Environmental Monitoring Report

Project Number: 43439-033
January 2019

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

Prepared by the Grusamar Ingenieria y Consulting in association with subconsultant "SNS-2017" LLP for the Ministry of Investments and Development, Republic of Kazakhstan and the Asian Development Bank.

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SEMIANNUAL ENVIRONMENTAL MONITIRING REPORT

LOAN No. 2967-KAZ

Period: July-December 2018

January 2019

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

Financed by Asian Development Bank

Prepared by:

GRUSAMAR Ingenieria y Consulting, Spain
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Ministry of Investment and Development, Kazakhstan

Committee for Roads

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COMMITTEE FOR ROADS MINISTRY OF INVESTMENT AND 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-ZHANAOZEN-KENDERLI-TURKMENISTAN BOARDER" HIGHWAY

Section km 0 - km 73

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

Semiannual Environmental Monitoring Report

(Period: July 2018 - December 2018)

January 2019

GRUSAMAR Ingenieria y Consulting/
"SNS-2017" LLP

Prepared by GRUSAMAR Ingenieria y Consulting in association with «SNS- 2017» LLP in accordance with the reporting requirements of the Contract for Consultant's Services No. 01-ADB/CSC-2017 dated March 17, 2017

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ABBREVIATIONS

ADB	Asian Development Bank
AOI	Area of Influence
ARE	Assistant Resident Engineer
CAREC	Central Asia Regional Economic Cooperation
CoR	Committee for Roads
CSC	Construction Supervision Consultant
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental 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
MID	Ministry of Investment and 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
PEA	Preliminary Environmental Assessment
RK	Republic of Kazakhstan
RoW	Right of Way
SPS	Safeguard Policy Statement
TOR	Terms of Reference
SHW	Solid household wastes
SSEMP	Site-Specific Environmental Management Plan

1. INTRODUCTION

1.1 Preamble

1. This report is the bi-annual environmental monitoring report for the project MFF CAREC Transport Corridor 2: Investment Program, Project 2.

2. This report is the **second 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 highway passes through the desert-steppe environment, but the project does not provide for a new route plan, all the works will be performed within the existing right of way (except for the construction of a detour around Zhanaozen). The project provides for the construction of a new road pavement of the capital type, designed for a load of A2 on the axle 13 tf. In addition, it provides for the filling and widening of the roadbed, relocating and constructing the new artificial structures - culverts, construction of a new traffic interchange in two levels on the detour around the city of Zhanaozen, a new overpass of transport interchange in two levels on the detour of the city of Zhanaozen and a new rail overpass on175 km of Pk4-50 of the Zhetibay-Uzen haul, as well as measures for the improvement and recultivation of the occupied lands.

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 DESCRIOTION AND CURRENT

ACTIVITIES 2.1 Project description

7. The Republic of Kazakhstan, acting through the Ministry of Investment and 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. 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.

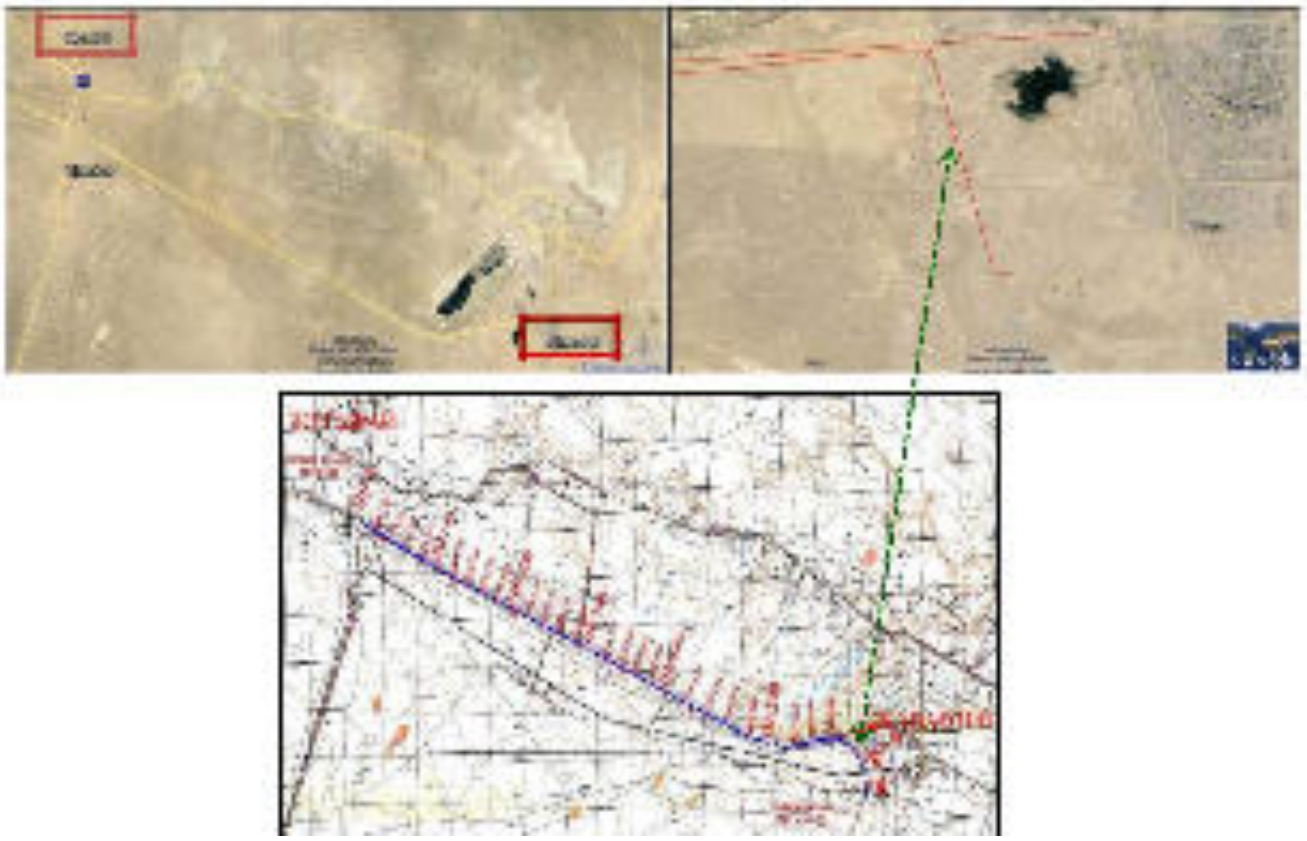
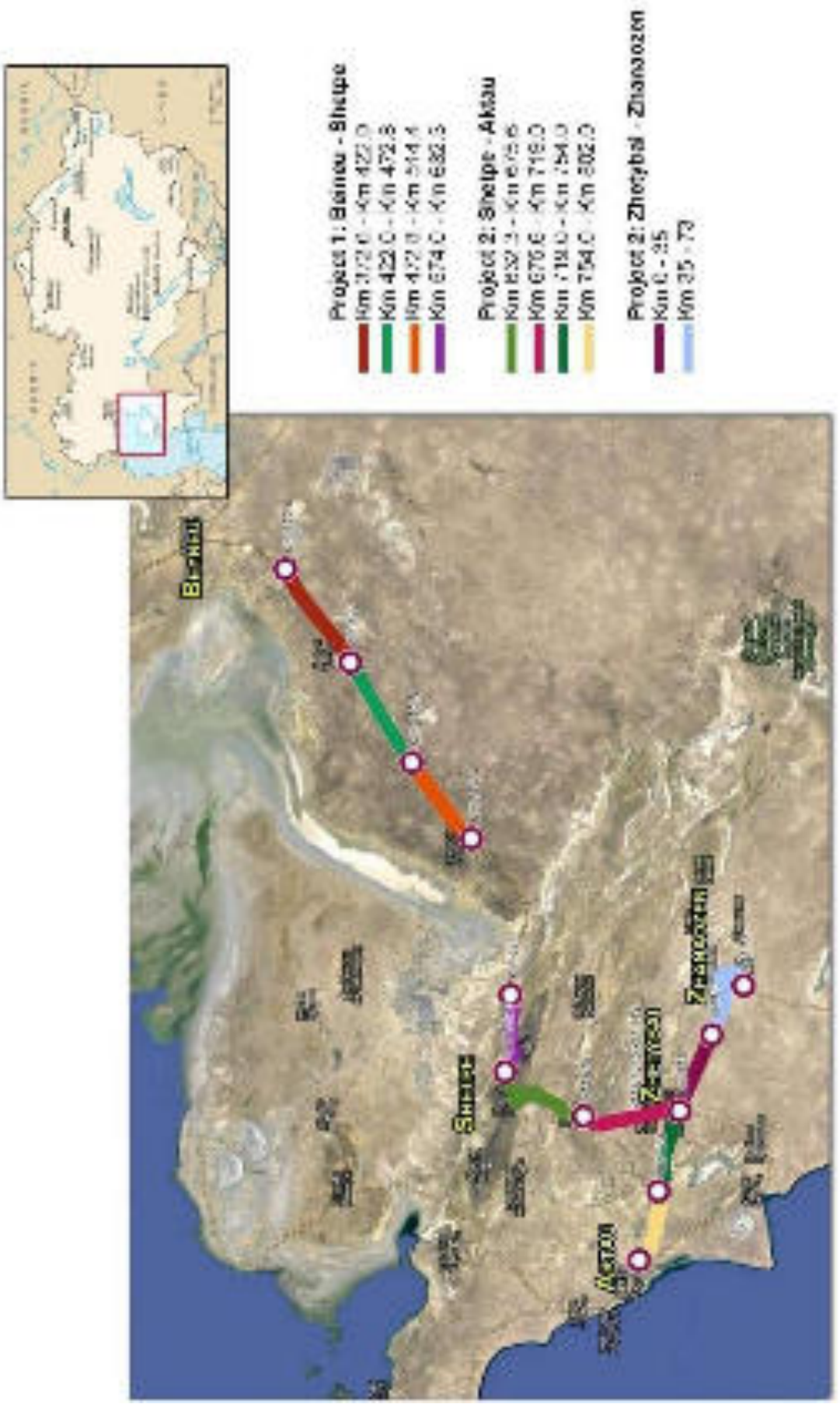


Figure 2.1 – Project road in scale of country

PROJECT LOCATION MAP



9. This report is the second 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 2018 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.

10. 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 Investment and Development (MID), 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.

11. According to the Initial Environmental Examination (IEE) 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 IEE. 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.

12. 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

13. The objective of the Semiannual Environmental Monitoring Report is to provide a information of the key issues relating to environmental issues during the past months (July 2018 to December 2018). 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 GRUSAMAR Ingenieria y Consulting 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.

14. 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

15. 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

16. The project involves reconstruction of the road between Zhetibay-Zhanaozen and construction of one new bypasses 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.

17. **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.

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

- km 35+00 - km 73+00 - reconstruction of the existing road according to the parameters of Category I-B with four-lane roadway and the roadbed broadening by 27.5 m;

- construction of one level interchanges at the entrance of Zhanaozen, from Pk573+87- Pk636+83 will be a new II category road section;

- in the populated area, the average repair of the section of the urban road with 7.616 m length will be carried out;

- construction of a railway overpass at Pk615+48 and construction of an overpass at the interchange to Zhanaozen at Pk574+48.

- construction of 12 pipe culverts, and 1 cattle pass in size 4x2.5 m;

- outdoor lights of the traffic interchange at Pk574+45.

2.1.4 Technical Description of the Road Project

19. 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.

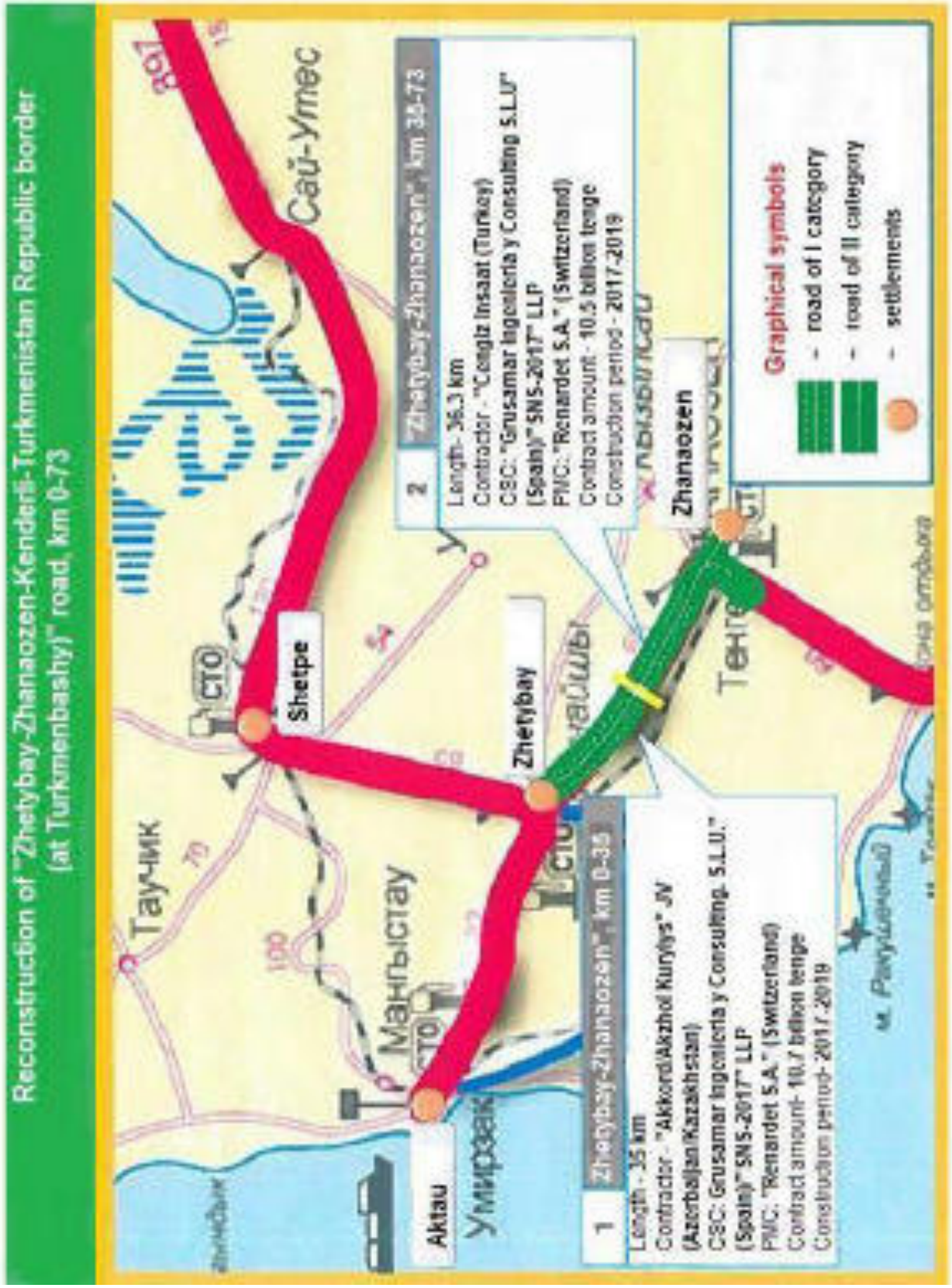


Figure 2.2 Location of the Project Road

2.1.5 Environmental Characteristics of the Project Area

20. 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 150mm 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.

21. 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.

22. 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, because of the small number of inhabitants it is inappropriate to build a water supply system, the imported water of the city of Aktau and Zhanaozen with adjacent settlements is used, and oil companies consume 93% of the total volume of water. The share of all the rest is 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.

23. According to the archaeological expertise published in the PEA, 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 valley, as well as the marine coastal areas to the south of Aktau.

24. 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

25. This report is the Second Semiannual Environmental Monitoring Report covering the period from July to December 2018. 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.

26. 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.

27. 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

28. The Government of the Republic of Kazakhstan, with the assistance of the Ministry of Investment and Development (MID) 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.

29. 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.

30. The Implementing Agency is the Committee for Roads of the Ministry of Investments and Development of the RK. 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 RSE "MangistauZholLaboratory" as his assistant for solving local issues related to the Contracts.

The project consists of 2 separately construction sections (Lot 1 and Lot 2).

31. 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/Akzholkurylys	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**

32. GRUSAMAR Ingenieria y Consulting, in cooperation with “SNS-2017” LLP (Consultant / Engineer), were appointed by the Employer to provide consulting services in the administration of Contracts and Construction Supervision. On January 15, 2018 the Contract between the Employer and the Consultant was signed.

33. 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 IEE report for May 2015. The contractor provided a detailed/specific Environmental Management Plan based on the report of the IEE, 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.

34. 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:
a) ensure that all mitigation measures to be implemented are included in the contract documents; b) overseeing and monitoring the implementation of the EMP/negative impact mitigation plan;
c) 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).
Coordination communication channels should be established according to the following scheme of coordination work (Figure 2.3):

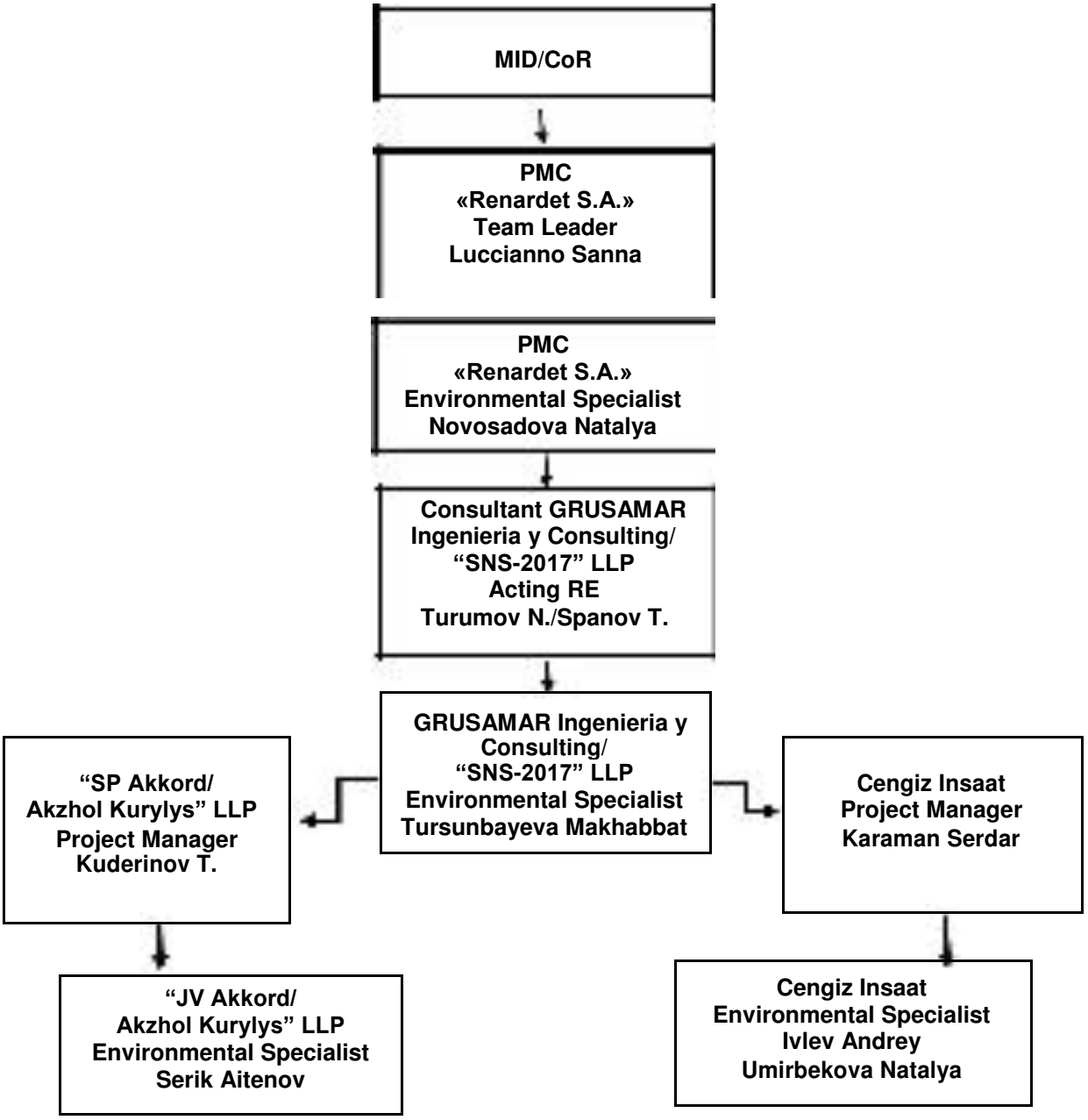


Figure 2.3: Organizational structure for environmental management of the project

2.3. Project Activities during the Current Reporting Period

35. **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. The current number of personnel on the site reached 245, and total number of equipment is 134 units. 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.

36. **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.

37. 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.

38. 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.

39. In general, the mobilization work was carried out with the achievement of 100%. The current average indicator of the workforce reached 1238 workers, the total number of machines and equipment at the site is 354 units.

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

a) Contract 001-ADB/CW-2017

No.	Work description	Units	Scope of works as per project	Performed in 2017	Actual for reporting period	Planned for reporting period	Actual from the Project, %	Planned from the Project, %	Difference %
1	Preparation works	KZT	16406 900,14		15272364, 67	15045457, 57	93,09 %	91,70 %	1,39%
2	Milling and removal of existing pavement layers	m^2	252 199,46		195241 m^2	75659 m^2	77,42 %	30, 00%	47,42%
		KZT	112 776 032,53		87305917,97	33832809,76			
3	Removal or relocation of existing utilities	pcs.	49		0,00	37,00	0,00%	75,51 %	-
		KZT	167 135 550,53		0,00	126204395,30			75,51 %
4	Earth works	thousand. m3	1 356,89		891	902,00	75,43%	66,48%	8,95%
		KZT	1 066 819 605,96		804730983,18	709173084,22			
5	Sub base layer	km	70/35		40,27	37,00	56,26%	49,23%	7,03%
		KZT	1 263 048 504,38		710600861,13	621746380,77			
		km	70/35		36,87	37,00	50,99 %	50,00 %	0,99 %

6	Base course	KZT	1 144 013 521,42		583363233,41	572006760,			
7	HPA	km	70/35		11,02	4,07	15,37%	5,65%	9,72%
		KZT	1 585 354 316,64		243744 380,39	89518 476,59			
8	Binder course	km	70/35		0,00	0,00	0,00%	0,00%	0,00%
		KZT	1 378 681 152,47		0,00	0,00			
9	Wearing course (SMA)	km	70/35		0,00	0,00	0,00%	0,00%	0,00%
		KZT	1 067 446 561,42		0,00	0,00			
10	Culverts	pcs.	1		10,5	10,00	91,93%	90,91%	1,02%
		KZT	177 379 301,71		16306610 1,28	16125391 0,65			
11	Road furniture	km	35		0,00	0,00	0,00%	0,00%	0,00%
		KZT	742 527 67 6,73		0,00	0,00			
12	Other works	KZT	862 499 905,04	72245 881,6 4	32065785 8,23	29772218 3,58	37,18%	33,94%	3,24%
Total:		**KZT**	**9 584 089 028,97**	**72 245 88 1,64**	**3 993 043 701, 55**	**4 014 002 717,12**	41,66 %	41,88%	-0,22 %

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

b) Contract-002-ADB/CW-2017

No.	Work description	Units	Scope of works as per project	Performed in 2017	Actual for reporting period	Planned for reporting period	Actual from the Project, %	Planned from the Project, %
1	Preparation works	KZT	217 154 555	93 833 035	93 833 035	43,21%	43,21 %	0,00%
2	Earth works	thousand m3	1424,08	43,74	43,74	1,58 %	1,29 %	0,30%
		KZT	409 4765 57	6 484 385	5 265 529			
3	Sub base layer	km	58,74	741,40	0,70	0,55 %	0,55%	0,00%
		KZT	508 946 519	2790 081	2 790 081			
4	Base course	km	58,74	0,00	0,00	0,00%	0,00%	0,00%
		KZT	1 002 682 037	0,00	0,00			
5		km	58,74	0,00	0,00	0,00%	0,00%	0,00%

	HPA	KZT	2 122 311 239	0,00	0,00			
6	Binder course	km	58,74	0,00	0,00	0,00%	0,00%	0,00%
		KZT	1 836 761 617	0,00	0,00			
7	Wearing course (SMA)	km	58,74	0,00	0,00	0,00%	0,00%	0,00%
		KZT	1 109 301 487	0,00	0,00			
8	Bridges and overpasses	%	100	3,08	3,08	3,08%	3,08 %	0,00 %
		KZT	597 174 378	18 365 638	18 365 638			
9	Culverts	pcs.	13	0,00	0,00	0,00%	0,00%	0,00 %
		KZT	44 371 556	0,00	0,00			
10	Road furniture	km	58,74	0	0,00	0,00%	0,00%	0,00%
		KZT	392 401 306	0	0			
11	RMF construction	%	100	-10,00	-10,00	-10 ,00%	-10,00%	0,00%
		KZT	360 977 856	-36 097 839	-36 097 786			
12	Other works	KZT	932 657 478	38 537 892	38 537 839	4,13%	4,13%	0.00%
Total:		**KZT**	**9 534 216 583**	**123 913 192, 47**	**122 694 33 6**	**1,30 %**	**1,29%**	**0,01%**

Contract 001, "Zhetibay-Zhanaozen" km 0 - km 35

Hiring a manpower is in the process. The total number of employees for the reporting period is 245 (as of November 10, 2018).

Table 2.3: Mobilization of personnel Contract 001

a) Contract-001-ADB/CW-2017

No.	Position	March 2018	April 2018	May 2018	June 2018	July 2018	Aug. 2018	Sep. 2018	Oct. 2018	Nov. 2018
1	Project coordinator	1	1	1	1	1	1	1	1	1
2	Project Manager	1	1	1	1	1	1	1	1	1
3	Construction works supervisor	1	1	1	1	1	1	1	1	1
4	Construction management personnel	11	10	10	10	10	9	9	9	7
5	Foreman	8	8	8	8	8	7	7	7	5
6	Administrative staff	4	4	4	4	4	4	4	4	4
7	Geodesy department	12	18	18	18	18	18	18	18	12
8	Quality control department and laboratory	7	7	7	7	7	7	7	7	7
9	Technician	2	2	2	3	3	3	3	3	3
10	Mechanician	1	2	2	2	2	2	2	2	2
11	Equipment operator	6	6	6	7	7	4	4	4	4
12	Crusher plant's operator	8	8	8	8	8	8	8	8	8
13	Asphalt concrete plant's operator	4	4	4	4	4	4	4	4	4

14	Assembler and welder	0	0	0	0	0	0	0	0	0
15	Skilled staff	4	8	8	10	10	9	8	9	9
16	Unqualified staff	21	37	43	55	55	52	40	47	45
17	Production and technical department staff	3	2	2	3	3	3	3	3	3
18	Medical staff	2	2	2	2	2	2	2	2	2
19	Cookers	6	8	8	8	8	8	8	8	8
20	Cleaners	6	8	8	8	8	7	7	7	7
21	Laundry	2	2	2	2	2	2	2	2	2
22	Security service	7	7	7	8	8	8	8	8	8
23	Purchasing department	4	4	4	4	4	3	3	3	3
24	Electricians	1	1	1	1	1	1	1	1	1
25	Warehouser	1	1	1	1	1	1	1	1	1
26	Truck's drivers	17	53	75	75	79	79	109	98	86
27	Vehicle's drivers	15	15	15	16	17	12	10	12	11
	Total as per project	**155**	**220**	**248**	**267**	**272**	**256**	**271**	**270**	**245**

Contract 002, "Zhetibay-Zhanaozen" km 35 - km 73

The total number of employees for the reporting period is 1238 people.

Table 2.3: Mobilization of personnel Contract 002

b) Contract-002-ADB/CW-2017

No.	Position	Total	Including:					
			Expats	Kazakhstan's personnel	local personnel	Gengiz Insaat	Subcontractors	Hired employees
1	Project Director	0	0	0	0	0	0	0
2	Project Manager	1	1	0	0	1	0	0
3	Site Manager	0	0	0	0	0	0	0
4	Engineers	17	4	11	2	12	3	2
5	Formen	27	5	20	2	18	5	4
6	Administrative and managerial personnel	75	3	55	17	62	7	6
7	Geodetic service	43	3	38	2	7	33	3
8	Quality service and laboratory	29	0	27	2	11	18	0
9	locksmiths	119	0	116	3	68	34	17
10	Mechanics	68	1	66	1	1	65	2
11	Equipment Operator	1	0	0	1	1	0	0
12	Crusher Operators	8	0	4	4	6	2	0
13	Asphalt Plant Operators	12	0	12	0	12	0	0
14	Concrete Plant Operators	3	0	3	0	2	1	0
15	Mounters and welders	50	0	48	2	14	18	18
16	Skilled workers	122	0	118	4	0	90	32
17	Unskilled workers	230	3	191	36	87	58	85
18	Technical personnel	0	0	0	0	0	0	0
19	Medical staff	0	0	0	0	0	0	0
20	Cooks	12	0	12	0	0	0	12

21	Cleaning ladies	14	0	0	14	14	0	0
22	laundry personnel	0	0	0	0	0	0	0
23	Security	6	0	1	5	6	0	0
24	Procurement personnel	9	0	4	5	7	1	1
25	Electricians	14	2	12	0	10	3	1
26	Store keeper	41	1	40	0	25	12	4
27	Truck Drivers	256	0	250	6	0	255	1
28	Car Drivers	55	0	33	22	1	1	53
29	Mechanics	26	6	20	0	17	7	2
	Total on project	**1238**	**29**	**1081**	**128**	**382**	**613**	**243**

2.3.1 Locating the construction camps

40. 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=5600m^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 m^3/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) in Zhetybay, November 2018

41. 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

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.

42. 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, July 2018

43. 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.

44. 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;
- 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 centre.

2.3.2 Information on the availability of environmental permitting documentation

45. 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, 2018.

Table 2.4: a) 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 VeTicaret 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 "

The list of permits for environmental emissions			
Name	**Authorization number / Authorized state authority**	**Date of issue**	**Period of validity**
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-Zhanaozen" road section (35-73 km)	**KZ81VDD00089712**	22/02/2018	22/02/2018 - unlimited
Construction work of “Cengiz Insaat” BJSC on the section on Zhetibay-Zhanaozen road section (35-73 km)	**KZ71VDD00091153**	20/03/2018	20/03/2018 - 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-Zhanaozen-Kenderli-border of the Republic of Turkmenistan" km 35-73 "	**KZ34VDD00095311**	15/06/2018	31.12.2018

46. 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 - Zhanaozen" road section (35-73 km) "Cengiz Insaat" BJSC as of December 31, 2018.

Table 2.4: b) 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 / Authorized state authority**	**Date of issue**	**Period of validity**
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-Zhanaozen" 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-Zhanaozen road ofthe 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-Zhanaozen 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-Zhanaozen	**KZ10VCZ00175684**	23/08/2018	23/08/2018-31/12/2027

road in the Mangystau region" including EIA			

2.3.3 Changes in the project management and environmental management team

The Employer is the Committee for Roads of the Ministry of Investment and Development of the RK (formerly the Ministry of Transport and Communications).
The Employer hires a Project Management Consultant (PMC) Renardet S.A. to assist the Committee in project implementation. The Employer appointed RSE "MangistauZholLaboratory" as its assistant to resolve local issues related to contracts.
GRUSAMAR Ingenieria y Consulting, in cooperation with SNS-2017 LLP (Consultant / Engineer), was appointed by the Employer to provide consulting services in Contract administration and construction supervision. On January 15, 2018, the Contract was signed between the Employer and the Consultant.
In July 2017, the Contract for consulting services was signed between the Committee for Roads of the Ministry of Investment and Development and GRUSAMAR Ingenieria y Consulting (Spain) in cooperation with SNS-2017 LLP (Kazakhstan). The date of commencement of consulting services was scheduled within the 21 days after the signing of the Contract.

Table 2.5: Mobilization of Environmental specialists

Organization	Position	Full name	Activity	Period
Contractor Cengiz Insaat	environmental specialist	Ivlev 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

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

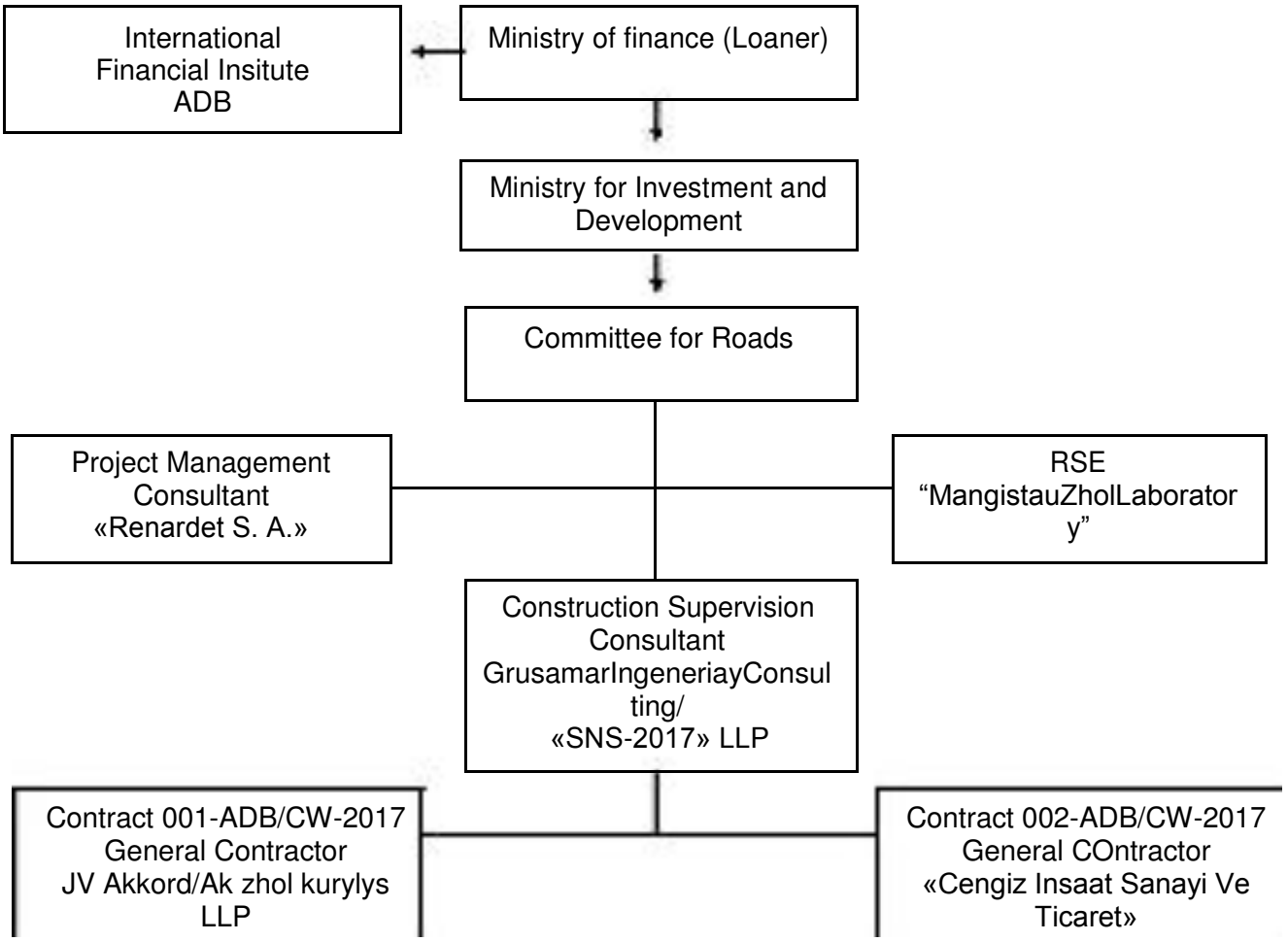


Figure 2.4: Organization of working coordination

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

50. 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.

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

52. 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 16/06/2017, Contractors provide a monthly report on environmental protection. During the period from July to December 2018, each Lot was provided with 6 reports in a timely manner.

53. 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. Details are provided in Appendix 2.

2.4 Description of Any Design Changes

54. 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 IEE / EIA.

Contract 1

55. Contractor submitted working drawings of longitudinal and cross section profiles (Contractor’s letter No. AAZK-CS-0086 dated 16/04/2018). As per recommendations of the Engineer (Engineer’s letter No. 0205 dated 02/05/2018) the Contractor (Contractor’s letter No. AAZK-CS-0134 dated 15/05/2018) proposed to revise the working drawings of longitudinal and cross profiles with lowering the profile of road section from PK205+00 to PK210+00 on average by 1-1.5 m in order to ensure the traffic safety, reduce the term for reconstruction and save the material and technical resources. This proposal was sent to PMC and Designer and on the ground of the agreements from PMC and Designer, this proposal was approved by the Engineer.

Contract 2

56. The Contractor (Contractor’s letters No. ZZO-CGZ-GI-2018-055 dd. 21/03/2018 & No. ZZO-CGZ-GI-2018-077 dd. 02/04/2018) submitted the modified working drawings of Contract 002 consisting of a longitudinal plan, profile, and cross sections in intervals of 20 m.

The working project was sent (Engineer’s letter No. 0294 dd. 08/06/2018) and is being reviewed in KazDorNII, c. Almaty.

57. Project Management Consultant “Renardet S. A.” sent to the Engineer approval of Asian Development Bank and a letter from the Committee for Roads of the Ministry of Investment and Development of the Republic of Kazakhstan regarding the Variation Order No. 1 on reorganization of communication under Contract 002-ADB / CW-2017 for further work. Details in Appendix 3.

Variations

Lot 1

58. Utilities were identified in the amount of 10 pieces (gas pipelines, oil pipelines and water pipes) and letters on relocation of utilities were sent to KazDorNII Almaty for coordination and consideration of the project. No response has been received. Regarding these unforeseen by the project utilities and other inaccuracies in the design and estimate documentation is under development by the Contractor. Upon completing, it will be sent to the Designer for review and approval. On the ground of the letter of LLP "Tasbolat Oil Corporation", meeting was held with the participation of the representatives of the Employer, Contractor, PMC and the Engineer, as well as representatives of "TasbolatOilCorporation" LLP regarding the junctions unrecorded by the project for access roads to the deposits of the above

company. As result of the meeting, it was decided to make some changes to the project of road under reconstruction "Zhetybay-Zhanaozen", km 0-35.

59. At the section PK4+00 of the "Zhetybay-Zhanaozen" road there is an existing access road to the oil pumping station Mangystau Oil Pipeline Management Office JSC "KazTransOil". The production activity of the oil pumping station (OPS) directly depends on this road, since the road service with the OPS was implemented through the specified access road. The road is on the balance of the organization, has asphalt concrete pavement and is the main exit to the road of republican significance "Zhetybay-Aktau" and "Zhetybay-Zhanaozen". In the design stages, this access road was not included in the working project of the reconstruction of "Zhetybay-Zhanaozen" road.

60. On July 13, 2013, we received a letter from the "MangystauZholLaboratory" RSE on the consideration of the possibility of including an access road to the OPC of the Mangystau Oil Pipeline Management Office JSC "KazTransOil".

61. On July 17, 2018, this section was inspected jointly with the representatives of Employer, PMC "Renardet" and CSC. Based on the results of the inspection, and having considered the project of reconstruction of the "Zhetybay-Zhanaozen" road, the Engineer considers that construction of junction is necessary at PK4+00.

62. Letter regarding the arrangement of additional junctions and U-turn was sent to the PMC and Project Designer. For a more detailed consideration of this issue, the Project Designer requested drawings. The Contractor developed the drawings and submitted them to the Engineer. After reviewing the Engineer sent these drawings to the PMC for coordination.

63. The Engineer received the approval letter on the arrangement of additional junctions and U-turn from the Designer and forward it to the Contractor for their necessary actions.

Lot 2

64. 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.

65. The Engineer had accepted and the Employer approved the value adjustment index in accordance with the Contract.

66. The replacement of the culverts headwalls has pre-approved by the Project Designer. The Contractor is expecting the provision of the working drawings signed by the Designer. The RMF in c. Zhanaozen has been 90% completed.

2.5 Description of Any Changes in Approved Construction Methods

67. 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

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

69. 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.

70. 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.

71. 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

72. **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 IEE report for May 2015. The Contractor has provided a detailed / special Environmental Management Plan based on the IEE 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.

73. 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 AUDIT (SITE VISIT)

74. Periodic inspections of construction camps and construction sites of Lot 1 and Lot 2 were conducted during the construction period (from July to December 2018) 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.
75. 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 Enginronmental 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 housekeeping works of the Contractor's construction camp Lot 2. Following the instructions and advices of the CSC, Contractors should take corrective actions and monitor these activities to ensure their effectiveness.
76. 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-December 2018.

Table 3.1: Summary of the Number and Type of Site Visits

Date	Contract		Audit objective	Environmental auditor name	Overview
	Contract 1 km 0-35	Contract 2 km 35-73			
13.08.2018	1		Site visit, monitoring and control of quality of air and soil, noise and vibration	Aitenov S. - Environmental Specialist	Construction of road bed, subbase of SGM
16.08.2018		1	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Compaction of roadbed with roadbed, construction of crushed stone base course, laying the asphalt concrete pavement
23.08.2018		1	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Compaction of roadbed with roller, crushed stone base course pconstruction, levelling with grader
28.08.2018		1	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Paving the asphalt concrete pavement, construction of crushed stone base course, dust supression

06.09.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Earthworks, paving the second layer of asphalt, asphalt paving
18.09.2018	**1**		Site visit, monitoring and control of quality of air and soil, noise and vibration	Aitenov S. - Environmental Specialist	High porous asphalt concrete pavement construction
19.09.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist Tursunbayeva M.– specialist on Environmental Protection	Loading and spreading the rock soil, spread, road bed compaction, soil (SGM) spreading, cutting the ledges
26.09.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Earthworks, asphalt paving
27.09.2018	**1**	**1**	Review of the implementation of existing projects, MMF Investment Program of the CAREC Corridor 2 in the Mangystau region (Zhetybai-Zhanaozen)	1. Nanshan Zhang, Advisor and Director, ADB Portfolio Management in the Central and West Asia Region; 2. Nurlan Dzhenchuraev, Environmental Specialist 3. Aida Satylganova,- Specialist of social development 4. Nema Aquillo, Senior Operations Assistant	
16.10.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist Novosadova N. – Environmental Protection Specialist	Construction of roadbed, filling the section, subbase construction
18.10.2018	**1**		Site visit, monitoring and control of quality of air and soil, noise and vibration	Aitenov S. - Environmental Specialist	Subbase construction, construction of binder course

16.11.2018	**1**		Site visit, monitoring and control of quality of air and soil, noise and vibration	Aitenov S. - Environmental Specialist	Construction of roadbed, filling the section, subbase construction
22.11.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Spreading the road bed, compaction of road bed, paving the second layer of asphalt, loading the material (rock soil)
27.11.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Shoulders construction, backfilling, cone filling, subbase construction
07.12.2018		**1**	Site visit, monitoring and control of quality of air and soil, noise and vibration	Umirbekova N.- Environmental Specialist	Ground bed levelling under the slabs, loading the material, material fill, road bed spreading, compaction
14.12.2018	**1**		Site visit, monitoring and control of quality of air and soil, noise and vibration	Aitenov S. - Environmental Specialist	Construction of crushed stone base course, HPA

Photo 3.1 Site visit of the ADB team (September 2018)

77. **ADB site visit**: Review Mission of Loan 2967-KAZ CAREC Corridor 2 Investment Program (sections in Mangistau Oblast) Project 2.

Visit date: September 11-18

78. **The mission includes the following ADB specialists**:

1. Mr. Nyanshan Zhang, Advisor and Director, ADB Portfolio Management in the Central and West Asia Region (including environmental protection and acquisition/resettlement measures);
2. Mr. Nurlan Djenchuraev, Senior Environmental Specialist
3. Ms. Aida Satylganova, Social Development Specialist
4. Nema Aquillo, Senior Operations Assistant.

79. **The purpose of the audit** is to review the implementation of existing projects, (a) The Aktobe-Makat road reconstruction project connecting CAREC Corridors 1 and 6 and (b) MMF CAREC Corridor 2 Investment Program in Mangistau Oblast (Zhetybai-Zhanaozen), and visiting the proposed projects (c) Reconstruction of Aktobe-Kandyagash road and (d) Project of sustainable road maintenance in Kostanay region.

80. On September 13-14 and September 25-26, 2018 - Review mission of Loan 2967-KAZ Investment Mission CAREC Corridor 2 program (sections of the Mangystau region / Zhetibay-Zhanaozen) Project 2. On the delegation of the mission: Mr. Ari Kalliokoski, transport economist / mission head; Ms. Assem Chakenova, ADB Project Specialist in the Republic of Kazakhstan, Ms. Glenda Jurado, Project Analyst and Mr. Zhuntai Zhang, Mr. Jenchuraev N., Chief Specialist for ADB EPA; Ms. Satylganova Aida, ADB Specialist in aquisition and resettlement of Land plots.

81. The ADB team visited the sites of the Mangistau region on September 14, 2018 to review and discuss with the competent authorities and implementing agencies the status of the implementation of the Zhetybai-Zhanaozen project, including:

1) Progress of implementation of work / issues / quality of construction work;
2) Compliance with the implementation of the loan agreement;
3) Compliance with protective measures;
4) Award of contracts and payments for the forthcoming project period;
5) Submission of project reports.

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

82. 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.

83. During the reporting period of 2018, during the regular monitoring and inspections, the PMC specialist and the Engineer identified violations such as insufficient dust suppression by Contractors of Lot 1 and Lot 2, unauthorized placement of residual asphalt on the roadsides on km 122, 123+84, 125, 132, 133-134 Lot 2 (Pk404, 413, 428, 501, 490-518 Lot 2) , used tires on the construction site (Contract 2, lot 2) km 127+44, 128+54 (on Pk449, 460), residual asphalt on km 133-134 (on Pk490-518), unauthorized unloading of concrete mixture into the environment km 144+08 (on Pk615 + 48), the site for the container of solid waste is not fenced.

84. According to all comments, instructions were issued to eliminate the violation, to organize the collection and removal of used tires to the designated location, to organize the cleaning of the territory.

85. During the second half of 2018, 7 violations were identified for which instructions were issued. Most violations 57% concerned the contamination of the territory of the construction site, the construction site with waste. 29% of violations related to waste disposal and waste disposal in unidentified places, 14% violations - the lack of waste containers.

86. Letter No. 0516 dated October 19, 2018 was issued to the Contractor Lot 2 regarding the 29

elimination of violations of the EMP requirements. On 01.11.2018 the Contractor notified the CSC on the implementation of measures as per revealed violations. (Letters on non-conformances are in Appendix 4)

87. The main reasons for the violations found were:
- insufficient understanding by employees of the Contractors of the requirements of the EMP,
- poor monitoring of compliance with the requirements of the EMP of the Contractor's technical and engineering employees.

88. Instructions were issued for all violations (how many) found. After the implementation of the recommendations specified in the instruction by the Contractor's ecologist, re-inspections were carried out. The degree of effectiveness of issued instructions is 100%.

3.4 Trends (general directions)

89. Comparative analysis of identified violations in the 2nd half of 2018 compared to the 1st half of 2018.

90. The number of inspections in the 2nd half of 2018 compared to the 1st half of 2018 increased by 100%. That is due to the working program of construction works performance. Officially, construction was started on February 20, 2018, works were actively started from April 2018, respectively, the number of inspections was less.

3.5 Unforeseen environmental impacts or risks

91. 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

92. 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.

93. 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

94. 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:

95. **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.

96**. 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.

97**. 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).

98. 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.

99. 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
		petroleum	1 sample
The boundary of the SPZ of Asphalt concrete plant	2	products, cadmium, lead zinc	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 measurements
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

Figure 4.1: Locations of air, noise, vibration and soil sampling points (measurements) Lot 1

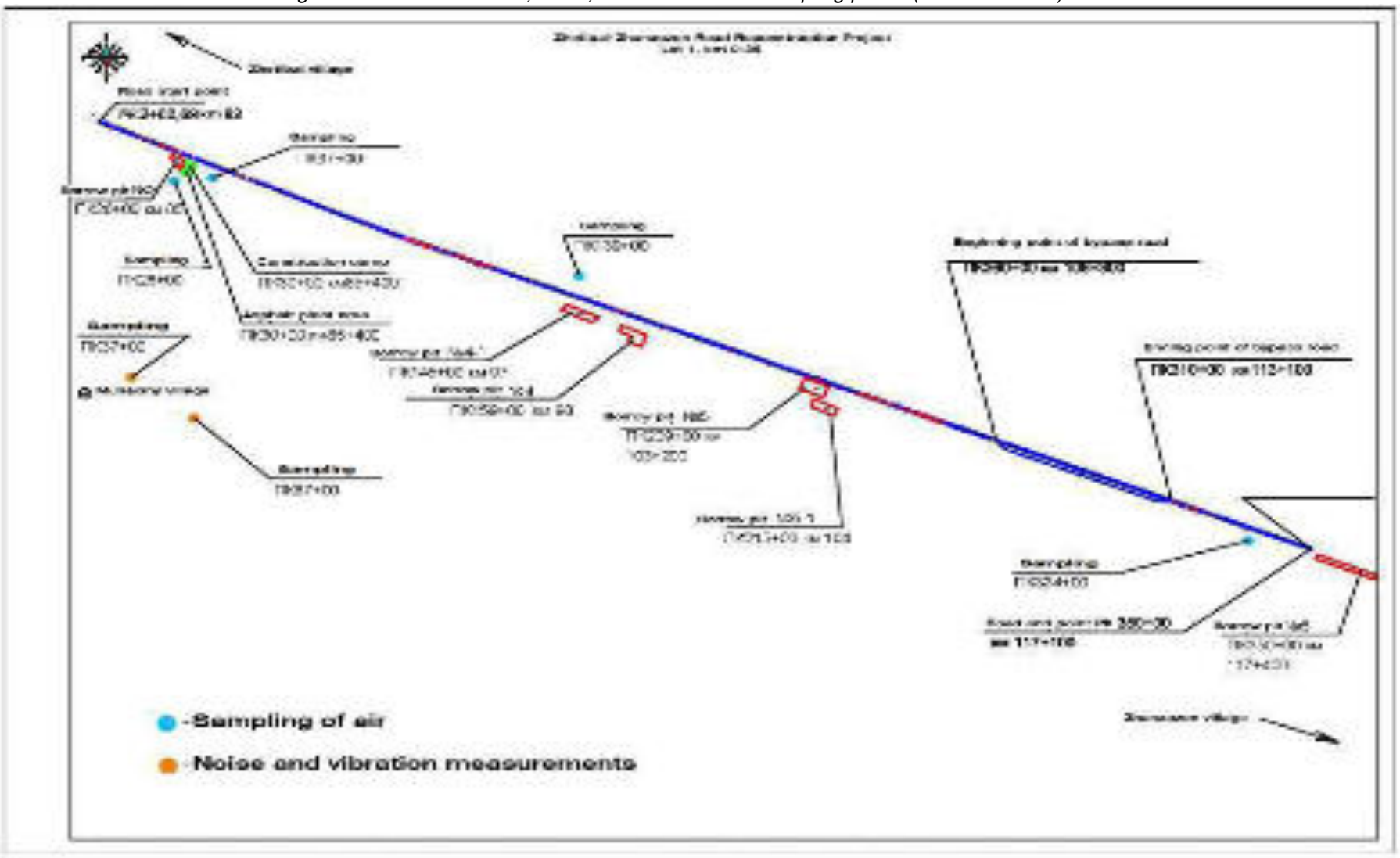
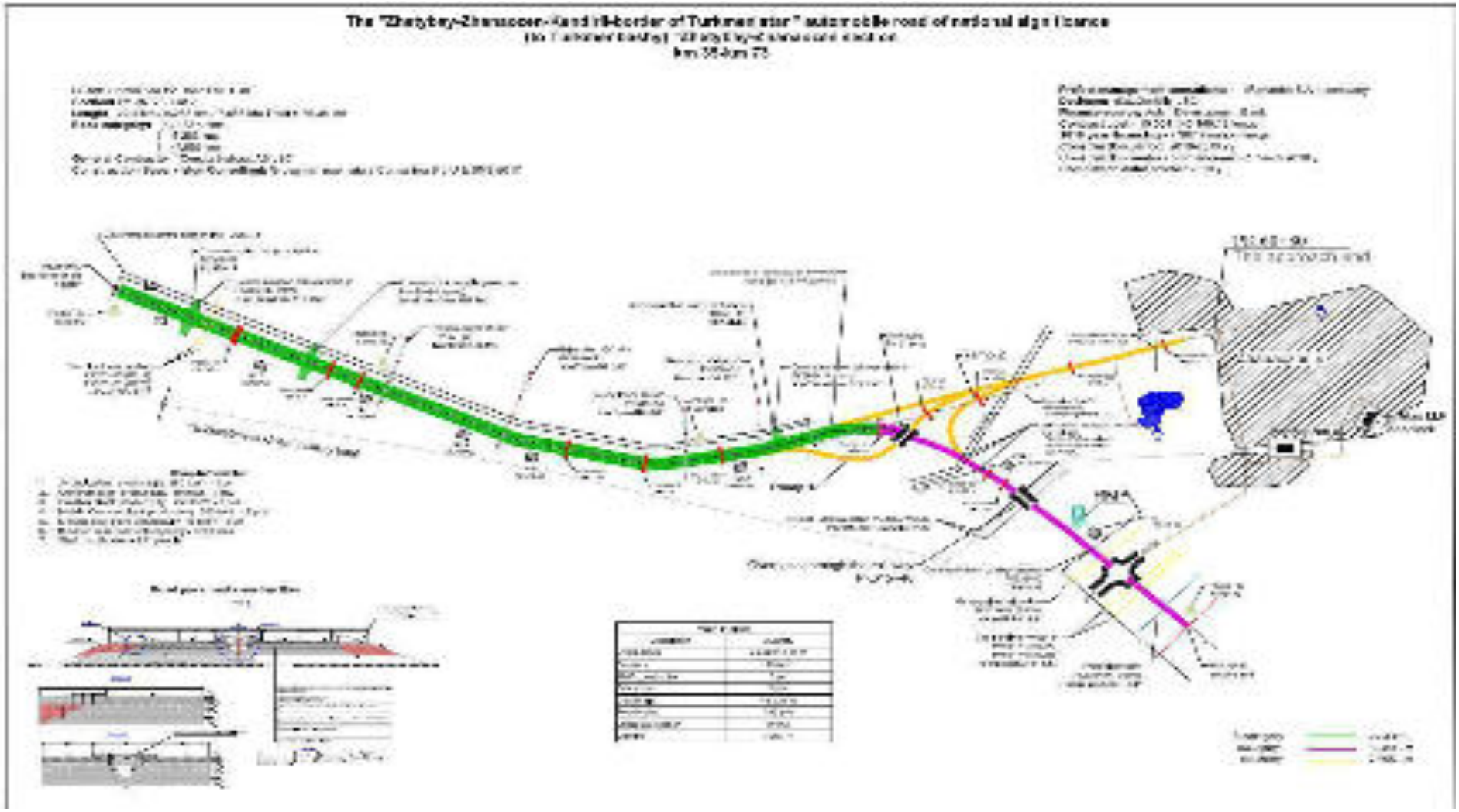


Figure 4.2: Locations of air, noise, vibration and soil sampling points (measurement) Lot 2



100. 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.
101. 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.

Analysis of atmospheric air quality

102. 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 July to December 2018 and the maximum permissible concentrations of pollutants. The results confirm that there were no excesses in the monitoring period. The monitoring results show that the content of pollutants does not exceed the MPC in accordance with the requirements of environmental protection of the Republic of Kazakhstan. It should be noted that the concentration of emissions will vary in accordance with the meteorological conditions (wind speed and direction and relative humidity), the amount and mechanical condition of construction equipment, and the volume, type of vehicle, direction of movement and traffic. **Air test protocol is presented in Appendix 5.**

103. 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).

Photo 4.1: Air quality measurement (JV Akkord/Ak zhol kurylys)

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

Point No.	Measurement No.	Measurement date	Measurement time	CO		NO		Dust
				MAC < 5	MAC<0,5	MAC<0,4	MAC<0,2	MAC<0,15
				mg/m³	mg/m³	mg/m³	mg/m³	mg/m³
T-1	1	09/11/2018	morning	<1.5	<0.025	<0.03	<0.02	<0.075
				5	0.5	0.4	0.2	0.15
	2		afternoon	<1.5	<0.025	<0.03	<0.02	<0.075
				5	0.5	0.4	0.2	0.15
	3		evening	<1.5	<0.025	<0.03	<0.02	<0.075
				5	0.5	0.4	0.2	0.15
T-2	1	09/11/2018	morning	<1.5	<0.025	<0.03	<0.02	<0.075

				5	0,5	0,4	0,2	0,15
	2		afternoon	<1.5	<0.025	<0.03	<0.02	<0.075
				5	0,5	0,4	0,2	0,15
	3		evening	<1.5	<0.025	<0.03	<0.02	<0.075
				5	0,5	0,4	0,2	0,15

Meteorological measurement results

Point No.	Measurement date	Measurement time	Wind speed, m/sec	Direction of the wind	Atm. pressure, mm Hg	Humidity, %	t, C°	General weather conditions
T-1	09/11/2018	morning	6.2	C	751	61	5	Clear
		afternoon	8.4	C	751	68	8	Clear
		evening	9.3	C	751	53	7	Clear
T-2	09/11/2018	morning	6.4	C	751	60	5	Clear
		afternoon	8.5	C	751	57	8	Clear
		evening	9.4	C	751	50	6	Clear

Photo 4.2: Air quality measurement (Cengiz Insaat)

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

Characteristics of sampling points		Concentrations of harmful substances,mg/m^3			
Description	Sampling date	Dust	Carbon monoxide	Nitrogen Dioxide	Sulphur dioxide
		MPC values			
		Not more than 0,5	Not more than 5	Not more than 0,2	Not more than 0,5
HIGHWAY					
ЖЖ-1	16.07.2018	0,42	<1,5	<0,02	<0,03
ЖЖ-1	06.08.2018	0,4	<1,5	<0,02	<0,03
ЖЖ-1	17.09.2018	0,39	<1,5	<0,02	<0,03
ЖЖ-1	12.10.2018	0,41	<1,5	<0,02	<0,03
ЖЖ-1	09.11.2018	0,45	<1,5	<0,02	<0,03

ЖЖ-1	10.12.2018	0,11	<1,5	<0,02	<0,03
ЖЖ-2	16.07.2018	0,4	<1,5	<0,02	<0,03
ЖЖ-2	06.08.2018	0,4	<1,5	<0,02	<0,03
ЖЖ-2	17.09.2018	0,27	<1,5	<0,02	<0,03
ЖЖ-2	12.10.2018	0,32	<1,5	<0,02	<0,03
ЖЖ-2	09.11.2018	0,42	<1,5	<0,02	<0,03
ЖЖ-2	10.12.2018	<0,04	<1,5	<0,02	<0,03
ЖЖ-3	16.07.2018	0,45	<1,5	<0,02	<0,03
ЖЖ-3	06.08.2018	0,31	<1,5	<0,02	<0,03
ЖЖ-3	17.09.2018	0,41	<1,5	<0,02	<0,03
ЖЖ-3	12.10.2018	0,38	<1,5	<0,02	<0,03
ЖЖ-3	09.11.2018	0,44	<1,5	<0,02	<0,03
ЖЖ-3	10.12.2018	<0,04	<1,5	<0,02	<0,03
ЖЖ-4	16.07.2018	0,41	<1,5	<0,02	<0,03
ЖЖ-4	06.08.2018	0,22	<1,5	<0,02	<0,03
ЖЖ-4	17.09.2018	0,25	<1,5	<0,02	<0,03
ЖЖ-4	12.10.2018	0,38	<1,5	<0,02	<0,03
ЖЖ-4	09.11.2018	0,46	<1,5	<0,02	<0,03
ЖЖ-4	10.12.2018	<0,04	<1,5	<0,02	<0,03
ЖЖ-5	16.07.2018	0,44	<1,5	<0,02	<0,03
ЖЖ-5	06.08.2018	0,43	<1,5	<0,02	<0,03
ЖЖ-5	17.09.2018	0,18	<1,5	<0,02	<0,03
ЖЖ-5	12.10.2018	0,39	<1,5	<0,02	<0,03
ЖЖ-5	09.11.2018	0,43	<1,5	<0,02	<0,03
ЖЖ-5	10.12.2018	0,14	<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 second half of the year 2018	**average**	**0,358**	<1,5	**< 0,02**	**<0,03**
	minimum	**0,11**	<1,5	**< 0,02**	**<0,03**
	maximum	**0,46**	<1,5	**< 0,02**	**<0,03**

CONSTRUCTION CAMP ZHETIBAY (713 KM)					
АК-23	16.07.2018	0,26	<1,5	<0,02	<0,03
АК-23	06.08.2018	0,33	<1,5	<0,02	<0,03
АК-23	17.09.2018	0,08	<1,5	<0,02	<0,03
АК-23	12.10.2018	0,43	1,76	<0,02	<0,03
АК-23	09.11.2018	0,45	<1,5	<0,02	<0,03
АК-23	10.12.2018	0,4	<1,5	<0,02	<0,03
АК-24	16.07.2018	0,4	<1,5	<0,02	<0,03
АК-24	06.08.2018	0,32	<1,5	<0,02	<0,03

AK-24	17.09.2018	0,25	<1,5	<0,02	<0,03
AK-24	12.10.2018	0,42	<1,5	<0,02	<0,03
AK-24	09.11.2018	0,46	<1,5	<0,02	<0,03
AK-24	10.12.2018	0,11	<1,5	<0,02	<0,03
AK-25	16.07.2018	0,45	<1,5	<0,02	<0,03
AK-25	06.08.2018	0,23	<1,5	<0,02	<0,03
AK-25	17.09.2018	0,29	<1,5	<0,02	<0,03
AK-25	12.10.2018	0,41	<1,5	<0,02	<0,03
AK-25	09.11.2018	0,47	<1,5	<0,02	<0,03
AK-25	10.12.2018	0,1	<1,5	<0,02	<0,03
AK-26	16.07.2018	0,44	<1,5	<0,02	<0,03
AK-26	06.08.2018	0,42	<1,5	<0,02	<0,03
AK-26	17.09.2018	0,27	<1,5	<0,02	<0,03
AK-26	12.10.2018	0,4	<1,5	<0,02	<0,03
AK-26	09.11.2018	0,49	1,51	<0,02	<0,03
AK-26	10.12.2018	0,13	<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 second half of the year 2018	**average**	**0,333**	**1,63**	**< 0,02**	**<0,03**
	minimum	**0,08**	**<1,5**	**< 0,02**	**<0,03**
	maximum	**0,49**	**1,76**	**< 0,02**	**<0,03**

Noise and vibration measurement

104. 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 6.**

Photo 4.3: Noise and vibration measurement Lot 1

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

Sampling place	Date	Maximum sound level, dBA	Permissible sound level, dBA	Maximum sound level, dBA	Permissible sound level, dBA
On the territory of residential house No. 20	20.08.2018 07.00-23.00	66,8	**70**	67,3	**118**
On the territory of residential house No. 7	26.06.2018 07.00-23.00	65,1	**70**	75,3	**118**

Photo 4.4: Noise and vibration measurement Lot 2

Table 4.5: Noise and vibration measurement results: Section 2: km 35 – 73 (Zhetibay-Zhanaozen)

No noise excess detected at this site.

Sampling point	Measurement date	Noise, dBa		
		equivalent	maximum	minimum
Entrance to Zhanaozen city				
ЖЖ-5	16.07.2018	73	76	66
ЖЖ-5	06.08.2018	73	78	69
ЖЖ-5	17.09.2018	70	74	69
ЖЖ-5	12.10.2018	70	72	66
ЖЖ-5	09.11.2018	72	74	68
ЖЖ-5	10.12.2018	74	76	70
Basic values		**70**	**76**	**60**
For second half of the year 2018	**average**	**72**	**75**	**68**
	minimum	**70**	**72**	**66**
	maximum	**74**	**78**	**70**

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CONSTRUCTION CAMP ZHETIBAY (730 KM)				
АК-23	16.07.2018	66	72	38
АК-23	06.08.2018	68	73	41
АК-23	17.09.2018	62	69	50
АК-23	12.10.2018	64	71	52
АК-23	09.11.2018	60	67	48
АК-23	10.12.2018	62	69	50
АК-24	16.07.2018	60	68	34
АК-24	06.08.2018	65	70	48
АК-24	17.09.2018	70	73	64
АК-24	12.10.2018	66	68	60
АК-24	09.11.2018	62	64	56
АК-24	10.12.2018	64	66	58
АК-25	16.07.2018	62	70	36
АК-25	06.08.2018	70	78	51
АК-25	17.09.2018	59	74	40
АК-25	12.10.2018	62	69	40
АК-25	09.11.2018	64	71	42
АК-25	10.12.2018	64	70	36
АК-26	16.07.2018	68	74	40
АК-26	06.08.2018	67	71	43
АК-26	17.09.2018	71	82	66
АК-26	12.10.2018	70	76	42
АК-26	09.11.2018	62	68	34
АК-26	10.12.2018	66	73	44
Basic values	**average**	**62**	**72**	**52**
	minimum	**54**	**64**	**44**
	maximum	**70**	**80**	**60**
For second half of the year 2018	**average**	**65**	**71**	**46**
	minimum	**59**	**64**	**34**
	maximum	**71**	**82**	**66**

VIBRATION

BOARDER OF THE CITY OF ZHANAOZEN.

No vibration excess detected at this site.

Sampling point	Measurement date	Vibration, dBa		
		equivalent	maximum	minimum
		Standard value, 100		
Entrance to Zhanaozen city				
ЖЖ-5	16.07.2018	86	90	82
ЖЖ-5	06.08.2018	86	91	82

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ЖЖ-5	17.09.2018	81	90	76
ЖЖ-5	12.10.2018	78	80	70
ЖЖ-5	09.11.2018	80	82	72
ЖЖ-5	10.12.2018	70	79	63
Basic values		**75**	**80**	**68**
For second half of the year 2018	**average**	**80**	**85**	**74**
	minimum	**70**	**79**	**63**
	maximum	**86**	**91**	**82**

CONSTRUCTION CAMP ZHETIBAY (730 KM)				
AK-23	16.07.2018	74	80	64
AK-23	06.08.2018	76	83	70
AK-23	17.09.2018	86	90	79
AK-23	12.10.2018	76	82	66
AK-23	09.11.2018	74	80	64
AK-23	10.12.2018	76	87	64
AK-24	16.07.2018	76	82	66
AK-24	06.08.2018	79	81	72
AK-24	17.09.2018	71	78	66
AK-24	12.10.2018	72	78	62
AK-24	09.11.2018	70	76	60
AK-24	10.12.2018	74	85	64
AK-25	20.04.2018	68	74	60
AK-25	06.08.2018	80	86	71
AK-25	17.09.2018	79	82	71
AK-25	12.10.2018	70	76	60
AK-25	09.11.2018	68	74	58
AK-25	10.12.2018	88	96	82
AK-26	16.07.2018	78	84	68
AK-26	06.08.2018	72	88	66
AK-26	17.09.2018	74	83	70
AK-26	12.10.2018	80	88	72
AK-26	09.11.2018	76	84	68
AK-26	10.12.2018	68	84	61
Basic values	**average**	**71**	**77**	**63**
	minimum	**68**	**74**	**60**
	maximum	**76**	**82**	**68**
For second half of the year 2018	**average**	**75**	**82**	**67**
	minimum	**68**	**74**	**58**
	maximum	**88**	**96**	**82**

Soil quality monitoring

105. 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 first half of 2018 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.

106. 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.

107. 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 7.**

Photo 4.5: Soil sampling Lot 1

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

Component to be determined	Unit of measurement	Plant of "Ak zhol kurylys" LLP			
		T-1 (Pk10)	T-2 (Pk15)	T-3 (Pk25)	T-4 (Pk35)
1	2	3	4	5	6
Content of petroleum products	**mg/kg**	**36,612**	**18,197**	**13,702**	**16,974**
Content of Zn^{+2} (mobile form)	**mg/kg**	**0,094**	**0,0933**	**0,0860**	**0,112**
Cd^{+2} (mobile form)	**mcg / kg**	**0,127**	**0,123**	**0,257**	**0,219**
Content of Pb^{+2} (gross content)	**mcg / kg**	**0,232**	**0,369**	**0,492**	**0,305**

Photo 4.6: Soil sampling Lot 2

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, mg/gr	Cadmium, mg/kg	Lead, mg/kg	Zinc, mg/kg
		MPC values				
		-	-	0,5	32	23
HIGHWAY						
ЖЖ-1	16.07.2018	8,7	0,009	0,1	2,12	15,6
ЖЖ-1	06.08.2018	8,73	0,006	0,12	3,74	14,6
ЖЖ-1	17.09.2018	8,97	0,005	0,15	2,96	15,1
ЖЖ-1	12.10.2018	8,49	0,005	0,13	2,02	14,9
ЖЖ-1	09.11.2018	8,78	0,005	0,12	1,97	16,14
ЖЖ-1	10.12.2018	8,72	0,005	0,15	3,29	15,51
ЖЖ-2	16.07.2018	8,8	0,017	0,1	6,07	21,02
ЖЖ-2	06.08.2018	8,66	0,006	0,22	6,69	20,65
ЖЖ-2	17.09.2018	8,93	0,006	0,24	5,13	21,3
ЖЖ-2	12.10.2018	8,24	0,012	0,23	4,29	20,93
ЖЖ-2	09.11.2018	8,4	0,023	0,16	4,07	20,1
ЖЖ-2	10.12.2018	8,6	0,006	0,19	5,19	19,62
ЖЖ-3	16.07.2018	8,5	0,01	0,09	3,19	20,61
ЖЖ-3	06.08.2018	8,7	0,006	0,08	2,16	21,88
ЖЖ-3	17.09.2018	9,15	0,007	0,07	2,6	16,18
ЖЖ-3	12.10.2018	8,46	0,005	0,06	2,58	14,88
ЖЖ-3	09.11.2018	8,38	0,006	0,09	3,15	17,49
ЖЖ-3	10.12.2018	8,6	0,006	0,11	2,99	20,47

ЖЖ-4	16.07.2018	8,2	0,033	0,08	4,32	22,09
ЖЖ-4	06.08.2018	8,25	0,013	0,15	6,98	21,05
ЖЖ-4	17.09.2018	8,28	0,009	0,13	4,15	21,65
ЖЖ-4	12.10.2018	8,27	0,005	0,17	4,41	20,21
ЖЖ-4	09.11.2018	8,3	0,007	0,15	4,52	19,66
ЖЖ-4	10.12.2018	8,33	0,01	0,16	6,2	20,91
ЖЖ-5	16.07.2018	8,8	0,041	0,07	10,57	20,67
ЖЖ-5	06.08.2018	8,8	0,043	0,11	10,54	19,54
ЖЖ-5	17.09.2018	8,49	0,04	0,1	7,29	20,3
ЖЖ-5	12.10.2018	8,22	0,018	0,13	5,79	20,54
ЖЖ-5	09.11.2018	8,84	0,017	0,17	5,85	18,22
ЖЖ-5	10.12.2018	8,74	0,042	0,13	8,84	18,37
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 second half of the year 2018	**average**	**8,57**	**0,01**	**0,13**	**4,79**	**19,06**
	minimum	**8,2**	**0,005**	**0,06**	**1,97**	**14,6**
	maximum	**9,15**	**0,043**	**0,24**	**10,57**	**22,09**

Characteristics of sampling points		**Concentrations of harmful substances**				
Description	**Description**	**pH**	**Oil products, mg/gr**	**Cadmium, mg/kg**	**Lead, mg/kg**	**Zinc, mg/kg**
		MPC values				
		-	**-**	**0,5**	**32**	**23**
CONSTRUCTION CAMP ZHATIBAY (730 KM)						
AK-23	16.07.2018	8,8	0,009	0,18	3,48	19,34
AK-23	06.08.2018	8,78	0,005	0,2	2,97	20,87
AK-23	17.09.2018	9,06	0,004	0,11	3,21	20,57
AK-23	12.10.2018	8,7	0,004	0,16	2,88	17,52
AK-23	09.11.2018	8,71	0,005	0,15	2,92	18,29
AK-23	10.12.2018	8,72	0,004	0,19	2,89	20,76
AK-24	16.07.2018	8,5	0,01	0,18	2,84	20,51
AK-24	06.08.2018	8,6	0,005	0,21	3,86	19,76
AK-24	17.09.2018	9,08	0,005	0,11	3,57	19,99
AK-24	12.10.2018	8,45	0,005	0,16	2,19	12,72
AK-24	09.11.2018	8,95	0,005	0,2	2,23	16,71
AK-24	10.12.2018	8,64	0,004	0,26	4,17	20,66
AK-25	16.07.2018	8,7	0,009	0,12	3,78	19,51
AK-25	06.08.2018	8,73	0,014	0,16	4,16	21,7

AK-25	17.09.2018	8,73	0,008	0,13	4,11	22,02
AK-25	12.10.2018	8,7	0,013	0,66	4,88	21,12
AK-25	09.11.2018	8,73	0,015	0,19	3,65	15,95
AK-25	10.12.2018	8,7	0,016	0,23	4,48	20,25
AK-26	16.07.2018	8,6	0,012	0,19	3,89	20,68
AK-26	06.08.2018	8,79	0,015	0,22	5,65	21,54
AK-26	17.09.2018	8,91	0,01	0,27	3,75	22,44
AK-26	12.10.2018	8,54	0,013	0,16	2,87	14,17
AK-26	09.11.2018	8,6	0,012	0,18	2,91	15,05
AK-26	10.12.2018	8,8	0,014	0,23	4,71	20,49
Basic values	**average**	**8,675**	**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 second half of the year 2018	**average**	**8,73**	**0,009**	**0,202**	**3,58**	**19,27**
	minimum	**8,45**	**0,004**	**0,11**	**2,19**	**12,72**
	maximum	**9,08**	**0,016**	**0,66**	**5,65**	**22,44**

108. Information on borrow pits and borrow excavations:

Table – 4.8 Soil borrow pits

Section 1: km 35 – 73 (Zhetibay-Zhanaozen)

Borrow pit No.	Pk+	Borrow pit area, thousand m²	Volume of excavated soil, thousand m ³	Excavations depth, m
3	26+00	62,51	55,26	0,9
4+1	145+00	27,87	26,51	1
4	159+00		0	0
5	209+00	36,93	85,29	1,5
5-1	215+00		0	0
6	350+00	51,96	94,70	1,5
	Total	**179,37**	**261,76**	

Table – 4.9 Soil borrow pits. Depth of excavations

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

Borrow pit No.	Pk+	Borrow pit area, thousand m²	Volume of soil rocks, thousand m³
1	604+10	437,2	494,0
2	630+50	114,2	129,2
7	452+00	98,5	111,3
7,2	494+50	96,4	109,9
7,3	396+00	100,0	111,0
8	528+40	86,4	97,6
8,1	556+80	96,4	107,0
Total:		**1029,2**	**1160,0**

Depth of excavations

Pk+	Length, m	Average depth, m
350+00 – 356+20	620	0,5 – 2,0
362+00 – 369+00	700	0,5
539+00 – 540+20	120	0,5

The developed volume of soil rocks as of 01/01/2019 is - 1363.29 thousand m³ (95.7%).

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

109. 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:

110. **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

an employee.

111. **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.

112. **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.

113. **Construction Danger (height, electric shock, etc.):** The Head of the Subcontractor must issue instructions or orders for the observance of safety. Everywhere should be provided for the protection of workers, for example, protection from electricity, from an electric tool, from gas, and it is necessary to use seat belts.

114. **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.

4.1.3 Required Reporting on Environmental Protection issues

115. 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.

116. 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.

117. For the second half of the year from July to December 2018 on Lot 1 and Lot 2, the Contractors submitted 6 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 second 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.

Flora and Fauna

118. 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

119. 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

120. 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 4.10: Consumption of resources in the reporting period

Resources	The number of consumed resources for the 2nd half of 2018 *
Electricity, kW/h	1 823 488,8
Natural gas, thousand/m3	1 491,269
Drinking water, m3	18 331
Water for technical needs, m3	34 185

*since this report is prepared before the end of December 2018, the data in the table are presented excluding expenses in December 2018

4.4.2 Cumulative use of resources

Table 4.11: Consumption of resources from the beginning of the project

Resources	The number of consumed resources for the 1st half of 2018 *	The number of consumed resources for the 2nd half of 2018 *
Electricity, kW/h	1 877 573	1 823 488,8
Natural gas, thousand/m3	1 230, 744	1 491,269
Drinking water, m3	26 983	18 331
Water for technical needs, m3	39 494	34 185

*since this report is prepared before the end of December 2018, the data in the table are presented excluding expenses in December 2018

4.5 Waste management

121. 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 4.12: List of wastes generated in the 2nd half of 2018

Waste name	Waste types		Source of waste	Amount waste of in second of 2018 half		Method for removing / waste final disposal area
				Lot 1	Lot 2	
containers from PWM	amber	AD070	repair work, fences painting	-	0,24	dumping / specialized landfill
soil impregnated with petroleum products	amber	AE020	repair work	-	6,7	dumping / specialized landfill
used filters	amber	AC030	motor vehicle service	-	5,37	dumping / specialized landfill
oily rags	amber	AC030	repair work	-	1,04	dumping / specialized landfill
construction wastes	green	GG170	construction works	10	15,1	dumping / specialized landfill
Scrap metal	green	GA090	Residues from metalworking processes	-	-	dumping / specialized landfill
Candle ends of welding electrodes	green	GA080	Technological residuals	-	-	dumping / specialized landfill
SHW	green	GA060	staff activity	60	124,8	dumping / specialized landfill

122. 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.

The contractor, Cengiz Insaat Sanayi Ve Ticaret Anonymous Sirketi, concluded the following contracts:
• Landfil LLP No. 69-2018 dated 05.02.2018 for the provision of industrial waste management services (amber and green list)
• “Realos” LLP No. 2018-26 dated 04/05/2018 for the provision of services for pumping, transporting and disposing of household fecal sewage.
• Realos LLP No. 2018-27 dated April 5, 2018 for the provision of services for the supply of industrial water.

The contractor Ak Zhol Kurylys LLP concluded the following contracts:
• Landfil LLP No. 93-2018 dated 30/03/2018 for the provision of industrial waste management services (amber and green list)
• ECOOPERATING LLP No. 2018-57 dated April 6, 2017 for the disposal of mercuric-containing lamps.
• IE İbraev No. 4 dated 26/03/2018 for the provision of services for the removal of household fecal waters and disposal of solid waste;

4.5.2 Total waste generation

Table 4.13: Results of cumulative waste generation.

Waste name	Hazard class		Source of waste	Amount of waste in first half of 2018	Amount of waste in second half of 2018
containers from PWM	amber	AD070	repair work, fences painting	0,7	0,24
soil impregnated with petroleum products	amber	AE020	repair work	3,72	6,7
used filters	amber	AC030	motor vehicle service	2,6	5,37
oily rags	amber	AC030	repair work	2,22	1,04
construction wastes	green	GA170	construction works	7,36	15,1
Scrap metal	green	GA090	Residues from metalworking processes	-	-
Candle ends of welding electrodes	green	GA080	Technological residuals	-	-
SHW	green	GA060	staff activity	136,4	124,8

According to the Ecological of Kazakhstan of January 9, 2007 the above stated production wastes belong to a certain level of danger.

123. 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

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

125. During regular on-site inspections, the road safety engineer identified the following activities and violations:

• 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.

126. In accordance with the revealed violations, the Contractor was given instructions, 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.

Table 4.14: Accidents / Incidents

No.	Date/time	Place of accident	Traffic accident description	Result
1	On November 18 at about 02:30 am local time	approximately in 9 km from the settlement of Zhanaozen at PK553	Traffic accident was happened, a KIA SPORTAGE driven by Tulepov S.	As a result of the accident the affected passenger Tulepova K., was delivered to hospital in Zhanaozen. On this fact, traffic police officers are conducting investigative activities
2	on December 19, 2018 at about 4:00 a.m.	At the exit of the Zhanaozen settlement in the direction of Aktau opposite to the KazMunaiGaz gas filling station on 144 km	Traffic accident involving a “KIA Rio” run by driver Dzhayladov T. E.	As a result of accident, from the injuries incompatible with life, the driver Jayladov T.E. died in the hospital of Zhanaozen
3	on December 24, 2017 at about 10:30 am	on the road “Zhetibay-Zhanaozen” at PK 41	Road traffic accident, "Toyota" driven by Kulmuratov K. A., moving from the city of Zhanaozen to Aktau, unable to cope with the steering, went into the oncoming lane and then made a head-on collision with "Daewoo" driven by Ailekov N. Z. who was moving from the side of Zhetybai	As a result of an accident the driver of "Toyota" vehicle Kulmuratov K. received trivial injury, after being given first aid, he was allowed to go home. Visual inspection of the vehicles revealed that Toyota’s tires did not correspond to the winter period.

4.6.2 Workers health and safety

Table 4.15: Health and safety of man power

No.	Date/time	Place of incident	Incident	Results
1	On 02.09.2018, at about 13:30 a.m. local time	at the site of the reconstruction of "Zhetibay-Zhanaozen" road, section km0-km35 Lot -1	An incident was happened with the road worker Asanov B., born in 1992. Not observing the safety requirements, Asanov B. during the lunchtime has been rested under the special equipment "Katok". The operator of the roller Begimbetov K., born in 1985, not knowing that Asanov B. is under the special equipment started engine, thereby run the road worker's leg over	The victim was immediately taken to the hospital of city of Aktau.

The incident report in detail is presented in detail in Appendix 8.

4.7 Training

127. 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 aim 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. Consequently, the Environmental Specialist planned to organize a training seminar / training for the period of mobilization of a specialist in April-June 2019. The main purpose of the training is environmental inspections and their compliance with the monitoring of environmental reporting, which will be conducted with the assistance of the Environmental Specialist. The training will be useful for everyone, as the issues will be clarified and measures for its implementation will be identified.

128. **Seminar Report**

Training program covered construction supervision, the environmental impact of construction, the purpose and main aspects of the environmental management plan (presented in details in Appendix 9).

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

5.1 Review of SSEMP (SSEMP)

129. 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 EMP 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 EMP 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.

130. 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 EMMP

131. 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.

132. **Site Specific Environment Protection Management Plan:**

The IEE 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 IEE and indicated in Figure 5.1.

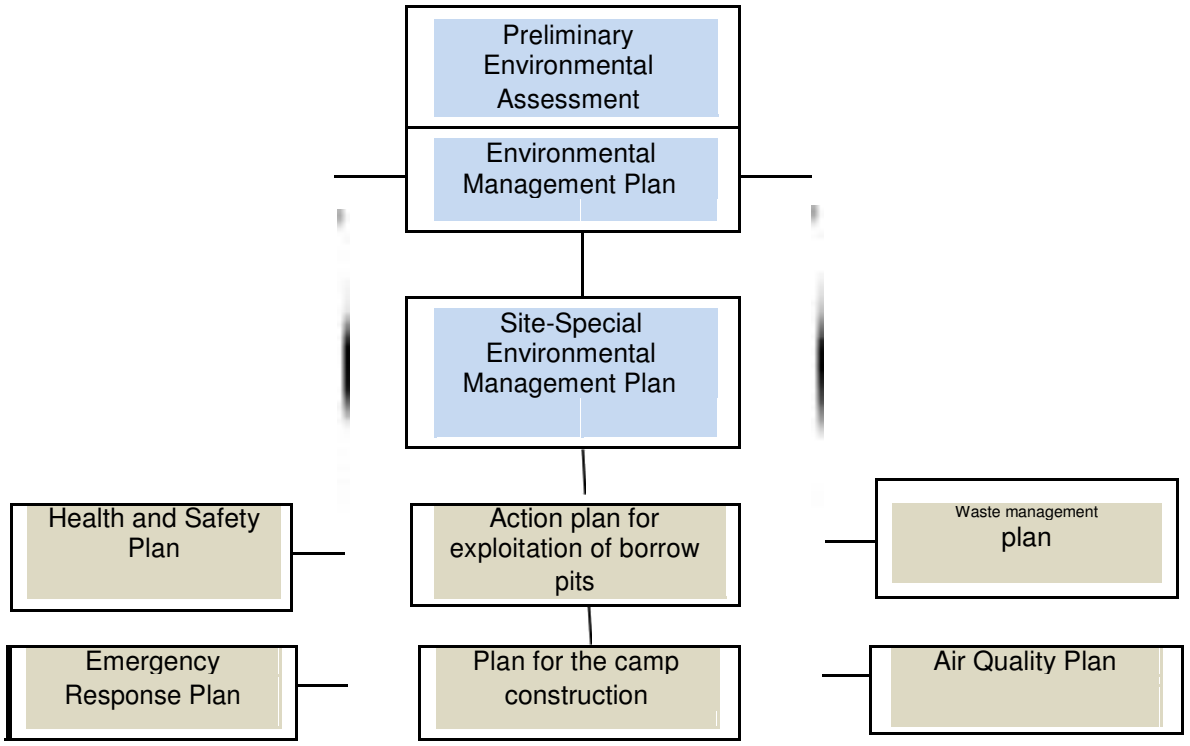


Figure 5.1: The SSEMP and its supporting documents

133. 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.

134. 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.

135. 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;

- Fuel and Chemical Management Plan;
- Site management plan for the construction site;
- Solid waste management plan;
- Noise minimization control plan;
- Management plan with specific construction operations;
- Management plan with historical and cultural heritage.

136. 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

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.

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

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 Observed Environmental Impacts and Mitigation Measures

137. During the periodic field mobilization and inspection of the environmental specialist short visit in June 2018 and regular monitoring the work scope undertaken in coordination with Contractors Cengiz Insaat and SP Akkord/Alzhol Kurylys LLP for the project road. The observed environmental issues were noted and discussed with the Contractor's representatives for clarification within the framework of the PEA, Contractual provisions and technical specifications. Photos were taken, some of them are shown in the Appendix 1. The details activities are given below:

Field inspection of the worksites including facilities and ancillary work areas. Field investigation included worksites along the project road sections, borrow pit areas, access roads, bridges and culverts, sanctuary boundaries, canals, and Contractor's Cengiz Insaat and Alzhol Kurylys work camp;

Detailed inspection was done on the environmental and safety issues set-up along the project road, camp sites and especially different culvert sites;

Detailed discussion with the contractor representatives of Lot 1 and Lot 2 on status of the required EMP and mandatory additional management plan.

138. Environmental monitoring will be continued with the deployment of local environmental specialist, whose main duties was to oversee the impacts generated and monitors the measures being implemented. It is observed that there was no serious environmental impact in the project area according to site investigation in April, May, June and July 2018. Presented below are the some environmental, health and safety issues observed at the vicinity of project worksites during the monitoring of the CSC personnel and PMC Environmental Specialist (Table 5.3)

Table 5.3: Issues identified during the Environment Inspections

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.

Photo 5.1: Dust control by watering the bypass road

Wearing of protective clothing, safety gear and safety shoes: 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: (1) Workers do not wear helmets and reflective clothing.	Required response from the Contractor: (i) The Contractor shall instruct each employee on the site to wear the prescribed helmets, reflective clothing and special footwear. (ii) The Contractor shall report compliance with the measures as soon as possible. It is recommended to wear safety shoes during working hours. The Contractor's Road Safety Engineer shall provide workers with PPE. It is recommended to comply strictly the policy of protective measures at all construction sites.
Air pollution and noise on nearby settlements: As a result of consultations with local authorities, it is recommended to water the road carefully before cleaning, as it bothers the locals, especially the road that is close to the villages.	Air quality is at an acceptable level for existence according to air quality measurement data (performed from July to December 2018). The noise and vibration measurements were made in compliance with the local standard limit, according to noise and vibration data from July to December 2018.
Possible contamination of waterways or groundwater with bitumen products or solvents used in pavement laying	Since it is possible to spill fuel during construction, it is recommended that all equipment and machinery do not have oil, solvent and bituminous material flowing along the road construction site
The Contractor uses traffic control techniques to limit interference to traffic and ensure traffic and pedestrian safety.	The Road Safety Engineer instructed the Contractor to strengthen safety and traffic control

Possible impact on road user`s safety: All employees of the Contractor were acquainted f all with safety. The regulator is used for traffic c traffic control schemes and were provided to the Engineer for approval. Similarly, the safety of workers is monitored, a complaints were received during the reporting perio	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. Traffic accidents were monitored. No accidents were reported during the reporting period.

Pollution caused by domestic waste and solid waste: The Environmental Protection Checklist was distributed for monitoring during the execution of works and for the elimination of the environmental problem, if any. In the camp used toilets with a septic tank (in the office of the Engineer) or washed into the sewer system.	It should be noted that until now there were no pollution of sewage caused by road construction. The septic tank is properly equipped. Agreements on the export of domestic fecal wastewater were concluded for Lot 1 and Lot 2.

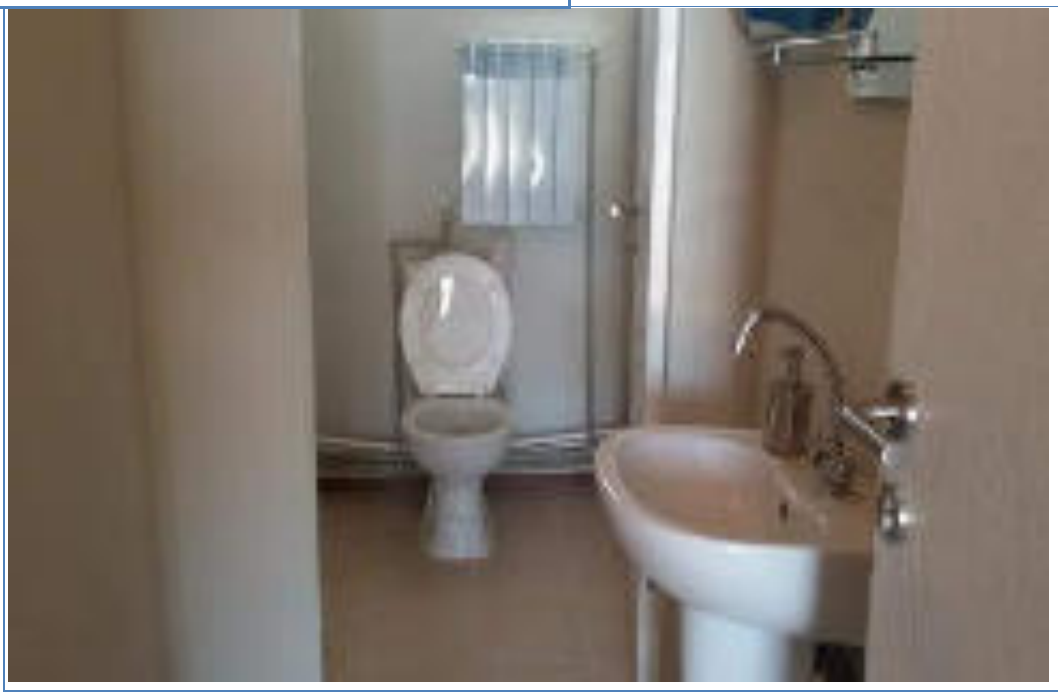


Photo 5.2: Toilets for the Engineer and Contractor offices in Zhetibay camp

Mandatory borrow pits recovery plan: The project uses borrow pits for road pavement. Excavation without a plan will lead to difficulties in the sections rehabilitation.	The Contractor shall develop and submit a recovery plan for all borrow pits. The implementation of the plan must be carried out before demobilization.

Photo 5.4: Soil loading

Technique without a canopy: A large number of dump trucks of the Contractor without canopy km 127+74 (Pk452). This can be dangerous, because the technique also moves along local roads.	Contractors should check the equipment of all dump trucks with canopies and shelter to avoid accidents along the road and to prevent the falling of any materials from dump trucks.

Photo 5.5: Technique without canopy

First Aid Kits / Medical Equipment: Medical equipment with a doctor and an ambulance provided in Zhetibay camp	In April 2018, it was strongly recommended that medical facilities be in the camp and the Contractor agreed to provide medical facilities with first aid facilities. Accordingly, medical institutions were mobilized in the camps of Lot 1 and Lot 2.

Photo 5.6: Medical equipment in the Zhetibay construction camp

Additional plans required for the EPMP: The following detailed management plan on Lot 1 and 2 were submitted to the Consultant for approval: - Water quality management plan; - Air Protection and dust prevention management Plan; - Management and rehabilitation plan for borrow pits; - Soil development management plan; - Fuel and Chemicals Management Plan; - Plan of the camp organization; - Solid waste management plan; - Noise minimization management plan; - Specific construction operations management plan; - Historical and cultural heritage management plan.	The Contractors submitted additional management plans to the Engineer in June 2018. PMC Environmental specialist was mobilized in project on 15.04.2018. PMC Environmental Specialist gave verbal recommendations to the CSC after reviewing the submitted EMP/SSEMP and plans to reduce the envrionmental impacts: Conditionally approve the EMP LOT1 (Letter No. AAZK-CS-0079-2018 dd. 11/04/2018) with the condition to finalize the EMP / SSEMP and to present Management Plans: • historical and cultural heritage; • fuel and chemicals; • soil; • restoration of quarries; • dust; • plan to reduce environmental impacts. Approve the EMP / SSEMP LOT2 (Letter No. ZZO-CGZ-GI-2018-071 dated 30/03/2018). Additional management plans and the Environmental Management Plan submitted by the Contractor Lot 2 Cengiz Insaat Sanayi Ve Tijaret Anonym Sirketi approved by the Engineer Grusamar Ingenieria Y Consulting SLY & SNS-2017 LLP with letter No. 0137 dated April 13, 2018. After the submission of the corrected EMP by Contractor Lot 1, it was reviewed and approved by the PMC and received approval by the Engineer Grusamar Ingenieria Y Consulting

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

5.4 Corrective Action Plans

139. From July to December 2018, the environmental monitoring was carried out on the road under the GRUSAMAR Ingenieria y Consulting Construction Contract in association with 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.

140. 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 April and June 2018 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 “SP 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.

141. In April 2018 and June 2018, the CSC mobilized the Environmental Protection Specialist for environmental inspection and auditing, as described in the ToR and for the preparation of the first quarterly environmental monitoring report (February to April 2018) and the first annual environmental report monitoring (for January-June 2018) for the supervision of the quality of construction works. The work was carried out with the participation and coordination of representatives of “Renardet” PMC, Contractors “Cengiz Insaat” and “SP Akkord/Akzhol Kurylys LLP”, local CSC Engineers on Road Safety, 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.
- Familiarization with 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 bi-annual 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.

142. 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 2018 is presented below in Table 5.2.

Table 5.4: Corrective action plan for Contracts 001 & 002 for July-December 2018

No.	Description	Action Required	Period	Status
1	In connection with the implementation of construction work, careful monitoring is necessary in order to avoid the formation of dust, especially in windy weather.	The Contractor complies with the low speed when traveling with heavy equipment during the maintenance of the road.	July-December 2018	fulfilled
2	The Contractor uses traffic control techniques to limit interference to traffic and ensure traffic and pedestrian safety.	Road Safety Service installed the appropriate road signs; security and traffic control are provided.	July-December 2018	fulfilled
3	Possible contamination of waterways or soil water with oil products or solvents used in road paving	Since it is possible to spill oil products during construction, it is recommended that all equipment and machinery be cleaned from oil, solvent and bituminous material flowing along the road construction site	July-December 2018	fulfilled
4	The checklists were distributed for the purpose of implementation of the inspection during the execution of work and attempts to mitigate the consequences if there were any environmental problems. During this period, the availability of adequate sanitation facilities were noted.	It was noted that up to the present time there is no sewage pollution in connection with the construction of the road.	July-December 2018	fulfilled

5.5 Notices and Letters

143. 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 5.5: Letters on Environment Issues

Letter No.	Date	From	To	Subject
ZZO-CGZ-GI-2018-0282	24.07.2018	Cengiz Insaat	Grusamar/ SNS-2017	Environmental Monitoring Checklist
0448	28.08.2018	Grusamar/ SNS-2017	SP Akkord/Akzhol Kurylys LLP	Information provision
AAZK-CS-0248-2018	03.09.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	Information provision
ZZO-CGZ-GI-2018-0336	05.09.2018	Cengiz Insaat	Grusamar/ SNS-2017	Environmental Monitoring Checklist
AAZK-CS-0255-2018	05.09.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for August 2018
KZpmc01-COR-09-2018-0059	06.09.2018	PMC Renardet S.A.	Grusamar/ SNS-2017	Submission of information as per request of ADB
0462	06.09.2018	Grusamar/ SNS-2017	SP Akkord/Akzhol Kurylys LLP	Submission of information as per request of ADB
AAZK-CS-0260-2018	10.09.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	F-1 Report on the fulfillment of the requirements of IEE-EMP
0480	18.09.2018	Grusamar/ SNS-2017	Cengiz Insaat SP Akkord/Akzhol Kurylys LLP	Training Workshop on Environmental Protection
ZZO-CGZ-GI-2018-0360	01.10.2018	Cengiz Insaat	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for September 2018
AAZK-CS-0292-2018	05.10.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for September 2018
ZZO-CGZ-GI-2018-0368	11.10.2018	Cengiz Insaat	Grusamar/ SNS-2017	Environmental Monitoring Checklist
ZZO-CGZ-GI-2018-0369	11.10.2018	Cengiz Insaat	Grusamar/ SNS-2017	Sampling of air, soil and water
KZpmc01/CON/10/2018/0067	19.10.2018	PMC Renardet S.A.	Grusamar/ SNS-2017	Breach of environmental requirements
0516	19.10.2018	Grusamar/ SNS-2017	Cengiz Insaat	Breach of environmental requirements
ZZO-CGZ-GI-2018-0384	01.11.2018	Cengiz Insaat	Grusamar/ SNS-2017	Breach of environmental requirements
ZZO-CGZ-GI-2018-0387	02.11.2018	Cengiz Insaat	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for October 2018
AAZK-CS-0312-2018	07.11.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for October 2018
ZZO-CGZ-GI-2018-0409	26.11.2018	Cengiz Insaat	Grusamar/ SNS-2017	Environmental Monitoring Checklist

AAZK-CS-0326-2018	30.11.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for November 2018
ZZO-CGZ-GI-2018-0418	04.12.2018	Cengiz Insaat	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for November 2018
ZZO-CGZ-GI-2018-0420	05.12.2018	Cengiz Insaat	Grusamar/ SNS-2017	Environmental Monitoring Checklist
ZZO-CGZ-GI-2018-0423	07.12.2018	Cengiz Insaat	Grusamar/ SNS-2017	Sampling of air, soil and water
ZZO-CGZ-GI-2018-0429	15.12.2018	Cengiz Insaat	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for December 2018
ZZO-CGZ-GI-2018-0433	20.12.2018	Cengiz Insaat	Grusamar/ SNS-2017	Bi-annual Environmental Monitoring Report (report for 6 months)
AAZK-CS-0340-2018	24.12.2018	SP Akkord/Akzhol Kurylys LLP	Grusamar/ SNS-2017	Monthly Environmental Monitoring Report for December 2018

5.6 Complaints and consultations

144. 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.

145. 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.

146. 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.

147. 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)

148. 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

149. 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

150. This is the second Semiannual Environmental Monitoring Report (from July to December 2018), prepared in the form of a report with the requirements of the Contract for the provision of the Construction Supervision Service, the Ministry of Investment and Development (MIR), 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 (IEE and the Project EMP, Monthly / Quarterly / Semiannual Reports prepared by the Contractors); site visits, the results of the necessary sampling, laboratory analysis and measurements.

151. During the current monitoring period, a number of problems related to the environment and safety were observed by the monitoring team and brought to the attention of the Contractors for adjustment. The audit was carried out by the CSC Environmental Specialist in April-June 2018, which became the basis for writing the first bi-annual report on environmental monitoring for Implementing Agency (COR, MID) and the Financier (ADB). 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 Agencyy) 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.

152. During the reporting period from July to December 2018, 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.

153. During environmental monitoring, the followings were determined:

- Lack of serious environmental problems of construction. 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.

154. **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

155. The conduct of several site inspections by the International Ecologist identified a number of potential environmental problems. These issues were discussed with the Contractors, which promptly eliminated some of the identified elements. However, some issues remain unresolved and must be corrected by the Contractors within the next reporting period. In addition, it was noted that some issues, such as waste management, the use of personal protective equipment, the storage of hazardous materials, require continuous monitoring to ensure the requirements of the Contractor's

EMP (and its additional plans). In order to minimize the negative impact on the environment, Contractor's monitoring should also be focused on construction activities such as blasting, excavations, top soil removal, compaction, unsuitable soils, removal and backfilling, sub- base layer, CSCM base, slopes, drainage.

156. 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 and semiannual environmental monitoring report (from July to December 2018). 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 June 2019

No.	Identified environmental issues	Necessary corrective action	Execution period	Responsible for execution / supervision
1	**Breach of EMP Requirements:** • Impact on air quality – dust pollution. • Impact on soil quality – production waste pollution. .	Continuation of EMP implementation works (arrangement/increase of the regularity of dust suppression, ensuring of timely disposal of residual asphalt, used tires). Planning of Engineer's technical staff training on compliance with the requirements of the environmental legislation of the RoK and ADB's Safeguards Policy Statement /2009/	**January-June 2019**	**Contractor Lot and Lot 2 CSC Engineer**
2	**Safety measures at site**	Continue monitoring, take measures to ensure road safety at the construction sites on a daily basis. Use of personal protective equipment (gloves, glasses, masks). Conduct training on compliance with safety requirements.	**January-June 2019**	**Contractor Lot and Lot 2 CSC Engineer**

Appendices

Appendix 1: Environmental Monitoring Photos
Appendix 2: Letters on environmental inspection and provision of information
Appendix 3: Approval of the variation Order No. 1 on the relocation of utilities
Appendix 4: Notice (letter) of non-compliance
Appendix 5: Air test report
Appendix 6: Test report of noise and vibration measurement
Appendix 7: Test report of soil chemical analysis
Appendix 8: Incident report
Appendix 9: Training Report

Appendix 1: Environmental Monitoring Photos Lot 1

Asphalt paving at Pk193+00

Compaction of high porous asphalt at Pk190+00

Compaction of binder course at Pk197+00

Foundation construction at Pk217+60

Cattle pass waterproofing at Pk195+70

Construction of trestle at Pk314+00

Subgrade layer construction at Pk230+00

Appendix 1: Environmental Monitoring Photos Lot 2

Pk614 – Roadbed compaction

Pk614 – roadbed levelling

Pk626 – loading the material (soil)

Pk615+48 – levelling the ground bed under slabs

.

Appendix 2: Letters on provision of information as per ADB's request

RENARDET

CAREC Corridor 2 (Mangystau Oblast Section)
Investment Program Project 2
Project Management Consultancy Service

Aktau 06/04/2016
Our Reference: KZprojects\KAZ\MMA\2016\2060

To: Samruk-Energy Engineering & Consulting
Aktau, 130000
Mangystau Oblast
Republic of Kazakhstan

C/O: Committee for Roads
Ministry of Investments and Development
Mr. S. Abdiyev
Deputy Chairman

Project Management Consultancy Service under L2557-KAZ
CAREC Corridor 2 Investment Program – Project 2 (Mangystau Oblast Section)

Subject: Submission of information on ADB's request. Comments to 1st Biannual Environment Protection Report for 2016

After consideration of 1st Biannual Environment Protection Report for 2016 submitted by the Contractor Altem LLP/Orchid Kurylys LLP JV the Environmental Protection Specialist of PMC has found the necessity of Report correction in accordance with contract documentation, MFF Annual requirements and requirements of ADB Safeguard Policy Statement. On the part of the engineer, environment specialist was required to order Contractor to supplement the Report with information as per format in the annex.

For the speedier provision of information on request of the ADB Regional Environmental Safeguards Consultant it is necessary to fill and submit to PMC and CSC the following:

- Annex under the Form "Implementation report on the EE/EMP mitigation measures" @ 07.04.2016 (Russian version in Word format)
- Corrected Biannual Report including annexes under the Form 1 and Form 2 @ 14.00.2016 (Russian and English versions) in a single PDF document including information on Environment Monitoring reports on items of air, soil, noise and vibration with the indication of km and PK of sampling points on the road and in towns of oblast.

Attachment:

1. Implementation report on the EE/EMP mitigation measures data
2. Decrease on environment management plan for 1 half of 2016

Best regards,

Gudrun Sonne
PMC Team Leader
Renardet S.A. (Switzerland)
Mobile: 007 (16) 114 5234

ORYGAMAR

SPMS-2017

To: [illegible] LLP

Attn: Mr. Kazarbay T.
Project Manager
[illegible]

Cc: Dr. Abdiev S.A.
Deputy Chairman GoM & E RK

Mr. Bertaleyev I.K.
[illegible]
"Nuryol Zholdary" JSC

Mr. Lockey Steve
[illegible]
PMC "Transport S.A."

Ref #: 3-RC
Date: [illegible]

Project: Loan 2537-KAZ: MFF CAREC Corridor 2 [illegible]

Subject: Submission of information on [illegible] request

Reference:
Letter of PMC "Transport S.A." No. [illegible]

Dear Sir,

Referring to the [illegible] environmental specialist of PMC No. [illegible] dated 05.06.2018 please find attached [illegible] provided in the [illegible] to the above letter. It is necessary to note that the Environmental Protection Report for the first half of 2017 in accordance with the requirements of the Consultant document [illegible] to ADB and the requirements of the ADB safeguard policy.

For the second provision of information on request of the ADB Regional Environmental Safeguards Consultant [illegible] to PMC and CSC for [illegible].

- Annexes on the Form "Environmental report on the [illegible] (Russian version in Word format)

Кому: ТОО «[illegible]»

Внимание: Г-н Кыдырмаев Т.
Руководитель [illegible]
Компания [illegible]

Копия: Г-н Абдиев С.А.
Заместитель председателя [illegible]

Г-н Сарбаранов Р.Б.
Директор РПУ
«[illegible]»

Г-н Бертелеев И.К.
Руководитель Проекта
АО "Транзит С.А."

Исх. № [illegible]
Дата: [illegible]

Проект: Заем 2537-КАЗ: МФР ЦАРЕК Коридор 2 [illegible]

Тема: Предоставление информации по запросу АБР

Справка:
Письмо АО "Транзит С.А." [illegible]

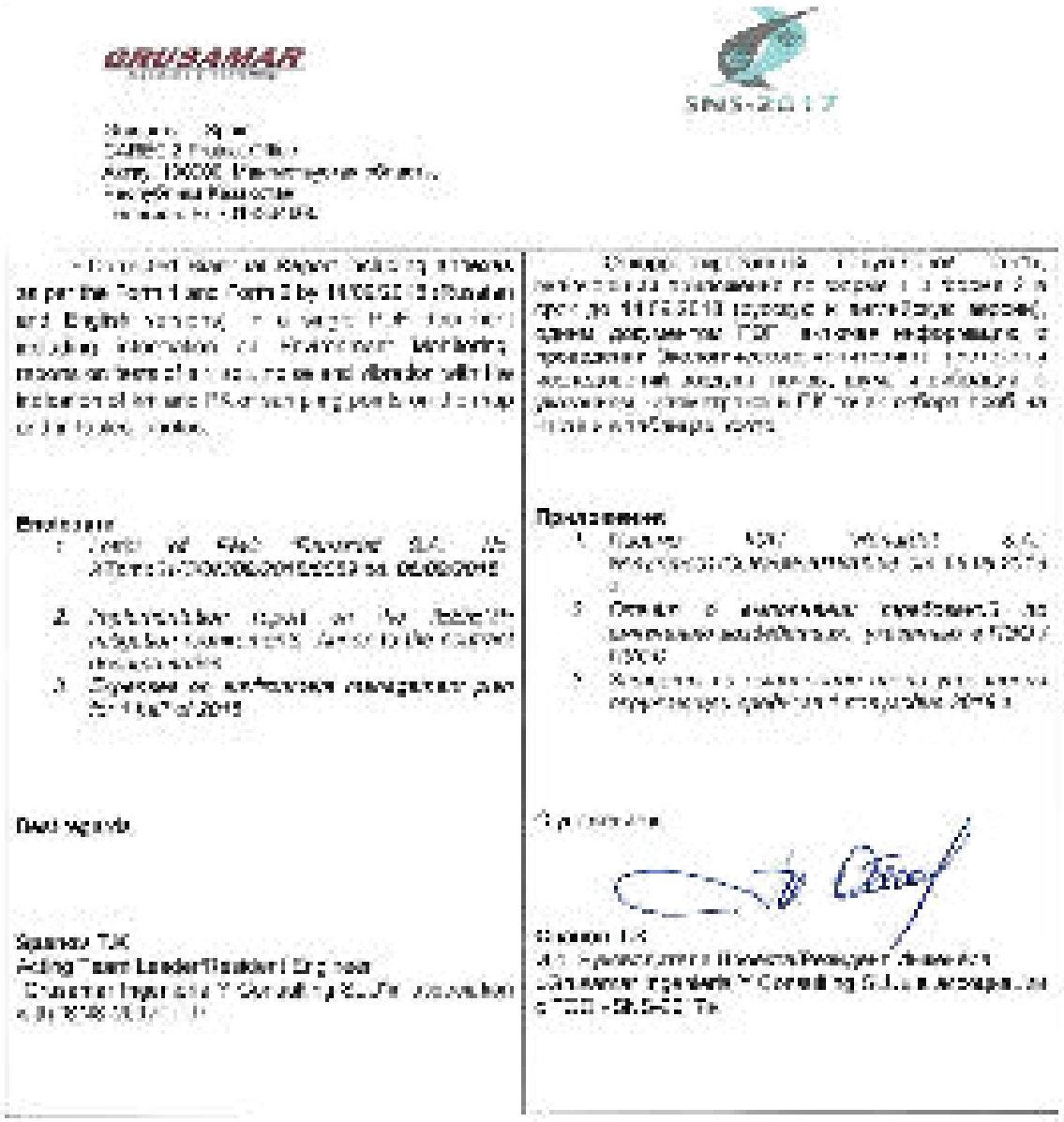
Уважаемые [illegible],

Касаемо [illegible] запроса по ОСВ АО "Транзит С.А." [illegible] Отчет по охране окружающей среды за первое полугодие 2018 года в соответствии с требованиями Консультанта [illegible] и требованиями политики безопасности АБР.

Для второйного предоставления информации по запросу регионального консультанта по защитным мерам АБР необходимо [illegible] ПМС и [illegible].

- Приложения по форме [illegible] требованиям по [illegible], [illegible] в ТОО «[illegible]» в среде [illegible] русской версии в формате Word.

[illegible]



Appendix 3: Approval of the variation Order No. 1 on the relocation of utilities

PMC "Remondi SA"

CSC "Grunsmar Engineering Consulting SLU (ЖБК-2017" LLP

Copy: "Mangystaumaitolaboratory" RSO

Committee for Roads Ministry of Investments and Development of the Republic of Kazakhstan (hereinafter – the Committee) formerly Action development and coordination regarding variation order No. 1 (relocation of communications) under the above contract.

Also the Committee informs that the issue of the Variation in the further work based on confirmed calculations and measured volumes of CSC "Grunsmar Engineering Consulting SLU (ЖБК-2017" LLP in accordance with contract terms and conditions.

S.Ahlatayev
Deputy Chairman

Copy: E.Bazarbaev
27.11.2018

RENARDET

CAREC Corridor 2 (Mangystau Oblast Section)
Investment Program, Project 2,
Project Management Consultancy Service

Annex 121/02/16
Our Reference: KAz-01/0049/1250/162066

To Mr. Turarov K.A.
Acting Resident Engineer
Grucomar Engineering Consulting

Project Management Consultancy Service under L2567-KAZ:
CAREC Corridor 2 Investment Program – Project 2(Mangystau Oblast Section)

Subject: Approval of the Variation Order No.1 related to the communications relocation.

Dear Sir,

PMC «Renardet» Asia forwarding the Asian Development Bank's and the Committee's for Road of the Ministry of Investments and Development of RK approval for the Variation Order No. 1 related to the communications relocation on the Contract SIP-A-2/HCW-2017 for your further work according to the Contract conditions.

Attachment: Letter No 03-21-02/2106 dated 10th October from the Committee for Roads – 3 pages

Best regards,

Sabit Ibrakhanov
PMC Team Leader Deputy
Renardet S.A. (Switzerland)

RENARDET

Appendix 4: Notice (letter) of non-compliance

RENARDET

CAREC Corridor 2 (Mangystau Oblast Section)
Investment Program, Project 2
Project Management Consultancy Service

Aktau, 19/12/2018
Our Reference: [illegible]

To: Governor (Akim) of Mangystau Oblast
Aktau, [illegible]
Mangystau Oblast
Republic of Kazakhstan

CC: Department of Construction of Roads
Ministry for Investments and Development
Mr. S. Abilgaziev
Deputy Chairman

Project Management Consultancy Service under L3667-KAZ:
CAREC Corridor 2 Investment Program – Project 2 (Mangystau Oblast Section)

Subject: Breach of environmental requirements

Dear Sir,

Hereby be informed that in the course of the inspection of the project area held on 16-17.10.18 and monitoring of EMP (Environmental Management Plan) implementation by the Contractors of Lot 1 and Lot 2 the PMC Environmental Specialist has revealed the following violations of requirements of EMP, environmental legislation of the Republic of Kazakhstan and the ADB Safeguards Policy Statement (2009): namely, on 2 the construction site area of the Road Maintenance Facility is polluted with waste of various hazard classes (solid household waste, construction waste, fuel and lubricant materials etc.), containers for waste collection and ancillary area arrangement are not available. There is an unauthorized waste disposal (dump) at the cleaning by-road structures at PK 250, 254, 417, 419, 424, 429, 457, 469, 480.

Be hereby informed that the Contractor has to arrange the road area cleaning service, to provide waste containers for the Road Maintenance Facility construction area, to furnish a special place for waste collection and disposal of waste of all types under the control of CSC for the purpose of compliance with environmental legislation of the Republic of Kazakhstan and the ADB Safeguards Policy Statement (2009) as well as for the mitigation of the adverse impact of the Contractor's construction activities on the environment and the human health.

Please kindly inform PMC in the purpose of the monitoring of the taken mitigation implementation.

Best regards,

Sabit Ismailov
Deputy PMC Team Leader
Renardet S.A. (Switzerland)

RENARDET S.A. (SWITZERLAND)
Head Office: [illegible]
Tel: [illegible]
Fax: [illegible]
Email: [illegible]

RENARDET

Page 1 of 1

SINS-2017

To: Dangizlesail

Attn.: Mr. Karimov S.
Project Manager

Cc: Mr. Abdiev S.A.

Ms. Serbekpaev B.

Team Leader

Ref #: 0516
Date: October 11, 2018

Project: Loan 2557-KAZ: MFF CAREC Corridor 2 (Investment Program), Project 2. Zhambyl-Zhanatas section km 35-km 73 (38 km). Contract SINS/IFB/CW-2017.

Subject: Elimination of environmental violations

Reference
PVG's letter No. KZ01COM01000001/ dt. 10.09.2018

Dear Sir,

Please find attached the letter of PVG No. KZ01COM01000001 dt. 10.09.2018 notifying the serious gross violation of requirements of EMP, environmental legislation of the Republic of Kazakhstan and the ADB Safeguards Policy Statement (2009) for your immediate action. Report on measures taken shall be submitted at the earliest.

Enclosure: As stated above

Best regards,

Turumov M.G.
Acting Team Leader/Senior Engineer
Supervising Engineer for Contract SINS-2017 LLP
Consultant MFF "SINS-2017" LLP

Кому: Ержанов Нурлан

Фамилия: Г-н Каримов С.
Руководитель Проекта

Копия: Г-н Абдиев С.А.

Г-н Сербекпаев Н.Б.
Директор
«Инженерный Центр Лаборатория»

Г-н Пулат Сеитов
Руководитель Проекта

Исх. №: 0516
Дата: 11 октября 2018 г.

Проект: Заем 2557-КАЗ: МФР ЦАРЕК Коридор 2 (Инвестиционная программа). Проект 2. Участок Жамбыл-Жанатас км 35-км 73 (38 км). Контракт SINS/IFB/CW-2017.

Тема: Нарушения экологического законодательства

Ссылка:
Письмо Исх. № KZ01COM01000001 от 10.09.2018 г.

Уважаемый,

Прилагаемое при письме КПГ № KZ01COM01000001 от 10.09.2018 г. о грубом нарушении требований ПЭСО, экологического законодательства Республики Казахстан и политики безопасности АБР (2009) для вашего немедленного действия. Отчет о принятых мерах представить в кратчайший срок.

Приложение: как указано выше

С уважением,

Турумов М.Г.
И.о. Руководителя Проектов/Инженер-консультант
«Инженерный Центр Лаборатория»
Консультант МФР "SINS-2017" ТОО

Вх-п АО «Проектно Изыскательский Институт»
Входящий № 6201
от 12 10 2018 г.

Appendix 5: Air test report Lot 1

Kazakhstan agency of applied ecology

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

certificate [illegible] dated 22 December.

[illegible]

AIR RESEARCH REPORT

No. [illegible]

dated 20 August, 2018

[illegible]

1. **Name and address of Employer, name of object, facility:** [illegible]
2. **Aim of research:** [illegible]
3. **Date of research:** [illegible]
4. **Documents as per which the research is carried out:** [illegible]
5. **Regulatory document establishing the standard of investigated factors:** [illegible]
6. **Measuring devices applied in the research, manufacturing number:** [illegible]
7. **Data about measuring device inspection: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature:** [illegible]
9. **Head of MEL: full name, signature:** [illegible]

(place [illegible])

Annex to the report No. P 18 10 83 dated 28 August, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		SO2		NO		NO2		Dust	
				mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC
T-1	1	16.08.2018	Morning	<1,5	5	<0,025	0,5	<0,06	2,4	<0,12	0,2	<0,075	0,15
	2		Day	<1,5	5	<0,025	0,5	<0,06	2,4	<0,12	0,2	<0,075	0,15
	3		Night	<1,5	5	<0,025	0,5	<0,06	2,4	<0,12	0,2	<0,075	0,15
T-2	1	16.08.2018	Morning	<1,5	5	<0,025	0,5	<0,06	2,4	<0,12	0,2	<0,075	0,15
	2		Day	<1,5	5	<0,025	0,5	<0,06	2,4	<0,12	0,2	<0,075	0,15
	3		Night	<1,5	5	<0,025	0,5	<0,06	2,4	<0,12	0,2	<0,075	0,15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm Hg	Humidity, %	t, °C	General weather states
T-1	15.08.2018	Morning	1,1	B	755	71	20	Clear
		Day	2,2	B	755	45	22	Clear
		Night	3,0	B	755	68	20	Clear
T-2	15.08.2018	Morning	4,5	B	755	71	27	Clear
		Day	3,0	B	755	45	24	Clear
		Night	2,1	B	755	69	20	Clear

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Kazakhstan agency of applied ecology

Middle environmental laboratory

050010, Almaty, Zverinca, 47

Manufacturer, part of exploration "Aktau"

Technical research corp "AEAV"

Period of [illegible] accreditation

certificate KZ.T.02.0011 dated 22 December

2017

AIR RESEARCH REPORT

No. P.18.10.04

dated 28 August 2018

(Total pages) 2

1. **Name and address of Employer, name of object, heading:** [illegible] Area of construction of [illegible] Kazakhstan road [illegible]
2. **Aim of research:** Monitoring investigation
3. **Date of research:** 24.01.2018
4. **Documents as per which the research is carried out:** GOST [illegible] Methodical recommendations [illegible] Order of the Minister of Environmental Protection of Kazakhstan Republic [illegible] dated 10.06.2011 [illegible] Kazakhstan RD 52.04.186-89
5. **Regulatory documents establishing the standard of investigated factors:** Order of the Minister of Environmental Protection of Kazakhstan Republic No. 168 dated 28 February 2012 "About approval of hygienic standards to ensure the sanitary and epidemiological [illegible]
6. **Measuring devices applied in the research (measuring tools):** [illegible]
7. **Data about measuring device inspection: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature**
9. **Head of MEL: full name, signature**

(place for seal)

Annex to the report No. P-18-0845 dated 20 August, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO mg/m3	CO MPC	SO2 mg/m3	SO2 MPC	NO mg/m3	NO MPC	NO2 mg/m3	NO2 MPC	Dust mg/m3	Dust MPC
T-1	1	14.08.2018	Morning	<1.5	5	<0.002	0.5	<0.03	0.4	<0.02	0.2	<0.015	0.15
	2		Day	<1.5	5	<0.002	0.5	<0.03	0.4	<0.02	0.2	<0.015	0.15
	2		Night	<1.5	5	<0.002	0.5	<0.03	0.4	<0.02	0.2	<0.015	0.15
T-2	1	15.08.2018	Morning	<1.5	5	<0.002	0.5	<0.03	0.4	<0.02	0.2	<0.015	0.15
	2		Day	<1.5	5	<0.002	0.5	<0.03	0.4	<0.02	0.2	<0.015	0.15
	2		Night	<1.5	5	<0.002	0.5	<0.03	0.4	<0.02	0.2	<0.015	0.15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm Hg	Humidity, %	t °C	General weather states
T-1	14.08.2018	Morning	<2	E	765	72	27	Clear
		Day	3	E	758	45	34	Clear
		Night	2.2	N	765	54	28	Clear
T-2	15.08.2018	Morning	<2	E	758	71	29	Clear
		Day	2.5	N	765	47	34	Clear
		Night	3	E	758	54	27	Clear

Reprinting of report without permission of MEL is forbidden. The original of report is not effective without signature and seal.

[illegible]	Kazakhstan Agency of Applied Ecology [illegible] Accreditation certificate [illegible]

RESEARCH REPORT OF ATMOSPHERE

No. [illegible]

Dated « [illegible] » December 2018

[illegible]

Form page 2

1. The name and contractor's address, the name of object and practice: [illegible]
2. The purpose of conducting the research: [illegible]
3. The date of conducting the research: [illegible]
4. Documents according to which the study was made: [illegible]
5. Normative document setting the norms for maximum allowed emissions: [illegible]
6. Equipment used, serial number, date of last check and validity: [illegible]
7. Information about check, date and No. of check certificate: [illegible]
8. Investigations were done by: position, surname, name, father's name, signature: [illegible]
9. Manager MEL: Surname, name, father's name, signature: [illegible]

Stamp here

[illegible]

[illegible]

Appendix to report No. [illegible] dated [illegible] September 2015.

[illegible]

Atmospheric air results

Point number	No. of measurements	The date of measurements	The time of measurements, h	CO, mg/m³	CO, MAC	SO_2, mg/m³	SO_2, MAC	NO_2, mg/m³	NO_2, MAC	CO_2, mg/m³	CO_2, MAC	Dust, mg/m³	Dust, MAC
[illegible]	1	[illegible]	Morning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2		Afternoon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3		Evening	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	Morning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2		Afternoon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3		Evening	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Microclimate and meteorological data

Point number	[illegible]	The date of measurements	The time of measurements, h	Air temperature, °C	Wind direction	Air pressure, mm Hg	Relative humidity	[illegible]	Weather conditions
[illegible]	[illegible]	[illegible]	Morning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Afternoon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Evening	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Morning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Afternoon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Evening	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

Казахстанское Агентство Прикладной Экологии	Kazakhstan Agency of Applied Ecology
[illegible]	[illegible]

RESEARCH REPORT OF ATMOSPHERE

No. [illegible]

Dated [illegible] September 2018

(Trial copy)

1. The name and customer's address, the name of object and premises: [illegible]
2. The purpose of conducting the research: [illegible]
3. The date of conducting the research: [illegible]
4. [illegible]
5. Normative document, setting the normative of researched factors: [illegible]
6. Used measuring instruments, factory number [illegible]
7. Information of check of date and No. of check certificate: [illegible]
8. Investigation was done by: position, surname, name, father's name, signature:
9. Manager MEL: Surname, name, father's name, signature: [illegible]

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[illegible] Page [illegible] June 2017

Приложение к протоколу №П-18-18-13 от «15» сентября 2018 г.

Annexure to report No. P-18-18-13 dated "15" September 2018

Atmosphere test result

Point number	Test date	Time of measurement	CO		NO_2		SO		NH_3		Dust	
			mg/m³	TAC	mg/m³	TAC	mg/m³	TAC	mg/m³	TAC	mg/m³	TAC
T-1	15.09.2018	Morning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Afternoon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Evening	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
T-2	15.09.2018	Morning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Afternoon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Evening	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Meteorological measurement result

Point number	Test date	Time of measurement	Wind speed, m/s	Wind direction	Atmospheric pressure, mm Hg	Temperature, °C	t, °C	Weather condition
T-1	15.09.2018	Morning	[illegible]	[illegible]	760	[illegible]	[illegible]	Clear
		Afternoon	[illegible]	[illegible]	760	[illegible]	[illegible]	Clear
		Evening	[illegible]	[illegible]	760	[illegible]	[illegible]	Clear
T-2	15.09.2018	Morning	[illegible]	[illegible]	760	[illegible]	[illegible]	Clear
		Afternoon	[illegible]	[illegible]	760	[illegible]	[illegible]	Clear
		Evening	[illegible]	[illegible]	760	[illegible]	[illegible]	Clear

[illegible]

Kazakhstan agency of applied ecology

[illegible]

[illegible], Almaty, Zhangir, 43

Mangilik ana region, postal registration "Alatau"

Technical resources ship "Alatau"

E-mail: [illegible]

certificate KZ 7.02.1211 dated 22 December, 2017

AER RESEARCH REPORT

No. P-18-13.01

dated 11 October, 2018

(Total pages) 2

1. **Name and address of Employer, name of subject, facility:** [illegible]
2. **Aim of research:** [illegible]
3. **Date of research:** [illegible]
4. **Documents on per which the research is carried out:** [illegible]
5. **Regulatory documents establishing the standard of investigated factors:** [illegible]
6. **Measuring devices applied in the research, manufacturing number:** [illegible]
7. **Data about measuring device inspections: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature**
   [illegible]
9. **Head of PEEL: full name, signature**
   [illegible]

   (place for seal)

Annex to the report No. P-18-12-31 dated 11 October, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		SO2		NO		NO2		Dust	
				mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC
T-1	1	10.10.2018	Morning	<1,5	5	<0,125	0,5	<0,03	0,4	<0,02	0,2	<0,275	0,15
	2		Day	<1,5	5	<0,125	0,5	<0,03	0,4	<0,02	0,2	<0,275	0,15
	3		Night	<1,5	5	<0,125	0,5	<0,03	0,4	<0,02	0,2	<0,275	0,15
T-2	1	10.10.2018	Morning	<1,5	5	<0,125	0,5	<0,03	0,4	<0,02	0,2	<0,275	0,15
	2		Day	<1,5	5	<0,125	0,5	<0,03	0,4	<0,02	0,2	<0,275	0,15
	3		Night	<1,5	5	<0,125	0,5	<0,03	0,4	<0,02	0,2	<0,275	0,15

Meteorological records results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm Hg	Humidity, %	t, °C	General weather status
T-1	10.10.2018	Morning	5.2	E	754	54	17	Clear
		Day	7.5	E	754	52	25	Clear
		Night	2.8	E	757	57	13	Clear
T-2	10.10.2018	Morning	5.0	E	754	59	15	Clear
		Day	8.0	E	757	55	23	Clear
		Night	5.0	E	754	55	13	Clear

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Kazakhstan agency of applied ecology

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] dated 22 December,

2017

AIR RESEARCH REPORT

No. [illegible]

dated 11 October, 2018

(Total pages) 7

1. **Name and address of employer, name of object. Facility:** [illegible]
2. **Aim of research:** Monitoring investigation
3. **Date of research:** [illegible] 2018
4. **Documents on per which the research is carried out:** [illegible]
5. **Regulatory document establishing the standard of investigated factors:** Order of the Regulator of Kazakhstan Ministry of National Economy No. [illegible] dated 29 February, 2012 "About approval of hygienic standards to air in the city and rural settlements."
6. **Measuring devices applied in the research, serial numbering number:** [illegible]
7. **Data about measuring devices in question: date and No of the position certificate:** No. [illegible] dated [illegible] 2018; No. [illegible] dated [illegible] 2018; No. [illegible] dated [illegible] 2017, accordingly
8. **Research is carried out by: position, full name, signature:** [illegible]
9. **Head of MEL: full name, signature** [illegible]

[illegible]

Annex to the report No.F-18-13-R dated 11 October, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		SO2		NO		NO2		Dust	
				mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC
T-1	1	10.08.2018	Morning	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	2		Day	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	3		Night	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
T-2	1	10.08.2018	Morning	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	2		Day	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	3		Night	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm mrt	Humidity, %	t, °C	General weather states
T-1	10.10.2018	Morning	3.3	B	756	55	7	Clear
		Day	3.5	B	754	43	23	Clear
		Night	3.9	B	754	53	4	Clear
T-2	10.10.2018	Morning	3.1	B	757	51	5	Clear
		Day	4.0	B	754	47	21	Clear
		Night	4.2	B	754	47	21	Clear

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Kazakhstan agency of applied ecology

Ministry of environmental protection

050013, Almaty, Timiryazev, 47

Mangistau region, part of regional state "Astana"

Technical research ship "Altai"

E-mail: [illegible]

certificate KZ.T.02.0211 dated 22 October, 2017

AIR RESEARCH REPORT

No. P-18-3241

dated 11 October, 2018

(Total pages) 3

1. **Name and address of Employer, name of object, facility:** [illegible]
2. **Aim of research:** Monitoring investigation.
3. **Date of research:** 10.10.2018
4. **Documents as per which the research is carried out:** [illegible]
5. **Regulatory documents establishing the standard of investigated factors:** Order of the Acting of Kazakhstan Ministry of national economy No. 168 dated 28 February 2018. "About approval of hygienic standards to ensure air in the city and other settlements".
6. **Measuring devices applied in the research, manufacturing number:** [illegible]
7. **Data about measuring device inspection: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature:** [illegible]
9. **Head of Mobil: full name, signature:** [illegible]

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Annex to the report No. P-18-13-01 dated 11 October, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		NO2		NO		NOx		Dust	
				mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC
T-1	2	11.10.2018	Morning	<1.5	5	<0.025	0.5	<0.03	0.4	<0.06	0.2	<0.002	0.12
			Day	<1.5	5	<0.025	0.5	<0.03	0.4	<0.06	0.3	<0.005	0.15
	1		Night	<1.5	5	<0.025	0.5	<0.03	0.4	<0.06	0.2	<0.002	0.12
	1		Morning	<1.5	5	<0.025	0.5	<0.03	0.4	<0.06	0.3	<0.005	0.15
T-2	2	12.10.2018	Day	<1.5	5	<0.025	0.5	<0.03	0.4	<0.06	0.2	<0.002	0.12
	2		Night	<1.5	5	<0.025	0.5	<0.03	0.4	<0.06	0.2	<0.005	0.15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm Hg	Humidity, %	t, °C	General weather state
T-1	10.10.2018	Morning	3.5	B	760	70	15	Clear
		Day	7.5	B	764	57	25	Clear
		Night	3.5	B	764	70	19	Clear
T-2	10.10.2018	Morning	5.2	B	764	49	18	Clear
		Day	5.2	B	764	50	22	Clear
		Night	5.2	B	764	65	19	Clear

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Kazakhstan agency of applied ecology

[illegible]

[illegible]

[illegible]

[illegible]

E-mail: [illegible]

certificate [illegible] dated 22 November,

2017

AIR RESEARCH REPORT

No. P-18-13-08

dated 12 November, 2018

(Total pages) 2

1. **Name and address of Employer, name of object, facility:** [illegible]
2. **Aim of research:** Monitoring investigations
3. **Date of research:** 09.11.2018
4. **Documentation per which the research is carried out:** [illegible]
5. **Regulatory document establishing the standards investigated factors:** Order of the Republic of Kazakhstan Minister of nature protection No. 163 dated 26 January, 2012 "About approval of Hygienic standards to the atmospheric air of populated areas"
6. **Measuring devices applied in the research, manufacturing, number:** [illegible]
7. **Data about measuring device inspection: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature** [illegible]
9. **Head of MFL: full name, signature** [illegible]

(place for seal)

Annex to the report No. P-18-13-88 dated 13 November, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		SO2		NO		NO2		Dust	
				mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC
T-1	1	05.11.2018	Morning	<1.5	5	<0.025	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	2		Day	<1.5	5	<0.025	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	3		Night	<1.5	5	<0.025	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
T-2	1	05.11.2018	Morning	<1.5	5	<0.025	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	2		Day	<1.5	5	<0.025	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	3		Night	<1.5	5	<0.025	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm Hg	Humidity, %	t, °C	General weather state
T-1	05.11.2018	Morning	3.2	S	721	54	17	Clear
		Day	3.3	S	723	37	23	Clear
		Night	3.3	S	723	50	19	Clear
T-2	05.11.2018	Morning	3.2	S	723	59	18	Clear
		Day	3.3	S	721	50	22	Clear
		Night	3.3	S	723	53	19	Clear

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Kazakhstan agency of applied ecology

Mobile environmental laboratory

050010, Almaty, Zverinka, 47

Mangistau region, [illegible] "Aktau"

Technical research laboratory "Oblaz"

E-mail: [illegible]

certificate KZ.T.02.0211 dated 22 December,

2017

AIR RESEARCH REPORT

№ P-18-12-15

dated 15 December, 2018

(Total pages) 2

1. **Name and address of Employer, name of object, facility:** [illegible]
2. **Aim of research:** Monitoring investigation
3. **Date of research:** 11.12.2018
4. **Documents as per which the research is carried out:** [illegible]
5. **Regulatory document establishing the standard of investigated factors:** [illegible]
6. **Measuring devices applied in the research, manufacturing number:** [illegible]
7. **Data about measuring device in question: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature:** [illegible]
9. **Head of MEL: full name, signature** [illegible]

(place for seal)

Annex to the report No. [illegible]-13 dated 13 December, 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		SO2		NO		NO2		Dust	
				mg/m3	MPC*	mg/m3	MPC*	mg/m3	MPC*	mg/m3	MPC*	mg/m3	MPC*
T-1	1	13.12.2018	Morning	<1,5	0	<0,025	0,5	<0,13	0,4	<0,06	0,7	<0,005	0,15
	2		Day	<1,5	0	<0,025	0,5	<0,13	0,4	<0,06	0,2	<0,005	0,15
	3		Night	<1,5	0	<0,025	0,5	<0,13	0,4	<0,06	0,7	<0,005	0,15
T-2	1	13.12.2018	Morning	<1,5	0	<0,025	0,5	<0,13	0,4	<0,06	0,3	<0,005	0,15
	2		Day	<1,5	0	<0,025	0,5	<0,13	0,4	<0,06	0,7	<0,005	0,15
	3		Night	<1,5	0	<0,025	0,5	<0,13	0,4	<0,06	0,2	<0,005	0,15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm of m	Humidity, %	t, °C	General weather state
1-1	13.12.2018	Morning	5,2	S	764	54	17	Clear
		Day	7,3	S	764	32	22	Clear
		Night	5,8	S	764	51	19	Clear
1-2	13.12.2018	Morning	3,3	S	764	49	18	Clear
		Day	5,5	S	764	30	22	Clear
		Night	6,1	S	764	50	19	Clear

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Kazakhstan Agency of applied ecology

[illegible]

[illegible]

Nur-Sultan region, [illegible]

Technical regulation [illegible]

Internet [illegible]

certificate KZ.T.02.C11 dated 22 December,

2017

AIR RESEARCH REPORT

No. P-18-12-14

dated 13 December, 2018

(Total pages) 2

1. **Name and address of Employer, name of object, facility:** [illegible]
2. Aim of research: Monitoring investigation
3. **Date of research:** 13.12.2018
4. **Documents as per which the research is carried out:** [illegible]
5. **Regulatory document establishing the standard of investigated factors:** [illegible]
6. **Measuring devices applied in the research, manufacturing number:** [illegible]
7. **Data about measuring devices inspection: date and No of inspection certificate:** [illegible]
8. **Research is carried out by: position, full name, signature:** [illegible]
9. **Head of MKL: full name, signature:** [illegible]

(Place for seal)

Annex to the report No. P-18-12-14 dated 12 December 2018

Air research results

Point number	No. of measurement	Measurement date	Time of measurement	CO		SO2		NO		NO2		Dust	
				mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC	mg/m3	MPC
T-1	1	12.12.2018	Morning	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	2		Day	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	3		Night	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
T-2	1	12.12.2018	Morning	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	2		Day	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15
	3		Night	<1.5	5	<0.125	0.5	<0.03	0.4	<0.02	0.2	<0.075	0.15

Meteorological research results

Point number	Date of measurement	Time of measurement	Wind speed, m/s	Wind direction	Air pressure, mm Hg	Humidity, %	t, °C	General weather conditions
T-1	12.12.2018	Morning	2.5	B	754	54	19	Clear
		Day	1.8	B	754	52	23	Clear
		Night	2.5	B	754	55	18	Clear
T-2	12.12.2018	Morning	2.0	B	754	48	16	Clear
		Day	3.0	B	754	50	24	Clear
		Night	3.0	B	754	50	18	Clear

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Appendix 5: Air test report Lot 2

CENGIZ

Road section «Zhetybai-Zhanaozen» 35-72 (38 km)

Ф 04 РД 37.01-16

Zhetybai – Zhanaozen road construction

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, section 15 «B»
8(7132)79-513, 914-359
Accreditation certificate № KZ.01.05.0016
dated «27» July 2015

KZ.01.05.0016

1 of 2

TEST REPORT № 67

Dated August «09» 2018 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: 35-75 km Zhetybai-Zhanaozen, on the border of residential area Zhanaozen, temp Zhetybai (657 km, Zhetybai 730 km)

Quantity 9 samples

Reason for testing Contract №10-26/2018 dated 07.03.2018, letter-copy №AKT-CGZ-ENT-2018-317 dated 10.05.2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate dated May 22nd, 2018 y.

Sampling date August 6th, 2018 y.

Date of testing August 8th, 2018 y.

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 ПУ-3А/12 state No 937, calibration certificate No BA-07-014-01204 dated 04.05.2018y.; gas sensor ГАНК-4, state No 609, label No 1704B15359 dated 12.07.2017 y.; digital laboratory scales MettlerToledoXS205DR state No B141350205, calibration certificate No BB.02-74119 dated 09.11.2017 y.

Testing conditions Weighing room: temperature 22°C, humidity 64 %

CENGIZ

№	Indicator, measuring unit	NB for testing method	NB standard	Actual values
01	02	03	04	05
3GK-1 PK-350 (05-40 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,40
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
3GK-2 PK-450 (05-15 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,40
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,05
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
3GK-3 PK-550 (05-45 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,31
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,06
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
3GK-4 PK-436 83 (11-11 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,22
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
3GK-5 PK 60+90 v.ZhanaOzen (07-17 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,45
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
Camp Zhergibai (730 km) PK 128				
AK-23 (N43°32.611' E051°58.296') (12-05 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,33
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
AK-24 (N43°32.555' E051°58.868') (12-50 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,33
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
AK-25 (N43°32.646' E051°58.761') (13-55 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,33
2	Carbon monoxide, mg/m³	ST RK 2.306-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.306-2014	not more 0,5	<0,05
AK-26 (N43°32.757' E051°58.251') (13-35 h)				

Environmental protection report for August 2018 y. Page 15

CENGIZ

Road section «Zhaysan-Zharasan» 35-73 [illegible]

1	Inorganic dust, mg/m³	ST RK [illegible]-2010	not more 0,5	0,42
2	Carbon monoxide, mg/m³	ST RK 2.306-2004	not more 5,0	[illegible]
3	Nitrogen dioxide, mg/m³	ST RK 2.306-2004	not more 0,2	[illegible]
4	Sulfuric anhydride, mg/m³	ST RK 2.306-2004	not more 0,5	[illegible]

Executors:

Dust and Gas Emissions Specialist: _____

Chemistry laboratory _____

Laboratory Chief _____

[illegible]

Environmental protection report for August 2013 y. Page 15

Road section «Zhaybai-Zhanaozen» 39-73 (98 km)

Zhaybai – Zhanaozen road construction

Ф 04 РД 27.01-16

KZ.01.05.0916

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, sector 15 «B»
8(7132)93-63-13, 656-326
Accredited certificate № KZ.01.05.0916
Date: 23 July 2015

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TEST REPORT № 53

Dated September 25th, 2018 y.

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

Address Aktau, mkr. 11, bldg. 29-A, building 135 «ABC» business center

Sample here and designation are: 22-23 km (Zhaybai-Zhanaozen, on the border of Zhanaozen and Zhanaozen, camp Zhaybai 557 km, Zhaybai 250 km)

Quantity 9 samples

Reason for testing Contract №104-09-2018 dated 07.11.2018, Measuring Act №ART-CGZ-EKT-2018-213 dated 10.12.2018 of contract «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate dated May 22nd, 2018 y.

Sampling date September 13th, 2018 y.

Date of testing September 20th – 21st, 2018 y.

Type of testing accreditation period

ND for testing subject Hygiene standards for atmospheric air in areas and populated places, approved by order of the Minister of national economy of the RK № 169 dated 28.02.2015

Measuring instruments used for testing, calibration details aerosolometer IPA-1M-02, run No.812, calibration certificate № 20-07-014-2-461 dated 19.07.2018y., gas analyzer «AKS-4», run No.209, serial No.1N0209465 dated 12.01.2015y., digital laboratory scales «Mettler Toledo AG204DR», run No.B101331335, calibration certificate № 2018-7-019 dated 23.1.2017 y.

Testing conditions Weather were: temperature 21°C, humidity 66 %

CENGIZ

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
1	2	3	4	5
3GK-1 PK-250 (14-20 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,29
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
3GK-2 PK-450 (15-21 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,27
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
3GK-3 PK-550 (15-25 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,41
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
3GK-4 PK-650+82 (17-17 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,25
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
3GK-5 PK 63+88 v.Zhanaozen (9-12 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,14
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
Camp Zhanatal (133 km) PK 120				
AK-23 (N42°32.666' E051°58.250') (10-40 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,08
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
AK-24 (N42°32.685' E051°58.600') (11-35 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,25
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
AK-25 (N42°32.549' E051°58.270') (12-42 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,5	0,29
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
AK-26 (N42°32.587' E051°58.250') (12-45 h)				

[illegible]

[illegible]

1	Inorganic chlorides, mg/m³	ST RK 1557-2010	not more 0.5	0.27
2	Carbon monoxide, mg/m³	ST RK 2.908-2014	not more 5.0	<0.4
3	Nitrogen dioxide, mg/m³	ST RK 2.908-2014	not more 0.2	<0.02
4	Sulfur dioxide, mg/m³	ST RK 2.908-2014	not more 0.5	<0.01

Executors:

Director of Gas Collector Operator _____
(Signature)

Chemistry laboratory _____
(Signature)

Laboratory Chief _____
(Signature)

[illegible]

Reconstruction «Zhezkazgan-Zhezdy» 35-73 (38 km)

Zhezdy – Zhezkazgan road construction

© 04 РД 37.001-16

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, sector 15 site
Accreditation certificate № KZ.H.09.15.0
dated 26th July 2015

KZ.H.09.1516

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TEST REPORT № 61

Date: October 31st, 2018 y.

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

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

Sample item and designation at 35-73 km Zhezdy-Zhezkazgan, on the border of neighboring area Zhezkazgan, along Zhezdy at 0.057 km, Zhezdy 770 km

Quantity 9 samples

Reason for testing Contract № 0101-18-2 dated 16.01.2018, letter resp. №AKI-CGIZ-EXI-2018-113 dated 31.10.2018 to branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC, operating certificate dated May 22th, 2018 y.

Sampling date October 18th, 2018 y.

Date of testing October 18th, 2018 y.

Type of testing precipitation period

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: IM-3 (2) 2 pcs, No 867, calibration certificate No BA-07-014-0986 dated 05.05.2017, Rs, one sensor: SAIK-4, pcs No 669, tube No 1722385d869 dated 15.03.2012 y., digital laboratory scales MettlerToledo XS205 DU, pcs No 1141130325, calibration certificate No BK/12-46, issued 09.11.2012 y.

Testing conditions Weighing room temperature 22°C, humidity 56%.

CENGIZ INSAAT

Road section «Zhaybal-Zharacoan» 35-73 (30 km)

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
01	02	03	04	05
ЖЖК-1 Пк-351 (16-35 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,41
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
ЖЖК-2 Пк-451 (16-40 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,32
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
ЖЖК-3 Пк-551 (15-35 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,38
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
ЖЖК-4 Пк-651 (14-40 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,25
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
ЖЖК-5 Пк-851 (Ю-г.Zharacoan entry) (14-30 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,33
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
Camp Zhaybal (738 km) PK 120				
АК-23 (N47°32.616' E85°54.296') (10-15 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,43
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	1,35
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
АК-24 (N47°32.555' E85°54.666') (11-40 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,42
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
АК-25 (N47°32.466' E85°54.766') (11-45 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,41
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfurous anhydride, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
АК-26 (N47°32.757' E85°54.951') (12-30 h)				

CENGIZ

Road section «Zhezybai-Zhana-Kosen» 39-73 (30 km)

1	Inorganic dust, mg/m³	ST RK [illegible]-2010	no more 0,5	[illegible]
2	Carbon monoxide, mg/m³	ST RK [illegible]-2014	no more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK [illegible]-2014	no more 0,2	<0,06
4	Sulfurous anhydride, mg/m³	ST RK [illegible]-2014	no more 0,5	<0,10

Executor:

Oil and Gas Collector Operator _____
(Surname, signature)

Consulting Engineer _____
(Surname, signature)

Laboratory Chief _____
(Surname, signature)

[illegible]

Environment protection report for August, 2018 y. Page 12

CENGIZ

Road section «Zhetybai-Zhanaozen» 35-73 (38 km)

Zhetybai – Zhanaozen road construction

Ф 04 РД 37.01 16

KZ.H.05.0916

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
[illegible]
[illegible]
Accreditation certificate № KZ.H.05.0916
dated [illegible]

[illegible]

TEST REPORT № 71

Date: November [illegible] 2018 y.

Customer: Branch of CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI in Astana

Address: Almaty region, District 29-A, building 135 [illegible]

Sample from and designation: 35-73 km. Zhetybai-Zhanaozen, on the border of residential area Zhanaozen, camp Zhetybai (67 km, Zhetybai 53 km)

Quantity: 9 samples

Reason for testing: Contract №10-06/2018 dated 07.03.2018, letter only: N ART CGZ EXT 2018 767 dated 01.[illegible].2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling act/[illegible] dated November 9th, 2018 y.

Sampling date: November 9th, 2018 y.

Date of testing: November 12th, 2018 y.

Type of testing: [illegible]

NB: for testing subject: hygienic standards for atmospheric air in order and rules of sanitary-protection zone approved by order of the Ministry of National Economy of the RK № 169 dated 28.02.2015.
Measuring instruments used for testing, calibration details: gas meter [illegible] № 807, calibration certificate № [illegible] dated 16.03.2018; gas meter [illegible] № 809, [illegible] № [illegible] dated [illegible]; digital laboratory scales [illegible] № [illegible]; calibration certificate № [illegible] dated [illegible] y.
Testing conditions: Ambient temperature 22°C, humidity 41 %

CENGIZ

Road section «Zhetigen-Zhaosuan» 28.72 (28 km)

№	Indicator, measuring unit	ND for testing method	ND standard	Actual value
01	02	03	04	05
AAK-1 PK-258 (12-35 h)				
	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.43
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.5	<0.03
AAK-2 PK-458 (13-00 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.42
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.5	<0.03
AAK-3 PK-558 (13-30h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.44
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.5	<0.03
AAK-4 PK-656+83 (14-50 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.45
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.5	<0.03
AAK-5 PK-68+80 «Zhaosuan» entry (14-00 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.41
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.5	<0.03
Ciang Zhaychai (730 km) PK 130				
AK-23 (N45°32.644' E051°58.396') (09-35 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.47
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	1.70
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.2	<0.03
AK-24 (N45°32.555' E051°58.607') (09-35 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.42
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.2	<0.03
AK-25 (N45°32.646' E051°58.365') (11-00 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0.5	0.41
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5.0	<1.5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0.2	<0.02
4	Sulfur anhydride, mg/m³	ST RK 2.302-2014	not more 0.2	<0.03
AK-26 (N45°32.757' E051°58.351') (11-50 h)				

CENGIZ

Road section: «Zhany-Kul-Zhanaozen» 36-73 (38 km)

1	Inorganic dust, mg/m³	ST RK 17.07-2000	act more 0,3	0,04
2	Carbon monoxide, mg/m³	ST RK 2.323-2004	act more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.323-2004	act more 0,2	<0,02
4	Sulfur monoxide dioxide, mg/m³	ST RK 2.322-2004	act more 0,5	<0,05

Executors:

Dust and Gas Collector Operator _____
(date, sign, first name)

Chemistry lab technician _____
(date, sign, first name)

Laboratory Chief _____
(date, sign, first name)

[illegible]

Road section: Zhaysan-Zhangaldy (26-0 [illegible] km)

Zhaysan – Zhangaldy road reconstruction

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
Aktobe, Industrial Zone, [illegible]
8(7132) [illegible]
Accreditation certificate № KZ.B.05.0916
valid to [illegible]

KZ.B.05.0916

№ [illegible]

TEST REPORT № 58

Issued December [illegible], 2018 y.

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

Address: Almaty region, district [illegible], [illegible] 35 "ABC business center"

Sample Item and designation site: 25-77 km Zhaysan-Zhangaldy, on the border of residential area Zhaysan, camp-Zhandy 1697 km, Zhaysan 270 km

Quantity: 3 samples

Reason for testing: Contract № [illegible] dated 16.01.2018, Letter-agreement № [illegible] dated 05.12.2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», Sampling application dated December 18, 2018 y.

Sampling date: December 18, 2018 y.

Date of testing: December 18, 2018 y.

Type of testing: air pollution control

ND for testing subject: Hygienic standards for atmospheric air in populated areas, approved by order of the Minister of Health of the RK № 157 dated 28.02.2015

Measuring instruments used for testing, calibration details: [illegible] № [illegible] dated [illegible], [illegible] № [illegible] dated [illegible], [illegible] № [illegible] dated [illegible], [illegible] № [illegible] dated [illegible], calibration certificate № [illegible] dated [illegible]

Testing conditions: Weather conditions: temperature 22°C, humidity [illegible]

Road section «Zhaysan-Zhezkazgan» (0+00-28 km)

№	Indicator, measuring unit	MD for sampling method	MD Standard	Actual values
RL	R2	R2	R4	R5
AKK-1 PK-350 (14-30 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,1
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,05
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
AKK-2 PK-540 (14-45 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	<0,04
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,05
AKK-3 PK-550 (15-30 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	<0,04
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
AKK-4 PK-630 (17-00 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,08
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
AKK-5 PK-690 (Zhezkazgan entry) (10-00 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,14
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
Camp Zhezdy (720 km) PK 120				
AK-33 (N47°32.840' E061°58.290') (10-50 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,10
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
AK-34 (N47°32.555' E061°58.667') (11-40 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,11
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
AK-35 (N47°32.607' E061°58.784') (12-20 h)				
1	Inorganic dust, mg/m³	ST RK 1957-2010	not more 0,3	0,10
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	not more 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	not more 0,2	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	not more 0,5	<0,03
AK-36 (N47°32.757' E061°58.351') (12-28 h)				

1	Inorganic dust, mg/m³	ST RK 1957-2010	[illegible] 0,5	0,15
2	Carbon monoxide, mg/m³	ST RK 2.302-2014	[illegible] 5,0	<1,5
3	Nitrogen dioxide, mg/m³	ST RK 2.302-2014	[illegible]	<0,02
4	Sulfur dioxide, mg/m³	ST RK 2.302-2014	[illegible] 0,2	<0,03

Executed:

Head and Co. Collector Operator _____

Chemistry laboratory _____

Laboratory Chief _____

Appendix 6: Test report of noise and vibration measurement Lot 1

Vibration measurement report No.4

dated 20 August, 2018

1 Full name of the enterprise, address:
LLP "Altas kurylys", in the territory of Construction Company located in Karaganda region, Karaganda district, the road Zhana Al-Zhakaev
2 The time of measurement: Under the contract No. 184 dated 13.10.2018
3 Measurements are executed in the presence of subject representative
4 Measuring units: Noise and vibration analyzer "Assistent" No. 038316
5 Information about state inspection: SVT No. La-16-192128 dated 04.12.2017 up to 04.12.2018
6 Regulatory documentation in accordance with which the measurements have been made: GOST 31191.1-2004 "Measurement of general vibration and estimation of its impact on the person"
7 Main sources of vibration and characteristics of vibration: Transport operations are executed
8 Quantity of operating men
9 Scheme of noise (pneumatic work tools, hand-held machine) with indication of vibration source, indication of floor on plan and the explication (geographical indication) of areas. Numerical order of measuring points

Residential house 210

Information on vibration measurement conditions

	Equipment for which the vibration impact assessment was carried out	Accelerometer mounting location	Photos of working day (shift)		Additional information	Load auxiliary (attachments) equipment	Accelerometer orientation (axis)
			Hours, breaks in work	Number of working cycles, duration of each operation or work cycle			
1	2	3	4	5	6	7	8
45							
1	№ 20 residential house						
						№	XYZ
						по	XYZ
						по	XYZ
2	№ 7 residential house						
						по	XYZ
						по	XYZ
						№	XYZ

Vibration acceleration levels, dB, in one-third octave bands with mean geometric frequencies, Hz																				
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
0.8	1	1,25	1.6	2	2.5	3.15	4	5	6.3	8	10	12,5	16	20	25	31.5	40	50	63	80

Corrected level of vibration acceleration for the axis, dB	Level of vibration acceleration for a cycle operation, dB	Percentage of each duty cycle	Smoothed Level Equivalent To Vibration	Admissible equivalent corrected level of vibration acceleration, dB
30	31	32	33	34
1			89.1	118
			93.2	118
			95,1	118
2			93,3	118
			89,6	118
			88.6	118

Inspection of samples is carried out in accordance with RK GOST [illegible]-2003-
Measurement of general [illegible] and [illegible] of [illegible] in [illegible]

Full name of laboratory specialist [illegible] the inspection

Laboratory doctor of EMP and FF [illegible] Signature

Laboratory doctor of EMP and FF [illegible] Signature

Head of branch of RSR on RFM "NCE" CPHP of RK MOH (deputy) Signature

Seal (Signature) Signature N.S.

Forwarded samples [illegible]

Results of inspection shall cover only samples inspected. Partial

reprinting of protocol without permission is FORBIDDEN.

Noise measurement report No.[illegible]

dated 23 August, 2016

1. For [illegible] only, address:
   LLP "Alatau kurylys" In the territory of [illegible] located in Almaty region, Kyrgyzh district, the town Zhetysu-Chunayev.
2. The date of measurement: Under the contract No. 184 dated 29.05.2016
3. Noise measurements are contained in the protocols of objective research results.
4. Measuring public noise and vibration analyzer "Ecophysics" No. 238916
5. Information about last inspection: SV No Ca-16-[illegible] dated 31.[illegible].2017, up to 04.12.2018
6. Regulatory documentation in accordance with which the measurement has been made: HOST 31.191.1-2001 "Noise control. Typical calculation and estimation of its impact on the human
7. Main sources of vibration and characteristics of vibration: Transport operating on the road
8. Quantity of operating cars
9. Schematic plan: numbers, work class, brand [illegible] machines with indication of vibration sources, indication of vibration points and microphone (gauge) orientation by arrows. Numbering order of measuring points

Residential house 820

Inspection of samples is carried out in accordance with Ministry order [illegible] dated 28 Feb 2015. Regarding replacement of samples that have to inspect in harsh weather.

Full name of laboratory specialist made the inspection

Laboratory doctor of RMP and FF [illegible] **Signature**

Laboratory doctor of RMP and FF [illegible] **Signature**

Head of branch of RSE on REM "SCE" CPHP of RK MOH (deputy) [illegible]

[illegible]

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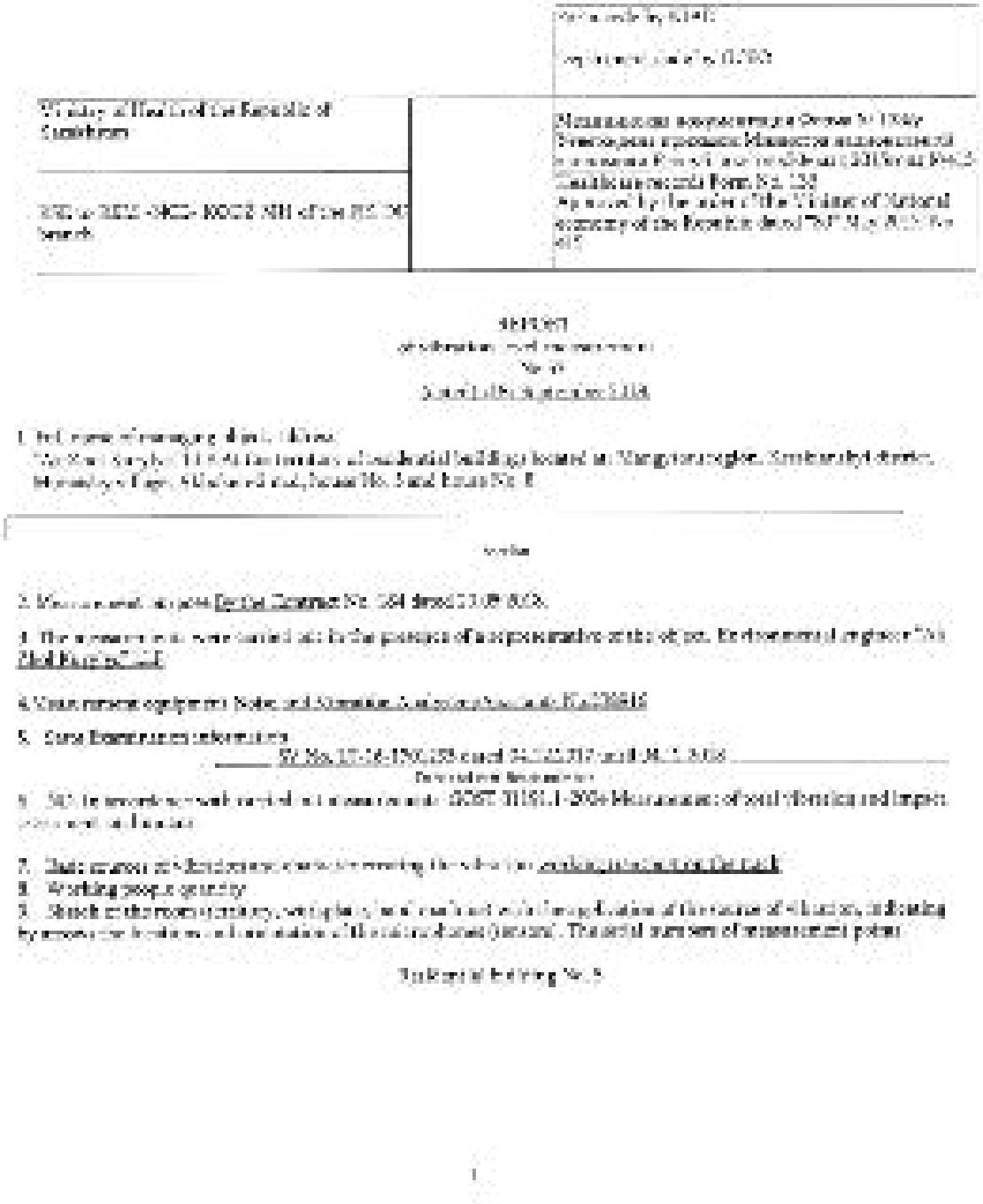

1	2	4	5	11
1	[illegible]	-		[illegible]
2	[illegible]	-		[illegible]

No.	Vibration acceleration level, dB, in one-third octave bands with geometric mean frequencies, Hz											Corrected level of vibration in working zone, dB	Corrected level of vibration accounting of the cyclic operation, dB	Equivalent corrected level of vibration acceleration, dB	Permissible 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														62.3	118
														65.6	118
														69.4	118
2														75.3	118
														78.7	118
														84.7	118

[illegible]

Full name of laboratory manager
[illegible] Signature

[illegible]

[illegible]

Report number and comments
Concentration/amount measured exceeds the limits which are established in Regulations
Partly or entirely copying of report without written permission is PROHIBITED

	Service code by NEIA Department code by GCEC
[illegible]	[illegible]
[illegible]	[illegible]

[illegible]

[illegible]
No. [illegible]
dated [illegible] September 2018

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

5. State Environmental Information

[illegible]

[illegible]

6. [illegible]

[illegible]

7. [illegible]
8. [illegible]
9. [illegible]

Residential building No. 5

Noise measurement report No 53

dated 18 Oct. 2018

1. Full name/Enterprise name, address:
   LLP "Aktobe-Logistic", In the territory of Construction Camp located in Kargalinsky region, Kandyagash city, 14, the road Zhaykh-Zhanaozen.
2. The aim of measurement: Under the contract No. 185 dated 20.10.2018
3. Measurement equipment: the presence of their measurements
4. Measuring units: Noise and vibration analyzer "Ecophysics" No. 238016
5. Information about state inspection: SV No.Ka-16-/201255 dated 26.12.2017 up to 04.12.2018
6. Regulatory documents, on the compliance with which the measurements have been made: ГОСТ 30185-1-2007
   Measurement of general vibration and estimation of its impact on the person
7. Main sources of vibration and character of vibration: Transport operating on the site
8. Quantity of operating cars
9. Schema to premises or temporary workplace, hand-held machines with indication of vibration sources and a list of frequency ranges and vibrations (graph or diagram by arrows). Numerical indicators measuring points.

Residential zone, 36

Results of measurement results

Sampling number	No. of points per draft	Location of measurement	Additional information	Name of noise					
				Acceptable		Acceptable			
				Without noise	Low	Moderate	Disturbing	Noisy	Intolerable
1	2	3	4	5	6	7	8	9	10
RJ									
	1	Bishkek-Osh	5/10-25/10	+					
	2	Osh-Nookat	5/10-25/10	+					

Source pressure levels in all 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
				MPL	55	75	90	75	55	50	45	42	40
					68,2	66,7	53,4	54,[illegible]	51,7	45,3	40,8	36,0	23,1
					87,2	76,2	62,4	58,2	55,3	45,3	39,2	32,0	23,1

Sound level LA (equivalent sound level)	Maximum permissible sound level LA (equivalent sound level)	Maximum permissible sound level LA, dBA
	23	26
1	55,4	70
2	54,1	70

Order of the KR Ministry Order No. 139 dated February 20, 2015 On the approval of hygienic standards for physical

Date of drawing up the act

(FULL NAME of the responsible official)
Laboratory assistant of the Laboratory of MEF and EF Tajikhydroproject
LLP

Signature

Signature municipal-national notary, LA/S
(Name of the head of the laboratory)
Laboratory head of the laboratory of MEF and EF
Sadykov A.

Kazan A. Ibrahimov

Branch manager

Stamp

Representative R.

The test report is compiled in 2 copies.
The test results only apply to specimens subjected to testing.
Partial reprint of the protocol without permission is FORBIDDEN

Noise measurement report No.53

dated 18 Oct, 2018

1. Full name or business entity, address:
   LLP "Akcelaloryly". Tube in Joyo/Office active Corp located in Mangistau region, Karakiya district, the road Shetpe-Zhanaozen
2. Purpose of measurement: Under measurement No. 138 dated 26.05.2018
3. Measurement are carried out in the process of operational control
4. Measuring point: Kokzeid village in residential "residential" No. 239916
5. Information about last inspection: SV No.Ga-16-1/00159 dated 06.12.2017 up to 04.12.2018
6. Regulatory documents in accordance with which the measurement has been made: ГОСТ 31151.1-2004 Measurement of general vibration and estimation of its impact on the person
7. Main sources of vibration and characteristics of vibration: Transport vibration on the road
8. Quantity of operating men
9. Scheme of production process, work place, hand-held machine, with indication of vibration sources, indicate the workplace and microphone (gauge) measurement by arrows. Numbering points of measuring points

Residential zone #1

Table 1. Summary results

		Vibration type		
	Equipment for vibration measurement	General	Local	Operation coefficient (vol)
1	2	3	4	5
0				
1	Hand [illegible]	+		X + Z
2	Hand Spam	+		X Y Z

№	Vibration acceleration levels, dB, in one-third octave bands with geometric mean frequencies, Hz											Correction for vibration acceleration levels for each cell	Corrected vibration acceleration levels for each cell, 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				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1														68.2	1.8
														71.3	1.8
														69.3	1.8
2														64.3	1.8
														60.7	1.8
														63.6	1.8

Inspection of sanitary-hygienic control carried out in accordance with Ministry order [illegible] dated [illegible] 2012, Regarding hygienic norms for physical factors having impact on human organism

Full name of laboratory specialist made the inspection

Laboratory director of FMP and PE [illegible] (signature)

Laboratory director of KSM and PE [illegible] (signature)

Head of branch of RSE on REM "NCEP" CHEP of RK MNH (signature) (signature)

(seal) (signature) (signature)

Protocol is made in 2 copies

Results of inspection shall not relate only samples inspected. Partial copying of protocol without permission is FORBIDDEN

Noise measurement report No.[illegible]

dated 16 Nov, 2018

1. Full name of business entity, address:
   LLP "Alzhal-Kurylys", Industrial zone Kyzyl-Orda, Kyzyl-Orda region, Kazalinsk district, the road Zhosaly-Kharauzen.
2. Type of measurement: Under the contract No. [illegible] dated 20.05.2018.
3. Measurements are carried out in the presence of subject representatives
4. Measuring units: Noise and vibration analyzer "Svantek" No. 23[illegible]
5. Information about state inspection SV No. [illegible] dated 06.12.2017 up to 14.12.2[illegible]
6. Regulatory documentation in accordance with which the measurements are made: [illegible] 31.01.1-2004 Measurement of general vibration and estimation of its impact on the person
7. Main sources of vibration and elements of vibration: Transport operating on the road.
8. Quantity of operating cars.
9. Scheme of premises (areas, workplace, and field machine) with indication of vibration sources and place of vibration place and measurement (gauge) orientation by arrows. Numerical indexes of measuring points.

Construction crew

Result of measurements

Registration number	No. of permanent point	Location of measurement	Additional information	Measured data					
				Actual speed km/h		Acceleration			
				Wheel speed	Gear	Gear shift	Coasting	Idling	Legislation
1	2	3	4	5	6	7	8	9	10
1		[illegible]	7:33-25:00	-				-	
	2	[illegible]	7:33-25:00					-	

Sound pressure levels in dB(A) and the back with percentile cross 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
				[illegible]	90	92	86	85	84	80	47	45	44
					85.4	74.4	62.9	56.8	54.5	46.5	43.2	41.2	40.7
					81.2	70.1	60.4	53.8	50.7	46.2	43.2	41.2	38.4

Sound level LA (equivalent sound level) / Maximum sound level	Permissible sound level LA (equivalent sound level) / Maximum permissible sound level LA dBA
25	26
1 [illegible]	71
2 [illegible]	71

Order of the MoK Minister, Order No. 139 dated January 25, 2010 On the approval of hygienic standards for noise

Date of testing, period: _____

(TITLE, NAME of the research officer)
Laboratory assistant at the laboratory of DMF and TF Tajik-Japan Centre
TM

Signature

Supervisor on metrological control, LAZA
(Name of the head of the laboratory)
Laboratory director of the laboratory of DMF and TF
Kenjebaev A.

Signature of the director

Branch manager

Stamp

Signature K.

The test report is compiled in 2 copies.
The test results apply only to specimens subjected to testing.
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Noise monitoring report No 31

[illegible] 18 Oct, 2018

1. Full name of business entity, address:
   LLP "Shakhdinskiy", located at the 1st Construction site located in Mangit city region, Karakalpak district, on road Khorezm-Karakalpak.
2. Type of [illegible]
3. Measurements are conducted in the presence of region representatives
4. Measuring units: Noise and vibration analyzer "Svantek" No. 958AF
5. Information about calibration: SV No.18-5-170-219 dated 06.12.2017 until 04.12.2018
6. Regulatory documentation in accordance with which the measurements have been made: [illegible] "Measurement of general vibration and calculation of its impact on the person"
7. Main sources of vibration and characteristics of vibration: Transport operating on the road
8. Quantity of operating cars:
9. Scheme of provided [illegible] work place, and field machinery with indication of vibration source, indication of fixation place and measurement (gauge) orientation by arrows. Numerical [illegible] measuring points.

Construction camp

Check Calculation table

		Vibration spec		
	Equipment for vibration measurements	General	Local	Operating conditions, [illegible]
1	2	3	4	5
20	Construction camp			X X X
2	Residential zone 200 Km radius village			X X X

	Vibration acceleration levels, dB, at standard octave bands with geometric mean frequencies, Hz												Corrected vibration acceleration level, dB	Corrected vibration acceleration level, operator's seat, dB	Generalized vibration acceleration level, dB	Allowable vibration acceleration level, 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															83.2 85.7 84.7	110 110 110
2															74.5 72.5 72.9	110 110 110

Inspection of samples is carried out in accordance with Ministry order 2163 dated 28 Nov 2015 Regarding hygienic norms for physical factors having impact on human organism.

Full name of laboratory specialist made the inspection

Laboratory doctor of EMP and PP Tashkent [illegible] LLC (Signature)

Laboratory doctor of EMP and PP Samarkand [illegible] LLC (Signature)

Head of branch of RSE on REM "SCCE" CPHP of RIC MOH (deputy) (Signature)

Seal (Signature) Protocol is valid in 3 copies

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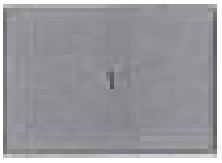
Noise measurement report No.52

Dated Dec 14, 2018

1. Full name of the measurement object:
   "LLP Alkadel Kargyz". In the territory of residential houses in Mangistau region, Karaozek district, Shetpiy village, [illegible]
2. The aim of measurement: Under the contract No. 194 dated 25.06.2018
3. Measurements were conducted in the presence of representatives of LLP Alkadel Kargyz
4. Measuring tools: Noise and vibration measuring device BBH-01 [illegible]
5. Information about last inspection: PO No. [illegible] dated [illegible] by [illegible] 31.10.2018
6. Regulatory documentation in accordance with which the measurements have been made: [illegible] 31.91.1-2004
   Measurement of general vibration and its impact on the person
7. Main sources of noise and measurement objectives: Transport operating on the road
8. Quantity of operating cars
9. Scheme of measurement: work place, hand-held machines with indicators of vibration, sound level meter of first class, [illegible] measuring points.

Residential house



Inspection of samples is carried out in accordance with GOST 31 191.1-2004 "According to the results of physical [illegible] inspection laboratory specialist.

Full name of laboratory specialist made the inspection

Laboratory center of LLP and PE [illegible] (Signature)

Laboratory director of LLP and PE [illegible] (Signature)

Head of branch of HSE on HEM "NCH" CPHF of RK MMH (deputy) (signature)

Seal (Signature of Representative) [illegible]

Protocol is made in 2 copies

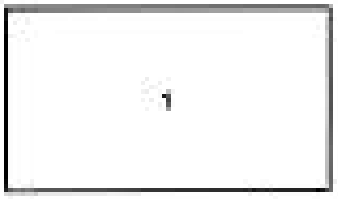
Results of inspection shall cover only samples inspected Partial reproducing of protocol without permission is FORBIDDEN

Noise measurement report No.82

date: Oct 24, 2018

1. Full name of business entity, address:
   LLP "Akzhol-Kurylys", In the territory of residential house located in Mangistau region, Karakiya district, Novaisky village, houses #11 and #88A.
2. The date of measurement: Under the contract No. 181 dated 24.09.2018
3. Measurements are executed in the presence of site representatives: Akzhol-Kurylys LLP civil engineer.
4. Measuring tools: Noise measuring device DB101, no.32966
5. Information about last inspection: RA 12-03-0988 dated 25.10.2018 to 31.10.2019
6. Regulatory documents in accordance with which the measurements have been made: Order by MK Ministry of National Economy #169 dated Feb 28, 2018 regarding establishing of hygienic regulations against physical factors influencing human organism.
7. Main sources of noise and character of noise: Transport operating on the road
8. Quantity of operating cars:
9. Layout of premises territory, work place, hand-held machinery with indication of noise source measurement, function place and other place (pages or location by arrows). Numerical order of measuring points.

Residential house #11



Appendix 6: Test report of noise and vibration measurement Lot 2

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»

KZ 111 5 0016

TEST REPORT № 44

Customer

Address

Sample item and designation

Quantity

Reason for testing

Sampling date

Date of testing 14.08.2018

Type of testing

NB for testing subject

Measuring instruments used for testing, calibration details

Test conditions

Environmental protection report for August 2018 y.

Page 21

№	Indicator, measuring unit	NP for noting period	NP standard	Actual values
01	02	03	04	05
3GK-5 PK 80+83 village Zhaosu Gora Entrance (10-40 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	72
	Noise, dBa (maximum)	GOST 12.1.050-86	-	78
	Noise, dBa (minimum)	GOST 12.1.050-86	-	69
01	02	03	04	05
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	69
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	9
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	82
Camp village Zhaylau (250 km PK 120				
AK-25 (N43°32.611' E85°58.298') (12-25 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	66
	Noise, dBa (maximum)	GOST 12.1.050-86	-	72
	Noise, dBa (minimum)	GOST 12.1.050-86	-	41
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	15
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	83
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	72
AK-24 (N43°32.669' E85°58.668') (13-10 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	65
	Noise, dBa (maximum)	GOST 12.1.050-86	-	70
	Noise, dBa (minimum)	GOST 12.1.050-86	-	48
2	Vibration, dB (equivalent)	GOST ISO 8041-2006		79
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	81
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	72
AK-23 (N43°32.667' E85°58.764') (13-55 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	73
	Noise, dBa (maximum)	GOST 12.1.050-86	-	75
	Noise, dBa (minimum)	GOST 12.1.050-86	-	51
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	80
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	86
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	71
AK-26 (N43°58.797' E85°58.391') (11-15 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	67
	Noise, dBa (maximum)	GOST 12.1.050-86	-	71
	Noise, dBa (minimum)	GOST 12.1.050-86	-	43
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	72
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	85
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	66

CENGIZ

Road sector: [illegible]

Executors:

Dust and Gas Collector Operator: [illegible]

Laboratory Chief: [illegible]

[illegible]

[illegible]

[illegible]

Laboratory of Environmental Protection
«Akkolc Uranium Compound» Plant»
Akkolc Industrial Zone, section 12 «Do
[illegible]
Accreditation certificate № KZ.H.05.0916
Dated «[illegible]»

page 1 of 3

TEST REPORT № 96

dated September «26» 2018 г.

Customer: Branch of «[illegible] INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Astana

Address: [illegible]

Sample item and designation: noise and vibration along the house and vibration at the border of the residential area (Zhetysu-2 Street) [illegible]

Quantity: -

Reason for testing: Contract № [illegible] dated [illegible] 2018, letter out. № [illegible] dated 18.09.2018 of branch «[illegible] INSAAT SANAYI VE TICARET ANONIM SIRKETI»

Sampling date: -

Date of testing: [illegible] 2018

Type of testing: noise and vibration control

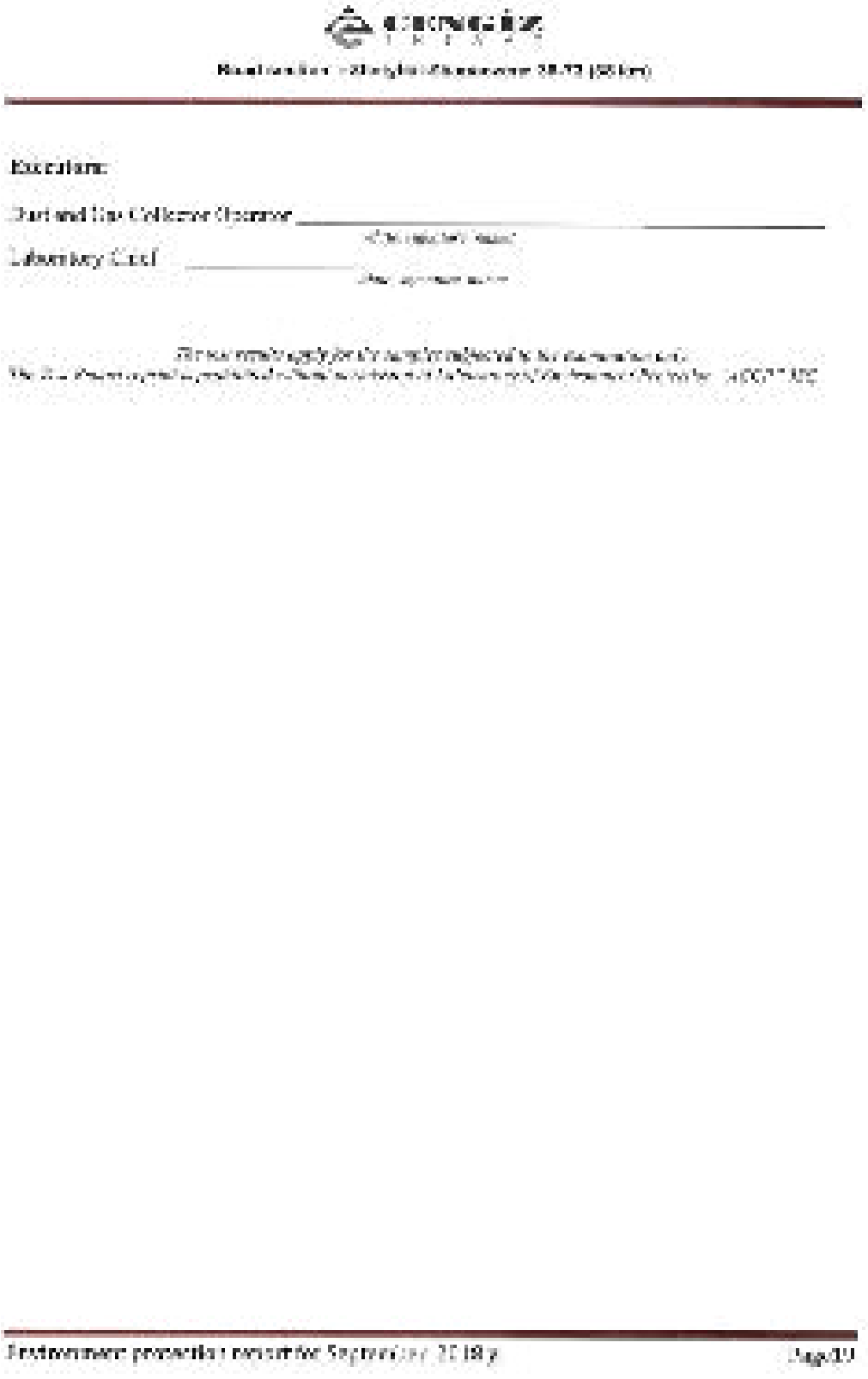
ND for testing subject: Hygienic standards for atmospheric air in urban and rural settlements, approved by order of the Minister of Health and Social Development of the RK № [illegible] dated [illegible] 2017

Measuring instruments used for testing, calibration details: Noise and vibration analyzer «Ecodynamic» type 96160-12, calibration certificate № [illegible] dated [illegible] 2018

Test conditions: -

Reconstruction «Zhaysan-Zharasimov» 35-73 [36 km]

№	Indicator, measuring unit	ND for noise method	ND standard	Actual value
01	02	03	04	05
MZK-5 PK 50+40 village Zhana Ozen Entrance (16-21 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	70
	Noise, dBa (maximum)	GOST 12.1.050-86		75
	Noise, dBa (minimum)	GOST 12.1.050-86	-	69
01	02	03	04	05
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	81
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	90
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	75
Camp village Zhambyl (770 km) PK 120				
AK-23 (N43°32.644' E051°58.236') (18-55 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	62
	Noise, dBa (maximum)	GOST 12.1.050-86	-	80
	Noise, dBa (minimum)	GOST 12.1.050-86	-	60
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	80
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	90
	Vibration, dB (minimum)	GOST ISO 8041-2006		75
AK-24 (N43°32.555' E051°58.668') (11-00 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	70
	Noise, dBa (maximum)	GOST 12.1.050-86	-	75
	Noise, dBa (minimum)	GOST 12.1.050-86	-	64
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	71
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	75
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	55
AK-25 (N43°32.660' E051°58.784') (12-00 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	70
	Noise, dBa (maximum)	GOST 12.1.050-86	-	75
	Noise, dBa (minimum)	GOST 12.1.050-86	-	60
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	79
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	85
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	75
AK-26 (N43°32.597' E051°58.751') (13-15 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	75
	Noise, dBa (maximum)	GOST 12.1.050-86	-	82
	Noise, dBa (minimum)	GOST 12.1.050-86	-	55
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	74
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	82
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	62



CENGIZ

[illegible]

[illegible]

Laboratory of Environmental Protection
«Aktobe Chromium Compounds Plant»
[illegible]
[illegible]
Accreditation certificate № KZ.T.BY.2016
Dated «[illegible]» July 2016

KZ.T.BY.2016

[illegible]

TEST REPORT № 70

dated November «12» 2018 y.

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

Address: [illegible] district 29 A, building 35 "NOR" business center

Sample item and designation: noise and vibration along the Noise and vibration at the border of the [illegible] Zhaykuy 730 km

Quantity: -

Reason for testing: Contract № [illegible] dated [illegible] 2018, letter reg. № [illegible] dated [illegible] 2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI»

Sampling date: -

Date of testing: November [illegible] 2018

Type of testing: noise and vibration control

ND for testing subject: Hygienic standards for atmospheric air in populated areas, approved by order of the Minister of National economy of the RK № [illegible] dated 28.02.2015

Measuring instruments used for testing, calibration details: Noise and vibration analyzer «Assistant» [illegible] calibration certificate № [illegible] dated [illegible]

Test conditions: -

CENGIZ

Road section «Zhetybai-Zhanaozen» 35-72 (38 km)

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
01	02	03	04	05
AK-5 PK 80+98 village Zhanaozen Entrance (16-51 h)				
1	Noise, dBa (equivalent)	GOST 12.1.353-85	not more 90	72
	Noise, dBa (maximum)	GOST 12.1.353-85	-	74
	Noise, dBa (minimum)	GOST 12.1.353-85	-	68
01	02	03	04	05
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	80
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	82
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	72
Camp village Zhetybai (730 km) PK 120				
AE-23 (N40°52.844' E051°58.258') (09-55 h)				
1	Noise, dBa (equivalent)	GOST 12.1.353-85	not more 90	60
	Noise, dBa (maximum)	GOST 12.1.353-85	-	67
	Noise, dBa (minimum)	GOST 12.1.353-85	-	48
2	Vibration, dB (equivalent)	GOST ISO 8041-2006		71
	Vibration, dB (maximum)	GOST ISO 8041-2006		80
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	64
AE-24 (N40°52.555' E051°58.668') (10-35 h)				
1	Noise, dBa (equivalent)	GOST 12.1.353-85	not more 90	67
	Noise, dBa (maximum)	GOST 12.1.353-85		69
	Noise, dBa (minimum)	GOST 12.1.353-85	-	56
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	70
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	76
	Vibration, dB (minimum)	GOST ISO 8041-2006		64
AE-25 (N40°52.846' E051°58.764') (11-20 h)				
1	Noise, dBa (equivalent)	GOST 12.1.353-85	not more 90	64
	Noise, dBa (maximum)	GOST 12.1.353-85	-	71
	Noise, dBa (minimum)	GOST 12.1.353-85	-	42
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	68
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	74
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	58
AE-26 (N40°52.757' E051°58.351') (12-10 h)				
1	Noise, dBa (equivalent)	GOST 12.1.353-85	not more 90	62
	Noise, dBa (maximum)	GOST 12.1.353-85		68
	Noise, dBa (minimum)	GOST 12.1.353-85	-	54
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	76
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	84
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	64

CENGIZ

Road section «Dhaybal-Zhanaozen 36-73,38 km»

Excavator

Dump truck Gas Cutter Operator _____

Laboratory Staff _____

Road section: [illegible]

[illegible]

KZ.II.05.0916

Laboratory of Environmental Protection
«Aktobe Chromium Compound Plant»
Aktobe Industrial Zone, section 15 «A»
87132[illegible]
Accreditation certificate № KZ.T.02.0916
dated 02 July 2015

page 1 of 2

TEST REPORT № 38

dated December [illegible] 2018 y.

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

Address Aktau, micro-district 25-A, building 32 "ABK" business center

Sample item and designation noise and vibration at the Noise and vibration at the border of the residential area (Kazakhstan, Zhaykar [illegible])

Quantity -

Reason for testing Contract № 10-01-2018 dated 22.01.2018, letter only "ABK LLP-KZ-EXT-2018-824 dated 26.12.2018, of branch «CENTRAL INSAAT SANAYI VE TICARET ANONIM SIRKETI»

Sampling date -

Date of testing December 10th 2018

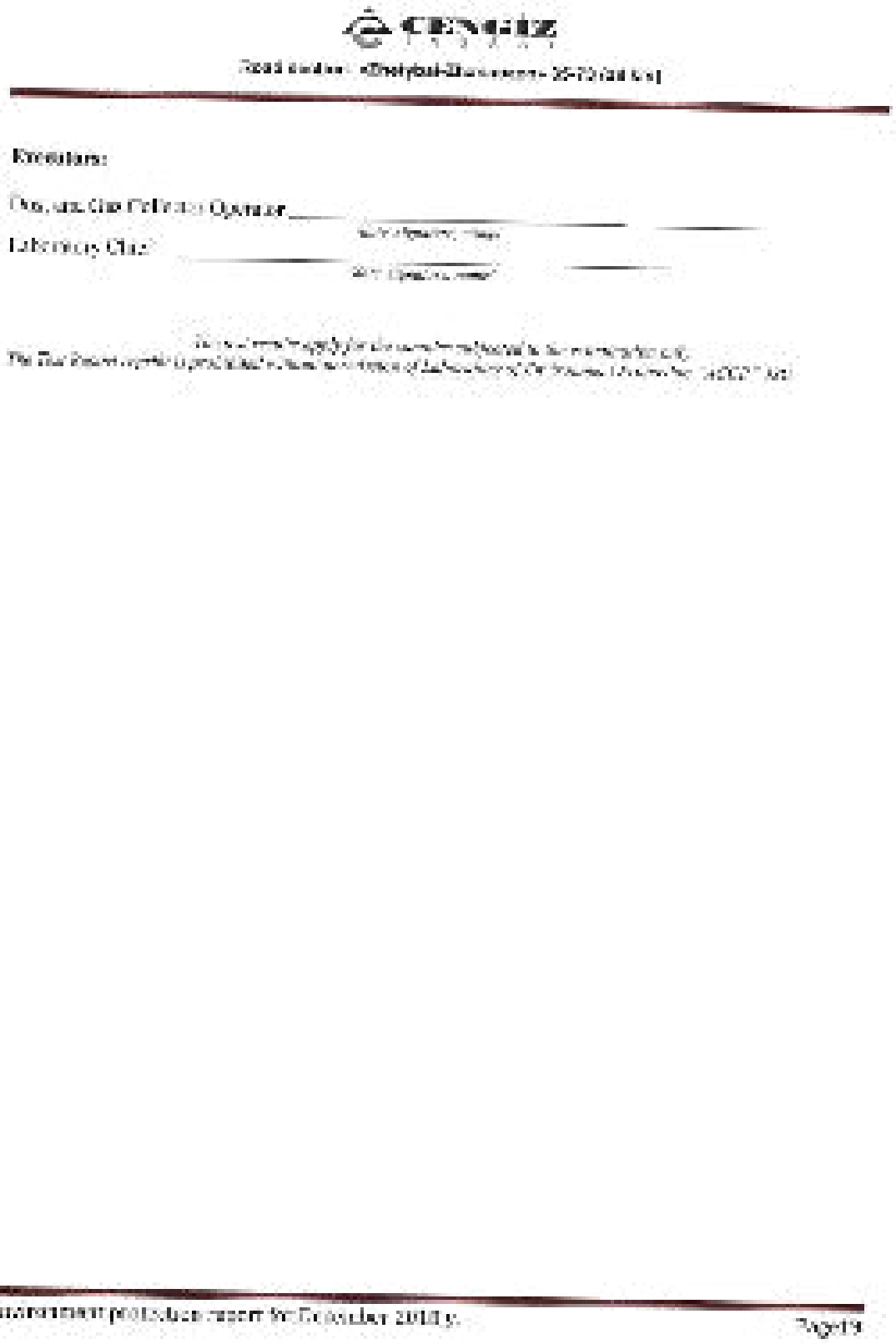
Type of testing noise and vibration control

ND for testing subject Hygienic standards for permissible noise and vibration approved by order of the Minister of Health and Social Development of the RK № 139 dated 28.02.2015

Measuring instruments used for testing, calibration details Noise and vibration analyzer "Octavio" Ref. [illegible] calibration certificate № [illegible] dated 01.05.2018

Test conditions -

№	Indicator, measuring unit	ND for testing method	NB Standard	Actual value
01	02	03	04	05
M36-5 PK 206-80 - village Zhanaozen Bypass (16-28 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	74
	Noise, dBa (maximum)	GOST 12.1.050-86	-	78
	Noise, dBa (minimum)	GOST 12.1.050-86	-	72
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	85
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	92
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	69
Camp village Zhanatai (738 km) PK 128				
AK-23 (N45°32.847' E65°58.206') (11-10 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	57
	Noise, dBa (maximum)	GOST 12.1.050-86		59
	Noise, dBa (minimum)	GOST 12.1.050-86	-	51
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	79
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	87
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	64
AK-24 (N45°32.557' E65°58.040') (12-00 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	64
	Noise, dBa (maximum)	GOST 12.1.050-86	-	68
	Noise, dBa (minimum)	GOST 12.1.050-86	-	58
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	76
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	82
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	61
AK-25 (N45°32.660' E65°58.704') (12-50 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	61
	Noise, dBa (maximum)	GOST 12.1.050-86	-	71
	Noise, dBa (minimum)	GOST 12.1.050-86	-	56
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	88
	Vibration, dB (maximum)	GOST ISO 8041-2006	-	96
	Vibration, dB (minimum)	GOST ISO 8041-2006	-	82
AK-26 (N45°32.757' E65°58.757') (13-40 h)				
1	Noise, dBa (equivalent)	GOST 12.1.050-86	not more 80	59
	Noise, dBa (maximum)	GOST 12.1.050-86	-	75
	Noise, dBa (minimum)	GOST 12.1.050-86	-	46
2	Vibration, dB (equivalent)	GOST ISO 8041-2006	-	68
	Vibration, dB (maximum)	GOST ISO 8041-2006		81
	Vibration, dB (minimum)	GOST ISO 8041-2006		61



Executors:

Director of the Private Company _____

Labor inspector: _____

Appendix 7: Test report of soil chemical analysis Lot 1

Testing laboratory for environmental monitoring branch LLP

"National Research Center for Atmospheric Air Protection"

Almaty, st. S. Baiganbaev, house 9A, mobile: 8 [7122] 38-92-35,39-93-82

[illegible]

According to certificate number: KZ.I.06.0365 from 16.04.2014, inc

TEST PROTOCOL № 332-11 from "25" August, 2018 g.

[illegible]

Number of pages 1

Sampling Act (form) № 08-2018g.
Customer: [illegible] TOO "Sh. Zhan Kurylys"
Sampling: The highway "Khorgos-Zhetysu-Balkhash-Saryozek" [illegible]
Name of the test sample: SD pavement. Chemical composition: [illegible] from 25.06.2018g.
The date of receipt of samples: [illegible] 2018g
Date of test: [illegible] day
Registration number: № [illegible]
The conditions: T = 24.2 °C [illegible]%

TEST REPORT

Name defined index	The designation NTD Test method	Actual measurement results (sampling point)			
		1km	15km	30km	35km
pH	GOST [illegible]	8.5	8.7	8.5	8.6
Mercury, mg/kg	[illegible]	[illegible]	0.012	[illegible]	0.016
Cadmium, mg/kg	[illegible]	0.09	0.010	[illegible]	0.010
Zinc, mg/kg	[illegible]	18.6	[illegible]	19.8	20.4
Lead, mg/kg	[illegible]	2.15	4.02	2.57	4.67

Number [illegible] NE

head

[illegible]

[illegible]

Page 1 (one).

Republic of Kazakhstan
Akmola city
"Aqmola" LLP

Republic of Kazakhstan
Akmola city
"Aqmola" LLP

[illegible] AKMOLA CITY TO" MICHURINSKIY TO" AKMOLA OBLAST

OFFICE: 481 TEL: [illegible] FAX: [illegible] E-MAIL: [illegible]@GMAIL.COM

"31" August 2016.

Report No. 84
On the results of chemical analysis

Customer: "KAPE Akim" branch
The name of object: «Az Zhol Karyasy» LLP Plant
The name of sample: Soil
The date of sampling (Date of entry): 18.08.16, (18.08.16)
The place of sampling: «Az Zhol Karyasy» LLP Plant (T-1, ..., T-4)
The date of conducting the inspection: 18.08.16 — 28.08.16г.
The place of conducting the inspection:
Temperature: 24,5°C
Relative degree of humidity: 37 %
Normative-technical documents for the product: Hygienic norms to ensure safety, Order No. 452 dated 25.06.2015
The kind of inspection: Under-base Normative documentation Order NO F [illegible] dated [illegible] 2016
Normative documents for selection: Sampling was carried out and delivered to the laboratory.

Soil Plant "Az Zhol Karyasy" LLP [illegible] 1-2

Sampling No. 151 of 17.08.16 г. Incoming No 86
dated 18.08.16 г. Report No 30 dated 31.08.16.

Testing laboratory for environmental monitoring branch LLP
"National Research Center for Atmospheric Air Protection"
Alymzan st. 8, Bishkek, house 55, tel/fax: +996(312) 59-95-45, 28-51-42
[illegible]
Accreditation certificate number KG.T.06.0309 from [illegible]

TEST PROTOCOL № 57 dated "26" October, 2018
soil samples, sediments and waste production

Number of pages: 1

Sampling Act (date): [illegible]
Customer (name and address): TOO "Aq Zhol Karyalar"
Sampling: The highway "Cameron-Chaydan-Frontier" in Republic of Turkmenistan, located in Mangystau oblast RK
Kind of [illegible]
The date of receipt of samples: 10.10.2018
Date of test: 10.10.2018
Test conditions: T = 24.2 degrees C
Relative humidity: 60%
Test methods: State standard of Turkmenistan 2452 dated June 25, 2015
Test type: based Regulatory document for an PNDF 16.1:2:2:2:2:2:2:2:2:2:54-10802 [illegible] 01314-2013
Regulatory document for sampling: Samples taken and delivered by the Customer

TEST REPORT

Name of tested indicators	Units	Actual Intervals (±U) plus			
		T-1 (PK 10)	T-2 (PK 15)	T-3 (PK 25)	T-4 (PK 35)
Vanadium (V)	Mg/kg	18.715	18.197	3.332	16.074
Zinc (Zn)	Mg/kg	0.096	0.093	0.060	0.042
Cobalt (Co)	Mg/kg	0.127	3.123	0.027	3.139
Lead (Pb)	Mg/kg	0.256	3.203	0.292	3.103

Specialist

S. Egemenova
Tuganova V.

[illegible]
Reprint without permission from the testing laboratory
Not [illegible]

Page 1 of 1

The Republic of Kazakhstan

Akmola city

TOO Alpha GS LLP

[illegible] Akmola Planet, Akmola city, [illegible],
E-MAIL: ALFA.AKM@GMAIL.COM

Nov. 14

Test report № 110

based on chemical analysis

Client: Branch KAZE-Akmola

Facility: Plant Akmolinskiy LLP

Sampling: Self Lyon PKS

Sampling date (by customer): Nov. 11, 2018, time 4.20 pm

Sampling location: Planted Akmolinskiy LLP

Testing date: Nov. 8 – 14, 2018

Testing conditions:

Temperature: [illegible]

Relative humidity: 57 %

Product ID: GS in environmental validity № 452 dated 23.05.2013

Test Type: Based on Environmental Regulatory Document 16.1.2.2.2.3.3.2.4-03 (KZ.02.03.01.17.14 – 2016)

Regulatory document for the activities: Samples are selected exclusively by the Customer

[illegible]

Test report

[illegible]	Unit	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Lab specialist: [illegible]

Deputy Director for Production: [illegible]

[illegible]

[illegible]

[illegible]

Alpha-Center LLP
Astana
Kzk

Dec 17, 2018

Chemical test report #176

Customer: Branch of KAPE-Astana
Facility: Akmechetskaya LLP plant
Sample: Soil from Pike
Sampling date: Dec 15, 2018
Sampling location: Akmechetskaya LLP plant
Testing date: Dec 15-16, 2018
Testing conditions:
Temperature: 22,4 C
Relative humidity: 57%
Regulatory document for the protocol: State norms for Environmental protection
Test type: based on Conservation Board regulatory document
Reg. document for the sampling: Samples taken and delivered by the Customer

Component name/indicator	UOM	Akmechetskaya LLP plant			
		T-1 (PS, 10)	T-2 (PS, 15)	T-3 (PS, 25)	T-4 (PS, 35)
1	2	3	4	5	6
Petroleum hydrocarbons (total)	Mg/kg	19.845	34.871	32.[illegible]75	44.283
Manganese	Mg/kg	94.520	93.245	92.935	98.139
Cadmium	Mg/kg	0.139	0.151	0.155	0.1[illegible]
Pb (lead)	Mg/kg	3.153	2.221	2.187	2.149

Lab Specialist signature V.Y (signature)

Deputy production director signature V.T. (signature)

Accreditation certificate No.

Accreditation certificate: KZ.T.13.1315 DATED FEB 21, 2018

Test reports correspond to the provided samples only

NO partial or full printing of this test report is allowed without permission by Alpha-Center LLP

Appendix 7: Test report of soil chemical analysis Lot 2

CENGIZ

Road section «Zhaysa-Zhambyl» 33-78 pk km

Ф-04 РД 3791-16

Laboratory of Environmental Protection
«Almaty Chemical Composite Plant»

TEST REPORT № 48

Issued August 16, 2018 y.

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

Address Almaty, micro-district 25-A, building 32 "ABK" business center

Sample item and designation will covering ring 75-79 km Zhaysa-Zhambyl, on the border of Invoice and km Zhambyl, ramp Zhaysa (667 km, the border 5%)

Quantity 5 samples

Reason for testing Contract 910-06/2018 dated 07.06.2018 between ramp "ABAI-14.32-EXT-2018-315" dated 10.03.2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» carriageway certificate dated May 30th, 2018 y.

Sampling date 25.08.2018

Date of testing 25.08.2018, 25.08.2018, 10.09.2018

Type of testing soil chemical analysis

NB for testing subject Hygienic standards for quality of the environment, limits approved by order № 26 Ministry of National economy of the RK dated 25.06.2015, № 553

Measuring instruments and for testing, calibration details laboratory electronic scale AS220/C/1 (ser. №0014333235) calibration certificate №70/5-03-24019 dated 04.11.2017; analytical scale Sartorius (ser. №21251-0-0263) calibration certificate №RBS46-4-447/V.BB-11-09-12 dated 05.21.17; water sampler «Sparkomer» №KIA-5-554 (ser. №791), calibration certificate №BB-11-791-3 dated 02.22.2018; field analyzer Hanna (ser. №0092) calibration certificate №BB-11-10-233 dated 14.03.2018

CENGIZ

Road section «Zhetysai-Zharaskan» (0-55 km)

Test conditions: [illegible] – temperature 22°C, humidity [illegible]; soil analysis laboratory – temperature 22°C, humidity 30%; [illegible] – temperature 21°C, humidity 51%; [illegible] – temperature 25°C, humidity 25%.

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
01	02	03	04	05
2026-1 PK-250 (940 h)				
	pH	GOST 26423-85 p.4.3	-	8.75
2	Petroleum products, mg/g	KZ.07.00.01668-2015	-	0.000
3	Cadmium, mg/kg	KZ.07.00.00944-2014	-	0.12
4	Plumbum, mg/kg	KZ.07.00.00944-2014	not more 32,0	3.76
5	Zinc, mg/kg	KZ.07.00.00944-2014	-	34.6
2026-2 PK-450 (0-35 h)				
1	pH	GOST 26423-85 p.4.3		8.66
2	Petroleum products, mg/g	KZ.07.00.01668-2015	-	0.000
3	Cadmium, mg/kg	KZ.07.00.00944-2014	-	0.22
4	Plumbum, mg/kg	KZ.07.00.00944-2014	not more 32,0	4.85
5	Zinc, mg/kg	KZ.07.00.00944-2014	-	21.66
2026-3 PK-550 (10-85 h)				
1	pH	GOST 26423-85 p.4.3	-	8.54
2	Petroleum products, mg/g	KZ.07.00.01668-2015		0.006
3	Cadmium, mg/kg	KZ.07.00.00944-2014	-	0.03
4	Plumbum, mg/kg	KZ.07.00.00944-2014	not more 32,0	3.06
5	Zinc, mg/kg	KZ.07.00.00944-2014	-	21.88
2026-4 PK-636+83 (11-38 h)				
	pH	GOST 26423-85 p.4.3	-	8.25
2	Petroleum products, mg/g	KZ.07.00.01668-2015	-	0.013
3	Cadmium, mg/kg	KZ.07.00.00944-2014	-	0.15
4	Plumbum, mg/kg	KZ.07.00.00944-2014	not more 32,0	4.98
5	Zinc, mg/kg	KZ.07.00.00944-2014	-	31.05
2026-5 PK 10+90 (village Zharaskan entrance) (0-55 h)				
1	pH	GOST 26423-85 p.4.3	-	8.80
2	Petroleum products, mg/g	KZ.07.00.01668-2015		0.045
3	Cadmium, mg/kg	KZ.07.00.00944-2014	-	0.12
4	Plumbum, mg/kg	KZ.07.00.00944-2014	not more 32,0	10.59
5	Zinc, mg/kg	KZ.07.00.00944-2014		15.24
Camp village Zhetysai (738 km) PK 128				
AIS-22 (N43°32.944' E85°58.296') (0-40 h)				
1	pH	GOST 26423-85 p.4.3	-	8.74
2	Petroleum products, mg/g	KZ.07.00.01668-2015		0.002
3	Cadmium, mg/kg	KZ.07.00.00944-2014	-	0.20

4	Plumbum, mg/kg	KZ.07.03.0044-2014	not more 32,0	2,47
5	Zinc, mg/kg	KZ.07.03.0044-2014	-	33,67
AR-24 (N43°32,555' E051°58,667') (15-35 h)				
1	pH	GOST 26423-85 ст.4,5	-	8,10
2	Petroleum products, mg/g	KZ.17.02.01068-2013	-	0,085
3	Cadmium, mg/kg	KZ.07.03.0044-2014		0,21
4	Plumbum, mg/kg	KZ.07.03.0044-2014	not more 32,0	3,36
5	Zinc, mg/kg	KZ.07.03.0044-2014	-	19,75
AR-25 (N43°32,648' E051°58,396') (14-10 h)				
1	pH	GOST 26423-85 ст.4,5	-	8,73
2	Petroleum products, mg/g	KZ.17.02.01068-2013	-	0,014
3	Cadmium, mg/kg	KZ.07.03.0044-2014	-	0,18
4	Plumbum, mg/kg	KZ.07.03.0044-2014	not more 32,0	4,16
5	Zinc, mg/kg	KZ.07.03.0044-2014	-	21,30
AR-26 (N43°32,557' E051°58,351') (15-40 h)				
1	pH	GOST 26423-85 ст.4,5	-	8,73
2	Petroleum products, mg/g	KZ.17.02.01068-2013	-	0,015
3	Cadmium, mg/kg	KZ.07.03.0044-2014	-	0,22
4	Plumbum, mg/kg	KZ.07.03.0044-2014	not more 32,0	2,92
5	Zinc, mg/kg	KZ.07.03.0044-2014	-	21,34

Executors:

Doctor of Gas Cockcase Operator _____

Chemistry Lab Technician _____

Laboratory Chief _____

[illegible]

[illegible]

Laboratory of Environmental Protection
[illegible] Chemistry Composite Plant
[illegible]
[illegible]
Accreditation certificate № [illegible]
dated [illegible]

[illegible]

TEST REPORT № 50

dated September 21, 2018 y.

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

Address [illegible]

Sample name and designation [illegible]

Quantity [illegible]

Reason for testing Contract [illegible] dated [illegible] 2018, letter [illegible] of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» sampling certificate [illegible]

Sampling date [illegible]

Date of testing [illegible]

Type of testing [illegible]

NB for testing subject [illegible]

Measuring instruments used for testing, calibration details [illegible]

Test conditions [illegible]

Test section [illegible] km)

№	Indicator, measuring unit	NB for testing method	ND standard	Actual values
01	02	03	04	05
2KW-1 PK 350 (14.30 h)				
1	pH	GOST 26423-85 [illegible]		8.07
2	Petroleum products, mg/g	KZ.07.00.01668-2013	-	0.002
01	02	03	04	05
3	Cadmium, mg/kg	KZ.07.00.01944-2014	-	0.15
4	Plumbum, mg/kg	KZ.07.00.01944-2014	not more 32.2	2.06
5	Zinc, mg/kg	KZ.07.00.01944-2014	-	15.1
3KK-2 PK-450 (15-16 h)				
1	pH	GOST 26423-85 [illegible]	-	8.01
2	Petroleum products, mg/g	KZ.07.00.01668-2013		0.008
3	Cadmium, mg/kg	KZ.07.00.01944-2014	-	0.24
4	Plumbum, mg/kg	KZ.07.00.01944-2014	not more 32.0	5.13
5	Zinc, mg/kg	KZ.07.00.01944-2014	-	21.3
3KK-3 PK-550 (15-16 h)				
1	pH	GOST 26423-85 [illegible]	-	9.15
2	Petroleum products, mg/g	KZ.07.00.01668-2013	-	0.007
3	Cadmium, mg/kg	KZ.07.00.01944-2014		0.07
4	Plumbum, mg/kg	KZ.07.00.01944-2014	not more 32.0	2.60
5	Zinc, mg/kg	KZ.07.00.01944-2014	-	16.78
3KK-4 PK-650-83 (17.40 h)				
1	pH	GOST 26423-85 [illegible]		8.26
2	Petroleum products, mg/g	KZ.07.00.01668-2013	-	0.009
3	Cadmium, mg/kg	KZ.07.00.01944-2014	-	0.12
4	Plumbum, mg/kg	KZ.07.00.01944-2014	not more 32.0	4.15
5	Zinc, mg/kg	KZ.07.00.01944-2014		21.65
3KK-5 PK 63-88 (village Zhana Ozen entrance) (10.45 h)				
1	pH	GOST 26423-85 [illegible]	-	8.43
2	Petroleum products, mg/g	KZ.07.00.01668-2013	-	0.010
3	Cadmium, mg/kg	KZ.07.00.01944-2014		0.10
4	Plumbum, mg/kg	KZ.07.00.01944-2014	not more 32.0	3.29
5	Zinc, mg/kg	KZ.07.00.01944-2014	-	20.5
Camp village Zhaylau (730 km) PK 120				
AK-23 (N43°52.844' E051°58.267) (11.10 h)				
1	pH	GOST 26423-85 [illegible]	-	8.06
2	Petroleum products, mg/g	KZ.07.00.01668-2013	-	0.004
3	Cadmium, mg/kg	KZ.07.00.01944-2014		0.11
4	Plumbum, mg/kg	KZ.07.00.01944-2014	not more 32.0	3.21
5	Zinc, mg/kg	KZ.07.00.01944-2014	-	20.52
AK-24 (N43°52.555' E051°58.607) (11.55 h)				
1	pH	GOST 26423-85 [illegible]		8.28

Road section «Zhaysan-Zhawororo 35-73 (56 km)

2	Formaldehyde, mg/g	KZ.07.00.01068-2013	-	0.006
3	Cadmium, mg/kg	KZ.07.00.00044-2014	-	0.11
4	Plumbum, mg/kg	KZ.07.00.00044-2014	not more 32.0	2.57
5	Zinc, mg/kg	KZ.07.00.00044-2014	-	1.935
AK-25 (N49°32.646' E051°38.564') (82-88)				
1	pH	GOST 26423-85 p.4.5	-	8.75
2	Petroleum products, mg/g	KZ.07.00.01068-2013	-	0.006
3	Cadmium, mg/kg	KZ.07.00.00044-2014		0.13
01	02	03	04	05
4	Plumbum, mg/kg	KZ.07.00.00044-2014	not more 32.0	4.11
5	Zinc, mg/kg	KZ.07.00.00044-2014	-	22.02
AK-26 (N49°32.757' E051°38.261') (33-38 h)				
1	pH	GOST 26423-85 p.4.5	-	8.87
2	Petroleum products, mg/g	KZ.07.00.01068-2013	-	0.02
3	Cadmium, mg/kg	KZ.07.00.00044-2014	-	0.27
4	Plumbum, mg/kg	KZ.07.00.00044-2014	not more 32.0	3.75
5	Zinc, mg/kg	KZ.07.00.00044-2014	-	22.44

Executors:

Data and Gas Exclusive Operator: _____

Chemistry Lab Technician: _____

Laboratory Chief: _____

The test results apply only to the samples tested under the conditions specified.
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Road section «Zhetybai-Zhanaozen» 35-72 (33 km)

Ф 04 РД 37.0-1-16

KZ.01.05.0916

Laboratory of Environmental Protection
«Aktobe Chemistry Compounds Plant»
Aktobe Industrial zone, house 15 «B»
8(7132)(05-513, 456-135
Accreditation certificate № KZ.01.01.0916
dated «22» July 2013

page 1 of 5

TEST REPORT № 03

Issued October 18, 2018 г.

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

Address Mangystau region, Gizdat 29 A, building 135 "ESK" business center

Sample item and designation soil covering along "35-72 km Zhetybai-Zhanaozen, on the border of the residential area Zhanaozen, along Zhetybai (657 km, the circle 587)

Quantity 4 samples

Reason for testing Contract №01646/2018 dated 07.09.2018, order copy №AK-KOZ-OK-2018-17 dated 01.06.2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» sampling certificate dated Mar 22nd, 2018 г.

Sampling date 12.10.2018.

Date of testing 15.10.2018, 16.10.2018, 17.10.2018

Type of testing soil chemical analysis

NII for testing subject Hygienic standards for sites of the environmental risk approved in order of the Minister of national economy of the RK dated 25.03.2015, № 402

Measuring instruments used for testing, calibration details Inductively coupled plasma mass spectrometer NexION 300D, factory № 04814139006, calibration certificate № BB-02-74115, dated 19.11.2017, expiration date; Spectrophotometer of UV, № 0123143[illegible], calibration certificate № BB-09-48[illegible]/BB-11-48413 dated 07.03.2017, atomic absorption spectrometer MGA-915K, factory № 8334, calibration certificate № BB-11-79143 dated 02.12.2013, field analyzer Flaxen-02-3M, factory № 5553, calibration certificate № BB-11-101333 dated 14.07.2018

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Road section «Zhetysu-Chaparkorgan 28-78+38 km»

Test conditions 15.10.18 y: soil analytic laboratory – temperature 22°C, humidity 56%, soil analytic laboratory – temperature 24°C, humidity 51%; 15.10.18 y: soil analytic laboratory – temperature 24°C, humidity 51%; 17.10.18 y: soil analytic laboratory – temperature 24°C, humidity 51%

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
01	02	03	04	05
3KZ-1 PK-350 (16-55 h)				
1	pH	GOST 26423-85 ch.2	-	8.45
2	Petroleum products, mg/g	KZ.07.00.01658-2013	-	0.005
01	02	03	04	05
3	Cadmium, mg/kg	KZ.07.00.03044-2014	-	0.13
4	Plumbum, mg/kg	KZ.07.00.03044-2014	no more 32.0	2.02
5	Zinc, mg/kg	KZ.07.00.03044-2014	-	14.9
3KZ-2 PK-450 (16-21 h)				
1	pH	GOST 26423-85 ch.2	-	8.24
2	Petroleum products, mg/g	KZ.07.00.01658-2013	-	0.012
3	Cadmium, mg/kg	KZ.07.00.03044-2014	-	0.22
4	Plumbum, mg/kg	KZ.07.00.03044-2014	no more 32.0	4.29
5	Zinc, mg/kg	KZ.07.00.03044-2014	-	20.91
3KZ-3 PK-590 (15-45 h)				
1	pH	GOST 26423-85 ch.2	-	8.46
2	Petroleum products, mg/g	KZ.07.00.01658-2013	-	0.015
3	Cadmium, mg/kg	KZ.07.00.03044-2014	-	0.06
4	Plumbum, mg/kg	KZ.07.00.03044-2014	no more 32.0	2.28
5	Zinc, mg/kg	KZ.07.00.03044-2014	-	14.88
3KZ-4 PK-630+63 (14-21 h)				
1	pH	GOST 26423-85 ch.2	-	8.37
2	Petroleum products, mg/g	KZ.07.00.01658-2013	-	0.015
3	Cadmium, mg/kg	KZ.07.00.03044-2014	-	0.17
4	Plumbum, mg/kg	KZ.07.00.03044-2014	no more 32.0	4.41
5	Zinc, mg/kg	KZ.07.00.03044-2014	-	20.21
3KZ-5 PK 814+80 (village Zhana-Qorgan crossing) (15-10 h)				
1	pH	GOST 26423-85 ch.2	-	8.22
2	Petroleum products, mg/g	KZ.07.00.01658-2013	-	0.018
3	Cadmium, mg/kg	KZ.07.00.03044-2014	-	0.12
4	Plumbum, mg/kg	KZ.07.00.03044-2014	no more 32.0	5.79
5	Zinc, mg/kg	KZ.07.00.03044-2014	-	20.34
Camp village Zhetybai (739 km) PK 128				
AK-23 (N43°52.844' E051°58.258') (18-55 h)				
1	pH	GOST 26423-85 ch.2	-	8.30
2	Petroleum products, mg/g	KZ.07.00.01658-2013	-	0.014
3	Cadmium, mg/kg	KZ.07.00.03044-2014	-	0.16
4	Plumbum, mg/kg	KZ.07.00.03044-2014	no more 32.0	2.98

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Road section «Zhetybai-Zhanaozen» 35-72 (35 km)

5	Zinc, mg/kg	KZ.07.10.03044.2014	-	75.55
AK-24 (N43°32.555' E051°58.660') (11-40 h)				
1	pH	GOST 26423-85 (ch.2)	-	8.45
2	Petroleum products, mg/g	KZ.07.10.01658-2013	-	0.005
3	Cadmium, mg/kg	KZ.07.10.03044.2014		0.16
4	Mercury, mg/kg	KZ.07.10.03044.2014	no more 52.0	5.19
5	Zinc, mg/kg	KZ.07.10.03044.2014	-	32.72
AK-25 (N43°32.666' E051°58.764') (12-25 h)				
1	pH	GOST 26423-85 (ch.2)	-	8.70
2	Petroleum products, mg/g	KZ.07.10.01658-2013		0.013
3	Cadmium, mg/kg	KZ.07.10.03044.2014	-	0.66
4	Mercury, mg/kg	KZ.07.10.03044.2014	no more 52.0	4.88
5	Zinc, mg/kg	KZ.07.10.03044.2014	-	21.12
AK-26 (N43°32.757' E051°58.261') (13-38 h)				
1	pH	GOST 26423-85 (ch.2)	-	8.54
2	Petroleum products, mg/g	KZ.07.10.01658-2013	-	0.013
3	Cadmium, mg/kg	KZ.07.10.03044.2014	-	0.16
4	Mercury, mg/kg	KZ.07.10.03044.2014	no more 52.0	2.87
5	Zinc, mg/kg	KZ.07.10.03044.2014	-	14.17

Executors:

Department Gas Collector Operator: _____
(date, signature, name)

Chemistry Lab Technician: _____
(date, signature, name)

Laboratory Chief: _____
(date, signature, name)

The test results apply only to the samples subjected to the specified tests.
Copying of the report is prohibited.

CENGIZ

Road section «Zhetysu-Zhansaya» 35-73 (38 km)

Ф 84 РД 3791-16

KZ.H.BS.0916

Laboratory of Environmental Protection
«Akshe Chromium Compounds Plant»
Aktobe, Industrial Zone, [illegible]
BIN [illegible]
Accreditation certificate № KZ.H.03.1916
dated «27» July 2016

page 1 of 2

TEST REPORT № 72

dated November 16, 2018 y.

Co-owner Branch of «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» JSC in Aktobe

Address Aktobe region, [illegible] building 153 "ABK" [illegible]

Sample type and designation soil sampling along "35-73 km Zhetysu-Zhansaya, on the border of the residential area Zhansaya, camp Zhetysu 0+57 km, the border SPZ"

Quantity 9 samples

Reason for testing Contract № [illegible] dated 10.11.2018, [illegible] dated 01.11.2018 of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI» [illegible] certificate dated November 9th, 2018 y.

Sampling date 13.11.2018.

Date of testing 13.11.2018, 15.11.2018, 16.11.2018

Type of testing soil chemical analysis

ND for testing subject Hygienic standards for safety of the environmental (soil), approved by order of the Minister of national economy of the RK dated 28.12.2015 y. № 404

Measuring instruments used for testing, calibration details laboratory electronic scale XS203DR, factory № [illegible] calibration certificate № [illegible] dated 03.11.2015; [illegible] secondary pH Set № [illegible] calibration certificate № [illegible] dated 23.07.2015; atomic absorption spectrometer [illegible], factory № [illegible], calibration certificate № [illegible] dated 02.10.2015; flame photometer [illegible], factory № [illegible], calibration certificate № [illegible] dated 16.11.2015

Test conditions 12.11.18 y. weighing – temperature 22°C, humidity 45%; soil analysis laboratory – temperature 24°C, humidity 50%; 13.11.18 y. soil analysis laboratory – temperature 25°C, humidity 55%; 15.11.18 y. soil analysis laboratory – temperature 26°C, humidity 50%

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Road section «Zhetybai-Zhanaozen» 26-75 (48 km)

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
1	2	3	4	5
ЖЖ-1 PK-351 (12-35 h)				
1	pH	GOST 26423-85 c.4.3	-	8,38
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,065
3	Cadmium, mg/kg	KZ 07.00.06044-2014	-	0,12
4	Plumbum, mg/kg	KZ 07.00.06044-2014	not more 32,0	1,97
5	Zinc, mg/kg	KZ 07.00.06044-2014	-	15,14
ЖЖ-2 PK-451 (13-20 h)				
1	pH	GOST 26423-85 c.4.3	-	8,10
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,025
3	Cadmium, mg/kg	KZ 07.00.06044-2014	-	0,16
4	Plumbum, mg/kg	KZ 07.00.06044-2014	not more 32,0	4,97
5	Zinc, mg/kg	KZ 07.00.06044-2014	-	21,10
ЖЖ-3 PK-550 (11-50 h)				
1	pH	GOST 26423-85 c.4.3	-	8,38
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,006
3	Cadmium, mg/kg	KZ 07.00.06044-2014	-	0,13
4	Plumbum, mg/kg	KZ 07.00.06044-2014	not more 32,0	3,12
5	Zinc, mg/kg	KZ 07.00.06044-2014	-	22,20
ЖЖ-4 PK-606-83 (14-35 h)				
1	pH	GOST 26423-85 c.4.3	-	8,10
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,007
3	Cadmium, mg/kg	KZ 07.00.06044-2014	-	0,12
4	Plumbum, mg/kg	KZ 07.00.06044-2014	not more 32,0	4,52
5	Zinc, mg/kg	KZ 07.00.06044-2014	-	19,66
ЖЖ-5 PK 69+80 (village Zhanaozen entrance (15-10 h)				
1	pH	GOST 26423-85 c.4.3	-	8,84
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,017
3	Cadmium, mg/kg	KZ 07.00.06044-2014	-	0,17
4	Plumbum, mg/kg	KZ 07.00.06044-2014	not more 32,0	5,85
5	Zinc, mg/kg	KZ 07.00.06044-2014	-	18,22
Camp village Zhetybai (7,30 km) PK 120				
AIS-23 (N43°32.844' E051°58.298') (10-10 h)				
1	pH	GOST 26423-85 c.4.3	-	8,71
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,003
3	Cadmium, mg/kg	KZ 07.00.06044-2014	-	0,13
4	Plumbum, mg/kg	KZ 07.00.06044-2014	not more 32,0	2,32
5	Zinc, mg/kg	KZ 07.00.06044-2014	-	18,29
AIS-24 (N43°32.555' E051°58.668') (10-50 h)				
1	pH	GOST 26423-85 c.4.3	-	8,53
2	Petroleum products, mg/g	KZ 07.00.01668-2013	-	2,003

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3	Cadmium, mg/kg	KZ.07.01.0044-2014	-	0,23
4	Plumbum, mg/kg	KZ.07.01.0044-2014	not more 32,0	3,23
5	Zinc, mg/kg	KZ.07.01.0044-2014	-	16,71
AE-25 (N49°52.448' E061°58.704') (11-35 k)				
1	pH	GOST 26423-85 ch.4.5	-	8,93
2	Petroleum products, mg/kg	KZ.07.01.0066-2015	-	0,015
3	Cadmium, mg/kg	KZ.07.01.0044-2014	-	0,19
4	Plumbum, mg/kg	KZ.07.01.0044-2014	not more 32,0	3,65
5	Zinc, mg/kg	KZ.07.01.0044-2014	-	15,16
AE-26 (N49°52.757' E061°58.757') (11-25 k)				
1	pH	GOST 26423-85 ch.4.5	-	8,91
2	Petroleum products, mg/kg	KZ.07.01.0066-2015	-	0,013
3	Cadmium, mg/kg	KZ.07.01.0044-2014	-	0,15
4	Plumbum, mg/kg	KZ.07.01.0044-2014	not more 32,0	3,91
5	Zinc, mg/kg	KZ.07.01.0044-2014	-	15,12

Executors:

Dust and Gas Collector Operator _____

Chemistry Lab Technician _____

Laboratory Chief _____

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Laboratory of Environmental Protection
«Akbita Chemical Compound Plant»
Akbita, Tashkent region, 111506
Tel: (99[illegible]) 312-[illegible]
Accreditation certificate № KZ.H.05.0916
Valid until [illegible]

KZ.H.05.0916

Page 1 of 1

TEST REPORT № 72

dated December 14, 2018 y.

Customer: Branch of "CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI" JSC in Akbita

Address: Akbita, [illegible] street 25-A, [illegible] "ABK" business center

Sample from and designation of sampling place: 25-27 km Zhaybas-Khiva road, on the border of the residential area [illegible], [illegible] (637 km, the left side)

Quantity: 9 samples

Reason for testing: Contract № [illegible] dated 07.03.2018, Internal [illegible] dated [illegible] of branch «CENGIZ INSAAT SANAYI VE TICARET ANONIM SIRKETI», sampling certificate dated December [illegible], 2018 y.

Sampling date: 3.12.2018.

Date of testing: 11.12.2018, [illegible].12.2018, 13.12.2018

Type of testing: periodical control

ND for testing subject: Temporary surface for transport of [illegible] approved by order of the Minister of Internal Affairs of the RK dated 25.06.2014, № 447

Measuring instruments used for testing, calibration details: [illegible] № [illegible], [illegible] certificate [illegible] valid until [illegible]; [illegible] certificate [illegible] valid until [illegible]; [illegible] certificate [illegible] valid until [illegible]; [illegible] certificate [illegible] valid until [illegible]; [illegible] certificate [illegible] valid until [illegible]; [illegible] certificate [illegible] valid until [illegible]

Test conditions: 11.12.18 y. outdoor – temperature 25°C, humidity 4.5 g/m³ and [illegible]; laboratory – temperature 20°C, humidity 30%; 12.12.18 y. soil surface temperature – temperature 24°C, humidity [illegible]%; 13.12.18 y. soil samples [illegible] – temperature 25°C, humidity 46%

CENGIZ

Road section «Zhezkazgan-Zhanaozen» 35-93 pickets

№	Indicator, measuring unit	ND for testing method	ND standard	Actual values
01	02	03	04	05
3GK7-1 PK-330 (14-40 h)				
1	pH	GOST 26423-85 p.4.3		8,32
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,004
3	Cadmium, mg/kg	KZ.07.00.01044-2014	-	0,15
4	Plumbum, mg/kg	KZ.07.00.01044-2014	not more 32,0	2,29
5	Zinc, mg/kg	KZ.07.00.01044-2014	-	15,5
3GK-2 PK-450 (15-35 h)				
1	pH	GOST 26423-85 p.4.3	-	8,60
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,035
3	Cadmium, mg/kg	KZ.07.00.01044-2014	-	5,19
4	Plumbum, mg/kg	KZ.07.00.01044-2014	not more 32,0	5,19
5	Zinc, mg/kg	KZ.07.00.01044-2014	-	19,92
3GK-3 PK-550 (15-50 h)				
1	pH	GOST 26423-85 p.4.3	-	8,00
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,037
3	Cadmium, mg/kg	KZ.07.00.01044-2014	-	2,11
4	Plumbum, mg/kg	KZ.07.00.01044-2014	not more 32,0	2,98
5	Zinc, mg/kg	KZ.07.00.01044-2014	-	20,47
3GK-4 PK-630-680 (17-20 h)				
1	pH	GOST 26423-85 p.4.3	-	8,22
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,010
3	Cadmium, mg/kg	KZ.07.00.01044-2014	-	3,18
4	Plumbum, mg/kg	KZ.07.00.01044-2014	not more 32,0	3,22
5	Zinc, mg/kg	KZ.07.00.01044-2014	-	20,91
3GK-5 PK-80-88 (Ulan-Zhanaozen entrance) (16-40 h)				
1	pH	GOST 26423-85 p.4.3	-	8,34
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,043
3	Cadmium, mg/kg	KZ.07.00.01044-2014	-	0,13
4	Plumbum, mg/kg	KZ.07.00.01044-2014	not more 32,0	2,84
5	Zinc, mg/kg	KZ.07.00.01044-2014	-	18,37
Camp village Zhetybai (730 km) PK 148				
AK-23 (N43°32.644' E051°58.395') (11-30 h)				
1	pH	GOST 26423-85 p.4.3	-	8,32
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,004
3	Cadmium, mg/kg	KZ.07.00.01044-2014	-	0,13
4	Plumbum, mg/kg	KZ.07.00.01044-2014	not more 32,0	2,83
5	Zinc, mg/kg	KZ.07.00.01044-2014	-	21,78
AK-24 (N43°33.669' E051°58.668') (12-30 h)				
1	pH	GOST 26423-85 p.4.3	-	8,64
2	Petroleum products, mg/g	KZ.07.00.01068-2015	-	0,004

Environmental monitoring report for December 2018 y. Page 15

Road section: [illegible]

3	Cadmium, mg/kg	[illegible]	-	[illegible]
4	Plumbum, mg/kg	[illegible]	[illegible]	[illegible]
5	Zinc, mg/kg	[illegible]	-	[illegible]
AK-25 ([illegible])				
1	pH	[illegible]		[illegible]
2	Petroleum products, mg/kg	[illegible]	-	[illegible]
3	Cadmium, mg/kg	[illegible]	-	[illegible]
4	Plumbum, mg/kg	[illegible]	[illegible]	[illegible]
5	Zinc, mg/kg	[illegible]	-	[illegible]
AK-26 ([illegible])				
1	pH	[illegible]	-	[illegible]
2	Petroleum products, mg/kg	[illegible]	-	[illegible]
3	Cadmium, mg/kg	[illegible]	-	[illegible]
4	Plumbum, mg/kg	[illegible]	[illegible]	[illegible]
5	Zinc, mg/kg	[illegible]	-	[illegible]

Executors:

Head of Geo Ecological Department _____

Chemistry Lab Technician _____

Laboratory Chief _____

[illegible]

Environmental protection report for December [illegible] y. Page [illegible]

Appendix 8: Incident report

CONCLUSION ON THE SEVERITY OF INDUSTRIAL INJURIES

Name of medical institution: SUE "Ar PvC MV"

Based on: AKZhS Kaydy"
(Name of the company, which is based on the report of accident)

The fact that the victim: Asanov Baurzhan Amanzholuly 1998 gr
(Surname, first name, patronymic, working
(Position, profession)

He received the injury in the course of work

Main diagnosis:
Diagnosis: Open comminuted fracture of the left tibia, with displacement of bone fragments, soft tissue
injuries of the left leg. Traumatic shock of I degree
(Specify the nature and location of injury)

According to Schedule determining the severity of occupational injuries, taken

to severe occupational injuries

Deputy Director of SUE on PVC "MHS" MK Nurpeisov

EAT. Shabatbaev

ME Shoumikov

ЗАКЛЮЧЕНИЕ ПО ИТОГАМ ПРОИЗВОДСТВЕННОЙ ПРАКТИКИ

Выполнение г. ...
студентом ... КГ ... ПКП ...

Место: ТОО ...
(полное наименование предприятия, организации, учреждения)

В период с ... 20... г. по ... 20... г.
(количество дней, месяцев, лет)
обучался
(должность, профессия)

Подпись руководителя предприятия ...

(дата, год)
Замечания: Отрицательных отзывов нет. Студент ... ...
(подпись руководителя предприятия)

Согласно ... ...

Руководитель производственной практики ... Э.Е. Бурсалиев

Заведующий ... Г.М. Шаяхметов

Мастер ... Э.Е. Шаяхметов

М.П.

Receipt
I, Usenova K., authorize by my signature that I received money in the amount of 29 thousand tenge from Smagulov E. (Safety Engineer) for medicines to my son Asanov B.

Signed by Usenova K.
13/09/2018

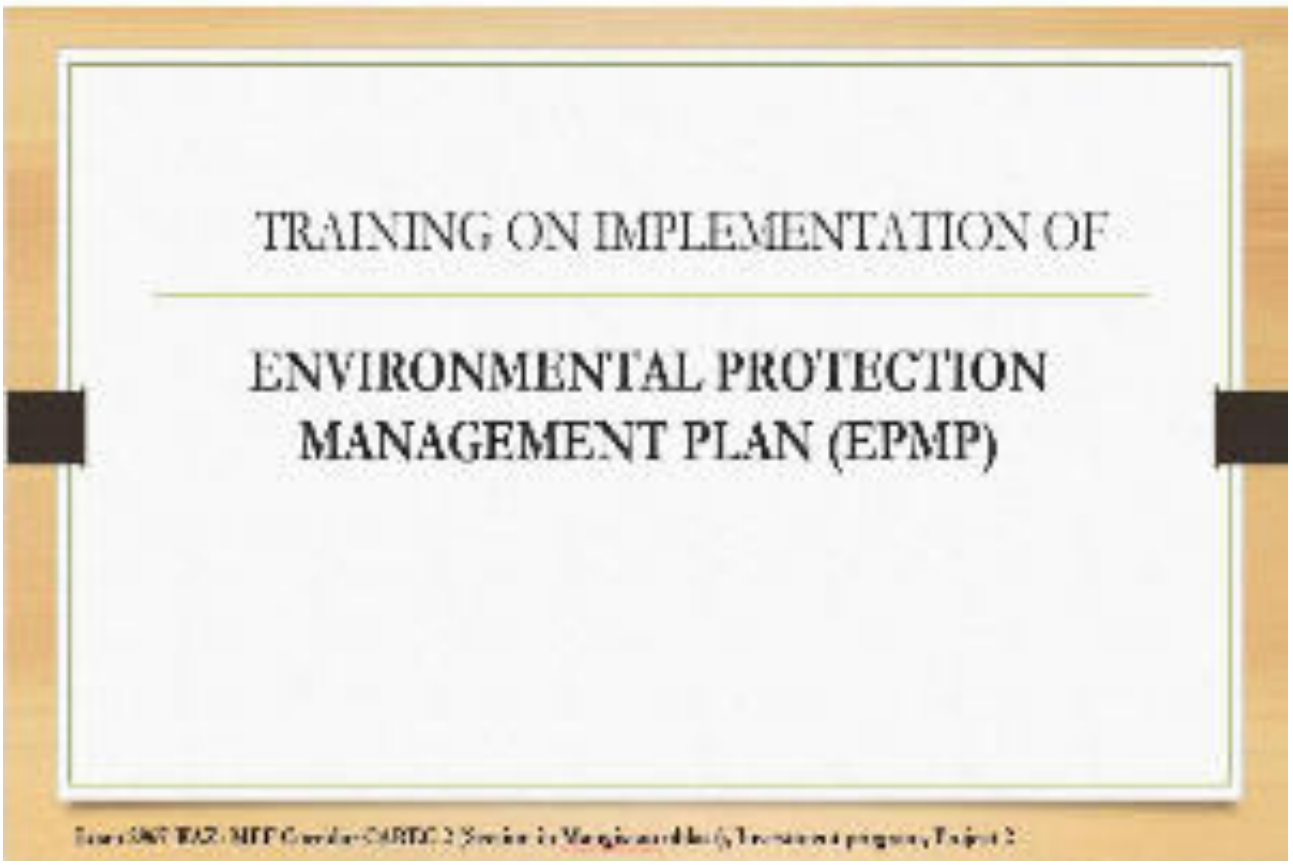
Receipt
I, Asanov A., authorize by my signature that I received money in the amount of 50 thousand tenge from Izimberdiev K. (Heas of safety dept.) for medicines to my son Asanov B.

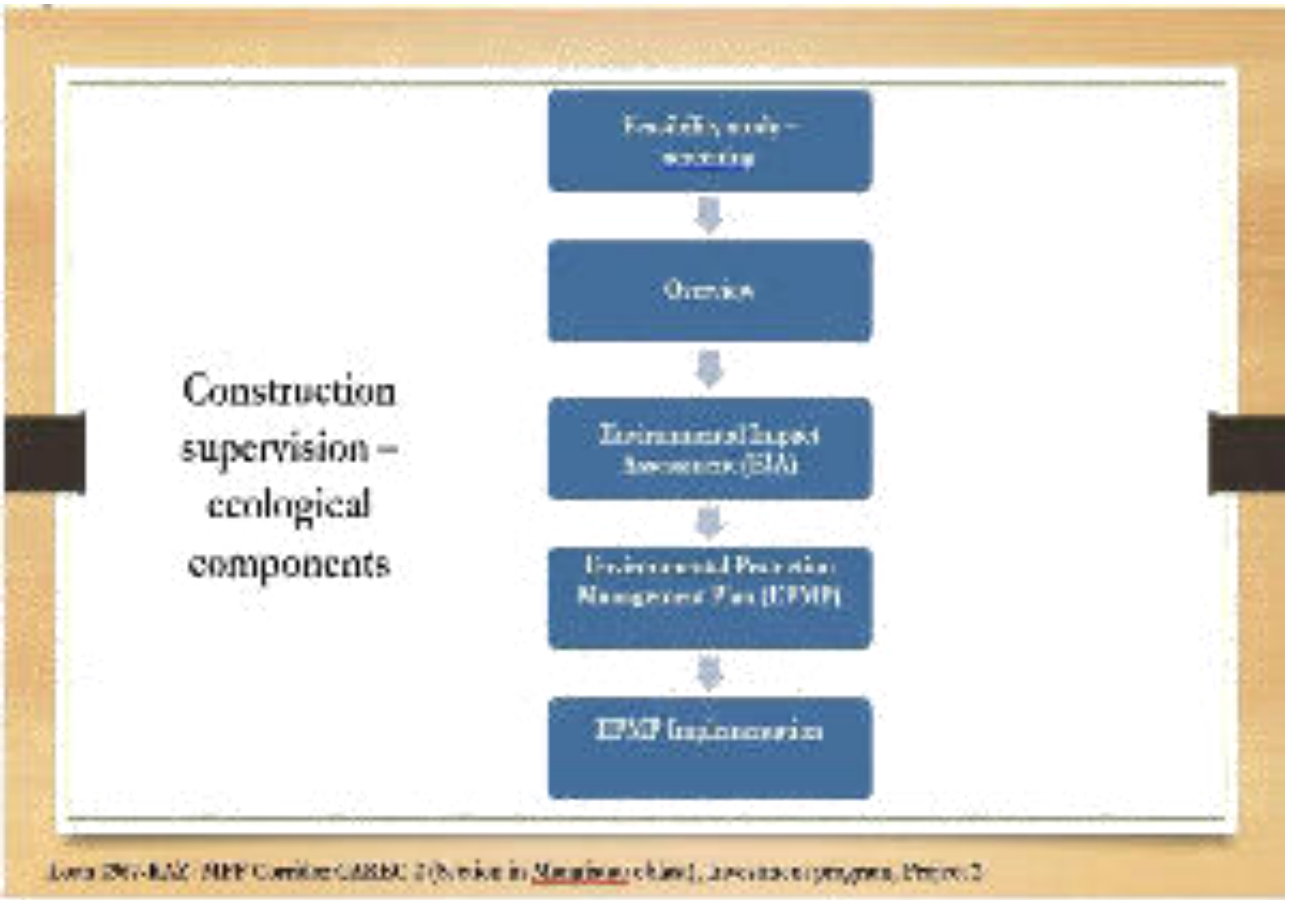
Signed by Asanov A.
07/09/2018

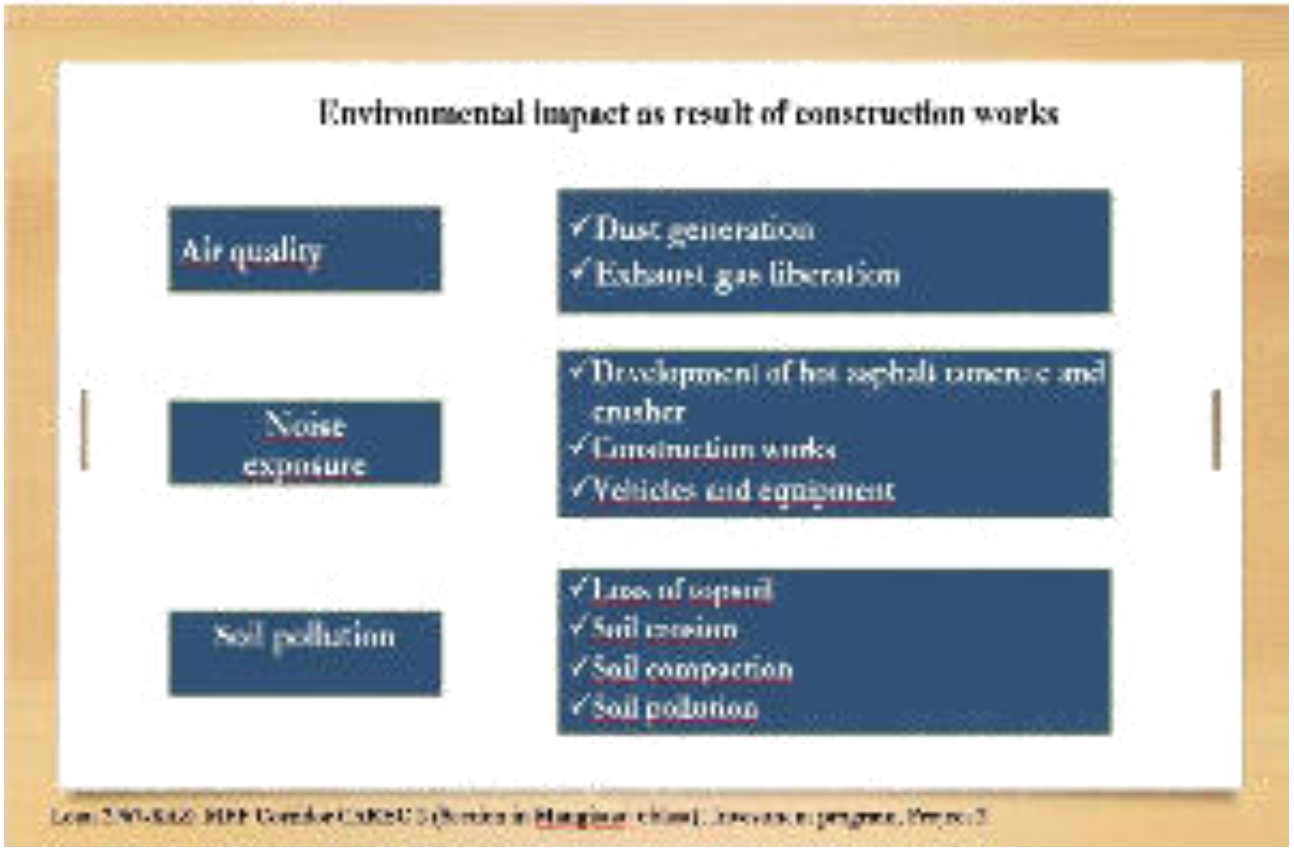
Receipt
I, Asanov A., authorize by my signature that I received money in the amount of 13 thousand tenge from Izimberdiev K. (Head of safety dept.) for medicines to my son Asanov B.

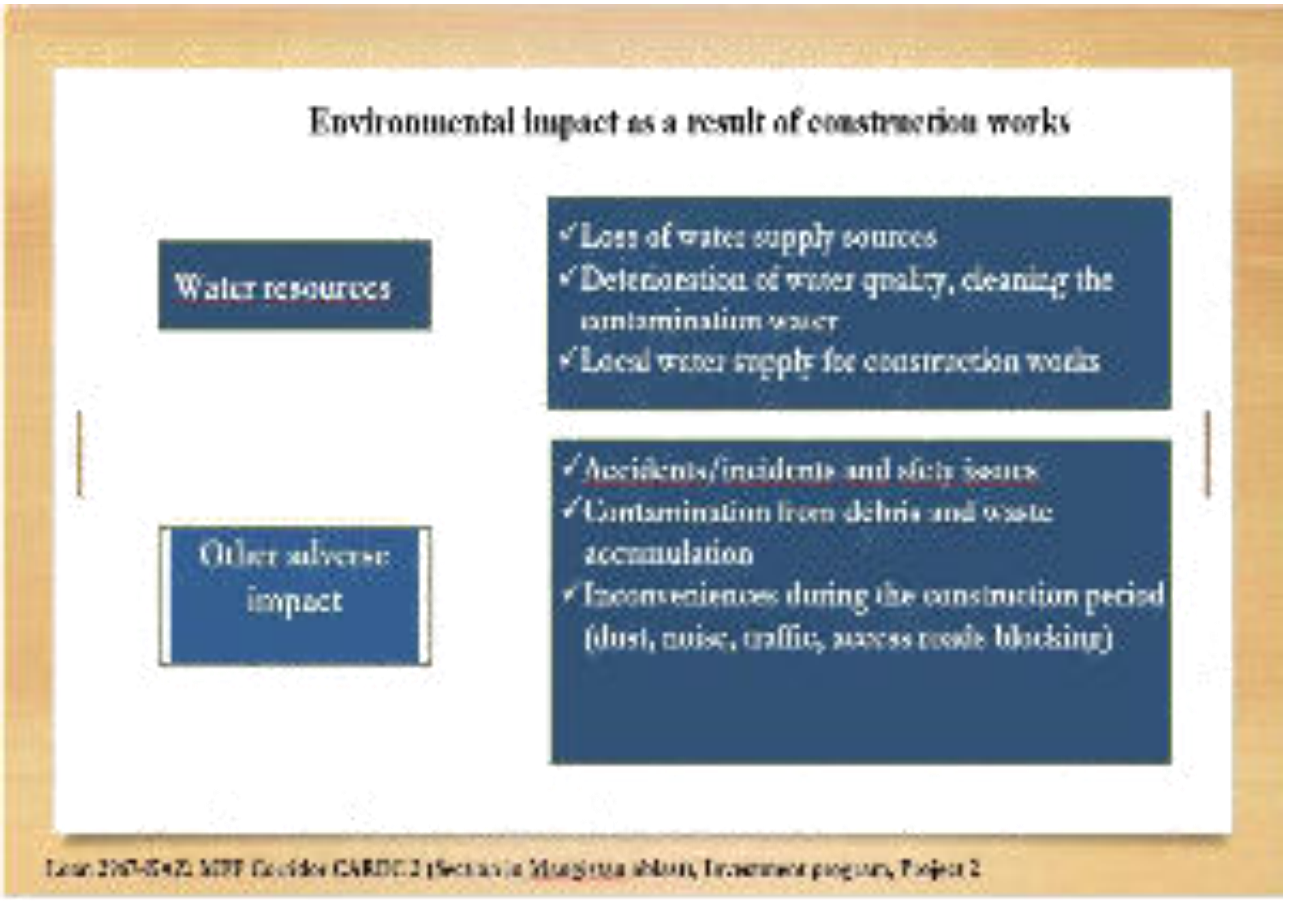
Signed by Asanov A.
07/09/2018

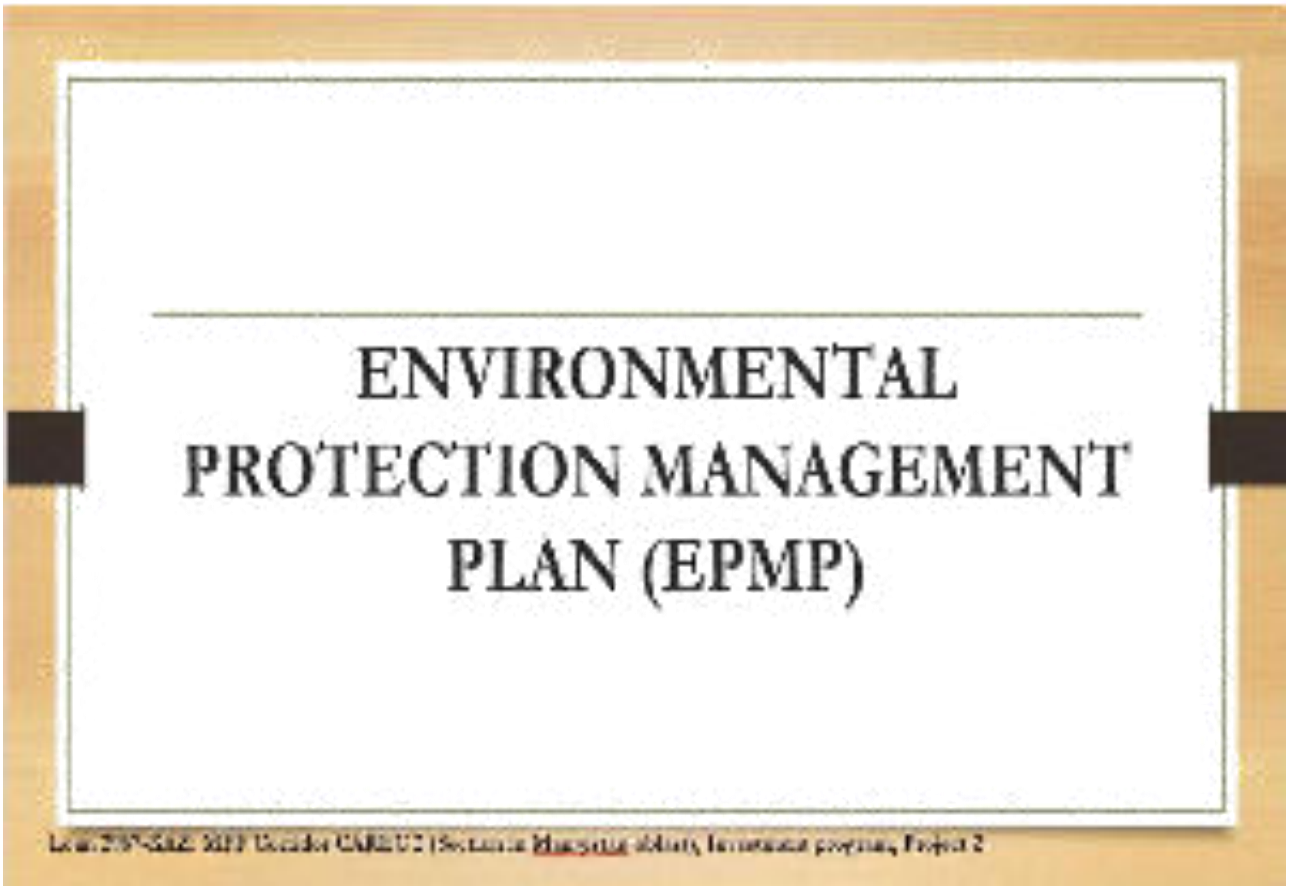
Appendix 9: Training Report




Construction supervision – ecological components
Overview
Environmental Impact Assessment (EIA)
Environmental Protection Management Plan (EPMP)
EPMP Implementation


Environmental impact as result of construction works
Air quality
✓ Dust generation
✓ Exhaust gas liberation
Noise exposure
✓ Development of hot asphalt cement and crusher
✓ Construction works
✓ Vehicles and equipment
Soil pollution
✓ Loss of topsoil
✓ Soil erosion
✓ Soil compaction
✓ Soil pollution


Environmental impact as a result of construction works
Water resources
✓Loss of water supply sources
✓Deterioration of water quality, cleaning the contaminatium water
✓Local water supply for construction works
Other adverse impact
✓Accidents/incidents and safety issues
✓Contamination from debris and waste accumulation
✓Inconveniences during the construction period (dust, noise, traffic, access roads blocking)


ENVIRONMENTAL PROTECTION MANAGEMENT PLAN (EPMP)

EPMP objective

- Negative impact minimization
- Beneficial impact increasing
- Assisting the environment in increasing approved construction management
- Elimination of problems and delays during construction
- Improving the quality of the project

Aspects under review:

- ✓ Water quality management plan;
- ✓ Management Plan for Air Protection and dust prevention;
- ✓ Career Management and Recovery Plan;
- ✓ Soil condition Management Plan;
- ✓ Fuel and Chemicals Management Plan;
- ✓ Site Management Plan;
- ✓ Solid Waste Management Plan;
- ✓ Noise control Plan;
- ✓ Management Plan with specific construction operations;
- ✓ Management Plan with historical and cultural heritage.

Water pollution from construction water:

- The Contractor will take measures to prevent the flow of water generated during construction.
- Waste water resulting from the project will be disposed of in a way that will be compliant to the state law on Environmental Protection.

Water pollution with fuel and lubricants:

- Parking place, fuels, lubricants, storage areas, sites for vehicle maintenance and refueling should be located at least 100 m further from water bodies
- Location and layout of such sites will be provided by the Contractor prior to their establishment for submission for approval to the Environmental Protection Specialist
- Fuel and lubricant spills do not contaminate groundwater
- Oil/water-drain devices should be installed at parking places, carwashes and petrol stations
- All spills and accumulated oil products will be disposed of in accordance with Environmental Protection Law and MFC
- EP representative will ensure that all agreements are implemented according to the Environmental Protection Law and other relevant laws

Loan 2554-Kaz: MFF Corridor CAREC 2 (Investment Program), Investment program, Project 2

Interfering with other water users:

- Contractor at his own expense organizes a proper water supply for entire construction period.
- Maintain safety precautions to minimize water cuts during construction/operation

Transportation of construction materials and road traffic control

- Contractor shall maintain all roads used for transportation of construction materials, machinery and equipment.
- Compact the road surfaces, lay one layer and compact it in order to prevent dust generation
- Water the roads at each interval established by Environmental Specialist

Loan 2554-Kaz: MFF Corridor CAREC 2 (Investment Program), Investment program, Project 2

Accessibility:

- ✓ Contractor will provide safe and convenient transportation of vehicles, pedestrians and livestock, if necessary, temporarily connecting roads
- ✓ As well as Contractor will restore existing access at closed areas without providing the relevant provisions.

Planning the bypass road (alternate route)

- Temporary bypass roads will be constructed after approval of the Engineer and Environmental Specialist
- Special safety measures for pedestrians and run power working overnight.
- Working time/from time to day, see daily elimination.
- Safety control plan shall contain

e) details on bypass roads;
f) road traffic safety mechanisms;
g) security measures at night;
h) transportation of hazardous materials.

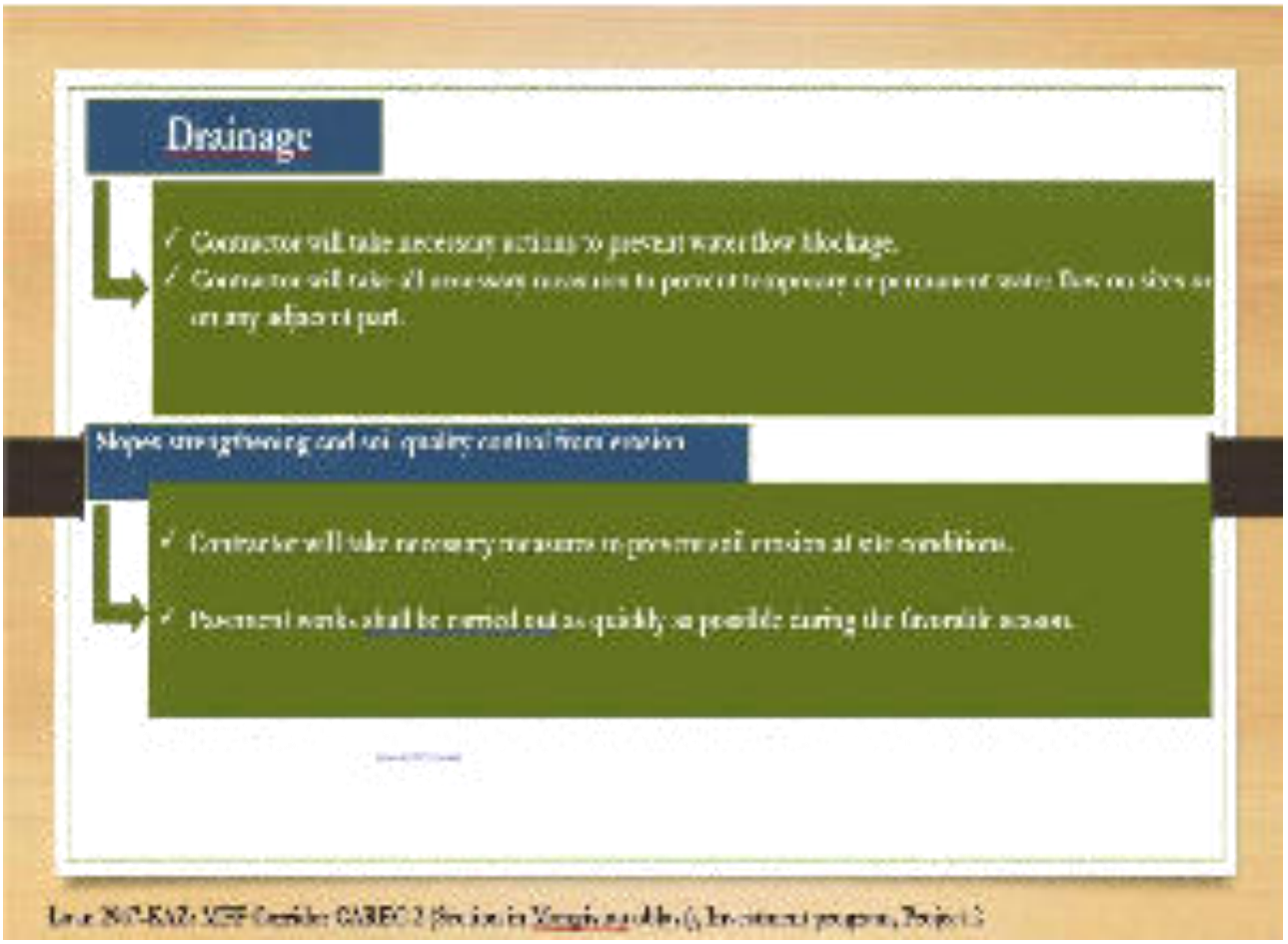
Loan 2917-KAZ: MFF Corridor CAREC 2 Section in Mangistau oblast, Investment program, Project 2

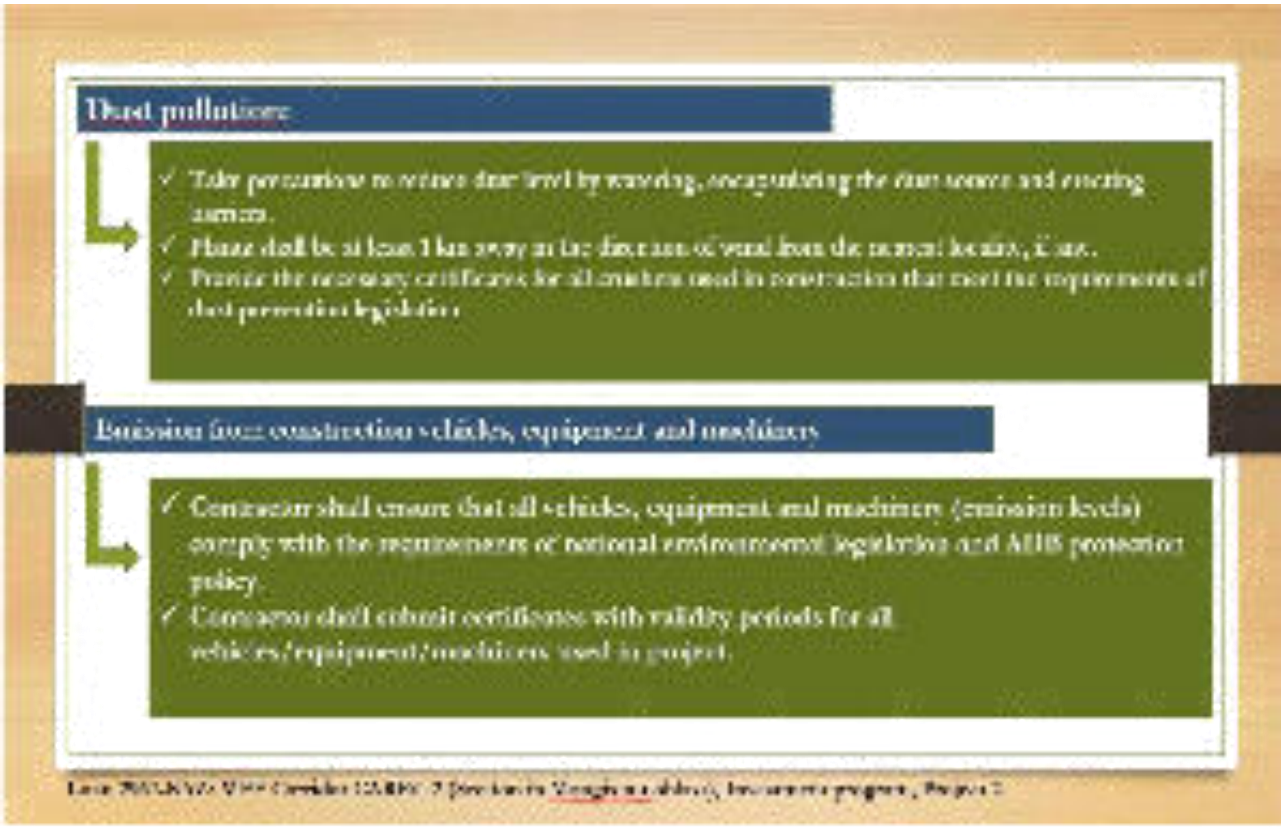
Noise level: Noise from vehicles, plants and equipment

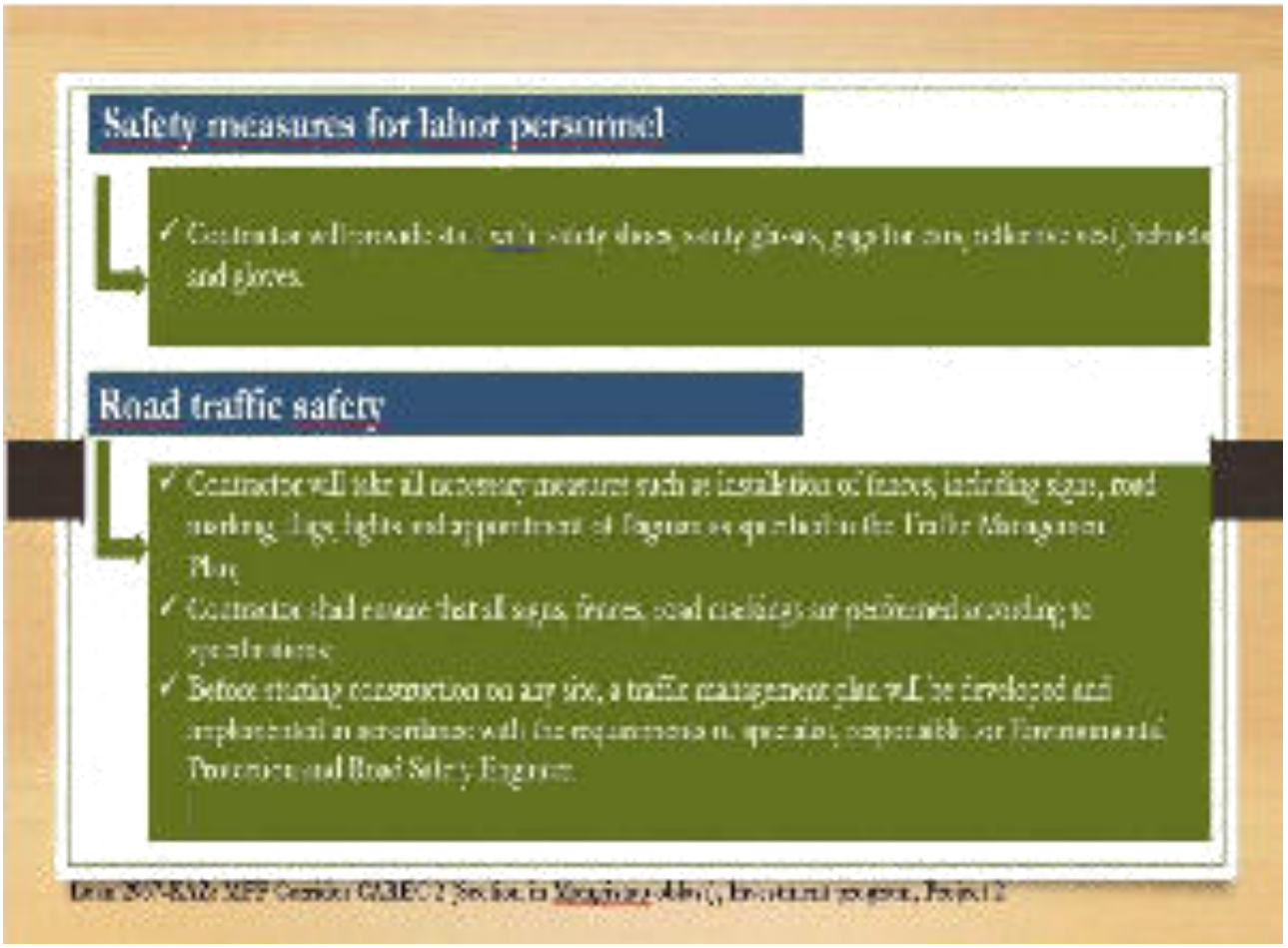
- ✓ Contractor shall ensure that all vehicles, devices and equipment (pollution emission levels) comply with the requirement of national environmental legislation.
- ✓ Contractor shall provide certificates valid for all vehicles/equipment/machineries that are being used in project.
- ✓ Plants and equipment used in construction should strictly meet national standards on environmental protection and ADB standards.
- ✓ Vehicles and equipment used in construction will be equipped with silencers.
- ✓ Limits of construction equipment noise should not exceed 75 dB.

Loan 2917-KAZ: MFF Corridor CAREC 2 Section in Mangistau oblast, Investment program, Project 2

Disposal of debris from road surface:
Burial place for construction waste:


Drainage


Dust pollution
Emission from construction vehicles, equipment and machinery


Safety measures for labor personnel
Road traffic safety

First aid

- First aid services shall be organized at each work site, including the supply of medical bandaging materials and devices in accordance with the rules of safety measures.
- Adequate transport means should be on hand for conveying the wounded or patient to the nearest hospital at any time of the day.

Accommodation

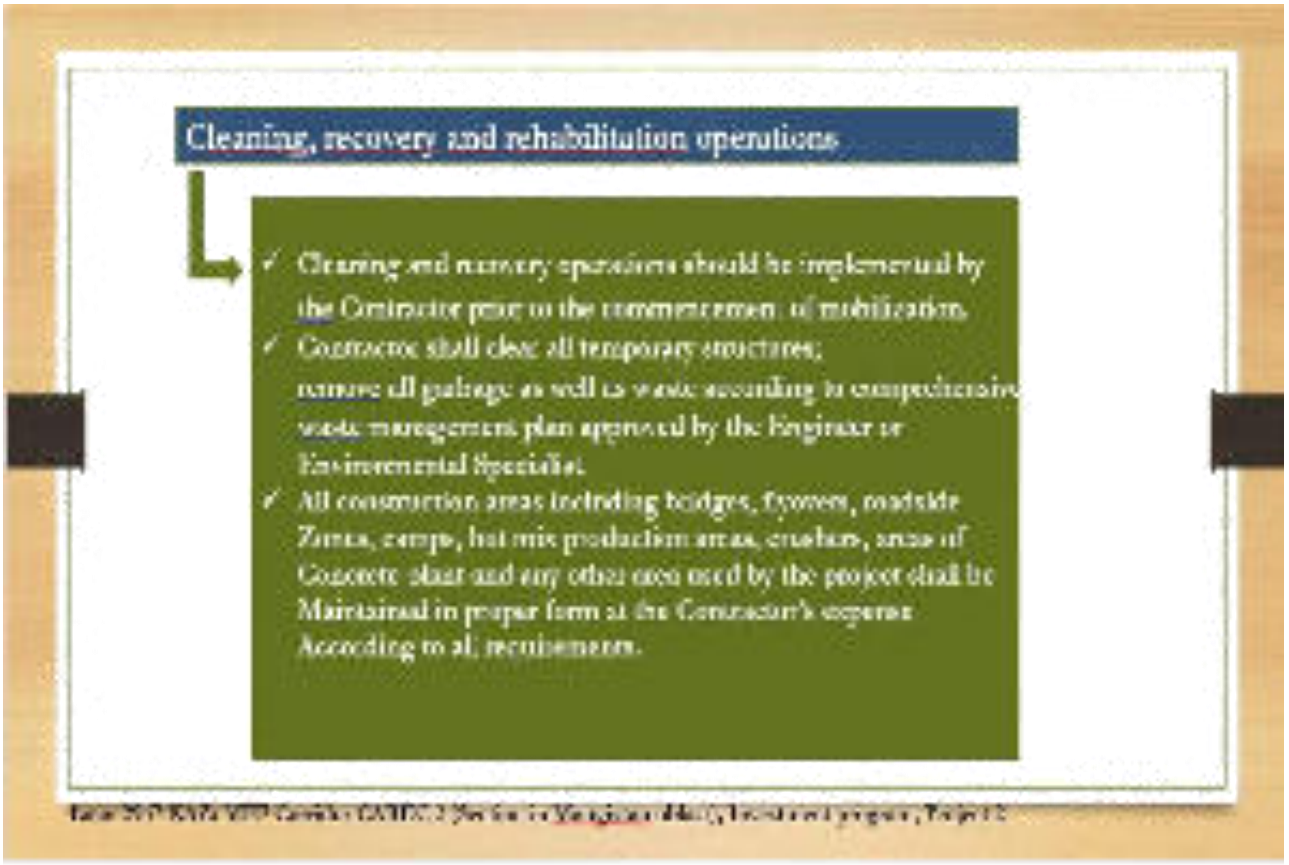
- Location, plan and convenience of every construction camp will be presented to the Engineers and commencement of construction will be after the written consent.
- Living quarters and sanitary facilities should be in functional and hygienic condition as approved by the Engineers.

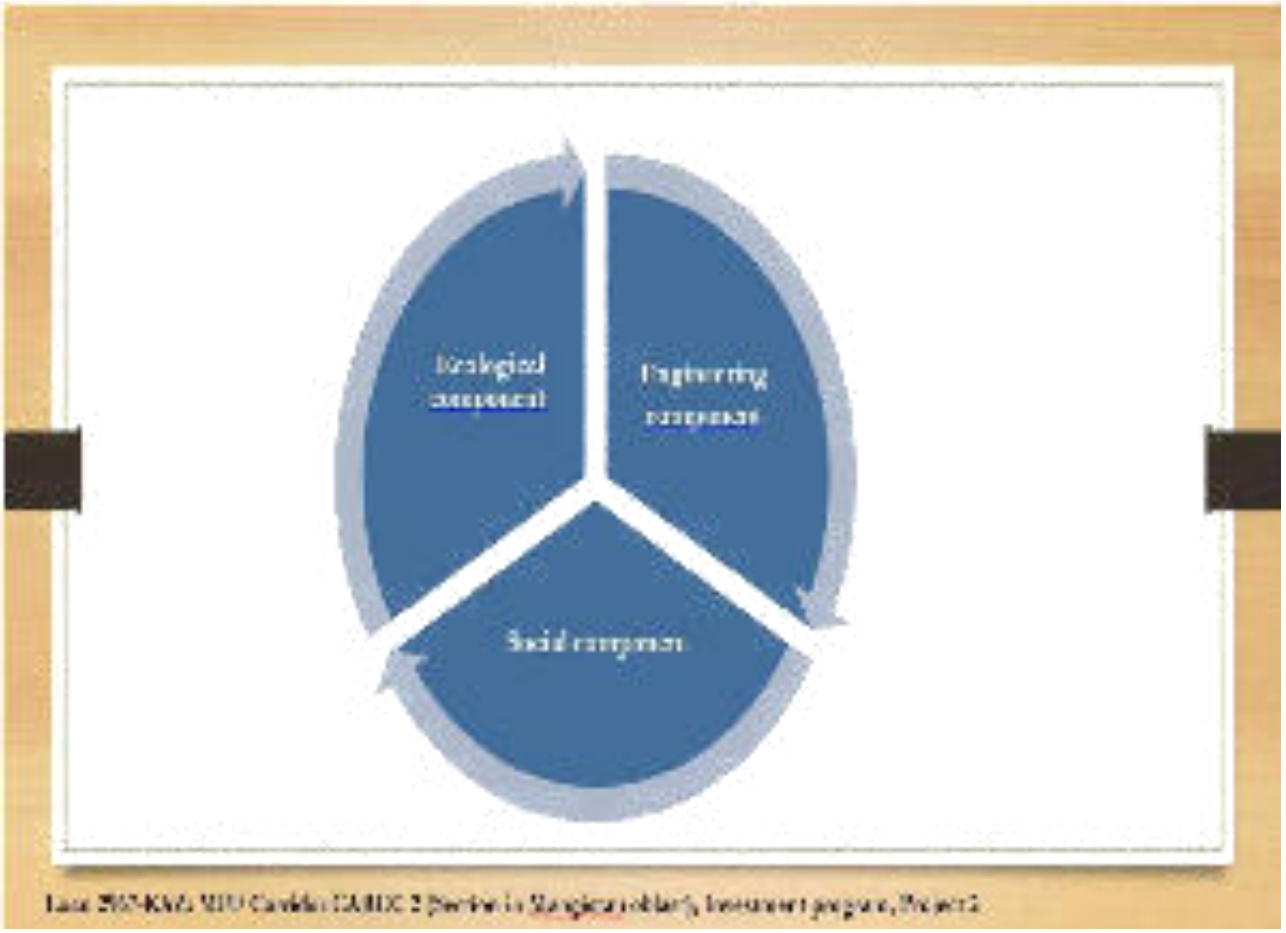
Disposal of wastes

Separate garbage cans are provided in construction camps and they are regularly deposed according to the solid waste deposal plan

Sanitation and sewage

- Sewage system for a camp has been designed, constructed and operated in such a way that does not bear any danger to health.
- All toilets must be clean and kept in strict sanitary conditions.


Cleaning, recovery and rehabilitation operations
✓ Cleaning and recovery operations should be implemented by the Contractor prior to the commencement of mobilization.
✓ Contractor shall clear all temporary structures; remove all garbage as well as waste according to comprehensive waste management plan approved by the Engineer or Environmental Specialist.
✓ All construction areas including bridges, flyovers, roadside Zones, camps, hot mix production areas, crushers, areas of Concrete plant and any other area used by the project shall be Maintained in proper form at the Contractor's expense According to all requirements.


Ecological component
Engineering component
Social component

Thank you for your attention!

List of participants of the seminar meeting
"Implementation of the environmental management plan"