

**SIX-MONTHLY ENVIRONMENTAL COMPLIANCE
REPORT OF STIPULATED CONDITIONS OF
ENVIRONMENTAL CLEARANCE**

(April, 2023 to September, 2023)

For

**EXPANSION OF EXISTING SUGAR PLANT FROM 5000 TCD
TO 8300 TCD AND COGENERATION CAPACITY FROM 3.0
MW TO 33 MW**

By

M/s Wave Industry Private Limited

At

**Khasra No.: 98/2, 102, 106, 107, Village: Malasia, Tehsil:
Dhanaura
District: Amroha (Jyotiba Phule Nagar)
Uttar Pradesh - 244231**

For Submission to:

**Ministry of Environment, Forest & Climate Change (Regional
Office, Lucknow)**

Submitted By:

**M/s Wave Industry Private Limited
Dhanaura, Amroha (Jyotiba Phule Nagar), U.P. - 244231**

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CHAPTER No. 01 INTRODUCTION AND PROJECT DESCRIPTION

Six monthly environmental compliance/status report is submitted for Expansion of existing sugar plant from 5000 TCD to 8300 TCD and Cogeneration capacity from 3.0 MW to 33 MW by M/s Wave Industry Private Limited for April, 2023 to September, 2023. The Project is located at Khasra No.: 98/2, 102, 106, 107, Village: Malasia, Tehsil: Dhanaura, District: Amroha (Jyotiba Phule Nagar), Uttar Pradesh - 244231. Prior Environment Clearance was obtained from State Level Environment Impact Assessment Authority, Uttar Pradesh wide letter no.: 216/SEIAA/2007, dated 04th September, 2008. Consent to operate for Air has already been obtained for the project Vide Ref No.- 143624/UPPCB/Bijnore(UPPCBRO)/CTO/air/JYOTIBAPHULENAGAR/2021 and Consent to operate for Water Vide Ref No. 143627/UPPCB/Bijnore(UPPCBRO)/CTO/water/JYOTIBA PHULE NAGAR/2021, dated 28/03/2022 for validity upto 31/12/2023. Copy of CTO is attached here as **Annexure-1**

Specific and general conditions stipulated in Environment Clearance will be complied during construction and post construction phases.

Environmental mitigation measures described in Environmental Management Plan are being implemented operation phase. M/s Wave Industry Private Limited management team is fully conscious about Environmental Management and enhancing green belt development in project surrounding area.

Six monthly compliance/status reports for April, 2023 to September, 2023 for conditions stipulated in the Environmental Clearance letter issued by SEIAA, UP is enclosed as **Annexure-2**. Photographs view of implemented mitigation measures are also attached for the ready reference as Photo Documentation.

CHAPTER No. 02 COMPLIANCE OF STIPULATED CONDITIONS OF ENVIRONMENTAL CLEARANCE

Name of the Project: Expansion of existing sugar plant from 5000 TCD to 8300 TCD and Cogeneration capacity from 3.0 MW to 33 MW at Khasra No.: 98/2, 102, 106, 107, Village: Malasia, Tehsil: Dhanaura, District: Amroha (Jyotiba Phule Nagar), Uttar Pradesh - 244231, by **M/s Wave Industry Private Limited**

Clearance Letter No: 216/SEIAA/2007, dated 04th September, 2008

Period of Compliance Report: April, 2023 to September, 2023

Sr. No.	Conditions	Reply
b. General Conditions:		
1.	The proposed land use shall be in accordance to the permitted land use. A land use certificate issued by the competent authority shall be obtained in this regard.	Condition Complied
2.	Information with respect to this clearance & other related documents shall be communicated by the project proponents to the concerned agencies (other than SEIA and SEAC) as prescribed in the EIA notification No. SO 1533(E) dated 14/09/2006.	Condition Complied
3.	All trees felling in the project area shall be as permitted by the forest department under the prescribed rules. Suitable clearance in this regard shall be obtained from the competent authority.	Not applicable as there is no forest land involved in existing project and no forest is situated within 10 km radius.
4.	Impact of drainage pattern on environment should be provided.	Condition noted and is being complied
5.	Surface hydrology and water regime of the project area within 10 km should be provided.	Noted and complied
6.	A suitable plan for providing shelter, light and fuel, water and toilet /waste disposal facilities for construction labour during the construction phase shall be provided along with the number of proposed workers.	Details have been already provided in EIA/EMP report.
7.	Measures shall be undertaken to recycles and reuse treated effluents for horticulture and plantation. A suitable plan for waste water recycling shall be submitted.	Waste water is being treated in ETP and used for greenbelt development inside as well as outside the plant premises.

8.	Obtain necessary clearance from the competent authority on the abstraction and use of ground water during the construction and operation phases.	NOC from ground water department has been already obtained.
9.	Hazardous inflammable/Explosive materials likely to be stored during the construction and operation phases shall be as per standard procedure as prescribed under law, Necessary clearance in this regard shall be obtained.	Hazardous waste management authorization has been obtained and hazardous materials is being manage according to the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
10.	Solid wastes shall be suitably segregated and disposed. A separate and isolated municipal waste collection centre should be provided. Necessary plans should be submitted in this regard.	Solid waste management is being done according the Solid Waste Management Rules, 2015
11.	Suitable rainwater harvesting systems as per designs of groundwater department shall be installed. Complete proposals in this regard should be submitted.	Rain water harvesting plan has been already submitted.
12.	The emissions and effluents etc from machines, Instruments and transport during construction and operation phases should be according to the prescribed standards. Necessary plans in this regard should be submitted.	Noted and is being complied
13.	Water sprinklers and other dust control measures should be under taken to take care of dust generated during the construction and operation phases. Necessary plans in this regard shall be submitted.	Dust control measure is provided in EIA/EMP report.
14.	Suitable noise abatement measures shall be adopted during the construction and operation phases in order to ensure that the noise emissions do not violate the prescribed ambient noise standards. Necessary plans in this regard shall be submitted.	Noted and complied. Noise monitoring report is attached as Annexure-3 .
15.	Separate stock piles shall be maintained for excavated top soil and that top soil should be utilized for the preparation of green belt.	Noted and complied
16.	Sewage effluents shall be kept separate from rain water collection and storage systems and separately disposed. Other effluents should not be allowed to mix with domestic effluents.	Noted and complied
17.	Hazardous /solid waste generated during construction and operation phases should be disposed off as	Hazardous waste management authorization has been

	prescribed under law. Necessary clearances in this regard shall be obtained.	obtained and hazardous materials is being manage according to the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
18.	Alternate technologies for solid waste disposals (Vermi-composting etc.) should be used in consultation with expert organizations.	Noted
19.	No wetland should be infringed during construction and operation phases. Any wet land coming in the project area should be suitably rejuvenated and conserved.	Not applicable as there is no wet land present within 10 km of plant premises
20.	Pavements shall be so constructed as to allow infiltration of surface run -off of rain Water. Fully impermeable pavements shall not be constructed. Construction of pavement around trees shall be as per scientifically accepted principles in order to provide suitable watering, aeration and nutrition to the tree.	Condition is being complied
21.	Ensure usage of dual flush systems for flush cisterns and explore options to use sensor-based fixtures, waterless urinals and other water saving techniques.	Noted
22.	Explore options for use of dual pipe plumbing for use of water with different qualities such as municipal supply, recycled water, ground water etc.	Noted and will be complied
23.	Ensure use of measures for reducing water demand for landscaping, and using xeriscaping, efficient irrigation equipment and control watering systems.	Condition is being complied
24.	Make suitable provisions for using solar energy as alternative source of energy. Solar energy application should be incorporated for illumination of common areas. Lighting for gardens and street lightening in addition to provision for solar water heating. Present a detailed report showing how much percentage of backup power heating. For institution can be provided through solar energy so that use and polluting effects of DG sets can be minimized.	Noted and complied
25.	Make Separate provision for segregation, collection, transport and disposal of e-waste.	E-waste (Management) Rules, 2016 and E- Waste (Management) Amendment Rules, 2018 is being follow

		for the management of E-waste.
26.	Educate citizens and other stake-holders by putting up hoardings at different places to create environmental awareness.	Noted
27.	Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.	Traffic Survey study details is provided in EIA/EMP report
28.	Prepare and present disaster management plan.	Disaster Management Plan is incorporated in EIA/EMP report
29.	A report on the energy conservation measures confirming to energy conservation norms finalize by Bureau of Energy efficiency should be prepared incorporating details about building materials and technology, R & U Factors etc.	Noted
30.	Fly ash should be used as building material in the construction as per the provision of fly ash notification of September, 1999 and amended as on August, 2003 (The above condition is applicable only if the project lies within 100 km of Thermal Power Station).	Fly ash will be provided to brick manufacturer
31.	The DG sets to be used during construction phase should use low sulphur diesel type and should conform to E.P. rules prescribed for air and noise emission standards.	Noted and complied
32.	The green belt design along the periphery of the plot shall achieve attenuation factor conforming to the day and night noise standards prescribed for residential land use. The open spaces inside the plot should be suitably landscaped and covered with vegetation of indigenous variety.	Condition is being complied
33.	It is suggested that literacy program for weaker sections of society/women/adults (including domestic help) and under privileged children could be provided in a formal way.	Literacy program and other activities for weaker section of society is mentioned in EIA/EMP report under Environment Social Responsibility.
34.	The use of Compact Fluorescent lamps should be encouraged. A management plan for the safe disposal of used/ damaged CFLs should be submitted.	Noted
35.	It shall be ensured that all street lighting is solar	Noted and complied

	powered. Additionally. 50% of the same may be provided with dual (solar/electrical) alternatives.	
36.	Solar water heater shall be installed to the maximum possible capacity. Plans may be drawn up accordingly with justification.	Noted
37.	Construction activities should be so managed including movements of vehicles so that no disturbance is caused to nearby residents. Location of STP should be such that it is away from human habitation and does not cause odour problem.	Odour management is incorporated in EMP
38.	All necessary statutory clearances should be obtained and submitted before start of any construction activity and this condition is violated the clearance shall be automatically deemed to have been cancelled.	Consent to establish have been already obtained
39.	Parking areas should be in accordance with the norms of MoEF, Government of India. Plans may be drawn up accordingly and The Conditions stipulated in the NOC issued by the UP-Pollution Control submitted.	Condition noted
b. Specific Conditions:		
1.	NOC obtained from Board should be duly complied with.	Noted
2.	It shall be ensured that the project area is at least 10 km. away from (i) Protected areas notified under the wild life (Protection) Act, 1972 (ii) critically polluted areas as notified by the Central Pollution Control Board From time to time (iii) Notified Eco-sensitive areas (iv) Inter-state Boundaries and International Boundaries, failing this the clearance, as and when given, stands cancelled.	Noted
3.	The industry operations should be such that environmental stipulations as prescribed under Charter on "Corporate Responsibility for Environmental Protection (CREP)" are complied with.	Condition noted will be complied
4.	The Suspended solids in treated effluents should not exceed 50 mg/l.	Condition noted
5.	All issues raised in public hearing dated 03-09-07 and recommendations made therein should be duly addressed and complied with.	Action plan for Public Hearing issues has been incorporated in EIA/EMP report
6.	Shopping recreational transport and playground	Condition noted and will be

	facilities shall be established in the campus.	complied
7.	A revised water balance statement shall be submitted within 15 days of receipt of clearance.	Revised water balance has been already submitted
8.	Two 32 Ton Capacity boilers should stop working after installation of new 170 ton capacity boiler.	Condition noted
9.	It shall be endeavored that the SPM emission levels from ESP are less than 50 microgram/Nmt ³	Stack monitoring is regularly done during industry operation.
10.	Copies of agreement with respect to the safe disposal of fly ash should be submitted to UP Pollution Control Board. A copy of the plan and their consent should be submitted to this office also.	Condition noted
11.	Ground water quality should be monitored regularly.	Ground water quality monitoring report is attached as Annexure
12.	Calculate the reduction of the emission of SPM on expansion.	Stack monitoring is regularly done during industry operation.
13.	Post project environmental monitoring plan should be as per MoEF guidelines and also include monitoring SO ₂ in work area to asses the safety of workers.	Ambient Air monitoring report is attached as Annexure-3

CHAPTER No. 03 DETAILS OF ENVIRONMENTAL MONITORING

3.1 AMBIENT AIR QUALITY MONITORING

3.1.1 Ambient air Quality Monitoring Stations

Ambient air quality monitoring has been carried out Near Main Gate, Village: Isapur Shumali and Village: Kasampur Shumali to assess the ambient air quality. This will enable to have analytical understanding about air quality and the changes in the air environment in the study area with respect to the condition prevailing. The locations of the ambient air quality monitoring stations are given in **Table-3.1**.

Table-3.1:

Details of Ambient Air Quality Monitoring Stations

Sr. No	Location Code	Location Name/Description	Environmental Setting of surrounding
1.	AAQ - 1	Near Main Gate	Industrial
2.	AAQ - 2	Village: Isapur Shumali	Residential
3.	AAQ - 3	Village: Kasampur Shumali	Residential

AAQ-1: Near Main Gate

The sampler was placed Near Main Gate and was free from any obstructions. Surroundings of the sampling site represent industrial environmental setting.

AAQ- 2: Village: Isapur Shumali

The sampler was placed Village: Isapur Shumali and was free from any obstructions. Surroundings of the sampling site represent residential environmental setting.

AAQ-3: Village: Kasampur Shumali

The sampler was placed Village: Kasampur Shumali and it was also free from any obstructions. Surroundings of the sampling site represent residential environment setting.

3.1.2 Ambient Air Quality Monitoring Methodology

Monitoring was conducted in respect of the following parameters:

-)] Respirable Suspended Particulate Matter (PM₁₀)
-)] Fine Particulate Matter (PM_{2.5})
-)] Sulphur Dioxide (SO₂)
-)] Oxides of Nitrogen (NO_x)

The duration of sampling of PM₁₀, PM_{2.5}, SO₂ and NO_x was 24 hourly continuous sampling per day duration monitoring. The monitoring was conducted for one day at the location. This is to allow a comparison with the National Ambient Air Quality Standards.

The air samples were analyzed as per standard methods specified by Indian Standards (IS: 5182). The techniques used for ambient air quality monitoring and minimum detectable levels are given in **Table-3.2**.

Fine Particulate Sampler instruments have been used for monitoring Particulate Matter 2.5 (PM_{2.5} i.e. <2.5 microns), and Respirable Dust Sampler with gaseous sampling attachment was used for sampling Respirable fraction (<10 microns), gaseous pollutants like SO₂, and NO_x.

Table-3.2: Techniques used for Ambient Air Quality Monitoring

Sr. No	Parameter	Technique	Range of testing /limit of detection
1.	Respirable Suspended Particulate Matter (PM ₁₀)	Respirable Dust Sampler, with cyclone separator, Gravimetric Method	5.0 - 1200
2.	Fine Particulate Matter (PM _{2.5})	Fine Particulate Sampler, Gravimetric Method	2.0 - 500
3.	Sulphur dioxide	Modified West and Gaeke	5.0 - 1050
4.	Oxides of Nitrogen	Jacob & Hochheiser	6.0 - 750

3.1.3 Ambient Air Quality Monitoring Results Near Main Gate

The detailed on-site monitoring results of PM₁₀, PM_{2.5}, SO₂ and NO_x are presented in **Table-3.3**.

Table-3.3: Ambient Air Quality Monitoring Results Near Main Gate

Sr. No	Particulars	Protocol	Unit	Result	Range of testing /limit of detection	Standard as per NAAQS; dated 18/11/ 2009
1	Particulate matters size less than 10 µm (PM ₁₀)	IS: 5182 (Part-23): 2006 Reaffirmed: 2022	µg/m ³	83.6	5.0 - 1200	For 24 hour =100
2	Particulate matters size less than 2.5 µm (PM _{2.5})	IS: 5182 (Part-24): 2019	µg/m ³	53.47	2.0 - 500	For 24 hour =60
3	Sulphur Dioxides (SO ₂)	IS: 5182 (Part-2): 2001 Reaffirmed: 2022	µg/m ³	14.65	5.0 - 1050	For 24 hour =80
4	Oxides of nitrogen (NO _x)	IS: 5182 (Part-6): 2006 Reaffirmed: 2022	µg/m ³	21.08	6.0 - 750	For 24 hour =80

3.1.4 Ambient Air Quality Monitoring Results at Village: Isapur Shumali

The detailed on-site monitoring results of PM₁₀, PM_{2.5}, SO₂ and NO_x are presented in **Table-3.4**.

Table-3.4: Ambient Air Quality Monitoring Results at Village: Isapur Shumali

Sr. No	Particulars	Protocol	Unit	Result	Range of testing /limit of detection	Standard as per NAAQS; dated 18/11/ 2009
1	Particulate matters size less than 10 µm (PM ₁₀)	IS: 5182 (Part-23): 2006 Reaffirmed: 2022	µg/m ³	78.6	5.0 - 1200	For 24 hour =100
2	Particulate matters size less than 2.5 µm (PM _{2.5})	IS: 5182 (Part-24): 2019	µg/m ³	49.39	2.0 - 500	For 24 hour =60
3	Sulphur Dioxides (SO ₂)	IS: 5182 (Part-2): 2001 Reaffirmed: 2022	µg/m ³	12.73	5.0 - 1050	For 24 hour =80
4	Oxides of nitrogen (NO _x)	IS: 5182 (Part-6): 2006 Reaffirmed: 2022	µg/m ³	17.20	6.0 - 750	For 24 hour =80

3.1.5 Ambient Air Quality Monitoring Results at Village: Kasampur Shumali

The detailed on-site monitoring results of PM₁₀, PM_{2.5}, SO₂ and NO_x are presented in **Table-3.5**.

Table-3.5: Ambient Air Quality Monitoring Results at Village: Kasampur Shumali

Sr. No	Particulars	Protocol	Unit	Result	Range of testing /limit of detection	Standard as per NAAQS; dated 18/11/ 2009
1	Particulate matters size less than 10 µm (PM ₁₀)	IS: 5182 (Part-23): 2006 Reaffirmed: 2022	µg/m ³	78.4	5.0 - 1200	For 24 hour =100
2	Particulate matters size less than 2.5 µm (PM _{2.5})	IS: 5182 (Part-24): 2019	µg/m ³	46.63	2.0 - 500	For 24 hour =60
3	Sulphur Dioxides (SO ₂)	IS: 5182 (Part-2): 2001 Reaffirmed: 2022	µg/m ³	12.22	5.0 - 1050	For 24 hour =80
4	Oxides of nitrogen (NO _x)	IS: 5182 (Part-6): 2006 Reaffirmed: 2022	µg/m ³	17.43	6.0 - 750	For 24 hour =80

3.1.6 Discussion on Ambient Air Quality in the Study Area

The value of PM₁₀ at Ambient Air Monitoring Station No: 1, 2 & 3 are 83.6 µg/m³, 78.6 µg/m³ & 78.4 µg/m³ respectively which were within permissible limit of 100 µg/m³ and PM_{2.5} levels are 53.47 µg/m³ at Near Main Gate, 49.39 µg/m³ at Village: Isapur Shumali and 46.63 µg/m³ at Village: Kasampur Shumali, were also observed within permissible limit of 60 µg/m³ (for residential, rural and other areas as stipulated in the National Ambient Air Quality Standards). SO₂ ranges between 12.22 µg/m³ to 14.65 µg/m³ and NO_x ranges between 17.20 µg/m³ to 21.08 µg/m³ was also observed within the corresponding stipulated limits (Limit for SO₂ and NO_x; 80 µg/m³) at all of the 03 monitoring locations. Station wise variation of ambient air quality parameters has been graphically shown in **Figure-3.1 to 3.4**.

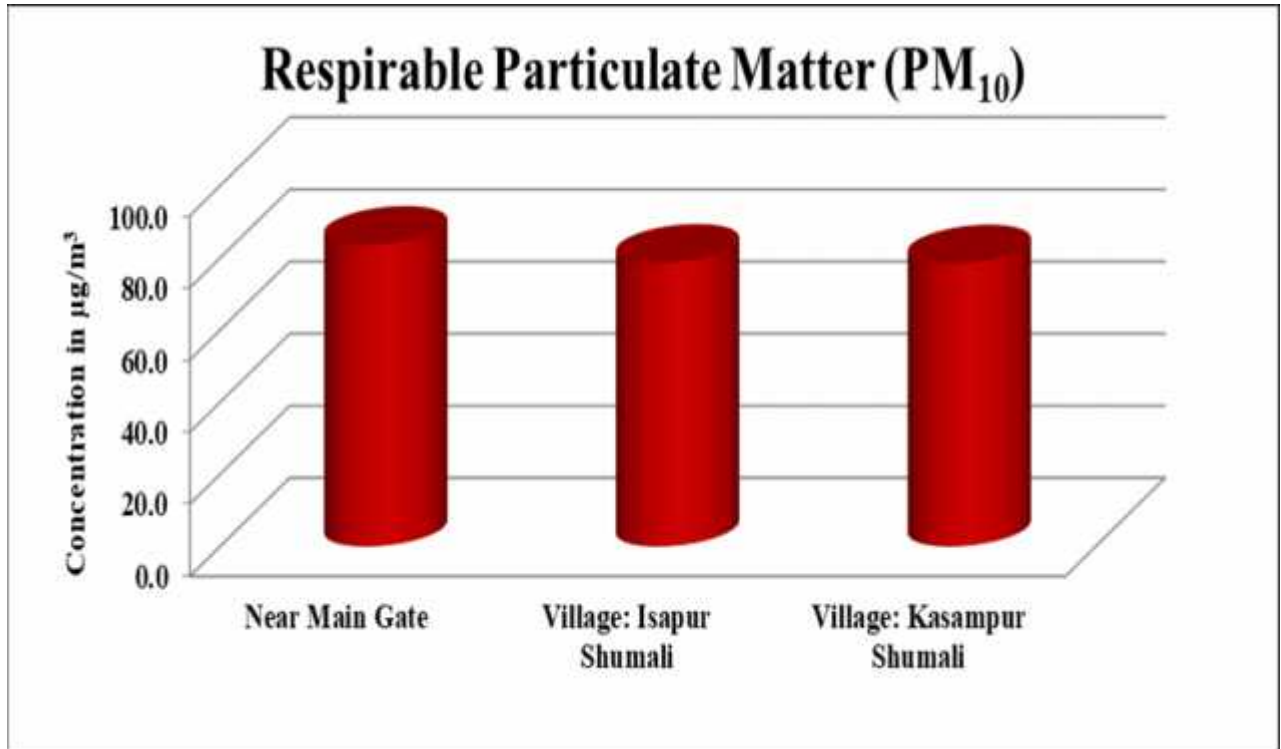


Figure-3.1: Graphs Showing PM₁₀ Concentration at all sites

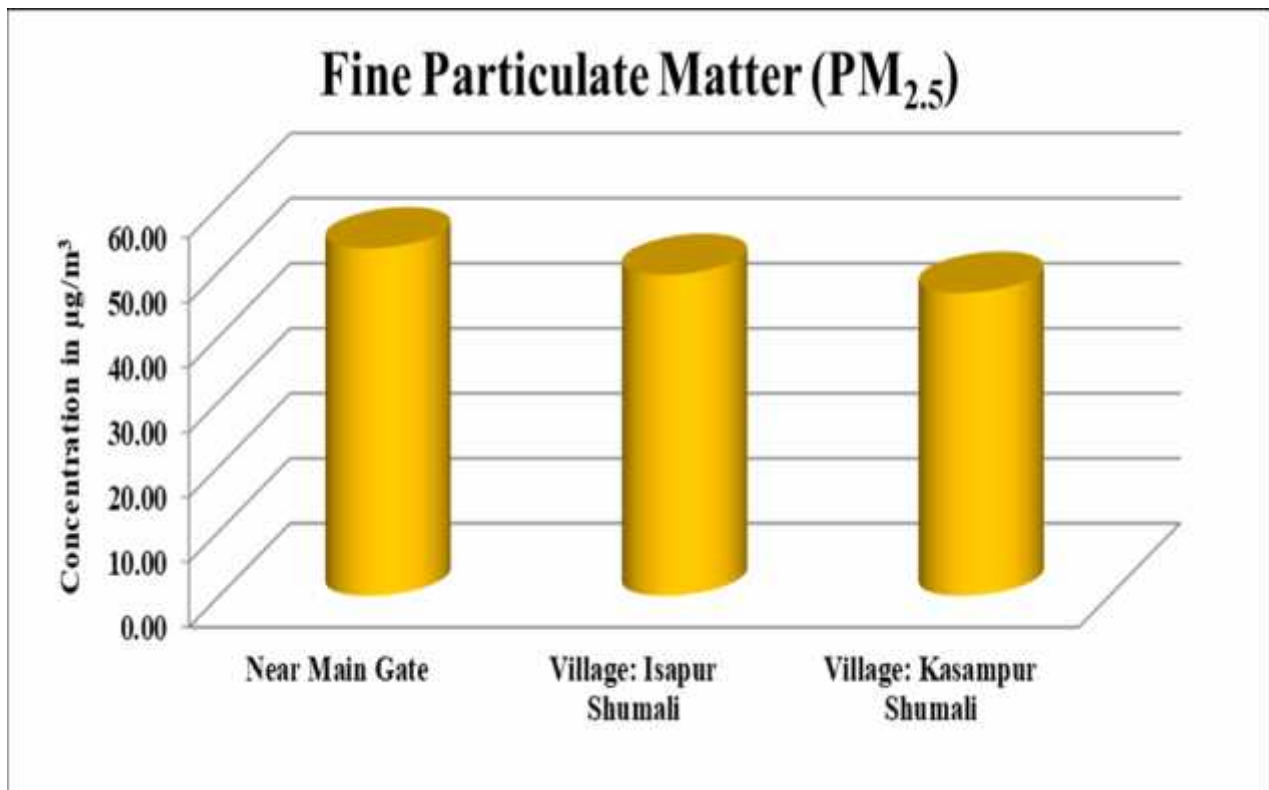


Figure-3.2: Graphs Showing PM_{2.5} Concentration at all sites

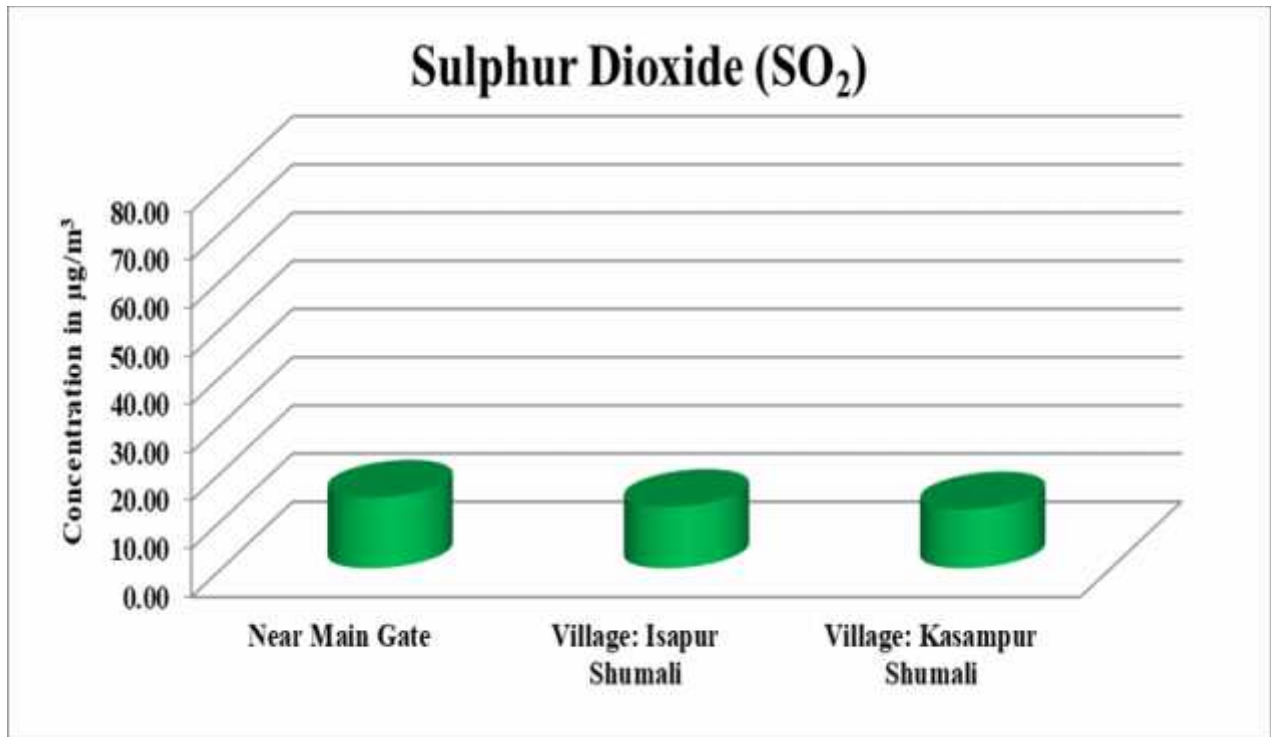


Figure-3.3: Graphs Showing SO₂ Concentration at all sites

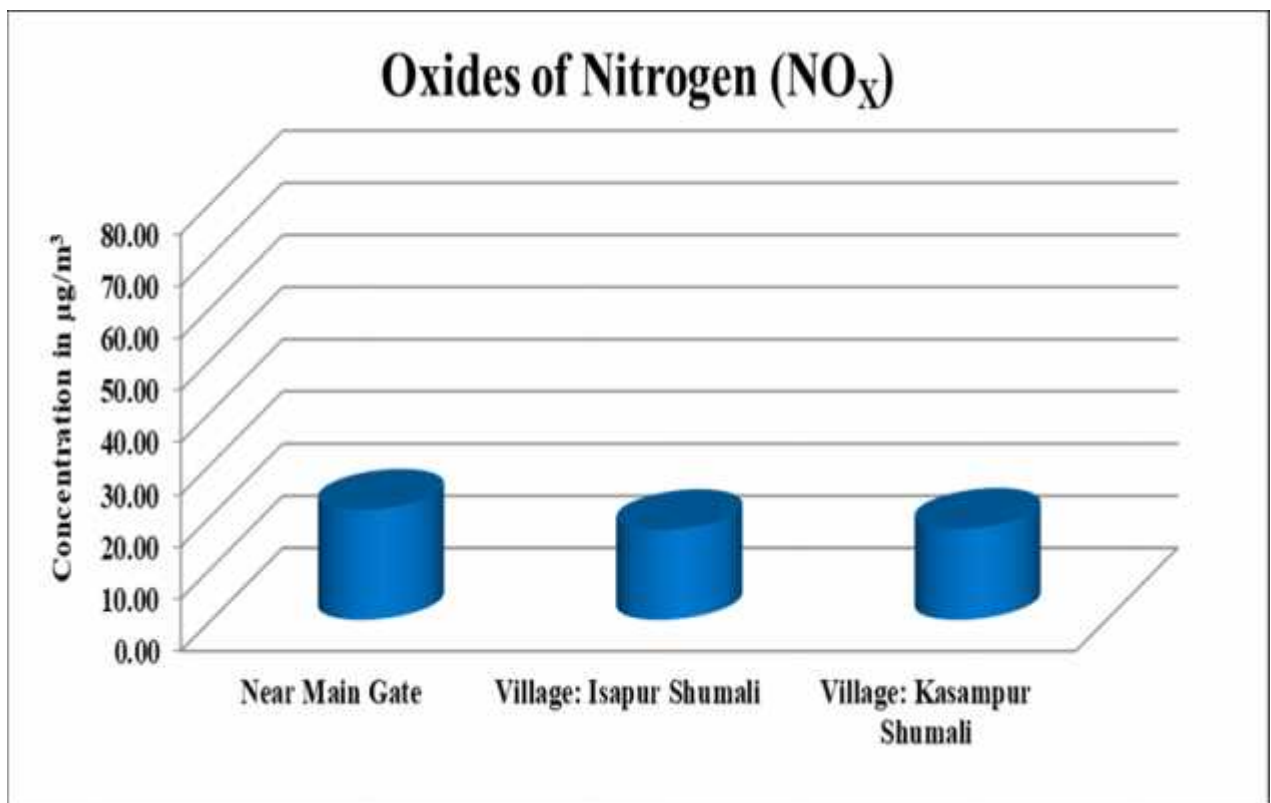


Figure-3.4: Graphs Showing NO_x Concentration at all sites

3.2 AMBIENT NOISE MONITORING

3.2.1 Ambient Noise Monitoring Locations

The main objective of noise monitoring in the study area is to assess the present ambient noise levels near project site due to various industrial activities and increased vehicular movement. A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Ambient noise monitoring was conducted at 01 location as given in **Table-3.6**.

Table-3.6: Details of Ambient Noise Monitoring Stations

Sr. No	Location Code	Location name and description	Date of Monitoring
1.	NQ - 1	Admin Office	15/09/2023 to 16/09/2023

3.2.2 Methodology of Noise Monitoring

Noise levels were measured using sound level meter. Noise level monitoring was carried out continuously for 24-hours with one hour interval starting at 06:00 hrs to 06:00 hrs next day. The noise levels were monitored on working days only. During each hour Leq were directly computed by the instrument based on the sound pressure levels. Monitoring was carried out at 'A' response.

3.2.3 Ambient Noise Monitoring Results

The location wise ambient noise monitoring results is summarized in **Table-3.7**. The noise levels are graphically presented in **Figure-3.5**.

Table-3.7: Ambient Noise Monitoring Results

Ambient Noise Level				
Sr. No.	Parameter	Unit	Results Day Time (06:00 AM - 10:00 PM)	Results Night Time (10:00 PM - 06:00 AM)
1	Equivalent sound level	dB(A)	61.23	48.58

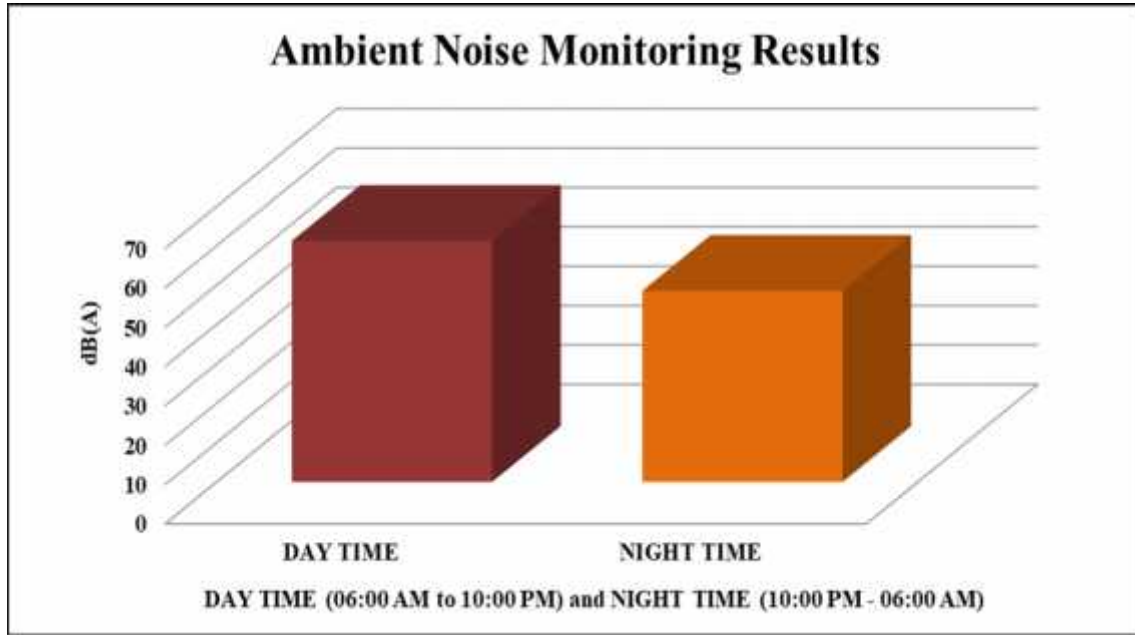


Figure-3.5: Day and Night Time noise Level Near Construction Site

Table-3.8: Noise Standards as per CPCB Schedule rule 3(1) and 4(1)

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

3.2.4 Discussion on Ambient Noise Levels in the Study Area

Day Time Noise Levels (L_{day}):

The day time noise level at monitoring station was found 61.23 dB(A), which is within limits prescribed for industrial area i.e. 75 db (A).

Night Time Noise Levels (L_{night}):

The night time noise level at monitoring station was found 48.58 dB(A), which is within limit prescribed for industrial area i.e. 70 dB (A).

3.3 GROUND WATER QUALITY MONITORING

3.3.1 Ground water Quality Monitoring Locations

Keeping in view the importance of ground water, sample of ground water was collected from the project site for the assessment of impacts of the project on the groundwater quality.

Water sample was collected from the project site. The sample was analyzed for various parameters to compare with the standards for Ground water as per IS: 10500 for Groundwater sources. The details of water sampling locations are given in **Table-3.9**.

Table-3.9: Details of Water Quality Monitoring Station

Sr. No	Location Code	Location name and description	Date of Monitoring
1.	GW - 1	Borewell Water	03 rd April, 2023
2.	GW - 2	Borewell Water	12 th May, 2023
3.	GW - 3	Borewell Water	16 th June, 2023
4.	GW - 4	Borewell Water	24 th July, 2023
5.	GW - 5	Borewell Water	18 th August, 2023
6.	GW - 6	Borewell Water	18 th September, 2023

3.3.2 Methodology of ground water Quality Monitoring

Sampling of ground water was carried out on 03.04.2023, 12.05.2023, 16.06.2023, 24.07.2023, 18.08.2023 & 18.09.2023. Samples were collected as grab sample and sampling forms are filled in as per the sampling plan. The preservative sample were properly added to preserve as per standard operating procedures (SOP) and stored immediately in ice boxes, which were ensured for appropriate temperatures. **Sample for chemical analysis was collected in polyethylene carboys. Sample collected for metal content were acidified to <2 pH with 1 ml HNO₃.**

Soon after the completion of sampling, chain of custody sheets for the samples are filled in and then they were transported by road to Environmental & Technical Research Centre, Lucknow for further analysis. Proper care was taken during packing and transportation of samples. All the samples reached the central laboratory within the holding times for different parameters. After ensuring the same the samples were forwarded immediately for analysis.

The samples were analyzed as per the standard procedures specified in 'Standard Methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA) and CPCB. The analytical techniques and the test methods adopted for testing of ground water are given in **Table-3.10** to **Table-3.15**.

3.3.3 Ground water Quality Monitoring Results

The detailed Ground water quality monitoring results are presented in **Table-3.10** to **Table-3.15**.

Table-3.10: Ground water Quality Results at Borewell Water (April-2023)

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.3	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	<2.0	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	386.4	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	<0.5	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	<0.05	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	56.0	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	28.18	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl- B	28.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.36	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	<0.1	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	<1.0	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	<0.001	0.001 - 0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	28.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	388.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	256.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.015	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.12	0.05 - 20	0.3	No Relaxation
22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.02	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.43	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.01	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	<0.5	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.02	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

Table-3.11: Ground water Quality Results at Borewell Water (May-2023)

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.4	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	<2.0	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	372.6	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	<0.5	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	<0.05	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	51.2	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	34.02	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl- B	24.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.41	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	<0.1	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	<1.0	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	<0.001	0.001 - 0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	26.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	292.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	268.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.015	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.10	0.05 - 20	0.3	No Relaxation
22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.05	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.52	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.01	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	<0.5	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.02	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

Table-3.12: Ground water Quality Results at Borewell Water (June-2023)

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.4	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	<2.0	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	406.2	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	<0.5	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	<0.05	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	57.6	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	28.18	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl ⁻ B	26.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.38	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	<0.1	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	<1.0	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	<0.001	0.001 - 0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	28.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	284.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	260.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.015	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.15	0.05 - 20	0.3	No Relaxation
22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.03	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.39	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.01	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	<0.5	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.02	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

Table-3.13: Ground water Quality Results at Borewell Water (July-2023)

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.5	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	<2.0	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	388.8	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	<0.5	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	<0.05	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	54.4	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	31.59	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl- B	30.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.40	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	<0.1	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	<1.0	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	<0.001	0.001 - 0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	28.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	300.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	276.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.015	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.13	0.05 - 20	0.3	No Relaxation
22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.04	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.45	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.01	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	<0.5	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.02	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

Table-3.14: Ground water Quality Results at Borewell Water (August-2023)

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.3	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	<2.0	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	292.0	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	<0.5	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	<0.05	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	60.8	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	28.18	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl- B	26.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.38	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	<0.1	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	<1.0	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	<0.001	0.001 - 0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	30.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	296.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	268.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.015	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.09	0.05 - 20	0.3	No Relaxation
22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.05	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.59	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.01	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	<0.5	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.02	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

Table-3.15: Ground water Quality Results at Borewell Water (September-2023)

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.4	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	<2.0	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	376.2	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	<0.5	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	<0.05	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	56.0	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	32.076	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl- B	26.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.35	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	<0.1	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	<1.0	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	<0.001	0.001 - 0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	24.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	296.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	272.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.015	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.14	0.05 - 20	0.3	No Relaxation
22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.02	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.46	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.01	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	<0.5	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.05	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.02	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	<0.03	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

Annexure-1: Copy of CTO (Air & Water)



UTTAR PRADESH POLLUTION CONTROL BOARD
Building. No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010

Phone:0522-2720828,2720831, Fax:0522-2720764, Email: info@uppcb.com, Website: www.uppcb.com

CONSENT ORDER

**Ref No. - 143624/UPPCB/Bijnore(UPPCBRO)/CTO/air/JYOTIBA
PHULE NAGAR/2021**

Dated : 26/03/2022

To ,

Shri DINESH PAL SINGH

M/s WAVE INDUSTRIES PVT. LTD.

VILLAGE-MALAYSIA, POST-MANDI DHANAURA, DISTRICT-
AMROHA,AMROHA,244231
JYOTIBA PHULE NAGAR

**Sub : Consent under section 21/22 of the Air (Prevention and control of Pollution) Act, 1981 (as amended)
to M/s. WAVE INDUSTRIES PVT. LTD.**

Reference Application No. 14265080

Dated : 26/03/2022

1. With reference to the application for consent for emission of air pollutants from the plant of M/s WAVE INDUSTRIES PVT. LTD. . under Air Act 1981. It is being authorised for said emissions, as per the standards, in environment, by the Board as per enclosed conditions .
2. This consent is valid for the period from 01/01/2022 to 31/12/2023 .
3. In spite of the conditions and provisions mentioned in this consent order UP Pollution Control Board reserves its right and powers to reconsider/amend any or all conditions under section 21 (6) of the Air (Prevention and Control of Pollution) Act, 1981 as amended.
This consent is being issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board

Chief Environment Officer

**Enclosed : As above
(condition of consent):**

Copy to: Regional Officer Bijnore to ensure the compliance of the conditions imposed in the consent order.

Chief Environment Officer

U.P. Pollution Control Board

Dated : 26/03/2022

CONDITIONS OF CONSENT

1. This consent is valid for the approved production capacity of cane crushing Cane Crushing Capacity of 8300 TCD and 30 MW Co-Generation Power Plant .
2. This consent is valid only for products and quantity mentioned above. Industry shall obtain prior approval before making any modification in product/ process /fuel/ plant machinery failing which consent would be deemed void.
- 3(a) The maximum rate of emission of flue gas should not be more than the emission norms for the stacks.
- 3(b) . Air Pollution Source Details.

Air Pollution Source Details					
S.No	Air Polution Source	Type of Fuel	Stack No.	Parameters	Height
1	Boiler of 170 TPH	Bagasse and Coal	01	Particulate Matter	Electrostatic Precipitator as APCS along with stack height of 90 meter from ground level
2	Boiler of 32 TPH and 32 TPH	Bagasse and Coal	02	Particulate Matter	Wet Scrubber and Common Stack Height of 40 Meter from Ground Level
3	DG Set of 1250 KVA and 625 KVA	Diesel	03	Particulate Matter	Stack Height 6 meter and 5 meter above from the roof of nearest building

- 3(c) . The emissions by various stacks into the environment should be as per the norms of the Board .

Emission Quality Details Detail			
S.No	Stack No	Parameter	Standard
1	01	Particulate Matter	150mg/Nm3
2	02	Particulate Matter	150mg/Nm3
3	03	Particulate Matter	As per E(P)Rules 1986

- 4 . The industry should be operated in such a manner that it does not adversely affect the environment and the solid waste generated such as ash etc. is disposed in eco friendly manner .
- 5 . Any source of emission other than that mentioned in the Air consent seeking application will not be permitted by the Board .
- 6 . The industry should ensure the operation of the air pollution control system (APCS) in such a manner that the air emission confirms with the standards prescribed under the E.P Act 1986 as amended.
- 7 . The industry shall submit Environmental Statement in prescribed format as per rule no.14 as per E.P Rules 1986 .
- 8 . The industry shall abide by orders / directions issued by Hon'ble Supreme court Hon'ble High Court, Hon'ble National Green tribunal, Central Pollution Control Board and U.P Pollution Control Board for protection and safe guard of environment from time to time .

9. Industry shall submit monthly monitoring reports of all stacks and ambient air quality from a certified / approved laboratory under E.P. Act 1986 .
10. The industry shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986.
11. The industry will ensure the continuous and uninterrupted data supply from the OCEEMS to the CPCB and SPCB .
12. The unit shall submit audited balance sheet for the current year and the details of fees deposited during last three years within a month failing which consent would be deemed void.
13. The use of Pet coke and Furnace oil as a fuel in the factory is restricted in compliance of the Hon'ble Supreme court order .
14. The Industry will use minimum 20% Bio Briquette as fuel in the Boiler depending upon its availability .
15. The industry shall obtain prior consents in the event of any addition of new emission generation sources such as- Boiler/ Furnace/ Heaters/ D.G. Sets or alteration of existing emission sources in accordance with section- 21/22 of air Act 1981 (as amended respectively).
16. Minimum 33% of the land on which industry is established will be covered and properly maintained by the plantation of tall trees of suitable species as per the guidelines set up by the Board vide its Office Order no.H-16405/220/2018/02 dt. 16/02/2018. The copy of this guideline is available at URL http://www. uppcb. com /pdf/Green-Belt-Guidle_160218.pdf .
17. If closure order is issued by CPCB or UPPCB against the unit, then CTO issued earlier will remain suspended during the closure period and after ensuring the compliance and after revocation of closure order, the CTO will automatically be effective with additional conditions mentioned in the closure revocation order .
18. Industry shall abide by the directions given by Hon'ble Court, Central Pollution Control Board and UPPCB for protection and safe guard of environment from time to time .

The Unit will file the renewal application at least 2 months prior to the expiry of this Order.

Specific Conditions:

1. This Consent to Operate is valid for production Sugar and cane crushing capacity of 8300 TCD and 30 MW co-generation power plant.
2. Unit shall operate and maintain the APCS i.e. Electrostatic Precipitator and stack height of 90 meter from ground level at the boiler of 170 TPH and Wet Scrubber and common stack height of 40 meter from ground level at the boilers of 32 TPH and 32 TPH.
3. DG sets of 1250 KVA and 625 KVA are equipped with canopy and stack height shall be 6 meter and 5 meter above from the roof of nearest building.
4. Unit shall operate and maintain the installed Online Emission Monitoring System at the stack of air polluting sources and ensure the connectivity with the servers of CPCB and UPPCB.
5. Unit shall use Bio-briquette as co-fuel with main fuel in the ratio of minimum 20 percent in boiler subject to its availability.
6. Unit shall develop Green Belt in minimum 33 percent area of Industrial Premises as per the provisions laid down in office order no. H16405/220/2018/02 dated 16-02-2018 of U.P. Pollution Control Board. The copy of said office order is available on the website of U.P. Pollution Control Board www.uppcb.com.
7. Fly ash shall be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with storm water . Direct exposure of workers to fly ash & dust shall be avoided.
8. Unit shall comply the provisions of Water (Prevention and Control of Pollution) Act 1974 as Amended, Air (Prevention and Control of Pollution) Act 1981 as Amended and Environment (Protection) Act 1986, and direction issued by Hon'ble National Green Tribunal, New Delhi in Order dated 13.07.2017 in OA no. 200/2014, M.C. Mehta v/s Union of India.
9. Unit shall submit emission monitoring report of the stack of air polluting sources and ambient air monitoring of the premises done by MoEF & CC approved laboratory in every 3 months.
10. The Unit must apply for Consent to Operate at least 2 months prior to expiry of the consent.
11. This Consent order shall automatically become invalid on issuance of Closure Order by C.P.C.B / UPPCB and further on Revoking of Closure order, the Consent order shall become valid.

Issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board .

Chief Environment Officer



UTTAR PRADESH POLLUTION CONTROL BOARD
Building. No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010

Phone:0522-2720828,2720831, Fax:0522-2720764, Email: info@uppcb.com, Website: www.uppcb.com

CONSENT ORDER

Ref No. -
**143627/UPPCB/Bijnore(UPPCBRO)/CTO/water/
JYOTIBA PHULE NAGAR/2021**

Dated : 28/03/2022

To ,

Shri DINESH PAL SINGH
M/s WAVE INDUSTRIES PVT. LTD.
VILLAGE-MALAYSIA, POST-MANDI DHANAURA, DISTRICT-
AMROHA,AMROHA,244231
JYOTIBA PHULE NAGAR

Sub : Consent under Section 25/26 of The Water (Prevention and control of Pollution) Act, 1974 (as amended) for discharge of effluent to M/s. WAVE INDUSTRIES PVT. LTD.

Reference Application No :14265695

Dated :28/03/2022

1. For disposal of effluent into water body or drain or land under The Water (Prevention and control of Pollution) Act,1974 as amended (here in after referred as the act) M/s. WAVE INDUSTRIES PVT. LTD. is hereby authorized by the board for discharge of their industrial effluent generated through ETP for irrigation/river through drain and disposal of domestic effluent through septic tant/soak pit subject to general and special conditions mentioned in the annexure ,in refrence to their foresaid application .
2. This consent is valid for the period from 01/01/2022 to 31/12/2023 .
3. In spite of the conditions and provisions mentioned in this consent order UP Pollution Control Board reserves its right and powers to reconsider/amend any or all conditions under section 27(2) of the Water (Previntion and Controt of Pollution) Act, 1974 as amended .

This consent is being issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board

Chief Environment Officer

Enclosed : As above
(condition of consent):

Copy to: Regional Officer Bijnore to ensure the compliance of the conditions imposed in the consent order.

Chief Environment Officer

U.P. POLLUTION CONTROL BOARD, LUCKNOW

Annexure to Consent issued to M/s.WAVE INDUSTRIES PVT. LTD. vide

Consent Order No. 14265695/ Water

Dated : 28/03/2022

CONDITIONS OF CONSENT

1. This consent is valid for the approved production capacity of Cane Crushing Capacity of 8300 TCD and 30 MW Co-Generation Power Plant .
2. This consent is valid only for products and quantity mentioned above. Industry shall obtain prior approval before making any modification in product/ process /fuel/ plant machinery failing which consent would be deemed void.
3. The quantity of maximum daily effluent discharge should not be more than the following :

Effluent Discharge Details			
S.No	Kind of Effluent	Maximum daily discharge,KL/day	Treatment facility and discharge point
1	Domestic	48 KLD	Septic Tank
2	Industrial	Industrial effluent quantity shall be restricted to 830 KLD and Cooling Tower blow down shall be restricted to 830 KLD, Only 1 Outlet is allowed	ETP

4. Arrangement should be made for collection of water used in process and domestic effluent separately in closed water supply system. The treated domestic and industrial effluent if discharged outside the premises, if meets at the end of final discharge point, arrangement should be made for measurement of effluent and for collecting its sample. Except the effluent informed in the application for consent no other effluent should enter in the said arrangements for collection of effluent. It should also be ensured that domestic effluent should not be discharged in storm water drain .
- 4(a) The domestic effluent should be treated in the treatment plant so that it should be in conformity with the norms of treated effluent as stipulated in E.P. Rules 1986 as amended.

Domestic Effluent		
S.No	Parameter	Standard
1	Total Suspended Solids	100mg/l
2	BOD	30mg/l
3	COD	250mg/l
4	Oil & Grease	10mg/l
5	Quantity of Discharge	48 KLD

- 4(b) The industrial effluent should be treated in treatment plant so that the treated effluent should be in conformity with the standard lay down under the notification issued by MOEF&CC vide its GO no GSR 35 (E) dated 14/01/2016.

Industrial Effluent		
S.No	Parameter	Standard
1	Total Suspended Solids	100mg/l (for discharge in on land for irrigation), 30mg/l (for discharge in surface water body)
2	BOD	100mg/l (for discharge in on land for irrigation), 30mg/l (for discharge in surface water body)
3	COD	250mg/l
4	Oil & Grease	10mg/l
5	Quantity of Discharge	Industrial effluent quantity shall be restricted to 830 KLD and Cooling Tower blow down shall be restricted to 830 KLD, only one outlet is allowed

4(c) Loading Rates for different soil textures.

S.No	Soil Texture	Loading rate in m3/Ha/Day
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5. Effluent generated in all the processes, bleed water, cooling effluent and the effluent generated from washing of floor and equipments etc should be treated before its disposal with treated industrial effluent so that it should be according to the norms prescribed under The Environment (Protection) Rules, 1986 or otherwise mandatory.
6. The method for collecting industrial and domestic effluent and its analysis should be as per legal Indian standards and its subsequent amendments/ standards prescribed under the Environment (Protection) Act, 1986.
7. The industry shall establish the cooling arrangement and polishing tank for recycling the excess condensate water to process or utilities or allied units.
8. Effluent Treatment Plant to be stabilized one month prior to the start of the crushing season and continue to operate one month after the crushing season.
9. During no demand period for irrigation, the treated effluent to be stored in a seepage proof lined pond having 15 days holding capacity only.
10. The industry shall implement treated effluent flow distribution measurement for irrigation purposes completely in accordance with irrigation plan.
11. The impact of treated effluent application on land is to be included further in E.I.A. studies, involving ground water monitoring point identified in close proximity to the unit.
12. The industry will have to ensure compliance of the permission from the CGWA before ground water extraction and it will be the responsibility of the industry to comply with the various conditions of the permission taken.
13. The industry shall submit Environmental Statement in prescribed form V rule no.14 of E.P Rules 1986.
14. The industry shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986.
15. Minimum 33% of the land on which unit is established will be covered and properly maintained by the plantation of tall trees of suitable species as per the guidelines set up by the Board vide its Office Order no.H-16405/220/2018/02 dt. 16/02/2018. The copy of this guideline is available at URL http://www.uppcb.com/pdf/Green-Belt-Guidle_160218.pdf.
16. The industry will ensure the continuous and uninterrupted data supply from the OCEEMS to the CPCB and SPCB .
17. Flow meter to be installed in all water abstraction points and usage of fresh water to be minimized. The unit will ensure facility to transmit data to CPCB server and submit a regular calibration certificate of Electro Magnetic Flow meter to the Board.

18. If closure order is issued by CPCB or UPPCB against the unit, then CTO issued earlier will remain suspended during the closure period and after ensuring the compliance and after revocation of closure order, the CTO will automatically be effective with additional conditions mentioned in the closure revocation order.
19. Industry shall abide by the directions given by Hon'ble Court, Central Pollution Control Board and UPPCB for protection and safe guard of environment from time to time.
20. The Unit will file the renewal application at least 2 months prior to the expiry of this Order.

Specific Conditions:

1. This Consent to Operate Water is valid for production Sugar at cane crushing capacity of 8300 TCD and 30 MW co-generation power plant.
2. Industrial effluent quantity shall be restricted to 830 KLD and Cooling Tower blow down shall be restricted to 830 KLD in compliance of notification no G.S.R.35(E) dated 15.01.2016 of MoEF&CC.
3. Unit shall use the treated effluent for irrigation on land of 220 Acre.
4. The discharge norms must confirm as per the notification no G.S.R. 35 (E) dated 15.01.2016 of MoEF&CC.
5. Unit shall identify recipient drains/ rivulets and their u/s & d/s location in consultation with UPPCB and shall carry out monthly monitoring of identified recipient drains at u/s & d/s location through lab recognized under Environment (Protection) Act, 1986 and shall submit the analysis report on monthly basis by 10th of every month to CPCB and UPPCB.
6. Unit shall install sealed electromagnetic flow meter at water source with running hours and maintain the records of water extracted and treated effluent supplied to irrigation or discharge in drain.
7. Unit shall maintain pipe line from outlet of ETP and to the point of irrigation land.
8. Unit shall ensure the connectivity of the installed online monitoring system to the servers of CPCB and UPPCB.
9. Unit shall provide Pakka channel/ pipe line for irrigation and shall maintain the records of ground water extracted and treated effluent used for irrigation on land.
10. Unit shall develop Green Belt in minimum 33 percent area of Industrial Premises as per the provisions laid down in office order no. H16405/220/2018/02 dated 16-02-2018 of U.P. Pollution Control Board. The copy of said office order is available on the website of U.P. Pollution Control Board www.uppcb.com.
11. Unit shall comply the provisions of Water (Prevention and Control of Pollution) Act 1974 as Amended, Air (Prevention and Control of Pollution) Act 1981 as Amended and Environment (Protection) Act 1986, and direction issued by Hon'ble National Green Tribunal, New Delhi in Order dated 13.07.2017 in OA no. 200/2014, M.C. Mehta v/s Union of India.
12. Unit shall submit treated effluent monitoring report of the ETP and ground water quality of premises as well as of the irrigated area done by MoEF & CC approved laboratory in every 3 months.
13. The Unit must apply for Consent to Operate at least 2 months prior to expiry of the consent.
14. This Consent order shall automatically become invalid on issuance of Closure Order by C.P.C.B / UPPCB and further on Revoking of Closure order, the Consent order shall become valid.

Issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board .

Chief Environment Officer

Annexure-2: Copy of Environmental Clearance

Amn 26

State Level Environment Impact
Assessment Authority, U.P.

Dr. Bhim Rao Ambedkar Paryavaran Parisar
Vineet Khand -1, Gomtinagar, Lucknow-226010.
Ph: 91-522-2300541, Fax: 91-522-2300543
email: doeuplko@yahoo.com

Ref: 216/SE/IAA/2007

Date: 4.9.2008

Sub: Regarding Environmental clearance for extension of capacity for existing sugar plant from 5000 TCD to 8300 TCD and Cogeneration capacity from 3 MW to 33 MW of M/s Chadha Sugars Pvt. Ltd., at Khasra No. 98/2, 102, 106, 107, Village Malasia, Tehsil Dhanaura, District J.P. Nagar, Uttar Pradesh.

The Director Chadha Sugars Pvt. Ltd. vide their letter No. 2389 dated 15/09/2007 applied for environmental clearance on the proposed extension of capacity for existing sugar plant from 5000 TCD to 8300 TCD and Cogeneration capacity from 3 MW to 33 MW of M/s Chadha Sugars Pvt. Ltd., at Khasra No. 98/2, 102, 106, 107, Village Malasia, Tehsil Dhanaura, District J.P. Nagar, Uttar Pradesh.

The Committee noted that the project has been forwarded by the Ministry of Environment and Forest, Government of India and that as per letter no. J-11011/308/2007-IAII(I) dated 12/07/2007 from Govt. of India the EIA submitted was found to be in order no further terms of reference were needed to be communicated. The committee also noted that NOC from the UPPCB has already been issued vide letter no F 15922/c-7/NOC-259/Moradabad/107 dated 24/04/07. A report on the public hearing dated 03-09-07 has already been submitted by the Pollution Control Board.

Based on the recommendations of the State Level Expert Appraisal Committee, the State Level Environment Impact Assessment Authority examined and discussed the matter on 22/01/2008 and has decided to accord environmental clearance for the project.

In view of the above an environmental clearance to the project is hereby accorded subject to effective implementation of following conditions:

ii. General Conditions:

1. The proposed land use shall be in accordance to the permitted land use. A land use certificate issued by the competent authority shall be obtained in this regards.
2. Information with respect to this clearance & other related documents shall be communicated by the project proponents to the concerned agencies (other than SEIA and SEAC) as prescribed in the EIA notification No. SO 1533(E) dated 14/09/2006.
3. All trees felling in the project area shall be as permitted by the forest department under the prescribed rules. Suitable clearance in this regard shall be obtained from the competent authority.
4. Impact of drainage pattern on environment should be provided.
5. Surface hydrology and water regime of the project area within 10 km should be provided.

6. A suitable plan for providing shelter, light and fuel, water and toilet/ waste disposal facilities for construction labour during the construction phase shall be provided along with the number of proposed workers.
7. Measures shall be undertaken to recycle and reuse treated effluents for horticulture and plantation. A suitable plan for waste water recycling shall be submitted.
8. Obtain necessary clearances from the competent authority on the abstraction and use of ground water during the construction and operation phases.
9. Hazardous/inflammable/Explosive materials likely to be stored during the construction and operation phases shall be as per standard procedure as prescribed under law, Necessary clearances in this regards shall be obtained.
10. Solid wastes shall be suitably segregated and disposed. A separate and isolated municipal waste collection center should be provided. Necessary plans should be submitted in this regards.
11. Suitable rainwater harvesting systems as per designs of groundwater department shall be installed. Complete proposals in this regard should be submitted.
12. The emissions and effluents etc. from machines, Instruments and transport during construction and operation phases should be according to the prescribed standards. Necessary plans in this regard shall be submitted.
13. Water sprinklers and other dust control measures should be undertaken to take care of dust generated during the construction and operation phases. Necessary plans in this regard shall be submitted.
14. Suitable noise abatement measures shall be adopted during the construction and operation phases in order to ensure that the noise emissions do not violate the prescribed ambient noise standards. Necessary plans in this regard shall be submitted.
15. Separate stock piles shall be maintained for excavated top soil and the top soil should be utilized for preparation of green belt.
16. Sewage effluents shall be kept separate from rain water collection and storage system and separately disposed. Other effluents should not be allowed to mix with domestic effluents.
17. Hazardous/Solid wastes generated during construction and operation phases should be disposed off as prescribed under law. Necessary clearances in this regard shall be obtained.
18. Alternate technologies for solid waste disposals (vermi-composting etc.) should be used in consultation with expert organizations.
19. No wetland should be infringed during construction and operation phases. Any wetland coming in the project area should be suitably rejuvenated and conserved.
20. Pavements shall be so constructed as to allow infiltration of surface run-off of rain water. Fully impermeable pavements shall not be constructed. Construction of pavements around trees shall be as per scientifically accepted principles in order to provide suitable watering, aeration and nutrition to the tree.
21. Ensure usage of dual flush systems for flush cisterns and explore options to use sensor based fixtures, waterless urinals and other water saving techniques.
22. Explore options for use of dual pipe plumbing for use of water with different qualities such as municipal supply, recycled water, ground water etc.
23. Ensure use of measures for reducing water demand for landscaping and using xeriscaping, efficient irrigation equipments & controlled watering systems.
24. Make suitable provisions for using solar energy as alternative source of energy. Solar energy application should be incorporated for illumination of common areas, lighting for gardens and street lighting in addition to provision for solar water heating. Present a detailed report showing how much percentage of backup power for institution can be provided through solar energy so that use and polluting effects of DG sets can be minimized.


25. Make separate provision for segregation, collection, transport and disposal of e-waste.
26. Educate citizens and other stake-holders by putting up hoardings at different places to create environmental awareness.
27. Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.
28. Prepare and present disaster management plan.
29. A report on the energy conservation measures conforming to energy conservation norms finalized by Bureau of Energy efficiency should be prepared incorporating details about building materials and technology, R & U Factors etc.
30. Fly ash should be used as building material in the construction as per the provision of fly ash notification of September, 1999 and amended as on August, 2003 (The above condition is applicable only if the project lies within 100 km of Thermal Power Station).
31. The DG sets to be used during construction phase should use low sulphur diesel type and should conform to E.P. rules prescribed for air and noise emission standards.
32. The green belt design along the periphery of the plot shall achieve attenuation factor conforming to the day and night noise standards prescribed for residential land use. The open spaces inside the plot should be suitably landscaped and covered with vegetation of indigenous variety.
33. It is suggested that literacy program for weaker sections of society/women/adults (including domestic help) and under privileged children could be provided in a formal way.
34. The use of Compact Fluorescent lamps should be encouraged. A management plan for the safe disposal of used/damaged CFLs should be submitted.
35. It shall be ensured that all street lighting is solar powered. Additionally, 50% of the same may be provided with dual (solar/electrical) alternatives.
36. Solar water heater shall be installed to the maximum possible capacity. Plans may be drawn up accordingly with justification.
37. Construction activities should be so managed including movements of vehicles so that no disturbance is caused to nearby residents. Location of STP should be such that it is away from human habitation and does not cause odor problem.
38. All necessary statutory clearances should be obtained and submitted before start of any construction activity and this condition is violated the clearance shall be automatically deemed to have been cancelled.
39. Parking areas should be in accordance with the norms of MoEF, Government of India. Plans may be drawn up accordingly and The Conditions stipulated in the NOC issued by the UP Pollution Control submitted.

b. Specific Conditions:

1. NOC obtained from Board should be duly complied with.
2. It shall be ensured that the project area is at least 10 km. away from (i) Protected areas notified under the wild life (Protection) Act, 1972 (ii) critically polluted areas as notified by the Central Pollution Control Board From time to time (iii) Notified Eco-sensitive areas (iv) Inter-state Boundaries and International Boundaries, failing this the clearance, as and when given, stands cancelled.
3. The Industry operations should be such that environmental stipulations as prescribed under Charter on "Corporate Responsibility for Environmental Protection (CREP)" are complied with.
4. The Suspended solids in treated effluents should not exceed 50 mg/l.
5. All issues raised in public hearing dated 03-09-07 and recommendations made therein should be duly addressed and complied with.

6. Shopping, recreational, transport and play ground facilities shall be established in the campus.
7. A revised water balance statement shall be submitted within 15 days of receipt of clearance.
8. Two 32 Ton Capacity boilers should stop working after installation of new 170 ton capacity boiler.
9. It shall be endeavored that the SPM emission levels from ESP are less than 50 microgram/N. mt³.
10. Copies of agreement with respect to the safe disposal of fly ash should be submitted to UP Pollution Control Board. A copy of the plan and their consent should be submitted to this office also.
11. Ground water quality should be monitored regularly.
12. Calculate the reduction of emission of SPM on expansion.
13. Post Project environmental monitoring plan should be as per MoEF guidelines and also include monitoring SO₂ in work area to assess the safety of workers.


These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act. 1974, the Air (Prevention and Control of Pollution) Act. 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act. 1991 and EIA Notification, 2006 including the amendments and rules made thereafter.


 (Dr. C.S. Bhatt)
 Member Secretary

To,
 The Director,
 M/s Chadha Sugars pvt. Ltd.
 The Centrestage Mall
 4th Floor, L-1, Sector 18,
 Noida- 201301

Copy for necessary action to:

1. The Principal Secretary, Environment. U.P. Govt., Lucknow
2. Regional Office, Ministry of Forests and Environment, (Central Region), Kendriya Bhavan, 5th Floor, Sector - H, Aliganj, Lucknow Aliganj, Lucknow.
3. The Member Secretary, U.P. Pollution Control Board, PICUP Bhawan, Gomatinagar, Lucknow.
4. Website Updation
5. Guard File.


 (Dr. Yashpal Singh)
 Secretary, SEAC and
 Director Environment, Govt.
 of Uttar Pradesh

**Annexure-3: Six Monthly Environment Monitoring
Reports**



ENVIRONMENTAL AND TECHNICAL RESEARCH CENTRE

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ETRC/PM09/TEST-REP/FT/45

TEST REPORT WATER & WASTE WATER ANALYSIS

Test Report Ref No.: ETRC/EPA/8382/2023	Date of Report: 08/04/2023
Name /Address/Type of Industry	M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh

SAMPLE DETAILS

1	Water/ Waste Water	Ground Water	5	Packing Condition	Sealed
2	Sample Description	Borewell Water	6	Sample Collected By	Industry Self
3	Sample received date	03.04.2023	7	Analysis Start Date	03.04.2023
4	Sample Quantity	5.0 liters	8	Analysis End Date	07.04.2023

TEST RESULT

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.3	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	BDL	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	386.4	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	BDL	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	BDL	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	56.0	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	28.18	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl ⁻ B	28.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F ⁻ C	0.36	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	BDL	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	BDL	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	BDL	0.001-0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	28.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	388.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	256.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.12	0.05 - 20	0.3	No Relaxation



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Test Report Ref No.: ETRC/EPA/8382/2023

22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.02	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.43	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	BDL	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	


BDL=Below Detection Limit

..... END OF REPORT.....

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- The result relate only to the items tested.
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- Complain register is available in our laboratory.


Authorized Signatory
(Sandeep Kr Verma)
Lab-Incharge




Authorized Signatory
(Ritu Garg)
QM



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ETRC/PM09/TEST-REP/FT/45

TEST REPORT WATER & WASTE WATER ANALYSIS

Test Report Ref No.: ETRC/EPA/8748/2023	Date of Report: 18/05/2023
Name /Address/Type of Industry	M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh

SAMPLE DETAILS

1	Water/ Waste Water	Ground Water	5	Packing Condition	Sealed
2	Sample Description	Borewell Water	6	Sample Collected By	Industry Self
3	Sample received date	12.05.2023	7	Analysis Start Date	12.05.2023
4	Sample Quantity	5.0 liters	8	Analysis End Date	17.05.2023

TEST RESULT

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.4	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	BDL	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	372.6	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	BDL	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	BDL	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	51.2	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	34.02	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl ⁻ B	24.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F ⁻ C	0.41	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	BDL	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	BDL	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	BDL	0.001-0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	26.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	292.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	268.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.10	0.05 - 20	0.3	No Relaxation



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Test Report Ref No.: ETRC/EPA/8748/2023

22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.05	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.52	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	BDL	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	


BDL=Below Detection Limit

..... END OF REPORT.....

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- Complain register is available in our laboratory.


Authorized Signatory
(Sandeep Kr Verma)
Lab-Incharge




Authorized Signatory
(Ritu Garg)
QM



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ISO 9001:2015, ISO 45001:2018 (OH&S) ISO 14001:2015

ETRC/PM09/TEST-REP/FT/45

TEST REPORT WATER & WASTE WATER ANALYSIS

Test Report Ref No.: ETRC/2206/11945/2023	Date of Report: 22/06/2023
Name /Address/Type of Industry	M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh

SAMPLE DETAILS

1	Water/ Waste Water	Ground Water	5	Packing Condition	Sealed
2	Sample Description	Borewell Water	6	Sample Collected By	Industry Self
3	Sample received date	16.06.2023	7	Analysis Start Date	16.06.2023
4	Sample Quantity	5.0 liters	8	Analysis End Date	21.06.2023

TEST RESULT

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.4	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	BDL	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	406.2	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	BDL	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	BDL	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	57.6	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	28.18	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl ⁻ B	26.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F ⁻ C	0.38	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	BDL	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	BDL	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	BDL	0.001-0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	28.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	284.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	260.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.15	0.05 - 20	0.3	No Relaxation



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ISO 9001:2015, ISO 45001:2018 (OH&S) ISO 14001:2015

Test Report Ref No.: ETRC/2206/11945/2023

22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.03	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.39	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	BDL	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

BDL=Below Detection Limit

..... END OF REPORT.....

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Authorized Signatory
(Sandeep Kr Verma)
Lab-Incharge



Authorized Signatory
(Ritu Garg)
QM



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ETRC/PM09/TEST-REP/FT/45

TEST REPORT WATER & WASTE WATER ANALYSIS

Test Report Ref No.: ETRC/EPA/9076/2023	Date of Report: 29/07/2023
Name /Address/Type of Industry	M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh

SAMPLE DETAILS

1	Water/ Waste Water	Ground Water	5	Packing Condition	Sealed
2	Sample Description	Borewell Water	6	Sample Collected By	Industry Self
3	Sample received date	24.07.2023	7	Analysis Start Date	24.07.2023
4	Sample Quantity	5.0 liters	8	Analysis End Date	28.07.2023

TEST RESULT

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.5	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	BDL	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	388.8	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	BDL	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	BDL	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	54.4	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	31.59	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl ⁻ B	30.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.40	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	BDL	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	BDL	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	BDL	0.001-0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	28.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	300.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	276.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.13	0.05 - 20	0.3	No Relaxation



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ISO 9001:2015, ISO 45001:2018 (OH&S) ISO 14001:2015

Test Report Ref No.: ETRC/EPA/9076/2023

22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.04	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.45	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	BDL	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	


BDL=Below Detection Limit

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 QM



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ETRC/PM09/TEST-REP/FT/45

TEST REPORT WATER & WASTE WATER ANALYSIS

Test Report Ref No.: ETRC/EPA/9209/2023	Date of Report: 23/08/2023
Name /Address/Type of Industry	M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh

SAMPLE DETAILS

1	Water/ Waste Water	Ground Water	5	Packing Condition	Sealed
2	Sample Description	Borewell Water	6	Sample Collected By	Industry Self
3	Sample received date	18.08.2023	7	Analysis Start Date	18.08.2023
4	Sample Quantity	5.0 liters	8	Analysis End Date	22.08.2023

TEST RESULT

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.3	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	BDL	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	292.0	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	BDL	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	BDL	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	60.8	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	28.18	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl B	28.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F C	0.38	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	BDL	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	BDL	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	BDL	0.001-0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	30.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	296.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	268.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.09	0.05 - 20	0.3	No Relaxation



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Test Report Ref No.: ETRC/EPA/9209/2023

22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.05	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.59	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	BDL	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	

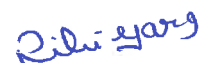
BDL=Below Detection Limit

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Lab-Incharge




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(Ritu Garg)
QM



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ETRC/PM09/TEST-REP/FT/42

TEST REPORT AMBIENT AIR QUALITY MONITORING REPORT

Test Report Ref No.: ETRC/2109/11946/2023		Date of Report: 21/09/2023	
Name /Address/Type of Industry		M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh	
Monitored by		ETRC, Lucknow	
Location of Sampling point		Near Main Gate	
Sr. No.	GENERAL OBSERVATIONS	DETAILS-PM ₁₀	DETAILS-PM _{2.5}
1(a)	Weather conditions	Clear	Clear
(b)	Wind direction	West to East	West to East
(c)	Average humidity (%)	52	52
(d)	Average ambient temperature (°C)	30	30
(e)	Time of Sampling Started (Hours)	10:32 am (14.09.2023)	10:32 am (14.09.2023)
(f)	Time of Sampling completed (Hours)	10:18 am (15.09.2023)	10:18 am (15.09.2023)
(g)	Total time of sampling (Minutes)	24 hour (1425 minutes)	24 hour (1425 minutes)
2	Average sampling rate for PM (m ³ /minute)	1.160	NA
3	Average sampling rate for gas (LPM)	0.5	NA
4	TOTAL VOLUME OF AIR SAMPLED		
	• PM (m ³)	• 1653.00	• 23.751
	• GAS (liter)	• 712.5	

TEST RESULT

Sr. No.	Particulars	Protocol	Unit	Result	Range of testing /limit of detection	Standard as per NAAQS; dated 18/11/ 2009
1	Particulate matters size less than 10 µm (PM ₁₀)	IS: 5182 (Part-23): 2006 Reaffirmed: 2022	µg/m ³	83.6	5.0 - 1200	For 24 hour =100
2	Particulate matters size less than 2.5 µm (PM _{2.5})	IS: 5182 (Part-24): 2019	µg/m ³	53.47	2.0 - 500	For 24 hour =60
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part-02): 2001 Reaffirmed: 2022	µg/m ³	14.65	5.0 - 1050	For 24 hour =80
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part-06): 2006 Reaffirmed: 2022	µg/m ³	21.08	6.0 - 750	For 24 hour =80

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Authorized Signatory
(Sandeep Kr Verma)
Lab-Incharge




Authorized Signatory
(Ritu Garg)
QM



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TEST REPORT AMBIENT AIR QUALITY MONITORING REPORT

Test Report Ref No.: ETRC/2109/11947/2023		Date of Report: 21/09/2023	
Name /Address/Type of Industry		M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh	
Monitored by		ETRC, Lucknow	
Location of Sampling point		Village: Isapur Shumali	
Sr. No.	GENERAL OBSERVATIONS	DETAILS-PM ₁₀	DETAILS-PM _{2.5}
1(a)	Weather conditions	Clear	Clear
(b)	Wind direction	West to East	West to East
(c)	Average humidity (%)	52	52
(d)	Average ambient temperature (°C)	30	30
(e)	Time of Sampling Started (Hours)	10:48 am (14.09.2023)	10:48 am (14.09.2023)
(f)	Time of Sampling completed (Hours)	10:26 am (15.09.2023)	10:26 am (15.09.2023)
(g)	Total time of sampling (Minutes)	24 hour (1421 minutes)	24 hour (1421 minutes)
2	Average sampling rate for PM (m ³ /minute)	1.155	NA
3	Average sampling rate for gas (LPM)	0.5	NA
4	TOTAL VOLUME OF AIR SAMPLED		
	• PM (m ³)	• 1641.717	• 23.688
	• GAS (liter)	• 710.7	

TEST RESULT


Sr. No.	Particulars	Protocol	Unit	Result	Range of testing /limit of detection	Standard as per NAAQS; dated 18/11/ 2009
1	Particulate matters size less than 10 µm (PM ₁₀)	IS: 5182 (Part-23): 2006 Reaffirmed: 2022	µg/m ³	78.6	5.0 - 1200	For 24 hour =100
2	Particulate matters size less than 2.5 µm (PM _{2.5})	IS: 5182 (Part-24): 2019	µg/m ³	49.39	2.0 - 500	For 24 hour =60
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part-02): 2001 Reaffirmed: 2022	µg/m ³	12.73	5.0 - 1050	For 24 hour =80
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part-06): 2006 Reaffirmed: 2022	µg/m ³	17.20	6.0 - 750	For 24 hour =80

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TEST REPORT AMBIENT AIR QUALITY MONITORING REPORT

Test Report Ref No.: ETRC/2109/11948/2023		Date of Report: 21/09/2023	
Name /Address/Type of Industry		M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh	
Monitored by		ETRC, Lucknow	
Location of Sampling point		Village: Kasampur Shumali	
Sr. No.	GENERAL OBSERVATIONS	DETAILS-PM ₁₀	DETAILS-PM _{2.5}
1(a)	Weather conditions	Clear	Clear
(b)	Wind direction	West to East	West to East
(c)	Average humidity (%)	54	54
(d)	Average ambient temperature (°C)	29	29
(e)	Time of Sampling Started (Hours)	10:26 am (15.09.2023)	10:26 am (15.09.2023)
(f)	Time of Sampling completed (Hours)	10:15 am (16.09.2023)	10:15 am (16.09.2023)
(g)	Total time of sampling (Minutes)	24 hour (1415 minutes)	24 hour (1415 minutes)
2	Average sampling rate for PM (m ³ /minute)	1.145	NA
3	Average sampling rate for gas (LPM)	0.5	NA
4	TOTAL VOLUME OF AIR SAMPLED <ul style="list-style-type: none">PM (m³)GAS (liter)	<ul style="list-style-type: none">1620.633707.7	<ul style="list-style-type: none">23.589

TEST RESULT

Sr. No.	Particulars	Protocol	Unit	Result	Range of testing /limit of detection	Standard as per NAAQS; dated 18/11/ 2009
1	Particulate matters size less than 10 µm (PM ₁₀)	IS: 5182 (Part-23): 2006 Reaffirmed: 2022	µg/m ³	78.4	5.0 - 1200	For 24 hour =100
2	Particulate matters size less than 2.5 µm (PM _{2.5})	IS: 5182 (Part-24): 2019	µg/m ³	46.63	2.0 - 500	For 24 hour =60
3	Sulphur Dioxide (SO ₂)	IS: 5182 (Part-02): 2001 Reaffirmed: 2022	µg/m ³	12.22	5.0 - 1050	For 24 hour =80
4	Oxides of Nitrogen (NO _x)	IS: 5182 (Part-06): 2006 Reaffirmed: 2022	µg/m ³	17.43	6.0 - 750	For 24 hour =80

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ETRC/PM09/TEST-REP/FT/44

TEST REPORT AMBIENT NOISE MONITORING AND ANALYSIS REPORT

Test Report Ref No.: ETRC/2109/11949/2023		Date of Report: 21/09/2023
Name /Address/Type of Industry		M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh
Monitored by		ETRC, Lucknow
Sr. No.	GENERAL INFORMATION	DETAILS
(a)	Date of monitoring	15/09/2023 (06:00 AM) to 16/09/2023 (06:00 AM)
(b)	Sample Description	Ambient Noise
(c)	Sampling Location	Near Admin Office
(d)	Environmental Condition	Normal
(e)	Monitoring Protocol	IS: 9989: 1981, Reaffirmed: 2020

TEST RESULT

Ambient Noise Level				
Sr. No.	Parameter	Unit	Results DAY TIME (6:00 AM - 10:00 PM)	Results NIGHT TIME (10:00 PM - 6:00 AM)
1	Equivalent sound level	dB(A)	61.23	48.58


Noise Standards as per CPCB Schedule rule 3(1) and 4(1)			
Area Code	Category of Area/Zone	Limits in dB(A) Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

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ETRC/PM09/TEST-REP/FT/45

TEST REPORT WATER & WASTE WATER ANALYSIS

Test Report Ref No.: ETRC/2109/11950/2023	Date of Report: 21/09/2023
Name /Address/Type of Industry	M/s Wave Industries Limited Sugar Unit Village: Maleshiya, Tehsil: Dhanaura District: Amroha (J.P. Nagar) - Uttar Pradesh

SAMPLE DETAILS

1	Water/ Waste Water	Ground Water	5	Packing Condition	Sealed
2	Sample Description	Borewell Water	6	Sample Collected By	ETRC
3	Sample received date	18.09.2023	7	Analysis Start Date	18.09.2023
4	Sample Quantity	5.0 liters	8	Analysis End Date	22.09.2023

TEST RESULT

Sr. No	Test Parameter	Unit	Protocol/Test Method	Result	Range of testing /limit of detection	Indian Standard 10500: 2012	
						Desirable	Permissible
Physico-chemical Parameters							
1	Colour	Hazen	IS: 3025 (Part-4): 1983 Reaffirmed: 2017	<5.0	5 - 30	5	15
2	Odour	-	IS: 3025 (Part-5): 1983 Reaffirmed: 2017	Agreeable	Qualitative	Agreeable	Agreeable
3	pH	-	APHA 23 rd Ed. 2017-4500 H ⁺	7.4	1 - 14	6.5-8.5	No Relaxation
4	Turbidity	NTU	APHA 23 rd Ed. 2017-2130 B	BDL	2 - 40	1	5
5	Total Dissolved Solids (TDS)	mg/l	IS: 3025 (Part-16): 1984 Reaffirmed: 2017	376.2	10 - 5000	500	2000
6	Ammonia (as total ammonia-N)	mg/l	APHA 23 rd Ed. 2017-4500-NH ₃ F	BDL	0.5 - 2.0	0.5	No Relaxation
7	Anionic Detergents (as MBAS)	mg/l	APHA 23 rd Ed. 2017-5540 C	BDL	0.05 - 0.5	0.2	1.0
8	Calcium as Ca	mg/l	IS: 3025 (Part-40): 1991 Reaffirmed: 2019	56.0	2.0 - 600	75	200
9	Magnesium as Mg	mg/l	APHA 23 rd Ed. 2017-3500 Mg, B	32.076	0.1 - 400	30	100
10	Chloride as Cl	mg/l	APHA 23 rd Ed. 2017-4500-Cl ⁻ B	26.0	2.0 - 2000	250	1000
11	Fluoride as F	mg/l	APHA 23 rd Ed. 2017-4500 F ⁻ C	0.35	0.02 - 5.0	1.0	1.5
12	Free Residual Chlorine	mg/l	IS: 3025 (Part-26): 1986 Reaffirmed: 2019	BDL	0.1 - 5.0	0.2	1.0
13	Nitrate as NO ₃	mg/l	IS: 3025 (Part-34): 1986 Reaffirmed: 2019	BDL	1.0 - 70	45	No Relaxation
14	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	APHA 23 rd Ed. 2017-5530 C	BDL	0.001-0.005	0.001	0.002
15	Sulphate as SO ₄	mg/l	APHA 23 rd Ed. 2017-4500- SO ₄ ²⁻	24.0	1.0 - 500	200	400
16	Alkalinity as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2320 B	296.0	2.0 - 1000	200	600
17	Total Hardness as CaCO ₃	mg/l	APHA 23 rd Ed. 2017-2340 C	272.0	5.0 - 800	200	600
18	Aluminium as Al	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.015 - 5.0	0.03	0.2
19	Boron as B	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.5	1.0
20	Copper as Cu	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 10	0.05	1.5
21	Iron as Fe	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.14	0.05 - 20	0.3	No Relaxation



ENVIRONMENTAL AND TECHNICAL RESEARCH CENTRE

Office & Laboratory: 2/261, Vishwas Khand, Gomti Nagar, Lucknow- 226 010 (U.P.)

Email : ETRCLTH@YAHOO.IN, Web: www.etrclth.com

ISO 9001: 2015, ISO 14001: 2015, ISO 45001: 2018 & NABL Accredited Laboratory

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22	Manganese as Mn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.02	0.02 - 5.0	0.1	0.3
23	Zinc as Zn	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	0.46	0.05 - 15	5	15
24	Cadmium as Cd	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 2.0	0.003	No Relaxation
25	Lead as Pb	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.01 - 10	0.01	No Relaxation
26	Mercury as Hg	µg/l	APHA 23 rd Ed. 2017-3112 B	BDL	0.5 - 1000	1.0	No Relaxation
27	Nickel as Ni	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.05 - 5.0	0.02	No Relaxation
28	Arsenic as As	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.02 - 2.0	0.01	0.05
29	Total Chromium	mg/l	APHA 23 rd Ed. 2017-3120 B (ICP-OES)	BDL	0.03 - 5.0	0.05	No Relaxation
Microbiological Parameters							
30	E. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	
31	T. coli	MPN/100 ml	IS: 1622 - 1981 Reaffirmed: 2019	Absent	≥ 2 MPN Present or Absent per 100 ml	Shall not be detected in any 100 ml sample	


BDL=Below Detection Limit

..... END OF REPORT.....

- ETRC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices and that this data reflects our best attempt to generate accurate results for the sample, mentioned in the report as above.
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Authorized Signatory
(Sandeep Kr Verma)
Lab-Incharge




Authorized Signatory
(Ritu Garg)
QM