the source of pollution- 822 1000 m
12. Nearest facility locality Zhetylen village _____
13. Height and power of emission _____
14. Type of fire _____
15. The scheme of the area, with an indication of the source of pollution and air sampling points - 822 border 1000 m
The northern side of the asphalt plant 3 km. PK No 30, Reconstruction road Zhetylen-Zhansayam section 0.8 km. PK No 5
Position, full name of the person performed the sample selection specialist Sabirov R. Zh. (signature)
Position occupied as representative of the district, full name- Environmental engineer of Ak Zhol Kurylys LLP S. Astanov
(signature) _____

T1



T2

T3



[illegible]

The numbers of absorbers and filters are copied from the log of the results of the study of atmospheric air

| Units of measurement, concentration test result | | | | | Regulatory documentation in accordance with which the research was conducted |
|---|---------------------|-----------------------------|-------------------|-----------------------------|--|
| The name of the analyte, ingredient | Maximum one time | | Average daily | | |
| | Discussed mg / m3 | maximum concentration limit | Discussed mg / m3 | maximum concentration limit | |
| | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 |
| CO (carbon monoxide) | 0.9; 0.8; 0.8 | 5.0 | | | St RK 2.302-2014 |
| RSEI (methanol) | 0.001; 0.002; 0.001 | 0.006 | | | PSC 4215006561914092014 |
| C 12-C 18 (saturated hydrocarbon) | 0.05; 0.05; 0.05 | 1.0 | | | PSC 4215007561914092008 |
| Dust suspended matter | 0.03; 0.03; 0.03 | 0.5 | | | PM 4215008561914092019 |
| Cement dust | 0.02; 0.02; 0.02 | 0.5 | | | PM 4215008561914092019 |
| Soot | 0.07; 0.07; 0.07 | 0.15 | | | PSC 4215006561914092008 |
| | | | | | |
| CO (carbon monoxide) | 0.8; 0.8; 0.8 | 5.0 | | | St RK 2.302-2014 |
| RSEI (Methanols) | 0.001; 0.001; 0.001 | 0.006 | | | PSC 4215006561914092014 |
| Hydrocarbons limit With 12-C 10 | 0.05; 0.05; 0.05 | 1.0 | | | PSC 4215007561914092008 |
| Dust suspended matter | 0.03; 0.03; 0.03 | 0.5 | | | PSC 4215006561914092008 |
| Cement dust | 0.02; 0.02; 0.02 | 0.5 | | | PSC 4215006561914092008 |
| Soot | 0.06; 0.07; 0.07 | 0.15 | | | PM 4215008561914092019 |
| | | | | | |
| Dust suspended matter | 0.03; 0.02; 0.02 | 0.5 | | | PM 4215008561914092019 |
| Cement dust | 0.03; 0.03; 0.03 | 0.5 | | | PSC 4215006561914092008 |
| | | | | | |

Sample studies were performed for compliance with reference documentation. The method of measurement is determined by the mass concentration of harmful substances in the atmospheric air, in the air of the working area, in industrial emissions by the gas analyzer ST RK 2.302-2014 Order of the EKTRIMMI and RK № 249 from 20.11.2014r.

"On approval of hygienic standards for atmospheric air in urban and rural areas" Order of the MNE RK 168 dated 02.28.2015 Applications # 2

Research conducted specialist Solovieva R. Zh. (signature)

Surname, name, patronymic, signature of the head of the laboratory Dzianbayev N.D.

(signature)

Director of the branch of RSE on PVC "National Examination Center"
of the KKEBDTU MD RK in Mangystau Region


signature

Roymbetova R.S.

Deputy of Director of the branch of RSE on PVC "National Examination Center"
of the KKEBDTU MD RK in Mangystau Region

Nabiyev V.P.

| | | |
|---|--|--|
| Ministry of Health of the Republic of Kazakhstan. | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KSKKBTU M3 RK in Mangystau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT

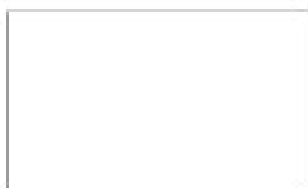
of research sample of atmospheric air populated areas

№1351-1382

(from) 12.12.2019

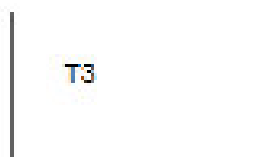
1. Place of the selection of an air sample - «Ak zhol kirdyes LLP
2. Type of sample (single, daily average) single
3. Reference Documentation, according to which the sample was taken: Order No. 237 dated 03/20/2015 Sanitary regulations "Sanitary-epidemiological requirements for the establishment of the sanitary protection zone production facilities."
4. Date of research 12.12.2019 g.
5. Measuring instruments used in sampling (Measuring instrument used for sampling) gas analyzer GmK-4, plant No. 1538; No. 2308
6. Scope _____
7. Number of _____
8. Date of testing _____
9. Date of state research No.2308 No.1538 state believed to: 19.12.2019
10. Characteristics of the area: (value) flat _____
11. Woodland- _____ Height- _____ Distance from the source of pollution 522 1000 m.
12. Nearest facility locality Zherybai village
13. Height and power of emission _____
14. Type of fire _____
15. The scheme of the area, with an indication of the source of pollution and air sampling points - 522 border 1000 m.
The northern side of the asphalt plant 3 km PK No. 80, Reconstruction road Zherybai-Zharmayen section 0.8 km PK No 8
Position, full name of the person performed the sample selection specialist Sahiyev R. Zh. (signature)
Position occupied as representative of the district, full name- Environmental engineer of Ak Zhol Kirdyes LLP S. Ateyev
(signature) _____

T1



T2

T3



| The name of the analyte, ingredient | Units of measurement, concentration test result | | | | Regulatory documentation in accordance with which the research was conducted |
|-------------------------------------|---|--------------------------------------|----------------------|-----------------------------------|--|
| | Maximum one-time | | Average daily | | |
| | Discerned mg / m3 | maximum concentration on limit | Discerned mg / m3 | maximum concentration limit | |
| 14 | 15 | 16 | 17 | 18 | 19 |
| CO (carbon monoxide) | 1,1; 1,5; 1,2 | 5,0 | | | St RK 2.302-2014 |
| RSH (methanethiol) | 0,003; 0,002; 0,002 | 0,006 | | | PM 4215006565914092014 |
| C 12-C 18 (saturated hydrocarbon) | 0,5; 0,5; 0,5 | 1,0 | | | PM 4215007565914092009 |
| Dust suspended matter | 0,03; 0,02; 0,03 | 0,5 | | | PM 4215006565914092009 |
| Cement dust | 0,02; 0,02; 0,02 | 0,5 | | | PM 4215006565914092009 |
| Soot | 0,08; 0,08; 0,08 | 0,15 | | | PM 4215006565914092009 |
| | | | | | |
| CO (carbon monoxide) | 1,2; 1,4; 1,3 | 5,0 | | | St RK 2.302-2014 |
| RSH (Methanethiol) | 0,003; 0,003; 0,003 | 0,006 | | | PM 4215006565914092014 |
| Hydrocarbons limit With 12 C 18 | 0,8; 0,7; 0,8 | 1,0 | | | PM 4215007565914092009 |
| Dust suspended matter | 0,02; 0,02; 0,02 | 0,5 | | | PM 4215006565914092009 |
| Cement dust | 0,02; 0,02; 0,02 | 0,5 | | | PM 4215006565914092009 |
| Soot | 0,08; 0,08; 0,08 | 0,15 | | | PM 4215006565914092009 |
| | | | | | |
| Dust suspended matter | 0,02; 0,02; 0,02 | 0,5 | | | PM 4215006565914092009 |
| Cement dust | 0,02; 0,02; 0,02 | 0,5 | | | PM 4215006565914092009 |

Sample studies were performed for compliance with reference documentation. The method of measurement is determined by the mass concentration of harmful substances in the atmospheric air, in the air of the working area, in industrial emissions by the gas analyzer ST RK 1.302 - 2014 Order of the PMTR/MNI and RK № 240 from 20.11.2014r.

"On approval of hygienic standards for atmospheric air in urban and rural areas" Order of the MNE RK 163 dated 02.28.2015 Applications # 2

Research conducted specialist Solovieva R.Zh (signature)

Surname, name, patronymic, signature of the head of the laboratory Daischbayev N.D.

(signature)

Director of the branch of RSE on PVC "National Examination Center"
of the KKKBTU MS RK in Mangystau Region


signature

Razubetova R.S.

Deputy of Director of the branch of RSE on PVC "National Examination Center"
of the KKKBTU MS RK in Mangystau Region

Nabiyev V.P.

Appendix 2: Air test report, Lot 2

Ф 04 РД 37/01-16



KZ.H.05.0916

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, section 15 «B»
8(7132)939-513, 939-376
Accreditation certificate № KZ.H.05.0916
dated «27» July 2015



page 1 of 2

TEST REPORT № 38

dated July «22» 2019 y.

Customer Branch of «CENGİZ INSAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ» JSC in Aktau

Address Aktau, micro district 29-A, building 135 “ABK” business center

Sample item and designation air: 35-73 km Zhetybai-Zhannaozen, on the border of residential area Zhannaozen, camp Zhetybai (Zhetybai 730 km)

Quantity 9 samples

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-324 dated 11.07.2019 of branch « CENGİZ INSAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ», sampling certificate dated July 19th, 2019 y.

Sampling date July 19th, 2019 y.

Date of testing July 19th, July 22th.

Type of testing air pollution control

ND for testing subject Hygienic standards for atmospheric air in urban and rural settlements, approved by order of the Minister of national economy of the RK № 168 dated 28.02.2015

Measuring instruments used for testing, calibration details aspirator ИТ-33/12 man.No.807, calibration certificate No.BA-07-014-01948 dated 21.02.2019y.; gas sensor ГАНК-4, man.No.609, label No.17006280/277 dated 08.08.2018 y.; digital laboratory scales Mettler ToledoXS205DU man.No.B141330205, calibration certificate No.BB.02-145985 dated 08.11.2018 y.

Testing conditions Weighing room: temperature 22°C, humidity 48 %.

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|--|--|-----------------------|--------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖКЖ-1 PK-350 (13-35 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,14 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-2 PK-450 (14-05 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,17 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-3 PK-550 (14-40 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,48 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-4 PK-636+83 (16-10 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,29 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-5 PK 60+80 v.ZhanaOzen entrance (15-15 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,44 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| Camp Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (11-20 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,10 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | 1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-24 (N43°32.555' E051°58.660') (11-05 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,12 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | 1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-25 (N43°32.646' E051°58.764') (11-50 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,11 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | 1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-26 (N43°32.757' E051°58.351') (12-35 h) | | | | |

| | | | | |
|---|--|------------------|--------------|-------|
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,11 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Chemistry lab technician _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

The test results apply for the samples subjected to the examination only.

The Test Report reprint is prohibited without permission of Laboratory of Environment Protection "ACCP" JSC

Zhetybai – Zhanaozen road construction

Ф 03 РД 37/01-19



KZ.II.05.0916

Laboratory of Environmental Protection

«Aktobe Chromium Compounds Plant»

Aktobe, Industrial Zone, section 15 «B»

8(7132)939-513, 939-376

Accreditation certificate № KZ.II.05.0916

dated «27» July 2015



page 1 of 2

TEST REPORT № 43

Dated August «15» 2019 y.

Customer Branch of «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Aktau

Address Aktau, micro district 29-A, building 135 “ABK” business center

Sample item and designation atmospheric air, along the road: 35-73 km Zhetybai-Zhanaozen, on the border of residential area Zhanaozen, camp Zhetybai (657 km, Zhetybai 730 km)

Quantity 9 samples

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-372/1 dated 31.07.2019 of branch « CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate dated August 13th, 2019 y.

Sampling date August 13, 2019 y.

Date of testing August 13, 14, 2019 y.

Type of testing air pollution control

ND for testing subject GOST 17.2.3.01-86

Measuring instruments used for testing, calibration details aspirator ИУ-3Э/12 man.No.807, calibration certificate No.BA-07-014-01984 dated 21.02.2019y.; gas sensor ГАHK-4, man.No.2700, label No.18003919161 dated 10.07.2019 y.; digital laboratory scales MettlerToledoXS205DU man.No.B141330205, calibration certificate No.BB.02-145985 dated 08.11.2018 y.

Testing conditions Weighing room: temperature 21°C, humidity 64 %.

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|--|--|-----------------------|--------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖЖ-1 PK-350 (12-15 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,39 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖЖ-2 PK-450 (12-45 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,42 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖЖ-3 PK-550 (13-15 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,42 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖЖ-4 PK-636+83 (14-35 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,47 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖЖ-5 PK-60+80 v.Zhanaozen entry (13-45 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,44 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| Camp Zhetybai (730 km) PK 120 | | | | |

| AK-23 (N43°32.644' E051°58.296') (09-10 h) | | | | |
|--|--|------------------|--------------|-------|
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,33 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-24 (N43°32.555' E051°58.660') (09-55 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,38 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-25 (N43°32.646' E051°58.764') (10-40 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,41 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-26 (N43°32.757' E051°58.351')(11-25 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,43 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Chemistry lab technician _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

The test results apply for the samples subjected to the examination only.

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РД 37/01-16



KZ.H.05.0916

Laboratory of Environmental Protection
«Aktoke Chromium Compounds Plant»
Aktoke, Industrial Zone, section 15 «B»
8(7132)939-513, 939-376
Accreditation certificate № KZ.H.05.0916
dated «27» July 2013



page 1 of 2

TEST REPORT № 50

dated September «17» 2019 y.

Customer Branch of «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Aktau

Address Aktau, micro district 29-A, building 135 "ABK" business center

Sample item and designation air; 35-73 km Zhetybai-Zhansozen, on the border of residential area Zhansozen, camp Zhetybai (Zhetybai 730 km)

Quantity 9 samples

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGIZ-EXT-2019-430 dated 11.09.2019 of branch « CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate #12 dated September 13rd, 2019 y.

Sampling date September 13rd, 2019 y.

Date of testing September 13th, 2019

Type of testing air pollution control

ND for testing subject Hygienic standards for atmospheric air in urban and rural settlements, approved by order of the Minister of national economy of the RK № 168 dated 28.02.2015

Measuring instruments used for testing, calibration details aspirator JTY-3Э/12 man.No.807, calibration certificate No.BA-07-014-01948 dated 21.02.2019 y.; gas sensor ГАHK-4, man.No.2700, label No.18003919161 dated 10.07.2019 y.; digital laboratory scales MettlerToledoXS205DU man.No.B141330205, calibration certificate No.BB.02-145985 dated 08.11.2018 y.

Testing conditions Weighing room: temperature 21°C, humidity 64 %.

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|---|--|-----------------------|--------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖКЖ-1 PK-350 (13-30 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,13 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-2 PK-450 (14-00 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,15 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-3 PK-550 (14-35 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,16 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-4 PK-636+83 (15-20 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,14 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| ЖКЖ-5 PK 60+80 v.ZhanaaOzen entrance (16-00 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,17 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| Camp Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (10-00 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,20 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | 1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-24 (N43°32.555' E051°58.660') (10-50 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,18 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | 1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-25 (N43°32.646' E051°58.764') (11-40 h) | | | | |
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,15 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | 1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |
| AK-26 (N43°32.757' E051°58.351') (12-30 h) | | | | |

| | | | | |
|---|--|------------------|--------------|-------|
| 1 | Inorganic dust, mg/m ³ | ST RK 1957-2010 | not more 0,5 | 0,16 |
| 2 | Carbon monoxide, mg/m ³ | ST RK 2.302-2014 | not more 5,0 | <1,5 |
| 3 | Nitrogen dioxide, mg/m ³ | ST RK 2.302-2014 | not more 0,2 | <0,02 |
| 4 | Sulfurous anhydride, mg/m ³ | ST RK 2.302-2014 | not more 0,5 | <0,03 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Chemistry lab technician _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

The test results apply for the samples subjected to the examination only.

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Appendix 3: Test report of noise and vibration measurement, Lot 1

| | | |
|--|--|--|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU MD RK in Mangistau Region | | Medical documentation Form No 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT

of the vibration measurement

№85 from «15» July 2019

1. Full name of business entity, address: "Ak zhol kurylys" LLP. In the territory of residential houses located in Mangistau region, Karakys district, in the territory of living camp LLP "Ak zhol kurylys" and highway Zhiribay-Zhamsayev PK-55.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol kurylys" LLP FLC engineer Ailenov S.K.
4. Measuring units: Noise and vibration measuring device № 238916.
5. Information about state inspection: CB No.16-1800358 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2004 Measurement of the general vibration and effect to human organism
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

At the territory of living camp

Measurement results

| | The equipment for which the vibration exposure was evaluated | Type of vibration | | Accelerometer Orientation (Axis) |
|----|--|-------------------|-------|----------------------------------|
| | | Common | Local | |
| 1 | 2 | 4 | 5 | 6 |
| 85 | | | | |
| 1 | On the territory of work area PK3.5 km | + | | XYZ |
| 2 | On the territory of living camp | + | | XYZ |

| № о а | Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz | | | | | | | | | | | Corrected level vibration acceleration, dB | Corrected vibration acceleration level for cycle, operation, dB | Equivalent corrected level of vibration acceleration, dB | Allowable equivalent corrected level of vibration acceleration, dB |
|-------------|--|---|----|----|----|------|----|-----|-----|-----|------|--|---|--|--|
| | 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1 | | | | | | | | | | | | | | 95,82,74 | 118 |
| 2 | | | | | | | | | | | | | | 89,80,70 | 118 |

Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2004 Measurement of the general vibration and effect to human organism.

Full name of the research specialist

Laboratory assistant of the laboratory of EMF and EF *Ryszhova J.T.*

Full name of the laboratory manager

Laboratory doctor of the laboratory of EMF and EF *Kavchikov A.K.*

Director (Deputy) of the branch of RSE on PVC "National Examination Center"

of the KKKBTU MB RK in Mangistan Region

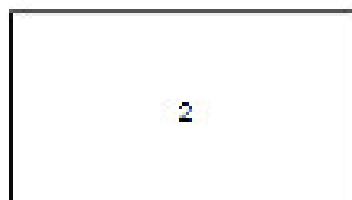
Ryszhova R.S.

| | | |
|--|--|---|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU MD RK in Mangystau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the noise measurement
№85 from 015» July 2019

1. Full name of business entity, address: "Ak shol karyls" LLP, in the territory of residential houses located in Mangystau region, Karakys district, in the territory of living camp LLP "Ak shol karlys" and highway Zhirkey-Zhamsayev PK-55.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak shol karyls" LLP ELCO manager Aitenov S.K.
4. Measuring units: Noise and vibration measuring device № 238916.
5. Information about state inspection: CB №16-1800358 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: Order by RoK Ministry of National Economy #189 dated Feb.23, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism
7. Main sources of vibration and character of noise: Transport movement on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical number of measuring points.

At the territory of living camp



| Registration number | | Point number on the sketch Place of measurement (indicate brand, type, passport data of equipment) | Additional information (measurement conditions...) | Noise character | | | | | | | | | |
|--|----|---|---|--|---------|------------|---------------|----------------|-----------|------|------|------|------|
| By spectrum By time characteristics | | | | By spectrum By time characteristics | | | | | | | | | |
| | | | | (Broadband) | (Total) | (Constant) | (Oscillating) | (Intermittent) | (Impulse) | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | |
| 05 | 1 | On the territory of work area PK3.3 km. | 7.00-23.00 | + | | | | + | | | | | |
| | 2 | On the territory of living camp | 7.00-23.00 | + | | | | + | | | | | |
| Sound pressure levels in dB octave bands with geometric mean frequencies in Hz | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| | | | | | | | | | | | | | |

| Maximum sound level LA, dBA | | | Maximum allowable sound level LA, dBA | | |
|-----------------------------|------------|--|---------------------------------------|--|--|
| 1 | 25 66.8 | | 25 60 | | |
| 2 | 66.8 | | 60 | | |

Order by RK Ministry of National Economy #169 dated Feb.23, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism.

Full name of the research specialist

Laboratory assistant of the laboratory of EME and PE Brodskaya LT

Full name of the laboratory manager

Laboratory doctor of the laboratory of EME and PE Kozhachenko A. K.

Director (Deputy) of the branch of RSP on PVC "National Examination Center"

of the KRRBTD MY RK in Mangystau Region



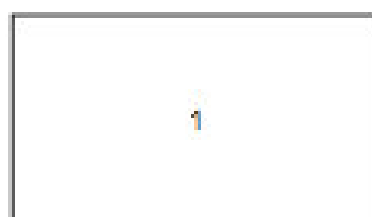
Rymbetova R.S

| | | |
|--|--|---|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of KSE on PVC "National Examination Center" of the IKKKTU MD RK in Mangistau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the vibration measurement
№96 from «15» August 2019

1. Full name of business entity, address: "Ak zhol kurylys" LLP. In the territory of residential houses located in Mangistau region, Krasniya district, in the territory of living camp LLP "Ak zhol kurylys" and highway Zhurkova-Zhannazarov PK-6
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol kurylys" LLP LLC engineer Aitkenov S.K.
4. Measuring units: Noise and vibration measuring device № 238916
5. Information about state inspection: CR No.16-1800358 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: GOST 31351.1-2004 Measurements of the general vibration and effect to human organism
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

At the territory of living camp



| Measurement results | | | | |
|--|--|-------------------|-------|----------------------------------|
| The equipment for which the vibration exposure was evaluated | | Type of vibration | | Accelerometer Orientation (Axis) |
| | | Common | Local | |
| 1 | 2 | 4 | 5 | 6 |
| 96 | | | | |
| 1 | On the territory of work area PK5.5 km | + | | X,Y,Z |
| | | | | X,Y,Z |
| | | | | X,Y,Z |
| 2 | On the territory of living camp | + | | |
| | | | | X,Y,Z |
| | | | | X,Y,Z |
| | | | | X,Y,Z |

| Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz | | | | | | | | | | | | Corrected level of vibration acceleration for the rms, dB | Corrected vibration acceleration level for cycle, operation, dB | Equivalent corrected level of vibration acceleration, dB | Allowable equivalent corrected level of vibration acceleration, dB |
|--|----|------|----|----|----|----|-----|-----|-----|-----|-----|---|---|--|--|
| 20 | 25 | 31.5 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1 | | | | | | | | | | | | | | 99.4 | 118 |
| | | | | | | | | | | | | | | 95.6 | 118 |
| | | | | | | | | | | | | | | 97.8 | 118 |
| 2 | | | | | | | | | | | | | | 101.4 | 118 |
| | | | | | | | | | | | | | | 99.8 | 118 |
| | | | | | | | | | | | | | | 101.7 | 118 |

Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2008 Measurement of the general vibration and effect to human organism.

Full name of the research specialist
Laboratory assistant of the laboratory of EMF and FE Tashchanyashvili R.N.

Full name of the laboratory manager
Laboratory doctor of the laboratory of EMF and FE Koshkova A.K.

Director (Deputy) of the branch of KSE on POC "National Examination Center"
of the KKKHILU VNI RK in Mangystau Region

Rayimbetova R.S.

| | | |
|--|--|---|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU M3 RK in Mangistau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the noise measurement
№85 from «15» July 2019

1. Full name of business entity, address: "Ak zhol kurylys" LLP. In the territory of residential houses located in Mangistau region, Karakiva district, in the territory of living camp LLP "Ak zhol kurylys" and highway Zhetbay Zhanaozen PK. 6.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives. "Ak zhol kurylys" LLP ELC manager Aitenov S.K.
4. Measuring units: Noise and vibration measuring device № 238916.
5. Information about state inspection: CU No.16-1300358 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: Order by RoK Ministry of National Economy #169 dated Feb.28, 2018 regarding establishing of hygiene regulations against physical factors influencing human organism.
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise source inclusive of fixation place and microphones (gauges) orientation by arrows. Numerical order of measuring points.

At the territory of living camp



| Registration number | Point number on the sketch Place of measurement (indicate brand, type, passport data of equipment) | Additional information (measurement conditions) | Noise character | | | | | | | |
|---------------------|---|--|-----------------|---------|-------------------------|---------------|----------------|-----------|-------------------------|--|
| | | | By spectrum | | By time characteristics | | By spectrum | | By time characteristics | |
| | | | (Broadband) | (Tonal) | (Constant) | (Oscillating) | (Intermittent) | (Impulse) | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 85 | 1 | On the territory of work area PK5.5 km | 7.00-23.00 | + | | | | + | | |
| | 2 | On the territory of living camp | 7.00-23.00 | + | | | | + | | |

Sound pressure levels in dB octave bands with geometric mean frequencies in Hz

| | | | | | | | | | | | | | |
|----|----|----|----|----|------|----|-----|-----|-----|------|------|------|------|
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| | | | | | | | | | | | | | |

| Maximum sound level LA, dBA | | Maximum allowable sound level LA, dBA | |
|-----------------------------|------|---------------------------------------|----|
| | 25 | | 26 |
| 1 | 66.4 | | 70 |
| 2 | 63.1 | | 70 |

Order by RoK Ministry of National Economy #169 dated Feb.28, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism.

Full name of the research specialist

Laboratory assistant of the laboratory of EMF and EF Tadzhanagambetova K.N.

Full name of the laboratory manager

Laboratory doctor of the laboratory of EMF and EF Kenzheeva A.K.

Director (Deputy) of the branch of RSU on PVC "National Examination Center" of the KKKULU MS RK in Mangistan Region

Rysambetova R.S

| | |
|--|---|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCHD) |
| The branch of RSH on PVC "National Examination Center" of the RKREBU MS RK in Mangystau Region | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 10, 2015 No. 415 |

REPORT
of the vibration measurement
№105 from 21.09 September 2019

1. Full name of business entity, address: "Ak zhol kuryev" LLP. In the territory of residential houses located in Mangystau region, Karakisa district, in the territory of living camp LLP "Ak zhol kuryev" and highway Zhambay-Zhambayev PK-6
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of the representatives: "Ak zhol kuryev" LLP LLC engineer Aitkenov S.K.
4. Measuring unit: Noise and vibration measuring device № 238916.
5. Information about state inspection: CR.No.16-180438 from 09.10.2019-09.10.2019
6. Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2009 Measurement of the general vibration and effect to human organism
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premises (territory), work place, hand-held machines) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



| Measurement results | | | | |
|---------------------|---|-------------------|-------|---------------------------------------|
| 1 | 2 The equipment for which the vibration exposure was evaluated | Type of vibration | | 6 Accelerometer Orientation (Axis) |
| | | Common | Local | |
| 105 | | | | |
| 1 | On the territory of living camp | + | | XYZ |
| | | | | XYZ |
| | | | | XYZ |
| 2 | On the Zhetyssai-Zharmasay highway PK 5 | + | | |
| | | | | XYZ |
| | | | | XYZ |
| | | | | XYZ |

| № п.п. | Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz | | | | | | | | | | | Corrected level vibration acceleration ms for the axis, dB | Corrected vibration acceleration level for cycle, operation, dB | Equivalent corrected level of vibration acceleration, dB | Allowable equivalent level of vibration acceleration, dB |
|-----------|--|---|----|----|----|------|----|-----|-----|-----|------|--|---|--|--|
| | 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1 | | | | | | | | | | | | | | 96,1 | 118 |
| | | | | | | | | | | | | | | 98,2 | 118 |
| 2 | | | | | | | | | | | | | | 95,5 | 118 |
| | | | | | | | | | | | | | | 102,4 | 118 |
| | | | | | | | | | | | | | | 100,0 | 118 |
| | | | | | | | | | | | | | | 104,8 | 118 |

Regulatory documentation in accordance with which the measurement has been made: GOST 31193.1-2004 Measurement of the general vibration and effect to human organism

Full name of the research specialist

Laboratory assistant of the laboratory of EMF and IT Tashirvagaydarova K.N.

Full name of the laboratory manager

Laboratory doctor of the laboratory of EMF and IT Kozhachen A.K.

Director (Deputy) of the branch of RSC on PVC "National Examination Center"

of the KKREDTU M1 RK in Mangystau Region



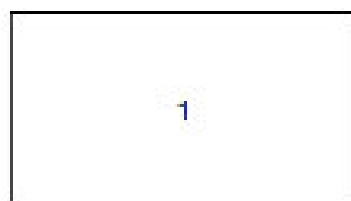
Roymbetova R.S.

| | |
|---|---|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCOO) |
| The branch of RSE on FVC "National Examination Center" of the EKKBITU MD RK in Mangystau Region | Medical documentation Form No. 165 / v Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the noise measurement
№105 from «10» September 2019

1. Full name of business entity, address: "Ak-shel kurylys" LLP. In the territory of residential houses located in Mangystau region, Kazakhs district, in the territory of living camp LLP "Ak-shel kurylys" and highway Zheshay-Zhamsayon PK-6.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak-shel kurylys" LLP LLC engineer Aitbayev S.K.
4. Measuring units: Noise and vibration measuring device № 238916.
5. Information about state inspection: ISI № 18-181611-8 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: Order by RK Ministry of National Economy #169 dated Feb.23, 2018 regarding establishment of Russian regulations against physical factors influencing human organism.
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, mark place, hand-held machine) with indication of noise source inclusive of fraction place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



| Registration number | Point number on the sketch | Place of measurement (indicate brand, type, passport data of equipment) | Additional information (measurement conditions,) | Noise character | | | | | |
|---------------------|----------------------------|---|--|-----------------|---------|-------------------------|---------------|----------------|-----------|
| | | | | By spectrum | | By time characteristics | | | |
| | | | | (Broadband) | (Total) | (Constant) | (Oscillating) | (Intermittent) | (Impulse) |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 105 | 1 | On the territory of living camp | 7.00-23.00 | + | | | | + | |
| | 2 | On the Zharybay Zhanaozen highway PK 8 | 7.00-23.00 | + | | | | + | |

Sound pressure levels in dB octave bands with geometric mean frequencies in Hz

| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|----|----|----|----|----|------|----|-----|-----|-----|------|------|------|------|
| 1 | 2 | 4 | 5 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| | | | | | | | | | | | | | |

| Maximum sound level L _A , dBA | | Maximum allowable sound level L _A , dBA | |
|--|------------|--|----|
| 1 | 25 60.7 | 26 | 70 |
| 2 | 87.8 | 70 | |

Order by RoK Ministry of National Economy #169 dated Feb.28, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism.

Full name of the research specialist

Laboratory assistant of the laboratory of EMF and PF Taldzhimaganbetova K. N.

Full name of the laboratory manager

Laboratory doctor of the laboratory of EMF and PF Koshchova A. K.

Director (Deputy) of the branch of RSE on PVE: "National Examination Center"

of the KKRSTU MS RK in Mangistau Region

Rymbetova R.S

| | | |
|---|--|---|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (OKEGO) |
| The branch of RSH on PNT "National Examination Center" of the RKKBPU MIA RK in Mangistau Region | | Medical documentation Form No. 185 / v Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 08, 2015 No. 415 |

REPORT
of the vibration measurement
№124 Form of 17th October 2019

1. Full name of business entity, address: "Ak zhol karvye" LLP. In the territory of residential houses located in Mangistau region, Karakara district, in the territory of living camp LLP "Ak zhol karvye" and highway Zhetbay Zhasmagaza PK 280.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol karvye" LLP RUC engineer Altunbay S. K.
4. Measuring units: Noise and vibration measuring device № 238916.
5. Information about state inspection: CR № 16-1400458 from 04/02/2018-04/02/2018
6. Regulatory documentation in accordance with which the measurement has been made: GOST 41191.1-2004 Measurement of the general vibration and effect to human organism.
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premises (territory, work place, hand-held machines) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



| | The equipment for which the vibration exposure was evaluated | Measurement results | | Accelerometer Orientation (Axis) |
|-----|--|---------------------|-------|----------------------------------|
| | | Common | Local | |
| 1 | 2 | 4 | 5 | 6 |
| 105 | | | | |
| 1 | On the territory of living camp | + | | XYZ |
| 2 | On the Zhetysay-Zhansay highway PK-8 | + | | XYZ |

| № п п | Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz | | | | | | | | | | | Corrected level vibration accelerations for the axis, dB | Corrected vibration acceleration level for cycle operation, dB | Equivalent corrected level of vibration acceleration, dB | Allowable equivalent corrected level of vibration acceleration, dB |
|-------------|--|---|----|----|----|------|----|-----|-----|-----|------|--|--|--|--|
| | 1 | 2 | 4 | 8 | 16 | 31.5 | 63 | 125 | 250 | 500 | 1000 | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1 | | | | | | | | | | | | | | 97,98,99 | 118 |
| 2 | | | | | | | | | | | | | | 100,108,101 | 118 |

Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2004 Measurement of the general vibration and effect to human organism.

Full name of the research specialist

Laboratory assistant of the laboratory of EMT and FFDorashova L.T. /signature/

Full name of the laboratory manager

Laboratory doctor of the laboratory of EMT and FT Kozhanchikov A.K. /signature/

Director (Deputy) of the branch of RSE on PVC "National Examination Center"

of the KKKSTU MS RK in Mangystau Region.



Rysmurtov R.S.

| | |
|---|---|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKEKBTU MB RK in Mangistau Region | Medical Documentation Form No. 105 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 31, 2015 No. 415 |

REPORT
of the noise measurement
№124 from 17th October 2019

1. Full name of business entity, address: "Ak shol karybes" LLP, in the territory of residential houses located in Mangistau region, Karskaya district, in the territory of living camp LLP "Ak shol karybes" and highway Zhetyay-Zhamsayam PSC-280.
2. The aim of measurements: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak shol karybes" LLP EAC engineer Aitany S.K.
4. Measuring units: Noise and vibration measuring device № 235916.
5. Information about state inspection: CH No 16-18105AK from 04/10/2019-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: Order by RK Ministry of National Economy #169 dated Feb 28, 2018 regarding establishing of hygiene regulations against physical factors influencing human organism
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise source inclusive of fixation place and microphones (gauges) orientation by arrows. Numerical order of measuring points.

Living camp:



| | |
|--|---|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU M1 RK in Mangistau Region | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 413 |

REPORT
of the vibration measurement
№137 from 0180 November 2019

1. Full name of business entity, address: "Ak zhol kurybs" LLP. In the territory of residential houses located in Mangistau region, Karakaya district, in the territory of living camp LLP "Ak zhol kurybs" and highway Zhailau-Zhannanov PK-280
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol kurybs" LLP LLC engineer Aitmatov S.K.
4. Measuring units: Noise and vibration measuring device № 238916.
5. Information about state inspection: CR No 16-1600558 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2004 Measurement of the general vibration and effect to human organism
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand held machine) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



Measurement results

| | The equipment for which the vibration exposure was evaluated | Type of vibration | | Accelerometer Orientation (Axis) |
|-----|--|-------------------|-------|----------------------------------|
| | | Common | Local | |
| 1 | 2 | 4 | 5 | 6 |
| 105 | | | | |
| 1 | On the territory of Ismagul camp | 1 | | XYZ |
| 2 | On the Zhetylsay-Zhannayev highway PKL-271 | 1 | | XYZ |

| № u n | Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz | | | | | | | | | | | Corrected level vibration acceleration for the axis, dB | Corrected vibration acceleration level for cycle, operation, dB | Equivalent corrected level of vibration acceleration, dB | Allowable equivalent corrected level of vibration acceleration, dB |
|-------------|--|---|----|----|----|------|----|-----|-----|-----|------|---|---|--|--|
| | 1 | 2 | 4 | 8 | 16 | 31.5 | 63 | 125 | 250 | 500 | 1000 | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1 | | | | | | | | | | | | | | 93,7;92,0;70,0 | 118 |
| 2 | | | | | | | | | | | | | | 97,4;98,1;88,8 | 118 |

Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2004 Measurement of the general vibration and effect to human organism.

Full name of the research specialist

Laboratory doctor of the Laboratory of EMF and EF Tadjimaganberova R.N. /signature/

Full name of the laboratory manager

Laboratory doctor of the Laboratory of EMF and EF Kuchkova A.R. /signature/

Director (Deputy) of the branch of RSE on PVC "National Examination Center"

of the KKKBTU M3 RK in Mangistan Region



Rsyimbetova R.S

Deputy of Director of the branch of RSE on PVC "National Examination Center"

of the KKKBTU M3 RK in Mangistan Region

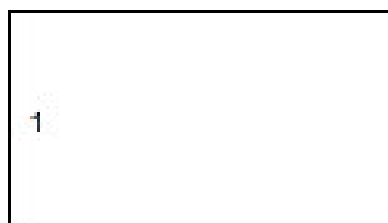
/signature/ Nahiyez V.P.

| | | |
|--|--|--|
| Ministry of Health of the Republic of Kazakhstan | | The organization code: in General Classification of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU MB RK in Mangistau Region | | Medical documentation Form No 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the noise measurement
№157 from «18» November 2019

1. Full name of business entity, address: "Ak zhol kurylys" LLP. In the territory of residential houses located in Mangistau region, Kaskada district, in the territory of living camp LLP "Ak zhol kurylys" and highway Zhetyay-Zhannanov PK-280
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol kurylys" LLP EL engineer Aitenov S.K.
4. Measuring units: Noise and vibration measuring device № 238016.
5. Information about state inspection: CB No.16-1800358 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: Order by RK Ministry of National Economy #169 dated Feb 28, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism.
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand held machine) with indication of noise source inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



| Registration number | Point number on the sketch | Place of measurement (indicate brand, type, passport data of equipment) | Additional information (measurement conditions.) | Noise character | | | | | | | | | |
|--|----------------------------|---|--|-----------------|---------|-------------------------|---------------|----------------|-----------|------|------|------|------|
| | | | | By spectrum | | By time characteristics | | | | | | | |
| | | | | (Broadband) | (Tonal) | (Constant) | (Oscillating) | (Intermittent) | (Impulse) | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | |
| 105 | 1 | On the territory of living camp | 7.00-23.00 | + | | | | + | | | | | |
| | 2 | On the Zherybai-Zhanabek highway PK-271 | 7.00-23.00 | + | | | | + | | | | | |
| Sound pressure levels in dB octave bands with geometric mean frequencies in Hz | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| | | | | | | | | | | | | | |

| Maximum sound level LA, dBA | | Maximum allowable sound level LA, dBA | |
|-----------------------------|------|---------------------------------------|----|
| | 25 | | 25 |
| 1 | 52,9 | | 70 |
| 2 | 60,5 | | 70 |

Order by RoK Ministry of National Economy #169 dated Feb.28, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism.

Full name of the research specialist

Laboratory doctor of the laboratory of EMF and FF Tadzhimagambetova K.N. /signature/

Full name of the laboratory manager

Laboratory doctor of the laboratory of EMF and FF Kenzheeva A.K. /signature/

Director (Deputy) of the branch of RSE on PVC "National Examination Center"

of the KKKBTU MU RK in Mangystau Region

Director _____ Rzymhetova R.S

Deputy Director/signature/ Nabiyev V.P.

| | | |
|--|--|---|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKDTU MS RK in Mangistau Region | | Medical documentation Form No. 185 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the vibration measurement
№142 from 0120 December 2019

1. Full name of business entity, address: "Ak zhol kurylys" LLP. In the territory of residential homes located in Mangistau region, Karakiya district, in the territory of living camp LLP "Ak zhol kurylys" and highway Zhetbay-Zhanaozen PK-350.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol kurylys" LLP ELC engineer Aitenov S.K.
4. Measuring units: Noise and vibration measuring device № 138916.
5. Information about state inspection: CR No 16-1800358 from 04/12/2018-04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1 2004 Measurement of the general vibration and effect to human organism.
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise sources inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



Measurement results

| | The equipment for which the vibration exposure was evaluated | Type of vibration | | Accelerometer Orientation (Axis) |
|-----|--|-------------------|-------|----------------------------------|
| | | Common | Local | |
| 1 | 2 | 4 | 5 | 6 |
| 142 | | | | |
| 1 | On the territory of living camp | + | | X,Y,Z |
| 2 | On the Zhetysay-Zharnasay highway PK-350 | + | | X,Y,Z |

| № | Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz | | | | | | | | | | Corrected level vibration accelerations for the axis, dB | Corrected vibration acceleration level for cycle, operation, dB | Equivalent corrected level of vibration acceleration, dB | Allowable equivalent corrected level of vibration acceleration, dB |
|---|--|---|----|----|----|------|----|-----|-----|-----|--|---|--|--|
| | 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 1 | | | | | | | | | | | | | 95,3;91,4;84,7 | 118 |
| 2 | | | | | | | | | | | | | 101,7;100,7;101,8 | 118 |

Regulatory documentation in accordance with which the measurement has been made: GOST 31191.1-2004 Measurement of the general vibration and effect to human organism.

Full name of the research specialist

Laboratory doctor of the Laboratory of EMF and EF Taldimasqanbektova K.N. /signature/

Full name of the laboratory manager

Laboratory doctor of the Laboratory of EMF and EF Kozhachenko A.E. /signature/

Director (Deputy) of the branch of RSE on PVC "National Examination Center"

of the KKKBTU M3 RK in Mangystau Region



Rymbetova R.S.

Deputy of Director of the branch of RSE on PVC "National Examination Center"

of the KKKBTU M3 RK in Mangystau Region

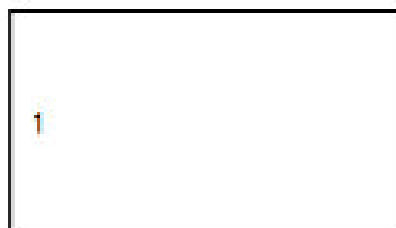
/signature/Nabiyev V.P.

| | | |
|---|--|---|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the KKKB TU M3 RK in Mangistau Region | | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May 30, 2015 No. 415 |

REPORT
of the noise measurement
№142 from 0120 December 2019

1. Full name of business entity, address: "Ak zhol kurylys" LLP. In the territory of residential houses located in Mangystau region, Kazakiya district, in the territory of living camp LLP "Ak zhol kurylys" and highway Zhetysay-Zhannozen PK-280.
2. The aim of measurement: Under Contract
3. Measurements are executed in the presence of site representatives: "Ak zhol kurylys" LLP ELC engineer Aitenov S.K.
4. Measuring units: Noise and vibration measuring device № 238016.
5. Information about state inspection: CU No.16 1800358 from 04/12/2019 04/12/2019
6. Regulatory documentation in accordance with which the measurement has been made: Order by Rok Ministry of National Economy #169 dated Feb.28, 2019 regarding establishing of hygiene regulations against physical factors influencing human organism.
7. Main sources of vibration and character of noise: Transport operating on the road
8. Quantity of operating men
9. Layout of premise (territory, work place, hand-held machine) with indication of noise sources inclusive of fixation place and microphone (gauge) orientation by arrows. Numerical order of measuring points.

Living camp



| Registration number | Point number on the sketch | Place of measurement (indicate brand, type, passport data of equipment) | Additional information (measurement conditions.) | Noise character | | | | | | | | | |
|--|----------------------------|---|--|-------------------------|------|-------------------------|-----|-----|-----|------|------|------|------|
| | | | | By spectrum | | By time characteristics | | | | | | | |
| | | | | By time characteristics | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | |
| 105 | 1 | On the territory of living camp | 7.00-23.00 | + | | | | + | | | | | |
| | 2 | On the Zheryba-Zhannoben highway PK-350 | 7.00-23.00 | + | | | | + | | | | | |
| Sound pressure levels in dB octave bands with geometric mean frequencies in Hz | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 | 2 | 4 | 8 | 16 | 31,5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| | | | | | | | | | | | | | |

| Maximum sound level LA, dBA | | Maximum allowable sound level LA, dBA | |
|-----------------------------|------|---------------------------------------|----|
| | 25 | | 26 |
| 1 | 63,4 | | 70 |
| 2 | 65,9 | | 70 |

Order by RoK Ministry of National Economy #169 dated Feb.28, 2018 regarding establishing of Hygiene regulations against physical factors influencing human organism.

Full name of the research specialist

Laboratory doctor of the Laboratory of EMF and FF Tadzhimaganbetova K.N. /signature/

Full name of the laboratory manager

Laboratory doctor of the Laboratory of EMF and FF Kenzheeva A.K. /signature/

Director (Deputy) of the branch of RSE on PVC "National Examination Center"

of the KKKBTU M3 RK in Mangystau Region

Director _____ Rsyimbetova R.S

Deputy Director/signature/ Nabiyev V.P.

Appendix 3: Test report of noise and vibration measurement, Lot 2

Ф 04 РД 37/01-16



Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, section 15 «B»
8(7132)939-513, 939-376
Accreditation certificate № KZ.H.05.0916
dated «27» July 2015



page 1 of 3

TEST REPORT № 37

dated July «22» 2019 y.

Customer Branch of «CENGİZ İNŞAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ» JSC in Aktau

Address Aktau, micro-district 29-A, building 135 «ABK» business center

Sample item and designation noise and vibration along the Noise and vibration at the border of the residential area Zhanaozen, Zhetybay (730 km)

Quantity -

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-324 dated 11.07.2019 of branch «CENGİZ İNŞAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ»

Sampling date -

Date of testing July 19th, 2019 y.

Type of testing noise and vibration control

ND for testing subject Hygienic standards for atmospheric air in urban and rural settlements, approved by order of the Minister of national economy of the RK № 169 dated 28.02.2015

Measuring instruments used for testing, calibration details Noise and vibration analyzer «Assistanta fact. №162613, calibration certificate №BA12-05-1124 dated 01.03.2019

Test conditions -

| Nb | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|---|----------------------------|-----------------------|-------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖЖ-5 PK 60+80 village ZhanaOzen Entrance (15-35 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 45 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 70 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 30 |
| 01 | 02 | 03 | 04 | 05 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 79 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 86 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 63 |
| Camp village Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') 10-40 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 48 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 72 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 32 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 78 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 87 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 72 |
| AK-24 (N43°32.555' E051°58.660') (11-25 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 46 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 68 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 34 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 82 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 85 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 70 |
| AK-25 (N43°32.646' E051°58.764') (12-10 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 44 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 72 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 32 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 78 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 83 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 72 |
| AK-26 (N43°32.757' E051°58.351') (12-55 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 41 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 66 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 36 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 78 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 83 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 71 |

Executors:

Dust and Gas Collector Operator _____
(date, signature, name)

Laboratory Chief _____
(date, signature, name)

*The test results apply for the samples subjected to the examination only.
The Test Report reprint is prohibited without permission of Laboratory of Environment Protection "ACCP" JSC*



Laboratory of Environmental Protection

«Aktobe Chromium Compounds Plant»

Aktobe, Industrial Zone, section 15 «B»

8(7132)939-513, 939-376

Accreditation certificate № KZ.И.05.0916

dated «27» July 2015



page 1 of 2

TEST REPORT № 42

dated August «15» 2019 y.

Customer Branch of «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Aktau

Address Aktau, micro-district 29-A, building 135 “ABK” business center

Sample item and designation noise and vibration along the Noise and vibration at the border of the residential area Zhanaozen, Zhetybay construction base camp (730 km)

Quantity -

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-372/1 dated 31.07.2019 of branch « CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI»

Sampling date -

Date of testing August 13, 2019

Type of testing noise and vibration control

ND for testing subject -

Measuring instruments used for testing, calibration details Noise and vibration analyzer «Assistant» fact. №162613, calibration certificate №BA12-05-1124 dated 01.03.2019

Test conditions -

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|---|---------------------------|-----------------------|-------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖЖ-5 PK 60+80 village Zhanaozen Entrance (14-05 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 49 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 74 |

| | | | | |
|---|----------------------------|-------------------|-------------|-----------|
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 44 |
| 01 | 02 | 03 | 04 | 05 |
| 2 | Vibration, dB (equivalent) | GOSTISO 8041-2006 | - | 79 |
| | Vibration, dB (maximum) | GOSTISO 8041-2006 | - | 86 |
| | Vibration, dB (minimum) | GOSTISO 8041-2006 | - | 63 |
| Camp village Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (09-30 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 52 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 76 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 36 |
| 2 | Vibration, dB (equivalent) | GOSTISO 8041-2006 | - | 79 |
| | Vibration, dB (maximum) | GOSTISO 8041-2006 | - | 87 |
| | Vibration, dB (minimum) | GOSTISO 8041-2006 | - | 73 |
| AK-24 (N43°32.555' E051°58.660') (10-15 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 48 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 72 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 36 |
| 2 | Vibration, dB (equivalent) | GOSTISO 8041-2006 | - | 82 |
| | Vibration, dB (maximum) | GOSTISO 8041-2006 | - | 85 |
| | Vibration, dB (minimum) | GOSTISO 8041-2006 | - | 70 |
| AK-25 (N43°32.646' E051°58.764') (11-00h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 50 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 78 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 38 |
| 2 | Vibration, dB (equivalent) | GOSTISO 8041-2006 | - | 76 |
| | Vibration, dB (maximum) | GOSTISO 8041-2006 | - | 81 |
| | Vibration, dB (minimum) | GOSTISO 8041-2006 | - | 71 |
| AK-26 (N43°32.757' E051°58.351') (11-45 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 45 |

| | | | | |
|---|----------------------------|-------------------|---|----|
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 70 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 40 |
| 2 | Vibration, dB (equivalent) | GOSTISO 8041-2006 | - | 78 |
| | Vibration, dB (maximum) | GOSTISO 8041-2006 | - | 83 |
| | Vibration, dB (minimum) | GOSTISO 8041-2006 | - | 71 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

The test results apply for the samples subjected to the examination only.

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KZ.M.05.0916

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktohe, Industrial Zone, section 15 «B»
8(7132)939-513, 939-376
Accreditation certificate № KZ.M.05.0916
dated «27» July 2015



page 1 of 3

TEST REPORT № 51

dated September «17» 2019 y.

Customer Branch of «CENGİZ İNŞAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ» JSC in Aktau

Address Aktau, micro-district 29-A, building 135 “ABK” business center

Sample item and designation noise and vibration along the Noise and vibration at the border of the residential area Zhanaczen, Zhetybay (730 km)

Quantity -

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-430 dated 11.09.2019 of branch « CENGİZ İNŞAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ»

Sampling date -

Date of testing September 13rd, 2019 y.

Type of testing noise and vibration control

ND for testing subject Hygienic standards for atmospheric air in urban and rural settlements, approved by order of the Minister of national economy of the RK № 169 dated 28.02.2015

Measuring instruments used for testing, calibration details Noise and vibration analyzer «Assistant» fact. №162613, calibration certificate №BA12-05-1124 dated 01.03.2019

Test conditions -

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|--|----------------------------|-----------------------|-------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ACC-5 PK 60+80 village ZhanaOzen Entrance (16-20 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 52 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 77 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 47 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 77 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 84 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 61 |
| Camp village Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (10-20 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 48 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 72 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 32 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 78 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 83 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 67 |
| AK-24 (N43°32.555' E051°58.660') (10-24 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 46 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 70 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 34 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 80 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 82 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 67 |
| AK-25 (N43°32.646' E051°58.764') (12-10 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 48 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 76 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 36 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 79 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 82 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 72 |
| AK-26 (N43°32.757' E051°58.351') (12-50 h) | | | | |
| 1 | Noise, dBa (equivalent) | GOST 12.1.050-86 | not more 80 | 47 |
| | Noise, dBa (maximum) | GOST 12.1.050-86 | - | 72 |
| | Noise, dBa (minimum) | GOST 12.1.050-86 | - | 42 |
| 2 | Vibration, dB (equivalent) | GOST ISO 8041-2006 | - | 79 |
| | Vibration, dB (maximum) | GOST ISO 8041-2006 | - | 83 |
| | Vibration, dB (minimum) | GOST ISO 8041-2006 | - | 72 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

*The test results apply for the samples subjected to the examination only.
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Appendix 4: Test report of soil chemical analysis, Lot 1

| | |
|---|--|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of RSE on PVC "National Examination Center" of the RKREPU MS RK in Almaty Region | Method documentation Item No. 165, City Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May |

REPORT

Of soil sample research

№№№

of 6th July 2019

1. Full name of business entity, address: Bankshol Kardos LLP
2. Place of sampling: Zhetybai-Zhansayen highway, construction site PK №5.5 (3.5km)
3. The purpose of the sample research: the content of petroleum products, lead, cadmium, zinc
4. Date and time of selection: 12.07.19.
5. Date and time of delivery: 12.07.19.
6. Date and time research: 12.07.19 - 16.07.19.
7. Regulatory documentation for the selection method: GOST 17.423.01-88
8. Transportation conditions: automobile transportation
9. Storage conditions:

| Name of Indicators | Unit of measure | Standard regulatory documentation | by | Results of research | Regulatory documentation on test method |
|--------------------|-----------------|-----------------------------------|----|---------------------|---|
| | | | | 1 | |
| Oil products | Mg/g of soil | | | 60.5 | CFSD 16.12.21-98 |
| Zinc | Mg/g of soil | | | n/a | MIR 05-47/151 |
| Lead | Mg/g of soil | | | 0.002 | MIR 05-47/151 |
| Cadmium | Mg/g of soil | | | n/a | MIR 05-47/151 |

Research made according to Regulatory documentation

Full name of the research specialist
Laboratory assistant Telimbayeva M.D.

Full name of the laboratory manager
Laboratory doctor Dalsanbayeva N.D.

Director (Deputy) of the branch of RSE on PVC "National Examination Center"
of the RKREPU MS RK in Almaty Region



Reymbetova R.S.

| | |
|---|--|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GCEO) |
| The branch of KSE on POC "National Examination Center" of the EKKBITU MS RK in Mangystau Region | Medical documentation Form No. 165 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May |

REPORT

Of soil sample research

8425/P.018-01814/yel

«12» August 2019

1. Full name of business entity, address: "Ak Jol kurylys" LLP
2. Place of sampling: Zhetybai-Zhansayev highway, construction site PK+0.5 km
3. The purpose of the sample research: the petroleum product detection
4. Date and time of selection: 15.08.19. 10:40
5. Date and time of delivery: 15.08.19. 16:30
6. Date and time research: 15.08.19-17.08.19
7. Regulatory documentation for the selection method: GOST 17444.02-2017
8. Transportation conditions: automobile transportation
9. Storage conditions:

| Name of Indicators | Unit of measure | Standard regulatory documentation | by | Results of research | Regulatory documentation on test method |
|--------------------|-----------------|-----------------------------------|----|---------------------|---|
| | | | | 1 | |
| Oil products | mg/g of soil | | | 15.7 | GOST 16 13221-88 |
| Zinc | mg/g of soil | | | 0 | MR 06-174152 |
| Lead | mg/g of soil | | | 0.02 | MR 06-174152 |
| Cadmium | mg/g of soil | | | 0 | MR 06-174152 |

Research made accordance to Regulatory documentation

Full name of the research specialist
Laboratory assistant *Telimbayeva M.D.*

Full name of the laboratory manager
Laboratory director *Abaybekova B. Zh.*

Head of Laboratory
(signature) *Duisenbayeva N.D.*

| | |
|--|--|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classifier of Enterprises and Organizations (GUEO) |
| The branch of RSE on FVU "National Examination Center" of the KKKRTU MS RK in Mangystau Region | Medical documentation form No. 103 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May |

REPORT

Of soil sample research

№08/18-018-01/006/001

of 06 September 2019

1. Full name of business entity, address: "AK Jeldirgys" LLP
2. Place of sampling: Zhetysai-Zhannateen highway, construction site PKs, 0,8 km.
3. The purpose of the sample research: the petroleum products detection
4. Date and time of selection: 09.09.19, 15:30
5. Date and time of delivery: 10.09.19, 16:25
6. Date and time research: 10.09.19- 18.09.19
7. Regulatory documentation for the selection method: GOST 17.4.4.02-2017
8. Transportation conditions: automobile transportation
9. Storage conditions:

| Name of Indicators | Unit of measure | Standard by regulatory documentation | Results of research | Regulatory documentation on test method |
|--------------------|-----------------|--------------------------------------|---------------------|---|
| Oil products | Mg/g of soil | | 1 45,8 | CFSD 16.1.2.21-08 |
| Zinc | Mg/g of soil | | 0 | MLX 08-47-152 |
| Cadmium | Mg/g of soil | | 0,01 | MLX 08-47-152 |
| Cadmium | Mg/g of soil | | 0 | MLX 08-47-152 |

Research made according to Regulatory documentation

Full name of the research specialist
Laboratory assistant Iskenderova A.D.

Full name of the laboratory manager
Laboratory doctor Idg'Wahedova D. Zh.

Full name of the head laboratory
Danabekova R.D.

Director (Deputy) of the branch of RSE on FVU "National Examination Center"
of the KKKRTU MS RK in Mangystau Region


SIGNATURE

Roymuketova R.S.

| | | |
|--|--|--|
| Ministry of Health of the Republic of Kazakhstan | | The organization code for General Classifier of Enterprises and Organizations (GOSTO) |
| The branch of RSE on PVC "National Examination Center" of the KKKRBU MB RK in Mangistau Region | | Medical documentation form No. 105 / y Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May |

REPORT

Oil soil sample research

№661/90-15-025215/21

24th October 2019

1. Full name of business entity, address: "Ak Andaryn" LLP
2. Place of sampling: Zharynai-Zhansayev highway construction site PK080-28 km
3. The purpose of the sample research: the petroleum product detection
4. Date and time of selection: 17.10.19 - 11:00
5. Date and time of delivery: 17.10.19 - 15:00
6. Date and time research: 17.10.19 - 24.10.19
7. Regulatory documentation for the selection method: GOST 17.43.01-97
8. Transportation conditions: automobile transportation
9. Storage conditions:

| Name of Indicators | Unit of measure | Standard by regulatory documentation | Results of research | Regulatory documentation on test method |
|--------------------|-----------------|--------------------------------------|---------------------|---|
| Oil products | Mg/g of soil | | 1 01 | GOST 18-132.21-98 |
| Zinc | Mg/g of soil | | is not defined | GOST 08-47/153 |
| Lead | Mg/g of soil | | 0.003 | GOST 08-47/153 |
| Cadmium | Mg/g of soil | | is not defined | GOST 08-47/153 |

Research made according to Regulatory documentation

Full name of the research specialist
Laboratory assistant *Rakys A.A. (signature)*

Full name of the laboratory manager
Laboratory doctor *Adilbekova S.Zh. (signature)*

Full name of the head laboratory
Dependence N.D. (signature)

Director of the branch of RSE on PVC "National Examination Center"
of the KKKRBU MB RK in Mangistau Region

signature

Regulation R.S.

Deputy of Director of the branch of RSE on PVC "National Examination Center"
of the KKKRBU MB RK in Mangistau Region

| | |
|--|---|
| Ministry of Health of the Republic of Kazakhstan | The organization code for General Classification of Enterprises and Organizations (GCEG) |
| The branch of RSE on PVC "National Examination Center" of the KKKBTU MS RK in Mangystau Region | Medical documentation Form No 186 / v Approved by order of the Minister of National Economy of the Republic of Kazakhstan of May |

REPORT

Of soil sample research

№742/PO-19-02787/sgl

«20» November 2019

1. Full name of business entity, address: "Ak-Said Kandyk" LLP
2. Place of sampling: Zharybai-Zhaspena highway, construction site PK230, 20 km.
3. The purpose of the sample research: the petroleum product detection
4. Date and time of selection: 18.11.19 12:00
5. Date and time of delivery: 18.11.19 15:00
6. Date and time research: 18.11.19- 20.11.19.
7. Regulatory documentation for the selection method: GOST 17.4.3.01-83
8. Transportation conditions: automobile transportation
9. Storage conditions:

| Name of Indicators | Unit of measure | Standard by regulatory documentation | Results of research | Regulatory documentation on test method |
|--------------------|-----------------|--------------------------------------|---------------------|---|
| | | | I | |
| Oil products | Mg/g of soil | | 65 | CFRD 14.1:2.21.98 |
| Zinc | Mg/g of soil | | is not defined | SNR 08-47/152 |
| Lead | Mg/g of soil | | 0.001 | SNR 08-47/152 |
| Cadmium | Mg/g of soil | | is not defined | SNR 08-47/152 |

Research made according to Regulatory documentation

Full name of the research specialist
Laboratory assistant Saker A.A. /signature/

Full name of the laboratory manager
Laboratory doctor Talanova M.D. /signature/

Full name of the head laboratory
Daprasbayeva N.D. /signature/

Director of the branch of RSE on PVC "National Examination Center"
of the KKKBTU MS RK in Mangystau Region

signature

Rymbetova R.S.

Deputy of Director of the branch of RSE on PVC "National Examination Center"
of the KKKBTU MS RK in Mangystau Region

signature/Nahiyev V.P.

| | |
|---|--|
| Ministry of Health of the Republic of Kazakhstan | The organization code: For General Classifier of Enterprises and Organizations (GOST) |
| The branch of KSE on PVC "National Examination Center" of the KKEB TU MB RK in Mangystau Region | Medical documentation Form No. 163 / V Approved by order of the Minister of National Security of the Republic of Kazakhstan of May 2019 |

REPORT

Of soil sample research

MS0670-10-03118sg

«18» December 2019

1. Full name of business entity, address: "AL-shal-kardes" LLP
2. Place of sampling: Zhetysai-Chamozen highway, construction site PK290, 30 km
3. The purpose of the sample research: the petroleum product detection
4. Date and time of selection: 12.12.19- 12:00
5. Date and time of delivery: 12.12.19- 15:00
6. Date and time research: 12.12.19- 18.12.19
7. Regulatory documentation for the selection method: GOST 17.43.01-83
8. Transportation conditions: automobile transportation
9. Storage conditions:

| Name of Indicators | Unit of measure | Standard by regulatory documentation | Results of research | Regulatory documentation on test method |
|--------------------|-----------------|--------------------------------------|---------------------|---|
| Oil products | Mg/g of soil | | I 55.1 | CFRD 16-12.21-98 |
| Zinc | Mg/g of soil | | is not defined | SNIR 08-47/153 |
| Lead | Mg/g of soil | | 0.003 | SNIR 08-47/153 |
| Cadmium | Mg/g of soil | | is not defined | SNIR 08-47/153 |

Research made according to Regulatory documentation

Full name of the research specialist:
Laboratory assistant Galina A.A. /signature/

Full name of the laboratory manager:
Laboratory director Talsanova M.D. /signature/

Full name of the head laboratory:
Department head N.G. /signature/

Director of the branch of KSE on PVC "National Examination Center"
of the KKEB TU MB RK in Mangystau Region

signature

Registrator: R.S.

Deputy of Director of the branch of KSE on PVC "National Examination Center"
of the KKEB TU MB RK in Mangystau Region

Signature/Nabiyev V.P.

Ф 04 ПД 37/01-16



KZ.H.05.0916

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, section 15 «B»
8(7132)939-513, 939-376
Accreditation certificate № KZ.H.05.0916
dated «27» July 2015



page 1 of 3

TEST REPORT № 40

dated July 25, 2019 y.

Customer Branch of «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Aktau

Address Aktau, micro-district 29-A, building 135 "AIBK" business center

Sample item and designation soil covering along "35-73 km Zhetybai-Zhanaozen, on the border of the residential area Zhanaozen, camp Zhetybai (657 km, the border SPZ)

Quantity 9 samples

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-324 dated 11.07.2019 of branch « CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate dated July 19th, 2019 y.

Sampling date July 19th, 2019 y.

Date of testing July 22th, 2019 y., July 23th, 2019 y., July 24th, 2019y.

Type of testing soil chemical analysis

ND for testing subject Hygienic standards for safety of the environment (soil), approved by order of the Minister of national economy of the RK dated 25.06.2015, № 452

Measuring instruments used for testing, calibration details laboratory electronic scale XS205DU fact №B141330205 calibration certificate №BB-02-145985 dated 08.11.2018; combined gauge SevenFury pH fact. №1231405267 calibration certificate №BB-09-110087 dated 15.06.2018, atomic absorption

spectrometer MGA-915M, fact. №394, calibration certificate №BP-09-10047547 dated 15.03.2019, 11-79143 dated 02.02.2018; fluid analyzer Fluorat-02-3M fact. №5593 calibration certificate №PC11-1955155 dated 30.05.2019

Test conditions 22.07.19 y.: weighing – temperature 22°C, humidity 48%; soil analysis laboratory – temperature 24°C, humidity 59%; 23.07.19 y.: soil analysis laboratory – temperature 24°C, humidity 51%; 24.07.19 y.: soil analysis laboratory – temperature 23°C, humidity 58%;

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|--|---------------------------|-----------------------|---------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖК-1 PK-350 (13-55 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,57 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | <0,005 |
| 01 | 02 | 03 | 04 | 05 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,22 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3,23 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 12,34 |
| ЖК-2 PK-450 (14-25 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,32 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | <0,007 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,19 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 4,40 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 18,54 |
| ЖК-3 PK-550 (15-00 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,37 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | <0,008 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,13 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3,73 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 20,13 |
| ЖК-4 PK-636+83 (16-30 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,22 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,005 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,16 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 6,57 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 19,54 |
| ЖК-5 PK 60+80 (village ZhunaOzen entrance (15-55 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,56 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,009 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,22 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 8,58 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 18,56 |

| | | | | |
|---|--------------------------|---------------------|---------------|-------|
| Camp village Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (11-00 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,98 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,005 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,20 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 4,30 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 15,57 |
| AK-24 (N43°32.555' E051°58.660') (11-45 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,82 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,005 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,20 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3,70 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 14,48 |
| AK-25 (N43°32.646' E051°58.764') (12-30 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 9,03 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,008 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,20 |
| 01 | 02 | 03 | 04 | 05 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 5,75 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 15,51 |
| AK-26 (N43°32.757' E051°58.351') (13-15 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 9,00 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,005 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,21 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 5,57 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 17,04 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Chemistry Lab Technician _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

*The test results apply for the samples subjected to the examination only.
The Test Report reprint is prohibited*



Laboratory of Environmental Protection

«Aktobe Chromium Compounds Plant»

Aktobe, Industrial Zone, section 15 «B»

8(7132)939-513, 939-376

Accreditation certificate № KZ.И.05.0916

dated «27» July 2015



TEST REPORT № 58

dated August 20, 2019 y.

Customer Branch of «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Aktau

Address Aktau, micro-district 29-A, building 135 “ABK” business center

Sample item and designation soil covering along the road: “35-73 km Zhetybai-Zhanaozen, on the border of the residential area Zhanaozen, camp Zhetybai (657 km, the border SPZ)_____

Quantity 9 samples

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-372/1 dated 31.07.2019 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate dated August 20, 2019 y.

Sampling date 15.08.2019, 16.08.2019, 19.08.2019

Date of testing 19.09.2018, 20.09.2018, 21.09.2018

Type of testing soil chemical analysis

ND for testing subject Hygienic standards for safety of the environment (soil), approved by order of the Minister of national economy of the RK dated 25.06.2015, № 452

Measuring instruments used for testing, calibration details laboratory electronic scale XS205DU fact .№B141330205 calibration certificate №BB-02-145985 dated 08.11.2018; combined gaugeSevenEasy pH fact. №1231405267 calibration certificate №BB-09-129711 dated 06.09.2018; atomic absorption spectrometer MGA-915M, fact. №394, calibration certificate №BB.09-10047547 dated 15.03.2019; fluid analyzer Fluorat-02-3M fact. №5593 calibration certificate №BB-11-1955155 dated 30.05.2019

Test conditions 15.08.19 y.: weighing – temperature 21°C, humidity 55%; soil analysis laboratory – temperature 23°C, humidity 58%; 16.08.19 y.: soil analysis laboratory – temperature 24°C, humidity 66%; 19.08.19 y.: soil analysis laboratory – temperature 23°C, humidity 58%;

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|--|---------------------------|-----------------------|---------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖЖ-1 PK-350 (12-35 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.50 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,005 |
| 01 | 02 | 03 | 04 | 05 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.15 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 2.95 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 11.27 |
| ЖЖ-2 PK-450 (13-05 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.62 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.006 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.18 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3.82 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 17.95 |
| ЖЖ- 3 PK-550 (13-35 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.50 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.005 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.11 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 2.42 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 16.57 |
| ЖЖ-4 PK-636+83 (14-55 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.12 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.005 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.17 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 6.94 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 17.63 |
| ЖЖ-5 PK 60+80 (village ZhanaOzen entrance (14-25 h) | | | | |

| | | | | |
|---|--------------------------|---------------------|---------------|-----------|
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.67 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.007 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.17 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 6.82 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 17.95 |
| Camp village Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (09-50 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.64 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.007 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.22 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 4.54 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 13.44 |
| AK-24 (N43°32.555' E051°58.660') (10-35h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.70 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.006 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.21 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3.53 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 14.16 |
| AK-25 (N43°32.646' E051°58.764') (11-20 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 9.08 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.010 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.24 |
| 01 | 02 | 03 | 04 | 05 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 4.38 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 11.93 |
| AK-26 (N43°32.757' E051°58.351') (12-05 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8.95 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0.005 |

| | | | | |
|---|----------------|---------------------|---------------|-------|
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0.24 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3.64 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 12.71 |

Executors:

Dust and Gas Collector Operator _____

/date, signature, name/

Chemistry Lab Technician _____

/date, signature, name/

Laboratory Chief _____

/date, signature, name/

The test results apply for the samples subjected to the examination only.

The Test Report reprint is prohibited



Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktau, Industrial Zone, section 15 «B»
8(7132)939-313, 939-376
Accreditation certificate № KZ.H.05.0916
dated «27» July 2015



TEST REPORT № 52

dated September 20, 2019 y.

Customer Branch of «CENGİZ INSAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ» JSC in Aktau

Address Aktau, micro-district 29-A, building 135 "ABK" business center

Sample item and designation soil covering along "35-73 km Zhetybai-Zhannaozen, on the border of the residential area Zhannaozen, camp Zhetybai (657 km, the border SPZ)

Quantity 9 samples

Reason for testing Contract №10-02/2019 dated 08.04.2019, letter outg. №AKT-CGZ-EXT-2019-430 dated 11.07.2019 of branch « CENGİZ INSAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ», sampling certificate#13 dated September 13rd, 2019 y.

Sampling date September 13rd, 2019 y.

Date of testing September 17th, 18.09, 19.09 2019y.

Type of testing soil chemical analysis

ND for testing subject Hygienic standards for safety of the environment (soil), approved by order of the Minister of national economy of the RK dated 25.06.2015, № 452

Measuring instruments used for testing, calibration details laboratory electronic scale XS205DU fact. №B141330205 calibration certificate №BB-02-145985 dated 08.11.2018; combined gauge SevenEasy pH fact. №1231405267 calibration certificate №BB-09-110087 dated 15.06.2018, atomic absorption spectrometer MGA-915M, fact. №394, calibration certificate №BP-09-/10047547 dated 15.03.2019, 11-79143 dated 02.02.2018; fluid analyzer Fluorat-02-3M fact. №5593 calibration certificate №BC11-1953155 dated 30.05.2019

Test conditions 17.09.19 y.: weighing – temperature 21°C, humidity 64%; soil analysis laboratory – temperature 21°C, humidity 55%; 18.09.19 y.: soil analysis laboratory – temperature 22°C, humidity 41%; 19.09.19 y.: soil analysis laboratory – temperature 22°C, humidity 56%;

| № | Indicator, measuring unit | ND for testing method | ND standard | Actual values |
|---|---------------------------|-----------------------|---------------|---------------|
| 01 | 02 | 03 | 04 | 05 |
| ЖКК-1 PK-350 (13-50 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,06 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | <0,006 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,18 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 2,37 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 12,33 |
| ЖКК-2 PK-450 (14-20 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,49 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | <0,004 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,17 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 4,98 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 15,5 |
| ЖКК-3 PK-550 (14-55 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,65 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | <0,007 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,13 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 2,70 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 11,78 |
| ЖКК-4 PK-636+83 (15-40 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,52 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,007 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,19 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 5,21 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 19,93 |
| ЖКК-5 PK 60+80 (village Zhanaozen entrance (16-40 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,74 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,006 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,23 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 4,32 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 17,41 |
| Camp village Zhetybai (730 km) PK 120 | | | | |
| AK-23 (N43°32.644' E051°58.296') (10-40 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,16 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,004 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,19 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3,06 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 15,32 |

| AK-24 (N43°32.555' E051°58.660') (11-30 h) | | | | |
|--|--------------------------|---------------------|---------------|-------|
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,39 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,002 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,19 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 2,98 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 13,12 |
| AK-25 (N43°32.646' E051°58.764') (12-20 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,61 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,008 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,20 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3,03 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 8,93 |
| AK-26 (N43°32.757' E051°58.351') (13-10 h) | | | | |
| 1 | pH | GOST 26423-85 c.4.3 | - | 8,22 |
| 2 | Petroleum products, mg/g | KZ.07.00.01668-2013 | - | 0,006 |
| 3 | Cadmium, mg/kg | KZ.07.00.03044-2014 | - | 0,22 |
| 4 | Plumbum, mg/kg | KZ.07.00.03044-2014 | not more 32,0 | 3,29 |
| 5 | Zinc, mg/kg | KZ.07.00.03044-2014 | - | 14,99 |

Executors:

Dust and Gas Collector Operator _____

(date, signature, name)

Chemistry Lab Technician _____

(date, signature, name)

Laboratory Chief _____

(date, signature, name)

The test results apply for the samples subjected to the examination only.

The Test Report reprint is prohibited