

Environmental Monitoring Report

6th Semi Annual Report
July to December 2022

PAKISTAN: Punjab Intermediate Cities Improvement Investment Project

Prepared by Project Management Unit, Punjab Intermediate Cities Improvement Investment Project for the Local Government & Community Development Department, Government of the Punjab, Pakistan and the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 31st Dec 2022)

Currency unit	–	Pakistan rupee/s (Pre/PRs)
PRe1.00	=	\$0.00488
\$1.00	=	PRs 235.5

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, "\$" refers to United States dollars.

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PUNJAB INTERMEDIATE CITIES IMPROVEMENT INVESTMENT PROGRAM (PICIIP)



Top Priority
Through Email

No.LG&CD/PICIIP/PMU-SAEMR/2022
Government of the Punjab
Local Government & Community Development
Department
Dated Lahore, the 07th April, 2022

To,

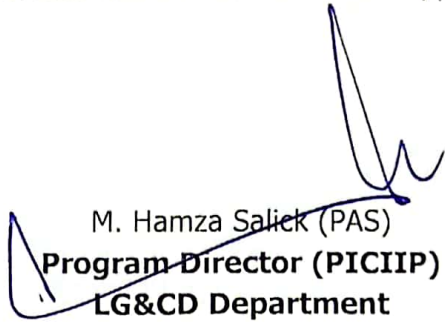
The Senior Project Officer
Urban, Water and Emergency Assistance
Asian Development Bank, Pakistan Resident Mission

Subject:- **6th SEMI ANNUAL ENVIRONMENTAL MONITORING REPORT FOR**
PUNJAB INTERMEDIATE CITIES IMPROVEMENT INVESTMENT PROGRAM

Dear Mr. Umar,

Please find enclosed herewith the 6th Semi Annual Environmental Monitoring Report for the reporting period 1st July to 31st December 2022 for the review and the approval of Asian Development Bank.

Best regards,


M. Hamza Salick (PAS)
Program Director (PICIIP)
LG&CD Department

No. & Date even:-

A copy is forwarded for information and further necessary action to:-

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4. Director (Admin & Finance PMU, PICIIP, LG&CD Department
5. Director (Monitoring & Evaluation) PMU, PICIIP, LG&CD Department
6. Infrastructure Engineer, CIU Sahiwal & Sialkot, PICIIP, LG&CD Department
7. EPCM Consultant, PICIIP
8. Master File

Abbreviations

ADB	Asian Development Bank
CAP	Corrective Action Plan
HSE	Health Safety and Environment
EPA	Environmental Protection Agency
EIA	Environment Impact Assessment
EMP	Environmental Management Plan
GoP	Government of Punjab
GOP	Government of Pakistan
Km	Kilometer
PEQS	Punjab Environmental Quality Standards
PICIIP	Punjab Intermediate Cities Improvement Investment Program
PIC	Project Implementation Consultant
PM	Particulate Matter
PMU	Program Management Unit
PIU	Project Implementation Unit
PMCSC	Project Management Construction Supervision Consultants
SSEMP	Site Specific Environment Management Plan
SAEMR	Semi - Annual Environmental Monitoring Report
SOP	Standard Operating Procedure

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1. INTRODUCTION

1.1 Preamble

1. This report presents the Semi - Annual Environmental Monitoring Review (SAEMR) for Punjab Intermediate Cities Improvement Investment Program. This report fulfills the requirements to monitor the effectiveness of ADB's Safeguards Policy Statement 2009, its implementation and to ensure sound environmental planning. During the environmental monitoring the gaps/shortcomings in the implementation of environmental safeguards as per Safeguard Policy Statement (SPS) 2009 were identified and corrective actions proposed and recommendations for future course of action provided. This report is the 6th SAEMR for the project, consisting of the following sub-projects.

Sahiwal Parks

- Chamanzar Park
- Park and Playground Near Stop # 10, Farid Town
- Fateh Sher Park

Sialkot Parks

- Sialkot Fort Park
- Abdul Hakeem Park for Ladies
- Ladies and Children Park (Model Town)
- Gulshan-e-Iqbal Park

Punjab Local Government Academy (PLGA), Lahore

- The PLGA will be a multi-storied building meant for training of local government employees and will be constructed over an area of 10 kanals of land with dimensions of 200' x 180' with two basements and six floors.

Water Supply & Sewerage System of Sahiwal City

- Lot-1: Rehabilitation/improvement of water supply system in North Zone (Phase-1)
- Lot-2: North Zone (A) Sewerage System upto 72-inch diameter pipes and construction of allied works (Phase-1).
- Lot-3: North Zone (B) Sewerage system for conduit, pumping station and allied works.

- Lot-4: South Zone (Water Supply and Sanitation)

Waste Water Treatment Plant (WWTP) North Zone Sahiwal

- Waste water treatment plant will be established on 199 acres of land in North of Sahiwal city. Waste Stabilization Pounds (WSP) will be constructed for the effluent treatment.

Water Supply & Sewerage System of Sialkot North Zone

- Lot-1: Laying of Sewerage Lines and Allied Works
- Lot-2: Laying of Pre-Cast RCC Conduits and Allied Work
- Lot-3: Construction of Influent Pumping Station, Forcemain and Allied Works
- Lot-4: Laying of Water Distribution Network

Waste water Treatment Plant (WWTP) North Zone Sialkot

- Waste water treatment plant will be established on 238 acres of land in North of Sialkot city. Waste Stabilization Pounds (WSP) will be constructed for the effluent treatment.

1.2 Headline Information

2. Environment team of PICIIP and EPCM has orientated all the contractors on environmental compliances as per IEEs/EMPs. The team has observed that environmental management has improved over the time on subprojects sites. ADB's recommended Corrective Action Plan (CAP) is also devised and communicated to the contractors. Contractors have been advised to address non-compliances as per agreed Corrective Action Plan. Therefore, the progress in environmental compliance is expected to improve in the coming months. The contractors on all the subprojects carried out the tasks and actions described in their EMP successfully.
3. The EPCM and Health, Safety and Environment (HSE) teams at site continued to perform strict monitoring of the EMP and Health & Safety (HS) Plan implementation by the Contractor.
4. On-site trainings / toolbox talks have been extensively provided to the workers by the Contractor throughout the reporting period under the EPCM supervision.
5. Furthermore, due to the 3rd wave of COVID-19 pandemic outbreak the required measures being implemented, such as social distancing of project staff, the overall staff has also been reduced.

6. Also, the on-site HSE team strictly implemented the SOPs issued by Government of Punjab (GOP) for construction sites (disinfection of offices and machinery periodically, temperature screening at project entrances, provision of hand sanitizers to office and labour staff, provision of surgical face masks, instruction boards and signage at different locations for COVID-19 awareness).

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

7. The Asian Development Bank (ADB) and the Cities Development Initiative for Asia (CDIA) are partnering with the Government of Punjab Province (GoPP), to undertake the Punjab Intermediate Cities Improvement Program (PICIIP).
8. The PICIIP aims to improve the quality of urban services available in selected cities in Punjab province (city populations between 250,000 and 1,000,000). Urban infrastructure development is an important component of the PICIIP. The duration of the program will be six years. Funding will be accessed in phases. The PICIIP's overall budget is US\$250 million, to be disbursed in phases.
9. The first phase will fund investments in the intermediate cities of Sahiwal and Sialkot. Major projects planned for both cities are water supply improvement; sewerage and drainage improvement, sewage treatment plant, green spaces development and transport routes improvement.
10. Overall project will have following major outcomes:
 - Output 1: Water supply systems improved
 - Output 2: Sanitation systems improved
 - Output 3: Urban public spaces improved
 - Output 4: Institutional support and capacity development
11. PICIIP aims at transforming the selected urban areas into green, inclusive, resilient and competitive Smart cities with improved livability supporting social and economic growth through improved Municipal Governance, integrated urban planning, improved services delivery, efficient local mobility and climate resilient infrastructure and introduction of IT for city services delivery improvement within the frame of Smart City.
12. The Local Government and Community Development (LG&CD) department of Punjab is executing agency of the project and the city governments of Sahiwal and Sialkot (municipal corporations) will be the O & M agencies. A Project Management Unit (PMU) and two City Implementation Units (CIUs) have been established by LG & CD Department for successful execution of the overall program.

2.1.1 WATER SUPPLY & SEWERAGE SYSTEM OF SAHIWAL CITY

13. The Water Supply and Sanitation (WATSAN) works in Sahiwal is divided into four Lots which is given hereunder;

Table 2-1 Sahiwal WATSAN Project Lots

Sr. No.	Description	Total Length (km)
1	Lot- I - Rehabilitation/improvement of water supply system in North Zone	543
2	Lot-II - North Zone (A) Sewerage System upto 72-inch diameter pipes and construction of allied works	56.47
3	Lot- III - Sewerage system for conduit, pumping station and allied works.	4.78
4	Lot-IV - Rehabilitation / Improvement of Sewerage System in South Zone	26

14. In WATSAN works of Sahiwal, contractors have been started on-site execution after the approval of Site-Specific Environmental Management Plan (SSEMP) for Lot-01, Lot-02, Lot-03 and Lot-04 while WWTP has not been mobilized to their respective site yet.

2.1.2 WATER SUPPLY & SEWERAGE SYSTEM OF SIALKOT CITY

15. The Water Supply and Sanitation (WATSAN) works in Sialkot is divided into four Lots which is given hereunder;

Table 2-2 Sialkot WATSAN Project Lots

Sr. No.	Description	Total Length (km)
1	Lot- I - Laying of Sewerage Lines and Allied Works	33.5
2	Lot-II - Laying of Pre-Cast RCC Conduits and Allied Work	5.75
3	Lot- III - Construction of Influent Pumping Station, Force main and Allied Works	-
4	Lot-IV - Laying of Water Distribution Network	261

16. In WATSAN works of Sialkot, execution of work for Lot-01, Lot-02, Lot-03 and Lot-04 has been started after the approval of SSEMPs. WWTP contract has been awarded and SSEMP is cleared by the PMU/PM CSC with consent of ADB.

2.1.3 SAHIWAL & SIALKOT PARKS

17. PICIIP was undertaking rehabilitation of three public parks in Sahiwal and four public parks in Sialkot as already mentioned in **Section 1.1** above.
18. The major development works at parks involve landscaping, irrigation system, electrification, system, plumbing system, surveillance system, kiosks, toilet, gazebos, open gym, gardener room, cctv cameras, lake, fountain, ticketing booth, security room, jogging track, walkways, children play area etc.

2.1.4 PLGA

19. PICIIP is also undertaking the construction of the Punjab Local Government Academy (PLGA) in Lahore city. After promulgation of PLGA Act 2019, training is mandatory for all officers and servants of local governments and undertaking of works requiring higher engineering skills. Furthermore, heads, conveners and councilors shall cover training requirements for improved performance.
20. The existing PLGA cannot cater to the quality training needs of all employees and elected representatives of the province with existing infrastructure and resources. The PLGA will be a multi-storey building meant for training of local government employees and is being constructed over an area of 10.04 kanals of land with dimensions of 70.36m x 59.70m (4200.49 Sq.m) with two basements (approximately 120 Nos. Car and 200 Nos. Motorcycles parking space.) and six floors.
21. It includes an administration block, IT & control room, library for 40 persons capacity, prayer hall for 200 persons capacity, dining hall for 200 persons capacity, hostel mess / cafeteria for 80 persons, training classrooms for training of 300 persons at a time, syndicate discussion rooms for 20 persons, seminar hall for 100 persons, screening hall for 300 persons, executive hall for 75 persons, instructor rooms, computer laboratory for 56 person, executive suits (double occupancy), double occupancy rooms, and day care center.

2.2 Project Contracts and Management

22. The environmental management teams for PICIIP and their respective roles are as provided below as **Table 2.1**.

Table 2-3: Environmental Management Team

Organization	Discipline/ Designation	Deployed Team	Location	Contact no	Email Id
PMU-PICIIP	Environmental Consultant	Hiring is in process	-	-	-
	Director M&E / Environmental Engineer	Asifa Khan	Lahore	0302-8498163	enr.asifa@hotmail.com
	Deputy Director, Safeguards	Waqas Afzal	Lahore	0346-3301477	waqasafzal808@gmail.com
	Research Analyst Environment	Jawad Shafiq	Sialkot	0322-5616588	Jawadshafiq8@gmail.com
	Research Analyst Environment	Iqra Shamsher	Sahiwal	0349-6627256	lqrashamsher909@gmail.com
ADB	Environment Specialist	Asim Sabzwari	Head Quarter, Manila	(+632) 632-6757 Dir: (+632) 632-6153	asabzwari@adb.org
	Environment Specialist (Consultant)	Shazia Shahid	Islamabad	0346-0281336	sshahid.consultant@adb.org
	Environment Consultant	Saad Malik	Islamabad	0300-5229360	Smalik.consultant@adb.org
EPCM Consultant	Resident Engineer	Rai Bilal	Lahore	0321-6905129	Rai_bilal@hotmail.com
	Resident Engineer	M. Usman	Sahiwal	0305-4444554	Usman878@yahoo.com
	Senior Resident Engineer	Saifullah Amin	Sialkot	0300-8400790	saifullah_civil@yahoo.com
	Environmental Specialist	Anas Nadeem Khan	Lahore	0331-4112481	anaskhan444@outlook.com
	HSE Expert	M. Asad Javaid	Sahiwal	0331-7532741	Asadjavid9971@gmail.com
	HSE Expert	Ahmed Husnain Bukhari	Sialkot	0343-4278061	ahmedhusnainbukhari@gmail.com
Contractors					
Sahiwal					
TMT-MAC Lot-01	HSE Manger	Ahtisham Asghar	Sahiwal	03039674272	4772ahtisham@gmail.com
CGICOP Lot-02	HSE Manger	M. Zafer	Sahiwal	0301-6533797	Zaferbutt922@gmail.com
CGICOP Lot-03	HSE Manger	M.Rashid Mahmood	Sahiwal	0300-6917016	rashid.mahmood1234@gmail.com

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ZKB-Reliable Lot-04	HSE Manger	M. Waseem	Sahiwal	0330-5878333	Wasim.ehs@outlook.com
Sialkot					
ZKB-Reliable Lot-01	HSE Manger	Siddique Shahid	Sialkot	0326-8007660	siddquesahid@gmail.com
ZKB-Reliable Lot-02	HSE Manager	Umer Umair	Sialkot	0333-6055094	piciipzkbskt@gmail.com
Lot-03	HSE Manager	Muhammad Liaqat	Sialkot	030226433340	
ZKB-Reliable Lot-04	--	--	--	--	--
WWTP	HSE Manager	Qurban Ali	Sialkot	03457777330	qurbanaliofficial@gmail.com

23. Execution is being carried out by the Project Management Unit (PMU), which is comprised of Punjab local government staff, who are assisted by the Engineering, Procurement and Construction Supervision Consultant i.e. NESPAK for technical and commercial matters. The PMU, EPCM Consultant and Contractors' HSE teams ensure that mitigation and management measures proposed in the IEE reports and SSEMPs are implemented.

2.3 Project Activities during Current Reporting Period

Works status at Parks in Sahiwal

24. All of the three parks including Farid Town Park, Fateh Sher Park and Chaman Zar Park in Sahiwal have been completed since from the start of March 2021. The parks are handed over to PHA Sahiwal on September 30, 2021. Operational phase environmental monitoring was conducted in the month of December 2021.

Works status at Parks in Sialkot

25. All four numbers of parks including Abdul Hakeem Ladies Park, Model Town Ladies Park, Fort Park and Gulshan e Iqbal Park have been completed.

Works status PLGA Lahore

26. During the reporting period, the status of the construction work areas is as follows:
- ✓ External plastering progress achieved up to 100%.
 - ✓ The Internal Plastering on each floor is almost completed.
 - ✓ All brick work has been completed on all floors.
 - ✓ Tile work and Granite work is in progress from Ground floor to 5th floor.
 - ✓ PCC flooring (1:2:4) is complete for all floors.
 - ✓ Installation of HVAC ducting for ground floor to third floor is completed.
 - ✓ Installation of firefighting pipes up to 4th floor is completed. It is about 80 percent on the 5th floor.
 - ✓ For Electrical works, the wiring of Emergency and exit lightening is completed for 4 floors.
 - ✓ Cooling towers, VRF are procured and is available at site.
 - ✓ AHUs, DG Set & Elevator are ordered and LCs are opened waiting for Bank

Works status Sahiwal WATSAN (Lot-1):

27. During the reporting period, the status of the construction work areas is as follows:

Table 2-6: Lot-01 OHR's Physical Progress Sahiwal

Sr #	OHR's ID	Location	Physical Progress (Description)
1	T-5	Madina Masjid Park	• OHR T-5 (Madina Masjid) Bowl completed Except Minor Work
2	T-6	Noor Park	• OHR T-6 (Mohala Noor Park) Bowl completed except stair case and Minor Work.
3	T-7	Ghalla Mandi	• OHR T-7 (Ghala Mandi) completed accept minor work.
4	T-4	Batala School Ground	• OHR T-4 (Batala School) Completed up to bottom of Bowls.

Table 2-7: Lot-01 Tube Well Physical Progress Sahiwal

Sr #	Tube Well ID	Location	Physical Progress (Description)
1	P-14	Farid Town Graveyard	Bore and lowering has been done Pump House Structural Work completed
2	P-24	APS School	Bore and lowering has been done Pump House Structural Work completed
3	P-27	Irrigation Colony	Bore and lowering has been done Pump House Structural Work completed
4	P-28	Govt. Postgraduate Boys College	Bore and lowering has been done Pump House Structural Work completed
5	P-29	Nai Abadi Near Bloom Field School	Bore and lowering has been done Pump House Structural Work completed
6	P-50	PILOT School	Bore and lowering has been done Pump House Structural Work completed
7	P-52	URBAN AREA School	Bore and lowering has been done Pump House Structural Work completed
8	P-10	Masjid Shuhda	Bore and lowering has been done Pump House Structural Work completed
9	P-19	GCT College	Bore and lowering has been done Pump House Structural Work completed
10	P-23	Govt. Commerce Boys College	Bore and lowering has been done Pump House Structural Work completed
11	P-54	Khizra Park	Bore and lowering has been done Pump House Structural Work completed
12	P-49	Govt. Postgraduate Girls College	Bore and lowering has been done Pump House Structural Work completed
13	P-30	Govt. Batala High School	Bore and lowering has been done Pump House Structural Work completed
14	P-21	Highway Colony, Canan Park	Bore and lowering has been done Pump House Structural Work completed
15	P-70	Pir Bhukhari Graveyard	Bore and lowering has been done

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16	P-75	Arifwala chowk, Multan Road	Bore and lowering has been done Pump House Structural Work completed
17	P-80	Inayat Elahi Colony near school 90/9L	Bore and lowering has been done Pump House Structural Work completed
18	P-53	L.B.D.C Canal	Bore and lowering has been done
19	P-20	Immamia College	Bore and lowering has been done Pump House Structural Work completed
20	P-26	Irrigation Colony	Bore and lowering has been done
21	P-71	Gala Mandi	Bore and lowering has been done
22	P-51	Madina Masjid	Bore and lowering has been done Pump House Structural Work completed
23	P-67	T # 6 Noor Park	Bore and lowering has been done Pump House Structural Work completed
24	P-22	Police Line	Bore and lowering has been done Pump House Structural Work completed
25	P-09	Farid Town	Bore and lowering has been done Pump House Structural Work completed

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Project		Water Supply and Sanitation works for (Sub-town) - Lot 2: North Zone A (Sanitation) Trunk Sewer Line and Allied Works						STATUS
1	Input Cost	877	888	0	0	0	0	
SPN Road 1-3 77'24 PA								
1	Excavation	877	8880	7112	10	0	10	New Lines In Progress
2	W.C Pipe Laying (27" dia)	877	8880	7112	10	0	10	
3	Backfilling	877	8880	7112	10	0	10	
4	Manhole	86	75	0	0	0	0	
5	Sub Base	877	8880	0	0	0	0	
6	Asphalt Base Course	877	8880	0	0	0	0	
7	Input Cost	877	8880	0	0	0	0	
Armalah Road 1-3 82'111 + JV								
1	Excavation	877	470	2224	0	289	0	New Lines In Progress
2	W.C Pipe Laying (27" dia)	877	470	2224	0	289	0	
3	Backfilling	877	470	2224	0	289	0	
4	Sub Base	877	470	0	28	0	28	
5	Asphalt Base Course	877	470	0	28	0	28	
6	Input Cost	877	470	0	0	0	0	
7	Manhole	86	28	0	0.2	0	0.2	
WALAH 48' 24'								
1	Excavation	877	238	1712	4	0	4	New Lines Completed for 50% Input Cost
2	W.C Pipe Laying (27" dia)	877	238	1712	4	0	4	
3	Backfilling	877	238	1712	4	0	4	
4	Manhole	86	22	0	0.2	0	0.2	
5	Sub Base	877	238	0	0	0	0	
6	Asphalt Base Course	877	238	0	0	0	0	
7	Input Cost	877	238	0	0	0	0	
L-2 Kaska Pothoh New Work Road 48' 24'								
1	Excavation	877	882	1886	16	0	16	New Lines In Progress
2	W.C Pipe Laying (27" dia)	877	882	1886	16	0	16	
3	Backfilling	877	882	1886	16	0	16	
4	Manhole	86	74	0	0	0	0	
5	Sub Base	877	882	0	0	0	0	
6	Asphalt Base Course	877	882	0	0	0	0	
7	Input Cost	877	882	0	0	0	0	
Mulla Nagar 1-42 87' 24'								
1	Excavation	877	176	1884	3	0	3	
2	W.C Pipe Laying (27" dia)	877	176	1884	3	0	3	
3	Backfilling	877	176	1884	3	0	3	
4	Manhole	86	24	0	0	0	0	
Sub Road 1-02 14' 111								
1	Excavation	877	224	2877	0	0	0	New Lines In Progress
2	W.C Pipe Laying (27" dia)	877	224	2877	0	0	0	
3	Backfilling	877	224	2877	0	0	0	
4	Manhole	86	22	0	0	0	0	
Financial and Physical Progress (%)								
1	Overall Project Period	Overall Budget Period	Overall Actual Progress (to date)	Overall Physical Progress (to date)	Overall Budgeted for the Overall Period	Overall Actual for the Overall Period		
2	6.7%	60%	60%	60%	6.0%	6.0%		
3			Key Issues					
4		Issues			Proposed Solution / Remarks			

Table 2-8 Sahiwal WATSAN (Lot-3) Physical progress

Date: 23.11.2022								
Project:		Water Supply and Sanitation works for Sahiwal - Lot 03: North Zone II (Sanitation) Trunk Main Sewer Conduit, Influent Pumping Station and AEW Works						
Daily Activity								
#	Activity	Unit	Total Quantity	% date Achieved	Today's Planned	Today's Achieved	Next Day Planned	Remarks
7'-0"X6'-0" conduit								
1	Excavation	WT	275	175	20	0	20	
2	Lay-outwork	WT	275	67	20	19	20	
3	Sett	WT	275	188	20	0	20	
4	Work	WT	275	158	18	0	18	
5	Sett	WT	275	125	18	0	18	
6	Skinner Lining	WT	275	127	18	0	18	
7	Backfilling	WT	275	103	18	19	18	
Precast Conduit Bells								
	7'-0"X6'-0"	Ba	100	6	4	3	4	
	10'-0"X6'-0"	Ba	170	21	7	1	7	
BOUNDARY WALL / INFLUENT PUMPING STATION								
	Excavation	WT	304	88	15	0	15	
	PCU	WT	304	88	15	0	15	
	Brickwork	WT	304	88	15	0	15	
	Plaster	WT	304	0	15	0	15	
	WCC Footings	WT	304	88	20	0	20	
	WCC Columns	WT	304	88	18	0	18	
	Backfilling	WT	304	88	10	0	10	
Dry and Wet works - Influent Pumping Station								
	Excavation	WT	110	10	20	0	18	
F								
Financial and Physical Progress (%)								
#	Overall Planned Physical	Overall Achieved Physical	Overall Achieved Financial	Today's Planned Physical	Today's Achieved Physical	Next Day Planned Physical		
	85.5%	2.9%	4.7%	0.29%	0.85%	0.29%		

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Table 2-9 Sahiwal WATSAN (Lot-4) Pipe laying

DAILY PROGRESS REPORT								Date: 11.12.2023
MEMBER COUNCIL / SUPERVISOR'S OFFICE OF NEW RURAL DISTRICT (IN NORTH ZONE, SAHEWAL PHASE 1 (LOT-4))								
Sl. No.	Activity	UNIT	Daily Activity			Next Day Planned	Remarks	
			Total Quantity	To date Achieved	Today's Planned			
Substation Road (24,444 M)								
1	Excavation	sq	4000	2112	80	80		
2	MCC Pipe Laying (12")	sq	4000	2100	80	80		
3	Backfilling	sq	4000	2100	80	80		
4	Manhole	nos	100	12	1			
5	Sub-Base	sq	4000	1900			work started	
6	Appropriate Base Course	sq	4000	1900				
7	Asphalt Base (75)	sq	4000	0				
Mansehra Colony (1406 M)								
1	Excavation	sq	1,400	210				
2	MCC Pipe Laying (12")	sq	1,400	210				
3	Backfilling	sq	1,400	210				
4	Manhole	nos	17	3			work stopped	
5	Sub-Base	sq	1,400					
6	Appropriate Base Course	sq	1,400					
7	Asphalt Base (75)	sq	1,400					
North Wala By Pass (2058 M)								
1	Excavation	sq	6,210	1,470	80	80		
2	MCC Pipe Laying (12")	sq	6,210	1,470	80	80		
3	Backfilling	sq	6,210	1,470	80	80	work stopped due to no plant available	
4	Manhole	nos	18	1				
5	Sub-Base	sq						
6	Appropriate Base Course	sq						
7	Asphalt Base (75)	sq						
North Wala By Pass (2058 M)								
1	Excavation	sq	1,000	1,000				
2	MCC Pipe Laying (12")	sq	1,000	1,000	70	70	work completed backfilling in progress	
3	Backfilling	sq	1,000	1,000				
4	Manhole	nos	20	4				
5	Sub-Base	sq						
6	Appropriate Base Course	sq						
7	Asphalt Base (75)	sq						
S. S.S. Chowk Lane (10) 3x1000 to 4x1000 (1000M)								
1	Excavation	sq	900	270	100	100		
2	MCC Pipe Laying (12")	sq	900	270	100	100		
3	Backfilling	sq	900	270	100	100	work stop	
4	Manhole	nos	0					
5	Sub-Base	sq						
6	Appropriate Base Course	sq						
7	Asphalt Base (75)	sq						
S. S.S. Chowk Lane (10) 3x1000 to 4x1000 (1000M)								
1	Excavation	sq	900	40	100	40	100	
2	MCC Pipe Laying (12")	sq	900	40	100	40	100	
3	Backfilling	sq	900	40	100	40	100	
4	Manhole	nos	0					work started
5	Sub-Base	sq						
6	Appropriate Base Course	sq						
7	Asphalt Base (75)	sq						
S-1700-7 (1-2) to 100-17 (1-2) Along Pakistan Road								
1	Excavation	sq	1,000	700	100	100	100	
2	MCC Pipe Laying (12")	sq	1,000	700	100	100	100	
3	Backfilling	sq	1,000	700	100	100	100	
4	Manhole	nos	10					work started
5	Sub-Base	sq						
6	Appropriate Base Course	sq						
7	Asphalt Base (75)	sq						
Mansehra Colony (1406 M)								
1	Excavation	sq	1,200	1,200				
2	MCC Pipe Laying (12")	sq	1,200	1,200				
3	Backfilling	sq	1,200	1,200				
4	Manhole	nos	4	4				work further ahead remaining
5	Sub-Base	sq	1,200	1,200				
6	Appropriate Base Course	sq	1,200	1,200				
7	Asphalt Base (75)	sq	1,200	1,200				
Physical and Financial Progress (%)								
8	Overall Planned Physical		Overall Achieved Physical	Overall Achieved Financial	Today's Planned Physical	Today's Achieved Physical	Next Day Planned Physical	
	92.00%		11.00%	36.43%	1.00%	0.00%	1.00%	

Table 2-8 Sahiwal WATSAN (Lot-4) Pipe Production

50	Materials						
51	Type	Unit	Stock Available at Site	Today's Consumed	Balance Available at Site	Next Day Required Quantity	Remarks
51	RCC Pipes						
52	15"	Nos	240		240	3	
54	18"	Nos	242		242	10	
55	21"	Nos	291	6	285	13	6 pipe casted
56	24"	Nos	0		0	2	
57	27"	Nos	406		406	5	
58	30"	Nos	04	5	66	3	2 pipe casted
59	33"	Nos	94		66	6	3 pipe casted
6	36"	Nos	31		31	9	
9	42"	Nos	105		105	2	
10	48"	Nos	8		8	9	
11	54"	Nos	53		53	5	
12	60"	Nos	0		0	5	
13	72"	Nos	320	8	312	42	10 pipe casted

Works status Sialkot WATSAN Lot-1, Lot-2, Lot-03 & Lot-4

Table 2-7: Lot-01, Lot-02, Lot-03 & Lot-04 – Sialkot

No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
LOT 1: SEWERAGE LINES AND ALLIED WORKS (ZONE 3-A)										
	Laying of RCC Pipes -Defense Road L3.8.4	20-Feb-2022	21-October-22	100%	15-Feb-21	500 Pipes of 42-inch dia has been laid 122 Pipes of 36-inch dia has been laid	100%			

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No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
	Backfilling of RCC pipes- Defense Road L3.8.4	18-April-22	2-July-22	100 %	15-April-22	Backfilling of RCC pipes- Defense Road L3.8.4 is almost completed	100 %			
	Laying of RCC Pipes -Roras Road L3.8.5	20-Feb-2021	29-Sep-21	100 %	15-Feb-21	181 Pipes of 33-inch dia has been laid 127 Pipes of 24-inch dia has been laid 137 Pipes of 21-inch dia has been laid 125 Pipes of 30-inch dia has been laid Chambers work Done	100 %			
	Backfilling of RCC Pipes - Roras Road L3.8.5	April-24-22	3-July-22	100 %	April-18-22	Backfilling of RCC Pipes - Roras Road L3.8.5 is almost completed	100 %			
	Laying of RCC Pipes – Lateral Line L3.8.5.4	20-Feb-2021	17-Apr-21	100 %	15-Feb-21	88 Pipes of 15” has been laid and restoration of road completed. Manhole brickwork completed	100 %			
	Laying of RCC Pipes – Lateral Line L3.8.5.2	20-Feb-2021	20-October-21	100 %	15-Feb-21	197 Pipes of 15” has been laid. 264 Pipes of 18” has been laid. Restoration remains.	100 %			

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No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
	Trunk Line L3.6	08-October-2022	02-Jul-22	0%	27-Sep-2021	238 Pipes of 54" dia has been Laid. 318 Pipes of 48" dia has been Liad	95%			
	Trunk Line L3.5	29-Sep-2021	24-Dec-2021	100%	1-Oct-2021	107 Pipes of 42" dia has been laid	48%			
	Trunk Line L3.8.4 Defense Road	19-Nov-2021	15-Dec-2021	100%	4-Dec-2021	145 Pipes of 54" has been laid. 242 Pipes of 60" has been laid. Manhole brickwork in Prog.	95%			
	Lateral line L3.8.4.2-A Muzaffar Pura Road	15-Jul-2021	02-Aug-2021	100%	2-Oct-2021	148 Pipes of 15" has been laid. 65 Pipes of 18" has been laid. Manhole brickwork in Prog.	97%			
	Lateral Line 3 Kakay Wali					35 Pipes of 21" has been laid. 91 Pipes of 21" has been laid.	30%			

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		Start Date	End Date	Planned %	Start Date	Status	Actual %			
	Lateral Line 3.1 Kakay Wali	01-Apr-2022	15-July-2022	85 %	12 Feb-2022	135 Pipes of 21" has been laid. 80 Pipes of 21" has been laid.	95 %			
	Khadim Ali Road L-3.6	18-March-2022	15-October-2022	100 %	18-March-2022	Asphaltic Base Coarse is completed	100 %			
LOT 2: RCC CONDUITS AND ALLIED WORKS (ZONE 3-A)										
	Factory Installation	17-Dec-2020	17-Dec-22	100 %		Factory Installed				
	Single Cell Conduit Production	28-Feb-21	20-Nov-22	100 %	26-Feb-21	Concrete of 1183 SCC completed	56 %			
	Double Cell Conduit Production	28-Feb-21	20-Nov-22	100 %	26-Feb-21	Concrete of 768 Cell completed	23 %			

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No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
	Double Cell Conduit Laying Airport Road	15-Mar-21	15-Nov-21	100%		60 conduits have been laid	15%		Working in progress	Backfilling of laid conduit in progress
	Single Cell Conduit Laying Marala Road	16-Apr-21	06-Feb-22	99%	4-Sep-21	Laying of 548 SCC completed	42%		Working in progress	Backfilling of laid conduit in progress
	Backfilling of Single Cell Conduit Marala Road	26-March-22	5-july-22	85	18-April-22	All the laid single cell conduit at Marala road has been back filled and compacted properly and FDT test is in progress	61%			
LOT 03: Laying of Forcemain and Pumping Station										
	Dismantling of Road Structure	Dec 8, 2022	30-October-2022	7.62%	Dec 8, 2022	October 15, 2022	5.92%	51604 CFT		1
	Excavation	Dec 9, 2022	30-October-2022	75%	Dec 9, 2022	30-October-2022	68%	261520 CFT		3

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No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
	Pipe Jointing	Dec 9, 2022	30-October-2022	14.8 %	Dec 9, 2022	30-October-2022	17.25 %	129 No		3
	Pipe Laying	Dec 13, 2022	30-October-2022	13.6 %	Dec 13, 2022	30-October-2022	15.41 %	4796 RFT		5
	Sand Filling	Dec 13, 2022	30-October-2022	8.36 %	Dec 13, 2022	30-October-2022	8.81 %	17200 CFT		4
	Back Filling	Dec 13, 2022	30-October-2022	13.47 %	Dec 13, 2022	30-October-2022	15.87 %	70000 CFT		7
	Pumping Station Boundary Wall Excavation	7 April-22	15-April-22	48 %	7 April-22	North and South Boundary Wall excavated	32%	552 RFT		
	Sand Laying of Pumping Station Boundary Walls	24-April-22	15-October-22	46 %	24-April-22	South side boundary wall bricks work is in progress	42%	45	Site possession issues and rainfall	DD PMU and Consultant was coordinated to resolve the issue

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No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
	Construction of Boundary Wall of Effluent Pumping Station	15-October-22	22-October-22	46 %	15-Oct-22	South Side lean, Steel Column, and Brick Work	21%	27	Rain Fall and Shortage of material at site	proper planning was done to avoid any issue that cause delays.
LOT 4: WATER SUPPLY SYSTEM (ZONE 3-D)										
1	Over Head Water Tank T19 UC Mubarak Pura	21-Jan-2021	15-Jun-2022	91 %	26-Dec-2021	Top Roof Slab Concrete is Completed	85 %			1
2	Over Head Water Tank T40 UC Bounkan	20-Jan-2021	15-October-2022	91 %	4-Jan-21	Bowl Framework is completed	77%			2
3	Over Head Water Tank T18 UC Model Town	20-Jan-2021	11-Jun-2022	91 %	14-Jan-21	Bowl Folding	70%			3
4	Over Head Water Tank T10 UC Water Works	23-Jan-2021	6-October-2022	95 %	21-Jan-21	RCC Shaft is Completed and Bowl Formwork in Progress	85%			4

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No.	Description of Work	Planned Physical Progress as per POW			Actual Physical Progress as on			No of Days Delayed	Remarks / Reasons of Delay	Corrective Measures/Actions Taken
		Start Date	End Date	Planned %	Start Date	Status	Actual %			
5	Over Head Water Tank T50 UC Ahmad Pura	1-Mar-2021	31-Mar-2022	97%	-	Shaft is Completed	70%			5
6	New Tube wells (14 nos.)	17-Dec-2020	16-Jun-2022	90%	17-Dec-20	Boring & Lowering and D&T completed @ 7 no. Tube well.	55%			6
7 8	Pipe Laying of Water Supply Line 3.8.4 at Defense Road	14-Jan-2021	28-October-2022	100%	19-Jan-2021	Pipe Laying of Water Supply Line 3.8.4 at Defense Road is Completed	100%			7
	New Filtration Plants			85%			0%		Insufficient Working Space	8
9	Replacement of existing Filtration Plants			75%			15%		Insufficient Working Space	9
10	Water Distribution Network	17-Dec-2020	16-Jun-2022	85%	17-Dec-20	Excavation and pipe laying in progress	35%		73527 RFT HDPE Pipe has been tested	10

2.4 Description of Any Changes to Project Design

28. All the projects have been commenced/ constructed on the same design and route which is given in IEEs. No major change has been made to the project design.

2.5 Description of Any Changes to Agreed Construction Methods

29. No change in the construction methodology has taken place except the addition of shuttering for deep trenches to avoid land sliding during civil work i.e in case of Lot-01 Sialkot pipe laying, jointing of pipe and manhole construction as well as in case of Lot-02 Sialkot laying and jointing of conduit cells remaining works are continued with the initially developed method statements.

3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

30. The key monitoring activities conducted within the reporting period are as follows:

- Quarterly EMP compliance monitoring was carried out by environment teams to identify any environmental non-compliance issues requiring attention;
- Supervision for trainings being conducted by Contractor for its staff were provided by the PMU & EPCM environment teams;
- Total 102 Trainings on HS Plan implementation for Contractors staff were organized by the HS team in Sahiwal and Sialkot.
- The EPCM environment team held follow-up meetings with the Contractors for checking the compliance status of previously highlighted issues.'
- ADB Environment Team Mr. Syed Asim Ali Sabzwari (Country Environment Focal -Pakistan) and Shazia Shahid (Environment Consultant) have conducted Country Safeguards Review Mission in September 2022. The purpose of the mission was to monitor and follow up on EMP implementation and training need assessments. They carried meetings with PMU, CIU, NESPAK and Contractors and site visits were also carried to sub projects in Sahiwal and Sialkot. A CAP was prepared by ADB environment team based on field visits and meetings. The status of the CAP as of December 2022 is provided in table 7.1.
- The contractor HSE manager have conducted the regular field inspections and compliance were checked through Environment Checklist which were then shared with the contractor and Environmental Specialist (Consultant).The contractor environmental specialists submit the environmental progress of the site through monthly environmental compliance report to the environmental specialist of Consultant.

3.2 Site Inspections / Monitoring's

31. Contractors are supposed to conduct internal inspections and review by their own staff to ensure a safe, healthy, and secure environment, both physically and behaviorally, for workers, equipment, property, visitors, and the public. NESPAK has undertaken site inspections of all under execution subprojects.

The findings of these inspections are being updated regularly in monthly environmental monitoring reports. Contractors are advised to submit weekly environmental monitoring checklist reports to NESPAK and implement the environmental compliance activities in accordance with the approved IEEs/EMPs. Contractors are improving their environmental compliance. To ensure implementation of EMP the contractors were asked to nominate their focal persons/site inspectors who will be responsible for environmental safeguards implementation, the contractors have dedicated environmentalists in their staff. The nominated site inspectors, HSE Managers and Environmentalists were trained on EMP/SSEMP implementation and directed to submit weekly checklist regularly to NESPAK.

32. HSE Expert and Assistant Resident engineers of NESPAK carried out field visits of all subprojects on regular basis. During these field visits meetings are convened with the contractors' staff and workers, visual observations and photographs are taken and key findings are discussed with the concerned engineering staff and the contractors. Recommendations are communicated to the contractor to address environmental issues and non-compliances on all the subprojects.
33. The contractor HSE expert have conducted the regular field inspections. The results of the internal inspections have been shared with the contractor staff itself and to the Consultant-Environmental Specialist.

Table 3-1: Site Inspections with Significant Non-Compliances at Sahiwal

Lots	Significant Non-Compliance
<p>Lot-1: Water Supply System, Filtration Plants, Tube Wells, OHRs, SCADA and Allied Works</p> <p>Lot-2: North zone A Trunk Main Sewer Lines and Allied works.</p> <p>Lot-3 North Zone (B) Sewerage system for conduit, pumping station and allied works.</p> <p>Lot-4: South Zone (Water Supply and Sanitation)</p>	<ul style="list-style-type: none"> • Shuttering must be placed at deep excavation sites. • Personal protective equipment (PPE) must be provided to the workers. • Excavated Soil material must be 1 meter away from edge of trench. • Ladder must be provision for access and egress in the trench. • Water sprinkling is advised to be done regularly. (Dust was observed on site). • Compliant number board should be placed on all sites. • Oil drums must be placed on concrete paved

34. Few of the common issues were identified during current reporting period summarized as under:-

- a) Ambulance services are also not seen at sites however contractors have vehicles to deal with emergencies
- b) Hard barricading issues were on Lots #4 during this reporting period.
- c) Signage related to complaint number, health and safety as well as traffic information board were missing on both Lots during this reporting period.
- d) Sandy strata were issue on 72" dia line, which was a big risk of land sliding.
- e) The Contractors mostly provided PPEs to their work force but the weak implementations have been observed on Lot I. The non- conformance notices have been issued and the contractors were instructed to provide the PPEs and train / motivate the workforce for the use of PPEs.

- f) Dust was eroded on the road at conduit Water sprinkling was also advised to the contractor for Lots (III).

Table 3-2 Site Inspections with Significant Non-Compliances at Sialkot

Lots	Significant Non-Compliances
<p>Lot- I - Laying of Sewerage Lines and Allied Works</p> <p>Lot-II - Laying of Pre-Cast RCC Conduits and Allied Work</p> <p>Lot-III - Laying of Forcemain, Pumping station and Allied Work</p> <p>Lot-IV - Laying of Water Distribution Network</p>	<ul style="list-style-type: none"> • Shoring of trench to avoid land sliding during the work in deep work site not provided • Use of hard barricade around the deep trenches not provided completely • Excavation only such lengths of trenches which can be backfilled in 2 to 3 days in wide streets and 01 day in narrow streets to avoid inconvenience to the public was not followed. • Safety Barriers along deep excavations to avoid any mishap not provided completely. • Ensure Dust Control on site. • Delays in restoration caused inconvenience for public • Provide and fix banners in eye catching colours on all working sites, showing general information of the project and in particular, start and completions dates in that particular area. • Few of the signage are also missing • Workers at OHR shaft are exposing to height hazard and no safety harness is provided to them. • HSE Manager for Lot-04 not appointed yet

35. As already reported during the previous reports, the environmental guidelines are being followed. However, the contractors have willingness to follow the environmental guidelines and the environmental team of PMU is continuously working on the capacity building. Some of the findings of the recent environmental inspection are as follows:

- a) HSE manager of Lot-04 has to be hired.
- b) Weekly checklists are being submitted on regular basis.
- c) Water sprinkling is done regularly on dust prone areas where the dry, loose dirt picks up in the wind.
- d) Collecting Kitchen waste at separate bins and disposing of in a pit at designated area/s has been improved at all under construction sites.

- e) Construction equipment and machinery is fitted with silencers and maintained properly.
- f) Surface water or ground water contamination, due to oil spillage or solid waste, has not occurred at any sites.
- g) Noise level recorded was within the permissible NEQs and WHO limits at most of the under construction sites except few at major roads which is due to heavy machinery and urban corridor, the results are show in Table 4-1 to 4-2.
- h) Site fencing with warning tape has been done on almost all the sites while sign boards are placed on sites.
- i) During the reporting period, numbers of complaints were received and record is shown in table 3-10, no major grievances were recorded. Contractors are addressing the issues on priority basis in consultation with PMU and NESPAK. Other minor onsite grievances are being addressed in consultation with local communities.
- j) There are no damages to houses or shops at any site.
- k) No damage to Archaeological /Religious/Cultural or Historical sites.
- l) First Aid Kits are available at construction sites.
- m) Dispensary has been developed at Campsite for health and Safety of workers.
- n) Ambulance services are also not seen for all lots separately at sites but supervision Consultant issued non-compliance to the Contractor for arrangement.

Table 3-3 Site Inspections with Significant Findings at PLGA

Project	Significant Findings
Construction of the Punjab Local Government Academy (PLGA) in Lahore	<ul style="list-style-type: none"> • Stagnant water on site. • • No Personnel protective Equipment available on-site entrance for visitor. • Scattered scaffolding and shuttering • poor housekeeping on site. • • No safety signboards on site entrance. • • No hard railing and barricading at site entrance for safety and security purposes. • Stairway without protective hard railing and barricading.

36. The corrective action plan and trainings brought major change in the behavior of contractors. As a result, environmental compliance is seriously considered in project execution. Site inspectors have been trained and SSEMPs are being implemented. The implementation of SSEMP and further trainings will bring major change in the behavior of the contractor's staff towards environmental friendly construction of all the sub projects. The contractors have assured that they will not harm the local environment and will take all the necessary steps for the protection and conservation of natural environment and will make sure the health safety of workers and local community.

3.3 Issues Tracking (Based on Non-Conformance Notices)

Sahiwal Lot-01, Lot-02, Lot-03 and Lot-4

37. The overall environmental progress of almost all of the subprojects improved during this reporting period. The total average compliance status was 78.2%, which is calculated on the basis of observation checklist.

38. Hard barricade around the deep trenches are installing at lot#2 and lot#3

39. The issues found at Sahiwal during this reporting period is given as under:-

- Due to heavy traffic at 60" dia line, the dust was observed which effecting local community delays in restoration work of Lot-02.
- Empty oil drum found in pipe production factory area (CGICOP).
- Presence of debris / excavated material at project site e.g. dismantled material, bricks etc. The issue of the dust emission, scattered material, poor housekeeping was found on Lot II & IV.
- Used oil filter were found at generator area on Lot IV.

40. The summary of the issues is given as under:-

Table 3-4 Summary of Issues Tracking Activity for Current Period at Sahiwal

Lot Name	Total number of issues for the project	Number of open issues	Number of Closed Issues	Percentage closed	Issues Open this reporting period	Issues Closed this reporting period
Lot-1: Water Supply System, Filtration Plants, Tube Wells, OHRs, SCADA and Allied Works Sahiwal	4	1	3	75	0	0
Lot-2: North zone A Trunk Main Sewer Lines and Allied works. Sahiwal	7	2	5	71	1	1
Lot-3 North Zone (B) Sewerage System for conduit, pumping station and allied works.	8	1	7	87	1	1
Lot-4: South Zone (Water Supply and Sanitation)	5	1	4	80	1	1
Accumulative Data	24	5	19	78.2	3	3

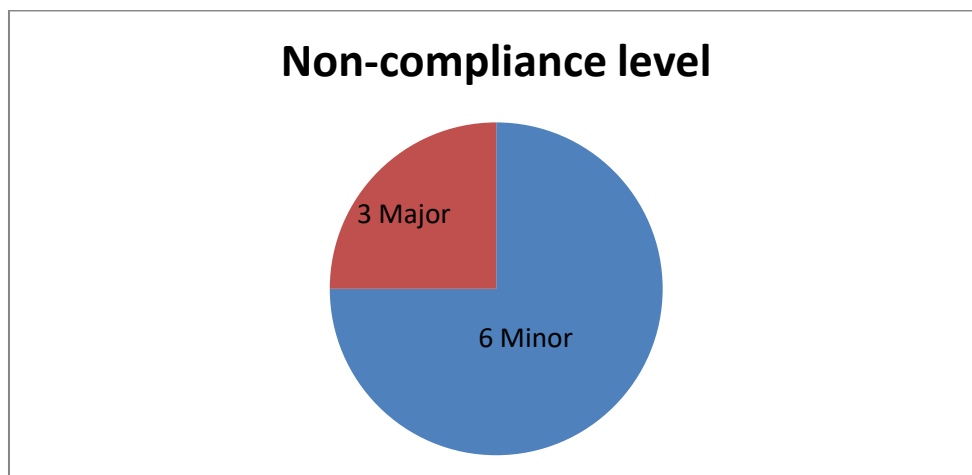


Figure 3-1 Summary of Issues by Non-Conformance at Sahiwal

Sialkot Lot-01, Lot-02, Lot-03, Lot-04 & WWTP

41. The overall environmental progress of almost all of the subprojects remain consistent during this reporting period. The total average compliance status was 75.20%, which is calculated on the basis of observation checklist attached as Annex-E.
42. The major issues opened during this reporting period at Sialkot are;
- a. Working in deep trenches without the shoring of trenches
 - b. Land sliding at Lot-02 due to deep excavation and less available space for open cutting of trench
 - c. Delays in restoration work of Lot-01, Lot-02 and Lot-03
 - d. Water sprinkling issue at Lot 02 & 03.
 - e. Usage of only warning tape instead of hard barricade around the deep work site.
 - f. Week implementation of PPE's found on Lot I and IV.
 - g. Work at Height without safety harness was observed at site particularly at Lot IV during finishing works of OHR (Overhead reservoirs).
 - h. Housekeeping issue at OHRs and ZKB camp.
43. Issue no i. is still partially open at multiple sites and the contractor was advised to submit daily checklist on regular basis. Contractors were directed to ensure the shoring of deep trenches and adopt best engineering practices to avoid land slide. The contractors were also directed to place safety sign boards and fence the site to avoid trespassing. The overall situation of sites was unsatisfactory due to the conflict between contractors and EPCM consultant on provision of shoring/ shuttering. Detailed deliberations were made on the matter between PMU, CIU and EPCM consultant and it was agreed that Shoring and shuttering will be arranged by the contractors at places where deep unstable excavations are involved. EPCM consultant will monitor such arrangements and work will be supervised by contractor and EPCM HSE staff.

Table 3-5 Summary of Issues Tracking Activity for Current Period at Sialkot

Lot Name	Total number of issues for the project	Number of open issues	Number of Closed Issues	Percentage closed	Issues Open this	Issues Closed this reporting period
Lot- I - Laying of Sewerage Lines and Allied Works	6	2	4	70	4	2
Lot-II - Laying of Pre-Cast RCC Conduits and Allied Work	3	3	0	0	3	0
Lot-III – Construction of Pumping Station and Forcemain laying	2	1	1	50	1	1
Lot-IV - Laying of Water Distribution Network	5	2	3	80	2	2
WWTP	1	0	1	100	0	1
Accumulative	17	8	9	50	10	6



Figure 3-2 Summary of Issues by Non-Conformance at Sialkot

PLGA

44. The issues found during this reporting period at PLGA is given as under:-

- Stagnant water on site. •
- No Personnel protective Equipment available on-site entrance for visitor.
- Scattered scaffolding and shuttering
- poor housekeeping on site. •
- No safety signboards on site entrance. •
- No hard railing and barricading at site entrance for safety and security purposes.

Table 3-6: Summary of Issues Tracking Activity for Current Period at PLGA

Project Name	Total number of issues for the project	Number of open issues	Number of Closed Issues	Percentage closed	Issues Open this reporting period	Issues Closed this reporting period
Punjab Local Government Academy (PLGA) in Lahore	6	0	6	100	6	6



Figure 3-3 Summary of Issues by Non-Conformance at PLGA

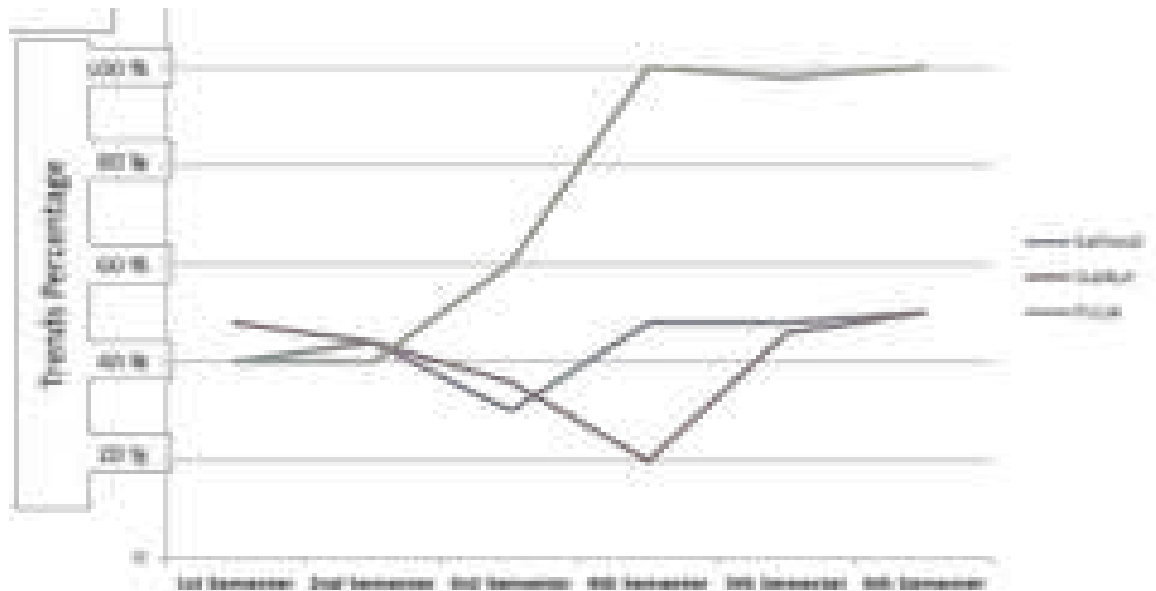
45. EPCM is monitoring the activities on periodic basis. The overall situation of sites is satisfactory ;

46. Only few issues open in each of subproject which are mostly relevant to the use of PPEs due to personal behavior of workers or their careless attitude towards the safety. Contractors are instructed to give awareness and training

regularly for use of PPEs and supervision consultant instructed to strictly monitor the implementation.

3.4 Trends

47. Trend analysis among six semesters shows that environmental compliance level of Sialkot increased while Sahiwal and PLGA declined from 5th semester till September however during last months of semester and after ADB safeguard review mission overall environmental compliance level at all PICIIP sites has been increased. Compliance trends improved from 40% to 50% in Sialkot, Sahiwal 47% to 50% and in PLGA 90% to 100% from previous to last semester. Trend analysis is shown in below figure.



3.5 Corrective Action Plan (CAP)

48. Corrective action plan was implemented to eliminate the issues in which required action with target date and responsibilities were assigned. The detail of CAP for each sub-project is described in Table 3-7 to Table 3-9 below

Table 3-7: Corrective Action Plan (CAP) For Environment, Health and Safety Issues for Sahiwal

Sr. No.	Issue	Comments / Observations	Action Required	Indicator	Target Date	Implementation Responsibility	Supervision Responsibility	Status by 31 st December, 2022	Timeline
1	Safe workplace in deep trenches	Required measures were not taken at excavated areas/trenches with no shoring, materials were dumped along sides, no in /out paths, placement of machinery was not correct, and no proper barricading, etc	Needs to take all required corrective measures at all excavated areas/deep trenches	EPCM to resolve the matter of improper soil stacking at site. Leads can be given to the contractors. Excavated soil material is shifting to the disposal area. Hard barricading is being implementation	20 th November 2022	Contractors	Consultant	Non- compliance letters issued to contractors and implemented	Immediately /regularly
2	Electrical safety	Some electric wires remained exposed at ZKB Camp	All exposed wires need to be covered/encapsulated	All electrical wires are buried in the ground	15 th November 2022	Contractors	Consultant	Implemented	Immediately

3	Occupational health and safety	Required PPEs were not provided to electrical worker-ZKB Camp	Required PPEs should be provided to all workers and ensure their usage	Contractor is provided to the workers and ensure usage	15 th November 2022	Contractor's Environment /Safety Team	Environmental specialist	Implemented	Immediately
4	Environmental safety and management	A generator was operational without a vertical vent and not placed on a paved platform-ZKB Camp	Generators should be kept on a paved area with bunded wall and connected with a vertical vent	Generator are placed on paved platform and connected with a vertical vent.	20 th November 2022	Contractor's Environment /Safety Team	Environmental specialist	Implemented	15 October 2022
5	Housekeeping	Solid waste was scattered on ground-ZKB Camp	Solid waste should be collected in dustbins and disposed of at the designated area	Solid waste are disposed at designated area.	Immediately /Regularly	Contractor's Health & Safety Team	Environmental specialist	Partially Implemented	Immediately
6	Housekeeping	Oily rags were found on ground-ZKB Camp	Oily rags or contaminated waste should be collected in separate drums and handed over to a licensed waste contractor for appropriate disposal	Oily rags are collected in separate drum and handed over to a licensed waste vendor.	Immediately /Regularly	Contractor's Health & Safety Team	Environmental specialist	Implemented	Immediately

7	Safe workplace in deep trenches	No proper barricading, no speed control signage's for traffic control at Conduit (LOT 3).	Needs to provide corrective measures by proper barricading, placing reflectors for the night, and placing speed signage's at both sites	Hard barricading is being implementation and placing speed signages at both sites.	Immediately /Regularly	Contractor's Health & Safety Team	Environmental specialist	Implemented	15 October 2022
8	Occupational health and safety	The completed section of Conduit at Lot 3 was not properly barricaded nor restored.	Deep excavated areas that are completed should be restored simultaneously to avoid any accidents	Completed section has been restored.	Immediately /Regularly	Contractor's Health & Safety Team.	Environmental specialist	Implemented	30 October 2022
9	Occupational health and safety	There were no proper signages, no proper traffic management, and dust emissions at Roads-ZKB	Proper signages of speed limits and works ahead on both sides need to be posted. Reflectors or light signals should be fixed for controlling traffic at night. Frequent water sprinkling in dusty sections needs to be carried out.	Placing of Proper signages of speed limits and frequently water sprinkling are carried out in dusty area.	Immediately /Regularly	Contractor's Health & Safety Team.	Environmental specialist	Implemented	15 October 2022

Table 3-8: Corrective Action Plan (CAP) For Environment, Health and Safety Issues for Sialkot

Sr #	Issue	Action Required	Indicator	Implementation Responsibility	supervision Responsibility	Target date	Status as on 31st Dec.2022
1	The first aid kit was not available at the OHR site- Lot 4	A first aid kit should be placed at each active construction site.	Presence of First Aid kits at all active construction sites & ZKB Camp	Contractor	Consultant	Immediately	Complied
2	A generator was placed without paved area-oil pillage was observed under the generator- OHR site Lot-4	Generators should be placed in paved areas with bunded walls to avoid soil contamination	Generator are placed on paved platform and connected with a vertical vent.	Contractor	Consultant	10 Oct 2022	Complied
3	Works were done in the median with two sides traffic-the site was not barricaded on one side but not on another side (Defense Road)	The Median should be barricaded on both sides for smooth traffic flow and to avoid any incident.	Complete barrication to ensure traffic safety	Contractor	Consultant	Immediately	Complied
4	Speed signages and under construction area signages were not displayed (Defense Road)	Required signages need to be placed	Placing of Proper signages of speed limits and frequently water sprinkling are carried out in dusty area.	Contractor	Consultant	10 Oct 2022	Complied and being implemented
5	The completed section on airport road and force main area was not restored, not properly barricaded and causing disturbance to adjacent houses and difficulty for travelers-dangerous at night-no signages with no reflectors	Restoration is required on all completed sections to avoid mishaps and disturbance to public	Complete restoration	Contractor	Consultant	15 Oct 2022	Not complied completely
6	Chemical storage was placed on sheets that were not fixed and sides were open-Campsite	Place all chemicals and oil on a paved/concrete platform with a bunded wall. Placing trays to avoid spills and soil contamination.	Chemical containers placed at impervious flooring	Contractor	Consultant	15 Oct 2022	Complied

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7	Proper documentation on waste including hazardous and medical waste is not maintained	Needs to maintain required documentation on waste management.	Waste record maintained	Contractor	Consultant	15 Oct 2022	Complied
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Table 3-9: Corrective Action Plan (CAP) For Environment, Health and Safety Issues for PLGA

Sr. No.	Issue	Comments / Observations	Action Required	Indicator	Target Date	Implementation Responsibility	Supervision Responsibility	Status by 31st Dec, 2022
1.	Stagnant water onsite	Stagnant water after curing at site may cause dengue larva growth.	Stagnant water should be removed from site regularly as the beginning of monsoon season. Fumigation of Mosquito spray should be ensured on site and offices in order to prevent mosquito breeding	Fumigation of mosquito spray carried out on all floor of building as well as inside and outside of containers premises.	Immediately	Environment Team Contractor's Management	Environmental specialist	Implemented
2.	No Personnel protective Equipment available on site entrance	No PPEs available on site entrance for visitor.	PPEs (Safety helmet, jacket, face mask, gloves and sanitizer) should be available on site entrance for visitor.	PPEs (Safety helmet, jacket, face mask, gloves and sanitizer) has been placed onsite and ensured there use at site during work.	Continuous efforts needed	Environment Team Contractor's Management	Environmental specialist	Implemented

3.	Poor housekeeping of scaffolding and shuttering on site	Scattered scaffolding and shuttering on site.	Ensure proper housekeeping on site. Remove unused scaffolding and shuttering from site entrance and store them appropriately.	Scaffolding and shuttering has been removed from site and stored separately in order to ensure proper housekeeping.	Continuous efforts needed	Environment Team Contractor's Management	Environment specialist	Implemented
4.	No safety signboards on site entrance	No safety signboards on site entrance.	Place signboard about ongoing construction works at site entrance to aware workers, visitors.	Safety signboard has been placed on site entrance.	Immediately	Environment Team Contractor's Management	Environmental specialist	Implemented
5.	No hard railing and barricading at site entrance for safety and security purposes.	No hard railing and barricading at site entrance for safety and security purposes.	Hard railing must be installed or barricading must be installed on site entrance.	Hard railing and green barricading sheet has been installed on site entrance for security and safety.	Immediately	Environment Team Contractor's Management	Environmental specialist	Implemented

6.	Stairs without protective hard railing and barricading.	Stairs without hard railing and barricading could cause falling personnel/object hazards.	All Stairs from ground floor to fifth floor should be barricaded with hard railing to warn about falling hazard. No loose material and debris should be present on stairs to avoid slip/trip hazards.	Staircase has been properly barricaded with hard railing on all floors. Good Housekeeping has been ensured on site, no debris remained on staircase.	immediately	Environment Team Contractor's Management	Environmental specialist	Implemented
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3.6 Unanticipated Environmental Impacts or Risks

1.1.1 COVID-19 PANDEMIC

49. The world has experienced a new potent challenge in the shape of Corona virus disease (COVID-2019). To intercept its local transmission Government of Punjab has issued Standard Operating Procedures for construction site. To ensure safety and prevention from COVID-19 at worksites, the following measures have been taken by the HSE teams at Sialkot, Sahiwal and PLGA Lahore, which have been strictly monitored:

- Temperature checking before entering to site and anyone who has high temperature or a new persistent cough and difficulty in breathing are not allowed to enter the construction site.
- Disinfection of working place and equipment periodically through Chlorine spray tanks
- Maintaining worker minimum 1-meter distance during work or at mess and sanitization before entering or leaving site,
- Visitors / meetings in closed room are not allowed or cancelled and safety sign regarding Covid-19 displayed.
- Ensure use of Personal Protective Equipment's (PPE) on site without PPEs workers / staff is not allowed to enter the site.
- Awareness training of workers to control the spread of epidemic and safety on construction site.
- To keep the workers safe from this pandemic situation, the contractor takes extra care and fully implement the Standard Operating Procedures (SOPs) issued by Punjab Government for construction industry. The contractor has started the Covid-19 vaccination program to ensure the health of staff and workers. The labour is not allowed to work if they are not vaccinated.

3.7 Grievance Redressal Mechanism

50. A grievance redress mechanism is already in place since May 5, 2020. It is three tiers structures, i) Grievance Redress Committee at Field Level, ii) Grievance Redress Committee at Worthy Commissioner Office Level and iii) Grievance Redress Committee at PMU and Local Government & Community

Development Department Level). The GRM is a gender responsive, culturally appropriate, and readily accessible to the stakeholders at no cost and without retribution. All these complaints were recorded in complaint register place in the respective sites offices, the complainants were informed through departments and community.

51. Field inspections by the Contractors, Management Consultant and CIUs were regularly made. Each of these has assigned manager in charge of environmental management. They also serve as grievance focal points.
52. During this reporting period, in Sahiwal 16 and in Sialkot 48 public complaints due to construction activities have been issued and resolved within 48 hours time period, so the community will not have to face any problem at each of subproject sites at Sahiwal and Sialkot while none of the complaint was received in case of PLGA. Overall, no major conflict with the community was observed. Cordial liaison has been maintained with local community. The details of complaints are presented in below tables 3-10 and 3-11.

Table 3-10: Grievance Register Record Lot-01, Lot0-02, Lot-04 & WWTP Sialkot (July-Dec 2022)

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
07-07-2022	Bashir Ahmad Building Material Trader Airport Road	HSE Manager	Verbal	The way was closed in front of his shop due to excavation	Backfilling was made on immediate basis in front of his shop and backfilling was compacted to ensure safety of his vehicles passage	closed	08-07-2022	01

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
10-07-2022	Muhammad Tayab House Connection Airport road	HSE Manager	Telephonic	His Electrical connection was damaged by machinery working	Wapda was connected to relocate his electrical meter and reinstall his electrical supply	closed	11-07-2022	01
17-07-2022	Imtiaz Ali	HSE Manager	Verbal	House sewer slab was damaged in front of his house by excavator	He was provided with RCC Material to make the slab again	closed	17-07-2022	0

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
26-07-2022	Muhammad Faisal Leather Trader	HSE Manager	Verbal and Telephonic	Parking of machinery and jointing machine placing on front of shop	Site incharge was asked to change parking location for cranes and machines	closed	26-07-2022	0
06-08-2022	Sajad Ahmad Telecommunication line	HSE Manager	Telephonic	He was not informed for excavation and stolen of his TCL wire	The Driver of excavator was asked to site incharge when observe any ptcl line or any telecommuni cation line	closed	06-08-2022	0

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
10-08-2022	Irshad Ahmad local person Khadim Ali Road	HSE Manager	Verbal	Dust issue at Khadim Ali road during restoration work for asphalt	Traffic inspector was called and water sprinkling was made on immediate basis	closed	10-08-2022	0
17-08-2022	Fateh Mobine shopkeeper Kotli Bahram Chowk	HSE Manager	Verbal	Hard Barrication was dropped by transport in front of his shop	HSE team was instructed to reinstall the Hard Barrictaion on immediate response	closed	17-08-2022	0

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
13-09-2022	Ghulam Rasool owner of different shops at Marala road	HSE Manager	Verbal	Hard Barrication was installed for manhole excavation in front of his shops	Hard barrication was removed and Replaced and one side way was given to his shops	closed	13-09-2022	0
09-10-2022	Muhammad Saleem wood worker airport road	HSE Manager	Verbal	Dust Issue	Water bowsering was made compulsory twice aday	closed	9-10-2022	0

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
19-10-2022	Ahsan Iqbal Local resident double cell	HSE Manager	Verbal	Slip and Trips issue on road by mud	The site Incharge was asked to remove mud from road and put subbase material for safety of local	closed	19-10-2022	0
26-10-2022	Abdul Rehman worke at Marriag Hall Hotel	HSE Manager	Verbal and Telephonic	Machinery Was Parking in front of Marriage Hall causing disturbance to Locals	All the Machinery was Removed and Side Parked Immediately	closed	26-10-2022	0

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
13-11—2022	Jamil Asghar shopkeeper Airport Road near Nasir Town	HSE Manager	Written and Telephonic	Alternative route issue near Nasir Town Airport Road double cell	Alternative route was prepared with grader and pits with filling of sub base and prepared well for the affluence of locals and riders and instructed the earth work team to inspect the site regularly wherever maintainnce is required done it on priority basis	Closed	13-11—2022	00

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
15-11-2022	Rehman Marbal Factory Air Port Road near Nasir town	HSE Manager	Verbal	Stagnant water near Nasir town is required to remove	MC team was coordinated and removed all the stagnant water.	Closed	15-11-2022	00
20-11-2022	Haider Ali	HSE Manager	Telephonic	Slush on road is required to be removed	All the slush point removed from Lot 3 airport road	Closed	20-11-2022	00

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
23-11-2022	Naeem Cheema Shopkeeper Defense Road SLK	HSE Manager	Verbal	Dust issue at Defense Road, it required proper water sprinkling.	Water sprinkling team was instructed to sprinkle water twice a day to avoid dust emissions.	Closed	23-11-2022	0
26-11-2022	Principal Rahman school.	HSE Manager	Telephonic	Sewage drains at Marala Road was clogged due to Slush Removing	Earth work team was called and dewatering was carried out also MC were approached because there was main issue of drainage clogging	Closed	26-11-2022	00

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
29-11-2022	Muhammad Tahir defense road sialkot	HSE Manager	Written	Manhole cover was missing at lot 3	Site incharge was asked and placed the new manhole cover for the safety of locals.	Closed	30-11-2022	00
39-11-2022	Muhammad Imran ZKB Camp	HSE Manager	Verbal	Proper Cleaning of Washrooms is required	Cleaning staff was called and training was given to them on cleaning and instructed to clean washrooms on daily basis.	Closed	30-11-2022	01

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
07-12-2022	Zain-ul-Abidin sand, construction material trader Airport Road near PSO petrol pump.	HSE Manager	verbal and Telephonic	Alternative route issue. Public was using his personal property as transport route.	Alternative route was prepared with grader and pits with filling of sub base and prepared well for the affluence of locals and riders and instructed the earth work team to inspect the site regularly wherever maintainnce is required done it on priority basis	Closed	08-12-2022	01

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
12-12-2022	Muhammad Tahir Jamal electrical welding Airport Road	HSE Manager	Verbal	Sewerage drain clogging due to Stagnant water	MC team was coordinated and removed all the stagnant water.	Closed	12-12-2022	0
16-12-2022	Hasnain javed B&H surgical instruments	HSE Manager	Verbal and Telephonic	Alternative route issue in front of B&H surgical instruments	Construction activities was stopped before provision alternative to the industry	Closed	16-12-2022	00

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
18-12-2022	Umar Ahsan Gondal Shopkeeper Marala Road Sialkot	HSE Manager	Verbal	Dust problem at Marala Road	Water sprinkling team was instructed to sprinkle water twice a day to avoid dust emissions.	Closed	18-12-2022	00
24-12-2022	Muhammad Rashid Teacher Spirit School.	HSE Manager	Telephonic	Sliding start in front of spirit school double cell airport road	Area was covered with hard barricading	Closed	24-12-2022	00

Grievance Redressed Register								
Rehabilitation/ Improvement of Water Supply & Sewage System in North Zone, Sialkot for Lot # 01, 02, 03 and 04								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint Verbal, Letter, Email	Main Issue	Action Taken	Status	Date Closed	Days Open
26-12-2022	Sultan Aziz Political leader Marala road Sialkot	HSE Manager	Written and Telephonic	Manhole slab cover was missing at Marala Road	Project Manager were asked to provide slab cover at manhole 55, 54, and 53 for the safety of locals.	Closed	26-12-2022	00
29-12-2022	Muhammad Irfan ZKB Camp	HSE Manager	Verbal	Proper Sweeping of Camp is required	Sweepers and Cleaning staff was called and training was given to them on sweeping and cleaning the camp and disposed off waste properly.	Closed	29-12-2022	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
07-07-22	Naeem Khan – Road sider	HSE Manager	Verbal	No signages has been done to understand the key aspects of the work.	Pana flex ordered to display along roadside.	Closed	15-07-22	08
19-07-22	M. Kifayat – Regular movement along Sandhwala road	HSE Manager	Verbal	He was being afraid of the road disturbance due to this project.	He was cleared about the project work scheme that it will remain in the closed acquired land.	Closed	19-07-22	00
02-08-22	Mohsin – Labor person at WWTP site	HSE Manager	Verbal	Access road problem.	Maintained by calling laborers.	Closed	02-08-22	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
09-08-22	Hashim – Labor person at WWTP site	HSE Manager	Verbal	Electricity problem.	Wire re-connected by calling electrician.	Closed	10-08-22	01
22-08-22	Ibrahim – Road sider	HSE Manager	Verbal	Access road disturbing their field watering system.	Laborers called and made a pathway for water.	Closed	22-08-22	00
31-08-22	M. Khalil – Guard at SWEG office	HSE Manager	Verbal	Mainline supply of electricity disconnected.	Immediately SWEG electrician was called and connection re-established.	Closed	31-08-22	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
06-09-22	Zia Bhutta – Residing on Sandhwala Road	HSE Manager	Verbal	Batching plant was on the road as standby.	Requested to PM to get it moved towards the site destination.	Closed	06-08-22	00
11-09-22	Amir Jatha – Haveli at Access Road	HSE Manager	Verbal	Frontside of gate was disturbed due to rain.	Grader operator was called immediately, and access road cleared.	Closed	11-09-22	00
16-09-22	Deen Jutt – House on Sandhwala Road	HSE Manager	Via Phone Call	Dust at Sandhwala Road	Water sprinkler was called and sprinkled water.	Closed	16-09-22	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
21-09-22	Awais Ghumman – Residing near WWTP site	HSE Manager	Phone Call	Road conditions were poor to walk on it.	Grader was called and made it clean.	Closed	21-09-22	00
02-10-22	Deen Jutt – House at Sandhwala Road	HSE Engineer	Verbal	Dust Issue	Water bowser called and sprinkled water.	Closed	02-10-22	00
11-10-22	Amin Jatha – Haveli at access road	HSE Engineer	Verbal	Road fence near haveli disturbed.	Labor called and set the fence in good order.	Closed	11-10-22	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
13-10-22	Awais Ghumman – Living nearby project place.	Security Guard	Verbal	Machinery standing at different places	Operators advised to keep their machinery at machinery during off work.	Closed	13-10-22	00
21-10-22	Daani – Former at nearby fields	HSE Engineer	Verbal	Debris material related tube well buildings was roughly thrown.	Owner of buildings was contacted and building demolished material collected.	Closed	21-10-22	00
26-10-22	Noor Ahmad – Resident of nearby project area.	HSE Engineer	Verbal	Dust problem	Water bowser was called, and issue resolved.	Closed	26-10-22	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
07-11-22	Muhammad Khilil – Security guard at SWEG site office	HSE Manager	Verbal	Workers enter the site office without giving identity clearance to the security guard.	Main gate was reduced to only single entry at a time in front of security guard.	Issue Resolved	08-11-22	01
12-11-22	Operators/ Labors Feedback at working site	HSE Manager	Verbal as feedback	People mentioned in a “feedback session with workers” that the water is not suitable which they are using for drinking.	We cleared them that we have tested this water and its O.K. to drink as its all parameters are within the standard ranges of the region.	Cleared	12-11-22	00
14-11-22	Rizwan – Resident at Access Road (Haveli)	HSE Manager	Verbal	Main gate front was disturbed due to machinery movement on access road.	Grader was called and path was done as smooth as it was possible.	Closed	14-11-22	00

Construction of Wastewater Treatment Plant (WWTP) in North Zone, Sialkot Grievance Redressed Record								
Date of Complaint	Complainant Name & Address	Complaint Received by	Method of Complaint (Verbal, Letter, Email)	Main Issue	Action Taken	Status	Date Closed	Days Open
09-12-22	Workers (living onsite camps)	HSE Manager	Verbal	Workers addressed about meal quality which they are supposed to eat	Hotel personnel called and it was assured to keep quality at its best.	Issue Resolved	09-12-22	00
22-12-22	Site Workers	HSE Manager	Verbal	Workers were having complaint about drinking water that it is not enough to use for 24 hours.	A larger water container arranged for the workers and labor persons made responsible for the fulfillment of water need.	Closed	22-12-22	00

Table 3-11: Grievance Register Record Lot-01 Lot-02 Lot-03 and Lot-04 Sahiwal

Date of complaint	Name & Address of complaint	M Method of Complaint Verbal, Letter, Email	Details of complaint	Action Taken include date	Details of follow up complaint	Sign off as action closed
5-07-2022	Bilal Aslam & Farid Town	Verbal	Dismantling issues	Instructed to staff clear all the excavated materials from the site. 5-07-2022	5-07-2022	Cleared
18-07-2022	Zahid Hussain & Jahaz Ground	Verbal	Dust Issue	Water sprinkling required after 3 hours. 18-07-2022	18-07-2022	Cleared
26-07-2022	Naeem Raza & Farid Town	Telephonic	Sewage line damage	Sewage pipe was repaired within 24 hours. 26-07-2022	26-07-2022	Cleared

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10-08-2022	M Zaheer & Jahaz Ground	Verbal	Dust Issue	Water sprinkling required after 3 hours. 10-08-2022	10-08-2022	Cleared
17-08-2022	M Asghar & Farid Town	Verbal	Dismantling issues	Instructed to staff clear all the excavated materials from the site 17-08-2022	17-08-2022	Cleared
25-08-2022	M Arshad & UC 06	Written	Water line damage	Water pipe was repaired within 24 hours. 25-08-2022	25-08-2022	Cleared
29-08-2022	M Hafez & UC 06	telephonic	Dust Issue	Water sprinkling required after 3 hours. 29-08-2022	29-08-2022	Cleared

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05-09-2022	Irfan Iqbal & UC 06	Verbal	Dust Issue	Water sprinkling required after 3 hours. 05-09-2022	05-09-2022	Cleared
15-09-2022	Naiz Ahmad & Jahaz Ground	Verbal	Dismantling issues	Instructed to staff clear all the excavated materials from the site 15-09-2022	15-09-2022	Cleared
11-10-2022	Iqbal Ahmad & UC 06	Verbal	Dust Issue	Water sprinkling required after 3 hours. 11-10-2022	11-10-2022	Cleared
28-10-2022	Waqas Farooq & Jahaz Ground	written	Dismantling issues	Instructed to staff clear all the excavated materials from the site 28-10-2022	28-10-2022	Cleared

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13-11-2022	Fahad Ameen & Jahaz Ground	Verbal	Dismantling issues	Instructed to staff clear all the excavated materials from the site. 13-11-2022	13-11-2022	Cleared
24-11-2022	Sarwar shah & Jahaz Ground	Verbal	Sewage pipe damaged	Sewage pipe was repaired within 24 hours. 24-11-2022	24-11-2022	Cleared
8-12-2022	Sannaullah & Jahaz Ground	written	Water pipe damaged	Water pipe was repaired within 24 hours. 8-12-2022	8-12-2022	Cleared
19-12-2022	M Sajjad & UC # 06	written	Dust Issue	Water sprinkling required after 3 hours. 19-12-2022	19-12-2022	Cleared
26-12-2022	Aleem Ch. & UC # 06	telephonic	Dismantling issues	Instructed to staff clear all the excavated materials from the site. 26-12- 2022	26-12-2022	Cleared

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Monitoring Conducted during Current Period

54. Internal environmental monitoring consists of two types. The first type consists of visual inspections of project activities and associated impacts such as soil erosion, restoration of vegetation, solid waste disposal and etc. The second type requires field sampling and lab analysis of water quality, air quality and noise levels. The field sampling and laboratory analysis of each lot have been conducted, including air, noise and water quality during the reporting period for 3rd & 4th quarters at Sialkot. At Sahiwal, environmental monitoring for the third quarter was missed due to contractor financial issues, and the fourth environmental monitoring of lots 1 2 and 3 has been conducted. Also the quarterly environmental monitoring was not conducted on lots 4. Non-compliance has been issued to the Contractor and instructed to conduct the monitoring at the earliest. While at PLGA major structure has been completed and all the environmental monitoring's have been completed in previous reporting period as per BOQ plan.
55. Field inspections have been undertaken by the on-site environmental and Health Safety team of Project Management Consultant including one HSE Expert, one ARE and one Inspector headed by Resident Engineer and Environmental Specialist on a regular basis. As far as contractors are concerned overall 3 member's team at each sub project implement and monitor the Environmental, Health and Safety that includes the Project Manager, Construction Manager and HSE Manager.
56. The environmental monitoring was carried out by using, daily, weekly and monthly EMP compliance (checklists) as well as through visual observations to get information on the actual nature and extent of key impacts and the effectiveness on mitigation and enhancement measures outlined in the Site Specific Environmental Management Plans (SSEMP) and agreed by the Contractors under the contracts. The SSEMP covered all the aspects mentioned in the project specific EMPs for each project. The monitoring of noise and vibration, surface and groundwater, air quality, flora and fauna, camp sites, top soil erosion, cultural heritage and safety provisions are discussed in this section. All the subprojects are category B projects and environmental

approval from ADB and Punjab EPA was obtained.

57. The IEEs prepared for subprojects includes Environmental management plan (EMP) that addresses the potential impacts. Mitigation measures are considered so that the projects are designed, constructed, and operated in compliance with applicable national and provincial laws and regulations and meets the requirements of ADB SPS, 2009. Contractors are provided with monitoring checklist for the better understanding of the Environment. The overall status of Environmental Compliance was monitored and presented as Annex D-F.

58. A monthly monitoring checklist was prepared to assess the environmental impacts of the projects on the surrounding environment. On careful review of this form, inconsistencies and duplication of questions were corrected such that any “yes” answer indicates compliance and any “no” indicates no compliance. The “NA” or not applicable answers were also tallied; however, no reasons for non-applicability were included, thus making these results less useful. To date the contractors, have prepared checklists till December, 2022 which have been checked by the site EPCM Consultant HSE Expert and submitted to the Consultant office. The analysis showed that non-compliance was most often in the areas of waste disposal. Traffic management, dust pollutions, health and safety and contractor’s good housekeeping. The possible instructions related to the non-compliance have been given to the contractors by HSE Expert of Consultant which the contractor rectified within given time frame. The sample monthly monitoring checklist has been attached as Annexure D-F of this report.

4.2 Trends

59. Keeping in mind the construction volume the impacts on water quality, air quality and noise is negligible and no major change was noticed after analyzing the test results. The results of monitoring checklist indicate that EMP compliance is increasing as already discussed above.

4.3 Summary of Monitoring Outcomes

60. The Instrumental monitoring of some environmental parameters are discussed hereunder:

Sialkot Lot-01, Lot-02, Lot-4

4.3.1 INSTRUMENTAL MONITORING

61. The instrumental monitoring of air quality and noise as well as water testing has been conducted at sites.

4.3.2 NOISE MONITORING

62. Noise monitoring on construction sites is being carried out to assess impacts of noise level generated to curtail its adverse impacts on workers, nearby communities, and fauna of the area. For this purpose, noise level monitoring is being carried out by using digital noise level meter for continuous 24 hours to know the noise value at Defense Road, Kashmir Road & Khadim Ali Road for Lot-01, Marala Road and Airport Road for Lot-02, Airport Road for Lot-03, Water Works and Capital Road for Lot-04 and campsite considering the sensitive receptors at site. Contractors are advised to keep their machinery in good condition and provide personal protective equipment's (PPEs) like ear plugs to the working staff at noise generating sites. Speed of the trucks and other vehicles used for construction activities were to be controlled and the construction activities were to be limited to daytime only.

63. The environmental monitoring conducted during Oct, 2022 deduces that no noise or vibration impacts are envisaged at any of the subproject site. However, Environment team of NESPAK has reinforced contractor staff to adopt mitigation measures to reduce the impact of noise and vibration as delineated in EMPs. NESPAK environment team repeatedly advised the contractors to keep their machinery in good condition and provide personal protective equipment (PPE) like ear plugs to the working staff to worn at noise generating sites. HSE Manager advised the contractor to provide PPEs to workers. Contractors of all subproject's sites were advised to control vehicle speed and restrict construction activities to daytime only. Environmental Specialist advised the contractors to carry out noise monitoring by using noise meter on regular basis. Noise testing was carried out at 4 sub projects sites (2 Points on Each Project) and campsite where construction activities were in progress.

64. Results of instrumental monitoring of noise are given in the exhibit below:

Table 4-1: Noise Monitoring Results Lot 1, Lot 2, Lot-03, Lot 4 & WWTP for 3rd Quarter - Sialkot

S. No	Sub Project	Result (Average 24hrs)	NEQS/WHO (dB)	PEQS (dB)
1	Lot-1	61.4	65	65
2		55.17		
3	Lot-2	60.6	65	65
		66.7		
4	Lot-3	67.8	65	65
5		65.3		
6	Lot-4	60.1	65	65
8	ZKB Camp Site	57.6	65	65
9	Waste Water Treatment Plant (WWTP) SWEG Chinese Camp	53.8	65	65

Table 4-2: Noise Monitoring Results Lot 1, Lot 2, Lot-03, Lot 4 & WWTP for 4th Quarter- Sialkot

S. No	Sub Project	Result (Average 24hrs)	NEQS/WHO (dB)	PEQS (dB)
1	Lot-1	54.01	65	65
2		57.9		
3	Lot-2	58.13	65	65
		59.6		
4	Lot-3	51.01	65	65
5		57.08		
6	Lot-4	52.6	65	65
7		51.5		
8	ZKB Camp Site	62.5	65	65
9	Waste Water Treatment Plant (WWTP) SWEG Chinese Camp	50.6	65	65

4.3.3 AIR QUALITY MONITORING

The potential sources of air pollution during construction are the vehicles, kick-off dust, asphalt plant and crusher. Visual observations were noted to monitor water sprinkling at dust prone areas during the construction activities. The

occasional sprinkling of water observed at all sites. The concerned contractors were advised to take care to control the dust emissions. Visual observations were also made for fitness of the vehicles to minimize the smoke emissions. The contractors' environment specialists of each Lots ensured that the dust should be reduced to maximum possible level so that it may not affect the workers and the surrounding environment including the native people.

65. Contractor is adopting measures helpful in controlling air quality deterioration in the subproject activity areas like regular water sprinkling to reduce the air dust emissions and regular tuning of vehicles maintaining the equipment properly to minimize the smoke and other gaseous emissions. The objective was to minimize the airborne particulate matter, dust pollution and fumes of vehicular emissions into the atmosphere to avoid negative impacts on the health of construction workers, residents, and nearby vegetation.
66. Visual observations were made to monitor regular water sprinkling at dust prone areas during the construction activities and to monitor the vehicular emissions to minimize the smoke emissions. Contractors ensured water sprinkling at most of the sites. Contractors are regularly checking up their construction vehicles and machinery to comply the vehicular exhaust emission levels. Contractors regularly tune their vehicles at all the subproject sites. The use of masks and helmets are mandatory at construction sites by workers. Transportation of excavated material by using covers on the dumpers to avoid spills is observed at Site.
67. The results of instrumental monitoring are presented in Table below;

Table 4-3: Air Quality Monitoring Results (24 hrs.) Lot 1, Lot 2, Lot-03 and Lot 4 for 3rd Quarter- Sialkot

S. No	Parameters	Unit	Lot-1	Lot-2	Lot-03	Lot-4	Camp site	PEQS	WHO	Baseline
1	PM 2.5	ug/m ³	26	28	29	31	31	35 ug/m ³	15	27
2			27	39	28	31				
3	PM 10	ug/m ³	64	61	71	55	65	150 ug/m ³	45	129
4			72	56	69	77				
5	CO	mg/m ³	1.69	0.85	0.95	0.88	0.99	5 mg/m ³	-4-	0.74
6			0.92	0.85	0.79	0.89				
7	NO ₂	ug/m ³	3.28	2.56	5.29	10.96	5.39	80	25	15.67
8			8.39	7.69	6.29	5.29				
9	SO ₂	ug/m ³	15.96	14.75	18.56	16.97	16.89	120 ug/m ³	40	18.79
10			15.69	14.69	13.75	17.69				
11	NO	ug/m ³	5.25	4.9	6.08	8.29	9.45	40 ug/m ³	--	10.75
12			7.29	8.2	7.19	9.36				
13	NO _x	ug/m ³	8.96	6.71	11.69	19.25	14.89	130 ug/m ³	120.0	26.42
14			15.69	15.85	13.45	15.76				

Air Quality Monitoring Results (24 hrs.) for WWTP -3rd Quarter

S.No.	Date	Carbon Monoxide (CO) mg/m ³	Sulphur Dioxide (SO ₂) µg/m ³	Nitrogen Dioxide (NO ₂) µg/m ³	Ozone (O ₃) µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³
1	17-09	3.1	1.1	19.2	11.1	99	17
2	18-09	3.1	1.4	12.2	18.2	91	18
3	19-09	3.1	1.5	19.2	19.2	91	17
4	20-09	3.1	1.2	19.2	15.2	99	18
5	21-09	3.2	1.3	19.2	29.2	100	18
6	22-09	3.2	1.3	11.2	11.2	100	14
7	23-09	3.8	1.3	19.2	19.2	99	14
8	24-09	3.4	1.2	17.2	17.2	91	11
9	25-09	3.1	1.1	14.2	10.2	99	11
10	26-09	3.2	1.1	19.2	12.2	91	4
11	27-09	3.8	1.8	16.2	11.2	99	10
12	28-09	3.2	1.1	17.2	14.2	97	11
13	29-09	3.7	1.1	14.2	12.2	91	11
14	30-09	3.8	1.3	11.2	14.2	97	10
15	01-10	3.1	1.1	19.2	11.2	91	4
16	02-10	3.1	1.1	16.2	8.2	99	4
17	03-10	3.3	1.1	17.2	7.2	94	4
18	04-10	3.2	1.3	16.2	14.2	99	10
19	05-10	3.4	1.3	16.2	14.2	99	11
20	06-10	3.1	1.1	11.2	29.2	91	11
21	07-10	3.1	1.1	11.2	11.2	97	14
22	08-10	3.2	1.1	19.2	29.2	91	14
23	09-10	3.1	1.1	11.2	27.2	107	18
24	10-10	4.4	1.1	16.2	19.2	114	11
Average		3.36	1.39	17.98	14.98	99.96	11.84
WHO guideline		10	120	40	120	100	30
Compliance							

Table 4-4: Air Quality Monitoring Results (24 hrs) Lot 1, Lot 2, Lot-03 and Lot 4 for 4th Quarter- Sialkot

S. No	Parameters	Unit	Lot-1	Lot-2	Lot - 03	Lot-4	Campsit e	PEQS	WHO	Baseline
1	PM 2.5	ug/m ³	28	29	29	28	28	35 ug/m ³	15	27
2			28		28	27				
3	PM 10	ug/m ³	47	75	71	82	68	150 ug/m ³	45	129
4			71		69	55				
5	CO	mg/m ³	0.3	0.5	0.95	04	0.47	5 mg/m ³	--4	0.74
6			0.6		0.79	0.7				
7	NO ₂	ug/m ³	1.5	16.5	5.29	21.8	4.2	80	25	15.67
8			1.4		6.29	10.8				
9	SO ₂	ug/m ³	18.9	19.5	18.56	14.8	24.5	120 ug/m ³	40	18.79
10			12.8		13.75	18.9				
11	NO	ug/m ³	4	14.5	6.08	3.7	14.2	40 ug/m ³	--	10.75
12			3.7		7.19	4.2				
13	NO _x	ug/m ³	5.2	31.5	11.69	25.4	18.5	130 ug/m ³	120.0	26.42
14			15.69	15.85	13.45	10.8				

Air Quality Monitoring Results (24 hrs.) for WWTP - 4th Quarter

Site	Time	Carbon monoxide (CO)	Sulphur dioxide (SO ₂)	Nitrogen dioxide (NO ₂)	Ozone (O ₃)	PM ₁₀	PM _{2.5}
Sialkot	01/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	02/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	03/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	04/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	05/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	06/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	07/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	08/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	09/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	10/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	11/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	12/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	13/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	14/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	15/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	16/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	17/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	18/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	19/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	20/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	21/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	22/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	23/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
	24/10/2023	0.00	0.00	0.00	0.00	0.00	0.00
25/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
26/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
27/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
28/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
29/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
30/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
31/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	
31/10/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00

68. All the environmental parameters were analyzed during the environmental testing to assess the level of compliance with the most stringent standards/guidelines between the PEQS and IFC standards. As can be observed in the **Tables 4-2** above, the pollutant parameter PM_{2.5} on few of monitoring sites and PM₁₀ at camp site is exceeding the applicable standards/guidelines of IFC with the remaining parameters within the applicable limits. The main reason for the exceedance of PM_{2.5} is overall poor air quality due to traffic and industrialization in Sialkot city. However, it shall be ensured that more stringent measures are implemented in order to ensure that these exceedances are brought within the applicable limits when the monitoring is conducted in the next quarter. In particular, the following measures shall be implemented:

- An increased volume of sprinkling of water shall be conducted to ensure that the airborne dust emissions are brought down to within the applicable standards/guidelines.
- Excavated material will be covered and will not be stored for long intervals site;
- All vehicles, machinery, equipment and generators used during construction

activities will be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions.

- Preventive measures against dust will be adopted for on-site mixing and unloading operations.

4.3.4 WATER QUALITY MONITORING

69. Subproject construction activities should not lead to pollution or contamination of surface and groundwater in the subproject area knowing that contamination bears direct effects on human health. Therefore, preventive measures are required to be taken to save water sources. Contractors are guided to take measures at camp site to prevent water pollution in the adjoining stream, water channel and in groundwater: Construction of sewage system with septic tank to dispose of sanitary wastewater and lined wash areas are the other measures contractors were asked to take to prevent pollution of water. Furthermore, contractors are asked to avoid oils spills in subproject areas.
70. Environment staff has observed no surface or groundwater pollution caused by construction activities. Contractors tested surface and drinking water from certified labs for physical, chemical and biological parameters. No water borne disease (gastro, diarrhea, etc.) has been noticed. Sewerage system/septic tanks at camp sites were constructed. Contractors are advised to ensure operation and maintenance of drainage system to avoid contamination of ground and surface water sources. Contractors are also advised to avoid oil spill to protect ground water and surface water channels.
71. The samples of drinking water from project sites and surface water quality were tested in 2022. The results are given in the Annexure-B.

Table 4-5: Drinking Water Quality Monitoring Results at Sialkot for 3rd Quarter- Sialkot

S#	Parameters	PEQS Limits	WHO Limits	Unit	Lot-1	Lot-2	Lot-03	Lot-4
01	PH	6.5 – 8.5	6.5 – 8.5	pH	7.58	7.47	7.69	7.68
02	Odour	Non-Objectionable	Non-Objectionable	-	Nil	Nil	Nil	Nil
03	Taste	Non-Objectionable	Non-Objectionable	-	Unobj	Unobj	Unobj	Unobj
04	Color	<15 TCU	<15 TCU	Pt/C o	Unobj	Unobj	Unobj	unobj
05	Turbidity	<5 NTU	<5 NTU	NTU	1.3	0.5	0.39	2.4

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06	Total Hardness	<500 mg/l	<500 mg/l	mg/l	132.0	235	152	239
07	Total Dissolved Solid	<1000	<1000	mg/l	479	726	915	697
08	Chloride (Cl)	<250	-	mg/l	29	54	144	35
09	Cyanide (Cn)	<0.05	<0.07	mg/l	BDL	BDL	BDL	BDL
10	Fluoride (F)	<1.5	<1.5	mg/l	BDL	0.24	0.46	0.7
11	Nitrite	<3 (P)	<3 (P)	mg/l	0.05	BDL	0.02	0.05
12	Nitrate	<50	<50	mg/l	0.139	0.652	3.692	0.328
13	Phenol	-	-	mg/l	<0.01	BDL	BDL	BDL
14	Residual Chlorine	0.2 – 0.5	-	mg/l	<0.1	BDL	BDL	BDL
15	Aluminum (Al)	<0.2	-	mg/l	BDL	BDL	BDL	BDL
16	Cadmium	0.01	0.003	mg/l	BDL	BDL	BDL	BDL
17	Copper	2	2	mg/l	BDL	BDL	BDL	BDL
18	Chromium	<0.05 (P)	<0.05	mg/l	BDL	BDL	BDL	BDL
19	Mercury	<0.001	<0.006	mg/l	BDL	BDL	BDL	BDL
20	Antimony	<0.005 (P)	<0.02	mg/l	BDL	BDL	BDL	BDL
21	Nickel	<0.02	<0.07	mg/l	BDL	BDL	BDL	BDL
22	Zinc	5.0	-	mg/l	BDL	BDL	BDL	BDL
23	Arsenic	<0.05 (P)	<0.01	mg/l	BDL	BDL	BDL	0.02
24	Barium	0.7	0.7	mg/l	BDL	BDL	BDL	BDL
25	Manganese	<0.5	-	mg/l	BDL	BDL	BDL	BDL
26	Lead	<0.05	<0.01	mg/l	BDL	BDL	BDL	BDL
27	Selenium	0.01 (P)	0.04	mg/l	BDL	BDL	BDL	BDL
28	Ammonia	-	-	mg/l	BDL	BDL	BDL	BDL
29	Boron	0.3	2.4	mg/l	BDL	BDL	BDL	BDL
30	Iron	-	-	mg/l	0.1	BDL	BDL	BDL
31	Total Coliforms	0/100ml	0/100ml	CFU/100mm	0	0	0	0
32	Faecal Coliforms (Ecoli)	0/100ml	<0.5	CFU/100mm	0	0	0	0

Drinking Water Report of WWTP 3rd Quarter

Sr. No.	Parameters	Unit	PEQS	Concentration
1	PH		6.5 - 8.5	7.78
2	Color	pc	15	Unobj
3	Taste		Non-Objectionable	Unobj
4	Odour		Non-Objectionable	Nil
5	Turbidity	NTU	5	0.23
6	Total Hardness	mg/l	500	132.0
7	Total Dissolved Solids	mg/l	1000	479
8	Chloride (Cl)	mg/l	250	35.9
9	Cyanide (Cn)	mg/l	0.05	BDL
10	Fluoride (F)	mg/l	1.5	0.5
11	Iron	mg/l	0.3	0.2
12	Manganese	mg/l	0.05	0.02
13	Lead	mg/l	0.01	0.001
14	Copper	mg/l	0.01	0.001
15	Zinc	mg/l	0.05	0.001
16	Nitrate	mg/l	45	0.5
17	Nitrite	mg/l	10	0.01
18	Ammonia	mg/l	0.5	0.01
19	Sulfate	mg/l	250	185
20	Calcium	mg/l	75	152
21	Magnesium	mg/l	30	176
22	Hardness	mg/l	500	132.0
23	Total Solids	mg/l	1000	479
24	Chloride	mg/l	250	35.9
25	Cyanide	mg/l	0.05	BDL
26	Fluoride	mg/l	1.5	0.5
27	Iron	mg/l	0.3	0.2
28	Manganese	mg/l	0.05	0.02
29	Lead	mg/l	0.01	0.001
30	Copper	mg/l	0.01	0.001
31	Zinc	mg/l	0.05	0.001
32	Nitrate	mg/l	45	0.5
33	Nitrite	mg/l	10	0.01
34	Ammonia	mg/l	0.5	0.01
35	Sulfate	mg/l	250	185
36	Calcium	mg/l	75	152
37	Magnesium	mg/l	30	176
38	Hardness	mg/l	500	132.0
39	Total Solids	mg/l	1000	479
40	Chloride	mg/l	250	35.9
41	Cyanide	mg/l	0.05	BDL
42	Fluoride	mg/l	1.5	0.5
43	Iron	mg/l	0.3	0.2
44	Manganese	mg/l	0.05	0.02
45	Lead	mg/l	0.01	0.001
46	Copper	mg/l	0.01	0.001
47	Zinc	mg/l	0.05	0.001
48	Nitrate	mg/l	45	0.5
49	Nitrite	mg/l	10	0.01
50	Ammonia	mg/l	0.5	0.01
51	Sulfate	mg/l	250	185
52	Calcium	mg/l	75	152
53	Magnesium	mg/l	30	176
54	Hardness	mg/l	500	132.0
55	Total Solids	mg/l	1000	479
56	Chloride	mg/l	250	35.9
57	Cyanide	mg/l	0.05	BDL
58	Fluoride	mg/l	1.5	0.5
59	Iron	mg/l	0.3	0.2
60	Manganese	mg/l	0.05	0.02
61	Lead	mg/l	0.01	0.001
62	Copper	mg/l	0.01	0.001
63	Zinc	mg/l	0.05	0.001
64	Nitrate	mg/l	45	0.5
65	Nitrite	mg/l	10	0.01
66	Ammonia	mg/l	0.5	0.01
67	Sulfate	mg/l	250	185
68	Calcium	mg/l	75	152
69	Magnesium	mg/l	30	176
70	Hardness	mg/l	500	132.0
71	Total Solids	mg/l	1000	479
72	Chloride	mg/l	250	35.9
73	Cyanide	mg/l	0.05	BDL
74	Fluoride	mg/l	1.5	0.5
75	Iron	mg/l	0.3	0.2
76	Manganese	mg/l	0.05	0.02
77	Lead	mg/l	0.01	0.001
78	Copper	mg/l	0.01	0.001
79	Zinc	mg/l	0.05	0.001
80	Nitrate	mg/l	45	0.5
81	Nitrite	mg/l	10	0.01
82	Ammonia	mg/l	0.5	0.01
83	Sulfate	mg/l	250	185
84	Calcium	mg/l	75	152
85	Magnesium	mg/l	30	176
86	Hardness	mg/l	500	132.0
87	Total Solids	mg/l	1000	479
88	Chloride	mg/l	250	35.9
89	Cyanide	mg/l	0.05	BDL
90	Fluoride	mg/l	1.5	0.5
91	Iron	mg/l	0.3	0.2
92	Manganese	mg/l	0.05	0.02
93	Lead	mg/l	0.01	0.001
94	Copper	mg/l	0.01	0.001
95	Zinc	mg/l	0.05	0.001
96	Nitrate	mg/l	45	0.5
97	Nitrite	mg/l	10	0.01
98	Ammonia	mg/l	0.5	0.01
99	Sulfate	mg/l	250	185
100	Calcium	mg/l	75	152
101	Magnesium	mg/l	30	176
102	Hardness	mg/l	500	132.0
103	Total Solids	mg/l	1000	479
104	Chloride	mg/l	250	35.9
105	Cyanide	mg/l	0.05	BDL
106	Fluoride	mg/l	1.5	0.5
107	Iron	mg/l	0.3	0.2
108	Manganese	mg/l	0.05	0.02
109	Lead	mg/l	0.01	0.001
110	Copper	mg/l	0.01	0.001
111	Zinc	mg/l	0.05	0.001
112	Nitrate	mg/l	45	0.5
113	Nitrite	mg/l	10	0.01
114	Ammonia	mg/l	0.5	0.01
115	Sulfate	mg/l	250	185
116	Calcium	mg/l	75	152
117	Magnesium	mg/l	30	176
118	Hardness	mg/l	500	132.0
119	Total Solids	mg/l	1000	479
120	Chloride	mg/l	250	35.9
121	Cyanide	mg/l	0.05	BDL
122	Fluoride	mg/l	1.5	0.5
123	Iron	mg/l	0.3	0.2
124	Manganese	mg/l	0.05	0.02
125	Lead	mg/l	0.01	0.001
126	Copper	mg/l	0.01	0.001
127	Zinc	mg/l	0.05	0.001
128	Nitrate	mg/l	45	0.5
129	Nitrite	mg/l	10	0.01
130	Ammonia	mg/l	0.5	0.01
131	Sulfate	mg/l	250	185
132	Calcium	mg/l	75	152
133	Magnesium	mg/l	30	176
134	Hardness	mg/l	500	132.0
135	Total Solids	mg/l	1000	479
136	Chloride	mg/l	250	35.9
137	Cyanide	mg/l	0.05	BDL
138	Fluoride	mg/l	1.5	0.5
139	Iron	mg/l	0.3	0.2
140	Manganese	mg/l	0.05	0.02
141	Lead	mg/l	0.01	0.001
142	Copper	mg/l	0.01	0.001
143	Zinc	mg/l	0.05	0.001
144	Nitrate	mg/l	45	0.5
145	Nitrite	mg/l	10	0.01
146	Ammonia	mg/l	0.5	0.01
147	Sulfate	mg/l	250	185
148	Calcium	mg/l	75	152
149	Magnesium	mg/l	30	176
150	Hardness	mg/l	500	132.0
151	Total Solids	mg/l	1000	479
152	Chloride	mg/l	250	35.9
153	Cyanide	mg/l	0.05	BDL
154	Fluoride	mg/l	1.5	0.5
155	Iron	mg/l	0.3	0.2
156	Manganese	mg/l	0.05	0.02
157	Lead	mg/l	0.01	0.001
158	Copper	mg/l	0.01	0.001
159	Zinc	mg/l	0.05	0.001
160	Nitrate	mg/l	45	0.5
161	Nitrite	mg/l	10	0.01
162	Ammonia	mg/l	0.5	0.01
163	Sulfate	mg/l	250	185
164	Calcium	mg/l	75	152
165	Magnesium	mg/l	30	176
166	Hardness	mg/l	500	132.0
167	Total Solids	mg/l	1000	479
168	Chloride	mg/l	250	35.9
169	Cyanide	mg/l	0.05	BDL
170	Fluoride	mg/l	1.5	0.5
171	Iron	mg/l	0.3	0.2
172	Manganese	mg/l	0.05	0.02
173	Lead	mg/l	0.01	0.001
174	Copper	mg/l	0.01	0.001
175	Zinc	mg/l	0.05	0.001
176	Nitrate	mg/l	45	0.5
177	Nitrite	mg/l	10	0.01
178	Ammonia	mg/l	0.5	0.01
179	Sulfate	mg/l	250	185
180	Calcium	mg/l	75	152
181	Magnesium	mg/l	30	176
182	Hardness	mg/l	500	132.0
183	Total Solids	mg/l	1000	479
184	Chloride	mg/l	250	35.9
185	Cyanide	mg/l	0.05	BDL
186	Fluoride	mg/l	1.5	0.5
187	Iron	mg/l	0.3	0.2
188	Manganese	mg/l	0.05	0.02
189	Lead	mg/l	0.01	0.001
190	Copper	mg/l	0.01	0.001
191	Zinc	mg/l	0.05	0.001
192	Nitrate	mg/l	45	0.5
193	Nitrite	mg/l	10	0.01
194	Ammonia	mg/l	0.5	0.01
195	Sulfate	mg/l	250	185
196	Calcium	mg/l	75	152
197	Magnesium	mg/l	30	176
198	Hardness	mg/l	500	132.0
199	Total Solids	mg/l	1000	479
200	Chloride	mg/l	250	35.9
201	Cyanide	mg/l	0.05	BDL
202	Fluoride	mg/l	1.5	0.5
203	Iron	mg/l	0.3	0.2
204	Manganese	mg/l	0.05	0.02
205	Lead	mg/l	0.01	0.001
206	Copper	mg/l	0.01	0.001
207	Zinc	mg/l	0.05	0.001
208	Nitrate	mg/l	45	0.5
209	Nitrite	mg/l	10	0.01
210	Ammonia	mg/l	0.5	0.01
211	Sulfate	mg/l	250	185
212	Calcium	mg/l	75	152
213	Magnesium	mg/l	30	176
214	Hardness	mg/l	500	132.0
215	Total Solids	mg/l	1000	479
216	Chloride	mg/l	250	35.9
217	Cyanide	mg/l	0.05	BDL
218	Fluoride	mg/l	1.5	0.5
219	Iron	mg/l	0.3	0.2
220	Manganese	mg/l	0.05	0.02
221	Lead	mg/l	0.01	0.001
222	Copper	mg/l	0.01	0.001
223	Zinc	mg/l	0.05	0.001
224	Nitrate	mg/l	45	0.5
225	Nitrite	mg/l	10	0.01
226	Ammonia	mg/l	0.5	0.01
227	Sulfate	mg/l	250	185
228	Calcium	mg/l	75	152
229	Magnesium	mg/l	30	176
230	Hardness	mg/l	500	132.0
231	Total Solids	mg/l	1000	479
232	Chloride	mg/l	250	35.9
233	Cyanide	mg/l	0.05	BDL
234	Fluoride	mg/l	1.5	0.5
235	Iron	mg/l	0.3	0.2
236	Manganese	mg/l	0.05	0.02
237	Lead	mg/l	0.01	0.001
238	Copper	mg/l	0.01	0.001
239	Zinc	mg/l	0.05	0.001
240	Nitrate	mg/l	45	0.5
241	Nitrite	mg/l	10	0.01
242	Ammonia	mg/l	0.5	0.01
243	Sulfate	mg/l	250	185
244	Calcium	mg/l	75	152
245	Magnesium	mg/l	30	176
246	Hardness	mg/l	500	132.0
247	Total Solids	mg/l	1000	479
248	Chloride	mg/l	250	35.9
249	Cyanide	mg/l	0.05	BDL
250	Fluoride	mg/l	1.5	0.5
251	Iron	mg/l	0.3	0.2
252	Manganese	mg/l	0.05	0.02
253	Lead	mg/l	0.01	0.001
254	Copper	mg/l	0.01	0.001
255	Zinc	mg/l	0.05	0.001
256	Nitrate	mg/l	45	0.5
257	Nitrite	mg/l	10	0.01
258	Ammonia	mg/l	0.5	0.01
259	Sulfate	mg/l	250	185
260	Calcium	mg/l	75	152
261	Magnesium	mg/l	30	176
262	Hardness	mg/l	500	132.0
263	Total Solids	mg/l	1000	479
264	Chloride	mg/l	250	35.9
265	Cyanide	mg/l	0.05	BDL
266	Fluoride	mg/l	1.5	0.5
267	Iron	mg/l	0.3	0.2
268	Manganese	mg/l	0.05	0.02
269	Lead	mg/l	0.01	0.001
270	Copper	mg/l	0.01	0.001
271	Zinc	mg/l	0.05	0.001
272	Nitrate	mg/l	45	0.5
273	Nitrite	mg/l	10	0.01
274	Ammonia	mg/l	0.5	0.01
275	Sulfate	mg/l	250	185
276	Calcium	mg/l	75	152
277	Magnesium	mg/l	30	176
278	Hardness	mg/l	500	132.0
279	Total Solids	mg/l	1000	479
280	Chloride	mg/l	250	35.9
281	Cyanide	mg/l		

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11	Nitrite	<3 (P)	<3 (P)	mg/l	BDL	BDL	0.02	BDL
12	Nitrate	<50	<50	mg/l	0.014	0.175	3.692	0.039
13	Phenol	-	-	mg/l	BDL	BDL	BDL	BDL
14	Residual Chlorine	0.2 – 0.5	-	mg/l	<0.1	BDL	BDL	BDL
15	Aluminum (Al)	<0.2	-	mg/l	BDL	BDL	BDL	BDL
16	Cadmium	0.01	0.003	mg/l	BDL	BDL	BDL	BDL
17	Copper	2	2	mg/l	BDL	BDL	BDL	BDL
18	Chromium	<0.05 (P)	<0.05	mg/l	BDL	BDL	BDL	BDL
19	Mercury	<0.001	<0.006	mg/l	BDL	BDL	BDL	BDL
20	Antimony	<0.005 (P)	<0.02	mg/l	BDL	BDL	BDL	BDL
21	Nickel	<0.02	<0.07	mg/l	BDL	BDL	BDL	BDL
22	Zinc	5.0	-	mg/l	BDL	0.059	BDL	0.07
23	Arsenic	<0.05 (P)	<0.01	mg/l	BDL	BDL	BDL	0.008
24	Barium	0.7	0.7	mg/l	BDL	BDL	BDL	BDL
25	Manganese	<0.5	-	mg/l	BDL	BDL	BDL	BDL
26	Lead	<0.05	<0.01	mg/l	BDL	BDL	BDL	BDL
27	Selenium	0.01 (P)	0.04	mg/l	BDL	BDL	BDL	BDL
28	Ammonia	-	-	mg/l	BDL	BDL	BDL	BDL
29	Boron	0.3	2.4	mg/l	BDL	BDL	BDL	BDL
30	Iron	-	-	mg/l	0.1	BDL	BDL	BDL
31	Total Coliforms	0/100ml	0/100ml	CFU/100mm	0	0	0	0
32	Faecal Coliforms (Ecoli)	0/100ml	<0.5	CFU/100mm	0	0	0	0

Drinking Water Report of WWTP – 4th Quarter

No.	Parameters	Unit	PSQ	Concentration
1	Chlorine	mg/l	0.5-1.5	1.0
2	Fluoride	mg/l	0.5-1.5	1.0
3	Iron	mg/l	0.3-0.5	0.4
4	Manganese	mg/l	0.1-0.3	0.2
5	Hardness	mg/l	150-200	180
6	Total Dissolved Solids	mg/l	500-750	600
7	Total Suspended Solids	mg/l	5-15	10
8	Calcium	mg/l	75-100	90
9	Magnesium	mg/l	25-50	30
10	Lead	mg/l	0.05	0.04
11	Copper	mg/l	1.5	1.2
12	Zinc	mg/l	5.0	4.0
13	Nitrate	mg/l	45	40
14	Nitrite	mg/l	3.0	2.5
15	Ammonia	mg/l	0.5	0.4
16	Phosphate	mg/l	0.5	0.4
17	Chloride	mg/l	250	240
18	Sulfate	mg/l	250	240
19	Barium	mg/l	2.0	1.8
20	Strontium	mg/l	7.0	6.5
21	Selenium	mg/l	0.07	0.06
22	Vanadium	mg/l	1.5	1.4
23	Chromium	mg/l	0.05	0.04
24	Molybdenum	mg/l	0.07	0.06
25	Cadmium	mg/l	0.01	0.009
26	Cobalt	mg/l	0.1	0.09
27	Manganese	mg/l	0.1	0.09
28	Nickel	mg/l	0.07	0.06
29	Silver	mg/l	0.1	0.09
30	Thallium	mg/l	0.001	0.0009
31	Uranium	mg/l	0.02	0.018
32	Antimony	mg/l	0.05	0.04
33	As	mg/l	0.05	0.04
34	Boron	mg/l	1.0	0.9
35	Fluoride	mg/l	1.5	1.4
36	Lead	mg/l	0.05	0.04
37	Manganese	mg/l	0.1	0.09
38	Nickel	mg/l	0.07	0.06
39	Selenium	mg/l	0.07	0.06
40	Vanadium	mg/l	1.5	1.4
41	Zinc	mg/l	5.0	4.5
42	Chloride	mg/l	250	240
43	Sulfate	mg/l	250	240
44	Barium	mg/l	2.0	1.8
45	Strontium	mg/l	7.0	6.5
46	Cadmium	mg/l	0.01	0.009
47	Cobalt	mg/l	0.1	0.09
48	Manganese	mg/l	0.1	0.09
49	Nickel	mg/l	0.07	0.06
50	Silver	mg/l	0.1	0.09
51	Thallium	mg/l	0.001	0.0009
52	Uranium	mg/l	0.02	0.018
53	Antimony	mg/l	0.05	0.04
54	As	mg/l	0.05	0.04
55	Boron	mg/l	1.0	0.9
56	Fluoride	mg/l	1.5	1.4
57	Lead	mg/l	0.05	0.04
58	Manganese	mg/l	0.1	0.09
59	Nickel	mg/l	0.07	0.06
60	Selenium	mg/l	0.07	0.06
61	Vanadium	mg/l	1.5	1.4
62	Zinc	mg/l	5.0	4.5
63	Chloride	mg/l	250	240
64	Sulfate	mg/l	250	240
65	Barium	mg/l	2.0	1.8
66	Strontium	mg/l	7.0	6.5
67	Cadmium	mg/l	0.01	0.009
68	Cobalt	mg/l	0.1	0.09
69	Manganese	mg/l	0.1	0.09
70	Nickel	mg/l	0.07	0.06
71	Selenium	mg/l	0.07	0.06
72	Vanadium	mg/l	1.5	1.4
73	Zinc	mg/l	5.0	4.5
74	Chloride	mg/l	250	240
75	Sulfate	mg/l	250	240
76	Barium	mg/l	2.0	1.8
77	Strontium	mg/l	7.0	6.5
78	Cadmium	mg/l	0.01	0.009
79	Cobalt	mg/l	0.1	0.09
80	Manganese	mg/l	0.1	0.09
81	Nickel	mg/l	0.07	0.06
82	Selenium	mg/l	0.07	0.06
83	Vanadium	mg/l	1.5	1.4
84	Zinc	mg/l	5.0	4.5
85	Chloride	mg/l	250	240
86	Sulfate	mg/l	250	240
87	Barium	mg/l	2.0	1.8
88	Strontium	mg/l	7.0	6.5
89	Cadmium	mg/l	0.01	0.009
90	Cobalt	mg/l	0.1	0.09
91	Manganese	mg/l	0.1	0.09
92	Nickel	mg/l	0.07	0.06
93	Selenium	mg/l	0.07	0.06
94	Vanadium	mg/l	1.5	1.4
95	Zinc	mg/l	5.0	4.5
96	Chloride	mg/l	250	240
97	Sulfate	mg/l	250	240
98	Barium	mg/l	2.0	1.8
99	Strontium	mg/l	7.0	6.5
100	Cadmium	mg/l	0.01	0.009
101	Cobalt	mg/l	0.1	0.09
102	Manganese	mg/l	0.1	0.09
103	Nickel	mg/l	0.07	0.06
104	Selenium	mg/l	0.07	0.06
105	Vanadium	mg/l	1.5	1.4
106	Zinc	mg/l	5.0	4.5
107	Chloride	mg/l	250	240
108	Sulfate	mg/l	250	240
109	Barium	mg/l	2.0	1.8
110	Strontium	mg/l	7.0	6.5
111	Cadmium	mg/l	0.01	0.009
112	Cobalt	mg/l	0.1	0.09
113	Manganese	mg/l	0.1	0.09
114	Nickel	mg/l	0.07	0.06
115	Selenium	mg/l	0.07	0.06
116	Vanadium	mg/l	1.5	1.4
117	Zinc	mg/l	5.0	4.5
118	Chloride	mg/l	250	240
119	Sulfate	mg/l	250	240
120	Barium	mg/l	2.0	1.8
121	Strontium	mg/l	7.0	6.5
122	Cadmium	mg/l	0.01	0.009
123	Cobalt	mg/l	0.1	0.09
124	Manganese	mg/l	0.1	0.09
125	Nickel	mg/l	0.07	0.06
126	Selenium	mg/l	0.07	0.06
127	Vanadium	mg/l	1.5	1.4
128	Zinc	mg/l	5.0	4.5
129	Chloride	mg/l	250	240
130	Sulfate	mg/l	250	240
131	Barium	mg/l	2.0	1.8
132	Strontium	mg/l	7.0	6.5
133	Cadmium	mg/l	0.01	0.009
134	Cobalt	mg/l	0.1	0.09
135	Manganese	mg/l	0.1	0.09
136	Nickel	mg/l	0.07	0.06
137	Selenium	mg/l	0.07	0.06
138	Vanadium	mg/l	1.5	1.4
139	Zinc	mg/l	5.0	4.5
140	Chloride	mg/l	250	240
141	Sulfate	mg/l	250	240
142	Barium	mg/l	2.0	1.8
143	Strontium	mg/l	7.0	6.5
144	Cadmium	mg/l	0.01	0.009
145	Cobalt	mg/l	0.1	0.09
146	Manganese	mg/l	0.1	0.09
147	Nickel	mg/l	0.07	0.06
148	Selenium	mg/l	0.07	0.06
149	Vanadium	mg/l	1.5	1.4
150	Zinc	mg/l	5.0	4.5

Sahiwal Lot-01, Lot-02, Lot-03 & Lot-04

- 72. Third party environmental monitoring from the laboratory for third quarter of this year was not carried out due to financial issues of contractor, contractor is advised to carry out the monitoring at earliest. Lot-4 was not conducted the environmental monitoring due to financial issues. However, the following practices were adopted to physically monitor the sites and impacts assessment
- 73. The potential sources of air pollution during construction are the vehicles, kick- off dust, asphalt plant and crusher. Visual observations were noted to monitor water sprinkling at dust prone areas during the construction activities. The occasional sprinkling of water observed at all sites. The concerned contractors were advised to take care to control the dust emissions. Visual observations were also made for fitness of the vehicles to minimize the smoke emissions. The contractors’ environment specialists of each Lot ensured that the dust should be reduced to maximum possible level so that it may not affect the workers and the surrounding environment including the native people.
- 74. Contractor is adopting measures helpful in controlling air quality deterioration in the subproject activity areas like regular water sprinkling to reduce the air dust

emissions and regular tuning of vehicles maintaining the equipment properly to minimize the smoke and other gaseous emissions. The objective was to minimize the airborne particulate matter, dust pollution and fumes of vehicular emissions into the atmosphere to avoid negative impacts on the health of construction workers, residents, and nearby vegetation.

75. Visual observations were made to monitor regular water sprinkling at dust prone areas during the construction activities and to monitor the vehicular emissions to minimize the smoke emissions. Contractors ensured water sprinkling at most of the sites. Contractors are regularly checking up their construction vehicles and machinery to comply the vehicular exhaust emission levels. Contractors regularly tune their vehicles at all the subproject sites. The use of masks and helmets are mandatory at construction sites by workers. Transportation of excavated material by using covers on the dumpers to avoid spills is observed at Site.
76. Noise monitoring on construction sites is being carried out to assess impacts of noise level generated to curtail its adverse impacts on workers, nearby communities, and fauna of the area. Contractors are advised to keep their machinery in good condition and provide personal protective equipment's (PPEs) like ear plugs to the working staff at noise generating sites. Speed of the trucks and other vehicles used for construction activities were to be controlled and the construction activities were to be limited to daytime only.
77. However, HSE Expert of EPCM Consultant has reinforced contractor staff to adopt mitigation measures to reduce the impact of noise and vibration as delineated in EMPs. HSE Expert of EPCM Consultant advised the contractors to carry out noise monitoring by using noise meter on regular basis.

4.3.5 NOISE MONITORING

78. Noise monitoring on construction sites is being carried out to assess impacts of noise level generated to curtail its adverse impacts on workers, nearby communities, and fauna of the area. For this purpose, noise level monitoring is being carried out by using digital noise level meter for continuous 24 hours to know the noise value at subproject locations. Contractors are advised to keep their machinery in good condition and provide personal protective equipment's (PPEs) like ear plugs to the working staff at noise generating sites. Speed of the trucks and other vehicles used for construction activities were to be controlled and the construction activities were to be limited to daytime only.

79. The environmental monitoring conducted during October, 2022 deduces that no noise or vibration related complaints from public or workers were registered at any of the subproject site. However, HSE Expert of EPCM Consultant has reinforced contractor staff to adopt mitigation measures to reduce the impact of noise and vibration as delineated in EMPs. HSE Expert of EPCM Consultant has repeatedly advised the contractors to keep their machinery in good condition and provide personal protective equipment (PPE) like ear plugs to the working staff to worn at noise generating sites. HSE Manager advised the contractor to provide PPEs to workers. Contractors of all subproject's sites were advised to control vehicle speed and restrict construction activities to daytime only.
80. HSE Expert of EPCM Consultant advised the contractors to carry out noise monitoring by using noise meter on regular basis. Noise testing was carried out at 3 sub projects (3 Points on Each Project) where construction activities were in progress.
81. Results of instrumental monitoring of noise are given in the exhibit below:

Table 4-8: Noise Monitoring Results of 4th quarter Lot 1, lot 2 and lot 3 at Sahiwal

S. No	Sub Project	Result (Average 24hrs)	NEQS/WHO (dB)	PEQS (dB)
1	Lot-1	62.82	65	65
2	Lot-2	63	65	65
3	Lot-3	61	65	65

4.3.6 AIR QUALITY MONITORING

82. The potential sources of air pollution during construction are the vehicles, kick-off dust, asphalt plant and crusher. Visual observations were noted to monitor water sprinkling at dust prone areas during the construction activities. The occasional sprinkling of water observed at all sites. The concerned contractors were advised to take care to control the dust emissions. Visual observations were also made for fitness of the vehicles to minimize the smoke emissions. The contractors' environment specialists of each Lots ensured that the dust should be reduced to maximum possible level so that it may not affect the workers and the surrounding

- environment including the native people.
83. Contractor is adopting measures helpful in controlling air quality deterioration in the subproject activity areas like regular water sprinkling to reduce the air dust emissions and regular tuning of vehicles maintaining the equipment properly to minimize the smoke and other gaseous emissions. The objective was to minimize the airborne particulate matter, dust pollution and fumes of vehicular emissions into the atmosphere to avoid negative impacts on the health of construction workers, residents, and nearby vegetation.
84. Visual observations were made to monitor regular water sprinkling at dust prone areas during the construction activities and to monitor the vehicular emissions to minimize the smoke emissions. Contractors ensured water sprinkling at most of the sites. Contractors are regularly checking up their construction vehicles and machinery to comply the vehicular exhaust emission levels. Contractors regularly tune their vehicles at all the subproject sites. The use of masks and helmets are mandatory at construction sites by workers. Transportation of excavated material by using covers on the dumpers to avoid spills is observed at Site.
85. The results of instrumental monitoring are presented in Table below;

Table 4-9: Air Quality Monitoring Results (24 hrs) 4th quarter Lot-01, Lot-02 and Lot 3

S. No	Parameter s	Unit	Lot-1	Lot-2	Lot-3	Campsit e	PEQS	WHO	Baseline
1.	PM 2.5	ug/m ³	33.21	34	31.9	35	35 ug/m ³	15	30
2.	PM 10	ug/m ³	115.13	129	141	143	150 ug/m ³	45	127
3.	CO	mg/m ³	2.17	0.6	0.8	1.3	5 mg/m ³	4	0.73
4.	NO ₂	ug/m ³	25.43	27.8	26.9	28.6	80	25	15.70
5.	SO ₂	ug/m ³	20.53	19.8	19.2	21.3	120 ug/m ³	40	18.52
6.	NO	ug/m ³	17.9	10.4	11.6	13.2	40 ug/m ³	--	9.49
7.	NO _x	ug/m ³	43.33	26.7	26.7	28.6	130 ug/m ³	120.0	25.19

86. All the environmental parameters were analyzed during the environmental testing to assess the level of compliance with the most stringent standards/guidelines between the PEQS and IFC standards. As can be observed in the Tables 4-9 above, the pollutant all parameters on all sites are within the applicable limits the PEQS standards/guidelines. WHO standards/guidelines for the excessive value of PM10 and PM2.5 is overall poor air quality due traffic and industrialization in Sahiwal city.

However, it shall be ensured that more stringent measures are implemented in order to ensure that these excessive values are brought within the applicable limits when the monitoring is conducted in the next quarter. In particular, the following measures shall be implemented:

- An increased volume of sprinkling of water shall be conducted to ensure that the airborne dust emissions are brought down to within the applicable standards/guidelines.
- Excavated material will be covered and will not be stored for long intervals at site; All vehicles, machinery, equipment and generators used during construction activities will be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions.
- Preventive measures against dust will be adopted for on-site mixing and unloading operations.

4.3.7 NATURAL HABITAT PROTECTION

87. As per SSEMP, the contractors should avoid damaging the natural habitats and to replant the damaged plants, if unavoidable, after construction. Also, the native wildlife and habitats should not be disturbed. However, no tree has been cut during construction processes on any of the subproject. Similarly, no native species are being disturbed due to the construction activities. Tree plantation cost is kept for each subproject.

88. Neither flora nor fauna were disturbed by the contractors until now at any of the subproject area since the subprojects involve only Construction of Water Supply and Sewerage System at Sialkot city which locate farer to wildlife habitats. Wildlife sanctuary does exist near any subproject site. No hunting of birds and animal is reported. Continuous monitoring is being carried out by inspectors of NESPAK to check any hunting activity or activities damaging vegetation or wildlife habitat.

4.4 Material Resources Utilization

89. Material resources utilization is necessary to meet the objectives of the project and to satisfy the client's requirements. During reporting period, the Contractor faced financial problems which affected the project progress. The contractor's construction resources include:

- Materials
- Construction plant, tools and equipment
- Human Resources
- Space and facilities
- Subcontractor
- Finance

Table 4-11: Resources Used for Lot-01 & Lot-02 Sahiwal

Resources	Unit	Quantity			
		Lot-01	Lot-02	Lot-03	Lot-04
Material					
Cement	Ton /Bags	46649 bags	3270.04 ton	3004 ton	11498 Bags
Sand	Cft	23400	217585	190918	37641
Crush	Cft	35004	292446	252446	84221
Diesel	Ltr	200893	406820	20256	19025
Petrol	Ltr	17084	23897	13981	15946
Steel	Ton	848	746	714	294
Machinery					
Excavator	No.	3	5	3	4
Water Bozer	No.	1	2	1	2
Tractor Trolly	No.	4	11	6	1
Loader	No.	1	1	0	1
Front Blade Tractor	No.	3	2	0	2
Crane	No.	1	1	1	1
Pipe Production Machines	No.	-	7	5	6
Pipe Testing Machine	No.	-	1	1	-
Long Trailer(for pipe Shifting)	No.	3	0	2	-
Batch plant	No.	-	1	1	-
HDPE jointing machine	No.	3	-	-	-
Concrete Vibrator	No.	4	4	1	1
Plate Compactor	No.	2	3	1	1
Road Rollers	No	2	5	1	1
Mini Roller	No	1	3	3	1
Human Resource					
Engineer	No.	4	8	6	7
Supervisor/Forman/Surveyor	No.	10	15	12	17
Labour	No.	210	165	130	190

Table 4-10: Resources Used for Lot-01, Lot-02, Lot-04 & WWTP Sialkot

Resources	Unit	Quantity			
		Lot-01 & Lot-02	Lot-03	Lot-04	WWTP
Material					
Cement	Ton/Bags	1950 Ton	-	955 Bags	132 Bags
Sand	Cft	150750	325290	260555	1000
Crush	Cft	6580	-	5230	850
Steel	Ton	325	-	195	0.2
Diesel	Ltr	32450 & 35550	3090	9945	
Petrol	Ltr	25200 & 14600	7590	9452	
Machinery					
Excavator	No.	13	2	1	12
Water Bozer	No.	2	1	1	1
Tractor Trolly	No.	8	3	3	8
Loader	No.	4	2	1	2
Front Blade Tractor	No.	2	1	1	1
Crane	No.	4	1	1	1
Pipe Production Machines	No.	4	-	-	-
Pipe Testing Machine	No.	1	-	-	-
Long Trailer(for pipe Shifting)	No.	2	1	-	-
Batch plant	No.	1	1	-	1
HDPE jointing machine	No.	-	2	2	-
Concrete Vibrator	No.	5	-	3	1
Plate Compactor	No.	5	2	1	-
Road Rollers	No.	2	1	-	3
Mini Roller	No.	2	1	1	-
Human Resource					
Engineer	No.	4	3	4	2
HSE Manager					1
Safety Officer					1
Supervisor/Forman/Surveyor	No.	17	10	13	20
Labour	No.	65	60	98	20

Table 4-11: Resources Used for PLGA

Resources	Unit	Quantity
Material		
Cement	Bags	34,842
Sand	Cft	174,783
Crush	Cft	304,525
Steel	Ton	450
Diesel	Ltr	7324
Petrol	Ltr	217
Machinery(Daily Average)		
Generators	No.	5
Loaders	No.	3

Tower Crane	No.	1	
Jumping Compactor	No.	1	
Concrete Viberator	No.	4	
Water Pump	No.	3	
Crane	No.	1	
Welding Machine	No.	1	
Bar Cutting Machine	No.	3	
Bar Bending Machine	No.	3	
Tractor Trolley	No.	2	
Tractor Trailer	No.	1	
Transit Mixer	No.	3	
Water Boozer	No	1	
Concrete Batching Plant		1	
Wood Cutter		2	
Grinder		2	
Human Resource (Daily Average)			
Engineer	No.	5	
Supervisor/Forman/Surveyor	No.	13	
Labor	No.	79	

90. The use of water at construction sites for human needs, is basically related to the essential demands of employees of the construction site and these are preserved in accordance with the labour laws. At the construction site, the human water consumption, is for the following facilities: sanitary, housing, dining place, laundry, and kitchen, when preparing meals.
91. The other major use of water is for the sprinkling of water at project site for compaction and around the project site for dust control. Consumption of water for the reporting period at all project sites is given in Table 4-12 to 4-14 below

Table 4-12 Water Consumption during Current Period at Sahiwal

Sr. No.	Activity	Water Consumption in meter cube (m ³) for period July 2022 to December 2022
Lot- 1		
1	Accommodation at workers camp	185
2	Dust Suppression Activity	210
3	Site Offices	205

Lot-2		
4	Accommodation at workers camp	265
5	Dust Suppression Activity	375
6	Site Offices	195
Lot-3		
7	Accommodation at workers camp	225
8	Dust Suppression Activity	370
9	Site Offices	125
Lot-4		
10	Accommodation at workers camp	230
11	Dust Suppression Activity	205
12	Site Offices	125
Total Water Consumption		2615

Table 4-13 Water Consumption During Current Period at Sialkot

Sr. No.	Activity	Water Consumption in meter cube (m ³) for period July 2022 to Dec 2022
Lot- 1		
1	Accommodation at workers camp	191
2	Dust Suppression Activity	601
3	Site Offices	300
Lot- 2		
1	Accommodation at workers camp	180
2	Dust Suppression Activity	399
3	Site Offices	121
Sr. No.	Activity	Water Consumption in meter cube (m ³) for period July 2022 to Dec 2022
Lot- 3		
1	Accommodation at workers camp	147
2	Dust Suppression Activity	330
3	Site Offices	103
Lot-4		
4	Accommodation at workers camp	203
5	Dust Suppression Activity	153

6	Site Offices	182
Total Water Consumption		2910

Table 4-14 Water Consumption During Current Period at PLGA

Sr. No.	Activity	Water Consumption in meter cube (m ³) for period July 2022 to Dec 2022
1	Accommodation at workers camp	61
2	Dust Suppression Activity	108
3	Site Offices	119
Total Water Consumption		228

Sr. No.	Activity	Water Consumption in meter cube (m ³) for period July 2022 to Dec 2022
1	Accommodation at workers camp	61
2	Dust Suppression Activity	108
3	Site Offices	119
Total Water Consumption		228

Sr. No.	Activity	Water Consumption in metercube (m ³) for period July 2022 to Dec 2022
1	Accommodation at workers camp	61
2	Dust Suppression Activity	108
3	Site Offices	119
Total Water Consumption		228

4.5 Chemical Storage and Arrangement

92. Chemicals used are very limited and mainly include epoxy and grouting powder.

All chemical are stored in Proper Shaded/ Dry Place at base camps of contractors with following arrangements

- Placed properly on concrete slab or steel sheet
- MSDS provided in store room
- Store Kept Clean/ Not Use for Other Activity
- Proper Ventilation provided
- Adequate PPEs are provided
- First Aid Facility provided Site & Camp

- Fire Extinguisher available
- Warning Signs installed

4.6 Waste Management

93. The construction waste from the project site consists of asphalt waste, batteries, containers/drums, excavated natural material, oil filters, motor oil, scrap material and concrete waste. The waste from offices and labour camp consists of the municipal waste both solid and liquid effluent.
94. The liquid waste from camp offices has been disposed of by using the septic tank. The septic tank is present at all the Lots and liquid waste has been disposed properly.
95. Each type of solid waste has been managed separately and is discussed in Table 4-15.

Table 4-15 General Waste Management Practice

Sr. No	Type of Waste	Mode of Disposal/Use
1	Asphalt Waste	<ul style="list-style-type: none"> • Reuse in applications such as base, and sub-base and some is blended for use in new asphalt
2	Batteries	<ul style="list-style-type: none"> • Sold to the Scrap metal recyclers
3	Empty Containers/drums	<ul style="list-style-type: none"> • Sold to the Scrap metal recyclers
4	Excavated natural material	<ul style="list-style-type: none"> • Reused off sites
5	Oil filters	<ul style="list-style-type: none"> • Sold to Recyclers
6	Motor Oil	<ul style="list-style-type: none"> • Sold to oil recycler for reprocessing and recovery.
7	Scrap material	<ul style="list-style-type: none"> • Sold to the Scrap metal recyclers
8	Concrete Waste	<ul style="list-style-type: none"> • Reuse in pavement base and sub-base
9	Municipal Solid Waste	<ul style="list-style-type: none"> • Disposed in Landfill site

4.6.1 CUMULATIVE WASTE GENERATION

96. The waste generated all of three project sites from the cutting of earth is reused for back filling. The unused excavated material is disposed of at designated sites. Negligible construction waste including wire cutters, plastic and paper, etc. is generated at the site which can be recycled and reused in second market. Currently, all such waste is segregated disposed of temporarily on designated sites, identified and demarked before construction. Such waste is then removed to be reused in second market on regular interval with the help of specified subcontractors, assigned by each contractor.

97. Domestic waste is sold out to the vendors which then finally dispose off all collected wastes at designated Landfill Sites of each city. This method is identified in IEE reports and also the general practice of local municipality.

4.6.2 CURRENT PERIOD

Table 4-16 Waste Generation and Management During Current Reporting Period at Sahiwal

Sr. No	Type of Waste	Classification	Waste Source	Quantity	Mode of Disposal/Use
1	Batteries	Hazardous	Power using products such as construction vehicles and generators	04 Nos. (All Lots)	Sold to the Scrap metal recyclers
2	Empty Containers/ drums	Non-Hazardous (residues have been removed by washing or vacuuming)	Use to Transport and storage Fuel and lubricants	36 Nos. (All Lots)	Sold to the Scrap metal recyclers
3	Excavated natural material	Non-Hazardous	From Excavation of Soil	269 cubic meters (All Lots)	Reused off sites
4	Oil filters	General solid waste (non-putrescible)	From Machinery, Construction Vehicles and Generators	45 Nos. (All Lots)	Sold to Recyclers
5	Motor Oil	Hazardous	From Machinery, Construction Vehicles and Generators	235 Litres (All Lots)	Sold to oil recycler for reprocessing and recovery.
6	Concrete Waste	General solid waste (non-putrescible)	culverts construction	27 - 39 m³ (All Lots)	Reuse in pavement base and sub-base
7	Municipal Solid Waste	General solid waste	Offices, Camp Site	4.8 Ton (All Lots)	Disposed in Landfill site
8	Medical waste	Hazardous	Camps	0	

Table 4-17 Waste Generation and Management during Current Reporting

Period at Sialkot

Sr. No	Type of Waste	Classification	Waste Source	Quantity	Mode of Disposal/Use
1	Batteries	Hazardous	Power using products such as construction vehicles and generators	08 Nos. (All Lots)	Sold to the Scrap metal recyclers
2	Empty Containers/ drums	Non-Hazardous (residues have been removed by washing or vacuuming)	Use to Transport and storage Fuel and lubricants	14 Nos. (All Lots)	Sold to the Scrap metal recyclers
3	Excavated natural material	Non-Hazardous	From Excavation of Soil	270 cubic meters (All Lots)	Reused off sites
4	Oil filters	General solid waste (non-putrescible)	From Machinery, Construction Vehicles and Generators	70 Nos. (All Lots)	Sold to Recyclers
5	Motor Oil	Hazardous	From Machinery, Construction Vehicles and Generators	130 Litres (All Lots)	Sold to oil recycler for reprocessing and recovery.
6	Concrete Waste	General solid waste (non-putrescible)	culverts construction	15 - 20 m³ (All Lots)	Reuse in pavement base and sub-base
7	Municipal Solid Waste	General solid waste	Offices, Camp Site	1.9 Ton (All Lots)	Disposed in Landfill site
	Medical waste	Hazardous	Camps	0	

Table 4-18 Waste Generation and Management during Current Reporting

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Period at PLGA

Sr. No	Type of Waste	Classification	Waste Source		Quantity	Mode of Disposal/Use
1	Batteries	Hazardous	Power using products such as construction vehicles and generators		03Nos.	Sold to the Scrap metal recyclers
2	Empty Containers/ drums	Non-Hazardous (residues have been removed by washing or vacuuming)	Use to Transport and storage Fuel and lubricants		09 Nos.	Sold to the Scrap metal recyclers
4	Oil filters	General solid waste (non-putrescible)	From Machinery, Construction Vehicles and Generators		18Nos.	Sold to Recyclers
5	Motor Oil	Hazardous	From Machinery, Construction Vehicles and Generators		29 Litres	Sold to oil recycler for reprocessing and recovery.
6	Concrete Waste	General solid waste (non-putrescible)	culverts construction		02-4 m³	Reuse in pavement base and sub-base
7	Municipal Solid Waste	General solid waste	Offices, Camp Site		0.003 Ton	Disposed in Landfill site
8	Medical waste	Hazardous	Camps		0	

4.7 Health and Safety

4.5.1 COMMUNITY HEALTH AND SAFETY

98. During reporting period, the Contractor took utmost care for community health and safety. No incidents related to the community health and safety has been occurred during the current reporting period except 01 accident at Sahiwal.
99. In sahiwal, on Dec 23, 2022 at 12:40 PM a citizen named M. Faizan was on his motorcycle and was driving over speed, despite the speed limit sign boards being present in the area and tried to cross the excavated trench for going to the other side. During this attempt to jump over the trench with his motorcycle, he hit the Jersey barrier that had been placed next to the trench to secure the area. While doing this, the rider lost his balance and fell into the manhole excavation, resulting in a head injury. Since the rider was not wearing a helmet and was exceeding the speed limit assigned for this area, the injury proved fatal. Rescue 1122 was immediately called but he expired on the spot. Notification and incident investigation report is attached as Annex I.
100. The following measures were taken to ensure the safety of community:
- The project site was cordoned off, especially the areas where machinery is involved were barricaded and constantly monitored to ensure that local residents, particularly children stay away from construction area. Also, no machinery was left unattended, particularly in running condition.
 - Drivers were provided orientation on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport.
 - The contractor has deployed adequate number of flagmen carrying flags, whistles etc. to facilitate community, avoid road traffic accidents and ensure smooth movement of the traffic. Furthermore, contractor's offices are keeping good coordination with their respective City Managers and site Resident Engineers for effective implementation of the road safety measures. Additionally, the each contractor has deployed adequate numbers of safety cones, installed warning/reflective taps, displayed informative sign boards at multiple locations and hold consultation meeting with the community to aware them regarding the project nature and possible hazards.

4.5.2 WORKER SAFETY AND HEALTH

101. Health Safety training and instructions are provided to workers on regular basis. Proper Emergency Response & Awareness System Regular supervision and monitoring of demolition and construction phase is carried out in compliance with the Health and Safety requirements as per standard specifications outlined in EMP and in the Contract. No incident related to the workers' health and safety have been occurred during the current reporting period.
102. First aid medical facility was provided by contractor for each project site. Construction activities have minor impacts on safety and health of workers. Prior to starting the project engineering and administrative control measures were taken by the contractor. For example, provision of Personal Protective Equipment (PPE) to the work force is considered the mandatory step in health and safety management system. No incidents related to the workers' health and safety have been occurred during the current reporting period. HSE response record for each subproject site is showed below in table 4-19.

Table 4-19: Health Data

HSE Response	Sahiwal	Sialkot	PLGA	Accumulative
No. of persons provided with First Aid	04	07	03	14
No. of persons referred to hospitals	1	01	0	02
No. of persons diagnosed COVID-19	0	0	0	0
No of fatalities	0	0	0	0

103. In order to comply the Environmental management plan (EMP) and HSE of project area contractor strictly complied with the health safety and environment rules and regulations. Basic first aid medical facility was provided by contractor for each project site. Layout plan for camp site, indicating safety measures taken by the contractor, e.g. firefighting equipment, safe storage of construction material, security, fencing, and contingency measures in case of accidents.

4.5.4 FIREFIGHTING ARRANGEMENTS

104. Fire Extinguishers are inspected on regular basis and kept in good condition. "Smoking is prohibited" signs are displayed at project site. The Contractors have provided the fire extinguishers at each camp site. Furthermore, the trainings and TBTs are delivered at site to the concerned workers how to use the fire extinguishers at the time of any

fire hazards. Since the project started at site, no fire accident has occurred at site.

4.5.5 The overall working environment in the project area needs utmost improvements to make it completely safe with the implementation of corrective action plans however no major incident/accident or casualty has been reported in Sialkot, Sahiwal and Lahore.

4.5.6 As per Health Safety and Environment (HSE) Plan, the Contractors are responsible for provision of full PPEs for the labour and staff deployed at work. For safe execution of the work, the Contractor has deputed an HSE officer and for adequate supervision of the HSE issues at site. At all three subprojects i.e. Sahiwal, Sialkot and PLGA Lahore overall status of use of PPEs is satisfactory. The PPEs issued to worker are Dust Mask, Ear Plugs, Safety Gloves, Safety Boots, Safety Jacket, Safety Helmet and Safety Goggles. First Aid kits are available at campsite, but ambulance is not available at any subproject's sites, Contractors have arranged other vehicles in case of emergency. However, Govt. hospitals as well as private clinics are available in close vicinity to deal with any major injuries and health issues, dispensary is also available at campsite. Contractors are advised to ensure provision of Ambulance on priority basis.

4.5.7 SAFETY SIGNBOARDS

105. Safety sign posters are considered one of the tools of creating awareness among the workers. The Civil Contractor has arranged satisfactory work in this regard at all subprojects sites of Sialkot, Sahiwal and PLGA Lahore.

4.8 Appropriate Staff Name and Contact Details

106. Details mentioned in Table 1.1.

4.9 HSE Training

107. Regular internal trainings at all subprojects sites related to HSE were given to the concerned staff and work force by the contractor's environmentalist and OHS Managers on regular basis. This has been reflected in respective monthly progress reports. HSE training sessions are attached in Annexures G.

108. The laborers were encouraged to participate in this training and advised that safety should be ensured. HSE training was delivered on following topics:

- Use of PPEs
- Slip, Trip and fall Hazards
- Access Paths
- Safety of Scaffolding

- Oil Spillage
- Electrical Wires Hazards
- Noise Hazards
- Welding, Cutting and Grinding
- Excavations

109. HSE staff motivates labour to follow the standard procedures during the execution of work by providing them rewards i.e declaring the H & S champion of the month and incentives.

4.9.1 Stand Down Session on Health And Safety

110. A one day training session on Health Safety and Environment (HSE) was conducted on 20 July 2022 and 21 July 2022 at Sahiwal and Sialkot respectively. The session was conducted by Ms Shazia Shahid, Environment Specialist (Consultant), Asian Development Bank. In the session, a diversity of stakeholders was present including PMU, CIU, NESPAK, WATSAN contractor for Lot-01, Lot-02, Lot-03, Lot-04 (ZKB-Reliable) and WWTP Contractor (Shannxi Water Resources & Hydropower Engineering Group Co, Ltd), their management staff, field staff and HSE team participated in training. Training was focused on safe work execution by eliminating the potential risks and hazards from work site and implementation of standards.

111. ADB specialist highlighted all issues regarding health and safety during construction at the site. The main objectives of the session are as follows:

- Understanding and familiarity with Health and Safety; Familiarity with National and ADB's guidelines and principles on Occupational Health and Safety
- Understand why Health and Safety are important for everyone.
- Familiarity with construction Hazards.
- Everyone needs to give due consideration and importance to the Health and Safety Aspects.

In the training, the main principles of occupational and community health and safety were discussed. These principles include Identifying and minimizing the hazards, Providing preventive and protective measures against the hazards, Providing appropriate equipment to minimize risks and requiring and enforcing its use, Training workers and providing them with appropriate incentives to use and comply with health and safety procedures and protective equipment, Documenting and reporting occupational accidents, diseases, and incidents; and Emergency prevention, preparedness, and response arrangements in place. She also described the implementation of such principles requires appropriate legal provisions, administrative enforcement, and a service system for occupational safety and health and occupational health services. OHS needs to be a top priority for the organization to implement workplace health and safety measures for their employees.

5. FUNCTIONING OF THE SSEMP

5.1 SSEMP Review

113. It was observed that all the subprojects are implementing the measures proposed in the EMP and SSEMP. This was mainly due to the fact that the contractor's nominated staff were trained on Environment, Health & Safety which in turn helped a lot in implementation of mitigation measures proposed.
114. As these subprojects mainly involve soil/earthworks, dust suppression measures were stressed upon by the contractor. The contractors' staff was persuaded to maintain good house-keeping and waste generation/management.

Sahiwal Lot-01, Lot-02, Lot-03 and Lot-04

115. The contractors are mostly complying with the conditions mentioned in SSEMP, however few lacking's were observed which is provided below-:
- There is weak implementation of PPE's found on Lot I and IV for which it was conveyed to contractor to fulfil all Safety related guidelines. The contractor was also given instruction that site supervisor should take care of these issues and enforce the use of PPE's during construction activities. After the instruction the situation on Lots were improved. r.
 - In SSEMP there is plan for COVID-19 SOP's implementation, but few workers at site were observed without masks. Contractors were advised to implement all WHO's Covid -19 SOP's.
 - Flags men were not sufficient due to which problems were occurring during work site due to which traffic congestions occurring. Contractors were advised to positioned the trained Flagmen at each diversion and evade any traffic blockings.
 - At Lot-04 sites work in deep trench was involved and due to the unstable soil strata issue of land sliding was faced for which contractor strictly instructed to provide shoring of trench and adopt best engineering practices to avoid land sliding issue.
 - Debris material was present at site which should be removed to protect community health and safety and to avoid social issues.

- Water Sprinklings should be done at each point regarding this matter contractor was instructed to ensure the sprinklings the site and plant regularly.
- Ambulance services should be available for all lots separately at sites. Supervision Consultant has issued non-compliance to the Contractor for necessary arrangements.

Sialkot Lot-01, Lot-02, Lot-03, Lot-04 & WWTP

116. The contractor is mostly complying with the conditions mentioned in SSEMPs, However; few lacking's were observed which is provided below-:

- There was weak implementation of PPE's found on Lot I and II for which the non-conformance notices were issued to the contractor. The contractor was also given instruction that site supervisor should take care of these issues and enforce the use of PPE's during construction activities. After the instructions the situation on both lots were getting better.
- At Lot-02 and few of Lot-01 sites deep excavation and work in deep trench was involved and due to the unstable soil strata issue of land sliding was faced for which contractor strictly instructed to provide shoring of trench and adopt best engineering practices to avoid land sliding issue.
- There was issue related to damage to utilities at both Lot 1 & 2. It was causing problems for community and a lot of complains received on same issue. The problem was expected because the project area is very congested. The utility related issue were resolved within 24 hours
- Water Sprinklings should be done at each point regarding this matter contractor were instructed to ensure the sprinklings the site and plant regularly. Water sprinkling was observed at all construction sites and no complaint was registered.
- Ambulance services should be available for all lots separately at sites. Supervision Consultant has issued non-compliance to the Contractor for necessary arrangements.

PLGA

117. Monitoring for the implementation of SSEMP has been actively carried out by the Consultants and PMU site staff throughout the reporting period. Following are the observations in this regard;

118. As this project mainly involve building construction works, dust suppression measures were stressed upon by the NESPAK staff. The contractors` staff was persuaded to maintain good house-keeping and waste generation/ management.
119. The contractor is mostly complying with the conditions mentioned in SSEMP, however few lacking's were observed discussed below-:
- In SSEMP there is plan for COVID SOP's implementation, but few workers at site were observed without masks. Contractor was advised to implement all WHO's Covid SOP's.
 - Water Sprinklings should be done at each point regarding this matter contractor was instructed to ensure the sprinklings the site and plant regularly.
120. The implementation of environmental monitoring plan remained satisfactory and internal monitoring has been carried out in accordance with the monitoring plan at each subproject sites.
121. The SSEMPs provide adequate guidance for the mitigation of environmental impacts resulting from the current construction activities. All the mitigation measures set out in the SSEMPs are appropriate and no change is needed at this stage of the project.

6. GOOD PRACTICES AND OPPORTUNITY FOR IMPROVEMENT

6.1 Good Practices

Sahiwal Lot-01, Lot-02, Lot-03 and Lot-04

- Establishment of Contractor's camp is within the permissible standards and parameters
- Site Specific Environmental Management Plan is in place with true letter and spirit
- Sanitation and wastewater disposal at camp site has been monitored
- Job opportunities are preferably provided to the locals
- A good liaison is established between CIU, Supervisory consultant and contractor to follow the environmental safeguard guidelines
- All workers and machinery have been got insured by the contractor.
- Noise and Vibrations are found within PEQS limits

Sialkot Lot-01, Lot-02, Lot-04

- Noise and Vibrations are found within PEQS and WHO limits
- Air Quality has been monitored and within safe limits except PM10 and Pm2.5
- Drinking water Quality has been monitored and within safe limits
- Flora and Fauna are not unnecessarily damaged
- Health Safety standards are compliant
- Complaint register is in place of project site and No complaint/conflict observed
- A good liaison is established between CIU, Supervisory consultant and contractor to follow the environmental safeguard guidelines

PLGA Lahore

- Contractor has taken very strict action to avoid the corona virus contract.
- Frequent water sprinkling was observed to avoid dust pollution.
- Disinfection of working place and equipment periodically through Chlorine spray tanks.
- Pictorial evidences of good practices are attached in project photographs.

Sahiwal Lot-01, Lot-02, Lot-03 and Lot-04

- Reporting period and quarterly environmental monitoring timeline should be followed strictly.
- Restoration should be timely and in efficient way to avoid the nuisance for public
- Shoring and hard barricade at deep worksites should be ensured for the safety of workers and to avoid public exposure.
- Timely removal of surplus material from construction sites to avoid nuisance for the public.
- All the concerned staffs have been instructed to improve OHS performance levels including use of PPEs, implementation of working hours etc.
- Training sessions must be conducted more frequently

Sialkot Lot-01, Lot-02, Lot-03, Lot-04 & WWTP

- Restoration should be timely and in efficient way to avoid the nuisance for public
- Shoring and hard barricade at deep worksites should be ensured for the safety of workers and to avoid public exposure
- Timely removal of surplus material from construction sites to avoid nuisance for the public
- Material transportation should be in the night time to avoid traffic issues
- All the concerned staff has been instructed to improve OHS performance levels including use of PPEs, implementation of working hours etc.
- More campaigns regarding project's sites safety for public awareness needed

PLGA, Lahore

- The EPCM should continue to provide both off and onsite HSE training to the Contractor's top/middle management, supervisory staff and workers for the capacity building and providing them necessary awareness on how to deal with HSE issues that arises on day to day basis.
- The trucks carrying construction material should be properly covered to avoid public nuisance.

7. SUMMARY AND RECOMMENDATIONS

7.1 Summary

134. During this reporting period, activities of WATSAN construction works are in progress. At the start of the construction, the contractors have partially fulfilled their duties about Environment, Health and Safety issues but now things are better and contractor is giving full attention to the mitigation measures and implementation of environmental management and monitoring plan.
135. Environmental provisions have been incorporated into contracts of the works constructions
136. Field inspections by the Contractor, Management Consultants and PMU were regularly made. Each of these has assigned manager in charge of environmental management. They also serve as grievance focal points.
137. Project related information and associated contact details have been posted in the bulletin boards at all construction sites. Public complaints can also be lodged in register and telephone. To date, many public complaints have been issued and resolve within 48 hours' time period, so the community will not have to face any problem.
138. The issue of the housekeeping, waste disposal, PPES, signage, dust suppression and covering waste material, while issue of PPES were found on all WATSAN on-going works in both Sahiwal and Sialkot sites for which the non- conformance notice were issued after which the contractor has taken the relevant measures.
139. Main Contractors camps and labour camps, storage areas and vehicle/machinery places are being maintained according to prevailing Environment, health and safety standards at all sections
140. All the HSE component status, during reporting period is satisfactory. No major complaint and accident have been reported.
141. Copy of the Camp site Guidelines, Grievance register and monthly SSEMP Compliance Checklists was available at all the sub projects. A person designated from the contractor's side was present at each site to coordinate implementation of SSEMP recommendations and any first aid related issues.

142. No noise and vibration related complaints from public or workers were registered.
143. No surface water or ground water contamination was reported due to oil spillages, solid waste dumping during the reporting period. However, it is recommended spill control equipment should be ensured at campsite.
144. No flora and fauna were disturbed by the construction activity. No mortality of wild animal was reported.
145. No cultural heritage sites/ wetland/ protected area/ mangrove/ estuarine lies in RoW of any of the sub project alignment.
146. No damage to the agricultural land due to borrow pits or topsoil erosion was reported. However cost-effective mitigation measures are suggested to avoid soil erosion at site.
147. During construction, special attention has been given in the areas where there are encroachments on the roads side, to minimize the impact on the livelihood of the locals. The contractors are well aware of the problem and working accordingly.
148. The construction waste from the project site consists of batteries, containers/drums, excavated natural material, oil filters, motor oil, scrap material and concrete waste. The waste from offices and labour camp consists of the municipal waste both solid and liquid effluent. All waste has been disposed of as per the plan described in SSEMP.
149. Traffic management and safety is being given the top most priority in the overall project corridor.
150. Child labour was not observed on any subproject. Contractors were advised to discourage child labour in future as well. It was advised that Identity verification should be carried out prior to hiring and the record should be maintained.
151. No complaints regarding transmission of Communicable diseases (such as STI's and HIV/AIDS) were reported.
152. No ozone depleting substances are used. Only approved substances (chemicals and technologies) are used having negligible significance to the climate change.
153. Overall, no major conflict with the community was observed. Cordial liaison has been maintained with local community.

7.2 Recommendations

154. The following recommendation should be applied to all the subprojects i.e. WATSAN work Sahiwal, WATSAN work Sialkot and PLGA, Lahore

- All the plans established in SSEMP(s) must be implemented in full swing.
- Regular internal and external inspections are required along with routine visual inspections and monitoring.
- Contractors of all subprojects are required to arrange proper external training of staff and maintain its record. During this reporting period, the external training was not conducted.
- H&S Champion program on a monthly basis to encourage the workers adhere with various EHS requirements. This can comprise of monetary rewards for workers, posting pictures on notice boards etc.
- Contractors are advised to motivate and train staff for the use of PPE's.
- Traffic management and safety should be the top most priority in the overall project corridor. The Traffic Management Plan should be available at all sites.
- Spill control equipment should be ensured at campsite

APPENDICES

ANNEXURE – A Non-Conformance Notices NCN

PUNJAB INTERMEDIATE CITIES IMPROVEMENT INVESTMENT PROGRAMME (PICII)
 CONSTRUCTION SERVICES FOR SEWERAGE, WASTEWATER AND STREET LIGHTING INSTALLATION

Work Item No. (PICII/Construction/Service/Installation/Installation) : _____ Date: 28/12/2022

Field Instruction Memorandum

Site No. (S) : _____ Date: November 28, 2022 Location: _____

Subject: Erosion Safety Measures at site

Background:

There are the following instructions that must be observed safety measures at each site:

- i. Provision of all required PPEs (hard helmet, safety shoes, safety harness and safety netting) is all workers.
- ii. Ladder must be provided to avoid falling the trench.
- iii. All Electric cables should be buried in the underground along and site.
- iv. Proper hand barricading should be install at edge of trench.
- v. Fire extinguisher should be present at each site.
- vi. Generator should be placed in covered areas with fuel tank and piping should be away from site.
- vii. Water spraying should be provided whenever at trench and site.
- viii. Excavated soil material (i.e) should be away from edge of trench to avoid site.
- ix. Safety sign board, safety cones and (arrow) board for traffic diversion should be placed properly.
- x. Emergency number should be display in every site.
- xi. Flagman should be deployed at excavation and diversion route.
- xii. Material transport register should be issue at site and camp.
- xiii. Completed sections should be restoration to avoid erosion and disturbance to public.

Non-compliance measures must be initiated to complying the health and safety measures at every site.

Issued By (PICII/Contract)	Received By	Contractor's Response (Compliance/Non-compliance)
Name: <u>ASAD JUNEJA</u> Designation: <u>ICG/SAFES</u> Signature: <u>ASAD</u> Date: <u>28/12/2022</u>	Name: <u>MUSAFIR UDDIN</u> Designation: <u>GENERAL MANAGER</u> Signature: <u>MUSAFIR</u> Date: <u>28/12/2022</u>	

PUNJAB INTERMEDIATE CITIES IMPROVEMENT INVESTMENT PROGRAM (PICIP) CONSULTANT SERVICES FOR CONSTRUCTION, PROCUREMENT AND OPERATIONAL MAINTENANCE Rehabilitation Improvement of Water Supply System, Sahiwal, J-1		
Name: HSE Management Officer	Contract No: HSE/19/01	Reference No: HSE/19/01/001
Field Instruction Memorandum		
Date: 08/08/2019	Time: 10:00 AM	Location: Sahiwal
Subject: HSE NON-COMPLIANCE AT LO181		
<p>Dear Sir,</p> <p>With reference to subject mentioned above, noted that there are multiple non-compliance of approved job specific SOPs and health & safety plan. These are following observations that must be mitigated immediately:</p> <ol style="list-style-type: none"> 1. Workers are working at height (OH&E) without safety harness, safety shoes, safety helmet and mobile jacked 2. Scaffolding poles are not proper stacking 3. No work barricading during erection of scaffolding 4. Sign boards are not placed at (OH&E) for workers awareness 5. Handrails are not set up to work 6. Ladder was not installed at (OH&E) for access and egress 7. No emergency contact listing at site 8. Fall protection not available at (OH&E) <p>As per contract agreement (GCC) clause 4.12 "protection of environment" clause 4.8 "safety procedures", 4.7 "health and safety" read with FOC and as per BOQ "Environmental Management plan (EMP) implementation" the contractor shall at all time during period of contract take all reasonable precautions to maintain the health and safety of all site staff parties.</p> <p>As per contract agreement appendix 2-clause 5.7 of particular condition "if contractor fails to comply provide then contractor will be fined at rate of PKR. 10,000/day of delay or premature of these facilities. The fine shall be deducted from any payments due to contractor."</p>		
Issued By: (PICIP) Sahiwal Name: M. Saad Iqbal Signature: M. Saad Iqbal Date: 08/08/2019	Received By: (Contractor) HSE Name: HSE Officer Signature: HSE Officer Date: 08/08/2019	Contractor's Representative (Name/Designation/Address)
Issued At: Sahiwal Received At: Sahiwal Signature: M. Saad Iqbal		

PUNJAB INTERMEDIATE CITIES IMPROVEMENT INVESTMENT PROGRAM (PICIP)
 CONSULTANT SERVICES FOR ENVIRONMENTAL, PROGRAMMING AND CONSTRUCTION MANAGEMENT

Client: Punjab Intermediate Cities Improvement Investment Program
 Consultant: M/S. JICA
 Date: 11/11/2022

Field Instruction Memorandum

Form No. 02 Date Issued: 11/11/2022 Version: 01

Subject: Street Safety Measures at site

Reference:

There are the following shortcomings that must be removed safety measures at each site

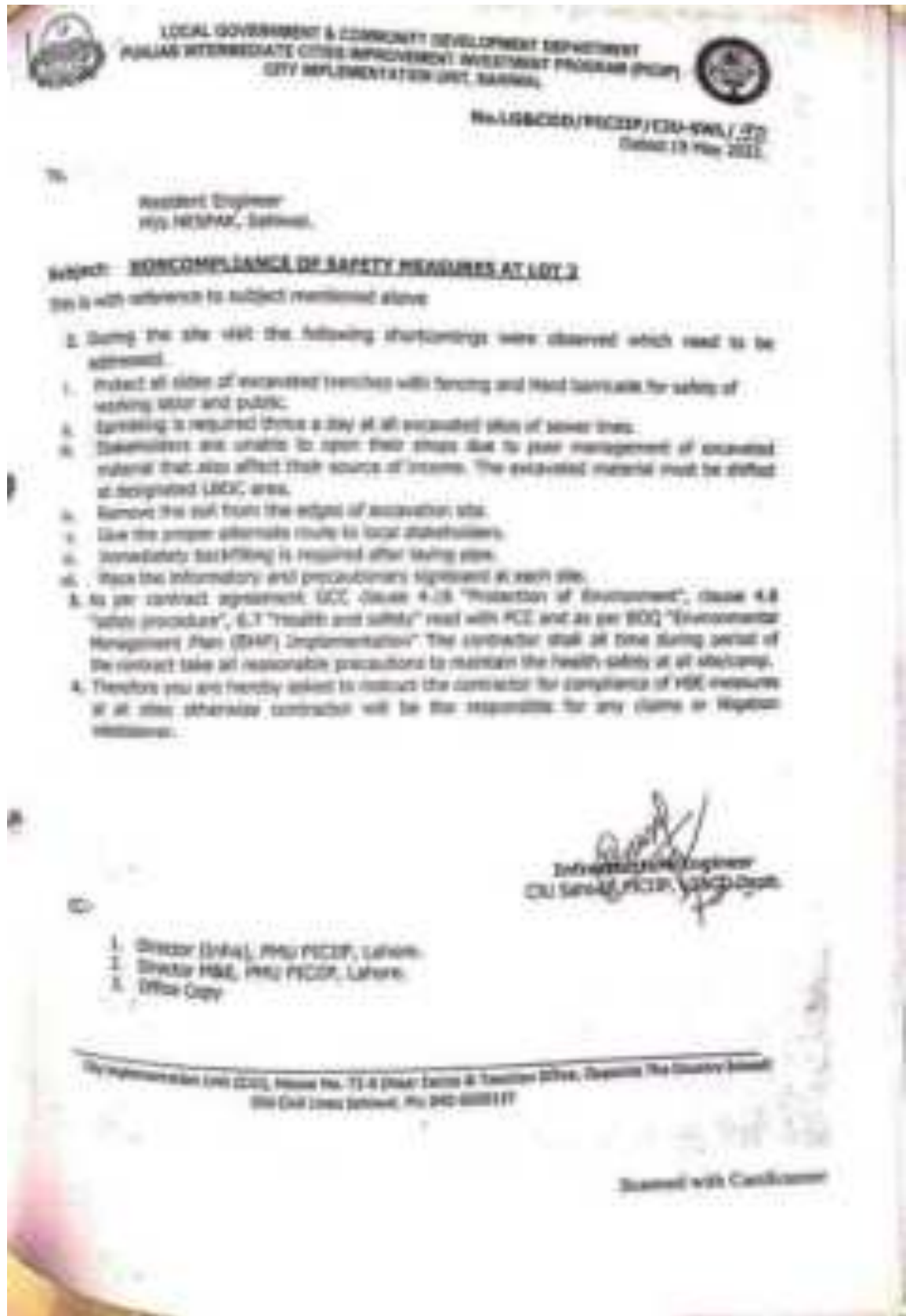
- i) Reflection of warning light should be fixed for controlling traffic at night
- ii) Housekeeping should be clean and maintained in every work site
- iii) M200 should be kept on the site and use
- iv) Presence of drinking water at site
- v) Structures, machines, parts and waste etc. should be kept in proper areas at designated area
- vi) Ladder must be provided for workers and agencies in the trench
- vii) All Electric cables should be buried in the underground every work site
- viii) Presence of all required PPEs hard helmet, safety shoes, safety harness and safety jacket in all workers
- ix) Documentation on every aspect should be maintained including (hazardous waste, non-hazardous waste, medical waste and other waste)
- x) Generator should be placed in proper areas with bunded wall and passing area trays to avoid spill
- xi) Safety sign board, safety cones and safety barrier for traffic awareness should be placed properly
- xii) Proper hand broadcasting should be install at edge of trench
- xiii) Flag set up should be placed at each site
- xiv) Water sprinkling should be frequently increase at every work site
- xv) Excavated soil material 1.2 meters away from edge of trench in every site

Issued By (PICIP/Consultant)	Received By	Comments/Remarks
Name: <u>M. Asif Khan</u> Signature: <u>M. Asif Khan</u> Date: <u>11-11-2022</u>	Name: <u>M. Asif Khan</u> Signature: <u>M. Asif Khan</u> Date: <u>11-11-2022</u>	





Q



ANNEXURE B: Sahiwal: Environmental Test Result Reports 4th Quarter

Lot-1




Serial # 205 / 25707

Ambient Air Quality Monitoring

Job Reference Number	GICM / IC / PI / 2011/002
Monitoring Point	National Highway 21 near Mohanpur
Date of Implementation	26-04-2012 to 26-04-2012
Monitoring Coordinates	30°30'42"N 75°50'10"E

Parameter	Unit	Monitoring Interval	LEL	Average Observed Concentration	FEQP
Nitrogen Dioxide (NO ₂)	µg/m ³	24 Hours	100	25.11	25%
Nitrogen Dioxide (NO ₂)	µg/m ³	24 Hours	500	76.24	15%
SO ₂	µg/m ³	24 Hours	100	36.81	37%
Sulphur Dioxide (SO ₂)	µg/m ³	24 Hours	100	17.79	18%
Carbon Monoxide (CO)	µg/m ³	24 Hours	500	2.02	0%
Ozone (O ₃)	µg/m ³	24 Hours	-	14.90	100%
Particulate Matter (PM ₁₀)	µg/m ³	24 Hours	100	22.35	22%
Particulate Matter (PM ₁₀)	µg/m ³	24 Hours	100	100.62	100%
Suspended Particulate Matter (SPM)	µg/m ³	24 Hours	100	100.6	100%
Total Suspended Particulate	µg/m ³	24 Hours	-	6.68	13%

Abbreviations:
 µg/m³ Microgramme per Cubic Metre
 mg/m³ Milligramme per Cubic Metre
 LEL: Lowest Detection Limit
 FEQP: Punjab Environmental Quality Standard
 *Not measured for CO
 **Not measured for O₃

Monitoring Performed By:



Shikha Bhatt

Name of Chief Analyst with Seal:





 Punjab Environment Protection Agency
 Punjab Intermediate Cities Improvement Investment Program
 Dated: 4/2024 / 2870B

Noise Level Monitoring Report

Job Reference Number	EP/24/25/PP/06/2024
Monitoring Year	2024
Date of Measurement	24/06/2024 to 25/06/2024
Monitoring Coordinates	30°21'N 75°12'E

No.	Time	Method/Exchange	Unit	Reading L/eq	Weight (Community)
Day Time					
1	07:00	Street Noise	dB	70.0	
2	08:00	Street Noise	dB	72.5	
3	09:00	Street Noise	dB	75.0	
4	10:00	Street Noise	dB	74.0	
5	11:00	Street Noise	dB	75.5	
6	12:00	Street Noise	dB	73.0	
7	13:00	Street Noise	dB	74.5	
8	14:00	Street Noise	dB	76.0	
9	15:00	Street Noise	dB	75.0	
10	16:00	Street Noise	dB	74.0	
11	17:00	Street Noise	dB	73.5	
12	18:00	Street Noise	dB	72.0	
13	19:00	Street Noise	dB	71.0	
14	20:00	Street Noise	dB	70.5	
15	21:00	Street Noise	dB	70.0	
16	22:00	Street Noise	dB	69.5	
17	23:00	Street Noise	dB	69.0	
18	00:00	Street Noise	dB	68.5	
19	01:00	Street Noise	dB	68.0	
20	02:00	Street Noise	dB	67.5	
21	03:00	Street Noise	dB	67.0	
22	04:00	Street Noise	dB	66.5	
23	05:00	Street Noise	dB	66.0	
Day Time Average				73.2	10.0
Night Time					
24	23:00	Street Noise	dB	67.0	
25	00:00	Street Noise	dB	66.5	
26	01:00	Street Noise	dB	66.0	
27	02:00	Street Noise	dB	65.5	
28	03:00	Street Noise	dB	65.0	
29	04:00	Street Noise	dB	64.5	
30	05:00	Street Noise	dB	64.0	
31	06:00	Street Noise	dB	63.5	
32	07:00	Street Noise	dB	63.0	
33	08:00	Street Noise	dB	62.5	
34	09:00	Street Noise	dB	62.0	
35	10:00	Street Noise	dB	61.5	
36	11:00	Street Noise	dB	61.0	
37	12:00	Street Noise	dB	60.5	
38	13:00	Street Noise	dB	60.0	
39	14:00	Street Noise	dB	59.5	
40	15:00	Street Noise	dB	59.0	
41	16:00	Street Noise	dB	58.5	
42	17:00	Street Noise	dB	58.0	
43	18:00	Street Noise	dB	57.5	
44	19:00	Street Noise	dB	57.0	
45	20:00	Street Noise	dB	56.5	
46	21:00	Street Noise	dB	56.0	
47	22:00	Street Noise	dB	55.5	
48	23:00	Street Noise	dB	55.0	
Night Time Average				57.2	10.0


 Monitoring Engineer


 Punjab Environment Protection Agency



Figure 4: Environmental Monitoring at Sahiwal bypass near McDonald's



Form No. 2005 - 25717

Ambient Air Quality Monitoring

Monitoring Station	FD-011, P.I. CI - 2005-2010
Monitoring Point	Ambient Region, Near Station
Sampling Period	24 July 2012 to 27 July 2012
Monitoring Conditions	20°C to 30°C, 60% to 80% RH

Parameter	Unit	Sampling Duration	LDL	Average Observed Concentration	PCDF
Temperature (°C)	°C	24 Hours	100	25.0	90
Relative Humidity (%)	%	24 Hours	100	75	80
Wind Speed (m/s)	m/s	24 Hours	100	1.5	100
Wind Direction (°)	°	24 Hours	100	135	100
PM ₁₀ (µg/m ³)	µg/m ³	24 Hours	100	140	100
PM _{2.5} (µg/m ³)	µg/m ³	24 Hours	100	25	100
SO ₂ (ppb)	ppb	24 Hours	100	10	100
NO ₂ (ppb)	ppb	24 Hours	100	10	100
Ozone (ppb)	ppb	24 Hours	100	10	100
CO (ppm)	ppm	24 Hours	100	1.0	100

Note: LDL = Lower Detection Limit, PCDF = Percent of Daily Factor

Monitoring Station: _____

Monitoring Point: _____

Sampling Period: _____

Monitoring Conditions: _____

Monitoring Station No. _____

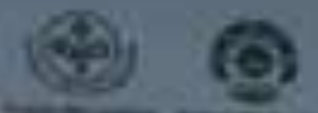
Monitoring Point No. _____

Sampling Period: _____

Monitoring Conditions: _____

Signature of Field Officer: _____

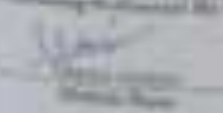




 Service No: 25719

Noise Level Monitoring Report

Job Reference Number	MC/2017/11/10/1/100				
Monitoring Point	Municipal Corporation, Faisalabad				
Date of Monitoring	20/04/2018 to 27/04/2018				
Monitoring Conditions	08:00 AM TO 04:00 PM				

S. No	Date	Method/Technique	Title	Result (dBA)	Temp. (Celsius)
Night Time Group					
1	20/04	Fast Flow	01	55.1	
2	20/04	Fast Flow	02	55.5	
3	20/04	Fast Flow	03	55.8	
4	20/04	Fast Flow	04	56.0	30.0
5	20/04	Fast Flow	05	56.2	
6	20/04	Fast Flow	06	56.7	
7	20/04	Fast Flow	07	57.0	
Total Time Group				56.8	30.0
Day Time Group					
8	21/04	Fast Flow	01	55.5	
9	21/04	Fast Flow	02	55.8	
10	21/04	Fast Flow	03	56.1	
11	21/04	Fast Flow	04	56.4	
12	21/04	Fast Flow	05	56.7	
13	21/04	Fast Flow	06	57.0	30.0
14	21/04	Fast Flow	07	57.3	
15	21/04	Fast Flow	08	57.6	
16	21/04	Fast Flow	09	57.9	
17	21/04	Fast Flow	10	58.2	
18	21/04	Fast Flow	11	58.5	
19	21/04	Fast Flow	12	58.8	
20	21/04	Fast Flow	13	59.1	
21	21/04	Fast Flow	14	59.4	
22	21/04	Fast Flow	15	59.7	
23	21/04	Fast Flow	16	60.0	30.0
24	21/04	Fast Flow	17	60.3	
25	21/04	Fast Flow	18	60.6	
26	21/04	Fast Flow	19	60.9	
27	21/04	Fast Flow	20	61.2	
28	21/04	Fast Flow	21	61.5	
29	21/04	Fast Flow	22	61.8	
30	21/04	Fast Flow	23	62.1	
31	21/04	Fast Flow	24	62.4	
32	21/04	Fast Flow	25	62.7	
33	21/04	Fast Flow	26	63.0	30.0
34	21/04	Fast Flow	27	63.3	
35	21/04	Fast Flow	28	63.6	
36	21/04	Fast Flow	29	63.9	
37	21/04	Fast Flow	30	64.2	
Total Time Group				61.7	30.0

PUNJAB ENVIRONMENTAL CONSULTANTS (PVT) LTD.



Environmental Monitoring at Sub Way



Ambient Air Quality Monitoring

Job Reference Number	14/202, P.N. 2012/2013/2022
Monitoring Point	Subsect City (Near Punjab Water Clock)
Date of Implementation	25 Oct 2022 to 26 Oct 2022
Monitoring Coordinates	30°48'33.4754"N 73°50'56.27"E

Parameter	Unit	Monitoring Duration	(µg)	Average Observed Concentration	PEIS
Nitrogen Dioxide (NO ₂)	µg/m ³	24 Hours	120	25.76	400
Nitrogen Oxide (NO _x)	µg/m ³	24 Hours	120	44.11	400
SO ₂	µg/m ³	24 Hours	100	56.85	200
Sulphur Dioxide (SO ₂)	µg/m ³	24 Hours	100	17.04	200
Carbon Monoxide (CO)	µg/m ³	24 Hours	400	2.87	100
Total (T _s)	µg/m ³	24 Hours	-	14.89	100µg
Particulate Matter (PM ₁₀)	µg/m ³	24 Hours	120	22.94	300
Particulate Matter (PM _{2.5})	µg/m ³	24 Hours	100	102.90	100
Resuspended Particulate Matter (SPM)	µg/m ³	24 Hours	100	102.90	300
Lead Airborne Particles	µg/m ³	24 Hours	-	0.14	1

Abbreviations:
 µg/m³ Microgramme per Cubic Metre
 mg/m³ Milligramme per Cubic Metre
 12hr 12 hour (rolling) Mean
 PEIS Punjab Environmental Quality Standard
 µg = microgramme (10⁻⁶)
 mg = milligramme (10⁻³)

Monitoring Performed By:

 Mohan Singh

Signature of Chief Analyst with Seal:

 Mohan Singh



Noise Level Monitoring Report

Job Reference Number	PCBC/PE/PC/200/2020
Monitoring Point	Subang 120 Chowk Punjab Way Chowk
Date of Inspection	25/06/2022 to 28/06/2022
Monitoring Coordinates	30°47'14"N 73°04'47"E

S. #	Time	Method/Technique	Unit	Results LAeq	FRQF (Community)
Night Time					
1	22:00	Noise Meter	dB	94.2	95.0
2	22:30	Noise Meter	dB	95.1	
3	23:00	Noise Meter	dB	93.1	
4	23:30	Noise Meter	dB	90.9	
5	00:00	Noise Meter	dB	93.2	
6	00:30	Noise Meter	dB	94.2	
7	01:00	Noise Meter	dB	93.9	
8	01:30	Noise Meter	dB	92.4	
Night Time Average			dB	93.8	
Day Time					
9	07:00	Noise Meter	dB	88.9	93.0
10	08:00	Noise Meter	dB	95.0	
11	09:00	Noise Meter	dB	94.9	
12	10:00	Noise Meter	dB	94.2	
13	11:00	Noise Meter	dB	91.9	
14	12:00	Noise Meter	dB	92.4	
15	13:00	Noise Meter	dB	90.7	
16	14:00	Noise Meter	dB	94.3	
17	15:00	Noise Meter	dB	91.9	
18	16:00	Noise Meter	dB	93.5	
19	17:00	Noise Meter	dB	94.1	
20	18:00	Noise Meter	dB	90.7	
21	19:00	Noise Meter	dB	94.2	
22	20:00	Noise Meter	dB	90.7	
23	21:00	Noise Meter	dB	93.9	
24	22:00	Noise Meter	dB	93.1	
Day Time Average			dB	92.8	93.0

Monitoring Performed By

 Monitoring Officer

Stamp of Chief Engineer with Seal

 The Punjab Pollution Control Board

LOT#2 & 3



ENVIRONMENTAL SERVICES PAKISTAN

Punjab Intermediate Cities Improvement Investment Program

WASTE MONITORING REPORT



Reference Number: **ESPACT08A7320M/1201000001** Date: **01/04/2023**

Name of Industry/Client: **Shah Bhatti (PVT) LTD**

Address: **Phase 1/2/3/4/5/6 Paper Processing, Main Road Bahawalpur, Bahawalpur, Bahawalpur**

Telephone No.: **---**

Nature of Sample: **Water**

Date of Sample Collection: **01/04/2023** Date of Report/Analysis: **01/04/2023**

Sample Collection/Sheet No: **Groundwater, Analyzed (TDS), (PH)**

Date of Completion of Analysis: **01/04/2023**

Method/Equipment Used: **Standard Method**

S No	Measurement Point	Limit (mg/L)	Value (mg/L)	Remarks
1	Point 01 - Raw water (PH) (0.010000), TDS (0.0000)	75.0000	75.0000	Within Permitted Limit
2	Point 02 - Raw water (PH) (0.010000), TDS (0.0000)	75.0000	75.0000	Within Permitted Limit

ESP Punjab Environmental Quality Services for Industry related tests, this is the laboratory's ability to provide only the data reported and not the accuracy of the data.

The accuracy of the government issued data will be provided on request, where available. No statement of conformity of government issued data is made on the basis of the data reported in this report unless such data has been measured and analyzed.

- Note:**
- The report should be reproduced as a whole and not in parts.
 - The responsibility of the correct use of this report lies with the client.
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 - The report data is not intended to be used legally for the client.
 - Only parameters marked with asterisk (*) are ISO 17025:2017 accredited.

1. Sample Analyzed by: **Groundwater**

2. Name of Client/Industry/Client: **Shah Bhatti (PVT) LTD**

3. Signature of Manager of the Environmental Laboratory: *[Signature]*

Name: **Asim Raza**
Designation: **General Manager**
Date: **01/04/2023**

Field Report



ENVIRONMENTAL SERVICES PAKISTAN

THE ENVIRONMENTAL PROTECTION AGENCY

NOISE MONITORING REPORT



Reference Number: **ESPAK/2024/10/2024/000000** Date: **07/11/2024**
 Name of Industry/Client: **(Firm) GARDI (P) LTD**
 Address: **Main Camp/Plot 200 meters, Near Badli Water Pump, Muzaffar Road, Lahore**
 Telephone No.: **---**
 Name of Sample: **Noise**
 Date of Sample Collection: **07/11/2024** (Time of Collection: **Continuously 24 Hours**)
 Sample Collected/Team By: **Haroon Javed, Praveen (PMS, EPAK)**
 Date of Completion of Analysis: **07/11/2024**
 Method/Equipment Used: **Sound Level Meter**

S. No	Measurement Point	Limit Value (DNL)	Measured Value (DNL)	Remarks
1	Level 01 - Day Even (70% to 90%) 75 (DNL)	75 (DNL)	75 (DNL)	Within Permissible Limit
2	Level 02 - Night Even (70% to 90%) 75 (DNL)	75 (DNL)	75 (DNL)	Within Permissible Limit

Note: Punjab Environmental Quality Standards for Noise in Industries, 2018 Day Time (max 75dB) and Night Time (max 55dB) per se (DNL)

* Accuracy of Measurement (DNL) also will be provided on request, upon available. For statement of compliance, if provided in the report, it would be the decision of client/contractor or regulator with regard to the risk due to measurement uncertainty.

- Note:**
- The report should be reproduced as a whole and not in parts.
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 - The report does not intended to be used legally for the client.
 - Only government method/with standard (7) are used (70% to 90%) according.

3. Sample Analyzed By: **Haroon Javed**
Praveen Javed

2. Name of Client Analyst with Seal: **Haroon Javed** *(Signature)*

1. Signature of Incharge of the Environmental Laboratory: *(Signature)*
 Name: **Haroon Javed**
 Designation: **Senior Analyst**
 Date: **07/11/2024**
 Seal of Report: *(Seal)*





ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: 000022000012/04/1001/0000 Date: 07/10/2023
Name of Industry/Plant: China-14484 (2020/09)



- 1. Sample collected by: Technical Staff
Asad Khan
- 2. Chemical test analyzed with tool: Multimeter *Calcpa*
- 3. Signature of Archipelago of the Environmental Laboratory:

Name: Asad Khan
Designation: Quality Manager
Date: 07/10/2023

Archipelago of the Environmental Laboratory





ENVIRONMENTAL SERVICES PAKISTAN

THE ECHO-PUNJAB ETO-CERTIFIED

NOISE MONITORING REPORT



Reference Number: **ESPAK/009/2024/001/0000** Date: **05/11/2024**
 Name of Industry/Client: **Chow SANDS QUARRY**
 Address: **Area (Campus) near Tarnan, Near Road Suba Park, Industrial Road, Sahiwal**
 Telephone No.: _____
 Nature of Sample: **Water**
 Date of Sample Collection: **05/11/2024** **Water Sample No. (Continuous 24 Hours)**
 Sample Collected/From By: **Special School, Sahiwal (Pvt) Ltd**
 Date of Completion of Analysis: **06/11/2024**
 Method/Equipment Used: **Sound Level Meter**

S. No.	Measurement Point	Unit/Value	Reference to ISIRI No.	Remarks
1	Point A - 10m from (N. 20.447N, 74.420E)	75 dB(A)	65-70 dB(A)	Within Permitted Limit
2	Point B - 10m from (N. 20.447N, 74.420E)	65-70 dB(A)	65-70 dB(A)	Within Permitted Limit

ISIRI Punjab Intermediate Cities Quality Standards for Noise in Industrial Area, 2018 Day Time Noise Level in dB(A) per hour from 06:00 AM to 6:00 PM

* Accuracy of the measurement made here will be provided in report, where available. The statement of conformity if provided in the report, is based on the data as per all the requirements as reported with sound level meter that is measurement described.

Note:

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- Only parameters marked with asterisk (*) are ISIRI 21025:2017 accredited.

1. Sample collected By: **Special School**
Industrial Area

2. Name of Client/Project with Seal: **Mohammad Amir**

3. Signature of Incharge of the Environmental Laboratory:

Name: **Imad Khan**
 Designation: **Environmental Engineer**
 Date: **05/11/2024**







ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: ESP/AM/IC/PA/AM/2022/001 Date: 16/12/2022
Name of Industry/Plant: China (KARAI) COOLDRY



1. Sample collected by: Environ/ESPAK
Environ/ESPAK

2. Name of Site/Project with Grid: Maharajpur/ICPA

3. Signature of Incharge of the Environmental Laboratory:

Name: Environ/ESPAK
Designation: Environ/ESPAK
Date: 16/12/2022

[Handwritten Signature]
[Circular Stamp]

End of Report





CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)



Reference Number: **ESPAK/PM/122264/12222022** Date: **20/11/2022**
 Name of Industry/Client: **Shree GANESH STEELWORKS**
 Address: **Shree Ganesh Steel Works, Near Steel Saha Farm, Industrial Road, Lahore**
 Telephone No.: **---**
 Nature of Sample: **Ambient Air** Monitoring Location: **Shree Ganesh (SP) 01 010 110, No. 12222022**
 Date of Sample Collection: **20/11/2022** Date of Completion: **20/11/2022**
 Sample Collected/Tested by: **Arshad Zahid, Analyst (QA/QC), ESPAK** Name of Consultant: **Environmental Services**

S. No.	Parameter	Unit Value (PM10 Standard)	Concentration	Method / Equipment Used	Remarks
1.	Carbon Monoxide (CO)	5 mg/m ³ (8 Hour)	2.8 mg/m ³	Non-Dispersion Infrared Spectrophotometer	Within Permissible Limit
2.	Sulphur Dioxide (SO ₂)	100 µg/m ³	11.8 µg/m ³	UV Fluorimetry (SO ₂)	Within Permissible Limit
3.	Ozone (O ₃)	100 µg/m ³ (8 Hour)	ND	Inductively Coupled Plasma Atomic Fluorescence Spectrometry	Within Permissible Limit
4.	Conc. of Nitrogen (NO)	50 µg/m ³	11.8 µg/m ³	Chemiluminescence Spectrometry	Within Permissible Limit
5.	Conc. of Nitrogen (NO ₂)	50 µg/m ³	11.8 µg/m ³	Chemiluminescence Spectrometry	Within Permissible Limit
6.	Particulate Matter (PM ₁₀)	50 µg/m ³	80 µg/m ³	Gravimetric Method	Within Permissible Limit
7.	Particulate Matter (PM _{2.5})	100 µg/m ³	11.8 µg/m ³	Gravimetric Method	Within Permissible Limit
8.	Equivalent Oxidant (O ₃)	100 µg/m ³	11.8 µg/m ³	High Volume Sampler (HVS)	Within Permissible Limit

PM10 Punjab Environmental Quality Standard for Ambient Air, 2010
 MS No. 20/2010

• Interpretation of measurement data will be provided as report, where available. The accuracy of parameters, depending on the type of equipment, follows the level of sample collection or analysis with regard to the data measurement accuracy.

NOTE

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- The responsibility of the correct use of the report lies with the client.
- The values represent sample conditions when monitoring/testing was carried out.
- The report data is not intended to be used legally by the client.
- Only parameters marked with asterisk (*) are ISO 15189:2013 accredited.

Arshad Zahid





ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: **ESPMS/2024/02/04/TEST/000044** Date: **07/14/2024**
Name of Industry/Client: **Shahid Ghouse (2024/04)**



1. Sample Analyzed for: **Formaldehyde**
Acetaldehyde

2. Name of Field Analyst with Seal: **Muhammad Afzal** 

3. Signature of Incharge of the Environmental Laboratory:

Name: **Muhammad Afzal**
Designation: **Senior Analyst**
Date: **07/14/2024**



End of Report





ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)



Reference Number: **ESPAK/096/2024/02110002** Date: **05/11/2024**
 Name of Industry/Plant: **Shree Bangla Textiles**
 Address: **Plot 10/102/103, Phase 1, Faisalabad, Faisalabad, Punjab**
 Telephone No.: **---**
 Nature of Sample: **Airborne PM** Monitoring Location: **Level 01 (G/F) - 02/000101, 25/000101**
 Date of Sample Collection: **02/11/2024** Date of Report: **05/11/2024**
 Sample Collected/Tested by: **Enamul Karim, Analyst (Env), ESPAK** Name of Sample: **Continuous Effluent**
 Date of Completion of Analysis: **05/11/2024**

S. No.	Parameter	Unit (Max. Allowed)	Concentration	Method / Equipment Used	Remarks
1	Total Suspended Solids (TSS)	g/m ³ (24 hr avg)	8.8 g/m ³	High Speed Turbidity Meter	Within Permissible Limit
2	Total Solids (TS)	mg/m ³	12.2 mg/m ³	UV Transmittance (UV)	Within Permissible Limit
3	Chemical Oxygen Demand (COD)	mg/l (5 days)	8.1 mg/l	Open Refluxing Method	Within Permissible Limit
4	Biochemical Oxygen Demand (BOD)	mg/l (5 days)	10.7 mg/l	5-Days Incubation Method	Within Permissible Limit
5	Total Hardness (TH)	mg/l	1.7 mg/l	Titrimetric Method	Within Permissible Limit
6	Total Hardness (CaCO ₃)	mg/l	1.7 mg/l	Titrimetric Method	Within Permissible Limit
7	Total Hardness (MgCO ₃)	mg/l	1.0 mg/l	Titrimetric Method	Within Permissible Limit
8	Expendable Inorganic Phosphorus (EIP)	mg/l	0.1 mg/l	High Speed Turbidity Meter	Within Permissible Limit

High Speed Turbidity Meter is used for testing of TSS.

Notes:

- Environmental Monitoring (E.M) data will be provided as reports where available. The accuracy of analytical data is limited to the extent of the analytical method used. Sample preservation and handling will equal attention to be in maximum accuracy.

Disclaimer:

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- The responsibility of the correct use of this report lies with the client.
- The client represent sample condition when reporting/testing was carried out.
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Enamul Karim





ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)



Reference Number: **ESPA/0001212NA/25A/00000** Date: **25/11/2022**
 Name of Industry/Plant: **Clay SHR (SHR)**
 Address: **Mah. Camp/PC, Jinnah Colony, Near Sadiq Baba Park, Wazirpur Road, Sahiwal**
 Telephone No.: **---**
 Nature of Sample: **Ambient Air** Monitoring Location: **Carpete (SP, 20.00000, 73.20000)**
 Date of Sample Collection: **25/11/2022** SSB / Sampler: **Continuous 24 Hours**
 Sample Collected/Heat No: **Reference (SAR), Analyte (TMS), (TMS)**
 Date of Completion of Analysis: **26/11/2022**

S. No.	Parameter	Unit Value (PPM, mg/m ³)	Concentration	Method / Equipment Used	Remarks
1	Carbon Monoxide (CO)	1 mg/m ³ (8 Hour)	0.0 mg/m ³	Non Dispersion Infrared Absorption (NDIR)	Within Prescribed Limit
2	Sulfur Dioxide (SO ₂)	100 µg/m ³	10.0 µg/m ³	UV Fluorescence (UVF)	Within Prescribed Limit
3	Nitrogen Dioxide	100 µg/m ³ (1 Hour)	11.0 µg/m ³	Non Dispersion IR Absorption	Within Prescribed Limit
4	Ozone (O ₃) in µg/m ³	40 µg/m ³	11.0 µg/m ³	Chemiluminescence Reaction	Within Prescribed Limit
5	Ozone (O ₃) in PPM	40 µg/m ³	10.0 µg/m ³	Chemiluminescence Reaction	Within Prescribed Limit
6	Particulate Matter (PM ₁₀)	21 µg/m ³	11.0 µg/m ³	Particulate Counter	Within Prescribed Limit
7	Particulate Matter (PM _{2.5})	100 µg/m ³	100 µg/m ³	Particulate Counter	Within Prescribed Limit
8	Suspended Particulate Matter (SPM)	100 µg/m ³	107 µg/m ³	High Volume Sampler (HVS)	Within Prescribed Limit

ESPA Punjab Environmental Quality Standards for Ambient Air, 2002
 (MCL has been used)

* Detailed Uncertainty of Measurement (U₉₅) data will be provided on request, where available. The determination of uncertainty is provided in the report, where relevant to the detection rule of specific measurement or comparison with regulatory limit value in measurement uncertainty.

Note:

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- Only parameters marked with asterisk (*) are ISO 17020:2017 accredited.

Gita





ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: **ESPAK/2024/12/01/2024/00004** Date: **07/11/2024**
Name of Industry/Client: **Shree Shree Shree Shree**



- 1. Sample Analyzed By: **Samina Khan**
Samina Khan
- 2. Name of Chief Analyst with Sign: **Muhammad Usman** 
- 3. Signature of In-charge of the Environmental Laboratory: 

Name: **Samina Khan**
Designation: **Chief Analyst**
Date: **07/11/2024**

In-charge of the Laboratory





ENVIRONMENTAL SERVICES PAKISTAN

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)



Reference Number: **ESP/21/000/1330A/1504/0008** Date: **20/11/2021**
 Name of Industry/Plant: **Shree GANGLI (INDUSTRI)**
 Address: **Shree Ganpati/102 gate Parkers, Near West Side Canal, Ferozshah Road, Sahiwal**
 Telephone No: **---**
 Nature of Sample: **Ambient Air** Monitoring Location: **Boundary Cross Check (P1)**
 Date of Sample Collection: **20/11/2021** No. of Samples: **10 (Ambient)**
 Sample Collected/Analysed By: **Yousaf Akmal, Analyst (Prest), ESP** Peak 2 Temperature: **20°C (Ambient)**
 Date of Completion of Analysis: **20/11/2021**

S. No.	Parameter	Unit (Ambient)	Standard (P1)	Method / Equipment Used	Remarks
1	Carbon Monoxide (CO)	1 mg/m ³ (8 Hour)	1.1 mg/m ³	Red Thermo Analytical Analyser (P1)	Within Prescribed Limit
2	Sulphur Dioxide (SO ₂)	1.0 mg/m ³	1.0 mg/m ³	UV Fluorometer (P1)	Within Prescribed Limit
3	Ozone (O ₃)	1.0 mg/m ³ (8 Hour)	ND	Red Thermo Analytical Analyser	Within Prescribed Limit
4	Dioxide of Nitrogen (NO ₂)	0.1 mg/m ³	1.0 mg/m ³	Chemiluminescence Analyser	Within Prescribed Limit
5	Dioxide of Nitrogen (NO)	0.1 mg/m ³	0.1 mg/m ³	Chemiluminescence Analyser	Within Prescribed Limit
6	Hydrogen Sulphide (H ₂ S)	0.1 mg/m ³	0.1 mg/m ³	Mercuric Chloride	Within Prescribed Limit
7	Hydrogen Sulphide (H ₂ S)	0.1 mg/m ³	0.1 mg/m ³	Mercuric Chloride	Within Prescribed Limit
8	Resuspended Particulate Matter (RPM)	500 µg/m ³	200 µg/m ³	High Volume Sampler (P1)	Within Prescribed Limit

NOTE: Please Environmental Quality standards for ambient air, (2010) MS, Part (General)

* Interpretation of measurements (P1) done with the provision as specified where available. The statement of conformity, if provided in the report, is based on the declared use of sample instrument or method used and should not be an environmental guarantee.

DISCLAIMER:

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Cyria



ENVIRONMENTAL SERVICES PAKISTAN


CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: ESP/02/000112/04/1004/0000 Date: 07/11/2022
Name of Industry/Client: Chauhan (Pvt) Ltd (COPCO)



- 1. Sample Analyzed by: General Lab
Water/Soil
- 2. Name of Third Analyser with Seal: Muhammad Ishaq *Urofa*
- 3. Signature of Manager of the Environmental Laboratory:

Name: General Lab
General Manager: *[Signature]*
Date: 07/11/2022
Head of Report: _____



**ANNEXURE C: Sialkot: Environmental Test Result Reports 3rd & 4th Quarter
Lot1, Lot2, Lot3, Lot4 and WWTP**



AMBIENT AIR QUALITY TEST REPORT

Reference No. WJL/19/01/2022/AQ/12-1

Date: 19 October 2022

Name of Industry/Project: TER 401 (00) F (19)

Address: 258, Jalan Raya, Kampar, Perak, Malaysia

Coordinates: 4° 42' 24" N, 101° 04' 41" E

Monitoring Point: Highway Road, Station

Monitoring Date: 8 October 2022

Monitoring By: WJL/19/01/2022/AQ/12-1

Monitoring Parameters

No.	Parameter	Unit		Comment
		Limit	Exposure Limit	
1	Carbon Monoxide (CO)	ppm	9 ppm	5.1 ppm
2	Sulfur Dioxide (SO ₂)	ppm	1500 µg/m ³	10.1 ppm
3	Ozone (O ₃) (Average 8-Hour)	ppm	800 µg/m ³	18.8 ppm
4	Ozone (O ₃) (Average 1-Hour)	ppm	800 µg/m ³	6.1 ppm
5	Respirable Particulate Matter (PM ₁₀)	ppm	1500 µg/m ³	11.1 ppm
6	Respirable Particulate Matter (PM _{2.5})	ppm	750 µg/m ³	6.1 ppm
7	Lead (Pb) (Average 8-Hour)	ppm	100 µg/m ³	20.2 ppm
8	Mercury (Hg)	ppm	100 µg/m ³	0.1 ppm
9	Total	ppm	-	61.6 ppm

Additional Field/Point Environmental Quality Details

Notes and Conditions

- Report cannot be used for any kind of legal case (LHDN/Department)
- The report issued by consultant at a specific site is valid.
- Only authorized personnel are used to monitor.



No. 10016





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOR/2022/AA/12-1

Date: 19 October 2022

Name of Industry/Client: DEB HILL (PVT) LTD
 Address: DEB Refinery, Base Camp, Mysuru Road Station
 Coordinates: 12° 30' 25" N, 74° 54' 11" E
 Monitoring Point: Debra Road, Suburb
 Monitoring Station: Station Aa
 Monitoring Interval: 2 Days
 Intervention Date: 4 October 2022
 Completion Date: 19 October 2022

No.	Time	CO ₂ (ppm)	SO ₂ (ppm)	NO _x (ppm)	NO ₂ (ppm)	PM ₁₀ (ppm)	PM _{2.5} (ppm)	SPM ₁₀ (ppm)	CL ₁₀ (ppm)
1	12:30	8.4	100	38	75	364	179	332	81
2	14:30	7.7	100	21	86	100	172	117	80
3	16:30	6.9	114	20	71	101	108	210	78
4	18:30	8.7	102	24	80	111	70	111	65
5	20:30	6.4	130	22	65	100	89	204	67
6	22:30	5.7	100	20	67	99	61	200	56
7	00:30	6.3	97	22	62	91	54	100	59
8	02:30	1.9	84	28	67	88	21	108	38
9	04:30	2.2	68	34	71	67	28	100	29
10	06:30	2.3	38	11	68	69	20	107	11
11	08:30	1.7	22	10	37	81	22	178	20
12	10:30	2.3	48	11	69	111	24	109	11
Average		4.7	101.9	18.8	63.1	111	60.1	246.2	41.9

Signature: _____



No. 09396





NOISE LEVEL MONITORING REPORT

Reference No. WELCOB/2022/EA/312-1

Date: 14 October 2022

Name of Industry/Plant: **PERKILISAH (P)**
 Address: **2520 Sultan Saad Camp, Kuala Kangsar, Perak**
 Coordinates: **32°40'58" N, 101°30'21" E**
 Monitoring Point: **Dinding Road, Walker**
 Monitoring Source: **Noise**
 Monitoring Interval: **1 Hour**
 Inspection Date: **4 October, 2022**
 Completion Date: **7 October, 2022**

No.	Time	Noise dB	PL119
1.	17:30	76	Day 67 dB
2.	18:00	81	
3.	18:30	79	
4.	19:00	88	
5.	20:00	82	
6.	20:30	74	Night 53 dB
7.	00:30	74	
8.	01:30	51	
9.	04:30	50	
10.	06:30	53	Day 67 dB
11.	08:30	74	
12.	10:30	67	
Average:		67.8	

Signature: _____



No. 00097





AMBIENT AIR QUALITY TEST REPORT

Reference No. WILCOB/HL/2022/AN/12-2

Date: 17 October 2022

Name of Industry/Project: (KID) RELIABLE (P)

Address: 22/2, Jalan Bina Canggih, Medan, Sumatera Utara

Coordinates: 22° 21' 30.91" N, 101° 41' 21.8" E

Monitoring Point: Wanda Road, Medan

Monitoring Date: 7 October 2022

Monitoring By: WILCOB Environmental Services

Monitoring Parameters:

No	Parameter	Result		Limitation
		Time	Concentration	
		measured	in relation to	
		average	100% (100%)	
1	Carbon Monoxide (CO)	10 ppm	7 ppm	140 mg/m ³
2	Sulfur Dioxide (SO ₂)	20 ppm	110 µg/m ³	800 µg/m ³
3	Ozone (O ₃) (Average 10 min)	10 ppm	40 µg/m ³	140 µg/m ³
4	Ozone (O ₃) (Average 10 min)	10 ppm	80 µg/m ³	410 µg/m ³
5	Respirable Particulate Matter (PM ₁₀)	10 ppm	100 µg/m ³	1100 µg/m ³
6	Respirable Particulate Matter (PM ₁₀)	20 ppm	20 µg/m ³	410 µg/m ³
7	Respirable Particulate Matter (PM ₁₀)	20 ppm	100 µg/m ³	1000 µg/m ³
8	Total TSP	14 ppm	100 µg/m ³	100 µg/m ³
9	Noise	14 ppm	41 dB	40 dB

Measurement Point: High Temperature Station Number:

Test and Conditions

- The instrument is used for one (1) day of monitoring (EPC) operation.
- The report should be reviewed in a short and in order.
- All conditions mentioned were used by station.



No. 09094





AMBIENT AIR QUALITY MONITORING

Reference No. WELCO/2022/AQ/112

Date: 14 October 2022

Name of Industry/Client: D&D DELTA (PVT)
 Address: D&D Refinery Base Camp, Madhavpet, Bellary
 Coordinates: 12° 52' 00" N, 76° 11' 00" E
 Monitoring Point: Madhav Road, Bellary
 Monitoring Station: Station 02
 Monitoring Interval: 1 Hour
 Intermittent Date: 7 October 2022
 Compliance Date: 8 October 2022

Sl. No.	Time	CO ₂ (ppm)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	O ₃ (ppb)	UVC ₂₅₄ (µW/cm ²)
1	12:00	2.2	189	19	86	162	100	107	88
2	13:00	4.2	223	22	99	184	107	227	91
3	14:00	8.2	149	14	43	75	45	146	11
4	15:00	8.7	88	21	25	215	24	110	11
5	16:00	4.4	11	23	4	181	44	214	11
6	17:00	1.1	25	14	15	196	45	198	17
7	18:00	1.2	22	24	24	228	11	166	16
8	19:00	1.4	46	15	11	224	16	158	16
9	20:00	2.4	41	14	21	217	16	178	15
10	21:00	1.4	19	16	11	247	24	174	15
11	22:00	4.8	21	11	17	246	11	112	16
12	23:00	2.1	44	18	14	116	42	16	18
Average		3.4	81.8	14.2	21.1	171.4	41.2	144.1	34

Signature: _____



No. 07999





NOISE LEVEL MONITORING REPORT

Reference No. WYLCHE/2022/A/1111

Date: 19 October 2022

Name of Industry/Client: F&B BIRLA MILLS (P) LTD
 Address: F&B Building, Main Camp Street, Bangalore
 Coordinates: 12.91966 N, 74.01114 E
 Monitoring Point: Main Street, Bangalore
 Monitoring Source: Traffic
 Monitoring Interval: 1 Hour
 Measurement Date: 7 October, 2022
 Completion Date: 8 October, 2022

Sr.	Time	Noise dB	FAAD
1.	12:00	59	Day 45 dB
2.	13:00	55	
3.	14:00	60	
4.	15:00	64	
5.	16:00	58	
6.	17:00	60	
7.	18:00	59	Night 51 dB
8.	19:00	56	
9.	20:00	58	
10.	21:00	58	Day 45 dB
11.	22:00	62	
12.	23:00	61	
Average		59.8	

Signature: _____



No. 10000





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOB/2022/AA/2127

Date: 19 October 2022

Name of Industry/Programme: JKM HILABILE (P)S

Address: JKM Kalsaria Street Camp, Medan Kota, Medan

Coordinates: 12.22208 N, 78.49264 E

Monitoring Point: Airport Road, Bulok/1/1/1/1 Lot 26

Monitoring Date: 9 October 2022

Monitoring By: WELCOB Representative

Monitoring Parameters

No.	Parameter	Result		Limit
		Unit	Concentration	
No.	Parameter	Unit	Concentration	Limit
1	Carbon Monoxide (CO)	ppm	1.0 ppm	1.0 ppm
2	Sulphur Dioxide (SO ₂)	ppm	0.0 ppm	0.0 ppm
3	Hydrogen Sulphide (H ₂ S)	ppm	0.0 ppm	0.0 ppm
4	Hydrogen Sulphide (H ₂ S)	ppm	0.0 ppm	0.0 ppm
5	Respirable Particulate Matter (PM ₁₀)	ppm	0.0 ppm	0.0 ppm
6	Respirable Particulate Matter (PM ₁₀)	ppm	0.0 ppm	0.0 ppm
7	Respirable Particulate Matter (PM ₁₀)	ppm	0.0 ppm	0.0 ppm
8	Lead (Pb)	ppm	0.0 ppm	0.0 ppm
9	None	ppm	0.0 ppm	0.0 ppm

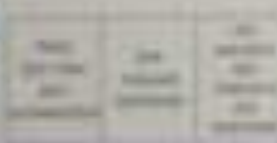
Abbreviation: FQIC: Facility Environmental Quality Certificate

Terms and Conditions

- Report cannot be used for any legal or court case without WELCOB's consent.
- The report should be treated as a whole and not in parts.
- Only authorized personnel can read the report.



No. 10001





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOB/2022/AA/2112

Date of Closure: 2022

Name of Industry/Client: JHB-BTL ABLE (P)Y
 Address: JHB-Bahulu Dua, Cemp. Hitam, Kuala Lumpur
 Coordinates: 32.12758 N, 101.48264 E
 Monitoring Point: Airport Road, Sublot (Covered Lot 2)
 Monitoring Station: Ambient A4
 Monitoring Interval: 2 Hours
 Monitoring Date: 9 October 2022
 Completion Date: 9 October 2022

No.	Time	CO ₂ (ppm)	SO ₂ (ppb/m ³)	NO _x (ppb/m ³)	NO ₂ (ppb/m ³)	PM ₁₀ (ppb/m ³)	PM _{2.5} (ppb/m ³)	SPT (ppb/m ³)	TS (ppb/m ³)
1.	12:00	5.2	5	22	18	780	608	912	51
2.	14:00	6.1	4	19	12	687	551	847	49
3.	16:00	5.8	7	11	14	614	771	941	56
4.	18:00	7.2	25	18	26	514	736	425	49
5.	20:00	7.3	18	14	18	618	491	215	49
6.	22:00	8.5	9	17	14	488	511	385	51
7.	00:00	8.5	16	11	24	228	38	428	51
8.	02:00	6.9	18	18	11	514	49	148	79
9.	04:00	5.2	8	8	27	684	631	321	39
10.	06:00	6.1	5	5	11	110	281	418	39
11.	08:00	6.4	14	15	25	481	511	528	59
12.	10:00	8.7	11	18	28	488	271	228	59
Average		7.1	16.8	14.1	19.3	344.7	381.8	312.9	63.1

Signature: _____



No. 10002





SOIL LEVEL MONITORING REPORT

Reference No. WELCOS/0211AA/2022

Date: 14 October, 2022

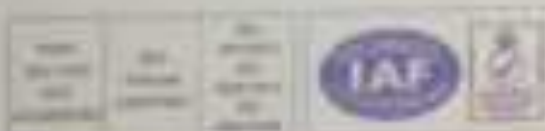
Name of Industry/Client: J&K Reliable (Pvt) Ltd
 Address: J&K Reliable Base Camp, Marla Road, Sialkot
 Coordinates: 32.82388 N, 74.88264 E
 Monitoring Point: Super Road, Sialkot (Point 1 of 1)
 Monitoring System: Spot
 Monitoring Interval: 1 Hour
 Intervention Date: 4 October, 2022
 Completion Date: 4 October, 2022

Sr.	Time	SO ₂ (ppm)	CO ₂ (ppm)
1	12:00	66	74.40
2	13:00	66	
3	14:00	71	
4	15:00	67	
5	16:00	70	
6	17:00	67	74.40
7	18:00	67	
8	19:00	67	
9	20:00	66	74.40
10	21:00	70	
11	22:00	67	
12	23:00	68	
Average:		68.7	

Signature: _____



No. 10001





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2022/AQ/124

Date: 19 October 2022

Name of Industry/Project: IEDS BILAHIA (IV)

Address: IEDS BILAHIA New Camp Main Road, Bhalia

Coordinates: 22°28'00" N, 76°17'20" E

Monitoring Point: Access Road, Bhalia (New Main Road, IEDS)

Monitoring Date: 9 October 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameter	PM ₁₀ Limit		Concentration
		Limit Average	Concentration in ambient air (24 hours)	
1	Carbon Monoxide (CO)	10 mg/m ³	1 mg/m ³	1.0 mg/m ³
2	Sulphur Dioxide (SO ₂)	10 mg/m ³	1.0 mg/m ³	2.4 mg/m ³
3	Chloride (Cl ⁻) Nitrogen (ppm)	10 mg/m ³	40 mg/m ³	11.8 mg/m ³
4	Nitrate (NO ₃ ⁻) Nitrogen (ppm)	10 mg/m ³	30 mg/m ³	11.8 mg/m ³
5	Respirable Particulate Matter (PM ₁₀)	10 mg/m ³	1.0 mg/m ³	16.2 mg/m ³
6	Respirable Particulate Matter (PM _{2.5})	10 mg/m ³	1.0 mg/m ³	19.2 mg/m ³
7	Non-respirable Particulate Matter (PM _{10-2.5})	24 mg/m ³	3.0 mg/m ³	17.2 mg/m ³
8	Ozone (O ₃)	10 mg/m ³	1.0 mg/m ³	11.3 mg/m ³
9	Noise	24 Hours	55 dB	61.8 dB

Abbreviations: PM₁₀ - Particulate Matter (10 micrometers)

Notes and Conditions:

- Report cannot be used for any kind of court case (DIO/Supreme etc).
- The report cannot be reproduced in a different form.
- This document is generated using our software.



No. 10004





AMBIENT AIR QUALITY MONITORING

Reference No. WELCDS/2022/NAT/14
 Date: 11 October, 2022
 Name of Industry/Client: PCB (M) (MEL) (PVT)
 Address: PCB Building, Free Camp Street Road, Sengkang
 Coordinates: 1°25'28.5" N, 104°0'25.1" E
 Monitoring Point: Street Road, Behind of Free Camp Street Road 1st Flr
 Monitoring Name: Ambient Air
 Monitoring Interval: 1 Hour
 Monitoring Date: 11 October, 2022
 Completion Date: 11 October, 2022

No.	Time	CO ₂ (ppm)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
1	12:00	4.7	32	21	39	143	114	400	24
2	13:00	6.4	9	21	9	69	61	194	11
3	14:00	1.7	11	21	11	126	111	121	21
4	15:00	1.8	19	14	19	219	222	258	46
5	16:00	1.2	11	17	11	228	228	191	11
6	17:00	3.5	32	14	9	240	266	222	21
7	18:00	6.4	22	15	7	144	126	172	11
8	19:00	6.8	9	12	12	438	111	411	11
9	20:00	1.1	13	8	22	121	121	121	21
10	21:00	6.4	22	7	22	144	124	201	14
11	22:00	6.2	11	7	19	228	199	118	21
12	23:00	1.1	29	11	8	211	111	549	11
Average:		3.6	24.4	13.8	13.1	188.1	178.9	171.2	11.3

Signature: _____



No. 10005





NOISE LEVEL MONITORING REPORT

Reference No. WEL21R0222/AN/2024

Date: 14 October 2022

Name of Industry/Client: **PERMILAHIA JAYA**
Address: **Jln. Kallang New Camp Street Road Building**
Coordinates: **[22.0288 N, 104.13024 E]**
Monitoring Point: **Super Road, Eastern Street Near Lot 5**
Monitoring System: **None**
Monitoring Interval: **2 Hours**
Issuance Date: **14 October 2022**
Completion Date: **14 October 2022**

No.	Time	Noise (dB)	Height
1.	10:00	48	Near 40 dB
2.	12:00	51	
3.	13:00	50	
4.	17:00	48	
5.	18:00	48	
6.	20:00	48	Near 48 dB
7.	22:00	47	
8.	01:00	48	
9.	03:00	48	
10.	07:00	47	Near 47 dB
11.	09:00	49	
Average		47.8	

Signature: _____



No. 10000





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2022/AQ/2154

Date: 19 October 2022

Name of Industry/Proposer: JKS-RELAIR (PVT)

Address: JKS-Relair, Near Janghanna Road, Hosur

Coordinates: 12.22279 N, 76.86667 E

Monitoring Point: Disposal Point

Monitoring Date: 19 October 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameter	PM10 (µg/m ³)		Standard (µg/m ³)
		Time Reported	Value Reported (µg/m ³)	
1	Leads (ppm)	24 Hour	1 µg/m ³	10 µg/m ³
2	Cadmium (ppm)	24 Hour	1.0 µg/m ³	1.0 µg/m ³
3	Mercury (ppm)	24 Hour	0.05 µg/m ³	1.0 µg/m ³
4	Copper (ppm)	24 Hour	0.05 µg/m ³	0.05 µg/m ³
5	Iron (ppm)	24 Hour	1.0 µg/m ³	1.0 µg/m ³
6	Chromium (ppm)	24 Hour	0.05 µg/m ³	0.05 µg/m ³
7	Vanadium (ppm)	24 Hour	0.05 µg/m ³	0.05 µg/m ³
8	Lead (ppm)	24 Hour	0.05 µg/m ³	0.05 µg/m ³
9	Iron	24 Hour	0.05	0.05 µg/m ³

Abbreviations: WELCOS stands for Environmental Laboratories & Consulting Services

Terms and Conditions

- Report cannot be used for any kind of litigation, etc.
- The report should be read along with the test data.
- This certified statement can be used for evidence.

[Signature]

[Signature]
Officially
Signed

[Signature]



No. 10007



AMBIENT AIR QUALITY MONITORING

Reference No. WEL/PH/2022/AN/113-5

Date: 15 October 2022

Name of Institute/Client: DUN STRAITS (19)
 Address: 2506, Nibalee, Haveli Camp, Medan Road, Seremban
 Coordinates: 27.322674 N, 101.550001 E
 Monitoring Point: Open Road Station
 Monitoring System: Ambient Air
 Monitoring Interval: 2 Hours
 Installation Date: 09 October 2022
 Completion Date: 11 October 2022

No.	Time	PM ₁₀ (µg/m ³)	SO ₂ (ppb/m ³)	NO ₂ (ppb/m ³)	NO _x (ppb/m ³)	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	O ₃ (ppb/m ³)	CO (ppm/m ³)
1	11:00	4.8	120	14	30	36	38	40	17
2	13:00	4.7	5	10	10	48	34	30	80
3	15:00	1.3	11	9	14	11	47	19	78
4	17:00	4.9	40	12	40	30	47	12	171
5	19:00	1.8	22	9	40	92	100	14	100
6	21:00	1.2	120	7	18	170	97	48	80
7	23:00	1.8	10	10	40	100	89	30	10
8	01:00	0.8	20	4	30	117	100	42	100
9	03:00	1.2	27	4	20	42	32	20	80
10	05:00	1.9	14	2	40	21	64	17	10
11	07:00	1.1	100	8	11	24	37	14	89
12	09:00	1.5	140	8	13	22	30	10	90
Average		1.9	6	1.4	40.9	45.1	60.9	31.4	81.1

Signature: _____



No. 10005





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2022/AA/112-5

Date: 19 October, 2022

Name of Industry/Client: ZCB-RELIABLE (PVT)
 Address: ZCB-Reliable Base Camp Masala Road Indira
 Coordinator: ELIZABETH S. MALHOTRA
 Monitoring Point: Hospital Station
 Monitoring Station: Noise
 Monitoring Interval: 2 Points
 Intervention Date: 04 October, 2022
 Completion Date: 11 October, 2022

No.	Time	Noise dB	FAAQ
1	11:00	65	Day 61 dB
2	12:00	68	
3	13:00	67	
4	17:00	66	
5	19:00	67	
6	21:00	69	Night 71 dB
7	22:00	70	
8	01:00	68	
9	03:00	69	
10	05:00	66	
11	07:00	62	Day 61 dB
12	09:00	61	
Average		65.3	

Signature: _____



No. 10009



AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOB/01/2022/A/0114

Date: 19 October, 2022

Name of Industry/Project: ZED RELIABLE (P)

Address: ZED Reliable, Seng Camp, Manda Road, Sibu

Coordinates: 11 34' 57.1" N, 114 22' 01.1" E

Monitoring Point: Fresh Night Waste Tank

Monitoring Date: 11 October, 2022

Monitored By: WELCOB Representative

Monitoring Parameters

Sl. No.	Parameter	Unit: $\mu\text{g}/\text{m}^3$		
		Time sampled	Concentration in Sampled Air	Concentration in Ambient Air
1	Carbon Monoxide (CO)	24 Hour	1 $\mu\text{g}/\text{m}^3$	4.9 $\mu\text{g}/\text{m}^3$
2	Sulphur Dioxide (SO ₂)	24 Hour	1.0 $\mu\text{g}/\text{m}^3$	14.1 $\mu\text{g}/\text{m}^3$
3	Ozone (O ₃) Nitrogen Dioxide (NO ₂)	24 Hour	47 $\mu\text{g}/\text{m}^3$	6.4 $\mu\text{g}/\text{m}^3$
4	Ozone (O ₃) Nitrogen Dioxide (NO ₂)	24 Hour	49 $\mu\text{g}/\text{m}^3$	21.8 $\mu\text{g}/\text{m}^3$
5	Respirable Particulate Matter (PM ₁₀)	24 Hour	170 $\mu\text{g}/\text{m}^3$	54.3 $\mu\text{g}/\text{m}^3$
6	Respirable Particulate Matter (PM _{2.5})	24 Hour	37 $\mu\text{g}/\text{m}^3$	8 $\mu\text{g}/\text{m}^3$
7	Respirable Particulate Matter (PM ₁₀)	24 Hour	80 $\mu\text{g}/\text{m}^3$	21.8 $\mu\text{g}/\text{m}^3$
8	Ozone (O ₃)	24 Hour	170 $\mu\text{g}/\text{m}^3$	41.8 $\mu\text{g}/\text{m}^3$
9	Temp	24 Hour	30 °C	30.1 °C

Reference: MSQ, Federal Environmental Quality Standard

Terms and Conditions:

- Report cannot be used for any legal or court case EPD/Regulation.
- The report should be maintained in a safe and secure place.
- Only authorized personnel can use the results.



No. 10010





AMBIENT AIR QUALITY MONITORING

Reference No. WELCO/2022/AA/2024

Date: 14 October, 2022

Name of Industry/Client: ZKH RELIABLE (P)

Address: ZKH Reliable Free Camp Iskanda Road, Seberang

Coordinates: 5.240533 N, 101.52099 E

Monitoring Point: Free Camp Waste Tank

Monitoring Nature: Ambient Air

Monitoring Interval: 1 Hour

Start/End Date: 11 October, 2022

Completion Date: 13 October, 2022

#	Time	CO ₂ (ppm)	SO ₂ (ppb)	NO _x (ppb)	NO ₂ (ppb)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	O ₃ (ppb)	CO (ppm)
1	07:00	38	5	4	11	42	26	73	0.1
2	07:30	33	12	9	9	49	32	62	0.1
3	08:00	32	8	12	11	61	29	64	0.1
4	08:30	33	16	7	18	51	31	65	0.1
5	09:00	33	11	4	16	46	31	56	0.1
6	09:30	33	12	5	16	44	31	48	0.1
7	10:00	31	20	1	21	52	36	38	0.1
8	10:30	31	15	6	17	43	29	43	0.1
9	11:00	34	20	1	14	34	21	47	0.1
10	11:30	33	17	4	16	47	31	28	0.1
11	12:00	37	11	5	21	51	31	24	0.1
12	12:30	38	11	4	15	33	26	31	0.1
Average		33	15	4.3	14.8	44.1	31	41.6	0.1

Signature: _____



No. 10011





SDSl LEVEL MONITORING REPORT

Reference No. WELCON/2022/AS/2104

Date: 04/10/2022

Name of Industry/Client: J&B-RELIABLE (P) LTD
 Address: J&B-Reliable Base Camp Main Road Hubli
 Coordinates: 12.9017738, 74.4290714
 Monitoring Point: Free Surface Water Tank
 Monitoring Station: None
 Monitoring Interval: 1 Days
 Intervention Date: 11 October, 2022
 Completion Date: 12 October, 2022

No.	Date	Sample pH	THP
1.	12/09	98	Tap 97.00
2.	14/09	97	
3.	16/09	98	
4.	18/09	97	
5.	20/09	92	
6.	22/09	98	Tap 97.00
7.	24/09	98	
8.	26/09	98	
9.	28/09	97	
10.	30/09	95	
11.	02/10	96	Tap 97.00
12.	04/10	96	
Average		96.1	

Signature: 



No. 10012





AMBIENT AIR QUALITY TEST REPORT

Reference No. WSLCORP/2022/AA/1137

Date: 12 October 2022

Name of Industry/Project: OCE-BELAHOLE (P)

Address: OCE-Belahole New Camp Main Road Hubli

Coordinates: 12.34871° N, 74.89922° E

Monitoring Point: Camp Site

Monitoring Date: 12 October 2022

Monitored By: WSLCORP Environmental

Monitoring Parameters

Sl. No.	Parameter	Unit		Remarks
		Time	Concentration	
1	Carbon Monoxide (CO)	24 Hour	1.4 mg/m ³	1.8 mg/m ³
2	Sulfur Dioxide (SO ₂)	24 Hour	1.0 mg/m ³	8.1 mg/m ³
3	Oxide of Nitrogen (NO _x)	24 Hour	4.4 mg/m ³	11.7 mg/m ³
4	Oxide of Nitrogen (NO ₂)	24 Hour	4.0 mg/m ³	17.7 mg/m ³
5	Respirable Particulate Matter (PM ₁₀)	24 Hour	1.0 mg/m ³	14.3 mg/m ³
6	Respirable Particulate Matter (PM _{2.5})	24 Hour	1.0 mg/m ³	18.4 mg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	1.0 mg/m ³	19.0 mg/m ³
8	Ozone (O ₃)	24 Hour	1.0 mg/m ³	12.2 mg/m ³
9	Temp.	24 Hour	34.00	37.50

Scope and Conditions

- Report cannot be used for any legal or contractual dispute without the consent of WSLCORP.
- The report should be read in conjunction with the photographs.
- Only authorized personnel were used for testing.



No. 10013





AMBIENT AIR QUALITY MONITORING

Reference No. WELCO/2022/AA/1127

Date: 11 October, 2022

Name of Industry/Client: ZKZ-BELADIRI PTY
 Address: ZKZ-Beladiri Ham Camp, Mirza Road, Sultan
 Coordinates: 22.30771 N, 104.09622 E
 Weathering Point: Camp Site
 Measuring Range: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 11 October, 2022
 Completion Date: 11 October, 2022

No.	Time	CO ₂ (ppm)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM ₁₀ (µg/m ³)	U ₁ (µg/m ³)
1	12:00	7.3	48	8	8	32	19	44	47
2	14:00	1.2	41	21	21	44	28	38	47
3	16:00	0.2	3	14	30	17	8	26	46
4	18:00	0.7	42	11	11	28	18	37	51
5	20:00	0.1	37	21	21	17	24	42	78
6	22:00	0.8	36	18	22	23	11	44	54
7	00:00	1.1	27	12	14	48	36	57	25
8	02:00	1.3	33	13	14	47	26	48	33
9	04:00	0.8	32	11	11	47	11	31	35
10	06:00	0.2	26	8	28	21	47	31	40
11	08:00	0.4	17	5	27	18	12	24	21
12	10:00	4.2	41	5	42	31	18	28	15
Average		1.3	47.1	11.9	27.8	33.1	28.4	39.8	32.7

Signature: _____



No. 10014





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2022/NA/1127

Date: 18 October, 2022

Name of Industry/Client: DRUM-BELTABLE (P)
 Address: DRUM-Beltable New Camp Street Road Madurai
 Coordinates: 12.38875 N, 78.18822 E
 Monitoring Point: Camp Site
 Monitoring System: Sibel
 Monitoring Interval: 1 Hour
 Inspection Date: 12 October, 2022
 Completion Date: 17 October, 2022

No.	Time	Scale (dB)	Level
1	08:00	55	Day 45 dB
2	10:00	57	
3	14:00	56	
4	18:00	58	
5	20:00	60	
6	22:00	60	Night 55 dB
7	00:00	61	
8	02:00	59	
9	04:00	58	
10	06:00	59	
11	08:00	61	Day 45 dB
12	09:00	58	
Average		57.8	

Signature: _____



No. 10015





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/0224/AR/2024

Date: 14/06/2024

Client Name: DCA-BEL-024(1/24)
 Address: DCA Welfare Area Camp, Baramulla District
 Sample Identification: Ground Water
 Sample Location: Camp Site
 Sample Collected/Provided: WELCOS Representative
 Sample Received Date: 14/06/2024 Analysis Start Date: 14/06/2024
 Analysis Completion Date: 21/06/2024 Graph Complete: 21/06/2024
 Environmental Condition: Temperature: 20.5°C Humidity: 75% RH
 Station Parameters:

No.	Parameter	Unit	Value	Point	Test Method/Code	Remarks
1	pH		4.383	101	APHA 4500 H ₂ O	Pass
2	TDS	mg/l	1.000	101	APHA 2000 D	Pass
3	Total Hardness	mg/l	Not Determinable	Not Determinable	Not Determinable	Pass
4	Total Hardness	mg/l	Not Determinable	Not Determinable	Not Determinable	Pass
5	Calcium	mg/l	Not Determinable	Not Determinable	Not Determinable	Pass
6	Chloride	mg/l	0.20	0	APHA 4500 ClO	Pass
7	Fluoride	mg/l	-	0.0	APHA 4500 FLO (SPADIA method)	Pass
8	Phosphate	mg/l	0.00	0.0	APHA 4500 P	Pass
9	Sulfate	mg/l	0.0	0.0	APHA 4500 S	Pass
10	Iron	mg/l	0.2	0.2	APHA 4500 Fe	Pass
11	Manganese	mg/l	0.0	0.0	APHA 4500 Mn	Pass
12	Nitrate (NO ₃ -N)	mg/l	0.1	0.0	APHA 4500 NO ₃ -N	Pass
13	Ammonia Nitrogen (NH ₄ -N)	mg/l	0.00	0.0	APHA 4500 NH ₄ -N	Pass
14	Cyanide	mg/l	0.00	0.0	APHA 4500 CN	Pass
15	Mercury	mg/l	0.0	0.0	APHA 4500 Hg	Pass
16	Zinc	mg/l	0	0.0	APHA 4500 Zn	Pass
17	Copper	mg/l	0.00	0.0	APHA 4500 Cu	Pass
18	Lead	mg/l	0.00	0.0	APHA 4500 Pb	Pass
19	Cadmium	mg/l	0.00	0.0	APHA 4500 Cd	Pass



No. 05078





No.	Perawatan	Case	100%	90%	50% Medical Cost	Benefit
01	Rawat	200	1000	900	4000 10000	70%
02	Rawat	200	1000	900	4000 10000	70%
03	Rawat	200	1000	900	4000 10000	70%
04	Rawat	200	1000	900	4000 10000	70%
05	Rawat	200	1000	900	4000 10000	70%
06	Rawat	200	1000	900	4000 10000	70%
07	Rawat	200	1000	900	4000 10000	70%
08	Rawat	200	1000	900	4000 10000	70%
09	Rawat	200	1000	900	4000 10000	70%
10	Rawat	200	1000	900	4000 10000	70%
11	Rawat	200	1000	900	4000 10000	70%
12	Rawat	200	1000	900	4000 10000	70%
13	Rawat	200	1000	900	4000 10000	70%
14	Rawat	200	1000	900	4000 10000	70%
15	Rawat	200	1000	900	4000 10000	70%
16	Rawat	200	1000	900	4000 10000	70%
17	Rawat	200	1000	900	4000 10000	70%
18	Rawat	200	1000	900	4000 10000	70%
19	Rawat	200	1000	900	4000 10000	70%
20	Rawat	200	1000	900	4000 10000	70%

Keputusan dan Kesimpulan:

Hasil pengujian dan pemeriksaan di atas menunjukkan bahwa mutu pelayanan kesehatan di rumah sakit tersebut adalah baik.

Saran:

- | | | | | | |
|--|-----|------|-----|------------|-----|
| 1. Meningkatkan mutu pelayanan kesehatan | 200 | 1000 | 900 | 4000 10000 | 70% |
| 2. Meningkatkan mutu pelayanan kesehatan | 200 | 1000 | 900 | 4000 10000 | 70% |
| 3. Meningkatkan mutu pelayanan kesehatan | 200 | 1000 | 900 | 4000 10000 | 70% |

Keputusan:

- 1. Meningkatkan mutu pelayanan kesehatan
- 2. Meningkatkan mutu pelayanan kesehatan
- 3. Meningkatkan mutu pelayanan kesehatan

Keputusan dan Kesimpulan:

- 1. Meningkatkan mutu pelayanan kesehatan
- 2. Meningkatkan mutu pelayanan kesehatan
- 3. Meningkatkan mutu pelayanan kesehatan
- 4. Meningkatkan mutu pelayanan kesehatan
- 5. Meningkatkan mutu pelayanan kesehatan

Saran:

- 1. Meningkatkan mutu pelayanan kesehatan
- 2. Meningkatkan mutu pelayanan kesehatan
- 3. Meningkatkan mutu pelayanan kesehatan
- 4. Meningkatkan mutu pelayanan kesehatan
- 5. Meningkatkan mutu pelayanan kesehatan
- 6. Meningkatkan mutu pelayanan kesehatan
- 7. Meningkatkan mutu pelayanan kesehatan
- 8. Meningkatkan mutu pelayanan kesehatan
- 9. Meningkatkan mutu pelayanan kesehatan
- 10. Meningkatkan mutu pelayanan kesehatan







No. 85092



TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2022/00112

Date: 19 October 2022

Client Name: DEPARTMENT OF CIVIL
 Address: UEN Building, Hooi Chang Moon Road, Suihai
 Sample Identification: Ground Water
 Sample Location: Suihai-C&I Campus
 Sample Collected/Provided: WELCOS Administration
 Sample Received Date: 19 October 2022 Analysis Start Date: 19 October 2022
 Analysis Completion Date: 19 October 2022 Grade Complete: Final
 Environmental Conditions: Temperature: 25.2 °C Humidity: 79% RH
 Analysis Parameters:

No.	Parameter	Unit	STDs	Result	Test Method Used	Remarks
1	pH	-	6.5-8.5	7.02	APHA 4500 B	7.1
2	TDS	mg/l	< 500	100	APHA 2540 D	7.1
3	Color	-	Non-Applicable	Non-Applicable	Standard Method	7.1
4	Turbidity	-	Non-Applicable	Non-Applicable	Standard Method	7.1
5	Chloride	-	Non-Applicable	Non-Applicable	Standard Method	7.1
6	Calcium	mg/l	< 750	0	APHA 2000.10	7.1
7	Total Hardness	mg/l	-	100	APHA 2000 C & D EDTA method (20)	7.1
8	Fluoride	mg/l	< 100	0.00	APHA 2000	7.1
9	Iron	mg/l	< 5	0.24	APHA 2100	7.1
10	Lead	mg/l	< 1.5	0.20	APHA 2100.2 (H)	7.1
11	Copper (Cu)	mg/l	< 100	0.00	APHA 2100.9 (A)	7.1
12	Ammonia (NH ₃)	mg/l	< 2	0.01	APHA 2100.9 (B) (D)	7.1
13	Nitrate (NO ₃)	mg/l	< 100	0.00	APHA 2100.2 (H) (A) (D)	7.1
14	Chromium	mg/l	< 0.1	0.00	APHA 2111 (B)	7.1
15	Manganese	mg/l	< 0.2	0.00	APHA 2111 (B)	7.1
16	Zinc	mg/l	< 5	0.00	APHA 2111 (B)	7.1
17	Sulfate	mg/l	< 500	100	APHA 2111 (B)	7.1
18	Cadmium	mg/l	< 0.1	0.00	APHA 2111 (B)	7.1
19	Cobalt	mg/l	< 0.05	0.00	APHA 2111 (B)	7.1



05050





No.	Specimen	Units	Result	Specimen Used	Remarks
01	Amoeb	ng1	0/10	AP101 1111 B	Pass
02	Amoeb	ng1	0/10	AP102 1111 B	Pass
03	Amoeb	ng1	0/10	AP103 1111 B	Pass
04	Amoeb	ng1	0/10	AP104 1111 B	Pass
05	Amoeb	ng1	0/10	AP105 1111 B	Pass
06	Amoeb	ng1	0/10	AP106 1111 B	Pass
07	Amoeb	ng1	0/10	AP107 1111 B	Pass
08	Amoeb	ng1	0/10	AP108 1111 B	Pass
09	Amoeb	ng1	0/10	AP109 1111 B	Pass
10	Amoeb	ng1	0/10	AP110 1111 B	Pass
11	Amoeb	ng1	0/10	AP111 1111 B	Pass
12	Amoeb	ng1	0/10	AP112 1111 B	Pass
13	Amoeb	ng1	0/10	AP113 1111 B	Pass
14	Amoeb	ng1	0/10	AP114 1111 B	Pass
15	Amoeb	ng1	0/10	AP115 1111 B	Pass
16	Amoeb	ng1	0/10	AP116 1111 B	Pass
17	Amoeb	ng1	0/10	AP117 1111 B	Pass
18	Amoeb	ng1	0/10	AP118 1111 B	Pass
19	Amoeb	ng1	0/10	AP119 1111 B	Pass
20	Amoeb	ng1	0/10	AP120 1111 B	Pass

Summary of Results:

The sample food samples is approved with High score by the panel members

Information:

PMAC	Food for medicinal quality standard	001	Food Inspection Unit
APHA	Malaysia Public Health Insurance	0010	Food Inspection Unit
MS	Food Safety Act	415	Department of Agriculture

Remarks:

- Sample is approved (meets) under level Pass
- Sample is approved (meets) under level High
- Sample is approved (meets) under level Outstanding

Terms and Conditions:

1. Sample is approved on the basis of program for Food Safety and Quality
2. Sample should be prepared according to the rules
3. The sample is approved for 1 year after the issued date of report from the laboratory
4. There is no responsibility for the laboratory and quality of the sample submitted for analysis, sample will be without a fee.

Disclaimer:

- The user shall be liable to the particular conditions described above, and shall be responsible to ensure that the sample is prepared to meet the requirements of sample's integrity and validity.
- There are no claims of any liability for the user's failure to follow the instructions for the use of the sample.
- The user shall ensure full responsibility for the accuracy of the results to be reported and to meet the requirements of the user's use of the sample.
- The user shall ensure that the use of the sample is for the purpose of the user's use of the sample.
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- The user shall ensure that the use of the sample is for the purpose of the user's use of the sample.

Prepared by:  Approved by:  



No. 05051





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2022/05052

Date: 14 January 2022

Client Name: **PERHILJAH (PT)**
 Address: **JKEK Beldahin, Desa Tanjung Melayu, Kecamatan Beldahin**
 Sample Identification: **Ground Water**
 Sample Location: **Tanjung Melayu**
 Sample Collected/Provided: **WELCOS Representative**
 Sample Received Date: **14 January 2022** Analyzed/Start Date: **14 January 2022**
 Validity/Completion Date: **30 January 2022** Lead/Completed By: **---**
 Environmental Conditions: **Temperature: 28.1 °C Humidity: 85% RH**
 Station Parameters: **---**

No.	Parameter / Unit	Unit	Result	Test Method Code	Remarks
1.	pH		8.38	APHA 4500 H ₂ O	Pass
2.	TDS	mg/l	< 1000	APHA 2540 E	Fail
3.	Hardness		Non-Detectable	Standard Method	Pass
4.	Total Hardness		Non-Detectable	Standard Method	Fail
5.	Calcium		Non-Detectable	Standard Method	Pass
6.	Chloride	mg/l	< 20	APHA 4500 Cl ₂ B	Pass
7.	Fluoride	mg/l	0.11	APHA 1500 C & D EPA 815.01-2 (2017)	Pass
8.	Barium	mg/l	< 0.05	APHA 2140 C	Fail
9.	Iron	mg/l	0.27	APHA 2110 B	Pass
10.	Manganese	mg/l	1.13	APHA 2160 B	Pass
11.	Nitrate (NO ₃ -N)	mg/l	1.0	APHA 2000 NO ₃ -N	Pass
12.	Nitrite (NO ₂ -N)	mg/l	0.1	APHA 2000 NO ₂ -N	Pass
13.	Ammonia (NH ₃ -N)	mg/l	< 0.02	APHA 2000 NH ₃ -N	Pass
14.	Cyanide	mg/l	0.01	APHA 2110 B	Pass
15.	Sulfate	mg/l	< 0.1	APHA 2110 B	Pass
16.	Zinc	mg/l	7	APHA 2110 B	Fail
17.	Copper	mg/l	< 0.05	APHA 2110 B	Pass
18.	Cadmium	mg/l	1	APHA 2110 B	Pass
19.	Lead	mg/l	< 0.05	APHA 2110 B	Pass

No. 05052





No.	Facilities	Type	Value	Brand	Est. Value of Cost	Remarks
20	Water	kg/l	1.00	NS	APNA 11110	Nil
21	Electricity	kg/l	1.22	NS	APNA 11110	Nil
22	Chlorine	kg/l	1.00	NS	APNA 11110	Nil
23	Water	kg/l	1.00	NS	APNA 11110	Nil
24	Electricity	kg/l	1.00	NS	APNA 11110	Nil
25	Water	kg/l	1.00	NS	APNA 11110	Nil
26	Water	kg/l	0.1	NS	APNA 11110	Nil
27	Water	kg/l	0.1	NS	APNA 11110	Nil
28	Electricity	kg/l	0.1	NS	APNA 11110	Nil
29	Food Cost	kg	0	0	APNA 11110	Nil
30	Food	kg	0	0	APNA 11110	Nil

Statement of Expenditure

The receipt book/endorsement/acknowledgement with FPA/FCI entry for the receipt statement.

Abbreviations

FPA/FCI	Foreign Procurement Agency/Contractor	NS	Non-Contracted Supply
APNA	Approved Public Works Association	FVT	For Technical Services
kg	Kilogram	kg/l	Approximate Quantity Unit

General Note

- Receipts of Expenditure/Receipts must be used.
- Receipts of Expenditure/Receipts must be used.
- Receipts of Expenditure/Receipts must be used.

Terms and Conditions

- The receipt book/endorsement/acknowledgement with FPA/FCI entry must be used.
- The receipt book/endorsement/acknowledgement with FPA/FCI entry must be used.
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Remarks

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- The receipt book/endorsement/acknowledgement with FPA/FCI entry must be used.







No. 05053





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2022/08/0224

Date: 19 October 2022

Client Name: DUN-BELAGHIE (PVT)
Address: DUN-Belaghiya Dam Camp House Road, Tondoo

Sample Identification: Ground Water

Sample Location: Dam Camp House

Sample Collected/Provided: WELCOS Representative

Sample Received Date: 14 October 2022 Analytical Start Date: 14 October 2022

Analysis Completion Date: 18 October 2022 **Crack Complaint:** No

Environmental Conditions: Temperature: 29.1 °C Humidity: 75% RH

Analysis Parameters:

Sl. No.	Parameter	Unit	PIIS	Result	Test Method Code	Remarks
1	pH	-	6.1-8.1	7.26	APHA 4500-C	Pass
2	TDS	mg/l	1-1000	50	APHA 2540-C	Pass
3	THM4	-	Non-Objectivable	Non-Objectivable	Support Method	Pass
4	Total Hardness	-	Non-Objectivable	Non-Objectivable	Support Method	Pass
5	Calcium	-	Non-Objectivable	Non-Objectivable	Support Method	Pass
6	Chloride	mg/l	1-250	41	APHA 4500-ClB	Pass
7	Fluoride	mg/l	-	NDL	APHA 8000-F & F2 (SP4 method) (SP1)	Pass
8	Iron	mg/l	1-500	100	APHA 7000-I	Pass
9	Ammonia	mg/l	1	0.49	APHA 7000-N	Pass
10	Phosphate	mg/l	1-1.2	0.17	APHA 7000-P	Pass
11	Nitrate (NO3)	mg/l	1-50	0.12	APHA 7000-NO3-N	Pass
12	Nitrite (NO2)	mg/l	1-1	NDL	APHA 7000-NO2-N	Pass
13	Cyanide (CN)	mg/l	1-0.05	NDL	APHA 7000-CN & B-1	Pass
14	Sulfate	mg/l	1-50	NDL	APHA 7000-S	Pass
15	Magnesium	mg/l	1-1	NDL	APHA 7000-M	Pass
16	Zinc	mg/l	1	NDL	APHA 7000-Z	Pass
17	Copper	mg/l	1-0.05	NDL	APHA 7000-C	Pass
18	Lead	mg/l	1	NDL	APHA 7000-Pb	Pass
19	Cadmium	mg/l	1-0.05	NDL	APHA 7000-Cd	Pass

No. 05054



Water Treatment Laboratories & Consulting Services (WELCOS)

Q 19 D, Pappu University Town A, Khyber Pakhtunkhwa, Lahore Pakistan.

☎ 042-35000000 ext 49

🌐 www.welcos.com.pk

📠 0300-722180, 042-35000000



Sr. No.	Parameter	Units	Range	Mark	Exam Method Used	Remarks
01	Protein	mg/L	1-10	000	SP14 1110	Pass
02	Albumin	mg/L	1-4.7	000	SP14 1110	Pass
03	Cholesterol	mg/dl	1-200	000	SP14 1110	Pass
04	Urea	mg/dl	0-60	000	SP14 1110	Pass
05	Creatinine	mg/dl	0.06-1.2	000	SP14 1110	Pass
06	Glucose	mg/dl	80-180	000	SP14 1110	Pass
07	Bilirubin	mg/dl	0-1.2	000	SP14 1110	Pass
08	Iron	mg/dl	50-150	000	SP14 1110	Pass
09	Chloride	mg/dl	90-110	000	SP14 1110 & 11	Pass
10	Total Calcium	mg/dl	8-10	0	SP14 1110	Pass
11	Uric Acid	mg/dl	2-8	0	SP14 1110	Pass

Remarks:

The sample has been analyzed in accordance with SOPs issued for the stated parameter.

Abbreviations:

PNAC	Punjab University Quality Assurance	QA	Quality Assurance Unit
SP14	Standardized Procedure Manual Parameters	INSP	The Institute of Nutrition
mg	milligram	mg/dl	milligram per deciliter

Storage Note:

- Sample: Refrigerated (2-8°C) until tested. Pass
- Sample: Refrigerated (2-8°C) until tested. Fail
- Sample: Refrigerated (2-8°C) until tested. Re-test

Terms and Conditions:

1. The sample must be analyzed in the capacity of procedure for the given method/parameter.
2. The sample must be analyzed in a timely and accurate manner.
3. The sample must be analyzed in 14 days after the receipt of the sample from the laboratory.
4. There is no responsibility of Punjab University for the sample if it is not analyzed in a timely manner.

Disclaimer:

- 1. The sample must be analyzed in the capacity of procedure for the given method/parameter.
- 2. The sample must be analyzed in a timely and accurate manner.
- 3. The sample must be analyzed in 14 days after the receipt of the sample from the laboratory.
- 4. There is no responsibility of Punjab University for the sample if it is not analyzed in a timely manner.
- 5. The sample must be analyzed in the capacity of procedure for the given method/parameter.
- 6. The sample must be analyzed in a timely and accurate manner.



No. 05085



TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/SC/0000123

Date: 07/10/2022

Client Name: PERUMALURAI (P)

Address: 25 B, Kallakudi, Near C. Rang. Murugan Road, Chennai

Sample Identification: Ground Water

Sample Location: Front Page

Sample Collected/Provided: WELCOS Representative

Sample Received Date: 11 October, 2022 Analysis Report Date: 24 October, 2022

Analysis Completed Date: 18 October, 2022 Analyzed/Consumed: 100ml

Environmental Conditions: Temperature: 22.1 °C Humidity: 75% RH

Analysis Parameters:

Sl. No.	Parameter	Unit	PLZ	Result	Test Method Used	Remarks
1	pH		6.5-8.5	7.0	YSI 1000C B	Pass
2	TDS	mg/l	< 500	700	APHA 2000 C	Fail
3	Hardness		None of Specifiably	None of Specifiably	Barium Method	Fail
4	Total		None of Specifiably	None of Specifiably	Barium Method	Fail
5	Calcium		None of Specifiably	None of Specifiably	Barium Method	Fail
6	Magnesium	mg/l	< 20	0	APHA 4000 C/B	Fail
7	Fluoride	mg/l		ND	APHA 8000 C & D METH. 8000-0211	Pass
8	Chloride	mg/l	< 250	100	APHA 2000 C	Pass
9	Sulfate	mg/l	0	0.00	APHA 8000 B	Pass
10	Phosphate	mg/l	< 1.0	0.00	APHA 4000 B/C	Pass
11	Ammonia NH3	mg/l	< 0.5	0.01	APHA 4000 A/B	Pass
12	Ammonia NH4	mg/l	< 1	0.00	APHA 4000 A/B	Pass
13	Cyanide CN	mg/l	< 0.05	0.00	APHA 4000 A/B & C	Pass
14	Cadmium	mg/l	0.01	0.00	APHA 3011 B	Pass
15	Mercury	mg/l	0.05	0.00	APHA 3011 B	Pass
16	Zinc	mg/l	5	0.00	APHA 3011 B	Pass
17	Lead	mg/l	< 0.05	0.00	APHA 3011 B	Pass
18	Copper	mg/l	1	0.00	APHA 3011 B	Pass
19	Iron	mg/l	< 0.30	0.00	APHA 3011 B	Pass



No. 05050





No.	Item/Service	Unit	Price	Brand	Yes/Not/Yes	Remarks
20	Water	kg/l	0.00	000	APRIL 2017 B	Yes
21	Electricity	kg/l	0.00	000	APRIL 2017 B	Yes
22	Gasoline	kg/l	0.00	000	APRIL 2017 B	Yes
23	Oil	kg/l	0.00	000	APRIL 2017 C	Yes
24	Water	kg/l	0.00	000	APRIL 2017 C	Yes
25	Electricity	kg/l	0.00	000	APRIL 2017 B	Yes
26	Gasoline	kg/l	0.00	000	APRIL 2017 B	Yes
27	Oil	kg/l	0.00	000	APRIL 2017 B	Yes
28	Water	kg/l	0.00	000	APRIL 2017 B	Yes
29	Electricity	kg/l	0.00	000	APRIL 2017 B	Yes
30	Gasoline	kg/l	0.00	000	APRIL 2017 B	Yes
31	Oil	kg/l	0.00	000	APRIL 2017 B	Yes
32	Total Colored	kg/l	0	0	APRIL 2017 B	Yes
33	Total	kg/l	0	0	APRIL 2017 B	Yes

Statement of Estimate

The contract shall be awarded to successful bidder (BIDDER) for the following information:

Information:

PNAC	Project Management/Consulting Services	00%	None	Contractor's LSP
AP14	Approved Project/Consulting Services	00%	Yes	For Submission/Check
0%	Initial Contract Fee	0%	Yes	Performance Guarantee Fee

Service Fee

- Project Management/Consulting Services (LSP)
- Project Management/Consulting Services (LSP)
- Project Management/Consulting Services (LSP)

Terms and Conditions

- Applicable to the bidder for the execution of project/contract for the award of PNAC contract.
- The contract shall be awarded to a successful bidder.
- The contract shall be awarded for 12 days after the issuance of award letter from the Bidding.
- The contract shall be awarded for 12 months after the award letter from the Bidding.

Remarks:

- The bidder shall be liable for the performance of the contract, and shall be liable for the award of the contract.
- The contract shall be awarded to a successful bidder.
- The contract shall be awarded to a successful bidder.
- The contract shall be awarded to a successful bidder.
- The contract shall be awarded to a successful bidder.
- The contract shall be awarded to a successful bidder.
- The contract shall be awarded to a successful bidder.



No. 05051





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOB/2022/07226

Date of Issue: 2022

Client Name: DEER LABEL (PVT)
 Address: DEER Label, Near Camp House Road, Sialkot
 Sample Identification: Ground Water
 Sample Location: Deer Label
 Sample Collection Procedure: WELCOB Representative
 Sample Received Date: 11 October, 2022 Analysis Start Date: 14 October, 2022
 Analysis Completion Date: 25 October, 2022 Sample Integrity: Good
 Environmental Conditions: Temperature: (17) °C Humidity: (79%) RH
 Analysis Parameters:

Sr.	Parameter	Units	Result	Range	Applicable Limit	Remarks
1.	pH		8.44	7-9	SPH 40001-B	Pass
2.	TDS	mg/l	1000	50	SPH 2000-C	Pass
3.	Hardness		Not Determinable	Not Determinable	Standard Method	Pass
4.	Calcium		Not Determinable	Not Determinable	Standard Method	Pass
5.	Magnesium		Not Determinable	Not Determinable	Standard Method	Pass
6.	Chloride	mg/l	100	50	SPH 40001-B	Pass
7.	Fluoride	mg/l	-	100	SPH 40001-B & B (SPH 40001-B)	Pass
8.	Sulfate	mg/l	100	50	SPH 2000-C	Pass
9.	Total Hardness	mg/l	1	500	SPH 2000-C	Pass
10.	Iron	mg/l	1.15	0.3	SPH 40001-B	Pass
11.	Manganese	mg/l	1.1	0.05	SPH 40001-B	Pass
12.	Copper	mg/l	1.00	0.05	SPH 40001-B & B	Pass
13.	Zinc	mg/l	0.01	0.05	SPH 7-11-B	Pass
14.	Nitrate	mg/l	1.1	0.05	SPH 7-11-B	Pass
15.	Lead	mg/l	1	0.05	SPH 7-11-B	Pass
16.	Cadmium	mg/l	1.00	0.05	SPH 7-11-B	Pass
17.	Chromium	mg/l	1	0.05	SPH 7-11-B	Pass
18.	Barium	mg/l	1.00	0.05	SPH 7-11-B	Pass

No. 050SS





No.	Description	Type	PCQ#	Mount	Est. Number	Remarks
10	Books	001	100	001	AP04 1110	Yes
11	Books	001	102	001	AP04 1110	Yes
12	Books	001	103	001	AP04 1110	Yes
13	Books	001	104	001	AP04 1110	Yes
14	Books	001	001	001	AP04 1110	Yes
15	Books	001	100	001	AP04 1110	Yes
16	Books	001	01	001	AP04 1110	Yes
17	Books	001	02	001	AP04 1110	Yes
18	Books	001	03	001	AP04 1110	Yes
19	Total/Total	00	0	0	AP04 1000	Yes
20	Total	00	0	0	AP04 1000	Yes

Statement of Expenditures

The account shall continue to operate with 100% funds for the stated purposes.

Information:

Major	Final Procurement/Quality Assurance	000	Base	Subtotal	1000
APWA	Additional Fund/Health Insurance	100	Est.	Subtotal	1000
00	Other Funding	001	Supplemental	Subtotal	1000

Remarks:

- Account is expected to continue under the same PCQ.
- Account is expected to continue under the same PCQ.
- Account is expected to continue under the same PCQ.

Terms and Conditions:

1. Account will continue to be used for the purposes for which it was established.
2. This account shall be available for a minimum of 1 year.
3. The account shall be used for the purposes for which it was established.
4. There shall be no change in the management of the account.

Remarks:

- The account shall be used only for the purposes for which it was established.
- In case the account is utilized for other purposes, the responsibility of such a change shall be with the management.
- There shall be no change in the management of the account.
- The funds shall remain the responsibility of the account and shall be used for the purposes for which it was established.
- The completion of the account shall be reported to the management through the account administrator.
- The account shall be used for the purposes for which it was established.

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No. 05059





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WLLCOB/2022/426/2127

Date: 14 October 2022

Client Name: DEH BAHUJI (P)
 Address: DEH Bahuji, Near Camp, Haveli Road, Bahur
 Sample Identification: Ground Water
 Sample Location: Haveli Road
 Sample Collected Period: 14/10/2022 (Approximate)
 Sample Received Date: 14 October 2022 Analytical Report Date: 14 October 2022
 Analysis Completion Date: 14 October 2022 Report Generated: 14/10/2022
 Environmental Condition: Temperature: 32.1 °C Humidity: 75% RH

Analysis Parameters

Sr.	Parameter	Units	PLQA	Result	Test Method Used	Remarks
1.	pH		6.5-8.5	7.22	APHA 15001 B	Pass
2.	TDS	mg/l	< 500	73	APHA 2420 C	Pass
3.	Total Hardness		See Specifications	See Specifications	See Method	Pass
4.	Total Hardness		See Specifications	See Specifications	See Method	Pass
5.	Calcium		See Specifications	See Specifications	See Method	Pass
6.	Chloride	mg/l	< 250	87	APHA 2460 D	Pass
7.	Fluoride	mg/l	< 1.5	0.22	APHA 8130 C & D (SP14 method) (20)	Pass
8.	Iron	mg/l	< 0.3	0.06	APHA 7510 C	Pass
9.	Nitrate	mg/l	< 10	0.40	APHA 2100 B	Pass
10.	Phosphate	mg/l	< 0.3	0.11	APHA 2000 D	Pass
11.	Sulfate (SO ₄)	mg/l	< 50	7.24	APHA 2000 A, B, C	Pass
12.	Sulfate (SO ₄)	mg/l	< 5	0.05	APHA 2000 A, B, C, D	Pass
13.	Cyanide (CN)	mg/l	< 0.05	0.04	APHA 2000 A, B, C, D, E	Pass
14.	Cadmium	mg/l	0.01	0.01	APHA 2110 B	Pass
15.	Mercury	mg/l	0.1	0.01	APHA 2110 B	Pass
16.	Pb	mg/l	1	0.01	APHA 2110 B	Pass
17.	Lead	mg/l	1.00	0.01	APHA 2110 B	Pass
18.	Copper	mg/l	1	0.01	APHA 2110 B	Pass
19.	Zinc	mg/l	1.00	0.01	APHA 2110 B	Pass



No. 05090





No.	Chemicals	Unit	Price	Brand	Full Market Price	Remarks
20	Tris	kg	1.800	BDH	APHA 11118	Full
21	Phosphate	kg	1.400	BDH	APHA 11118	Full
22	Chloroform	kg	1.100	BDH	APHA 11118	Full
23	Formic acid	kg	1.200	BDH	APHA 11118	Full
24	Formic acid	kg	1.100	BDH	APHA 11118	Full
25	Formic acid	kg	1.100	BDH	APHA 11118	Full
26	Formic acid	kg	1.100	BDH	APHA 11118	Full
27	Formic acid	kg	1.100	BDH	APHA 11118	Full
28	Formic acid	kg	1.100	BDH	APHA 11118	Full
29	Formic acid	kg	1.100	BDH	APHA 11118	Full
30	Formic acid	kg	1.100	BDH	APHA 11118	Full
31	Formic acid	kg	1.100	BDH	APHA 11118	Full
32	Formic acid	kg	1.100	BDH	APHA 11118	Full
33	Formic acid	kg	1.100	BDH	APHA 11118	Full
34	Formic acid	kg	1.100	BDH	APHA 11118	Full
35	Formic acid	kg	1.100	BDH	APHA 11118	Full
36	Formic acid	kg	1.100	BDH	APHA 11118	Full
37	Formic acid	kg	1.100	BDH	APHA 11118	Full
38	Formic acid	kg	1.100	BDH	APHA 11118	Full
39	Formic acid	kg	1.100	BDH	APHA 11118	Full
40	Formic acid	kg	1.100	BDH	APHA 11118	Full

Additional Information:

The overall performance is excellent and highly recommended for further orders.

Abbreviations:

- PNAC: Puncak Niaga Internasional Tbk. (Puncak Niaga)
- APHA: Asosiasi Pengusaha Hutan Indonesia (Asosiasi Pengusaha Hutan Indonesia)
- BDH: BDH Chemicals Ltd. (BDH Chemicals Ltd.)
- Formic acid: Formic acid (Formic acid)

Terms and Conditions:

- 1. Delivery: Delivery to customer's address. Free.
- 2. Payment: Payment to customer's account. Free.
- 3. Delivery: Delivery to customer's address. Free.

Notes and Comments:

- 1. All goods are delivered to the customer's address. Free.
- 2. Payment to customer's account. Free.
- 3. Delivery to customer's address. Free.
- 4. The overall performance is excellent and highly recommended for further orders.
- 5. The overall performance is excellent and highly recommended for further orders.

Remarks:

- 1. The overall performance is excellent and highly recommended for further orders.
- 2. The overall performance is excellent and highly recommended for further orders.
- 3. The overall performance is excellent and highly recommended for further orders.
- 4. The overall performance is excellent and highly recommended for further orders.
- 5. The overall performance is excellent and highly recommended for further orders.
- 6. The overall performance is excellent and highly recommended for further orders.
- 7. The overall performance is excellent and highly recommended for further orders.
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- 9. The overall performance is excellent and highly recommended for further orders.
- 10. The overall performance is excellent and highly recommended for further orders.

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No. 05091





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2023/AA/03-1

Date: 06 January 2023

Name of Industry/ Proposer: ZKH-RELIABLE (JV)

Address: ZKH-Reliable Bus Camp Mirala Road Station

Coordinates: 12.597449 N, 74.117084 E

Monitoring Point: Kasturba Road, Station

Monitoring Date: 23 December, 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameters	PHEQ Limits		Concentration
		Time-weighted Average	Concentration in Ambient Air (24 Hours)	
1	Carbon Monoxide (CO)	24 Hour	9 mg/m ³	4.1 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	120 µg/m ³	177.3 µg/m ³
3	Oxides of Nitrogen as (NO ₂)	24 Hour	40 µg/m ³	24.7 µg/m ³
4	Oxides of Nitrogen as (NO _x)	24 Hour	80 µg/m ³	48.8 µg/m ³
5	Respirable Particulate Matter PM ₁₀	24 Hour	100 µg/m ³	107.8 µg/m ³
6	Respirable Particulate Matter PM _{2.5}	24 Hour	25 µg/m ³	30 µg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	500 µg/m ³	291.8 µg/m ³
8	Ozone (O ₃)	24 Hour	120 µg/m ³	62.8 µg/m ³
9	Noise	24 Hours	67 dB	64.3 dB

Abbreviations: PHEQ, Punjab Environmental Quality Standards.

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Prepared By

Reviewed By
Report Date

Approved By



No. 10679





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOS/2023/AA/05-1

Date: 06 January, 2023

Name of Industry/Client: ZED-RELIABLE (JV)
 Address: ZED-Reliable Bus Camp Mersa Road Sialkot
 Coordinates: 32.307409 N, 74.317044 E
 Monitoring Point: Eastern Road, Sialkot
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hour
 Intervention Date: 23 December, 2022
 Completion Date: 24 December, 2022

No.	Time	CO ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	HPM ($\mu\text{g}/\text{m}^3$)	O ₃ ($\mu\text{g}/\text{m}^3$)
1.	2:30	9.3	184	27	39	284	163	119	59
2.	4:30	8.7	270	24	63	231	144	143	81
3.	6:30	7.9	110	28	34	210	155	110	70
4.	8:30	8.4	119	29	33	248	119	279	77
5.	10:30	4.3	265	24	48	168	110	110	59
6.	00:30	2.1	180	23	42	110	71	240	54
7.	2:30	1.7	90	29	47	97	39	213	38
8.	4:30	1.2	60	25	49	90	21	280	67
9.	6:30	0.7	31	22	38	68	20	232	31
10.	8:30	0.8	37	21	34	31	28	283	34
11.	10:30	2.7	81	24	43	91	31	360	39
12.	12:30	4.1	181	27	31	128	37	119	44
Average		4.3	177.5	24.5	48.4	147.8	80	291.8	62.9

Analyst By

Reviewed By
Report End



No. 10650





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/RS-1

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELAIBLE (TV)
 Address: ZKB-Reliable Base Camp Marala Road Sultan
 Coordinates: 32.507449 N, 74.517044 E
 Monitoring Point: Railway Road, Sultan
 Monitoring Nature: Noise
 Monitoring Interval: 2 Hours
 Intervention Date: 23 December, 2022
 Completion Date: 24 December, 2022

No.	Time	Noise dB	PERIOD
1.	2:30	71	Day 61 dB
2.	4:30	69	
3.	6:30	72	
4.	8:30	71	
5.	10:30	64	Night 53 dB
6.	00:30	59	
7.	2:30	57	
8.	4:30	58	
9.	6:30	60	Day 62 dB
10.	8:30	61	
11.	10:30	64	
12.	12:00	64	
Average:		64.2	

Project No.



No. 10651





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2023/AA/05-2

Date: 06 January 2023

Name of Industry/ Project: ZKB-RELIABLE (JV)

Address: ZKB-Reliable Dam Camp Mania Road Tullana

Coordinates: 12.491811 N, 74.589184 E

Monitoring Point: Ruras Road, Tullana

Monitoring Date: 24 December 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameters	PEQS Limits		Concentration
		Time weighted average	Concentration in ambient air (24 Hour)	
1	Carbon Monoxide (CO)	24 Hour	1 mg/m ³	1.0 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	120 µg/m ³	94.8 µg/m ³
3	Oxides of Nitrogen as (NO ₂)	24 Hour	40 µg/m ³	24.1 µg/m ³
4	Oxides of Nitrogen as (NO _x)	24 Hour	80 µg/m ³	48.2 µg/m ³
5	Respirable Particulate Matter (PM ₁₀)	24 Hour	170 µg/m ³	126.8 µg/m ³
6	Respirable Particulate Matter (PM _{2.5})	24 Hour	25 µg/m ³	18.7 µg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	700 µg/m ³	268.3 µg/m ³
8	Ozone (O ₃)	24 Hour	120 µg/m ³	42.3 µg/m ³
9	Noise	24 Hour	67 dB	79.4 dB

Abbreviations: PEQS: Punjab Environmental Quality Standards

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Analyst By

Analyst By



No. 10692





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOS/2023/AA/03-2

Date: 06 January, 2023

Name of Industry/Client: ZCB-RELIABLE (PV)
 Address: ZCB-Reliable Base Camp Merela Road Station
 Coordinates: 22.691815 N, 74.599584 E
 Monitoring Point: Bessa Road, Station
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 24 December, 2022
 Completion Date: 25 December, 2022

No.	Time	CO ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SPM ($\mu\text{g}/\text{m}^3$)	O ₃ ($\mu\text{g}/\text{m}^3$)
1.	1:00	1.47	58	28	39	167	49	311	69
2.	4:00	1.28	64	26	64	181	57	278	51
3.	6:00	0.99	91	29	35	161	69	267	71
4.	8:00	0.75	89	27	51	149	52	281	84
5.	10:00	0.68	78	24	47	124	39	264	65
6.	06:00	0.71	89	25	42	133	28	251	77
7.	2:00	0.82	54	25	44	96	24	234	64
8.	4:00	0.64	42	22	37	84	29	247	51
9.	6:00	0.72	51	29	46	77	16	261	48
10.	8:00	0.89	57	18	52	91	21	267	59
11.	10:30	1.21	41	21	34	129	28	249	52
12.	12:30	1.38	32	24	27	149	21	311	27
Average		1.0	64.8	24.1	46.2	126.8	38.7	269.2	62.4

Report No.

Report Date

Report Time



No. 10683





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/05-2

Date: 06 January, 2023

Name of Industry/ Client: ZED-RELIABLE (JV)
Address: ZED-Reliable Base Camp Marala Road Station
Coordinates: 32.691813 N, 74.300284 E
Monitoring Point: Bony Road, Station
Monitoring Nature: Noise
Monitoring Interval: 2 Hours
Intervention Date: 24 December, 2022
Completion Date: 21 December, 2022

No.	Time	Noise dB	FFQs
1.	1:00	48	Day 41 dB
2.	4:00	47	
3.	6:00	47	
4.	8:00	42	Night 55 dB
5.	10:00	36	
6.	00:00	34	
7.	2:00	33	Day 41 dB
8.	4:00	33	
9.	6:00	33	
10.	8:00	37	
11.	10:30	39	
12.	12:30	44	
Average:		34.6	

Prepared By

Reviewed By

Approved By



No. 10684





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2023/AA/03-1

Date: 06 January, 2023

Name of Industry/ Proponent: ZKB-RELIABLE (JV)

Address: ZKB-Reliable Bam Camp Marala Road Sialkot

Coordinates: 32.508043 N, 74.491733 E

Monitoring Point: Marala Road, In Front of Govt. Apprentices Training Center, Sialkot

Monitoring Date: 21 December, 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameter	PQS Limits		Concentration
		Time-weighted Average	Concentration in Ambient Air (24 Hour)	
1	Carbon Monoxide (CO)	24 Hour	1 mg/m ³	1.0 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	120 µg/m ³	45.8 µg/m ³
3	Oxide Of Nitrogen as (NO ₂)	24 Hour	40 µg/m ³	23.6 µg/m ³
4	Oxide Of Nitrogen as (NO _x)	24 Hour	80 µg/m ³	36.6 µg/m ³
5	Respirable Particulate Matter (PM ₁₀)	24 Hour	150 µg/m ³	171.8 µg/m ³
6	Respirable Particulate Matter (PM _{2.5})	24 Hour	15 µg/m ³	41.5 µg/m ³
7	Suspended Particulate Matter (SPM ₁₀)	24 Hour	500 µg/m ³	279 µg/m ³
8	Ozone (O ₃)	24 Hour	120 µg/m ³	21.8 µg/m ³
9	Noise	24 Hour	45 dB	26.1 dB

Abbreviation: PQS: Punjab Environmental Quality Standards

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Prepared By

Report No.



No. 10655





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOS/2023/AA/03-3

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELIABLE (JV)
 Address: ZKB-Reliable Base Camp Marala Road Sialkot
 Coordinates: 32.508143 N, 74.495732 E
 Monitoring Point: Marala Road, In Front of Govt. Agriculture Training Center, Sialkot
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 25 December, 2022
 Completion Date: 26 December, 2022

Sr.	Time	CO (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM (µg/m ³)	O ₃ (µg/m ³)
1.	12:00	2.1	27	29	81	219	47	349	18
2.	17:00	3.7	52	29	64	223	44	311	54
3.	19:00	2.8	44	27	37	209	31	334	61
4.	21:00	1.8	41	28	53	201	64	324	34
5.	23:00	1.4	39	24	47	212	55	294	37
6.	01:00	0.9	38	27	41	182	44	260	59
7.	03:00	0.7	40	22	38	129	29	214	31
8.	05:00	0.4	41	29	34	120	30	229	13
9.	07:00	0.9	44	21	29	104	29	240	54
10.	09:00	0.8	49	23	44	123	37	214	37
11.	11:00	1.6	31	28	49	189	48	257	32
12.	13:00	2.1	33	29	69	187	54	310	39
Average		1.6	43.8	25.6	50.6	173.8	43.3	279	33.8

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19/1
Reported by



No. 10656





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/05-1

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELIABLE (PV)
 Address: ZKB-Reliable Base Camp Marala Road Sialkot
 Coordinates: 32.500043 N, 74.493732 E
 Monitoring Point: Marala Road, In Front of Govt. Apprentices Training Center, Sialkot
 Monitoring Nature: Noise
 Monitoring Interval: 2 Hours
 Intervention Date: 25 December, 2022
 Completion Date: 26 December, 2022

Sl.	Time	Noise dB	PEQs
1.	11:00	64	Day 65 dB
2.	17:00	61	
3.	18:00	58	
4.	21:00	56	
5.	23:00	54	Night 55 dB
6.	01:00	52	
7.	03:00	51	
8.	05:00	52	Day 67 dB
9.	07:00	53	
10.	09:00	55	
11.	11:00	58	
12.	13:00	62	
Average		56.3	

Prepared By

Checked By

Approved By



No. 10687





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2023/AA/01-4

Date: 06 January 2023

Name of Industry/ Proponent: ZKB-RELIABLE (JV)

Address: ZKB-Reliable Base Camp Main Road Sialkot

Coordinates: 32.923317 N, 74.401976 E

Monitoring Point: Air Port Road, Double Cell Conduit, Sialkot

Monitoring Date: 28 December 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameters	PEQS Limit		Concentration
		Time-weighted average	Concentration in Ambient Air (24 Hours)	
1	Carbon Monoxide (CO)	24 Hour	1 mg/m ³	2.8 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	09 µg/m ³	81.1 µg/m ³
3	Oxides Of Nitrogen as (NO ₂)	24 Hour	40 µg/m ³	38.1 µg/m ³
4	Oxides Of Nitrogen as (NO _x)	24 Hour	80 µg/m ³	63.8 µg/m ³
5	Respirable Particulate Matter PM ₁₀	24 Hour	150 µg/m ³	140 µg/m ³
6	Respirable Particulate Matter PM _{2.5}	24 Hour	25 µg/m ³	36.1 µg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	890 µg/m ³	121.9 µg/m ³
8	Ozone (O ₃)	24 Hour	130 µg/m ³	51.8 µg/m ³
9	Noise	24 Hours	67 dB	71.4 dB

Abbreviation: PEQS: Punjab Environmental Quality Standards

Terms and Conditions

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Analyst

Client Representative

WELCOS Representative



No. 10658





AMBIENT AIR QUALITY MONITORING

Reference No. WELCON/2023/AA/03-4

Date: 06 January, 2023

Name of Industry/Client: ZCB-RELIABLE (TV)
 Address: ZCB-Reliable Base Camp Marala Road Bahawal
 Coordinates: 32.523517 N, 74.491976 E
 Monitoring Point: Air Port Road, Double Cell Condition, Station
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 26 December, 2022
 Completion Date: 27 December, 2022

No.	Time	CO ₂ (ppm/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM ₁₀ (µg/m ³)	O ₃ (ppb/m ³)
1.	11:00	2.3	91	18	81	199	11	413	11
2.	17:00	2.9	98	22	74	184	17	334	49
3.	19:00	2.8	110	26	78	194	12	394	42
4.	21:00	3.1	104	38	71	174	28	428	33
5.	23:00	2.4	81	29	77	181	44	416	43
6.	01:00	1.8	84	22	64	161	10	310	32
7.	03:00	1.4	79	26	40	177	28	234	39
8.	05:00	0.9	48	25	34	110	20	254	48
9.	07:00	0.7	54	21	31	104	19	298	42
10.	09:00	0.8	67	22	48	84	18	316	44
11.	11:00	1.7	81	24	52	89	29	347	49
12.	13:00	2.4	88	28	59	99	32	317	54
Average		2.0	81.3	30.1	63.8	143	36.1	337.9	51.8

Prepared By
[Signature]

Reviewed By
[Signature]
Rajeev Singh

Approved By
[Signature]
Rajeev Singh



No. 10659





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/03-4

Date: 06 January, 2023

Name of Industry/Client: ZKH-RELIABLE (TV)
Address: ZKH-Reliable Base-Camp Marula Road Saldus
Coordinates: 32.323117 N, 14.481976 E
Monitoring Point: Air Port Road, Double Cell Conduit, Saldus
Monitoring Nature: Noise
Monitoring Interval: 2 Hours
Intervention Date: 26 December, 2022
Completion Date: 27 December, 2022

No.	Time	Noise dB	PEQs
1.	17:00	68	Day 65 dB
2.	17:30	68	
3.	19:30	62	
4.	21:30	60	
5.	23:30	63	Night 55 dB
6.	01:30	58	
7.	03:30	54	
8.	05:30	52	Day 61 dB
9.	07:30	51	
10.	09:30	53	
11.	11:30	52	
12.	01:30	54	
Average:		57.8	


Monitoring Officer


Client Representative



No. 10690





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2021/AAQS-1

Date: 06 January, 2021

Name of Industry/ Project: ZKB-RELIABLE (IV)

Address: ZKB-Reliable Base Camp Masala Road Sialkot

Coordinates: 32.525117 N, 74.482685 E

Monitoring Point: Old Airport Road, Forta Main Line, Sialkot

Monitoring Date: 27 December 2020

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameter	PEQM Limit		Concentration
		Time-weighted Average	Concentration in Ambient Air (24 Hours)	
1	Carbon Monoxide (CO)	24 Hour	5 mg/m ³	1.4 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	120 µg/m ³	71.8 µg/m ³
3	Oxides Of Nitrogen as (NO _x)	24 Hour	40 µg/m ³	24.7 µg/m ³
4	Oxides Of Nitrogen as (NO ₂)	24 Hour	80 µg/m ³	14 µg/m ³
5	Respirable Particulate Matter PM ₁₀	24 Hour	150 µg/m ³	162.4 µg/m ³
6	Respirable Particulate Matter PM _{2.5}	24 Hour	35 µg/m ³	32.8 µg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	500 µg/m ³	238.7 µg/m ³
8	Ozone (O ₃)	24 Hour	130 µg/m ³	58.3 µg/m ³
9	Noise	24 Hours	65 dB	56.6 dB

Abbreviations: PEQM: Punjab Environmental Quality Standards

Terms and Conditions

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No. 10691





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOS/2023/AA/03-5

Date: 08 January, 2023

Name of Industry/ Client: ZKB-RELIABLE (TV)
 Address: ZKB-Reliable Base Camp Marala Road Sialkot
 Coordinates: 32.821557 N, 74.802685 E
 Monitoring Point: 03E Airport Road, First Main Line, Sialkot
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 27 December, 2022
 Completion Date: 28 December, 2022

No.	Time	CO (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM ₁₀ (µg/m ³)	O ₃ (µg/m ³)
1.	11:00	2.7	92	31	74	234	48	324	41
2.	17:00	2.8	96	28	72	207	42	349	71
3.	19:00	2.4	88	24	68	237	38	384	84
4.	21:00	2.1	93	27	63	201	34	331	71
5.	23:00	1.8	87	25	58	181	32	266	68
6.	01:00	1.6	78	22	54	147	18	316	61
7.	03:00	1.4	71	26	51	118	32	274	54
8.	05:00	1.1	64	22	48	121	16	258	62
9.	07:00	0.9	51	22	49	124	28	234	37
10.	09:00	0.7	48	26	51	131	21	196	44
11.	11:00	0.8	57	24	53	108	24	174	49
12.	13:00	0.9	59	25	57	147	28	192	54
Average:		1.6	73.8	24.7	58	162.4	32.9	276.9	58.1

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No. 10692





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2021/AA/03-5

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELIABLE (JV)
Address: ZKB-Reliable Base Camp Maina Road Sialkot
Coordinates: 32.521517 N, 74.482483 E
Monitoring Point: Old Airport Road, Force Main Line, Sialkot
Monitoring Name: Noise
Monitoring Interval: 2 Hours
Intervention Date: 27 December, 2022
Completion Date: 28 December, 2022

No.	Time	Noise dB	PEQ5
1.	13:00	44	Day 45 dB
2.	15:00	42	
3.	18:00	40	
4.	21:00	41	
5.	23:00	36	Night 51 dB
6.	01:00	34	
7.	03:00	35	
8.	05:00	33	
9.	07:00	33	Day 45 dB
10.	09:00	34	
11.	11:00	35	
12.	01:00	34	
Average:		36.8	

Prepared By

Checked By

Approved By



No. 10693





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCON/2023/AA/01-6

Date: 06 January, 2023

Name of Industry/ Project: ZCB-RELAIBLE (JV)

Address: ZCB-Relaible Base Camp Marsh Road Station

Coordinates: 32.496525 N, 74.532217 E

Monitoring Point: Mchalah Water Works (T10), Saltun

Monitoring Date: 28 December, 2022

Monitoring By: WELCON Representative

Monitoring Parameters

No.	Parameters	PEQ6 Limits		Concentration
		Time-weighted Average	Concentration in Ambient Air (24 Hour)	
1	Carbon Monoxide (CO)	24 Hour	1 mg/m ³	0.9 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	100 µg/m ³	44 µg/m ³
3	Oxides Of Nitrogen as (NO _x)	24 Hour	40 µg/m ³	22.3 µg/m ³
4	Oxides Of Nitrogen as (NO ₂)	24 Hour	80 µg/m ³	44 µg/m ³
5	Respirable Particulate Matter (PM ₁₀)	24 Hour	100 µg/m ³	94.6 µg/m ³
6	Respirable Particulate Matter (PM _{2.5})	24 Hour	27 µg/m ³	24.8 µg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	500 µg/m ³	338.5 µg/m ³
8	Ozone (O ₃)	24 Hour	100 µg/m ³	40.3 µg/m ³
9	Noise	24 Hours	65 dB	54.2 dB

Abbreviations: PEQ6: Pujah Environmental Quality Standards

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Prepared By: 

Analyst: 

Checked By: 



No. 10694





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOS/2023/AA/05-6

Date: 06 January, 2023

Name of Industry/Client: ZKH-RELIABLE (JV)
 Address: ZKH-Reliable Base Camp Main Road Sullist
 Coordinates: 12.489523 N, 78.133217 E
 Monitoring Point: Mubalab Water Works (T10), Sullist
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 28 December, 2022
 Completion Date: 29 December, 2022

No.	Time	CO ₂ (mg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM ₁₀ (µg/m ³)	O ₃ (µg/m ³)
1.	13:00	1.4	35	21	69	71	31	134	34
2.	17:00	1.2	34	27	33	74	30	131	47
3.	19:00	0.9	48	25	30	68	27	141	49
4.	21:00	0.8	37	22	46	61	28	148	44
5.	23:00	0.8	44	26	41	54	27	138	41
6.	01:00	0.8	41	18	43	48	23	168	38
7.	03:00	0.9	38	17	40	42	22	142	33
8.	05:00	0.7	31	19	38	45	24	132	38
9.	07:00	0.6	34	20	34	49	22	118	39
10.	09:00	0.8	39	24	41	48	23	124	42
11.	11:00	0.9	43	27	42	46	25	131	48
12.	13:00	1.1	48	28	48	49	26	127	49
Average:		0.9	44	22.3	44	54.6	24.8	139.3	43.3

Prepared By:

Reviewed By:

Approved By:



No. 10695





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/03-6

Date: 06 January, 2023

Name of Industry/Client: ZKB-RELIABLE (PV)
Address: ZKB-Reliable Base Camp Main Road Station
Coordinates: 32.489725 N, 74.330237 E
Monitoring Point: Mubalsh Water Works (TTR) Station
Monitoring Nature: Noise
Monitoring Interval: 1 Hour
Intervention Date: 28 December 2022
Completion Date: 28 December 2022

No.	Time	Noise dB	PPM
1.	17:00	41	Day 63 dB
2.	17:00	37	
3.	19:00	34	
4.	21:00	38	
5.	23:00	34	Night 51 dB
6.	01:00	33	
7.	03:00	34	
8.	05:00	36	Day 63 dB
9.	07:00	34	
10.	09:00	35	
11.	11:00	33	
12.	01:00	34	
Average:		34.8	

Project Manager

Client Representative

Auditor



No. 10696





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2023/AA/21-7

Date: 01 January, 2023

Name of Industry/ Proposer: ZKB-RELIABLE (JV)

Address: ZKB-Reliable Base Camp Main Road Sialkot

Coordinates: 32.381433 N, 74.548611 E

Monitoring Point: Islamic College Water Tank, Sialkot

Monitoring Date: 29 December, 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sr. No.	Parameters	PQS Limits		
		Time-weighted Average	Concentration in Ambient Air (24 Hour)	Concentration
1	Carbon Monoxide (CO)	24 Hour	5 $\mu\text{g}/\text{m}^3$	0.7 $\mu\text{g}/\text{m}^3$
2	Sulphur Dioxide (SO_2)	24 Hour	120 $\mu\text{g}/\text{m}^3$	18.8 $\mu\text{g}/\text{m}^3$
3	Oxide of Nitrogen as (NO_2)	24 Hour	40 $\mu\text{g}/\text{m}^3$	9 $\mu\text{g}/\text{m}^3$
4	Oxide of Nitrogen as (NO_x)	24 Hour	80 $\mu\text{g}/\text{m}^3$	22.8 $\mu\text{g}/\text{m}^3$
5	Respirable Particulate Matter PM_{10}	24 Hour	100 $\mu\text{g}/\text{m}^3$	35.4 $\mu\text{g}/\text{m}^3$
6	Respirable Particulate Matter $\text{PM}_{2.5}$	24 Hour	25 $\mu\text{g}/\text{m}^3$	16.4 $\mu\text{g}/\text{m}^3$
7	Suspended Particulate Matter (SPM)	24 Hour	300 $\mu\text{g}/\text{m}^3$	171 $\mu\text{g}/\text{m}^3$
8	Ozone (O_3)	24 Hour	100 $\mu\text{g}/\text{m}^3$	26.9 $\mu\text{g}/\text{m}^3$
9	Noise	24 Hours	67 dB	74 dB

Abbreviations: PQS: Punjab Environmental Quality Standards

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Prepared By


Reviewed By


Approved By




No. 10697





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOB/2023/AA/10-7

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELIABLE (PVT)
 Address: ZKB-Reliable Base Camp Manisa Road Station
 Coordinates: 32.501425 N, 74.540941 E
 Monitoring Point: Manisa College Water Tank, Station
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 29 December, 2022
 Completion Date: 30 December, 2022

No.	Time	CO ₂ (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM ₁₀ (µg/m ³)	Cl ₂ (µg/m ³)
1.	11:00	1.8	57	14	47	84	31	181	18
2.	17:00	1.1	31	8	32	54	24	148	29
3.	19:00	0.8	24	7	21	38	23	123	27
4.	21:00	2.4	15	8	18	28	11	114	31
5.	23:00	0.2	8	9	14	25	18	108	30
6.	01:00	0.1	6	2	10	28	12	98	24
7.	03:00	0.2	9	4	12	21	8	86	21
8.	05:00	0.2	7	8	16	34	11	101	22
9.	07:00	0.3	13	9	19	28	14	104	22
10.	09:00	0	15	11	23	32	15	118	28
11.	11:00	0.3	17	13	29	34	19	128	27
12.	13:00	0.6	24	15	32	38	23	142	33
Average		0.7	18.8	9	22.8	31.6	16.4	121	26.9

Prepared By

Reviewed By

Approved By



No. 10695





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/01-7

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELAIBLE (PV)
 Address: ZKB-Bulubin Base Camp Marala Road Sukkot
 Coordinates: 32.301455 N, 74.340961 E
 Monitoring Point: Henna College Water Tank, Sukkot
 Monitoring Nature: Noise
 Monitoring Interval: 2 Hours
 Intervention Date: 29 December, 2022
 Completion Date: 30 December, 2022

No.	Time	Noise dB	PKL%
1.	11:00	61	Day 67 dB
2.	15:00	58	
3.	19:00	56	
4.	23:00	53	
5.	23:00	52	Night 57 dB
6.	01:00	52	
7.	03:00	51	
8.	05:00	54	Day 67 dB
9.	07:00	52	
10.	09:00	51	
11.	11:00	53	
12.	01:00	55	
Average:		54	

Prepared By:

Checked By:

Approved By:



No. 10699





AMBIENT AIR QUALITY TEST REPORT

Reference No. WELCOS/2023/AA/03-E

Date: 06 January, 2023

Name of Industry/Proposer: ZED-RELIABLE (JV)

Address: ZED-Reliable Bus Camp Merita Road Sialkot

Coordinates: 32.348738 N, 74.499734 E

Monitoring Point: Office Area (Camp Site), Sialkot

Monitoring Date: 30 December, 2022

Monitoring By: WELCOS Representative

Monitoring Parameters

Sl. No.	Parameters	PEQS Limit		Concentration
		Class weighted average	Concentration in Ambient Air (24 Hour)	
1	Carbon Monoxide (CO)	24 Hour	1 mg/m ³	0.8 mg/m ³
2	Sulphur Dioxide (SO ₂)	24 Hour	120 µg/m ³	45.2 µg/m ³
3	Oxide Of Nitrogen as (NO ₂)	24 Hour	40 µg/m ³	8.7 µg/m ³
4	Oxide Of Nitrogen as (NO _x)	24 Hour	80 µg/m ³	15 µg/m ³
5	Respirable Particulate Matter PM ₁₀	24 Hour	100 µg/m ³	34.7 µg/m ³
6	Respirable Particulate Matter PM _{2.5}	24 Hour	35 µg/m ³	22.7 µg/m ³
7	Suspended Particulate Matter (SPM)	24 Hour	300 µg/m ³	168.2 µg/m ³
8	Ozone (O ₃)	24 Hour	100 µg/m ³	40.3 µg/m ³
9	Noise	24 Hour	67 dB	54 dB

Abbreviation: PEQS: Punjab Environmental Quality Standards

Terms and Conditions:

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Proposed By

Reported By

Approved By



No. 10700





AMBIENT AIR QUALITY MONITORING

Reference No. WELCOS/2023/AA/01-R

Date: 06 January, 2023

Name of Industry/Client: ZKB-RELIABLE (JV)
 Address: ZKB-Reliable Base Camp Maina Road Sialkot
 Coordinates: 32.544716 N, 74.499736 E
 Monitoring Point: Office Area (Camp Site), Sialkot
 Monitoring Nature: Ambient Air
 Monitoring Interval: 2 Hours
 Intervention Date: 30 December, 2022
 Completion Date: 31 December, 2022

No.	Time	CO (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SPM (µg/m ³)	O ₃ (µg/m ³)
1.	11:00	0.9	39	8	38	81	34	187	31
2.	13:00	0.8	67	13	32	78	37	216	48
3.	15:00	0.7	34	12	41	64	31	189	44
4.	17:00	0.6	38	9	44	37	28	181	41
5.	19:00	0.6	49	10	46	62	24	148	38
6.	21:00	0.5	44	8	32	31	17	137	41
7.	23:00	0.6	41	9	34	44	11	148	35
8.	01:00	0.4	24	8	30	33	13	131	38
9.	03:00	0.6	17	6	27	66	12	166	41
10.	05:00	0.5	27	8	29	44	14	154	48
11.	07:00	0.8	34	9	33	49	21	171	47
12.	09:00	0.7	48	7	34	33	23	189	32
Average:		0.6	45.2	8.9	33	34.3	22.3	166.2	43.3

Reported By

Approved By

Approved By



No. 10701





NOISE LEVEL MONITORING REPORT

Reference No. WELCOS/2023/AA/03-E

Date: 06 January, 2023

Name of Industry/ Client: ZKB-RELIABLE (JV)
Address: ZKB-Reliable Base Camp Mandla Road Sialkot
Coordinates: 32.542756 N, 74.494736 E
Monitoring Point: Office Area (Camp Site), Sialkot
Monitoring Nature: Noise
Monitoring Interval: 2 Hours
Intervention Date: 30 December, 2022
Completion Date: 11 December, 2022

No.	Time	Noise dB	PEEP
1.	11:00	63	Day 81 dB
2.	13:00	64	
3.	15:00	64	
4.	21:00	63	
5.	23:00	61	Night 53 dB
6.	01:00	54	
7.	03:00	53	
8.	05:00	52	Day 81 dB
9.	07:00	54	
10.	09:00	53	
11.	11:00	57	
12.	01:00	61	
Average:		58.3	

Nasir
Sialkot



No. 10702





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2023/GW/01-1

Date: 6 January, 2023

Client Name: ZKB-RELIABLE (JV)
 Address: ZKB-Reliable Steel Corp-Manda Road Station
 Sample Identification: Ground Water
 Sample Location: Kathoru Road
 Sample Collected/Provided: WELCOS Representative
 Sample Received Date: 31 December, 2022 Analysis Start Date: 31 December, 2022
 Analysis Completion Date: 6 January, 2023 Grab/Composite: Grab
 Environmental Conditions: Temperature: 21 ± 3 °C Humidity: ~70% RH

Analysis Parameters

S/N	Parameters	Units	PLGS	Result	Test Method Used	Remarks
1.	pH @ (Temp. 23.3 °C)	-	6.5-8.5	6.07	APHA 4500 H	Pass
2.	TDS	mg/l	< 1000	496	APHA 2540 C	Pass
3.	Odor	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
4.	Taste	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
5.	Color	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
6.	Chloride	mg/l	< 250	48	APHA 4500 Cl-B	Pass
7.	Phenolic Compounds as phenols	mg/l	-	NDL	APHA 8500-C & D USEPA method 420.1	Pass
8.	Hardness	mg/l	< 500	300	APHA 2540 C	Pass
9.	Turbidity	NTU	< 5	0.2	APHA 2130 B	Pass
10.	Fluoride	mg/l	< 1.5	0.48	APHA 4500 F B	Pass
11.	Nitrate (NO ₃)	mg/l	≤ 50	1.25	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂)	mg/l	≤ 1	NDL	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN)	mg/l	≤ 0.05	NDL	APHA 4500-CN B & E	Pass
14.	Cadmium	mg/l	0.01	NDL	APHA 3113 B	Pass
15.	Manganese	mg/l	≤ 0.5	NDL	APHA 3113 B	Pass
16.	Zinc	mg/l	5	NDL	APHA 3111 B	Pass
17.	Arsenic	mg/l	≤ 0.05	0.003	APHA 3134 B	Pass
18.	Copper	mg/l	1	NDL	APHA 3113-B	Pass
19.	Lead	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass



No. 10703





No.	Parameters	Units	PEQS	Result	Test Method Used	Remarks
20.	Nickel	mg/l	≤ 0.02	NDL	APHA 3113-B	Pass
21.	Aluminum	mg/l	≤ 0.2	NDL	APHA 3113-B	Pass
22.	Chromium	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass
23.	Mercury	mg/l	≤ 0.001	NDL	APHA 3114-C	Pass
24.	Selenium	mg/l	0.01	NDL	APHA 3114-C	Pass
25.	Antimony	mg/l	≤ 0.001	NDL	APHA 3113-B	Pass
26.	Barium	mg/l	0.7	NDL	APHA 3113-B	Pass
27.	Boron	mg/l	0.2	NDL	APHA 3113-B	Pass
28.	Chloride	mg/l	0.7	NDL	APHA 4100-ClB & D	Pass
29.	Total Folioms	cfu	0	0	APHA 9222-B	Pass
30.	Fecal	cfu	0	0	APHA 9222-D	Pass

Statement of Conformity:

The sample found complies in accordance with PEQS Limits for the tested parameters.

Abbreviations:

PEQS - Pasig Environmental Quality Standards NDL - Below Detectable Limit
 APHA - American Public Health Association TNTC - Too Numerous to Count
 cfu - Colony Forming Unit NTE - Nephelometric Turbidity Unit

Decision Rule:

Results ± Expanded Uncertainty within Limits: **Pass**
 Results ± Expanded Uncertainty exceeds Limits: **Fail**
 Results ± Expanded Uncertainty overlaps limits: **Indeterminate**

Terms and Conditions:

- Analysis was conducted on the request of proponent for his own PEQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 15 days after the issuance date of report from the laboratory.
- There is no retention time for Microbiological test samples. In case of retesting requirement from client, sample will be collected again.

Analyst

Report Eng

Supervisor



No. 10704





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS-2023/GW/03-2

Date: 6 January, 2023

Client Name: ZKB-RELIABLE (JV)
 Address: ZKB-Reliable Base Camp Merala Road Station
 Sample Identification: Ground Water
 Sample Location: Base Road
 Sample Collected Provided: WELCOS Representative
 Sample Received Date: 31 December, 2022 Analysis Start Date: 31 December, 2022
 Analysis Completion Date: 6 January, 2023 Grab/Composite: Grab
 Environmental Conditions: Temperature: 22 ± 3 °C Humidity: ~70% RH

Analysis Parameters

Sr.#	Parameters	Units	FEQS	Result	Test Method Used	Remarks
1.	pH @ (Temp: 23.8 °C)	-	8.5-8.7	8.99	APHA 4500 H ₂ O B	Pass
2.	TDS	mg/l	< 1000	810	APHA 2540 C	Pass
3.	Odor	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
4.	Taste	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
5.	Color	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
6.	Chloride	mg/l	< 250	92	APHA 4500 Cl ₂ B	Pass
7.	Phenolic Compounds as phenols	mg/l	-	NDL	APHA 5520-C & D USEPA method 820.1	Pass
8.	Hexamene	mg/l	< 100	340	APHA 2340 C	Pass
9.	Turbidity	NTU	< 3	0.2	APHA 2130 B	Pass
10.	Fluoride	mg/l	< 1.5	0.20	APHA 4500 F B	Pass
11.	Nitrate (NO ₃)	mg/l	< 50	10.68	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂)	mg/l	± 3	NDL	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN)	mg/l	± 0.05	NDL	APHA 4500-CN B & E	Pass
14.	Calcium	mg/l	0.01	NDL	APHA 3112 B	Pass
15.	Magnesium	mg/l	< 0.5	NDL	APHA 3112 B	Pass
16.	Zinc	mg/l	5	0.07	APHA 3111 B	Pass
17.	Arsenic	mg/l	± 0.05	0.014	APHA 3114 B	Pass
18.	Copper	mg/l	1	0.04	APHA 3113 B	Pass
19.	Lead	mg/l	± 0.05	NDL	APHA 3113 B	Pass



No. 10705





No.	Parameters	Units	PEQS	Result	Test Method Used	Remarks
20	Nickel	mg/l	±0.02	NDL	APHA 3113-B	Pass
21	Aluminum	mg/l	±0.2	NDL	APHA 3113-B	Pass
22	Chromium	mg/l	±0.05	NDL	APHA 3113-B	Pass
23	Mercury	mg/l	±0.001	NDL	APHA 3114-C	Pass
24	Selenium	mg/l	0.01	NDL	APHA 3114-C	Pass
25	Antimony	mg/l	±0.005	NDL	APHA 3113-B	Pass
26	Barium	mg/l	0.7	NDL	APHA 3113-B	Pass
27	Boron	mg/l	0.5	NDL	APHA 3113-B	Pass
28	Chloride	mg/l	0.5	NDL	APHA 4100 C1 B & D	Pass
29	Total Calcium	cfu	0	0	APHA 9222 B	Pass
30	Total	cfu	0	0	APHA 9222 D	Pass

Statement of Conformity:

The sample found complies in accordance with PEQS Limits for the tested parameters.

Abbreviations:

PEQS - Punjab Environmental Quality Standards. NDL - Below Detectable Limit
 APHA - American Public Health Association. TNSIC - Test Parameters to Check
 cfu - Colony Forming Unit. NTU - Nephelometric Turbidity Unit

Decision Rule:

Results \pm Expected Uncertainty within Limits: Pass
 Results \pm Expected Uncertainty exceeds Limits: Fail
 Results \pm Expected Uncertainty overlaps limits: Indeterminate

Terms and Conditions:

- Analysis was conducted on the request of payment for his own PEQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 15 days after the issuance date of report from the laboratory.
- There is no retention time for Microbiological metal samples. In case of retesting requirement from client, sample will be collected again.

Analyzed By

Reported By

Supervised By



No. 10706





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2023/GW/01-3

Date: 6 January, 2023

Client Name: EKB-RELIABLE (PV)
 Address: EKB-Reliable Base Camp Mandya Road Station
 Sample Identification: Ground Water
 Sample Location: T 10
 Sample Collected/Provided: WELCOS Representative
 Sample Received Date: 31 December, 2022 Analysis Start Date: 31 December, 2022
 Analysis Completion Date: 6 January, 2023 Grab/Composite: Grab
 Environmental Conditions: Temperature: 22 ± 3 °C Humidity: ~70% RH

Analysis Parameters

Sr.#	Parameters	Units	FEQS	Result	Test Method Used	Remarks
1.	pH @ (Temp. 22.8 °C)	-	6.5-8.5	7.34	APHA 4100B B	Pass
2.	TDS	mg/l	< 1000	340	APHA 2140 C	Pass
3.	Odor	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
4.	Taste	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
5.	Color	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
6.	Chloride	mg/l	< 250	18	APHA 4100 Cl B	Pass
7.	Fluoride Concentration as fluoride	mg/l	-	NDL	APHA 5100-C & D USEPA method 450.1	Pass
8.	Hardness	mg/l	< 500	228	APHA 2140 C	Pass
9.	Turbidity	NTU	< 5	0.1	APHA 2130 B	Pass
10.	Fluoride	mg/l	≤ 1.5	0.14	APHA 4100 F D	Pass
11.	Nitrate (NO ₃)	mg/l	≤ 50	NDL	APHA 4100 NO ₃ B	Pass
12.	Nitrite (NO ₂)	mg/l	≤ 3	NDL	APHA 4100 NO ₂ B	Pass
13.	Cyanide (CN)	mg/l	≤ 0.05	NDL	APHA 4100-CN B & E	Pass
14.	Calcium	mg/l	0.01	NDL	APHA 3111 B	Pass
15.	Magnesium	mg/l	< 0.5	NDL	APHA 3111 B	Pass
16.	Zinc	mg/l	5	0.07	APHA 3111 B	Pass
17.	Arsenic	mg/l	≤ 0.05	0.023	APHA 3114 B	Pass
18.	Copper	mg/l	5	NDL	APHA 3113 B	Pass
19.	Lead	mg/l	≤ 0.05	NDL	APHA 3113 B	Pass



No. 10707





No.	Parameters	Units	PEQS	Result	Test Method Used	Remarks
20.	Nickel	mg/l	≤ 0.02	NDL	APHA 3113-B	Pass
21.	Aluminum	mg/l	≤ 0.2	NDL	APHA 3113-B	Pass
22.	Chromium	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass
23.	Mercury	mg/l	≤ 0.001	NDL	APHA 3114 C	Pass
24.	Selenium	mg/l	0.01	NDL	APHA 3114 C	Pass
25.	Arsenic	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass
26.	Barium	mg/l	0.7	NDL	APHA 3113 B	Pass
27.	Boron	mg/l	0.3	NDL	APHA 3113-B	Pass
28.	Chloride	mg/l	0.1	NDL	APHA 4500 ClB B-G	Pass
29.	Total Carbon	etc	0	0	APHA 9223 B	Pass
30.	Zinc	etc	0	0	APHA 9222 D	Pass

Statement of Conformity:

The sample found complies in accordance with PEQS Limits for the tested parameters.

Abbreviations:

PEQS: Perjan Environmental Quality Standards NDL: Below Detection Limit
 APHA: American Public Health Association YNCC: Test Method by Count
 etc: Colony Forming Unit NTU: Nephelometric Turbidity Unit

Decision Rule:

Results < Expanded Uncertainty within Limits: **Pass**
 Results > Expanded Uncertainty exceeds Limits: **Fail**
 Results > Expanded Uncertainty exceeds limits: **Indeterminate**

Terms and Conditions:

- Analysis was conducted on the request of proponent for his own PEQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 11 days after the issuance date of report from the laboratory.
- There is no guarantee time for Microbiological tested samples. In case of retesting requirement from client, sample will be collected again.

Analyst By

Reviewer

Approved By



No. 10705





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2023/W/03-4

Date: 6 January, 2023

Client Name: ZKB-RELAIBLE (PV)
 Address: ZKB-Balokh Base Camp Mehta Road Sultan
 Sample Identification: Ground Water
 Sample Location: Sarsa College
 Sample Collected/Provided: WELCOS Representative
 Sample Received Date: 31 December, 2022 Analysis Start Date: 31 December, 2022
 Analysis Completion Date: 6 January, 2023 Grade/Composit: Qual.
 Environmental Conditions: Temperature: 25 ± 2 °C Humidity: < 70% RH

Analysis Parameters

Sr.#	Parameters	Units	ISIS	Result	Test Method Used	Remarks
1.	pH @ Temp. 23.7 °C	-	6.5-8.5	7.31	APHA 4500F B	Pass
2.	TDS	mg/l	< 1000	203	APHA 2540 C	Pass
3.	Odor	-	Non-Objectonable	Non-Objectonable	Sensory Method	Pass
4.	Taste	-	Non-Objectonable	Non-Objectonable	Sensory Method	Pass
5.	Color	-	Non-Objectonable	Non-Objectonable	Sensory Method	Pass
6.	Chloride	mg/l	< 250	13	APHA 4500 Cl-B	Pass
7.	Phenolic Compounds as phenols	mg/l	-	NDL	APHA-1570-C & D (ISIRI method 426.)	Pass
8.	Hardness	mg/l	< 300	210	APHA 2100 C	Pass
9.	Turbidity	NTU	< 5	0.4	APHA 2130 B	Pass
10.	Fluoride	mg/l	< 1.5	0.12	APHA 4500 F D	Pass
11.	Nitrate (NO ₃ -)	mg/l	< 50	2.68	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂ -)	mg/l	< 3	NDL	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN ⁻)	mg/l	< 0.05	NDL	APHA-4500-CN B & E	Pass
14.	Cadmium	mg/l	0.01	NDL	APHA-3113 B	Pass
15.	Manganese	mg/l	< 0.3	NDL	APHA-3113 B	Pass
16.	Zinc	mg/l	5	0.08	APHA 3111 B	Pass
17.	Arsenic	mg/l	< 0.05	0.018	APHA 3114 B	Pass
18.	Copper	mg/l	1	NDL	APHA 3115-B	Pass
19.	Lead	mg/l	< 0.05	NDL	APHA 3113-B	Pass



No. 10709





No.	Parameter	Units	PEQS	Result	Test Method Used	Remarks
20.	Nickel	mg/l	± 0.02	NDL	APHA 3113-B	Pass
21.	Aluminum	mg/l	± 0.2	NDL	APHA 3113-B	Pass
22.	Chromium	mg/l	± 0.05	NDL	APHA 3113-B	Pass
23.	Mercury	mg/l	± 0.001	NDL	APHA 3144-C	Pass
24.	Selenium	mg/l	0.01	NDL	APHA 3144-C	Pass
25.	Antimony	mg/l	± 0.001	NDL	APHA 3113-B	Pass
26.	Barium	mg/l	0.7	NDL	APHA 3113-B	Pass
27.	Boron	mg/l	0.3	NDL	APHA 3113-B	Pass
28.	Chloride	mg/l	0.1	NDL	APHA 4500-ClB & G	Pass
29.	Total Coliforms	cfu	0	0	APHA 9222-B	Pass
30.	E.coli	cfu	0	0	APHA 9222-D	Pass

Statement of Conformity:

The sample found compliant in accordance with PEQS Limits for the tested parameters.

Abbreviations:

PEQS: Punjab Environmental Quality Standards. NDL: Below Detectable Limit
 APHA: American Public Health Association. TNTC: Too Numerous to Count
 cfu: Colony Forming Unit. NTU: Nephelometric Turbidity Unit

Decision Rule:

Results ± Expanded Uncertainty within Limits: Pass
 Results ± Expanded Uncertainty exceeds Limits: Fail
 Results ± Expanded Uncertainty overlaps limits: Substandard

Terms and Conditions:

- Analysis was conducted on the request of payment for his own PEQS compliance.
- This report should be produced as a whole and not in part.
- The sample is retained for 15 days after the issuance date of report from the laboratory.
- There is no retention time for Microbiological tested samples. In case of retesting requirement from client, sample will be collected again.

Analyst

Report Preparer

Approved By



No. 10710





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS2023GW/05-5

Date: 6 January, 2023

Client Name: ZKD-RELIABLE (PV)
 Address: ZKD-Reliable Free Camp Maina Road/Sialkot
 Sample Identification: Ground Water
 Sample Location: Maina Road
 Sample Collected/Provided: WELCOS Representative
 Sample Received Date: 31 December, 2022 Analysis Start Date: 31 December, 2022
 Analysis Completion Date: 6 January, 2023 Grab/Composite: Grab
 Environmental Conditions: Temperature: 25 ± 1 °C Humidity: ~70% RH

Analysis Parameters

Sr.#	Parameters	Units	PCQS	Result	Test Method Used	Remarks
1.	pH @ (Temp. 25 °C)	-	6.5-8.5	6.81	APHA 4100B D	Pass
2.	TDS	mg/l	< 1000	1345	APHA 2540 C	Fail
3.	Color	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
4.	Taste	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
5.	Odor	-	Non-Objectivable	Non-Objectivable	Sensory Method	Pass
6.	Chloride	mg/l	< 250	241	APHA 4500 Cl B	Pass
7.	Phenolic Compounds as phenols	mg/l	-	NDL	APHA 5530-C & D (ISPCA method 420.1)	Pass
8.	Hardness	mg/l	< 500	838	APHA 1200 C	Fail
9.	Turbidity	NTU	< 3	3.4	APHA 2120 B	Pass
10.	Fluoride	mg/l	< 1.5	0.21	APHA 4500 F D	Pass
11.	Nitrate (NO ₃)	mg/l	≤ 50	27.45	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂)	mg/l	≤ 5	0.09	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN)	mg/l	≤ 0.05	NDL	APHA 4500-CN B & E	Pass
14.	Calcium	mg/l	0.01	NDL	APHA 3111 B	Pass
15.	Manganese	mg/l	≤ 0.5	NDL	APHA 3113 B	Pass
16.	Zinc	mg/l	5	NDL	APHA 3111 B	Pass
17.	Arsenic	mg/l	1.005	0.034	APHA 3134 B	Pass
18.	Copper	mg/l	2	0.07	APHA 3113-B	Pass
19.	Lead	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass



No. 10711





No.	Parameters	Units	PCQS	Result	Test Method Used	Remarks
20	Nickel	mg/l	± 0.02	NDL	APHA 3113-B	Pass
21	Aluminum	mg/l	± 0.2	NDL	APHA 3113-B	Pass
22	Chromium	mg/l	± 0.05	NDL	APHA 3113-B	Pass
23	Mercury	mg/l	± 0.001	NDL	APHA 3114-C	Pass
24	Selenium	mg/l	0.01	NDL	APHA 3114-C	Pass
25	Antimony	mg/l	± 0.005	NDL	APHA 3113-B	Pass
26	Boron	mg/l	0.7	NDL	APHA 3113-B	Pass
27	Bismuth	mg/l	0.3	NDL	APHA 3113-B	Pass
28	Chlorine	mg/l	0.7	NDL	APHA 4700/ClB & C	Pass
29	Total Coliforms	cfu	0	0	APHA 9222-B	Pass
30	E.coli	cfu	0	0	APHA 9221-D	Pass

Statement of Conformity:

The sample found **complies** in accordance with PCQS Limits for the tested parameters.

Abbreviations:

PCQS: Perjak Environmental Quality Standards. **NDL**: Below Detection Limit
 APHA: American Public Health Association. **TNTC**: Too Numerous to Count
 cfu: Colony Forming Unit. **NTU**: Nephelometric Turbidity Unit

Decision Rule:

Results ± Expanded Uncertainty within Limits: **Pass**
 Results ± Expanded Uncertainty exceeds Limits: **Fail**
 Results ± Expanded Uncertainty overlaps limits: **Indeterminate**

Terms and Conditions:

- Analysis was conducted on the request of proponent for his own PCQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 15 days after the issuance date of report from the laboratory.
- There is no Retention time for Microbiological tested samples. In case of retaining requirement from client, sample will be retained again.

Prepared By

Report End

Approved By



No. 10713





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOB/0223/GW/03-6

Date: 6 January, 2022

Client Name: ZKB-RELIABLE (PV)
 Address: ZKB-Reliable Base Camp Main Road Station
 Sample Identification: Ground Water
 Sample Location: Airport Road, Health Cell
 Sample Collected/Provided: WELCOB Representative
 Sample Received Date: 21 December, 2021 Analysis Start Date: 21 December, 2021
 Analysis Completion Date: 6 January, 2022 Graph/Composite: Graph
 Environmental Conditions: Temperature: 25 ± 5 °C Humidity: ~50% RH

Analysis Parameters

No.	Parameter	Units	FAAQ	Result	Test Method Used	Remarks
1.	pH @ Temp. (23.7 °C)	-	6.5-8.5	7.02	APHA 4500H ⁺ B	Pass
2.	TDS	mg/l	< 1000	940	APHA 2540 C	Pass
3.	Odor	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
4.	Taste	-	Non-Objectable	Objectable	Sensory Method	Fail
5.	Color	-	Non-Objectable	Objectable	Sensory Method	Fail
6.	Chloride	mg/l	< 250	40	APHA 4500-CL-B	Pass
7.	Phenolic Compounds as phenols	mg/l	-	NDL	APHA-1500-C & D IS USEPA method 420.1	Pass
8.	Hardness	mg/l	< 100	400	APHA 2340 C	Pass
9.	Turbidity	NTU	< 5	02	APHA 2120 B	Pass
10.	Fluoride	mg/l	± 1.2	0.3	APHA 4500 F 10	Pass
11.	Nitrate (NO ₃)	mg/l	≤ 50	NDL	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂)	mg/l	≤ 1	NDL	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN)	mg/l	< 0.05	NDL	APHA-4500-CN-B & E	Pass
14.	Cadmium	mg/l	0.01	NDL	APHA-3113 B	Pass
15.	Magnesium	mg/l	≤ 5	NDL	APHA-3112 B	Pass
16.	Zinc	mg/l	5	0.25	APHA 3111 B	Pass
17.	Arsenic	mg/l	< 0.05	0.025	APHA 3114 B	Pass
18.	Copper	mg/l	2	NDL	APHA 3113-B	Pass



No. 10713





Sr.#	Parameters	Units	PEQS	Result	Test Method Used	Remarks
19.	Lead	mg/l	± 0.05	NDL	APHA 3113-B	Pass
20.	Nickel	mg/l	± 0.02	NDL	APHA 3113-B	Pass
21.	Aluminum	mg/l	± 0.2	NDL	APHA 3113-B	Pass
22.	Chromium	mg/l	± 0.05	NDL	APHA 3113-B	Pass
23.	Mercury	mg/l	± 0.001	NDL	APHA 3114-C	Pass
24.	Selenium	mg/l	0.01	NDL	APHA 3114-C	Pass
25.	Antimony	mg/l	± 0.005	NDL	APHA 3113-B	Pass
26.	Barium	mg/l	0.7	NDL	APHA 3113-B	Pass
27.	Boron	mg/l	0.3	NDL	APHA 3113-B	Pass
28.	Chloride	mg/l	0.5	NDL	APHA 4500-ClB & D	Pass
29.	Total Coliforms	cfu	0	0	APHA 9222-B	Pass
30.	Fecal	cfu	0	0	APHA 9222-D	Pass

Statement of Conformity:

The sample found compliant in accordance with PEQS Limits for the tested parameters.

Abbreviations:

PEQS: Punjab Environmental Quality Standards BDL: Below Detectable Limit
 APHA: American Public Health Association TNTC: Too Numerous to Count
 cfu: Colony Forming Unit NTI: Nephelometric Turbidity Unit

Decision Rule:

Results ± Expanded Uncertainty within Limits: **Pass**
 Results ± Expanded Uncertainty exceeds Limits: **Fail**
 Results ± Expanded Uncertainty overlaps limits: **Indeterminate**

Terms and Conditions:

- Analysis was conducted on the request of proponent for his own PEQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 15 days after the issuance date of report from the laboratory.
- There is no Retention time for Microbiological tested samples. In case of retesting requirement from client, sample will be collected again.

Prepared By

Reviewed By

Approved By



No. 10714





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOB/2023/GW/01-7

Date: 6 January, 2023

Client Name: ZKB-RELIABLE (PVT)
 Address: ZKB-Reliable Base Camp Mansa Road Station
 Sample Identification: Ground Water
 Sample Location: Airport Road, Phase Main Line
 Sample Collected/Provided: WELCOB Representative
 Sample Received Date: 31 December, 2022 Analysis Start Date: 31 December, 2022
 Analysis Completion Date: 6 January, 2023 Grab/Composite: Grab
 Environmental Conditions: Temperature: 22 ± 2 °C Humidity: ~70% RH

Analysis Parameters

No.	Parameters	Units	FEQS	Result	Test Method Used	Remarks
1.	pH @ (Temp. 22.8 °C)	-	6.5-8.5	6.81	APHA 4500H ⁺ B	Pass
2.	TDS	mg/l	< 1000	874	APHA 2540 C	Pass
3.	Odor	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
4.	Taste	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
5.	Color	-	Non-Objectable	Non-Objectable	Sensory Method	Pass
6.	Chloride	mg/l	< 250	116	APHA 4500-Cl B	Pass
7.	Phosphate Composited as phosph	mg/l	-	NDL	APHA 4500-C & D LMETA method 4501	Pass
8.	Hardness	mg/l	< 500	108	APHA 1040 C	Fail
9.	Turbidity	NTU	< 5	1.2	APHA 2130 B	Pass
10.	Fluoride	mg/l	≤ 1.5	0.20	APHA 4500 F D	Pass
11.	Nitrate (NO ₃)	mg/l	≤ 50	11.5	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂)	mg/l	≤ 3	NDL	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN)	mg/l	≤ 0.05	NDL	APHA 4500-CN B & E	Pass
14.	Cadmium	mg/l	0.01	NDL	APHA 3113 B	Pass
15.	Manganese	mg/l	≤ 0.5	NDL	APHA 3111 B	Pass
16.	Zinc	mg/l	5	0.12	APHA 3111 B	Pass
17.	Arsenic	mg/l	≤ 0.05	0.025	APHA 3114 B	Pass
18.	Copper	mg/l	2	NDL	APHA 3113 B	Pass
19.	Lead	mg/l	≤ 0.05	NDL	APHA 3113 B	Pass



No. 10715





Sr.#	Parameters	Units	PEQS	Result	Test Method Used	Remarks
20.	Nickel	mg/l	± 0.02	NDL	APHA 3112-B	Pass
21.	Aluminum	mg/l	± 0.2	NDL	APHA 3112-B	Pass
22.	Chromium	mg/l	± 0.05	NDL	APHA 3112-B	Pass
23.	Manganese	mg/l	± 0.05	NDL	APHA 3114-C	Pass
24.	Selenium	mg/l	0.01	NDL	APHA 3114-C	Pass
25.	Antimony	mg/l	± 0.005	NDL	APHA 3112-B	Pass
26.	Boron	mg/l	0.7	NDL	APHA 3112-B	Pass
27.	Bismuth	mg/l	0.2	NDL	APHA 3112-B	Pass
28.	Cadmium	mg/l	0.2	NDL	APHA 4000 CB & D	Pass
29.	Total Coliforms	cfu	0	0	APHA 9222-B	Pass
30.	Fecal	cfu	0	0	APHA 9222-B	Pass

Statement of Conformity:

The sample found non-compliant in accordance with PEQS Limits for the listed parameters.

Abbreviations:

PEQS: Punjab Environmental Quality Standards BDL: Below Detectable Limit
 APHA: American Public Health Association TNTC: Too Numerous to Count
 cfu: Colony Forming Unit NTU: Nephelometric Turbidity Unit

Decision Rule:

Results ± Expanded Uncertainty within Limits: **Pass**
 Results ± Expanded Uncertainty exceeds Limits: **Fail**
 Results ± Expanded Uncertainty overlaps Limits: **Indeterminate**

Terms and Conditions:

- Analysis was conducted on the request of proponent for his own PEQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 15 days after the issuance date of report from the laboratory.
- There is no retention time for Microbiological based samples. In case of limiting requirement from client, sample will be collected again.



No. 10716





TEST REPORT OF GROUND WATER SAMPLE

Reference No. WELCOS/2022/GW/01-8

Date: 6 January, 2022

Client Name: ZKB-RELIABLE (PV)
 Address: ZKB-Reliable Base Camp Murda Road Sialkot
 Sample Identification: Ground Water
 Sample Location: Camp Site
 Sample Collected/Provided: WELCOS Representative
 Sample Received Date: 31 December, 2021 Analysis Start Date: 31 December, 2021
 Analysis Completion Date: 6 January, 2022 Grab/Composite: Grab
 Environmental Conditions: Temperature: 22 ± 1 °C Humidity: ~30% RH

Analysis Parameters

No.	Parameter	Unit	PEQS	Result	Test Method Used	Remarks
1.	pH @ (Temp. 24 °C)	-	6.5-8.5	7.17	APHA 4500 H	Pass
2.	TDS	mg/l	< 500	402	APHA 2540 C	Pass
3.	Odor	-	Non-Objectively	Non-Objectively	Sensory Method	Pass
4.	Taste	-	Non-Objectively	Objectively	Sensory Method	Fail
5.	Color	-	Non-Objectively	Objectively	Sensory Method	Fail
6.	Chloride	mg/l	< 250	20	APHA 4500 Cl B	Pass
7.	Phenolic Compounds as phenols	mg/l	-	NDL	APHA 5530-C & D (USEPA method 8211)	Pass
8.	Hardness	mg/l	< 500	280	APHA 2340 C	Pass
9.	Turbidity	NTU	< 5	6	APHA 2120 B	Fail
10.	Fluoride	mg/l	≤ 1.5	0.19	APHA 8100 F (D)	Pass
11.	Nitrate (NO ₃)	mg/l	< 20	NDL	APHA 4500 NO ₃ -B	Pass
12.	Nitrite (NO ₂)	mg/l	< 3	NDL	APHA 4500 NO ₂ -B	Pass
13.	Cyanide (CN)	mg/l	< 0.05	NDL	APHA 4500-CN B & E	Pass
14.	Calcium	mg/l	0.01	NDL	APHA 3111 B	Pass
15.	Magnesium	mg/l	< 0.2	NDL	APHA 3111 B	Pass
16.	Zinc	mg/l	1	0.06	APHA 3111 B	Pass
17.	Arsenic	mg/l	< 0.05	0.025	APHA 3114 B	Pass
18.	Copper	mg/l	1	NDL	APHA 3113 B	Pass



No. 10717





No.	Parameter	Units	PEQS	Result	Test Method Used	Remarks
19	Lead	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass
20	Nickel	mg/l	≤ 0.02	NDL	APHA 3113-B	Pass
21	Aluminum	mg/l	≤ 0.2	NDL	APHA 3113-B	Pass
22	Chromium	mg/l	≤ 0.05	NDL	APHA 3113-B	Pass
23	Mercury	mg/l	≤ 0.001	NDL	APHA 3114-C	Pass
24	Selenium	mg/l	0.01	NDL	APHA 3114-C	Pass
25	Antimony	mg/l	≤ 0.002	NDL	APHA 3113-B	Pass
26	Boron	mg/l	0.7	NDL	APHA 3113-B	Pass
27	Bismuth	mg/l	0.2	NDL	APHA 3113-B	Pass
28	Chloride	mg/l	0.5	NDL	APHA 4100-CLB & D	Pass
29	Total Coliform	cfu	0	0	APHA 9221-B	Pass
30	E.coli	cfu	0	0	APHA 9221-B	Pass

Statement of Conformity:

The sample found non-compliant to accordance with PEQS Limits for the listed parameters.

Abbreviations:

PEQS: Perjanj Environmental Quality Standards BDL: Below Detectable Limit
 APHA: American Public Health Association TWIC: Two Weeks in Case
 cfu: Colony Forming Unit NT: Nephelometric Turbidity Unit

Decision Rule:

Results ± Expanded Uncertainty within Limits: Pass
 Results ± Expanded Uncertainty exceeds Limits: Fail
 Results ± Expanded Uncertainty overlaps limits: Indeterminate

Terms and Conditions:

- Analysis was conducted on the request of program for his own PEQS compliance.
- This report should be produced as a whole and not in parts.
- The sample is retained for 17 days after the issuance date of report from the laboratory.
- There is no Retention time for Microbiological water samples. In case of retesting requirement from client, sample will be collected again.


Proposer By


Report Issued


Analyst By



no. 10715





GLOBAL ECO LAB

CERTIFIED LABORATORY FROM INH-USA

NOISE LEVEL MONITORING REPORT

Project Name: _____ Date: 20/08/2023
Site Location: _____
Client: _____
Address: _____
City: _____
State: _____
Country: _____

Sl. No.	Time	Noise Level		Remarks
		dB(A)	dB(C)	
1	11:00	51.5		
2	11:05	51.5		
3	11:10	51.5		
4	11:15	51.5		
5	11:20	51.5		
6	11:25	51.5		
7	11:30	51.5		
8	11:35	51.5		
9	11:40	51.5		
10	11:45	51.5		
11	11:50	51.5		
12	11:55	51.5		
13	12:00	51.5		
14	12:05	51.5		
15	12:10	51.5		
16	12:15	51.5		
17	12:20	51.5		
18	12:25	51.5		
19	12:30	51.5		
20	12:35	51.5		
21	12:40	51.5		
22	12:45	51.5		
23	12:50	51.5		
24	12:55	51.5		
25	13:00	51.5		
26	13:05	51.5		
27	13:10	51.5		
28	13:15	51.5		
29	13:20	51.5		
30	13:25	51.5		
31	13:30	51.5		
32	13:35	51.5		
33	13:40	51.5		
34	13:45	51.5		
35	13:50	51.5		
36	13:55	51.5		
37	14:00	51.5		
38	14:05	51.5		
39	14:10	51.5		
40	14:15	51.5		
41	14:20	51.5		
42	14:25	51.5		
43	14:30	51.5		
44	14:35	51.5		
45	14:40	51.5		
46	14:45	51.5		
47	14:50	51.5		
48	14:55	51.5		
49	15:00	51.5		
50	15:05	51.5		
51	15:10	51.5		
52	15:15	51.5		
53	15:20	51.5		
54	15:25	51.5		
55	15:30	51.5		
56	15:35	51.5		
57	15:40	51.5		
58	15:45	51.5		
59	15:50	51.5		
60	15:55	51.5		
61	16:00	51.5		
62	16:05	51.5		
63	16:10	51.5		
64	16:15	51.5		
65	16:20	51.5		
66	16:25	51.5		
67	16:30	51.5		
68	16:35	51.5		
69	16:40	51.5		
70	16:45	51.5		
71	16:50	51.5		
72	16:55	51.5		
73	17:00	51.5		
74	17:05	51.5		
75	17:10	51.5		
76	17:15	51.5		
77	17:20	51.5		
78	17:25	51.5		
79	17:30	51.5		
80	17:35	51.5		
81	17:40	51.5		
82	17:45	51.5		
83	17:50	51.5		
84	17:55	51.5		
85	18:00	51.5		
86	18:05	51.5		
87	18:10	51.5		
88	18:15	51.5		
89	18:20	51.5		
90	18:25	51.5		
91	18:30	51.5		
92	18:35	51.5		
93	18:40	51.5		
94	18:45	51.5		
95	18:50	51.5		
96	18:55	51.5		
97	19:00	51.5		
98	19:05	51.5		
99	19:10	51.5		
100	19:15	51.5		
101	19:20	51.5		
102	19:25	51.5		
103	19:30	51.5		
104	19:35	51.5		
105	19:40	51.5		
106	19:45	51.5		
107	19:50	51.5		
108	19:55	51.5		
109	20:00	51.5		
110	20:05	51.5		
111	20:10	51.5		
112	20:15	51.5		
113	20:20	51.5		
114	20:25	51.5		
115	20:30	51.5		
116	20:35	51.5		
117	20:40	51.5		
118	20:45	51.5		
119	20:50	51.5		
120	20:55	51.5		
121	21:00	51.5		
122	21:05	51.5		
123	21:10	51.5		
124	21:15	51.5		
125	21:20	51.5		
126	21:25	51.5		
127	21:30	51.5		
128	21:35	51.5		
129	21:40	51.5		
130	21:45	51.5		
131	21:50	51.5		
132	21:55	51.5		
133	22:00	51.5		
134	22:05	51.5		
135	22:10	51.5		
136	22:15	51.5		
137	22:20	51.5		
138	22:25	51.5		
139	22:30	51.5		
140	22:35	51.5		
141	22:40	51.5		
142	22:45	51.5		
143	22:50	51.5		
144	22:55	51.5		
145	23:00	51.5		
146	23:05	51.5		
147	23:10	51.5		
148	23:15	51.5		
149	23:20	51.5		
150	23:25	51.5		
151	23:30	51.5		
152	23:35	51.5		
153	23:40	51.5		
154	23:45	51.5		
155	23:50	51.5		
156	23:55	51.5		
157	00:00	51.5		
158	00:05	51.5		
159	00:10	51.5		
160	00:15	51.5		
161	00:20	51.5		
162	00:25	51.5		
163	00:30	51.5		
164	00:35	51.5		
165	00:40	51.5		
166	00:45	51.5		
167	00:50	51.5		
168	00:55	51.5		
169	01:00	51.5		
170	01:05	51.5		
171	01:10	51.5		
172	01:15	51.5		
173	01:20	51.5		
174	01:25	51.5		
175	01:30	51.5		
176	01:35	51.5		
177	01:40	51.5		
178	01:45	51.5		
179	01:50	51.5		
180	01:55	51.5		
181	02:00	51.5		
182	02:05	51.5		
183	02:10	51.5		
184	02:15	51.5		
185	02:20	51.5		
186	02:25	51.5		
187	02:30	51.5		
188	02:35	51.5		
189	02:40	51.5		
190	02:45	51.5		
191	02:50	51.5		
192	02:55	51.5		
193	03:00	51.5		
194	03:05	51.5		
195	03:10	51.5		
196	03:15	51.5		
197	03:20	51.5		
198	03:25	51.5		
199	03:30	51.5		
200	03:35	51.5		
201	03:40	51.5		
202	03:45	51.5		
203	03:50	51.5		
204	03:55	51.5		
205	04:00	51.5		
206	04:05	51.5		
207	04:10	51.5		
208	04:15	51.5		
209	04:20	51.5		
210	04:25	51.5		
211	04:30	51.5		
212	04:35	51.5		
213	04:40	51.5		
214	04:45	51.5		
215	04:50	51.5		
216	04:55	51.5		
217	05:00	51.5		
218	05:05	51.5		
219	05:10	51.5		
220	05:15	51.5		
221	05:20	51.5		
222	05:25	51.5		
223	05:30	51.5		
224	05:35	51.5		
225	05:40	51.5		
226	05:45	51.5		
227	05:50	51.5		
228	05:55	51.5		
229	06:00	51.5		
230	06:05	51.5		
231	06:10	51.5		
232	06:15	51.5		
233	06:20	51.5		
234	06:25	51.5		
235	06:30	51.5		
236	06:35	51.5		
237	06:40	51.5		
238	06:45	51.5		
239	06:50	51.5		
240	06:55	51.5		
241	07:00	51.5		
242	07:05	51.5		
243	07:10	51.5		
244	07:15	51.5		
245	07:20	51.5		
246	07:25	51.5		
247	07:30	51.5		
248	07:35	51.5		
249	07:40	51.5		
250	07:45	51.5		
251	07:50	51.5		
252	07:55	51.5		
253	08:00	51.5		
254	08:05	51.5		
255	08:10	51.5		
256	08:15	51.5		
257	08:20	51.5		
258	08:25	51.5		
259	08:30	51.5		
260	08:35	51.5		
261	08:40	51.5		
262	08:45	51.5		
263	08:50	51.5		
264	08:55	51.5		
265	09:00	51.5		
266	09:05	51.5		
267	09:10	51.5		
268	09:15	51.5		
269	09:20	51.5		
270	09:25	51.5		
271	09:30	51.5		
272	09:35	51.5		
273	09:40	51.5		
274	09:45	51.5		
275	09:50	51.5		
276	09:55	51.5		
277	10:00	51.5		
278	10:05	51.5		
279	10:10	51.5		
280	10:15	51.5		
281	10:20	51.5		
282	10:25	51.5		
283	10:30	51.5		
284	10:35	51.5		
285	10:40	51.5		
286	10:45	51.5		
287	10:50	51.5		
288	10:55	51.5		
289	11:00	51.5		
290	11:05	51.5		
291	11:10	51.5		
292	11:15	51.5		
293	11:20	51.5		
294	11:25	51.5		
295	11:30	51.5		
296	11:35	51.5		
297	11:40	51.5		
298	11:45	51.5		
299	11:50	51.5		
300	11:55	51.5		
301	12:00	51.5		
302	12:05	51.5		
303	12:10	51.5		
304	12:15	51.5		
305	12:20	51.5		
306	12:25	51.5		
307	12:30	51.5		
308	12:35	51.5		
309	12:40	51.5		
310	12:45	51.5		
311	12:50	51.5		



GLOBAL ECO LAB

CERTIFIED LABORATORY FROM THE PUNJAB

CHEMICAL & MICROBIOLOGICAL ANALYSIS TEST REPORT

Date: 11/11/2023

Name of Client:	
Name of Laboratory:	
Address:	
City:	
State:	
Country:	
Phone:	
Fax:	
E-mail:	
Website:	
Year of Establishment:	
ISO 9001:	
ISO 17025:	
Other Certifications:	

No.	Parameter	Unit	PCB	Concentration	Reference/Standard	Method	Statement of Conformity
1
2
3
4
5
6
7
8
9
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11
12
13
14
15
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17
18
19
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22
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47
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49
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Environmental Conditions: Temperature: 25.5 Humidity: 55%
Reference: ISIRI 10000
Approved Laboratory: GLOBAL ECO LAB
S.A.S. GLOBAL ECO LAB
We hereby certify that
The results of the analysis are in conformity with the requirements of the standard.
This report is valid for the following period:

1. Requested by: [Signature]
2. Analyzed by: [Signature]
3. Signature of Manager of the Laboratory: [Signature]
Name: _____
Address: _____
City: _____

GLOBAL ECO LAB



GLOBAL ECO LAB

ISO 17025:2017 CERTIFIED LABORATORY FROM EPA PAKISTAN

CHEMICAL & MICROBIOLOGICAL ANALYSIS TEST REPORT

Ref: GL/2024/001

Client Name: _____
Address: _____
City: _____
Country: _____
Sample Name: _____
Sample ID: _____
Sample Type: _____
Sample Quantity: _____
Sample Date: _____
Sample Location: _____

No.	Parameter	Unit	MSD	Concentration	Measurement Uncertainty	Method	Statement of Conformity
1	Temperature	°C	25.0	25.0	±0.1	Direct Reading	Complies
2	pH		7.2	7.2	±0.1	Direct Reading	Complies
3	Dissolved Oxygen	mg/L	8.5	8.5	±0.2	DO Meter	Complies
4	Total Dissolved Solids (TDS)	mg/L	120	120	±2%	Gravimetric	Complies
5	Total Suspended Solids (TSS)	mg/L	45	45	±2%	Gravimetric	Complies
6	Calcium (Ca)	mg/L	150	150	±2%	EDTA Titrimetric	Complies
7	Magnesium (Mg)	mg/L	80	80	±2%	EDTA Titrimetric	Complies
8	Total Hardness (Ca+Mg)	mg/L	230	230	±2%	EDTA Titrimetric	Complies
9	Chloride (Cl)	mg/L	180	180	±2%	Mercuric Nitrate	Complies
10	Sulfate (SO4)	mg/L	120	120	±2%	Barium Chloride	Complies
11	Total Hardness (CaCO3)	mg/L	230	230	±2%	EDTA Titrimetric	Complies
12	Free Chlorine Residual	mg/L	0.5	0.5	±0.05	DIPLOMAT	Complies
13	Total Chlorine Residual	mg/L	0.5	0.5	±0.05	DIPLOMAT	Complies
14	Total Coliforms	CFU/100ml	150	150	±10%	MPN	Complies
15	Fecal Coliforms	CFU/100ml	50	50	±10%	MPN	Complies
16	E. coli	CFU/100ml	10	10	±10%	MPN	Complies
17	Salmonella	CFU/100ml	0	0	±10%	MPN	Complies
18	Shigella	CFU/100ml	0	0	±10%	MPN	Complies
19	Staphylococcus aureus	CFU/100ml	0	0	±10%	MPN	Complies
20	Pseudomonas aeruginosa	CFU/100ml	0	0	±10%	MPN	Complies
21	Enterobacteriaceae	CFU/100ml	150	150	±10%	MPN	Complies
22	Streptococcus	CFU/100ml	0	0	±10%	MPN	Complies
23	Enterococcus	CFU/100ml	0	0	±10%	MPN	Complies
24	Acid fast bacilli	CFU/100ml	0	0	±10%	MPN	Complies
25	Amoebae	CFU/100ml	0	0	±10%	MPN	Complies
26	Parasites	CFU/100ml	0	0	±10%	MPN	Complies
27	Algae	CFU/100ml	0	0	±10%	MPN	Complies
28	Fungi	CFU/100ml	0	0	±10%	MPN	Complies
29	Protozoa	CFU/100ml	0	0	±10%	MPN	Complies
30	Viruses	CFU/100ml	0	0	±10%	MPN	Complies

1. Report prepared by: [Signature]
2. Checked by: [Signature]
3. Approved by: [Signature]

GLOBAL ECO LAB



GLOBAL ECO LAB

CERTIFIED LABORATORY FOR THE SDG

Address:
Phone:
Email:

SOIL LEVEL MONITORING REPORT

Name: _____ Date: 20/10/2023
Address: _____
Phone: _____
Email: _____
Name: _____
Address: _____
Phone: _____
Email: _____

Sl. No.	Soil Type	Moisture (%)	pH
1	100	20	7.5
2	100	20	7.5
3	100	20	7.5
4	100	20	7.5
5	100	20	7.5
6	100	20	7.5
7	100	20	7.5
8	100	20	7.5
9	100	20	7.5
10	100	20	7.5
11	100	20	7.5
12	100	20	7.5
13	100	20	7.5
14	100	20	7.5
15	100	20	7.5
16	100	20	7.5
17	100	20	7.5
18	100	20	7.5
19	100	20	7.5
20	100	20	7.5
21	100	20	7.5
22	100	20	7.5
23	100	20	7.5
24	100	20	7.5
25	100	20	7.5
26	100	20	7.5
27	100	20	7.5
28	100	20	7.5
29	100	20	7.5
30	100	20	7.5
31	100	20	7.5
32	100	20	7.5
33	100	20	7.5
34	100	20	7.5
35	100	20	7.5
36	100	20	7.5
37	100	20	7.5
38	100	20	7.5
39	100	20	7.5
40	100	20	7.5
41	100	20	7.5
42	100	20	7.5
43	100	20	7.5
44	100	20	7.5
45	100	20	7.5
46	100	20	7.5
47	100	20	7.5
48	100	20	7.5
49	100	20	7.5
50	100	20	7.5
51	100	20	7.5
52	100	20	7.5
53	100	20	7.5
54	100	20	7.5
55	100	20	7.5
56	100	20	7.5
57	100	20	7.5
58	100	20	7.5
59	100	20	7.5
60	100	20	7.5
61	100	20	7.5
62	100	20	7.5
63	100	20	7.5
64	100	20	7.5
65	100	20	7.5
66	100	20	7.5
67	100	20	7.5
68	100	20	7.5
69	100	20	7.5
70	100	20	7.5
71	100	20	7.5
72	100	20	7.5
73	100	20	7.5
74	100	20	7.5
75	100	20	7.5
76	100	20	7.5
77	100	20	7.5
78	100	20	7.5
79	100	20	7.5
80	100	20	7.5
81	100	20	7.5
82	100	20	7.5
83	100	20	7.5
84	100	20	7.5
85	100	20	7.5
86	100	20	7.5
87	100	20	7.5
88	100	20	7.5
89	100	20	7.5
90	100	20	7.5
91	100	20	7.5
92	100	20	7.5
93	100	20	7.5
94	100	20	7.5
95	100	20	7.5
96	100	20	7.5
97	100	20	7.5
98	100	20	7.5
99	100	20	7.5
100	100	20	7.5

Name: _____
Signature: _____
Signature: _____
Signature: _____

GLOBAL ECO LAB

Annexure D: SAHIWAL Lot-01 HSE CHECK LIST

Lot-01

The PMSC has developed and completed the following Environmental Monitoring Checklist for assessing the effectiveness of ESMP implementation at the project sites during the reporting period.

SO P. No	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
1	PERSONAL PROTECTIVE EQUIPMENT'S	Steel Toe Shoes			√	
		Helmets		√		
		Coveralls/ Uniforms			√	
		Gloves		√		
		Jacket		√		
		Goggles			√	
		Face Shields			√	
		Ear Muffs			√	
		Face Masks		√		
2	FIRST AID EQUIPMENT	Disposable PPEs			√	
3	ROAD SAFETY & TRAFFIC MANAGEMENT	Diversion Sign Boards		√		
		Removal of Waste Material		√		
		Fencing		√		
		Movement of Heavy Equipment at Night			√	
		Speed Limits		√		
		Lightening		√		
4	WORKERS WELFARE	Drinking Water		√		
		Changing Room			√	
		Smoking Area			√	
		Insurance of Workers			√	
		First Aid Facility		√		
		Toilets Available on Site		√		
5	FIRE FIGHTING EQUIPMENT	Fire Alarm			√	Not provided
		Fire Buckets/ Fire Extinguisher		√		
		Training		√		Conducted on site.
		Fire Fighting System at Camp Office		√		
			Emergency Drills			√
6	TRAINING REQUIREMENTS	Training Records		√	Tool box talk's attendance is available at site office. Attendance sheet and RFI for training of staff and labor is available.	


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SO P. No	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status			
				Yes	N O	Remarks	
		Attendance of Workers		√		Available at site office.	
7	GENERAL HOUSEKEEPING			√		Available at site office.	
8	SOPS FOR ACCIDENTS			√		SOP's of Govt. Of the Punjab Covid-19	
9	SOPs FOR SKILLED AND UNSKILLED LABOUR	Child Labor		√		Strictly Prohibited	
10	WORK AT HEIGHT	Safety Harness		√			
		Fixed Working Platform		√			
		Proper Access		√			
		Toe Boards on Platforms		√			
		Fencing Around Active Site				√	Work is not under confined space.
		Training of Workers			√		Training conducted on site. Daily toolbox talk is being conducted at site.
		Weather Conditions					No work carried under extreme Weather conditions.
		Signboards			√		
		Proper Supervision			√		On every daily visit, asking the site team to implement and Improve the safety measures at site.
		PPEs			√		PPEs are provided to the workers (safety harness, safety helmet , safety shoes)
		Communication			N/A		
		Proper Access i.e. ladder			√		
		Emergency Response Plan			√		
11	PITS & EXCAVATION	Proper Lighting		√			
		Sign Boards		√			
		Falling Objects Near Excavation			√		Excavated material is kept at least 2 feet away from trench side to avoid falling of material inside the trench.
		Noise & Dust			√		Dust is being controlled by sprinkling water while noise is under permissible limits.

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12	ELECTRICS ON SITE & YARD	Use Proper Insulated Wires		√		
		Wear Suitable PPEs		√		
		Working Place Must be Dry		√		
SO P. No .	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status			
			Yes	N o	Remarks	
13	LIFTING ERECTION	Check Overhead Electric Power Lines		√		
		Area Must be Barricaded		√		
		Wind Speed & Direction		√		
		Overhead Lines		√		
		Safe Working Load		√		
		Sign Boards		√		
		Driver License		√		
		PPEs		√		
14	CHEMICAL HANDLING & STORAGE	Stored in Proper Shade/ Dry Place		√		
		Store Kept Clean/ Not Use for Other Activity		√		
		Proper Ventilation		√		
		PPEs	√			
		First Aid Facility		√		
		Fire Extinguisher		√		
		Warning Signs		√		
15	HEAVY EQUIPMENT	Well Trained & Licensed Driver		√		
		Warning Light		√		
		Area Must be Barricaded		√		
		Correctly Positioned & Installed		√		
		Noise Monitoring		√		
		PPEs		√		
16	WELDING EQUIPMENT & OXYGEN CYLINDERS	Fire Extinguisher		√		
		Cylinder Stored in Enclosed Room		√		
		Warning Signs		√		
		Proper Ventilation		--		Welding is being done under open sky.
17	REPORTING OF ACCIDENT	Emergency Response Plan		√		
18	CONSTRUCTION ACTIVITIES NEAR HIGH VOLTAGE LINES	Total no. of Incident		N/A	-	
		Incident Investigation Reports		N/A	-	
	General Observations	Satisfactory HSE Arrangements				

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

SO P. No .	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		Remarks
			Yes	N o	
	Recommendations			
	<p>Name: MUHAMMAD ASAD JAVAID</p> <p>HSE EXPERT NESPAK SAHIWAL Signatures: </p>				

Lot-2 Sahiwal


The PMCSC has developed and completed the following Environmental Monitoring Checklist for assessing the effectiveness of ESMP implementation at the project sites during the reporting period.

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
1	PERSONAL PROTECTIVE EQUIPMENT'S				
		Steel Toe Shoes		√	Safety shoes provided to steel workshop and, RCC Factory workers for pipes manufacturing.
		Helmets		√	Issued to all Staff and Site workers
		Coveralls/ Uniforms			√ Labor utilized on the project is on daily wages. No permanent labor available. therefore, uniform cannot provide
		Gloves		√	Issued to RCC Factory , Steel Factory Workers and concrete pouring at site
		Visible Jacket		√	Issued to all Site Staff and workers
		Goggles		√	Issued to welders
		Face Shields		√	Issued to welders
		Ear Muffs		√	Available in stock, If noise level increased from 75 dB, the contractor will issue ear plugs to the labor
		Face Masks		√	Face Mask issued to all.
		Disposable PPE		√	Face Mask issued to all staff and workers, to protect from Covid-19
2	FIRST AID EQUIPMENT		√	Available at Site & Camp	
		Diversion Sign Boards		√	Provided at 27" dia site
		Removal of Waste Material		√	On regular basis
		Fencing		√	Project camp fencing are provided around the sphere
		Movement of Heavy Equipment at Night			√ Currently working during day time only
		Speed Limits		√	Speed signboards are provided at site & Camp
		Lightening		√	Sufficient lights are provided in workshop and Factory area in CGICOP Camp & Site area.
3	WORKERS WELFARE				
	Drinking Water		√	Mineral Drinking water is provided to all staff and workers	
	Changing Room		√	Using own residential facility	

Sr. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Smoking Area		√	Smoking area is not available	
		Insurance of Workers	√			
		First Aid Facility	√		First Aid facility provided in Camp and site	
		Toilets Available on Site	√		Sufficient Toilets are available in Camp for all	
4	FIRE FIGHTING EQUIPMENT	Fire Alarm		√	Provided at camp	
		Fire Buckets/ Fire Extinguisher		√	Fuel station, Generator room, workshop is provided with Fire Extinguishers and Fire Buckets	
		Training		√	Regularly organized at site.	
		Fire Fighting System at Camp Office		√	ABC Fire Extinguisher and Fire Bucket are provided	
		Emergency Drills		√	Will be conducted upon provision of fire/Emergency drill	
5	LIGHTING ALONG THE RIGHT OF WAY		√		Sufficient lighting is arranged at site	
6	TRAINING REQUIREMENT	Training Records	√		Tool box talk's attendance is available at site office. Attendance sheet for training of staff and labor is available.	
		Attendance of Workers		√	Available at site office.	
7	GENERAL HOUSEKEEPING		√		Daily practice to keep the site clean	
8	EMERGENCY RESPONSE PLAN		√		Available at site office.	
9	SOPS FOR ACCIDENTS		√		Emergency response team is established (Copy attached) and all staff is advised to contact emergency response team member in case of any accident occurs at site.	
10	SOPs FOR SKILLED AND UNSKILLED LABOUR		√		SOPs- Government of Punjab Covid-19 are implemented	
		Child Labour		√	Strictly Prohibited	
11	WORK AT HEIGHT	Safety Harness		√	Provided during deep excavation	
		Fixed Working Platform		√	Available at site	
		Proper Access		√	Suitable ladders & access provided for working areas accordingly	

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status			
			Yes	No	Remarks	
	Toe Boards on Platforms		√		Scaffolding not yet started.	
	Fencing Around Active Site		√		Fencing provided around the camp site	
	Training of Workers		√		Professional in-house Trainings are scheduled on each month regularly. Records are enclosed herewith. Daily toolbox meeting is being conducted at site.	
	Weather Conditions				No work is allowed under extreme weather conditions.	
	Signboards		√		Signboards are Provided at steel workshop and, RCC Factory workers for pipes manufacturing at all sites.	
	Proper Supervision		√		Management instructed Site team to implement and improve the safety measures at site.	
12	DRILLING OPERATION					
		Training			√	Drilling not yet started, we will arrange the training as required
		PPEs			√	N/A
		Communication			√	N/A
		Proper Access i.e., ladder			√	N/A
		Covering of bore holes			√	N/A
		Cordon off with steel sheets			√	N/A
Emergency Response Plan			√	N/A		
13	PITS & EXCAVATION					
		Proper Lighting		√		N/A
		Sign Boards		√		N/A
		Proper Access		√		N/A
		Underground Facilities				N/A
		Falling Objects Near Excavation		√		Hard barricading installed near deep excavation
		Noise & Dust		√		monitored by 3 rd party attached reports October, 2022
Excavated Material				Excavation started; Material will be stacked at nearest stock pile.		
14	ELECTRICS ON SITE & YARD					
		Use Proper Insulated Wires		√		implemented
		Wear Suitable PPEs		√		Provided suitable PPEs
			√		Dry working area provided	

Sr. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Check Overhead Electric Power Lines		√		Site Engineers and Safety Officer instructed to Check Overhead Power line prior to any excavation task.
15	LIFTING ERECTION			√		
		Area Must be Barricaded		√		All safety measures are brought into force in camp, whenever lifting Operation started.
		Wind Speed & Direction		√		Site Engineers and Safety Officer instructed to ensure checking of wind direction
		Overhead Lines		√		Site Engineers and Safety Officer instructed to ensure checking of overhead lines
		Safe Working Load		√		Crane are certified from 3 rd party inspection
		Sign Boards		√		Signboards are provided during lifting
		Driver License		√		Drivers having valid driving license
		PPEs		√		PPEs are provided
16	CHEMICAL HANDLING & STORAGE					
		Stored in Proper Shade/ Dry Place		√		All Chemical are stored in Proper Shaded/ Dry Place
		Store Kept Clean/ Not Use for Other Activity		√		Store Kept Clean/ Not Use for Other Activity
		Proper Ventilation		√		Proper Ventilation provided
		PPEs		√		Adequate PPEs are provided
		First Aid Facility		√		First Aid Facility provided Site & Camp
		Fire Extinguisher		√		Fire Extinguisher available
		Warning Signs		√		Warning Signs installed
17	HEAVY EQUIPMENT					Only material delivery vehicles inside the confined working space.
		Well Trained & Licensed Driver		√		Well Trained & Licensed Driver deployed
		Warning Light		√		Warning Light are fixed
		Area Must be Barricaded		√		Barricaded are provided during lifting
		Correctly Positioned & Installed		√		Crane and all lifting equipment are Correctly Positioned & Installed
		Noise Monitoring		√		Noise Monitoring by 3 rd party
		PPEs		√		PPEs provided to workforce
18	WELDING EQUIPMENT & OXYGEN CYLINDERS					
		Fire Extinguisher		√		Fire Extinguisher are provided in workshops

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
	Cylinder Stored in Enclosed Room		√		Cylinder Stored and Enclosed in Room
	Warning Signs		√		Warning Signs posted
	Proper Ventilation				Welding is being done under open sky.
19	REPORTING OF ACCIDENT	Emergency Response Plan		√	Emergency Response Plan available at camp site
20	CONSTRUCTION ACTIVITIES NEAR HIGH VOLTAGE LINES	Total no. of Incident			NIL
		Incident Investigation Reports			NIL
	General Observations	Satisfactory HSE Arrangements			
	Recommendations				
	Name: MUHAMMAD ASAD JAVAID	Signatures:			
	HSE EXPERT NESPAK SAHIWAL				

Lot 3 sahiwal

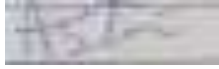
Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
1	PERSONAL PROTECTIVE EQUIPMENT'S	Steel Toe Shoes		√	Safety shoes provided to steel workshop and, RCC Factory workers for pipes manufacturing.
		Helmets		√	Issued to all Staff and Site workers
		Coveralls/ Uniforms		√	Labor utilized on the project is on daily wedges. No permanent labor available. therefore, uniform cannot provide
		Gloves		√	Issued to RCC Factory and Steel Factory workers
		Visible Jacket		√	Issued to all Site Staff and workers
		Goggles		√	Issued to welders
		Face Shields		√	Issued to welders

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
		Ear Muffs	√		Available in stock, If noise level increased from 75 dB, the contractor will issue ear plugs to the labor
		Face Masks	√		Face Mask issued to all.
		Disposable PPE	√		Face Mask issued to all staff and workers, to protect from Covid-19
2	FIRST AID EQUIPMENT		√		Available at Site & Camp
		Diversion Sign Boards	√		Provided at 72" dia
		Removal of Waste Material	√		On regular basis
		Fencing	√		Project camp fencing are provided around the sphere
		Movement of Heavy Equipment at Night		√	Currently working during day time only
		Speed Limits	√		Speed signboards are provided at site & Camp
		Lightening	√		Sufficient lights are provided in workshop and Factory area in CGICOP Camp & Site Area.
3	WORKERS WELFARE				
		Drinking Water	√		Mineral Drinking water is provided to all staff and workers
		Changing Room	√		Using own residential facility
		Smoking Area	√		Smoking area is available in each area
		Insurance of Workers	√		
		First Aid Facility	√		First Aid facility provided in Camp and site
		Toilets Available on Site	√		Sufficient Toilets are available in Camp for all
4	FIRE FIGHTING EQUIPMENT				
		Fire Alarm		√	Not provided
		Fire Buckets/ Fire Extinguisher	√		Fuel station, Generator room, workshop is provided with Fire Extinguishers and Fire Buckets
		Training	√		Regularly organized at site.
		Fire Fighting System at Camp Office	√		ABC Fire Extinguisher and Fire Bucket are provided
		Emergency Drills		√	
5	LIGHTING ALONG THE RIGHT OF WAY		√		Sufficient lighting is arranged at site

Sr. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
6	TRAINING REQUIREMENT	Training Records		√		Tool box talk's attendance is available at site office. Attendance sheet for training of staff and labor is available.
		Attendance of Workers		√		Available at site office.
7	GENERAL HOUSEKEEPING			√		Daily practice to keep the site clean
8	EMERGENCY RESPONSE PLAN			√		Available at site office.
9	SOPS FOR ACCIDENTS			√		
10	SOPs FOR SKILLED AND UNSKILLED LABOUR			√		SOPs- Government of Punjab Covid-19 are implemented
		Child Labour		√		Strictly Prohibited
11	WORK AT HEIGHT					
		Safety Harness		√		Provided during deep excavation
		Fixed Working Platform		√		Available at site
		Proper Access		√		Suitable ladders & access provided for working areas accordingly
		Toe Boards on Platforms		√		Scaffolding not yet started
		Fencing Around Active Site		√		Fencing provided around the camp site
		Training of Workers		√		Professional in-house Trainings are scheduled on each month regularly. Records are enclosed herewith. Daily toolbox meeting is being conducted at site.
		Weather Conditions				No work is allowed under extreme weather conditions.
		Signboards		√		Signboards are provided, when and where it required
Proper Supervision		√		Management instructed Site team to implement and improve the safety measures at site.		
12	DRILLING OPERATION					
		Training			√	Drilling not yet started, we will arrange the training as required
		PPEs			√	N/A

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
	Communication			√	N/A
	Proper Access i.e., ladder			√	N/A
	Covering of bore holes			√	N/A
	Cordon off with steel sheets			√	N/A
	Emergency Response Plan			√	N/A
13	PITS & EXCAVATION				
		Proper Lighting		√	Proper lighting are installed at excavation trench
		Sign Boards		√	N/A
		Proper Access		√	N/A
		Underground Facilities			N/A
		Falling Objects Near Excavation		√	Hard barricading installed near deep excavation
		Noise & Dust		√	monitored by 3 rd party attached reports October, 2022
Excavated Material		√	Excavation soil Material are stacking at nearest stock pile.		
14	ELECTRICS ON SITE & YARD				
		Use Proper Insulated Wires		√	implemented
		Wear Suitable PPEs		√	Provided suitable PPEs
		Working Place Must be Dry		√	Dry working area provided
			√	Site Engineers and Safety Officer instructed to Check Overhead Power line prior to any excavation task.	
15	LIFTING ERECTION			√	All safety measures are brought into force in camp, whenever lifting operation started.
		Area Must be Barricaded		√	Site Engineers and Safety Officer instructed to ensure checking of wind direction
		Wind Speed & Direction		√	Site Engineers and Safety Officer instructed to ensure checking of overhead lines
		Overhead Lines		√	Crane are certified from 3 rd party inspection
		Safe Working Load		√	Signboards are provided during lifting
		Sign Boards		√	Drivers having valid driving license
		Driver License		√	PPEs are provided
PPEs		√			

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
16	CHEMICAL HANDLING & STORAGE				
		Stored in Proper Shade/ Dry Place		√	All Chemical are stored in Proper Shaded/ Dry Place
		Store Kept Clean/ Not Use for Other Activity		√	Store Kept Clean/ Not Use for Other Activity
		Proper Ventilation		√	Proper Ventilation provided
		PPEs		√	Adequate PPEs are provided
		First Aid Facility		√	First Aid Facility provided Site & Camp
		Fire Extinguisher		√	Fire Extinguisher available
		Warning Signs		√	Warning Signs installed
17	HEAVY EQUIPMENT				Only material delivery vehicles inside the confined working space.
		Well Trained & Licensed Driver		√	Well Trained & Licensed Driver deployed
		Warning Light		√	Warning Light are fixed
		Area Must be Barricaded		√	Barricaded are provided during lifting
		Correctly Positioned & Installed		√	Crane and all lifting equipment are Correctly Positioned & Installed
		Noise Monitoring		√	Noise Monitoring by 3 rd party
		PPEs		√	PPEs provided to workforce
18	WELDING EQUIPMENT & OXYGEN CYLINDERS				
		Fire Extinguisher		√	Fire Extinguisher are provided in workshops
		Cylinder Stored in Enclosed Room		√	Cylinder Stored and Enclosed in Room
		Warning Signs		√	Warning Signs posted
19	REPORTING OF ACCIDENT				
		Emergency Response Plan		√	Emergency Response Plan available at camp site
20	CONSTRUCTION ACTIVITIES NEAR HIGH VOLTAGE LINES	Total no. of Incident			NIL
		Incident Investigation Reports			NIL
	General Observations	Satisfactory HSE Arrangements			
	Recommendations				

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
	Name: MUHAMMAD ASAD JAVAID Signatures: 				
	HSE EXPERT NESPAK SAHIWAL				

Lot 4 sahiwal

Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status			
			Yes	No	Remarks	
1	PERSONAL PROTECTIVE EQUIPMENT'S					
		Steel Toe Shoes		√	Safety shoes provided to steel workshop and, RCC Factory workers for pipes manufacturing.	
		Helmets		√	Issued to all Staff and Site workers	
		Coveralls/ Uniforms			√	Labor utilized on the project is on daily wages. No permanent labor available. therefore, uniform cannot provide
		Gloves		√	Issued to RCC Factory , Steel Factory Workers and concrete pouring at site	
		Visible Jacket		√	Issued to all Site Staff and workers	
		Goggles		√	Issued to welders	
		Face Shields		√	Issued to welders	
		Ear Muffs		√	Available in stock, If noise level increased from 75 dB, the contractor will issue ear plugs to the labor	
		Face Masks		√	Face Mask issued to all.	
		Disposable PPE		√	Face Mask issued to all staff and workers, to protect from Covid-19	
2	FIRST AID EQUIPMENT		√	Available at Site & Camp		
		Diversion Sign Boards		√	Provided at 72" dia site	
		Removal of Waste Material		√	On regular basis	
		Fencing		√	Project camp fencing are provided around the sphere	
		Movement of Heavy Equipment at Night			√	Currently working during day time only
		Speed Limits		√	Speed signboards are provided at site & Camp	
		Lightening		√	Sufficient lights are provided in workshop and Factory area in CGICOP Camp & Site area.	
3	WORKERS WELFARE					
	Drinking Water		√	Mineral Drinking water is provided to all staff and workers		
	Changing Room		√	Using own residential facility		


Sr. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Smoking Area			√	Smoking area is not available
		Insurance of Workers		√		
		First Aid Facility		√		First Aid facility provided in Camp and site
		Toilets Available on Site		√		Sufficient Toilets are available in Camp for all
4	FIRE FIGHTING EQUIPMENT	Fire Alarm		√		Provided at camp
		Fire Buckets/ Fire Extinguisher		√		Fuel station, Generator room, workshop is provided with Fire Extinguishers and Fire Buckets
		Training		√		Regularly organized at site.
		Fire Fighting System at Camp Office		√		ABC Fire Extinguisher and Fire Bucket are provided
		Emergency Drills			√	Will be conducted upon provision of fire/Emergency drill
5	LIGHTING ALONG THE RIGHT OF WAY			√		Sufficient lighting is arranged at site
6	TRAINING REQUIREMENT	Training Records		√		Tool box talk's attendance is available at site office. Attendance sheet for training of staff and labor is available.
		Attendance of Workers		√		Available at site office.
7	GENERAL HOUSEKEEPING			√		Daily practice to keep the site clean
8	EMERGENCY RESPONSE PLAN			√		Available at site office.
9	SOPS FOR ACCIDENTS			√		Emergency response team is established (Copy attached) and all staff is advised to contact emergency response team member in case of any accident occurs at site.
10	SOPs FOR SKILLED AND UNSKILLED LABOUR			√		SOPs- Government of Punjab Covid-19 are implemented
		Child Labour		√		Strictly Prohibited
11	WORK AT HEIGHT	Safety Harness		√		Provided during deep excavation
		Fixed Working Platform		√		Available at site
		Proper Access		√		Suitable ladders & access provided for working areas accordingly

Sr. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status			
				Yes	No	Remarks	
		Toe Boards on Platforms		√		Scaffolding not yet started.	
		Fencing Around Active Site		√		Fencing provided around the camp site	
		Training of Workers		√		Professional in-house Trainings are scheduled on each month regularly. Records are enclosed herewith. Daily toolbox meeting is being conducted at site.	
		Weather Conditions				No work is allowed under extreme weather conditions.	
		Signboards		√		Signboards are Provided at steel workshop and, RCC Factory workers for pipes manufacturing at all sites.	
		Proper Supervision		√		Management instructed Site team to implement and improve the safety measures at site.	
12	DRILLING OPERATION						
			Training			√	Drilling not yet started, we will arrange the training as required
			PPEs			√	N/A
			Communication			√	N/A
			Proper Access i.e., ladder			√	N/A
			Covering of bore holes			√	N/A
			Cordon off with steel sheets			√	N/A
	Emergency Response Plan			√	N/A		
13	PITS & EXCAVATION						
			Proper Lighting		√		N/A
			Sign Boards		√		N/A
			Proper Access		√		N/A
			Underground Facilities				N/A
			Falling Objects Near Excavation		√		Hard barricading installed near deep excavation
			Noise & Dust		√		Planned to be monitored by 3 rd party in December, 2022
	Excavated Material				Excavation soil; Material are stacking at temporary dumping .		
14	ELECTRICS ON SITE & YARD						
			Use Proper Insulated Wires		√		implemented
			Wear Suitable PPEs		√		Provided suitable PPEs
	Working Place Must be Dry		√		Dry working area provided		

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Sr. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Check Overhead Electric Power Lines		√		Site Engineers and Safety Officer instructed to Check Overhead Power line prior to any excavation task.
15	LIFTING ERECTION			√		
		Area Must be Barricaded		√		All safety measures are brought into force in camp, whenever lifting Operation started.
		Wind Speed & Direction		√		Site Engineers and Safety Officer instructed to ensure checking of wind direction
		Overhead Lines		√		Site Engineers and Safety Officer instructed to ensure checking of overhead lines
		Safe Working Load		√		Crane are certified from 3 rd party inspection
		Sign Boards		√		Signboards are provided during lifting
		Driver License		√		Drivers having valid driving license
		PPEs		√		PPEs are provided
16	CHEMICAL HANDLING & STORAGE					
		Stored in Proper Shade/ Dry Place		√		All Chemical are stored in Proper Shaded/ Dry Place
		Store Kept Clean/ Not Use for Other Activity		√		Store Kept Clean/ Not Use for Other Activity
		Proper Ventilation		√		Proper Ventilation provided
		PPEs		√		Adequate PPEs are provided
		First Aid Facility		√		First Aid Facility provided Site & Camp
		Fire Extinguisher		√		Fire Extinguisher available
		Warning Signs		√		Warning Signs installed
17	HEAVY EQUIPMENT					Only material delivery vehicles inside the confined working space.
		Well Trained & Licensed Driver		√		Well Trained & Licensed Driver deployed
		Warning Light		√		Warning Light are fixed
		Area Must be Barricaded		√		Barricaded are provided during lifting
		Correctly Positioned & Installed		√		Crane and all lifting equipment are Correctly Positioned & Installed
		Noise Monitoring		√		Noise Monitoring by 3 rd party
		PPEs		√		PPEs provided to workforce
18	WELDING EQUIPMENT & OXYGEN CYLINDERS					
		Fire Extinguisher		√		Fire Extinguisher are provided in workshops

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Sr. No.	Monitoring Parameters for Safe System of Work	Triggered Yes/No	Compliance Status		
			Yes	No	Remarks
	Cylinder Stored in Enclosed Room		√		Cylinder Stored and Enclosed in Room
	Warning Signs		√		Warning Signs posted
	Proper Ventilation				Welding is being done under open sky.
19	REPORTING OF ACCIDENT	Total no of incidents		√	01 Accident is reported in this reporting period. Incident report is submitted to ADB and also attached as Annex-H
		Emergency Response Plan		√	Emergency Response Plan available at camp site
20	CONSTRUCTION ACTIVITIES NEAR HIGH VOLTAGE LINES	Total no. of Incident			NIL
		Incident Investigation Reports			NIL
	General Observations	Satisfactory HSE Arrangements			
	Recommendations				
	Name: MUHAMMAD ASAD JAVAID	Signatures:			
	HSE EXPERT NESPAK SAHIWAL				

Annexure E: SIALKOT Lot-01, Lot-02, Lot-03, Lot-4 & WWTP HSE CHECKLIST

Sr. no	Description	Compliance Status (December 2022) – Lot 1-4		
		Ye s	No	Comments
Camp Site				
1.	Copy of the Site specific EMP is provided at the camp site/contractors office?	✓		
2.	The EMP instructions are understood?	✓		
3.	An individual is nominated for implementation of EMP?	✓		
4.	LPG cylinders are provided for cooking or heating purposes?	✓		Only for cooking purpose at camp site
5.	The safety precautions as per ILO convention no.62 are being followed?	✓		
6.	Project activities are displayed at proper locations?	✓		
7.	No Wood is being used as a fuel?	✓		
8.	First Aid Kit is provided at camp and individual nominated for addressing emergency?	✓		
9.	Campsite is fenced to prevent trespassing?	✓		
10.	Environmental Monitoring Record is maintained?	✓		Maintained for each quarter
11.	Record of Grievances Log and registered the complaints from community are maintained?	✓		
12.	Arrangement for proper storage and disposal for solid waste is planned?	✓		
13.	Septic Tank and Soak Pits are designed for treatment of effluents?	✓		
14.	Training to workers is being provided to effectively implement project specific EMP?	✓		
15.	Child labor or forced labor is prohibited?	✓		
16.	Community consultation has been carried out for project activities/concerns?	✓		
17.	No Complaint filed regarding transmission of Communicable diseases (such as STI's and HIV/AIDS).	✓		
COVID-19				
18.	Not any person showed symptoms e.g. fever, High body temperature, coughing, difficulty in breathing, chest pain.		✓	Mild Symptoms of Fever and Cough were recorded. After concerning the doctor, he said that it is seasonal.
19.	Daily temperature is being checked?	✓		
20.	No hand shake policy is observed?	✓		
21.	Conduct awareness regarding protection from COVID?	✓		

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Sr. no	Description	Compliance Status (December 2022) – Lot 1-4		
		Yes	No	Comments
22.	Disinfection of offices and machinery is ensured??	✓		
23.	Facemask and sanitizers are available on site for working staff?	✓		
24.	Everybody wearing facemask at the workplace?	✓		
Health & Safety				
25.	Safety signs are properly displayed?	✓		
26.	HSE plan and Emergency Response Procedures are implemented?	✓		
27.	Project site is fenced to prevent trespassing?	✓		Fenced and maintained regularly, Pictures attached.
28.	Place Barricading around excavation; and safety procedures should be followed?	✓		
29.	Fire Alarm, Fire Buckets/ Fire Extinguisher are available on site.	✓		
30.	Emergency Drills?	✓		
31.	Movement of Heavy Vehicles at night?	✓		
32.	Sign Boards are properly displayed?	✓		Yes, Pictures are attached in photo log Section.
33.	PPE's (e.g. Steel Toe shoes, helmets, Gloves, Jackets etc) are available for workers?	✓		
Physical Conditions				
Ambient Air Quality				
34.	Dust Generation during construction well managed and record exists??	✓		So far dust generation in negligible in most of areas, water sprinkling is being carried out to reduce dust emissions.
35.	Are dust emissions being regulated through sprinkling water on the routes being used?	✓		Water browsers have been deployed for the purpose.
36.	Water sprinkling record is available?	✓		Pictures attached in Good Environmental Practice Section.
37.	Are vehicle speeds being monitored to avoid excessive dust emissions at dust prone areas?	✓		
38.	Are vehicle properly tuned/maintained to reduce air emissions?	✓		
Noise Control				
39.	Are noise levels remained within safe limits (<75dB)?	✓		
40.	In case excessive noise levels are detected have appropriate mitigation measures been taken?	✓		
41.	Is restriction on playing tape records and blowing pressure horns etc. is being observed?	✓		
42.	No complaints were made due to noise and vibration?	✓		


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Sr. no	Description	Compliance Status (December 2022) – Lot 1-4		
		Yes	No	Comments
43.	Construction activities carried out in daylight to reduce the impact of noise?	✓		
Waste Generation and Handling				
44.	Arrangement for proper storage and disposal for solid waste is planned?	✓		
45.	Are the waste bins emptied regularly on the designated area?	✓		
46.	Is food waste disposed on separate places?	✓		
47.	Is any medical waste generated and handled properly?	✓		
48.	Has any natural drainage been disturbed or altered?	✓		
49.	Septic Tank and Soak Pits are designed for treatment of effluents?	✓		
50.	Contractors properly dispose debris materials in barren land, preferably recycling, reuse process?	✓		
51.	No impact on the means of livelihood of the community regarding waste management?	✓		
Fuel / Lubricant				
52.	Are the fuel tanks properly marked with their contents?	✓		
53.	Are the fuels and oils handled in a safe manner, ensuring no leakage or spillage?	✓		
54.	Fuel/oil storage areas are away from watercourses?	✓		
55.	No Contamination of surface or ground water by oil spillage, solid waste dumping	✓		
56.	Fuel/oil storage areas, at least 200m away from watercourses	✓		
57.	No Any spillage of liquid waste occurred?	✓		
58.	If spillage occurred, managed properly?	✓		No spillage has occurred
Traffic Management				
59.	Traffic Signs are Properly Displayed?	✓		
60.	Is vehicle speed limit of 30 km/hr being followed?	✓		
61.	Is the movement of all project vehicles and personnel been restricted to within the work areas?	✓		
62.	Do all vehicles and equipment have muffles to reduce noise levels whilst working close to communities?	✓		
63.	Movement of machinery restricted to designated routes?	✓		
64.	Construction vehicles, machinery and equipment stated in designated places within Row?	✓		
Biological Conditions				
Flora				
65.	No Tree has cut/uprooted?	✓		Until now work is in urban units without vegetation

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Sr. no	Description	Compliance Status (December 2022) – Lot 1-4		
		Yes	No	Comments
66.	No trees and branches have been used as fuel wood?	✓		
Fauna				
67.	Are the drivers careful and watchful about wild and domestic animals?	✓		
68.	Not any damage to animals occurred?	✓		
Encroachment Historical/ Cultural / Archaeological sites				
69.	No damage to the Archaeological /Religious/Cultural or Historical sites?	✓		
Socio-Economic				
70.	During construction have good management practices been adopted by avoiding disturbance to areas adjacent to work area?	✓		
71.	Have the local communities been formally notified about methods for registering complaints?	✓		
72.	Is un-necessary interference to adjoining private agriculture land avoided?	✓		
73.	Are damages (if any) to private property repaired and/or compensated by the Contractor?	✓		
74.	Are medaled roads properly maintained?	✓		
Damage to Services				
75.	No any damage reported to public services like electric, water, gas, sewer or telephone lines?		✓	Complaints were filed by the local community about damage of electric wire gas pipeline, Water Supply and PTCL Wire and action was taken on priority bases.
Work Force				
76.	Are proper hygienic facilities being provided?	✓		
77.	Are sufficient guards for security deployed?	✓		
78.	PPE are provided to the workforce?	✓		
79.	PPE are used by workforce?	✓		
80.	Potable water is available to labor?	✓		
<p>Recommendations:</p>				

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Sr. no	Description	Compliance Status (December 2022) – Lot 1-4		
		Ye s	No	Comments
Name: M.Umer Umair		Signatures: 		

Monthly Monitoring Checklist for WWTP

Sr. no	Description	Compliance Status (December 2022)		
		Yes	No	Comments
Camp Site				
81.	Copy of the Site specific EMP is provided at the camp site/contractors office?	✓		
82.	The EMP instructions are understood?	✓		
83.	An individual is nominated for implementation of EMP?	✓		
84.	LPG cylinders are provided for cooking or heating purposes?	✓		Only for lab testing purpose
85.	The safety precautions as per ILO convention no.62 are being followed?	✓		
86.	Project activities are displayed at proper locations?	✓		
87.	No Wood is being used as a fuel?	✓		
88.	First Aid Kit is provided at camp and individual nominated for addressing emergency?	✓		
89.	Campsite is fenced to prevent trespassing?	✓		Pictures are attached in photo log section – the work is in progress
90.	Environmental Monitoring Record is maintained?	✓		
91.	Record of Grievances Log and registered the complaints from community are maintained?	✓		
92.	Arrangement for proper storage and disposal for solid waste is planned?	✓		Waste characterization and mitigation record is attached
93.	Training to workers is being provided to effectively implement project specific EMP?	✓		
94.	Child labor or forced labor is prohibited?	✓		
95.	Community consultation has been carried out for project activities/concerns?	✓		
96.	No Complaint filed regarding transmission of Communicable diseases (such as STI's and HIV/AIDS).	✓		
COVID-19				
97.	Not any person showed symptoms e.g. fever, High body temperature, coughing, difficulty in breathing, chest pain.	✓		
98.	Daily temperature is being checked?	✓		


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Sr. no	Description	Compliance Status (December 2022)		
		Yes	No	Comments
99.	No hand shake policy is observed?	✓		
100.	Conduct awareness regarding protection from COVID?	✓		
101.	Disinfection of offices and machinery is ensured??	✓		
102.	Facemask and sanitizers are available on site for working staff?	✓		
103.	Everybody wearing facemask at the workplace?	✓		
Health & Safety				
104.	Safety signs are properly displayed?	✓		Pictures are attached in photo log section
105.	HSE plan and Emergency Response Procedures are implemented?	✓		
106.	Project site is fenced to prevent trespassing?		✓	Fence post installation is in progress. Pictures are attached in photo log section
107.	Place Barricading around excavation; and safety procedures should be followed?	✓		
108.	Fire Alarm, Fire Buckets/ Fire Extinguisher are available on site.	✓		
109.	Emergency Drills?	✓		
110.	Movement of Heavy Vehicles at night?		✓	
111.	Sign Boards are properly displayed?	✓		Pictures are attached in photo log section
112.	PPE's (e.g. Steel Toe shoes, helmets, Gloves, Jackets etc) are available for workers?	✓		
Physical Conditions				
Ambient Air Quality				
113.	Dust Generation during construction well managed and record exists??	✓		So far dust generation in negligible in most of areas, water sprinkling is being carried out to reduce dust emissions.
114.	Are dust emissions being regulated through sprinkling water on the routes being used?	✓		Water bowsers have been deployed for the purpose.
115.	Water sprinkling record is available?	✓		
116.	Are vehicle speeds being monitored to avoid excessive dust emissions at dust prone areas?	✓		
117.	Are vehicle properly tuned/maintained to reduce air emissions?	✓		Weekly inspection of machinery is carried out for this purpose.
Noise Control				
118.	Are noise levels remained within safe limits (<75dB)?	✓		
119.	In case excessive noise levels are detected have appropriate mitigation measures been taken?	✓		
120.	Is restriction on playing tape records and blowing pressure horns etc. is being observed?	✓		
121.	No complaints were made due to noise and vibration?	✓		

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Sr. no	Description	Compliance Status (December 2022)		
		Yes	No	Comments
122.	Construction activities carried out in daylight to reduce the impact of noise?	✓		
Waste Generation and Handling				
123.	Arrangement for proper storage and disposal for solid waste is planned?	✓		Waste Disposal Site is Demarcated
124.	Are the waste bins emptied regularly on the designated area?	✓		
125.	Is food waste disposed on separate places?	✓		
126.	Is any medical waste generated and handled properly?			No medical waste generated
127.	Has any natural drainage been disturbed or altered?		✓	
128.	Septic Tank and Soak Pits are designed for treatment of effluents?	✓		
129.	Contractors properly dispose debris materials in barren land, preferably recycling, reuse process?	✓		
130.	No impact on the means of livelihood of the community regarding waste management?	✓		
Fuel / Lubricant				
131.	Are the fuel tanks properly marked with their contents?			No fuel tanks are being used because of direct filling from filling station
132.	Are the fuels and oils handled in a safe manner, ensuring no leakage or spillage?	✓		
133.	Fuel/oil storage areas are away from watercourses?			N/A
134.	No Contamination of surface or ground water by oil spillage, solid waste dumping	✓		
135.	Fuel/oil storage areas, at least 200m away from watercourses			N/A
136.	No Any spillage of liquid waste occurred?	✓		
137.	If spillage occurred, managed properly?			No spillage has occurred
Traffic Management				
138.	Traffic Signs are Properly Displayed?	✓		Pictures are attached in photo log section
139.	Is vehicle speed limit of 30 km/hr being followed?	✓		
140.	Is the movement of all project vehicles and personnel been restricted to within the work areas?	✓		
141.	Do all vehicles and equipment have muffles to reduce noise levels whilst working close to communities?	✓		
142.	Movement of machinery restricted to designated routes?	✓		
143.	Construction vehicles, machinery and equipment stated in designated places within Row?	✓		
Biological Conditions				
Flora				
144.	Tree has cut/uprooted?	✓		
145.	No trees and branches have been used as fuel wood?	✓		
Fauna				
146.	Are the drivers careful and watchful about wild and domestic animals?	✓		

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Sr. no	Description	Compliance Status (December 2022)		
		Yes	No	Comments
147.	Any damage to animals occurred?		✓	
Encroachment Historical/ Cultural / Archaeological sites				
148.	No damage to the Archaeological /Religious/Cultural or Historical sites?	✓		
Socio-Economic				
149.	During construction have good management practices been adopted by avoiding disturbance to areas adjacent to work area?	✓		Pictures are attached in photo log section
150.	Have the local communities been formally notified about methods for registering complaints?	✓		
151.	Is un-necessary interference to adjoining private agriculture land avoided?	✓		
152.	Are damages (if any) to private property repaired and/or compensated by the Contractor?	✓		
153.	Are medaled roads properly maintained?	✓		
Work Force				
154.	Are proper hygienic facilities being provided?	✓		
155.	Are sufficient guards for security deployed?	✓		
156.	PPE are provided to the workforce?	✓		
157.	PPE are used by workforce?	✓		
158.	Potable water is available to labor?	✓		
Recommendations: All other things are O.K.				
Name: Qurban Ali		Signatures: 		

Annexure F: PLGA- HSE CHECKLIST



Check List for HSE Compliance

Date: 29.06.2022

Construction Manager: Muhammad Hanif Khokar

Location: Lahore

Name of Project: Punjab Local Government Academy

SOP No.	Monitoring Parameter for safe system of work	Triggered	Compliance Status		
			Yes/No	Yes	No
1	Personal Protective Equipment				
	Safety shoes		Yes		
	Helmets		Yes		
	Safety Jacket		Yes		
	Gloves		Yes		
	Goggles		Yes		
	Ear Plugs		Yes		
	Face Mask		Yes		
2	First Aid Equipment		Yes		Available at site
3	Road safety & Traffic management				
	Diversion sign boards		N/A		Work is under confined space
	Removal of waste material		Yes		
	Fencing		Yes		
	Movement of heavy vehicles at night		N/A		
	Speed limits		N/A		
	Lighting		Yes		During Night Works
4	Workers Welfare				
	Drinking water		Yes		
	Smoking area		Yes		Smoking is prohibited on-site or inside the containers.
	First aid facility		Yes		
	Toilets available on site		Yes		8 Nos. for Labour workers.
5	Fire Fighting Equipment				
	Fire Alarm		N/A		
	Fire buckets / extinguishers		Yes		
	Training		Yes		Pictures are attached
6	Lightening along the right of way		N/A		
7	Training Requirements		Yes		Training conducted by contractor safety officer, pictures are attached
8	Attendance of workers		Yes		Available at site office.
9	General house keeping		Yes		Garbage Cans for Disposal installed at different location
10	Emergency response Plan		Yes		

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11	Training for skilled and unskilled labour			Yes	
	Child labour			Yes	Child Labour is Prohibited.
12	Work at Height			Yes	
		Safety harness		Yes	
		Fixed working platform		Yes	
		Proper access		N/A	
		Toe boards along platforms		N/A	
		Fencing around work site		Yes	Work is under confined space.
		Training of workers		Yes	Toolbox talk is being conducted at site.
		Weather conditions		Yes	No work carried under extreme weather conditions.
		Sign boards		Yes	Pictures are attached
		Proper supervision		Yes	On every daily visits, asking the site team to implement and improve the safety measures at site.
13	Drilling Operation				Not yet started at site
		Training		Yes	
		PPEs		Yes	
		Communication		Yes	
		Proper access		Yes	
		Covering of bore holes		Yes	
		Cordon off with steel sheets		Yes	
14	Pits and excavation			N/A	
		Proper lighting		Yes	
		Sign boards		Yes	
		Proper access		Yes	
		Underground facilities		N/A	
		Falling objects near excavation		N/A	
		Noise & dust		Yes	Dust is being controlled by sprinkling water while noise is under ermissible limits.
15	Electrics on site & yard				
		Use proper insulated wires		Yes	
		Use proper PPEs		Yes	
		Working place must be dry		Yes	
		Check overhead electric power lines		Yes	Shifted for smooth drilling operation.

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16	Lighting erecting				Lighting erecting are installed on site.
	Area must be barricaded		Yes		
	Wind speed and direction		Yes		
	Overhead lines		Yes		
	Safe working load		Yes		
	Sign board		Yes		
	Driver's license		Yes		
	PPEs		Yes		
17	Chemical handling & storage				Anti-Termite liquid, Diesel, Water Proofing Chemical etc.
	Stored in proper shade/dry place		Yes		
	Store kept clean / not used for other activity		Yes		
	Proper ventilation		Yes		
	PPEs		Yes		
	First aid facility		Yes		
	Fire extinguishers		Yes		
	Warning signs		Yes		
18	Heavy equipment				Only material delivery vehicles inside the confined working space.
	Warning light		Yes		
	Area must be barricaded		Yes		
	Correctly positioned & installed		Yes		
	Noise monitoring		Yes		Test performed (Results attached)
	PPEs		Yes		
19	Welding equipment & oxygen cylinders				
	Cylinders stored in enclosed room		yes		
	Warning signs		Yes		
	Proper ventilation		N/A		
20	Reporting of accident				No accident occurred so far.
21	Construction activities near high voltage lines		N/A		
	Total no of incidents		N/A		
	Incident investigation reports		N/A		

Annexure G: Environmental Training Record

Sahiwal Lot-01, Lot-02, Lot-03 and Lot-04
ENVIRONMENT TRAINING RECORD SAHIWAL WATSAN LOT-1

Environmental Training Records Sahiwal

Lot -01

TRAINING RECORD						
Sr. No	Type of Training	Trainer	Date	No. of Participants	Duration	Remarks
1	Work at height	Aqib Javeed	10-11-2022	4	15 min.	-
2	Excavation, Sand bedding, pipe laying and backfilling	Ahtisham Asghar	22-11-2022	4	30 min.	-



Table 4.4 Environmental Training Lot -02&03

Sr.	Training Topic/Event	Trainer	Date Conducted	Number of Participants	Department/ Staff	Location
1	Safe Excavation	Zafar Butt (Contractor – HSE Manager)	05 Nov, 2022	6	Various departmental	Training room
2	Slipping, Tripping and Falling Hazards	Zafar Butt (Contractor – HSE Manager)	10 Nov, 2022	5	Various departmental	Training room
3	Safe Work Protection	Zafar Butt (Contractor – HSE Manager)	12 Nov, 2022	7	Various departmental	Training room
4	Climatic Change Safety	Zafar Butt (Contractor – HSE Manager)	18 Nov, 2022	7	Various departmental	Training room





Table 4.5 Environmental Training Lot -04

Sr.	Training Topic/Event	Trainer	Date Conducted	Number of Participants	Duration	Remarks
1	Fire and electrical safety	Muhammad Wasim	01/11/2022	10	20 minutes	
2	Site accident reporting and prevention	Muhammad Wasim	07/11/2022	11	20 minutes	
3	Slip trip and fall hazard	Muhammad Wasim	12/11/2022	10	20 minutes	
4	Proper stacking and storage techniques	Muhammad Wasim	14/11/2022	07	20 minutes	
5	Importance of PPEs	Muhammad Wasim	18/11/2022	10	20 minutes	
6	Chemical handling and storage	Muhammad Wasim	21/11/2022	11	20 minutes	
7	General HSE Awareness	Muhammad Wasim	28/11/2022	14	20 minutes	

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Station 1		Station 2	
Parameter	Value	Parameter	Value
Temperature	25.5	Temperature	26.0
pH	7.2	pH	7.5
Dissolved Oxygen	8.5	Dissolved Oxygen	8.2
DO Saturation	100%	DO Saturation	98%
Electrical Conductivity	150	Electrical Conductivity	160
Total Dissolved Solids	120	Total Dissolved Solids	130
Total Suspended Solids	10	Total Suspended Solids	15
Ammonia Nitrogen	0.1	Ammonia Nitrogen	0.2
Nitrite Nitrogen	0.05	Nitrite Nitrogen	0.1
Nitrate Nitrogen	1.0	Nitrate Nitrogen	1.5
Orthophosphate	0.05	Orthophosphate	0.1
Chlorophyll a	1.0	Chlorophyll a	1.5
Chlorophyll b	0.5	Chlorophyll b	0.8
Chlorophyll c	0.2	Chlorophyll c	0.3
Chlorophyll total	1.7	Chlorophyll total	2.6
Water Transparency	10	Water Transparency	15
Water Color	10	Water Color	15
Water Turbidity	10	Water Turbidity	15
Water Temperature	25.5	Water Temperature	26.0
Water pH	7.2	Water pH	7.5
Water Dissolved Oxygen	8.5	Water Dissolved Oxygen	8.2
Water DO Saturation	100%	Water DO Saturation	98%
Water Electrical Conductivity	150	Water Electrical Conductivity	160
Water Total Dissolved Solids	120	Water Total Dissolved Solids	130
Water Total Suspended Solids	10	Water Total Suspended Solids	15
Water Ammonia Nitrogen	0.1	Water Ammonia Nitrogen	0.2
Water Nitrite Nitrogen	0.05	Water Nitrite Nitrogen	0.1
Water Nitrate Nitrogen	1.0	Water Nitrate Nitrogen	1.5
Water Orthophosphate	0.05	Water Orthophosphate	0.1
Water Chlorophyll a	1.0	Water Chlorophyll a	1.5
Water Chlorophyll b	0.5	Water Chlorophyll b	0.8
Water Chlorophyll c	0.2	Water Chlorophyll c	0.3
Water Chlorophyll total	1.7	Water Chlorophyll total	2.6
Water Water Transparency	10	Water Water Transparency	15
Water Water Color	10	Water Water Color	15
Water Water Turbidity	10	Water Water Turbidity	15
Water Temperature	25.5	Water Temperature	26.0
Water pH	7.2	Water pH	7.5
Water Dissolved Oxygen	8.5	Water Dissolved Oxygen	8.2
Water DO Saturation	100%	Water DO Saturation	98%
Water Electrical Conductivity	150	Water Electrical Conductivity	160
Water Total Dissolved Solids	120	Water Total Dissolved Solids	130
Water Total Suspended Solids	10	Water Total Suspended Solids	15
Water Ammonia Nitrogen	0.1	Water Ammonia Nitrogen	0.2
Water Nitrite Nitrogen	0.05	Water Nitrite Nitrogen	0.1
Water Nitrate Nitrogen	1.0	Water Nitrate Nitrogen	1.5
Water Orthophosphate	0.05	Water Orthophosphate	0.1
Water Chlorophyll a	1.0	Water Chlorophyll a	1.5
Water Chlorophyll b	0.5	Water Chlorophyll b	0.8
Water Chlorophyll c	0.2	Water Chlorophyll c	0.3
Water Chlorophyll total	1.7	Water Chlorophyll total	2.6
Water Water Transparency	10	Water Water Transparency	15
Water Water Color	10	Water Water Color	15
Water Water Turbidity	10	Water Water Turbidity	15

HSE TRAININGS SESSIONS
(Provided to Laborer before starting any risky works)





Environmental Training Sessions at Sialkot

Sr.	Training Topic/Event	Trainer	Date Conducted	Number of Participants
1	Chemical Handling Safety	Umer Umair (Contractor – EHS Manager)	07 th July 2022	07
2	Working in deep Trenches	Siddique Shahid (Contractor – EHS Manager)	16 th July 2022	09
3	Work at Height	Siddique Shahid (Contractor – EHS Manager)	23 rd July 2022	06
4	Slip Trip and Fall safety	Umer Umair (Contractor – EHS Manager)	12 th August 2022	12
5	Working under confined spaces	Siddique Shahid (Contractor – EHS Manager)	18 th August 2022	08
6	Use of PPEs	Umer Umair (Contractor – EHS Manager)	26 th August 2022	07
7	Fire safety	Siddique Shahid (Contractor – EHS Manager)	03 rd Sep 2022	10
8	Emergency Exit Training	Umer Umair (Contractor – EHS Manager)	17 th Sep 2022	11
9	First Aid	Umer Umair (Contractor – EHS Manager)	25 th Sep 2022	07
10	Use of Fire extinguisher	Umer Umair (Contractor – EHS Manager)	11 th Oct 2022	06
11	Moving objects and falling objects	Siddique Shahid (Contractor – EHS Manager)	26 th Oct 2022	08
12	Safer access to working place	Siddique Shahid (Contractor – EHS Manager)	14 th Nov 2022	08
13	Use of PPEs	Umer Umair (Contractor – EHS Manager)	19 th Nov 2022	07
14	Rules of First Aid	Liaqat Hussain (Contractor – EHS Manager)	02 nd Dec 2022	09
15	Work at Height	Siddique Shahid (Contractor – EHS Manager)	11 th Dec 2022	07
16	General Safety Rules And importance of PPEs	Umer Umair (Contractor – EHS Manager)	18 th Dec 2022	09

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

17	Fire Fighting Safety	Liaqat Hussain (Contractor – EHSManager)	26 th Dec 2022	08
----	----------------------	--	---------------------------	----

Annual Handling Safety

Date: 26/12/2022

No.	Description	Remarks	Location	Inspector
1	Abdul Kalam	SPD System	M. Hassan Contractor EHS	ZRB- Lahore - IV
2	Abdul	SPD System		
3	Abdullah	SPD System		
4	Muhammad	SPD System		
5	Muhammad	SPD System		
6	Muhammad	SPD System		
7	Muhammad	SPD System		


Inspector: [Signature]

Supervisor: [Signature]

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

	Local Body Name LOCAL BODY NAME	Sample Number/Name			
		Date of Sample	Date of Report		
Report the concentration, identification of quantity and other quality issues as per the table below					
The main monitoring is being done in the following					
Date: 21 4-3-2021					
Sl. No.	Sample Name	Parameter	Unit	Std. Limit/Range	Result
1	Arden Long	effluent			
2	Lagoon	effluent			
3	canal	"			
4	Arden 4/5	Substrate			
5	Arden	Arden			
6	garden 2/1	"			
7	Tank	"			
8	Farm	"			
9	Garden 4/0	"			

Checked by


Checked by


Quarterly Environmental Monitoring Report No.6
 Punjab Intermediate Cities Improvement Investment Program

	USE THIS FOR YOUR REPORT	QUARTERLY REPORT			
		The name of	The location of		
Please give approximate identification of projects and other works under a single name (Item 1 below)					
Name: <u>Central Supply</u>					
No. of: <u>04</u>					
Date: <u>23/03/2022</u>					
No.	Description	Quantity	Unit	Rate	Amount
1	Electricity	Supply			
2	Material				
3	Labour				
4					
5					
6					
			DNT - Chargeable		
			ZWB - Relative - JF		

Checked by


Signature


Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

	THE PUNJAB GOVT PUNJAB DEPT. OF URBAN DEVELOPMENT	Quarterly Monitoring Report			
		Date of Report:	Date of Visit:		
Report No. _____					
Title: <u>USE of PPE'S</u>					
Date: <u>02</u> <u>11-2024</u>					
No.	Observation	Remarks	Location	By	Remarks
	Watered	Safety Aid			
	Zaboor	"	New Market Train	ZRB	
	Robbani	6-2			
	Mushtaq	Drive updr			
	Sajid	"			
	Ali	Labour			
	Ashiq	"			
	Ajayah d	"			
	Sanaullah	"			

Submitted by


By


Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

	WATER SUPPLY PROJECT	Quarterly Monitoring Report			
Name of the Project: <u>Emergency Latrine Facility</u>		Date: <u>07/11/2020</u>			
Sl. No.	Item Name	Quantity	Unit	Remarks	Status
1	Water/Kerosene	500	Litre		
2	Plastic	500	kg		
3	Latrine	500	kg		
4	Latrine	500	kg		
5	Latrine	500	kg		
6	Latrine	500	kg		
7	Latrine	500	kg		
8	Latrine	500	kg		
9	Latrine	500	kg		
10	Latrine	500	kg		
11	Latrine	500	kg		
12	Latrine	500	kg		
13	Latrine	500	kg		
14	Latrine	500	kg		
15	Latrine	500	kg		
16	Latrine	500	kg		
17	Latrine	500	kg		
18	Latrine	500	kg		
19	Latrine	500	kg		
20	Latrine	500	kg		
21	Latrine	500	kg		
22	Latrine	500	kg		
23	Latrine	500	kg		
24	Latrine	500	kg		
25	Latrine	500	kg		
26	Latrine	500	kg		
27	Latrine	500	kg		
28	Latrine	500	kg		
29	Latrine	500	kg		
30	Latrine	500	kg		
31	Latrine	500	kg		
32	Latrine	500	kg		
33	Latrine	500	kg		
34	Latrine	500	kg		
35	Latrine	500	kg		
36	Latrine	500	kg		
37	Latrine	500	kg		
38	Latrine	500	kg		
39	Latrine	500	kg		
40	Latrine	500	kg		
41	Latrine	500	kg		
42	Latrine	500	kg		
43	Latrine	500	kg		
44	Latrine	500	kg		
45	Latrine	500	kg		
46	Latrine	500	kg		
47	Latrine	500	kg		
48	Latrine	500	kg		
49	Latrine	500	kg		
50	Latrine	500	kg		
51	Latrine	500	kg		
52	Latrine	500	kg		
53	Latrine	500	kg		
54	Latrine	500	kg		
55	Latrine	500	kg		
56	Latrine	500	kg		
57	Latrine	500	kg		
58	Latrine	500	kg		
59	Latrine	500	kg		
60	Latrine	500	kg		
61	Latrine	500	kg		
62	Latrine	500	kg		
63	Latrine	500	kg		
64	Latrine	500	kg		
65	Latrine	500	kg		
66	Latrine	500	kg		
67	Latrine	500	kg		
68	Latrine	500	kg		
69	Latrine	500	kg		
70	Latrine	500	kg		
71	Latrine	500	kg		
72	Latrine	500	kg		
73	Latrine	500	kg		
74	Latrine	500	kg		
75	Latrine	500	kg		
76	Latrine	500	kg		
77	Latrine	500	kg		
78	Latrine	500	kg		
79	Latrine	500	kg		
80	Latrine	500	kg		
81	Latrine	500	kg		
82	Latrine	500	kg		
83	Latrine	500	kg		
84	Latrine	500	kg		
85	Latrine	500	kg		
86	Latrine	500	kg		
87	Latrine	500	kg		
88	Latrine	500	kg		
89	Latrine	500	kg		
90	Latrine	500	kg		
91	Latrine	500	kg		
92	Latrine	500	kg		
93	Latrine	500	kg		
94	Latrine	500	kg		
95	Latrine	500	kg		
96	Latrine	500	kg		
97	Latrine	500	kg		
98	Latrine	500	kg		
99	Latrine	500	kg		
100	Latrine	500	kg		

Signature: 

Signature: 

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

	Punjab Intermediate Cities Improvement Investment Program Field Office	Quality Monitoring			
		No. of sites:	No. of samples:		
Name of the site:		Date of sampling:		Page No:	
Name of the site: <u>Old of Fire Extinguisher</u>		Date of sampling: <u>01.10.2022</u>		Page No:	
No.	Parameter	Standard	Unit	Observed	Remarks
	Chloride	50	mg/l		All values are within permissible limits
	Hardness	500	mg/l		
	Calcium	75	mg/l		
	Magnesium	30	mg/l		
	Sulphate	200	mg/l		
	Iron	0.3	mg/l		
	Zinc	0.05	mg/l		
	Lead	0.05	mg/l		
	Copper	1.5	mg/l		
	Fluoride	1.5	mg/l		
	Chloride	50	mg/l		
	Hardness	500	mg/l		
	Calcium	75	mg/l		
	Magnesium	30	mg/l		
	Sulphate	200	mg/l		
	Iron	0.3	mg/l		
	Zinc	0.05	mg/l		
	Lead	0.05	mg/l		
	Copper	1.5	mg/l		
	Fluoride	1.5	mg/l		

Checked by


Checked by


Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

Punjab Water Board		Water Supply Scheme		Project Name	
Punjab Water Board		Project No.	Project Name	Project Location	
Punjab Water Board		Project No.	Project Name	Project Location	
Project Title: <u>Improvement of supply and sewerage system in Bahawalpur & District</u>					
Location: <u>Along the existing projects</u>					
Date: <u>01</u>					
Time: <u>10-11-20</u>					

No.	Description	Quantity	Unit	Rate	Total
	Material	60			
	Manpower	Supply of			
	Labour				
	Subtotal				
	Installation				
	Subtotal				
	Total				

Water Lead after project complete


ZRB-Private

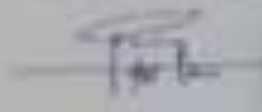
Checked by
[Signature]

Signature
[Signature]

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

	WASTE MANAGEMENT WASTE RECORD	Date: _____ Location: _____ Name: _____			
Please Give Information/Details of activities and work done in this area (Check & Submit)					
Name: <u>Safy</u> Date: <u>10/11/2018</u>					
Date: <u>10/11/2018</u>					
Sl. No.	Waste Name	Quantity	Location	No. of Workers	Remarks
1	Waste	One Unit	About 1000 sqm Area (Waste Management)	24/8	
2	Labour	Left			
3	Material	"			
4	Waste	"			
5	Waste	S-2			
6	Labour	Single			
7	Material	"			
8	Labour	Labour			
9	Labour	"			
10	Labour	"			

Checked by


Signature


Quarterly Environmental Monitoring Report No.6
 Punjab Intermediate Cities Improvement Investment Program

	THE STATE OF PUNJAB GOVERNMENT	QUARTERLY ENVIRONMENTAL MONITORING REPORT			
		For year 2014-15	For quarter 1		
Please find attached herewith the quarterly environmental monitoring report for the quarter 1 of 2014-15.					
Name of the City: <u>Surat</u>				Date: <u>01/04/15</u>	
				Page: <u>1</u> of <u>1</u>	
No.	Category	Parameter	Unit	Value	Remarks
	House	C.P			
	Drain	Effly Act			
	Khan Mahomed				
	Pring	Latent			
	Sulbi				
	Sand				
	Tanker				
	Waste				
	Water				
	Other				

Submitted by


Officer in Charge



Quarterly Environmental Monitoring Report No.6
 Punjab Intermediate Cities Improvement Investment Program

Punjab Intermediate Cities Improvement Investment Program		Quarterly Environmental Monitoring Report		City: _____	
Project Name: _____		Location: _____		Date: _____	
1	Water	Quality	_____	Water Quality Monitoring Report	Zach - Lahore - 2023
2	Soil	Quality	_____		
3	Air	Quality	_____		
4	Soil	Quality	_____		
5	Water	Quality	_____		
6	Water	Quality	_____		
7	Water	Quality	_____		
8	Water	Quality	_____		
9	Water	Quality	_____		
10	Water	Quality	_____		

Signature: _____

Signature: _____

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

	Training Attendance Sheet	Date: _____		Page No. _____
		No. of _____	No. of _____	

Name of Training: Annual Sanitation & Solid Waste Management

No.	Name of Trainee	Signature	Date	Remarks
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____
11	_____	_____	_____	_____
12	_____	_____	_____	_____
13	_____	_____	_____	_____
14	_____	_____	_____	_____
15	_____	_____	_____	_____
16	_____	_____	_____	_____
17	_____	_____	_____	_____
18	_____	_____	_____	_____
19	_____	_____	_____	_____
20	_____	_____	_____	_____

Quarterly Environmental Monitoring Report No.6
Punjab Intermediate Cities Improvement Investment Program

Sl. No.	Description	Activity	Status	No. of	
				Inspection	Findings
1	Andan Khana	Softly dust	KALI Bakram Chank	2	K8-Reliable-Jr
2	Luzman Ali	"			
3	Basil	Labour			
4	Uzama	"			
5	Tahir	"			
6	Qurban	"			
7	Mubashir	"			
8	Umar	"			

Project Title: Environmental Remediation of air quality and noise levels around a health care facility


Location: work at night

Date: 01
11-12-22

Submitted By: Zohra

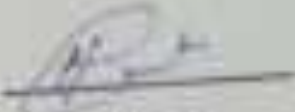
Signature: [Signature]

Quarterly Environmental Monitoring Report No.6
 Punjab Intermediate Cities Improvement Investment Program

	Planning Administrative District	District		Date
		Name	No.	


Name of the City: Sheikhpur District: Sheikhpur

No.	Parameter Name	Location	Value	Unit	Remarks
1	Temperature	25.5	25.5	°C	
2	Humidity	65	65	%	
3	Wind Speed	15	15	km/h	
4	Wind Direction	SE			
5	Cloud %	10	10	%	
6	Soil Temp	28	28	°C	
7	Water Temp	25	25	°C	
8	PH	7.5	7.5		
9	Dissolved Oxygen	8.5	8.5	mg/l	
10	DO Saturation	100	100	%	
11	Electrical Conductivity	150	150	µmhos/cm	
12	Total Dissolved Solids	150	150	mg/l	
13	Total Suspended Solids	10	10	mg/l	
14	Biochemical Oxygen Demand	5	5	mg/l	
15	Chemical Oxygen Demand	10	10	mg/l	
16	Ammonia Nitrogen	0.5	0.5	mg/l	
17	Nitrite Nitrogen	0.1	0.1	mg/l	
18	Nitrate Nitrogen	1.0	1.0	mg/l	
19	Total Nitrogen	1.6	1.6	mg/l	
20	Total Phosphorus	0.2	0.2	mg/l	
21	Calcium	100	100	mg/l	
22	Magnesium	50	50	mg/l	
23	Hardness	150	150	mg/l	
24	Chloride	50	50	mg/l	
25	Sulfate	100	100	mg/l	
26	Total Hardness	150	150	mg/l	
27	Fluoride	0.5	0.5	mg/l	
28	Iron	0.5	0.5	mg/l	
29	Copper	0.1	0.1	mg/l	
30	Zinc	0.2	0.2	mg/l	
31	Lead	0.1	0.1	mg/l	
32	Cadmium	0.01	0.01	mg/l	
33	Mercury	0.001	0.001	mg/l	
34	Chromium	0.1	0.1	mg/l	
35	Manganese	0.2	0.2	mg/l	
36	Selenium	0.01	0.01	mg/l	
37	Barium	0.1	0.1	mg/l	
38	Strontium	0.1	0.1	mg/l	
39	Vanadium	0.1	0.1	mg/l	
40	Chlorine	50	50	mg/l	
41	Bromine	0.1	0.1	mg/l	
42	Iodine	0.1	0.1	mg/l	
43	Fluorine	0.1	0.1	mg/l	
44	Silica	10	10	mg/l	
45	Aluminum	0.1	0.1	mg/l	
46	Iron	0.5	0.5	mg/l	
47	Copper	0.1	0.1	mg/l	
48	Zinc	0.2	0.2	mg/l	
49	Lead	0.1	0.1	mg/l	
50	Cadmium	0.01	0.01	mg/l	
51	Mercury	0.001	0.001	mg/l	
52	Chromium	0.1	0.1	mg/l	
53	Manganese	0.2	0.2	mg/l	
54	Selenium	0.01	0.01	mg/l	
55	Barium	0.1	0.1	mg/l	
56	Strontium	0.1	0.1	mg/l	
57	Vanadium	0.1	0.1	mg/l	
58	Chlorine	50	50	mg/l	
59	Bromine	0.1	0.1	mg/l	
60	Iodine	0.1	0.1	mg/l	
61	Fluorine	0.1	0.1	mg/l	
62	Silica	10	10	mg/l	
63	Aluminum	0.1	0.1	mg/l	
64	Iron	0.5	0.5	mg/l	
65	Copper	0.1	0.1	mg/l	
66	Zinc	0.2	0.2	mg/l	
67	Lead	0.1	0.1	mg/l	
68	Cadmium	0.01	0.01	mg/l	
69	Mercury	0.001	0.001	mg/l	
70	Chromium	0.1	0.1	mg/l	
71	Manganese	0.2	0.2	mg/l	
72	Selenium	0.01	0.01	mg/l	
73	Barium	0.1	0.1	mg/l	
74	Strontium	0.1	0.1	mg/l	
75	Vanadium	0.1	0.1	mg/l	
76	Chlorine	50	50	mg/l	
77	Bromine	0.1	0.1	mg/l	
78	Iodine	0.1	0.1	mg/l	
79	Fluorine	0.1	0.1	mg/l	
80	Silica	10	10	mg/l	
81	Aluminum	0.1	0.1	mg/l	
82	Iron	0.5	0.5	mg/l	
83	Copper	0.1	0.1	mg/l	
84	Zinc	0.2	0.2	mg/l	
85	Lead	0.1	0.1	mg/l	
86	Cadmium	0.01	0.01	mg/l	
87	Mercury	0.001	0.001	mg/l	
88	Chromium	0.1	0.1	mg/l	
89	Manganese	0.2	0.2	mg/l	
90	Selenium	0.01	0.01	mg/l	
91	Barium	0.1	0.1	mg/l	
92	Strontium	0.1	0.1	mg/l	
93	Vanadium	0.1	0.1	mg/l	
94	Chlorine	50	50	mg/l	
95	Bromine	0.1	0.1	mg/l	
96	Iodine	0.1	0.1	mg/l	
97	Fluorine	0.1	0.1	mg/l	
98	Silica	10	10	mg/l	
99	Aluminum	0.1	0.1	mg/l	
100	Iron	0.5	0.5	mg/l	


 Name of the Officer


 Name of the Officer

Quarterly Environmental Monitoring Report No.6
 Punjab Intermediate Cities Improvement Investment Program

	Training Attendance Sheet	Date: _____	
		No. of _____	No. of _____
			Page No. _____

Name of the Institution: _____
 Name of the City: _____

No.	Name	Signature	Date	Remarks
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____
11	_____	_____	_____	_____
12	_____	_____	_____	_____
13	_____	_____	_____	_____
14	_____	_____	_____	_____
15	_____	_____	_____	_____
16	_____	_____	_____	_____
17	_____	_____	_____	_____
18	_____	_____	_____	_____
19	_____	_____	_____	_____
20	_____	_____	_____	_____

Teacher

 Date: _____

 Date: _____

PROJECT PHOTOGRAPHS

Lot 1 ,2, 3 and 4 WASTAN Sahiwal



Sign board and Safety cones are placed on the Road for public awareness



Restoration PCC at Ghalla Mandi



MSDS being displayed at Laboratory



Flagman's are deployed at diversion route to the control traffic



HSE Training session



HSE Training session



water sprinkling



Safety cones are placed on Road for public awareness

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



Fire extinguisher , Mobile cranes , electrical dBs and welding plant are conducted monthly inspection



Different Sign board Placed on road for Public awareness



Informatory signages displayed properly_



Different Location of Environmental Monitoring at Lot#2, Lot#3.



Safety arrangements at 48 inch site



Safety arrangements at 48 inch site



One day training on SEMP implementation



Training on proper usage of Fire extinguisher





Different sign board (Traffic diversions, Caution Signboards) are displayed at Project area

Water sprinkling



Designated area of Assembly point at CGICOP Camp

Hard barricading installed near deep excavation trench at different project sites.



PPE's Compliance at sites



Safety sign board and Safety cones are placed on Road for public awareness



First aid box available at all sites

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



Inauguration at Lot 4 Disposal station by Commissioner Sahiwal

SIALKOT PROJECTS PICS:
Lot-01, Lot-02. Lot-03 & Lot-04 WATSAN Sialkot



Laying of Sewer



Manhole Construction in Progress



Asphalt Laying



Backfilling at Manhole

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



Conduit Laying



Conduit Laying



Forcemain Jointing



Forcemain Laying

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



OHR Roof Concreting



Laying of Water Supply Pipe



Workers Training at ZKB Camp and First Aid Kit

Safety Signs, Barriers and PPEs





Water Sprinkling



Safety Signs and Barriers and hard Barricade



Hard Barricade and Traffic Safety Signs

Speed limit Sign Boards and Diversion Sign boards for alternatives have been installed at working sites



NE SPak and PICIIP team site visits



Provision of First Aid Kit at all sites is made Mandatory



Water Sprinkling to Overcome Dust problems is being done on Daily basis with two times a day



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Punjab Intermediate Cities Improvement Investment Program



Bed Dressing, Grading & Compaction of Ponds



Site Work in Smooth Way



Boundary Wall Fence Post Curing & Self-Inspection



Boundary Wall Fence Post Installation in Progress

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Punjab Intermediate Cities Improvement Investment Program



Committed Work with Complete PPEs



Building Works in Progress



Smooth Site Work – Ensuring Safety First



Machinery always at its Designated Area



Informatory Safety Sign Board of "Site Safety" on-site



Informatory Sign Board of "Emergency Numbers" on-site



Informatory Safety Sign Board of "Caution" on-site



Informatory Sign Board of "Batching Plant" near plant



Informatory Safety Sign Board of "Danger" on-site



"Diversion" Sign Board towards Site Office



Informatory Sign Board of "Batching plant" near plant



"Emergency Numbers" near office



Informatory Sign Board of "Danger" in FP-3



Informatory Sign Board of "Social Distancing" in FP-2



Informatory Safety Sign Board of "Site Safety"



Designated Assembly Area

Designated Assembly Area

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Inspection of Fire Extinguishers



Fire Extinguisher's Compliance



Grader's Hydraulics – Physical Inspection



Ensuring Driver's License

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



Worker's Blood Pressure Monitoring - onsite



Worker's Blood Pressure Monitoring - onsite



Worker's Body Temperature Testing using Temperature Gun



Worker's Body Temperature Testing – A Rapid Test

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Punjab Intermediate Cities Improvement Investment Program



Worker's Body Temperature Testing



Worker's Body Temperature Testing



Fencing Material



A Count towards "100 Days of Safe Work"

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



Checking Ambient Air Quality (Day-1)



Environmental Monitoring in presence of Consultant's Representative



Noise Level Checking in presence of Consultant's Representative



Noise Level Results

Quarterly Environmental Monitoring Report No.1
Punjab Intermediate Cities Improvement Investment Program



Ambient Air Quality Continuing for 24 Hours (Uninterrupted) – Day 2



Ambient Air Quality Results



Drinking Water Sample Taken



Icebox to Store Water Sample

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Ensuring PPEs before Going to Work



Toolbox Talk & Pre-Shift Meeting



TBT – Importance of Toolbox Talks



Toolbox Talk – Be on Time

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Punjab Intermediate Cities Improvement Investment Program



TBT – Personal Protective Equipment's



TBT – Awareness about Grader Movement



TBT – Anti-weather Resistance Approach



TBT – Careful Attitude in Foggy Weather

HSE Champion Program



PLGA Photographs



Site work progress



Marble Work progress



Use of barrication tape near edges at site



Site Ceiling work progress



Fummigation of Dengue spray on site



barrication sheet with hard railing and safety signboard



Proper Housekeeping and barrication



use of PPES on site



use of PPEs on site



Safety signboard on entrance dated 25-09-2022



Proper housekeeping and stacking of folding pipes



Proper housekeeping and stacking of folding pipes



Hard railing and barrication on staircase



Tile work with use of PPes



Proper Housekeeping on site



Bitumen Coating and Polythene Sheet at Roof



Fire Extinguisher on site



Use of PPEs at work



VRF system outdoor at roof top



PPEs Placed at site entrance for visitor and worker



Figure: B Barricade on elevators gate



Figure: C TBT on PLGA site



Figure: A use of PPEs on site 16-12-2022



Figure: B PPEs available on site entrance for visitors and workers



Figure: B PPEs available on site entrance for visitors and workers



Use of PPEs during work

Annexure H: Incident Notification & Accident investigation Root Cause Analysis from - Sahiwal

INCIDENT NOTIFICATION FORM

Project: Sahiwal Sewerage Treatment Plant		Contract No: 01/0000000000	
Location: Sahiwal, Punjab		Date: 11/01/2011	
Contractor: M/s. Sahiwal Sewerage Treatment Plant		Time: 10:00 AM	
Incident Type: <input checked="" type="checkbox"/> Safety		Severity: <input type="checkbox"/> Minor	
Description: A worker named Mr. ... was injured while working on the site. The incident occurred at approximately 10:00 AM on 11/01/2011. The worker was performing maintenance work on the sewerage treatment plant. He was using a power tool and the tool slipped, causing him to lose his footing. He fell and sustained a head injury. The worker was immediately taken to a nearby hospital for treatment. The incident was reported to the site supervisor and the project manager. The site supervisor conducted an initial investigation and found that the worker was not wearing his safety helmet. The project manager conducted a more detailed investigation and found that the worker was not properly trained for the task. The project manager also found that the worker was not wearing his safety harness. The project manager has taken corrective actions to prevent a similar incident from occurring. The worker has been discharged from work and is recovering from his injuries. The project manager has also conducted a safety training session for all workers on the site. The project manager has also implemented a new safety protocol that requires all workers to wear their safety helmets and safety harnesses at all times. The project manager has also implemented a new safety protocol that requires all workers to be properly trained for the task before they are allowed to work on the site.			
Reporting Authority: Project Manager			
Contractor Name: M/s. Sahiwal Sewerage Treatment Plant			
Name of the Person: Mr. ...			
Address: ...			
Signature: ...			
Date: 11/01/2011			
Time: 10:00 AM			
Place: Sahiwal, Punjab			
Remarks: ...			
Signature of the Reporting Authority: ...			
Date: 11/01/2011			
Time: 10:00 AM			
Place: Sahiwal, Punjab			

INCIDENT NOTIFICATION FORM	
INJURY INFORMATION (if applicable)	
Injured Person:	
Name:	Current position:
Head Injury:	Injured:
Was injured person(s) taken to hospital? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
(If yes, attach name and location of the hospital)	
Describe the area of injury, if applicable, on the diagram on the right, and describe the injury in the space below:	
Head Injury:	
VEHICLE INFORMATION (if applicable)	
Driver's Name: M. Pawan	Driver's License No.: no driver license
Year, Make & Model: SUZUKI	Driver's Phone Number:
License Plate or Serial Number:	Insurer and Policy No.:
Was seat belt done up? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Was a cell phone being used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Was police notified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Name of police officer: ASI Rajul Kumar
Road conditions: <input checked="" type="checkbox"/> Dry <input type="checkbox"/> Greasy <input type="checkbox"/> Wet <input type="checkbox"/> icy	Other attachments: He was not wearing the helmet
Spill/Release Information (if applicable)	
Product: Nil	Volume: Quantity Recovered:
Initial Cause Analysis of Incident:	
Direct Cause (what / how)	
The victim was over speeding in the work corridor and was not wearing a safety helmet which led to him losing control of his motorcycle and eventually falling into the ditch which resulted in his injury.	
Root Cause (why)	
Careless driving / over-speeding Non-wearing of helmet.	
Corrective Actions to Prevent Recurrence:	
No specific corrective measures are applicable since site was already covered off using barriers with speed limit signs were also already placed in the work area and signs to exercise caution to the traffic and pedestrians in the vicinity of the work sites were already placed.	

Note: Refer to the "Root Cause Investigation & Corrective Action Form" for further detail.

ANNEX

INCIDENT ROOT CAUSE INVESTIGATION AND CORRECTIVE ACTION FORM

Project:	Water Supply and Sewerage (WSSW) PIP-01	Incident Date:	23/12/22
Location:	27 th St, 2nd from Police Road	Incident Time:	12:45 pm
Incident Title:			

Has the Incident Notification Form been completed? Yes No
If not, complete the incident notification form below, completing the form.

<input type="checkbox"/> Fatality	<input type="checkbox"/> Near Miss	<input type="checkbox"/> Business Interruption	<input type="checkbox"/> Government Inquiries
<input type="checkbox"/> Lost Time	<input type="checkbox"/> Equipment Damage	<input type="checkbox"/> Injuries/Trauma/Health	<input type="checkbox"/> Own responsibility
<input type="checkbox"/> Restricted Work	<input type="checkbox"/> Property Damage	<input type="checkbox"/> Media Exposure	<input type="checkbox"/> Contamination
<input type="checkbox"/> Physical Assault	<input type="checkbox"/> Reputational	<input type="checkbox"/> Website	<input type="checkbox"/> Public Complaint
<input type="checkbox"/> Other Act		<input type="checkbox"/> Construction	

Report Prepared by: Muhammad Asad Iqbal JED Report, EPCM Consultants 0331-7532741 Signature: _____ Date: 23/12/22	Supervisor's Name: Nasim Akhbar Supervisor 203-894-26, Lab-4 Sahiwal Signature: _____ Date: 23/12/22
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This form is used to help analyze incident root causes and contributing factors. Incidents rarely arise due to one single cause, and there are often multiple contributing factors that are involved in an incident. A **cause** is a condition that produces an effect. If a cause is eliminated, the effect is eliminated. A **contributing factor** is a condition that influences the effect but does not cause the effect. If the contributing factor is eliminated, the effect is not necessarily eliminated but may be influenced in other ways, such as being less severe, less likely, occurring more often, or other similar effects.

DESCRIPTION OF INCIDENT: (Use separate pages if required. Attach photos if applicable.)

A driver named M. Faisal was on his motorcycle and was over-speeding, despite the speed limit sign boards being present in the area and tried to cross the excavated trench for crossing to the other side of around 12:45 pm on 23rd December 2022. During his attempt to jump over the trench with his motorcycle, he hit the jersey barrier that had been placed next to the trench to secure the area. While doing this, the rider lost his balance and fell into the shallow excavation, resulting in a fatal head injury. Since the rider was not wearing a helmet and was exceeding the speed limit assigned for this area, the injury proved fatal. Ambulance 1122 was immediately called and they performed CPR but he expired on the spot.

Photos, incident report of 1122 and Police Investigation report is attached as Annex.

Root Cause and Contributing Factor Analysis (add more pages if necessary for any section)

LEADING EVENTS ANALYSIS (Describe the events leading up to the incident that were different to a normal sequence of events for this activity. Consider whether changes from normal sequences of events were causes or contributing factors to the incident.) (Refer to Chapter 5 of the ASB DC MS Guide for 0124)

Muhammad Asad Iqbal
Dr. Muhammad Asad Iqbal
Senior Resident Engineer
WSSW - EPCM, Sahiwal

EPCM - SWL
Date: 23/12/22
Time: 12:45 pm

INCIDENT ROOT CAUSE INVESTIGATION AND CORRECTIVE ACTION FORM

Mr. Farhan, a worker, seems to have taken a reckless and careless approach by firstly over spending and ignoring the speed limit signposts that he would have crossed. Secondly, while over spending and also not wearing a helmet, while knowing that he was in an Area that was a work site, he decided to attempt a highly risky maneuver by trying to cross the excavated trench by jumping over it.

Were the proper safe work practices and procedures being used by the workers in the events leading up to the incident? If not, why not?

There were different sign boards placed at site for public awareness i.e. diversion sign board, speed control 20km/hour and Caution board (working ahead). Hard barricading with green mesh was present at site. Soft barricading and Jersey barriers were also present at site.

Were relevant legislation and standards being followed by the workers in the events leading up to the incident? If not, why not?

All applicable requirements in accordance with most stringent national and international standards and legislation were being implemented in line with the EMP requirements and were being monitored by the Construction Supervision Consultant (CSC) staff.

Were there any mechanical failures or defects that led to the incident? If yes, describe below:

No

Were the proper safety devices in place and being used? Were workers using proper personal protective equipment (PPE)? If not, why not?

There was 100% HSE compliance at site. There were different sign boards placed at site for public awareness i.e. diversion sign board, speed control 20km/hour and Caution board (working ahead). Hard barricading with green mesh was present at site. Soft barricading and Jersey barriers were also present at site. No work was in progress at 36" dia. sewerage line due to the Contractor staff observing the Friday ban. Otherwise, during work, the workers have been wearing safety helmets, safety harness, safety shoes and work jackets.

Did the actions or lack of actions of anyone at the workplace contribute to the incident? If yes, describe below:

No since as already mentioned above, the incident took place solely due to the worker disregarding the sign boards and not wearing protective equipment and attempting a risky maneuver.

Were there any unusual conditions that contributed to the incident, such as (but not limited to) weather, other activities in the area, or anything else that was not typical for the task?

No


Dr. Muhammad Waheed Ahmad
Senior Resident Engineer
ICIP - PHCL, Bahawal

INCIDENT ROOT CAUSE INVESTIGATION AND CORRECTIVE ACTION FORM

Did the workers present at the incident respond in a calm and appropriate way? Describe below:

At the spot, no worker was available at the site to take alarm during Holiday hours. As soon as it was observed that an accident had taken place, they called for emergency services.

Were the workers adequately trained to respond to the incident? If not, what training would have helped to lead to a better outcome?

Only safety talks are being conducted for the workers about hazard of fire, soil collapse, chemical spill, electrical hazard and slip trip fall etc. Safety trainings are being conducted for the workers about construction safety. Year to respond to emergency of soil collapse etc. Every month, emergency drills are organized at site for the staff of emergency procedures regarding emergency fire, chemical spill and occurrence of soil collapse.

Furthermore, a program will be conducted in collaboration with DTP staffs for awareness of general public for being sensitive to warning behaviors and avoiding over speeding, especially in the work areas.

Are there adequate procedures in place to respond to similar incidents? If not, what procedures need to be developed?

The DTP is being implemented in letter and spirit which consists of deployed resources on occupational health and safety.

Check the causes and contributing factors from the following list. If necessary, add additional causes and contributing factors.

- | | |
|---|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Operating equipment without training <input type="checkbox"/> Operating equipment without proper use <input type="checkbox"/> Operating equipment without safety devices in place or with inoperative safety devices <input type="checkbox"/> Inadequate warning to workers of a safety issue <input type="checkbox"/> Inadequate barriers or barricades <input type="checkbox"/> Using defective tools or equipment <input type="checkbox"/> Proper equipment unavailable <input type="checkbox"/> Improper loading <input type="checkbox"/> Poor housekeeping practices <input type="checkbox"/> Negative safety culture <input type="checkbox"/> Poor maintenance of machinery <input type="checkbox"/> Inadequate instructions (job, shift, format) | <ul style="list-style-type: none"> <input type="checkbox"/> Inadequate site security <input type="checkbox"/> Inadequate worker protection from toxic substances <input type="checkbox"/> Inadequate PPE <input type="checkbox"/> Improper use of PPE <input type="checkbox"/> Inadequate lighting <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Inadequate supervision <input type="checkbox"/> Inadequate training <input type="checkbox"/> Unsafe format <input type="checkbox"/> violation of traffic rules |
|---|--|

List the contributing factors and their involvement as a cause of the incident.

Contributing Factors	Involvement
Road driving by late color (Over speeding)	Break the barricading and hit the priority barrier
Failure to understand sign board language	Not perception of risk
Crossing of PPE wrong place	Go to other side of track
Carrying wrong	Not perception of risk


J. Muhammad Basim Akhtar
Senior Resident Engineer
MSP - EPCB, Lahore

INCIDENT ROOT CAUSE INVESTIGATION AND CORRECTIVE ACTION FORM

Describe the root cause (s) below:

Construction site / work site

Non-wearing of helmet

Presence of traffic rules and driver that no helmet


Corrective Action Analysis

List the corrective actions already taken or planned to prevent a similar incident from occurring. Indicate whether the corrective action is already complete and who is responsible for implementing it.

Corrective Action	Person Responsible	Status
No specific corrective measures are applicable since site was already cordoned off using barriers with speed limit signs were also already placed in the work area and signs to caution visitors by the traffic and pedestrians in the vicinity of the work area were already placed.		
Contractor aware regarding safety measures is arranged in the form of meeting with the contractor and consultant.	HSE Team	On
With the assistance of ICF/ICIT, will organize the training sessions regarding traffic rules.	HSE / Social Safeguard Team	On

Summarize any further information learned from this root cause and contributing factor analysis, including any information that needs to be shared with the workers or workforce management.

An additional measure that can be conducted to further strengthen attempts to prevent such incidents in the future is to increase the sign boardings and to also ensure all sign boards are in Urdu language, wherever the might already be the case. Furthermore, a public awareness campaign on the local radio and newspapers must be conducted to try and increase awareness on the need to follow traffic rules and take required precautions in the work areas.


Dr. Muhammad Waheed Ahmad
 Senior Resident Engineer
 PAFIP - PCCW, Lahore



Annexure I: Corrective Action Plan for Sahiwal

Sr. No.	Issue	Comments / Observations	Action Required	Target Date	Implementation Responsibility	Supervision Responsibility	Status
1	Trainings sessions	A stand out session regarding safety is arranged in the first week January with contractor and consultant	Arranged of training sessions for HSE staff, Contractor's Management staff and key members of site Staff for awareness of HSE Importance at worksite.	Everyday	OHS Manager and Health and Safety Team	Environmental specialist/HSE Expert	Implemented