

Environmental Monitoring Report

PUBLIC

7 Semestral Report
January 2025

Pakistan: Balochistan Water Resources Development Sector Project

Prepared by Balochistan Irrigation Department and the Agriculture and Cooperatives Department
for the Islamic Republic of Pakistan and the Asian Development Bank (ADB).

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NOTES

- (i) The fiscal year (FY) of the Government of the Islamic Republic of Pakistan and its agencies ends on 30 June.
- (ii) In this report “\$” refer to US dollars.

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ABBREVIATIONS

ACD	Agriculture and Cooperatives Department
ADB	Asian Development Bank
BWRDSP	Balochistan Water Resources Development Sector Project
BEPA	Balochistan Environmental Protection Agency
BEQS	Balochistan Environmental Quality Standards
BID	Balochistan Irrigation Department
CSC	Construction Supervision Consultants
DLP	Defect Liability Period
EMP	Environmental Management Plan
ES	Environment Specialist
GoB	Government of Balochistan
GRC's	Grievance Redressal Committee's
GRM	Grievance Redressal Mechanism
ha	Hectare
H&S	Health and safety
HSE	Health Safety and Environment
IA	Implementation Agency
IEE	Initial Environmental Examination
MRB	Mula River Basin
PMO	Project Management Office
PIS	Perennial Irrigation Scheme
PIO	Project Implementation Office
PPE's	Personal protective equipment's
SAEMR	Semi-annual Environmental Monitoring Report
SC	Supervision Consultant
SFA	Social Framework Agreement
SPDIS	Solar Powered Drip Irrigation System
SOPs	Standard Operating Procedures
SSEMP	Site Specific Environmental Management Plan
SSHSEMP	Site Specific Health Safety Environmental Management Plan
TBT	Toolbox Talk
WRB	Water Resources Building
ZRB	Zhob River Basin

BRIEF SUMMARY

1. The Asian Development Bank (ADB) is partnering with the Government of Balochistan Province (GoBP), to undertake the Balochistan Water Resources Development Sector Project (BWRDSP) in Zhob and Khuzdar Districts.
2. The BWRDSP will support the implementation of the integrated water resources management policy of the Government of Balochistan (GoB). This policy provides a comprehensive framework for the province to address the issues of water management and development in the context of basin approach, with water harvesting, and groundwater recharging as an integral part of watershed management. About 11 potential sub-projects out of over 300 longlists in the Zhob and Mula river basins were selected for potential ADB financing based on a set of criteria such as water and land availability, economic viability, and a balanced approach to extending development support to different tribal groups. The project was approved by ADB on 31 August 2018 for a concessional loan of \$100 million from ADB's ordinary capital resources (L3700-PAK), a grant of \$3 million from the Japan Fund for Poverty Reduction (JFPR, G9197-PAK), and a grant of \$2 million from the High-Level Technology Fund (HLTF, G0597-PAK). The loan, grants, and project agreements were signed on 5 January 2019. The loan and grants became effective on 7 March 2019. The physical completion of the project will be on 31 July 2026.
3. The project is focused on achieving two significant outcomes in Balochistan: enhancing farm income and improving water resources management. By effectively implementing this project, we aim to witness a remarkable increase in agricultural production in the project areas.
4. Outputs: The project has three outputs:
 - (i) Irrigation infrastructure constructed and/ improved;
 - (ii) Command area and watershed protection expanded and improved; and
 - (iii) Institutional capacity strengthened.
5. Details of Sub-projects
 - **Ahmedzai Perennial Irrigation Scheme NCB 08:** This sub-project named Ahmedzai Irrigation Scheme NCB 08 is located in District Zhob at a distance of about 51 km South-East of Zhob City. This sub-project will rehabilitate and improve damaged weir, canals and appurtenant structures to serve an area of 612 ha. Main components of the sub-project include; (i) a weir structure on the Saward Rud (river) with an irrigation outlet for Perennial channel on the right side and a head regulator for Flood channel on the left side;(ii) a 3.5 km long Perennial Irrigation channel to irrigate 208 ha of command area on right bank (iii) a 7.5km long Flood Irrigation Channel to irrigate 404 ha of land by Sailaba irrigation on the left bank of the river. The proposed project is awarded to Noor ul Haq & Brothers Contractors.
 - **Karkh valley development sub-project NCB 01:** This sub-project is comprised of 2250 ha of culturable land, which will be brought under irrigated agriculture. It is estimated that around 20 MCM of water is available annually for developing agriculture in the command area on the both right and left banks

of the river. Currently, cropping intensity in the core sub-project area is 89% and it will be increased to 120 percent after the completion of the core sub-project. There will be an appreciable socio-economic development as a result of the project. The proposed Karkh valley development sub-project consists of three parts: (a) general works – which relate to the Karkh Valley as a whole, (b) weir construction at Jhalaro, and (c) weir rehabilitation at Chutta. The design interventions for the sub-project include; (a) guide bund / flood protection works, (b) construction of new Jhalaro weir, (c) weir rehabilitation at Chutta, (d) Rehabilitation of Chutta lift irrigation (pump house), and (e) lining of unlined existing channels. The proposed project is awarded to M/S Zahir Khan Brothers VS Agha Construction Company.

- **Water Resources Building NCB 05:** The proposed civil works Water Resources Building Quetta (NCB 05) is located on an existing building compound of Irrigation Department, Balochistan which is on government-owned land. Construction Contract has been awarded to M/S Abdul Hameed Bangulzai JV M/S Muhammad Akram Shawani.
- **Kharzan Hatachi Infiltration Gallery NCB 02:** The Kharzan-Hatachi Infiltration Gallery sub-project NCB 02 is located in District Khuzdar in Mula River Basin on Mula River. The proposed intervention for the sub-project include; (a) Construction of two infiltration galleries, (b) Construction and rehabilitation of water conveyance system and associated structures, (c) flood protection works for irrigation canals and command area. The sub-project is aimed to rehabilitate and improve damaged infrastructure to enhance size of command area having irrigation facility. Construction contract of this project has been awarded to M/s Agha Brothers Construction Company, M/s Agha Construction Company and M/s Sadaat Enterprises.
- **Siri Toi Dam ICB 01:** The Siri Toi Dam sub-project (ICB 01) is located in Union Council Sambaza, Tehsil and District Zhob. The main dam will be 72 m high Earth fill Dam about 304 m long. More than 28,243 m of main and distributary channels have been designed for CCA of 3948 ha. irrigation channel and about 50 km of secondary channel. Construction contract of this project has been awarded to M/s Noor ul Haq & Brothers.
- **Kili Sardar Akhtar NCB 06:** The Killi Sardar Akhtar sub-project comprises (i) infiltration gallery across the stream Sawar Rud-a tributary of Zhob River and (ii) perennial irrigation scheme along right bank. The proposed sub-project will use sub-surface flow for irrigation. The Perennial Irrigation Scheme (PIS) supplies water round the year. The sub-project will improve 106 ha of existing command area of Killi Akhtarzai and Killi Ghundai whereas 124 ha new area of Bazkhel will be brought under cultivation. After construction of sub-project, it will significantly improve the agricultural production and rural livelihood. Construction contract of this project has been awarded to M/s Noor ul Haq & Brothers.
- **Pashta Khan and Garambowad (PIS) NCB 04:** The project is located north – east of Khuzdar in Pashta Khan area at a distance of about 64 km, that is 28 km north via N – 25 Highway (RCD Highway) to Baghbana area and 36 km

east on unpaved road and hilly track to location. Pashta Khan and Garambowad (PIS) sub – projects are located at a distance of 7 km from each other and situated on Anjira River which drains into Mula River near Pashta Khan. It is located in tehsil Mula, district Khuzdar, Baluchistan. Both schemes are taken as on sub – project due to closeness and smaller in size.

- **Manyalo, Raiko and Rind Ali (PIS) NCB 07:** Manyalo, Raiko and Rind Ali (PIS) sub – project is located on Mula River Basin in district Khuzdar, about 50 km north – east of Khuzdar. The proposed Manyalo, Raiko and Rind Ali weir lies in UTM Zone 42N at 3096496.83 North and 293914.18 East and average altitude of sub – project’s command area is 850 m above mean sea level. Manyalo, Raiko are located on right bank of river, while Rind Ali is located on left bank of river. Access to sub – project site from Khuzdar is through M – 8 motorway which connect to a dirt road crossing Mula river basin boundary on north – east side of M – 8.
- **Watershed Management Works- Siri Toi Dam, NCB-VWC-01:** The project’s integrated watershed management initiatives for sir toi watershed within the zhub basin, which is the subproject located in Union Council Sambaza, Tehsil and District Zhob about 62 km north-west of Zhob city. The latitude and longitude of the scheme are 69°15'58.77"E & 31°35'51.57"N. The site is approachable from Zhob–Wana road at a distance of 45 km from Zhob. The Construction contract of this project has been awarded to M/s Noor ul Haq & Brothers.

6. Status of EIA and IEE Reports of subprojects is as follows in Table 1.

Table-1: Status of EIA and IEE Reports

Sr No.	Date	Type of report - final To TL/DTL	Final submitted to PMO	Remarks
IEE/EIA Reports				
1.	25-03-2021	Final EIA of Siri Toi Dam ICB 01	Final submitted	Cleared by ADB
2.	25-05-2021	IEE of Ahmedzai NCB 08	Final submitted	Cleared by ADB
3.	25-05-2021	IEE of Karkh valley Development Sub-Project NCB 01	Final submitted	Cleared by ADB
4.	25-05-2021	IEE Kharzan Hitachi Infiltration Gallery NCB 02	Final submitted	Cleared by ADB
5.	3-07-2021	IEE of Water Resources Building NCB 05	Final submitted	Cleared by ADB
6.	4-08-2021	IEE of Killi Sardar Akhtar NCB 06	Revised as per ADB Comments	Cleared by ADB
7.	19-08-2021	IEE Report of Pashta Khan and Garambowad PIS Subproject NCB- 04	Submitted to PMO	Under ADB Review
8	19-08-2021	IEE Report of Manyalo, Raiko and Rind Ali Perennial Irrigation Subproject – MRB NCB- 07	Submitted to PMO	Under ADB Review

7. In last SAEMR, the construction works on NCB 08, NCB 05, NCB 01, NCB 02, ICB 01 and NCB 06 were reported in detail. The commencement of construction works on NCB 04, NCB 07, NCB-VWC-01 have not been started during the reporting period.
8. Site Specific Environmental Management Plan of all sub-projects have been approved as detailed below, Table 2.

Table-2: Status of SSEMP's

Sr.No.	Date	Type of report - final To TL/DTL	Final submitted On (date) to PMO	Remarks	Project Category
1.	20-09-2021	Final SSEMP of Ahmedzai NCB 08	Final version submitted	Cleared by ADB	B
2.	3-12-2021	Final SSEMP of Water Resources Building NCB 05	Final version submitted	Cleared by ADB	B
3.	9-12-2022	Final SSEMP of Siri Toi Dam ICB 01	Final version submitted	Cleared by ADB	A
4.	4-04-2023	Updated SSEMP of Karkh valley Development Sub-Project NCB 01	Updated as per ADB Comments and submitted to PMO	Cleared by CSC	B
5.	16 -05-2022	SSEMP of Kharzan Hitachi Infiltration Gallery NCB 02	Final version submitted to PMO after consultants review	Approved by CSC	B
6.	6-06-2023	SSEMP of Killi Sardar Akhtar NCB 06	Final version submitted to PMO	Approved by CSC	B
7.	12-12-2023	SSEMP of Pashta Khan and Grambowad Perennial Irrigation Subproject – MRB NCB- 04	Final version submitted to PMO	Approved by CSC	B
8.	12-12-2023	SSEMP of Manyalo, Raiko and Rind Ali Perennial Irrigation Subproject - MRB NCB- 07	Final version submitted to PMO	Approved by CSC	B
9	1-6-2024	Watershed Management Works- Siri Toi Dam, NCB-VWC-01	Final version submitted to PMO	Approved by CSC	

9. For the entire project, the civil works contract packages are divided into sub-projects. The contractors' names, along with the sub-project names and contract numbers, commencement details, and updated progress, are as follows in Table 3.

Table-3: Details of sub projects awarded to the Contractors

Sr. No.	Contract No.	Contract Description	Contractor	Commencement Date
1	NCB-01	Construction of Karkh Valley Development Subproject - MRB	M/s Zahir Khan & Brothers - Agha Construction Company (Joint Venture)	28 December 2020
2	NCB-02	Construction of Kharzan Hatachi Infiltration Gallery Subproject - MRB	M/s Agha Brothers Construction Company - Agha Construction Company - Sadaat Enterprises (JV)	22 June 2021
3	NCB-05	Construction of Water Resources Building Subproject - Quetta	M/s Haji Abdul Hameed Bangulzai- M/s Muhammad Akbar Shahwani & Brothers (JV)	7 April 2021
4	NCB-08	Construction of Ahmedzai Perennial+Flood Irrigation Subproject - ZRB	M/s Noor ul Haq & Brothers	22 December 2020
5	ICB-01	Construction of Siri Toi Dam Subproject - ZRB	M/s Noor ul Haq & Brothers	22 April 2022
6	NCB-06	Construction of Killi Sardar Akhtar Perennial Irrigation Subproject - ZRB	M/s Noor ul Haq & Brothers	21 December 2022
7	NCB-04	Pashta Khan and Grambowad Perennial Irrigation Subproject – MRB (NCB-04)	M/s Agha Brothers Construction Company & M/s Ramzan & Sons (Pvt.) Ltd. (JV)	03 May 2023
8	NCB-07	Construction of Manyalo, Raiko and Rind Ali Perennial Irrigation Subproject – MRB (NCB-07)	M/s Agha Brothers Construction Company & M/s Ramzan & Sons (Pvt.) Ltd. (JV)	03 May 2023
9	NCB-VWC-01	Watershed Management Works- Siri Toi Dam, Zhob River Basin	M/s Noor ul Haq & Brothers	04-10-2023

10. This report refers to the 7th Semi-Annual Environmental Monitoring Report for the Balochistan Water Resources Development Sector Project (BWRDSP) from January to June 2024, which is prepared to analyze the effectiveness of the implementation of environmental safeguards on project sites and compliance with applicable national and international laws and regulations. For this purpose, environmental audits, various site visits, and meetings with project staff have been conducted during the reporting period to ensure the implementation of environmental safeguards.
11. Details of project activities during Current Reporting Period is given below:

Table-4: Details of ongoing construction activities

S.No.	Details of Activities	Current Status	Completed
Siri Toi Dam ICB 01			
1.	Camp establishment	Masonary	96%
2.	Earth work (Spillway)	Excavation	25%
3.	Dyke	Key Trench Excavation	3%
4.	Access Road	Excavation	3%
Karkh valley development sub-project NCB 01			
1.	Bund 5	Stone pitching	0+125 to 0+225
2.	Bund 5	Stone pitching	0+550 to 0+608
3.	Bund 1	7 layers done	1+100 to 1+220
4.	Nurwah right	Both side embankment	0+000 to 0+339
5.	Bund 54	Stone pitching	0+200 to 0+380
6.	Nurwah main	Masonry and copping	Null
Water Resources Building sub-project NCB 05			
1.	WRB Quetta	Trench for rainwater	90%
2.		Guard room construction	97%
3.		Union office	100%
4.		Aluminium for window is in progress	100%
5.		AC installation all building	96%
6.		Solar foundation excavation in progress	90%
7.		All washroom and kitchen work in progress	98%
8.		Gas work in progress	97%
9.		Transformer pad work	95%
10.		Solar frame structure	75%
Kharzan-Hatachi sub-project NCB-02			
1.	Bund # 1		55%
2.	Bund # 3 & 4		55%
3.	Bund 3 & 3 A		In progress
Kili Sardar Akhtar sub-project NCB 06/ Building: Kili Sardar Irrigation Building			
1.	Kili Sardar Akhtar sub-project	DLP period will start after the completion of Kili Sardar Irrigation Building	Completed
2.	Kili Sardar Irrigation Building Zhob	Stone Masnory	80%
3.		Repair renovation	45%
4.		RCC	100%
5.		Column work	50%

12. A project-level Grievance Redress Mechanism (GRM) has been established to address grievances arising from environmental and social impacts. The GRM is prepared in English and Urdu and cleared by ADB. The GRM is fully implemented in the camp areas and construction sites. The GRM record is being checked on a monthly basis.
13. A good working relationship is being maintained among the PMO, Contractor, and the Consultant's environmental staff. Trainings on a regular basis are performed by the Contractor's HSE Officers on sites for the capacity building of the relevant workers/staff. They are briefed on updating the environmental monitoring checklists

and strictly follow the EMP, which they submit on a weekly/monthly basis to adhere to Environmental Management and Monitoring activities.

14. The Corrective Action Plan (CAP) devised by PMO and PIC is communicated to the contractors for effective implementation. SC has advised the contractor to address noncompliance as per the agreed CAP. The corrective actions included better housekeeping on camp and active sites, the provision of proper PPE's to the workers, on-the-job trainings, avoiding littering activities, etc. On-site sanitation at subproject sites utilizes septic tanks for sewage waste disposal, positioned near construction camps before discharging into nearby drainage areas.
15. In accordance with the project's EMP, the Contractors of NCB 01, NCB 02, NCB 05, NCB 06, and ICB 01 have conducted quarterly environmental monitoring through third-party environmental testing laboratory certified by the Balochistan EPA during March and June 2024. Sampling and analysis were conducted in the presence of the SC Environmental Specialist in June 2024. Sampling and lab testing have been carried out for ambient air quality, gaseous emissions, drinking/groundwater, surface water, wastewater, and noise.
16. Additional field staff was nominated by Contractors and trainings on housekeeping including waste management and good practices measure was provided to all labors and staff, which decreased minor non-conformance levels months from January to June 2024.

1 INTRODUCTION

1.1 GENERAL

17. This report represents the 7th Semi-Annual Environmental Monitoring Review for the Balochistan Water Resources Development Sector Project (BWRDSP), covering the period from January to June 2024. It contains findings of Environmental Compliance monitoring activities at the following sub-project sites: Ahmedzai Perennial subproject NCB 08, Water Resources Building NCB 05, Karkh Valley Development subproject on Mula River NCB 01, NCB 02 Kharzan Hatachi Infiltration Gallery, NCB 06 Kili Sardar Akhtar and ICB 01 Siri Toi Dam. This SAEMR for the project consists of the following subprojects:

Ahmedzai Perennial and Flood Irrigation Sub-Project NCB 08

- Weir (Completed)
- Flood Protection Channel (Completed)
- Perennial Channel (Completed)

Water Resources Building, Quetta NCB 05

- Multi-storey Building

Karkh Valley Development Sub-Project on Mula River Basin NCB 01

- Rehabilitation of weirs including raising of protection and guide bund
- Construction of flood protection Bunds.
- Solar pumping system at one place
- Construction of the new channel and crossing structure

Kharzan Hitachi Infiltration Gallery Sub-Project NCB 02

- Construction of two infiltration gallery.
- Construction and rehabilitation of water conveyance system and associated structures.
- Flood Protection works for irrigation canals and command area.

Siri Toi Dam Sub Project ICB 01

- Construction of Siri Toi Dam Sub Project

Kili Sardar Akhtar Subproject 06

- Construction of infiltration gallery (Completed)
- Construction and rehabilitation of water conveyance system and associated structures. (Completed).
- Kili Sardar Akhtar Irrigation Building in progress.

Location of sub-project sites

18. The subproject locations of Mula River Basin and Zhob River Basin are shown in Figures 1-1 and 1-2, respectively.

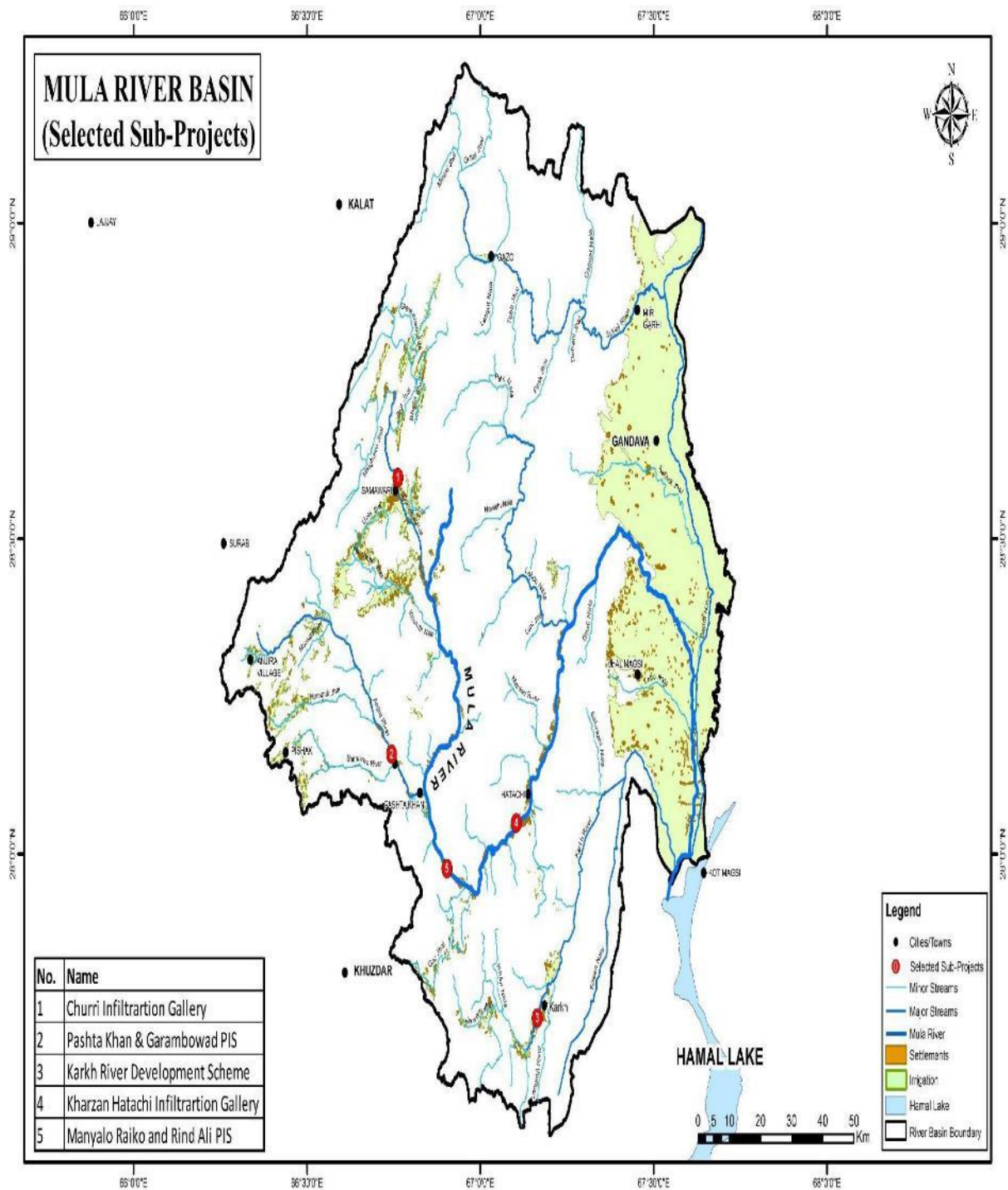


Figure 1-1: Location map of Mula River Basin

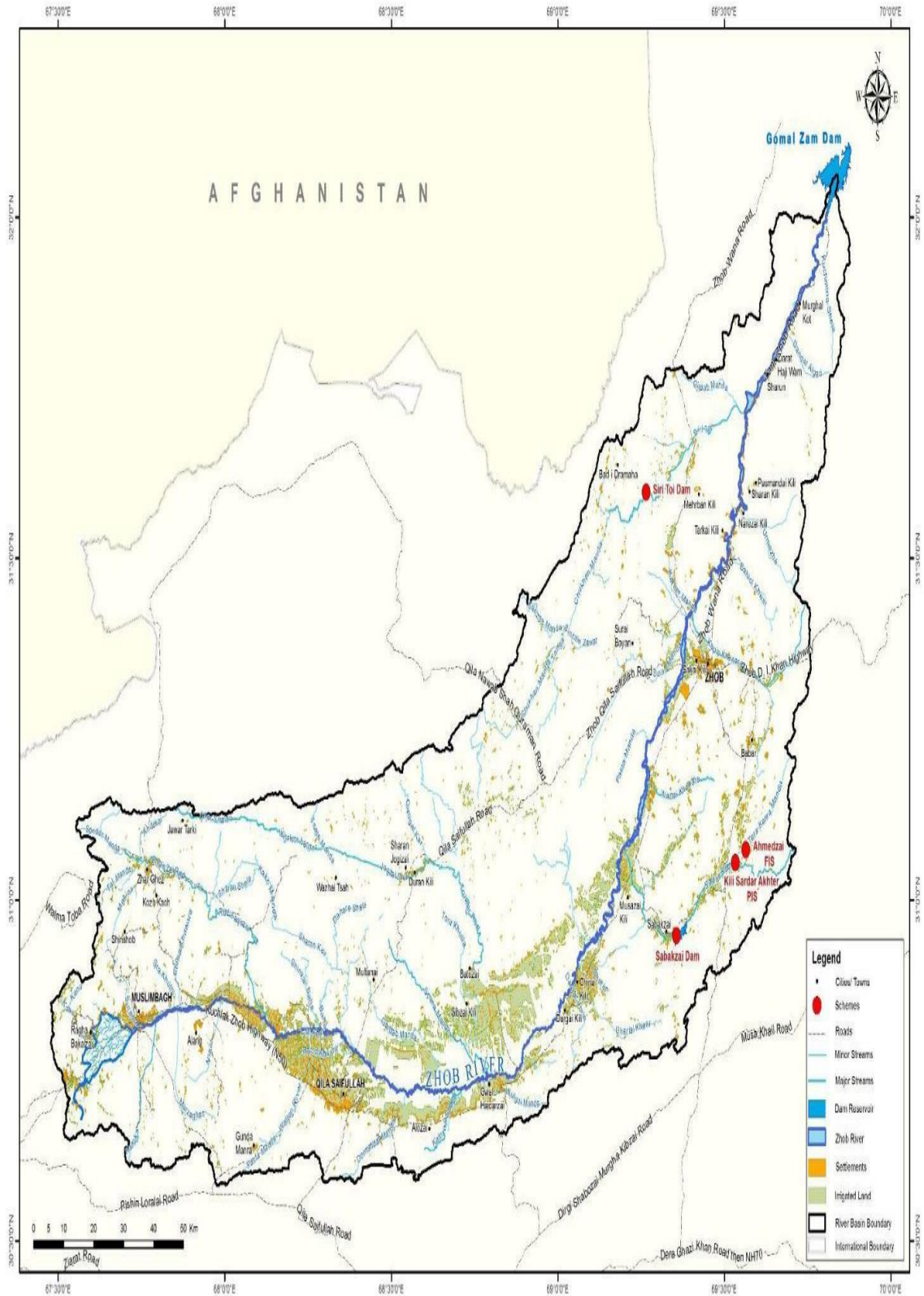


Figure 1-2: Location map of Zhub River Basin



Figure 1-3: Ahmedzai Sub-project NCB 08 camp location

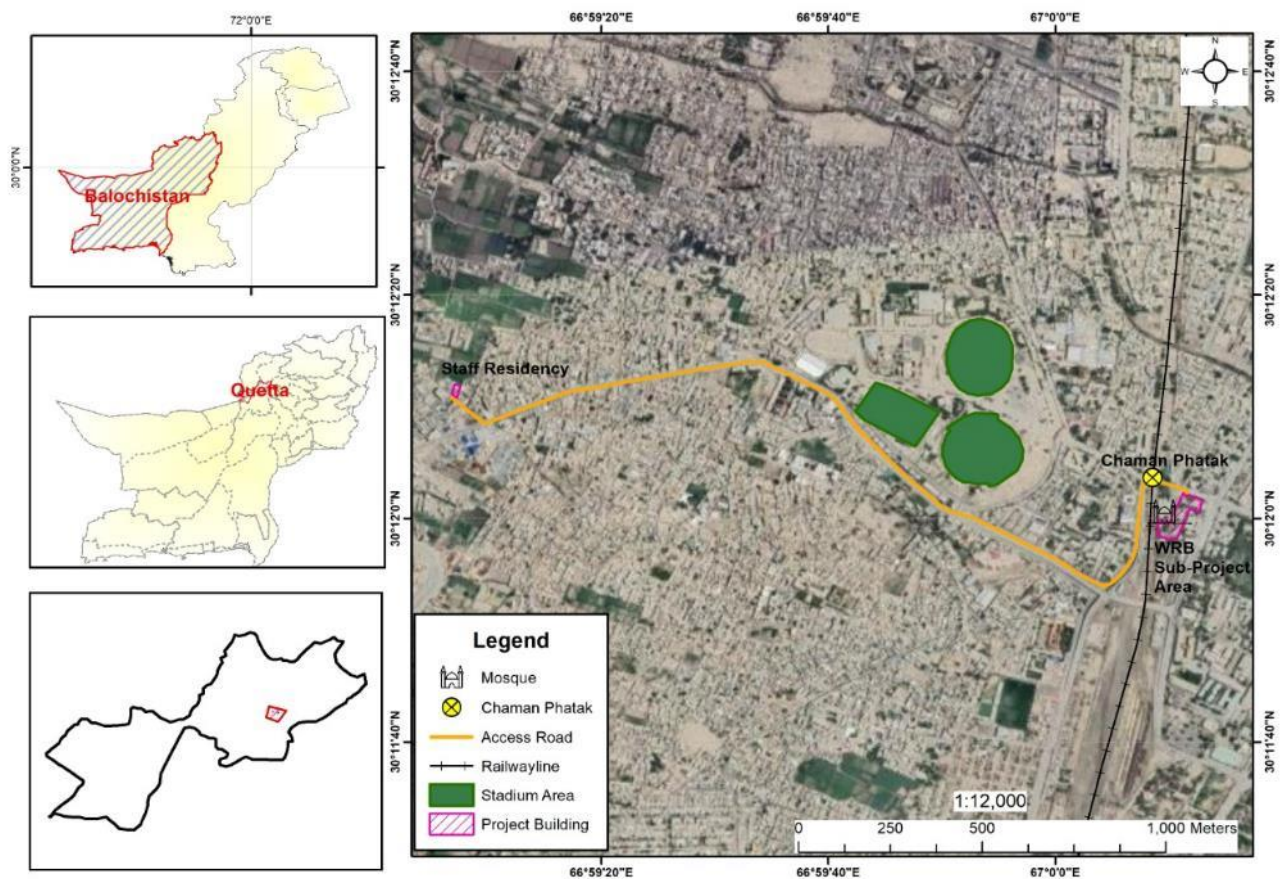


Figure 1-4: Water Resources Building sub- project NCB 05 Contractor staff Residency

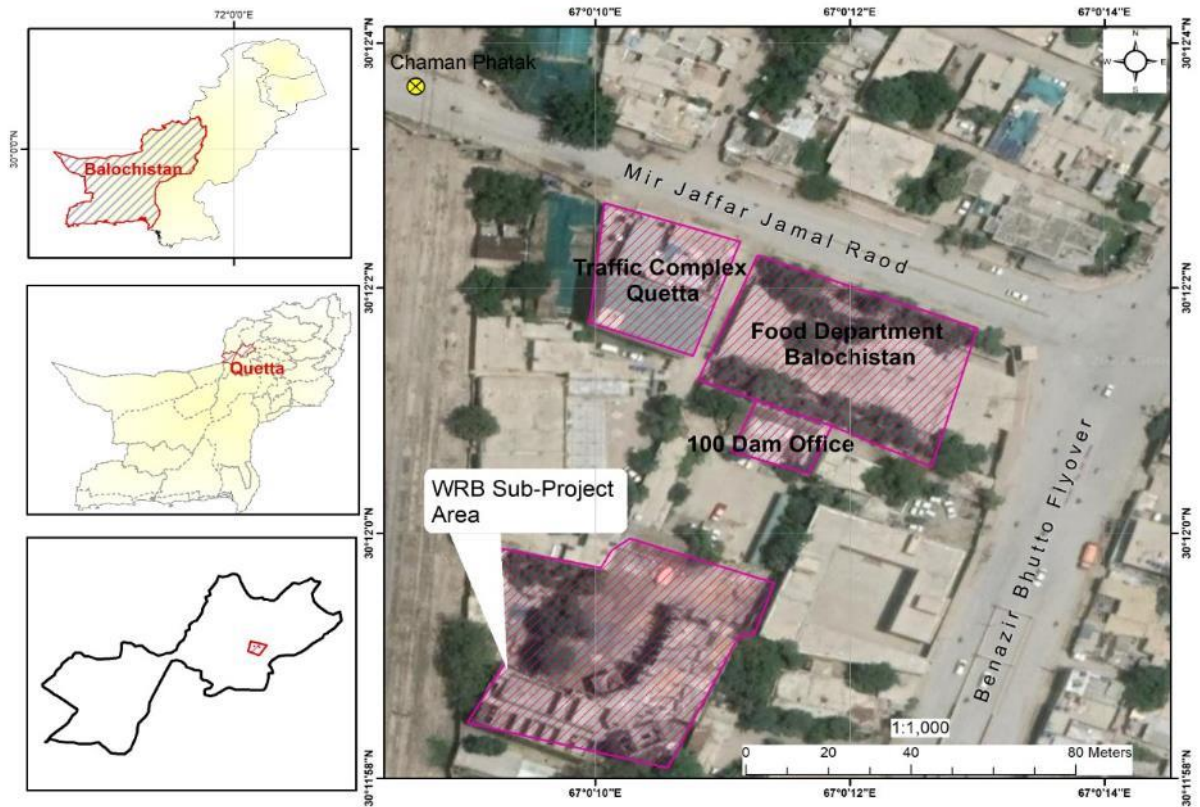


Figure 1-5: Proposed project location WRB sub-project NCB 05 Quetta

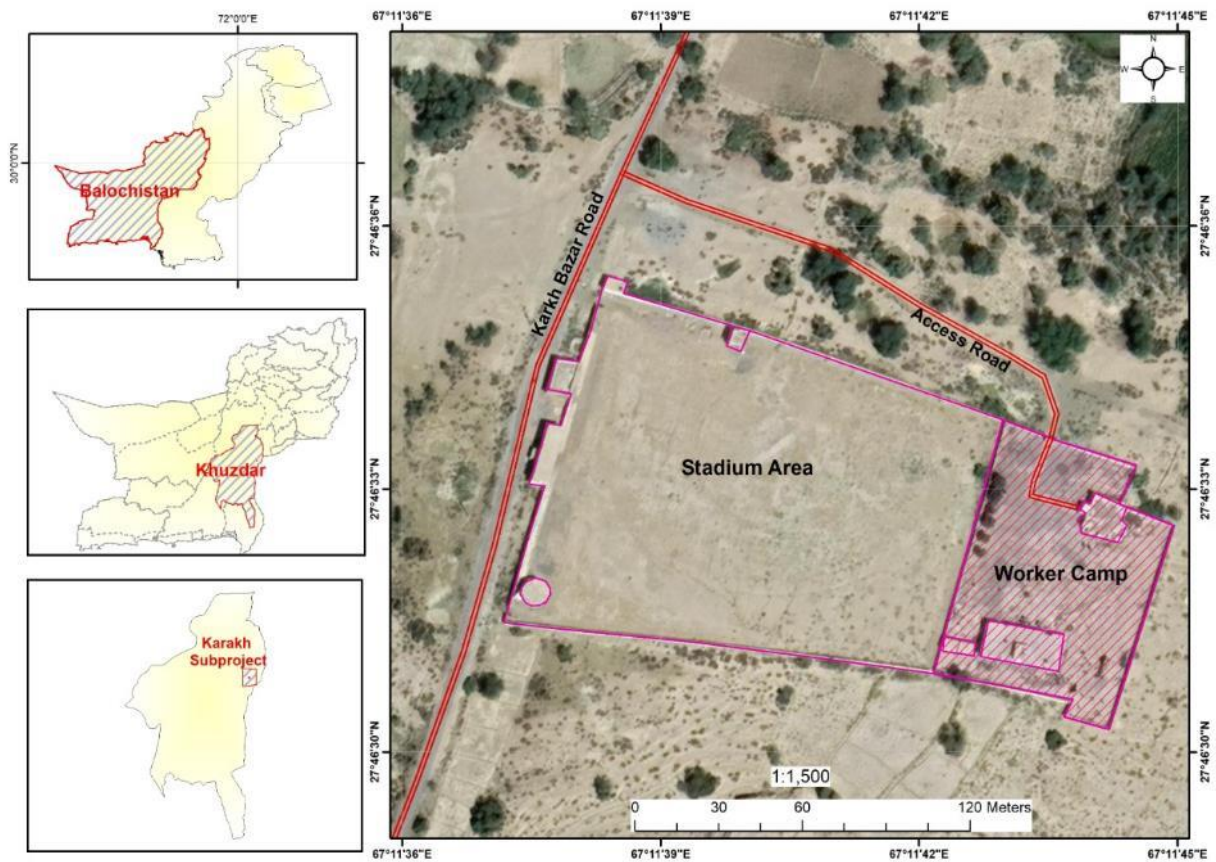


Figure 1-6: Karkh valley development sub-project NCB 01 location

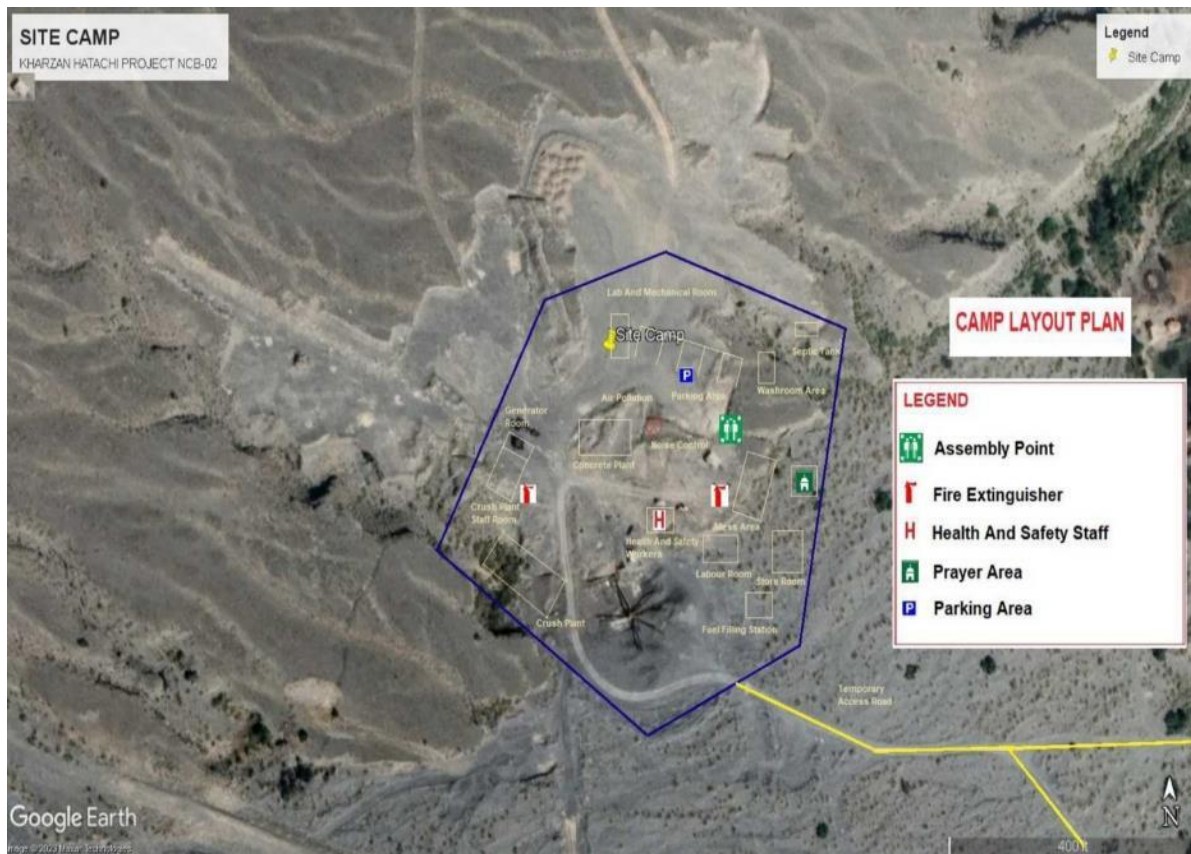


Figure 1-7: Kharzan Hatachi Infiltration Gallery sub-project NCB 02 location



Figure 1-8: Siri Toi Dam camp site sub-project ICB 01 location

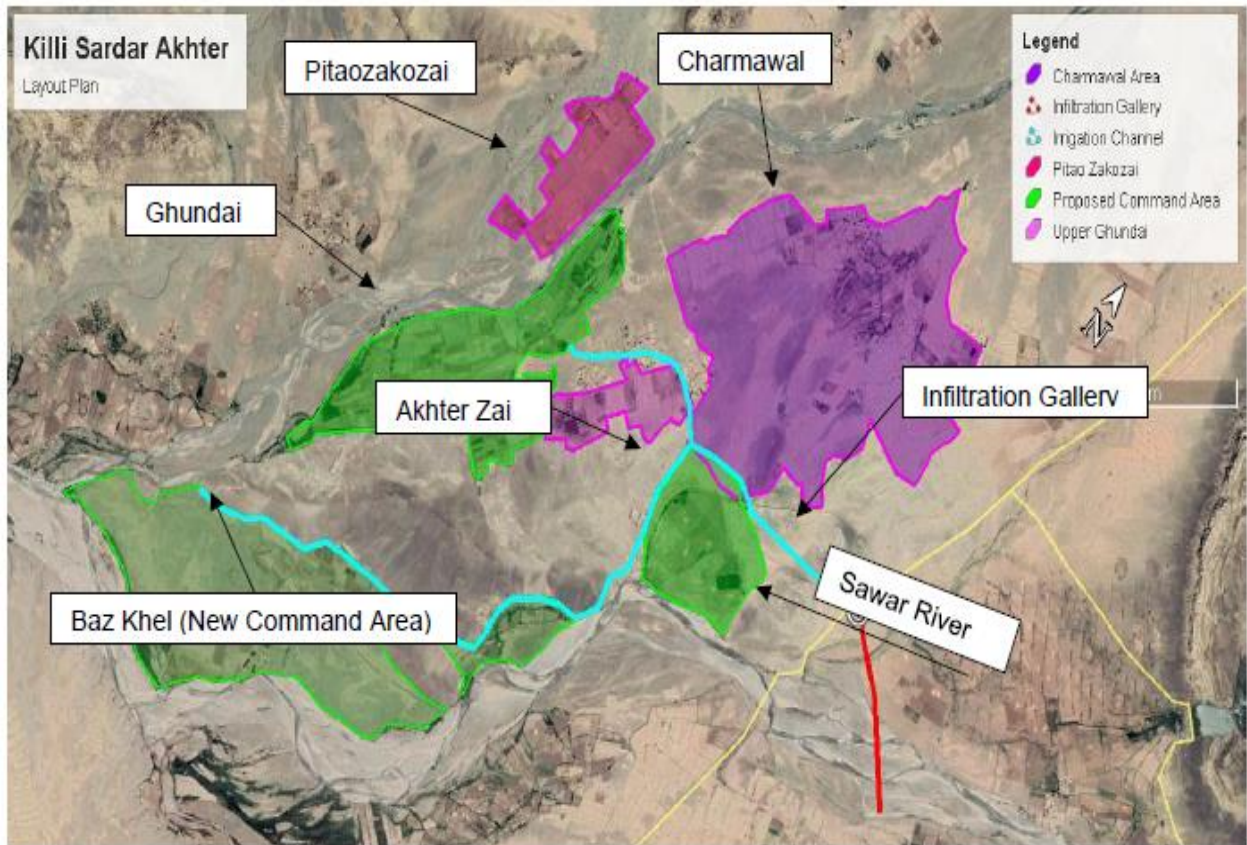


Figure 1-9: Location map of Kili Sardar Akhtar NCB 06

2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 PROJECT DESCRIPTION

19. The Asian Development Bank (ADB) is partnering with the Government of Balochistan Province (GoBP), to undertake the Balochistan Water Resources Development Sector Project (BWRDSP) Zhob and Khuzdar Districts.
20. The BWRDSP will support the implementation of the integrated water resources management policy of the Government of Balochistan (GOB). The policy provides a comprehensive framework for the province to address the issues of water management and development in the context of basin approach, with water harvesting, and groundwater recharging as an integral part of watershed management. About 11 potential sub-projects out of over 300 longlists in the Zhob and Mula river basins were selected for potential ADB financing based on a set of criteria such as water and land availability, economic viability, and a balanced approach to extending development support to different tribal groups. The project was approved by ADB on 31 August 2018 for a concessional loan of \$100 million from ADB's ordinary capital resources (L3700-PAK), a grant of \$3 million from the Japan Fund for Poverty Reduction (JFPR, G9197-PAK), and a grant of \$2 million from the High-Level Technology Fund (HLTF, G0597-PAK). The loan, grants, and project agreements were signed on 5 January 2019. The loan and grants became effective on 7 March 2019. The physical completion of the project will be on 31 July 2026.
21. The project is aligned with the following impacts: Increased farm income in Balochistan and improved water resources management in Balochistan. The project is focused on achieving two significant outcomes in Balochistan: enhancing farm income and improving water resources management. By effectively implementing this project, we aim to witness a remarkable increase in agricultural production in the project areas.
22. The project has three outputs:
 - I. **Output 1: Irrigation Infrastructure and watershed protection constructed and/or rehabilitated:** The output will consist of the construction, upgrade, or rehabilitation of the following: (i) Siri Toi Dam with a storage capacity of 30 million cubic meters, which will include a spillway and a water intake. (ii) Weirs and infiltration galleries. (iii) Approximately 276 kilometers of irrigation network, which will include headworks, off-takes, aqueducts, culverts, sluice gates, guide bunds, drop/fall facilities, washing structures, transition chambers, and livestock drinking facilities. (iv) Flood protection works aimed at reducing flood risks to irrigation canals and the command area.
 - II. **Output 2: Command Area established and/or Improved:** This output will support Command Area Development, which includes the improvement of approximately 11,603 hectares of land to maximize the benefits from the irrigation investments. The improvements will be achieved through the following activities: (a) Construction and rehabilitation of secondary and tertiary canals in schemes identified for improvement under Output 1. (b) Construction of lined watercourses. (c) Improvement of on-farm water management and agronomic techniques, such as land leveling and irrigation scheduling. (d) Construction of Kacha track/access roads. (e) Implementation of rainwater harvesting and storage facilities. (f) Provision of farm machinery. (g) Providing farming training for

sustainable farming practices. The expected targets for this output are as follows: i) Approximately 11,603 hectares of land will be improved and served by rehabilitated irrigation and Khushkaba infrastructure. About 5,989 hectares of land will be developed under new irrigation infrastructure. About 130 hectares of high-value agriculture will be piloted with a drip irrigation system through the JFPR grant. At least 22 women-led small-scale income-generating agri-businesses will be launched. The implementation of these targets aims to enhance agricultural productivity, improve water management, and promote sustainable farming practices in the region.

- III. **Output 3: Institutional capacity strengthened:** The Water Resources Information System (WRIS) has been established and is now operational with the help of technical assistance. This output aims to achieve the following targets: Utilization of high-level technology hydro-meteorological equipment for field validation of satellite-based WRIS data to monitor water resources in 3 river basins under the Grant Project. Capacity building for project management and implementation skills of at least 40 trained staff from the Irrigation Department (ID), Agriculture and Cooperative Department (ACD), and Project Management Office/Project Implementation Office (PMO/PIO). At least 30% of these trained staff should be women. Training of at least 750 farmers to enhance their knowledge and skills in the efficient use of water and value-added farming practices. Training of at least 250 women for income-generating high-value agri-businesses. Pilot implementation of high-value agriculture on approximately 130 hectares of land in the project area. This includes the installation of about 160 cost-effective solar-powered drip irrigation systems, construction of two olive oil extraction plants and two processing plants for fruits and vegetables. Additionally, at least 22 women-led small-scale income-generating agri-businesses for livestock will be established to strengthen high-value farming technology and contribute to increasing agricultural production. Strengthening of high-value farming technology through technology demonstrations on at least 130 hectares in 160 farms. Guidelines on efficient water usage and agriculture inputs will be provided to further support agricultural production. Enhancement of community capacity in high-value agriculture, including training for efficient water use and value-added farming practices.

2.2 PROJECT CONTRACTS AND MANAGEMENT

2.2.1 Project Management Office

23. PMO Office was established on March 2020, at 80/186-B, Near Allied Bank, Jinnah Town, Quetta.
24. The PMO, led by the Project Director, oversees overall environmental management and monitoring. The Environment Specialist, Resettlement Expert and .Senio Sociologist are the PMO Suppot Staff to provide support to the Project Director with socio-environmental safeguards.Senio Sociologist is also part of PMO.
25. The Project Director is also supported by the Deputy Project Director (MRB) and Deputy Project Director (ZRB) for compliance with the EMP/SSEMP.
26. Key responsibilities of PMO Environmentand Social support team include implementing the EMP/SSEMP through spot checks, monitoring, reporting, and assisting Project Implementation Consultants (PIC) and Contractors in addressing socio-environmental safeguard issues.

27. Shabir Ahmad Khan serves as the External Environment Specialist of PMO for the Siri Toi Dam Subproject. He can be contacted at +92 334 5544333 or via email at sakhanswati56@gmail.com.

2.2.2 Project Implementation Consultants

28. For design and construction supervision of the project, the Executing Agency engaged Project Implementation Consultant (PIC) on July 26, 2019 through open competitive bidding. Consultants were mobilized during September 2019.
29. In compliance with the conditions of Consultancy Contract, PIC subsequently established the Engineer's project office at 80/186-B, Near Allied Bank, Jinnah Town, Quetta.
30. For the project effective monitoring and supervision, the Engineer's office is being assisted by the Resident Engineer's offices established since Commencement of Works as detailed below:
- Resident Engineer - BWRDSP (MRB)
Asad Abad, Chamrok Chowk , Main RCDA Road, Khuzdar
 - Resident Engineer - BWRDSP (ZRB)
House No. 693, Near Abadi Oppozai, Zhob
31. Alongside providence of technical support, PIC also provide support in matters covering social and environmental aspect of the project. For look after of the environmental portfolio, PIC has engaged environmental team comprising of following Environmental specialists with names and contact numbers given below.
- Dr Akhtar Iqbal – Environment Specialist (PMO Support). Contact No. +92 334 9756096
 - Sibghat Ullah Khan – Environment Specialist . Contact No. +92 331 9017601
32. During execution phase of the project, the foregoing team of the PIC remained responsible for the day to day monitoring supervision of the activities pertain to environmental portfolio as listed in the Consultancy Contract, EMP, SSEMP and elsewhere in the Contract Document along with review of the Contractor's report(s) and furnishing of such reports fall in purview of the PIC.

2.2.3 The Contractors

a) ICB-01 Construction of Siri Toi Dam Subproject - ZRB

33. The ICB-01 contract for the Construction of Siri Toi Dam was awarded to M/s Noor ul Haq & Brothers on April 25, 2019, with construction commencing on April 22, 2022. As of June 30, 2024, the project is 30% complete. The final SSEMP was submitted on December 9, 2022, and approved by the ADB. Muhammad Nawaz serves as the Environmental Specialist for this subproject and is based on-site. He can be contacted via email at nawazhasni50@gmail.com.

b) NCB-01 Construction of Karkh Valley Development Subproject - MRB

34. The NCB-01 contract for the Construction of Karkh Valley Development Subproject was awarded to the joint venture of M/s Zahir Khan & Brothers and Agha Construction Company on December 28, 2020. As of June 30, 2024, the project is 82.20% complete. The Environmental Specialist for this subproject is Ahsan Latif, who is based in Khuzdar and can be reached at 0333-2598915 or via email at ahsan.latifsoomro@hotmail.com. The final SSEMP report, updated per ADB comments, was submitted on April 4, 2023, and approved by the CSC.

c) NCB-02 Construction of Kharzan Hatachi Infiltration Gallery Subproject - MRB

35. The NCB-02 contract for the Construction of Kharzan Hatachi Infiltration Gallery was awarded to the joint venture of M/s Agha Brothers Construction Company, Agha Construction Company, and Sadaat Enterprises on June 22, 2021. As of June 30, 2024, the project is 81.50% complete. The Environment Specialist for this subproject is Arif Hameed, located at Kharzan Hatachi. He can be contacted via email at arifhameed710@gmail.com. The final draft of the SSEMP was submitted to the PMO on May 16, 2022, and approved by the CSC.

d) NCB-05 Construction of Water Resources Building Subproject - Quetta

36. The NCB-05 contract for the Construction of Water Resources Building was awarded to the joint venture of M/s Haji Abdul Hameed Bangulzai and M/s Muhammad Akbar Shahwani & Brothers on April 7, 2021. The project is currently 82% complete as of June 30, 2024. The final SSEMP was submitted on December 3, 2021, and approved by the ADB. Mubasir Ahmed Khan serves as the HSE Officer for this project and is based in Quetta. He can be contacted via email at mubasirk649@gmail.com.

e) NCB-06 Construction of Killi Sardar Akhtar Perennial Irrigation Subproject - ZRB

37. The NCB-06 contract for the Construction of Killi Sardar Akhtar Perennial Irrigation Subproject was awarded to M/s Noor ul Haq & Brothers on December 21, 2022. As of June 30, 2024, the project is 95% complete. The final draft of the SSEMP was submitted on June 6, 2023, and was approved by the CSC. The HSE Supervisor for this project is Shah Meer Ahmed, based in Karakh (Khuzdar), and can be reached at shahmeerahmed1960@gmail.com.

3 DESCRIPTION OF SIRI TOI DAM SUBPROJECT (ICB-01)

3.1 PROJECT DESCRIPTION

38. The Siri Toi Dam Project is located in Union Council Sambaza, Tehsil and District Zhob in Balochistan Province, approximately 62 km north-east of Zhob on Sri Toi River, the main tributary of Zhob River near Killi Gul Khan. The latitude and longitude of the scheme are 31° 35' 56.35" N, 69° 16' 8.86" E. The annual average availability of water is nearly 32.216 Million Cubic Meter (MCM) with a catchment area of 962 sq.km. Main components of the sub-project includes main dam, dyke, spillway, intake and outlet structures and network of main and distributary canals for irrigation supplies. Project Layout is shown in Figure 3-1.

SALIENT FEATURES:

• Total Cost	9896.217 (Rs. Million)
• Total Command Area	8,138 hector
• Dam Type	Earth-fill
• Height of Dam	72 Meter
• Dam Reservoir Area	195.10 (Hectare)
• Spillway Type	Ogee
• Width of Spillway	148 Meter
• Height of Dyke	38 Meter
• Intake Tower Height	46.40 Meter
• Length of Right Bank Canal	11,535 Meter
• Length of Left Bank Canal	15,718 Meter
• Feeder Channel Length	937 Meter

PROJECT PROGRESS:

• Overall Target:	44.00%
• Physical Progress:	30.00%
• Financial Progress:	27.50%

3.2 ACTIVITIES DURING CURRENT REPORTING PERIOD

39. An overview of the current progress for various activities under the Siri Toi Dam Subproject ICB-01 is provided in Table 3-1 below. It outlines the completion percentages of key construction tasks, reflecting the status of each activity as the project advances

Table 3-1: Siri Toi Dam Subproject ICB-01 works progress

Sr. No	Activity	Status %
1.	Camp Establishment	96%
2.	Dyke [Trench Excavation]	3%
3.	Slope Protection	58.41%
4.	Curtain and consolidation grouting	3.65%
5.	Earthwork Spillway	25%
6.	Access Road	3%

40. The specific ongoing construction activities for the Siri Toi Dam Subproject ICB-01 are detailed in Table 3-2. It describes the current tasks being performed for each major component of the project, highlighting the types of work underway for camp establishment, spillway construction, dyke excavation, and access road preparation .

Table 3-2: Details of ongoing construction activities.

S. No.	Siri Toi Dam ICB 01	
1.	Camp establishment	Masonry, Modification, Construction per requirement
2.	Spillway	Excavation, Paneling, Bedding
3.	Dyke	Key Trench Excavation
4.	Access Road	Excavation

Construction Material

41. Major construction materials used at ICB-01 include reinforced steel, cement, sand and aggregates supplied from the approved sources as mentioned in the SSEMP. The Details for types of construction material used and their sources for the time period January to June 2024 are mentioned in Table 3-3

Table 3-3- Detail of material and sources of Siri Toi Dam sub-project ICB 01

Sr. No.	Name of Material	Source of Material	Quantities Used
1	Cement	D.G Lucky, Lucky cement, Fauji cement, Mapple leaf cement	159,590 bags
2	Steel	Agha steel, Faizan steel, Naveena steel	1,265 (T)
3	Stone	Borrow Material areas	3,114 (Cm)
4	Crush aggregates	As per approved sources nearby site	27,591 (Cm)
5	Sand		13,795 (Cm)

Human Resources

42. As a contractor, it is prior responsibility to hire local staff, skilled and unskilled staff and labor. Because it is the basic right of peoples living in the vicinity of project area to get maximum financial benefit of project to overcome unemployment, so their socio economic status can be improved. However, considering availability and ability of work, contractor has provided the jobs to the local community on priority basis. The Details for categories of Employees both Skilled and Unskilled are mentioned in Table 3-4

Table 3-4- Manpower Technical/skilled/ unskilled staff details

Sr.no	Employees	Quantity
1	Project Manager	1
2	Deputy Project Manager	1
3	Geo Tech Manager	1
4	Quantity Surveyor	1
5	Chief Surveyor	1
6	Geologist	1
7	Material Engineer	1
8	HSE Officer	1
9	Doctor	1
10	Senior Lab Technician	1
11	Lab Technician	1
12	Lab Technician Assistant	2
13	Site Engineer	1
14	Site Forman	1
15	Document Controller	1
16	Accountant HR	1
17	Assistant Accountant	1
18	Assistant Quantity Surveyor	1
19	GPS Operator	1
20	GPS Helper	1
21	Surveyor	3
22	Surveyor Helper	2
23	Store Manager	1
24	Store Helper	4
25	Site Supervisor	8
26	Purchaser (Zhub)	1
27	Charge Man	3
28	Cameraman	2
29	Electrician	1
30	Munshi	1
31	Form Work Carpenter	1
32	Diesel Man	1
33	Grouting Supervisor	1
34	Mechanical Supervisor	2
35	Mechanic	5
36	Tire Repairing	1
37	Welder	2
38	Blasting Supervisor	1

Sr.no	Employees	Quantity
39	Blasting Lead Man	1
40	Rotary Machine Driller	1
41	Roller Operator	1
42	DTH Driller	3
43	Operator	5
44	Dozer Operator	1
45	Bulldozer Helper	2
46	Dumper Driver	19
47	Dumper Helper	17
48	Excavator Operator	27
49	Excavator Helper	34
50	Grader Operator	1
51	Mechanic Kamani	1
52	Mechanic Helper	2
53	Crane Operator	1
54	Crawler Machine Operator	1
55	Crawler Machine Helper	1
56	Loader Operator	8
57	Loader Helper	6
58	Transit Mixer Driver	2
59	Transit Mixer Helper	2
60	Kharadi	1
61	Cook Supervisor	1
62	Cook	2
63	Cook Helper	2
64	Office Cook	1
65	Labor	32
66	Masson	15
67	Office Boy	1
68	Helper	18
69	Mazda Driver	1
70	Pickup Driver	6
71	Surf Jeep Driver	1
72	Tractor Driver	3
73	Water Tanker Driver	2
74	Water Tanker Helper	1
75	Watchman (Zhub)	1
Total		285

Equipment Machinery

43. Contractor is obliged to use Heavy Machinery on field for timely completion of the work. Maintenance of the machinery not only provide better and successful results but also safe haven for the workers operating nearby. Daily inspection of machinery is carried out by experts and supervisors before and after the machine is used. The machinery is washed on daily basis and maintained by their assigned individual operators. The details for Heavy Machinery working on site are mentioned in Table3-5.

Table 3-5: List of Machinery/Equipment's

Sr. no	Name of Machinery	Quantity
1	Excavator 400	5
2	Excavator 200	1
3	Loader	3
4	Grader	1
5	Dozer	1
6	Crawler	1
7	Water Tanker	2
8	Dumper	12
9	Transit Mixer	4
10	Roller	2
11	Concrete Pump	1
12	Compressor	4
13	Generator	6
14	Tractor 240	2
15	Tractor 385	1
16	Mazda Dino	1
17	Bike 125cc	2
18	Batching Plant	2
19	Crush Plant	1
20	Light Motor Vehicle	5
21	Water Bore Engine	4
22	Car Wash Pump	1
23	Grouting Pump	2
24	Grouting Mixer	2
25	Rotary	1
26	DTH Machine	3
27	Jaw Crusher	1
28	Water Bowser	2
29	Concrete Vibrator	2
30	Excavator 450	2

3.3 DESCRIPTION OF ANY CHANGES IN ICB-01 DESIGN

44. During the reporting period, no changes were made in the design of ICB-01.

3.4 DESCRIPTION OF ANY CHANGES TO AGREED CONSTRUCTION METHODS

45. The construction activities at various sections of Site are in progress in accordance with the Engineer's approved methodology and specifications

Works Progress in Pictures



3.5 ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.5.1 General Description of Environmental Safeguard Activities

46. During the reporting period, the Contractor engaged in multiple construction activities, including excavation works for the spillway, dyke, slope protection, and access road, as well as earthwork, concrete work in the stilling basin, plum concrete, and drilling. The environmental safeguards associated with these activities were diligently supervised and monitored, ensuring compliance with the provisions outlined in the approved Site-Specific Environmental Management Plan (SSEMP) and the Environmental Management Plan (EMP) in general. A series of checklists were completed to maintain detailed records of the environmental management efforts. These checklists, serve as evidence of adherence to the prescribed environmental protection measures and document the specifics of the monitored activities.
47. A problem was identified with workers not consistently wearing Personal Protective Equipment (PPE), compromising safety on-site. The Contractor addressed this issue by ensuring that all workers and staff now use the required PPEs. Additionally, a system was put in place to enforce PPE use through training, incentives, or penalties, thereby enhancing safety compliance.
48. Quarterly environmental monitoring at designated locations along the spillway were conducted at quarterly basis during the reporting period. The findings and analysis are detailed in a section 3.12 of the report.

3.5.2 Corrective Action Plans (CAPs):

49. During the reporting period, the Environment Specialist of PIC/SC conducted regular visits and monitored the project for the implementation of the Environmental Management Plan (EMP). As a result of these visits, Corrective Action Plans (CAPs) have been prepared for EMP non-compliance in various sub-projects, including Siri Toi Dam, Karkh valley development, Water Resources Building and Kharzan Hatachi. The details of these CAPs are provided in the Table 3-6 below.

Table 3-6- Siri Toi Dam sub-project Corrective Action Plan (Issues Resolved)

Sr. No.	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
1	Scarcity of safety signs boards	Proper safety signs should be installed by the Contractor near diversions and slopes	Contractor	CSC/PMO	15 July 2024	Closed
2	Wood is used for cooking.	LPG needs to be used for cooking	Contractor	CSC	30 June 2024	Closed
3	Generators were not kept properly.	Generators needs to be placed at concrete platform with trays to trap oil.	Contractor	CSC	30 June 2024	Closed
4	Workers are	All workers and staff	Contractor	CSC	Immediately	Closed

Sr. No.	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
	reluctant to use PPE's	need to wear the required PPEs. A mechanism needs to be established to ensure usage of PPEs through training, incentives, or penalty.				
5	Vehicles washing area not concrete	Concrete base is required for vehicle washing area	Contractor	CSC	30 April 2024	Closed
6	Submission of SAEMR to Consultant office	Semi annual environmental monitoring report submission	Contractor	CSC	30 June 2024	Closed
7	The fire extinguishers are inadequate and not placed properly.	Adequate fire extinguishers should be placed at a safe distance from the oil storage area where it is accessible (when required)	Contractor	CSC	30 June 2024	Closed
8	Wood is used for cooking.	LPG needs to be used for cooking	Contractor	CSC	30 June 2024	Closed
9	Improvement on GRM	GRM should be displayed outside project camps and translated in local language.	Contractor	CSC	At earliest	Closed
10	Toilets and sheds are not provided at the construction site.	Toilets with septic tanks need to be provided at the construction site.	Contractor	CSC	15 July 2024	Closed
11	Barricading of construction site	Site should be barricaded especially, borrow areas and areas where construction activities are being carried out	Contractor	CSC	31 st July 2024	Closed
12	No sheds on fuel storage area and Generator	Sheds should be provided for the fuel storage area/containers fuel and generators	Contractor	CSC	31 st July 2024	Open

*Pictorial Evidences for closed issues are mentioned as annexure IX

3.5.3 Site Audits

50. During the reporting period, the Asian Development Bank (ADB) Environmental Safeguard Handing-over Mission conducted the Project visit on June 12, 2024. Prior to Contractor's camps and Site visit, PMO and BWRDSP Consultants collectively made portfolio presentation to the ADB team exhibiting brief of safeguard activities, achievements, challenges, gaps and available opportunities for improvement. During the presentation, various aspects of the safeguard activities were discussed in detail, particularly approval of SSEMPs and IEE, Instrumental monitoring. Also, questions asked and concerns shown by the visiting team were responded and clarified by the concerned staff of PMO/BWRDSP consultants.
51. Subsequent to the presentation at the PMO office, a joint visit was conducted to the ICB-01 Contractor's camps and work sites on 12 June 2024. The major HSE related issues, identified at Site and camp, are highlighted in Corrective Action Plan (CAP) given under Table No. 3-7. Last column of the table shows compliance status recorded till end of the current reporting period while those planned beyond coverage of this reporting period will be reported in the upcoming SAEMR.

Table 3-7: Corrective Action Plan (CAP) of ADB

EMP Observation	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Compliance Status
Loan: 3099: Baluchistan Water Resources Development Sector Project (BWRDSP)					
Resubmission of SAEMR July-Dec 2023	Revised SAEMR (July-December 2023) should be submitted for disclosure	CSC	PMO	20 June, 2024	Resubmitted and Disclosed on ADB website
Weak reporting and environmental assessments	The quality of the monitoring reports and the updated IEEs needs improvement to accurately reflect site activities.	PMO/ Design Consultant	Construction supervision consultant (CSC)/ADB	From July 2024 onwards	Noted. New reports are being developed accordingly
Blasting Management Plan is not prepared or cleared.	Blasting Plan should be developed and made part of updated SSEMP for Sri Toi Dam. Strict enforcement of	Contractor	CSC	30 June 2024	Blasting Management Plan has been developed and made part of SSEMP

EMP Observation	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Compliance Status
	controlled blasting at site.				
The camp was not fenced	The camp needs to be fenced either by wire or constructing wall.	Contractor	CSC/PMO	30 July 2024	Camp is fenced by Wire. FC is working to construct wall around the Camp
Improper storage area	(i)Storage of fuel is not as per EMP. (ii)Used oil storage is not placed properly. (iii) Oil rags are to be collected in drums and disposed of properly or through incinerators. (iv) Material Safety Data Sheet (MSDS) on Chemical storage sites should be displayed in local language and trainings on chemical hazards should be provided.	Contractor	CSC	30 June 2024	Compliance of (i) - (iii) done. See Annexure X Pictures i-iii Contractor is working to get translate MSDS in local language (Pashtu) (iv)
The fire extinguishers are inadequate and not placed properly.	Adequate fire extinguishers should be placed at a safe distance from the oil storage area where it is accessible (when required)	Contractor	CSC	30 June 2024	Compliance done see Annexure X Picture (iv)
Wood is used for cooking.	LPG needs to be used for cooking	Contractor	CSC	30 June 2024	Compliance done.LPG is being used for Cooking .

EMP Observation	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Compliance Status
					See Annexure X Picture (v)
Project team capacity needs to be improved	Regular training on environment safeguards, OHS is to be carried out.	Contractor/SC	PMO	Routinely	Trainings on regular basis started. See Annexure X Picture ix
Inadequate signages at the construction site	Adequate signboards and reflectors need to be installed at the required places.	Contractor	CSC/PMO	15 July 2024	Signboards installed at required places. See Annexure X Picture-v
Generators were not kept properly.	Generators needs to be placed at concrete platform with trays to trap oil.	Contractor	CSC	30 June 2024	Completed. Generators are kept on concrete platform and have inbuilt trays for oil trap. See Annexure X Picture viii
Workers are reluctant to use PPEs.	All workers and staff need to wear the required PPEs. A mechanism needs to be established to ensure usage of PPEs through training, incentives, or penalty.	Contractor	CSC	Routinely	Compliance being ensured Mechanism for proper usage of PPEs has been developed
Toilets and sheds are not provided at the construction site.	Toilets with septic tanks need to be provided at the construction site.	Contractor	CSC	15 July 2024	Toilets with septic tanks constructed at construction site. See

EMP Observation	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Compliance Status
					Annexure X Picture vii
Inadequate barricading of the construction site	Proper barricading of the construction site is required.	Contractor	CSC	At all active sites/ Routinely	Barricading of construction sites being ensured. See Annexure X Picture x
Improvement on GRM	GRM should be displayed outside project camps and translated in local language.	Contractor	CSC	At earliest	Contractor is working to get translate GRM in local language (Pashtu)

3.6 ISSUES TRACKING (BASED ON NON-CONFORMANCE NOTICES) .

52. On June 7, 2024, non-compliance notice **Annexure II** was issued to the ICB-01 Contractor regarding safety equipment deficiencies. During the site inspection, it was observed that the quantity of safety jackets, helmets, and safety shoes (PPEs) available on-site was significantly inadequate to properly equip the entire workforce.. Immediate corrective actions were required to address this issue. The Contractor was notified of the critical need to increase the provision of safety jackets, helmets, and safety shoes to ensure that every worker is properly equipped. The Contractor must take prompt action to rectify this deficiency by procuring and supplying the necessary PPEs in adequate quantities. Additionally, a review of the inventory management system should be conducted to prevent future occurrences of such shortages. Ensuring that all workers are equipped with the appropriate safety gear is essential for maintaining a safe working environment and complying with health and safety regulations.
53. Initially, there was a shortage of safety sign boards near critical areas such as diversions and slopes, which could lead to safety hazards. To address this issue, the Contractor promptly installed the necessary safety signs in these locations. This action has resolved the problem and ensured that the necessary safety precautions are now in place.
54. It was noted that wood was being used for cooking, which is less efficient and environmentally friendly. After raising this concern, the Contractor switched to using

LPG for cooking. This change promotes a more sustainable and safer approach to food preparation.

55. Generators were previously not placed on suitable surfaces, raising concerns about potential oil spills. In response, the Contractor relocated the generators to concrete platforms equipped with trays to catch any oil leaks. This adjustment helps prevent environmental contamination and maintains operational safety.
56. The area designated for washing vehicles lacked a concrete base, which could lead to environmental issues. To resolve this, the Contractor installed a concrete base for the vehicle washing area, which helps manage and contain any potential spills more effectively.
57. The Semi-Annual Environmental Monitoring Report (SAEMR) was overdue for submission. The Contractor has since submitted the report to the Consultant office, ensuring compliance with environmental monitoring requirements.
58. Previously, there were inadequate and poorly positioned fire extinguishers, which could have hindered fire response. The Contractor addressed this by installing an adequate number of fire extinguishers at strategic locations, especially near oil storage areas, to ensure they are readily accessible in case of an emergency..

3.6.1 Trends.

59. After the issuance of CAPS, the Sri Toi Dam Subproject has seen significant improvements before the end of June 2024, including the installation of safety signboards, the switch from wood to LPG for cooking, and proper placement of generators on concrete platforms with oil-trapping trays. PPE use among workers has been enforced through training and incentives, the vehicle washing area now has a concrete base, and fire extinguishers are adequately placed. The semi-annual environmental monitoring report (SAEMR) is submitted ontime. These positive trends demonstrate a strong commitment to operational excellence and a focus on improving both worker safety and environmental impact.

3.7 GRIEVANCE REDRESSAL MECHANISM.

60. GRM has been established for the project. Complaint register is available inside camp to receive complaints from local community/project affected people and contractor's staff. No complaints have been registered in the time period January to June 2024. But community is launching direct complaints ADB without any evidence. The Picture for Complaint box present on site is attached in Annexure X.

3.8 UNANTICIPATED ENVIRONMENTAL IMPACTS OR RISKS.

61. During the reporting period, neither unanticipated environmental impacts were observed nor reported by the Contractor.

3.9 ENVIRONMENTAL MONITORING RESULTS

3.9.1 Overview of Monitoring Conducted during the Current Period

62. The primary goal/ objective of environmental monitoring is to:
- i. Monitor project impacts on physical, biological and socio-economic indicators and to assess adequacy of the EMP/SSEMP in identifying and mitigating the project adverse effects;
 - ii. Recommend mitigation measures for any unforeseen impact or where the impact level exceeds from those anticipated in EMP/SSEMP; and
 - iii. Ensure legal compliance including safety of workforce and community.
63. Following two types of Environmental monitoring were ensured during the execution of works.
- i. **Compliance Monitoring:** To ensure that measures proposed in EMP/SSEMP are adhered to: and
 - ii. **Effect Monitoring:** To monitor the effect of construction activities on various components of the environment such as air, water, noise and soil etc.
64. To assess the effect of construction activities on various components of the environment on sub-project sites, as shown in Table 3-8, a comprehensive Environmental Monitoring Plan was made part of the construction contract with budgetary provisions thereof. During the reporting period, the given plan was accordingly implemented at the points specified in the Instrumental Monitoring Layout Plan given in the sub-project SSEMP's.

Table 3-8: Instrumental Environmental Monitoring Plan

Environmental Quality	Parameters	Standards/ Guidelines	Location	Monitoring Period/Frequency/Sampling/ No/ year	Responsibility	
					Implementation	Monitoring
Construction Stage						
Air Quality	NO, NO ₂ , SO ₂ , CO, O ₃ , SPM, PM ₁₀ , PM _{2.5} , Humidity, Wind direction, Wind velocity, Pressure etc.	Air quality standard by BEQS, Pakistan	Throughout the project areas particularly at: <ul style="list-style-type: none"> ▪ Camp and Batching plant site. ▪ Sensitive receptors at active construction site 	Quarterly (24 Hours Duration)	Contractor	Supervision Consultant (SC)
Dust	Dust control	Air quality standard by BEQS, Pakistan	Throughout the project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	Supervision Consultant (SC)
Noise Level	dB(A)	Noise pollution Control BEQS, Pakistan	Camp site and Batching Plant site project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	Supervision Consultant (SC)
Water Quality	Bore water: Total Bacteria Count, Total Coliform, E. Coli, Faecal Coliform, Turbidity, Taste, Odour, Colour, Phenolic compounds, Residual Chlorine, pH @25°C, TDS, Total Hardness, Fluoride, Chloride, Cyanide, Nitrate, Nitrite, Antimony, Aluminum, Arsenic,	BEQS, NEQS, WHO Limits,	Water near project corridor and camp site	Quarterly	Contractor	Supervision Consultant (SC)

Environmental Quality	Parameters	Standards/ Guidelines	Location	Monitoring Period/Frequency/Sampling/ No/ year	Responsibility	
					Implementation	Monitoring
	Boron, Barium, Chromium Total, Copper, Cadmium, Lead, Manganese, Mercury, Nickel, Selenium, Zinc, BOD, COD, Temperature, Oil & Grease, Iron, Mercury, Ammonia, Sulphate, Silver.					

3.10 INSTRUMENTAL MONITORING LABORATORY

65. To implement the instrumental monitoring plan at Siri Toi Dam, Water Resources Building and Kili Sardar Akhtar the Contractor, hired services of an external laboratory “Sustainable Environmental Services (SES)”. On Karkh Valley and Kharzan Hatachi the Contractor hired the services of “ENVI TECH AL” Laboratory. Balochistan Environmental Protection Agency (BEPA) certified labs, having Head offices at Karachi.
66. The environmental monitoring was carried out by CSC to assess actual nature and extent of key impacts and the effectiveness of mitigation and enhancement measures outlined in the Initial Environmental Examination (IEEs) and Environmental Management Plans (EMPs). The labs conducted instrumental monitoring for ambient air quality, meteorological data, Noise and drinking water during the second quarter of the reporting period i.e., during the March and June 2024, and provided reports. SAEMR contains comparison of the monitoring results obtained during the reporting period. Signed copies of the results are attached as **Annexure-XI**.

3.11 MONITORING METHODOLOGY AND CALIBRATION

67. Standard methods were employed for the analysis of environmental parameters. The detail of each method has duly been described in the respective section.
68. Environmental Monitoring equipment were calibrated using the approved prescribed methods. Also, during monitoring hours, the calibration was rechecked to ensure quality of the results.

3.12 MONITORING OF AIR, NOISE AND WATER AT SIRI TOI DAM SITE

3.12.1 Ambient Air Monitoring

i. Methodology and Instrument Used

69. Ambient air quality monitoring was carried out for the assessment of Parameters (NO, NO₂, SO₂, CO, O₃, SPM, PM₁₀, PM_{2.5}, Humidity, Wind direction, Wind velocity, Pressure etc). The Air Quality Monitoring Station (AQMS-09), employed for PM₁₀ & PM_{2.5}, is a fully integrated air monitoring station that delivers ‘near reference levels’ of performance parameters. With a size of large suitcase, it can measure up to 20 different gaseous and particulate pollutants and environmental parameters simultaneously. The AQMS 09 offers optimal balance between performance and measuring criteria pollutants.

ii. Test Results and Discussion

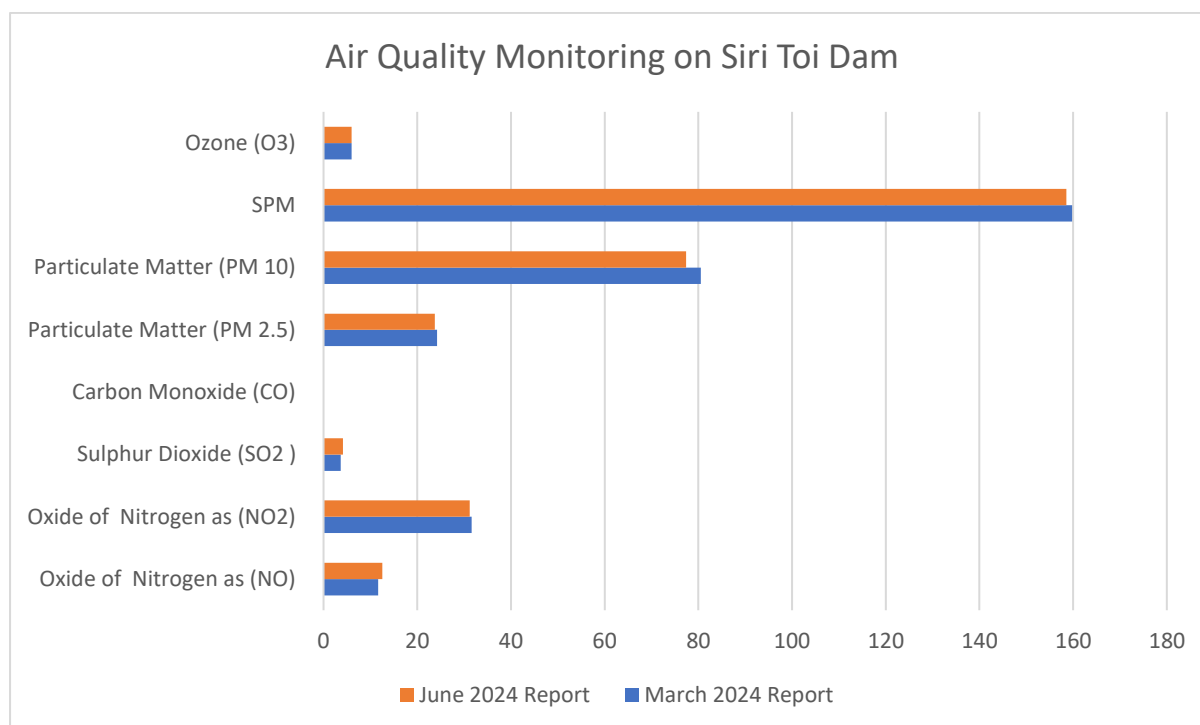


Figure 3-2: Air Quality Monitoring at Siri Toi Dam Camp site

70. Ambient air quality (NO, NO₂, SO₂, CO, O₃, SPM, PM₁₀, PM_{2.5}, Humidity, Wind direction, Wind velocity, Pressure etc) were monitored for twenty-four (24) hours at the locations identified by the SC and results obtained are shown in graphical representation.
71. All the results are within the permissible limits and compliant with the BEQS, NEQS. However, NO₂, PM₁₀, and PM_{2.5} levels exceeded the stringent WHO standards, primarily due to high vehicle movement and dust accumulation near the monitoring points. The contractor has been instructed to strictly follow SSEMP recommendations, particularly regarding water sprinkling in dust-prone areas, and to regularly monitor vehicle emissions to ensure compliance with emission standards through effective enforcement measures. However, it is worth noting that during the first quarter, the contractor has not performed quarterly monitoring at the sub-project site and the comparison was made with previously approved SAEMR instrumental results as shown in Figure 3-2 & Table 3-9.
72. Considering the compliance with BEQS, NEQS, and WHO standards, there is no immediate need for additional mitigation measures to control dust, apart from the measures proposed in the SSEMP. These measures may include regular sprinkling of water to suppress dust and timely transportation or disposal of excess materials temporarily stored at the site.
73. It is important to regularly monitor and assess the dust levels and compliance with environmental standards throughout the project's implementation to ensure continued adherence to regulations and to address any potential concerns that may arise.

Table 3-9: Air Quality Monitoring Test Results

Sr. No	Measuring Parameters	Location	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits	Remarks
1.	Oxide of Nitrogen as (NO)	Camp	µg/m ³	11.65	12.57	-	40 (24 hrs.)	WL
2.	Oxide of Nitrogen as (NO ₂)	Camp	µg/m ³	31.64	31.18	25(24 hrs.)	80 (24 hrs.)	WL
3.	Sulphur Dioxide (SO ₂)	Camp	µg/m ³	3.67	4.134	40(24 hrs.)	120 (24 hrs.)	WL
4.	Carbon Monoxide (CO)	Camp	mg/m ³	0.064	0.062	4(24 hrs.)	5 (08 hrs.)	WL
5.	Particulate Matter (PM 2.5)	Camp	µg/m ³	24.24	23.73	15(24 hrs.)	35 (24 hrs.)	WL
6.	Particulate Matter (PM 10)	Camp	µg/m ³	80.53	77.39	45(24 hrs.)	150 (24 hrs.)	WL
7.	SPM	Camp	µg/m ³	159.82	158.59	-	500 (24 hrs.)	WL
8.	Ozone (O ₃)	Camp	µg/m ³	06	06	60(Peek Season)	130 (01 hr.)	WL

3.12.2 Noise Monitoring

74. The twenty-four (24) hours noise level monitoring was carried out at Siri Toi Dam camp site using Digital Noise level meter.

i. Test Results and Discussion

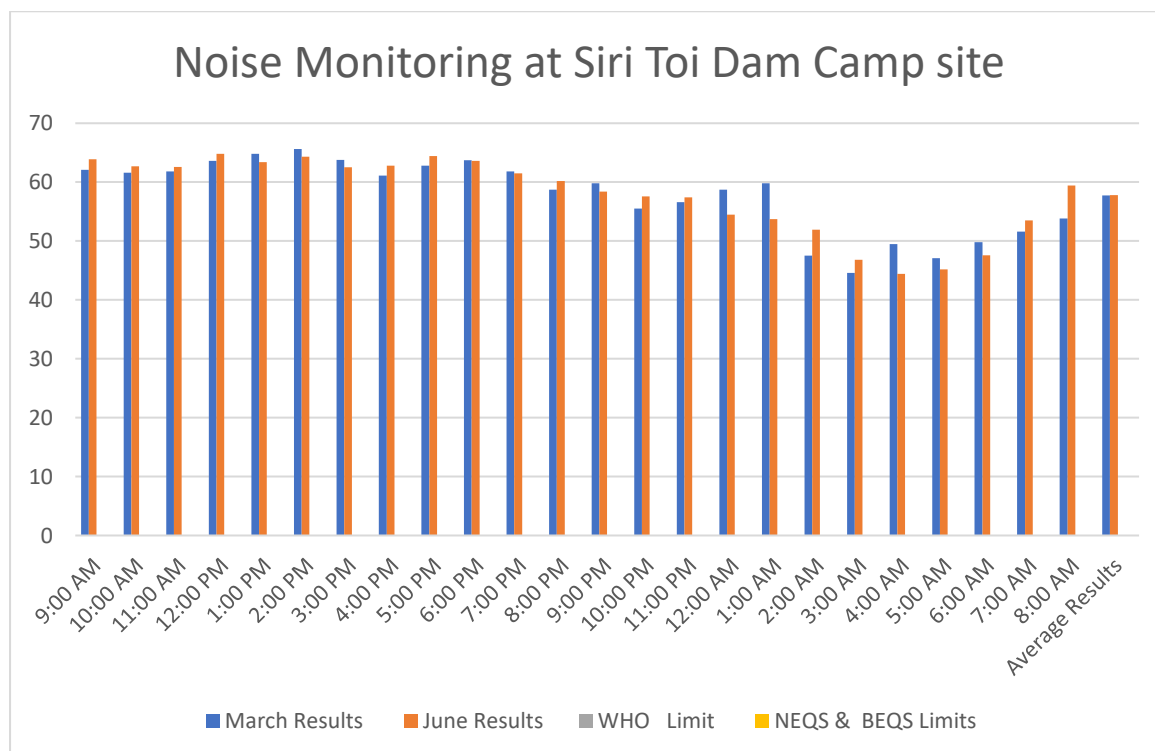


Figure 3-3: Noise Monitoring at Siri Toi Dam Camp site

75. The comparison of noise level monitoring results obtained during the monitoring period is shown in Figure 3-3 and Table 3-10.
76. The noise level monitoring at sites was carried out during day and night with the objective to assess the off working noise levels as well.

Table 3-10: Noise Level Test Results

S. No	Time	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits
01	09:00 AM	dB(A)	62.1	63.9	55 dBA (Day time)	75 dBA (Day time)
02	10:00 AM		61.6	62.7		
03	11:00 AM		61.8	62.6		
04	12:00 PM		63.6	64.8		
05	01:00 PM		64.8	63.4		
06	02:00 PM		65.6	64.3		
07	03:00 PM		63.8	62.5		
08	04:00 PM		61.1	62.8		
09	05:00 PM		62.8	64.4		
10	06:00 PM		63.7	63.6		
11	07:00 PM		61.8	61.5		
12	08:00 PM		58.7	60.2		
13	09:00 PM		59.8	58.4		
14	10:00 PM		55.5	57.6		
15	11:00 PM		56.6	57.4	45 dBA (Night time)	65 dBA (Night time)
16	12:00 AM		58.7	54.5		
17	01:00 AM		59.8	53.7		
18	02:00 AM		47.5	51.9		
19	03:00 AM		44.6	46.8		
20	04:00 AM		49.5	44.4		
21	05:00 AM		47.1	45.2		
22	06:00 AM		49.8	47.6		
23	07:00 AM		51.6	53.5	55 dBA (Day time)	75 dB(A) (Day time)
24	08:00 AM		53.8	59.4		
Average Results			57.73	57.79		

77. As evident from the results obtained, the average noise level at all intervals falls within the WHO, BEQS and NEQS limits of 45 and 55 dB(A) set for areas.

3.12.3 Monitoring of Drinking and Waste Water Quality

i. Methodology

78. During the reporting period, drinking water quality of the Contractor's camp was monitored for the agreed parameters given in the SSEMP. High density sterilized polyethylene bottles were used for the sampling. The collected samples were

preserved, sealed and chilled at 40°C as recommended. Grab method is used for sampling and preservation of water whereas.

ii. Drinking Water Test Results and Discussion

79. The drinking water demand is being met from bore hole dug out at the camp. At the first instance, water is pumped to elevated storage tank from where it is supplied to the consumer points through a pipe network.
80. Following is the comparison of the results obtained for drinking water parameters as shown in Table 3-11.
81. As evident from the above table, almost all parameters of the drinking water, at the Contractor's camp, fall within the permissible limits set under BEQS, NEQS and WHO limits.

Table 3-11: Drinking Water Quality (Bore Water) Report

S.No	Parameters	Unit	Testing Method	BEQS Limits	NEQS Limits	WHO Limits	First Quarter	Second Quarter	Remarks
1.	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-	-	-	16	ND	-
2.	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	ND	WL
3.	E-Coli	EC (count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	ND	WL
4.	Facial Coli	FC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	ND	WL
5.	Turbidity	NTU	HACH Turbidity meter	<15	<5	<15	<0.04	<0.01	WL
6.	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-Obj	Non-Obj	WL
7.	Odour	Odor	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-Obj	Non-Obj	WL
8.	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 1	< 1	WL
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	ND	WL
10.	Residual chlorine	Cl ₂ (mg/L)	HACH Method 8167	0.2-0.5	0.2-0.5	-	0.4	0.4	WL
11.	Ph@25° C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	8.12	8.2	WL
12.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	< 1000	< 1000	389	239	WL
13.	Total Hardness	As COCO ₃ (mg/L)	APHA 2340-C	< 500	< 500	-	74	73	WL

S.No	Parameters	Unit	Testing Method	BEQS Limits	NEQS Limits	WHO Limits	First Quarter	Second Quarter	Remarks
14.	Fluoride	F_1 (mg/L)	APHA 4500-F_1	≤ 1.5	≤ 1.5	1.5	0.54	0.50	WL
15.	Chloride	CL_1(mg/L)	APHA 4500-Cl_1	< 250	< 250	250	190	194	WL
16.	Cyanide	CN_1(mg/L)	HACH Method 8027	≤ 0.05	≤ 0.05	0.05	ND	ND	WL
17.	Nitrate	NO3_1(mg/L)	HACH Method 8192	≤ 50	≤ 50	50	0.15	0.16	WL
18.	Nitrite	NO2_1(mg/L)	APHA 4500-NO2_1-B	≤3.0 (P)	≤3.0 (P)	3	0.08	0.11	WL
19.	Antimony	Sb (mg/L)	ASTM D-3697	≤0.005	≤0.005	0.02	ND	ND	WL
20.	Aluminum	Al (mg/L)	ASTM D-857	≤0.2	≤0.2	0.2	0.03	0.03	WL
21.	Arsenic	As (mg/L)	ASTM D-2972	≤0.05	≤0.05	0.01	ND	ND	WL
22.	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	ND	WL
23.	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.003	0.003	WL
24.	Chromium Total	Cr(mg/L)	ASTM D-1687	≤0.05	≤0.05	0.05	ND	ND	WL
25.	Copper	Cu(mg/L)	ASTM D-1688	2	2	2	<0.05	<0.03	WL
26.	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.01	0.03	ND	ND	WL
27.	Lead	Pb(mg/L)	ASTM D-3559	≤0.05	≤0.05	0.01	ND	ND	WL
28.	Manganese	Mn(mg/L)	ASTM D-858	≤0.5	≤0.5	0.5	ND	ND	WL
29.	Mercury	Hg (mg/L)	ASTM D-3223	≤0.001	≤0.001	0.001	ND	ND	WL
30.	Nickel	Ni(mg/L)	ASTM D-3866	≤0.05	≤0.02	0.02	ND	ND	WL
31.	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	ND	WL
32.	Zinc	Zn (mg/L)	ASTM D-1691	5	5	3	0.05	0.09	WL

i. Waste Water Test Results and Discussion

82. The wastewater samples, in both the quarters, were collected from the point just near F.C Camp where all wastewater (Washrooms, kitchen, vehicles) and effluents

converges into one outlet. The wastewater quality results presented in Table 3-12 demonstrate that the analyzed parameters generally meet the environmental standards set by NEQS and are within WHO recommended limits. The pH, BOD, and COD levels are within acceptable limits, with the pH being slightly alkaline (7.31), BOD at 56 mg/L, and COD at 112 mg/L, which are well below the upper thresholds of 80 mg/L and 150 mg/L, respectively. Similarly, oil & grease levels are exceptionally low (0.03 mg/L), well below the WHO limit of 10 mg/L. Key inorganic pollutants like chloride, fluoride, and sulphate also comply with WHO thresholds, indicating minimal contamination. The heavy metals tested (cadmium, chromium, lead, mercury, nickel, silver) show negligible or non-detectable levels, which is favorable for health and environmental protection. However, some parameters like TDS (1989 mg/L) and TSS (102 mg/L) are considerably high when compared to the NEQS and WHO guidelines, suggesting a need for improved wastewater treatment practices. Overall, the results indicate a relatively safe discharge, with some areas that may need closer monitoring or treatment to ensure optimal compliance with environmental standards.

Table 3-12: Waste Water Quality Report

S.No	Parameters	Unit	Testing Method	NEQS	Current Results
1.	Temperature at 40 °C	°C	Calibrated Thermometer	40+ ≤03	28
2.	Ph@25° C	PH	ASTM D-1293	6 to 9	7.31
3.	Biological Oxygen Demand (BOD)	Mg/L	APHA 5210	80	56
4.	Chemical Oxygen Demand (COD)	Mg/L	ASTM D-1252	150	112
5.	Total Dissolved Solids	TDS (mg/L)	APHA 2540-C	3500	1989
6.	Total Suspended Solids (TSS)	Mg/L	APHA 2540-D	150	102
7.	Oil & Grease	Mg/L	ASTM D-4281	10	0.03
8.	Chloride	CL_1(mg/L)	ASTM D-512	1000	752
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	0.1	ND
10.	Fluoride	F_1 (mg/L)	APHA 4500	20	4.2
11.	Anionic Detergent	Det(mg/L)	ASTM D-6173	20	5.1
12.	Selenium	Se2(mg/L)	APHA 4500 Se	0.5	ND
13.	Sulphide	Mg/L	APHA 4500	1.0	0.50
14.	Ammonia	Mg/L	ASTM D-1426	40	17.4
15.	Cadmium	Cd(mg/L)	ASTM D-3557	0.1	<0.2
16.	Chromium Trivalent	Cr+3(mg/L)	APHA 3500-Cr	1.0	ND
17.	Chromium Hexavalent	Cr+6(mg/L)	APHA 3500-Cr	1.0	0.02
18.	Lead	Pb(mg/L)	ASTM D-3559	0.5	0.4
19.	Mercury	Hg (mg/L)	Kit Method	0.01	ND
20.	Nickel	Ni(mg/L)	HACH Dimethylglyoxime Method	1.0	ND
21.	Silver	(mg/L)	ASTM D-3866	1.0	ND
22.	Zinc	Zn (mg/L)	HACH Zineon Method	5.0	0.3
23.	Iron	Mg/L	APHA 3500-Fe	2.0	0.4

S.No	Parameters	Unit	Testing Method	NEQS	Current Results
24.	Manganese	Mn(mg/L)	APHA 3500-Mn	1.5	0.06
25.	Boron	B (mg/L)	APHA 4500	6.0	0.4
26.	Sulphate	Mg/L	APHA 4500	600	260
27.	Arsenic	As (mg/L)	Palintest Kit	1.0	ND
28.	Copper	Cu(mg/L)	HACH Biquinoline Method	1.0	0.02
29.	Chlorine	Mg/L	HACH DPD Method	1.0	ND
30.	Aluminium	Al(mg/L)	HACH Eriochrome Cyanine R	.....	ND
31.	Total Kjheldal Nitrogen	(mg/L)	Kit Method	.....	0.30
32.	Barium	Ba(mg/L)	ASTM D-4382	1.5	0.78

Note:

BEQS= Baluchistan Environmental Quality Standards

NEQS= National Environmental Quality Standards

WHO= World Health Organization Limits

WL= Within Limit

3.13 WASTE MANAGEMENT

83. The construction activities began after obtaining approval for the Site-Specific Environmental Management Plan (SSEMP) on 9th December 2022. The camp establishment is currently 95% complete. Contractor staff has received assistance in marking the designated area for solid waste management. Signboards were observed during the reporting period, and photographic evidence is provided below.



Inspection of waste bins in Siri Toi Dam Camp site



Presence of signboards for adequate disposal of waste at Camp site

Figure 3-4: Signage and waste segregation

84. The Contractor has provided waste collection bins at various points in the camp, as well as at work sites. Consequently, wastes are being collected in these waste bins throughout the camp. Construction wastes, such as plastics and paper, are collected and transported to the designated waste receiving area within the camp.



Waste bin provided on construction site

85. All the excavated materials are used for filling the cut and low areas. Hence, no soil heaps have been observed due to excavation activities.
86. Local communities are usually asked to take away domestic/kitchen waste. Small quantities of waste are left for final disposal. Therefore, wastes are managed at the camp in designated ditches made for a specific purpose.
87. As discussed in the previous section, small quantities of waste, including plastics, cloth pieces, and cartons, have been observed at a few locations due to a windstorm. Such waste can be managed through the provision of improved waste storage areas designated in the campsite.

88. At the waste collection area of the camp, wastes of economic value are segregated and sold to recyclers, while the remaining waste, mostly degradable in nature, is then dumped in a pit near the camp with the approval of the Project Consultant.

Table 3-13- Solid Waste generated at sub-project sites are as under

Sr. #	Name of Sub-Project	Solid Waste generated in Kilograms/day	Types of Waste	Remarks
1	Siri Toi Dam ICB 01	1.2 Kg/day	Plastic, polythene bags	Solid waste is preferable reused, recycled and disposed of at designated dumping site.
		1-2 Kg/day	Solid waste/ cans etc	
		1-2 Kg/day	Kitchen waste/ Organic waste	

3.14 HEALTH AND SAFETY

3.14.1 Community Health and Safety

89. The contractor's environmental specialist, assisted by the consultant team, provides adequate training to staff on community health and safety. Signboards are installed at designated spots, curves, and the campsite to control vehicle speed limits. The campsite is barricaded and constantly monitored to ensure that local residents and domestic animals (cows, goats, sheep, and dogs) stay away from the construction area. No incidents related to community health and safety have been reported.
90. The project site is cordoned off, especially in areas where machinery is involved, with barricades and constant monitoring to ensure that local residents, particularly children, stay away from the construction area. Additionally, machinery is not left unattended, especially when running. Drivers receive orientation on safe driving practices to minimize accidents and prevent the spillage of hazardous materials. A Daily Tool Box Talk (TBT) is conducted by the HSE Supervisor each morning before starting any activities on the site. The HSE Officer uses daily, weekly, and monthly environmental monitoring checklists to assess various environmental parameters, allowing the environmental staff to take corrective action for any non-conformances observed **Annexure X**.
91. Several safety measures have been implemented on access roads. Signboards are properly installed at necessary locations along the access roads. A traffic management plan is effectively implemented at the sub-project site. Furthermore, entry points to the construction site are limited and monitored to prevent unauthorized access.

3.14.2 Worker Safety and Health

92. The provision of an adequate first aid kit, a medical room, an ambulance, and a medical technician has been ensured during site visits. Construction activities at the camp have minor impacts on the safety and health of workers. Prior to starting the project, engineering and administrative control measures are taken by the contractor. For example, the provision of Personal Protective Equipment (PPE) to the workforce is ensured on-site. Other safety measures to prevent exposure to accidents due to

construction operations, vehicle movements, and machinery operations are also implemented. Additionally, the contractor has 4WD vehicles to handle any kind of emergency (see Annexure X, Section 5). No significant incidents related to workers' health and safety have occurred during the current reporting period.

3.14.3 Training

93. To continue fostering a culture of HSE excellence, the obligatory training will be conducted in the upcoming reporting period.
94. Aside from the formal trainings, Contractor's Environmentalist and Site supervisors regularly hold toolbox talks before start of work to emphasize the importance of HSE aspect of work. Trainings and awareness campaigns are pivotal part of EMP. These trainings are being conducted at regular intervals in order to keep workers and environment safe. Basic purpose of these sessions is to keep workers well aware about the different risks and hazards associated with site specific construction activities and to make them well effective to respond in any kind of emergency situation. In the reported months of January to June 2024, total of 16 trainings had been conducted as mentioned in Table 3-14.

Table 3-14: Details of Health and Safety Trainings on Site.

S. No	Location	Topic	Date (d-m-y)
1	Ration store	Health & Hygiene/Pest Control/Fire Hazard	6-1-2024
2	Cooking oven	Health & Hygiene/Pest Control/Fire Hazard	7-1-2024
3	Labor Mess	Health & Hygiene/Pest Control/Fire Hazard	8-1-2024
4	Welding Plant	Fire Hazard/PPE's	14-2-2024
5	Maintenance Workshop	Fire Hazard/Proper Maintenance	15-2-2024
6	Refueling Station	Fire Hazard/Oil Spill	16-2-2024
7	Material Store	Fire Hazard/Falling Object/Proper Placement	22-2-2024
8	Camp	PPE's/Falling Objects	3-3-2024
9	Material Yard	Falling object/Proper Placing/Slip, Trip, Fall	7-3-2024
10	Mechanic Shop	PPE's/Fire Hazard	8-3-2024
11	Steel Yard	PPE's/Proper Placement/Slip, Trip, Fall	25-4-2024
12	Plumb Concrete	PPE's	30-4-2024
13	Batching Plant	Electric Shock/Rusting/Short Circuit	2-5-2024
14	Cement Yard	PPE's/Slip. Trip. Fall	11-5-2024
15	Spillway Excavation	Land Slide/PPE's/Caution	16-5-2024
16	Parking	Speed Limit/Cell phone Usage/Seat Belt	1-6-2024

3.15 FUNCTIONING OF THE SSEMP

3.16 GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

- Environmental Specialist/HSE Advisor Presence: The contractor has hired an Environmental Specialist/HSE advisor, ensuring their presence on-site to oversee health, safety, and environmental practices.

- **Camp Establishment:** The Contractor's camp has been established in accordance with the standards and parameters set forth in the SSEMP (Site-Specific Environmental Management Plan).
 - **Signboard Installation:** Signboards have been satisfactorily installed at various locations within the campsite, construction site, and along road diversions on unpaved roads.
 - **Officers' Mess Housekeeping:** The officers' mess has been set up with good housekeeping practices, maintaining a clean and organized environment.
 - **Sustainable Fuel Use:** To avoid cutting trees for firewood, LPG is used as a fuel source instead of wood.
 - **Medical Facilities:** A medical room is set up for first aid and emergency response, and an ambulance is available at the campsite. The dispensary is well-equipped with necessary medicines, equipment, and First Aid kits, all labeled and managed by a qualified male medical technician.
 - **PPE Usage:** The use of Personal Protective Equipment (PPE), including safety boots, jackets, and helmets, by workers has been observed as a good practice.
 - **On-Site Sanitation:** Sanitation at subproject sites is managed with septic tanks for sewage disposal. These tanks are strategically placed near the contractor's camp and discharge into nearby drainage areas.
 - **Grievances Register:** A grievances register is available at the campsite, with signboards installed at the main entrance to guide individuals on where to record grievances.
 - **Additional Facilities:** The camp includes a mosque and a material testing laboratory, conveniently located near the main entrance.
95. Overall, these practices contribute to a well-maintained, safe, and organized work environment, enhancing both operational efficiency and worker well-being.

3.17 Opportunities for Improvement

96. To improve safety on site, it is crucial to ensure the availability of a suitable amount of Personal Protective Equipment (PPE). This involves accurately assessing the needs of the workforce and maintaining adequate stock levels of safety jackets, helmets, and safety shoes. Implementing a robust inventory management system can help prevent shortages and ensure that all workers are properly equipped. Additionally, regular audits and replenishment plans should be established to address PPE needs proactively.
97. Proper barricading of construction sites is essential for maintaining safety and preventing unauthorized access. To enhance safety and security, it is recommended to review and improve current barricading practices. This includes ensuring that all areas of the construction site are adequately fenced or barricaded and that barriers are maintained in good condition. Effective barricading not only protects workers and the public but also helps to maintain site security and compliance with safety regulations. Regular inspections and maintenance of barricades should be conducted to ensure they remain effective throughout the project.

4 DESCRIPTION OF KARKH VALLEY DEVELOPMENT SUBPROJECT (NCB-01)

4.1 PROJECT DESCRIPTION

98. Karkh valley development subproject consists of three parts: (a) general works – which relate to the Karkh Valley as a whole, (b) weir construction at Jhalaro, and (c) weir rehabilitation at Chutta. Construction of this project will strengthen the existing irrigation system, ensuring availability of water for both cropping seasons. The proposed intervention for the subproject include; (a) guide bund / flood protection works, (b) construction of new Jhalaro weir, (c) weir rehabilitation at Chutta, (d) Rehabilitation of Chutta lift irrigation (pump house), and (e) lining of unlined existing channels. Project Layout is shown in Figure 4-1.

Salient Features:

- Total Revised Cost 1095.932 (Rs. Million)
- Total Command Area 2535 hector
- Jhalaro Weir Rehabilitation & Upgradation
- Chutta Weir Rehabilitation & Upgradation
- Minor Channels Total Length 19,773
- Flood Protection Bund (08 Nos.) Total Length 5,186 Meter

Project Progress:

- Overall Target: 100%
- Physical Progress: 82.20%
- Financial Progress: 80.33%

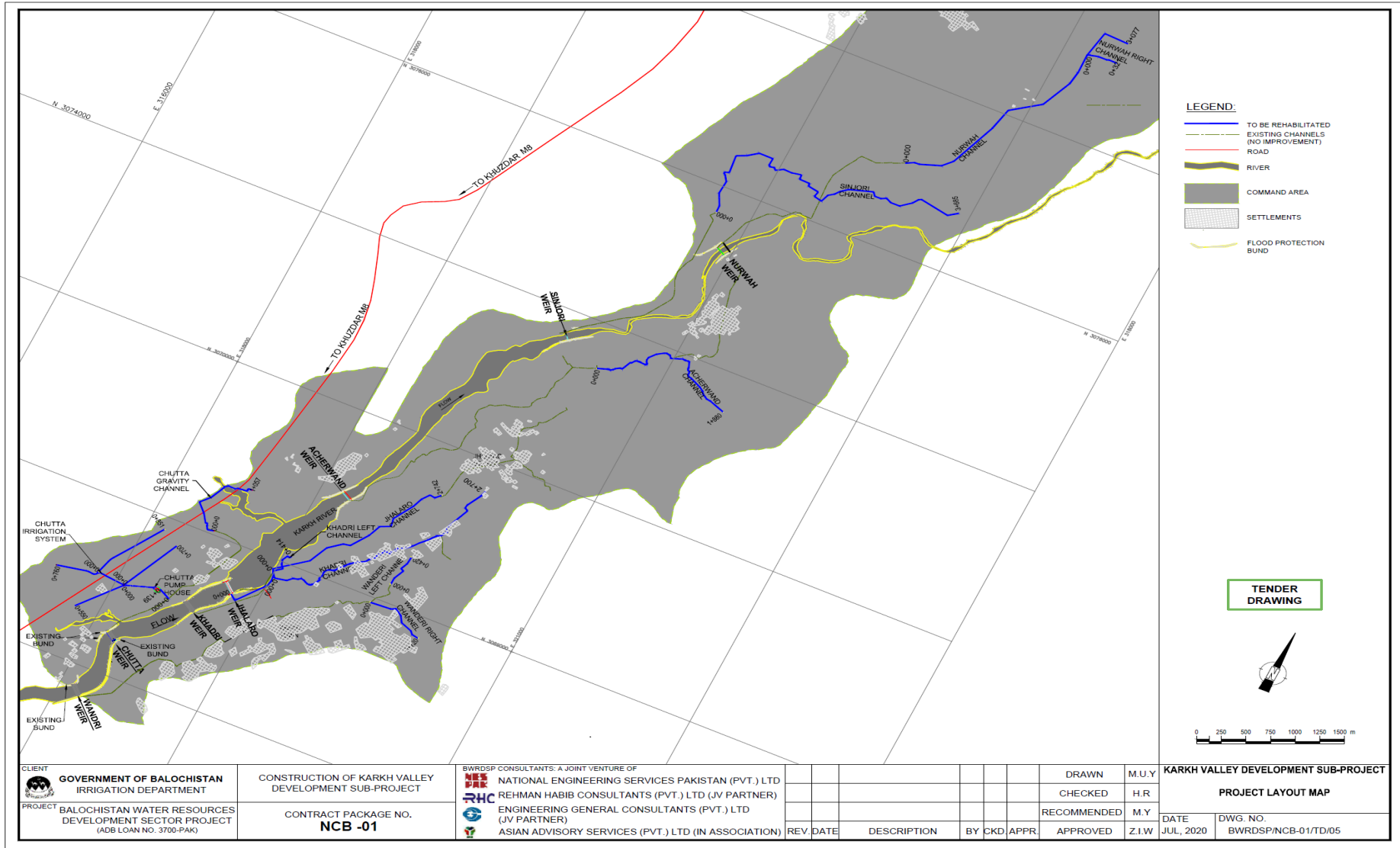


Figure 4-1: Layout Map

4.2 ACTIVITIES DURING CURRENT REPORTING PERIOD

99. Construction works of BWRDSP/NCB-01 is in progress. The details of Construction activities are given in Table-4-1

Table 4-1: Details of ongoing construction activities.

S.No.	Description	Construction Activities	Location
01	Bund 5	Stone pitching	0+125 to 0+225
02	Bund 5	Stone pitching	0+550 to 0+608
03	Bund 1	7 layers done	1+100 to 1+220
04	Nurwah right	Both side embankment	0+000 to 0+339
05	Bund 54	Stone pitching	0+200 to 0+380
06	Nurwah main	Masonry and copping	Nil

Construction Material

100. Major construction materials used at NCB-01 include reinforced steel, steel pipes, cement, sand and coarse aggregates supplied from the approved sources as mentioned in the SSEMP. Sources of construction materials and quantities used are listed in Table 4-2 below.

Table 4-2- Detail of material and sources of Siri Toi Dam sub-project NCB 01

Sr. No.	Name of Material	Source of Material	Quantities Used
1	Cement	Power D.G Lucky	4200 bags
2	Steel	Amreli, Naveena and Faizan	31 Tons
3	Earth work	Borrow Material from site	Record awaited
4	Crush, Aggregate	Karkh Valley	48,592 (cft)
5	Sand	Wangu River	28,287 (cft)
6	Stone	Karkh Valley	

Human Resources

101. As a contractor, prioritizing the hiring of local staff—both skilled and unskilled—is a key responsibility. This approach ensures that people living near the project area benefit economically, improving their socio-economic status and addressing unemployment. The hiring details for skilled and unskilled workers are outlined in Table4-3

Table 4-3- Manpower Technical/skilled/ unskilled staff details

Designation	Number
Project Manager	1
Chief Surveyor/Quantity Surveyor	1
Environmental Specialist/HSE Advisor	1
Surveyor	2
Surveyor Helper	2
General Forman	3
Material Engineer	1
Lab Technician	1

Lab Helper	1
AutoCAD Operator	1
Accountant	1
Storekeeper	1
Procurement Officer	1
Supervisor	3
Mechanic	1
Auto Electrician	1
Batching Plant Operator	1
Batching Plant Helper	1
Crush Plant Operator	1
Crush Plant Helper	1
Heavy Machinery Operator	14
Heavy Machinery Helper	14
Diesel Store	1
Security Guard	11
Cook	3
Cook Helper	1
Labor	19
Total	89

Equipment Machinery

102. List of machinery deployed at NCB-01 is provided in Table 4-4.

Table 4-4: List of Machinery/Equipment's

S. No	Name of Machinery	Number
01	Grader	1
02	Vib Roller	1
03	Dumper	5
04	Excavator	6
05	Crane	1
06	Loader	2
07	Water Bowser	3
08	Vibrator	6
09	Batching Plant	1
10	Heavy Generator	1
11	Light Generator	2
12	Lite Vehicle	6
13	Transit Mixer	3
14	Hand Mixer	1
15	Water Pump	6
16	Tractor Blade	1
17	Tractor Tralli	1
18	Tractor Water Tank	1
19	Diesel Tank	1

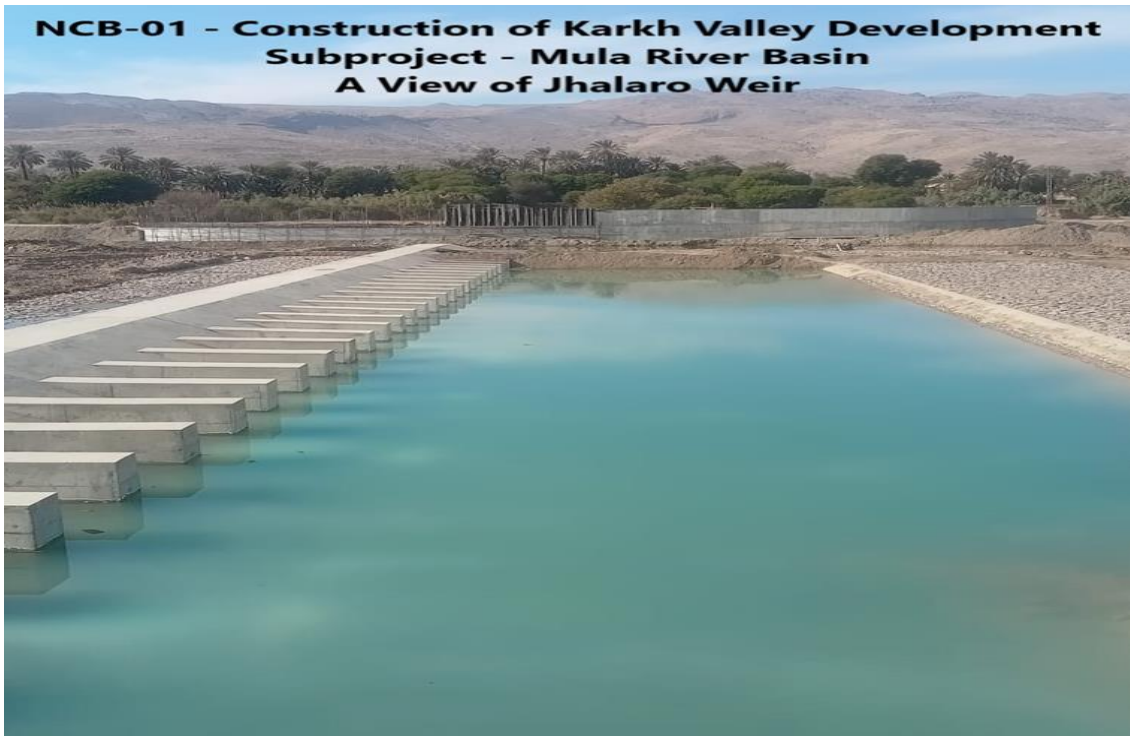
4.3 DESCRIPTION OF ANY CHANGES IN NCB-01 DESIGN

103. During the reporting period, no changes were made in the design of NCB-01.

4.4 DESCRIPTION OF ANY CHANGES TO AGREED CONSTRUCTION METHODS

104. The construction activities at various sections of Site are in progress in accordance with the Engineer's approved methodology and specifications

Works Progress in Pictures



4.5 ENVIRONMENTAL SAFEGUARD ACTIVITIES

4.5.1 General Description of Environmental Safeguard Activities

105. During the reporting period, the Contractor conducted various construction activities as follows: Stone pitching was performed at Bund 5 (0+125 to 0+225 and 0+550 to 0+608) and Bund 4 (0+200 to 0+380). Seven layers of work were done at Bund 1 (1+100 to 1+220). On the Nurwah right side, embankment work covered 0+000 to 0+339, and masonry and copping activities were carried out at the Nurwah main location. The environmental safeguard aspect of these activities was accordingly supervised and monitored in compliance with the provisions of the approved SSEMP in specific and EMP in general.
106. Sample filled check lists used during supervision of environmental safeguard activities are attached as **Annexure V & VI**.
107. The Personal Protective Equipment (PPE) like safety helmets, high viz jackets, gloves, shoes etc. were not sufficiently provided to the project staff including skilled and unskilled labour.
108. During this reporting period, the Contractor organized several HSE trainings for the workers as mentioned in Table 4-14. These sessions included training on safety measures related to steel fixing, cutting, loading, and unloading, as well as training on the importance of safety gadgets. Additionally, there was a focus on emphasizing the use of safety gadgets to enhance overall safety at the worksites.
109. Quarterly environmental monitoring was conducted at along construction sites during March and June 2024 specific locations The results and analysis are provided in detail under section 4.8 of the report.
110. Throughout the reporting period, toolbox talks and staff induction orientations were consistently conducted as part of routine activities.

4.5.2 Corrective Action Plans (CAPs):

111. During the reporting period, the Environment Specialist of PIC/SC conducted regular visits and monitored the project for the implementation of the Environmental Management Plan (EMP). As a result of these visits, Corrective Action Plans (CAPs) have been prepared for EMP non-compliance on Karkh valley development, subproject. The details of these CAPs are provided in the Table 4-6 below.

Table 4-5- Karkh valley development sub-project Corrective Action Plan

Sr. No	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
1	Use of PPE's including Helmets, gloves, safety vests not being ensured	Implementation of health and safety measures shall be enforced and wearing of PPE be ensured during construction activities. Wearing of safety boots by all workers should be ensured. Number of safety jackets should be increased /maximize and provide to all workers.	Contractor	CSC	15 th June 2024	Closed
3	Fire Safety Equipment	Fire Safety Equipment especially Fire Extinguishers should be available in Contractor camp and construction site.	Contractor	CSC	30 th March 2024	Closed
3	Improper Toilet facilities with unhygienic condition	Washrooms should be with sufficient facilities and hygienic condition	Contractor	CSC	30 th November 2021	Closed
4	Monthly HSE Progress Report are not being submitted that is required as per contract documents	Monthly HSE reports should be submitted on regular basis	Contractor	CSC	Monthly	Closed
5	Arrangement of waste disposal and management.	Routinely	Contractor	CSC	30 th November 2021	Closed
6	SSEMP is not approved	Contractor shared revised SSEMP with client office for ADB approval.	Contractor	CSC	30 th December 2022	Closed
7	Medical health facility at camp site	Ambulance availability on site in case of any emergency at contractor camp and at construction site	Contractor	CSC	20 th March 2024	Closed

Sr. No	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
8	MOU between contractor and medical clinic/dispenser Karkh Valley	The contractor and clinical staff/ will implement the agreed-upon corrective actions. This includes addressing any defects, compliance issues, or service deficiencies.	Contractor	CSC	9 th Feb 2023	Closed
9	Quarterly instrumental monitoring Test	Must conduct quarterly instrumental test	Contractor	CSC	31 st March & June 2024	Closed
10	Scarcity of Safety signs	Proper safety signs should be installed by the contractor	Contractor	CSC	10 th June 2024	Open
11	Barricading of construction site	Sites should be barricaded especially at borrow areas and areas where construction activities are being carried on	Contractor	CSC	30 th June 2024	Open
12	Generators were not kept properly.	Generators needs to be placed at concrete platform with trays to trap oil.	Contractor	CSC	15 th June 2024	Open

*Pictorial Evidences for closed issues are mentioned as annexure IX

4.6 Issues Tracking (Based on Non-Conformance Notices) .

112. On June 7, 2024, a non-compliance notice **Annexure III.** was issued to the NCB-01 Contractor for failing to provide adequate safety equipment. The site inspection revealed a shortage of safety jackets, helmets, and safety shoes (PPEs), which were insufficient to properly equip the entire workforce. The contractor needs to address several critical safety issues at the construction site. Firstly, proper safety signs must be installed throughout the site to ensure clear communication of hazards and safety protocols. Additionally, all construction sites, including borrow areas and active work zones, must be properly barricaded to prevent unauthorized access and protect workers. Generators must be placed on concrete platforms with trays underneath to capture any potential oil spills, preventing environmental contamination and maintaining a safe work environment.

4.7 Grievance Redressal Mechanism.

113. As detailed in the SSEMP, Grievance Redressal Committees (GRCs) at field and project levels with composition thereof have already been notified and are functional.

114. Local community always welcome field staff and feel much satisfied as their project related social issues are resolved at top most priority. Complaint register is available inside camp to receive complaints from local community / project affecter's and contractor's staff.
115. During the reporting period, no complaints were registered against the environmental safeguard aspect of the Works under NCB-01.

4.8 UNANTICIPATED ENVIRONMENTAL IMPACTS OR RISKS.

116. During the reporting period, neither unanticipated environmental impacts were observed nor reported by the Contractor.

4.9 MONITORING OF AIR, NOISE AND WATER AT KARKH VALLEY

4.9.1 Ambient Air Monitoring

i. Methodology and Instrument Used

117. Ambient air quality monitoring was carried out at batching plant and camp siite for the assessment of Parameters (Temperature, Humidity, PM2.5, PM10, CO, SO2, NO2, O2, Formaldehyde, Total Volatile Organic Compounds (TVOC), O3 etc). The Air Quality Monitoring Station (AQMS-09), employed for PM10 & PM2.5, is a fully integrated air monitoring station that delivers 'near reference levels' of performance parameters. With a size of large suitcase, it can measure up to 20 different gaseous and particulate pollutants and environmental parameters simultaneously. The AQMS 09 offers optimal balance between performance and measuring criteria pollutants.

ii. Test Results and Discussion

118. Ambient air quality (Temperature, Humidity, PM1.0, PM2.5, PM10, CO, SO2, NO2, O2, Formaldehyde, Total Volatile Organic Compounds (TVOC), O3) were monitored for twenty-four (24) hours at the locations identified by the SC and results obtained are shown in Table 4-7. PM2.5, PM10 were within NEQs but levels exceeded stringent WHO standards, primarily due to dust accumulation near the monitoring points. The contractor has been instructed to strictly follow SSEMP recommendations, particularly regarding water sprinkling in dust-prone areas. Signed copies of the results are attached as **Annexure-XI**.

Table 4-6: Ambient Air Quality at Batching Plant(31°36'32.77"N, 69°16'33.46"E)

S.No	Measuring Parameters	Unit	First Quarter	Second Quarter	NEQS Limits	WHO Limits
1.	Temperature	°C	29	30		
2.	Humidity	%	52	52		
3.	Particulate Matter (PM 1.0)	µg/m ³	40	39	500	WL
4.	Particulate Matter (PM 2.5)	µg/m ³	29.3	29.5	35 (24 hrs.)	15(24 hrs.)

S.No	Measuring Parameters	Unit	First Quarter	Second Quarter	NEQS Limits	WHO Limits
5.	Particulate Matter (PM 10)	µg/m ³	63.1	66.4	150 (24 hrs.)	45(24 hrs.)
6.	Carbon Monoxide (CO)	mg/m ³	ND	ND	10 (08 hrs.)	4(24 hrs.)
7.	Sulphur Dioxide (SO ₂)	µg/m ³	ND	ND	120 (24 hrs.)	40(24 hrs.)
8.	Oxide of Nitrogen as (NO ₂)	µg/m ³	ND	ND	80 (24 hrs.)	25(24 hrs.)
9.	Oxygen O ₂	%	19.7	19.7	-	
10.	Formaldehyde	µg/m ³	0.168	0.163	-	
11.	Total Volatile Organic Compounds (TVOC)	µg/m ³	0.234	0.233	-	
12.	Ozone (O ₃)	µg/m ³	ND	ND	130 (01 hr.)	60(Peek Season)

119. All the results are within the permissible limits and compliance with the BEQS and NEQS. However, it is worth noting that during the first quarter, the contractor has not performed quarterly monitoring at the sub-project sites.
120. Considering the compliance with NEQS there is no immediate need for additional mitigation measures to control dust, apart from the measures proposed in the SSEMP. These measures may include regular sprinkling of water to suppress dust and timely transportation or disposal of excess materials temporarily stored at the site.
121. It is important to regularly monitor and assess the dust levels and compliance with environmental standards throughout the project's implementation to ensure continued adherence to regulations and to address any potential concerns that may arise.

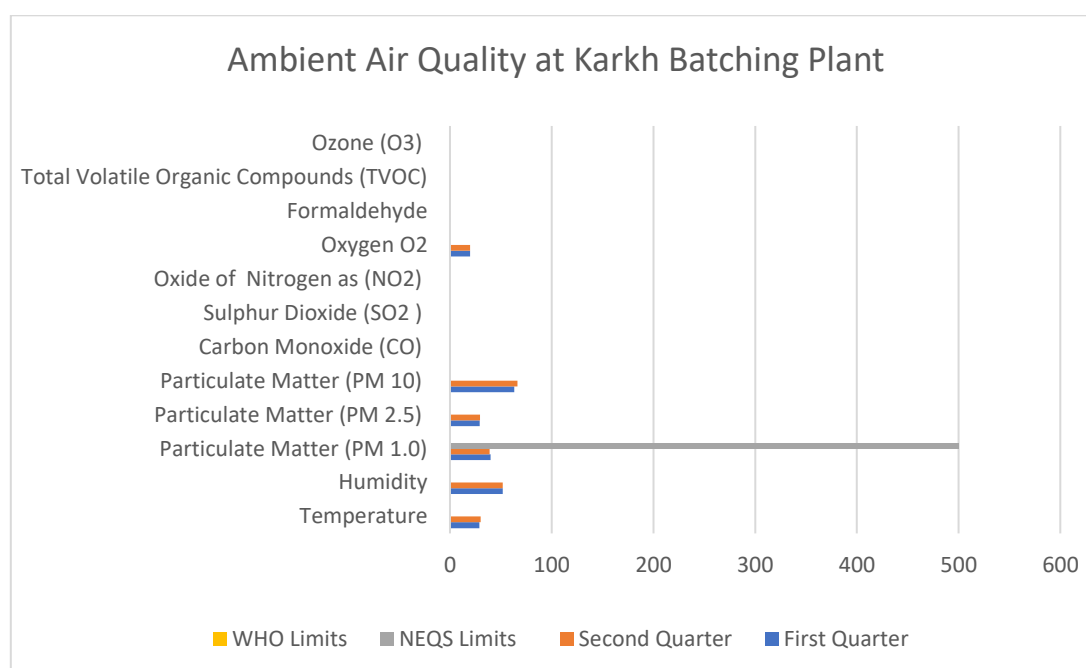
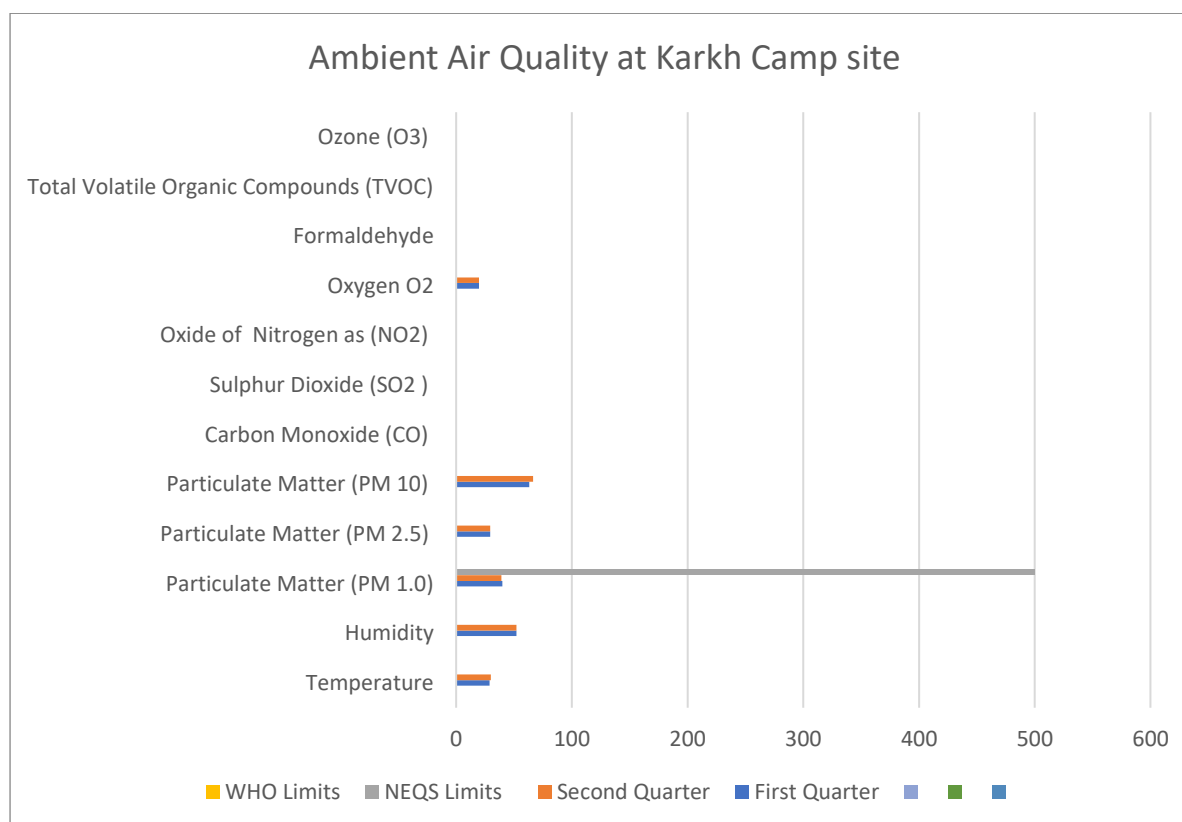


Figure 4-2: Ambient Air Quality at Karkh Batching Plant Site

Table 4-7: Ambient Air Quality at Camp site

Sr. No.	Measuring Parameters	Unit	First Quarter	Second Quarter	NEQS Limits	Remarks
1.	Temperature	°C	32	31		
2.	Humidity	%	56	55		
3.	Particulate Matter (PM 1.0)	µg/m ³	41	42	500	WL
4.	Particulate Matter (PM 2.5)	µg/m ³	31.8	30	35 (24 hrs.)	WL
5.	Particulate Matter (PM 10)	µg/m ³	74	73	150 (24 hrs.)	WL
6.	Carbon Monoxide (CO)	mg/m ³	ND	ND	10 (08 hrs.)	WL
7.	Sulphur Dioxide (SO ₂)	µg/m ³	ND	ND	120 (24 hrs.)	WL
8.	Oxide of Nitrogen as (NO ₂)	µg/m ³	ND	ND	80 (24 hrs.)	WL
9.	Oxygen O ₂	%	19.2	20	-	
10.	Formaldehyde	µg/m ³	0.169	0.167	-	
11.	Total Volatile Organic Compounds (TVOC)	µg/m ³	0.233	0.239	-	
12.	Ozone (O ₃)	µg/m ³	ND	ND	130 (01 hr.)	WL

**Figure 4-3: Graphical representation of Ambient Air Quality at Karkh Camp site**

4.9.2 Noise Monitoring

122. The twenty-four (24) hours noise level monitoring was carried out at camp site and batching plant of Karkh Valley Development sub-project NCB-01 by using Digital Noise level meter.

i) Test Results and Discussion

123. The comparison of noise level monitoring results obtained during the instrumental monitoring are shown in Table 4-9 below.

Table 4-8: Noise Monitoring Test Results

Sr. No	Location	Unit	Method	First Quarter	Second Quarter	NEQS Limits	WHO Limit
1.	Camp Site	dB	ASTM E1686-16	60	58.6	75	55 dB(A),
2.	Batching Plant	dB	ASTM E1686-16	64.1	64.1	75	55 dB(A),

124. The noise level monitoring at sites was carried out during day and night with the objective to assess the off working noise levels as well. As evident from the results obtained, the average noise level at all intervals falls within the NEQS limits of 65 and 75 dB set for areas.

4.9.3 Monitoring of Drinking/Tap Water Quality and Waste Water

i) Methodology

125. During the reporting period, drinking/Tap water quality and waste water quality of the Contractor's camp was monitored for the agreed parameters given in the SSEMP. High density sterilized polyethylene bottles were used for the sampling. The collected samples were preserved, sealed and chilled at 40°C as recommended. APHA-1060 B & C method is used for sampling and preservation of water whereas.

ii) Drinking Water Test Results and Discussion

126. The drinking water demand is being met from Tubewell located near the contractor camp. At the first instance, water is pumped to elevated storage tank from where it is supplied to the consumer points through a pipe network. The drinking water monitoring results at both the source and consumer end show that the water quality is generally in compliance with WHO and NEQS standards. Parameters such as Total Coliform, E. Coli, and Fecal Coliform are all non-detectable (ND) in both quarters, indicating the absence of microbial contamination. Turbidity, taste, odor, and color are also within acceptable limits. Residual chlorine levels are slightly inconsistent, as it was detected in the source water but not at the consumer end. Chemical parameters, including fluoride, chloride, TDS, and hardness, are within the recommended limits. Overall, the water quality is safe for consumption, with a few minor areas requiring attention.

Table 4-9: Drinking Water Monitoring at Source

S.No	Parameters	Unit	WHO Limits	NEQS Level	First Quarter	Second Quarter
1.	Total Coliform	TC (count/ml)	Must not be detectable in any 100 ml sample	0/100 ml	ND	ND
2.	E-Coli	EC (count/ml)	Must not be detectable in any 100 ml sample	0/100 ml	ND	ND
3.	Fecal Coliform	FC (count/ml)	Must not be detectable in any 100 ml sample	0/100 ml	ND	ND
4.	Turbidity	NTU	< 5	<5	<1	<1
5.	Taste	Taste	Non-Objectionable / Acceptable	Obj/Non Obj	Non-Obj	Non-Obj
6.	Odour	Odor	Non-Objectionable / Acceptable	Obj/Non Obj	Non-Obj	Non-Obj
7.	Colour	TCU	≤ 15	≤ 15 TCU	ND	< 03
8.	Phenolic Compounds	As Phenol (mg/L)	-	-	ND	ND
9.	Residual chlorine	Cl ₂ (mg/L)	-	0.2-0.5	0.2	ND
10.	ph@25° C	PH	6.5-8.5	6.5 to 8.5	7.78	8.10
11.	Total Dissolved Solid	TDS (mg/L)	< 1000	< 1000	326	457
12.	Total Hardness	As COCO ₃ (mg/L)	-	< 500	304	240
13.	Fluoride	F ₁ (mg/L)	1.5	≤ 1.5	0.16	0.22
14.	Chloride	CL ₁ (mg/L)	250	< 250	19.99	207.93
15.	Cyanide	CN ₁ (mg/L)		≤ 0.05	ND	ND
16.	Nitrate	NO _{3_1} (mg/L)	50	≤ 50	0.3	0.22
17.	Nitrite	NO _{2_1} (mg/L)	3	≤3.0 (P)	0.004	0.03
18.	Antimony	Sb (mg/L)	0.02	≤0.005	ND	ND
19.	Aluminum	Al (mg/L)	0.2	≤0.2	ND	ND
20.	Arsenic	As (mg/L)	0.01	≤0.05	ND	ND
21.	Boron	B (mg/L)	0.3	0.3	ND	ND
22.	Barium	Ba(mg/L)	0.7	0.7	ND	0.006
23.	Chromium	Cr(mg/L)	0.05	≤0.05	ND	ND
24.	Copper	Cu(mg/L)	2	2	<0.06	<0.04
25.	Cadmium	Cd(mg/L)	0.003	0.01	ND	ND
26.	Lead	Pb(mg/L)	0.01	≤0.05	ND	ND
27.	Manganese	Mn(mg/L)	0.5	≤0.5	ND	ND
28.	Mercury	Hg (mg/L)	0.001	≤0.001	ND	ND
29.	Nickel	Ni(mg/L)	0.02	≤0.02	ND	ND
30.	Selenium	Se(mg/L)	0.01	0.01	ND	ND
31.	Zinc	Zn (mg/L)	3	5	ND	0.0100

Table 4-10: Drinking/Tap Water Monitoring at Consumer End

S.No	Parameters	Unit	WHO Standards	NEQS	Current Results	Previous SAEMR
1.	Total Bacteria Count	TBC (count/ml)	-	0/100 ml	02	ND
2.	Total Coliform	TC (count/ml)	Must not be detectable in any 100 ml sample	0/100 ml	ND	ND
3.	E-Coli	EC (count/ml)	Must not be detectable in any 100 ml sample	0/100 ml	ND	ND
4.	Fecal Coliform	FC (count/ml)	Must not be detectable in any 100 ml sample	0/100 ml	ND	ND
5.	Turbidity	NTU	< 5	<5	<1	<1
6.	Taste	Taste	Non-Objectionable / Acceptable	Obj/Non Obj	Non-Obj	Non-Obj
7.	Odour	Odor	Non-Objectionable / Acceptable	Obj/Non Obj	Non-Obj	Non-Obj
8.	Colour	TCU	≤ 15	≤ 15 TCU	02	01
9.	Phenolic Compounds	As Phenol (mg/L)	-	-	ND	ND
10.	Residual chlorine	Cl ₂ (mg/L)	-	0.2-0.5	ND	ND
11.	Ph@25° C	PH	6.5-8.5	6.5 to 8.5	7.76	7.34
12.	Total Dissolved Solid	TDS (mg/L)	< 1000	< 1000	390	322
13.	Total Hardness	As COCO ₃ (mg/L)	-	< 500	284	180
14.	Fluoride	F ₁ (mg/L)	1.5	≤ 1.5	0.54	0.22
15.	Chloride	CL ₁ (mg/L)	250	< 250	97.96	119.96
16.	Cyanide	CN ₁ (mg/L)		≤ 0.05	ND	ND
17.	Nitrate	NO _{3_1} (mg/L)	50	≤ 50	0.6	0.10
18.	Nitrite	NO _{2_1} (mg/L)	3	≤3.0 (P)	0.007	0.02
19.	Antimony	Sb (mg/L)	0.02	≤0.005	ND	ND
20.	Aluminum	Al (mg/L)	0.2	≤0.2	ND	ND
21.	Arsenic	As (mg/L)	0.01	≤0.05	ND	ND
22.	Boron	B (mg/L)	0.3	0.3	ND	ND

S.No	Parameters	Unit	WHO Standards	NEQS	Current Results	Previous SAEMR
23.	Barium	Ba(mg/L)	0.7	0.7	ND	ND
24.	Chromium Total	Cr(mg/L)	0.05	≤0.05	ND	ND
25.	Copper	Cu(mg/L)	2	2	ND	0.0050
26.	Cadmium	Cd(mg/L)	0.003	0.01	0.0045	ND
27.	Lead	Pb(mg/L)	0.01	≤0.05	ND	ND
28.	Manganese	Mn(mg/L)	0.5	≤0.5	0.1001	ND
29.	Mercury	Hg (mg/L)	0.001	≤0.001	ND	ND
30.	Nickel	Ni(mg/L)	0.02	≤0.02	ND	ND
31.	Selenium	Se(mg/L)	0.01	0.01	ND	ND
32.	Zinc	Zn (mg/L)	3	5	0.1634	ND

iii) Waste Water Test Results and Discussion

127. The waste water samples, were collected from the camp where all effluent converges into one outlet. Lab analysis results have been shown in Table 4-12 below

Table 4-11: Waste Water Monitoring at Camp site

S.No	Parameters	Unit	Testing Method	NEQS	First Quarter	Second Quarter
1.	Temperature	°C	APHA 2550	≤3	31	30
2.	Ph@25° C	PH	APHA 4500 H	6 to 9	7.89	6.48
3.	Sulphide	Mg/L	APHA 4500 H-B	1	<1	<1
4.	Biological Oxygen Demand (BOD)	Mg/L	HACH 10099	80-250	40	43
5.	Chemical Oxygen Demand (COD)	Mg/L	HACH 8000	150-400	80	92
6.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	490	636
7.	Total Suspended Solids (TSS)	Mg/L	APHA 2540-C	200	161	186
8.	Oil & Grease	Mg/L	ASTM D-3921	10	02	03
9.	Cadmium	Cd(mg/L)	APHA 3111-B	0.01	0.0039	0.0125
10.	Copper	Cu(mg/L)	APHA 3111-B	2	0.0058	0.0138
11.	Iron	Mg/L	APHA 3111-B	8	0.0134	0.0141
12.	Lead	Pb(mg/L)	APHA 3111-B	≤0.05	ND	ND
13.	Manganese	Mn(mg/L)	APHA 3111-B	≤0.5	0.0051	0.0067
14.	Mercury	Hg (mg/L)	APHA 3112-B	≤0.001	ND	ND
15.	Nickel	Ni(mg/L)	APHA 3111-B	≤0.02	0.0241	0.0225
16.	Selenium	Se(mg/L)	APHA 3114-B	0.01	ND	ND
17.	Chromium Total	Cr(mg/L)	APHA 3111-B	≤0.05	0.0042	0.0091
18.	Zinc	Zn (mg/L)	APHA 3111-B	5	ND	ND
19.	Arsenic	As (mg/L)	APHA 3114-B	≤0.05	ND	ND

S.No	Parameters	Unit	Testing Method	NEQS	First Quarter	Second Quarter
20.	Chlorine	Mg/L	HACH 10069	1.0	ND	ND
21.	Chloride	CL_1(mg/L)	APHA 4500-Cl_1	1000	299.81	317.90
22.	Cyanide	CN_1(mg/L)	HACH Method 8027	≤ 0.05	0.003	0.003
23.	Fluoride	F_1 (mg/L)	HACH 8029	10	0.17	0.23
24.	Ammonia	Mg/L	HACH 8038	40	0.37	0.46
25.	Sulphate	Mg/L	HACH 8051	600	74	106
26.	An Ionic Detergent As MBAS	Mg/L	APHA 5540 C	20	ND	02
27.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	0.1	ND	ND
28.	Boron	B (mg/L)	HACH 8015	6	ND	ND
29.	Barium	Ba(mg/L)	HACH 8014	1.5	ND	ND
30.	Silver	(mg/L)	APHA 3114-B	1.0	ND	ND

128. All, the results of the effluent parameters tested, fall within the permissible limits of NEQS.

4.9.4 Monitoring of Gaseous and Vehicles Emission

i) Methodology

129. During the reporting period, generator and vehicles emissions were monitored at the camp and construction site for the agreed parameters as given in the SSEMP. All lab results are provided as Annexure VIII.

4.10 WASTE MANAGEMENT

130. The Contractor has selected a designated area for waste disposal, approximately 2 kilometers away from Karkh city. The selected area naturally has a ditch shape where waste is dumped for disposal.

a. Kitchen and General/Domestic Waste

131. Kitchen/domestic waste has been generated from all the camp sites, offices, and construction sites of the project. Dustbins are provided in offices and camp residences, which are regularly monitored and emptied by the contractor staff or a sweeper, and the waste is disposed of in a nearby area. The empty cement bags and associated items generated from construction activity have been sold to a local vendor accordingly.

b. Hazardous Waste – Medical Waste and Oily Waste

132. Medical waste is generated from the first aid facilities on the construction sites, whereas oily empty drums are generated from the construction activities of the project. The medical waste generated from all the construction sites is collected and disposed

of in a designated ditch or landfill located away from the project site. Hazardous waste collected in drums is being transported to disposal sites using a vehicle. Additionally, hazardous waste like oily drums is kept at the campsite until it becomes completely dry. Subsequently, these dry drums will be sold to third-party junk dealers accordingly.

Figure 4-4: Waste Segregation at Camp site



Waste bins on Karkh Camp site

Table 4-12- Solid Waste generated at sub-project sites are as under

Sr. #	Name of Sub-Project	Solid Waste generated in Kg/day	Types of Waste	Remarks
1	Karkh Valley Development NCB 01	8 Kg/day	Plastic, polythene bags	Solid waste is preferable reused, recycled and disposed off at designated dumping site.
		10 Kg/day	Kitchen waste/organic waste	
		30 Kg/day	Solid waste including cement bags	
		11 Kg	Tyres/Rubber	Stored in junk yard for auction
		516 Ltr	Used Engine Oil (ltr)	Stored in barrels Used for Shuttering lubrication

4.11 HEALTH AND SAFETY

Community Health and Safety

133. The unpaved service roads used by the Contractor's vehicles are regularly sprinkled to suppress dust and protect general commuters from the related impact and diseases. To avoid noise disturbance at night, no construction activities are carried out during nighttime.

Worker Safety and Health

134. For the construction workers, the Contractor has conducted trainings on safety issues with practical demonstrations of responses in case of any emergency. Before starting

the work, toolbox talks focusing on HSE related issues were regularly held. The availability of First Aid Boxes is being ensured to provide emergency medical assistance in case of any incidents. The Contractor has also ensured the supply of clean drinking water to the workers, both at the camp and at the sites. The Contractor's camp is equipped with all basic necessities, including accommodation, dining halls, sanitation facilities, etc. (Annexure VIII, Section 3). No incidents related to the workers' health and safety have occurred or been reported yet.

4.11.1 Training

135. Trainings and awareness campaigns are pivotal part of EMP. These trainings are being conducted at regular intervals in order to keep workers and environment safe. Basic purpose of these sessions is to keep workers well aware about the different risks and hazards associated with site specific construction activities and to make them well effective to respond in any kind of emergency situation. In the reported month, following training has been conducted. During these training session, awareness regarding the work, safety precautions during steel cutting and fixing. In this training session workers are trained and instructed how to deal with the community. Site In-Charges are instructed to keep eyes on children and elder people during heavy machinery operation. Onsite Training Photographs of Karkh Valley Sub-Project NCB 01 have been attached as **Annexure VII**. In the reported months of January to June 2024, followingm trainings had been conducted as mentioned in Table 4-14.

Table 4-13: Details of Health and Safety Trainings on Site.

S. No	Location	Topic	Date (d-m-y)
1	Workers Camp site	Training regarding safety measures during steel fixing, cutting, loading and unloading	16-1-2024
2		Training on the Importance of Safety Gadgets	11-2-2024
3		Importance of Safety Gadgets	11-6-2024

4.12 FUNCTIONING OF THE SSEMP

4.12.1 Good Practice And Opportunity For Improvement

- The establishment of the Contractor's camp is in compliance with the permissible standards and parameters
- The presence of an HSE officer on-site is ensured
- The contractor's HSE officer properly maintains daily Toolbox Talks (TBT) with workers before starting any working activity.
- Cutting of trees for firewood is avoided as LPG is used instead of fuel wood.
- A complaint register is placed at the project site, and no complaint/conflict has been observed.
- A good liaison is established between PMO, Supervisory consultant, and contractor to ensure adherence to environmental safeguard guidelines.

- Monthly and weekly environmental monitoring checklists are timely submitted to the Supervision Consultant in the monthly Environmental Monitoring Report (Annexure I-VI).
- The use of PPE's by workers was noticed as a good practice.

136. Overall, these practices contribute to a well-maintained, safe, and organized work environment, enhancing both operational efficiency and worker well-being.

4.12.2 Opportunities For Improvement

137. To enhance site safety, it's important to have enough Personal Protective Equipment (PPE) available. This means accurately assessing how much PPE is needed and keeping a good stock of safety jackets, helmets, and safety shoes. Setting up a strong inventory management system can help avoid running out of these items and ensure every worker has what they need. Regular checks and replenishment plans should also be put in place to address PPE needs before they become a problem.

5 DESCRIPTION OF KHARZAN HATACHI INFILTRATION GALLERY SUBPROJECT (NCB-02)

5.1 PROJECT DESCRIPTION

138. The proposed interventions for the subproject include: (a) Construction of two infiltration galleries, (b) Construction and rehabilitation of a water conveyance system and associated structures, (c) flood protection works for irrigation canals, construction of a project support facility building at Khuzdar city and command area development works. The sub-project is aimed at rehabilitating and improving damaged infrastructure to enhance the size of the command area with irrigation facilities. Project Layout is shown in Figure 5-1.

SALIENT FEATURES:

- | | |
|-----------------------------------|---------------------------|
| • Total Revised Cost | 1091.806 (Rs. Million) |
| • Total Command Area | 1144 hector |
| • Infiltration Gallery | Total Length 1310 Meter |
| • Conduit Length | Total Length 2983 Meter |
| • Canals Length | Total Length 42,231 Meter |
| • Flood Protection Bund (04 Nos.) | Total Length 7153 Meter |

PROJECT PROGRESS:

- | | |
|-----------------------|---------|
| • Overall Target: | 100.00% |
| • Physical Progress: | 81.50% |
| • Financial Progress: | 71.86% |

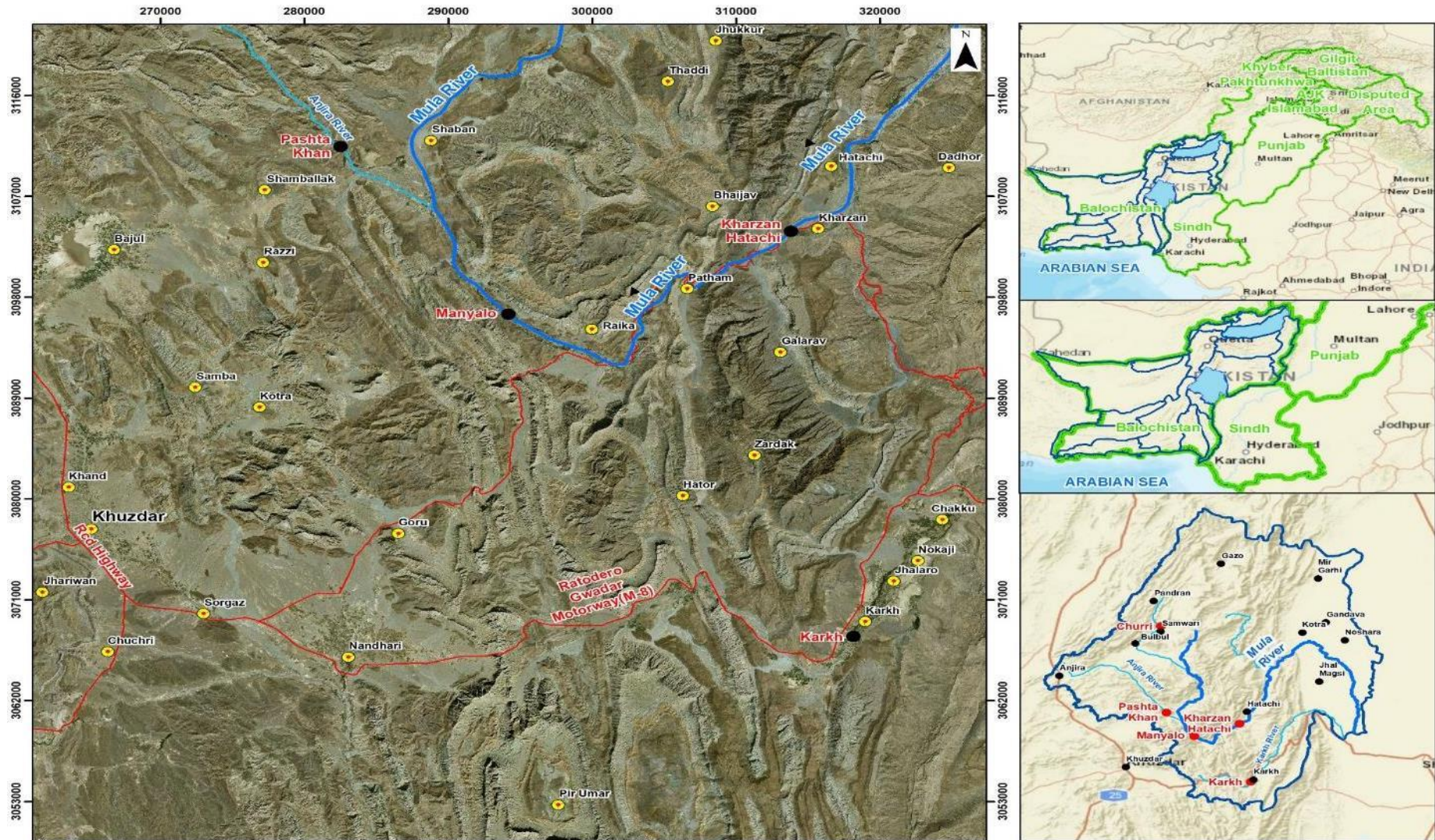


Figure 5-1: Layout Map of Kharzan Hatachi Irrigation Subproject

5.2 ACTIVITIES DURING CURRENT REPORTING PERIOD

An overview of the current progress for various activities under the Kharzan Hatachi Irrigation Subproject NCB-02 is provided in Table 5-1 below. It outlines the completion percentages of key construction tasks, reflecting the status of each activity as the project advances

Table 5-1: Kharzan Hatachi Irrigation Subproject NCB-02 works progress

Sr. No	Activity	Progress Status %
1	Stone spawl	80.40%
2	Stone pitching on slop	82.40%
3	Stone pitching on level	92.73%
4	Excavation in Conduit	104.70%
5	Earthwork of FP Bund	38%
6	Excavation in channels	70.83%
7	Construction joint in lining	84%
8	Expansion joint in lining	89.5%
9	Water stopper	82.41%
10	Concrete class B(PCC)	66.04%
11	Steel	85.44%
12	Bund # 2	98%
13	Bund # 3 B	90%
14	Bund 3 C & 3 A	90%
15	Bund # 1	55%
16	Bund # 4 A	0%
17	Bund # 4 B	0%

139. The specific ongoing construction activities for the Kharzan Hatachi Subproject NCB-02 are detailed in Table 5-2.

Table 5-2: Details of ongoing construction activities.

Kharzan Hatachi Infiltration Gallery sub-project NCB 02		
1.	Bund # 1	55 %
2.	Bund # 3 4	
3.	Bund 3 & 3 A	In progress

Construction Material

140. Detailed information on the materials used for the the Kharzan Hatachi Irrigation Subproject NCB-02 is provided, including their sources and quantities in Table 5-3 below. It lists the types of materials required—such as cement, steel, stone, crushed aggregates, and sand—along with their respective suppliers and the amounts utilized in the project.

Table 5-3- Detail of material and sources of the Kharzan Hatachi Irrigation Subproject

NCB-02

Sr. No.	Name of Material	Source of Material	Quantities Used
1	Cement	Power D.G Lucky	12000 bags
2	Steel	Agha Steel Pvt Ltd Karachi	51.4 tons
3	Earth work	Borrow Material from site	55142
4	Crush	Asif crush plant	414100 ft
5	Sand	Jahn Jal	26694 ft

Human Resources

141. As a contractor, it is a primary responsibility to hire local staff, both skilled and unskilled. It is the basic right of peoples living in the vicinity of the project area to get maximum financial benefit of project to overcome unemployment, so their socio economic status can be improved. However, considering availability and ability of work, contractor has provided the jobs to the local community on priority basis. Details of the categories of employees, both skilled and unskilled are provided in Table 5-4

Table 5-4- Manpower Technical/skilled/ unskilled staff details

Designation	Number
Project Manager	1
Construction Manager	1
Chief Surveyor	1
Surveyor	5
Survey Helper	13
Material Engineer	1
Environmental Specialist	1
Health & Safety Specialist	1
Lab Technician	1
Lab Helper	1
Admin Manager	1
Accountant	1
Cashier	1
Purchaser	2
Supervisor	3
Mechanic	2
Electricians	2
Plant Operator	3
Plant Helper	6
Mechanic & Helper	2
Heavy Machinery Operator	23
Heavy Machinery Helper	23
LT Driver	25
LT Helper	25
Skilled & Non-Skilled Labor	88
Chokidar	13
Messing Staff	15
Total	264

Equipment Machinery

142. The contractor is obliged to use heavy machinery on site to ensure the timely completion of the work. Proper maintenance of the machinery not only yields better and more successful results but also provides a safe environment for the workers operating nearby. Daily inspection of the machinery is carried out by experts and supervisors before and after use. The machinery is washed on daily basis and maintained by their assigned individual operators. The details for heavy machinery in use are provided in Table 5-5.

Table 5-5: List of Machinery/Equipment's

Name of Machine	Number
Grader	2
Dumper	8
Transit Mixture	3
Roller	3
Water Tanker	2
Dozer	1
Loader	2
Excavator	9
Batching Plant	1
Crush Plant	1
Mobil Crush Plan	1
Generator	6
Low bed	1
Pickup	4
Dewatering Pump	6
Tractor Trolley	11
Tractor	4
Bar bending Machine	2
Compactor	3
Total	66

5.3 Description of any Changes in ICB-02 Design

143. During the reporting period, no changes were made in the design of NCB-02.

5.4 Description of any Changes to Agreed Construction Methods

144. The construction activities at various sections of Site are in progress in accordance with the Engineer's approved methodology and specifications.

Works Progress in Pictures

**NCB-02 - Construction of Kharzan Hatachi Infiltration Gallery subproject - MRB
A View of Kharzan Conduit**



**NCB-02 - Construction of Kharzan Hatachi Infiltration Gallery Subproject - Mula River Basin
A View of Shajo Channel at Khrzan**



5.5 ENVIRONMENTAL SAFEGUARD ACTIVITIES

5.5.1 General Description of Environmental Safeguard Activities

145. During the reporting period, the Contractor worked on stone sprawl, stone pitching on slopes & level surfaces and excavation in conduits and channels. Construction and expansion joints in linings, water stoppers, concrete Class B (PCC), and steel installation were also underway.
146. The environmental safeguard aspect of these activities was accordingly supervised and monitored in compliance with the provisions of the approved SSEMP in specific and EMP in general.
147. Sample filled check lists used during supervision of environmental safeguard activities.
148. The Personal Protective Equipment (PPE) like safety helmets, high viz jackets, gloves, shoes etc. were generally being used by the project staff including skilled and unskilled labour.
149. Safety Signage was insufficient at the camp and other important locations including active work sites.
150. From January to June 2024, various health and safety trainings were conducted on site. These included sessions on hand and head protection, addressing slips, trips, and falls, and respiratory protection. Additional training covered first aid and the use of personal protective equipment (PPE), as well as safe work practices on site.
151. Quarterly environmental monitoring was conducted at along construction sites during March and June 2024 specific locations The results and analysis are provided in detail under section 5-8 of the report.

5.5.2 Corrective Action Plans (CAPs):

152. During the reporting period, the Environment Specialist of PIC/SC conducted regular visits and monitored the project for the implementation of the Environmental Management Plan (EMP). As a result of these visits, Corrective Action Plans (CAPs) have been prepared for EMP non-compliance in various sub-projects, including Siri Toi Dam, Karkh valley development, Water Resources Building and Kharzan Hatachi. The details of these CAPs are provided in the Table 5-6 below.

Table 5-6- Kharzan Hatachi Infiltration Gallery sub-project Corrective Action Plan (Issues open & closed)

Sr. No	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
1	Water Sprinkling	Water sprinkling on construction sites and within camp is greatly required	Contractor	CSC	Regularly/ Continuous process	Closed
2	Use of PPE's especially safety boots ensured	Contractor should ensure use of PPE's especially safety boots by working labors	Contractor	CSC	31 st December 2023	Closed
3	Medical Health Facility available/First	First Aid kits were not available on sites	Contractor	CSC	31 st December	Closed

Sr. No	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
	Aid Kits/ fire extinguishers				2023	
4	Environmentalist/ HSE advisor has been hired	Environmentalist/HSE advisor has been hired for monitoring Environmental Compliance	Contractor	CSC	31 st December 2023	Closed
5	Arrangement of waste disposal and management.	Routinely	Contractor	CSC	31 st December 2023	Closed
6	SSEMP is submitted	SSEMP submitted for ADB review	Contractor	CSC	16th May 2022	Closed
7	Scarcity of safety signs boards	Proper safety signs should be installed by the Contractor	Contractor	CSC	16th May 2022	Open
8	No Barricading of construction site	Site should be barricaded especially at borrow areas and areas where construction activities are being carried on	Contractor	CSC	16th May 2022	Open
9	Quarterly instrumental monitoring Test	Must conduct quarterly instrumental test	Contractor	CSC	16th May 2022	Closed

*Pictorial Evidences for closed issues are mentioned as annexure IX


5.5.3 Issues Tracking (Based on Non-Conformance Notices) .


153. There is a concerning trend of insufficient safety signboards at the construction site, which poses risks to worker and site safety. The Contractor has been instructed to address this issue urgently by installing adequate safety signs to clearly mark hazards and ensure proper safety awareness. Proper signage is essential for preventing accidents and maintaining a safe working environment.
154. The construction site currently lacks proper barricading, which compromises site security and worker safety. The Contractor has been directed to promptly implement appropriate barricades to secure the site and protect both workers and the public. Effective barricading is critical to prevent unauthorized access, safeguard personnel, and comply with safety regulations.


5.6 GRIEVANCE REDRESSAL MECHANISM.

155. As detailed in the SSEMP, Grievance Redressal Committees (GRCs) at field and project levels with composition thereof have already been notified and are functional. For registration of complaints.

156. Upon receipt of complaint(s), GRC follow the specified procedure to address the complaint and resolve the issue within prescribed time frame.
157. During the reporting period, following compliants were made that were resolved as detailed in below table

S.No.	Type of Issue with Location	Meeting held with Date	Outcome/Remarks
1	Hatachi community stopped the work and not willing to provide the land to construct the channel. At DL4 ¹ from RD 0+431 to 0+750	In Hitachi village and at site. Consultation with community was initiated in several phases and the issue has been resolved. March 1, 2, 2024. May 23 & 24, 2024.	The issues were resolved and the Contractor wrote a letter to the PMO. Ref No ABCC/KHI/887 dated 4 th March-2024 that "issues are resolved, site is clear and hand over to him and the work is started". While meeting photographs No.01 are provided in the Annexure-XI.
2	The upstream village was not willing to cross the channel from their area to next village. At RD 7+600 to 8+080.	Meeting place: Hitachi main channel. village Churak (Masti Khan vs Juma Khan) on March 1 & 2-2024.	The complainants were briefed about the loss or delay of the project based on their minor disputes etc. There is need of cooperation to complete the project successfully and well in time. They agreed. The issue was resolve. Site picture 
3	Issue raised by Mr. Akbar and brothers on DL3 of Mouza Zameen, Hatachi.	Meeting in Hitachi village. Detailed discussion with them on March 2, 2024.	The issue based on misunderstanding was resolved. Photo No. 02 of Annexure XI.
4	Issue: in some area, the water in conduit is lower and the land level is at up level, water supply to that land was difficult. Solar pump installation and its location was disputed. Issue on DL01 site.	Meetings held on March 2, 2024 in Shoongri.	The matter was discussed with Mr. Abdul Hakeem baba and Master Inayat Ullah, they are agreed on solar pump installation and location is finalized with them shown their consent from their tribes. The photograph is shown

S.No.	Type of Issue with Location	Meeting held with Date	Outcome/Remarks
			
5	<p>Issue: On behalf of the community, Agha Rafiq emailed a complaint to ADB that stone is using in channel construction and the channel is not covered by RCC slabs to prevent children, animals and earth chocking.</p>	<p>Meetings in Kharzan Regarding the issues at RD 0+000 to 300, 0+300 to 0+620 and 0+620 to 0+921. The meeting was also arranged at PMO on March 6, 2024.</p>	<p>The mater was discussed with community in Kharzan that the work is done as per approved design, after detail dialog with them, they agreed to continue the work and requested through written application to cover the channel through slabs.</p> <p>The PD called him at PMO and discussed in details. At the end of the discussion, the PMO clarified that technically, there is no need of RCC. However, your demand will be sent to the ADB for the approval of VO and cost. He agreed and become satisfied. Minutes of meeting is provided in the Annexure X. Photographs of the meeting is provided as above</p>
6	<p>Issue was raised by Wadera Muhammad Hayat and his sons that the approved water channel is useless and will not irrigate the whole CCA full land of the area. Changes in water channel was demanded to irrigate maximum land. Meeting in Hatachi DR1².</p>	<p>Meeting arranged in Hatachi DR1 on March 2,2024.</p>	<p>After detailed discussion, they agreed to allow the water channel of the same length with changes in location. The proposed location is more feasible and fruitful if approved. The issue is resolved subject to the approval. The meeting photographs are provided above.</p>
7	<p>Issue: Flood protection Bund 04 B is disputed and land owners want to changes in location of Bund 04 or drop it from the work.</p>	<p>Meeting held in Shoongri band 04 B on 2-3-24.</p>	<p>On May23, 2024, community requesting to construct the bund 04 B with little bit changes in location without -tive impacts on the land of other people. Meeting Photograph is provided below</p>

S.No.	Type of Issue with Location	Meeting held with Date	Outcome/Remarks
			
8	Kharzan. Bund 1. issue: Community demanding additional way for rainwater with Bund 1 and stopped the work on Bund.	The community activist Dr. Habib Ullah who stopped the work on Kharzan Band 1 and demanding for additional passage to the rainwater with Bund 1. Meeting conducted on May 23, 2024.	The issue was discussed with the community, and several options were identified and forwarded for decision. The management reviewed these options and selected the best possible solution, which was shared with complainant, who agreed with the decision. The satisfaction letter received from Dr. Habib Ullah (Annex-IX) Meeting Photograph is provided above

5.7 UNANTICIPATED ENVIRONMENTAL IMPACTS OR RISKS.

158. During the reporting period, neither unanticipated environmental impacts were observed nor reported by the Contractor.

5.8 MONITORING OF AIR, NOISE AND WATER AT KHARZAN HATACHI INFILTRATION GALLERY

5.8.1 Ambient Air Monitoring

i. Methodology and Instrument Used

159. Ambient air quality monitoring was carried out at the camp site (east, west, north and south) for the assessment of parameters (temperature, humidity, PM1.0, PM2.5, PM10, CO, SO2, NO2, O2, formaldehyde, Total Volatile Organic Compounds (TVOC), O3, etc). The Air Quality Monitoring Station (AQMS-09), employed for PM10 & PM2.5, is a fully integrated air monitoring station that delivers 'near reference levels' of performance parameters. With a size of large suitcase, it can measure up to 20 different gaseous and particulate pollutants and environmental parameters simultaneously. The AQMS 09 offers optimal balance between performance and measuring criteria pollutants.

ii. Test Results and Discussion

160. Ambient air quality (temperature, humidity, PM1.0, PM2.5, PM10, CO, SO2, NO2, O2, formaldehyde, Total Volatile Organic Compounds (TVOC), O3) were monitored for twenty-four (24) hours at the locations identified by the SC and results obtained are shown in Figure 5-2. Signed copies of the results are attached as **Annexure-XIII**.

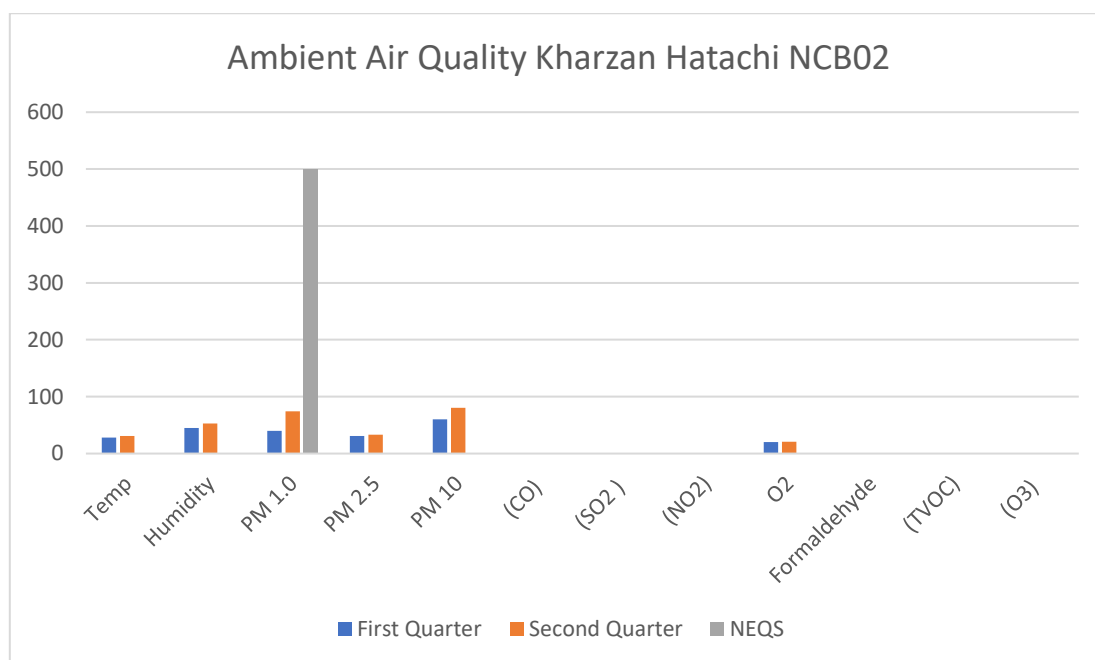


Figure 5-2: Ambient Air Quality Kharzan Hatachi NCB 02

161. All the results are within the permissible limits and in compliance with the NEQS. However, it is worth noting that during the first quarter, the contractor did not perform quarterly monitoring at the sub-project sites.
162. Considering the compliance with NEQS there is no immediate need for additional mitigation measures to control dust, apart from the measures proposed in the SSEMP. These measures may include regular sprinkling of water to suppress dust and timely transportation or disposal of excess materials temporarily stored at the site.

Table 5-7: Ambient Air Quality

Sr. No.	Measuring Parameters	Unit	First Quarter	Second Quarter	NEQS	Remarks
1.	Temperature	°C	28	31		
2.	Humidity	%	45	53		
3.	Particulate Matter (PM 1.0)	µg/m ³	40	74	500	WL
4.	Particulate Matter (PM 2.5)	µg/m ³	31	33.1	35 (24 hrs.)	WL
5.	Particulate Matter (PM 10)	µg/m ³	60	80.6	150 (24 hrs.)	WL
6.	Carbon Monoxide (CO)	mg/m ³	ND	ND	10 (08 hrs.)	WL
7.	Sulphur Dioxide (SO ₂)	µg/m ³	ND	ND	120 (24 hrs.)	WL
8.	Oxide of Nitrogen as (NO ₂)	µg/m ³	ND	ND	80 (24 hrs.)	WL
9.	Oxygen O ₂	%	20	20.7	-	
10.	Formaldehyde	µg/m ³	0.022	0.169	-	
11.	Total Volatile Organic Compounds (TVOC)	µg/m ³	0.178	0.246	-	
12.	Ozone (O ₃)	µg/m ³	ND	ND	130 (01 hr.)	WL

163. It is important to regularly monitor and assess the dust levels and compliance with environmental standards throughout the project's implementation to ensure continued adherence to regulations and to address any potential concerns that may arise.

5.8.2 Noise Monitoring

164. The twenty-four (24) hours noise level monitoring was carried out at camp site and batching plant of Kharzan Hatachi sub-project NCB-02 by using Digital Noise level meter.

i. Test Results and Discussion

165. The following table 5-8 shows a comparison of noise level monitoring results obtained during instrumental monitoring.

Table 5-8: Noise Monitoring Test Results at Camp site

Sr. No	Location	Unit	Method	First Quarter	Second Quarter	NEQS
1.	East	dB	ASTM E1686-16	74	60.7	75
2.	West	dB	ASTM E1686-16	68	65.2	75
3.	North	dB	ASTM E1686-16	73.7	57.2	75
4.	South	dB	ASTM E1686-16	73.5	63.5	75
5.	Center Point	dB	ASTM E1686-16	72.9	69.8	75

166. The noise level monitoring at sites was carried out during day and night with the objective to assess the off working noise levels as well. As evident from the results obtained, the average noise level at all intervals falls within the NEQS limits of 65 and 75 dB set for areas. Regarding the World Bank Group (WBG) Environmental, Health, and Safety (EHS) Guidelines, the recommended noise level limits are generally **55 dB during the day** and **45 dB at night** for residential areas, with slightly higher limits for industrial zones. A comparison indicates that the site noise levels are within the NEQS limits but exceed the WBG EHS Guidelines for residential areas during the day and night. High wind speeds may have contributed to elevated noise levels,

5.8.3 Monitoring of Drinking/Tap Water Quality and Waste Water

i. Methodology

167. During the reporting period, drinking/tap water quality and waste water quality of the Contractor's camp was monitored for the agreed parameters given in the SSEMP. High density sterilized polyethylene bottles were used for the sampling. The collected samples were preserved, sealed and chilled at 40C as recommended. APHA-1060 B & C method is used for sampling and preservation of water whereas.

ii. Drinking Water Test Results and Discussion

168. The drinking water demand is being met from Tubewell located near the contractor camp. At the first instance, water is pumped to elevated storage tank from where it is supplied to the consumer points through a pipe network. The drinking water at both the camp area and construction site meets WHO drinking water standards. Microbiological parameters such as Total Coliform, E. Coli, and Fecal Coliform were non-detectable, ensuring the water is free from harmful microorganisms. Physical parameters like

turbidity, taste, odor, and color were within acceptable limits, indicating clear, odorless, and colorless water. Chemical parameters such as pH, Total Dissolved Solids, and hardness also fall within safe ranges, while concentrations of potentially harmful substances like fluoride, nitrates, and heavy metals were well below WHO's recommended limits, confirming the water's safety for consumption.

169.

Table 5-9: Drinking Water Monitoring at Camp Area

S.No	Parameters	Unit	Testing Method	NEQS Limits	First Quarter	Second Quarter
1.	Total Bacteria Count	TBC (count/ml)	USEPA 1604	-----	ND	ND
2.	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	ND	ND
3.	E-Coli	EC (count/ml)	USEPA 1604	0/100 ml	ND	ND
4.	Fecal Coliform	FC (count/ml)	USEPA 1604	0/100 ml	ND	ND
5.	Turbidity	NTU	APHA 2130	<5	<1	<1
6.	Taste	Taste	APHA 2160	Obj/Non Obj	Non-Obj	Non-Obj
7.	Odour	Odor	APHA 2150	Obj/Non Obj	Non-Obj	Non-Obj
8.	Colour	TCU	HACH 8025	≤ 15 TCU	01	02
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	ND	ND
10.	Residual chlorine	Cl ₂ (mg/L)	HACH Method 10069	0.2-0.5	ND	ND
11.	Ph@25° C	PH	APHA 4500 H	6.5 to 8.5	7.50	7.67
12.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	420	536
13.	Total Hardness	As COCO ₃ (mg/L)	ASTM D 1126	< 500	360	316
14.	Fluoride	F ₁ (mg/L)	APHA 4500-F ₁	≤ 1.5	0.45	0.29
15.	Chloride	CL ₁ (mg/L)	APHA 4500-CL ₁	< 250	61	155.95
16.	Cyanide	CN ₁ (mg/L)	HACH Method 8027	≤ 0.05	ND	ND
17.	Nitrate	NO _{3_1} (mg/L)	HACH Method 8039	≤ 50	0.02	0.3
18.	Nitrite	NO _{2_1} (mg/L)	HACH 8507	≤3.0 (P)	0.003	0.005
19.	Antimony	Sb (mg/L)	APHA 3111-B	≤0.005	ND	< 0.005
20.	Aluminum	Al (mg/L)	APHA 3111-D	≤0.2	ND	< 0.028
21.	Arsenic	As (mg/L)	APHA 3114-B	≤0.05	ND	< 0.05
22.	Boron	B (mg/L)	HACH 8015	0.3	ND	ND
23.	Barium	Ba(mg/L)	HACH 8014	0.7	ND	ND
24.	Chromium Total	Cr(mg/L)	APHA 3111-B	≤0.05	ND	ND
25.	Copper	Cu(mg/L)	APHA 3111-B	2	ND	0.0045
26.	Cadmium	Cd(mg/L)	APHA 3111-B	0.01	ND	< 0.0028
27.	Lead	Pb(mg/L)	APHA 3111-B	≤0.05	ND	< 0.0054
28.	Manganese	Mn(mg/L)	APHA 3111-B	≤0.5	ND	< 0.0016

S.No	Parameters	Unit	Testing Method	NEQS Limits	First Quarter	Second Quarter
29.	Mercury	Hg (mg/L)	APHA 3112-B	≤0.001	ND	< 0.001
30.	Nickel	Ni(mg/L)	APHA 3111-B	≤0.02	ND	< 0.0080
31.	Selenium	Se(mg/L)	APHA 3114-B	0.01	ND	< 0.01
32.	Zinc	Zn (mg/L)	APHA 3111-B	5	ND	< 0.0033

iii. Drinking Water Monitoring at Construction site

Table 5-10: Drinking/Tap Water Monitoring at Construction Site

S.No	Parameters	Unit	Testing Method	NEQS Limits	First Quarter	Second Quarter
1.	Total Bacteria Count	TBC (count/ml)	USEPA 1604	-----	ND	ND
2.	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	ND	ND
3.	E-Coli	EC (count/ml)	USEPA 1604	0/100 ml	ND	ND
4.	Fecal Coliform	FC (count/ml)	USEPA 1604	0/100 ml	ND	ND
5.	Turbidity	NTU	APHA 2130	<5	<1	<1
6.	Taste	Taste	APHA 2160	Obj/Non Obj	Non-Obj	Non-Obj
7.	Odour	Odor	APHA 2150	Obj/Non Obj	Non-Obj	Non-Obj
8.	Colour	TCU	HACH 8025	≤ 15 TCU	01	02
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	ND	ND
10.	Residual chlorine	Cl ₂ (mg/L)	HACH Method 10069	0.2-0.5	ND	ND
11.	Ph@25° C	PH	APHA 4500 H	6.5 to 8.5	8.0	8.22
12.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	350	408
13.	Total Hardness	As COCO ₃ (mg/L)	ASTM D 1126	< 500	200	194
14.	Fluoride	F ₁ (mg/L)	APHA 4500-F ₁	≤ 1.5	0.34	0.29
15.	Chloride	CL ₁ (mg/L)	APHA 4500-Cl ₁	< 250	99.96	155.95
16.	Cyanide	CN ₁ (mg/L)	HACH Method 8027	≤ 0.05	ND	ND
17.	Nitrate	NO _{3_1} (mg/L)	HACH Method 8039	≤ 50	0.2	0.20
18.	Nitrite	NO _{2_1} (mg/L)	HACH 8507	≤3.0 (P)	0.002	0.03
19.	Antimony	Sb (mg/L)	APHA 3111-B	≤0.005	ND	< 0.005
20.	Aluminum	Al (mg/L)	APHA 3111-D	≤0.2	ND	< 0.028
21.	Arsenic	As (mg/L)	APHA 3114-B	≤0.05	ND	< 0.05

S.No	Parameters	Unit	Testing Method	NEQS Limits	First Quarter	Second Quarter
22.	Boron	B (mg/L)	HACH 8015	0.3	ND	ND
23.	Barium	Ba(mg/L)	HACH 8014	0.7	ND	ND
24.	Chromium Total	Cr(mg/L)	APHA 3111-B	≤0.05	ND	ND
25.	Copper	Cu(mg/L)	APHA 3111-B	2	ND	0.0053
26.	Cadmium	Cd(mg/L)	APHA 3111-B	0.01	ND	< 0.0028
27.	Lead	Pb(mg/L)	APHA 3111-B	≤0.05	ND	< 0.0054
28.	Manganese	Mn(mg/L)	APHA 3111-B	≤0.5	ND	< 0.5
29.	Mercury	Hg (mg/L)	APHA 3112-B	≤0.001	ND	< 0.001
30.	Nickel	Ni(mg/L)	APHA 3111-B	≤0.02	ND	< 0.0080
31.	Selenium	Se(mg/L)	APHA 3114-B	0.01	ND	< 0.01
32.	Zinc	Zn (mg/L)	APHA 3111-B	5	ND	< 0.0033

iv. Waste Water Test Results and Discussion

170. The waste water samples, were collected from the camp where all effluent converges into one outlet.

Table 5-11: Waste Water Monitoring at Camp site

S.No	Parameters	Unit	Testing Method	NEQS Limits	First Quarter	Second Quarter
1.	Temperature	°C	APHA 2550	≤3	33	31
2.	Ph@25° C	PH	APHA 4500 H	6 to 9	7.07	7.52
3.	Sulphide	Mg/L	APHA 4500 H-B	1	<1	<1
4.	Biological Oxygen Demand (BOD)	Mg/L	HACH 10099	80-250	65	59
5.	Chemical Oxygen Demand (COD)	Mg/L	HACH 8000	150-400	127	114
6.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	770	482
7.	Total Suspended Solids (TSS)	Mg/L	APHA 2540-C	200	150	186
8.	Oil & Grease	Mg/L	ASTM D-3921	10	04	03
9.	Cadmium	Cd(mg/L)	APHA 3111-B	0.01	0.0092	0.0128
10.	Copper	Cu(mg/L)	APHA 3111-B	2	0.0100	0.0114
11.	Iron	Mg/L	APHA 3111-B	8	0.0125	0.0131
12.	Lead	Pb(mg/L)	APHA 3111-B	≤0.05	ND	ND
13.	Manganese	Mn(mg/L)	APHA 3111-B	≤0.5	ND	ND
14.	Mercury	Hg (mg/L)	APHA 3112-B	≤0.001	ND	ND
15.	Nickel	Ni(mg/L)	APHA 3111-B	≤0.02	ND	0.1032
16.	Selenium	Se(mg/L)	APHA 3114-B	0.01	ND	ND
17.	Chromium Total	Cr(mg/L)	APHA 3111-B	≤0.05	0.0325	0.0405
18.	Zinc	Zn (mg/L)	APHA 3111-B	5	ND	ND
19.	Arsenic	As (mg/L)	APHA 3114-B	≤0.05	ND	ND

S.No	Parameters	Unit	Testing Method	NEQS Limits	First Quarter	Second Quarter
20.	Chlorine	Mg/L	HACH 10069	1.0	ND	ND
21.	Chloride	CL_1(mg/L)	APHA 4500-Cl_1	1000	449	379.88
22.	Cyanide	CN_1(mg/L)	HACH Method 8027	≤ 0.05	0.006	0.005
23.	Fluoride	F_1 (mg/L)	HACH 8029	10	0.52	0.48
24.	Ammonia	Mg/L	HACH 8038	40	0.72	0.63
25.	Sulphate	Mg/L	HACH 8051	600	90	87
26.	An Ionic Detergent as MBAS	Mg/L	APHA 5540 C	20	03	04
27.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	0.1	ND	ND
28.	Boron	B (mg/L)	HACH 8015	6	ND	ND
29.	Barium	Ba(mg/L)	HACH 8014	1.5	ND	ND
30.	Silver	(mg/L)	APHA 3114-B	1.0	ND	ND

171. All the results of the effluent parameters tested, fall within the permissible limits of NEQS.

5.8.4 Monitoring of Gaseous and Vehicles Emission

i. Methodology

172. During the reporting period, generator and vehicles emissions were monitored at the camp site and construction site for the agreed parameters as given in the SSEMP. All lab results are provided as **annexure XIII**.

5.9 WASTE MANAGEMENT

a. Solid Waste Management:

173. Workers' actions pertaining to waste management are found to be responsible and careful. The priority has always been to reduce the waste generated; therefore, the 3Rs (reduce, reuse, and recycle) are observed as the 2nd step of effective waste management, following the 1st priority of preventing waste at the point source on the site. Most of the waste produced is biodegradable. Dust bins are provided for site use and are conveniently located. Due to the limited duty time and the low number of staff, the waste is produced in such low quantities that it can be easily transported to its designated area. This activity is done on a regular basis to ensure that the small waste does not accumulate into large amounts, making waste management and its impacts following remedial actions more expensive and time-consuming, thus diverting resources from useful work.

b. Housekeeping and Material Storage

174. Proper storage and stacking are promoted at work sites, as good housekeeping and properly stored material have the potential to reduce safety incidents by roughly 70%. For this reason, housekeeping and material storage are done in a responsible way to protect workers from untoward safety events or any damage to the environment.

175. The following measures regarding housekeeping are taken:

- All materials, spoils, debris, etc., are cleaned up to avoid accumulation at the end of each work shift.
- Accumulation of trash and debris is prevented by proper covering with polythene sheets and water sprinkles to suppress the mud/dust.
- Access walkways and roadways are kept clear to avoid trips and falls.
- Good housekeeping is maintained at the camp as well as on the working site.
- Dustbins are placed at appropriate locations.



c. Hazardous waste

176. Waste with the characteristics of flammability, toxicity, reactivity, and corrosivity is regarded as hazardous. At the moment, no hazardous waste is being generated. However, a designated area has been prepared for the storage of any hazardous waste. During field visits, it is ensured that hazardous waste generation will be prevented through responsible storage and handling practices. In the event that hazardous waste is generated, its storage is carefully considered, ensuring a safe distance of nearly 100 m (as practically applicable) from the surface water for its handling and storage. (Photographic evidence is provided as follows).



Inspection of waste bins on camp site

Figure 5-3: Waste Segregation at camps

Table 5-12- Solid Waste generated at sub-project sites are as under

Sr. #	Name of Sub-Project	Solid Waste generated in Kilograms/day	Types of Waste	Remarks
1		1 Kg/day	Plastic waste	

	Kharzan Hatachi Infiltration Gallery NCB 02	6 Kg/day	Solid waste including wood ply	Solid waste is preferable reused, recycled and disposed off at designated dumping site.
		2 Kg/day	Kitchen waste	

5.6 HEALTH AND SAFETY

Community Health and Safety

177. No incidents related to community health and safety have occurred or been reported yet.

Worker Safety and Health

178. First aid kits are provided by the contractor at the campsite, and this provision is being ensured. The contractor also ensures the provision of Personal Protective Equipment (PPE) to the workforce on site. Additionally, other safety measures to avoid exposure to accidents due to construction, vehicle movements, and machinery operations are also ensured. The contractor has provided 4WD vehicles to deal with any kind of emergency (Annexure IX). No incidents related to the workers' health and safety have occurred or been reported yet.

5.6.1 Training

179. The Contractor maintains a strong working relationship with the Consultants' environmental staff. Regular training and awareness campaigns at the Contractor's Camp and work sites keep workers informed about site-specific risks and emergency preparedness.

180. In the reported months of January to June 2024, following trainings had been conducted as mentioned in Table 5-13.

Table 5-13: Details of Health and Safety Trainings on Site.

1	Camp site	Hand and Head protection during work	26-1-2024
2		Slips, Trips and Falls	19-2-2024
3		Respiratory Protection	21-3-2024
4		First Aid and PPE's	21-4-2024
5		Safe work on site	16-5-2024

5.7 FUNCTIONING OF THE SSEMP

5.7.1 GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

- Clean drinking water is provided to workers and staff.
- The Environmental Specialist and HSE Officer are available on-site during working hours.
- Daily correspondence with the supervision consultant is conducted to discuss day-to-day improvements and activities.
- The construction machinery is parked in designated locations.

- Monthly training and Toolbox Talks are being held and reported in the SAEMR.
181. Overall, these practices contribute to a well-maintained, safe, and organized work environment, enhancing both operational efficiency and worker well-being.

5.7.2 Opportunities for Improvement

182. To enhance site safety, several improvements are needed. First, contractor should increase the number of safety sign boards throughout the construction site to better communicate hazards and safety measures. Additionally, implementing proper barricading around the construction site, including active work areas and borrow zones, is crucial to prevent unauthorized access and ensure worker safety. Finally, conducting regular quarterly instrumental monitoring tests will help maintain compliance with safety and environmental standards and ensure ongoing effectiveness in managing risks.

6 DESCRIPTION OF WATER RESOURCES BUILDING AT QUETTA SUBPROJECT (NCB-05)

6.1 PROJECT DESCRIPTION

183. The proposed project is located on Mir Jaffar Khan Jamali Road, Mulana Abdul Aziz street near Chaman Pattak, Quetta. The sub-project is aimed to construct a new three-story water resources building by demolishing the older one. The objective of the project is to provide an Eco-Friendly Water Resources building with outward patios bringing nature into the workplace. There are total 3 Data Centers, one is at 1st and 02 are at 2nd floor, central library on ground floor and conference hall on 2nd floor. There are two elevators on the back side of the lobby and two fire exits in the building on each wing. The façade of the building is on modern contemporary lines with maintenance-free building materials.

SALIENT FEATURES:

- Total Revised Cost 876.415 (Rs. Million)
- Ground floor covered 10,306 sq. ft.
- 1st floor covered area 10,075 sq. ft.
- 2nd floor covered area 10,075 sq. ft.
- Conference Hall Cover area 4100 sq. ft. (@ 3rd Floor)
- Mumty covered area 617 sq. ft.
- Total covered area of Building 35,173 sq. ft.

PROJECT PROGRESS:

- Overall Target: 100.00%
- Physical Progress: 82.00%
- Financial Progress: 64.07%

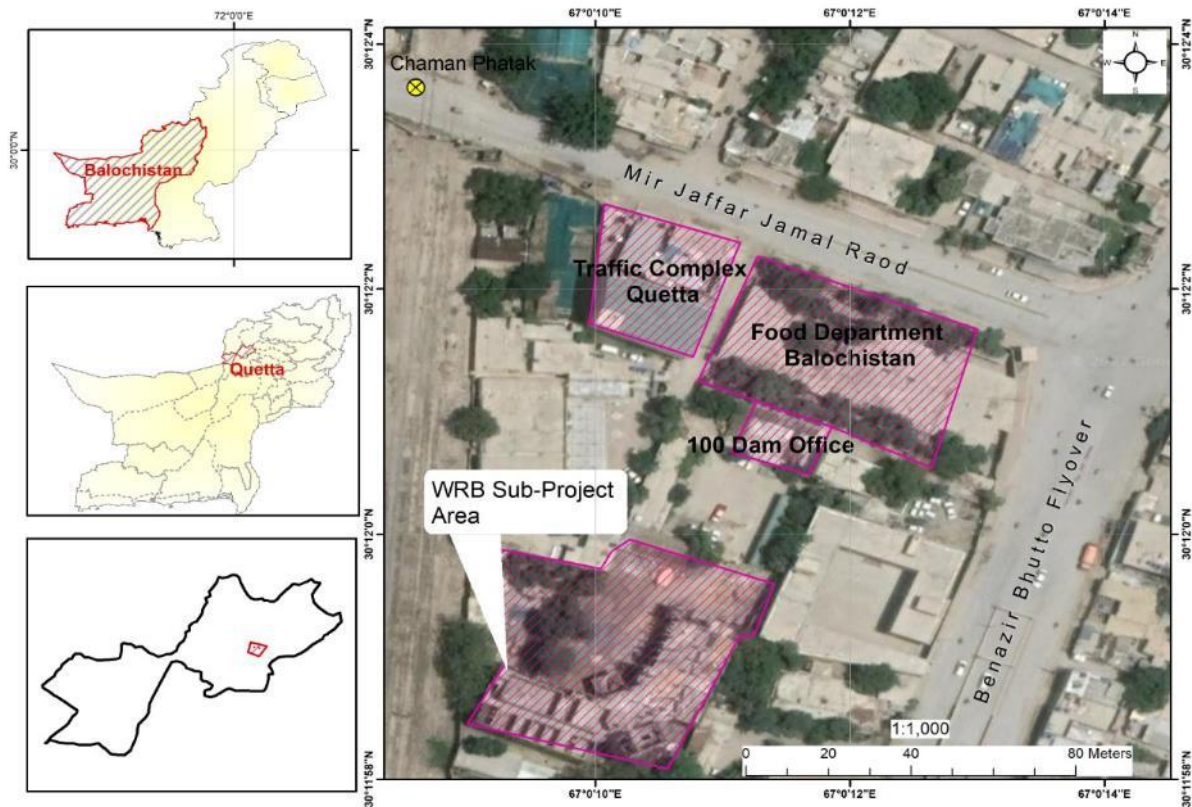


Figure 6-1: Location Map

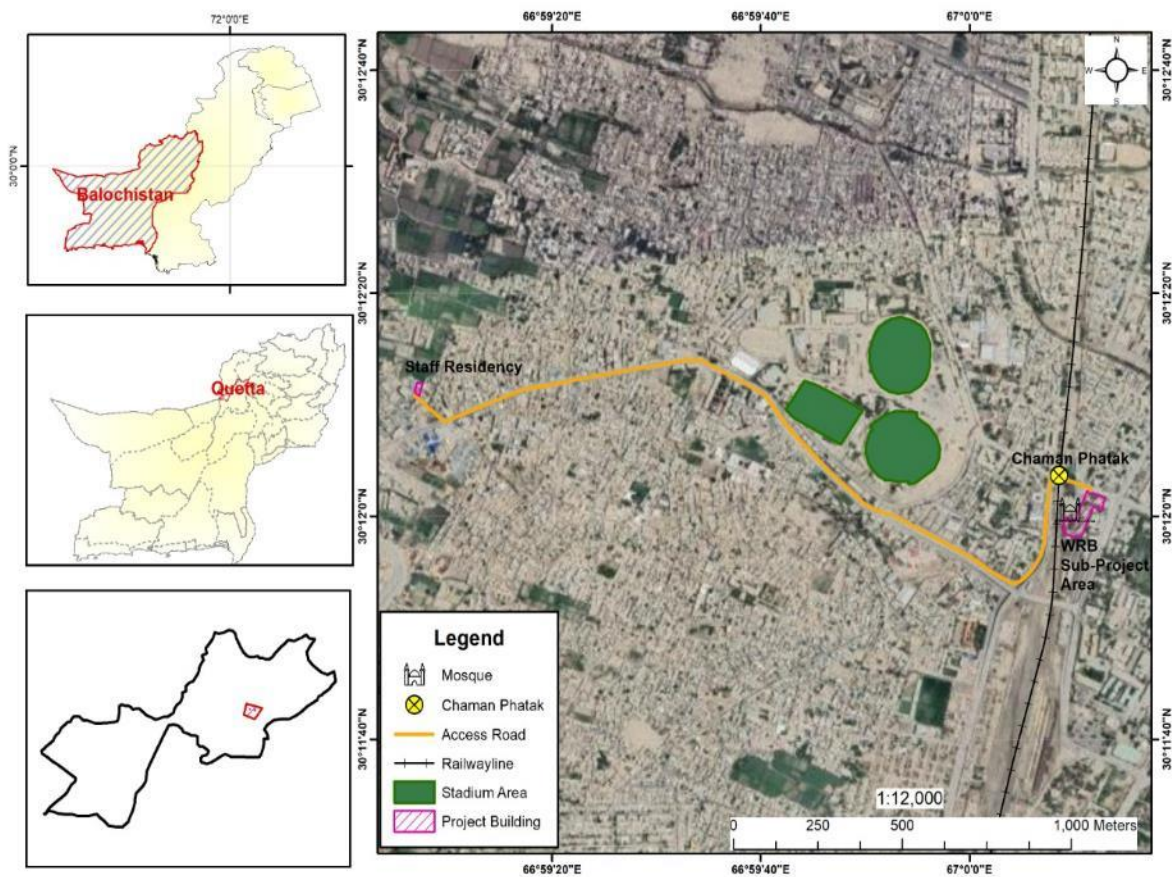


Figure 6-2: Water Resources Building sub- project NCB 05 Contractor staff Residency

6.2 ACTIVITIES DURING CURRENT REPORTING PERIOD

184. An overview of the current progress for various activities under the Water Resources Building at Quetta Subproject (NCB-05) is provided in Table 6-1 below. It outlines the completion percentages of key construction tasks, reflecting the status of each activity as the project advances

Table 6-1: Siri Toi Dam Subproject ICB-01 works progress

S. NO.	Ongoing Activities	Work percentage
1.	Trench for rainwater	90%
2.	Guard room construction	97%
3.	Union office	100%
4.	Aluminium for window is in progress	100%
5.	AC installation all building	96%
6.	Solar foundation excavation in progress	90%
7.	All washroom and kitchen work in progress	98%
8.	Gas work in progress	97%
9.	Transformer pad work	95%
10.	Solar frame structure	75%

Construction Material

185. Major construction materials used at NCB-05 include reinforced steel, cement, sand and aggregates supplied from the approved sources as mentioned in the SSEMP. Sources of construction materials are listed below. The Details for types of construction material used and their sources for the time period January to June 2024 are mentioned in Table 6-2.

Table 6-2- Detail of material and sources of Water Resources Building Quetta sub-project NCB 05

Sr. No.	Name of Material	Source of Material	Quantities Used
1	Cement	Fauji Cement Ltd, Mapple leaf	500 Bags
2	Steel	Agha Steel Pvt Ltd Karachi	10 Tons
3	Sand	Yarro Sand	50 cu.m
4	Gravel		40 cu.m
5	Gas pipes		900 RFT

Human Resources

186. As a contractor, it is prior responsibility to hire local staff, skilled and unskilled staff and labor. Because it is the basic right of peoples living in the vicinity of project area to get maximum financial benefit of project to overcome unemployment, so their socio economic status can be improved. However, considering availability and ability of work, contractor has provided the jobs to the local community on priority basis. The Details for categories of Employees both Skilled and Unskilled are mentioned in Table 6-3.

Table 6-3- Manpower Technical/skilled/ unskilled staff details

Designation	Numbers
Project Manager	1
Chief Surveyor/Quantity Surveyor	1
Surveyor	1
Surveyor Helper	1
General Forman	1
Material Engineer	1
Lab Technician	1
Lab Helper	1
AutoCAD Operator	2
Accountant	1
Storekeeper	1
Procurement Officer	1
Supervisor	1
Mechanic	1
Auto Electrician	1
Heavy Machinery Operator	2
Heavy Machinery Helper	2
Diesel Store	1
Security Guard	1
Cook	1
Cook Helper	1
Labour	10
Mason	5
Steel fixer	2
Total	40

Equipment Machinery

187. The contractor is obliged to use heavy machinery on site to ensure the timely completion of the work. Maintenance of the machinery not only provide better and successful results but also safe haven for the workers operating nearby. Daily inspection of machinery is carried out by experts and supervisors before and after the machine is used. The machinery is washed on daily basis and maintained by their assigned individual operators. The details for Heavy Machinery working on site are mentioned in Table 6-4.

Table 6-4: List of Machinery/Equipment's

Name of Machine	Numbers
Loader	1
Dozer	-
Tractor 240	1
Tractor 385	-
Tractor Trolley	1
Pickup	1
Generator	1
Water Bowser	1
Diesel Tank	1
Steel Machine	1
Total	8

6.3 Description of any Changes in NCB-05 Design

188. During the reporting period, no changes were made in the design of NCB-05.

6.4 Description of any Changes to Agreed Construction Methods

189. The construction activities at various sections of Site are in progress in accordance with the Engineer's approved methodology and specifications

6.5 ENVIRONMENTAL SAFEGUARD ACTIVITIES

190. During the reporting period, the Contractor worked on rainwater trenches, guard room, aluminum windows, and AC installation. Solar foundation excavation, washroom and kitchen work, gas work, and transformer pad work were also underway, with progress on the solar frame structure.

191. The environmental safeguard aspect of these activities was diligently supervised and monitored, ensuring compliance with the provisions outlined in the approved Site-Specific Environmental Management Plan (SSEMP) and the Environmental Management Plan (EMP) in general. To maintain a systematic record of the environmental safeguard supervision, sample-filled checklists were utilized. These checklists, attached as Annexure-V, serve as a documentation tool, outlining the specifics of the activities and confirming adherence to environmental protection measures as per the established plans.

192. Use of Personal Protective Equipment (PPE) especially safety boots was not being adequately enforced.

193. During the reporting period, quarterly instrumental environmental monitoring was also held at the site during March and June 2024. Results obtained and commentary thereon has separately been given under Section 6.9 of the report.

6.5.1 Corrective Action Plans (CAPs):

194. During the reporting period, the Environment Specialist of PIC/SC conducted regular visits and monitored the project for the implementation of the Environmental Management Plan (EMP). As a result of these visits, Corrective Action Plans (CAPs) have been prepared for EMP non-compliance in various sub-projects, including Siri Toi Dam, Karkh valley development, Water Resources Building and Kharzan Hatachi. The details of these CAPs are provided in the Table 6-5 below.

Table 6-5- Water Resources Building sub project -Corrective Action Plan CAP (Issues closed & open).

Sr. No	EMP Observations	Corrective Measures	Implementing Responsibility	Monitoring Responsibility	Timeline	Updated Status Closed/open
1	SSEMP is submitted	SSEMP is conditionally approved	Contractor	CSC	27 th February 2022	Closed
2	Washrooms not available for the workers	Washrooms should be with sufficient facilities and hygienic condition	Contractor	CSC	30 th June 2024	Open
3	Shutter/steel cover not available in the meeting hall 3 rd Floor	Shutter/steel cover should be placed at the earliest before any incident	Contractor	CSC	15 th June 2024	Closed
4	Elevator shaft not barricaded properly with warning tapes	Elevator Shaft should be barricaded properly	Contractor	CSC	15 June 2024	Closed
5	Poor Housekeeping at WRB site	Good housekeeping should be maintained on the working site.	Contractor	CSC	Routinely	Closed
6	Scarcity of Safety signs boards/warning tape	Proper safety signs boards/warning tape should be installed by the contractor	Contractor	CSC	15 th June 2024	Open
7	Use of PPE's especially safety boots ensured	Contractor should ensure use of PPE's especially safety boots by labor	Contractor	CSC	5 th June 2024	Open
8	Presence of register at construction site	Maintenance of register to record patients number treated through first aid facility	Contractor	CSC	1 st June 2024	Closed

*Pictorial Evidences for closed issues are mentioned as annexure IX

6.6 SITE AUDITS

6.6.1 Issues Tracking (Based on Non-Conformance Notices) .

195. The site is currently facing a trend of insufficient safety signboards and warning tape. The Contractor needs to address this issue urgently by installing adequate signage to enhance hazard visibility and improve site safety.
196. There is a concerning trend of not ensuring the use of PPEs, particularly safety boots. The Contractor must enforce PPE requirements to ensure proper worker protection.

197. There is a trend of not maintaining a register at the construction site to record the number of patients treated through the first aid facility. The Contractor needs to implement this documentation to ensure accurate tracking of first aid incidents.

6.7 GRIEVANCE REDRESSAL MECHANISM.

198. As detailed in the SSEMP, Grievance Redressal Committees (GRCs) at field and project levels with composition thereof have already been notified and are functional. For registration of complaints, complaint registers are available at field offices and at sites wherein complainant can register complaint(s).
199. Upon receipt of complaint(s), GRC follow the specified procedure to address the complaint and resolve the issue within prescribed time frame.
200. Complaint register is available inside camp to receive complaints from local community/project affected people and contractor's staff. No complaints have been registered in the time period January to June 2024.

6.8 UNANTICIPATED ENVIRONMENTAL IMPACTS OR RISKS.

201. During the reporting period, neither unanticipated environmental impacts were observed nor reported by the Contractor.

6.9 Monitoring of Air, Noise and Water at Water Resources Building site

6.9.1 Ambient Air Monitoring

i. Methodology and Instrument Used

202. Ambient air quality monitoring was carried out for the assessment of Parameters (NO, NO₂, SO₂, CO, O₃, SPM, PM₁₀, PM_{2.5}, humidity, wind direction, wind velocity, pressure etc). The Air Quality Monitoring Station (AQMS-09), employed for PM₁₀ & PM_{2.5}, is a fully integrated air monitoring station that delivers 'near reference levels' of performance parameters. With a size of large suitcase, it can measure up to 20 different gaseous and particulate pollutants and environmental parameters simultaneously. The AQMS 09 offers optimal balance between performance and measuring criteria pollutants.

ii. Test Results and Discussion

203. Ambient air quality (NO, NO₂, SO₂, CO, O₃, SPM, PM₁₀, PM_{2.5}, Humidity, Wind direction, Wind velocity, Pressure etc) were monitored for twenty-four (24) hours at the locations identified by the SC and results obtained are as under.

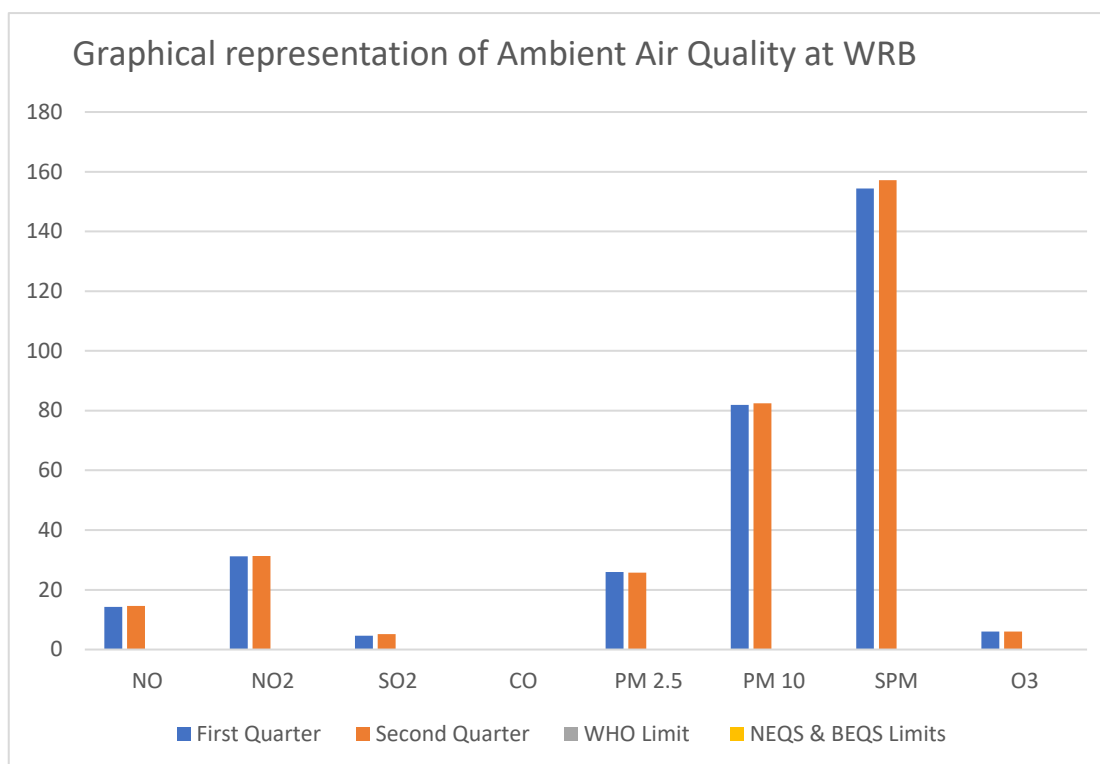


Figure 6-3: Graphical representation of Ambient Air Quality at Water Resources Building

The contractor has performed quarterly monitoring at the sub-project sites and all the results are within the permissible limits and compliance with the BEQS, NEQS and WHO standards. are shown as in Figure 6-3 and Table 6-6. Signed copies of the results are attached as **Annexure-XIV**.

Table 6-6: Air Quality Monitoring Test Results

Sr. No.	Measuring Parameters	Location	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits	Remarks
1.	Oxide of Nitrogen as (NO)	Camp	µg/m ³	14.28	14.59	-	40 (24 hrs.)	WL
2.	Oxide of Nitrogen as (NO ₂)	Camp	µg/m ³	31.16	31.33	25(24 hrs.)	80 (24 hrs.)	WL
3.	Sulphur Dioxide (SO ₂)	Camp	µg/m ³	4.65	5.17	40(24 hrs.)	120 (24 hrs.)	WL
4.	Carbon Monoxide (CO)	Camp	mg/m ³	0.047	0.050	4(24 hrs.)	5 (08 hrs.)	WL
5.	Particulate Matter (PM 2.5)	Camp	µg/m ³	25.99	25.70	15(24 hrs.)	35 (24 hrs.)	WL
6.	Particulate Matter (PM 10)	Camp	µg/m ³	81.9	82.41	45(24 hrs.)	150 (24 hrs.)	WL
7.	SPM	Camp	µg/m ³	154.4	157.2	-	500 (24 hrs.)	WL
8.	Ozone (O ₃)	CAmp	µg/m ³	06	06	60(Peek Season)	130 (01 hr.)	WL

204. Considering the compliance with NEQS and WHO standards, there is no immediate need for additional mitigation measures to control dust, apart from the measures proposed in the SSEMP. These measures may include regular sprinkling of water to suppress dust and timely transportation or disposal of excess materials temporarily stored at the site.
205. It is important to regularly monitor and assess the dust levels and compliance with environmental standards throughout the project's implementation to ensure continued adherence to regulations and to address any potential concerns that may arise.

6.9.2 Noise Monitoring

206. The twenty-four (24) hours noise level monitoring was carried out at Water Resources Building site using Digital Noise level meter.

i. Test Results and Discussion

207. Following table 6-7 shows comparison of noise level monitoring results obtained during the instrumental monitoring.

Table 6-7: Noise Level Test Results

S. No	Time	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits
01	10:00 AM	dB(A)	59.3	61.4	55 dB(A) (Day time)	75 dB(A) (Day time)
02	11:00 AM		59.6	62.2		
03	12:00 PM		60.8	62.5		
04	01:00 PM		61.9	61.7		
05	02:00 PM		61.6	63.8		
06	03:00 PM		63.8	62.5		
07	04:00 PM		59.6	60.4		
08	05:00 PM		57.4	59.9		
09	06:00 PM		58.8	57.7		
10	07:00 PM		56.9	57.8		
11	08:00 PM		52.6	56.4		
12	09:00 PM		54.8	56.5		
13	10:00 PM		53.2	54.4		
14	11:00 PM		51.6	53.3	35 dB(A) (Night time)	65 dB(A) (Night time)
15	12:00 AM		53.4	52.7		
16	01:00 AM		52.3	51.4		
17	02:00 AM		49.7	51.3		
18	03:00 AM		49.9	50.1		
19	04:00 AM		46.8	47.2		
20	05:00 AM		45.6	45.4		
21	06:00 AM		48.7	45.6		
22	07:00 AM		43.8	47.4	55 dB(A) (Day time)	75 dB(A) (Day time)
23	08:00 AM		48.6	51.4		

S. No	Time	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits
24	09:00 AM		53.2	57.5		
Average			54.3	55.4		

208. The noise level monitoring at sites was carried out during day and night with the objective to assess the off working noise levels as well.

209. As evident from the results obtained, the average noise level at all intervals falls within the WHO, BEQS and NEQS limits of 65 and 75 dB set for areas.

6.9.3 Monitoring of Metrological Data

i. Methodology

210. During the reporting period, metrological conditions of the construction site was monitored for 24 hours. As evident from the below table 6-8, almost all parameters falls within the permissible limits set under NEQS.

211. Following is a comparison of the results obtained.

Table 6-8: Metrological Data Analysis

S.No.	TIME	Wind Direction		Wind Velocity		Humidity		Pressure	
		First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter
	Hours			m/sec		%		Mm of Hg	
01	10:00 AM	SW	SN	1.87	2.55	97	94	758	751
02	11:00 AM	N	S	1.68	1.58	91	92	743	734
03	12:00 PM	N	W	1.85	1.84	99	94	748	737
04	01:00 PM	SW	SW	1.87	2.82	94	95	741	740
05	02:00 PM	N	S	2.98	1.91	95	94	753	750
06	03:00 PM	SW	NW	1.78	3.73	96	95	729	724
07	04:00 PM	NS	NS	1.89	2.81	94	97	757	754
08	05:00 PM	NS	NS	1.28	2.24	82	85	756	751
09	06:00 PM	NS	NW	1.76	1.58	89	84	798	792
10	07:00 PM	N	S	2.27	3.41	87	82	778	767
11	08:00 PM	N	W	2.96	3.35	86	84	725	731

S.No.	TIME	Wind Direction		Wind Velocity		Humidity		Pressure	
		First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter
	Hours			m/sec		%		Mm of Hg	
12	09:00 PM	NS	NS	2.63	1.25	88	83	735	737
13	10:00 PM	N	N	2.58	2.71	89	82	795	774
14	11:00 PM	NS	NS	3.04	2.06	85	86	745	740
15	12:00 AM	N	S	3.96	2.85	82	84	735	736
16	01:00 AM	N	W	3.78	2.47	89	87	756	757
17	02:00 AM	NS	NS	4.31	3.47	83	85	725	729
18	03:00 AM	N	N	4.29	3.26	85	84	795	767
19	04:00 AM	NS	NS	4.26	3.24	87	85	734	739
20	05:00 AM	NW	NS	5.38	4.32	89	81	758	757
21	06:00 AM	NW	SN	5.78	4.74	96	92	767	760
22	07:00 AM	NW	NW	5.12	3.11	94	93	795	793
23	08:00 AM	N	N	4.78	5.70	99	95	736	731
24	09:00 AM	N	S	4.65	5.61	97	93	787	771

6.9.4 Monitoring of Drinking and Waste Water Quality

i. Methodology

212. During the reporting period, drinking water and waste water quality of the Construction site was monitored for the agreed parameters given in the SSEMP. High density sterilized polyethylene bottles were used for the sampling. The collected samples were preserved, sealed and chilled at 40°C as recommended. Grab method is used for sampling and preservation of water whereas.

ii. Drinking Water Test Results and Discussion

213. The drinking water demand is being met from bore hole dug out at the construction site. At the first instance, water is pumped to elevated storage tank from where it is supplied to the consumer points through a pipe network.

214. It is worth mentioning that the contractor of NCB 05 has not submitted water quality report for first quarter while the second quarter results are provided. Following is the comparison of the results obtained for drinking water parameters shown in Table 6-9.

Table 6-9: Drinking Water Quality (Bore Water) Report

S.No	Parameters	Unit	Testing Method	BEQS Limits	NEQS Limits	WHO Limits	Second Quarter	Remarks
1.	Total Bacteria Count	TBC (count/ml)	Total Viable Count	----- --	----- --	----- -	ND	-
2.	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
3.	E-Coli	EC (count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	WL
4.	Facial Coli	FC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
5.	Turbidity	NTU	HACH Turbidity meter	<15	<5	<15	<0.03	WL
6.	Taste	Taste	Sensory Evolution	Obj/N on Obj	Obj/N on Obj	Obj/No n Obj	Non-Obj	WL
7.	Odour	Odor	Sensory Evolution	Obj/ Non Obj	Obj/N on Obj	Obj/No n Obj	Non-Obj	WL
8.	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 2	WL
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	WL
10.	Residual chlorine	Cl ₂ (mg/L)	HACH Method 8167	0.2-0.5	0.2-0.5	-	0.3	WL
11.	Ph@25° C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	7.95	WL
12.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	< 1000	< 1000	442	WL
13.	Total Hardness	As COCO ₃ (mg/L)	APHA 2340-C	< 500	< 500	-	57	WL
14.	Fluoride	F ₁ (mg/L)	APHA 4500- F ₁	≤ 1.5	≤ 1.5	1.5	0.46	WL
15.	Chloride	CL ₁ (mg/L)	APHA 4500- Cl ₁	< 250	< 250	250	184	WL
16.	Cyanide	CN ₁ (mg/L)	HACH Method 8027	≤ 0.05	≤ 0.05	0.05	ND	WL
17.	Nitrate	NO ₃ ₁ (mg/L)	HACH Method 8192	≤ 50	≤ 50	50	0.10	WL

S.No	Parameters	Unit	Testing Method	BEQS Limits	NEQS Limits	WHO Limits	Second Quarter	Remarks
18.	Nitrite	NO ₂ _1(mg/L)	APHA 4500-NO ₂ _1-B	≤3.0 (P)	≤3.0 (P)	3	0.07	WL
19.	Antimony	Sb (mg/L)	ASTM D-3697	≤0.005	≤0.005	0.02	ND	WL
20.	Aluminum	Al (mg/L)	ASTM D-857	≤0.2	≤0.2	0.2	0.03	WL
21.	Arsenic	As (mg/L)	ASTM D-2972	≤0.05	≤0.05	0.01	ND	WL
22.	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	WL
23.	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.002	WL
24.	Chromium Total	Cr(mg/L)	ASTM D-1687	≤0.05	≤0.05	0.05	ND	WL
25.	Copper	Cu(mg/L)	ASTM D-1688	2	2	2	<0.05	WL
26.	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.01	0.03	ND	WL
27.	Lead	Pb(mg/L)	ASTM D-3559	≤0.05	≤0.05	0.01	ND	WL
28.	Manganese	Mn(mg/L)	ASTM D-858	≤0.5	≤0.5	0.5	ND	WL
29.	Mercury	Hg (mg/L)	ASTM D-3223	≤0.001	≤0.001	0.001	ND	WL
30.	Nickel	Ni(mg/L)	ASTM D-3866	≤0.05	≤0.02	0.02	ND	WL
31.	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	WL
32.	Zinc	Zn (mg/L)	ASTM D-1691	5	5	3	0.08	WL

215. As evident from the above table, all parameters of the drinking water, at the WRB, fall within the permissible limits set under BEQS, NEQS and WHO limits.

iii. Waste Water Test Results and Discussion

216. The wastewater sample in the second quarter, was collected from the point where all wastewater (Washrooms & kitchen) and effluents converges into one outlet. The wastewater quality results show all parameters are within the acceptable limits set by NEQS. Key indicators like temperature, pH, BOD, and COD are all within safe ranges. TDS and TSS levels are also below the maximum limits. Additionally, heavy metals and other harmful substances, such as lead, chromium, and ammonia, are present at very low or non-detectable levels. Overall, the results suggest that the wastewater quality is within safe standards, with no significant issues requiring immediate attention. Analytical results have been provided in Table 6-10

Table 6-10: Waste Water Quality Report

S.No	Parameters	Unit	Testing Method	NEQS	Current Results
1.	Temperature at 40 °C	°C	Calibrated Thermometer	40+ ≤03	29
2.	Ph@25° C	PH	ASTM D-1293	6 to 9	7.05
3.	Biological Oxygen Demand (BOD)	Mg/L	APHA 5210	80	54.5
4.	Chemical Oxygen Demand (COD)	Mg/L	ASTM D-1252	150	109
5.	Total Dissolved Solids	TDS (mg/L)	APHA 2540-C	3500	713
6.	Total Suspended Solids (TSS)	Mg/L	APHA 2540-D	150	101
7.	Oil & Grease	Mg/L	ASTM D-4281	10	0.07
8.	Chloride	CL_1(mg/L)	ASTM D-512	1000	740
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	0.1	ND
10.	Fluoride	F_1 (mg/L)	APHA 4500	20	3.1
11.	Anionic Detergent	Det(mg/L)	ASTM D-6173	20	6.4
12.	Selenium	Se2(mg/L)	APHA 4500 Se	0.5	ND
13.	Sulphide	Mg/L	APHA 4500	1.0	0.45
14.	Ammonia	Mg/L	ASTM D-1426	40	19.2
15.	Cadmium	Cd(mg/L)	ASTM D-3557	0.1	<0.1
16.	Chromium Trivalent	Cr+3(mg/L)	APHA 3500-Cr	1.0	ND
17.	Chromium Hexavalent	Cr+6(mg/L)	APHA 3500-Cr	1.0	0.07
18.	Lead	Pb(mg/L)	ASTM D-3559	0.5	0.3
19.	Mercury	Hg (mg/L)	Kit Method	0.01	ND
20.	Nickel	Ni(mg/L)	HACH Dimethylglyoxime Method	1.0	ND
21.	Silver	(mg/L)	ASTM D-3866	1.0	ND
22.	Zinc	Zn (mg/L)	HACH Zineon Method	5.0	0.2
23.	Iron	Mg/L	APHA 3500-Fe	2.0	0.3
24.	Manganese	Mn(mg/L)	APHA 3500-Mn	1.5	0.07
25.	Boron	B (mg/L)	APHA 4500	6.0	0.3
26.	Sulphate	Mg/L	APHA 4500	600	241
27.	Arsenic	As (mg/L)	Palintest Kit	1.0	ND
28.	Copper	Cu(mg/L)	HACH Biquinoline Method	1.0	0.03
29.	Chlorine	Mg/L	HACH DPD Method	1.0	ND
30.	Aluminium	Al(mg/L)	HACH Eriochrome Cyanine R	.....	ND
31.	Total Kjeldal Nitrogen	(mg/L)	Kit Method	.....	0.30
32.	Barium	Ba(mg/L)	ASTM D-4382	1.5	0.86

Note:

BEQS= Baluchistan Environmental Quality Standards

NEQS= National Environmental Quality Standards

WHO= World Health Organization Limits

WL= Within Limit

6.10 Waste Management

217. There is no workshop area, washing yard, or batching plant at the project site. Therefore, no bulk waste is produced from this site. The burning of solid waste at the workplace is strictly prohibited. Waste material is disposed of in the waste yard in a safe condition, ensuring that it does not block access for other users and people.

a. Kitchen and General/Domestic Waste

218. This type of waste has been generated from the construction camp site, offices of the project. The solid waste produced at the site is being collected into waste bins and transported to a nearby municipal collection point.

b. Hazardous Waste – Medical Waste and Oily Waste

219. Medical waste is generated from the site's first aid facilities, while oily empty drums are generated from construction activities. The medical waste generated from the project site is collected at one designated location and sent to an incinerator for safe disposal. Other hazardous waste is transported to disposal sites using a vehicle. Additionally, hazardous waste such as oily drums is kept at the project site until they become completely dry. Subsequently, these dry drums are sold to third-party junk dealers.

Table 6-11- Solid Waste generated at sub-project sites are as under

Sr. #	Name of Sub-Project	Solid Waste generated in Kilograms/day	Types of Waste	Remarks
1	Water Resources Building WRB NCB 05	10 Kg/day	Plastic waste/polythene bags	Solid waste is preferable reused, recycled and disposed of at designated dumping site.
		15 Kg/day	Solid waste (Steel wastes, bottle, cans, cement bags)	
		3 Kg/day	Kitchen waste/organic waste	

6.11 HEALTH AND SAFETY

Community Health and Safety

220. During the reporting period, the Contractor took utmost care for community health and safety. There have been no massive traffic activities initiated during this duration of the project. Only material supply vehicles are being used at the site for shifting materials. The project site is located near office buildings, and no heavy machinery is involved. No incidents related to community health and safety have occurred during the current reporting period.

Worker Safety and Health

221. First aid medical facilities are being provided by the contractor at the site. Proper supervision and monitoring of excavation and compaction activities during the

construction phase are carried out in compliance with the Health and Safety requirements as per standard specifications outlined in the EMP and in the Contract. No incidents related to the workers' health and safety have occurred during the current reporting period. (Annexure IX).

6.11.1 Training

222. The Contractor maintains a strong working relationship with the Consultants' environmental staff. Regular training and awareness campaigns at the Contractor's Camp and work sites keep workers informed about site-specific risks and emergency preparedness.

223. In the reported months of January to June 2024, following trainings had been conducted as mentioned in Table 6-12.

Table 6-12: Details of Health and Safety Trainings on Site.

Sr. #	Name of Sub-Project	Training Details	Date
1	WRB Project site	Training on excavation safety Do's and Don't	15-1-2024
2		Importance of PPE's	15-2-2024
3		Awareness about Health and Safety (PPE's, TBT etc)	20-04-2024
4		Importance of PPEs and health safety	20-06-2024

6.12 FUNCTIONING OF THE SEMP

6.13 GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

- The Contractor has displayed temporary precautionary signboards and warning tapes inside the construction site, around material storage, and cement bags.
- Frequent water sprinkling is observed to prevent dust pollution.
- Clean drinking water is provided to workers and staff.
- Monthly and weekly environmental monitoring checklists are timely submitted in the monthly EMR report.
- A good liaison is established between the PMO, Supervisory consultant, and contractor to ensure adherence to environmental safeguard guidelines.

6.14 OPPORTUNITIES FOR IMPROVEMENT

224. To improve site conditions and safety, several key areas need attention. Firstly, there are no washrooms available for workers; providing washrooms with sufficient facilities and maintaining them in a hygienic condition is essential. Additionally, the installation of proper safety sign boards and warning tape is necessary to effectively communicate hazards and safety measures. The contractor should also ensure that Personal Protective Equipment (PPE), especially safety boots, is consistently used by all laborers. Lastly, a register should be maintained at the construction site to record the number of patients treated through the first aid facility, ensuring proper documentation and response to minor injuries.

7 DESCRIPTION OF KILLI SARDAR AKHTAR PERENNIAL IRRIGATION SUBPROJECT(NCB-06)

7.1 PROJECT DESCRIPTION

225. The Killi Sardar Akhtar Perennial Irrigation subproject is located in Union Council of Tehsil Laka Bund in district Zhob around 49 km south-east of Zhob city in Gosa Kibzai. The sub-project consists of an infiltration gallery on Sawar Rud (River) upstream of Zhob road bridge to intercept subsurface water into two irrigation channels located on the right bank. The scope of work for the subproject include construction of Infiltration Gallery along with the lining of perennial channel and construction of associated structures like collection chambers, Channel Intake, Inspection Sump, Fall Structures, Road Culverts, Time Division Structures, Tail Structures, Washing Structures, Animal Drinking Structures and Wuzu Structures. Project Layout is shown in Figure 7-1.

SALIENT FEATURES:

- Total Revised Cost 609.654 (Rs. Million)
- Total Command Area 252 hector
- Infiltration Gallery Length 845 Meter
- Main Channel Length 4537 Meter
- Ghundai Branch Length 965 Meter

PROJECT PROGRESS:

- Overall Target: 75.00%
- Physical Progress: 95.00%
- Financial Progress: 81.53%

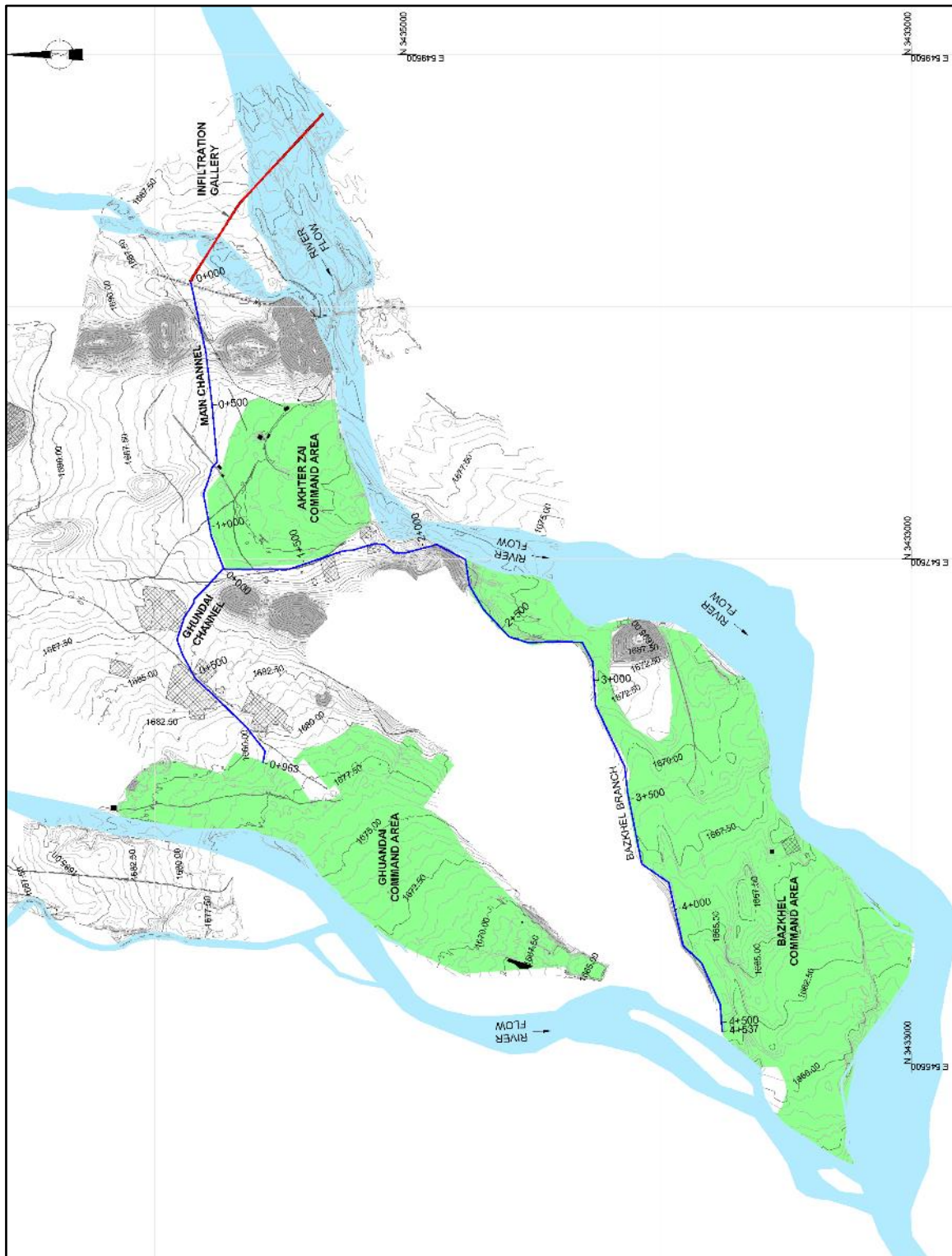


Figure 7-1: Layout Map

7.2 ACTIVITIES DURING CURRENT REPORTING PERIOD

226. An overview of the current progress for various activities under the Killi Sardar Akhtar Perennial Irrigation Subproject (NCB-06) is provided in Table 7-1 below. It outlines the completion percentages of key construction tasks, reflecting the status of each activity as the project advances

Table 7-1: Killi Sardar Akhtar Perennial Irrigation Subproject (NCB-06) works progress

Sr. No	Activity	Status %
Infiltration Gallery		
1.	Excavation	100% completed
Main Channel		
1.	Excavation	100% completed
2.	Back Filling	100% completed
Ghundai Channel		
1.	Earth work (excavation, filling)	100% completed

227. The specific ongoing construction activities for the Killi Sardar Akhtar Perennial Irrigation Subproject (NCB-06) are detailed in Table 7-2. .

Table 7-2: Details of ongoing construction activities.

Kili Sardar Akhtar sub-project NCB 06/ Building: Kili Sardar Irrigation Building			
1.	Kili Sardar Akhtar sub-project	DLP period will start after the completion of Kili Sardar Irrigation Building	Completed
2.	Kili Sardar Irrigation Building Zhob	Stone Masnory	80%
3.		Repair renovation	45%
4.		RCC	100%
5.		Column work	50%

Construction Material

228. For the construction activities, borrow areas have been selected for the extraction of materials, which have already been approved by the Engineers. The contractor has prepared a Borrow Area Management Plan that pertains to the measures incorporated during the identification of borrow area locations, material extraction, and rehabilitation.
229. Major construction materials used at NCB-06 include reinforced steel, cement, sand and aggregates supplied from the approved sources as mentioned in the SSEMP. Sources of construction materials are listed below. The Details for types of construction material used and their sources for the time period January to June 2024 are mentioned in Table 7-3

Table 7-3- Detail of material and sources of Siri Toi Dam sub-project NCB-06

Sr. No.	Name of Material	Source of Material	Quantities Used
1	Cement	Fauji Cement Ltd, Mapple Leaf	35,000 bags
2	Steel	Agha Steel Pvt Ltd Karachi	400 tonne

Sr. No.	Name of Material	Source of Material	Quantities Used
3	Earth work/fill	Borrow Material from site	85,000 cu.m

Human Resources

230. As part of its responsibilities, the contractor should prioritize hiring local staff, including both skilled and unskilled labor. This approach ensures that people living near the project area benefit financially, helping to address unemployment and improve their socio-economic status. The contractor has prioritized local hires based on availability and capability. The Details for categories of Employees both Skilled and Unskilled are mentioned in Table 7-4.

Table 7-4- Manpower Technical/skilled/ unskilled staff details

Designation	Number
Project Manager	1
Chief Surveyor/Quantity Surveyor	1
Surveyor	1
Surveyor Helper	2
General Forman	2
Material Engineer	1
Lab Technician	1
Lab Helper	2
AutoCAD Operator	2
Accountant	1
Storekeeper	2
Procurement Officer	1
Supervisor	2
Mechanic	1
Auto Electrician	1
Environmental Specialist	1
HSE Officer	1
Batching Plant Operator	-
Batching Plant Helper	-
Crush Plant Operator	1
Crush Plant Helper	2
Heavy Machinery Operator	10
Heavy Machinery Helper	5
Diesel Store	1
Security Guard	2
Cook	1
Cook Helper	1
Labor	35
Mason	10

Total	91
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Equipment Machinery

231. The contractor is required to use heavy machinery to ensure the timely completion of the project. Proper maintenance of this machinery is crucial for both effective results and the safety of workers nearby. Experts and supervisors of NCB-06 perform daily inspections of the machinery before and after use. The equipment is also cleaned daily and maintained by assigned operators. Details of the heavy machinery in use on-site are documented. The details for Heavy Machinery working on site are mentioned in Table 7-5.

Table 7-5: List of Machinery/Equipment's

Name of Machine	Number
Excavator	4
Roller	1
Grader	1
Loader	1
Dozer	-
Transit Mixer	2
Dumper	3
Tractor 240	3
Pickup	2
Generator	5
Water Bowser	3
Batching Plant	-
Crush Plant	1
Diesel Tank	2
Motor Cycle	2
Low Bed	-
Steel Machine	1
Toyota Car (Surf)	1
Total	32

7.3 DESCRIPTION OF ANY CHANGES IN NCB-06 DESIGN

232. During the reporting period, no changes were made in the design of NCB-06.

7.4 DESCRIPTION OF ANY CHANGES TO AGREED CONSTRUCTION METHODS

233. The construction activities at various sections of Site are in progress in accordance with the Engineer's approved methodology and specifications

7.5 ENVIRONMENTAL SAFEGUARD ACTIVITIES

234. As the ICB-01 and NCB-06 contracts of BWRDSP are being executed by the same Contractor i.e. NB, so Environment Engineers and HSE officer are same for both subprojects.
235. During the reporting period, The Contractor completed excavation and backfilling for the Infiltration Gallery, Main Channel, and Ghundai Channel. Ongoing work includes the new VIP Rest House, an additional room, and renovation tasks for the project support facility. The environmental safeguard aspect of these activities was accordingly supervised and monitored in compliance with the provisions of the approved SSEMP in specific and EMP in general.
236. The Personal Protective Equipment (PPE) like safety helmets, high viz jackets, gloves, shoes etc. were generally being used by the project staff including skilled and unskilled labour.
237. Necessary signage was done at the camp and other important locations including active work sites.
238. At the Water Resources Building (WRB) NCB 05 project site, several training sessions were conducted during the reporting period. These included training on excavation safety practices, the importance of personal protective equipment (PPE), and general health and safety awareness.
239. Toolbox talks and staff induction orientation remained a routine activity during the reporting period.
240. During the reporting period, quarterly instrumental environmental monitoring was also held at the site during March and June 2024. Results obtained and commentary thereon has separately been given under dedicated section 7.8 of the report.

7.5.1 Corrective Action Plans (CAPs):

241. During the reporting period, the Environment Specialist of PIC/SC conducted regular visits and monitored the project for the implementation of the Environmental Management Plan (EMP). As a result of these visits, Corrective Action Plans (CAPs) have been prepared for EMP non-compliance in various sub-projects, including Siri Toi Dam, Karkh valley development, Water Resources Building and Kharzan Hatachi. The details of these CAPs are provided in the Table 7-6 below.

Table 7-6: Water Resources Building sub project -Corrective Action Plan CAP (Issues closed & open).

Sr .	Date	Raised By	Date of Issue	Location	Issues	Category *	Corrective Action	Responsibility	Original Target Date	Updated Status
1	July - December 2023	CSC		Zhub	SSEMP is submitted	Major	SSEMP submitted and	Contractor	6 th June 2023	Closed
2			11 th March		Scarcity of safety signs	Moderate	Proper safety signs should be installed by the Contractor	Contractor	31 st December	closed
3			-do-		Water Sprinkling	Moderate	Water sprinkling on sites and within camp is greatly required	Contractor	Regularly	Closed
4			-do-		No Barricading of construction site	Major	Site should be barricaded especially at borrow areas and areas where construction	Contractor	31 st December 2023	Closed
5			-do-		Monthly Environmental Monitoring Report/Checklist	Major	Monthly/ Semi Annual Environmental Monitoring Report/Checklist submission is mandatory to be submitted to	Contractor HSE Supervisor	31 st December 2023	Closed
7			-do-		Medical Health Facility available/First Aid Kits/ fire extinguishers	Major	First Aid kits must be available on sites	Contractor HSE Supervisor	31 st December 2023	Closed
8			-do-		Environmental/HSE advisor has been hired	Major	Presence of environmentalist/HSE advisor is must to monitor	Contractor	31 st December 2023	Closed
9			-do-		Arrangement of waste disposal and its	Major	Routinely	Contractor	30 th June 2023	Closed
10			31 st December 2023		Quarterly instrumental monitoring Test	Major	Must conduct quarterly instrumental test	Contractor	31 st March 2024	Closed

7.5.2 Issues Tracking (Based on Non-Conformance Notices) .

242. The construction site initially lacked adequate safety signs, which are crucial for informing workers and visitors of potential hazards and ensuring compliance with safety regulations. The Contractor has been instructed to promptly install sufficient safety signs throughout the site to enhance hazard awareness and maintain a safe working environment. Proper signage is essential for preventing accidents and protecting the well-being of all personnel.

7.6 Grievance Redressal Mechanism.

243. As detailed in the SSEMP, Grievance Redressal Committees (GRCs) at field and project levels with composition thereof have already been notified and are functional. For registration of complaints, complaint registers are available at field offices and at sites wherein complainant can register complaint(s).

244. Upon receipt of complaint(s), GRC follow the specified procedure to address the complaint and resolve the issue within prescribed time frame.

245. During the reporting period, no complaints were registered against the environmental safeguard aspect of the Works under NCB-06.

246. Complaint register is available inside camp to receive complaints from local community/project affected people and contractor's staff.

247. During the reporting period that has been resolved as provided in below table.

Concern	Resolution
The land owners of village Churamalai do not willing to provide land to construct abutment 2 water channel and pipe culvert on RD 40+830.	The complaint was based on misunderstanding, few farmers gathered unexpectedly, seemingly eager to voice their concerns and issues to someone in a position of project authority to resolve that constructing an abutment 2 water channel and pipe culvert at RD 40+830 would result in the loss of their private land. Although the construction was as per design, the farmers refused to allow the construction of the channel through pipe culverts. They were assured that the construction up to that point would be completed without acquiring their land, which alleviated their concerns. Therefore, the VOs report is not relevant to the concerns of the farmers in Churamalai village, as their apprehensions were unrelated to the VOs' impact assessment."

7.7 Unanticipated Environmental Impacts or Risks.

248. During the reporting period, neither unanticipated environmental impacts were observed nor reported by the Contractor.

7.8 MONITORING OF AIR, NOISE AND WATER AT KILI SARDAR AKHTAR

7.8.1 Ambient Air Monitoring

i. Methodology and Instrument Used

249. Ambient air quality monitoring was carried out for the assessment of parameters (NO, NO₂, SO₂, CO, O₃, SPM, PM₁₀, PM_{2.5}, Humidity, Wind direction, Wind velocity, Pressure etc). The Air Quality Monitoring Station (AQMS-09), employed for PM₁₀ & PM_{2.5}, is a fully integrated air monitoring station that delivers 'near reference levels' of performance parameters. With a size of large suitcase, it can measure up to 20 different gaseous and particulate pollutants and environmental parameters simultaneously. The AQMS 09 offers optimal balance between performance and measuring criteria pollutants.

ii. Test Results and Discussion

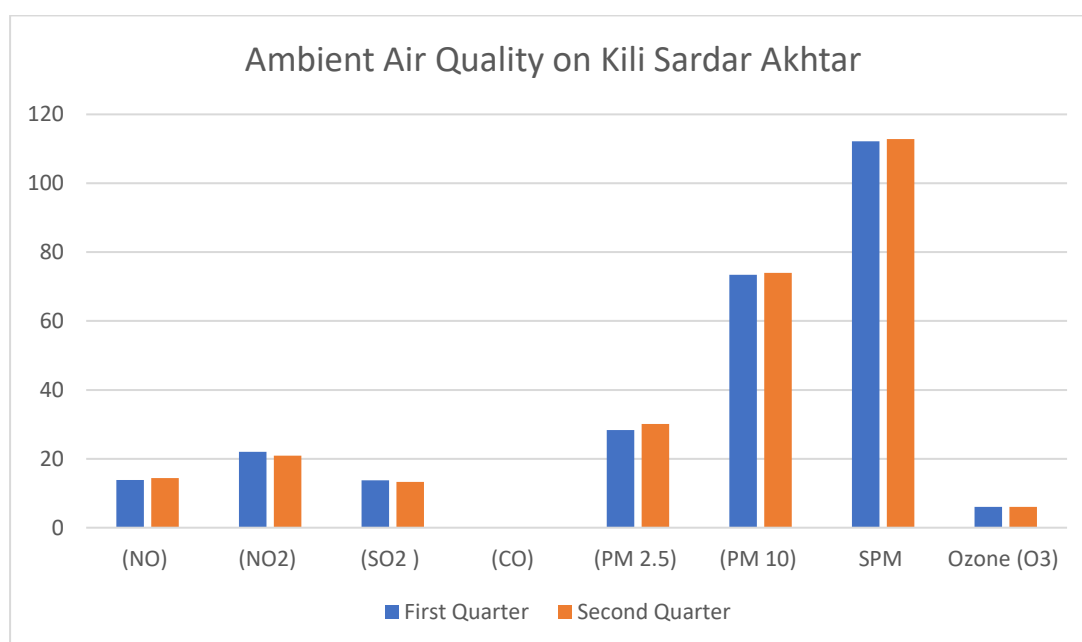


Figure 7-2: Graphical representation of Ambient Air Quality Kili Sardar Akhtar

250. Ambient air quality (NO, NO₂, SO₂, CO, O₃, SPM, PM₁₀, PM_{2.5}, Humidity, Wind direction, Wind velocity, Pressure etc) were monitored for twenty-four (24) hours at the locations identified by the SC and results obtained are shown as Annexure XV.

251. All the results (provided as Table 7-7) are within the permissible limits and compliance with the BEQS, NEQS and WHO standards. However, it is worth noting that during the first quarter, the contractor has not performed quarterly monitoring at the sub-project sites.

Table 7-7: Ambient Air Quality Monitoring Test Results

Sr. No.	Measuring Parameters	Location	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits	Remarks
1.	Oxide of Nitrogen as (NO)	Camp	µg/m ³	13.81	14.39	-	40 (24 hrs.)	WL
2.	Oxide of Nitrogen as (NO ₂)	Camp	µg/m ³	22.04	20.89	25(24 hrs.)	80 (24 hrs.)	WL
3.	Sulphur Dioxide (SO ₂)	Camp	µg/m ³	13.75	13.31	40(24 hrs.)	120 (24 hrs.)	WL
4.	Carbon Monoxide (CO)	Camp	mg/m ³	0.061	0.066	4(24 hrs.)	5 (08 hrs.)	WL
5.	Particulate Matter (PM 2.5)	Camp	µg/m ³	28.34	30.08	15(24 hrs.)	35 (24 hrs.)	WL
6.	Particulate Matter (PM 10)	Camp	µg/m ³	73.42	73.95	45(24 hrs.)	150 (24 hrs.)	WL
7.	SPM	Camp	µg/m ³	112.2	112.83	-	500 (24 hrs.)	WL
8.	Ozone (O ₃)	CAmp	µg/m ³	06	06	60(Peek Season)	130 (01 hr.)	WL

252. Considering the compliance with NEQS and WHO standards, there is no immediate need for additional mitigation measures to control dust, apart from the measures proposed in the SSEMP. These measures may include regular sprinkling of water to suppress dust and timely transportation or disposal of excess materials temporarily stored at the site.

253. It is important to regularly monitor and assess the dust levels and compliance with environmental standards throughout the project's implementation to ensure continued adherence to regulations and to address any potential concerns that may arise.

7.8.2 Noise Monitoring

254. The twenty-four (24) hours noise level monitoring was carried out at Water Resources Building site using Digital Noise level meter.

Test Results and Discussion

255. Following table 7-8 shows comparison of noise level monitoring results obtained during the instrumental monitoring.

Table 7-8: Noise Level Test Results

S. No	Time	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits
01	09:00 AM	dB(A)	62.7	61.8	55 dB(A) (Day time)	75 dB(A) (Day time)
02	10:00 AM		61.4	61.9		
03	11:00 AM		60.2	62.1		
04	12:00 PM		62.7	62.4		

S. No	Time	Unit	First Quarter	Second Quarter	WHO Limit	NEQS & BEQS Limits
05	01:00 PM		63.5	63.6		
06	02:00 PM		61.0	64.5		
07	03:00 PM		61.4	63.3		
08	04:00 PM		54.4	61.5		
09	05:00 PM		51.7	59.2		
10	06:00 PM		47.4	56.1		
11	07:00 PM		44.6	52.7		
12	08:00 PM		43.4	49.9		
13	09:00 PM		42.3	46.8		
14	10:00 PM		41.5	45.6		
15	11:00 PM		40.4	44.7		
16	12:00 AM		41.4	44.8		
17	01:00 AM		43.1	42.5		
18	02:00 AM		40.9	43.7	45 dB(A) (Night time)	65 dB(A) (Night time)
19	03:00 AM		42.5	42.4		
20	04:00 AM		51.4	44.6		
21	05:00 AM		54.7	51.5		
22	06:00 AM		53.0	53.1		
23	07:00 AM		59.2	57.5	55 dB(A) (Day time)	75 dB(A) (Day time)
24	08:00 AM		60.4	61.2		
Average			51.8	54.05		

256. The noise level monitoring at sites was carried out during day and night with the objective to assess the off working noise levels as well.

257. As evident from the results obtained, the average noise level at all intervals falls within the WHO, BEQS and NEQS limits of 65 and 75 dB set for areas.

7.8.3 Monitoring of Metrological Data

i. Methodology

258. During the reporting period, metrological conditions of the construction site was monitored for 24 hours. As evident from the below table 7-9, almost all parameters falls within the permissible limits set under NEQS.

259. Following is the comparison of the results obtained.

Table 7-9: Metrological Data Analysis

S.No.	TIME	Wind Direction		Wind Velocity		Humidity		Pressure	
		First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter
	Hours			m/sec		%		Mm of Hg	
01	09:00 AM	S	N	5.52	4.84	23	21	731	721

S.No.	TIME	Wind Direction		Wind Velocity		Humidity		Pressure	
		First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter	First Quarter	Second Quarter
	Hours			m/sec		%		Mm of Hg	
02	10:00 AM	SN	SW	6.57	5.47	22	21	732	722
03	11:00 PM	SN	NS	6.86	5.25	22	21	733	723
04	12:00 AM	SN	SW	6.75	5.66	22	23	734	724
05	01:00 PM	N	S	7.83	6.54	21	22	735	728
06	02:00 PM	NS	NW	7.62	6.47	21	22	735	731
07	03:00 PM	S	N	7.63	7.57	20	21	737	732
08	04:00 PM	NW	NW	8.54	7.22	20	21	733	732
09	05:00 PM	NW	NS	8.56	7.77	20	21	733	714
10	06:00 PM	NW	NW	8.58	7.74	20	22	731	720
11	07:00 PM	NW	SN	8.77	6.47	19	21	733	730
12	08:00 PM	W	N	9.57	8.24	19	20	734	732
13	09:00 PM	N	W	9.56	8.58	19	18	737	735
14	10:00 PM	NS	NS	9.55	9.45	19	18	736	734
15	11:00 PM	SW	SW	10.84	9.96	19	17	726	724
16	12:00 AM	SE	SW	10.53	10.85	19	17	725	724
17	01:00 AM	NS	NE	10.51	11.51	19	16	723	721
18	02:00 AM	NW	NS	10.72	11.74	18	16	724	722
19	03:00 AM	E	S	10.23	12.69	18	15	723	728
20	04:00 AM	NW	NW	11.54	11.58	19	16	727	724
21	05:00 AM	NW	NW	11.57	10.47	19	17	726	724
22	06:00 AM	NW	NW	11.46	10.25	20	18	726	725
23	07:00 AM	S	S	11.64	9.14	20	20	725	723
24	08:00 AM	S	N	5.52	5.52	23	21	731	730

7.8.4 Monitoring of Drinking Water Quality

i. Methodology

260. During the reporting period, drinking water quality of the Contractor's camp was monitored for the agreed parameters given in the SSEMP. High density sterilized polyethylene bottles were used for the sampling. The collected samples were preserved, sealed and chilled at 4°C as recommended. Grab method is used for sampling and preservation of water whereas.

ii. Drinking Water Discussion

261. The drinking water demand is being met from bore hole dug out at the camp. At the first instance, water is pumped to elevated storage tank from where it is supplied to the consumer points through a pipe network.

262. Following is the comparison of the results obtained at source.

263. As evident from the above table, almost all parameters of the drinking water, at the Contractor's camp, falls within the permissible limits set under BEQS, NEQS and WHO limits.

Table 7-10: Drinking Water Quality Report

S.No	Parameters	Unit	Testing Method	BEQS Limits	NEQS Limits	WHO Limits	First Quarter	Second Quarter	Remarks
1.	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-----	-----	-----	11	ND	-
2.	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	ND	WL
3.	E-Coli	EC (count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	ND	WL
4.	Facial Coli	FC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	ND	WL
5.	Turbidity	NTU	HACH Turbidity meter	<15	<5	<15	<0.02	<0.03	WL
6.	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-Obj	Non-Obj	WL
7.	Odour	Odor	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-Obj	Non-Obj	WL
8.	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 2	< 1	WL
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	ND	WL
10.	Residual chlorine	Cl ₂ (mg/L)	HACH Method 8167	0.2-0.5	0.2-0.5	-	0.5	0.4	WL
11.	Ph@25° C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	7.35	8.01	WL

S.No	Parameters	Unit	Testing Method	BEQS Limits	NEQS Limits	WHO Limits	First Quarter	Second Quarter	Remarks
12.	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	< 1000	< 1000	685	1078	WL
13.	Total Hardness	As COCO3 (mg/L)	APHA 2340-C	< 500	< 500	-	76	74	WL
14.	Fluoride	F_1 (mg/L)	APHA 4500-F_1	≤ 1.5	≤ 1.5	1.5	0.33	0.36	WL
15.	Chloride	CL_1(mg/L)	APHA 4500-CI_1	< 250	< 250	250	154	153	WL
16.	Cyanide	CN_1(mg/L)	HACH Method 8027	≤ 0.05	≤ 0.05	0.05	ND	ND	WL
17.	Nitrate	NO3_1(mg/L)	HACH Method 8192	≤ 50	≤ 50	50	0.19	0.17	WL
18.	Nitrite	NO2_1(mg/L)	APHA 4500-NO2_1-B	≤3.0 (P)	≤3.0 (P)	3	0.08	0.09	WL
19.	Antimony	Sb (mg/L)	ASTM D-3697	≤0.005	≤0.005	0.02	ND	ND	WL
20.	Aluminum	Al (mg/L)	ASTM D-857	≤0.2	≤0.2	0.2	0.07	0.05	WL
21.	Arsenic	As (mg/L)	ASTM D-2972	≤0.05	≤0.05	0.01	ND	ND	WL
22.	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	ND	WL
23.	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.005	0.003	WL
24.	Chromium Total	Cr(mg/L)	ASTM D-1687	≤0.05	≤0.05	0.05	ND	ND	WL
25.	Copper	Cu(mg/L)	ASTM D-1688	2	2	2	<0.06	<0.04	WL
26.	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.01	0.03	ND	ND	WL
27.	Lead	Pb(mg/L)	ASTM D-3559	≤0.05	≤0.05	0.01	ND	ND	WL
28.	Manganese	Mn(mg/L)	ASTM D-858	≤0.5	≤0.5	0.5	ND	ND	WL
29.	Mercury	Hg (mg/L)	ASTM D-3223	≤0.001	≤0.001	0.001	ND	ND	WL
30.	Nickel	Ni(mg/L)	ASTM D-3866	≤0.05	≤0.02	0.02	ND	ND	WL
31.	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	ND	WL
32.	Zinc	Zn (mg/L)	ASTM D-1691	5	5	3	0.06	0.04	WL

264. Waste Water sample has been collected from the camp site where all the liquid waste (Washrooms & kitchen) and effluents converges into one outlet The analytical results have been provided in Table 7-12 that show all parameters were within limits.

Table 7-11: Waste Water Quality Report

S.No	Parameters	Unit	Testing Method	NEQS	Previous SAEMR	Current SAEMR
1.	Temperature at 40 °C	°C	Calibrated Thermometer	40+ ≤03	29	29
2.	Ph@25° C	PH	ASTM D-1293	6 to 9	7.05	7.8
3.	Biological Oxygen Demand (BOD)	Mg/L	APHA 5210	80	54.5	52.5
4.	Chemical Oxygen Demand (COD)	Mg/L	ASTM D-1252	150	109	105
5.	Total Dissolved Solids	TDS (mg/L)	APHA 2540-C	3500	713	529
6.	Total Suspended Solids (TSS)	Mg/L	APHA 2540-D	150	101	102
7.	Oil & Grease	Mg/L	ASTM D-4281	10	0.07	0.03
8.	Chloride	CL_1(mg/L)	ASTM D-512	1000	740	721
9.	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	0.1	ND	ND
10.	Fluoride	F_1 (mg/L)	APHA 4500	20	3.1	4.2
11.	Anionic Detergent	Det(mg/L)	ASTM D-6173	20	6.4	5.4
12.	Selenium	Se2(mg/L)	APHA 4500 Se	0.5	ND	ND
13.	Sulphide	Mg/L	APHA 4500	1.0	0.45	0.52
14.	Ammonia	Mg/L	ASTM D-1426	40	19.2	16.6
15.	Cadmium	Cd(mg/L)	ASTM D-3557	0.1	<0.1	<0.2
16.	Chromium Trivalent	Cr+3(mg/L)	APHA 3500-Cr	1.0	ND	ND
17.	Chromium Hexavalent	Cr+6(mg/L)	APHA 3500-Cr	1.0	0.07	0.03
18.	Lead	Pb(mg/L)	ASTM D-3559	0.5	0.3	0.8
19.	Mercury	Hg (mg/L)	Kit Method	0.01	ND	ND
20.	Nickel	Ni(mg/L)	HACH Dimethylglyoxime Method	1.0	ND	ND
21.	Silver	(mg/L)	ASTM D-3866	1.0	ND	ND
22.	Zinc	Zn (mg/L)	HACH Zineon Method	5.0	0.2	0.7
23.	Iron	Mg/L	APHA 3500-Fe	2.0	0.3	0.6
24.	Manganese	Mn(mg/L)	APHA 3500-Mn	1.5	0.07	0.09
25.	Boron	B (mg/L)	APHA 4500	6.0	0.3	0.2
26.	Sulphate	Mg/L	APHA 4500	600	241	269
27.	Arsenic	As (mg/L)	Palintest Kit	1.0	ND	ND
28.	Copper	Cu(mg/L)	HACH Biquinoline Method	1.0	0.03	0.02
29.	Chlorine	Mg/L	HACH DPD Method	1.0	ND	ND

S.No	Parameters	Unit	Testing Method	NEQS	Previous SAEMR	Current SAEMR
30.	Aluminium	Al(mg/L)	HACH Eriochrome Cyanine R	.....	ND	ND
31.	Total Kjheldal Nitrogen	(mg/L)	Kit Method	.....	0.30	0.30
32.	Barium	Ba(mg/L)	ASTM D-4382	1.5	0.86	0.81

Note:

BEQS= Baluchistan Environmental Quality Standards

NEQS= National Environmental Quality Standardse

WHO= World Health Organization Limits

WL= Within Limit

7.9 Waste Management

265. For effective general waste management, the project area has a designated temporary waste collection zone where waste is deposited. Additionally, garbage cans are strategically placed throughout the site for the daily collection of waste, which is then transferred to the designated waste area before being transported to a nearby municipal collection point. Construction waste is either used to reinforce walkways or repurposed as sub-base material for new road construction where feasible.

266. All waste collected from drums across residential, office, and construction areas is transported to disposal sites using available vehicles, such as tractor trolleys or any open rear vehicles. Currently, the Contractor does not have a formal contract with a local solid waste management company.

7.10 HEALTH AND SAFETY

Community Health and Safety

267. During the reporting period, the Contractor took several steps to ensure community health and safety:

- Before starting construction in any area, the Contractor held consultations with local villagers to discuss the project layout, activities, and machinery. The goal was to inform them about the project, its risks, and the safety measures in place.
- To minimize noise disturbance, no construction activities were conducted at night.
- Warning signs were posted at key locations on the construction sites.
- No incidents involving injuries to the community or project staff have occurred to date.

Worker Safety and Health

268. The Contractor is implementing the following health and safety measures: Proper safety signs are installed near diversions and slopes, and LPG is being used for cooking. Generators are placed on concrete platforms with trays to trap oil. Workers and staff are wearing the required PPEs, with a system in place to ensure compliance through training. A concrete base has been established for the vehicle washing area. Adequate fire extinguishers are positioned at a safe distance from the oil storage area and are easily accessible.. Additionally, toilets with septic tanks are provided at the construction

site. No significant incidents related to workers' health and safety have occurred during the current reporting period.

7.10.1 Training

269. To continue fostering a culture of HSE excellence, the obligatory training will be conducted in the upcoming reporting period.

270. Aside from the formal trainings, Contractor's Environmentalist and Site supervisors regularly hold toolbox talks before start of work to emphasize the importance of HSE aspect of work. Trainings and awareness campaigns are pivotal part of EMP. These trainings are being conducted at regular intervals in order to keep workers and environment safe. Basic purpose of these sessions is to keep workers well aware about the different risks and hazards associated with site specific construction activities and to make them well effective to respond in any kind of emergency situation. In the reported months of January to June 2024, total of 16 trainings had been conducted as mentioned in Table 7-13.

Table 7-12: Details of Health and Safety Trainings on Site.

S. No	Location	Topic	Date (d-m-y)
1	Ration store	First Aid and PPE's	3-3-2024
2	Cooking oven	Safe work on site	2-5-2024

7.11 FUNCTIONING OF THE SSEMP

7.11.1 Good Practice And Opportunity For Improvement

- To minimize noise disturbance, no construction activities were conducted at night.
- Warning signs were posted at key locations on the construction sites.
- Clean drinking water is provided to workers and staff
- HSE Officer is available on-site during working hours.
- Construction machinery is parked in designated locations, and daily correspondence with the supervision consultant is conducted to discuss day-to-day improvements and activities.
- Monthly training sessions and Toolbox Talks are held and reported in the Monthly HSE report.
- No incidents involving injuries to the community or project staff have occurred to date.

271. Overall, these practices contribute to a well-maintained, safe, and organized work environment, enhancing both operational efficiency and worker well-being.

7.11.2 Opportunities for Improvement

- Training sessions must be conducted more frequently.
- The trucks carrying construction material should be covered with tarpaulin sheets to avoid dust pollution.
- Washrooms should have sufficient facilities and maintain hygienic conditions.
- Construction sites should be appropriately barricaded.
- Entrance of the public within the project vicinity must be prohibited, and increased vigilance is needed

Works Progress in Pictures



ANNEXURES

Annexure I: Completion Letter of Ahmedzai Sub-Project NCB 08 (DLP letter)**BWRDSP CONSULTANTS**

For Project Design, Construction Supervision
and Implementation Support for Balochistan
Water Resources Development Sector Project

80/186-B, Near Allied Bank, Jinnah Town,
Quetta, Pakistan
Ph: +92 (81) 2863694
Email: bwrdsp@gmail.com
: wa@nespak.com.pk

Ref: 4078/061/HAB/01/NCB-08/929

Dated: January 27, 2023

M/s NOOR UL HAQ & BROTHERS,
Plot 8-C, 21th Commercial Lane,
DHA Phase-2 Extension,
Karachi.

BALOCHISTAN WATER RESOURCES DEVELOPMENT SECTOR PROJECT
Construction of Ahmedzai (PIS & FIS) Subproject (NCB-08), Zhob River Basin
SUBSTANTIAL COMPLETION OF WORKS

Reference: Your Letter No. NB/KH/6184 dated 28-11-2022

Dear Sir,

Having received your notice under GCOC Clause 69, we hereby certify that the Works have been substantially completed in accordance with the Contract on December 21, 2022, except those listed in the attached punch list and which shall not substantially affect the use of the Works for their intended purpose. It is notified that Defect Liability Period of the Contract starts with effect from December 22, 2022.

The contractor will complete the remaining works as mentioned in the attached punch list and will rectify any notified defects within the Defect Liability Period pursuant to GCOC Clause 43.





Yours faithfully,
for and on the behalf of BWRDSP Consultants


(HABIBULLAH BHUTTO)
Project Manager

Encl: As stated above

CC:

1. Project Director-BWRDSP, Jinnah Town, Quetta.
2. Contract Engineer, BWRDSP Consultants, Jinnah Town, Quetta.
3. Resident Engineer (Measurement), BWRDSP Consultants, Jinnah Town, Quetta.
4. Resident Engineer-ZRB, BWRDSP Consultants, Zhob.
5. Office Engineer, BWRDSP Consultants, Jinnah Town, Quetta.
6. Project File.

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 National Engineering Services Pakistan (Pvt) Limited Lahore (Lead Partner)
 RHC Rehman Habib Consultants (Pvt) Limited (JV Partner)
 Engineering General Consultants EGC (Pvt) Limited (JV Partner)
in association with
 Asian Advisory Services (Pvt) Limited

Annexure II: Non-Compliance Notices to Siri Toi Dam (ICB 01) Sub-Project**BWRDSP CONSULTANTS**

For Project Design, Construction Supervision
and Implementation Support for Balochistan
Water Resources Development Sector Project

80/186-B, Near Allied Bank, Jinnah Town,
Quetta-87300 Pakistan
Ph: +92 (081) 2863694
Email: bwrdsp@gmail.com

Ref: 4078/061/HAB/01/ICB-01/1884

Dated: June 07, 2024

M/s NOOR UL HAQ & BROTHERS,
Plot 8-C, 21th Commercial Lane,
DHA Phase-2 Extension, Karachi.

**BALUCHISTAN WATER RESOURCES DEVELOPMENT SECTOR PROJECT (BWRDSP)
CONSTRUCTION OF SIRI TOI DAM SUBPROJECT – ZHOB RIVER BASIN (ICB-01)**

NON-COMPLIANCE NOTICE

Dear Sir,

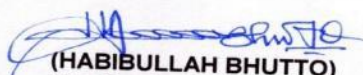
Refereeing to Sub-Clause 4.18 & 6.7 of Particular Condition of Contract and as per the Environmental Management Plan (EMP) approved for this sub-project and in accordance with the Asian Development Bank (ADB) policy concerning EMP Compliance at construction sites, it is mandatory for the Contractor to ensure the provision of Personal Protective Equipment's (PPE's) to all site workers during operational hours.

During a recent field assessment visit conducted by our Environmental Specialist at subproject on dated 28/05/2024, it was observed that the quantity of safety jackets, helmets, and shoes available on-site was markedly inadequate, to adequately equip the entire workforce. Additionally, it was noted that a majority of the workers were not wearing the prescribed Personal Protective Equipment's (PPE's). Upon inquiry, the Contractor's Health, Safety, and Environment (HSE) officer disclosed that a significant number of PPE's items had been reported lost by workers.

Consequently, it is imperative to notify you that a Non-Compliance Notice is being issued for the subject contract. For your reference, we have attached documentary photographs supporting the veracity of the situation observed at the site.

In the view foregoing, you are directed to practice / implement all health & safety laws at site in true letter & spirit to avoid any future incident and safe work environment at the site.




Yours faithfully,
for and on behalf of BWRDSP Consultants


(HABIBULLAH BHUTTO)
The Engineer

Encl; As stated above

CC:

1. Project Director, BWRDSP, Jinnah Town Quetta.
2. Contract Engineer, BWRDSP Consultants, Jinnah Town Quetta.
3. Resident Engineer (Measurement), BWRDSP Consultants, Jinnah Town Quetta.
4. Resident Engineer, Zhob River Basin, BWRDSP Consultants Zhob.
5. Environmental Specialist, BWRDSP Consultants, Lahore.
6. Office Engineer, BWRDSP Consultants, Jinnah Town Quetta.
7. Project File.

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 RHC Rehman Habib Consultants (Pvt) Limited (JV Partner)
 Engineering General Consultants EGC (Pvt) Limited (JV Partner)
in association with

Photographic Evidences are as under: (Siri Toi Dam Site) Contract ICB-01

It was noticed that only few workers were wearing full set of PPE's, but many workers were not provided PPE's during working on the construction site. The number of PPE's were very limited.



During concrete pouring, workers were not wearing safety jackets and helmets.

Photographic Evidences are as under: (Siri Toi Dam Site) Contract ICB-01



PPE's were checked and counted in the store area. Which were almost insufficient for the entire work force.

Annexure III: Non-Compliance Notices on NCB 02**BWRDSP CONSULTANTS**

For Project Design, Construction Supervision
and Implementation Support for Balochistan
Water Resources Development Sector Project

80/186-B, Near Allied Bank, Jinnah Town,
Quetta, Pakistan
Ph: +92 (81) 2863694
Email: bwrdsn@gmail.com

Ref: 4078/061/HAB/01/NCB-02/ *1885*

Dated: June 07, 2024

M/s Agha Brothers Construction Company
M/s Agha Construction Company &
M/s Sadaat Enterprises (Joint Venture)
Office No. 2nd Floor, Plot No. 48-C, Lane No.1
Bukhari Commercial Phase-6, DHA,
Karachi.

BALOCHISTAN WATER RESOURCES DEVELOPMENT SECTOR PROJECT (BWRDSP)
CONSTRUCTION OF KHARZAN HATACHI INFILTRATION GALLERY SUBPROJECT
MULA RIVER BASIN (CONTRACT NO. NCB-02)

NON-COMPLIANCE NOTICE

Reference: Your Letter No. ABCC/KHI/971 dated 06-06-2024





Dear Sir,

This is with reference to your above cited letter vide you have stated that our Environmental Specialist has visit the subject site on June 01, 2024 and all civil component of the project were found in compliance with relevant environmental regulations.

In this regard, we would like to inform you that during a recent field assessment visit conducted by our Environmental Specialist at the subproject on dated 01/06/2024, it was noted that a majority of the workers were not wearing the prescribed Personal Protective Equipment's (PPE's) such as, safety jackets, helmets, and shoes during working hours. Upon inquiry, the site workers reported that the contractor has not provided PPE's items to the subcontractor.

In accordance with the sub-clause 24 & 27.2 of Particular Condition of Contract and as per the Environmental Management Plan (EMP) approved for this sub-project and in accordance with the Asian Development Bank (ADB) policy concerning EMP Compliance at construction sites, it is mandatory for the Contractor to ensure the provision of Personal Protective Equipment's (PPE's) to all site workers during operational hours.

Contd..... Page 1 / 2

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 Rehman Habib Consultants (Pvt) Limited (JV Partner)
 Engineering General Consultants EGC (Pvt) Limited (JV Partner)
 Asian Advisory Services (Pvt) Limited

**BWRDSP CONSULTANTS**

For Project Design, Construction Supervision
and Implementation Support for Balochistan
Water Resources Development Sector Project

80/186-B, Near Allied Bank, Jinnah Town,
Quetta, Pakistan
Ph: +92 (81) 2863694
Email: bwrdsp@gmail.com

Ref: 4078/061/HAB/01/NCB-02/ *1885*

Dated: June 07, 2024

In light of the aforementioned observations, we hereby serve you a Non-Compliance Notice for the subject contract. For your reference, we have attached documentary photographs supporting the veracity of the situation observed at the site.

In the view foregoing, you are directed to practice / implement all health & safety laws at site in true letter & spirit to avoid any future incident and safe work environment at the site.

Yours faithfully,
for and on the behalf of BWRDSP Consultants

(HABIBULLAH BHUTTO)
Team Leader / Project Manager

Encl; As stated above

CC:

1. Project Director-BWRDSP, Jinnah Town Quetta.
2. Contract Engineer, BWRDSP Consultants, Jinnah Town, Quetta.
3. Resident Engineer (Measurement), BWRDSP Consultants, Jinnah Town, Quetta.
4. Resident Engineer MRB, BWRDSP Consultants, Khuzdar.
5. Environmental Specialist, BWRDSP Consultants, Lahore.
6. Office Engineer, BWRDSP Consultants, Jinnah Town, Quetta
7. Project File.

Page 2 / 2

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 Rehman Habib Consultants (Pvt) Limited (JV Partner)
 Engineering General Consultants EGC (Pvt) Limited (JV Partner)
in association with
 Asian Advisory Services (Pvt) Limited

Photographic Evidences are as under: (Kharzan Hatachi Site) Contract NCB-02



It was noticed that only few workers were wearing PPE's, but several workers were not provided PPE's during working on the construction site.



Sub-contractor workers not provided PPE's.

Annexure IV: Weekly Monitoring Checklist BWR Building (NCB 05) Sub-Project



NCB-05 Construction of Water Resources
Building at Quetta



Project Name: Construction of WRB Quetta Package # NCB # 05

Monitoring Location: Camp site of project site Date: 01/06/24

Weekly Monitoring Check List

Description	Status	Comments
A- Physical Condition		
1- Soil Conditions		
Is any soil erosion observed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Has the movement of Construction equipment been restricted to work areas to avoid unnecessary disturbance to the soil types?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Have the area along the access road been visually monitored and show any sign of soil erosion?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2- Fuel / Lubricants		
Is regular inspection carried to check leaks & spills?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any combustible or flammable material in the fuel storage area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are the fuels and oils handled in a safe manner, ensuring no leakage & Spillage?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Have the entire oil and fuel storage areas provided with impervious floor underneath to prevent soil contamination from leaks or spills?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spilled oil or fuel and used clean up material being disposed of properly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spills and leak thoroughly cleaned?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3- Waste Material		
Is waste being stored temporarily on camp & sites within the designated area?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is any type of solid waste is being disposed of in the fields?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Do the vehicles carry adequate container / trash bags for litter garbage and are they emptied at the camp site or other designated location regularly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4- Traffic Management		
Are the existing routes being used to access the project area?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the number of routes kept to a minimum?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are shortcuts been used?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are all the vehicles and construction machinery properly maintained and tuned to maintain NEQS level?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are pressure horns being used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	



NCB-05 Construction of Water Resources Building at Quetta



5- Borrow Areas		
Is necessary approval for the borrow areas been obtained from the Engineer?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the top soil of the borrow pits removed and conserved for rehabilitation of borrow areas?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the condition of approval for excavation of the borrow pits are being complied with?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the drainage profile of the area is maintained to avoid any impoundment of the agriculture runoff or storm water in the borrow areas?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
6- Camp Site		
Are the generator in the construction camp properly maintained?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the emergency response plan available in the camp	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Additional Comments (if any):

Contractor Environmentalist: 

PIC Environmentalist: _____ 2



**NCB-05 Construction of Water Resources
Building at Quetta**



Project Name: Construction of WRB Quetta Package # NCB # 05

Monitoring Location: Camp & project site Date: 09/06/24

Weekly Monitoring Check List

Description	Status	Comments
A- Physical Condition		
1- Soil Conditions		
Is any soil erosion observed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Has the movement of Construction equipment been restricted to work areas to avoid unnecessary disturbance to the soil types?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Have the area along the access road been visually monitored and show any sign of soil erosion?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2- Fuel / Lubricants		
Is regular inspection carried to check leaks & spills?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any combustible or flammable material in the fuel storage area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are the fuels and oils handled in a safe manner, ensuring no leakage & Spillage?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Have the entire oil and fuel storage areas provided with impervious floor underneath to prevent soil contamination from leaks or spills?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spilled oil or fuel and used clean up material being disposed of properly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spills and leak thoroughly cleaned?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3- Waste Material		
Is waste being stored temporarily on camp & sites within the designated area?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is any type of solid waste is being disposed of in the fields?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Do the vehicles carry adequate container / trash bags for litter garbage and are they emptied at the camp site or other designated location regularly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4- Traffic Management		
Are the existing routes being used to access the project area?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the number of routes kept to a minimum?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are shortcuts been used?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are all the vehicles and construction machinery properly maintained and tuned to maintain NEQS level?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are pressure horns being used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	



NCB-05 Construction of Water Resources Building at Quetta



5- Borrow Areas		
Is necessary approval for the borrow areas been obtained from the Engineer?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the top soil of the borrow pits removed and conserved for rehabilitation of borrow areas?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the condition of approval for excavation of the borrow pits are being compiled with?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the drainage profile of the area is maintained to avoid any impoundment of the agriculture runoff or storm water in the borrow areas?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
6- Camp Site		
Are the generator in the construction camp properly maintained?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the emergency response plan available in the camp	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Additional Comments (if any):

Contractor Environmentalist: 

PIC Environmentalist: _____

Annexure V: Monthly Monitoring Check List Water Resources Building Sub-Project (NCB 05)

Monthly Monitoring Checklist

Name of the Project: Construction of Water Resource Building Quetta						
Environmental Compliance Checklist						
Sr. No	Description	Week				Monthly Avg
		1	2	3	4	June 2024
Major Adverse Impacts (weightage 0-3)						
1	Copy of the Site specific EMP is provided at the camp site/contractors office?	1	2	3	3	2.25
2	The EMP instructions are understood?	3	3	3	3	3
3	An individual is nominated for implementation of EMP?	1	2	3	3	2.25
4	Camp Management, Health & Hygiene/ Heating, Cooling, Lighting and Housekeeping	2	2	2	3	2.75
5	Assembly Point is demarcated, alarming system.	1	1	1	1	1
6	Workforce use PPE at site?	1	2	3	2	2
7	Contractor provided PPE to their workforce?	2	2	3	3	2.5
8	Potable water is available to labor?	3	3	3	3	3
9	Medical Facilities, First Aid Kit is provided at camp and individual nominated for addressing emergency?	0	1	1	2	1
10	Contractor maintained Environmental Monitoring Record and submits monthly monitoring reports?	0	1	2	3	1.5
11	Contractor maintained Grievances Log and registered the complaints from community?	1	2	2	2	1.75
12	Contractors prohibited child labor and forced labor?	2	2	3	3	2.5
13	Borrow area is leased and the landowner is compensated as per a lease agreement?	0	1	2	3	1.5
14	Septic Tank and Soak Pits are designed for treatment of effluents?	0	0	0	0	0
15	No complaint filed regarding transmission of communicable diseases	3	3	3	3	3
Moderate Adverse Impacts (weightage 0-2)						
16	Provision of necessary welfare and hygiene requirements for the prevention of epidemic	1	1	2	2	1.5
17	Availability of an updated emergency vehicle (Ambulance)	1	1	2	2	1.5
18	Site selected for camp is 500 m from the human settlements and wildlife habitats?	2	2	2	2	2
19	No wood cutting for fuel?	2	2	2	2	2
20	LPG cylinders are provided for cooking or heating purposes?	1	2	2	2	1.75
21	Arrangement for proper storage and disposal for solid waste is planned?	1	1	2	2	1.5

Name of the Project: Construction of Water Resource Building Quetta						
Environmental Compliance Checklist						
Sr. No	Description	Week				Monthly Avg
		1	2	3	4	June 2024
22	Safety signs are properly displayed?	2	2	2	2	2
23	Contractor provided training to workers to effectively implement project specific EMP?	2	2	2	2	2
24	Contractors followed HSE plan and Emergency Response Procedures	2	2	2	2	2
25	Contractors properly disposes debris materials in approved barren land/ TMA facilities preferably recycling, reuse process?	1	1	1	2	1.25
26	Natural areas with high elevation are normally selected as borrow areas?	1	1	1	1	1
27	Minimum damage to the agriculture land due to borrow pits on agriculture land?	1	1	2	2	1.5
28	Top 300 mm are stripped and stockpiled for redressing?	1	1	1	1	1
29	Stockpiling of Material, Construction Material Management	1	1	1	1	1
30	Waste being stored temporarily on camp & sites only within the designated area	1	1	2	2	1.5
31	Fuel/oil storage areas are away from watercourses?	2	1	2	2	1.75
32	Fuel/oil storage areas are paved & ventilated	1	1	2	2	1.5
33	Fire Extinguisher is placed near Fuel Storage area	0	0	1	1	0.5
34	No vegetation cover aside from that required as part of construction and inside the RoW removed?	2	2	2	2	2
35	Tree cutting restricted to RoW and shoulder areas only?	2	2	2	2	2
36	No damage reported to public services like electric, water, gas, sewer or telephone lines?	1	1	2	2	1.5
37	Batching Plant Material is taken from existing approved plants?	0	1	1	2	1
38	Batching Plant properly managed, no complaints	0	0	1	1	0.5
39	Maintenance of Roads, Hospitals, Buildings. Sewage facilities, Electric and water supply system	1	1	1	1	1
40	Project activities are displayed at proper locations	1	2	0	1	1
Minor Adverse Impacts & Good Practice (weightage 0-1)						
41	No complaints were made due to noise and vibration?	0.5	0.5	1	1	0.75
42	Contractor conduct Information, Education and Communication (IEC) campaign	0.1	0.1	0.1	0.1	0.1
43	Labor Screening at the time of Induction	0.3	0.3	0.5	0.5	0.4
44	Fire Extinguisher are placed and checked properly	0	0	0.2	0.5	0.17
45	Contractors hiring of local labor?	1	1	1	1	1
46	Project site is fenced to prevent trespassing?	1	1	1	1	1

Name of the Project: Construction of Water Resource Building Quetta						
Environmental Compliance Checklist						
Sr. No	Description	Week				Monthly Avg
		1	2	3	4	June 2024
47	Generator in the construction camp properly maintained	0.5	0.5	0.5	0.5	0.5
48	Community consultation has been carried out for project activities/concerns?	0	0	0.5	0.5	0.25
49	Adequate barriers are provided around areas where hazards may exist	1	1	1	1	1
50	Spilled oil or fuel and used clean up material being disposed of properly	0.5	0.5	0.5	1	0.62
51	Waste segregation at source	0	0	0	1	0.25
52	Construction & Maintenance of Walkways	0	0	0.4	0.5	0.22
53	Dust Generation during construction well managed and record exists	0.5	0.5	0.5	0.5	0.5
54	Number of routes kept to a minimum	1	1	1	1	1
55	Water Sprinkling Record is available	0.2	0.2	0.4	0.5	0.32
56	Provided lighting is adequate (minimum of 100 lux) and that personnel are not working in a shadow.	0.5	0.5	1	1	0.75
57	Photographic Record of Roads and agricultural fields is being maintained.	0	0	0.5	0.5	0.25
58	Materials will be stacked or stored in a safe manner that prevents sliding, falling or collapse	1	1	1	1	1
59	Spills and leak thoroughly cleaned	0.5	0.5	0.5	1	0.62
60	Construction machinery parked at designated areas?	0.5	0.5	1	1	0.75
61	Traffic issues managed well, no complaints on record	1	1	1	1	1
62	Daily, Weekly & Monthly Checklists are filled regularly	1	1	1	1	1
63	Storage of Hazardous Material in designated areas. MSDS available	0.5	0.5	0.5	1	0.62
64	Social Framework Agreement is prepared and signed	0	0	0	0	0
65	Construction activities carried out in daylight to reduce the impact of noise	1	1	1	1	1
Total Weightage (out of 116)						81.32
Monthly Percentage						70.10%
Key: (Percentage) 100 = Excellent above 80 = Good above 60 = Average above 40 = Below Average Below 30 = Unsatisfactory						




Name of the Project: Construction of Water Resource Building Quetta						
Environmental Compliance Checklist						
Sr. No	Description	Week				Monthly Avg
		1	2	3	4	June 2024
47	Generator in the construction camp properly maintained	0.5	0.5	0.5	0.5	0.5
48	Community consultation has been carried out for project activities/concerns?	0	0	0.5	0.5	0.25
49	Adequate barriers are provided around areas where hazards may exist	1	1	1	1	1
50	Spilled oil or fuel and used clean up material being disposed of properly	0.5	0.5	0.5	1	0.62
51	Waste segregation at source	0	0	0	1	0.25
52	Construction & Maintenance of Walkways	0	0	0.4	0.5	0.22
53	Dust Generation during construction well managed and record exists	0.5	0.5	0.5	0.5	0.5
54	Number of routes kept to a minimum	1	1	1	1	1
55	Water Sprinkling Record is available	0.2	0.2	0.4	0.5	0.32
56	Provided lighting is adequate (minimum of 100 lux) and that personnel are not working in a shadow.	0.5	0.5	1	1	0.75
57	Photographic Record of Roads and agricultural fields is being maintained.	0	0	0.5	0.5	0.25
58	Materials will be stacked or stored in a safe manner that prevents sliding, falling or collapse	1	1	1	1	1
59	Spills and leak thoroughly cleaned	0.5	0.5	0.5	1	0.62
60	Construction machinery parked at designated areas?	0.5	0.5	1	1	0.75
61	Traffic issues managed well, no complaints on record	1	1	1	1	1
62	Daily, Weekly & Monthly Checklists are filled regularly	1	1	1	1	1
63	Storage of Hazardous Material in designated areas. MSDS available	0.5	0.5	0.5	1	0.62
64	Social Framework Agreement is prepared and signed	0	0	0	0	0
65	Construction activities carried out in daylight to reduce the impact of noise	1	1	1	1	1
Total Weightage (out of 116)						81.32
Monthly Percentage						70.10%
Key: (Percentage) 100 = Excellent above 80 = Good above 60 = Average above 40 = Below Average Below 30 = Unsatisfactory						

Key



- Major Adverse Impact (Weightage 3)
- Moderate Adverse Impact (Weightage 2)
- Minor Adverse Impact and Good Practice (Weightage 0-1)

Annexure VI: Weekly Environmental Monitoring Checklist Karkh Valley Development Sub-Project (NCB 01)

Description	Status	Comments
CONSTRUCTION OF KARAKH VALLEY DEVELOPMENT SUB- PROJECT –MULA RIVER BASIN		
CONTRACT NO: NCB-01		
Project Name: <u>Construction of Karkh Valley</u>	Package No. NCB -01	
Monitoring Location: <u>Project & Camp Site</u>	Date <u>07/06/24</u>	
Weekly Monitoring Checklist		
A. Physical Condition		
1. Soil Condition		
Is any soil erosion observed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Has the movement of construction equipment been restricted to work areas to avoid unnecessary disturbance to soil types?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Have the area along the access road being visually monitored and show any type of soil erosion	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2. Fuel Lubricants		
Is regular inspection carried to check leaks and spills?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any combustible or flammable material in the fuel storage area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are the fuels and oils handled in the safe manner, ensure no leakage and spillage?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Have the entire oil and fuel storage areas provided with impervious floor underneath to prevent soil contamination from leaks or spills?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are the spilled oil or fuel and used clean material being disposed of properly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spills and leaks thoroughly ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

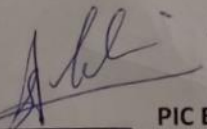

CONSTRUCTION OF KARAKH VALLEY DEVELOPMENT
SUB- PROJECT –MULA RIVER BASIN
CONTRACT NO: NCB-01



3. Traffic Management		
Are the existing routes being used to access the project area?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are the number of routes kept to a minimum?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are shortcuts being used?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are all the vehicles and construction machinery properly maintained and tuned to maintained NEQS level?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are pressure horn being used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
4. Borrow Areas		
Is necessary approval for the borrow areas been obtained from the Engineer?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the condition of approval for excavation of the borrow pits are being complied with?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the drainage profile of the area is maintained to avoid any impoundment of the agriculture runoff or storm water in the borrow area?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5. Camp Site		
Are the generators in the construction camp properly maintained?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the emergency response plan available in the camp?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
6. Waste Material		
Is waste being stored temporarily at camp and sites within the designated area?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is any type solid waste is being disposed-off in the fields?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

 **CONSTRUCTION OF KARAKH VALLEY DEVELOPMENT** 
SUB- PROJECT –MULA RIVER BASIN
CONTRACT NO: NCB-01

Do the vehicles carry adequate container/ trash bags for litter garbage and are they emptied at the camp site or other designated location regularly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
---	---	--

Additional Comments (if any): _____

Contractor Environmentalist:  **PIC Environmentalist:** _____

3

Annexure VII: Monthly Environmental Monitoring Check List Karkh Valley Development Sub-Project (NCB 01)

Name of The Project: Construction of Karakh Valley Development Sub-Project – Mulla River Basin						
Environmental Compliance Checklist						
Sr. no	Description	Week				Monthly Avg
		1	2	3	4	June, 2024
Major Adverse Impacts (weightage 0-3)						
1	Copy of the SSEMP provided at the camp site/contractor office?	3	3	3	3	3
2	The EMP instructions are understood?	3	3	3	3	3
3	An individual is nominated for implementation of EMP?	1	2	3	3	2.25
4	Camp Management Health and Hygiene/ Heating, Cooling, Lighting and Housekeeping	2	2	2	3	2.25
5	Workforce use PPE at site?	3	3	3	3	3
6	Contractor provide PPE to their workforce?	2	2	3	3	2.5
7	Potable water is available to labor	3	3	3	3	3
8	Medical Facilities, First Aid Kit is provided at camp and individual nominated for addressing emergency?	3	3	3	3	3
9	Contractor maintained Environmental Monitoring Record and submits monthly monitoring reports?	3	3	3	3	3
10	Contractor maintained Grievances Log registered the complaints from community?	1	2	2	2	1.75
11	Contractors prohibited child labor and forced labor?	2	2	3	3	2.5
12	Borrow area is leased and the landowner is compensated as per a lease agreement?	0	1	2	3	1.5
13	Septic tank and Soak Pits are designed for treatment of effluents?	2	2	2	2	2
14	No complaint filed regarding transmission of communicable diseases	3	3	3	3	3
Moderate Adverse Impacts (weightage 0-2)						
15	Provision of necessary welfare and hygiene requirements for the prevention of epidemic	1	1	2	2	1.5
16	Availability of an updated emergency vehicle (Ambulance)	1	1	2	2	1.5
17	Site selected for camp is 500 m from the human settlements and wildlife habitats?	2	2	2	2	2
18	No wood cutting for fuel?	2	2	2	2	2
19	LPG cylinders are provided for cooking or heating purposes?	2	2	2	2	2
20	Arrangements for proper storage and disposal solid waste is planned?	1	1	2	2	1.5
21	Safety signs are properly displayed?	0	0	1	1	0.4
22	Contractor provided training to workers to effectively implement project specific EMP?	2	2	2	2	2
23	Contractors followed HSE plan and Emergency Response Procedures	2	2	2	2	2
24	Contractors properly disposes debris materials in approved barren land/TMA facilities preferably recycling, reuse process?	1	1	1	2	1.25

25	Natural areas with high elevation are normally selected as borrow areas?	1	1	1	1	1
26	Minimum damage to the agriculture land due to borrow pits on agriculture land?	1	1	2	2	1.5
27	Stockpiling of Material , Construction Material Management	1	1	1	1	1
28	Waste being stored temporarily on camp and sites only within the designated area	2	2	2	2	2
29	Fuel/oil storage areas are away from watercourses?	2	2	2	2	2
30	Fuel/oil storage areas are paved and ventilated	1	1	2	2	1.5
31	Fire Extinguisher is placed near Fuel Storage area	2	2	2	2	2
32	Tree cutting restricted to RoW and shoulder areas only?	1	1	2	2	1.5
33	No damage reported to public services like electric, water, gas, sewer or telephone lines?	1	1	2	2	1.5
34	Batching plant properly managed, no complaints	0	0	1	1	0.5
35	Project activities are displayed at proper locations	1	2	0	1	1
Minor Adverse Impacts and Good Practice (weightage 0-1)						
36	No complaints were made due to noise and vibration?	1	1	1	1	1
37	Contractor conduct Information, Education and Communication (IEC) campaign	0.1	0.1	0.1	0.1	0.1
38	Labor Screening at the time of induction	0.3	0.3	0.5	0.5	0.4
39	Fire Extinguisher are placed and checked properly	1	1	1	1	1
40	Contractors hiring of local labor?	1	1	1	1	1
41	Project site is fenced to prevent trespassing?	0	0	0	1	0.25
42	Community consultation has been carried out for project activities/concerns	1	1	1	1	1
43	Generator in the construction camp properly maintained	1	1	1	1	1
44	Adequate barriers are provided around areas where hazards may exist	0	0	0	1	0.25
45	Spilled oil or fuel and used clean up material being disposed of properly	1	1	1	1	1
46	Waste segregation at source	0	0	0	1	0.25
47	Construction and Maintenance of Walkways	0	0	0.4	0.5	0.22
48	Dust Generation during construction well managed and record exists	0.5	0.5	0.5	0.5	0.5
49	Water Sprinkling Record is available	1	1	1	1	1
50	Provided lighting is adequate (minimum of 100 lux) and that personnel are not working in a shadow	1	1	1	1	1
51	Photographic Record of roads and agricultural fields are being maintained	1	1	1	1	1
52	Materials will be stacked or stored in a safe manner that prevents sliding, falling or collapse	1	1	1	1	1
53	Spills and leak thoroughly cleaned	1	1	1	1	1
54	Construction machinery parked at designated areas?	1	1	1	1	1
55	Traffic issues managed well, no complaints on record	0.5	0.5	0.5	1	0.62

56	Daily, Weekly and Monthly Checklists are filled regularly	0	0	1	1	0.5
57	Storage of Hazardous Material in designated areas. MSDS available	1	1	1	1	1
58	Construction activities carried out in daylight to reduce the impact of noise	1	1	1	1	1
Total Weightage (out of 116)						84.55
Monthly Percentage						72.89%
<p>Key: (Percentage)</p> <p>100 = Excellent</p> <p>Above 80 = Good</p> <p>Above 60 = Average</p> <p>Below 40 = Below Average</p> <p>Below 30 = Unsatisfactory</p>						

Annexure VIII: Onsite Training Photographs of Karkh Valley Sub-Project NCB 01

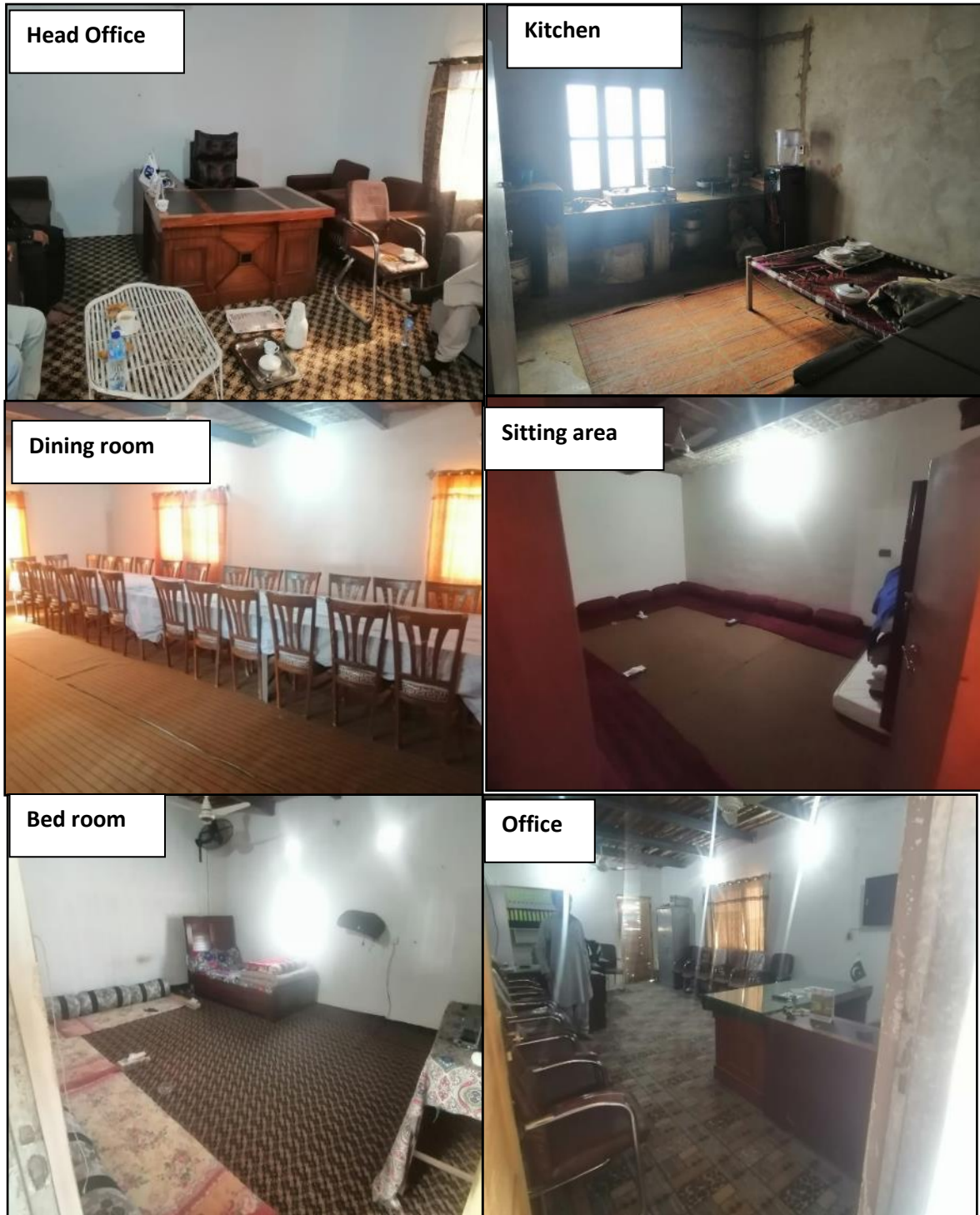


Trainee Signature: 

Training Attendance Karkh Valley Sub-project NCB 01

Annexure IX: Compliance and Non-Compliance on Construction sites

**1. Siri Toi Dam Sub-project ICB 01
A. Contractor's Camp**





B. Consultants' Camp



Board



Front Road



Office Area



Office



Kitchen



Dining Hall



Bed Room

C. Labour Camp



D. Dispensary



Dispensary Daily Report

Medicine	Quantity	Unit	Date
Flugel + cipro	11	قوت	11
Flugel + cipro	11	قوت	11
Pandol + coulanes	11	قوت	11
cipro + Flugel	11	قوت	11
Spastar + Flugel	11	قوت	11
Flugel + cipro	11	قوت	11
Flugel + cipro	11	قوت	11
Flugel + cipro	11	قوت	11
cipro + Flugel	11	قوت	11
Spastar	11	قوت	11
Pandol	11	قوت	11
Prans / urtime	11	قوت	11
Flugel + spastar	11	قوت	11
Pandol	11	قوت	11
Flugel + Pandol	11	قوت	11
cipro + Flugel	11	قوت	11
Flugel + cipro	11	قوت	11
Flugel + cipro	11	قوت	22/05/24
Pandol + Disprin	11	قوت	11
cipro + Flugel	11	قوت	11
Pandol + coula	11	قوت	11
omePrizole	11	قوت	11
Fluge + Pandol	11	قوت	11
omePrizole	11	قوت	11

Dispensary Daily Report

Medicine	Quantity	Unit	Date
Pandol + Disprin	11	قوت	11
coulanes + Prans	11	قوت	11
Pandol + coulanes	11	قوت	11
omePrizole	11	قوت	11
Flugel + Pandol	11	قوت	11
cipro + Pandol	11	قوت	11
Prans max	11	قوت	11
cipro	11	قوت	11
Flugel + Pandol	11	قوت	11
Urtime + Pandol	11	قوت	11
Flugel + cipro	11	قوت	11
omePrizole + Flugel	11	قوت	11
Flugel + Pandol	11	قوت	22/05/24
Pandol + Pandol	11	قوت	11
Skilax + pisse	11	قوت	11
citralex	11	قوت	11
Difenhydramin	11	قوت	11
Urtime	11	قوت	11
Prans	11	قوت	11
Flugel	11	قوت	11
cipro	11	قوت	11
omePrizole	11	قوت	11
Pandol + Pandol	11	قوت	11
Flugel	11	قوت	11
Prans	11	قوت	11

E. Laboratory



Lab



Samples



Office

F. Store Room



G. Oil Room

H. Construction Site



Annexure X: Corrective Action Photos

i. Others including CAPS Compliance related



ii. Used Oil Drums



iii. Oil Rags collection Drum



iv. Proper Placement of Fire Extinguishers



v. LPG is being used for Cooking





vi. Signboards installed





vii. Toilets with septic tank near Construction site



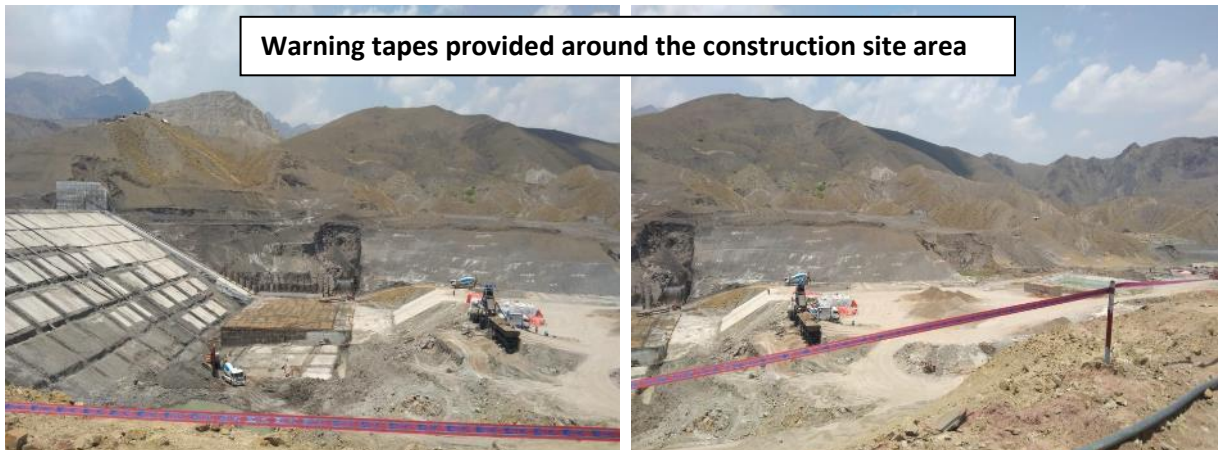
viii. Generators with inbuilt Glass tray and concrete platform below blocks



ix. Workers HSE Training and PPE's Compliance



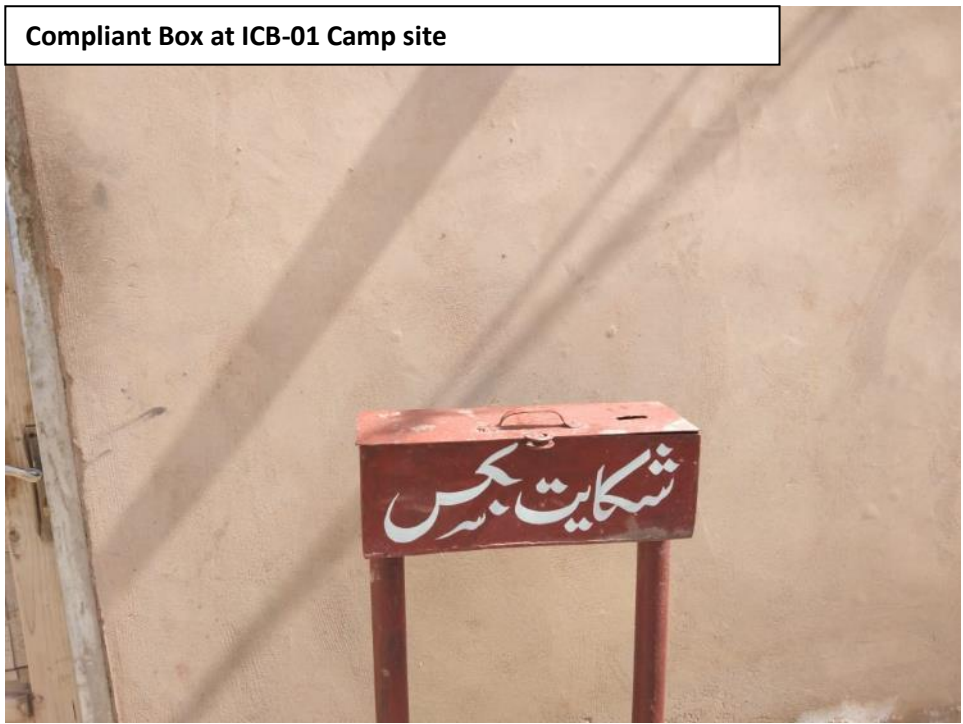
x. Barricading of Construction Sites



Warning tapes provided around the construction site area



Warning tapes and fencing provided around the water storage tank



Compliant Box at ICB-01 Camp site

Wastebins for the collection of wastes material



Wastebin provided in scrapyard



Waste bins with labors kitchen

Warning signboard for drivers



Falling rocks area signboard



Septic Tanks constructed in camp area



Plantation on the roads sides is done



2. Karkh Sub-project NCB 01



3. BWR Building Sub-project NCB 05







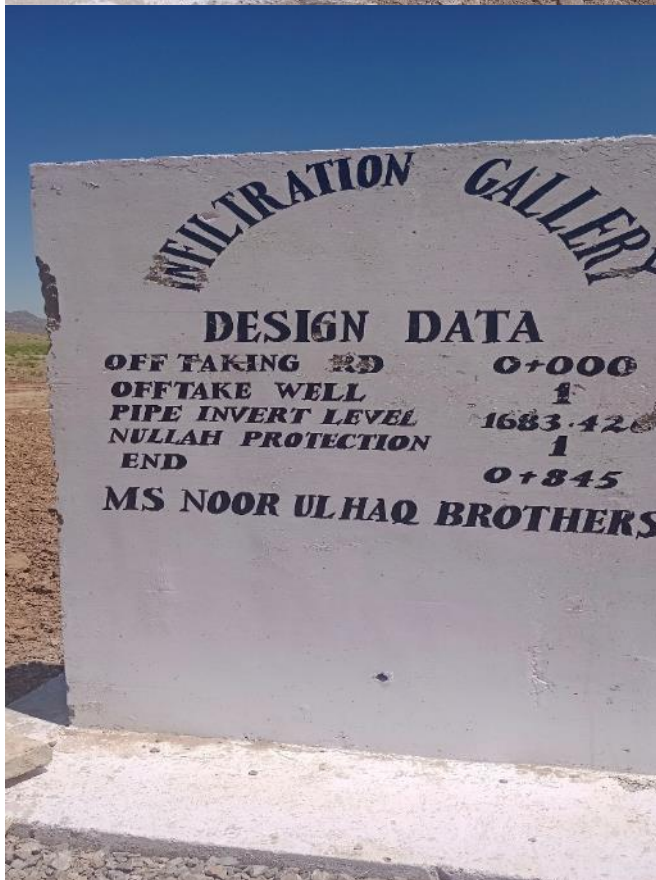
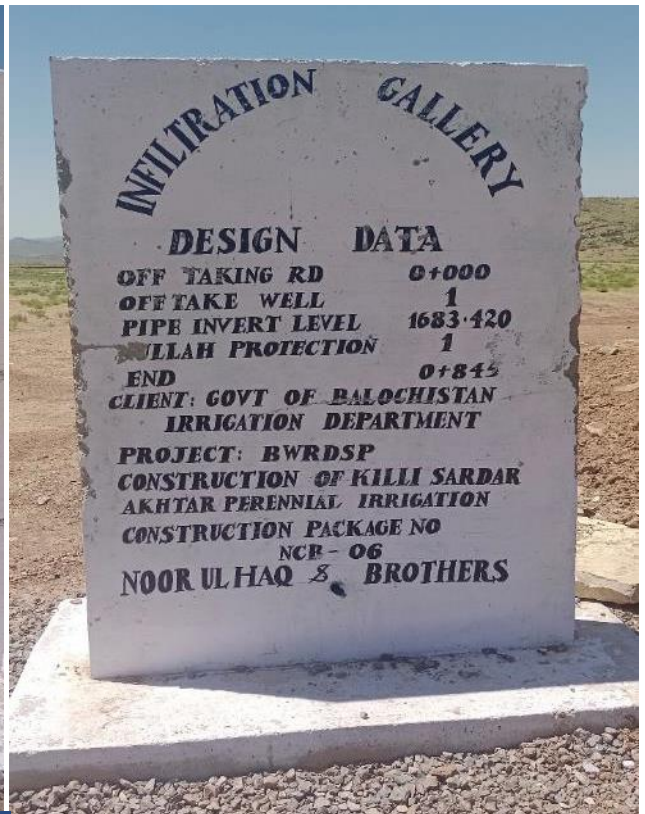
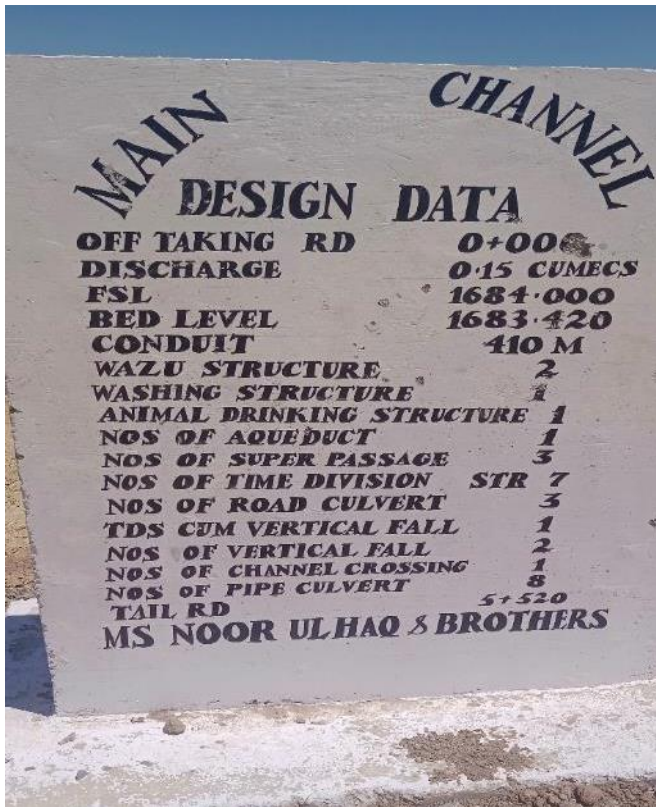
4. Kharzan Hatachi Sub-project NCB 02





5. Kili Sardar Akhtar Sub-project NCB 06





Kili Sardar Akhtar Irrigation Building



Annexure XI: Environmental Monitoring of Siri Toi Dam Project

Air Quality Monitoring Second Quarter 2024



Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/May/24/2200/1980-A

Date: 05-June-2024

Description:

Sampling Location:	Camp Side	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	28-May-2024 to 29-May-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Air Quality Test Report

Parameters	Temp	NO	NO ₂	SO ₂	CO	PM _{2.5}	PM ₁₀	SPM	O ₃
NEQS & BEQS Limit	-	24 hrs. (40 µg/m ³)	24 hrs. (80µg/m ³)	24 hrs. (120µg/m ³)	08 hrs. (5 mg/m ³)	24 hrs. (35 µg/m ³)	24 hrs. (150 µg/m ³)	24 hrs. (500 µg/m ³)	01 hr. (130µg/m ³)
WHO Limit	-	-	24 hrs. (25µg/m ³)	24 hrs. (40µg/m ³)	08 hrs. (4 mg/m ³)	24 hrs. (15 µg/m ³)	24 hrs. (45µg/m ³)	-	Peak Season (60µg/m ³)
Time	Results								
09:00AM	28°C	16.16	35.60	5.10	0.042	25.5	87.4	148.1	06
10:00AM	28°C	19.51	38.79	4.41		25.2	91.2	150.6	-
11:00AM	29°C	17.98	36.48	4.79		24.4	101.7	167.7	-
12:00PM	29°C	15.82	34.60	5.72	0.090	24.2	98.8	190.5	-
01:00PM	30°C	14.17	37.35	4.86		24.1	86.4	191.4	-
02:00PM	30°C	15.80	40.25	6.67		25.4	100.1	202.7	-
03:00PM	31°C	17.60	42.20	4.15	0.024	26.7	107.7	205.9	-
04:00PM	30°C	15.41	38.47	5.10		24.4	99.4	209.8	-
05:00PM	31°C	14.58	40.15	5.45		25.4	75.2	195.4	-
06:00PM	32°C	12.97	36.14	4.12	0.085	23.2	71.1	186.3	-
07:00PM	31°C	10.67	33.47	2.12		27.2	78.4	184.1	-
08:00PM	30°C	11.43	27.21	4.58		29.6	82.6	151.7	-
09:00PM	29°C	11.81	30.58	3.47	0.084	27.5	80.4	155.5	-
10:00PM	28°C	15.94	31.80	2.28		25.5	72.4	146.4	-
11:00PM	27°C	15.27	27.98	2.15		23.5	70.4	158.9	-
12:00AM	27°C	13.30	26.88	3.11	0.047	21.1	64.8	164.7	-
01:00AM	26°C	8.50	27.50	2.48		20.8	73.7	155.4	-
02:00AM	26°C	7.64	22.21	2.24		22.7	62.4	146.7	-
03:00AM	25°C	7.52	23.75	4.31	0.067	21.4	63.7	137.4	-
04:00AM	25°C	5.41	20.25	2.68		17.6	59.6	129.3	-
05:00AM	26°C	6.85	21.62	3.58		16.4	47.5	114.1	-
06:00AM	27°C	7.50	22.14	4.41	0.057	20.2	52.7	101.7	-
07:00AM	28°C	9.71	25.47	5.47		22.5	63.3	95.5	-
08:00AM	29°C	10.15	27.57	6.04		25.1	66.5	116.4	-
AVERAGE	28.41	12.57	31.18	4.13	0.062	23.73	77.39	158.59	6



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.
Mob: +92(0)346-2225261,0333-2699016 Tel # 02135121125 E-mail: info@sespaklab.com Web: www.sespaklab.com

Air Ambient Quality June 2024

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/May/24/2200/1980-B

Date:05-June-2024

Description:

Sampling Location:	Camp Side	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	28-May-2024 to 29-May-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Ambient Air Quality Monitoring

Sr.	Measuring Parameters	Unit	WHO Limit	NEQS & BEQS Limits	Average Test Result	Remarks
1.	Oxide Of Nitrogen as (NO)	µg/m ³	-	40 (24 hrs.)	12.57	WL
2.	Oxide Of Nitrogen as (NO ₂)	µg/m ³	25(24 hrs.)	80 (24 hrs.)	31.18	WL
3.	Sulphur Dioxide (SO ₂)	µg/m ³	40(24 hrs.)	120 (24 hrs.)	4.13	WL
4.	Carbon Monoxide (CO)	mg/m ³	4(24 hrs.)	5 (08 hrs.)	0.062	WL
5.	Particulate Matter (PM 2.5)	µg/m ³	15(24 hrs.)	35 (24 hrs.)	23.73	WL
6.	Particulate Matter (PM 10)	µg/m ³	45(24 hrs.)	150 (24 hrs.)	77.39	WL
7.	SPM	µg/m ³	-	500 (24 hrs.)	158.59	WL
8.	Ozone (O ₃)	µg/m ³	60(Peak Season)	130 (01 hr.)	06	WL

Note:

BEQS=Baluchistan Environmental Quality Standards
 The instruments used were dully calibrated.
 The measurements were carried out on client's request.
 The client is responsible for lawful usage of reported data in future.
 This report is not valid for Court evidence/ Judicial knowledge
 The measurement results based on the time of monitoring
 WL= Within Limit

Field Analyst: _____



Chief Chemist: _____

Kashif Ahmed



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.
 Mob: +92(0)346-2225261,0333-2699016 Tel # 02135121125 E-mail: info@sespaklab.com Web: www.sespaklab.com

Noise Level June 2024

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/May/24/2200/1980-D

Date: 05-June-2024

Description:

Sampling Location:	Camp Side	Testing Instrument:	Noise Meter
Job Performed By:	Mr. Mohsin	Job Date :	28-May-2024 to 29-May-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Noise Test Report

S. No	Measuring Parameter	Testing Instrument	WHO Limit	NEQS & BEQS Limits	TIME	Results
01	Noise Level	Noise Meter	65 dB(A) (Day time)	75 dB(A) (Day time)	09:00AM	63.9
02					10:00AM	62.7
03					11:00AM	62.6
04					12:00PM	64.8
05					01:00PM	63.4
06					02:00PM	64.3
07					03:00PM	62.5
08					04:00PM	62.8
09					05:00PM	64.4
10					06:00PM	63.6
11					07:00PM	61.5
12					08:00PM	60.2
13			09:00PM	58.4		
14			10:00PM	57.6		
15			11:00PM	57.4		
16			12:00AM	54.5		
17			01:00AM	53.7		
18			02:00AM	51.9		
19			03:00AM	46.8		
20			04:00AM	44.4		
21			05:00AM	45.2		
22			06:00AM	47.6		
23			07:00AM	53.5		
24			08:00AM	59.4		
Average Results						57.79



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Meteorological Data of the project site June 2024

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/May/24/2200/1980-C

Date: 05-June-2024

Description

Sampling Location:	Camp Side	Testing Instrument	Metrological Equipment's
Job Performed By:	Mr. Mohsin	Job Date :	28-May-2024 to 29-May-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2 nd Quarter (April, May, June 2024)		

METROLOGICAL DATA

S.No	TIME	Wind Direction	Wind Velocity	Humidity	Pressure
	Hours					m/sec	%	mm of Hg
1	09:00AM	SN	1.54	94	738
2	10:00AM	N	1.55	91	731
3	11:00AM	S	1.81	95	774
4	12:00PM	S	2.60	90	790
5	01:00PM	W	1.41	92	762
6	02:00PM	W	3.21	85	754
7	03:00PM	N	1.31	86	791
8	04:00PM	W	2.27	91	745
9	05:00PM	NS	3.44	95	758
10	06:00PM	S	1.54	92	747
11	07:00PM	SW	1.83	93	747
12	08:00PM	SW	1.38	84	741
13	09:00PM	NW	2.49	74	745
14	10:00PM	S	2.55	79	755
15	11:00PM	W	1.44	82	731
16	12:00AM	S	3.47	80	760
17	01:00AM	W	5.85	90	784
18	02:00AM	N	3.71	92	733
19	03:00AM	S	4.81	97	721
20	04:00AM	S	4.62	97	782
21	05:00AM	W	5.84	84	742
22	06:00AM	N	4.62	84	768
23	07:00AM	NS	4.51	83	728
24	08:00AM	NW	4.70	87	771



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Drinking Water Quality June 2024

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/May/24/2200/1980--E

Date: 05-June-2024

Description:

Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	28-May-2024
Analysis Type	Chemical Analysis		Sampling Location	Siritoi Dam Project	
Side Location:	(Construction of Siritoi Dam ICB -01)				
Client Name :	M/s NOOR UL HAQ & BROTHERS				
Quarter no:	2 nd Quarter (April, May, June 2024)				

Drinking Water Report

S #	Parameters	Units	Testing Method	NEQS Limits	WHO Limits	BEQS Limits	Result	Remarks
01	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-----	-----	-----	ND	-
02	Total Coliform	TC (count/ml)	APIA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
03	E-Coli	FC(count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	WL
04	Facial Coli	FC (count/ml)	APIA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
05	Turbidity	NTU	HACH Turbidity meter	<5	<15	<15	< 0.1	WL
06	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
07	Odour	Odor	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
08	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 1	WL
09	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	WL
10	Residual chlorine	Cl ₂ (mg/l)	HACH Method 8167	0.2-0.5	-	0.2-0.5	0.4	WL
11	pH @ 25 °C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	8.2	WL
12	Total Dissolved Solid	TDS (mg/L)	APIA 2540-C	< 1000	< 1000	< 1000	1239	OL
13	Total Hardness	As CaCO ₃ (mg/L)	APIA 2340-C	< 500	-	< 500	73	WL
14	Fluoride	F ⁻¹ (mg/L)	APIA 4500-F ⁻¹	≤ 1.5	1.5	≤ 1.5	0.50	WL
15	Chloride	Cl ⁻¹ (mg/l)	APHA 4500-Cl ⁻¹	< 250	250	< 250	194	WL
16	Cyanide	CN ⁻¹ (mg/L)	HACH Method 8027	≤ 0.05	0.07	≤ 0.05	ND	WL
17	Nitrate	NO ₃ ⁻¹ (mg/L)	HACH Method 8192	≤ 50	50	≤ 50	0.16	WL
18	Nitrite	NO ₂ ⁻¹ (mg/L)	APIA 4500-NO ₂ ⁻¹ -B	≤ 3.0(P)	3	≤ 3.0(P)	0.11	WL
19	Antimony	Sb (mg/L)	ASTM D-3697	≤ 0.005	0.02	≤ 0.005	ND	WL
20	Aluminum	Al(mg/L)	ASTM D-857	≤ 0.2	0.2	≤ 0.2	0.03	WL
21	Arsenic	As (mg/L)	ASTM D-2972	≤ 0.05	0.01	≤ 0.05	ND	WL
22	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	WL
23	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.003	WL
24	Chromium Total	Cr(mg/L)	ASTM D-1687	≤ 0.05	0.05	≤ 0.05	ND	WL
25	Copper	Cu (mg/L)	ASTM D-1688	2	2	2	<0.03	WL
26	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.003	0.01	ND	WL
27	Lead	Pb(mg/L)	ASTM D-3559	≤ 0.05	0.01	≤ 0.05	ND	WL
28	Manganese	Mn(mg/L)	ASTM D-858	≤ 0.5	0.5	≤ 0.5	ND	WL
29	Mercury	Hg (mg/L)	ASTM D-3223	≤ 0.001	0.001	≤ 0.001	ND	WL
30	Nickel	Ni(mg/L)	ASTM D-3866	≤ 0.02	0.02	≤ 0.05	ND	WL
31	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	WL
32	Zinc	Zn (mg/L)	ASTM D-1691	5	3	5	0.09	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.

The client is responsible for lawful usage of reported data in future.

This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL = Within Limit

Field Analyst: _____

Mr. Mohsin

Chief Chemist _____



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Waste Water Quality June 2024

Sustainable Environmental Services

SES

Analysis Report

Report # SES/ENV/May/24/2200/1880-F

Date: **05-June-2024****Description**

Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	28-May-2024
Analysis Type	Chemical Analysis		Sampling Location	Siritoi Dam Project	
Site Location:	(Construction of Siritoi Dam ICB -01)				
Client Name :	M/s NOOR UL HAQ & BROTHERS				
Quarter no:	2 nd Quarter (April, May, June 2024)				

Waste Water Test Report

S.No	Measuring Parameter	Units	Testing Method	NEQS Limits	Test Results
1	Temperature @ 40 °C	°C	By Calibrated Thermometer	40 + ± 03 °C	28
2	pH @ 25 °C	pH	ASTM D-1293	6 to 9	7.31
3	Biological Oxygen Demand	BOD ₅ (mg/L)	APHA 5210	80	56
4	Chemical Oxygen Demand	COD (mg/l.)	ASTM D-1252	150	112
5	Total Dissolved Solids	TDS (mg/L)	APIIA 2540-C	3500	1989
6	Total Suspended Solids	TSS (mg/L)	APIIA 2540-D	150	102
7	Oil & Grease	O.Gr(mg/l.)	ASTM D-4281	10	0.03
8	Chloride	Cl ⁻ (mg/L)	ASTM D-512	1000	752
9	Phenolic compound	Phol (mg/l.)	ASTM D-1783	0.1	ND
10	Fluoride	F ⁻ (mg/L)	APHA 4500-F ⁻	20	4.2
11	Anionic Detergent	Det (mg/l.)	ASTM D-6173	20	5.4
12	Selenium	Se ⁻² (mg/L)	APHA 4500 Se	0.5	ND
13	Sulfide	S ⁻² (mg/L)	APIIA 4500-S ⁻²	1.0	0.50
14	Ammonia	NH ₃ (mg/L)	ASTM D-1426	40	17.4
15	Cadmium	Cd ⁻² (mg/l.)	ASTM-D3557	0.1	<0.2
16	Chromium Trivalent	Cr ⁺³ (mg/L)	APIIA 3500-Cr	1.0	ND
17	Chromium Hexavalent	Cr ⁺⁶ (mg/L)	APIIA 3500-Cr	1.0	0.02
18	Lead	Pb ⁻² (mg/l.)	ASTM-D3559	0.5	0.4
19	Mercury	Hg ⁻² (mg/L)	Kit Method	0.01	ND
20	Nickel	Ni ⁻² (mg/l.)	HACH Dimethylglyoxime Method	1.0	ND
21	Silver	Ag (mg/L)	ASTM-D3866	1.0	ND
22	Zinc	Zn ⁻² (mg/l.)	HACH Zincon Method	5.0	0.3
23	Total Iron	Fe ²⁺ (mg/L)	APHA 3500-Fe	2.0	0.4
24	Manganese	Mn ⁻² (mg/l.)	APIIA 3500-Mn	1.5	0.06
25	Boron	B(mg/l.)	APIIA 4500-Mn	6.0	0.4
26	Sulfate	SO ₄ (mg/L)	APIIA 4500-SO ⁻⁴	600	260
27	Arsenic	As (mg/l.)	Palintest Kit	1.0	ND
28	Copper	Cu ⁺² (mg/L)	HACH Biquinoline Method	1.0	0.02
29	Chlorine	Cl ₂ (mg/l.)	HACH DPD Method	1.0	ND
30	Aluminum	Al (mg/L)	HACH Eriochrome Cyanine R	-----	ND
31	Total Kjeldahl Nitrogen	(mg/l.)	Kit Method	-----	0.30
32	Barium	Ba (mg/L)	ASTM D-4382	1.5	0.78

Note:

BEQS=Baluchistan Environmental Quality Standards
 The instruments used were duly calibrated.
 The measurements were carried out on client's request.
 The client is responsible for lawful usage of reported data in future.
 This report is not valid for Court evidence/ Judicial knowledge
 The measurement results based on the time of monitoring
 WL= Within Limit
 Field Analyst: Mr. Mohsin

Mr. Mohsin

Chief Chemist



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Air Quality First Quarter 2024

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/Mar/24/2112/1892-A

Date: 28-March-2024

Description:

Sampling Location:	Camp Side	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	25-Mar-2024 to 26-Mar-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		

Air Quality Test Report

Parameters	Temp	NO	NO ₂	SO ₂	CO	PM _{2.5}	PM ₁₀	SPM	O ₃
NEQS & BEQS Limit	-	24 hrs. (40 µg/m ³)	24 hrs. (80µg/m ³)	24 hrs. (120µg/m ³)	08 hrs. (5 mg/m ³)	24 hrs. (35 µg/m ³)	24 hrs. (150 µg/m ³)	24 hrs. (500 µg/m ³)	01 hr. (130µg/m ³)
WHO Limit	-	-	24 hrs. (25µg/m ³)	24 hrs. (40µg/m ³)	08 hrs. (4 mg/m ³)	24 hrs. (15 µg/m ³)	24 hrs. (45µg/m ³)	-	Peak Season (60µg/m ³)
Time	Results								
09:00AM	22°C	15.12	34.62	4.94	0.044	23.4	85.5	145.6	06
10:00AM	22°C	18.52	39.77	5.26		24.1	94.5	151.2	-
11:00AM	23°C	16.94	37.45	5.93		23.3	106.6	191.4	-
12:00PM	25°C	13.84	32.62	6.76	0.092	25.5	98.5	194.6	-
01:00PM	25°C	16.19	41.88	3.95		25.4	88.8	196.5	-
02:00PM	27°C	14.85	44.54	5.76		26.6	102.1	205.2	-
03:00PM	28°C	16.62	41.85	5.12	0.022	24.8	122.5	215.4	-
04:00PM	27°C	13.48	36.20	4.44		23.2	96.4	204.2	-
05:00PM	27°C	13.52	42.51	4.15		24.5	77.8	184.5	-
06:00PM	26°C	11.95	38.19	5.11	0.081	24.4	89.6	191.2	-
07:00PM	25°C	9.62	34.18	2.32		26.3	81.3	192.3	-
08:00PM	23°C	10.42	28.16	3.14		28.1	86.2	155.2	-
09:00PM	21°C	10.85	31.78	2.84	0.089	27.4	81.3	151.2	-
10:00PM	20°C	14.96	23.85	1.22		26.5	76.2	142.3	-
11:00PM	19°C	13.24	28.95	1.13		24.6	72.3	151.2	-
12:00AM	19°C	12.34	25.85	2.18	0.058	22.2	57.5	158.4	-
01:00AM	18°C	7.58	26.57	1.62		21.7	74.6	150.3	-
02:00AM	18°C	6.79	21.24	1.53		21.8	61.2	144.2	-
03:00AM	17°C	6.28	23.89	2.24	0.077	20.9	66.5	139.5	-
04:00AM	16°C	6.45	22.21	1.22		19.4	73.4	126.2	-
05:00AM	18°C	4.95	22.62	1.84		20.5	38.5	97.7	-
06:00AM	20°C	6.52	26.42	3.61	0.052	24.2	66.4	107.6	-
07:00AM	22°C	7.79	24.59	4.94		25.3	65.2	126.4	-
08:00AM	23°C	8.17	28.62	5.09		27.4	66.4	107.5	-
AVERAGE	21°C	11.65	31.64	3.67	0.064	24.24	80.53	159.82	6



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Ambient Air Quality March 2024

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/Mar/24/2112/1892--B

Date:28-March-2024

Description:

Sampling Location:	Camp Side	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	25-Mar-2024 to 26-Mar-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		

Ambient Air Quality Monitoring

Sr.	Measuring Parameters	Unit	WHO Limit	NEQS & BEQS Limits	Average Test Result	Remarks
1.	Oxide Of Nitrogen as (NO)	$\mu\text{g}/\text{m}^3$	-	40 (24 hrs.)	11.65	WL
2.	Oxide Of Nitrogen as (NO ₂)	$\mu\text{g}/\text{m}^3$	25(24 hrs.)	80 (24 hrs.)	31.64	WL
3.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	40(24 hrs.)	120 (24 hrs.)	3.67	WL
4.	Carbon Monoxide (CO)	mg/m^3	4(24 hrs.)	5 (08 hrs.)	0.064	WL
5.	Particulate Matter (PM 2.5)	$\mu\text{g}/\text{m}^3$	15(24 hrs.)	35 (24 hrs.)	24.24	WL
6.	Particulate Matter (PM 10)	$\mu\text{g}/\text{m}^3$	45(24 hrs.)	150 (24 hrs.)	80.53	WL
7.	SPM	$\mu\text{g}/\text{m}^3$	-	500 (24 hrs.)	159.82	WL
8.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	60(Peek Season)	130 (01 hr.)	06	WL

Note:

BEQS=Baluchistan Environmental Quality Standards
 The instruments used were dully calibrated.
 The measurements were carried out on client's request.
 The client is responsible for lawful usage of reported data in future.
 This report is not valid for Court evidence/ Judicial knowledge
 The measurement results based on the time of monitoring
 WL= Within Limit

Field Analyst: _____



Chief Chemist: _____

Kashif Ahmed



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Noise Level March 2024

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/Mar/24/2112/1892-D

Date: 28-March-2024

Description:

Sampling Location:	Camp Side	Testing Instrument:	Noise Meter
Job Performed By:	Mr. Mohsin	Job Date :	25-Mar-2024 to 26-Mar-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		

Noise Test Report

S. No	Measuring Parameter	Testing Instrument	WHO Limit	NEQS & BEQS Limits	TIME	Results
01	Noise Level	Noise Meter	65 dB(A) (Day time)	75 dB(A) (Day time)	09:00AM	62.1
02					10:00AM	61.6
03					11:00AM	61.8
04					12:00PM	63.6
05					01:00PM	64.8
06					02:00PM	65.6
07					03:00PM	63.8
08					04:00PM	61.1
09					05:00PM	62.8
10					06:00PM	63.7
11					07:00PM	61.8
12					08:00PM	58.7
13			09:00PM	59.8		
14			10:00PM	55.5		
15			11:00PM	56.6		
16			12:00AM	58.7		
17			01:00AM	59.8		
18			02:00AM	47.5		
19			03:00AM	44.6		
20			04:00AM	49.5		
21			05:00AM	47.1		
22			06:00AM	49.8		
23			07:00AM	51.6		
24			08:00AM	53.8		
Average Results						57.73



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Meteorological Data of the project site March 2024

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/Mar/24/2112/1892--C

Date: 28-March-2024

Description

Sampling Location:	Camp Side	Testing Instrument	Metrological Equipment's
Job Performed By:	Mr. Mohsin	Job Date :	25-Mar-2024 to 26-Mar-2024
Monitoring Duration	09:00AM to 08:00AM (24 Hrs.)		
Side Location:	(Construction of Siritoi Dam ICB -01)		
Client Name :	M/s NOOR UL HAQ & BROTHERS		

METROLOGICAL DATA

S.No	TIME Hours	Wind Direction	Wind Velocity m/sec	Humidity %	Pressure mm of Hg
1	09:00AM	SW	1.56	97	745
2	10:00AM	W	1.57	96	735
3	11:00AM	W	1.85	98	785
4	12:00PM	W	1.65	95	795
5	01:00PM	N	1.44	96	768
6	02:00PM	N	2.62	87	756
7	03:00PM	S	2.47	82	795
8	04:00PM	S	1.25	94	767
9	05:00PM	NW	2.46	97	758
10	06:00PM	N	2.57	91	735
11	07:00PM	SW	2.81	96	795
12	08:00PM	SW	2.35	85	735
13	09:00PM	NW	2.75	87	746
14	10:00PM	W	2.35	84	753
15	11:00PM	N	3.89	88	725
16	12:00AM	N	3.75	89	765
17	01:00AM	S	4.87	97	789
18	02:00AM	N	4.98	93	735
19	03:00AM	N	5.87	96	724
20	04:00AM	S	5.68	99	785
21	05:00AM	S	5.78	89	745
22	06:00AM	W	5.65	85	769
23	07:00AM	NW	4.58	82	724
24	08:00AM	NW	3.74	81	775



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Drinking Water Quality Result March 2024

Sustainable Environmental Services | SES

Analysis Report Ref # SES/ENV/Mar/24/2112/1892--E Date: 28-March-2024
Description:

Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	25-Mar-2024
Analysis Type	Chemical Analysis		Sampling Location	Siritoi Dam Project	
Side Location:	(Construction of Siritoi Dam ICB -01)				
Client Name :	M/s NOOR UL HAQ & BROTHERS				

Bore Water Report

S #	Parameters	Units	Testing Method	NEQS Limits	WHO Limits	BEQS Limits	Result	Remarks
01	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-----	-----	-----	16	-
02	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
03	E-Coli	EC(count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	WL
04	Facial Coli	FC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
05	Turbidity	NTU	HACH Turbidity meter	<5	<15	<15	< 0.04	WL
06	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
07	Odour	Odour	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
08	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 1	WL
09	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	WL
10	Residual chlorine	Cl ₂ (mg/L)	HACH Method 8167	0.2-0.5	-	0.2-0.5	0.4	WL
11	pH @ 25 °C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	8.12	WL
12	Total Dissolved Solid	TDS (mg/L)	APHA 2540-C	< 1000	< 1000	< 1000	389	WL
13	Total Hardness	As CaCO ₃ (mg/L)	APHA 2340-C	< 500	-	< 500	74	WL
14	Fluoride	F ⁻¹ (mg/L)	APHA 4500-F ⁻¹	≤ 1.5	1.5	≤ 1.5	0.54	WL
15	Chloride	Cl ⁻¹ (mg/L)	APHA 4500-Cl ⁻¹	< 250	250	< 250	190	WL
16	Cyanide	CN ⁻¹ (mg/L)	HACH Method 8027	≤ 0.05	0.07	≤ 0.05	ND	WL
17	Nitrate	NO ₃ ⁻¹ (mg/L)	HACH Method 8192	≤ 50	50	≤ 50	0.15	WL
18	Nitrite	NO ₂ ⁻¹ (mg/L)	APHA 4500-NO ₂ ⁻¹ -B	≤ 3.0(P)	3	≤ 3.0(P)	0.08	WL
19	Antimony	Sb (mg/L)	ASTM D-3697	≤ 0.005	0.02	≤ 0.005	ND	WL
20	Aluminum	Al(mg/L)	ASTM D-857	≤ 0.2	0.2	≤ 0.2	0.03	WL
21	Arsenic	As (mg/L)	ASTM D-2972	≤ 0.05	0.01	≤ 0.05	ND	WL
22	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	WL
23	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.003	WL
24	Chromium Total	Cr(mg/L)	ASTM D-1687	≤ 0.05	0.05	≤ 0.05	ND	WL
25	Copper	Cu (mg/L)	ASTM D-1688	2	2	2	<0.05	WL
26	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.003	0.01	ND	WL
27	Lead	Pb(mg/L)	ASTM D-3559	≤ 0.05	0.01	≤ 0.05	ND	WL
28	Manganese	Mn(mg/L)	ASTM D-858	≤ 0.5	0.5	≤ 0.5	ND	WL
29	Mercury	Hg (mg/L)	ASTM D-3223	≤ 0.001	0.001	≤ 0.001	ND	WL
30	Nickel	Ni(mg/L)	ASTM D-3866	≤ 0.02	0.02	≤ 0.05	ND	WL
31	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	WL
32	Zinc	Zn (mg/L)	ASTM D-1691	5	3	5	0.05	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.

The client is responsible for lawful usage of reported data in future.

This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL = Within Limit

Field Analyst: Mr. Mohsin

Mohsin
Mr. Mohsin

Chief Chemist:



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.


Mob: +92(0)346-2225261,0333-2699016 Tel # 02135121125 E-mail: info@sespaklab.com Web: www.sespaklab.com

Photographic Evidences




Annexure XII: Environmental Monitoring on Karkh Valley Development Project

Ambient Air Quality on Karkh Valley First Quarter January-March Camp site




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Lab Report No: 202403605-ACC-AAQ



Page No: 1 of 1

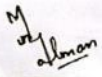
Invoice Bill No: INV-AGC-649


Reporting Date: 08-March-2024

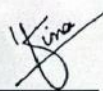
Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
Test ID:	AAQ-202403605
Test Performed Date:	01-March-2024
Test Description:	Ambient Air Quality (As per NEQS-2016)
Test Type & Location:	Ambient Air Quality-Camp Site
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	32	-
2	Humidity	%	56	-
3	Particulate matter (PM 1.0)	µg/m ³	41	500
4	Particulate matter (PM 2.5)	µg/m ³	31.8	35
5	Particulate matter (PM 10)	µg/m ³	74	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	19.2	-
10	Formaldehyde	mg/m ³	0.169	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.233	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.





 Analyzed By (Analyst)


 Reviewed By (Assistant Manager)


 Approved By (Lab Manager)

Disclaimer:

- Report is valid for current batch (sample).
- This report is not valid for any publication or judicial purpose.
- Envi Tech AL is not responsible for the sample identification and data shared by the client.
- The sample shall be discarded after five working days unless otherwise instructed.
- Our test reports can be verified by scanning System-generated QR Code.

ETAL-LAB-708-FF-07


Issue Date: 03-10-22


Issue-03 Rev:02

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Lahore Office: 87-E Madina Height, Office # A/30 & A/31, 8th Floor, Maulana Shaukat Ali Road, Johar Town, Lahore. +92 42 32296099

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Ambient Air Quality at Construction site (Batching Plant)


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Lab Report No: 202403604-ACC-AAQ Page No: 1 of 1

Invoice Bill No: INV-AGC-649 Reporting Date: 08-March-2024

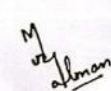



Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com


Test ID:	AAQ-202403604
Test Performed Date:	01-March-2024
Test Description:	Ambient Air Quality (As per NEQS-2016)
Test Type & Location:	Ambient Air Quality- Batching Plant
Test Performed By:	Envi Tech Al

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	29	-
2	Humidity	%	52	-
3	Particulate matter (PM 1.0)	µg/m ³	40	500
4	Particulate matter (PM 2.5)	µg/m ³	29.3	35
5	Particulate matter (PM 10)	µg/m ³	63.1	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	19.7	-
10	Formaldehyde	mg/m ³	0.168	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.234	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

Disclaimer:

- Report is valid for current batch (sample).
- This report is not valid for any publication or judicial purpose.
- Envi Tech AL is not responsible for the sample identification and data shared by the client.
- The sample shall be discarded after five working days unless otherwise instructed.
- Our test reports can be verified by scanning System-generated QR Code.


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ETAL-LAB-708-FF-07

Issue Date: 03-10-22

Issue:03 Rev:02


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Drinking Water Quality Tests on Karkh Valley**ENVI TECH AL**

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Lab Report No: 202403600-ACC-DW



Page No: 1 of 1

Invoice Bill No: INV-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
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Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
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Sample ID:	DW-202403600
Sample Collection Date:	01-March-2024
Sample Description:	Drinking Water
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	01-March-2024 to 08-March-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	7.68	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	350	<1000
3	Total Hardness as CaCO3	ASTM D 1126	mg/L	310	< 500
4	Color	HACH 8025	TCU	N.D.	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.006	≤ 3
7	Nitrate (NO3)	HACH 8039	mg/L	0.4	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	22	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.16	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	N.D.	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	N.D.	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	N.D.	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	N.D.	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	N.D.	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	N.D.	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	N.D.	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	N.D.	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05

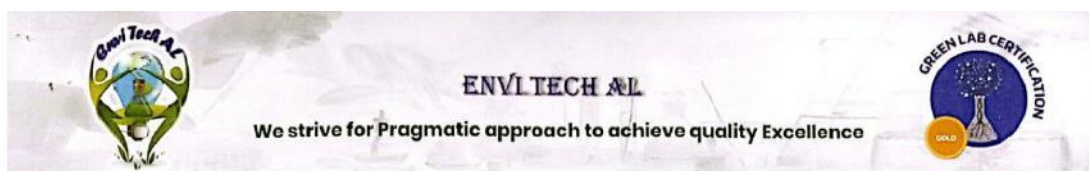


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CS CamScanner

CS CamScanner

Lab Report No: 202403600-ACC-DWPage No: 2 of 2Invoice Bill No: INV-AGC-649Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address Khuzdar, Balochistan, Pakistan

Attention: Mr. Shahmeer
Email shahmeerahmed1960@gmail.com

Sample ID:	DW-202403600
Sample Collection Date:	01-March-2024
Sample Description:	Drinking Water
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	01-March-2024 to 08-March-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	N.D.	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	N.D.	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	0.0045	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	0.21	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	N.D.	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	N.D.	-



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Drinking Water Test Result at construction site

Lab Report No: 202403601-ACC-DWPage No: 1 of 1Invoice Bill No: INV-AGC-649Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address Khuzdar, Balochistan, Pakistan

Attention: Mr. Shahmeer
Email shahmeerahmed1960@gmail.com

Sample ID:	DW-202403601
Sample Collection Date:	01-March-2024
Sample Description:	Tap water
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	01-March-2024 to 08-March-2024
Test Description:	Drinking-Water-test as per NEQS-2016

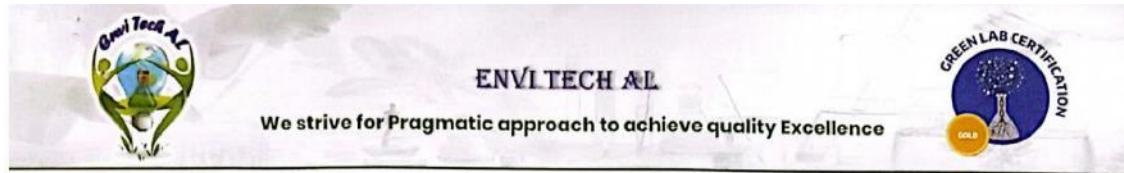
Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	7.68	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	410	<1000
3	Total Hardness as CaCO ₃	ASTM D 1126	mg/L	298	< 500
4	Color	HACH 8025	TCU	02	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.006	≤ 3
7	Nitrate (NO ₃)	HACH 8039	mg/L	0.7	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	99	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.51	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	N.D.	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	N.D.	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	N.D.	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	N.D.	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	N.D.	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	0.0048	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	N.D.	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	N.D.	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05



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Lab Report No: 202403601-ACC-DW



Page No: 2 of 2

Invoice Bill No: INV-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
------------	---

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
------------	---

Sample ID:	DW-202403601
Sample Collection Date:	01-March-2024
Sample Description:	Tap water
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	01-March-2024 to 08-March-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	N.D.	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	0.1010	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	0.1652	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	N.D.	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	N.D.	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	02	-




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Wastewater Quality Test at construction site




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Lab Report No: 202403602-ACC-WW



Page No: 1 of 1

Invoice Bill No: INV-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com

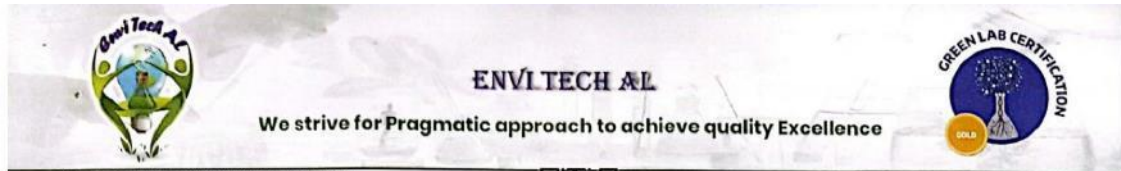
Sample ID:	WW-202403602
Sample Collection Date:	01-March-2024
Sampling Method:	APHA - 1060 B & C
Sample Description:	Waste water
Sample Type:	Liquid Sample
Sample Collected By:	Envi Tech Al
Date Of Analysis:	01-March-2024 to 08-March-2024
Test Description:	Wastewater Testing as per NEQS- 2016

Analytical Test Report							
Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS	NEQS	NEQS
					1	2	3
1	Temperature 40°C	*APHA 2550	°C	31	≤ 3C	≤ 3C	-
2	pH	APHA 4500 H-B	-	7.89	6-9	6-9	-
3	Sulphide	*APHA 4500-S2-D	mg/L	<1	1	1	-
4	Biological Oxygen Demand(BOD)5	HACH 10099	mg/L	40	80	250	-
5	Chemical Oxygen Demand(COD)	*HACH 8000	mg/L	80	150	400	-
6	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	490	3500	3500	-
7	Total Suspended Solids (TSS)	*APHA 2540-D	mg/L	161	200	400	-
8	Oil & Grease	ASTM D-3291	mg/L	02	10	10	-
9	Cadmium	*APHA 3111-B	mg/L	0.0039	0.1	0.1	-
10	Copper	*APHA 3111-B	mg/L	0.0058	1	1	-
11	Iron	*APHA 3111-B	mg/L	0.0134	8	8	-
12	Lead	*APHA 3111-B	mg/L	N.D.	0.5	0.5	-
13	Manganese	*APHA 3111-B	mg/L	0.0051	1.5	1.5	-
14	Mercury	*APHA 3112-B	mg/L	N.D.	0.01	0.01	-
15	Nickel	*APHA 3111-B	mg/L	0.0241	1	1	-
16	Selenium	*APHA 3114-B	mg/L	N.D.	0.5	0.5	-
17	Chromium	*APHA 3111-B	mg/L	0.0042	1	1	-
18	Zinc	*APHA 3111-B	mg/L	N.D.	5	5	-
19	Arsenic	*APHA 3114-B	mg/L	N.D.	1	1	-
20	Chlorine	HACH 10069	mg/L	N.D.	1	1	-
21	Chloride	*APHA 4500 CL-B	mg/L	299.81	1000	1000	-
22	Cyanide	HACH 8027	mg/L	0.003	1	1	-
23	Fluoride	HACH 8000	mg/L	0.07	0.5	0.5	-

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Lab Report No: 202403602-ACC-WW



Page No: 2 of 2

Invoice Bill No: INV-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
------------	---

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
------------	---

Sample ID:	WW-202403602
Sample Collection Date:	01-March-2024
Sampling Method:	APHA - 1060 B & C
Sample Description:	Waste water
Sample Type:	Liquid Sample
Sample Collected By:	Envi Tech Al
Date Of Analysis:	01-March-2024 to 08-March-2024
Test Description:	Wastewater Testing as per NEQS- 2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS	NEQS	NEQS
					1	2	3
24	Ammonia	*HACH 8038	mg/L	0.37	40	40	-
25	Sulphate	HACH 8051	mg/L	74	600	1000	-
26	An Ionic Detergent As MBAs	*APHA 5540 C	mg/L	N.D.	20	20	-
27	Phenolic Compounds(as Phenol)	HACH 8047	mg/L	N.D.	0.1	0.3	-
28	Boron	HACH 8015	mg/L	N.D.	6	6	-
29	Barium	HACH 8014	mg/L	N.D.	1.5	1.5	-
30	Silver	*APHA 3111-B	mg/L	N.D.	1	1	-




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Noise Tests Results on Karkh Valley




ENVI TECH AL

We strive for Pragmatic approach to achieve quality Excellence



Lab Report No: 202403603-ACC-NA



Page No: 1 of 1

Invoice Bill No: INV-AGC-649

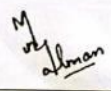
Reporting Date: 08-March-2024


Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com


Test ID:	NA-202403603
Test Performed Date:	01-March-2024
Test Type:	Noise Analysis
Test Performed By:	Envi Tech AL
Test Description:	Noise Analysis as per NEQS-2016

Test Report					
Sr.#	Locations	Methods	Unit	Result	NEQS Limits
1	Camp Site	ASTM E1686-16	dB	60	75
2	Baching Plant	ASTM E1686-16	dB	64.1	75

Note : Measurement of uncertainty,statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
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 N.D. = Not Detected.



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

Disclaimer:

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 (Certificate # 202310131)


 (LAB/LC/ENVI TECH AL.2/30/264/2023)


 (Certificate # 202310132)

ETAL-LAB-708-FF-10

Issue Date: 03-10-22

Issue:03 Rev:02

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Gaseous Emission from generators test results on Karkh Valley

Lab Report No: 202403607-ACC-GAE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email: shahmeerahmed1960@gmail.com

Test ID:	GAE-202403607
Test Performed Date:	01-March-2024
Test Type:	GAE(Gen-Cummins-6CTCOMCS-S.#PE95300FC-180 KVA-Diesel)
Test Performed By:	Envi Tech AL
Test Description:	Gaseous Emission (As per NEQS)
Fuel Types:	oil_fired

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Smoke, Ringelmann Scale	-	01	2
2	Particulate matter	mg/Nm ³	73	300
3	Carbon Monoxide (CO)	mg/Nm ³	356	800
4	Nitrogen Dioxide (NO ₂)	mg/Nm ³	106	-
5	Nitrogen Oxide (NO)	mg/Nm ³	258	-
6	NO _x	mg/Nm ³	364	600
7	Oxygen (O ₂)	%	11.8	-
8	Hydrogen Sulfide(H ₂ S)	mg/Nm ³	02	10
9	Sulphur Dioxide (SO ₂)	mg/Nm ³	184	1700
10	Carbon dioxide (CO ₂)	%	2.34	-
11	Hydrocarbon	%	0.0173	-
12	Noise	dB	79.3	-

Note: Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

M. Salman

Analyzed By (Analyst)

E. Iqbal

Reviewed By (Assistant Manager)



K. Iqbal

Approved By (Lab Manager)

Disclaimer:

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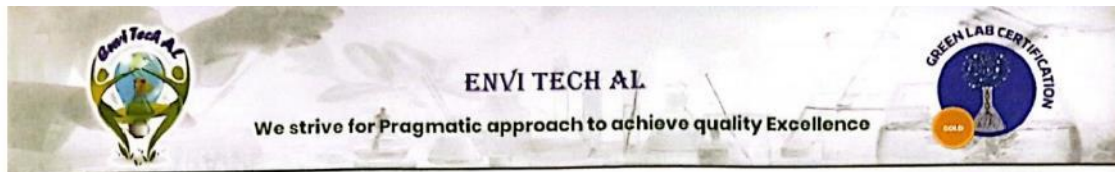
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CS CamScanner

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Vehicular Emission Tests Results on Karkh Valley**ENVI TECH AL**

We strive for Pragmatic approach to achieve quality Excellence

Lab Report No: 202403608-ACC-VEPage No: 1 of 1Invoice Bill No: Inv-AGC-649Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
-------------------	---

Test ID:	VE-202403608
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Loader-CATERPILLAR-MD#950-B-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0236	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.3	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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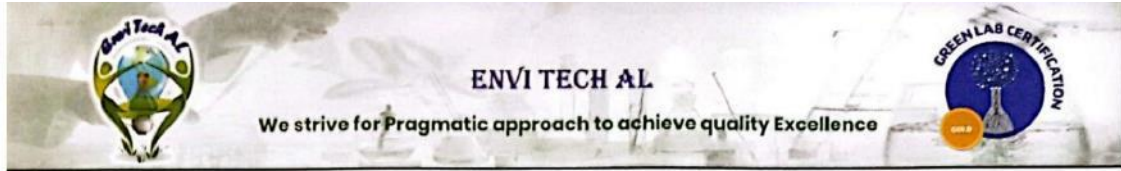


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Lab Report No: 202403609-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan.
------------	--

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
------------	---

Test ID:	VE-202403609
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Chain Excavator-HITACHI-MD#EX300-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0374	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	81.7	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

M. Salman

Analyzed By (Analyst)

[Signature]

Reviewed By (Assistant Manager)



[Signature]

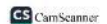
Approved By (Lab Manager)

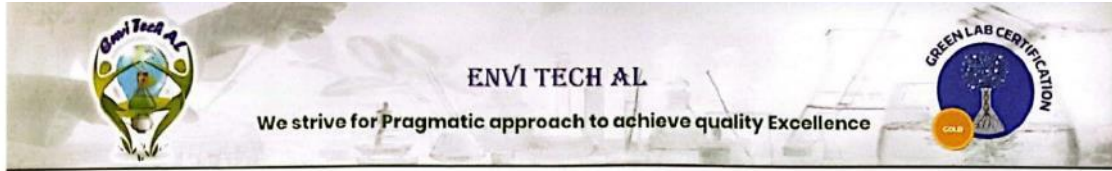
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Lab Report No: 202403610-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email: shahmeerahmed1960@gmail.com

Test ID:	VE-202403610
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission(Roller-KOMATSU-S.#JV100WP-1-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0197	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	82.6	85

Note : Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
 N.D. = Not Detected.

M. Salman

Analyzed By (Analyst)

[Signature]

Reviewed By (Assistant Manager)



[Signature]

Approved By (Lab Manager)

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ETAL-LAB-708-FF-06	Issue Date: 03-10-22	Issue:03 Rev:02

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Lab Report No: 202403612-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email: shahmeerahmed1960@gmail.com

Test ID:	VE-202403612
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Transit Mixer-HINO-MD# FS2KKB-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0389	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.1	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22



Issue:03 Rev:02



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Lab Report No: 202403611-ACC-VEPage No: 1 of 1Invoice Bill No: Inv-AGC-649Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email shahmeerahmed1960@gmail.com

Test ID:	VE-202403611
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Transit Mixer-HINO-MD# FS1FKB-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0386	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.8	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

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N.D. = Not Detected.

M. A. Khan

Analyzed By (Analyst)

E. J. Khan

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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[Certificate # 20210133]



[LAB./C/ENVI TECH AL-1/20/264/2022]



[Certificate # 20210133]

ETAL-LAB-708-FF-06

Issue Date: 03-10-22

Issue:03 Rev:02



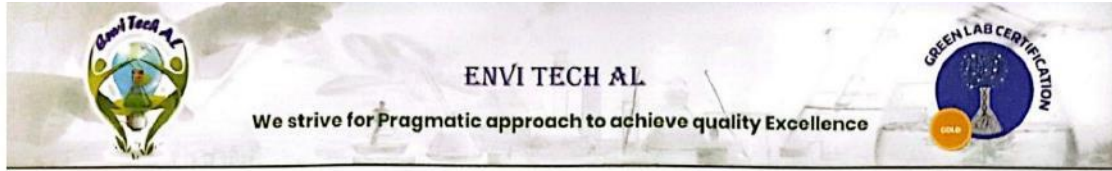
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Lab Report No: 202403613-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
-------------------	---

Test ID:	VE-202403613
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Transit Mixer-HINO-MD# FS2KKB-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0392	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	80.7	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

M. Salman
Analyzed By (Analyst)

E. J.
Reviewed By (Assistant Manager)

K. Iqbal
Approved By (Lab Manager)

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Lab Report No: 202403620-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email: shahmeerahmed1960@gmail.com

Test ID:	VE-202403620
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Grader-KOMATSU-MD# GD-376H-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0368	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	81.8	85

Note: Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



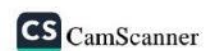
Approved By (Lab Manager)

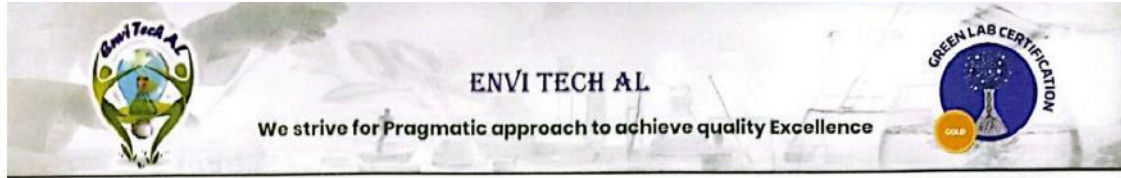
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Lab Report No: 202403619-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email shahmeerahmed1960@gmail.com

Test ID:	VE-202403619
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission(Pick up-TOYOTA-MD#LN85R-TRKRS-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0378	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	80.6	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

M. Salman
Analyzed By (Analyst)

[Signature]
Reviewed By (Assistant Manager)

[Signature]
Approved By (Lab Manager)

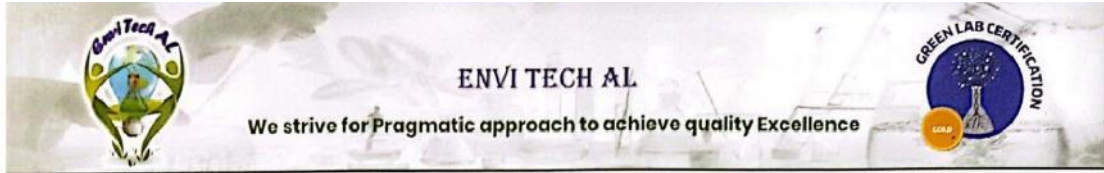
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Lab Report No: 202403618-ACC-VEPage No: 1 of 1Invoice Bill No: Inv-AGC-649Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
-------------------	---

Test ID:	VE-202403618
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Tyre Excavator-HITACHI-MD#ROVEX-1400W-7A-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0334	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83.6	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22



Issue:03 Rev:02



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Lab Report No: 202403617-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
 Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
 Email: shahmeerahmed1960@gmail.com

Test ID:	VE-202403617
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission(Excavator-HITACHI-MD#EX100WD-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0394	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	81.9	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
 N.D. = Not Detected.

M. ve alman

Analyzed By (Analyst)

Eid

Reviewed By (Assistant Manager)



Kina

Approved By (Lab Manager)

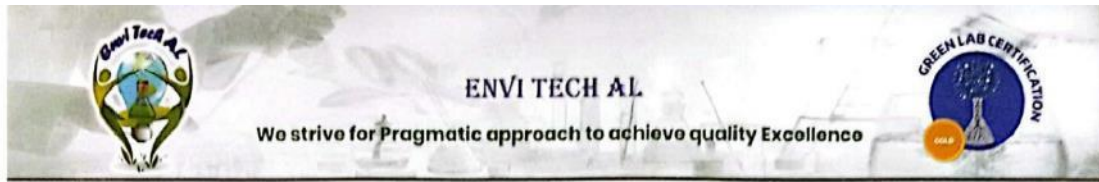
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 (Certificate # 20220183) ETAL-LAB-708-FF-06	 (LAB./C/ENVI TECH AL-1/20/264/2023) Issue Date: 03-10-22	 (Certificate # 20250132) Issue:03 Rev:02
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Lab Report No: 202403616-ACC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGC-649

Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan.
------------	--

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
------------	---


Test ID:	VE-202403616
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Water Tanker-HINO-MD#HKR-4218B-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.046	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.4	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.


Analyzed By (Analyst)


Reviewed By (Assistant Manager)


Approved By (Lab Manager)

Disclaimer:

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CS CamScanner

CS CamScanner

Lab Report No: 202403615-ACC-VEPage No: 1 of 1Invoice Bill No: Inv-AGC-649Reporting Date: 08-March-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com

Test ID:	VE-202403615
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission(Dumper-HINO-MD# TK 1921 L 30V-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0339	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.2	85

Note : Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22



Issue:03 Rev:02



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Lab Report No: 202403614-ACC-VEPage No: 1 of 1Invoice Bill No: Inv-AGC-649Reporting Date: 08-March-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Shahmeer
Email shahmeerahmed1960@gmail.com

Test ID:	VE-202403614
Test Performed Date:	01-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission(Dumper-NISSAN-MD#NILID604-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0425	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83.6	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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Environmental Monitoring on NCB 01 Karkh Valley Second Quarter April-June Ambient Air Quality Camp site



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Lab Report No: 202406038-ACC-AAQ



Page No: 1 of 1

Invoice Bill No: INV-AGC-682

Reporting Date: 05-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address: Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email: shahmeerahmed1960@gmail.com

Test ID:	AAQ-202406038
Test Performed Date:	02-June-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality-Camp Site
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	31	-
2	Humidity	%	55	-
3	Particulate matter (PM 1.0)	µg/m ³	42	500
4	Particulate matter (PM 2.5)	µg/m ³	30	35
5	Particulate matter (PM 10)	µg/m ³	73	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20	-
10	Formaldehyde	mg/m ³	0.167	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.239	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected


 Analyzed By (Analyst)


 Reviewed By (Assistant Manager)


 Approved By (Lab Manager)

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(Lab/A. C/Envi Tech AL-1/20/264/2022)
 Issue Date: 03-10-22



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Ambient Air Quality Construction site


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Lab Report No: 202406039-ACC-AAQ

Invoice Bill No: INV-AGC-682



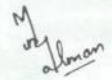
Page No: 1 of 1


Reporting Date: 05-June-2024


Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
Test ID:	AAQ-202406039
Test Performed Date:	02-June-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality-Construction Site
Test Performed By:	Envi Tech Al

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	32	-
2	Humidity	%	55	-
3	Particulate matter (PM 1.0)	µg/m ³	42	500
4	Particulate matter (PM 2.5)	µg/m ³	33	35
5	Particulate matter (PM 10)	µg/m ³	78	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20	-
10	Formaldehyde	mg/m ³	0.175	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.221	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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 ETAL-LAB-708-FF-07


 (Lab/LC/Envi Tech AL-1/20/264/2022)
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 (Certificate # 20210132)
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Ambient Air Quality Batching Plant Site

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Lab Report No: 202406037-ACC-AAQ Page No: 1 of 1
 Invoice Bill No: INV-AGC-682 Reporting Date: 05-June-2024

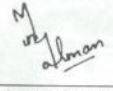



Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com


Test ID:	AAQ-202406037
Test Performed Date:	02-June-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality- Plant Site
Test Performed By:	Envi Tech Al

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	30	-
2	Humidity	%	52	-
3	Particulate matter (PM 1.0)	µg/m3	39	500
4	Particulate matter (PM 2.5)	µg/m3	29.5	35
5	Particulate matter (PM 10)	µg/m3	66.4	150
6	Carbon Monoxide (CO)	mg/m3	N.D.	10
7	Sulphur Dioxide (SO2)	µg/m3	N.D.	120
8	Nitrogen Dioxide (NO2)	µg/m3	N.D.	80
9	Oxygen (O2)	%	19.7	-
10	Formaldehyde	mg/m3	0.163	-
11	Total Volatile Organic Compounds (TVOC)	mg/m3	0.233	-
12	Ozone (O3)	µg/m3	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
 N.D. = Not Detected



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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 ETAL-LAB-708-FF-07


 (Lab/IL/Envi Tech AL-1/20/254/2022)
 Issue Date: 03-10-22


 (Certificate # 202210132)
 Issue:03 Rev:02

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Drinking Water Quality Camp Area



Lab Report No: 202406027-ACC-DW



Page No: 1 of 1

Invoice Bill No: INV-AGC-682

Reporting Date: 08-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com

Sample ID:	DW-202406027
Sample Collection Date:	02-June-2024
Sample Description:	Drinking Water (Camp Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	6.96	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	440	<1000
3	Total Hardness as CaCO ₃	ASTM D 1126	mg/L	352	< 500
4	Color	HACH 8025	TCU	N.D.	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.004	≤ 3
7	Nitrate (NO ₃)	HACH 8039	mg/L	0.2	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	59.98	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.22	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	<0.028	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	<0.0080	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	<0.013	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	N.D.	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	<0.005	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	<0.05	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	<0.0028	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	<0.0054	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	<0.01	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	<0.0045	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05



Lab Report No: 202406027-ACC-DW



Page No: 2 of 2

Invoice Bill No: INV-AGC-682

Reporting Date: 08-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
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Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
-------------------	--

Sample ID:	DW-202406027
Sample Collection Date:	02-June-2024
Sample Description:	Drinking Water (Camp Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	<0.001	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	<0.0016	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	<0.0033	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	0.2	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	<0.001	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	N.D.	-

Surface Water (Karkh River) Quality



Lab Report No: 202406028-ACC-DW



Page No: 1 of 1

Invoice Bill No: INV-AGC-682

Reporting Date: 08-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com

Sample ID:	DW-202406028
Sample Collection Date:	02-June-2024
Sample Description:	River Water
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	7.32	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	544	<1000
3	Total Hardness as CaCO3	ASTM D 1126	mg/L	328	< 500
4	Color	HACH 8025	TCU	N.D.	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.005	≤ 3
7	Nitrate (NO3)	HACH 8039	mg/L	0.4	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	185.94	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.28	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	<0.028	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	<0.0080	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	<0.013	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	N.D.	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	<0.005	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	<0.05	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	<0.0028	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	<0.0054	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	<0.01	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	0.0071	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05

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Lab Report No: 202406028-ACC-DW



Page No: 2 of 2

Invoice Bill No: INV-AGC-682

Reporting Date: 08-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
-------------------	---

Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
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Sample ID:	DW-202406028
Sample Collection Date:	02-June-2024
Sample Description:	River Water
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS-2016

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	<0.001	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	<0.0016	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	0.1045	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	0.1	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	<0.001	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	N.D.	-






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Waste Water Quality at camp area

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 Invoice Bill No: INV-AGC-682 Reporting Date: 08-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com

Sample ID:	WW-202406026
Sample Collection Date:	02-June-2024
Sampling Method:	APHA - 1060 B & C
Sample Description:	Waste water
Sample Type:	Liquid - Sample
Sample Collected By:	Envi Tech Al
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Wastewater Testing as per NEQS

Analytical Test Report							
Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS	NEQS	NEQS
					1	2	3
24	Ammonia	*HACH 8038	mg/L	0.46	40	40	-
25	Sulphate	HACH 8051	mg/L	106	600	1000	-
26	An Ionic Detergent As MBAs	*APHA 5540 C	mg/L	02	20	20	-
27	Phenolic Compounds(as Phenol)	HACH 8047	mg/L	N.D.	0.1	0.3	-
28	Boron	HACH 8015	mg/L	N.D.	6	6	-
29	Barium	HACH 8014	mg/L	N.D.	1.5	1.5	-
30	Silver	*APHA 3111-B	mg/L	N.D.	1	1	-

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Noise Tests Results on Karkh Valley





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Lab Report No: 202406040-ACC-NA  Page No: 1 of 1

Invoice Bill No: INV-AGC-682 Reporting Date: 05-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
Test ID:	NA-202406040
Test Performed Date:	02-June-2024
Test Type:	Noise Analysis
Test Performed By:	Envi Tech AL
Test Description:	Noise Analysis as per NEQS

Test Report					
Sr.#	Locations	Methods	Unit	Result	NEQS Limits
1	Camp Site	ASTM E1686-16	dB	58.6	75
2	Plant Site	ASTM E1686-16	dB	64.1	75
3	Construction Site	ASTM E1686-16	dB	71	75

Note : Measurement of uncertainty,statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected


 Analyzed By (Analyst)


 Reviewed By (Assistant Manager)


 Approved By (Lab Manager)

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(LAB)/L/ENVI TECH AL-1/20/264/2022
 Issue Date: 03-10-22


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(Certificate # 202210132)
 Issue:03 Rev:02


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Gaseous Emission from generators test results on Karkh Valley






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Lab Report No: 202406029-ACC-GAE



Page No: 1 of 1


Invoice Bill No: INV-AGC-682


Reporting Date: 05-June-2024


Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
Test ID:	GAE-202406029
Test Performed Date:	02-June-2024
Test Type:	GAE(Genset-Cummins-6CTCOMCS-SN-PE95300FC-180KVA)
Test Performed By:	Envi Tech AL
Test Description:	Gaseous Emission (As per NEQS)
Fuel Types:	oil_fired

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Smoke, Ringlemann Scale	-	1	2
2	Particulate matter	mg/Nm3	60	300
3	Carbon Monoxide (CO)	mg/Nm3	456	800
4	Nitrogen Dioxide (NO2)	mg/Nm3	120	-
5	Nitrogen Oxide (NO)	mg/Nm3	305	-
6	NOx	mg/Nm3	425	600
7	Oxygen (O2)	%	13.7	-
8	Hydrogen Sulfide(H2S)	mg/Nm3	02	10
9	Sulphur Dioxide (SO2)	mg/Nm3	215	1700
10	Carbon dioxide (CO2)	%	2.91	-
11	Hydrocarbon	%	N.D.	-
12	Noise	dB	87.9	-

Note : Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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(Lab/L.C/Envi Tech AL-1/20/264/2022)


(Certificate # 20210132)

ETAL-LAB-708-FF-05



Issue Date: 03-10-22

Issue:03 Rev:02


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Vehicular Emission Tests Results on Karkh Valley

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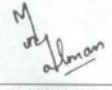
Lab Report No: 202406036-ACC-VE  Page No: 1 of 1
 Invoice Bill No: INV-AGC-682 Reporting Date: 05-June-2024


Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com


Test ID:	VE-202406036
Test Performed Date:	02-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Transit Mixer-HINO-FS1FKB-101741036-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0358	6
2	Smoke Ringlemann Scale	-	1	2
3	Noise	dB	82.9	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
 N.D. = Not Detected.



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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 (Certificate # 20210132)

ETAL-LAB-708-FF-06	Issue Date: 03-10-22	Issue:03 Rev:02
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Lab Report No: 202406035-ACC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGC-682

Reporting Date: 05-June-2024

Report to: M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address Khuzdar, Balochistan, Pakistan

Attention: Mr. Shahmeer
Email shahmeerahmed1960@gmail.com

Test ID:	VE-202406035
Test Performed Date:	02-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Transit Mixer- ZWZG- ZWZG2200-ZW202101025-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0321	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.3	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

M. Salman
Analyzed By (Analyst)

E. J. Khan
Reviewed By (Assistant Manager)

Envi Tech AL
Approved By (Lab Manager)

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Lab Report No: 202406034-ACC-VEPage No: 1 of 1Invoice Bill No: INV-AGC-682Reporting Date: 05-June-2024

Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com
Test ID:	VE-202406034
Test Performed Date:	02-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Chain Excavator-HITACHI-EX 300- 107-38776-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0307	6
2	Smoke Ringlemann Scale	-	1	2
3	Noise	dB	82	85

Note :-Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

M. Iqbal
Analyzed By (Analyst)

[Signature]
Reviewed By (Assistant Manager)

[Signature]
Approved By (Lab Manager)

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ETAL-LAB-708-FF-06

Issue Date: 03-10-22

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Lab Report No: 202406033-ACC-VE

Invoice Bill No: INV-AGC-682



Page No: 1 of 1

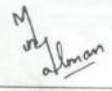
Reporting Date: 05-June-2024


Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com


Test ID:	VE-202406033
Test Performed Date:	02-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Pick up- TOYOTA-MD # LN85R-TRKRS-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0227	6
2	Smoke Ringlemann Scale	-	1	2
3	Noise	dB	81.7	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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Lab Report No: 202406032-ACC-VE

Invoice Bill No: INV-AGC-682



Page No: 1 of 1

Reporting Date: 05-June-2024

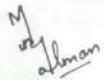
Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company
Address	Khuzdar, Balochistan, Pakistan

Attention:	Mr. Shahmeer
Email	shahmeerahmed1960@gmail.com

Test ID:	VE-202406032
Test Performed Date:	02-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Dumper-NISSAN- MD No: NIL1D 604 HBELR-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0231	6
2	Smoke Ringlemann Scale	-	1	2
3	Noise	dB	81.2	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.



Analized By (Analyst)



Reviewed By (Assistant Manager)




Approved By (Lab Manager)

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Lab Report No: 202406031-ACC-VE

Invoice Bill No: INV-AGC-682



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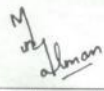
Reporting Date: 05-June-2024


Report to:	M/s. Zahir Khan & Brothers (JV) Agha Construction Company Address Khuzdar, Balochistan, Pakistan
Attention:	Mr. Shahmeer Email shahmeerahmed1960@gmail.com


Test ID:	VE-202406031
Test Performed Date:	02-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE(Tyre Excavator-HITACHI-MD # EX-100 WD-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0205	6
2	Smoke Ringlemann Scale	-	1	2
3	Noise	dB	80	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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 Issue Date: 03-10-22


NO 1486/2023 Registered
(Certificate # 20210132)
 Issue:03 Rev:02

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Photographic Evidences of Environmental Monitoring January-June



Ambient air and noise level detection at camp area



Gaseous emission test



Karkh River Water Test



Ambient air test at Karkh construction site









Environmental Monitoring at batching plant site

Annexure XIII: Environmental Monitoring on Kharzan Hatachi during March 2024

A. Ambient Air

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Lab Report No: 2024323-ABC-AAQ		Page No: 1 of 1		CATION
Invoice Bill No: INV-AGB-650		Reporting Date: 15-March-2024		
Report to:	M/s. Agha Brothers Construction Company Address: Khuzdar, Balochistan, Pakistan.			
Attention:	Mr. Safdar Ali Email: aghabrotherscc799@gmail.com			
Test ID:		AAQ-2024323		
Test Performed Date:		08-March-2024		
Test Description:		Ambient Air Quality (As per NEQS)		
Test Type & Location:		Ambient Air Quality- South		
Test Performed By:		Envi Tech Al		
Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	28	-
2	Humidity	%	45	-
3	Particulate matter (PM 1.0)	µg/m ³	40	500
4	Particulate matter (PM 2.5)	µg/m ³	31	35
5	Particulate matter (PM 10)	µg/m ³	60	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20	-
10	Formaldehyde	mg/m ³	0.022	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.178	-
12	Ozone (O ₃)	µg/m ³	N.D.	130
Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand. NEQS Limits = National Environmental Quality Standard (Reference: NEQS) 1=NEQS for Municipal & Liquid Industrial Effluent into inland waters.				
Analyzed By (Analyst)		Reviewed By (Assistant Manager)		Approved By (Lab Manager)
Disclaimer: <ul style="list-style-type: none"> Report is valid for current batch (sample). This report is not valid for any publication or judicial purpose. Envi Tech AL is not responsible for the sample identification and data shared by the client. The sample shall be discarded after five working days unless otherwise instructed. Our test reports can be verified by scanning System-generated QR Code. 				
ETAL-LAB-708-FF-07		Issue Date: 03-10-2024		Issue: 03 rev: 02

ENVI TECH AL		We strive for Pragmatic approach to achieve quality Excellence		
Lab Report No: 2024321-ABC-AAQ		Page No: 1 of 1		
Invoice Bill No: INV-AGB-650		Reporting Date: 15-March-2024		
Report to:	M/s. Agha Brothers Construction Company Address: Khuzdar, Balochistan, Pakistan.			
Attention:	Mr. Safdar Ali Email: aghabrotherscc799@gmail.com			
Test ID:	AAQ-2024321			
Test Performed Date:	08-March-2024			
Test Description:	Ambient Air Quality (As per NEQS)			
Test Type & Location:	Ambient Air Quality- West			
Test Performed By:	Envi Tech Al			
Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	27	-
2	Humidity	%	45	-
3	Particulate matter (PM 1.0)	µg/m ³	39	500
4	Particulate matter (PM 2.5)	µg/m ³	30	35
5	Particulate matter (PM 10)	µg/m ³	79	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20	-
10	Formaldehyde	mg/m ³	0.045	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.188	-
12	Ozone (O ₃)	µg/m ³	N.D.	130
Note :Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand. NEQS Limits = National Environmental Quality Standard (Reference: NEQS) 1=NEQS for Municipal & Liquid Industrial Effluent into Inland waters.				
 Analyzed By (Analyst)		 Reviewed By (Assistant Manager)		 Approved By (Lab Manager)
Disclaimer: <ul style="list-style-type: none"> Report is valid for current batch (sample). This report is not valid for any publication or judicial purpose. Envi Tech AL is not responsible for the sample identification and data shared by the client. The sample shall be discarded after five working days unless otherwise instructed. Our test reports can be verified by scanning System-generated QR Code. 				
 (Certificate # 202301134)		 (Lab/LC/Prod Test) # 202302223 (Certificate # 20231202)		
ETAL-LAB-708-PF-07		Issue Date: 03-20-24		Issue rev:02



Lab Report No: 2024322-ABC-AAQ



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
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Test ID:	AAQ-2024322
Test Performed Date:	08-March-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality- North
Test Performed By:	Envi Tech Al

Test Report

Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	29	-
2	Humidity	%	42	-
3	Particulate matter (PM 1.0)	µg/m ³	55	500
4	Particulate matter (PM 2.5)	µg/m ³	30	35
5	Particulate matter (PM 10)	µg/m ³	80	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20	-
10	Formaldehyde	mg/m ³	0.099	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.172	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

1=NEQS for Municipal & Liquid Industrial Effluent into inland waters.

Analyzed By (Analyst)

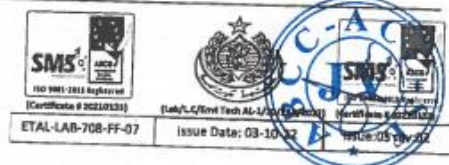
Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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Lab Report No: 2024320-ABC-AAQ

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	AAQ-2024320
Test Performed Date:	08-March-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality- East
Test Performed By:	Envi Tech Al

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	26	-
2	Humidity	%	45	-
3	Particulate matter (PM 1.0)	µg/m ³	30	500
4	Particulate matter (PM 2.5)	µg/m ³	25	35
5	Particulate matter (PM 10)	µg/m ³	60	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20	-
10	Formaldehyde	mg/m ³	0.078	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.179	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 1=NEQS for Municipal & Liquid Industrial Effluent into inland waters.

M. Salman
 Analyzed By (Analyst)

E. J.
 Reviewed By (Assistant Manager)

ENVI TECH AL
K. Vira
 Approved By (Lab Manager)

- Disclaimer:**
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 - This report is not valid for any publication or judicial purpose.
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ETAL-LAB-708-FF-07



Issue Date: 03-10-22

B. Ambient Noise**C. Drinking Water Camp Site**

Lab Report No: 2024317-ABC-DW



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
Sample ID:	DW-2024317
Sample Collection Date:	08-March-2024
Sample Description:	Drinking Water (Camp Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	08-March-2024 to 15-March-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	7.50	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	420	<1000
3	Total Hardness as CaCO ₃	ASTM D 1126	mg/L	360	< 500
4	Color	HACH 8025	TCU	02	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.003	≤ 3
7	Nitrate (NO ₃)	HACH 8039	mg/L	0.10	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	61	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.45	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	N.D.	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	N.D.	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	N.D.	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	N.D.	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	N.D.	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	N.D.	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	N.D.	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05



Lab Report No: 2024317-ABC-DWPage No: 2 of 2Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Sample ID:	DW-2024317
Sample Collection Date:	08-March-2024
Sample Description:	Drinking Water (Camp Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	08-March-2024 to 15-March-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report					
Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	N.D.	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	N.D.	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	N.D.	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	N.D.	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	N.D.	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	N.D.	-





Lab Report No: 2024317-ABC-DW



Page No: 3 of 3

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email aghabrotherscc799@gmail.com

Sample ID:	DW-2024317
Sample Collection Date:	08-March-2024
Sample Description:	Drinking Water (Camp Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	08-March-2024 to 15-March-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand. Environmental Conditions at the time of Testing; Temperature: 24 °C (±1°C) & Humidity: 44 % (± 3%).

*APHA Standard Methods for Examination of water & wastewater 23rd Edition (2017).

HACH 8025 (HACH Edition 10, 2014), HACH 8027 (HACH Edition 09, 2014), HACH 10069 (HACH Edition 11, 2014), HACH 8029 (HACH Edition 10, 2018),

HACH 8015 (HACH Edition 08, 2014), HACH 8507 (HACH Edition 11, 2019), HACH 8039 (HACH Edition 10, 2019).

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

N.D. = Not Detected.

2024317-ABC-DW

M. Salman

Analyzed By (Analyst)

E. J.

Reviewed By (Assistant Manager)



K. Ishaq

Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-02

Issue Date: 03-18-22

ISSUE NO: 03/FF/02

D. Drinking Water Construction Site

Lab Report No: 2024316-ABC-DWPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
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Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
------------	---

Sample ID:	DW-2024316
Sample Collection Date:	08-March-2024
Sample Description:	Drinking Water (SITE Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	08-March-2024 to 15-March-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	8.00	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	350	<1000
3	Total Hardness as CaCO3	ASTM D 1126	mg/L	200	< 500
4	Color	HACH 8025	TCU	03	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.002	≤ 3
7	Nitrate (NO3)	HACH 8039	mg/L	0.2	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	99.96	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.34	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	N.D.	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	N.D.	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	N.D.	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	N.D.	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	N.D.	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	N.D.	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	N.D.	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	N.D.	≤ 0.05
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	



Lab Report No: 2024316-ABC-DWPage No: 2 of 2Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Sample ID:	DW-2024316
Sample Collection Date:	08-March-2024
Sample Description:	Drinking Water (SITE Area)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	08-March-2024 to 15-March-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	N.D.	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	N.D.	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	N.D.	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	N.D.	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	N.D.	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	N.D.	-



E. Wastewater

Lab Report No: 2024318-ABC-WWPage No: 2 of 2Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
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Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Sample ID:	WW-2024318
Sample Collection Date:	08-March-2024
Sampling Method:	APHA - 1060 B & C
Sample Description:	Waste water
Sample Type:	Liquid - Sample
Sample Collected By:	Envi Tech Al
Date Of Analysis:	08-March-2024 to 15-March-2024
Test Description:	Wastewater Testing as per NEQS

Analytical Test Report							
Sr.#	Parameter/Analytes Description	Methods	Unit	Result	NEQS	NEQS	NEQS
					1	2	3
24	Ammonia	*HACH 8038	mg/L	0.72	40	40	-
25	Sulphate	HACH 8051	mg/L	90	600	1000	-
26	An Ionic Detergent As MBAs	*APHA 5540 C	mg/L	03	20	20	-
27	Phenolic Compounds(as Phenol)	HACH 8047	mg/L	N.D.	0.1	0.3	-
28	Boron	HACH 8015	mg/L	N.D.	6	6	-
29	Barium	HACH 8014	mg/L	N.D.	1.5	1.5	-
30	Silver	*APHA 3111-B	mg/L	N.D.	1	1	-



F. Gaseous Emissions

Lab Report No: 2024326-ABC-GAEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
------------	---

Test ID:	GAE-2024326
Test Performed Date:	08-March-2024
Test Type:	GAE (GEN - CUMMINS ONON-300 KVA-Diesel)
Test Performed By:	Envi Tech AL
Test Description:	Gaseous Emission (As per NEQS)
Fuel Types:	oil_fired

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	SEQS Limits
1	Smoke, Ringlemann Scale	-	01	2
2	Particulate matter	mg/Nm ³	78	300
3	Carbon Monoxide (CO)	mg/Nm ³	420	800
4	Nitrogen Dioxide (NO ₂)	mg/Nm ³	102	-
5	Nitrogen Oxide (NO)	mg/Nm ³	380	-
6	NOx	mg/Nm ³	500	600
7	Oxygen (O ₂)	%	12.9	-
8	Hydrogen Sulfide(H ₂ S)	mg/Nm ³	06	10
9	Sulphur Dioxide (SO ₂)	mg/Nm ³	352	1700
10	Carbon dioxide (CO ₂)	%	3.88	-
11	Hydrocarbon	%	N.D.	-
12	Noise	dB	80.2	-

Note : Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

1=NEQS for Municipal & Liquid Industrial Effluent into Inland waters.

2= NEQS for Municipal & Liquid Industrial Effluent into Sewage Treatment.

N.D. = Not Detected.

M. Agha
Analyzed By (Analyst)

E. J.
Reviewed By (Assistant Manager)

K. I.
Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-05

Issue Date: 03-10-23

Issue: 03-Nov-23

G. Generators



Lab Report No: 2024325-ABC-GAE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	GAE-2024325
Test Performed Date:	08-March-2024
Test Type:	GAE (GEN - CUMMINS ONON-350 KVA-Diesel)
Test Performed By:	Envi Tech AL
Test Description:	Gaseous Emission (As per NEQS)
Fuel Types:	oil_fired

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Smoke, Ringlemann Scale	-	01	2
2	Particulate matter	mg/Nm ³	80	300
3	Carbon Monoxide (CO)	mg/Nm ³	377	800
4	Nitrogen Dioxide (NO ₂)	mg/Nm ³	111	-
5	Nitrogen Oxide (NO)	mg/Nm ³	350	-
6	NO _x	mg/Nm ³	477	600
7	Oxygen (O ₂)	%	12.2	-
8	Hydrogen Sulfide(H ₂ S)	mg/Nm ³	05	10
9	Sulphur Dioxide (SO ₂)	mg/Nm ³	303	1700
10	Carbon dioxide (CO ₂)	%	3.99	-
11	Hydrocarbon	%	N.D.	-
12	Noise	dB	82.9	-

Note: Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

1=NEQS for Municipal & Liquid Industrial Effluent into inland waters.

2= NEQS for Municipal & Liquid Industrial Effluent into Sewage Treatment.

N.D. = Not Detected.

M. J. Khan
Analyst

Analized By (Analyst)

E. J. Khan
Assistant Manager

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-05



Issue Date: 03-10-22



Issue: 03 Rev: 02

Lab Report No: 2024324-ABC-GAEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	GAE-2024324
Test Performed Date:	08-March-2024
Test Type:	GAE (GEN-EXCELLENT 25 ES -5630519-25 KVA-Diesel)
Test Performed By:	Envi Tech AL
Test Description:	Gaseous Emission (As per NEQS)
Fuel Types:	oil_fired

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Smoke, Ringlemann Scale	-	01	2
2	Particulate matter	mg/Nm ³	55	300
3	Carbon Monoxide (CO)	mg/Nm ³	222	800
4	Nitrogen Dioxide (NO ₂)	mg/Nm ³	106	-
5	Nitrogen Oxide (NO)	mg/Nm ³	300	-
6	NO _x	mg/Nm ³	450	600
7	Oxygen (O ₂)	%	12.9	-
8	Hydrogen Sulfide(H ₂ S)	mg/Nm ³	03	10
9	Sulphur Dioxide (SO ₂)	mg/Nm ³	277	1700
10	Carbon dioxide (CO ₂)	%	2.02	-
11	Hydrocarbon	%	N.D.	-
12	Noise	dB	78.3	-

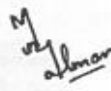
Note : Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.


NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

1=NEQS for Municipal & Liquid Industrial Effluent Into Inland waters.

2= NEQS for Municipal & Liquid Industrial Effluent Into Sewage Treatment.

N.D. = Not Detected.


Analyzed By (Analyst)


Reviewed By (Assistant Manager)


Approved By (Lab Manager)

Disclaimer:

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- This report is not valid for any publication or judicial purpose.
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ETAL-LAB-708-FF-05



Issue Date: 03-10-22



H. Vehicle Emission



Lab Report No: 2024327-ABC-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024



Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
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Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Test ID:	VE-2024327
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Transit Mixer-HINO-MD# FR2-PPD-S.# 10019-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0300	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	83	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. J. Khan
Analyzed By (Analyst)

E. J.
Reviewed By (Assistant Manager)

K. J.
Approved by (Lab Manager)

Disclaimer:

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- Our test reports can be verified by scanning System-generated QR Code.

ETAL-LAB-708-FF-06 Issue Date: 03-15-24 Issue Rev:02



Lab Report No: 2024328-ABC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024328
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Transit Mixer-HINO-MD# FR1-K2H-S.# 12928-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0500	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	83.5	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

N.D. = Not Detected.

M. Safdar Ali
 Analyzed By (Analyst)

Safdar Ali
 Reviewed By (Assistant Manager)

K. Ishaq
 Approved By (Lab Manager)

Disclaimer:

- Report is valid for current batch (sample).
- This report is not valid for any publication or judicial purpose.
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- The sample shall be discarded after five working days unless otherwise instructed.
- Our test reports can be verified by scanning System-generated QR Code.

ETAL-LAB-708-FF-06 | Issue Date: 03-10-22 | Issue 03 Rev:02

Lab Report No: 2024329-ABC-VEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Test ID:	VE-2024329
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Dumper-HINO-MD# FR1-K2H-S.# 12928-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0400	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	83	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

N.D. = Not Detected.

M. J. Khan
Analyzed By (Analyst)

E. J. Khan
Reviewed By (Assistant Manager)

K. J. Khan
Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22

Issue:03 Rev:02



Lab Report No: 2024330-ABC-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650



Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
 Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
 Email aghabrotherscc799@gmail.com

Test ID:	VE-2024330
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Dumper-HINO-MD# FR1-KXH-S.# 10896-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0300	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	84	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

2024330-ABC-VE

Analyzed By (Analyst)

Reviewed By (Assistant Manager)

Approved By (Lab Manager)

Disclaimer:

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- This report is not valid for any publication or judicial purpose.
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ETAL-LAB-708-FF-06 Issue Date: 03-10-22 Issued 03 Rev:02



Lab Report No: 2024332-ABC-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
 Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
 Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024332
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Dumper-MD# FRI-FNB-S.# 10300-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0250	6
2	Smoke Ringelmann Scale	-	N.D.	2
3	Noise	dB	81	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

M. Salman
 Analyzed By (Analyst)

E. J.
 Reviewed By (Assistant Manager)

K. J.
 Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06 | Issue Date: 09-10-22 | Issued By: Rev:02



Lab Report No: 2024333-ABC-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024



Report to: M/s. Agha Brothers Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email aghabrotherscc799@gmail.com

Test ID:	VE-2024333
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Tanker- MD # FF174LA- S. # 11667-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0402	6
2	Smoke Ringelmann Scale	-	N.D.	2
3	Noise	dB	84	85

Note :Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. Salman

Analyzed By (Analyst)

E.A.

Reviewed By (Assistant Manager)



K. Ishaq

Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-70B-FF-06



Issue Date: 08-02-22 Issue:03 Rev:02

Lab Report No: 2024334-ABC-VEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024334
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Loader-CATERPILLAR-MD # 2760- S. # 20700-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0660	6
2	Smoke Ringelmann Scale	-	N.D.	2
3	Noise	dB	82	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. Agha
Analyzed By (Analyst)

E. J.
Reviewed By (Assistant Manager)

K. Umar
Approved By (Lab Manager)

Disclaimer:

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Lab Report No: 2024336-ABC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
 Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
 Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024336
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Excavator-Hydraulic-MD # EX-270LC-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0333	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	84	85

Note :Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

M. Salman

Analyzed By (Analyst)

E. J. Ali

Reviewed By (Assistant Manager)



H. Isha

Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22

Issue:03 Rev:02



Lab Report No: 2024344-ABC-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024



Report to: M/s. Agha Brothers Construction Company
 Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
 Email aghabrotherscc799@gmail.com

Test ID:	VE-2024344
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Grader-CAT-MD # S-61-M09029-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0750	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	84.4	85

Note :Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

M. J. Khan
 Analyzed By (Analyst)

E. J. Khan
 Reviewed By (Assistant Manager)

K. J. Khan
 Approved By (Lab Manager)

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22

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Lab Report No: 2024340-ABC-VE

Invoice Bill No: INV-AGB-650

Page No: 1 of 1

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
 Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
 Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024340
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Pickup-Toyota-No.Plate WAA-228-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0212	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	79	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

2024340-ABC-VE

M. J. alman
 Analyzed By (Analyst)

Eid
 Reviewed By (Assistant Manager)

Kina
 Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-PF-06

Issue Date: 03-20-24

Issued Rev:02

Lab Report No: 2024342-ABC-VEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Test ID:	VE-2024342
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Truck-HINO-No.Plate TLH-464-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0404	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	80.9	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)
Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22

Issue:03 Rev:02



Lab Report No: 2024343-ABC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Test ID:	VE-2024343
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Pickup-Toyota-No.Plate WPA-445-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0505	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	84	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. Aman

Analyzed By (Analyst)

E.A.

Reviewed By (Assistant Manager)



Approved by (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06



Issue Date: 03-10-22

Issue:03 Rev:02



Lab Report No: 2024344-ABC-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024344
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Grader-CAT-MD # S-61-M09029-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0750	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	84.4	85

Note :Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

M. J. Alam
 Analyzed By (Analyst)

E. J. D.
 Reviewed By (Assistant Manager)

K. U. A.
 Approved By (Lab Manager)

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Lab Report No: 2024345-ABC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
 Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
 Email aghabrotherscc799@gmail.com

Test ID:	VE-2024345
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Roller-DYNAPAC-MD# CA-25PD-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0777	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	84.1	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

2024345-1

M. Azam
 Analyzed By (Analyst)

E. J.
 Reviewed By (Assistant Manager)

K. Umar
 Approved By (Lab Manager)

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ETAL-LAB-708-FF-06 Issue Date: 03-10-22 Issue:03 Rev:02

Lab Report No: 2024346-ABC-VEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address: Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar Ali
Email: aghabrotherscc799@gmail.com

Test ID:	VE-2024346
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Transit Mixer-No. Plate TKE-881-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0299	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83	85

Note : Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
 N.D. = Not Detected.

M. Agha
 Analyzed By (Analyst)

Safdar Ali
 Reviewed By (Assistant Manager)

K. J. V.
 Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-06

Issue Date: 03-10-22 | Code: 03 Rev: 02



Lab Report No: 2024347-ABC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
------------	--

Attention:	Mr. Safdar All Email aghabrotherscc799@gmail.com
------------	---

Test ID:	VE-2024347
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Misl Tractor-MD # MF-240-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0313	6
2	Smoke Ringiemann Scale	-	01	2
3	Noise	dB	82.9	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. J. alman
Analyzed By (Analyst)

E. J. al
Reviewed By (Assistant Manager)

H. J. ina
Approved By (Lab Manager)

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(Certificate # 202201151)
ETAL-LAB-708-FF-06

(Certificate # 202201152)
Issue Date: 03-10-22

(Certificate # 202201153)
Issue Rev:02

Lab Report No: 2024348-ABC-VEPage No: 1 of 1Invoice Bill No: INV-AGB-650Reporting Date: 15-March-2024

Report to: M/s. Agha Brothers Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Safdar All
Email aghabrotherscc799@gmail.com

Test ID:	VE-2024348
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	Vehicular Emission (Loader-CAT-MD # 950-B-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0222	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

N.D. = Not Detected.

M. J. Allman
Analyzed By (Analyst)

E. J.
Reviewed By (Assistant Manager)

K. J.
Approved By (Lab Manager)

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Lab Report No: 2024349-ABC-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-650

Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Test ID:	VE-2024349
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Excavator-HYUNDAI 450 -No. Plate: IM 66-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0325	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	81	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. Agha
Analyzed By (Analyst)

E. J.
Reviewed By (Assistant Manager)

K. J.
Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-05 Issue Date: 03-10-22 Issue:03 Rev:02



Lab Report No: 2024350-ABC-VE



Page No: 1 of 1

Invoice Bill No: Inv-AGB-407

Reporting Date: 15-March-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Safdar Ali Email aghabrotherscc799@gmail.com
-------------------	---

Test ID:	VE-2024350
Test Performed Date:	08-March-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Tractor-Loader-Millat-MD #MF-240-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0356	6
2	Smoke Ringiemann Scale	-	01	2
3	Noise	dB	82	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard (Reference: NEQS)
N.D. = Not Detected.

M. Agha
Analyzed By (Analyst)

E. A.
Reviewed By (Assistant Manager)

K. Ishaq
Approved By (Lab Manager)

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ETAL-LAB-708-FF-06 Issue Date: 03-10-22 Issue:03 Rev:02

Environmental Monitoring on Kharzan Hatachi June 2024

A. Ambient Air

ENVI TECH AL		GREEN LAB CERTIFICATION		
We strive for Pragmatic approach to achieve quality Excellence				
Lab Report No: 202406020-AGB-AAQ		Page No: 1 of 1		
Invoice Bill No: INV-AGB-683		Reporting Date: 05-June-2024		
Report to:	M/s. Agha Brothers Construction Company Address: Khuzdar, Balochistan, Pakistan.			
Attention:	Mr. Waqas Email: aghabrotherscc799@gmail.com			
Test ID:	AAQ-202406020			
Test Performed Date:	01-June-2024			
Test Description:	Ambient Air Quality (As per NEQS)			
Test Type & Location:	Ambient Air Quality- Construction Site			
Test Performed By:	Envi Tech AL			
Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	31	-
2	Humidity	%	53	-
3	Particulate matter (PM 1.0)	µg/m ³	74	500
4	Particulate matter (PM 2.5)	µg/m ³	33.1	35
5	Particulate matter (PM 10)	µg/m ³	80.6	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20.7	-
10	Formaldehyde	mg/m ³	0.169	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.246	-
12	Ozone (O ₃)	µg/m ³	N.D.	130
Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand. NEQS Limits = National Environmental Quality Standard N.D. = Not Detected.				
 Analyzed By (Analyst)		 Reviewed By (Assistant Manager)		 Approved By (Lab Manager)
Disclaimer:				
<ul style="list-style-type: none"> • Report is valid for current batch (sample). • This report is not valid for any publication or judicial purpose. • Envi Tech AL is not responsible for the sample identification and data shared by the client. • The sample shall be discarded after five working days unless otherwise instructed. • Our test reports can be verified by scanning System-generated QR Code. 				
 ETAL-LAB-708-FF-07		 Issue Date: 03-10-22		 Issue:03 Rev:02
Head Office: 345, First Floor, Street-15, Block-3, Bahadurabad, Karachi, 75900, Pakistan, 0310-2288801		Lahore Office: 87-E Madina Height, Office # A/30 & A/31, 8 th Floor, Maulana Shaukat Ali Road, Johar Town, Lahore. +92 42 32296099		info@envitechal.com www.envitechal.com

Lab Report No: 202406019-AGB-AAQPage No: 1 of 1Invoice Bill No: INV-AGB-683Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
Test ID:	AAQ-202406019
Test Performed Date:	01-June-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality- Plant Site
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	30	-
2	Humidity	%	52	-
3	Particulate matter (PM 1.0)	µg/m ³	32	500
4	Particulate matter (PM 2.5)	µg/m ³	29.4	35
5	Particulate matter (PM 10)	µg/m ³	84.7	150
6	Carbon Monoxide (CO)	mg/m ³	N.D.	10
7	Sulphur Dioxide (SO ₂)	µg/m ³	N.D.	120
8	Nitrogen Dioxide (NO ₂)	µg/m ³	N.D.	80
9	Oxygen (O ₂)	%	20.1	-
10	Formaldehyde	mg/m ³	0.024	-
11	Total Volatile Organic Compounds (TVOC)	mg/m ³	0.181	-
12	Ozone (O ₃)	µg/m ³	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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ETAL-LAB-708-FF-07



[Lab/L-C/Envi Tech AL-1/20/264/2022]



Issue:03 Rev:02



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Lab Report No: 202406018-AGB-AAQ



Page No: 1 of 1

Invoice Bill No: INV-AGB-683

Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Test ID:	AAQ-202406018
Test Performed Date:	01-June-2024
Test Description:	Ambient Air Quality (As per NEQS)
Test Type & Location:	Ambient Air Quality- Camp Site
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Temperature	°C	29	-
2	Humidity	%	48	-
3	Particulate matter (PM 1.0)	µg/m3	53	500
4	Particulate matter (PM 2.5)	µg/m3	28.6	35
5	Particulate matter (PM 10)	µg/m3	74.2	150
6	Carbon Monoxide (CO)	mg/m3	N.D.	10
7	Sulphur Dioxide (SO2)	µg/m3	N.D.	120
8	Nitrogen Dioxide (NO2)	µg/m3	N.D.	80
9	Oxygen (O2)	%	20.4	-
10	Formaldehyde	mg/m3	0.034	-
11	Total Volatile Organic Compounds (TVOC)	mg/m3	0.0187	-
12	Ozone (O3)	µg/m3	N.D.	130

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.



Analyzed By (Analyst)



Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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ETAL-LAB-708-FF-07

Issue Date: 03-10-22

Issue:03 Rev:02

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B. Ambient Noise


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Lab Report No: 202406021-AGB-NA **Page No:** 1 of 1
Invoice Bill No: INV-AGB-683 **Reporting Date:** 05-June-2024



Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Test ID:	NA-202406021
Test Performed Date:	01-June-2024
Test Type:	Noise Analysis
Test Performed By:	Envi Tech AL
Test Description:	Noise Analysis as per NEQS

Test Report					
Sr.#	Locations	Methods	Unit	Result	NEQS Limits
1	Camp Site	ASTM E1686-16	dB	52.7	75
2	Plant Site	ASTM E1686-16	dB	67.3	75
3	Construction Site	ASTM E1686-16	dB	70.1	75

Note : Measurement of uncertainty,statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
 NEQS Limits = National Environmental Quality Standard
 N.D. = Not Detected.

M. ul-ahman

Analyzed By (Analyst)

E. J. I.

Reviewed By (Assistant Manager)

K. I. A.

Approved By (Lab Manager)

Disclaimer:

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(Certificate # 202103181)
 ETAL-LAB-708-FF-10


(LAB/ILC/ENV/TECH AL-1/20/2004/2002)
 Issue Date: 03-10-22


(Certificate # 202303182)
 Issue:03 Rev:02

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C. Drinking Water Plant Site



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Lab Report No: 202406025-AGB-DW
Invoice Bill No: Inv-AGB-683



Page No: 1 of 1
Reporting Date: 08-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Sample ID:	DW-202406025
Sample Collection Date:	01-June-2024
Sample Description:	Drinking Water (Plant Site)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report					
Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	8.22	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	408	<1000
3	Total Hardness as CaCO3	ASTM D 1126	mg/L	194	< 500
4	Color	HACH 8025	TCU	01	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.003	≤ 3
7	Nitrate (NO3)	HACH 8039	mg/L	0.2	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	155.95	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.29	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	<0.028	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	<0.0080	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	<0.013	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	0.1	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	<0.005	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	<0.05	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	<0.0028	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	<0.0054	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	<0.01	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	<0.0045	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05


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Lab Report No: 202406025-AGB-DW

Invoice Bill No: Inv-AGB-683



Page No: 1 of 1

Reporting Date: 08-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Sample ID:	DW-202406025
Sample Collection Date:	01-June-2024
Sample Description:	Drinking Water (Plant Site)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report					
Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	8.22	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	408	<1000
3	Total Hardness as CaCO ₃	ASTM D 1126	mg/L	194	< 500
4	Color	HACH 8025	TCU	01	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.003	≤ 3
7	Nitrate (NO ₃)	HACH 8039	mg/L	0.2	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	155.95	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.29	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	<0.028	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	<0.0080	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	<0.013	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	0.1	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	<0.005	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	<0.05	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	<0.0028	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	<0.0054	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	<0.01	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	<0.0045	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05



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D. Drinking Water Camp Site

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
1	pH @ 25°C	*APHA 4500 H	-	7.67	6.5 - 8.5
2	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	536	<1000
3	Total Hardness as CaCO3	ASTM D 1126	mg/L	316	< 500
4	Color	HACH 8025	TCU	01	≤ 15
5	Turbidity	*APHA 2130	NTU	<1	≤ 5
6	Nitrite	HACH 8507	mg/L	0.005	≤ 3
7	Nitrate (NO3)	HACH 8039	mg/L	0.3	≤ 50
8	Taste	*APHA 2160	-	Tasteless	Non-Objectionable
9	Odor	*APHA 2150	-	Odorless	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	179.94	≤ 250
11	Fluoride (F)	HACH 8029	mg/L	0.35	≤ 1.5
12	Aluminum (Al)	*APHA 3111-D	mg/L	<0.028	≤ 0.2
13	Nickel (Ni)	*APHA 3111-B	mg/L	<0.0080	≤ 0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	<0.013	≤ 0.05
15	Barium (Ba)	HACH 8014	mg/L	0.1	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	<0.005	≤ 0.005
17	Arsenic (As)	*APHA 3114-B	mg/L	<0.05	≤ 0.05
18	Boron (B)	HACH 8015	mg/L	N.D.	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	<0.0028	0.01
20	Chromium (Cr)	*APHA 3111-B	mg/L	<0.0054	≤ 0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	<0.01	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	<0.0045	2
23	Cyanide (CN)	HACH 8027	mg/L	N.D.	≤ 0.05



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Lab Report No: 202406024-AGB-DWPage No: 2 of 2Invoice Bill No: INV-AGB-683Reporting Date: 08-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Sample ID:	DW-202406024
Sample Collection Date:	01-June-2024
Sample Description:	Drinking Water (Camp Site)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report					
Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS Limits
24	Mercury (Hg)	*APHA 3112-B	mg/L	<0.001	≤ 0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	<0.0016	≤ 0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	<0.0033	≤ 5.0
27	Residual Chlorine	HACH 10069	mg/L	0.1	0.2 - 0.5
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	<0.001	-
29	Fecal Coliform	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
30	Total Coliform	*APHA 922 B	CFU/100 ml	N.D.	0 CFU/100 ml
31	E-Coli	USEPA 1604	CFU/100 ml	N.D.	0 CFU/100 ml
32	Total Bacterial Count	USEPA 1604	CFU/100ml	N.D.	-



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Lab Report No: 202406024-AGB-DWPage No: 3 of 3Invoice Bill No: INV-AGB-683Reporting Date: 08-June-2024

Report to: M/s. Agha Brothers Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Waqas
Email aghabrotherscc799@gmail.com

Sample ID:	DW-202406024
Sample Collection Date:	01-June-2024
Sample Description:	Drinking Water (Camp Site)
Sample Type:	Liquid Sample
Sample Collected / Submitted By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Drinking-Water-test as per NEQS

Analytical Test Report

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand. Environmental Conditions at the time of Testing: Temperature: 24.8 °C (±1°C) & Humidity: 53 % (± 4%).

*APHA Standard Methods for Examination of water & wastewater 23rd Edition (2017).

HACH 8025 (HACH Edition 10, 2014), HACH 8027 (HACH Edition 09, 2014), HACH 10069 (HACH Edition 11, 2014), HACH 8029 (HACH Edition 10, 2018),

HACH 8015 (HACH Edition 08, 2014), HACH 8507 (HACH Edition 11, 2019), HACH 8039 (HACH Edition 10, 2019).

NEQS Limits = National Environmental Quality Standard (Reference: NEQS)

N.D. = Not Detected.

M. Waqas

Analyzed By (Analyst)

[Signature]

Reviewed By (Assistant Manager)



[Signature]

Approved By (Lab Manager)

Disclaimer:

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(Certificate # 202101131)



(Lab/LC/Envi Tech AL-1/20/244/2022)



(Certificate # 202101132)

ETAL-LAB-708-FF-02

Issue Date: 03-10-22

Issue No 03 Rev:02



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E. Waste Water

Sr.#		Parameter/Analytes Description	Methods	Unit	Test Result	NEQS 1	NEQS 2	NEQS 3
1		Temperature 40°C	*APHA 2550	*C	31	≤ 3C	≤ 3C	-
2		pH	APHA 4500 H-B	-	7.52	6-9	6-9	-
3		Sulphide	*APHA 4500-S2-D	mg/L	<1	1	1	-
4		Biological Oxygen Demand(BOD)5	HACH 10099	mg/L	59	80	250	-
5		Chemical Oxygen Demand(COD)	*HACH 8000	mg/L	114	150	400	-
6		Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	482	3500	3500	-
7		Total Suspended Solids (TSS)	*APHA 2540-D	mg/L	186	200	400	-
8		Oil & Grease	USEPA 1664	mg/L	03	10	10	-
9		Cadmium	*APHA 3111-B	mg/L	0.0128	0.1	0.1	-
10		Copper	*APHA 3111-B	mg/L	0.0114	1	1	-
11		Iron	*APHA 3111-B	mg/L	0.0131	8	8	-
12		Lead	*APHA 3111-B	mg/L	N.D.	0.5	0.5	-
13		Manganese	*APHA 3111-B	mg/L	N.D.	1.5	1.5	-
14		Mercury	*APHA 3112-B	mg/L	N.D.	0.01	0.01	-
15		Nickel	*APHA 3111-B	mg/L	0.1032	1	1	-
16		Selenium	*APHA 3114-B	mg/L	N.D.	0.5	0.5	-
17		Chromium	*APHA 3111-B	mg/L	0.0405	1	1	-
18		Zinc	*APHA 3111-B	mg/L	N.D.	5	5	-
19		Arsenic	*APHA 3114-B	mg/L	N.D.	1	1	-
20		Chlorine	HACH 10069	mg/L	N.D.	1	1	-
21		Chloride	*APHA 4500 CL-B	mg/L	379.88	1000	1000	-
22		Cyanide	HACH 8027	mg/L	0.005	1	1	-
23		Fluoride	*HACH 8029	mg/L	0.48	10	10	-



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 Lab Report No: 202406023-AGB-WW

 Page No: 2 of 2

 Invoice Bill No: INV-AGB-683

 Reporting Date: 08-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Sample ID:	WW-202406023
Sample Collection Date:	01-June-2024
Sampling Method:	APHA - 1060 B & C
Sample Description:	Waste water
Sample Type:	Liquid - Sample
Sample Collected By:	Envi Tech Al
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Wastewater Testing as per NEQS

Analytical Test Report

Sr.#	Parameter/Analytes Description	Methods	Unit	Test Result	NEQS	NEQS	NEQS
					1	2	3
24	Ammonia	*HACH 8038	mg/L	0.63	40	40	-
25	Sulphate	HACH 8051	mg/L	87	600	1000	-
26	An Ionic Detergent As MBAs	*APHA 5540 C	mg/L	04	20	20	-
27	Phenolic Compounds(as Phenol)	HACH 8047	mg/L	N.D.	0.1	0.3	-
28	Boron	HACH 8015	mg/L	N.D.	6	6	-
29	Barium	HACH 8014	mg/L	N.D.	1.5	1.5	-
30	Silver	*APHA 3111-B	mg/L	N.D.	1	1	-

Lab Report No: 202406023-AGB-WWPage No: 3 of 3Invoice Bill No: INV-AGB-683Reporting Date: 08-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
Sample ID:	WW-202406023
Sample Collection Date:	01-June-2024
Sampling Method:	APHA - 1060 B & C
Sample Description:	Waste water
Sample Type:	Liquid - Sample
Sample Collected By:	Envi Tech AL
Date Of Analysis:	03-June-2024 to 08-June-2024
Test Description:	Wastewater Testing as per NEQS

Analytical Test Report

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand. Environmental Conditions at the time of Testing; Temperature: 24.8 °C (± 1°C) & Humidity: 53 % (± 4%).

*APHA Standard Methods for Examination of water & wastewater 23rd Edition (2017).

NEQS Limits = National Environmental Quality Standard (Reference: NEQS).

1=NEQS for Municipal & Liquid Industrial Effluent into Inland waters.

2= NEQS for Municipal & Liquid Industrial Effluent into Sewage Treatment.

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

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- This report is not valid for any publication or judicial purpose.
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ETAL-LAB-708-FF-01



Issue Date: 03-10-22



Issue:03 Rev:02



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F. Generator


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Lab Report No: 202406022-AGB-GAE

Invoice Bill No: INV-AGB-683



Page No: 1 of 1

Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Test ID:	GAE-202406022
Test Performed Date:	01-June-2024
Test Type:	GAE (GEN - CUMMINS ONON-350 KVA-Diesel)
Test Performed By:	Envi Tech AL
Test Description:	Gaseous Emission (As per NEQS)
Fuel Types:	oil_fired

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Test Result	NEQS Limits
1	Smoke, Ringlemann Scale	-	01	2
2	Particulate matter	mg/Nm3	94	300
3	Carbon Monoxide (CO)	mg/Nm3	337	800
4	Nitrogen Dioxide (NO2)	mg/Nm3	124	-
5	Nitrogen Oxide (NO)	mg/Nm3	316	-
6	NOx	mg/Nm3	440	600
7	Oxygen (O2)	%	12.4	-
8	Hydrogen Sulfide(H2S)	mg/Nm3	05	10
9	Sulphur Dioxide (SO2)	mg/Nm3	268	1700
10	Carbon dioxide (CO2)	%	3.41	-
11	Hydrocarbon	%	N.D.	-
12	Noise	dB	83.8	-

Note : Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
 NEQS Limits = National Environmental Quality Standard
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 N.D. = Not Detected.


 Analyzed By (Analyst)


 Reviewed By (Assistant Manager)


 Approved By (Lab Manager)

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(Certificate # 202310131)


(Lab./L.C/Cvt Tech AL-1/20/204/2023)


(Certificate # 202310131)


ETAL-LAB-708-FF-05	Issue Date: 03-10-22	Issue:03 Rev:02
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G. Vehicle Emission




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Lab Report No: 202406017-AGB-VE

Invoice Bill No: INV-AGB-683




Page No: 1 of 1


Reporting Date: 05-June-2024


Report to:	M/s. Agha Brothers Construction Company Address: Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email: aghabrotherscc799@gmail.com
Test ID:	VE-202406017
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Excavator-130-velvo-MD # PR2U11V7-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0594	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	84.2	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
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 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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BABA, C/ENVI TECH AL-120/264/2023


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ETAL-LAB-708-FF-06

Issue Date: 03-10-22

Issue:03 Rev:02

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Lab Report No: 202406003-AGB-VEInvoice Bill No: INV-AGB-683Page No: 1 of 1Reporting Date: 05-June-2024

Report to: M/s. Agha Brothers Construction Company
Address Khuzdar, Balochistan, Pakistan.

Attention: Mr. Waqas
Email aghabrotherscc799@gmail.com

Test ID:	VE-202406003
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Tractor-KOMATSU-GD31-GD33H-No. Plate 3061-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0421	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	81.8	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

M. Waqas
Analyzed By (Analyst)

E. Ghani
Reviewed By (Assistant Manager)

K. Usman
Approved By (Lab Manager)

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Lab Report No: 202406004-AGB-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-683

Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Test ID:	VE-202406004
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Grader-CATERPILLAR-No. Plate S-61M09029-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.482	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	83.4	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
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 Analyzed By (Analyst)


 Reviewed By (Assistant Manager)


 Approved By (Lab Manager)

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Issue Date: 03-10-22

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Invoice Bill No: INV-AGB-683

Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Test ID:	VE-202406005
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Water Tanker-Super HINO-MD # FF-174LA-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0368	6
2	Smoke Ringelmann Scale	-	01	2
3	Noise	dB	82.6	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

M. Waqas

Analyzed By (Analyst)

E. J. Khan

Reviewed By (Assistant Manager)



K. Iqbal

Approved By (Lab Manager)

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Lab Report No: 202406006-AGB-VE **Page No:** 1 of 1
Invoice Bill No: INV-AGB-683 **Reporting Date:** 05-June-2024



Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
Test ID:	VE-202406006
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Mixing Machine-No. Plate: TKE-881-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0278	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	83.5	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
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 Analyzed By (Analyst)


 Reviewed By (Assistant Manager)


 Approved By (Lab Manager)

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(Certificate # 20230151)
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(LAN/LC/ENVY TECH AL-1/20/264/2023)
(Certificate # 20230132)
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Lab Report No: 202406008-AGB-VE

Page No: 1 of 1

Invoice Bill No: INV-AGB-683

Reporting Date: 05-June-2024



Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com

Test ID:	VE-202406008
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Vigo-MD # 2006-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0368	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	80.6	85

Note : Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

M. Salman
Analyzed By (Analyst)

E. J. Khan
Reviewed By (Assistant Manager)

K. Iqbal
Approved By (Lab Manager)

Disclaimer:

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 Lab Report No: 202406010-AGB-VE

 Page No: 1 of 1

 Invoice Bill No: INV-AGB-683

 Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Test ID:	VE-202406010
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Mixture TM-C-10896-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0421	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.1	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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(Certificate # 20220132)



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Lab Report No: 202406011-AGB-VEPage No: 1 of 1Invoice Bill No: INV-AGB-683Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Test ID:	VE-202406011
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Mixture TM-TKQ-283-C-171820-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0257	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.7	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
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M. Salman
Analyzed By (Analyst)

E. J. Khan
Reviewed By (Assistant Manager)

K. J. Khan
Approved By (Lab Manager)

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 Lab Report No: 202406012-AGB-VE

 Page No: 1 of 1

 Invoice Bill No: INV-AGB-683

 Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Test ID:	VE-202406012
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Chain Excavator-HITACHI-Ex 270-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0467	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83.4	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

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Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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Issue Date: 03-10-22



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Invoice Bill No: INV-AGB-683



Page No: 1 of 1

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Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
------------	--

Test ID:	VE-202406013
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Chain Excavator-M-Ex 270LC-MFG # 1585801-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0548	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83.8	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
NEQS Limits = National Environmental Quality Standard
N.D. = Not Detected.

M. Waqas
Analyzed By (Analyst)

E. Ghani
Reviewed By (Assistant Manager)

K. Iqbal
Approved By (Lab Manager)

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Lab Report No: 202406002-AGB-VE

Invoice Bill No: INV-AGB-683



Page No: 1 of 1

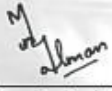
Reporting Date: 05-June-2024


Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com


Test ID:	VE-202406002
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Truck-HINO-No. Plate TLH-464-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0384	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	82.8	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.
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N.D. = Not Detected.



 Analyzed By (Analyst)



 Reviewed By (Assistant Manager)



 Approved By (Lab Manager)

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(Certificate # 20230132)

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Lab Report No: 202406014-AGB-VE



Page No: 1 of 1

Invoice Bill No: INV-AGB-683

Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Test ID:	VE-202406014
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Tractor Tank-MISI-MF 240-Diesel)
Test Performed By:	Envi Tech AL

Test Report

Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0374	6
2	Smoke Ringlemann Scale	-	N.D.	2
3	Noise	dB	81.4	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

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ETAL-LAB-708-FF-05



Issue Date: 03-10-22



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Lab Report No: 202406015-AGB-VEPage No: 1 of 1Invoice Bill No: INV-AGB-683Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
Test ID:	VE-202406015
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Roller-DYNAPAC-MD # NBSK17-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0487	6
2	Smoke Ringiemann Scale	-	01	2
3	Noise	dB	83.6	85

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N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)

Approved By (Lab Manager)

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Lab Report No: 202406016-AGB-VEPage No: 1 of 1Invoice Bill No: INV-AGB-683Reporting Date: 05-June-2024

Report to:	M/s. Agha Brothers Construction Company Address Khuzdar, Balochistan, Pakistan.
-------------------	--

Attention:	Mr. Waqas Email aghabrotherscc799@gmail.com
-------------------	--

Test ID:	VE-202406016
Test Performed Date:	01-June-2024
Test Description:	Vehicular Emission (As per NEQS)
Test Type:	VE (Excavator-HITACHI-200-MD # YI 12072-Diesel)
Test Performed By:	Envi Tech AL

Test Report				
Sr.#	Parameter/Analytes Description	Unit	Result	NEQS Limits
1	Carbon Monoxide	%	0.0586	6
2	Smoke Ringlemann Scale	-	01	2
3	Noise	dB	83.8	85

Note :Measurement of uncertainty, statement of conformity, opinions & interpretations will be provided on customer Demand.

NEQS Limits = National Environmental Quality Standard

N.D. = Not Detected.

Analyzed By (Analyst)

Reviewed By (Assistant Manager)



Approved By (Lab Manager)

Disclaimer:

- Report is valid for current batch (sample).
- This report is not valid for any publication or judicial purpose.
- Envi Tech AL is not responsible for the sample identification and data shared by the client.
- The sample shall be discarded after five working days unless otherwise instructed.
- Our test reports can be verified by scanning System-generated QR Code.



(Certificate # 202310132)

ETAL-LAB-708-FF-06



(LAB./C/ENVI TECH AL-1/20/264/2022)

Issue Date: 03-10-22



(Certificate # 202310132)

Issue:03 Rev:02



Head Office: 345, First Floor, Street-15, Block-3, Bahadurabad, Karachi, 75900, Pakistan. 0310-2288801

Lahore Office: 87-E Madina Height, Office # A/ 30 & A/ 31, 8th Floor, Maulana Shaukat Ali Road, Johar Town, Lahore. +92 42 32296099



info@envitechal.com
www.envitechal.com

Pictorial Evidences of Environmental Monitoring at Kharzan Hatachi are as follows

Ambient Air and Noise Monitoring



Vehicle Emission Monitoring




Generators Emissions Monitoring

Drinking Water and Wastewater sample Monitoring



Annexure XIV: Environmental Monitoring on Water Resources Building

Ambient Air Quality on WRB First Quarter



Sustainable Environmental Services

SES


Analysis Report Ref # SES/ENV/Mar/24/2111/1891-A Date:29-Mar-2024

Description:

Job Location:	Camp Side and Project.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	22-Mar-2024 to 23-Mar-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	(Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		

Air Quality Test Report

Parameters	Temp	NO	NO ₂	SO ₂	CO	PM _{2.5}	PM ₁₀	SPM	O ₃
NEQS & BEQS Limit	-	24 hrs. (40 µg/m ³)	24 hrs. (80µg/m ³)	24 hrs. (120µg/m ³)	08 hrs. (5 mg/m ³)	24 hrs. (35 µg/m ³)	24 hrs. (150 µg/m ³)	24 hrs. (500 µg/m ³)	01 hr. (130µg/m ³)
WHO Limit	-	-	24 hrs. (25 µg/m ³)	24 hrs. (40 µg/m ³)	08 hrs. (4 mg/m ³)	24 hrs. (15 µg/m ³)	24 hrs. (45µg/m ³)	-	Peak Season (60µg/m ³)
Time	Results								
10:00AM	23 °C	15.67	33.35	6.12	0.052	28.5	78.9	127.7	06
11:00AM	23°C	18.14	33.74	6.44		28.8	79.4	128.5	-
12:00PM	24°C	17.22	32.41	6.63		27.6	81.5	130.9	-
01:00PM	43°C	16.44	32.23	5.85	0.041	28.5	83.4	134.7	-
02:00PM	24 °C	16.98	33.54	5.32		26.2	83.3	138.8	-
03:00PM	25°C	18.74	36.86	6.74		26.4	84.1	146.2	-
04:00PM	25 °C	16.85	33.74	4.65	0.026	25.5	86.2	151.6	-
05:00PM	23°C	19.84	38.27	4.25		27.3	88.4	157.8	-
06:00PM	22°C	16.87	36.28	4.89		25.9	90.6	164.4	-
07:00PM	21°C	19.86	35.25	5.62	0.067	24.2	92.5	169.3	-
08:00PM	21°C	14.21	33.49	3.34		26.5	94.7	172.5	-
09:00PM	20°C	15.68	33.46	3.57		25.3	91.5	176.2	-
10:00PM	19 °C	15.98	32.45	3.35	0.063	24.1	85.3	179.4	-
11:00PM	19 °C	15.87	32.62	4.46		23.5	84.7	181.3	-
12:00AM	19 °C	16.52	32.11	5.27		26.2	82.6	175.2	-
01:00AM	18°C	11.46	30.26	4.65	0.043	24.7	81.5	171.5	-
02:00AM	18°C	10.35	30.47	3.31		22.4	79.3	167.9	-
03:00AM	17°C	9.12	28.84	4.65		26.5	78.7	162.7	-
04:00AM	17°C	9.57	27.52	5.85	0.027	24.3	78.6	156.4	-
05:00AM	17°C	8.12	26.41	3.21		26.7	76.5	150.8	-
06:00AM	19°C	8.63	24.63	3.35		24.6	74.3	144.5	-
07:00AM	21°C	8.85	23.74	2.12	0.023	28.4	72.2	141.6	-
08:00AM	22°C	10.74	23.89	4.65		25.5	71.1	139.3	-
09:00AM	24°C	11.24	22.41	3.45		26.2	67.8	137.4	-
AVERAGE	21.8 °C	14.28	31.16	4.65	0.042	25.99	81.96	154.4	06



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.
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Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/SES/ENV/Mar/24/2111/1891-B

Date: 29-Mar-2024

Description:

Job Location:	Camp Side and Project.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	22-Mar-2024 to 23-Mar-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		

Ambient Air Quality Monitoring

Sr.	Measuring Parameters	Unit	WHO Limit	NEQS & BEQS Limits	Average Test Result	Remarks
1.	Oxide Of Nitrogen as (NO)	$\mu\text{g}/\text{m}^3$	-	40 (24 hrs.)	14.28	WL
2.	Oxide Of Nitrogen as (NO ₂)	$\mu\text{g}/\text{m}^3$	25(24 hrs.)	80 (24 hrs.)	31.16	WL
3.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	40(24 hrs.)	120 (24 hrs.)	4.65	WL
4.	Carbon Monoxide (CO)	mg/m^3	4(24 hrs.)	5 (08 hrs.)	0.047	WL
5.	Particulate Matter (PM 2.5)	$\mu\text{g}/\text{m}^3$	15(24 hrs.)	35 (24 hrs.)	25.99	WL
6.	Particulate Matter (PM 10)	$\mu\text{g}/\text{m}^3$	45(24 hrs.)	150 (24 hrs.)	81.9	WL
7.	SPM	$\mu\text{g}/\text{m}^3$	-	500 (24 hrs.)	154.4	WL
8.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	60(Peek Season)	130 (01 hr.)	06	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.

The client is responsible for lawful usage of reported data in future.

This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL= Within Limit

Field Analyst: _____



Chief Chemist: _____

Kashif Ahmed



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.

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Metrological Data on WRB First Quarter

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/SES/ENV/Mar/24/2111/1891-C

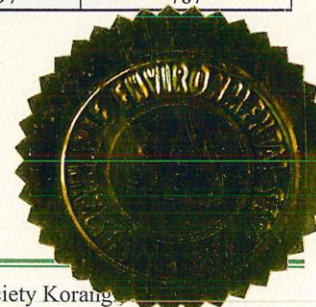
Date:29-Mar-2024

Description

Job Location	Camp Side and Project.	Testing Instrument	Metrological Equipment's
Job Performed By:	Mr. Mohsin	Job Location :	22-Mar-2024 to 23-Mar-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		

METROLOGICAL DATA

S.No	TIME Hours	Wind Direction	Wind Velocity m/sec	Humidity %	Pressure mm of Hg
1	10:00AM	SW	1.87	97	758
2	11:00AM	N	1.68	91	743
3	12:00PM	N	1.85	99	748
4	01:00PM	SW	1.87	94	741
5	02:00PM	N	2.98	95	753
6	03:00PM	SW	1.78	96	729
7	04:00PM	NS	1.89	94	757
8	05:00PM	NS	1.28	82	756
9	06:00PM	NS	1.76	89	798
10	07:00PM	N	2.27	87	778
11	08:00PM	N	2.96	86	725
12	09:00PM	NS	2.63	88	735
13	10:00PM	N	2.58	89	795
14	11:00PM	NS	3.04	85	745
15	12:00AM	N	3.96	82	735
16	01:00AM	N	3.78	89	756
17	02:00AM	NS	4.31	83	725
18	03:00AM	N	4.29	85	795
19	04:00AM	NS	4.26	87	734
20	05:00AM	NW	5.38	89	758
21	06:00AM	NW	5.78	96	767
22	07:00AM	NW	5.12	94	795
23	08:00AM	N	4.78	99	736
24	09:00AM	N	4.65	97	787



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Noise level on WRB First Quarter

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/SES/ENV/Mar/24/2111/1891-D

Date: 29-Mar-2024

Description:

Job Location:	Camp Side and Project.	Testing Instrument:	Noise Meter
Job Performed By:	Mr. Mohsin	Job Location :	22-Mar-2024 to 23-Mar-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		

Noise Test Report

S. No	Measuring Parameter	Testing Instrument	WHO Limit	NEQS & BEQS Limits	TIME	Results
01	Noise Level	Noise Meter	65 dB(A) (Day time)	75 dB(A) (Day time)	10:00AM	59.3
02					11:00AM	59.6
03					12:00PM	60.8
04					01:00PM	61.9
05					02:00PM	61.6
06					03:00PM	63.8
07					04:00PM	59.6
08					05:00PM	57.4
09					06:00PM	58.8
10					07:00PM	56.9
11					08:00PM	52.6
12					09:00PM	54.8
13			10:00PM	53.2		
14			11:00PM	51.6		
15			12:00AM	53.4		
16			01:00AM	52.3		
17			02:00AM	49.7		
18			03:00AM	49.9		
19			04:00AM	46.8		
20			05:00AM	45.6		
21			06:00AM	48.7		
22			07:00AM	43.8		
23			08:00AM	48.6		
24			09:00AM	53.2		
Average Result						54.3



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.
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Ambient Air Quality on WRB Second Quarter

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/May/24/2202/1982-A

Date:05-June-2024

Description:

Job Location:	Camp Side and Project.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	30-May-2024 to 31-May-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	(Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Air Quality Test Report

Parameters	Temp	NO	NO ₂	SO ₂	CO	PM _{2.5}	PM ₁₀	SPM	O ₃
NEQS & BEQS Limit	-	24 hrs. (40 µg/m ³)	24 hrs. (80µg/m ³)	24 hrs. (120µg/m ³)	08 hrs. (5 mg/m ³)	24 hrs. (35 µg/m ³)	24 hrs. (150 µg/m ³)	24 hrs. (500 µg/m ³)	01 hr. (130µg/m ³)
WHO Limit	-	-	24 hrs. (25 µg/m ³)	24 hrs. (40 µg/m ³)	08 hrs. (4 mg/m ³)	24 hrs. (15 µg/m ³)	24 hrs. (45µg/m ³)	-	Peak Season (60µg/m ³)
Time	Results								
10:00AM	29°C	17.55	35.60	7.29	0.060	27.4	80.4	129.4	06
11:00AM	29°C	17.25	35.77	7.40		27.5	80.2	129.5	-
12:00PM	30°C	16.01	34.33	5.68		26.7	82.4	131.1	-
01:00PM	30°C	15.96	34.12	6.17	0.047	27.7	82.3	132.7	-
02:00PM	31°C	15.75	32.25	6.23		25.6	83.2	135.4	-
03:00PM	31°C	16.69	33.78	7.77	0.032	25.5	85.2	142.5	-
04:00PM	32°C	17.85	34.98	6.79		24.3	85.9	148.4	-
05:00PM	31°C	18.47	33.89	5.89		26.2	86.6	154.9	-
06:00PM	30°C	17.69	35.69	5.78	0.075	24.1	88.7	161.5	-
07:00PM	29°C	18.47	34.79	4.68		25.7	90.4	166.7	-
08:00PM	28°C	17.33	32.88	4.30		24.5	92.5	170.9	-
09:00PM	27°C	16.32	31.39	2.50	0.069	24.4	92.2	174.8	-
10:00PM	27°C	14.45	31.32	4.32		23.7	87.4	176.1	-
11:00PM	26°C	14.64	30.12	3.44		22.9	85.3	179.2	-
12:00AM	24°C	13.28	29.74	4.69	0.055	24.6	83.2	177.4	-
01:00AM	24°C	13.11	31.48	3.58		25.8	82.6	174.6	-
02:00AM	23°C	12.31	29.62	2.37		23.1	80.2	169.7	-
03:00AM	23°C	10.59	27.45	2.66	0.035	25.2	79.7	167.4	-
04:00AM	22°C	10.47	26.32	3.74		24.5	77.9	162.5	-
05:00AM	23°C	9.23	25.52	2.47		25.4	75.8	157.2	-
06:00AM	25°C	9.63	25.48	4.36	0.030	25.4	74.4	152.1	-
07:00AM	26°C	11.58	26.69	6.15		29.7	76.5	156.8	-
08:00AM	22°C	12.43	28.58	7.60		30.8	77.2	159.4	-
09:00AM	24°C	13.15	30.28	8.41	26.2	67.8	164.5	-	
AVERAGE	26.96	14.59	31.33	5.17	0.050	25.70	82.41	157.27	6



Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/SES/ENV/May/24/2202/1982-B

Date:05-June-2024

Description:

Job Location:	Camp Side and Project.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	30-May-2024 to 31-May-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Ambient Air Quality Monitoring

Sr.	Measuring Parameters	Unit	WHO Limit	NEQS & BEQS Limits	Average Test Result	Remarks
1.	Oxide Of Nitrogen as (NO)	$\mu\text{g}/\text{m}^3$	-	40 (24 hrs.)	14.59	WL
2.	Oxide Of Nitrogen as (NO ₂)	$\mu\text{g}/\text{m}^3$	25(24 hrs.)	80 (24 hrs.)	31.33	WL
3.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	40(24 hrs.)	120 (24 hrs.)	5.17	WL
4.	Carbon Monoxide (CO)	mg/m^3	4(24 hrs.)	5 (08 hrs.)	0.050	WL
5.	Particulate Matter (PM 2.5)	$\mu\text{g}/\text{m}^3$	15(24 hrs.)	35 (24 hrs.)	25.70	WL
6.	Particulate Matter (PM 10)	$\mu\text{g}/\text{m}^3$	45(24 hrs.)	150 (24 hrs.)	82.41	WL
7.	SPM	$\mu\text{g}/\text{m}^3$	-	500 (24 hrs.)	157.2	WL
8.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	60(Peek Season)	130 (01 hr.)	06	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.

The client is responsible for lawful usage of reported data in future.

This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL= Within Limit

Field Analyst: _____



Chief Chemist: _____

Mr. Mohsin
Chief Chemist



New Head Office: Plot No SC-46 Block Commercial Sector 31/D P&T Society Korangi, Karachi.
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Metrological Data Analysis on WRB Second Quarter

Sustainable Environmental Services

SES

Analysis Report**Ref # SES/ENV/SES/ENV/May/24/2202/1982-C****Date:05-June-2024****Description**

Job Location	Camp Side and Project.	Testing Instrument	Metrological Equipment's
Job Performed By:	Mr. Mohsin	Job Location :	30-May-2024 to 31-May-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		
Quarter no:	2 nd Quarter (April, May, June 2024)		

METROLOGICAL DATA

S.No	TIME	Wind Direction	Wind Velocity	Humidity	Pressure
	Hours					m/sec	%	mm of Hg
1	10:00AM	SN	2.55	94	751
2	11:00AM	S	1.58	92	734
3	12:00PM	W	1.84	94	737
4	01:00PM	SW	2.82	95	740
5	02:00PM	S	1.91	94	750
6	03:00PM	NW	3.73	95	724
7	04:00PM	NS	2.81	97	754
8	05:00PM	NS	2.24	85	751
9	06:00PM	NW	1.58	84	792
10	07:00PM	S	3.41	82	767
11	08:00PM	W	3.35	84	731
12	09:00PM	NS	1.25	83	737
13	10:00PM	N	2.71	82	774
14	11:00PM	NS	2.06	86	740
15	12:00AM	S	2.85	84	736
16	01:00AM	W	2.47	87	757
17	02:00AM	NS	3.47	85	729
18	03:00AM	N	3.26	84	767
19	04:00AM	NS	3.24	85	739
20	05:00AM	NS	4.32	81	757
21	06:00AM	SN	4.74	92	760
22	07:00AM	NW	3.11	93	793
23	08:00AM	N	5.70	95	731
24	09:00AM	S	5.61	93	771

Noise Test on WRB Second Quarter

Sustainable Environmental Services | SES

Analysis Report**Ref # SES/ENV/SES/ENV/May/24/2202/1982-D****Date: 05-June-2024****Description:**

Job Location:	Camp Side and Project.	Testing Instrument:	Noise Meter
Job Performed By:	Mr. Mohsin	Job Location :	30-May-2024 to 31-May-2024
Monitoring Duration:	10:00AM to 09:00AM (24 Hrs.)		
Side Location :	Construction of Water Resource Building Quetta NCB-05)		
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Noise Test Report

S. No	Measuring Parameter	Testing Instrument	WHO Limit	NEQS & BEQS Limits	TIME	Results
01	Noise Level	Noise Meter	65 dB(A) (Day time)	75 dB(A) (Day time)	10:00AM	61.4
02					11:00AM	62.2
03					12:00PM	62.5
04					01:00PM	61.7
05					02:00PM	63.8
06					03:00PM	62.5
07					04:00PM	60.4
08					05:00PM	59.9
09					06:00PM	57.7
10					07:00PM	57.8
11					08:00PM	56.4
12					09:00PM	56.5
13			10:00PM	54.4		
14			11:00PM	53.3		
15			12:00AM	52.7		
16			01:00AM	51.4		
17			02:00AM	51.3		
18			03:00AM	50.1		
19			04:00AM	47.2		
20			05:00AM	45.4		
21			06:00AM	45.6		
22			07:00AM	47.4		
23			08:00AM	51.4		
24			09:00AM	57.5		
Average Result						55.4

Drinking Water Test on WRB Second Quarter

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/May/24/2202/1982-E

Date: 05-June-2024

Description:

Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	30-May-2024
Analysis Type	Chemical Analysis	Sampling Location	Water Resource Building Quetta NCB-05		
Side Location:	Construction of Water Resource Building Quetta NCB-05)				
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)				
Quarter no:	2 nd Quarter (April, May, June 2024)				

Drinking Water Report

S #	Parameters	Units	Testing Method	NEQS Limits	WHO Limits	BEQS Limits	Result	Remarks
01	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-----	-----	-----	ND	-
02	Total Coliform	TC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
03	E-Coli	EC(count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	WL
04	Facial Coli	FC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
05	Turbidity	NTU	HACH Turbidity meter	<5	<15	<15	< 0.3	WI
06	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WI
07	Odour	Odor	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
08	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 2	WI
09	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	WI
10	Residual chlorine	Cl ₂ (mg/L)	HACH Method 8167	0.2-0.5	-	0.2-0.5	0.3	WL
11	pH @ 25 °C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	7.95	WI
12	Total Dissolved Solid	TDS (mg/L)	APIA 2540-C	< 1000	< 1000	< 1000	442	WL
13	Total Hardness	As CaCO ₃ (mg/L)	APIA 2340-C	< 500	-	< 500	57	WI
14	Fluoride	F ⁻¹ (mg/l.)	APIA 4500-F ⁻¹	≤ 1.5	1.5	≤ 1.5	0.46	WL
15	Chloride	Cl ⁻¹ (mg/l.)	APIA 4500-Cl ⁻¹	< 250	250	< 250	184	WI
16	Cyanide	CN ⁻¹ (mg/L)	HACH Method 8027	≤ 0.05	0.07	≤ 0.05	ND	WL
17	Nitrate	NO ₃ ⁻¹ (mg/l.)	HACH Method 8192	≤ 50	50	≤ 50	0.10	WI
18	Nitrite	NO ₂ ⁻¹ (mg/l.)	APIA 4500-NO ₂ ⁻¹ -B	≤ 3.0(P)	3	≤ 3.0(P)	0.07	WL
19	Antimony	Sb (mg/L)	ASTM D-3697	≤ 0.005	0.02	≤ 0.005	ND	WI
20	Aluminum	Al(mg/L)	ASTM D-857	≤ 0.2	0.2	≤ 0.2	0.03	WL
21	Arsenic	As (mg/L)	ASTM D-2972	≤ 0.05	0.01	≤ 0.05	ND	WI
22	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	WI
23	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.002	WL
24	Chromium Total	Cr(mg/L)	ASTM D-1687	≤ 0.05	0.05	≤ 0.05	ND	WI
25	Copper	Cu (mg/l.)	ASTM D-1688	2	2	2	<0.05	WL
26	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.003	0.01	ND	WI
27	Lead	Pb(mg/L)	ASTM D-3559	≤ 0.05	0.01	≤ 0.05	ND	WI
28	Manganese	Mn(mg/l.)	ASTM D-858	≤ 0.5	0.5	≤ 0.5	ND	WL
29	Mercury	Hg (mg/L)	ASTM D-3223	≤ 0.001	0.001	≤ 0.001	ND	WI
30	Nickel	Ni(mg/L)	ASTM D-3866	≤ 0.02	0.02	≤ 0.05	ND	WI
31	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	WI
32	Zinc	Zn (mg/l.)	ASTM D-1691	5	3	5	0.08	WI

Waste Water Test on WRB Second Quarter

Sustainable Environmental Services

SES

Analysis Report

Report # SES/ENV/MAR/24/2102/1882-F

Date: 05-June-2024

Description					
Quantity of sample	1.0 liter	Sampling Methodology	Grab	Job Date	30-May-2024
Analysis Type	Chemical Analysis		Sampling Location		
Side Location:	Construction of Water Resource Building Quetta NCB-05)				
Contractor Name :	M/s Haji Abdul Hameed Bangulzai M/s Muhammad Akbar Shahwani Brothers (Joint Venture)				
Quarter no:	2 nd Quarter (April, May, June 2024)				

Waste Water Test Report

S.No	Measuring Parameter	Units	Testing Method	NEQS Limits	Test Results
1	Temperature AT 40 °C	°C	By Calibrated Thermometer	40 + \pm 03 °C	29
2	pH @ 25 °C	pH	ASTM D-1293	6 to 9	7.05
3	Biological Oxygen Demand	BOD ₅ (mg/L)	APHA 5210	80	54.5
4	Chemical Oxygen Demand	COD (mg/L)	ASTM D-1252	150	109
5	Total Dissolved Solids	TDS (mg/L)	APHA 2540-C	3500	713
6	Total Suspended Solids	TSS (mg/L)	APHA 2540-D	150	101
7	Oil & Grease	O.Gr(mg/L)	ASTM D-4281	10	0.07
8	Chloride	Cl ⁻ (mg/L)	ASTM D-512	1000	740
9	Phenolic compound	Phol (mg/L)	ASTM D-1783	0.1	ND
10	Fluoride	F ⁻ (mg/L)	APHA 4500-F ⁻	20	3.1
11	Anionic Detergent	Det (mg/L)	ASTM D-6173	20	6.4
12	Selenium	Se. ⁻² (mg/L)	APHA 4500 Se	0.5	ND
13	Sulfide	S. ⁻² (mg/L)	APHA 4500-S ⁻²	1.0	0.45
14	Ammonia	NH ₃ (mg/L)	ASTM D-1426	40	19.2
15	Cadmium	Cd. ⁻² (mg/L)	ASTM-D3557	0.1	< 0.1
16	Chromium Trivalent	Cr ⁺³ (mg/L)	APHA 3500-Cr	1.0	ND
17	Chromium Hexavalent	Cr ⁺⁶ (mg/L)	APHA 3500-Cr	1.0	0.07
18	Lead	Pb. ⁻² (mg/L)	ASTM-D3559	0.5	0.3
19	Mercury	Hg. ⁻² (mg/L)	Kit Method	0.01	ND
20	Nickel	Ni. ⁻² (mg/L)	HACH Dimethylglyoxime Method	1.0	ND
21	Silver	Ag (mg/L)	ASTM-D3866	1.0	ND
22	Zinc	Zn. ⁻² (mg/L)	HACH Zincon Method	5.0	0.2
23	Total Iron	Fe ²⁺ (mg/L)	APHA 3500-Fe	2.0	0.3
24	Manganese	Mn. ⁻² (mg/L)	APHA 3500-Mn	1.5	0.07
25	Boron	B(mg/L)	APHA 4500-Mn	6.0	0.3
26	Sulfate	SO ₄ (mg/L)	APHA 4500-SO ⁻¹	600	241
27	Arsenic	As (mg/L)	Palintest Kit	1.0	ND
28	Copper	Cu ⁺² (mg/L)	HACH Biquinoline Method	1.0	0.03
29	Chlorine	Cl ₂ (mg/L)	HACH DPD Method	1.0	ND
30	Aluminum	Al (mg/L)	HACH Eriochrome Cyanine R	-----	ND
31	Total Kjeldahl Nitrogen	(mg/L)	Kit Method	-----	0.30
32	Barium	Ba (mg/L)	ASTM D-4382	1.5	0.86


Photographic Evidences of Environmental Monitoring on WRB



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Annexure XV: Environmental Monitoring of Construction on Kili Sardar Akhtar

Air Quality Monitoring First Quarter



Sustainable Environmental Services

SES


Analysis Report Ref # SES/ENV/Mar/24/2113/1893-A Date: 30-Mar-2024

Description:

Job Location:	Baseline Monitoring.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	26-Mar-2024 to 27-Mar-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		

Air Quality Test Report

Parameters	Temp	NO _x	NO ₂	SO ₂	CO	PM _{2.5}	PM ₁₀	SPM	O ₃
NEQS & BEQS Limit	-	24 hrs. (40 µg/m ³)	24 hrs. (80µg/m ³)	24 hrs. (120µg/m ³)	08 hrs. (5 mg/m ³)	24 hrs. (35 µg/m ³)	24 hrs. (150 µg/m ³)	24 hrs. (500 µg/m ³)	01 hr. (130µg/m ³)
WHO Limit	-	-	24 hrs. (25µg/m ³)	24 hrs. (40µg/m ³)	08 hrs. (4 mg/m ³)	24 hrs. (15 µg/m ³)	24 hrs. (45µg/m ³)	-	Peak Season (60µg/m ³)
Time	Results								
09:00AM	23°C	16.22	27.77	15.67	0.048	32.81	72.43	115.4	06
10:00AM	23°C	14.21	26.78	16.77		34.43	74.53	119.6	-
11:00AM	25°C	14.42	27.01	15.44		37.64	71.34	119.1	-
12:00PM	25°C	17.21	25.43	17.33	0.058	36.73	73.73	120.6	-
01:00PM	26°C	14.32	26.74	16.77		37.82	76.64	124.6	-
02:00PM	28°C	13.46	25.11	16.04	0.078	36.56	77.84	124.8	-
03:00PM	28°C	12.67	23.08	15.77		35.03	75.87	121.5	-
04:00PM	28°C	14.17	21.04	15.13		33.89	74.98	119.7	-
05:00PM	28°C	12.42	19.11	14.11	0.098	31.79	76.84	119.3	-
06:00PM	26°C	14.36	19.04	14.01		29.82	77.25	117.7	-
07:00PM	24°C	13.04	18.47	13.11	0.056	27.79	79.87	117.6	-
08:00PM	23°C	13.01	19.01	12.77		26.65	80.44	117.9	-
09:00PM	21°C	11.01	18.31	12.02	0.074	24.13	79.74	114.7	-
10:00PM	21°C	10.22	17.23	11.47		21.36	78.87	111.3	-
11:00PM	20°C	11.12	18.01	11.01		10.03	77.97	98.8	-
12:00AM	20°C	10.04	18.11	10.77	0.056	18.75	75.87	105.2	-
01:00AM	20°C	10.44	10.01	09.11		17.36	64.98	92.54	-
02:00AM	19°C	11.42	21.25	10.11	0.025	19.13	66.84	96.57	-
03:00AM	18°C	13.77	23.31	11.41		20.70	67.25	97.95	-
04:00AM	18°C	14.12	22.77	11.88		23.24	69.87	103.1	-
05:00AM	20°C	15.74	24.74	12.44	0.061	26.36	60.47	97.33	-
06:00AM	20°C	16.87	25.01	14.30		31.14	69.75	111.9	-
07:00AM	21°C	18.48	25.77	15.74	0.074	32.03	68.87	111.7	-
08:00AM	21°C	18.76	26.03	16.22		35.13	69.86	115.1	-
AVERAGE	22.7°C	13.81	22.04	13.75	0.061	28.34	73.42	112.2	06



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Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/Mar/24/2113/1893-B

Date:30-Mar-2024

Description:

Job Location:	Baseline Monitoring.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	26-Mar-2024 to 27-Mar-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		

Ambient Air Quality Monitoring

Sr.	Measuring Parameters	Unit	WHO Limit	NEQS & BEQS Limits	Average Test Result	Remarks
1.	Oxide Of Nitrogen as (NO)	$\mu\text{g}/\text{m}^3$	-	40 (24 hrs.)	13.81	WL
2.	Oxide Of Nitrogen as (NO ₂)	$\mu\text{g}/\text{m}^3$	25(24 hrs.)	80 (24 hrs.)	22.04	WL
3.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	40(24 hrs.)	120 (24 hrs.)	13.75	WL
4.	Carbon Monoxide (CO)	mg/m^3	4(24 hrs.)	5 (08 hrs.)	0.061	WL
5.	Particulate Matter (PM 2.5)	$\mu\text{g}/\text{m}^3$	15(24 hrs.)	35 (24 hrs.)	28.34	WL
6.	Particulate Matter (PM 10)	$\mu\text{g}/\text{m}^3$	45(24 hrs.)	150 (24 hrs.)	73.42	WL
7.	SPM	$\mu\text{g}/\text{m}^3$	-	500 (24 hrs.)	112.2	WL
8.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	60(Peek Season)	130 (01 hr.)	06	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.

The client is responsible for lawful usage of reported data in future.

This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL= Within Limit

Field Analyst:



Chief Chemist:

Kashif Ahmed



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Metrological Data First Quarter

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/Mar/24/2113/1893-C

Date: 30-Mar-2024

Description

Job Location:	Baseline Monitoring.	Testing Instrument:	Metrological Equipment's
Job Performed By:	Mr. Mohsin	Job Date :	26-Mar-2024 to 27-Mar-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		

METROLOGICAL DATA

S.No	TIME	Wind Direction	Wind Velocity	Humidity	Pressure
	Hours		m/sec			%	mm of Hg
1	09:00AM	S	5.52	23	731
2	10:00AM	SN	6.57	22	732
3	11:00AM	SN	6.86	22	733
4	12:00PM	SN	6.75	22	734
5	01:00PM	N	7.83	21	735
6	02:00PM	NS	7.62	21	735
7	03:00PM	S	7.63	20	737
8	04:00PM	NW	8.54	20	733
9	05:00PM	NW	8.56	20	733
10	06:00PM	NW	8.58	20	731
11	07:00PM	NW	8.77	19	733
12	08:00PM	W	9.57	19	734
13	09:00PM	N	9.56	19	737
14	10:00PM	NS	9.55	19	736
15	11:00PM	SW	10.84	19	726
16	12:00AM	SE	10.53	19	725
17	01:00AM	NS	10.51	19	723
18	02:00AM	NW	10.72	18	724
19	03:00AM	E	10.23	18	723
20	04:00AM	NW	11.54	19	727
21	05:00AM	NW	11.57	19	726
22	06:00AM	NW	11.46	20	726
23	07:00AM	S	11.64	20	725
24	08:00AM	S	5.52	23	731



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Noise Level Monitoring First Quarter

Sustainable Environmental Services | SES

Analysis Report

Ref # SES/ENV/Mar/24/2113/1893-D

Date: 30-Mar-2024

Description:

Job Location:	Baseline Monitoring.	Testing Instrument:	Noise Meter
Job Performed By:	Mr. Mohsin	Job Date :	26-Mar-2024 to 27-Mar-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		

Noise Test Report


S. No	Measuring Parameter	Testing Instrument	WHO Limit	NEQS & BEQS Limits	TIME	Results
01	Noise Level	Noise Meter	65 dB(A) (Day time)	75 dB(A) (Day time)	09:00AM	62.7
02					10:00AM	61.4
03					11:00AM	60.2
04					12:00PM	62.7
05					01:00PM	63.5
06					02:00PM	61.0
07					03:00PM	61.4
08					04:00PM	54.4
09					05:00PM	51.7
10					06:00PM	47.4
11					07:00PM	44.6
12					08:00PM	43.4
13			09:00PM	42.3		
14			10:00PM	41.5		
15			11:00PM	40.4		
16			12:00AM	41.4		
17			01:00AM	43.1		
18			02:00AM	40.9		
19			03:00AM	42.5		
20			04:00AM	51.4		
21			05:00AM	54.7		
22			06:00AM	53.0		
23			07:00AM	59.2		
24			08:00AM	60.4		
Average Results						51.8



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Water Quality Monitoring First Quarter



Sustainable Environmental Services

SES

Analysis Report Ref # SES/ENV/Mar/24/2113/1893-E Date: 30-Mar-2024

Description:


Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	26-Mar-2024
Analysis Type	Chemical Analysis	Sampling Location	Kili Akhtar Sardar Project		
Side Location :	KiliSardar Akhtar (PIS) sub-project NCB-06)				
Contractor Name :	M/s NOOR UL HAQ & BROTHERS				




Bore Water Test Report

S #	Parameters	Units	Testing Method	NEQS Limits	WHO Limits	BEQS Limits	Result	Remarks
01	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-----	-----	-----	11	-
02	Total Coliform	TC (count/ml)	APIA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
03	E-Coli	EC(count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	WL
04	Facial Coli	FC (count/ml)	APIA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
05	Turbidity	NTU	HACH Turbidity meter	<5	<15	<15	< 0.02	WL
06	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
07	Odour	Odor	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
08	Colour	TCU	Pt-Co method	≤ 15 TCU	≤ 15 TCU	≤ 15 TCU	< 2	WL
09	Phenolic Compounds	As Phenol (mg/L)	ASTM D-1783	-	-	-	ND	WL
10	Residual chlorine	Cl ₂ (mg/L)	HACH Method 8167	0.2-0.5	-	0.2-0.5	0.5	WL
11	pH @ 25 °C	PH	ASTM D-1293	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	7.35	WL
12	Total Dissolved Solid	TDS (mg/L)	APIA 2540-C	< 1000	< 1000	< 1000	685	WL
13	Total Hardness	As COCO3(mg/L)	APHA 2340-C	< 500	-	< 500	76	WL
14	Fluoride	F ⁻¹ (mg/L)	APHA 4500-F ⁻¹	≤ 1.5	1.5	≤ 1.5	0.33	WL
15	Chloride	Cl ⁻¹ (mg/L)	APHA 4500-Cl ⁻¹	< 250	250	< 250	154	WL
16	Cyanide	CN ⁻¹ (mg/L)	HACH Method 8027	≤ 0.05	0.07	≤ 0.05	ND	WL
17	Nitrate	NO ₃ ⁻¹ (mg/L)	HACH Method 8192	≤ 50	50	≤ 50	0.19	WL
18	Nitrite	NO ₂ ⁻¹ (mg/L)	APHA 4500-NO ₂ ⁻¹ -B	≤ 3.0(P)	3	≤ 3.0(P)	0.08	WL
19	Antimony	Sb (mg/L)	ASTM D-3697	≤ 0.005	0.02	≤ 0.005	ND	WL
20	Aluminum	Al(mg/L)	ASTM D-857	≤ 0.2	0.2	≤ 0.2	0.07	WL
21	Arsenic	As (mg/L)	ASTM D-2972	≤ 0.05	0.01	≤ 0.05	ND	WL
22	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	WL
23	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.005	WL
24	Chromium Total	Cr(mg/L)	ASTM D-1687	≤ 0.05	0.05	≤ 0.05	ND	WL
25	Copper	Cu (mg/L)	ASTM D-1688	2	2	2	<0.06	WL
26	Cadmium	Cd(mg/L)	ASTM D-3557	0.01	0.003	0.01	ND	WL
27	Lead	Pb(mg/L)	ASTM D-3559	≤ 0.05	0.01	≤ 0.05	ND	WL
28	Manganese	Mn(mg/L)	ASTM D-858	≤ 0.5	0.5	≤ 0.5	ND	WL
29	Mercury	Hg (mg/L)	ASTM D-3223	≤ 0.001	0.001	≤ 0.001	ND	WL
30	Nickel	Ni(mg/L)	ASTM D-3866	≤ 0.02	0.02	≤ 0.05	ND	WL
31	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	WL
32	Zinc	Zn (mg/L)	ASTM D-1691	5	3	5	0.06	WL

Note:
 BEQS=Baluchistan Environmental Quality Standards
 The instruments used were dully calibrated.
 The measurements were carried out on client's request.
 The client is responsible for lawful usage of reported data in future.
 This report is not valid for Court evidence/ Judicial knowledge
 The measurement results based on the time of monitoring
 WL= Within Limit

Field Analyst: Mr. Mohsin Chief Chemist: _____



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Air Quality Monitoring Second Quarter

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/May/24/2201/1981-B

Date: 05-June-2024

Description:

Job Location:	Baseline Monitoring.	Testing Instrument	24 Hours Air Monitoring Station
Job Performed By:	Mr. Mohsin	Job Date :	27-May-2024 to 28-May-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Ambient Air Quality Monitoring

Sr.	Measuring Parameters	Unit	WHO Limit	NEQS & BEQS Limits	Average Test Result	Remarks
1.	Oxide Of Nitrogen as (NO)	$\mu\text{g}/\text{m}^3$	-	40 (24 hrs.)	14.39	WL
2.	Oxide Of Nitrogen as (NO ₂)	$\mu\text{g}/\text{m}^3$	25(24 hrs.)	80 (24 hrs.)	20.89	WL
3.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	40(24 hrs.)	120 (24 hrs.)	13.31	WL
4.	Carbon Monoxide (CO)	mg/m^3	4(24 hrs.)	5 (08 hrs.)	0.066	WL
5.	Particulate Matter (PM 2.5)	$\mu\text{g}/\text{m}^3$	15(24 hrs.)	35 (24 hrs.)	30.08	WL
6.	Particulate Matter (PM 10)	$\mu\text{g}/\text{m}^3$	45(24 hrs.)	150 (24 hrs.)	73.95	WL
7.	SPM	$\mu\text{g}/\text{m}^3$	-	500 (24 hrs.)	112.83	WL
8.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	60(Peek Season)	130 (01 hr.)	06	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.

The client is responsible for lawful usage of reported data in future.

This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL= Within Limit

Field Analyst:



Chief Chemist:

Kashif Ahmed



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Metrological Data Second Quarter

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/May/24/2201/1981-C

Date: 05-June-2024

Description

Job Location:	Baseline Monitoring.	Testing Instrument:	Metrological Equipment's
Job Performed By:	Mr. Mohsin	Job Date :	27-May-2024 to 28-May-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2nd Quarter (April, May, June 2024)		

METROLOGICAL DATA

S.No	TIME	Wind Direction	Wind Velocity	Humidity	Pressure
	Hours		m/sec			%	mm of Hg
1	09:00AM	N	4.84	21	721
2	10:00AM	SW	5.47	21	722
3	11:00AM	NS	5.25	21	723
4	12:00PM	SW	5.66	23	724
5	01:00PM	S	6.54	22	728
6	02:00PM	NW	6.47	22	731
7	03:00PM	N	7.57	21	732
8	04:00PM	NW	7.22	21	732
9	05:00PM	NS	7.77	21	714
10	06:00PM	NW	7.74	22	720
11	07:00PM	SN	6.47	21	730
12	08:00PM	N	8.24	20	732
13	09:00PM	W	8.58	18	735
14	10:00PM	NS	9.45	18	734
15	11:00PM	SW	9.96	17	724
16	12:00AM	SW	10.85	17	724
17	01:00AM	NE	11.51	16	721
18	02:00AM	NS	11.74	16	722
19	03:00AM	S	12.69	15	728
20	04:00AM	NW	11.58	16	724
21	05:00AM	NW	10.47	17	724
22	06:00AM	NW	10.25	18	725
23	07:00AM	S	9.14	20	723
24	08:00AM	N	5.52	21	730



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Noise Test Reports Second Quarter

Sustainable Environmental Services

**Analysis Report**

Ref # SES/ENV/May/24/2201/1981-D

Date: 05-June-2024

Description:

Job Location:	Baseline Monitoring.	Testing Instrument:	Noise Meter
Job Performed By:	Mr. Mohsin	Job Date :	27-May-2024 to 28-May-2024
Monitoring Duration:	09:00AM to 08:00AM (24 Hrs.)		
Side Location :	(KiliSardar Akhtar (PIS) sub-project NCB-06)		
Contractor Name :	M/s NOOR UL HAQ & BROTHERS		
Quarter no:	2 nd Quarter (April, May, June 2024)		

Noise Test Report

S. No	Measuring Parameter	Testing Instrument	WHO Limit	NEQS & BEQS Limits	TIME	Results
01	Noise Level	Noise Meter	65 dB(A) (Day time)	75 dB(A) (Day time)	09:00AM	61.8
02					10:00AM	61.9
03					11:00AM	62.1
04					12:00PM	62.4
05					01:00PM	63.6
06					02:00PM	64.5
07					03:00PM	63.3
08					04:00PM	61.5
09					05:00PM	59.2
10					06:00PM	56.1
11					07:00PM	52.7
12					08:00PM	49.9
13			09:00PM	46.8		
14			10:00PM	45.6		
15			11:00PM	44.7		
16			12:00AM	44.8		
17			01:00AM	42.5		
18			02:00AM	43.7		
19			03:00AM	42.4		
20			04:00AM	44.6		
21			05:00AM	51.5		
22			06:00AM	53.1		
23			07:00AM	57.5		
24			08:00AM	61.2		
Average Results						54.05



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Drinking Water Quality Test Results Second Quarter

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/May/24/2201/1981-E

Date: 05-June-2024

Description:

Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	27-May-2024
Analysis Type	Chemical Analysis	Sampling Location	Kili Akhtar Sardar Project		
Side Location :	KiliSardar Akhtar (PIS) sub-project NCB-06)				
Contractor Name :	M/s NOOR UL HAQ & BROTHERS				
Quarter no:	2 nd Quarter (April, May, June 2024)				

Drinking Water Test Report

S #	Parameters	Units	Testing Method	NEQS Limits	WHO Limits	BEQS Limits	Result	Remarks
01	Total Bacteria Count	TBC (count/ml)	Total Viable Count	-----	-----	-----	ND	-
02	Total Coliform	TC (count/ml)	APIA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
03	E-Coli	EC(count/ml)	Total Viable Count	0/100 ml	0/100 ml	0/100 ml	ND	WL
04	Facial Coli	FC (count/ml)	APHA 922 B	0/100 ml	0/100 ml	0/100 ml	ND	WL
05	Turbidity	NTU	HACH Turbidity meter	<5	<15	<15	< 0.03	WL
06	Taste	Taste	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
07	Odour	Odor	Sensory Evolution	Obj/Non Obj	Obj/Non Obj	Obj/Non Obj	Non-obj	WL
08	Colour	ICU	Pt-Co method	≤ 15 ICU	≤ 15 TCU	≤ 15 TCU	< 1	WL
09	Phenolic Compounds	As Phenol (mg/L)	ASTM D-178	-	-	-	ND	WL
10	Residual chlorine	Cl ₂ (mg/L)	HACH Method 4	0.2-0.5	-	0.2-0.5	0.4	WL
11	pH @ 25 °C	pH	ASTM D-129	6.5 to 8.5	6.5 to 8.5	6.5 to 8.5	8.01	WL
12	Total Dissolved Solid	TDS (mg/L)	APIA 25-10	< 1000	< 1000	< 1000	1078	WL
13	Total Hardness	As CaCO ₃ (mg/L)	APIA 23-02	< 500	-	< 500	74	WL
14	Fluoride	F ⁻¹ (mg/L)	APIA 4500-F	< 1.5	1.5	≤ 1.5	0.36	WL
15	Chloride	Cl ⁻¹ (mg/L)	APIA 4500-Cl	< 250	250	< 250	153	WL
16	Cyanide	CN ⁻¹ (mg/L)	HACH Method 8027	≤ 0.05	0.07	≤ 0.05	ND	WL
17	Nitrate	NO ₃ ⁻¹ (mg/L)	HACH Method 8192	≤ 50	50	≤ 50	0.17	WL
18	Nitrite	NO ₂ ⁻¹ (mg/L)	APHA 4500-NO ₂ -H	≤ 3.0(P)	3	≤ 3.0(P)	0.09	WL
19	Antimony	Sb (mg/L)	ASTM D-3697	≤ 0.005	0.02	≤ 0.005	ND	WL
20	Aluminum	Al(mg/L)	ASTM D-857	≤ 0.2	0.2	≤ 0.2	0.05	WL
21	Arsenic	As (mg/L)	ASTM D-2972	≤ 0.05	0.01	≤ 0.05	ND	WL
22	Boron	B (mg/L)	ASTM D-3082	0.3	0.3	0.3	ND	WL
23	Barium	Ba(mg/L)	ASTM D-4382	0.7	0.7	0.7	0.003	WL
24	Chromium Total	Cr(mg/L)	ASTM D-1687	≤ 0.05	0.05	≤ 0.05	ND	WL
25	Copper	Cu (mg/L)	ASTM D-1688	2	2	2	<0.04	WL
26	Cadmium	Cd(mg/L)	ASTM D-557	0.01	0.003	0.01	ND	WL
27	Lead	Pb(mg/L)	ASTM D-559	≤ 0.05	0.01	≤ 0.05	ND	WL
28	Manganese	Mn(mg/L)	ASTM D-858	≤ 0.5	0.5	≤ 0.5	ND	WL
29	Mercury	Hg (mg/L)	ASTM D-223	≤ 0.001	0.001	≤ 0.001	ND	WL
30	Nickel	Ni(mg/L)	ASTM D-860	≤ 0.02	0.02	≤ 0.05	ND	WL
31	Selenium	Se(mg/L)	ASTM D-3858	0.01	0.01	0.01	ND	WL
32	Zinc	Zn (mg/L)	ASTM D-1691	5	3	5	0.04	WL

Note:

BEQS=Baluchistan Environmental Quality Standards

The instruments used were dully calibrated.

The measurements were carried out on client's request.


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This report is not valid for Court evidence/ Judicial knowledge

The measurement results based on the time of monitoring

WL= Within Limit

Field Analyst:


 Mr. Mohsin

Chief Chemist



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Waste Water Quality Test Results Second Quarter

Sustainable Environmental Services

SES

Analysis Report

Ref # SES/ENV/May/24/2201/1981-F

Date: 05-June-2024

Description:

Quantity of sample	1.0 Liter	Sampling Methodology	Grab	Job Date	27-May-2024
Analysis Type	Chemical Analysis	Sampling Location			
Side Location :	KiliSardar Akhtar (PIS) sub-project NCB-06				
Contractor Name :	M/s NOOR UL HAQ & BROTHERS				
Quarter no:	2 nd Quarter (April, May, June 2024)				

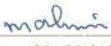
Waste Water Test Report

S.No	Measuring Parameter	Units	Testing Method	NEQS Limits	Test Results
1	Temperature At 40 °C	°C	By Calibrated Thermometer	40 ± 0.3 °C	29
2	pH @ 25 °C	pH	ASTM D-1293	6 to 9	7.8
3	Biological Oxygen Demand	BOD ₅ (mg/L)	APHA 5210	80	52.5
4	Chemical Oxygen Demand	COD (mg/L)	ASTM D-1252	150	105
5	Total Dissolved Solids	TDS (mg/L)	APHA 2540-C	3500	529
6	Total Suspended Solids	TSS (mg/L)	APHA 2540-D	150	102
7	Oil & Grease	O Gr (mg/L)	ASTM D-4281	10	0.03
8	Chloride	Cl ⁻ (mg/L)	ASTM D-512	1000	721
9	Phenolic compound	Phol (mg/L)	ASTM D-1783	0.1	ND
10	Fluoride	F ⁻ (mg/L)	APHA 4500-F ⁻ 1	20	4.2
11	Anionic Detergent	Det (mg/L)	ASTM D-6173	20	5.4
12	Selenium	Se. ⁻² (mg/L)	APHA 4500-Se	0.5	ND
13	Sulfide	S. ⁻² (mg/L)	APHA 4500-S ⁻²	1.0	0.52
14	Ammonia	NH ₃ (mg/L)	ASTM D-1426	40	16.6
15	Cadmium	Cd. ⁻² (mg/L)	ASTM-D3557	0.1	<0.2
16	Chromium Trivalent	Cr ⁺³ (mg/L)	APHA 3500-Cr	1.0	ND
17	Chromium Hexavalent	Cr ⁺⁶ (mg/L)	APHA 3500-Cr	1.0	0.03
18	Lead	Pb. ⁻² (mg/L)	ASTM-D3559	0.5	0.8
19	Mercury	Hg. ⁻² (mg/L)	Kit Method	0.01	ND
20	Nickel	Ni. ⁻² (mg/L)	HACH II Dimethylglyoxime Method	1.0	ND
21	Silver	Ag (mg/L)	ASTM-D3866	1.0	ND
22	Zinc	Zn. ⁻² (mg/L)	HACH Zincon Method	5.0	0.7
23	Total Iron	Fe ²⁺ (mg/L)	APHA 3500-Fe	2.0	0.6
24	Manganese	Mn. ⁻² (mg/L)	APHA 3500-Mn	1.5	0.09
25	Boron	B (mg/L)	APHA 4500-Mn	6.0	0.2
26	Sulfate	SO ₄ (mg/L)	APHA 4500-SO ⁻²	600	269
27	Arsenic	As (mg/L)	Palintest Kit	1.0	ND
28	Copper	Cu ⁺² (mg/L)	HACH Biquinoline Method	1.0	0.02
29	Chlorine	Cl ₂ (mg/L)	HACH DPD Method	1.0	ND
30	Aluminum	Al (mg/L)	HACH Eriochrome Cyanine R	----	ND
31	Total Kjeldahl Nitrogen	(mg/L)	Kit Method	----	0.30
32	Barium	Ba (mg/L)	ASTM D-4382	1.5	0.81

Note:

BEQS=Baluchistan Environmental Quality Standards
 The instruments used were duly calibrated.
 The measurements were carried out on client's request.
 The client is responsible for lawful usage of reported data in future.
 This report is not valid for Court evidence/ Judicial knowledge
 The measurement results based on the time of monitoring.

WI = Within Limit

Field Analyst: 

Mr. Mohsin

Chief Chemist



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Pictoral Evidences**Picture Evidence**

Project name:	Construction of Kili Sardar Akhtar (PIS) sub-project Zhob River Basin (NCB-06)
Client Name:	Balochistan Water Resources Development Sector (BWRDSP) ABD Loan no-3700-Pak Irrigation department Balochistan
Consultants Name:	NESPAK, RHC, EGC (JV)
Contractor Name :	M/s NOOR UL HAQ & BROTHERS



Annexure XVI: Balochistan Environmental Quality Standards**Balochistan Quality Standards for Noise 2020**

In dB(A) Leq(Time weighted average of the level of sound in decibel on scale A which is relatable to human hearing)

S No	Area Type	Day time	Night time	Day time	Night time
1	Residential Area (A)	65	50	55	45
2	Commercial Area (B)	70	60	65	55
3	Industrial Area (C)	80	75	75	65
4	Silent Zone (D)	55	45	50	45

Explanations

1. Day time hours are marked as to be from 6:00am to 10:00pm.
2. Night Time hours are marked as to be from 10:00 pm to 6:00 am.
3. Silence Zone: the following shall be the generally declared Silent Zone/areas. The DG EPA upon his own or by a written request can declared any other area as Silent Area
 - a. An area comprising not less than 150 meters around a hospital, an educational institution and courts of law
4. Areas which cannot be distinguished on the basis of being Commercial, Industrial or Residential and which are the mixed of them, such areas can be declared all as Residential Areas and Noise protocols of Residential Area shall apply therein.

Balochistan Environmental Quality Standards for Ambient Air

Pollutant	Time-Weighted Average	Concentration in Ambient Air	Method of Measurement
Sulfur Dioxide (SO ²)	Annual average*	80 ug/m ³	Ultraviolet Fluorescence method
	24 hours**	120 ug/m ³	
Oxides of Nitrogen as (NO)	Annual average*	40 ug/m ³	Gas Phase Chemiluminescence
	24 hours**	40 ug/m ³	
Oxides of Nitrogen as (NO ²)	Annual average*	40 ug/m ³	Gas Phase Chemiluminescence
	24 hours**	80 ug/m ³	
Ozone (O ³)	1 hour	130 ug/m ³	Non Dispersive UV absorption method
Suspended particulate matter (SPM)	Annual average*	360 ug/m ³	High Volume sampling (average flow rate not less than 1.1 m ³ /min)
	24 hours**	500 ug/m ³	
Respirable particulate matter PM 10	Annual average*	120 ug/m ³	Preferably B-Ray absorption method
	24 hours**	150 ug/m ³	
Respirable particulate matter PM 2.5	Annual average*	15 ug/m ³	Preferably B-Ray absorption method
	24 hours**	35 ug/m ³	

Pollutant	Time-Weighted Average	Concentration in Ambient Air	Method of Measurement
	1 hour	15 ug/m ³	
Lead (pb)	Annual average*	1 ug/m ³	ASS method after sampling using EPM 2000 or equivalent Filter Paper
	24 hours**	1.5 ug/m ³	
Carbon Monoxide (CO)	8 hours**	5 mg/m ³	Non Dispersive Infra Red (NDIR) method
	1 hour	10 mg/m ³	

* Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** 24 hourly 18 hourly Values should be met 98% of the in a year. 2% of the time, it may exceed but not on two consecutive days.

Balochistan Environmental Quality Standards for Drinking Water

Properties/Parameters	Standard Values	WHO Standards	Remarks
All water intended for drinking (E. Coli or Thermo-tolerant Coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be in any 100 ml	Most Asian countries also follow WHO standards
Treated water entering the distribution system (E. Coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water in the distribution system (E. Coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12- month period.	Must not be detectable in any 100 ml sample In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12- month period.	Most Asian countries also follow WHO standards
Colour	<15 TCU	<15 TCU	
Taste	Non objectionable/ Acceptable	Non objectionable/ Acceptable	
Turbidity	Non objectionable/ Acceptable	Non objectionable/ Acceptable	
	<15 NTU	<15 NTU	

Properties/Parameters	Standard Values	WHO Standards	Remarks
Total hardness as CaCO₃	<500 mg/l	—	
TDS	<1000	< 1000	
pH	6.5—8.5	6.5—8.5	
Essential Inorganic	Mg/Liter	Mg/liter	
Aluminum (Al)mg/l	< 0.2	0.2	
Antimoney *Sb)	< 0.005(P)	0.02	
Arsenic (As)	< 0.05(P)	0.01	Standard for Pakistan similar to most Asian developing countries
Barium (Ba)	0.7	0.7	
Boron (B)	0.3	0.3	
Casmium (Cd)	0.01	0.003	Standard for Pakistan similar to most Asian developing countries
Chloride(Cl)	< 250	250	
Chromium(Cr)	< 0.05	0.05	
Copper(Cu)	2	2	
Toxic Inorganic	Mg/l	Mg/l	
Cyanide (CN)	< 0.05	0.07	Standard for Pakistan similar to most Asian developing countries

Fluoride(F)	< 1.5	1.5	
Lead(Pb)	< 0.05	0.01	Standard for Pakistan similar to most Asian developing countries
Manganese(Mn)	< 0.5	0.5	
Mercury(Hg)	< 0.001	0.001	
Nickle(Ni)	< 0.05	0.02	
Nitrate(NO ³)	< 50	50	
Nitrate(NO ²)	< 3 (P)	3	
Selenium(Se)	0.01 (P)	0.01	

Properties/Parameters	Standard Values	WHO Standards	Remarks
Residual Chlorine	0.2-0.5 at consumer end 0.5-1.5 at source		
Zinc (Zn)	5.0	3	Standard for Pakistan similar to most Asian developing countries
Organic			
Pesticides Mg/l			PSQCA No. 4639-2004, page No.1 Table No 3 Serial No 20-58 may be consulted
Phenolic Compounds (as Phenols) mg/l			
Poly nuclear aromatic hydrocarbons (as PAHs) g/l		0.01 (By GC/MS Method)	
Alpha Emitters bq/L or pCi	0.1	0.1	
Beta emitters	1	1	

- *Indicates priority health related inorganic constituents, which need regular monitoring.
- ** PSQCA: Pakistan Standards Quality Control Authority.