Acknowledgement

HYDERABAD RAJIV GANDHI INTERNATIONAL AIRPORT

GMR Hyderabad International Airport Limited

GMR

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Rajiv Gandhi International Airport,
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Telangana State, India
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Ref: GHIAL/AO-ENV/TSPCB/2023/11

30.06.2023

The Environmental Engineer,
Regional Office-I, Ranga Reddy District,
Telangana State Pollution Control Board,
Begumpet, Hyderabad - 500016.

Sub: Submission of "Environmental Statement" for April 2022-March 2023.

Ref: Consent & Authorization order no. Authorization No: 210822751923 Dated 17.02.2021 (Schedule B Serial No 27.)

Dear Sir,

Please find attached herewith "Environmental Statement" in Form-V for the period April 2022 - March 2023 pertaining to Rajiv Gandhi international Airport.

This is for your information and records please.

Thanking you,

Yours Sincerely,

For **GMR Hyderabad International Airport Ltd,**

Wing Commander A V Lakshmana Kumar (Retd)
Vice President
Head - Safety & Environmental Compliance

T.S. POLLUTION CONTROL BOARD
1 JUL 2023
Paryavaran Bhavan, A-3, IE Sanathnagar, Hyd-18.

Enclosure: Environmental Statement in Form-V

T.S. Pollution Control Board
No.
Date 01/07/23
Regional Office-I, R.R. District.

Copy to:

- The Member Secretary, TSPCB., Hyderabad.

Environmental Statement

FORM V
(See rule 14)

Environmental Statement for the financial year ending the 31st March 2023.

PART A

Name and address of the owner/occupier of the industry operation or process	M/s. GMR Hyderabad International Airport Limited, Shamshabad, Ranga Reddy District, Hyderabad, Telangana state.
Industry category Primary – (STC Code) Secondary –(STC Code)	Airports (Red category industrial sector)
Production capacity	Airport capacity – 25 million passengers & 3 lakhs metric ton cargo per annum
Year of establishment	The Airport was commissioned on 23rd March 2008
Date of last environmental statement submitted.	13th May 2022

PART B

Water and Raw Material Consumption

Water consumption in m3/d - N/A	
Process -	-----
Cooling –	-----
Domestic -	-----

Name of products	**Process water consumption per unit of product output.**	
	During the previous financial year (2021-22)	**During the current financial year (2022-23)**
Airport operations	1854 KLD (Domestic + Cooling + Flushing+ irrigation) GHIAL net water consumption	3394 KLD (Domestic + Cooling + Flushing+ irrigation) GHIAL net water consumption
Break-up	Fresh water (HMWS): 797 KLD Treated Wastewater:1057 KLD	fresh water (HMWS): 923 KLD Fresh water (Reservoir 2): 292 KLD Treated wastewater: 1097 KLD. Ground water: 1081 KLD

***Water consumption details are attached as Annexure- I**

Raw material Consumption: Not Applicable since this is an airport.

Name of raw material/ Name of products	Consumption of raw material per unit of output	
	During the previous financial year (2021-22)	During the current financial year (2022-23)
	-------	--------

PART C

Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

Pollution	Quantity of pollutants discharged (mass/day)	Concentration of Pollutants discharged (mass/volume)	Percentage of variation from prescribed standards with reasons.
(a) Water	No wastewater has been discharged from the airport. [The sewage generated from the Airport (**1417 KL / day**) was treated in the STP within the premises of the airport. After treatment the wastewater is recycled for flushing, cooling tower makeup and irrigation within the airport premises]	Wastewater and air quality parameters are being monitored by MoEF &CC approved laboratory. Monitoring data enclosed as **Annexure II.**	Waste water parameters are within the prescribed standards. The ambient air quality and D.G sets - chimney monitoring results are within the T.S.P.C.B., prescribed standards.
(b) Air	The air pollutants from the DG set chimneys are released at the height of 100 feet.		

PART D

HAZARDOUS WASTES

(As specified under Hazardous Wastes (Management & Handling Rules, 1989)

Hazardous Wastes	Total Quantity (Liters)	
	During the previous financial year (2021-22)	During the current financial year (2022-23)
From Process (Used oil & Grease)	Total:11968 liters 11968 liters (Used oil & Used Aviation Turbine Fuel)	Total:6238 liters 6238 liters (Used oil & Used Aviation Turbine Fuel)
From pollution control facilities.	Nil	Nil

Hazardous Wastes generation & disposal details are attached as Annexure- III

PART E

Solid Wastes

		Total Quantity (kg)	
		During the previous financial year (2021-22	During the current financial year (2022-23)
From Process (Food waste, plastic, metal and glass scrap)	kg	1725800	3193407
From pollution control facility (STP generated sludge)	kg	236100	156018
Quantity recycled or reutilized within the unit (Food waste, sludge from STP is converted into compost and used as manure)	kg	236100	156018
Sold (Plastic, paper, metal and glass scrap)	kg	22660	459985
Disposed (Disposal of food waste to GHMC)	kg	1703140	2733422

Total solid waste generated 3193407 kg/year [Food waste-2733422 kg, STP sludge- 156018 kg, paper-184859 kg, plastic-125852 kg and glass-107902 kg]
****Solid Waste Disposal details are mentioned in Annexure-IV**

PART F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Type of waste	Composition	Quantity generated in (Ltr/Year)	Disposal
Hazardous waste (Used oil & Aviation Turbine Fuel)	Organic material	6238 liters/year	T.S.P.C.B authorized agencies.
Solid waste	Garbage (Paper, plastic, metal, glass), STP sludge and food waste	3193407 kg/year	*Sludge generated from STP are used as manure. *Food waste generated is being sent to GHMC dump yard. *Other waste i.e. paper, plastic, glass, metal is sent to recyclers.

PART G

Impact of the pollution control measures taken on conservation of natural resources and consequently on the cost of production.

- The treated wastewater and the rainwater runoff had used for irrigation and flushing purposes instead of HMWS & SB source water.

*Expenditure made on Pollution control equipment /Services/Consents/Waste disposal etc. for the financial year 2022–23.

S.NO	Description	Cost incurred for 2022-23 (in Rs).
1	Sewage Treatment Plant operational charges (energy, manpower and chemicals)	1,53,85,376.20
2	Water Treatment Plant operational charges (energy, manpower and chemicals)	50,92,755.37
3	Rainwater harvesting tanks (energy, manpower, civil works) operation & maintenance	1,15,628.18
4	RO Plant for the water treatment (energy, manpower, chemicals and lab analysis)	39,36,172.012
5	Horticulture and green belt development	7,43,14,765
6	Solid waste collection and disposal charges	65,48,682
7	Operation and maintenance cost of (CAAQMS) Continuous Ambient Air Quality Monitoring Station (AMC,ARC & Calibration)	12, 79, 273
8	Third party environmental quality monitoring in and around the airport	6,42, 975
9	Supply, Installation, Testing and Commissioning of one Fixed Continuous Ambient Air Quality Monitoring Station	92,63, 976
10	Work order Supply, and installation of 3 Nos of Piezometers along with drilled borewells at RGIA premises	12,09, 450
11	Service order for Third Party Verification of GHG Emission at RGIA, Hyderabad	2,89, 500
12	Supply of 40f Fortigate Firewall" for GMR Hyderabad International Airport Limited.	2,12, 800
13	Greenhouse gas Auditing for Carbon accreditation	1,50,000
Total		**11,84, 41, 352.76**

PART H

Additional measures/investment proposal for environmental protection including abatement of pollution.

In addition to the existing STP of 1850 KLD, GMR Hyderabad International Airport Ltd., (GHIAL) has established another 2X 1350 KLD = 2700 KLD of Sewage Treatment Plants at Rajiv Gandhi International Airport (RGIA).

PART I

Any other particulars for improving the quality of the environment

- GHIAL has commissioned its second 5MWp Solar Power Plant in addition to the existing 5MWp by which GHIAL has increased its total installed capacity to 10MWp.
- GHIAL has been awarded with **Green Airport Recognition 2022 – "Carbon Emission Management" – Silver** by the Airports Council International.
- GHIAL along with its airport stakeholders ensuring sustainable airport operation at RGIA like greenbelt development, solar energy use, green buildings construction, single use plastic control, reduction of carbon emissions and maintaining carbon neutral airport status (Level 3+), community empowerment etc.

01 Jul 2023

AV Lakshmana Kumar
Head- Safety and Environmental Compliance
GMR Hyderabad International Airport,
Shamshabad, Ranga Reddy District,
Telangana state.

-End-

Annexure - I

GMR Hyderabad International Airport Limited

Water consumption for April 2022 - March 2023

GMR Hyderabad International Airport Limited (GHIAL) - Net Water Consumption FY 2022-23							
Month	Domestic (kl)		Cooling tower (CT) make-up (kl)	Flushing(kl)	Gardening (kl)		Total (kl)
	HMWS&SB	Reservoir -2	Treated WW	Treated WW	Treated WW	Ground water	GHIAL'net
Apr'22	24697	4625	7,334.10	26192	12637	63779	75485.1
May'22	35942	6248	9,028.80	25829	8018	60570	85065.8
June'22	28707	10918	7,384.30	21699	7440	39732	76148.3
July'22	27640	13538	5,900.80	18682	3389	9555	69149.8
Aug'22	20989	13232	8,684.10	20735	5594	13132	69234.1
Sept'22	32254	13453	8,927.80	23463	7232	13745	85329.8
Oct-22	25511	11665	9,296.10	25090	4132	15198	75694.1
Nov-22	20110	6839	7,137.90	27039	10520	28046	71645.9
Dec-22	27312	11564	7,267.50	28620	10466	32010	85229.5
Jan-23	24556	9274	7,215.50	26179	10507	36096	77731.5
Feb-23	29062	5235	6,954.90	19527	13367	31220	74145.9
Mar-23	40094	0	9,188.70	30495.3	13704	51577	93482
Total	336874	106591	94321	293550.3	107006	394660	1333001.8
Per day	923	292	258	804	293	1081	3652

Note:
1. Domestic: fresh water from HMWS&SB.
2. CT make up: Treated wastewater (WW) from STP.
3. Flushing: Treated wastewater (WW) from STP;
4. Gardening: Treated WW + ground water

GHIAL's net consumption means excluding Novotel, Inflight kitchens, Amazon, MROs, SEZ tenants etc.

HYDERABAD RAJIV GANDHI INTERNATIONAL AIRPORT GMR

ENVIRONMENTAL QUALITY MONITORING REPORT

March-2023

RAJIV GANDHI INTERNATIONAL AIRPORT
HYDERABAD

Submitted to

M/s. GMR Hyderabad International Airport Ltd.

Shamshabad, Hyderabad - 500 108.

Prepared by

M/s. UNIVERSAL ENVIRO ASSOCIATES

104 & 105, Libra Enclave, RTC "X" Roads, Musheerabad, Hyderabad – 500 020

ACKNOWLEDGEMENT

M/s. Universal Enviro Associates express sincere debt of gratitude to M/s. GMR Hyderabad International Airport Ltd., for the opportunity given by assigning the preparation of Environmental Quality Monitoring Study for **Rajiv Gandhi International Airport** located at Shamshabad, Hyderabad. Special mention needs to be made for executives of M/s. GMR Hyderabad International Airport for their co-operation and assistance during the preparation of this report. We also wish to acknowledge our gratitude to all of them who helped during the monitoring period.

For and on behalf of
M/s. UNIVERSAL ENVIRO ASSOCIATES

UNIVERSAL ENVIRO ASSOCIATES HYD-20

T. Krishna.
Authorized Signatory.

Name: T. KRISHNA
Position: Technical Manager

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ABBREVIATIONS

Short form	Expanded Form
%	Percentage
^0C	Degree Celsius
<	Less than
µg	Microgram
µm	Micrometer
µs	Micro Siemens
AAQ	Ambient Air Quality
ACF	Activated Carbon Filter
AGL	Airfield Ground Lighting
a.m.	After meridian
TSPCB	Telangana State Pollution Control Board
BOD	Bio-Chemical Oxygen Demand
BDL	Below Detectable Limit
COD	Chemical Oxygen Demand
CFO	Consent for Operation
cm	Centimeter
CO	Carbon Monoxide
dB(A)	Decibels on scale A
ds/m	Decisiemens per meter
D.G. Set	Diesel Generator Set
E	East
E.C.	Electrical Conductivity
ENE	East of Northeast
g/cc	gram/centimeter cube
GHIAL	GMR Hyderabad International Airport Ltd
IS	Indian Standards
kg/ha	Kilogram per hectare
km	Kilometer
Kmph	Kilometer per hour
KVA	Kilo Volt – Ampere
l	Liter
L_{eq}.	Equivalent levels

m	Meter
mg	Milligram
mg/l	Milligram per liter
mg/Nm^3	Milligram per normal cubic meter
max	Maximum
min	Minimum
mm	Millimeter
m/sec	Meter per second
N	North
Nm^3	Normal cubic meter
Nm^3/hr	Normal cubic meter per hour
NOx	Oxides of Nitrogen
NW	Northwest
pH	Potentiality of hydrogen ions
$PM_{2.5}$	Particulate Matter size less than 2.5 µm
PM_{10}	Particulate Matter size less than 10 µm
p.m.	Post meridian
ppm	Parts per million
RGIA	Rajiv Gandhi International Airport
RWHS	Rain Water Harvesting Structure
S	South
SE	Southeast
SO_2	Sulphur Dioxide
SPM	Suspended Particulate Matter
Sq.m	Square meter
SSW	South of Southwest
STP	Sewage Treatment Plant
TDS	Total Dissolved Solids
W	West
WNW	West of Northwest
WTP	Water Treatment Plant
g/KW-hr	Gram per Kilo Watt hour

1.0 Introduction:

M/s. GMR Hyderabad International Airport Limited has awarded **M/s. UNIVERSAL ENVIRO ASSOCIATES (UEA)** the environmental consultancy service contract for carrying out monthly environmental parameters monitoring study for their ongoing works of Rajiv Gandhi International Airport, Shamshabad, Hyderabad. This monitoring report is an overview of the findings of the field investigations carried out for the month of March, 2023. The field monitoring data was collected during **13-03-2023 to 14-03-2023** at Rajiv Gandhi international Airport, Shamshabad and 10 km surrounding area. The study area for Environmental Monitoring is airport premises and its surrounding area upto10 km of aerial distance is taken as buffer zone which is located towards east of Hyderabad, NH-7 (Bangalore Highway). This site is approximately 20 km away from the Hyderabad city premises.

1.1 Objective:

The objective of the environmental parameters monitoring is to create an overview of the existing environmental quality using the field investigations in and around the study area.

1.2 GMR Hyderabad International Airport Limited:

GMR Hyderabad International Airport Limited (GHIAL) is a joint venture company promoted by the GMR Group (63%) in partnership with Government of India (13%), Government of Telangana (13%) and Malaysia Airports Holdings Berhad (11%). The Company was incorporated to design, finance, build, operate and maintain a world class Greenfield airport at Shamshabad, Hyderabad, and Telangana.

1.3 Environmental Monitoring Study:

The environmental monitoring study and analysis is carried out for air, water, soil, wastewater quality and Noise Levels in and around the airport site. The samples collection measurements are carried out within a radius of 10 km with the airport site as epicenter.

The ambient air quality monitoring is carried out for 24 hours for assessing air pollutants levels. Instantaneous duplicate for the water and wastewater samples are collected to assess the quality of water and wastewater characteristics.

2.0 EnvironmentalStatusof Study Area:

2.1.1 Meteorological Monitoring: Data Analysis - Micro Meteorological Status

Meteorological parameters are important factors in the study of air pollution. The transport and diffusion of the pollutants in the atmosphere are governed by meteorological parameters. Wind velocity, wind direction and diffusion of pollutants depend mainly on three factors. Ambient temperatures, humidity, rainfall, atmospheric pressure etc. are known as secondary meteorological parameters as these factors control the dispersion of the pollutants indirectly by affecting the primary Factors. Thus, to assess the air pollution impact, it is essential to collect the above meteorological parameters in the project area.

2.1.2 Data Presentation:

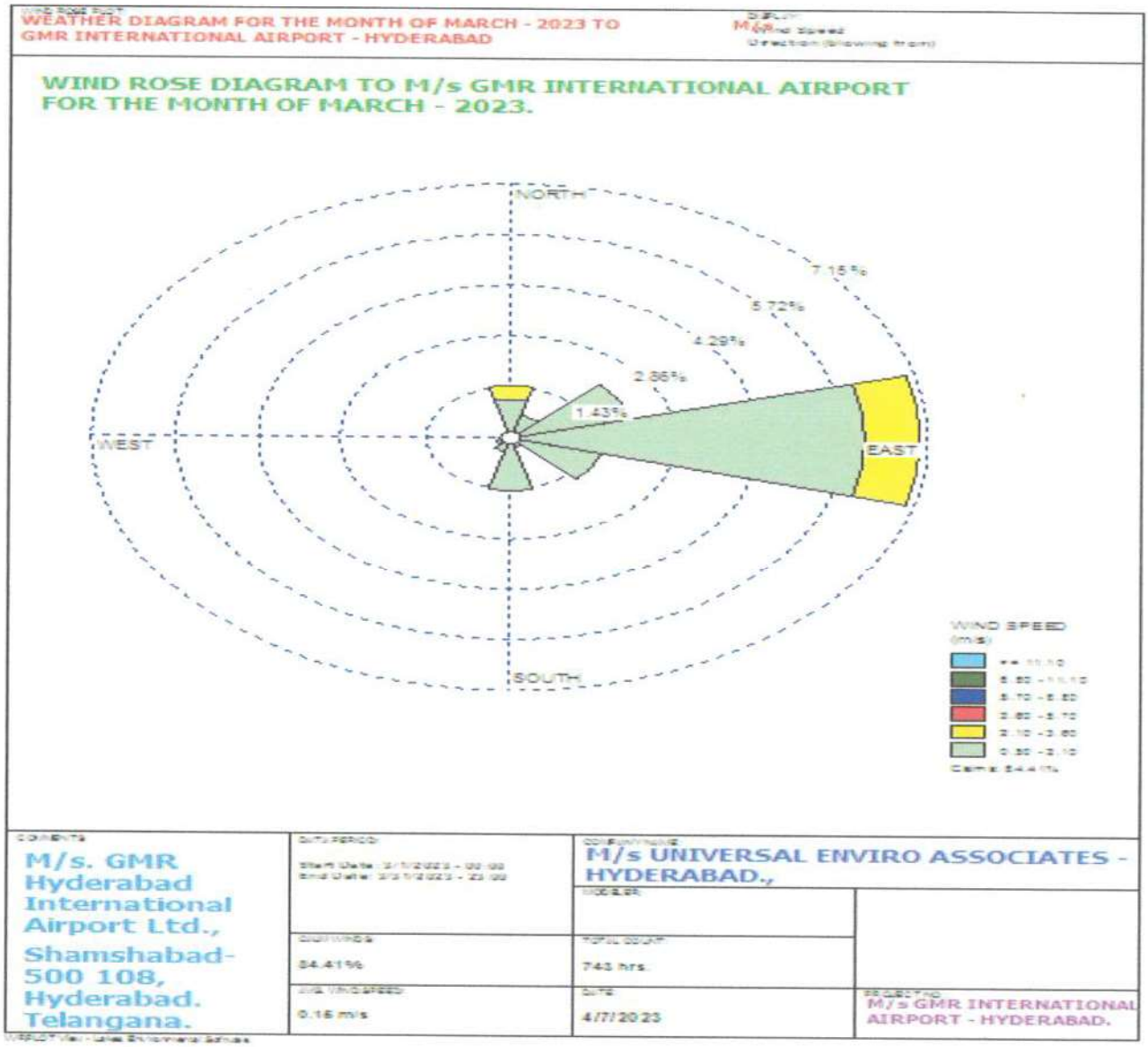
Meteorological data was recorded at intervals of every one hour, during the study period of March, 2023. Recorded average values for the month of March 2023.

S No.	Parameters	March2023		
		Min	Max	Average
1	Relative humidity (%)	11.65	93.30	47.40
2	Temperature (^{0}C)	16.64	39.17	26.9
3	Total rainfall (mm)	58.2		
4	Predominant Wind Direction	South West		
5	Wind speed (m/s)	0	2.891	0.226
6	Atmospheric Pressure (milli bars)	599.8	669.3	600.6

2.1.3 Results:

The winds are predominantly recorded in South and West direction. The winds were blowing with speed ranging from 0.0 to 2.891 m/s of the total time. Calm conditions prevailed for 54.41 %(<1km/hr) of the total time. The average temperature range is with minimum of 16.64^{0}C and maximum of 39.17^{0}C.

Note: -Data source for Meteorological data is weather monitoring system installed at Airside of the RGIA. **Figure – 1: Wind Rose Diagram March 2023**



2.2 Ambient Air Quality:

2.2.1 Analysis Techniques

TABLE-1

TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

Sl. No.	Parameter	Technique	Technical Protocol
1.	PM_{10}	Respirable Dust Sampler (Gravimetric method)	IS:5182 (Part-23),2006 (Gravimetric Method)
2.	$PM_{2.5}$	$PM_{2.5}$ Dust Sampler (Gravimetric method)	CPCB Guide lines, Volume-1,2012 (Gravimetric Method)
3.	Sulphur Dioxide	Spectrophotometric Method	IS:5182 (Part-2),2001 (Improved West & Gaeke Method)
5.	Nitrogen dioxide(NO_2)	Spectrophotometric Method	IS:5182 (Part-6),2006 (Modified Jacob & Hocchheiser Method)
6.	Carbon Monoxide	Gas Chromatography Method	IS:5182 (Part-10), 1999 (Non Dispersive Infra-Red Method)
7.	Ammonia	UV-Visible Spectrophotometric Method	CPCB Guide lines, Volume-1,2012 (Indophenol Blue Method)
8.	Ozone	UV-Visible Spectrophotometric Method	IS:5182 (Part-9),1974 (Chemical Method)
9.	Methane	Gas Chromatography Method	IS:5182 (Part-21),2001 (Adsorption and Desorption followed by GC)
10.	Benzene	Gas Chromatography Method	IS:5182 (Part-11),2006 Absorption & Desorption method followed by GC

2.2.2 Details of Monitoring Locations:

Eight locations have been selected for ambient air quality monitoring locations. Location details are given in Table-2.

TABLE – 2
AMBIENTAIR QUALITY MONITORING LOCATIONS

S. No	Name of the Location	Direction/distance with respect to airport site		Environmental setting
		Direction	Distance (km)*	Pollution generating sources
1	Site Office	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
2	GMR VF Building	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
3	Airport Expansion (East Pier Side)	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
4	Airport Expansion (West Pier Side)	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
5	GMR Township, Mamidipalli	Northeast	3.43	Residential activities are like unpaved village roads, vehicular pollution, agricultural & domestic activities.
6	Rasheedguda	South West	3.4	Residential activities are like unpaved village roads, Vehicular pollution, agricultural &domestic activities.
7	Sardar Nagar	Southeast	8.2	Residential activities are like unpaved village roads, vehicular pollution, agricultural & domestic activities.
8	Vellankanni Nagar	North West	4.7	Residential activities are like unpaved village roads, vehicular pollution, agricultural & domestic activities.

2.2.3 Parameter Monitored and Results: Monitoring has been conducted for PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, Ammonia, Ozone, Methane and Benzene. The ambient air quality monitoring results of all these parameters are given in Table – 3 & 4.

TABLE- 4
AMBIENT AIR QUALITY RESULTS

Sampling Locations			Buffer Zone (Surrounding)			
			GMR Township Mamidipalli	Rasheedguda	Sardar Nagar	Vellankanni Nagar
Parameters	Units	Limits	14th March	14th March	14th March	14th March
PM_{10}	µg/m³	100	65.8	55.1	69.7	59.6
$PM_{2.5}$	µg/m³	60	28.2	23.8	23.9	22.3
Sulphur Dioxide	µg/m³	80	16.6	15.2	14.3	12.3
Oxides of Nitrogen	µg/m³	80	23.8	16.9	19.1	15.4
Carbon Monoxide	mg/m³	2	0.59	0.41	0.47	0.31
Ammonia	µg/m³	400	6.5	6.8	5.7	5.7
Ozone	µg/m³	100	17.4	15.6	17.5	16.9
Methane	ppm	-	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)
Benzene	µg/m³	5	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)

Note:

1. **AAQ Standard limits: - as per GHIAL's CFO dated 01.02.2022 and NAAQMS.**

Fig- 2.Variations of AAQ Parameters PM_{10} and $PM_{2.5}$

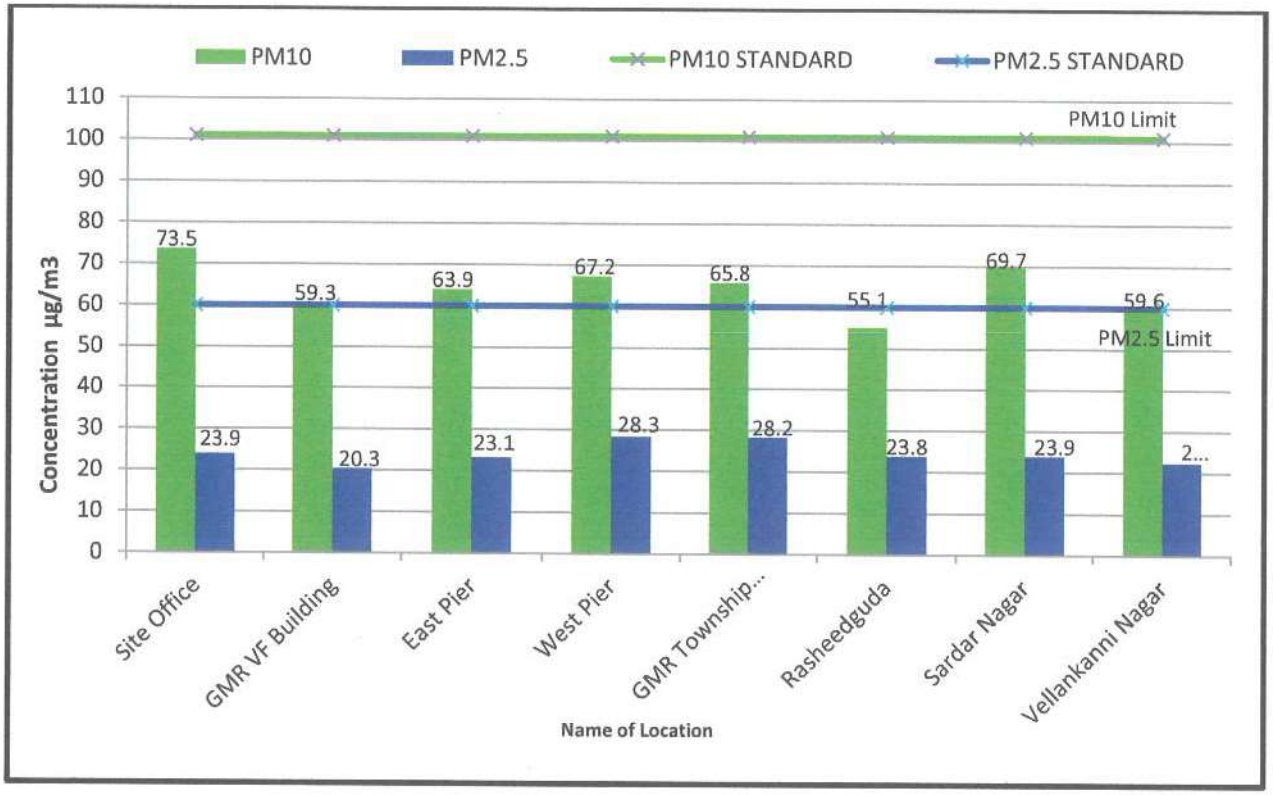
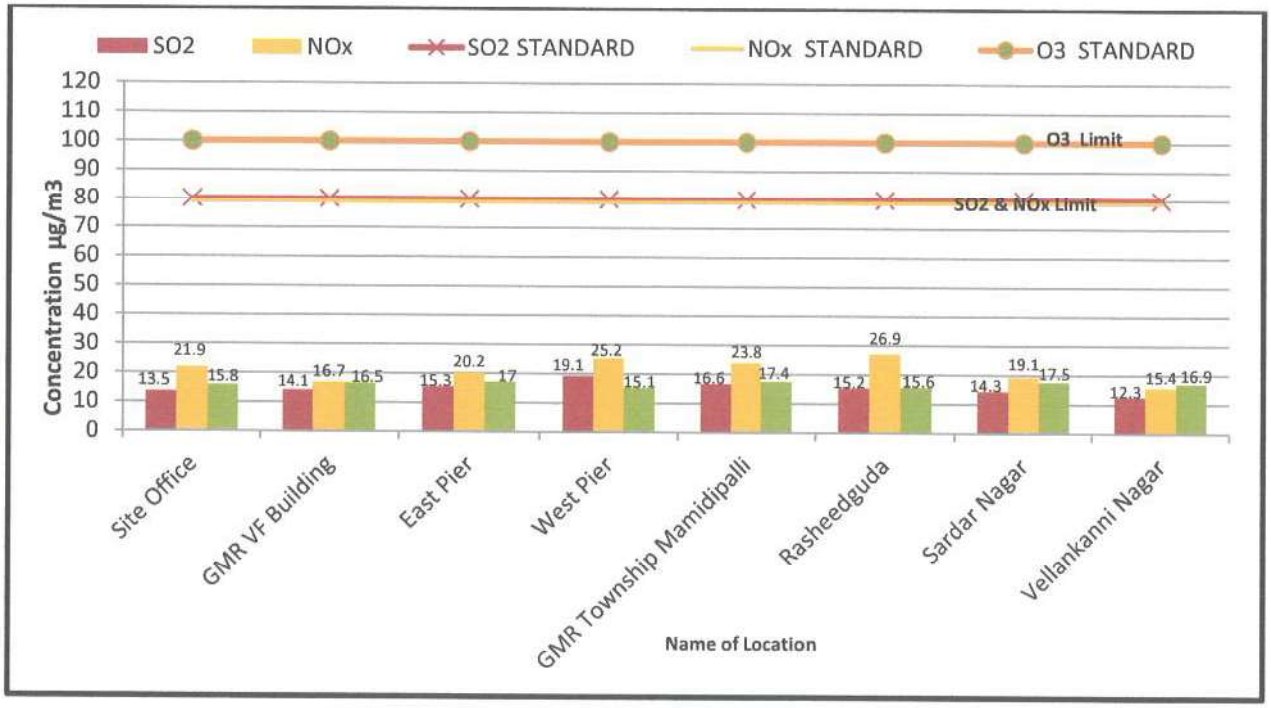


Fig- 3.Variations of AAQ Parameters SO_2, NO_X and Ozone (O_3)



2.3 Noise Levels:

2.3.1 Details of monitoring locations:

During the study period noise monitoring has been conducted at ten locations. Locations details are given in Table – 5

TABLE - 5

NOISE MONITORING LOCATIONS

S. No.	Name of the location	Direction / distance with respect to airport site		Description
		Direction	Distance (km)*	
1	Site Office	Nodal Center	0.0	Airport
2	GMR VF Building	Nodal Center	0.0	Airport
3	Airport Expansion (East Pier Side)	Nodal Center	0.0	Airport
4	Airport Expansion (West Pier Side)	Nodal Center	0.0	Airport
5	GMR Township, Mamidipalli	North East	3.43	Airport
6	Rasheedguda	South West	3.4	Residential Area
7	Sardar Nagar	Southeast	8.2	Residential Area
8	Vellankanni Nagar	North West	4.7	Residential Area
9	AGL West	Core Zone	0.0	Airport
10	AGL East	Core Zone	0.0	Airport

2.3.2 Parameters Monitored: Parameters monitored during the study period are given in Table – 6.

TABLE -6

NOISE ANALYSIS DATA

Sl. No.	Locations	Date	Noise Levels in dB (A) L_{eq}			
			Day Time	Limits	Night Time	Limits
RGI Airport Core Zone						
1	GMR VF Building	13.03.2023	59.7	75	42.8	70
RGI Airport Site						
2	Site Office	14.03.2023	68.2	75	49.1	70
3	West Pier area	14.03.2023	69.1		61.6	
4	East Pier area	14.03.2023	70.3		57.5	
5	AGL West	14.03.2023	53.1		51.6	
6	AGL East	14.03.2023	54.6		51.3	
Buffer Zone (Residential Area)						
7	GMR Township, Mamidipalli	14.03.2023	53.8	55	42.6	65
8	Rasheedguda	14.03.2023	52.9		43.4	
9	Sardar Nagar	14.03.2023	49.6		42.9	
10	Vellankanni Nagar	14.03.2023	53.6		42.7	

Note: The standards in the residential Area are superseded by the Airport Noise zone standards as per MOEF&CC, GSR 568(E) under airport noise zone notified by DGCA vide letter Ref No. 04-01/2019-AEDdated 05.07.2023.

The standards are Day time (from 6.00 am to 10.00 pm). **Leq:** 70 dB (A)
Night time from 10.00 pm to 6.00 am) **Leq:** 65 dB (A).

Ambient Noise levels standards

Category of Area	Limits in dB(A) Leq*	
	Day Time	Night Time
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

TABLE – Ambient Noise Levels standards for Airports – GSR 568 (E)

- As per MoEF & CC GSR 568 (E) Noise standards for Airports are as follows

Category of Airports	Limits in dB(A) Leq	
	Day Time	Night Time
Ambient Noise levels in Airport Noise zone		
Busy Airports	70	65
All other Airports excluding proposed Airports	65	60
Within Airport boundary	75	70

- Rajiv Gandhi International Airport, Hyderabad comes under Busy Airports Category

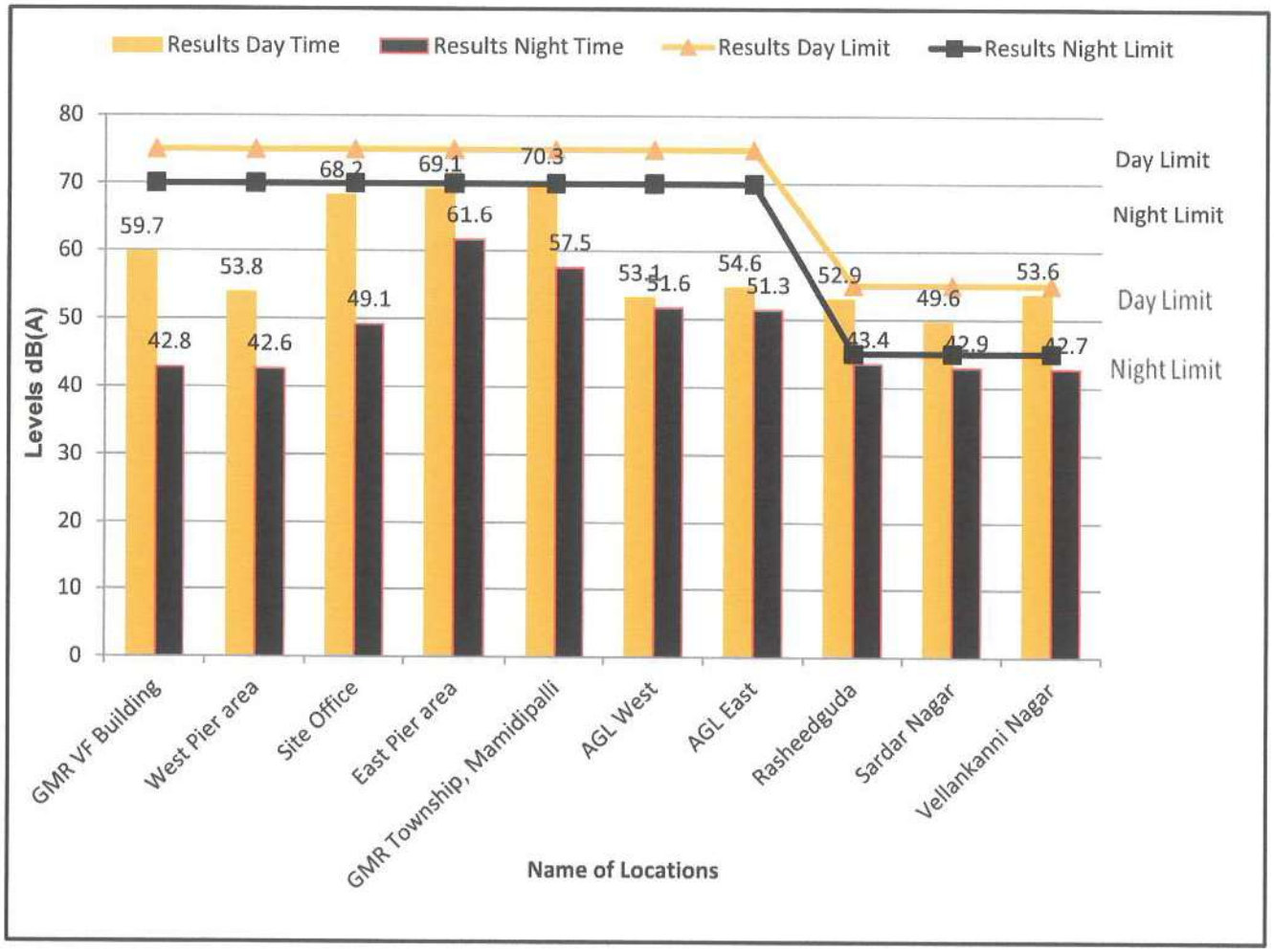
Note:

1. Day Time is recorded in between 6 am and 10 pm.
2. Night time is recorded in between 10 pm and 6 am.
3. Silence zone is defined as areas up to 100 meters around such premises as hospitals, educational institutions and courts. The silence zones are to be declared by the Competent Authority.
4. Use of vehicular horns, loudspeakers and bursting of crackers shall be banned in these zones.
5. Mixed categories of areas should be declared as one of the four above mentioned categories by the Competent Authority and the corresponding standards shall apply.

Source: EPA Notification [G.S.R. 106-01-123 (E), dt. 26.12.1989 published in the Gazette No. 643 dt. 26.12.1989]

- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A" in dB (A) L_{eq}, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- L_{eq}: It is energy mean of the noise level over a specified period.

Fig – 4: MONTHLY NOISE LEVELVARIATION:



2.4 Ground water quality monitoring:

2.4.1 Details of monitoring locations: Four ground water samples and two rainwater runoff samples were collected and analyzed for different parameters. Locations details are given in Table – 7.

TABLE- 7

DETAILS OF GROUND WATER SAMPLING LOCATIONS

Sl. No.	Name of the location	Direction/distance with respect to airport site		Sources	Description
		Direction	Distance (km)*		
1	Raseedguda	South West	3.4	Bore well water	Rural & Residential Area
2	Gollapali	South	3.1	Bore well water	Industrial Area
3	GMR Township, Mamidipalli	North East	3.43	Bore well water	Rural & Residential Area
4	Airport-1 (Irrigation Water)	West	0.0	Bore well water	Rural & Residential Area

2.4.2. Parameters monitored and results:

Monitored parameters and their results at different locations are given in Table- 8 & 9.

TABLE- 8

GROUND WATER QUALITY RESULTS

Date of Collection: 14-03-2023 **Date of Analysis: 15-03-2023**

S No.	Test Parameters	Units	Results		LIMITS (IS:10500)2012	
			Raseedguda	Gollapalli	Desirable	Permissible
1	pH	-	7.67	7.49	6.5 to 8.5	No relaxation
2	E.C.	µs/cm	986	971	--	---
3	Total dissolved solids	mg/L	571	684	500	2000
4	Alkalinity as $CaCO_3$	mg/L	299	262	200	600
5	Total Hardness as $CaCO_3$	mg/L	342	321	200	600
6	Calcium as Ca	mg/L	98.3	95.1	75	200
7	Magnesium as Mg	mg/L	29.6	37.2	30	100
8	Sodium as Na	mg/L	36.2	42.3	---	--
9	Potassium as K	mg/L	2.8	2.7	---	---
10	Chlorides as Cl	mg/L	262	262	250	1000
11	Sulphates as SO_4	mg/L	31.2	36.1	200	400
12	Nitrates as NO_3	mg/L	2.7	2.7	45	No relaxation
13	Iron as Fe	mg/L	<0.01	<0.01	0.3	No relaxation
14	Phosphates as PO_4	mg/L	1.5	1.09	---	5.0
15	Fluorides as F	mg/L	0.64	0.48	1.0	1.5

TABLE – 9
GROUND WATER QUALITY RESULTS

Date of Collection: 14-03-2023 **Date of Analysis: 15-03-2023**

S.No.	Test Parameters	Units	Results		LIMITS (IS:10500)2012	
			GMR Township, Mamidipalli	Airport-1 (Irrigation Water) (Well-5)	Desirable	Permissible
1	pH	-	7.57	7.78	6.5 to 8.5	No relaxation
2	E.C.	µs/cm	891	936	--	--
3	Total dissolved solids	mg/L	472	592	500	2000
4	Alkalinity as $CaCO_3$	mg/L	269	274	200	600
5	Total Hardness as $CaCO_3$	mg/L	341	352	200	600
6	Calcium as Ca	mg/L	136	85.1	75	200
7	Magnesium as Mg	mg/L	37.3	26.2	30	100
8	Sodium as Na	mg/L	43.1	38.9	--	--
9	Potassium as K	mg/L	4.5	3.8	--	--
10	Chlorides as Cl	mg/L	274	241	250	1000
11	Sulphates as SO_4	mg/L	46.2	32.6	200	400
12	Nitrates as NO_3	mg/L	2.8	2.7	45	No relaxation
13	Iron as Fe	mg/L	<0.01	<0.01	0.3	No relaxation
14	Phosphates as PO_4	mg/L	0.74	0.74	--	5.0
15	Fluorides as F	mg/L	0.52	0.55	1.0	1.5

Fig – 5: VARIATION OF GROUND WATER:

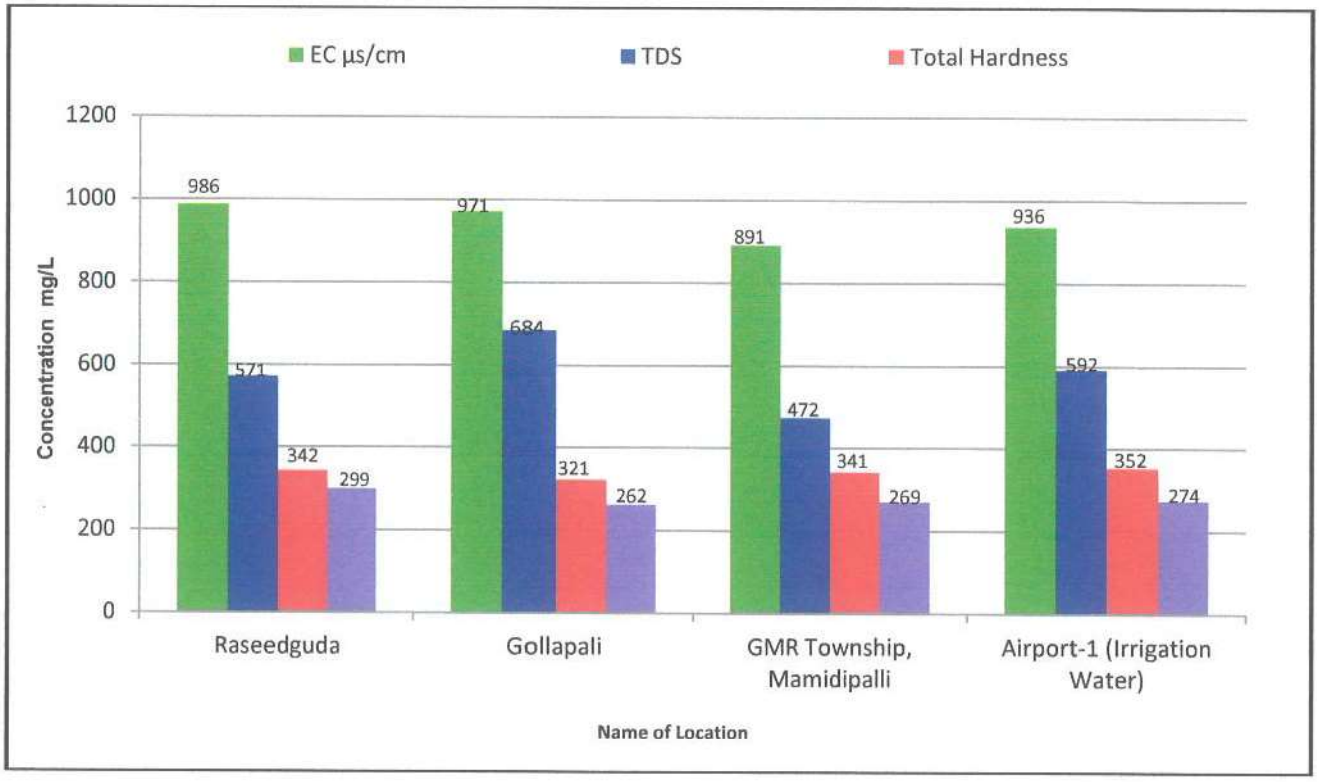
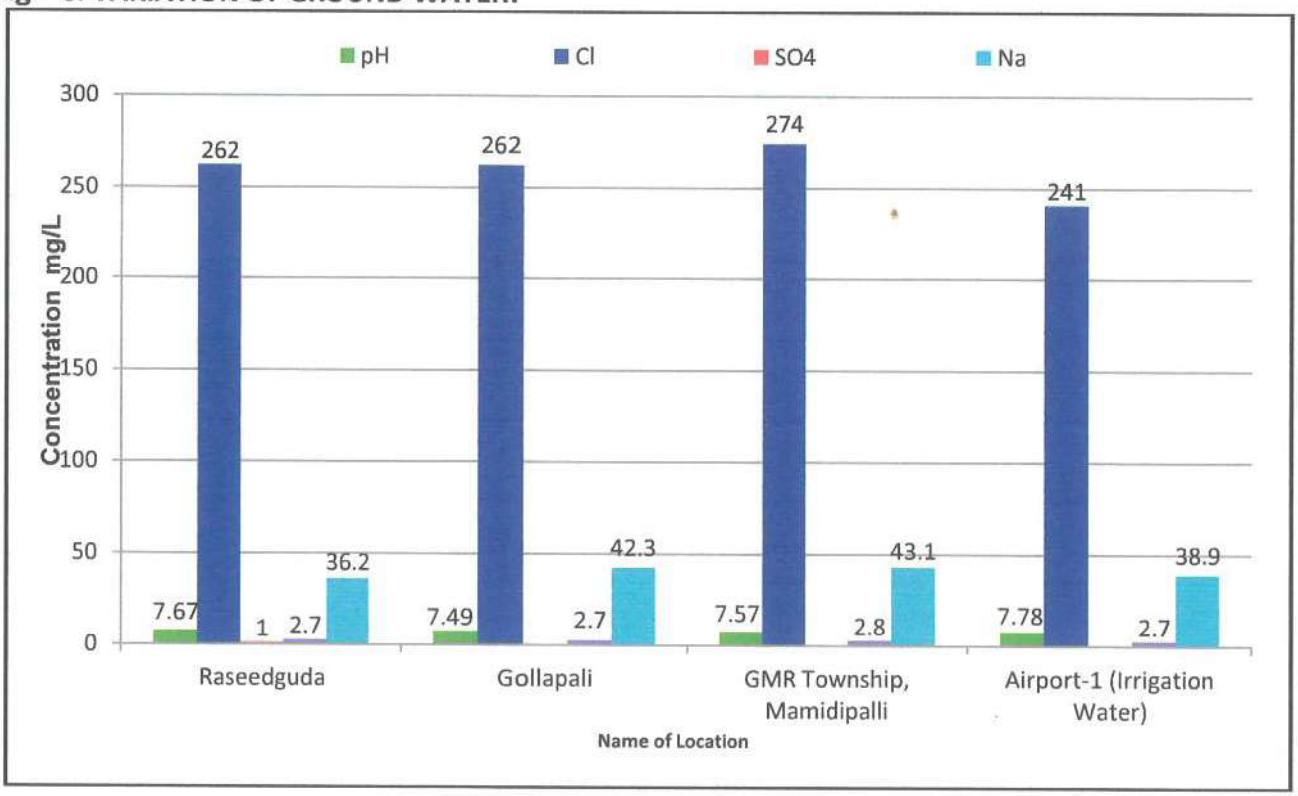


Fig – 6: VARIATION OF GROUND WATER:



2.5 Wastewater Analysis:

Wastewater samples were collected from two STP's for analysis from Equalization Tank, Filter Feed, ACF Outlet, and Softener outlet.

2.5.1 Details of Monitoring Locations:

Four wastewater samples have been collected; details of sampling location are given in Table-10.

TABLE-10
DETAILS OF WASTEWATER SAMPLING LOCATIONS

S. No	Location	Direction/Distance from airport		Description
		Direction	Distance	Wastewater samples collected on 11-10-2023
1	Equalization Tank - I	Nodal Center	0.0	Airport-Airside
2	Filter Feed - I	Nodal Center	0.0	Airport-Airside
3	ACF outlet - I	Nodal Center	0.0	Airport-Airside
4	Softener outlet - I	Nodal Center	0.0	Airport-Airside

S. No	Location	Direction/Distance from airport		Description
		Direction	Distance	Wastewater samples collected on 11-10-2023
1	Equalization Tank - II	Nodal Center	0.0	Airport-Airside
2	Filter Feed – II	Nodal Center	0.0	Airport-Airside
3	ACF outlet – II	Nodal Center	0.0	Airport-Airside
4	Softener outlet - II	Nodal Center	0.0	Airport-Airside

2.5.2 Parameters Monitored:

All the parameters are well within the prescribed limits as presented in Table-11 & 12

TABLE-11
MEASURED WASTEWATER PARAMETERS WITH RESULTS

Date of Collection: 13-03-2023 **Date of Analysis: 15-03-2023**

Name and Address of the Industry			M/s. GMR Hyderabad International Airport Ltd. Shamshabad-500 409, Hyderabad.				
			Results				
Sl. No.	Test Parameters	Units	Equalization Tank-I	Filter Feed - I	Activated Carbon Filter outlet– I	Softener Outlet - I	Limits
1	True Colour	Hazel	10	04	<5	<5	--
2	Apparent Colour	-	Light Yellow	Colorless	Colorless	Colorless	--
3	Odour	-	Light	Light	Un-Objectionable	Un-Objectionable	--
4	pH	-	6.61	6.97	7.42	7.49	6.5 – 9.0
5	E.C.	µs/cm	2,229	2,078	1,761	1,336	--
6	Turbidity	NTU	3.7	2.6	1.5	0.8	--
7	Total suspended solids	mg/l	183	161	87.9	63.5	200
8	Total dissolved solids	mg/l	1,623	1,512	1,352	899	2100
9	Total Hardness as $CaCO_3$	mg/l	378	361	342	223	--
10	Sulphide as S	mg/l	1.7	1.2	1.5	0.98	2.0
11	Total Residual chlorine	mg/l	1.9	2.3	2.7	1.8	--
12	Ammonical Nitrogen as N	mg/l	17.1	12.9	9.6	6.3	50
13	COD	mg/l	374	369	181	52.3	250
14	BOD for 3 days 27 °C	mg/l	95.1	92.3	56.2	9.1	10
15	Oil & grease	mg/l	3.6	3.3	0.89	0.57	10
16	Nitrates as NO_3	mg/l	4.1	3.7	2.8	0.79	--
17	Nitrites as NO_2	mg/l	1.5	2.9	1.6	0.61	--
18	Phosphates as PO_4	mg/l	0.74	0.89	0.72	0.47	--
19	Dissolved Oxygen	mg/l	3.5	3.9	4.7	5.9	--
20	Arsenic as As	mg/l	<0.1	<0.1	<0.1	<0.1	--
21	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001
22	Lead as Pb	mg/l	<0.1	<0.1	<0.1	<0.1	--
23	Cadmium as Cd	mg/l	<0.01	<0.01	<0.01	<0.01	--
24	Hexavalent Chromium	mg/l	<0.01	<0.01	<0.01	<0.01	--
25	Total Chromium	mg/l	<0.1	<0.1	<0.1	<0.1	--
26	Zinc as Zn	mg/l	<0.1	<0.1	<0.1	<0.1	--
27	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	--
28	Residual Chlorine	mg/l	<0.1	<0.1	<0.1	<0.1	--
29	E-coli	MPN	Absent	Absent	Absent	Absent	Absent

****CPCB Limit as per GSR 422(E) & GHIAL Consent order dt.01.02.2023**

TABLE-12

MEASURED WASTEWATER PARAMETERS WITH RESULTS

Date of Collection: 13-03-2023 **Date of Analysis: 15-03-2023**

Name and Address of the Industry			M/s. GMR Hyderabad International Airport Ltd. Shamshabad-500 409, Hyderabad.				
			Results				
Sl. No.	Test Parameters	Units	Equalization Tank-II	Filter Feed - II	Activated Carbon Filter outlet– II	Softener Outlet - II	Limits
1	True Colour	Hazel	11	07	<5	<5	--
2	Apparent Colour	-	Light Yellow	Colorless	Colorless	Colorless	--
3	Odour	-	Light	Light	Un-Objectionable	Un-Objectionable	--
4	pH	-	6.35	7.23	7.58	7.82	6.5 – 9.0
5	E.C.	µs/cm	2,386	2,089	1,481	1,096	--
6	Turbidity	NTU	3.9	2.9	1.5	0.8	--
7	Total suspended solids	mg/l	169	108	76.2	55.3	200
8	Total dissolved solids	mg/l	1,436	1,271	989	745	2100
9	Total Hardness as $CaCO_3$	mg/l	374	315	289	173	--
10	Sulphide as S	mg/l	2.1	1.5	1.07	0.89	2.0
11	Total Residual chlorine	mg/l	1.5	2.8	2.9	1.3	--
12	Ammonical Nitrogen as N	mg/l	17.3	11.2	5.8	4.5	50
13	COD	mg/l	348	299	135	45.1	250
14	BOD for 3 days 27 °C	mg/l	87.2	76.3	39.6	9.3	10
15	Oil & grease	mg/l	3.7	3.1	0.97	0.89	10
16	Nitrates as NO_3	mg/l	4.1	3.9	2.6	0.52	--
17	Nitrites as NO_2	mg/l	2.8	3.5	3.2	0.54	--
18	Phosphates as PO_4	mg/l	0.99	0.83	0.61	0.67	--
19	Dissolved Oxygen	mg/l	4.3	4.4	5.1	5.8	--
20	Arsenic as As	mg/l	<0.1	<0.1	<0.1	<0.1	--
21	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001
22	Lead as Pb	mg/l	<0.1	<0.1	<0.1	<0.1	--
23	Cadmium as Cd	mg/l	<0.01	<0.01	<0.01	<0.01	--
24	Hexavalent Chromium	mg/l	<0.01	<0.01	<0.01	<0.01	--
25	Total Chromium	mg/l	<0.1	<0.1	<0.1	<0.1	--
26	Zinc as Zn	mg/l	<0.1	<0.1	<0.1	<0.1	--
27	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	--
28	Residual Chlorine	mg/l	<0.1	<0.1	<0.1	<0.1	--
29	E-coli	MPN	Absent	Absent	Absent	Absent	Absent

****CPCB Limit as per GSR 422(E) & GHIAL Consent order dt.01.02.2023**

Fig-7: VARIATION OF WASTEWATER STP – I

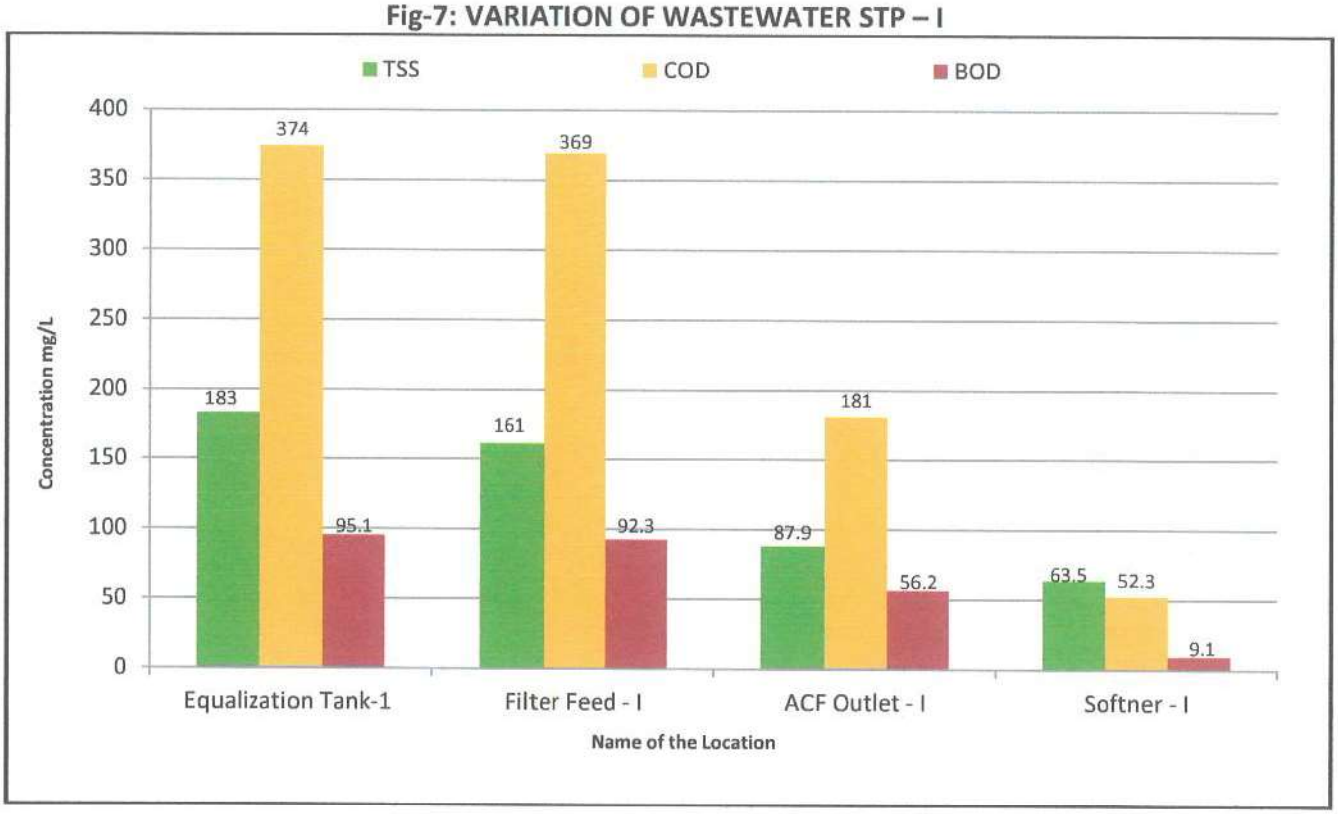
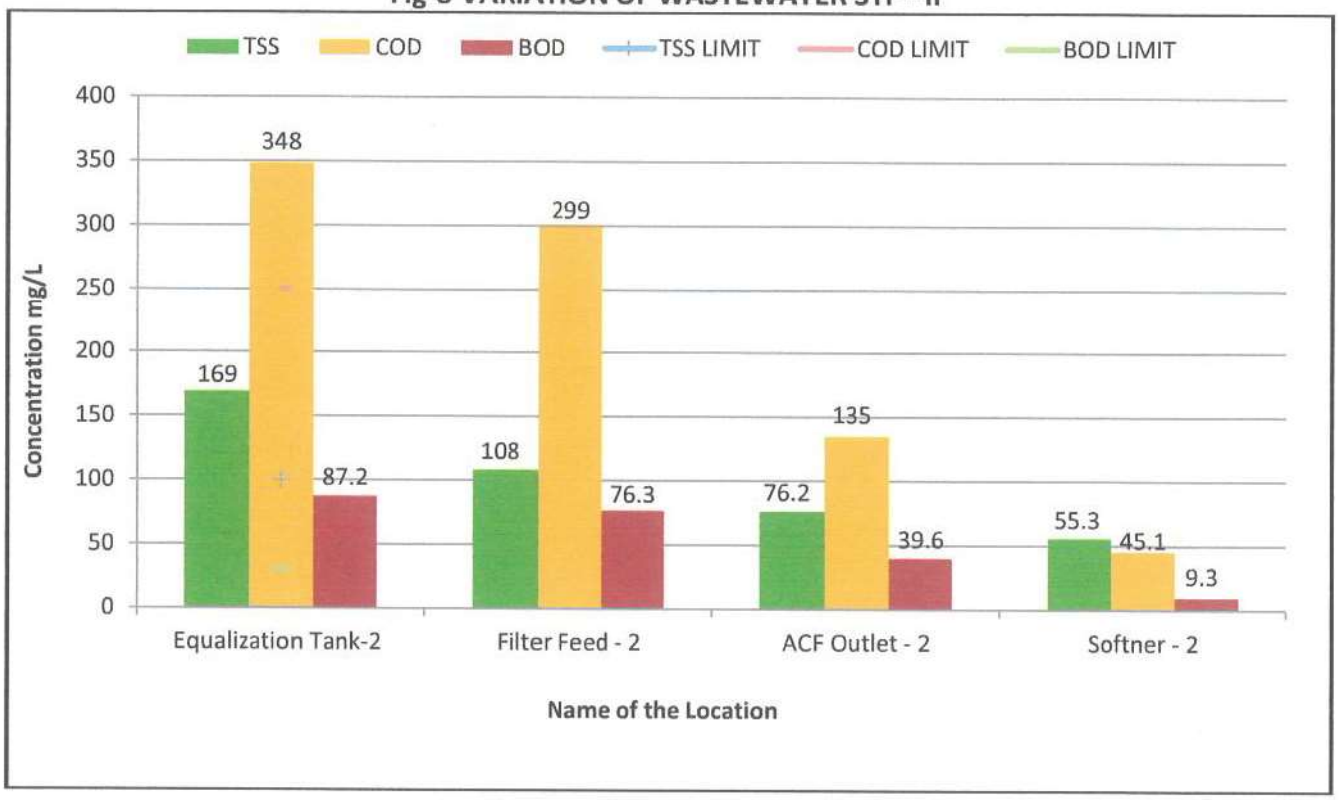


Fig-8 VARIATION OF WASTEWATER STP –II



2.6 DG STACK EMISSION DATA:

2.6.1 Presentation of results

DG - Stack details

Sample Collected on	14-03-2023
DG Set No	1
DG Set Capacity	2000 KVA
DG Location	D.G. Yard - RGIA
Stack diameter (m)	0.65
Stack Height (m)	30
Stack Cross section (m^2)	0.33

Flue Gas characteristics

Temperature (^0C)	135
Velocity (m/sec)	14.2
Flow rate (Nm^3/hr)	11,896

Emission Data

Parameters	Units	Limits*	Test Results
Particulate matter (PM)	(mg/Nm^3)	75	25.3
Oxides of Nitrogen (NOx)	(ppmv)	360	131
Carbon monoxide (CO)	(mg/Nm^3)	150	32.3
Non Methane Hydrocarbon (as C)	(mg/Nm^3)	100	45.1
Sulphur Dioxide (SO2)	(mg/Nm^3)	--	32.6

*Note: DG Set Emission Limits as per CPCB notification GSR 449 (E) dated 09.07.2002

DG - Stack details

Sample Collected on	14-03-2023
DG Set No	---
DG Set Capacity	500 KVA
DG Location	Site Office
Stack diameter (m)	0.15
Stack Height (m)	30
Stack Cross section (m^2)	0.017

Flue Gas characteristics

Temperature (^0C)	141
Velocity (m/sec)	17.3
Flow rate (Nm^3/hr)	798

Emission Data

Parameters	Units	Limits*	Test Results
Particulate Matter (PM)	(g/KW-hr)	0.2	0.081
Carbon monoxide (CO)	(g/KW-hr)	3.5	0.041
Hydro Carbon (HC)	(g/KW-hr)	4.0	0.045
Oxides of Nitrogen (NO_x)	(g/KW-hr)		1.78

***Note: DG Set Emission Limits as per CPCB notification GSR 771 (E) dated 11.12.2013**

2.7Conclusion:

Ambient Air Quality:

Ambient Air Quality parameters such as PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, Ammonia, Ozone, Methane and Benzene are well within the limits prescribed by TSPCB.

Ambient Noise Level:

Noise levels recorded in day and night are within the standard limits.

Wastewater Quality:

Wastewater samples are collected from each stage of treatment process in STP, Outlet water quality are within the General standard of effluent Discharge limits prescribed by Central Pollution Control Board and as per CFO issued by Telangana State Pollution Control Board.

Ground Water Quality:

Ground water samples are drawn from various locations in and surrounding villages which are found within the permissible limits.

Stack Emission:

Stack emission parameters are tested and found within the standard limits as prescribed by the TSPCB.

Annexure - III

Annexure - 3						
GMR Hyderabad International Airport Limited (GHIAL)						
Hazardous Waste Disposal in FY 2022-23						
Sl No	Type of waste	Generator	Date of Disposal	Quantity in Liters	Disposal Agency name	Remarks
1	Used Oil/ Waste Oil	Inter globe Aviation-Indigo	01.07.2022	1638	SVR Trading	softcopy sent to TSPCB
2	Used Oil/ Waste Oil	Globe ground Inia	14.09.2022	400	Mistry petroleum products	softcopy sent to TSPCB
3	Used Oil/ Waste Oil	Air India Sats	16.09.2022	1260	Mistry petroleum products	softcopy sent to TSPCB
4	Used Oil/ Waste Oil	RGIA	01.11.2022	1260	Mistry petroleum products	softcopy sent to TSPCB
4	Used Oil/ Waste Oil	Inter globe Aviation-Indigo	03.11.2022	1680	SVR Trading	softcopy sent to TSPCB
				6238		

Annexure-IV

GMR Hyderabad International Airport Limited

Solid waste disposal for April 2022- March 2023

Month	Quantity in kg
Apr-22	178601
May-22	331190
Jun-22	269260
Jul-22	282310
Aug-22	325285
Sep-22	279097
Oct-22	296713
Nov-22	333837
Dec-22	364298
Jan-23	326450
Feb-23	300197
Mar-23	360169
Total waste generation from process	3647407
STP sludge	**156018**
Total waste generation from process + STP	**3803425**

Note: Total solid waste generated 3803425 kg/year [Food waste -3228794 kg, STP sludge- 156018 kg, paper-184859 kg, plastic-125852 kg and glass-107902 kg]