

# Environmental Monitoring Report

---

PUBLIC  
Project №: 50176-002  
Semestral Report (January–June 2025)  
July 2025

## Kyrgyz Republic: Issyk-Kul Wastewater Management Project

Prepared by the State Institution Drinking Water Supply and Sewerage Development under the Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz for the Asian Development Bank (ADB).

## **Table of Contents**

---

EXECUTIVE SUMMARY	1
1 INTRODUCTION	7
1.1 Introduction	7
1.2 Headline Information	7
2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES	1
2.1 Project Description	1
2.2 Project Contracts and Management	4
2.3 Project Activities During Current Reporting Period	7
2.4 Description of Any Changes to Project Design	12
2.5 Description of Any Changes to Agreed Construction Methods	12
3 ENVIRONMENTAL SAFEGUARD ACTIVITIES	13
3.1. General Description of Environmental Safeguard Activities	13
3.2. Site Audits	15
4 ENVIRONMENTAL MONITORING RESULTS	22
4.1. Overview of Monitoring Conducted during the Current Period	22
4.2. Sanitary Protection Zone (SPZ)	30
4.3. Trends	31
4.4. Summary of Monitoring/ Observation Outcomes.	31
4.5. Material Resources Utilization	32
4.6. Waste Management	32
4.7. Occupational and Community Health and Safety Monitoring	33
4.8. Capacity Building/ Training	33
5. FUNCTIONING OF THE SEMP	38
5.1. SEMP Review	38
5.2. Grievances Redressal.	38
6. GOOD PRACTICES AND OPPORTUNITY FOR IMPROVEMENT	39
6.1. Good Practice	39
6.2. Opportunities for Improvement	39
7. SUMMARY AND RECOMMENDATIONS	41
7.1. Summary	41
7.2. Recommendations	41

## **List of Figures**

---

Figure 2-1: Location of Project Towns of Balykchy and Karakol	1
Figure 2-2: Schematic Illustration of Balykchy WWTP Process	3
Figure 2-3: Schematic Illustration of Karakol WWTP processes	4
Figure 2-4: Organogram of Environmental Safeguards of the Project	7
Figure 4-1: Odour monitoring at Karakol	25
Figure 4-2: Sanitary Protection Zone of the sewage treatment plant 400 metres	30

## **List of Tables**

---

Table 2-1: Environmental Safeguards of the Project	5
Table 3-1: Audit of sites (Non-Compliances Tracking)	16
Table 3-2: Summary Table	17
Table 3-3: Issues by Category	17
Table 3-4: Comparison of Trends	17
Table 3-5: Labor standards, health and safety – Loan Covenants	18
Table 3-6: Action taken for the ADB Observations/ Recommendations (November 2024)	19
Table 3-7: Action taken for the ADB Observations/ Recommendations (April 2025)	20
Table 4-1: Air Quality Monitoring Results at Balykchy WWTP	22
Table 4-2: Air Quality Monitoring Results at Karakol WWTP	22
Table 4-3: Noise Monitoring – Balykchy WWTP	26
Table 4-4: Noise Monitoring – Karakol WWTP	26
Table 4-5: Vibration Monitoring – Balykchy WWTP	27
Table 4-6: surface water quality for Karakol River and Kara-Suu Creek	28
Table 4-7: Lagoon water quality	29
Table 4-7: Material Resources Utilization	32
Table 4-8: Waste generated during construction works	33

## **List of Annexures**

---

Annexure 1	:	Capacity Building Report
Annexure 2	:	Reports on Monitoring of the Contractors
Annexure 3	:	Site Observation - Photographs
Annexure 4	:	Non-Conformity Tracking Reports
Annexure 5	:	Environmental Monitoring Results – Balykchy WWTP
Annexure 6	:	Environmental Monitoring Results – Karakol WWTP
Annexure 7	:	Monitoring of Central Asiatic Frogs

## **Abbreviations**

---

ADB	:	Asian Development Bank
APS	:	Architecture and Planning Specifications
APU/ETU	:	Russian acronym for Architectural and Technical Approval
BOD <sub>5</sub>	:	Biological Oxygen Demand (5 day)
BOQ	:	Bills of Quantity
BV	:	Balykchy Vodokanal
COD	:	Chemical Oxygen Demand
CabMin KR	:	Cabinet of Ministers of the Kyrgyz Republic
SIDWSSD	:	State Institution Drinking Water Supply and Sewerage Development under the Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic
DSC	:	Design and Supervision Consultant
EA	:	Executing Agency
EHS	:	Environment, Health and Safety
EMP	:	Environmental Management Plan
ETS	:	Engineering and Technical Specifications
ICB	:	International Competitive Bidding
IEE	:	Initial Environmental Examination
IFC	:	International Finance Corporation
ISDP	:	Issyk-Kul Sustainable Development Project
ITA	:	Issyk-Kul Territorial Administration
IWMP	:	Issyk-Kul Wastewater Management Project
KVK	:	Karakol Vodokanal
LARP	:	Land Acquisition and Resettlement Plan
MNRETS	:	Ministry of Natural Resources, Ecology and Technical Supervision of Kyrgyz Republic
NTP	:	Notice to Commence
OOS	:	Russian acronym for Environment Protection
OVOS	:	Russian acronym for “Assessment of Environmental Impacts”
PIU	:	Project Implementation Unit
PMO	:	Project Management Office
PRGKRIKO	:	Permanent Representative of the President of the Kyrgyz Republic in Issyk-Kul Region
SAACHCS	:	State Agency for Architecture, Construction, Housing and Communal Services under the Cabinet of the Kyrgyz Republic

SAEMR	:	Semi - Annual Environmental Monitoring Report
SSEMP	:	Site-Specific Environmental Management Plan
SNiP	:	Russian acronym for Construction Codes and Regulations
SPZ	:	Sanitary Protection Zone
WSS	:	Water supply and sanitation
WWTP	:	Wastewater Treatment Plant

### **Units and Currencies**

°C	degree Celsius
ha	hectare
km	kilometres
m <sup>3</sup>	cubic meters
m <sup>3</sup> /d	cubic meter per day
mg/l	milligram per litre
Mg/OI	milligram Oxygen per liter
MLD	million liter per day
US \$	United States Dollar

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the ["terms of use"](#) section of ADB's website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

## Executive Summary

1. **Project Background.** The objective of the Issyk-Kul Wastewater Management Project is to improve wastewater services in two lakeshore cities on Issyk-Kul Lake, in the eastern region of the Kyrgyz Republic. It will upgrade and expand the existing wastewater systems, build institutional capacity, and strengthen the sustainability of the water supply and sanitation (WSS) utilities in Balykchy and Karakol. As per the ADB Safeguard Policy Statement (SPS) 2009, this project was classified as environmental category "B". Based on the construction activities, this project was divided into various subprojects namely

- Construction of a Sewerage Network in Balykchy "Western" - (Contract No. W1 Lot 1)
- Construction of a Sewerage Network in Balykchy "Eastern" - (Contract No. W1 Lot 2)
- Construction for Expansion of Sewer Network in Karakol "Southern" - (Contract No. W2 Lot 1)
- Construction for Expansion of Sewer Network in Karakol "Northern" - (Contract No. W2 Lot 2)
- Pump Station and Rising Main 1.7km in Karakol (Contract No. W2)
- Construction of Karakol Wastewater Treatment Plant (WWTP) (Contract No. W3)
- Construction of Balykchy Wastewater Treatment Plant (WWTP) (Contract No. W4)

2. The Executive Agency (EA) is "State Institution Drinking Water Supply and Sewerage Development (SIDWSSD) under the Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic" and the project Implementing Agency (IA) is "Office of the Plenipotentiary Representative of the President of the Kyrgyz Republic in the Issyk-Kul region, Mayor's Office and Vodokanal of Balykchy and Karakol cities". Temelsu International Engineering Inc. has been contracted by SIDWSSD as a Design and Supervision Consultant (DSC) for the implementation of this project.

### 3. **Design approval status.**

- (i) **Sewerage Network:** The detailed design for all four sewerage network packages was finalized and approved prior to the commencement of construction, which has since been completed.

Contract No. W1: Construction of Extension of Balykchy Sewerage Network, Lot 1 "Western"

Construction for Expansion of Sewer Network in Balykchy, Lot 2 "Eastern"

Contract No. W2: Construction for Expansion of Sewer Network in Karakol, Lot 1 "Southern"

Construction for Expansion of Sewer Network in Karakol, Lot 2 "Northern"

- (ii) **Pump station and Wastewater Treatment Plants (WWTPs):**

- Contract No. W2 (Pump Station and Rising Main 1.7 km in Karakol): The design for the proposed pump station in Karakol has been finalized, the package has been tendered, and the construction firm LLC "Tunuk-Kurulush" has been appointed as the contractor for its implementation.

- Contract No. W3 (Construction of Karakol Waste Water Treatment Plant (WWTP)): For Karakol WWTP, the concept design has been finalized and approved, however, the detailed design is planned to be submitted in three stages namely (i) 1st stage shall have design details for Administrative building, workshop, guard room, and fencing, (ii) 2nd stage shall have design details for Aeration Tank and Sedimentation Tank and (iii) 3rd stage shall have rest of the structure details (including heating system). The contractor submitted English translations of the 1st and 2nd stages of detailed designs on 19 June 2024. The DSC approved the Administration and Workshop Building with comments to be addressed during implementation and confirmed no further comments on the second-stage documents as of 9 July 2024. The third-stage designs were submitted to State Expertise on 7 June 2024 and approved by early September 2024. Some English versions of drawings are still under preparation. Separately, the contractor's issuing bank went bankrupt in October 2023, invalidating their guarantees. Replacement guarantees provided in February 2024 were rejected due to government requirements, leading to withdrawal of the advance payment and suspension of IPCs. This caused major delays in contract implementation. Following several months of negotiation, Amendment No. 3 was signed on 27 November 2024, allowing payments to resume with an additional 10% IPC withholding pending the opening of a correspondent account in a Kyrgyz bank. Due to minimal progress, the contract completion date was extended from 30 December 2024 to 1 June 2026 under Amendment No. 4, which is under ADB's review.
- Contract No. W4 (Construction of Balykchy Wastewater Treatment Plant (WWTP)): The detailed design for the Balykchy WWTP was finalized and approved prior to the commencement of construction works. The construction of this package has been completed.

4. **EMP in Contract agreement.** The ADB cleared EMP has been included in the contract agreement for all packages. However, based on site inspections conducted by the PMO, PIU, and DSC, additional mitigation and management measures will be proposed to address impacts not originally covered in the EMP.

5. **Contract(s) Awarded**

Name of Package	Description	Name of Contractor	Physical progress/ Status
Construction of a Sewerage Network in Balykchy- (Contract No. W1 Lot 1)	This contract works include construction of 5.34 km sewerage network in Western part of Balykchy and includes the following streets: <ul style="list-style-type: none"> <li>• Togolok Moldo street</li> <li>• Mambetaliev street</li> <li>• Ozyornaya Street</li> </ul>	LLC Impuls -Osh	100% Completed by July 21,2023

<b>Name of Package</b>	<b>Description</b>	<b>Name of Contractor</b>	<b>Physical progress/ Status</b>
Construction of a Sewerage Network in Balykchy- (Contract No. W1 Lot 2):	Contents of this contract consists of construction of 5.32 km sewerage network in Eastern part of Balykchy in the following streets: <ul style="list-style-type: none"> <li>• Toktosunov street</li> <li>• Sharipov street</li> <li>• Kaldybaev street.</li> </ul>	Profit Express Ltd.	100% Completed by August 01, 2023
Construction for Expansion of Sewer Network in Karakol - (Contract No. W2 Lot 1)	Total length of 6.71 km of sewerage network will be constructed under this contract in the Southern part of Karakol in the following sites: <ul style="list-style-type: none"> <li>• Akhunbaeva Street from Lenin Street to Moskovskaya Street</li> <li>• Duisheeva street from Dzhusayev street to Moskovskaya street</li> <li>• Moskovskayaa Street from Akhunbaev Street to Oktyabrskaya Street</li> </ul>	LLC ME "MINUR"	100% Completed by September 30, 2023
Construction for Expansion of Sewer Network in Karakol – (Contract No. W2 Lot 2)	This contract contains construction of 5.94 km sewerage network at the North side of Karakol at the following sites <ul style="list-style-type: none"> <li>• Oktyabrskaya Street from Gebze Street to Kuchukov Street</li> <li>• Dzhusayev Street from Przhevalsky Street to Shorukov Street</li> </ul>	Consortium of Inzhenernaya Zashchita Ltd. and Polymer Snab Asia Ltd.	100% Completed by October 5, 2023
Pump Station <sup>1</sup> and Rising Main 1.7km in Karakol (Contract No. W2)	This item consists of SPS-4 Pump Station in Pristan, sewerage collector from SPS 4 –SPS 2, 200 m Pressure Line crossing Karakol River and reconstruction of 28 manholes	LLC "Tunuk-Kurulush"	The site was handed over in April 2025, and the finalisation of the designs is ongoing
Construction of Karakol Wastewater Treatment Plant	Wastewater Treatment plant with the capacity of 12,000 m <sup>3</sup> /day will be constructed on "Design & Build" contract.	Joint Venture HAYAT GROUP LLC and BLOWORKS	32.8% completed. Under construction

<sup>1</sup> Detail design is completed and submitted to State Expertise for approval in April and approval was received on 05.06.2023

Name of Package	Description	Name of Contractor	Physical progress/ Status
(WWTP) (Contract No. W3)		Verfahrenstechnik GmbH	
Construction of Balykchy Wastewater Treatment Plant (WWTP) (Contract No. W4)	Wastewater Treatment plant with the capacity of average 4,200 m <sup>3</sup> /day will be constructed on “Design & Build” bases.	CCCC Tianjin Dredging Co., Ltd, China Road and Bridge Corporation and China Northeast Municipal Engineering Design and Research Institute Co.	100% Completed by June 30, 2024 (technical completion). Operation under the responsibility of the Contractor is going on.

## 6. Unanticipated Impacts including Change of Scope or Design

- i. There are no changes in the sewerage network scope or design, all four sub-packages (W1 Lot 1, W1 Lot 2, W2 Lot 1, and W2 Lot 2) on the sewerage network construction works are completed.
- ii. For the Karakol Pump Station and 1.7 km Rising Main, the design has been approved and tendered. A contractor has been appointed, and preparation of construction drawings is currently in progress.
- iii. Both the WWTP packages are on the Design-Build contract.
  - For Balykchy WWTP: The contractor has shared the design and approved it by the DSC. However, in the later stages of the construction, it was decided to have a mechanical sludge dewatering facility instead of sludge drying beds, accordingly, the IEE was updated and disclosed in May 2024. The contractor had requested the certificate of completion on 30th June 2024, accordingly, DSC inspected all equipment and the system and observed that Balykchy WWTP is ready for technical completion. Consequently, a Certificate of Completion was issued by DSC on 13th July 2024, the completion date being 30th June 2024.
  - Karakol WWTP: The contractor has shared the concept design and got it approved. As indicated in para 3, 1st and 2nd stage detailed design has been submitted to DSC/PIU/PMO, based on the comments and suggestions, the construction of administration and workshop buildings are completed (no changes of scope and design). The 3rd stage designs were submitted to State Expertise on 7 June 2024 and approved by early September 2024. If there are any changes in the design or the scope, unanticipated impacts shall be assessed and accordingly, the IEE shall be revised.

7. **Environmental Safeguards Implementation Status.** All four sewer network packages Contract No. W1 (Lot 1 and Lot 2 in Balykchy) and Contract No. W2 (Lot 1 and Lot 2 in Karakol) have been completed, and a Project Completion Certificate (PCC) was issued on 10th August 2023 for Balykchy packages and 28th November 2023 for Karakol packages. The Post-Construction Environmental Audit Report (PCEAR) for sewerage networks

proposed at Balykchy and Karakol was completed and disclosed in April 2024 (ADB website) by including it as an annexure to the SAEMR (July to December 2023). During the construction period, the EHS requirements as per the approved SSEMP were adopted by all the contractors to the satisfaction of the Engineer (DSC).

8. For the Pump Station and 1.7 km Rising Main in Karakol (Contract No. W2), the Initial Environmental Examination (IEE) was revised based on feedback from the Project Management Office (PMO) and submitted to the Asian Development Bank (ADB) on 18th December 2023. Following ADB's review, the updated IEE was publicly disclosed on the ADB website in April 2024. As part of the pre-construction phase, the contractor prepared and submitted the Site-Specific Environmental Management Plan (SSEMP), which received PMO approval on 24th April 2025. To reinforce environmental, health, and safety compliance on-site, the National Environmental Specialist from the Design and Supervision Consultant (DSC) facilitated a seminar-training session titled "Compliance with Environmental, Health and Safety (EHS) Requirements in accordance with the legislation of the Kyrgyz Republic and ADB," conducted at the construction site on 13–14 May 2025 for employees of Tunuk Kurulush.

9. Construction of Karakol WWTP (Contract No. W3), construction works resumed after the March 2025 (due to winter season) In the meantime, as requested by the ADB, a pre-construction report has been prepared and submitted enclosing all necessary clearance/permissions (as indicated in the disclosed IEE) that are obtained by the contractor. Environmental monitoring was conducted by the MNRETS, and the outcomes of the results are well within the stipulated limits. Monitoring of Central Asiatic Frogs (*Rana asiatica Bedriaga*) has been conducted between 6th to 12th May 2025, the outcome of monitoring shows relocated frogs successfully adapted to their new habitats. Monthly Odour monitoring has been conducted by the PIU appointed CLO, using the portable multi-gas detector (BOSEA version: BSA20180501001) and observed that the H<sub>2</sub>S levels are within the limits.

10. The construction of the Balykchy WWTP (Package W4) was completed, and the contractor requested the issuance of the PCC on 30 June 2024, marking technical completion. Following a site inspection, the DSC issued the PCC on 13 July 2024. During the construction period, the contractor implemented the EHS requirements in accordance with the approved SSEMP, to the satisfaction of the Engineer (DSC). Upon completion of commissioning and operational acceptance, the plant has been operating under the contractor's responsibility from November 2024 and will remain so until November 2025.

11. **Site Inspections and Audits.** During this reporting period between January to June 2025 the DSC's National Environmental Specialist visited the Balykchy and Karakol project sites on 28-29th March 2025, 10-11th April, 2025, 13-14th May 2025 and 18-19th June 2025 (along with International Environmental Specialist) to monitor the SSEMP implementation status as agreed by the Contractor and observed that, most of the EMP mitigation measures are complied. There are no open NCs carried from previous monitoring report.

12. **Grievances status.** There is no grievance recorded/reported for this monitoring period.

13. **Environmental Monitoring.** Construction activities for the sewerage networks in Balykchy and Karakol, under Contract No. W1: Lot 1 and Lot 2 (Balykchy) and Contract No. W2: Lot 1 and Lot 2 (Karakol), have been completed, and the respective Project Completion Certificates have been formally issued. Accordingly, no further environmental monitoring is envisaged for these subcomponents. For the Pump Station and Rising Main (1.7 km) in Karakol, under Contract No. 2, the contractor Tunuk Kurulush has not commenced environmental monitoring, as the final “good for construction” design drawings are still under preparation and have not yet been finalized. For the Balykchy Wastewater Treatment Plant (WWTP), under Contract No. W4, all construction activities including civil works have been completed, and the facility is now operational. The contractor, China Road and Bridge Corporation, is currently responsible for WWTP operation during the Defects Liability Period (DLP). As part of the operational-phase Environmental Management Plan (EMP), environmental monitoring was conducted covering ambient air quality (AAQ), noise levels, and vibration levels. All monitored parameters were found to be within permissible limits stipulated under national and MDB standards. At the Karakol WWTP, the Department of Monitoring under the MNRETS carried out ambient air quality monitoring on 30 June 2025, focusing on sulphur dioxide, nitrogen dioxide, carbon monoxide, and suspended particulate matter. The recorded values for all parameters remained well within the stipulated environmental standards, indicating satisfactory compliance.

# 1 INTRODUCTION

## 1.1 Introduction

14. This report is the 11<sup>th</sup> Semi-Annual Environmental Monitoring Report (SAEMR) for the Issyk-Kul Wastewater Management Project (the Project)<sup>2</sup>. It covers the project activities between the period of 01st January 2025 and 30<sup>th</sup> June 2025.

## 1.2 Headline Information

15. To secure sustainable and reliable wastewater treatment services in Balykchy City and Karakol City, the existing sewerage networks will be improved and expanded (new connections will be added) and the existing abandoned wastewater treatment plants (WWTPs) will be replaced with new WWTPs (with higher capacity and modern technology) constructed at Balykchy city and Karakol city. The project is expected to achieve the following outputs:

- i. Balykchy and Karakol wastewater systems improved.
- ii. Improved capacity of “Vodokanals”
- iii. Septage management services improved, and sanitation and hygiene awareness increased.

16. At present, the total coverage of households with sewage networks is at a low level, i.e. only 35% in Balykchy City and 45% in Karakol City. In this regard, the Project focuses on sewage treatment facilities, expansion of sewerage networks, considering the connection of an additional 850 households in Balykchy city and 1200 households in Karakol city. The implementation of this activity will increase the coverage rate to an estimated 45% in Balykchy and 60% in Karakol.

17. **Environment category.** The project has been classified as environmental category “B” according to ADB Safeguard Policy Statement (SPS) 2009, the impacts of the subproject were assessed in the Initial Environmental Examination (IEE). The project envisages temporary environmental impacts during the construction phase mainly due to dust, noise, vibration, solid waste, and movement of construction equipment, as well as obstructed traffic. These impacts are managed by adopting SEMP.

18. During the reporting period within the framework of the Project:

### A. Balykchy City

- **Construction of a Sewerage Network in Balykchy - Contract No. - W1 Lot 1 (Contractor: Impulse Osh Ltd)**. All construction activities under the scope of the contract, including additional agreed works, were completed by the contractor. Post-completion, inspections and functional testing of the installed sewer lines and associated manholes were conducted jointly by representatives from the Design and Supervision Consultant (DSC), Project Implementation Unit (PIU), and Balykchy Vodokanal. Based on satisfactory inspection outcomes, the contractor submitted a formal application for issuance of the Completion Certificate on 21st July 2023. Following review,

---

<sup>2</sup> Please note, the word “Project” indicates “IWMP” in this SAEMR report

the DSC issued the Completion Certificate on 10th August 2023, confirming fulfillment of contractual obligations and readiness for operational integration.

- **Construction of a Sewerage Network in Balykchy - Contract No. W1 Lot 2 (Contractor: Profit Express Ltd)**. The contractor completed all works within the scope of the contract, including additional works. The sewer lines and associated manholes were inspected and tested by representatives of the DSC, PIU, and Balykchy Vodokanal. Following these inspections, the contractor applied for the issuance of the Completion Certificate on 28th July 2023. The DSC subsequently issued the Completion Certificate on 10th August 2023.
- **Construction of Balykchy Wastewater Treatment Plant (WWTP) - Contract No. W4 (Contractor: CCC Tianjin Dredging Co., Ltd, China Road and Bridge Corporation and China Northeast Municipal Engineering Design and Research Institute Co., Ltd Joint Venture (Lead by China Road and Bridge Corporation))**. The contractor completed all works within the scope of the contract and submitted a request for the Project Completion Certificate on 30th June 2024. Following inspection of all equipment and systems, the DSC confirmed that the Balykchy WWTP was ready for technical completion. Accordingly, the Certificate of Completion was issued by the DSC on 13th July 2024, with 30th June 2024 recorded as the date of technical completion. Upon completion of commissioning and operational acceptance, the plant has been operating under the contractor's responsibility and will remain so until November 2025.
- Environmental monitoring for air quality and noise levels was conducted at the Wastewater Treatment Plant (WWTP) site on 31st May 2025 and 03rd April 2025, respectively. The monitoring results indicate that the WWTP operations have not caused any adverse impacts to the surrounding environment. Detailed laboratory analyses and results are provided in **Annexure 5** for reference and validation.

#### **B. Karakol City:**

- **Construction for Expansion of Sewer Network in Karakol - Contract No. W2 Lot 1 (Contractor: Minur Ltd)**. The contractor has completed all works within the scope of the contract, including additional works. The sewer lines and associated manholes were inspected and tested by representatives from the DSC, PIU, and Karakol Vodokanal, confirming that the previously observed defects had been rectified by the contractor. Following these inspections, the Completion Certificate was issued by the DSC on 28th November 2023.
- **Construction for Expansion of Sewer Network in Karakol – Contract No. W2 Lot 2 (Contractor: Inzhenernaya Zashchita Ltd. and Polymer Snaab Asia Ltd)**. The contractor has completed all works within the scope of the

contract, including additional works. The sewer lines and associated manholes were inspected and tested by representatives of the DSC, PIU, and Vodokanal, confirming that all previously observed defects had been rectified by the contractor. Following these inspections, the DSC issued the Completion Certificate on 28th November 2023.

- **Replacement of 200 m of discharge pipeline from Karakol WWTP to the irrigation pond of Ak-Suu DDWR, construction of 50m<sup>3</sup> wastewater tank in Pristan-Przhevalsk and rehabilitation of 28 manholes of the main collector to Karakol WWTP, Contract No. W3.1.** The tender, floated on 16th October 2024, received a response from the construction firm LLC 'Tunuk-Kurulush'. Following the bid evaluation, the contract was signed on 11th March 2025, and the site was handed over to the contractor by 5th April 2025.
  - In the pre-construction phase, the contractor developed and submitted the Site-Specific Environmental Management Plan (SSEMP) to the PMO, which was formally approved on 24th April 2025.
  - On 14th May 2025, DSC conducted a seminar-training session at the project site titled “Compliance with Environmental, Health and Safety (EHS) Requirements in accordance with the legislation of the Kyrgyz Republic and ADB.” Led by DSC National Environmental Specialist Ms. O.V. Zinina, the session was attended by seven contractor representatives and focused on familiarizing participants with occupational safety requirements, environmental protection obligations, and SSEMP provisions. Key topics included PPE protocols, site setup standards, hygiene and fuel storage practices, monitoring procedures, and biodiversity mitigation specifically the re-planting of sea buckthorn. Contractors were instructed on completing daily environmental monitoring checklists and were advised to ensure full site restoration before commissioning. The session emphasized harmonization of national legislation with ADB safeguard requirements to ensure sustained compliance throughout construction (Refer to **Annexure 1**).
- **Construction of Karakol Wastewater Treatment Plant (WWTP) - Contract No. W3.0, (Contractor: HAYAT Group LLC and BIOWORKS Verfahrenstechnik GmbH).**
  - As requested by ADB, a pre-construction report incorporating copies of all necessary clearances obtained from the relevant authorities has been prepared and submitted.
  - Monitoring of Central Asiatic Frogs (*Rana asiatica Bedriaga*) was carried out from 6th to 12th May 2025. The monitoring results indicate that the relocated frogs have successfully adapted to their new habitats (Refer to **Annexure 7**). (This subject has no relation with the Contract of WWTP Construction)

- Monthly odour monitoring has been conducted by the PIU appointed Community Liaison Officer (CLO) using a portable multi-gas detector (BOSEA, version: BSA20180501001). Observations confirm that hydrogen sulfide (H<sub>2</sub>S) levels remain within permissible limits
- A training session on environmental safeguards and occupational health and safety (OHS) was conducted on 30th April 2025, aimed at enhancing the contractor's and site personnel's understanding of regulatory requirements, ADB standards, and practical mitigation measures
- Ambient air quality monitoring was conducted on 30th June 2025 in the vicinity of the construction site, facilitated by the Ministry of Natural Resources, Ecology and Technical Supervision (MNRETS). Additionally, noise measurements were carried out on 16th June 2025 by the Karakol Interdistrict Center for Disease Prevention and State Sanitary and Epidemiologic Surveillance, operating under the Ministry of Health of the Kyrgyz Republic (KR MoH). The laboratory results are presented in **Annexure 6**.

## 2 Compliance to Environmental Safeguards per Loan/Grant Agreements and PAM

**Table 2-1: Compliance of KGZ: Issyk-Kul Wastewater Management Project with Environmental Safeguards per Loan/Grant Agreements.**

Si. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
1.	Schedule 4 (Conditions for Award of Contract)	Para 7. The borrower shall not award any Works contracts which involve environmental impacts until: (i) the State Agency of the Environmental protection and Forestry of the Borrower has granted the final approval of the IEE; and (ii) the relevant provisions from the EMP are incorporated into the Works contract	✓	✓	✓	<b>Complied.</b> (i) Clearance from the State Agency for Environmental Protection and Forestry has been obtained for all packages, including both completed and ongoing works. (ii) The bid documents and contract agreements prepared for all ongoing and completed packages include the EMP, which has been approved by the ADB
2.	Schedule 5 (Execution of Project)	Para 2. The borrower, through the Project Executing Agency and Implementing agencies, shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the project and all project facilities comply with (a) all applicable laws and regulations of the borrower relating to environment, health and safety; (b) the Environmental safeguards; and (c) all measures and requirements set	✓	✓	✓	<b>Being complied.</b> The pumping station (including the discharge pipeline and storage tank) and the WWTPs have been designed in accordance with applicable laws and regulations. In line with ADB policy requirements, an IEE has been prepared for all project components. Based on the assessment, appropriate mitigation and management plans have been developed. The IEE was disclosed in September 2018.

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		forth in the EMP and any corrective or preventative actions set forth in the safeguards monitoring report.				The EMP (included in the IEE) has been incorporated into the contract agreement for contractors to implement the prescribed management measures during construction. The observations and recommendations provided in the SEMR shall also be adopted
3.	Environment	Para 3. The borrower shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the project and all project facilities comply with (a) all applicable laws and regulations of the borrower relating to environment, health and safety; (b) the Environmental safeguards; and (c) all measures and requirements set forth in the EMP and any corrective or preventative actions set forth in the safeguards monitoring report	✓	✓	✓	<b>Being complied.</b> Refer remarks shared for Sl.no 1
4.	Land acquisition and Involuntary Resettlement	Para 4. The borrower shall ensure that all land and all right-of-way required for the project are made available to the works contractor in accordance with the schedule agreed under the related	✓	✓	✓	<b>Being complied.</b> The discharge pipelines (PS to Karakol) has been proposed along the available right of way to avoid any land acquisition and resettlement impacts. During the

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the borrower relating to land acquisition and involuntary resettlement; (b) the involuntary resettlement safeguards; (c) the LARF; and (d) all measures and requirements set forth in the LARP, and any corrective or preventative actions set forth in the safeguards monitoring report				preparation of the design, all applicable laws and regulations have been referenced and applied. Both WWTPs are proposed to be constructed on the existing WWTP land; therefore, no new land acquisition is envisaged
		Para 5. Without limiting the application of the Involuntary Resettlement Safeguards, the LARF or the LARP, the Borrower shall ensure, or cause the Project Executing Agency to ensure, that no physical or economic displacement takes place in connection with the project unit  (a) Compensation and other entitlements have been provided to affected people in accordance with the LARP; and (b) A comprehensive income and	✓	✓	✓	<b>Being complied.</b> Refer remarks shared for Sl.no 3

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		livelihood restoration program has been established in accordance with the LARP				
5.	Indigenous Peoples	Para 6. The borrower shall ensure that the project does not have any indigenous peoples impacts, all within the meaning of ADBs SPS. In the event that the project does have any such impact, the borrower shall take all steps required to ensure that the project complies with the applicable laws and regulations of the borrower and with ADBs SPS.	N/A	N/A	N/A	<b>Complied.</b> There are no indigenous people in the project site.
6.	Human and finance resources to implement safeguards requirements	Para 7. The borrower shall make available necessary budgetary and human resources to fully implement the EMP and LARP	✓	✓	✓	<b>Complied.</b> EMP budget provisions has been included in the project cost.  As per the institutional arrangement (mentioned in the IEE), safeguard staffs are included in the PMO, DSC and Contractors to implement the EMP and LARP
7.	Safeguards – related provision in bidding documents and work contracts	Para 8. The borrower shall ensure that all bidding documents and contracts for works contain provisions that required contractors to: (a) Comply with the measures	✓	✓	✓	<b>Being complied.</b>  (a) Safeguard provision given in the contract

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		<p>relevant to the contractor set forth in the IEE, the EMP and the LARP (to the extent they concern impacts on affected people during construction)</p> <p>(b) Make available a budget for all such environmental and social measures</p> <p>(c) Provide the borrower with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the project that were not considered in the IEE, EMP and LARP;</p> <p>(d) Adequately record the condition of roads, agriculture land and other infrastructure prior to starting to transport materials and construction; and</p> <p>(e) Reinstate pathways, other local infrastructure and agriculture land to at least their pre-</p>				<p>agreement (set forth in the IEE, the EMP and the RP) are being monitored by the PMO, PIU and DSC for effective implementation.</p> <p>(b) Budgetary provision has been included in the project cost</p> <p>(c) There are no land acquisition or resettlement issues in any of the subproject packages. If any arise during execution, they will be communicated well in advance</p> <p>(d) Please refer to the remark above.</p> <p>(e) If there are any disturbances to local infrastructure or agriculture, they will be reinstated in consultation and under the guidance of the DSC</p>

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		project condition upon the completion of construction.				
8.	Safeguard monitoring and reporting	<p>Para 9. The borrower shall do the following</p> <p>(a) Submit safeguard monitoring reports to ADB</p> <p>i. In respect of implementation of and compliance with Environmental safeguards and the EMP, semiannual, during construction and the implementation of the project until the issuances of ADB's project completion report unless a longer period is agreed in the EMP; and</p> <p>ii. In respect of implementation of and compliance with Involuntary Resettlement Safeguards and the LARP, semiannually during the implementation of the project and the LARP until the issuance of ADBs Project completion</p>	✓	✓	✓	<p><b>Being Complied.</b></p> <p>(a) Semiannual Environmental monitoring report has been prepared and shared with ADB for approval and further disclosure.</p> <p>This SEMR for the period January to June 2025 shall be submitted for the ADB review and approval.</p>

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		<p>report unless a longer period in the LARP; and disclose relevant information from such reports to the respective affected people under the environmental safeguards and the involuntary resettlement safeguards promptly upon submission;</p> <p>(b) If any unanticipated environmental and / or social risks and impacts arise during construction, implementation or operation of the project that were not considered in the IEE, EMP and the LARP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) Report any actual or potential breach of compliance with the measures and requirements set forth in the</p>				<p>(b) Not envisaged</p> <p>(c) Not envisaged</p>

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		EMP and the LARP, promptly after becoming aware of the breach				
9.	Prohibited list of investments	Para 10. The borrower shall ensure that no proceeds of the loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS	✓	✓	✓	<b>Being Complied.</b>
10.	Labor standards, health and Safety	Para 11. The borrower shall ensure that the core labor standards and the applicable laws and regulations of the borrowers are complied with during the project implementation. The borrower shall include specific provisions in the bidding documents and contracts financed by ADB under the project requiring contactors to, among other things (a) comply with the applicable labor law and regulations of the borrower and incorporate applicable work place occupational safety norms; (b) not use child labor; (c) not discriminate workers in respect of employment and occupation;	✓	✓	✓	<b>Being Complied.</b>  (a) The applicable labor laws have been adopted for all packages. For the Pumping Station to Karakol (discharge pipelines), local laborers will be engaged. At the Balykchy WWTP, the project is in the DLP phase and managed by contractor staff from China along with local workers. At the Karakol WWTP, construction works are being carried out by local laborers. (b) Use of child labours are strictly prohibited (c) Laborers are provided with basic amenities across all packages. (d) There are no forced labours observed in the project site

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		(d) not use forced labor; (e) allow freedom of the association and effectively recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the project and to number of the local communities surrounding the project area, particularly women.				(e) and (f) Wages for the laborers are fixed in accordance with national labor laws. Health camps are conducted for the workers, during which information related to HIV/AIDS is shared.
11.	Gender and development	Para 13. The borrower through the project Executing Agency shall ensure that (a) the GAP is implemented in accordance with its terms (d) the bidding documents and contracts included relevant provisions for contractors to comply with the measures set forth in the GAP; (c) adequately resources are allocated for implementation of the GAP; and (d) progress on implementation of the GAP, including progress towards achieving key gender outcome and output targets are regularly	✓	✓	✓	<b>Being complied.</b> GAP has been prepared and disclosed for this project, the implementation measures suggested in the GAP shall be monitored and reported to ADB.

Sl. no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status			Remarks
			PS at Karakol (W2)	WWTP		
				Karakol (W3)	Balykchy (W4)	
		monitored and reported to ADB.				

### 3 PROJECT DESCRIPTION AND CURRENT ACTIVITIES

#### 3.1 Project Description

19. The Issyk-Kul Wastewater Management Project is aimed to maintain the sensitive ecosystem balance of Issyk-Kul Lake, improve and expand access to reliable, sustainable and affordable sewerage services in Balykchy and Karakol, and provides the construction and expansion of existing wastewater treatment systems, strengthening institutional capacity and increasing the sustainability of water supply and sanitation services (WSS) in Balykchy and Karakol. The project outcomes should ensure

- (i) Improved sewerage and wastewater treatment systems in the cities of Balykchy and Karakol,
- (ii) Strengthened institutional capacity of Vodokanal Municipal Enterprises in the cities of Balykchy and Karakol, and
- (iii) Improved septic sludge management and sanitation.

20. This project will increase access to potable water and safe sanitation services, including use of proven technologies for treatment and disposal of solid and liquid waste in the cities of Balykchy and Karakol and includes three components.

- Component (A): Wastewater Treatment and collection
- Component (B): Enhancing Vodokanals institutional and service-oriented capacity.
- Component (C): Improve awareness for public health implications and wastewater management in Balykchy and Karakol



**Figure 3-1: Location of Project Towns of Balykchy and Karakol**

#### a) Balykchy Sewerage Network Extension:

21. Currently, 4156 households and 106 commercial/industrial/institutional/tourism organizations are connected to the sewerage system in Balykchy. The existing sewerage network consists of 64 km of non-pressure sewers built in the 1970s and currently serves

about 40% of the population. The project will provide 10.6 km of sewer networks on six streets, which will connect about 4015 additional households (55%) to the sewer network.

**b) Karakol Sewerage Network Extension:**

22. About 38% of all households in Karakol are connected to the sewage system, most of which live in multi-story buildings. Currently, about 25,000 people (7,301 households) use services of a centralized sewage system. The length of the sewerage network of the city is approximately 110 km. In addition, the municipal enterprise “Karakol Vodokanal” provides sewerage services to 38 budget organizations, 251 commercial enterprises and 1 industrial enterprise. the project will provide 12.7 km of sewer networks on six streets, which will connect about 3,248 additional households (55%) to the sewer network.

**c) Construction of a Pump Station (PS – 4) at Pristan, Karakol city:**

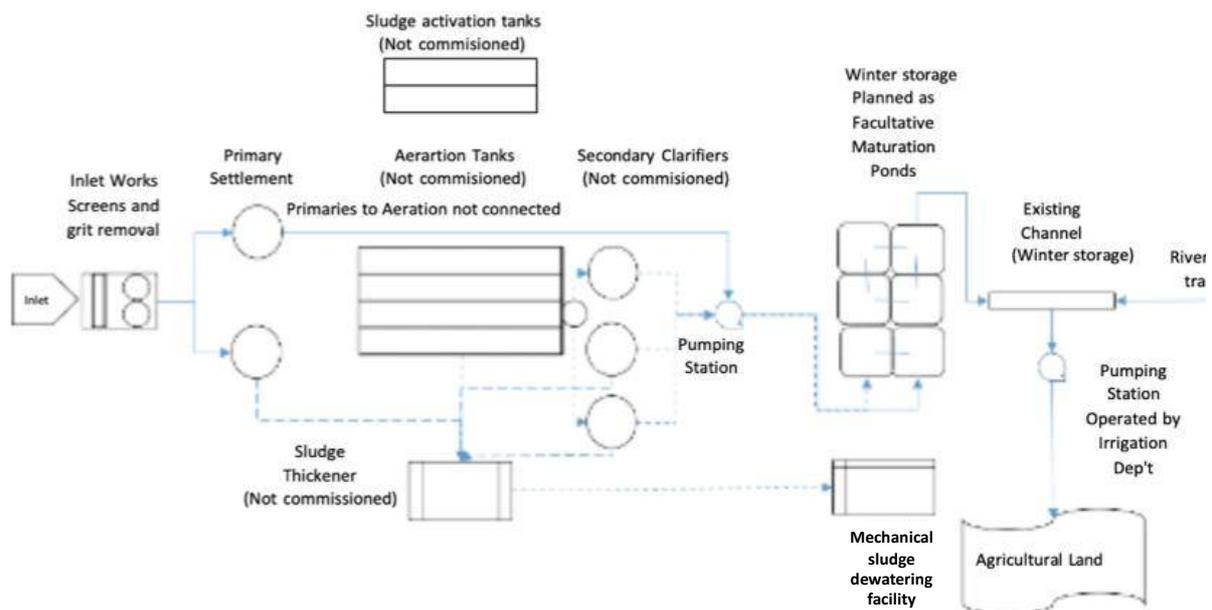
23. In addition to the non-pressure sewerage system in Karakol, the village of Pristan (TSU No. 8) is served by a gravity-pressure combined system. This system includes 4 pump stations, 3 of which were rehabilitated under the first phase of Issyk-Kul Sustainable Development Project (IKSDP). The fourth sewage pump station is located in close proximity to Issyk-Kul Lake and is in a semi-ruined non-operating stating. Based on loads resulted from wastewater volume, the technical solutions for SPS No.4 in Karakol City are adopted as 2 phases of construction:

- The following structures are considered for Phase 1 of construction.
  - The receiving reservoir is a steel wastewater tank with a storage capacity of up to 50 m<sup>3</sup>.
  - Site for placement of a reservoir with an area of 1350 m<sup>2</sup> with perimeter fencing along the guard zone and vehicle access.
  - Sewage trucks with a tank volume of 16 m<sup>3</sup> to transport out sewage.
- The following structures are considered for Phase 2 of construction.
  - Sewage Pump station with two submersible pumps (one - operating, one - standby). The capacity is 30 m<sup>3</sup> /h, head is 35 m. The pumps will work in turns in the order determined by an automatic control system.
  - Pump station is supplied as a package, it includes (i) Fiberglass receiving tank, (ii) Submersible pumps, (iii) Pump control panel and (iv) Pavilion above the pump station with an approximate dimension of 2.5x2.5 m.
  - Emergency reservoir in metal structures with an effective volume of up to 50m<sup>3</sup>.
  - Pressure collector for a length is 2.9 km shall be installed underground. At intersection with Karakol river, the collector will be installed in a case with D<sub>u</sub>+350 mm, which is placed inside one-span metal truss. A special manhole with discharge valve will be installed at the lower part of collector for dewatering of the collector lower part.

- On-site power supply networks with the installation of own transformer 25 kVA. Power load is 22 kW.
- Pump station site with an area of 1350 m<sup>2</sup> with vehicle access and fencing along the perimeter.

#### d) Balykchy WWTP Reconstruction

24. The Balykchy Sewage Treatment Plant is designed to cope with 4200 m<sup>3</sup>/d incoming wastewater. The process includes a mechanical treatment stage comprising coarse screen, fine screen and grit removal units, biological treatment, and sludge drying. The biological treatment unit is an integrated sewage treatment tank designed for the project, which consists of the modified A2O biochemical tank, sludge pump tank, secondary sedimentation tank, and secondary lift pump tank.

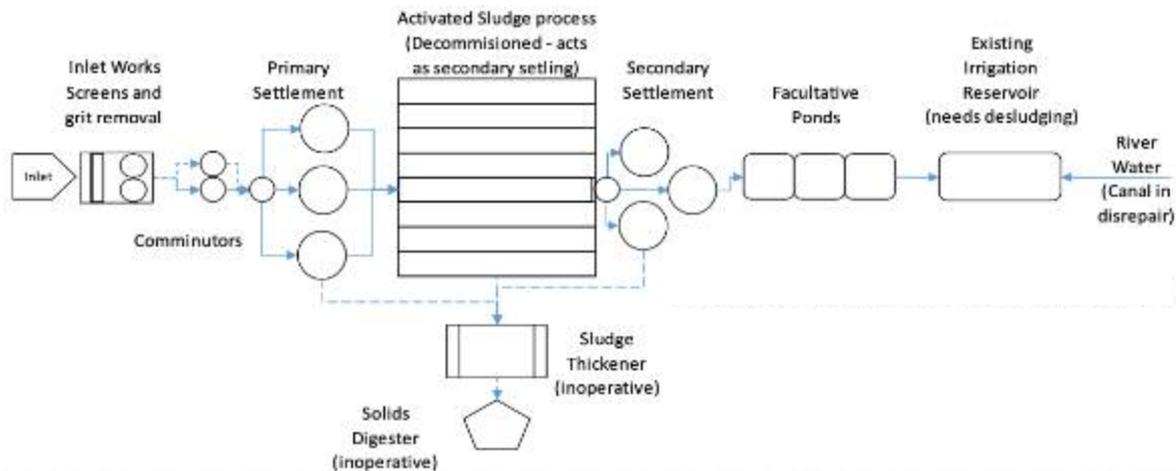


**Figure 3-2: Schematic Illustration of Balykchy WWTP Process**

#### e) Karakol WWTP Reconstruction

25. The new WWTP will be constructed at the site of the existing treatment plant. All existing structures have been demolished and removed. The facility will utilize an activated sludge system with separate aerobic digestion, applying the A2O (Anaerobic–Anoxic–Oxic) biological treatment process, in line with project specifications. The WWTP will include the following components: a compact separation receiving station; mechanical pre-treatment units (coarse screen, fine screen, grit and grease removal); a dosing station for chemical flocculation; A2O biological treatment (anaerobic, anoxic, and aerobic zones); an air blower station; secondary settling tanks; a recirculation sludge pump station; return and waste sludge pump station; chlorine-based disinfection system; gravity sludge thickening; aerobic sludge digestion; supernatant pump station; storage area for dewatered sludge; and an odor control system. The total area of the existing treatment facility is 14,210.0 m<sup>2</sup>, with a treatment

capacity of 12,000 m<sup>3</sup>/day. The project scope includes construction of all treatment facilities as well as landscaping of the surrounding territory.



**Figure 3-3: Schematic Illustration of Karakol WWTP processes**

### 3.2 Project Contracts and Management

26. A list of main organizations involved in the project and relating to Environmental Safeguards is given Table 3-2 and illustrated at Figure 3-4. It includes names of experts from the Project Management Office, Design and Supervision Consultants, and Contractors.

**Table 3-1: Project Contract Details**

Lots	Scope	Construction Contractor	Signed Date	Approval date		Civil works		Overall progress as of June 2025, %
				SSEMP	EHS officer	Start Date	End Date	
Contract No. W2	Pump Station and Rising Main 1.7km in Karakol	LLC "Tunuk-Kurulush"	11 Mar 2025	24 Apr 2025	Mr. Bekkhoz-hoeva Asel	4 Apr 2025	30 Nov 2025	Design finalization is in progress
Contract No. W3	Construction of Karakol Wastewater Treatment Plant (WWTP)	Joint Venture HAYAT GROUP LLC and BIOWORKS Verfahrenstechnik GmbH	21 Dec 2022	Apr 2024	Ms. Anara K. Bukarova	6 May 2024	1 Jun 2026	32.7%
Contract No. W4	Construction of Balykchy Wastewater Treatment Plant (WWTP)	CCCC Tianjin Dredging Co., Ltd, China Road and Bridge Corporation and China Northeast Municipal Engineering Design and Research Institute Co.	28 May, 2021	1 Sep 2022	Mr. Saparbek Sagynov		30 Jun 2024	Construction works are 100% complete; DLP is in progress

**Table 3-2: Environmental Safeguards Management for the Project**

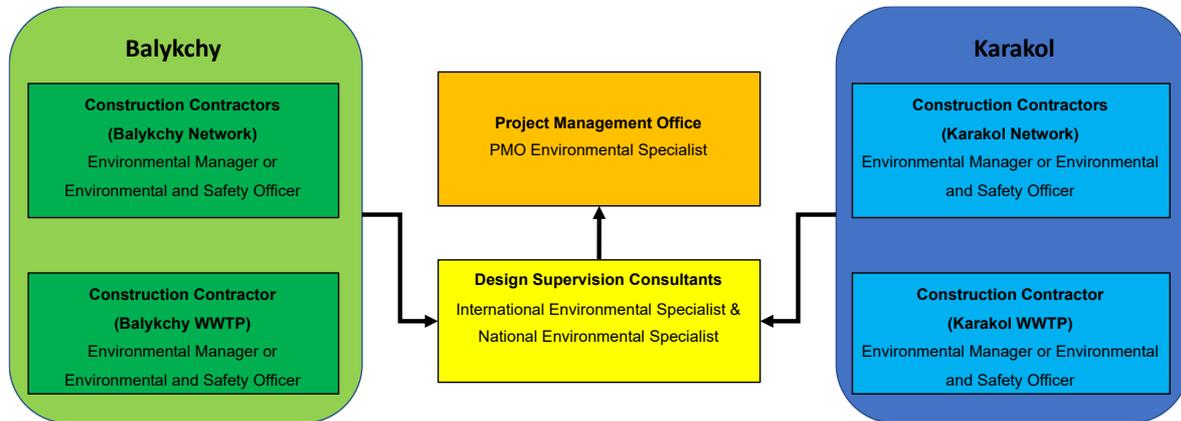
<b>Borrower</b>	Ministry of Finance of the Kyrgyz Republic
<b>Executive Agency</b>	State Institution Drinking Water Supply and Sewerage Development under the Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic
<b>Project Management Office (PMO)</b>	
PMO Environmental Officer	Mr. Kylychbek Sheralievich Zhundubaev
e-mail:	<a href="mailto:environmental@IWMP.kg">environmental@IWMP.kg</a>
Tel:	+ 996 507 22 06 68
<b>Design and Supervision Consultant (DSC)</b>	
<b>Organization:</b>	<b>Temelsu International Engineering Services Inc</b>
DSC International Environmental Safeguard Specialist	K. Pushpanathan
e-mail:	<a href="mailto:k.pushpanathan@gmail.com">k.pushpanathan@gmail.com</a> <a href="mailto:temelsu@temelsu.com.tr">mailto:temelsu@temelsu.com.tr</a>
Tel:	+91 9382315901
DSC National Environmental Specialist:	Olga Zinina (part-time basis)
e-mail:	<a href="mailto:zinola@yandex.ru">zinola@yandex.ru</a> <a href="mailto:temelsu@temelsu.com.tr">mailto:temelsu@temelsu.com.tr</a>
Tel:	+996 555475577
<b>Contractors</b>	
<b>Contractor for Karakol WWTP</b>	<b>Joint Venture HAYAT GROUP LLC and BIOWORKS Verfahrenstechnik GmbH</b>
Project Manager	Hürcan Canatan
Chief Civil Engineer	Gasim Kazimov
Health and Safety Staff	Kerimbek M. Kozhobaev
Surveyor	Nurlan Alikhanov
Architecture	Tilek M. Abdymutalypov
Construction Engineer	Aman M. Metebaev
Environmental Engineer	Anara K. Bukarova
<b>Contractor for Balykchy WWTP</b>	<b>Consortium of Contractor CCCC Tianjin Dredging Co., Ltd, China Road and Bridge Corporation and China Northeast Municipal Engineering Design and Research Institute Co., Ltd Joint Venture</b>
Project Manager	Yu Zhiping
Chief Civil Engineer	Beishenbai Zhanboev
Health and Safety Staff	Yuan Anfeng
Surveyor	Feng Longlong
Construction Engineer	Chen Jian
Environmental Engineer	Saparbek Sagynov

<b>Construction of a Pump Station (PS – 4) at Pristan, Karakol City</b>	<b>LLC "Tunuk-Kurulush"</b>
Project Manager	Omurkulov Erkin
Chief Civil Engineer	Borubaev Idris Dzhaparovich
Health and Safety Staff	Esenbaeva Raushan
Surveyor	Toktotonov Bolot
Construction Engineer	Esenbaev Sarbagysh
Environmental Engineer	Bekkhodzhoeva Asel

27. The following organizations and/or staff are responsible for environmental monitoring and/or supervision during the design and construction:

- a. **PMO Environmental Specialist.** To carry out overall coordination in implementing the SEMP, monitoring and control to ensure Contractors' compliance with the norms and requirements of the national environmental legislation, the ADB's Safeguards Policy Statement and prepare analytical documents and reports.
- b. **International and National Environmental Safeguard Specialists of DSC.** To assist the PMO Environmental Officer in coordinating and overseeing design, construction supervision and monitoring activities under the project based on the contract. To undertake the technical oversight for the delivery of all safeguard measures, ensures that SEMP mitigation and monitoring measures implemented, and compliance reporting completed.
- c. **Contractor's environmental managers and/or Health, Safety and Environmental officers.** Responsible for preparation and implementation of SEMP. EHS officers of Contractors carry out the activities stipulated in SEMP, monitoring and control to ensure Contractors' compliance with the norms and requirements of national environmental legislation and ADB Safeguards Policy.
- d. Authorized state bodies and their territorial divisions:
  - (i) Ministry of Construction, Architecture, Housing and Communal Services of the Kyrgyz Republic (MCAHCS),
  - (ii) Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic (WRS)
  - (iii) State Institution Drinking Water Supply and Sewerage Development under the Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic (SIDWSSD),
  - (iv) Project Implementation Units in Karakol and Balykchy (PIUs),
  - (v) Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic (MNRETS),

- (vi) Department for Disease Prevention and State Sanitary and Epidemiological Control and the Karakol Inter district Centre for Disease Prevention and State Sanitary and Epidemiological Control under the Ministry of Health KR (MoH),
- (vii) Ministry of Culture, Information, Sports and Youth Policy (MCISYP),
- (viii) Ministry of Emergency Situations (MES), Ministry of Agriculture (MOA) and others.



**Figure 3-4: Organogram of Environmental Safeguards of the Project**

### 3.3 Project Activities During Current Reporting Periods.

<b>Contract Package Number and Works Title</b>	<b>W1 Lot 1:</b> Construction of Extension of Balykchy Sewerage Network, "Western"
Work Progress	This package was <b>completed</b> , and the Completion Certificate was issued by the DSC on 10th August 2023. In accordance with the contract agreement, the Defect Liability Period (DLP) concluded on 10th August 2024.
<b>Contract Package Number and Works Title</b>	<b>W1 Lot 2:</b> Construction for Expansion of Sewer Network in Balykchy, "Eastern"
Work Progress	This package was <b>completed</b> , and the Completion Certificate was issued by the DSC on 10th August 2023. In accordance with the agreement, the Defect Liability Period (DLP) concluded on 10th August 2024.
<b>Contract Package Number and Works Title</b>	<b>W2 Lot 1:</b> Construction for Expansion of sewer network in Karakol, Lot 1: "Southern"
Work Progress	This package was <b>completed</b> , and the Completion Certificate was issued by the DSC on 28th November 2023. In accordance with the agreement, the Defect Liability Period (DLP) concluded on 28 November 2024.

<b>Contract Package Number and Works Title</b>	<b>W2 Lot 2:</b> Construction for Expansion of sewer network in Karakol, Lot 2: "North"
Work Progress	This package was <b>completed</b> , and the Completion Certificate was issued by the DSC on 28th November 2023. In line with the contract agreement, the Defect Liability Period (DLP) concluded on 28th November 2024.

<b>Contract Package Number and Works Title</b>	<b>W2:</b> Pump Station and Rising Main 1.7km in Karakol
Work Progress	<p>Design Works:</p> <ul style="list-style-type: none"> <li>• Conceptual design has been submitted to APU/ ETU approval on 17th March 2023 and approval received on 19th April 2023.</li> <li>• Detail design is completed and submitted to State Expertise for approval in April 2023 and approval was received on June 2023.</li> <li>• Comments received from ADB on the IEE (Initial Environmental Examination for Karakol SPS-4 and additional works) have been addressed and the revised IEE along with the compliance matrix was submitted to PMO for further submission to ADB (shared on 18th December 2023).</li> <li>• OVOS was prepared and submitted to PMO on 2nd June 2023. Public consultations were held for which a Positive conclusion was issued on 7th June 2023 by the MNRETS.</li> <li>• The bidding documents were prepared and tendered by the PIU, with the bid opening initially scheduled for 22nd December 2023. However, no proposals were received. Consequently, the package was retendered on 26th December 2023 with a deadline of 26th January 2024, but again, no bids were submitted. The PIU made a third attempt by retendering the package on 23rd May 2024; unfortunately, this also did not yield any responses. Eventually, a re-tender was conducted on 16th October 2024, with the bid opening scheduled for 14th November 2024. One bid was received from the construction firm LLC 'Tunuk-Kurulush'. Following the bid evaluation, the contract was awarded to the firm, and it was signed on 11th March 2025. The construction site was handed over to the contractor on 5th April 2025.</li> </ul>

	<ul style="list-style-type: none"> <li>As part of the pre-construction Phase, the contractor developed and submitted the Site-Specific Environmental Management Plan (SSEMP) to the PMO, which was formally approved on 24th April 2025.</li> </ul>
--	---

<b>Contract Package Number and Works Title</b>	<b>W3.0: Procurement of Plant Design, Supply, and Installation of WWTP in Karakol</b>
Work Progress	<p>Despite occasional interruptions due to heavy rainfall and intermittent cement supply shortages from the factory, the contractor has sustained satisfactory progress. As of the reporting period, the following construction activities have been completed or are substantially advanced:</p> <ul style="list-style-type: none"> <li>Concreting of the bottom slab of one aeration tank</li> <li>Concreting of the bottom slab of one sedimentation tank</li> <li>Completion of the transformer foundation</li> <li>Concreting of column foundations for the blower building</li> <li>Completion of excavation and compaction for the sludge stabilization tank, with bottom slab reinforcement installation nearing completion</li> <li>Excavation and backfilling (with compaction) of the inlet reception chamber</li> <li>Installation of reinforcement for the second aeration tank is approximately 50% complete.</li> <li>Excavation for the diesel storage tank has been completed, and reinforcement work is nearing completion.</li> <li>Reinforcement installation for the second sedimentation tank is also approaching completion.</li> <li>Heat insulation works for the Guardhouse, Workshop, and Administrative Building are ongoing and close to completion.</li> <li>Door and window frames have been installed in the Guardhouse, Workshop, and Administrative Building.</li> </ul>



**Laboures observed wearing PPEs**



**Project Information and Safety Signages**



**Safety signages on display**



**Temporary Toilet facility for laboures**



**Laboures observed wearing PPEs**



**Ourdoor electric junction box**



<b>Concrete works are in progress</b>	<b>Proper record-keeping practices are being maintained on-site</b>
	
<b>Separate shed for electric welding works</b>	<b>Diesel Generator (DG) with barricading and earthing as per safety protocol</b>

<b>Contract Package Number and Works Title</b>	<b>W4: Design and Build WWTP Balykchy</b>
Work Progress	The project reached technical completion on 30th June 2024. Upon successful commissioning and operational acceptance, the plant transitioned to contractor led operations and has been running continuously since November 2024. As per contractual provisions, this operational arrangement remains in effect throughout the Defect Liability Period (DLP), which extends until November 2025.

	
<b>Grit chamber is equipped with an exhaust facility</b>	<b>Landscaping in the WWTP</b>

	
<p><b>WWTP Boundary Plantation</b></p>	<p><b>Concrete platform has been constructed for the diesel storage</b></p>
	
<p><b>Collected sludge is being loaded and transported using designated trucks</b></p>	<p><b>Rubber sheet insulation has been installed in the control room to enhance electrical safety and thermal efficiency</b></p>

### 3.4 Description of Any Changes to Project Design

28. The sewer network packages, and construction works for the Balykchy WWTP have been completed and are currently in operation; therefore, no design modifications are required. For the ongoing Karakol WWTP construction activities, no major design changes were identified during the latest monitoring period (January to June 2025). Meanwhile, project design development is actively progressing for the Pump Station and 1.7 km Rising Main in Karakol.

### 3.5 Description of Any Changes to Agreed Construction Methods

29. There is no change in the construction methods.

## **4 ENVIRONMENTAL SAFEGUARD ACTIVITIES**

### **3.1. General Description of Environmental Safeguard Activities**

#### **3.1.1 Expansion of Sewer Network in Balykchy and Karakol**

30. All four sewer network packages W1 (Lot 1 and Lot 2 in Balykchy) and W2 (Lot 1 and Lot 2 in Karakol) have been completed. The Project Completion Certificates were issued on 10th August 2023 for the Balykchy packages and on 28th November 2023 for the Karakol packages. The Post-Construction Environmental Audit Report (PCEAR) for the sewerage networks in Balykchy and Karakol was disclosed on the ADB website in April 2024.

#### **3.1.2 Construction of Balykchy WWTP**

31. The construction of the Balykchy WWTP was completed, and the Certificate of Completion was issued by the DSC on 13th July 2024. Following commissioning and operational acceptance, the plant has been under the contractor's responsibility and operating continuously since November 2024. This arrangement will remain in effect through the Defect Liability Period (DLP), which extends until November 2025. A Post-Construction Environmental Audit Report (PCEAR), prepared by the DSC, was reviewed by the PMO and approved by ADB. The approved report was included in SAEMR 10 covering July – December 2024 and disclosed in June 2025.

32. In line with ADB's recommendation to strengthen environmental management measures as outlined in the IEE disclosed for the Issyk-Kul Wastewater Management Project (2018), a separate Environmental Management Plan (EMP) for the Operation Stage of the Balykchy WWTP was prepared by the DSC. The draft EMP was discussed with the PMO and updated as necessary prior to submission to ADB for concurrence and approval. The approved EMP has been disseminated to the Balykchy Vodokanal (PIU) and the contractor.

33. As part of the EMP (Operation Stage) requirements, the contractor removed all temporary structures used during construction. Construction waste and debris were cleared with assistance from Balykchy Vodokanal. According to discussions with the contractor, no operational failures or WWTP malfunctions/breakdowns have occurred to date, and the facility's performance has been reported as excellent.

34. Environmental monitoring activities, as prescribed in the EMP (Operation Stage), have been conducted. The results and analysis of the monitoring are detailed in Chapter 4.

#### **3.1.3 Construction of Karakol WWTP**

35. Despite occasional disruptions due to heavy rain and cement supply issues, the contractor has made significant progress. Key accomplishments include the completion of foundation works for one aeration and one sedimentation tank, the transformer base, and column foundations for the blower building. Excavation and compaction tasks for the sludge stabilization tank and inlet chamber are done, with reinforcement installation underway. Structural reinforcement for the second aeration and sedimentation tanks is advancing well. Architectural work such as heat insulation and frame installations for the guardhouse, workshop, and administrative building is nearing completion.

36. Ambient air quality monitoring was conducted on 30th June 2025 in the vicinity of the construction site, with technical support from the MNRETS. Prior to that, noise measurements were carried out on 16th June 2025 by the Karakol Interdistrict Center for Disease Prevention and State Sanitary and Epidemiologic Surveillance under the Ministry of Health of the Kyrgyz Republic (KR MoH), ensuring alignment with applicable regulatory standards.

37. During the reporting period (January to June 2025), a total of three training sessions on 30th April 2025, 14th May 2025, and 27th June 2025 were conducted for the employees of the Karakol Wastewater Treatment Plant (WWTP) and the contractor, aimed at strengthening on-site compliance with environmental and occupational health safeguards (Refer to **Annexure 1**).



#### **3.1.4 Construction of Pump Station and Rising Main 1.7km in Karakol**

38. The construction site was handed over to the contractor on 5th April 2025. As part of the pre-construction Phase, the contractor developed and submitted the Site-Specific Environmental Management Plan (SSEMP) to the PMO, which was formally approved on 24th April 2025.

39. On May 14<sup>th</sup>, 2025, an introductory training session was conducted by the National Environmental Specialist of the DSC, Ms. O. Zinina, targeting the Health, Safety, and Environment (HSE) Engineer and site personnel of the contracting organization Tunuk Kurulush Ltd. The session focused on familiarizing participants with environmental safeguard requirements, occupational health protocols, and compliance expectations under both national regulations and ADB standards.

#### **3.1.5 Other requirements**

40. the following documents/reports were prepared and submitted to ADB

- ***Environmental Management Plan (Operation Stage) Balykchy WWTP:*** This plan outlines the necessary environmental safeguards and operational protocols for the post-construction phase of the Balykchy WWTP. It includes (i) Required permissions and clearances to be obtained from the competent authorities by the contractor/PIU for WWTP operation, (ii) Operational and control procedures for the WWTP, (iii) Sludge management strategies, including operational controls, (iv) Risk assessment measures related to WWTP operations, (v) The updated Environmental Management Plan (EMP) for the operation stage and (vi) A detailed Environmental Monitoring Plan aligned with EMP requirements

- **Monitoring Report on Central Asian Frog:** Field monitoring was conducted to assess the survival and adaptation of Central Asian frogs relocated from the WWTP site. The study was led by Dr. A.T. Davletbakov (PhD in Biological Sciences) and carried out by a team of scientists. Three control plots representing favourable, moderate, and poor habitat conditions were selected for sampling, and frog enumeration was conducted within defined sample areas. The results indicate that the relocated frogs have successfully adapted to their new environment, and the population remains generally healthy. However, reduced population levels were observed near the fishpond and along the left tributary of the Karakol River, likely due to increased presence of natural predators and livestock in these areas (The detailed report is provided in **Annexure 7**).

### **3.2. Site Audits**

41. Construction sites were audited by DSC's International and National Environmental Specialists, Mr. Pushpanathan and Ms. Olga Zinina, to assess compliance with the measures outlined in the Site-Specific Environmental Management Plan (SSEMP). The DSC's National Environmental Specialist conducted monitoring visits to the Balykchy and Karakol project sites on 28–29 March 2025, 10–11 April 2025, 13–14 May 2025, and 18–19 June 2025 (jointly with the International Environmental Specialist). These visits were carried out to assess the implementation status of the SSEMP in accordance with the commitments agreed upon by the Contractor. It was observed that most mitigation measures under the Environmental Management Plan (EMP) have been effectively complied with (Refer to **Annexure 2**). However, a few areas requiring improvement were noted (refer to Table 3-1). Site photos are provided in **Annexure 3**.

**Table 4-1: Audit of sites (Non-Compliances Tracking)**

(i)	Scope of Audit	:	EMP Compliance Monitoring in the IWMP construction sites									
(ii)	Auditor	:	Ms. O.V. Zinina (DSC's National Environmental Specialist)									
(iii)	Auditees	:	Ms. Anara Burkhanova, Karakol (Environmental Specialist for Package W3) Mr. Kerimbek Kozhobaev (Health and Safety for Package W3) Ms. A.B. Bekbojoeva (Environmental Engineer, for Package W2) Ms. Esenbaeva R (Health, Safety and Environment, for Package W2)									
No.	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
1	Tunuk - Kurulush	14.05.25	Other	Site passport is missing at SPS Site and Crossing the Karakol River	Establish the site's passport	N54	N/A	01.06.25	Low	Site Manager	Open	
2		14.05.25	Safety	no first aid kit	Purchasing a first aid kit	N55	N/A	01.06.25	Low	Site Manager	Open	

### 3.2.1. Issues Tracking (Based on Non-Conformance Notices)

42. During the reporting period, construction activities for the Karakol Wastewater Treatment Plant (WWTP) and site preparation works for the Pump Station and 1.7 km Rising Main in Karakol were ongoing. Construction of the WWTP commenced on 6th May 2024, following ADB's formal approval of the key environmental safeguards' documentation, including the IEE and SSEMP. A summary of the audit findings highlighting observed deviations, mitigation measures implemented, and overall compliance status is presented in the following tables. The corresponding Non-Conformity Tracking Report is attached as **Annexure 4**.

**Table 4-2: Summary Table**

Total Number of Issues for Project	2
Number of Open Issues	2
Number of Closed Issues	0
Percentage by Closed Issues	0%
Issues Opened this Reporting Period	2
Issues Closed this Reporting Period	0
Issues Closed On Time	0%
Percentage by Closed Issues	0%
Percentage by Open Issues	100%

**Table 4-3: Issues by Category**

Environmental Protection	-
Social	-
Health	-
Safety	1
Other	1

### 3.2.2. Trends

43. Comparison of previous and current period Non-compliance issues is given in **Table 4-4**

**Table 4-4: Comparison of Trends**

Semi - Annual Environmental Monitoring Reports	Total No of Issues	Issues Closed	Percentage of Issues closed late		Open issues
			This reporting period	Next reporting period	
5	11	9	-	2	2
6	28	28	4	-	-
7	7	6	3	-	1
8	18	18	8	-	-
9	16	12	12	4	4
10	10	10	10	-	-
11	2	-	-	-	2

44. As per Table 3-4, the main non-compliances were caused by insufficient arrangements for activities specified in the SSEMP. To reduce the number of non-compliances, additional training on the measures provided in the SEMP are required not only for the engineering staff, but also for the labours/workers.

45. **Unanticipated Environmental Impacts or Risks.** In the current reporting period (January to June 2025), there are no unanticipated Environmental impacts or risks that have been encountered or identified.

46. The compliance to the Labor standards, health and Safety (as indicated in the loan covenant) is provided in the Table 3-5.

**Table 4-5: Labor standards, health and safety – Loan Covenants**

Sl.no	Loan Agreement Reference	Environmental Compliance Requirements	Compliance Status	Remarks
12.	Labor standards, health and Safety	<p>Para 11. The borrower shall ensure that the core labor standards and the applicable laws and regulations of the borrowers are complied with during the project implementation. The borrower shall include specific provisions in the bidding documents and contracts financed by ADB under the project requiring contactors to, among other things</p> <p>(a) comply with the applicable labor law and regulations of the borrower and incorporate applicable workplace occupational safety norms.</p> <p>(b) not use child labor.</p> <p>(c) not discriminate workers in respect of employment and occupation.</p> <p>(d) not use forced labor.</p> <p>(e) allow freedom of the association and effectively recognize the right to collective bargaining; and</p> <p>(f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually</p>	<b>Being Complied</b>	<p>(a) The applicable labor law has been adopted. In Karakol WWTP only local labours are engaged.</p> <p>(b) Use of child labours are strictly prohibited</p> <p>(c) There are no grievances or complaints received from any of the labours.</p> <p>(d) There are no forced labours observed in the project site</p> <p>(e) and (f) wages for the labours are fixed as per the country labour law. Health camps are conducted for the labours through which the information pertaining to HIV/AIDS is shared.</p>

		transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the project and to number of the local communities surrounding the project area, particularly women.		
--	--	--	--	--

### 3.2.3. ADB Safeguards Review Mission (November 2024)

47. Appropriate corrective actions were promptly undertaken for most of the observations raised during the ADB Safeguard Review Mission in November 2024 (refer to Table 3-7, SAEMR 10). Observations that have been fully complied with have been closed. For those requiring continued attention through long-term monitoring, details are provided in the following table.

**Table 4-6: Action taken for the ADB Observations/ Recommendations (November 2024)**

Sl.no	ADB's comment	Status as of 30th June 2025	Remarks
<b>Karakol WWTP</b>			
1.	Require contractor to implement excavation safety measures and submit action plan	Being complied	Excavation safety measures, as outlined in the SSEMP (Table 9, Sl. No. 7 – Erosion Control and Sl. No. 9 – Community Health and Safety), are being effectively implemented at the construction site
2.	Require the contractor to install illumination, provide warning signs understood by workers, provide hazard-specific trainings, and conduct daily toolbox talks prior to start of work	Being complied	The construction site is well-equipped with sufficient lighting and prominently displayed safety signage, ensuring a safe and secure working environment. Furthermore, EHS (Environment, Health, and Safety) training sessions have been conducted to enhance awareness and compliance among site personnel.
3.	Ensure compliance with KR CN 12-01:2018 norms for excavation safety	Being complied	Project managers and site engineers have been made aware of the excavation safety norms to ensure adherence to the measures outlined in the SSEMP and to promote safe excavation practices at the construction site
4.	Provide logistical/technical support to CLO	Being complied	The PIU is providing logistical support, while the DSC is delivering technical support
5.	Ensure that CLO provides information/results of odor measurements	Being complied	Monthly results are being shared by the Community Liaison Officer (CLO) with the Project Implementation Unit (PIU). These results will be analyzed, and the outcomes will be incorporated into the Semi-Annual Environmental Monitoring Report (SAEMR)

Sl.no	ADB's comment	Status as of 30th June 2025	Remarks
6.	Continue submission of SAEMRs	Being complied	

### 3.2.4. ADB Loan Review Mission (April 2025)

48. The observations/ recommendations shared in the aide memoire on the environmental safeguards has been reviewed by the PMO and suitable action has been taken in discussion with the DSC. The following table details the status of the action taken for the ADB's recommendations.

**Table 4-7: Action taken for the ADB Observations/ Recommendations (April 2025)**

Sl.no	ADB's comment	Status as of 30th June 2025	Remarks
<b>Balykchy</b>			
1.	Tree planting activities have been carried out monitoring of the planted trees is scheduled for May, and any non-surviving trees should be replaced. In April 2025, the following trees and shrubs were planted at the Balykchy Wastewater Treatment Plant: Apple trees – 20, Pear trees – 10, Apricot trees – 20, Plum trees – 6, Cherry trees – 14, Weeping willows – 10 Total: 80 trees. Additionally, 15 raspberry bushes were planted	Being complied	The survival rate of planted trees is being actively monitored by the Balykchy Project Implementation Unit (PIU). In line with recommendations, any trees that fail to survive are to be replaced to ensure the intended vegetation cover is maintained
2.	The PMO is considering the inclusion of an additional 10km of sewerage pipelines within the scope of the project. It has been confirmed that the IEE/EMP will be updated accordingly. However, the Mission recommended developing a separate EMP for these works, as a new local contractor will be engaged for implementation	Complied	The Initial Environmental Examination (IEE) for the Balykchy additional sewerage network has been prepared and submitted to ADB on 23rd June 2025 for their review and concurrence.
<b>Karakol</b>			
3.	Dust management should be strengthened during earth works	Being Complied	Based on the current work status, earthworks are nearly complete, and concrete works are now in progress. To mitigate dust emissions and maintain site cleanliness, the contractor has been advised to regularly sprinkle water on pathways used for truck loading and unloading, as well as around the construction site perimeter
4.	The biodiversity specialists of the Institute of Biology of the National	Complied	The Monitoring Report on the Central Asian Frog was

Sl.no	ADB's comment	Status as of 30th June 2025	Remarks
	Academy of Sciences of the Kyrgyz Republic are planning to conduct monitoring at the end of April 2025, focusing on the natural ponds where Central Asiatic Frogs were relocated from the Karakol WWTP lagoons. A detailed report will be shared with ADB and will be included in the January – June 2025 SAEMR		prepared and submitted to ADB. Following their review, comments are being provided and will be addressed accordingly. In line with the request outlined in the Aide Mémoire, the finalized monitoring report is incorporated into SAEMR 11 (January–June 2025) as Annexure 7
5.	The CLO has been advised to monitor all locations even those with low or zero odor levels, such as manholes or points with initial readings of “0”. Photographs should be taken during each measurement to document the exact location.	Being Complied	
6.	For additional 10km of sewerage pipeline the IEE/EMP will be updated and a separate EMP will be developed for these works	Complied	The Initial Environmental Examination (IEE) for the Karakol additional sewerage network has been prepared and submitted to ADB on 22nd May 2025 for their review and concurrence.

## 5 ENVIRONMENTAL MONITORING RESULTS

### 4.1. Overview of Monitoring Conducted during the Current Period

#### 4.1.1. Air Quality

49. For the Construction of the Pump Station and Rising Main (1.7 km) in Karakol, under Contract #W3.1, the contractor Tunuk Kurulush has not initiated environmental monitoring, as still the Contractor has not carried out activity at site..

50. For WWTP at Balykchy (Contract # W4), to ensure compliance with the operational-stage Environmental Management Plan (EMP) requirements, the Monitoring Department of MNRETS conducted ambient air quality monitoring on 31st May 2025. This monitoring initiative focused on recording concentrations of key air pollutants, namely sulphur dioxide (SO<sub>2</sub>), nitrogen compounds (NO<sub>x</sub>), carbon monoxide (CO), and suspended particulate matter (SPM). The detailed results of the assessment are summarized in Table 4-1, providing baseline data for regulatory alignment and performance tracking. From the analysis it is evident that the recorded values for all the air quality parameters are well within the stipulated standards (refer to Annexure 5 for AAQ data).

**Table 5-1: Air Quality Monitoring Results at Balykchy WWTP**

No.	AAQ Parameter	Test results by points, mg/m <sup>3</sup>			Maximum single MPC, mg/m <sup>3</sup>
		Eastern Direction	Southern Direction	Western Direction	
1	Sulphur dioxide	0.093±0.011	0,115±0.014	0.117±0.014	0.5
2	Nitrogen dioxide	0.150±0.027	0,125±0.022	0.180±0.032	0.085
3	Carbon monoxide	0.2±0.04	0.3±0.06	0.2±0.04	5.0
4	Suspended solids	0.161±0.04	0,161±0.04	0.161±0.04	0.5

Source: Department of Monitoring under the MNRETS

51. For WWTP at Karakol (Contract # W3), the environmental monitoring for air quality (sulphur dioxide, nitrogen, carbon monoxide, and suspended solids) was conducted by the Monitoring Department of MNRETS on 30th June 2025 ((refer to Annexure 6 for AAQ data)).

**Table 5-2: Air Quality Monitoring Results at Karakol WWTP**

No.	AAQ Parameter	Test results by points, mg/m <sup>3</sup>				Maximum single MPC, mg/m <sup>3</sup>
		Southwest direction	Northwest direction	Northeast direction	Settlement Geolog	
1	Sulphur dioxide	0.099±0,012	0.07±0,008	0.087±0,010	0.095±0,011	0.5
2	Nitrogen dioxide	0.12±0.022	0.043±0.008	0.052±0.009	0.057±0.010	0.085
3	Carbon monoxide	0.7±0.14	0.4±0.08	0.3±0.06	0.2±0.04	5.0
4	Suspended solids	0.248±0.062	0.149±0.037	0.248±0.062	0.149±0.037	0.5

Source: Department of Monitoring under the MNRETS

52. According to the test results, Nitrogen Dioxide levels exceeded the permissible limit by a factor of 1.4 on the southern side of the construction site. However, given its inherent characteristics, Nitrogen Dioxide is a short-lived atmospheric pollutant. The exceedance was attributed to the simultaneous execution of major construction activities in that area during the time of measurement.

#### 4.1.2. Odour Monitoring for Karakol WWTP

53. As per the Sanitary Protection Zone (SPZ) for Karakol WWTP (including the lagoons), which is approved on 11<sup>th</sup> September 2023 by the head of the Issyk-Kul Regional Department of MNRETS, shows the recorded Hydrogen sulphide (H<sub>2</sub>S) concentration (0.000631 mg/m<sup>3</sup>) near the settlement area (Geolog village) is below the WHO air quality guideline for Hydrogen sulfide, which is 150µg/m<sup>3</sup> (0.15 mg/m<sup>3</sup>). However, as per the ADB, the residents from Geolog village have shared complaints regarding the fouling smell (H<sub>2</sub>S) arising from the WWTP (including the lagoons), because of this ADB has requested the PMO to prepare an odour monitoring plan for a continuous air quality monitoring (particularly on H<sub>2</sub>S) using a portable multi-gas detector (BOSEA version: BSA20180501001).

54. Given this, the Odour monitoring plan<sup>3</sup> was prepared by drafting a suitable monitoring methodology including frequency of monitoring and reporting. This plan was cleared by ADB on 3 April 2025.. This monitoring plan will be carried on by the Community Liaison Officer (CLO) assigned by the PMO.

55. In compliance with the PMO's directive, the Design Supervision Consultant (DSC) facilitated targeted capacity-building sessions for the Community Liaison Officer (CLO) on odour pollution assessment, utilizing the multi-gas detector (BOSEA, Model No.: BSA20180501001). Post-training, the CLO initiated systematic monitoring at designated reference locations, as outlined in the approved Odour Monitoring Report. A sample of the filled-in monitoring format is provided in Figure 4-1, capturing recorded values and demonstrating compliance tracking across key observation points.

56. Based on the outputs of the odour monitoring conducted using the multi-gas detector, the recorded concentration of hydrogen sulfide (H<sub>2</sub>S) across all reference points remains negligible and well below threshold levels. Importantly, no odour-related grievances or complaints have been reported by residents of Geolog village in relation to activities at the Wastewater Treatment Plant (WWTP) site, indicating satisfactory environmental performance and community acceptance during the reporting period.

---

<sup>3</sup> The prepared Odour Monitoring plan is in draft stage, upon approval from ADB it shall be included in the SAEMR.

**Проект «Управление сточными водами Иссык-Куля»**  
 Issyk-Kul Wastewater Management Project  
**Отчет о результатах измерения запаха на КОС г. Каракол и в п. Геолог / Report on odor measurement results at the Karakol WWTP and Geolog Village**

Проект «Управление сточными водами Иссык-Куля»  
 Issyk-Kul Wastewater Management Project

Отчет о результатах измерения запаха на КОС г. Каракол и в п. Геолог /  
 Report on odor measurement results at the Karakol WWTP and Geolog Village

#	Дата/ Date: (DD.MM.YYYY)	Время/ Time:	Результаты измерения H <sub>2</sub> S (ч/млн) в контрольных точках (Кт) / H <sub>2</sub> S (ppm) measurement results in reference points (RP)					
			У колодца / At the manhole	Кт №1 (у биопруда №4) / RP#1 (by BP#4)	Расстояние от биопруда №4 до точки с измеренным «0» значением (м) / Distance to the point with measured "0" value (m)	Кт №2 / Reference point #2	Кт №3 / Reference point #3	п. Геолог/ Geolog village
1.	08.04.25	15.32	5	0				
2.	09.04.25	16.28	4	0				
3.	10.04.25	17.34	5	0				
4.	11.04.25	18.41	5	0		0	0	0
5.	14.04.25	15.45	4	0		0	0	0
6.	15.04.25	16.15	4	0		0	0	0
7.	16.04.25	17.20	7	0		0	0	0
8.	17.04.25	16.42	4	0		0	0	0
9.	18.04.25	17.58	5	0		0	0	0
10.	21.04.25	16.57	4	0		0	0	0
11.	22.04.25	17.34	0	0		0	0	0
12.	23.04.25	16.33	5	0		0	0	0
13.	24.04.25	16.49	5	0		0	0	0
14.	25.04.25	18.43	7	0		0	0	0
15.	28.04.25	18.51	5	0		0	0	0
16.	29.04.25	18.00	6	0		0	0	0
17.	30.04.25	18.07	5	0		0	0	0

Измерения проведены: Recorded by:	Исанов С.Д., Специалист ОРП г. Каракол по связям с общественностью Isanov Sabyrbek, Community Liaison Officer, Karakol PIO	<i>С. Исанов</i> <i>Джаныбеков</i>
Проверил (ОРП): Verified by (PIO):	Джаныбеков А.К., Менеджер ОРП г. Каракол Dzhanybekov A.K., Karakol PIO Manager	

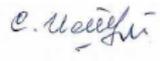
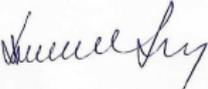
#	Дата/ Date: (DD.MM.YYYY)	Время/ Time:	Результаты измерения H <sub>2</sub> S (ч/млн) в контрольных точках (Кт) / H <sub>2</sub> S (ppm) measurement results in reference points (RP)					
			В колодце / In the manhole	Кт №1 (у биопруда №4) / RP#1 (by BP#4)	Расстояние от биопруда №4 до точки с измеренным «0» значением (м) / Distance to the point with measured "0" value (m)	Кт №2 / Reference point #2	Кт №3 / Reference point #3	п. Геолог/ Geolog village
1.	01.05.25	16.57	0	0	0	0	0	
2.	02.05.25	15.49	7	0	0	0	0	
3.	12.05.25	16.41	4	0	0	0	0	
4.	13.05.25	17.17	4	0	0	0	0	
5.	14.05.25	17.29	0	0	0	0	0	
6.	15.05.25	17.02	9	4	0	0	0	
7.	16.05.25	17.00	0	0	0	0	0	
8.	19.05.25	18.49	6	4	0	0	0	
9.	20.05.25	18.00	0	0	0	0	0	
10.	21.05.25	17.32	5	0	0	0	0	
11.	22.05.25	16.21	11	7	0	0	0	
12.	25.05.25	18.09	22	8	0	0	0	
13.	26.05.25	16.12	14	10	0	0	0	
14.	27.05.25	17.41	9	19	0	0	0	
15.	28.05.25	17.58	10	4	0	0	0	
16.	29.05.25	17.54	15	6	0	0	0	
17.	30.05.25	15.54	5	5	0	0	0	

Измерения проведены: Recorded by:	Исанов С.Д., Специалист ОРП г. Каракол по связям с общественностью Isanov Sabyrbek, Community Liaison Officer, Karakol PIO	<i>С. Исанов</i> <i>Джаныбеков</i>
Проверил (ОРП): Verified by (PIO):	Джаныбеков А.К., Менеджер ОРП г. Каракол Dzhanybekov A.K., Karakol PIO Manager	

**Проект «Управление сточными водами Иссык-Куля»**  
Issyk-Kul Wastewater Management Project

**Отчет о результатах измерения запаха на КОС г. Каракол и в п. Геолог /**  
Report on odor measurement results at the Karakol WWTP and Geolog Village

#	Дата/ Date: (DD.MM.YYYY)	Время/ Time:	Результаты измерения H2S (ч/млн) в контрольных точках (Кт) / H2S (ppm) measurement results in reference points (RP)					п. Геолог/ Geolog village
			В колодце / In the manhole	Кт №1 (у биопруда №4) / RP#1 (by BP#4)	Расстояние от биопруда №4 до точки с измеренным «0» значением (м) / Distance to the point with measured "0" value (m)	Кт №2 / Reference point #2	Кт №3 / Reference point #3	
1.	3.06.25	17.42	11	7		0	0	0
2.	4.06.25	18.06	11	0		0	0	0
3.	5.06.25	17.38	24	6		0	0	0
4.	6.06.25	16.18	7	0		0	0	0
5.	9.06.25	18.29	6	0		0	0	0
6.	10.06.25	18.00	0	0		0	0	0
7.	11.06.25	18.29	5	0		0	0	0
8.	12.06.25	17.48	6	4		0	0	0
9.	13.06.25	17.07	8	5		0	0	0
10.	16.06.25	18.25	7	0		0	0	0
11.	17.06.25	18.43	9	6		0	0	0
12.	18.06.25	18.48	9	0		0	0	0
13.	19.06.25	13.50	8	4		0	0	0
14.	23.06.25	17.15	10	6		0	0	0
15.	24.06.25	17.46	16	8		0	0	0
16.	25.06.25	17.19	5	4		0	0	0
17.	26.06.25	17.50	13	4		0	0	0
18.	27.06.25	18.05	4	4		0	0	0
19.	30.06.25	18.22	4	0		0	0	0

<b>Измерения проведены: Recorded by:</b>	<b>Исанов С.Д., Специалист ОРП г. Каракол по связям с общественностью</b>  Isanov Sabyrbek, Community Liaison Officer, Karakol PIO	
<b>Проверил (ОРП): Verified by (PIO):</b>	<b>Джаныбеков А.К., Менеджер ОРП г. Каракол</b> Dzhanybekov A.K., Karakol PIO Manager	



**Figure 5-1: Odour monitoring at Karakol**

### 4.1.3. Noise Levels

57. For WWTP at Balykchy (Contract # W4). Noise and vibration monitoring was conducted on 03 April 2025 in accordance with EMP compliance requirements. The monitored noise levels ranged from 50 dB(A) to 71 dB(A) across designated reference points, while background traffic noise was recorded between 69 dB(A) and 70 dB(A). All recorded values remain within the permissible thresholds outlined in applicable national and MDB standards, indicating no significant acoustic disturbance attributable to WWTP operations. The corresponding dataset is presented in Tables 4.3 detailing location-specific readings and compliance verification (refer to Annexure 5 for Noise Levels).

**Table 5-3: Noise Monitoring – Balykchy WWTP**

№	Place of measurement	Nature of noise						Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz								Noise level (DBA) L Aecv	Noise level (DBA) L Amax	
		Spectrum		on Time				31.5	63	125	125	500	1000	2000	4000			8000
		Wide band	Tone	Continuous	Vibrating	Intermittent	Impulse											
<b>The territory of the treatment plant, near equipment</b>																		
1	<b>Pump P-302 (Latitude: 42° 45'66"; Longitude: 76°11'50 ")</b>																	
	Leq	+		+				64	58	51	48	49	44	42	37	37	50	74
	Slow max																	
2	<b>Grid building (Latitude: 42° 45'67"; Longitude: 76°11'80')</b>																	
	Leq	+		+				60	70	56	59	67	61	57	51	43	67	73
	Slow max																	
3	<b>Reservoir (Latitude: 42° 45'67"; Longitude: 76°11'43')</b>																	
	Leq	+		+				60	60	62	61	66	68	65	55	43	71	74
	Slow max																	
4	<b>near the administrative building (Latitude: 42° 45'66"; Longitude: 76°11'28')</b>																	
	Leq	+		+				65	61	57	48	48	45	42	37	37	51	75
	Slow max																	

58. For WWTP at Karakol (Contract # W3), the contractor engaged the Health Laboratory of the Karakol Inter-District Center for Disease Prevention and State Sanitary Epidemiological Surveillance under the Ministry of Health of the Kyrgyz Republic (KR MoH) to carry out noise level measurements at the WWTP site and in the vicinity of the adjacent residential settlement, Geologist Village. The noise monitoring exercise at the Karakol WWTP was conducted on 11th June 2025. The following table presents the results of the noise monitoring (refer to Annexure 6 for Noise Levels)..

**Table 5-4: Noise Monitoring – Karakol WWTP**

№	Place of measurement	Nature of noise						Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz								Sound level (dBA)	
		Spectrum		on Time				31.5	63	125	125	500	1000	2000	4000		8000
		Wide band	Tone	Continuous	Vibrating	Intermittent	Impulse										
1	<b>Site, camp</b>																
	Leq	+		+				107	95	87	82	78	75	73	71	69	80 (MPL)

№	Place of measurement	Nature of noise					Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz									Sound level (dBA)
		Spectrum		on Time			31.5	63	125	125	500	1000	2000	4000	8000	
		Wide band	Tone	Continuous	Vibrating	Intermittent										
	Slow max						72.5	67.7	59.7	49.6	49.6	46.7	42.5	37.7	39.5	76.5±2.8 8
2	<b>Area near lagoon</b>															
	Leq	+		+			107	95	87	82	78	75	73	71	69	80 (MPL)
	Slow max						75.5	70.4	73.8	74.0	69.0	58.4	54.0	49.7	49.7	76.3±2.8
3	<b>Area of administration</b>															
	Leq	+		+			107	95	87	82	78	75	73	71	69	80 (MPL)
	Slow max						63.7	54.6	43.4	37.5	37.2	37.0	40.0	37.9	36.8	75.0±2.8
4	<b>Settlement Geolog</b>															
	Leq	+		+			107	95	87	82	78	75	73	71	69	80 (MPL)
	Slow max						63.6	53.5	43.3	48.8	44.1	33.6	36.3	34.9	36.6	70.3±2.5

59. Laboratory measurements conducted at the Karakol WWTP site during construction recorded noise levels ranging from 70.3 dB(A) to 76.3 dB(A). In the adjacent residential area (Geologist Village) the noise level was recorded at 70.3 dB(A), which complies with the threshold limits stipulated under Annex 14 of the Sanitary Rules and Regulations titled “*Noise at workplaces, in premises, residential, public buildings and in the residential areas*”, approved by Government Resolution of the Kyrgyz Republic No. 201 dated 11 April 2016.

#### 4.1.4. Vibration Monitoring

60. Vibration monitoring activities were conducted within the Wastewater Treatment Plant (WWTP) site under Contract #W4 to assess compliance with operational phase environmental requirements. The recorded vibration levels ranged from 81 dB to 96 dB, based on site-specific measurements taken during the monitoring period. Analytical interpretation confirms that all values remain within the permissible limits stipulated under Kyrgyz national regulations, indicating that the WWTP operations have not resulted in significant vibration related impacts to the surrounding environment.

**Table 5-5: Vibration Monitoring – Balykchy WWTP**

	Place of measurement	Vibration type				Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz						Adjusted and equivalent adjusted values and their levels		Measurement uncertainty ±dB
		Total				2	4	8	16	31,5	63	Frequency correction W m (dB) LAequ	Frequency correction W m (dB) LAmax	
		transport	Transport- technological	technological	local									
1	2	3	4	5	6	7	8	9	10	11	12	13		14
1	Latitude: 42° 45'66"; Longitude: 76°11'50".													
	Pump P-302					93	90	68	63	61	59	91	97	
	Slow max											90		
2	Latitude: 42° 45'67"; Longitude: 76°11'80".													
	Grid Building					92	90	86	84	59	61	85	88	

	Place of measurement	Vibration type				Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz						Adjusted and equivalent adjusted values and their levels		Measurement uncertainty ±dB
		Total				2	4	8	16	31,5	63	Frequency correction W m (dB) LAequ	Frequency correction W m (dB) LAmax	
		transport	Transport- technological	technological	local									
	Slow max											90		
3	Latitude: 42° 45'67"; Longitude: 76° 11'43".													
	Reservoir Biological treatment			+		99	90	87	84	59	59	89	95	
	Slow max											90		
4	Latitude: 42° 28'2"; Longitude: 75° 57'23".													
	Leq			+		89	80	75	70	58	53	85		
	Slow max											90		
5	Latitude: 42° 45'66"; Longitude: 76° 11'28 ".													
	Near the administrative building			+		94	90	87	84	62	59	96	102	
	Slow max											90		

#### 4.1.5. Surface water Quality

61. Surface water samples were collected from Karakol River and Kara-Suu Creek and analysed for suspended solids and oil products. The sampling locations are fixed to cover both the upstream and downstream of both the Karakol River and Kara-Suu Creek. The outcome of the analysis is given in the following table (refer to Annexure 6 for Surface water Quality).

**Table 5-6: surface water quality for Karakol River and Kara-Suu Creek**

No.	Water quality parameter	Test results by points, mg/l				MPC, mg/l	
		500m upstream of Karakol River	500m Downstream of Karakol River	500m upstream of Kara-Suu Creek	500m Downstream of Kara-Suu Creek	Fishery	Domestic
1	Suspended solids	3.4±1.02	2.8	1.8	2.0	Increase 0.25/0.75 <sup>4</sup>	
2	Oil products	<0.005	<0.005	<0.005	<0.005	0.05	0.3

62. The test results show that suspended solids downstream of the Karakol River and Kara-Suu Creek increased slightly but remained well below permissible limits, indicating no significant sediment impact. Oil product levels were consistently below detection thresholds at all sampling points, confirming compliance with water quality standards for both fishery and domestic use. Overall, the data indicate stable water quality with no adverse effects from nearby activities.

63. Wastewater from the inlet and outlet of the lagoon was collected and analysed for (i) Ammonia Nitrogen, (ii) Nitrite Nitrogen, (iii) Nitrate Nitrogen, (iv) Suspended solids, (v) Synthetic surfactants, (vi) Permanganate index and (vii) BOD 5. The following table shows the outcome of the result.

<sup>4</sup> The suspended solids content in the control section (point) should not increase by more than: 0.25/0.75

**Table 5-7: Lagoon water quality**

Parameters	June 2025		MPC	
	Inlet, mg/l	Outlet, mg/l	Fishery	Irrigation
Ammonia Nitrogen	5.49±0.77	35.41±4.96	0.4	0.1
Nitrite Nitrogen	<0.001	<0.001	0.02	0.15
Nitrate Nitrogen	0.36±0.18	0.53±0.26	9.0	10.2
Suspended solids	114.00±11.40	118.0±11.8	Increase. 0.75	
Synthetic surfactants	1.67	1.58	0.1	2.5
Permanganate index	68.56	101.4	-	-
BOD 5	165.0±14.85	276.00±24.84	3.0	-

64. The June 2025 lagoon water monitoring indicates elevated organic pollution at the outlet, with ammonia nitrogen and BOD<sub>5</sub> levels far exceeding limits. While nitrite and nitrate are within safe ranges, surfactants and solids show partial concern. The rise in permanganate index confirms ecological stress. These results align with the ongoing construction of the Karakol WWTP, and once operational, the upgraded facility is expected to restore lagoon water quality to compliant levels.

#### 4.1.6. Topsoil Management.

65. The Contractor of Karakol WWTP, together with representatives of the Karakol Municipal Enterprise 'Vodokanal', determined the site for stockpiling the fertile soil layer before commencing works on the site and prepared an Act reflecting its intended use after completion of the construction works. It should be noted that the documents, as well as the site and stockpiling measures, were reviewed by the ADB Environmental Safeguards Mission on April 4–11, 2025.



#### 4.2. Sanitary Protection Zone (SPZ)

66. The capacity of the designed WWTP is 12000 m<sup>3</sup>/day. According to the Sanitary and Epidemiological Rules and regulations "Sanitary protection zones and sanitary classification of enterprises, structures, and other facilities" (Government Decree No. 201 dated April 11, 2016), the size of the SPZ for WWTP facilities the size of the SPZ for Karakol WWTP with a design capacity of treatment facilities of more than 5.0 and up to 50 thousand m<sup>3</sup>/day should be 400 m.



**Figure 5-2: Sanitary Protection Zone of the sewage treatment plant 400 metres (Yellow contour is the SPZ boundary of the WWTP. The size of the SPZ is 400 metres from the boundary of the WWTP)**

67. SPZ report passed through the State Environmental Expertise and was approved on 11.09.2023 by the Issyk-Kul Regional Department of MNRETS. According to the report, the source data for the calculation of emissions of pollutants into the atmosphere from the sewage treatment plant are the results of the inventory of sources of emissions of harmful substances into the atmosphere and the source data provided by the Contractor. The report provides the results of calculations of the maximum one-time and gross annual emissions of pollutants into the atmosphere, as well as calculations of the dispersion of pollution in the atmospheric air. Within the borders where all production facilities will be located, the concentration of hydrogen sulfide is 3 MPC, but already at the border of the land plot, the concentration will be 1.5 MPC. At the northern border of the land plot of the treatment facilities, the concentration will decrease to 0.4 MPC, and at the border of the SPZ, it will be 0.2 MPC. This means that the concentration of hydrogen sulfide at the SPZ border will be 5 times less than the established maximum permissible concentration.

68. Calculation of surface concentration of emissions of ammonia, methane, Methyl mercaptan, hydrogen sulfide at the SPZ

The calculation is based on this formula  $d = 16 \sqrt{v_M}$  при  $v'_M > 2$ .

Parameters	cm (mg/m <sup>3</sup> )	Concentration at the boarder of 400 meters (s, mg/m <sup>3</sup> )
Methane	0,16711205	0,111682
Ammonia	0,001629601	0,001089
Hydrogen sulphide	0,000943976	0,000631
Methyl mercaptan	2,0186E-07	0,000000

69. Based on the calculations carried out, it can be concluded that the maximum surface concentration of emissions of ammonia, methane, methyl mercaptan, hydrogen sulfide at the boundary of the WWTP site does not exceed and is equal to 0.1 MPC. The report also states that to reduce the negative impact of production facilities on the residential development and to ensure hygienic standards the maximum landscaping of the SPZ territory with the mandatory planting of trees and shrubs on the side of residential development is proposed. The selection of species for landscaping of the sanitary protection zones preference is given to mixed tree and shrub plantings, which have biological stability and high decorative qualities in comparison with single-species plantings. At least 50% of the total number of trees planted should be the main tree species with the highest sanitary and hygienic effectiveness, viability in the given soil and climate conditions, and tolerance to emissions.

#### 4.3. Trends

70. As indicated in Paragraph 48, the sewerage network construction works for both Balykchy and Karakol have been completed, and therefore, no environmental monitoring activities were undertaken for these subcomponents during the reporting period. In alignment with Operation-stage EMP requirements, environmental monitoring covering ambient air quality, noise levels, and vibration impacts was conducted within the Balykchy Wastewater Treatment Plant (WWTP) site. For the Karakol WWTP, construction-phase environmental monitoring was carried out in June 2025, following the commencement of infrastructure works. Monitoring parameters included standard air and noise indicators. Under Contract Package # 2, the contractor Tunuk Kurulush is required to formalize an agreement with an accredited laboratory to initiate instrumental environmental monitoring. The Design and Supervision Consultant (DSC) will provide full technical and procedural support to facilitate the onboarding of the laboratory and ensure timely commencement of compliant monitoring activities.

#### 4.4. Summary of Monitoring/ Observation Outcomes.

- In the Karakol WWTP construction site, the HSE Engineers conduct daily visual and quarterly instrumental monitoring and keep records of excess soil, as well as generated solid domestic wastes etc.
- During the reporting period, observations confirmed that all personnel engaged in operation-phase activities at the Balykchy WWTP were equipped with appropriate Personal Protective Equipment (PPE) in accordance with site-specific safety protocols and regulatory requirements. Furthermore, all workers received adequate training to address potential emergency scenarios, ensuring operational readiness and alignment with both national occupational safety standards and MDB safeguard provisions.

- On-site sanitation and health provisions have been adequately arranged. Karakol WWTP construction site is equipped with latrines, waste bins, and a first aid kit. A dedicated medical facility is operational within the WWTP area, staffed permanently and supplied with sanitizing materials. Additionally, two outdoor toilets have been installed at the construction site. A contract has been finalized for the installation of one solid waste collection container (bringing the total to three units), and to facilitate plastic waste segregation, the Contractor has fabricated one additional container, resulting in a total of two units designated for plastic waste collection.
- Safety briefings are conducted regularly to the construction labours
- During the observation period, no significant signs of negative environmental impact were identified. It is confirmed by the instrumental measurements at the Karakol site.
- Tunuk Kurulush Ltd. has yet to formalize contractual arrangements with certified laboratories for the required environmental testing. It is necessary to expedite the contract signing process to ensure timely commencement of instrumental monitoring and maintain alignment with environmental safeguard commitments.

#### 4.5. Material Resources Utilization

71. The primary resources utilized during construction activities are water and electricity. Water is used for domestic consumption, hygiene maintenance within the construction camp, and technical applications such as dust suppression. The supply of water is arranged through a formal contract with Karakol Vodokanal.

**Table 5-8: Material Resources Utilization**

#	Contract package and name of Contractor	Electricity for the reporting period, kW/h	Water for the reporting period (m <sup>3</sup> )
1.	Consortium of "JV LLC Hayat Group and Bioworks Verfahrenstechnik GmbH"	52606.2	2088.0
2.	Tunuk Kurulush Ltd.	122.0	1.0
	<b>Total</b>	<b>52728.2</b>	<b>2089.0</b>

#### 4.6. Waste Management

Waste management activities have been implemented in accordance with the Site-Specific Environmental Management Plan (SSEMPs) for W3 and W2. Both the contractors have entered into formal agreements with municipal services for the collection and disposal of solid waste generated during construction. The Karakol WWTP contractor (Contract No. W3) signed a contract on 22 May 2024 with the Municipal Enterprise (ME) Tazalyk for waste collection and disposal; excess excavated soil is stored in a designated area identified by ME Tazalyk. Similarly, the contractor Tunuk Kurulush Ltd (Contract No. W2), has signed a contract with ME Tazalyk for the disposal of waste within the municipal landfill, located approximately 5 km from Karakol city. Excess soil from this contractor's sites will be likewise deposited in a designated area as identified by ME Tazalyk. The volume and type of waste generated by each contractor during the reporting period are summarized in the table below.

**Table 5-9: Waste generated during construction works**

#	Name of Contractor	Excess soil (m <sup>3</sup> )	Solid domestic wastes (t)	Construction and demolition waste (t)
1.	Consortium of "JV LLC Hayat Group and Bioworks Verfahrenstechnik GmbH"	-	9.0	90.0
2.	Tunuk Kurulush Ltd.	-	0.015	-
	<b>Total:</b>	-	<b>9.015</b>	<b>90.0</b>

#### 4.7. Occupational and Community Health and Safety Monitoring

##### 4.7.1. Community Health and Safety

72. During the reporting period (January to June 2025), no incidents were recorded that posed risks to public health or safety. All construction activities were executed strictly within designated working hours (09:00 AM to 06:00 PM), in accordance with contractual provisions and labor management guidelines. Furthermore, no traffic accidents related to the construction works were reported during this period.

##### 4.7.2. Worker's safety and health

73. No accidents or serious incidents involving labourers were reported during the monitoring period. The contractors have appointed dedicated HSE (Health, Safety, and Environment) engineers, and regular instructions on safety and environmental protection are provided to site personnel. Construction workers are equipped with appropriate personal protective equipment (PPE), first aid kits, and sanitizers. A first aid station has been established at the Karakol WWTP, staffed by a qualified nurse. The contractor also carries out routine workplace inspections and exposure risk assessments to safeguard the health and safety of workers and nearby communities. Additionally, the HSE engineer conducts regular safety briefings and provides guidance on the proper use of PPE during construction activities.

#### 4.8. Capacity Building/ Training

74. DSC national Environmental Specialist have conducted seminar-training session (refer to **Annexure 1**) on 14th May 2025, for the Contractor team dealing with Contract No 2 (Pump Station and Rising Main 1.7km in Karakol) on "Compliance with Environmental, Health and Safety (EHS) Requirements in accordance with the legislation of the Kyrgyz Republic and ADB". Key objectives of the training include

- To present the occupational health and safety requirements of the Kyrgyz Republic.
- To introduce key environmental protection regulations of the Kyrgyz Republic.
- To explain the requirements of the SSEMP.
- To establish procedures for daily monitoring at construction site.

75. The Contractor's Health, Safety, and Environment (HSE) Specialists conducted regular safety briefings for all workers. Briefings were organized quarterly and provided to newly hired personnel upon induction. During the reporting period, three structured training sessions were held for employees of the Karakol WWTP and associated contractors:

1. **Training on Environmental Safeguards and Occupational Health & Safety.**  
Conducted on 30th April 2025 with 28 participants, this session was led by Hayat Group

LLC representatives including Site Manager G.K. Kazymov, Environmental Specialist A.K. Bukarova, and HSE Engineer K. Kozhobaev. Institutional representatives present included:

- Issyk-Kul Regional Labor Protection Inspectorate (Ministry of Labor): Usupbaev J.S.
  - Ministry of Emergency Situations (MES): Captain Alybaev B.
  - Environmental and Technical Supervision Service, MNRETS: Chief Inspector A. Omurbekov
  - Regional Office of Energy Supervision Service (RO ESS): Inspector A.T. Ashubaev
  - **Topics Covered:** SSEMP implementation; environmental impacts and mitigation during construction; monitoring framework; occupational risk assessment; use of personal protective equipment (PPE); site safety; first aid; and awareness on STIs, STDs, and HIV/AIDS.
2. **On-the-Job Training for Subcontractor Staff (Ysyk-Kol Suu Kurulush Ltd.)**  
Held on 24th June 2025 with 24 attendees. Led by Hayat Group staff—Environmental Specialist A.K. Bukarova and HSE **Engineer** K. Kozhobaev. **Focus Areas:** Occupational health and safety practices specific to WWTP construction; adherence to environmental legislation and regulatory norms.
3. **Training on HIV/STDs Prevention and First Aid**  
Conducted on 27th June 2025 with 24 participants. Facilitated by Assistant Epidemiologist Svetlana Olegovna **Matveeva** (Issyk-Kul Regional Center for Hemocontact Viral Hepatitis and HIV) and Nurse Beishembayeva Burul (Hayat Group Ltd.).  
**Topics Covered:** Transmission pathways, early symptoms, preventive strategies for HIV/STDs; hands-on demonstration of basic first aid techniques covering bleeding, fractures, poisoning, frostbite, and other emergency scenarios.

#### 4.9. Grievance Redress Mechanism

76. The Grievance Redress Mechanism (GRM) is established to deal with applications, complaints and queries from APs regarding land acquisition, compensation and resettlement, environmental and gender issues in a timely and appropriate manner.

77. The GRM was created at the project preparation stage in accordance with the order No. 219 of June 21, 2018 of the State Agency for Architecture, Construction, Housing and Communal Services under the Government of the Kyrgyz Republic and updated at the project implementation stage in accordance with the order No. 153 dated July 2, 2019. It was updated at the project implementation stage by Order No. 153 dated 2 July 2019 and Order No. 145 dated 29 July 2020 of the State Water Resources Agency under the Government of the Kyrgyz Republic.

78. As of the current period, the commission for reviewing complaints and appeals under the Grievance Redress Mechanism (GRM) was updated in accordance with Order No. 140, issued on 31 December 2021 by the State Agency for Architecture, Construction, Housing and Communal Services under the Cabinet of Ministers of the Kyrgyz Republic (see annex).

79. To assist the complainant(s) in formally presenting their appeals and grievances, GRG has designated Local Focal Persons (LFPs) who are readily accessible to affected persons. LFPs are located in the cities of Balykchy and Karakol.

80. The two focal contact persons are:

- For Balykchy: Kolbay Karasartov, Balykchy PIU Manager, 58 Karalaeva str., MP Vodokanal, email: [managerbalykchy@iwmp.kg](mailto:managerbalykchy@iwmp.kg) Tel: +996 700 503 421
- For Karakol: O. I. Zavyalova Project Consultant, ME Vodokanal 3 Tyupskaya str., email: [olenka.zavyalova.57@mail.ru](mailto:olenka.zavyalova.57@mail.ru) Tel: +996 555 040 074 and S.D. Isanov Community Liason Officer, Karakol PIU, email: [clo@iwmp.kg](mailto:clo@iwmp.kg) Tel: +996 702 773 802

81. No complaints and appeals have been received in Balykchy during the reporting period.

82. The total number of appeals received by the project from 2020 to 2024 is 49, of which 4 were submitted directly to the ADB office. In their appeals, residents primarily inquired about resettlement timeline and compensation payments. Resettlement and compensation payments are not applicable under the IWMP, as the households in Geolog village are not included in the WWTP SPZ. One appeal was related to six social issues raised by residents of the Geolog settlement, including water supply, sewerage, road conditions, electricity transformer, playground, and bus stop.

83. A total of five appeals were received in Karakol during the reporting period of July to December 2024. All appeals have been submitted by residents of the Geolog settlement and related to requests for information about the project and compensation payments. Information was provided in a timely manner and all appeals are closed.

**Table 5-10: on complaints and appeals in Karakol city from January to June 2025**

No	Name of measures on appeals/complaints/suggestions	Date	Location	Number of participants <sup>(1)</sup>	F	M	Discussed issues
1	Meeting of Karakol PIU with residents of Geolog settlement	06.02.2025	Karakol PIU	4	0	4	A. Yryskulov, a resident of Geolog settlement, requested to extend the sewerage network in Geolog settlement. Because these land plots were within the SPZ of old WWTP and an assessment was carried out for these plots. T. Koichuev submitted a request to extend the sewerage network to an 8-apartment, two-storey residential building, as the residents currently live without access to sanitary facilities. On 07 February 2025, in response to a request from residents of the Geolog settlement to extend the planned

							sewerage network within the area, a joint site inspection was carried out at Section 14 – Geologichesky. The inspection was conducted by specialists from the contractor ENKON Ltd. project engineer V.S. Pyatkin, Vodokanal project consultant O.I. Zavyalova, Karakol PIU Manager A.K. Dzhanybekov, and Community Liaison Officer S.D. Isanov. Following the discussion, it was decided to extend the planned sewerage network by 130 meters to the plot of A. Yrskulov, and by 70 meters to the 8-apartment two-storey residential building. Accordingly, ENCON Ltd. made the necessary amendments to the detailed design.
2	Meeting of Karakol PIU with residents of Geolog settlement	13.02.2025	Karakol PIU	3	0	3	A. Yrskulov, a resident of Geolog settlement, submitted an appeal to the Karakol PIU stating that a 0.4 kV power transmission line to his house had not been included in the IWMP-funded scope during the preparation of technical specifications for social infrastructure. Therefore, he requested that a power line with poles be extended to his house and his plots. The Karakol PIU informed the Karakol Mayor's Office, as the installation of the transmission line will be carried out by the Karakol DEG. (Additional poles and materials were not included in to the technical specifications due to the late submission of the request by A. Yrskulov.)
3	Meeting of Karakol PIU's CLO with resident of Geolog	03.04.2025	Karakol PIU	2	0	2	A. Yrskulov, a resident of Geolog settlement, asked whether there would be a new fence in

							the playground. The CLO gave information that a new fence is not foreseen in technical specification because there is an existing fence. Additionally, when the villagers raised six social issues, the construction of a new fence was not among the concerns mentioned. On 04 April 2025, this information was communicated to the PMO Director during the ADB Mission. Fences are included in the technical specification additionally.
4	Meeting of Karakol PIU with resident of Geolog settlement	14.04.2025	Karakol PIU	3	0	3	T. Supataev, a resident of Geolog settlement, visited the Karakol PIU regarding the employment of his grandson Rinat in the Karakol WWTP. The Karakol PIU Manager explained him what documents should be prepared and sent them to the Contractor Hayat Group. Hayat Group hired him. He works from May 2025

84. Representatives of the Geolog settlement expressed their agreement with the outcomes of the latest public consultations, including the establishment of the SPZ for the designed WWTP, the absence of resettlement, planned improvements to social infrastructure under the project, and the involvement of residents in the WWTP construction process.

## **5. FUNCTIONING OF THE SEMP**

### **5.1. SEMP Review**

85. Contract No. W4 (Construction of the Balykchy Wastewater Treatment Plant) was completed, with the Design and Supervision Consultant (DSC) issuing a completion certificate in August 2024. The PCEAR was prepared and disclosed via SAEMR 10 (June - December 2024) on the ADB website. An operational stage Environmental Management Plan (EMP) was also prepared and cleared by the ADB. The contractor, during the Defects Liability Period (DLP), and the PIU, throughout the operational phase, are advised to implement the prescribed EMP measures.

86. For Contract No. W3 (Construction of the Karakol Wastewater Treatment Plant), construction activities commenced in May 2024. In line with the Site-Specific Environmental Management Plan (SSEMP), environmental monitoring covering ambient air quality, surface water quality (river, creek, and lagoon), and noise levels was conducted in June 2025. Analytical results indicate that the construction has not caused any significant environmental impact on the surrounding area. Field observations confirm effective SSEMP implementation, with essential facilities such as toilets and drinking water provided on-site. Given that the project site is inaccessible to the public, safety barricades are being used at excavation zones. Additionally, all excavated materials are covered with tarpaulin or plastic sheets during transport to prevent spillage.

87. For Contract No. W2 (Pump Station and Rising Main 1.7km in Karakol), the contractor developed and submitted the Site-Specific Environmental Management Plan (SSEMP) to the PMO, which was formally approved on 24th April 2025.

### **5.2. Grievances Redressal.**

88. No grievances were received during the reporting period (January to June 2025), indicating ongoing stakeholder satisfaction and effective communication between the project team and the local community in Geologist Village.

## 6. GOOD PRACTICES AND OPPORTUNITY FOR IMPROVEMENT

### 6.1. Good Practice

89. Under Contract No. W3 (Construction of the Karakol Wastewater Treatment Plant), several good practices in occupational health, safety, and hygiene have been observed. Municipal solid waste collection is actively practiced on-site, reflecting the contractor's commitment to maintaining a clean work environment. The kitchen and dining areas were found to be hygienically maintained. Three toilets have been installed at strategic locations, ensuring accessibility for labourers across the site.

90. First aid facilities are in place and assessed to be satisfactory. An on-site first aider is available to respond to emergencies, and security personnel have also been trained in basic first aid. Additionally, a dedicated shed for arc and electric welding has been provided, offering shelter and safety for workers during rainy conditions.



Dedicated shed for welding activities



Maintenance of records



Toilet Facility for Labours



First aid facility

### 6.2. Opportunities for Improvement

91. Under Contract No. W3 (Construction of the Karakol Wastewater Treatment Plant), it is essential to reinforce dust suppression measures at the construction site to control air quality

impacts. A designated area for storing scrap materials must be identified, and appropriate signage installed to prevent laborers from accidental contact that could result in minor injuries. Once sufficient quantities are accumulated, the scrap should be responsibly disposed of through authorized metal recyclers. Regular training sessions on Site Environmental Management Plan (SEMP) implementation, health, and safety should be organized for construction workers to ensure continued compliance and awareness.

92. For Contract No. W4 (Operation of the Balykchy Wastewater Treatment Plant), Environment, Health, and Safety (EHS) issues related to the operation and maintenance phase must be addressed in accordance with the approved EMP for the operational stage.

## **7. SUMMARY AND RECOMMENDATIONS**

### **7.1. Summary**

93. The following safeguard documents have been prepared and processed during the reporting period:

- The Initial Environmental Examination (IEE) for additional works in Balykchy and Karakol has been prepared and submitted to ADB for their review and approval.
- The Environmental Management Plan (EMP) for the Balykchy Wastewater Treatment Plant (WWTP) operational stage has been prepared, reviewed, and cleared by ADB. The approved EMP has been shared with both the Contractor (under the Defects Liability Period) and the Balykchy PIU for implementation.
- A Monitoring Report on the Central Asian Frog displaced from the Karakol WWTP area was prepared in collaboration with a scientific team and submitted to ADB. Comments have been received and are currently being addressed.
- For Contract No. 2 involving the Pump Station and 1.7 km Rising Main in Karakol, the Site-Specific Environmental Management Plan (SSEMP) was prepared and submitted by the contractor to the Project Management Office (PMO), receiving formal approval on 24th April 2025. This approval marks a key pre-construction compliance milestone under ADB safeguards requirements, ensuring that site-level environmental and occupational health measures are aligned with the regulatory requirements.

94. Under Contract No. W3 (Construction of the Karakol Wastewater Treatment Plant), environmental monitoring in compliance with Environment, Health, and Safety (EHS) standards was conducted by MNRETS in June 2025. Instrumental monitoring results for ambient air quality, surface water quality, and noise levels were found to be well within the stipulated limits. Odour monitoring was also carried out by the Community Liaison Officer (CLO) using a multi-gas detector (BOSEA version: BSA20180501001). In addition, the contractor has delivered EHS training sessions to construction workers to reinforce safety practices and environmental awareness. No complaints or grievances have been received from the nearby community in Geolog village, indicating positive stakeholder engagement and compliance with social safeguards

95. Construction of Balykchy WWTP (Package W4). To align with ADB's recommendations, a dedicated EMP for the operational phase of the Balykchy WWTP was developed, finalized in consultation with the PMO, and approved by ADB. This plan has been distributed to the Balykchy Vodokanal and the contractor for implementation. All temporary structures and construction debris have been cleared, and no operational failures have occurred, with the facility (WWTP) performing well. Environmental monitoring, as prescribed in the EMP, was carried out and results are well within the stipulated limits.

### **7.2. Recommendations**

96. No new recommendation

## ANNEXURES

## Annexure 1: Capacity Building Report

### A. Contract No. W2 (Pump Station and Rising Main 1.7km in Karakol)

1. Contractor Tunuk Kurulush Ltd. commenced works in April 2025, following formal approval of the Site-Specific Environmental Management Plan (SSEMP) on 24 April 2025. Under this package, the contractor is implementing the construction of a 50 m<sup>3</sup> receiving tank for Pump Station-4, installation of a 0.2 km discharge pipeline, and rehabilitation of manholes along the main collector leading to the Karakol Wastewater Treatment Plant (WWTP).

2. To ensure alignment with environmental and occupational health safeguards, the Design and Supervision Consultant's (DSC) National Environmental Specialist, Ms. O. Zinina, conducted an introductory training session on 14 May 2025 for the HSE Engineer and site personnel of Tunuk Kurulush Ltd. The training covered key topics including:

- Environmental monitoring procedures and regulatory requirements
- Proper arrangement and management of the construction zone in line with SSEMP provisions and national legislation
- Occupational health and safety measures, including PPE availability, provision of hot meals and potable water on-site
- Specific considerations for construction activities within the water protection zone of the Karakol River



**Onsite Training**

### B. Construction of Karakol WWTP

3. Environmental Safeguards and Occupational Health & Safety Training, Conducted on 30th April 2025 with 28 participants. Speakers included Site Manager G.K. Kazymov, Environmental Specialist A.K. Bukarova, and HSE Engineer K. Kozhobaev (Hayat Group LLC). Key institutional representatives in attendance were:

- Mr. J.S. Usupbaev – Labor Protection Inspector, Issyk-Kul Region, MoL
- Capt. B. Alybaev – Ministry of Emergency Situations (MES), Issyk-Kul Region
- Chief Inspector A. Omurbekov – Environmental and Technical Supervision, MNRETS
- Inspector A.T. Ashubaev – Regional Office of Energy Supervision Service (RO ESS), Issyk-Kul Region

4. **Topics Covered:** SSEMP provisions; environmental impacts and mitigation measures; monitoring protocols; site-level OHS risk assessments; use of PPE; basic first aid; and awareness of STIs, STDs, and HIV/AIDS.



5. On 24th June 2025, an on-the-job training session was conducted for the staff of subcontractor Ysyk-Kol Suu Kurulush Ltd. A total of 24 personnel participated. The training was facilitated by Hayat Group Ltd. Representatives Environmental Specialist A.K. Bukarova and HSE Engineer K. Kozhobaev. The session focused on the organization of occupational health and safety measures during the construction of the Karakol Wastewater Treatment Plant (WWTP), as well as compliance with relevant environmental legislation and regulatory requirements



6. **Training on HIV/STDs Prevention and First Aid.** On 27th June 2025, a targeted training session on the prevention and control of sexually transmitted diseases (STDs), including HIV, was conducted for site personnel, with 24 participants in attendance. The session was facilitated by Assistant Epidemiologist Svetlana Olegovna Matveeva from the Issyk-Kul Regional Center for Control of Hemocontact Viral Hepatitis and HIV, alongside Nurse Beishembayeva Burul from Hayat Group Ltd.

- Key topics covered included:
  - Transmission pathways, early symptoms, and preventive measures for HIV and other STDs
  - Awareness of hemocontact infections and public health protocols
  - Guidance on personal hygiene and behavior-based risk mitigation strategies

- The second segment of the training focused on practical first aid techniques, including:
  - Management of bleeding and fractures
  - Response procedures for poisoning and frostbite
  - General emergency preparedness at the WWTP site



## Annexure 2: Reports on Monitoring of the Contractors

<b>Project Number:</b>	50176-002					
<b>Project Name:</b>	Issyk – Kul Wastewater Management Project					
<b>Package No. and/or Lot No.</b>	Construction of Karakol Wastewater Treatment Plant (WWTP) (Contract No. W3)					
<b>Components/Scope of Work:</b>	Design and build of Karakol WWTP					
<b>Progress (percentage):</b>	18.9%					
<b>Location/Site inspected:</b>	Karakol City					
<b>Date of inspection:</b>	11.04.25;14.05.25; and 20.06.25					
<b>Contractor:</b>	Consortium of "JV LLC Hayat Group and Bioworks Verfahrenstechnik GmbH"					
<b>Supervision Company:</b>	Temelsu International Engineering Services Inc.					
<b>SSEMP clearance date:</b>	April 2024					
Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
1.	Documents	11.04.2025	14.05.2025	20.06.2025		
a.	Is the EIA/IEE updated based on the contract's scope of work and/or detailed engineering design?	No	No	No		
b.	Any change in scope of work, design, location, and/or method of construction?	No	No	No		
c.	All permits/clearances on environment, health and safety (EHS) obtained?	Yes	Yes	Yes		
d.	Is the SSEMP informed to workers including subcontractors?	Yes	Yes	Yes		
2.	HSE of Contractor on Employer's site	19.07.2024	19.09.2024	15.10.2024		
a.	Is an Environment Supervisor available?	Yes	Yes	Yes		
b.	Is an Environment Supervisor available?	Yes	Yes	Yes		
c.	Is a copy of the SSEMP available on-site and in work sites?	Yes	Yes	Yes		
d.	Has Contractor established an operational system for HSE?	Yes	Yes	Yes		
e.	Has the Contractor established data management system for HSE?	Yes	Yes	Yes		
f.	Laborers hired from licensed manpower suppliers only?	Yes	Yes	Yes		
g.	All workers (including manpower supply laborers) are insured?	Yes	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
h.	Number of workers provided with orientation on safeguards and HSE?	40	50	74		
i.	Medical screening carried out for all workers for communicable diseases such as HIV and COVID-19?	Yes	Yes	Yes		
j.	Company EHS policy available and displayed?	Yes	Yes	Yes		
k.	Site risk assessment carried out before start of work?	Yes	Yes	Yes		
l.	Permit to work system followed for critical works?	Yes	Yes	Yes		
m.	Incident reporting and investigation system in place?	Yes	Yes	Yes		
n.	Health and Safety committee established and OHS performance reviewed periodically?	N/A	N/A	N/A		
<b>3.</b>	<b>Facilities</b>					
a.	Are there separate sanitary facilities/toilets for male and female workers?	yes	yes	yes		
b.	Are the toilets in good conditions, clean, and provided with water all the time?	Yes	Yes	Yes		
c.	Is drinking water supply available for workers?	Yes	Yes	Yes		
d.	Is there a rest area for workers?	Yes	Yes	Yes		
e.	Are storage areas for chemicals available and with protection? In safe locations?	N/A	N/A	N/A		
f.	Protection from extreme weather provided?	Yes	Yes	Yes		
g.	Are the workers camp kept in clean and safe conditions?	Yes	Yes	Yes		
<b>3.</b>	<b>Health and Safety</b>					
a.	Toolbox talk given to all workers on daily basis? <b>(check logbook)</b>	Yes	Yes	Yes		
b.	Has the Health and Safety Plan been reviewed and revised from the last inspection?	No	No	No		
c.	Is the Health and Safety Plan translated to local language understandable by foreign and local workers?	Yes	Yes	Yes		
d.	Is there a logbook for Health and Safety?	yes	yes	yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
e.	Are there first aiders and first aid kits on site? (1 kit and 1 first aider for every 25 workers)	Yes	Yes	Yes		
f.	Are emergency contact details available on-site?	Yes	Yes	Yes		
g.	Are there PPEs available? What are they?	Yes	Yes	Yes		
h.	Are the PPEs in good condition?	Yes	Yes	Yes		
i.	Are the PPEs being used by workers at all times?	Yes	Yes	Yes		
j.	Are there firefighting equipment on site?	yes	yes	yes		
k.	Are excavation trenches provided with shores or protection from landslide?	n/a	n/a	n/a		
l.	Excavation and trenches deeper than 2 meters are done through permit to work system and following the safe system of work? ( <i>check permit to work system – preparation of this is a fundamental task of the Health and Safety Officer</i> )	n/a	n/a	n/a		
m.	Is break time for workers provided?	Yes	Yes	Yes		
n.	Adequate level of light is maintained for working during dark hours?	n/a	n/a	n/a	Works are not carried out at the nights	
o.	Buried and overhead utilities identified and controls taken; as appropriate?	no	no	no		
p.	Electrical tools being used are double insulated and damage free?	Yes	Yes	Yes		
q.	Equipment and tools used safe and unbreakable?	Yes	Yes	Yes		
r.	All work above 2 meters at height is done with guard rails installed and wearing full body harness?	n/a	n/a	n/a		
s.	Confined space entry is done through Permit to work system?	N/A	N/A	N/A		
t.	Are workers (contractors and sub-contractors) covered by accident insurance?	Yes	Yes	Yes		
u.	Are signages and warning signs installed on worksites? How many per xxx meters and locations?	4 signs at 50 meters	4 signs at 50 meters	4 signs at 50 meters		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
v.	Are signages and warning signs translated to local language?	Yes	Yes	Yes		
w.	Are signages and warning signs visible even at night time?	Yes	Yes	Yes		
x.	Are there any accidents since the last inspection? How many and what are these accidents?	No	No	No		
y.	Have accidents been reported to PIU, MP Vodokanal and PMO?	N/A	n/a	n/a		
<b>4.</b>	<b>Community safety</b>					
a.	Are excavation areas provided with solid guardrails around them to protect from accidental falls?	yes	yes	yes	Plastic mesh with height of 1.5 m	
b.	Are safety signages posted around the sites where there are houses, business, or communities?	Yes	Yes	Yes		
c.	Are temporary and safe walkways for pedestrians available near work sites?	N/A	N/A	N/A		
d.	Are there traffic officers or flagman/flagmen to manage traffic and speed limit?	N/A	N/A	N/A		
e.	Are there traffic officers or flagman/flagmen near sites where there are houses, business, or communities?	N/A	N/A	N/A		
f.	Is there a record of treated water quality testing/measurement?	N/A	N/A	N/A		
g.	Is there a logbook for community feedback and/or complaints?	Yes	Yes	Yes		
h.	How many stakeholders engagement, consultations, and information disclosure on EHS have been conducted?	N/A	N/A	N/A		
<b>5.</b>	<b>Solid Waste Management</b>					
a.	Are excavated materials placed sufficiently away from water courses (at least 20 meters)?	Yes	Yes	Yes		
b.	Is solid waste segregation and management in each work site?	Yes	Yes	Yes		
c.	Are hazardous wastes stored separately from non-hazardous wastes?	N/A	N/A	N/A		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
d.	Is there a daily collection of solid wastes from work sites?	Yes	Yes	Yes		
e.	Is there a temporary storage area for wastes at worker's camp?	Yes	Yes	Yes		
f.	Are reusable and recyclable materials segregated?	Yes	Yes	Yes		
g.	Is there a logbook for waste collection and disposal?	Yes	Yes	Yes		
<b>6.</b>	<b>Water Pollution Control and Wastewater Management</b>					
a.	Are instrumental water quality monitoring activities conducted per agreed SSEMP and monitoring program?	No	no	no	The contract is signed with the laboratory of the Monitoring Department of MNRETS	
b.	Are instrumental wastewater quality monitoring activities conducted per agreed SSEMP and monitoring program?	No	no	no		
c.	Does the Contractor test the water supplied to workers for drinking and other domestic use?	N/A	N/A	N/A	Bottled water	
d.	Are there separate sanitary facilities for various types of use (septic tanks, urination, washing, etc.)?	Yes	Yes	Yes		
e.	Is any wastewater discharged to storm drains?	No	No	No		
f.	Is any wastewater being treated prior to discharge?	No	No	No		
g.	Are measures in place to avoid siltation of nearby drainage or receiving bodies of water?	N/A	N/A	N/A		
h.	Are silt traps or sedimentation ponds installed for surface runoff regularly cleaned and freed of silts or sediments?	N/A	N/A	N/A		
i.	Is there a logbook for water and wastewater quality monitoring?	No	No	No		
<b>7.</b>	<b>Dust control</b>					
a.	Are instrumental air quality monitoring activities conducted per agreed SSEMP and monitoring program?	No	no	no		
b.	Is the construction site watered on daily basis to minimize generation of dust?	Yes	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
c.	Are roads within and around the construction sites sprayed with water on regular intervals?	Yes	Yes	Yes		
d.	Is there a speed control for vehicles at construction sites?	Yes	Yes	Yes		
e.	Are stockpiles of sand, cement and other construction materials covered to avoid being airborne?	No	No	No		
f.	Are construction vehicles carrying soils and other excavated materials/spoils covered?	No	No	No		
g.	Are power/diesel generators provided with air pollution control devices?	No	No	No		
h.	Are all vehicles regularly maintained to minimize emission of black smoke? Do they have valid emission permits?	Yes	Yes	Yes		
i.	Is there a logbook for air quality monitoring?	Yes	Yes	Yes		
<b>8.</b>	<b>Noise Control</b>					
a.	Are instrumental noise monitoring activities conducted per agreed SSEMP and monitoring program?	Yes	Yes	Yes		
b.	Are there any works near sensitive receptors during night time?	No	No	No		
c.	Do generators operate with doors closed or provided with sound barrier around them?	N/A	N/A	N/A		
d.	Is idle equipment turned off or throttled?	No	No	No		
e.	Are there noise mitigation measures adopted at construction sites?	Yes	Yes	Yes		
f.	Are neighbouring residents notified in advance of any anticipated noisy construction activities?	N/A	N/A	N/A		
g.	Is there a logbook for noise level monitoring?	Yes	Yes	Yes		
<b>9.</b>	<b>Soil Contamination Control</b>					
a.	Are fuels, oils, lubricants, bitumen and other similar materials stored in a covered and concrete-lined storage area?	Yes	Yes	Yes		
b.	Are the fuel tanks/storage constructed with bund to prevent oil, fuels, or chemicals from escaping into the environment if the tank/storage leak or burst?	n/a	n/a	n/a		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
c.	Are fuels, oils, lubricants, bitumen and other similar materials properly labelled?	n/a	n/a	n/a		
d.	Are storage areas inspected on daily basis?	Yes	Yes	Yes		
e.	Are there sufficient equipment and materials to manage spills?	Yes	Yes	Yes		
f.	There are no source of fire or spark near the storage areas (within 20 meters)?	No	No	No		
g.	Are material safety data sheet (MSDS) available on site?	Yes	yes	Yes		
h.	Are excess chemicals or materials disposed according the MSDS?	N/A	n/a	n/a		
<b>10.</b>	<b>Traffic Control</b>					
a.	Are reflective traffic signages available around the construction sites and nearby roads?	N/A	N/A	N/A		
b.	Are re-routing signages sufficient to guide motorists?	N/A	N/A	N/A		
c.	Are the excavation sites along roads provided with hard barricades with reflectors?	N/A	N/A	N/A		
d.	Are the excavation sites provided with sufficient lighting at night?	N/A	N/A	N/A		
e.	Are contractor's vehicles and heavy equipment parked properly and not causing additional traffic burden?	N/A	N/A	N/A		
f.	Are affected residents, business and local communities informed in advance of traffic rerouting, works, or road closure?	N/A	N/A	N/A		
<b>10.</b>	<b>Grievance Redressal, Stakeholders Engagement, and Information Disclosure</b>					
a.	Has the contractors provided contact details of focal persons in case of complaints using permanent signboards?	Yes	Yes	Yes		
b.	Are the contact details readable and understandable by target audience?	No	No	No		
c.	Are the workers (contractors and subcontractors) informed of the GRM?	Yes	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/ Reason/ Rationale	Required Action
d.	Have the PIU, supervising consultants, and contractors provided EHS-related information to local communities, business, and sensitive receptors?	Yes	Yes	Yes		
e.	Are EHS records/documents readily available at the site, to the inspection team, and stakeholders?	Yes	Yes	Yes		
Other Issues/Concerns						
Red Flags:						
<b>Name of Inspector/s:</b>		O.V. Zinina				
<b>Position:</b>		DSC (National Environmental Specialist)				
<b>Contractor Site Manager:</b>						
<b>National Environmental Specialist:</b>		A. Bukarova				
<b>Contractor Health and Safety Officer:</b>		K. Kozhobaev				

<b>Project Number:</b>	50176-002				
<b>Project Name:</b>	Issyk – Kul Wastewater Management Project				
<b>Package No. and/or Lot No.</b>	Pump Station and Rising Main 1.7km in Karakol (Contract No. W2)				
<b>Components/Scope of Work:</b>	Construction of a receiving tank (50 m <sup>3</sup> ) for Pump Station-4, a discharge pipeline (0.2 km), and rehabilitation of manholes on the main collector leading to the WWTP				
<b>Progress (percentage):</b>	-				
<b>Location/Site inspected:</b>	Karakol City				
<b>Date of inspection:</b>	14.05.25; and 20.06.25				
<b>Contractor:</b>	Tunuk Kurulush Ltd.				
<b>Supervision Company:</b>	Temelsu International Engineering Services Inc.				
<b>SSEMP clearance date:</b>	April 2025				
<b>Monitoring/Inspection Questions</b>		<b>Yes/No/Not applicable (n/a)</b>	<b>Yes/No/Not applicable (n/a)</b>	<b>Observation/Reason/Rationale</b>	<b>Required Action</b>
1.	Documents	14.05.2025	20.06.2025		
a.	Is the EIA/IEE updated based on the contract's scope of work and/or detailed engineering design?	Yes	No	The SSEMP was approved on 24.05.2025	
b.	Any change in scope of work, design, location, and/or method of construction?	No	No		
c.	All permits/clearances on environment, health and safety (EHS) obtained?	Yes	Yes		
d.	Is the SSEMP informed to workers including subcontractors?	Yes	Yes		
2.	HSE of Contractor on Employer's site				
a.	Is an Environment Supervisor available?	Yes	Yes		
b.	Is an Environment Supervisor available?	Yes	Yes		
c.	Is a copy of the SSEMP available on-site and in work sites?	Yes	Yes		
d.	Has Contractor established an operational system for HSE?	Yes	Yes		
e.	Has the Contractor established data management system for HSE?	Yes	Yes		
f.	Laborers hired from licensed manpower suppliers only?	Yes	Yes		
g.	All workers (including manpower supply laborers) are insured?	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
h.	Number of workers provided with orientation on safeguards and HSE?	8	-	The works were not being implemented at the time of visit	A toolbox talk shall be provided again before the commencement of works.
i.	Medical screening carried out for all workers for communicable diseases such as HIV and COVID-19?	Yes	Yes		
j.	Company EHS policy available and displayed?	no	no		
k.	Site risk assessment carried out before start of work?	Yes	Yes		
l.	Permit to work system followed for critical works?	Yes	Yes		
m.	Incident reporting and investigation system in place?	Yes	Yes		
n.	Health and Safety committee established and OHS performance reviewed periodically?	N/A	N/A		
<b>3.</b>	<b>Facilities</b>				
a.	Are there separate sanitary facilities/toilets for male and female workers?	no	no	The toilets were not available on site at the time of visit.	
b.	Are the toilets in good conditions, clean, and provided with water all the time?	no	no		
c.	Is drinking water supply available for workers?	Yes	Yes		
d.	Is there a rest area for workers?	Yes	Yes		
e.	Are storage areas for chemicals available and with protection? In safe locations?	N/A	N/A		
f.	Protection from extreme weather provided?	Yes	Yes		
g.	Are the workers camp kept in clean and safe conditions?	Yes	Yes		
<b>3.</b>	<b>Health and Safety</b>				
a.	Toolbox talk given to all workers on daily basis? ( <b>check logbook</b> )	Yes	no	The works were not implemented in May	
b.	Has the Health and Safety Plan been reviewed and revised from the last inspection?	No	No		
c.	Is the Health and Safety Plan translated to local language understandable by foreign and local workers?	Yes	Yes		
d.	Is there a logbook for Health and Safety?	yes	yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
e.	Are there first aiders and first aid kits on site? (1 kit and 1 first aider for every 25 workers)	Yes	Yes		
f.	Are emergency contact details available on-site?	Yes	Yes		
g.	Are there PPEs available? What are they?	Yes	Yes	Vests and helmets	
h.	Are the PPEs in good condition?	Yes	Yes		
i.	Are the PPEs being used by workers at all times?	Yes	Yes		
j.	Are there firefighting equipment on site?	Yes	Yes		
k.	Are excavation trenches provided with shores or protection from landslide?	n/a	n/a		
l.	Excavation and trenches deeper than 2 meters are done through permit to work system and following the safe system of work? ( <i>check permit to work system – preparation of this is a fundamental task of the Health and Safety Officer</i> )	n/a	n/a		
m.	Is break time for workers provided?	Yes	Yes		
n.	Adequate level of light is maintained for working during dark hours?	n/a	n/a	Works are not carried out at the nights	
o.	Buried and overhead utilities identified and controls taken; as appropriate?	no	no		
p.	Electrical tools being used are double insulated and damage free?	Yes	Yes		
q.	Equipment and tools used safe and unbreakable?	Yes	Yes		
r.	All work above 2 meters at height is done with guard rails installed and wearing full body harness?	n/a	n/a		
s.	Confined space entry is done through Permit to work system?	N/A	N/A		
t.	Are workers (contractors and sub-contractors) covered by accident insurance?	Yes	Yes		
u.	Are signages and warning signs installed on worksites? How many per xxx meters and locations?	no	no	Signs are not available	Signs should be installed
v.	Are signages and warning signs translated to local language?	no	no		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
w.	Are signages and warning signs visible even at night time?	no	no		
x.	Are there any accidents since the last inspection? How many and what are these accidents?	No	No		
y.	Have accidents been reported to PIU, MP Vodokanal and PMO?	n/a	n/a		
<b>4. Community safety</b>					
a.	Are excavation areas provided with solid guardrails around them to protect from accidental falls?	no	no	The foundation pits are not fenced	Install the fence.
b.	Are safety signages posted around the sites where there are houses, business, or communities?	no	no		
c.	Are temporary and safe walkways for pedestrians available near work sites?	N/A	N/A		
d.	Are there traffic officers or flagman/flagmen to manage traffic and speed limit?	N/A	N/A		
e.	Are there traffic officers or flagman/flagmen near sites where there are houses, business, or communities?	N/A	N/A		
f.	Is there a record of treated water quality testing/measurement?	N/A	N/A		
g.	Is there a logbook for community feedback and/or complaints?	Yes	Yes		
h.	How many stakeholders engagement, consultations, and information disclosure on EHS have been conducted?	N/A	N/A		
<b>5. Solid Waste Management</b>					
a.	Are excavated materials placed sufficiently away from water courses (at least 20 meters)?	Yes	Yes		
b.	Is solid waste segregation and management in each work site?	Yes	Yes		
c.	Are hazardous wastes stored separately from non-hazardous wastes?	N/A	N/A		
d.	Is there a daily collection of solid wastes from work sites?	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
e.	Is there a temporary storage area for wastes at worker's camp?	Yes	Yes		
f.	Are reusable and recyclable materials segregated?	no	no		
g.	Is there a logbook for waste collection and disposal?	Yes	Yes		
<b>6.</b>	<b>Water Pollution Control and Wastewater Management</b>				
a.	Are instrumental water quality monitoring activities conducted per agreed SSEMP and monitoring program?	no	no	The contract is signed with the laboratory of the Monitoring Department of MNRETS	
b.	Are instrumental wastewater quality monitoring activities conducted per agreed SSEMP and monitoring program?	no	no		
c.	Does the Contractor test the water supplied to workers for drinking and other domestic use?	N/A	N/A	Bottled water	
d.	Are there separate sanitary facilities for various types of use (septic tanks, urination, washing, etc.)?	no	no		
e.	Is any wastewater discharged to storm drains?	No	No		
f.	Is any wastewater being treated prior to discharge?	No	No		
g.	Are measures in place to avoid siltation of nearby drainage or receiving bodies of water?	N/A	N/A		
h.	Are silt traps or sedimentation ponds installed for surface runoff regularly cleaned and freed of silts or sediments?	N/A	N/A		
i.	Is there a logbook for water and wastewater quality monitoring?	No	No		
<b>7.</b>	<b>Dust control</b>				
a.	Are instrumental air quality monitoring activities conducted per agreed SSEMP and monitoring program?	no	no		
b.	Is the construction site watered on daily basis to minimize generation of dust?	no	no		
c.	Are roads within and around the construction sites sprayed with water on regular intervals?	no	no		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
d.	Is there a speed control for vehicles at construction sites?	Yes	Yes		
e.	Are stockpiles of sand, cement and other construction materials covered to avoid being airborne?	No	No		
f.	Are construction vehicles carrying soils and other excavated materials/spoils covered?	No	No		
g.	Are power/diesel generators provided with air pollution control devices?	No	No		
h.	Are all vehicles regularly maintained to minimize emission of black smoke? Do they have valid emission permits?	Yes	Yes		
i.	Is there a logbook for air quality monitoring?	Yes	Yes		
<b>8.</b>	<b>Noise Control</b>				
a.	Are instrumental noise monitoring activities conducted per agreed SSEMP and monitoring program?	no	no		
b.	Are there any works near sensitive receptors during night time?	No	No		
c.	Do generators operate with doors closed or provided with sound barrier around them?	N/A	N/A		
d.	Is idle equipment turned off or throttled?	No	No		
e.	Are there noise mitigation measures adopted at construction sites?	Yes	n/a	The work was not implemented on 20.06.25	
f.	Are neighbouring residents notified in advance of any anticipated noisy construction activities?	N/A	N/A		
g.	Is there a logbook for noise level monitoring?	Yes	Yes		
<b>9.</b>	<b>Soil Contamination Control</b>				
a.	Are fuels, oils, lubricants, bitumen and other similar materials stored in a covered and concrete-lined storage area?	Yes	Yes		
b.	Are the fuel tanks/storage constructed with bund to prevent oil, fuels, or chemicals from escaping into the environment if the tank/storage leak or burst?	n/a	n/a		
c.	Are fuels, oils, lubricants, bitumen and other similar materials properly labelled?	n/a	n/a		
d.	Are storage areas inspected on daily basis?	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
e.	Are there sufficient equipment and materials to manage spills?	Yes	Yes		
f.	There are no source of fire or spark near the storage areas (within 20 meters)?	No	No		
g.	Are material safety data sheet (MSDS) available on site?	yes	Yes		
h.	Are excess chemicals or materials disposed according the MSDS?	n/a	n/a		
<b>10.</b>	<b>Traffic Control</b>				
a.	Are reflective traffic signages available around the construction sites and nearby roads?	N/A	N/A		
b.	Are re-routing signages sufficient to guide motorists?	N/A	N/A		
c.	Are the excavation sites along roads provided with hard barricades with reflectors?	N/A	N/A		
d.	Are the excavation sites provided with sufficient lighting at night?	N/A	N/A		
e.	Are contractor's vehicles and heavy equipment parked properly and not causing additional traffic burden?	N/A	N/A		
f.	Are affected residents, business and local communities informed in advance of traffic rerouting, works, or road closure?	N/A	N/A		
<b>10.</b>	<b>Grievance Redressal, Stakeholders Engagement, and Information Disclosure</b>				
a.	Has the contractors provided contact details of focal persons in case of complaints using permanent signboards?	Yes	Yes		
b.	Are the contact details readable and understandable by target audience?	No	No		
c.	Are the workers (contractors and subcontractors) informed of the GRM?	Yes	Yes		
d.	Have the PIU, supervising consultants, and contractors provided EHS-related information to local communities, business, and sensitive receptors?	Yes	Yes		

Monitoring/Inspection Questions		Yes/No/Not applicable (n/a)	Yes/No/Not applicable (n/a)	Observation/Reason/Rationale	Required Action
e.	Are EHS records/documents readily available at the site, to the inspection team, and stakeholders?	Yes	Yes		
Other Issues/Concerns					
Red Flags:					
<b>Name of Inspector/s:</b>		O.V. Zinina			
<b>Position:</b>		DSC (National Environmental Specialist)			
<b>Contractor Site Manager:</b>					
<b>National Environmental Specialist:</b>		A. B. Bekbodzhoeva			
<b>Contractor Health and Safety Officer:</b>		R. Esenbaeva			

### Annexure 3: Site Observations - Photographs

#### Balykchy WWTP



Landscaping will be undertaken by Balykchy Vodokanal



Grid chamber is equipped with an exhaust facility



Treated Sludge is collected for safe disposal



Insulation is appropriately installed to ensure thermal efficiency and safety



A concrete platform has been provided for the diesel storage unit



Pumps are appropriately enclosed within acoustic chambers to minimize noise emissions

## Karakol WWTP



Workers were observed wearing appropriate personal protective equipment (PPE)



Reinforcement installation and formwork erection for the sedimentation tank walls



Reinforcement installation and formwork erection for the Aeration Tank



vehicle wash area is constructed with a cement concrete (CC) platform, and the resulting wastewater is collected and reused



The diesel generator (DG) set has been properly barricaded and equipped with visible warning signage

## Annexure 4: Non-Conformity Tracking Report



### Issyk-Kul Wastewater Management Project

## Non-Conformity Tracking Report

<b>Country</b>	Kyrgyzstan
<b>Project Location</b>	Issyk - Kul Province
<b>Project Name</b>	Issyk-Kul Wastewater Management Project
<b>ADB Project No.</b>	0628-KGZ (SF)
<b>ADB Loan No</b>	
<b>Project Start Date</b>	June / 2019
<b>Anticipated Project End Date</b>	31 December/ 2024
<b>Project Implementation Unit Name</b>	Issyk-Kul Wastewater Management Project Office (PMO)
<b>Person Responsible for Tracking</b>	Kylychbek Zhundubaev
<b>Date of Closure</b>	

### Non-Conformity Tracking Report

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
1	Lot2 NW Balykchy (PROFIT EXPRESS)	30-03-22	Health	staff are not aware of the first aid kit	Inform the staff where the first aid kit is stored	N1	Minor	04-04-22	Low	Zhyldyz Moldosanova	Closed	02-04-22
2	Lot1 NW Balykchy (IMPULSE OSH)	30-03-22	Health	staff are not aware of the first aid kit	Inform the staff where the first aid kit is stored	N2	Minor	04-04-22	Low	Bekmamat Japiey	Closed	04-04-22
3	Lot1 NW Balykchy (IMPULSE OSH)	30-03-22	Safety	Trench excavation is not secured	Bring the bridges in compliance with safety requirements	N3	Minor	04-04-22	High	Bekmamat Japiey	Closed	04-04-22
4	Lot1 NW Karakol (PE Minur LLC)	27-04-22	Environment	Bio-toilet missing	Install a bio-toilet	N4	Minor	04-05-22	Low	Bekzat Shergazievich Dadybaev	Closed	02-05-22
5	WWTP Balykchy (CRBC)	20-06-22	Other	Some excavation, some lean concrete, some part of steel works etc. have been implemented without approval / permission / inspection of DSC. IEE and SSEMP has not been approved yet.	Design should be approved	N5	N/A	25-07-22	Medium	Contractor's Project Manager	Closed	27-07-22
6		20-06-22	Other		Excavation plan should be submitted		N/A	15-07-22	Medium	Contractor's Project Manager	Closed	01-07-22
7		20-06-22	Other		Lean concrete quality and thickness testes should be made		N/A	15-07-22	Medium	Site Manager	Closed	04-07-22
8		20-06-22	Other		Corroded steel bars should be removed		N/A	25-07-22	Low	Site Manager	Closed	05-09-22
9		20-06-22	Other		Steel tests should be made		N/A	15-07-22	Low	Site Manager	Closed	01-07-22

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
10		20-06-22	Other		All local authority permits should be taken		Major	15-07-22	High	Project Manager	Closed	10-07-22
11		20-06-22	Environment		IEE, EMP, and SSEMP should be approved		Major	15-07-22	High	Project Manager	Closed	02-09-22
12	Lot1 NW Karakol (PE Minur LLC)	05-08-22	Health	A first aid kit should always be on the construction site.	Ensure that the first aid kit is located.	N6	N/A	12-08-22	Low	Site Manager	Closed	06-08-22
13	Lot1 NW Balykchy (IMPULSE OSH)	04-08-22	Safety	There is no fencing of open hatches.	Protect or close all hatches and pits that pose a danger.		Major	11-08-22	High	Contractor's Project Manager	Closed	09-08-22
14	Lot1 NW Balykchy (IMPULSE OSH)	04-08-22	Other	Excess soil is located on the site.	Remove all excess soil	N7	N/A	11-08-22	Low	Contractor's Project Manager	Closed	10-08-22
15	Lot2 NW Balykchy (PROFIT EXPRESS)	04-08-22	Safety	Workers should always be in a PPE	Provide workers with PPE and monitor their use.	N8	Minor	05-08-22	Low	Site Manager	Closed	05-08-22
16	Lot2 NW Karakol (JV Inzhenemay a Zashchita LLC )	05-08-22	Environment	Clogging of the soil with bitumen heating products	Clean up all places of contamination. To provide a platform for bitumen works, which will have a sand or soil cushion.	N9	N/A	12-08-22	Low	Site Manager	Closed	10-08-22
17		05-08-22	Health	A first aid kit should always be on the construction site.	Ensure that the first aid kit is located.		N/A	12-08-22	Low	Site Manager	Closed	06-08-22

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
18	Lot1 NW Karakol (PE Minur LLC)	05-08-22	Health	A first aid kit should always be on the construction site.	Ensure that the first aid kit is located.	N10	N/A	12-08-22	Low	Site Manager	Closed	06-08-22
19	WWTP Balykchy (CRBC)	15-09-22	Safety	Debris on the way to the shower and toilet.	Clear the way to the shower and toilet.	N11	Minor	16-09-22	Medium	Site Manager	Closed	29-09-22
20	Lot1 NW Balykchy (IMPULSE OSH)	15-09-22	Environment	There is no toilet	The toilet should always be on the construction site	N12	Minor	17-09-22	Low	Site Manager	Closed	19-09-22
21		15-09-22	Other	Remove excess soil	Excess soil is taken to a special site		N/A	17-09-22	Low	Site Manager	Closed	19-09-22
22	Lot1 NW Karakol (PE Minur LLC)	16-09-22	Environment	No trash cans	Garbage cans should always be on the construction site	N13	Minor	16-09-22	Low	Site Manager	Closed	19-09-22
23	Lot2 NW Karakol (JV Inzhenernay a Zashchita LLC )	16-09-22	Environment	Workers work without PPE	Workers should always be in a PPE on the construction site	N14	Minor	16-09-22	Low	Site Manager	Closed	19-09-22
24		16-09-22	Health	A first aid kit should always be on the construction site.	Ensure that the first aid kit is located.		N/A	16-09-22	Low	Site Manager	Closed	19-09-22
25		16-09-22	Environment	there is no toilet	Install a bio toilet on a construction site		Minor	18-09-22	Low	Site Manager	Closed	22-09-22

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
26	WWTP Balykchy (CRBC)	28-09-22	Health	Dormitories are not in proper condition	To bring the rooms for workers in proper condition: make the floor, bring the beds into conformity (install beds of the right length), place the necessary shelves for belongings	N15	Major	21-10-22	High	Contractor's Project Manager	Closed	10-01-23
27	WWTP Balykchy (CRBC)	26-10-22	Environment	Site should be cleaned	remove garbage located on the site	N16	Minor	01-11-22	Low	Site Manager	Closed	29-10-22
28		26-10-22	Environment	Oil leaks	Fix oil leaks of machinery operated at WWTP, maintain construction machinery in the proper condition throughout construction works		Minor	01-11-22	Low	Site Manager	Closed	31-10-22
29		26-10-22	Health	Kitchen not in hygienic conditions	Arrange a canteen in the room next to the kitchen to meet the sanitary-hygienic requirements		Major	26-11-22	High	Contractor's Project Manager	Closed	31-10-22
30	Lot1 NW Balykchy (IMPULSE OSH)	26-10-22	Environment	A portable toilet is not available	Install a bio toilet on a construction site	N17	Minor	03-11-22	Low	Site Manager	Closed	27-10-22
31	Lot1 NW Karakol (PE Minur LLC)	27-10-22	Environment	Portable toilet was hit by a car and does not exist	Supply a new toilet	N17	Minor	04-11-22	Low	Site Manager	Closed	28-10-22

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
32	Lot2 NW Karakol (JV Inzhenernay a Zashchita LLC )	27-10-22	Other	The information board was broken	Provide a new board	N18	N/A	03-11-22	Low	Site Manager	Closed	01-11-22
33	Lot1 NW Balykchy (IMPULSE OSH)	27-11-22	Environment	There is no toilet	The toilet must be permanently located on the construction site	N19	Minor	27-11-22	Low	Site Manager	Closed	30-11-22
34	Lot2 NW Balykchy (PROFIT EXPRESS)	24-11-22	Environment	There is no toilet	Install a bio toilet	N20	Minor	24-11-22	Low	Site Manager	Closed	28-11-22
35	Lot1 NW Karakol (PE Minur LLC)	27-11-22	Other	There is no information board	Information board should be installed	N21	N/A	27-11-22	Low	Site Manager	Closed	30-11-22
36	Lot2 NW Karakol (JV Inzhenernay a Zashchita LLC )	27-11-22	Other	Safety log not proper	The logs must meet the requirements	N22	N/A	27-11-22	Low	Site Manager	Closed	28-11-22
37	WWTP Balykchy (CRBC)	26-11-22	Environment	Construction debris and household garbage	Garbage should be cleaned daily	N23	Minor	26-11-22	Low	Site Manager	Closed	27-11-22
38		26-11-22	Safety	There is no safety log on the construction site	The safety log must be at the construction site		N/A	26-11-22	Low	Site Manager	Closed	27-11-22
39	Lot1 NW Karakol (PE Minur LLC)	19-05-23	Environment	There is no contract with the laboratory for air analysis	Conclude a contract	N24	N/A	31-05-23	Low	Contractor's Project Manager	Closed	08-08-23
40	Lot2 NW Karakol (JV Inzhenernay	19-05-23	Environment	There is no contract with the laboratory for air analysis	Conclude a contract	N25	N/A	31-05-23	Low	Contractor's Project Manager	Closed	08-06-23

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
41	a Zashchita LLC )	19-05-23	Environment	There is no dumpster	The dumpster must be permanently located on the construction site		N/A	22-05-23	Low	Site Manager	Closed	22-05-23
42	WWTP Balykchy (CRBC)	15-06-23	Safety	Fire extinguishing panel has to be equipped fully.	Procure new equipment.	N26	N/A	26-06-23	Low	Site Manager	Closed	22-06-23
43	Lot1 NW Karakol (PE Minur LLC)	16-06-23	Social	Information board does not have a telephone number of LFP	Add a telephone number	N26	N/A	23-06-23	Low	Contractor's Project Manager	Closed	15-08-23
44	Lot1 NW Karakol (PE Minur LLC)	27-06-23	Environment	Contract with a laboratory has to be signed	Conclude a contract	N27	N/A	04-07-23	Low	Site Manager	Closed	08-08-23
45	WWTP Balykchy (CRBC)	29-06-23	Safety	The fire extinguishers are not full.	Replace the equipment.	N28	Minor	04-07-23	Low	Site Manager	Closed	30-06-23
46	Lot1 NW Karakol (PE Minur LLC)	25-07-23	Environment	People complain about the dust	Strengthen the frequency of dust hydro suppression	N29	Major	26-07-23	Low	Site Manager	Closed	26-07-23
47	WWTP Balykchy (CRBC)	24-07-23	Safety	Not all workers use PPE	Conduct additional safety training	N30	Major	28-07-23	Medium	Health and Safety Engineer	Closed	30-07-23
48	WWTP Balykchy (CRBC)	08-08-23	Health	The first aid kit has no instructions and is not properly organized	Indicate the intended use of medication, label the first aid kit	N31	Minor	14-08-23	Low	HSE Engineer	Closed	15-08-23
49			Safety	The site shall be fenced	Stretch networks on stairs and bridges		Major	14-08-23	Medium	HSE Engineer	Closed	15-08-23
50			Safety	The temporary bridges are dangerous	Make the temporary bridges safer		Major	14-08-23	High	HSE Engineer	Closed	15-08-23

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
51	Lot1 NW Karakol (PE Minur LLC)	09-08-23	Other	The operator did not have his license with him	Always carry a driver's license	N32	Minor	14-08-23	Low	Site Manager	Closed	10-08-23
52			Safety	No shores in the trenches	Install shores		Minor	14-08-23	Medium	Site Manager	Closed	14-08-23
53			Safety	The site is not fenced	Install fencing with signaling tape		Minor	14-08-23	Low	Site Manager	Closed	10-08-23
54	WWTP Balykchy (CRBC)	23-08-23	Safety	Not all places of work at height are secured by network.	Net all areas where work is to be carried out	N33	Minor	24-08-23	Medium	HSE Engineer	Closed	24-08-23
55			Environment	Dust generation due to machinery movement on site	Water the area before work	N34	Minor	24-08-23	Low	Environmental Engineer	Closed	24-08-23
56	WWTP Balykchy (CRBC)	18-09-23	Safety	There is no fire-extinguishing board at the welding area	Provide the board	N35	Minor	19-09-23	Low	HSE Engineer	Closed	19-09-23
57			Environment	Heavy dusting at the construction site	Suppress dust regularly with water		Minor	19-09-23	Low	Environmental Engineer	Closed	19-09-23
58			Environment	Soil contaminated with oil	Cut off contaminated soil		Minor	19-09-23	Low	Environmental Engineer	Closed	19-09-23
59	WWTP Balykchy (CRBC)	19-10-24	Environment	Fuel leakage on site	Cut off contaminated soil	N36	Minor	23-09-23	Low	Environmental Engineer	Closed	19-09-23
60		19-10-23	Environment	Fuel leakage	Cut off contaminated soil		Minor	26-10-23	Low	Environmental Engineer	Closed	15-11-23

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
61		19-10-23		Garbage is observed on site	Removal of garbage to a sanitary landfill.		Minor	23-10-23	Low	Environmental Engineer	Closed	15-11-23
62	WWTP Balykchy (CRBC)	01-11-23	Environment	Garbage is observed on site	Clean the site	N37	Minor	06-11-23	Low	Environmental Engineer	Closed	15-11-23
63		01-11-23	Environment	Fuel leakage	Cut off the contaminated soil and fill clean soil		Minor	06-11-23	Low	Environmental Engineer	Closed	15-11-23
64		01-11-23	Safety	No protective fence	The site shall be fenced		Minor	06-11-23	Medium	HSE Engineer	Closed	15-11-23
65	WWTP Balykchy (CRBC)	30-11-23	Environment	Fuel leakage and debris	Cut the contaminated soil, remove debris	N38	Minor	30-11-23	Low	Environmental Engineer	Closed	30-12-23
66		30-11-23	Environment	Fuel leakage	Repair machinery		Minor	30-11-23	Low	Site Manager	Closed	28-12-23
67		26-12-23	Environment	Garbage is observed on site	Rubbish removal		Minor	26-12-23	Low	Environmental Engineer	Closed	30-12-23
68	WWTP Balykchy (CRBC)	26-02-24	Safety	open manholes;	Cover all manholes	N39	Minor	04-03-24	Medium	HSE Engineer	Closed	15-03-24
69		26-02-24	Other	debris on the site	Clean the entire construction site		Minor	04-03-24	Low	HSE Engineer	Closed	15-03-24
70		26-02-24	Other	There is no full-time Environmental Specialist on the site	Appoint an environmental specialist		Major	04-03-24	Medium	Project Manager	Closed	04-04-24
71	WWTP Balykchy (CRBC)	14-03-24	Safety	There is no railing on the scaffolding	Install a net	N40	Minor	18-03-24	Medium	HSE Engineer	Closed	05-04-24
72	WWTP Balykchy (CRBC)	29-03-24	Safety	Workers do not use PPE	Conduct training and constant monitoring by a safety and health engineer	N41	Minor	01-04-24	Medium	HSE Engineer	Closed	05-04-24

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
73		29-03-24	Environment	Incineration of waste on the site	Conduct additional training on EMP requirements		Minor	05-04-24	Medium	HSE Engineer	Closed	05-04-24
74		29-03-24	Safety	There is no firefighting equipment stand at the construction site	Install a stand		Major	05-04-24	Medium	HSE Engineer	Closed	14-04-24
75	WWTP Balykchy (CRBC)	18-04-24	Environment	Environmental monitoring is not carried out. Filling out forms	Environmental monitoring to be carried out by the new specialist	N42	Minor	25-04-24	Medium	Environmental Specialist	Closed	01-05-24
76	WWTP Balykchy (CRBC)	30-05-24	Safety	There is no protective fence during high-altitude work	All work at height must be carried out with a guardrail and/or safety belt.	N43	Minor	01-06-24	Medium	Environmental Specialist	Closed	03-06-24
77	Karakol WWTP	17-05-24	Safety	There is no foundation pit fencing	Install a fence	N44	Minor	25-05-24	Medium	HSE Engineer	Closed	24-05-24
78	Karakol WWTP	31-05-24	Other	There is no construction site billboard	Install a construction site billboard	N45	N/A	07-06-24	Low	Project Manager	Closed	14-06-24
79	Balykchy WWTP	13-06-24	Environment	Garbage on the site	Clean the site.	N46	Minor	18-06-24	Low	Environmental Specialist	Closed	19-06-24
80	Karakol WWTP	14-06-24	Safety	The foundation pit is not fenced.	Install the fence.	N47	Minor	19-06-24	Medium	Site Manager	Closed	15-07-24
81	Balykchy WWTP	18-07-24	Environment	Measure noise and vibration, test air, influents and effluents.	Sign a contract with laboratory.	N48	Minor	18-08-24	Low	Environmental Specialist	Closed	31-07-24

No	Site/ Location	Date Recorded	Category	Description of Issue	Corrective Action/s	NCN No	NC Level	Due Date	Priority	Person Responsible	Status	Date Closed
82		18-07-24	Environment	Perform a complete cleanup of the site, outside the construction area	Clean the site.	N49	Minor	18-08-24	Low	Environmental Specialist	Closed	31-08-24
83		18-07-24	Other	All temporary structures shall be dismantled if Vodokanal does not agree with the contrary	Remove temporary structures if agreed with Vodokanal	N50	Minor	15-09-24	Low	Site Manager	Closed	17-08-24
84	Karakol WWTP	19-07-24	Safety	A briefing on health and safety with involvement of representatives of relevant state authorities	Conduct a briefing on health and safety with involvement of representatives of relevant state authorities.	N51	Minor	29-07-24	Medium	Environmental Specialist	Closed	27-07-24
85		19-07-24	Environment	Instrumental monitoring of wastewater quality is not carried on.	Test air and wastewater quality (at inlet and outlet)	N52	Minor	29-07-24	Medium	Environmental Specialist	Closed	24-07-24
87	Balykchy WWTP	16-09-24	Environment	Debris on the site	Remove all construction waste.	N53	Minor	23-09-24	Medium	Site Manager	Closed	21-09-24
88	Pump Station and Rising Main 1.7km in Karakol	14.05.25	Other	Site passport is missing at SPS Site and Crossing the Karakol River	Establish the site's passport	N54	N/A	01.06.25	Low	Site Manger	Open	
89		14.05.25	Safety	no first aid kit	Purchasing a first aid kit	N55	N/A	01.06.25	Low	Site Manger	Open	

## Annexure 5 – Environmental Monitoring Results (Balykchy WWTP)

### (i) Air Quality Monitoring



Accreditation certificate  
№KKG417/KIJA.MTL.049  
dated 12.08.2022

DEPARTMENT OF ENVIRONMENTAL MONITORING UNDER THE  
MINISTRY OF NATURAL RESOURCES,  
ENVIRONMENT AND

TECHNICAL SUPERVISION OF THE KYRGYZ REPUBLIC

---

720005, Bishkek city, Baitik-Baatyr st. 34

tel. (312) 54-61-26

#### ATMOSPHERIC AIR SAMPLE TESTING REPORT № 356-358

**1. Name of the enterprise, organization (applicant):**  
Issyk-Kul region, Balykchy city WWTP.

**2. Registration number and place of sampling/ date of sampling passport:**  
**May 31, 2025.**

356 - Eastern side;  
357 - South side;  
358 - Western side;

**3. Date and time of sampling:**  
31.05.2025 at 16.30

**4. Regulatory document:**  
РД 52.04.186-89 Guidelines for the control of atmosphere pollution.  
СТП ДЭМ 03-01-2021- Atmospheric air sampling  
СТП ДЭМ 03-02-2021- Methodology for measuring carbon monoxide (CO) content  
in atmospheric air using stationary electrochemical gas analyzer K-100.

5. Date(s) of testing: 02.06.-03.06.2025

6. Test results:

Name of the determined indicator	test assessment reference	Analysis data by points, mg/m <sup>3</sup>		MPC*max. permitted, mg/m <sup>3</sup>	Tests carried out by
		03-356-25	03-357-25		
Sulfur dioxide	РД 52.04.186-89	0.093±0.011	0,115±0.014	0,5	Abdyldaeva A.N
Nitrogen dioxide	РД 52.04.186-89	0.150±0.027	0,125±0.022	0,085	
Carbon monoxide	СТП ДЭМ 03-01-2021, СТП ДЭМ 03-	0.2±0.04	0.3±0.06	5,0	Bekturova M.B
Suspended solids	РД 52.04.186-89	0.161±0.04	0,161±0.04	0,5	

Name of the determined indicator	test assessment reference	Analysis data by points, mg/m <sup>3</sup>		MPC*max. permitted, mg/m <sup>3</sup>	Tests carried out by
		03-358-25			
Sulfur dioxide	РД 52.04.186-89	0.117±0.014		0,5	Abdyldaeva A.N.
Nitrogen dioxide	РД 52.04.186-89	0.180±0.032		0,085	
Carbon monoxide	СТП ДЭМ 03-01-2021, СТП ДЭМ 03-02-2021	0.2±0.04		5,0	Bekturova M. B
Suspended solids	РД 52.04.186-89	0.161±0.04		0,5	

The reported expanded measurement uncertainty is reported as the total standard measurement uncertainty multiplied by a coverage factor k-2 that provides a confidence level of approximately 95%. Measurement uncertainty resulting from sampling is included in the expanded measurement uncertainty.

Conclusion\*: According to the results of chemical tests in the selected samples of atmospheric air there is an exceedance of maximum permissible concentration (MPC) maximum single concentration for nitrogen dioxide: at point No. 356 in 1.8 times; at point No. 358- in 2.1 times. For other determined indicators, within the established norms. The established GN "MPC of pollutants in the atmospheric air of populated areas. Resolution of the Government of the Kyrgyz Republic No. 201 (Annex 17) dated April 11, 2016.

The report was drawn up by:

Head of the Department of AAIEMB

Head of the Department of SCARMD

Abdyldaeva A.N

Darbakova A.S.

*The contractor is not responsible if the sample is taken by the employer himself.*

*Reprinting the report without the permission of the testing laboratory is prohibited*

*AAIEMB- Atmospheric Air and Industrial Emissions Monitoring Branch*

*SCARMD- Sampling Coordination, Analytical and Radiation Measurement Division*

*End of report.*

DEPARTMENT OF ENVIRONMENTAL MONITORING UNDER THE MINISTRY OF  
NATURAL RESOURCES, ENVIRONMENT AND TECHNICAL SUPERVISION OF THE  
KYRGYZ REPUBLIC

720005, Bishkek city, Baitik-Baatyr St., 34

tel. (312) 54-61-22

SAMPLE PASSPORT (Atmospheric air)

1. Name of the enterprise, address: Issyk-Kul region, Balykchy WWTP
2. Bases for sampling: Agreement
3. Registration number and place of sampling:
  - 1 - Eastern side
  - 2 - South side
  - 3 - Western side
4. Aim of sampling: Testing of air quality
5. The nature of the samples taken: one-time
6. Environmental conditions: cloudy
7. Temperature in front of the aspirator: 20C
8. Atmosphere pressure: 634 mHg
9. Date of sampling: 31.05.2025 from 16.30
10. test assessment reference ПД 52,04,186-89 Guidelines for the control of atmosphere pollution. СТП ДЭМ 03-01-2021 Atmospheric air sampling

Samples taken by:  
DEM Representative  
(position, surname)

Samalbek u M., General Specialist

Witnessed by:  
State inspector  
(Position, surname)

Enterprise representative (Position, surname)

Sagyrov S.

Page: 4 out of 4

(ii) Noise levels – Balykchy WWTP

Profilab LLC  
Bishkek,  
Togolok-Moldo st., 60a  
office 319, tel.: 0312325067  
tel.: 0701005051

[e-mail: profilab.ltd@mail.ru](mailto:profilab.ltd@mail.ru)

NOISE MEASUREMENT PROTOCOL

No. 06 dated April 4, 2025

1. Legal entity, individual entrepreneur or individual, where measurements are made, address: Representative office of **China Road and Bridge Corporation in Kyrgyzstan, Bishkek, Manas St. 155 B/V**
2. Object where measurements are taken: Treatment Plant, Ton district of a/o Kok **Moynok** of **Balykchy** WWTP section  
(name, actual address)

3. Basis for measurement: **Agreement No. 12/17**

4. Name of measuring instruments and information about calibration of the measured device:

Name of measuring instrument	No.	Calibration certificate		Calibration Interval
		No.	Date	
Экофизика - 110А	№АВ 130044	№К0061-0503/25	05.03.2025 г.	12 месяцев

5. Normative documentation in accordance with which the measurements were carried out:   
GOST ISO 9612-2016 Acoustics. Noise measurements for the assessment of human exposure to noise. Method of measurements at workplaces

6. Normative documentation for the norms:

7. Environmental conditions: Temperature: 11°C  
Humidity: 52%

8. Sources of physical factors and their characteristics: company equipment

9. Design



Locations where the measurements were taken. Check Point

10. Date of measurement: April 3, 2025

Page: 1 out of 3

1	Place of measurement	nature of the noise						Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz										Noise level (DBA) L <sub>Aeq</sub>	Noise level (DBA) L <sub>Amax</sub>	Measurement uncertainty ±dB
		By spectrum			By time			31,5	63	125	250	500	1000	2000	4000	8000				
		broadband	tonal	constant	fluctuating	intermittent	impulsive													
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
The territory of the treatment plant, near equipment																				
Latitude: 42° 45'66"; Longitude: 76°11'50 "																				
1	Pump P-302						64	58	51	48	49	44	42	37	37	50	74			
The territory of the treatment plant																				
Latitude: 42° 45'67"; Longitude: 76°11'80'																				
2	Grid building						60	70	56	59	67	61	57	51	43	67	73			
The territory of the treatment plant																				
Latitude: 42° 45'67"; Longitude: 76°11'43'																				
3	Reservoir						60	60	62	61	66	68	65	55	43	71	74			
	Biological treatment																			
The territory of the treatment plant, near the administrative building																				
Latitude: 42° 45'66"; Longitude: 76°11'28'																				
4	near the administrative building						65	61	57	48	48	45	42	37	37	51	75			

Conclusion on the results of measurements: According to the results of laboratory measurements it was established that at the time of measurement of noise level during industrial works at the territory of the facility at the site of Balykchy WWTP A/O Kok Moynok, amounted from 50 dBa to 71 dBa

The background noise level from the traffic flow ranged from 69 to 70 dB.

Job title	Full name	signature
Technical Manager/Engineer	Nuriddin <u>uulu T.</u>	
Engineer	<u>Munarbekov A.</u>	

The report is drawn up in two copies: the 1st copy is issued at the place of request;

The 2nd copy remains in the laboratory.

Total number of pages 3: 3 pages

Report storage period: 4 years

Note: The results of the report correspond to the time of the measurements taken.

Reproduction of the report without the permission of the head of the laboratory is prohibited.

The measurement results refer only to these objects.

End of report

(iii) Vibration levels – Balykchy WWTP

Profilab LLC  
Bishkek,  
Togolok-Moldo st. 60a  
office 319, tel.: 0312325067  
tel.: 0701005051

[e-mail: profilab.ltd@mail.ru](mailto:profilab.ltd@mail.ru)

VIBRATION MEASUREMENT REPORT

No. 06 dated April 4, 2025

1. Legal entity, individual entrepreneur or individual, where measurements are made, address:  
Representative office of **China Road and Bridge Corporation in Kyrgyzstan, Bishkek, Manas St. 155 B/V**

2. Object where measurements are taken: Treatment Plant, Ton district of a/o Kok Moinok  
of Balykchy WWTP section  
(name, actual address)

3. Basis for measurement: **Agreement No. 24/8**

4. Name of measuring instruments and information about calibration of the measured device:

Name of measuring instrument	No.	Calibration certificate		Calibration Interval
		No.	Date	
Экофизика - 110А	№АВ 130044	№K0046-0503/25	05.03.2025 г.	12 months

5. Normative documentation for measurement methods, in accordance with which the measurements were carried out: GOST 31319-2006 «Vibration. Measurement of general vibration and assessment of its impact on a person. Requirements for measurements at workplaces. »

6. Regulatory documentation for standards:

7. Environmental conditions: Temperature: 11°C  
Humidity: 52%

8. Sources of physical factors and their characteristics: Company equipment.

9. Design



Check Point.

10. Date of measurement: April 3, 2025

Page: 1 out of 3

measurement results:

1	Place of measurement	Vibration type				Sound pressure levels in dB in octave bands with geometric mean frequencies in Hz						Adjusted and equivalent adjusted values and their levels		Measurement uncertainty ±dB
		Total				2	4	8	16	31.5	63	Frequency correction W m (dB) L <sub>Aeq</sub>	Frequency correction W m	
		transport	Transport-technological	technological	local									
2	3	4	5	6	7	8	9	10	11	12	13	14		
The territory of the treatment plant, near the equipment														
Latitude: 42° 45'66"; Longitude: 76° 11'50".														
3	Pump P-302			+		93	90	68	63	61	59	91	97	
The territory of the treatment plant														
Latitude: 42° 45'67"; Longitude: 76° 11'80".														
4	Grid Building			+		92	90	86	84	59	61	85	88	
The territory of the treatment plant														
Latitude: 42° 45'67"; Longitude: 76° 11'43".														
5	Reservoir			+		99	90	87	84	59	59	89	95	
	Biological treatment			+										
The territory of the treatment plant, when the roller and HOWO mode is off														
Latitude: 42° 28'2"; Longitude: 75° 57'23".														
6	Leg			+		89	80	75	70	58	53	85		
	Slow max			+								90		
The territory of the treatment plant														
Latitude: 42° 45'66"; Longitude: 76° 11'28".														
7	Near the administrative building			+		94	90	87	84	62	59	96	102	

Conclusion on the results of measurements: According to the results of instrumental measurements it was established that the level of general vibration in the annexed territory of the treatment facilities of the site of Balykchy WWTP Kok Moinok A/o, ranged from 81dB to 96dB.

Job title	Full name	signature
General Director	Bulanbekov I. A.	
Technical Manager/Engineer	Nuriddin <u>uuju</u> T.	

The report is drawn up in two copies: the 1st copy is issued at the place of request;  
The 2nd copy remains in the laboratory.  
Total number of pages: 3 pages  
Report storage period: 4 years  
Note: The results of the report correspond to the time of the measurements taken.  
Reproduction of the report without the permission of the head of the laboratory is prohibited.  
The measurement results refer only to these objects.

End of report

## Annexure 6 – Environmental Monitoring Results (Karakol WWTP)

### (i) Ambient Air Quality Monitoring Results

 <p>ISO/IEC 17025 № KG 417/КЦА.ИЛ.049 От: 12.08.2022 г. Область аккредитации на сайте: <a href="http://www.kca.gov.kg">www.kca.gov.kg</a></p>	<p>КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ ЭКОЛОГИЯ ЖАНА ТЕХНИКАЛЫК КӨЗӨМӨЛ МИНИСТРЛИГИНЕ КАРАШТУУ ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ</p> <p>ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И ТЕХНИЧЕСКОГО НАДЗОРА КЫРГЫЗСКОЙ РЕСПУБЛИКИ</p>
<p>* - Вне аккредитации</p>	
<p>720005, г. Бишкек, ул. Байтик-Баатыра, 34</p>	<p>тел. (312) 54-61-22</p>
<p><b>ПРОТОКОЛ ИСПЫТАНИЙ ПРОБ АТМОСФЕРНОГО ВОЗДУХА</b></p>	
<p><b>№ 505-508</b></p>	
<p><b>1. Наименование предприятия, организации (заявитель):</b></p>	
<p><i>Иссык-Кульская область, г. Каракол, ОсОО «Nayat Group».</i></p>	
<p><b>2. Регистрационный номер и место отбора проб/дата паспорта отбора</b></p>	
<p><b>проб:</b> <u>30.06.2025 г.</u></p>	
<p><u>505– Южная сторона стройплощадки очистного сооружения 42.536437, 78.365043;</u></p>	
<p><u>506– Северо-западная сторона стройплощадки очистного сооружения 42.538368, 78.364675;</u></p>	
<p><u>507– Восточная сторона стройплощадки очистного сооружения 42.539548, 78.366124;</u></p>	
<p><u>508– Поселок геологов, 42.541515, 78.367052.</u></p>	
<p><b>3. Дата и время отбора проб:</b></p>	
<p><u>30.06.2025 г. с 15 часов 30 минут.</u></p>	
<p><b>4. Нормативный документ:</b></p>	
<p><u>РД 52.04.186-89 – Руководство по контролю загрязнения атмосферы.</u></p>	
<p><u>СТП ДЭМ 03-01-2021–Отбор проб атмосферного воздуха.</u></p>	
<p><u>СТП ДЭМ 03-02-2021–Методика выполнения измерений содержания оксида углерода (СО) в атмосферном воздухе с помощью газоанализатора стационарного электрохимического К-100.</u></p>	
<p><b>5. Дата(ы) проведения испытаний:</b></p>	
<p><u>01.07. – 04.07.2025 г.</u></p>	
<p><b>6. Результаты испытаний:</b></p>	

Наименование определяемого показателя	НД на метод испытаний	Данные анализа по точкам, мг/м <sup>3</sup>		ПДК макс.раз. мг/м <sup>3</sup>	Испытания провел
		03-505-25	03-506-25		
Диоксид серы	РД 52.04.186-89	0,099 ±0,012	0,070 ±0,008	0,5	Жолдошбекова З.Ж.
Диоксид азота	РД 52.04.186-89	0,120 ±0,022	0,043 ±0,008	0,085	
Оксид углерода	СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021	0,7 ±0,14	0,4 ±0,08	5,0	
Взвешенные вещества	РД 52.04.186-89	0,248 ±0,062	0,149 ±0,037	0,5	

Наименование определяемого показателя	НД на метод испытаний	Данные анализа по точкам, мг/м <sup>3</sup>		ПДК макс.раз. мг/м <sup>3</sup>	Испытания провел
		03-507-25	03-508-25		
Диоксид серы	РД 52.04.186-89	0,087 ±0,010	0,095 ±0,011	0,5	Жолдошбекова З.Ж.
Диоксид азота	РД 52.04.186-89	0,052 ±0,009	0,057 ±0,010	0,085	
Оксид углерода	СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021	0,3 ±0,06	0,2 ±0,04	5,0	
Взвешенные вещества	РД 52.04.186-89	0,248 ±0,062	0,149 ±0,037	0,5	

Сообщаемая расширенная неопределенность измерения указывается как суммарная стандартная неопределенность измерения, умноженная на коэффициент охвата k=2, который обеспечивает уровень доверия приблизительно 95%. Неопределенность измерений, возникающая в результате отбора проб, включена в расширенную неопределенность измерений.

*Заключение\**: По результатам химических испытаний в отобранных пробах атмосферного воздуха наблюдается превышение по сравнению ПДК (предельно-допустимая концентрация) по диоксиду азота: в точке №505- в 1,4 раза. Остальные показатели в пределах установленных норм. Установленная ГН «ПДК загрязняющих веществ в атмосферном воздухе населенных мест», утв. Постановлением Правительства КР №201(приложение 17) от 11 апреля 2016г.

Заведующая СМАВиПВ  
Заведующая ОКОПАИР

*Исполнитель не несет ответственности, если проба отобрана самим заказчиком  
Перечитав протокол без разрешения ДЭМ записаны  
СМАВиПВ – сектор мониторинга атмосферного воздуха и промышленных выбросов  
ОКОПАИР - отдела координации отбора проб, анализами и измерение радиации.*

Конец протокола.



Жолдылдаева А. Н.  
Дарбакова А. С.



(ii) Noise Levels

**Санитарно-гигиеническая лаборатория  
Отдел лабораторных исследований**

**КАРАКОЛЬСКИЙ МЕЖРАЙОННЫЙ ЦЕНТР ПРОФИЛАКТИКИ ЗАБОЛЕВАНИЙ  
И ГОССАНЭПИДНАДЗОРА при МЗ КР**

---

722060 г. Каракол, ул. Мингурина, 4 тел. 4-09-85; 4-09-70



ISO/IEC 17020  
№ КГ 417/ЗДА ОК 111  
От: 04.11.2024 г.  
Область аккредитации  
на сайте: [www.kco.gov.kg](http://www.kco.gov.kg)

**ПРОТОКОЛ  
ЛАБОРАТОРНЫХ ИЗМЕРЕНИЙ ШУМА  
НА РАБОЧИХ МЕСТАХ, ЖИЛЫХ И ОБЩЕСТВЕННЫХ ЗДАНИЯХ  
№92  
от «16» июня 2025г.**

- 1 Наименование объекта: Строй площадка КОС г Каракол ОсОО «Хаят Групп»
- 2 Дата и время проведения измерения: 11.06.2025г. 15<sup>20</sup>
- 3 Адрес и место проведения измерения: г Каракол.
- 4 Характеристика помещения, в котором проводились измерения: строй площадка (размеры, объем, оборудование, этаж.)
- 5 Цель проведения измерения: санитарно – гигиеническая оценка.
- 6 Особые условия, влияющие на результаты измерений: 1)28,8° С; 48,2%  
(температура, относительная влажность, скорость движения воздуха)
- 7 Измерение проводились в присутствии: Эколог Букарова А.К.  
представителя обследуемого объекта    должность    Ф.И.О
- 8 Нормативный документ на метод выполнения испытания : ГОСТ 23337-2014 «Шум. Методы измерения шума на селитебной территории и в помещениях жилых и общественных зданий».
9. Наименование действующего нормативного документа: Постановление Правительство САНИТАРНО-ЭПИДЕМИОЛОГИЧЕСКИЕ ПРАВИЛА И НОРМАТИВЫ «Шум на рабочих местах, в помещениях жилых, общественных зданий и на территории жилой застройки №201 от 11.04.2016г приложение №14.
10. Средства измерений, применяемые при отборе, тип, марка, заводской номер, сведение о поверке : Шумомер Октава 110А , зав.№ БА190708 сертификат о калибровке ВА-06-05-3077 от 29.11.2024г.

Стр 1 из 2

Результаты измерения шума:

№ п/п	Описание Место измерения (ситуационный план территории с указанием расположения зданий, транспортных дорог, источников шума точек измерения).	Характер шума						Уровни звукового давления в ДБ в октавных полосах со среднегеометрическими частотами в Гц										Уровень звука дБА фактический	Предел ьно допустимый уровень звука дБА (ГДУ)
		По спектру		По временным				31,5	63	125	250	500	1000	2000	4000	8000			
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
1	Строй площадка лагерь	+	+					107	95	87	82	78	75	79	71	69	80		
								72,5	67,7	59,7	49,6	49,6	46,7	42,5	37,7	39,5	76,5±2,88		
2	Площадка около отстойника							107	95	87	82	78	75	73	71	69	80		
								75,5	70,4	73,8	74,0	69,0	58,4	49,0	49,7	49,7	76,3±2,8		
3	Территория администрации							107	95	87	82	78	75	79	71	69	80		
								67,3	54,6	43,4	37,5	37,2	37,0	40,0	37,9	36,8	75,0±2,8		
4	Поселок геологов							107	95	87	82	78	75	79	71	69	80		
								63,6	53,5	43,3	48,8	44,1	33,6	36,3	34,9	36,6	70,3±2,5		

Расширенная неопределенность измерения указывается как суммарная стандартная неопределенность измерения, умноженная на коэффициент охвата  $k=2$ , что вероятность охвата соответствует приблизительно 95%. Неопределенность измерений, возникающая в результате отбора проб, не включена в расширенную неопределенность измерений.

Измерение проводили:

Врач-лаборант  
Техник:

Сагымбаева Э.С.  
Асангазиев А.У.

Заведующая СГЛ:

Табалдиева Ж.У.

Конец протокола!

Примечание: Результаты измерения относятся только на момент обследования.  
Перепечатка протокола без разрешения санитарно-гигиенической лаборатории ЗАПРЕЩЕНА!

Заключения по результатам измерения: Уровень шума на указанном месте не превышает предельно допустимый уровень звука дБА  
сан. бюл. подпись Ж.У.

(iii) Water Quality Monitoring



ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И  
ТЕХНИЧЕСКОГО НАДЗОРА КЫРГЫЗСКОЙ РЕСПУБЛИКИ

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ,  
ЭКОЛОГИЯ ЖАНА ТЕХНИКАЛЫК КӨЗӨМӨЛ  
МИНИСТРЛИГИНЕ КАРАШТУУ  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

\* -Вне аккредитации

720005, г. Бишкек, ул. Байтик-Баатыра, 34

тел. (312) 54-61-22

**ПРОТОКОЛ ИСПЫТАНИЙ  
ПРОБ ВОДЫ**

**№ 355-358**  
от 17.07.2025 г.

- 1. Наименование предприятия, организации (заявитель):**  
Иссык-Кульская область, г. Каракол, ОсОО «Hayat Group».
- 2. Регистрационный номер и место отбора проб/дата паспорта отбора проб:** 30.06.2025 г.  
355- река Каракол, выше 500м от стройплощадки О.С.;  
356- река Каракол, ниже 500м от стройплощадки О.С.;  
357- ручей Кара-Суу выше 500м от стройплощадки О.С.;  
358- ручей Кара-Суу ниже 500м от стройплощадки О.С.
- 3. Дата и время отбора проб:**  
30.06.2025 г. с 15:30 ч.
- 4. Нормативный документ:**  
Правила охраны поверхностных вод КР от 14 марта 2016-год № 128;  
ГОСТ 31861-2012 Вода. Общие требования к отбору проб воды.
- 5. Дата(ы) проведения испытаний:**  
01.07. –17.07.2025 г.
- 6. Результаты испытаний:**

Стр. 1 из 2

№	Наименование определяемого показателя	Ед. изм.	НД на метод испытаний	Данные анализа по точкам		ПДК		Испытания провел
				01-355-25	01-356-25	+	++	
1	Нефтепродукты	мг/л	ПНД Ф14.1.2:4.128-98	<0,005	<0,005	0,05	0,3	Кутманбаева Г.К. Догдурбек к.М.
2	Взвешенные вещества	мг/л	ПНД Ф 14.1.2:3.110-97	3,40±1,02	2,80	Увел. 0,25/0,75		

№	Наименование определяемого показателя	Ед. изм.	НД на метод испытаний	Данные анализа по точкам		ПДК		Испытания провел
				01-357-25	01-358-25	+	++	
1	Нефтепродукты	мг/л	ПНД Ф14.1.2:4.128-98	<0,005	<0,005	0,05	0,3	Кутманбаева Г.К. Догдурбек к.М.
2	Взвешенные вещества	мг/л	ПНД Ф 14.1.2:3.110-97	1,80	2,00	Увел. 0,25/0,75		

+Перечень ПДК для рыбохозяйственного водопользования

++Перечень ПДК хозяйственно-питьевого и культурно-бытового водопользования

Сообщаемая расширенная неопределенность измерения указывается как суммарная стандартная неопределенность измерения, умноженная на коэффициент охвата  $k=2$ , который обеспечивает уровень доверия приблизительно 95%. Неопределенность измерений, возникающая в результате отбора проб, включена в расширенную неопределенность измерений.

*Заключение\*: По результатам химических испытаний в отобранных пробах воды не наблюдается превышение по сравнению ПДК (предельно-допустимая концентрация) для рыбохозяйственного водопользования, утв. Постановлением Правительства КР №201 от 11 апреля 2016г.*

Заведующая ОМЭВ

Заведующая ОКОПАИР

*Исполнитель не несет ответственности, если проба отобрана самим заказчиком*

*Переводится протокола без разрешения ДЭМ запрещена.*

*ОМЭВ – отдел мониторинга водных ресурсов (поверхностных и сточных вод)*

*ОКОПАИР – отдел координации отбора проб, аналитики и измерения радиации.*



Баялы кызы Б.  
Дарбакова А.С.

Конец протокола.

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ, ЭКОЛОГИЯ ЖАНА  
ТЕХНИКАЛЫК КӨЗӨМӨЛ МИНИСТРЛИГИНЕ КАРАШТУУ  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И ТЕХНИЧЕСКОГО НАДЗОРА  
КЫРГЫЗСКОЙ РЕСПУБЛИКИ

720005, г. Бишкек, ул. Байтик Баатыра, 34

тел. (312) 54-61-22

ПАСПОРТ НА ПРОБУ

(вода)

1. Наименование, адрес объекта: Ишкк - Жумгал облусуна  
г. Каракол, 000 «Korol Group»

2. Основание для отбора: Договор

3. Порядковый номер и место отбора проб:

1 р. Каракол, выше 500 м от створ-метки Д.С.

2 р. Каракол, выше 500 м от створ-метки Д.С.

3 ручей Жара-Суу выше 500 м от створ-метки Д.С.

4 ручей Жара-Суу выше 500 м от створ-метки Д.С.

4. Цель отбора: Опред-ие кач. вод

5. Характер отобранных проб: разовые

6. Условия окружающей среды: ясно

7. Дата отбора проб: 30.06.2025 г с 15:30 ч

8. НД: ГОСТ 31861-2012 "Вода. Общие требования к отбору проб"; Правила охраны поверхностных вод КР от 14 марта 2016-год №128.

Пробы отобрал: вед. специалист. Мамедбек у Р

Представитель ДЭМ \_\_\_\_\_

Присутствовали: \_\_\_\_\_

Госинспектор \_\_\_\_\_

Представитель предприятия Жааноз Орозбаев \_\_\_\_\_

(должность, фамилия) Учур А. Бурбаев 1 стр из 1



ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И  
ТЕХНИЧЕСКОГО НАДЗОРА КЫРГЫЗСКОЙ РЕСПУБЛИКИ

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ,  
ЭКОЛОГИЯ ЖАНА ТЕХНИКАЛЫК КӨЗӨМӨЛ  
МИНИСТРЛИГИНЕ КАРАШТУУ  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

\* -Вне аккредитации

720005, г. Бишкек, ул. Байтик-Баатыра, 34

тел. (312) 54-61-22

## ПРОТОКОЛ ИСПЫТАНИЙ ПРОБ ВОДЫ

№ 359-360  
от 18.07.2025 г.

- 1. Наименование предприятия, организации (заявитель):**  
*Иссык-Кульская область, г. Каракол, ОсОО «Nayat Group»*
- 2. Регистрационный номер и место отбора проб/дата паспорта отбора проб:** 30.06.2025 г.  
*359- Вода поступающая в очистное сооружение (вход);  
360- Вода после очистки (выход).*
- 3. Дата и время отбора проб:**  
30.06.2025 г. с 10:00 ч.
- 4. Нормативный документ:**  
ГОСТ 31861-2012 Вода. Общие требования к отбору проб. ПНД Ф 12.15.1-08 Методические указания по отбору проб для анализа сточных вод.
- 5. Дата(ы) проведения испытаний:**  
01.07. –18.07.2025 г.
- 6. Результаты испытаний:**

Стр. 1 из 2

№	Наименование определяемого показателя	Ед. изм.	НД на метод испытаний	Данные анализа по точкам		Испытания провел
				01-359-25	01-360-25	
1	Азот аммонийный	мг/л	ГОСТ 33045-2014	5,49±0,77	7,60±1,06	Кутманбаева Г.К. Догдурбек к М.
2	Азот нитритный	мг/л		<0,001	<0,001	
3	Азот нитратный	мг/л		0,36±0,18	0,53±0,26	
4	Взвешенные вещества	мг/л	114,00±11,40	118,00±11,80		
5	Перм. окисляемость	мгО/л	СЭВ ч.1 М. 1977*	68,56	101,40	
6	Биохимическое потребление кислорода (БПК <sub>5</sub> )	мгО/л	ПНД Ф 14.1:2:3:4.123-97	165,00±14,85	276,00±24,84	
7	СПАВ	мг/л	СТП ДЭМ 01-01-2021	1,67	1,58	

Сообщаемая расширенная неопределенность измерения указывается как суммарная стандартная неопределенность измерения, умноженная на коэффициент охвата  $k=2$ , который обеспечивает уровень доверия приблизительно 95%. Неопределенность измерений, возникающая в результате отбора проб, включена в расширенную неопределенность измерений.

*Примечание\*: Эффективность очистки устанавливается в зависимости от вида объектов. В соответствии с техническими документами очистных сооружений.*

Заведующая ОМВР  
Заведующая ОКОПАИР

*Исполнитель не несет ответственности, если проба отобрана самим заказчиком.  
Перевалочка протокола без разрешения ДЭМ запрещена.  
ОМВР – отдел мониторинга водных ресурсов (поверхностных и сточных вод)  
ОКОПАИР – отдел координации отбора проб, аттестации и измерения радиации.*



Баялы кызы Б.  
Дарбакова А. С.

Конец протокола.

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ, ЭКОЛОГИЯ  
ЖАНА ТЕХНИКАЛЫК КӨЗӨМӨЛ МИНИСТРЛИГИНЕ КАРАШТУУ  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И  
ТЕХНИЧЕСКОГО НАДЗОРА КЫРГЫЗСКОЙ РЕСПУБЛИКИ

0005, г. Бишкек, ул. Байтик Баатыра, 34

тел. (312) 54-61-22

ПАСПОРТ НА ПРОБУ  
(сточная вода)

1. Наименование, адрес объекта: ИИИИ - Кыргызская компания  
г. Жаркент, ООО «Кочкор Строй»
2. Основание для отбора: Договор
3. Порядковый номер и место отбора проб:  
1 вода поступающая в очистные сооружения (вход)  
2 вода после очистки (выход)
4. Цель отбора: Контроль за качеством очистки
5. Характер отобранных проб: разовый
6. Способ очистки: механическая
7. Условия окружающей среды: хорошо
8. Дата и время отбора проб: 30.06.2015г
9. НД: ГОСТ 31861-2012 "Вода. Общие требования к отбору проб"; ПНД Ф 12.15.1-08 Методические указания по отбору проб для анализа сточных вод.

Пробы отобрал: С.С. Мамыбеков Р. Ура  
Представитель ДЭМ \_\_\_\_\_  
(должность, фамилия)  
Присутствовали:  
Госинспектор \_\_\_\_\_  
(должность, фамилия)  
Представитель предприятия ИИИИ ООО \_\_\_\_\_  
(должность, фамилия) "Хайа Групп" Букаророва Ф

## **Annexure 7 – Monitoring of Central Asiatic Frogs**

### **Report on Monitoring of Adaptation Effectiveness of the Central Asiatic Frog to New Habitats under the Program "Capture and Relocation of Central Asiatic Frogs (*Rana Asiatica Bedriaga*) from Karakol WWTP**

---

Project No.: 50176-002

May 2025

### **KGZ: Issyk-Kul Wastewater Management Project, Design and Build of WWTP in Karakol**

Prepared by the State Institution Drinking Water Supply and Sewerage Development under the Water Resources Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic in Association with National Academy of Sciences of the Kyrgyz Republic .

## **Table of Contents**

1. Introduction	56
2. Methodology for Central Asiatic Frogs Monitoring	57
3. Monitoring Results	60
4. Conclusions	65
5. Recommendations	65
6. References	66

## **List of Tables**

Table 1: Relocated Asiatic Frog- Monitoring Methodology: .....	57
--	----

## **List of Figures**

Figure 1: Central Asiatic Frogs Monitoring Locations .....	59
Figure 2: Floodplain of the Karakol River at the left bank of the River.....	60
Figure 3: Pond west of Sewage Treatment Plant .....	61
Figure 4: Pond west of Sewage Treatment Plant .....	62
Figure 5: Fishing Ponds .....	63
Figure 6: Left Tributary of the River, Karakol.....	64

## **Annexure**

Annexure 1: Relocated Frog Monitoring Plan

## 1. Introduction

1. The Central Asiatic frog (*Rana asiatica*) is observed in aquatic habitats when air temperatures reach +6 to +14 °C and water temperatures are between +6 and +7 °C. Spawning begins at water temperatures of +6 to +16 °C or higher. Mating typically occurs at night, although it may occasionally take place during the daytime. In the Issyk-Kul Basin, breeding is recorded from mid-April. Depending on the weather conditions this spring, these dates may shift by 5 to 10 days in either direction. The spawning period lasts for 7 to 10 days.

2. The capture and relocation of adult frogs and their eggs from the Karakol WWTP were carried out between April 7 and April 19, 2023<sup>5</sup>. The period from egg deposition to the emergence of juveniles onto land usually takes 35–45 days (*Iskakova, 1959*). Since the main egg-laying period of the Central Asiatic frog in 2023 fell between the end of the first and the beginning of the second ten-day period of April, juvenile frogs from the relocated egg masses began to emerge in the second half of May, and by mid-June, most tadpoles were expected to have complete metamorphosis.

3. The juvenile frogs then transition to an independent life in the moist meadows adjacent to water bodies. As a species native to open marshes and damp grasslands, the Central Asiatic frog rarely goes far from aquatic environments. Newly emerged juveniles measure 8–10 mm in length; however, they exhibit rapid growth shortly after metamorphosis. At the same time, juvenile frogs often perish when faced with unfavorable environmental conditions and numerous predators. Therefore, the most appropriate period for assessing the effectiveness of the relocation efforts is from late June to early July.

4. To assess the effectiveness of the conservation efforts and the relocation of adult frogs and their egg masses, it is necessary to conduct population monitoring at the sites for both the adult frogs and the tadpoles that emerged from the eggs.

---

<sup>5</sup> Due to the de-sludging activities in the ponds/lagoons and the start of construction works, the Central Asiatic frogs were relocated to a safer site identified by the National Academy of Sciences of the Kyrgyz Republic

## 6 2. Methodology for Central Asiatic Frogs Monitoring

5. The evaluation of population of Central Asiatic Frogs (*Rana asiatica* Bedriaga) relocated in 2023 from the Karakol WWTP. Monitoring was conducted from May 6 to 12, 2025. The following table outlines the monitoring methodology adopted for the relocated Central Asiatic frog population.

**Table 11 : Relocated Asiatic Frog- Monitoring Methodology:**

<b>Component</b>	<b>Details</b>
<b>Monitoring Objective</b>	Enumerate and assess the survival, breeding success, and habitat integration of relocated <i>Rana asiatica</i> populations.
<b>Timing</b>	Monitoring was conducted from 6–12 May 2025, aligning with the peak breeding season (typically May–June) to document reproductive activity and habitat utilization.
<b>Monitoring Frequency</b>	- An <b>initial monitoring</b> was planned within one year following frog relocation; however, due to scheduling constraints associated with MNRETS activities, no monitoring was conducted in 2024. Accordingly, the current 2025 monitoring shall be considered the initial post-relocation monitoring event.
<b>Monitored Sites</b>	All receptor habitats listed in the Asiatic Frog Relocation Report (e.g. Sites 1–5 near Karakol WWTP);.
<b>Techniques Used</b>	- <b>Visual Encounter Surveys (VES):</b> Morning/evening transects - <b>Egg/Tadpole Sampling:</b> Dip netting in breeding pools - <b>Habitat Assessment:</b> Water quality, vegetation, and predator presence
<b>Monitoring Duration</b>	Minimum 6 consecutive days per cycle, with alternating diurnal and nocturnal sessions.
<b>Data Parameters</b>	- Adult frog count - Egg clutch count - Tadpole survival - Juvenile recruitment - Habitat quality metrics
<b>Personnel Involved</b>	Scientists/researchers from National Academy of Sciences of the Kyrgyz Republic - A.T. Davletbakov, PhD in Biological Sciences - A.B. Berdibekova, Research Fellow

Component	Details
	- K.I. Ivanyuk, Research Fellow
<b>Documentation</b>	<ul style="list-style-type: none"> <li>- Field datasheets</li> <li>- Photographic records</li> <li>- Summary report within 30 days post-monitoring</li> </ul>
<b>Safety &amp; Ethics</b>	<ul style="list-style-type: none"> <li>- Use dip nets with minimal disturbance</li> <li>- Avoid handling unless necessary</li> <li>- Employ gloves when contact is required</li> <li>- Minimize disruption to aquatic vegetation and breeding activity</li> </ul>

6. Population counts were carried out on control plots 10 × 10 meters, randomly selected at water bodies (in areas where frogs were relocated in 2023) at varying distances from the banks. Three control plots were areas in areas with favorable, moderate, and poor habitat conditions, respectively. To estimate frog number, a complete count of adult and juvenile individuals was conducted within each 100 m<sup>2</sup> plot.

7. Thus, 9 control plots with a total area of 900 m<sup>2</sup> were established around each water body. Considering that the release of captured 180 frogs and the relocation of 126 eggs were carried out at five water bodies located in different areas, the total area of the monitoring plots amounted to 4,500 m<sup>2</sup> (Refer Figure 1). The sampling location co-ordinates are as follows

- Location 1. – N 42° 32' 11" E 78° 20' 57" Pond
- Location 2. – N 42° 31' 58" E 78° 20' 56"
- Location 3. – N 42° 32' 26" E 78° 21' 40"
- Location 4. – N 42°32'4.67" E 78°20'41.01"
- Location 5. – N 42° 33' 13" E 78° 20' 46"

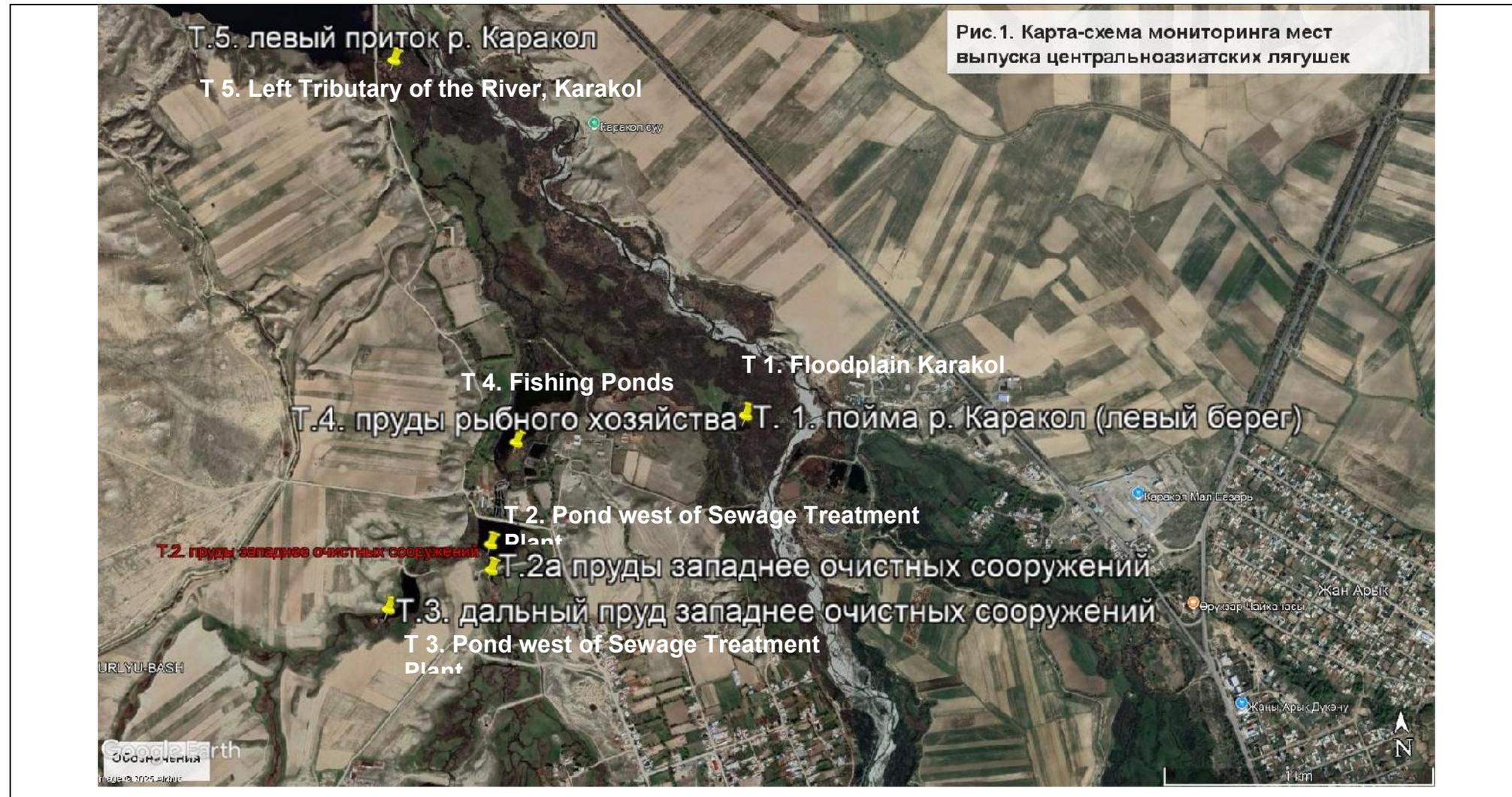


Рис. 1. Карта-схема мониторинга мест выпуска центральноазиатских лягушек

Figure 3: Central Asiatic Frogs Monitoring Locations

## 2. Monitoring Results

8. Point 1 (N 42°32'26" E 78°21'40'). Monitoring was carried out along the edges of a natural lake located within the floodplain of the Karakol River at the left bank of the river. The total area of the lake is ~0.003 ha. The monitored section, covering 0.39 ha, is a marshy habitat predominantly overgrown with sedges and reeds (Refer Figure 2). In this area, 17 adult individuals were recorded (see Photo 1), along with 34 juveniles from the previous and current year (see Photo 2).



**Figure 4: Floodplain of the Karakol River at the left bank of the River**



**Photo 1. Adult frog**



**Photo 2. Juvenile**

9. Point 2, 2a (N 42°32'11" E 78°20'57"). The bank area of artificial ponds located to the west of the WWTP was monitored (Refer Figure 3). The total area of the water body (T.2) is 1.9 ha, with a bank zone covering 1.2 ha. The vegetation is predominantly composed of sedges, reeds, and sea buckthorn. Another monitored site (T.2a) is a marshy habitat with strong groundwater discharge, covering a total area of 0.12 hectares. It features well-developed marsh vegetation and includes small puddles in certain areas. In this area, a density of 2–3 individuals per 1m<sup>2</sup> was recorded. The total population is ~ 200–300 individuals.



**Figure 5: Pond west of Sewage Treatment Plant**

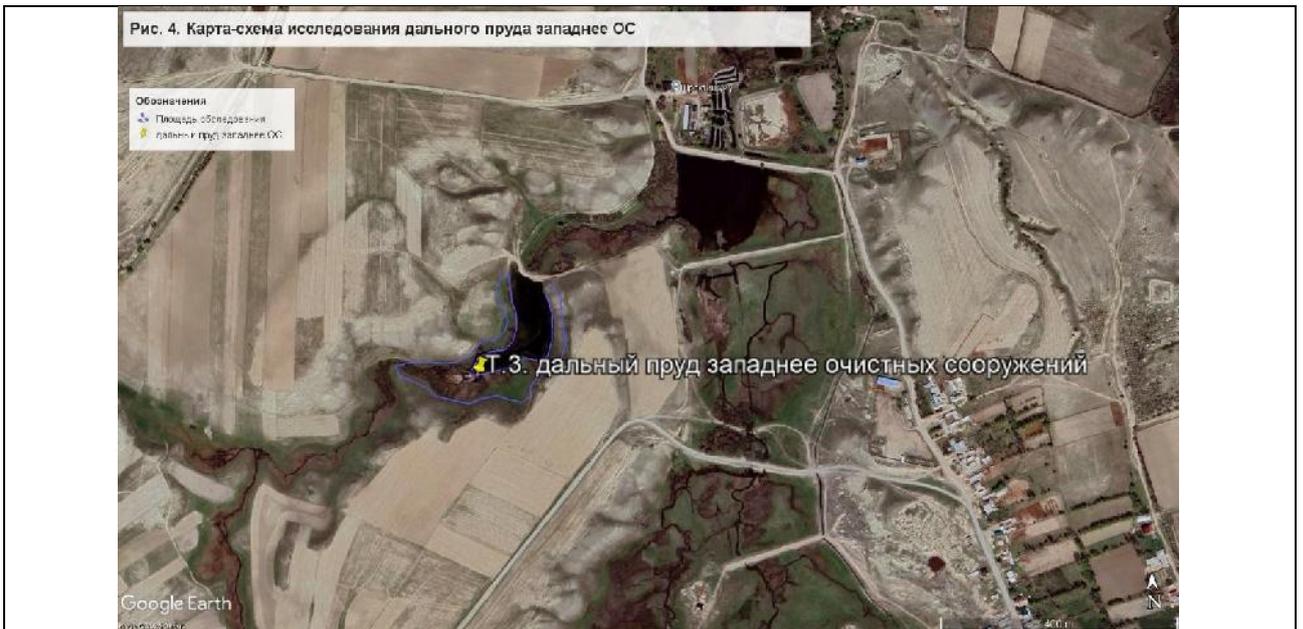


**Photo 3. A juvenile individual in grass**



**Photo 4. Juvenile caught with a dip net**

10. Point 3 (N 42°32'4.67" E 78°20'41.01"). The farthest pond is located to the west of the WWTP (Refer Figure 4). The total area of the water body is 2.1 ha, with the bank area covering 2 ha. The vegetation is predominantly composed of sedges and reeds. A density of 3–4 individuals per 1m<sup>2</sup> was recorded at this site. The total population was estimated at ~ 400–500 individuals (see Photos 5 and 6). It should be noted that this site has the highest frog population rate. In 2023, when the relocation from the WWTP was carried out, only a small number of lake frogs were present at this site. Two years later, Central Asiatic frogs became the dominant species, indicating successful adaptation and reproduction in the new habitat.



**Figure 6: Pond west of Sewage Treatment Plant**

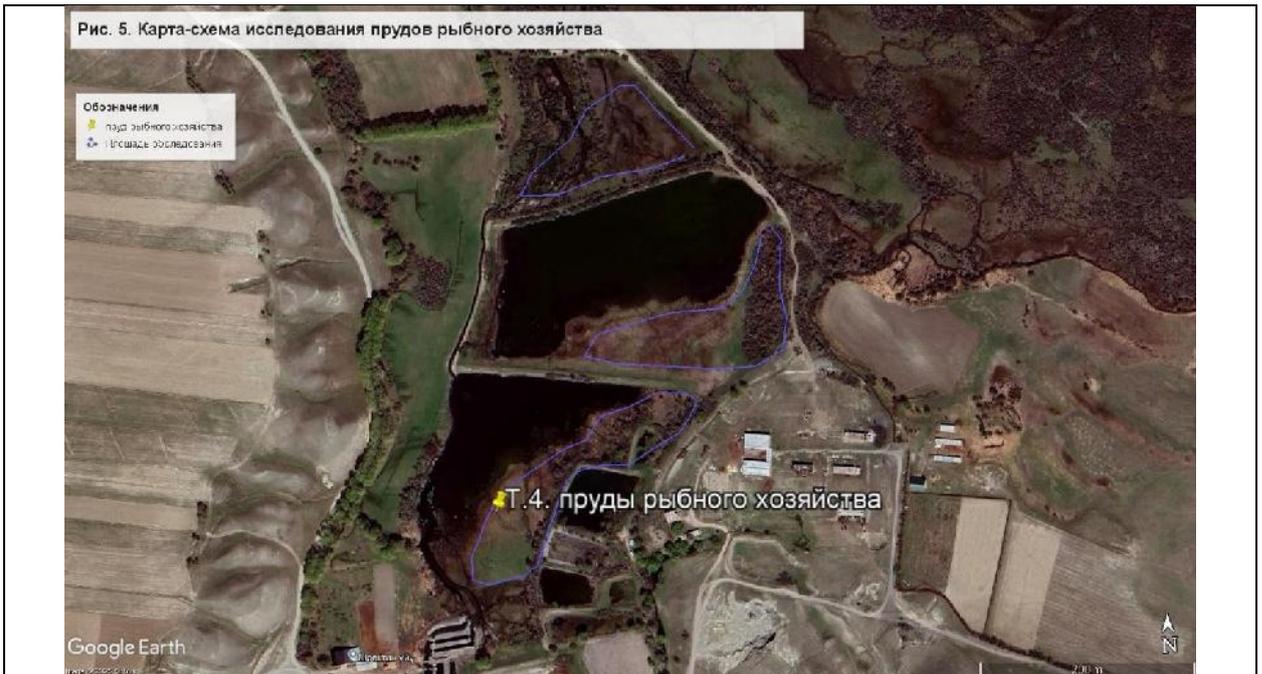


**Photo 5. Frogs captured along the banks**



**Photo 6. Frogs captured along the banks**

11. Point 4 (N 42°32'23.51" E78°21'1.67"). The fish farm pond is located west of the WWTP (Refer Figure 5). The total area of the water body is 5.2 ha, with the bank area covering 2 ha. The vegetation is predominantly composed of sedges and dense reed thickets. A density of 0.3 individuals per 1m<sup>2</sup> was recorded at this site. The total number was ~120 individuals (Photo 7.). The population of the Central Asiatic frog is relatively low at this site, possibly due to fish farming activities in the ponds, which attract large numbers of waterbirds such as gulls, grey herons, and others, that consume frogs. As a result, frog number remains low.

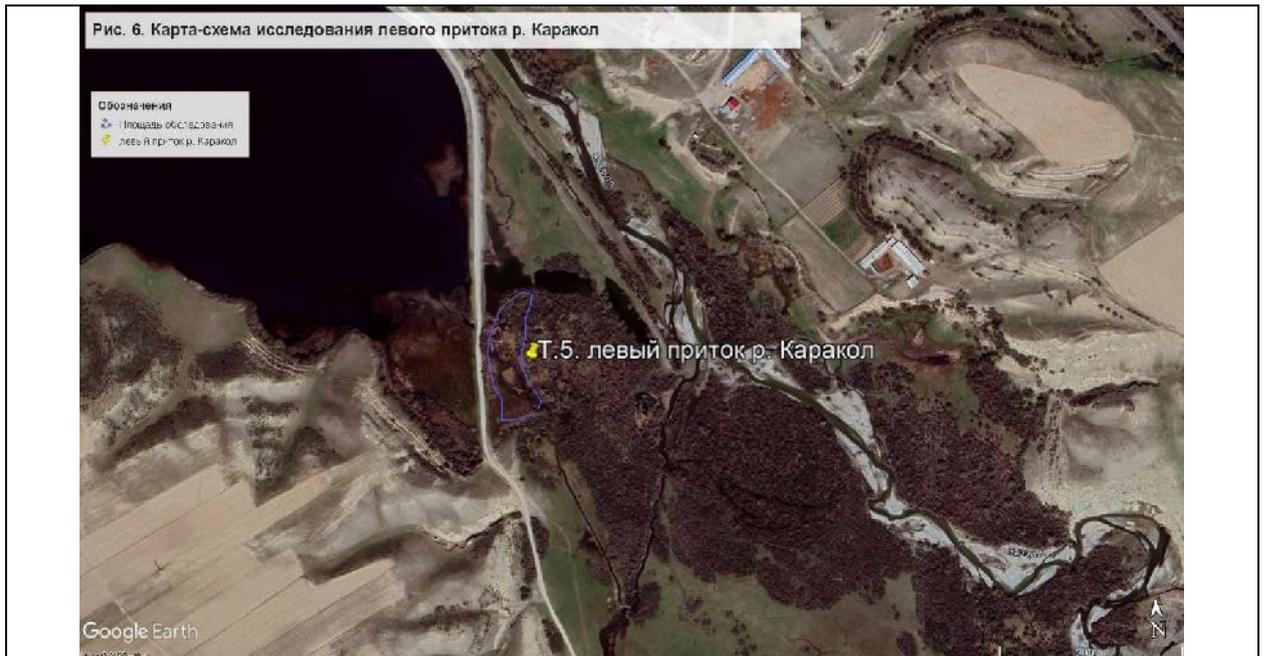


**Figure 7: Fishing Ponds**



**Photo 7. A juvenile in dense grass**

12. Point 5 (N 42°33'13" E 78°20'46"). Natural marshy ponds formed along the stream of the left tributary of the Karakol River (Refer Figure 6). The total area of the monitored site was 0.4 ha. The vegetation is predominantly composed of sedges and dense buckthorn thickets. A density of 0.2 individuals per 1m<sup>2</sup> was recorded at this site. The total population was estimated at ~ 70–80 individuals (see Photo 8). The population of the Central Asiatic frog at this site is relatively low, possibly due to heavy grazing pressure from livestock. Large numbers of small juvenile frogs are likely trampled underfoot.



**Figure 8: Left Tributary of the River, Karakol**



**Photo 8. Juvenile frog in dense sedge**

#### 4. Conclusions

- 1) The relocated frogs successfully adapted to their new habitats.
- 2) No frog eggs were found, likely due to weather conditions. The spring of 2025 was unusually early and very warm, with some hot days, which likely led to earlier spawning and accelerated development of tadpoles, resulting in earlier metamorphosis. This is supported by the observation of a few individual tadpoles with fully developed limbs, which are about to leave the aquatic environment.
- 3) The highest concentration of individuals was recorded at sites 1, 2, 2a, and 3, with notably lower counts at the active fishponds (site 4) and along the left tributary of the Karakol River (site 5). These latter sites exhibited increased presence of natural predators and livestock, which may have affected frog density. Compared to the baseline translocation data of 180 frogs and 126 egg clutches in 2023, the current population shows significant expansion. Site 3 alone exhibits a density of 3–4 individuals per square meter, suggesting an approximate population between 400 to 500 individuals exceeding the total number of frogs originally relocated. This indicates strong breeding success and favorable habitat conditions at key receptor sites.

#### 5. Recommendations

Mainly, these should be addressed to the consideration of MNRETS:

- 1) Request to grant protected area status to the sites where Central Asiatic frogs have been relocated, designating them as local-level zoological sanctuaries. This will contribute to the protection and conservation of the species.
- 2) This experience, carried out by the support of DSC, can serve as a model for the conservation of the Central Asiatic frog, a species listed in the Red Data Book of Kyrgyzstan and other countries.
- 3) To support the long-term sustainability of the relocated frog population, adaptive management measures such as strategic fencing to minimize disturbance and rotational grazing protocols to alleviate habitat pressure are recommended at sensitive receptor sites. However, implementation of these measures remains subject to funding availability and adherence to relevant government protocols. These considerations may be discussed with ADB to identify a feasible path forward

## **6. References**

1. L.S. Pereshkolnik Amphibians of the Issyk-Kul Basin // Biogeographical Aspects of the Flora and Fauna of the Issyk-Kul Region. 1975. pp. 98-113. Frunze
- 2.S.L. Kuzmin. Amphibians of the Former USSR. 1999. pp. 220-222. 1999.

**Annexure 1:** Based on the results of the monitoring conducted in the current year and after the approval of this Report by the ADB, the IA shall apply to the Ministry of Natural Resources and Environmental Protection on measures to protect the habitats of CA frogs resettled from the WWTP, which will include the implementation of monitoring

### Relocated Frog Monitoring Plan

Sl.no.	Component	Description
1.	Objective	To monitor the survival, breeding success, and habitat integration of relocated frog populations to fulfil biodiversity conservation obligations.
2.	Monitoring Schedule	<ul style="list-style-type: none"> <li>• Conducted annually during peak breeding season (May–June)</li> <li>• Next monitoring cycle proposed for May 2026</li> <li>• Minimum duration: 5 consecutive days</li> </ul>
3.	Methodology	<ul style="list-style-type: none"> <li>• Visual Encounter Surveys (VES) during dawn and dusk</li> <li>• Egg and tadpole counts at breeding sites</li> <li>• Habitat assessment including vegetation</li> </ul>
4.	Data Parameters	<ul style="list-style-type: none"> <li>• Adult frog count</li> <li>• Number and size of egg clutches</li> <li>• Tadpole survival rate</li> <li>• Breeding success indicators (Hatching Success Rate, Juvenile Recruitment etc)</li> <li>• Habitat integrity metrics</li> </ul>
5.	Responsible Personnel	<ul style="list-style-type: none"> <li>• Biodiversity specialist or herpetologist</li> <li>• MNRETS coordination team</li> <li>• Local ecological agency or research institution for support</li> </ul>
6.	Reporting Requirements	<ul style="list-style-type: none"> <li>• Summary report to be submitted within 30 days of survey completion</li> <li>• Results integrated into biodiversity impact assessment and updated EMP</li> </ul>
7.	Contingency Measures	<ul style="list-style-type: none"> <li>• Supplemental monitoring if breeding metrics fall below baseline</li> <li>• Adaptive habitat management: vegetation enhancement, water level control, etc.</li> </ul>