BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
APPEAL NO. 62 OF 2025

IN THE MATTER OF:
Rajpal Saini & Anr ...Applicants

Versus

Union of India & Ors. ...Respondents

INDEX

NDOH:28.05.2026

S No.	Particulars	Page No.
1.	Reply on behalf of Respondent No. 3 along with affidavit	1-89
2.	**ANNEXURE R/3-1** A copy of the judgment dated 02.01.2025 passed by the Hon'ble Supreme Court in '*Municipal Corporation of Delhi v. Gagan Narang & Ors*'	90-129
3.	**ANNEXURE R/3-2** A copy of the said reply dated 11.11.2024	130-265
4.	Proof of Service	266

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NEW DELHI
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REPLY FILED ON BEHALF OF RESPONDENT NO. 3

PRELIMINARY OBJECTIONS:-

1. The present petition is not maintainable in law, as the project in question was conceived and implemented in furtherance of a larger public interest to address a serious public menace. The project serves an essential public purpose and is aimed at safeguarding public welfare. All statutory requirements, environmental safeguards and necessary precautions were duly complied with prior to the establishment of the project. Thus, it is submitted that the petition is vexatious, devoid of merit and liable to be dismissed.

2. It is submitted that the petition does not disclose any legal or statutory grounds for revocation of the Environmental Clearance (hereinafter referred to as "EC"). It is submitted that no violation of the environmental laws or regulatory framework has been shown in the petition. In the absence of any demonstrable illegality, arbitrariness or material non-compliance, the prayer for revocation of the EC is devoid of merit.

3. At the outset, it is submitted that the appellants have no locus standi to maintain the present appeal. The appellants are residents of Village Sannoth, Narela Bhorgarh, Delhi, which is situated at a distance of approximately 2 kilometres from the project site. They are neither project-affected persons nor impacted by the implementation of the proposed Waste-to-Energy project. The project is being developed in the larger public interest to address Delhi's critical municipal solid waste management challenges. The appellants have failed to demonstrate any personal or legal injury arising from the project. Their objections are based on vague, speculative and unsupported apprehensions. In the absence of any demonstrated impact on their rights or interests, the appeal is nothing but a motivated attempt to stall a public infrastructure project. On this ground alone, the appeal deserves to be dismissed with exemplary costs.

4. That the concept of Waste-to-Energy power plants in India was conceived as early as the year 2012. The project was undertaken only after obtaining all necessary approvals and clearances from the competent statutory authorities and stakeholders. It is submitted that the project underwent the complete statutory appraisal process, including public consultation under the EIA Notification, 2006, and all objections and concerns raised during the public hearing process were duly considered and responded to by the competent authorities and the Project Proponent. The present challenge to the project, having been raised after completion of the statutory appraisal

process and grant of Environmental Clearance, is clearly an afterthought and is liable to be rejected on the ground of delay and laches

5. It is respectfully submitted that the Hon'ble Supreme Court of India in Municipal Corporation of Delhi v. Gagan Narang & Ors., Civil Appeal Nos. 7463-7464 Of 2023 by its judgment dated 02.01.2025 has already examined and upheld the very same Narela Bawana Waste-to-Energy project. The Hon'ble Court has confirmed that MCD is competent to conduct the tariff-based bidding process and that DERC has the jurisdiction to adopt the tariff under Section 63 of the Electricity Act, 2003. The Hon'ble Supreme Court has thus upheld the bidding process, the tariff adoption, and the authority of MCD in relation to this project. Therefore, the basic legality of the project now stands finally settled. In these circumstances, the same issues cannot be raised again. Any challenge to the project, to MCD's authority or to the approvals granted for its implementation is an attempt to reopen matters already decided by the Hon'ble Supreme Court. Accordingly, the present challenge is not maintainable and deserves to be dismissed at the threshold. A copy of the judgment dated 02.01.2025 passed by the Hon'ble Supreme Court in Municipal Corporation of Delhi v. Gagan Narang & Ors is annexed herewith and marked as **ANNEXURE R/3-1.**

PRELIMINARY SUBMISSIONS: -

4

1. Delhi generates over 11,000-12,000 TPD of municipal solid waste (MSW), overwhelming existing landfill sites such as Ghazipur, Bhalswa, and Okhla. Unmanaged waste causes air and groundwater pollution, public health hazards, and environmental degradation. The proposed Waste-to-Energy (WtE) project at Narela-Bawana is a scientifically designed, environmentally sustainable, and technologically advanced solution to address these critical challenges. By processing 3,000 TPD of MSW, the project will significantly reduce dependence on overburdened landfills, improve sanitation, and provide renewable energy, thereby serving the larger public interest and ecological balance.

2. Realizing these requirements, the proposed Municipal Solid Waste (MSW) to Energy generating project is one of the most efficient and environmental friendly solution for tackling the municipal solid waste problem of Delhi, For this purpose, MCD selected JITF Urban Infrastructure Limited (JUIL) through competitive bidding process for development, operation, and maintenance of Waste to Energy (WtE) processing facility of 3000 TPD, as per Solid Waste Management (SWM) Rules 2016, at Narela-Bawana, Delhi through Public-Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer basis.

3. The Environmental Clearance (EC) dated 18.06.2025 has been granted strictly in accordance with the EIA Notification, 2006. The Expert Appraisal Committee (EAC) conducted detailed appraisal

through multiple interactive meetings, including deferrals and reconsiderations, to address environmental, ecological, and operational concerns. Public Hearing was carried out in strict compliance with statutory provisions, ensuring transparency, inclusion and consideration of all objections and suggestions. The project has adhered to all legal requirements and no procedural infirmity exists.

4. The public hearing held on 27.12.2024 was conducted under the supervision of the Additional District Magistrate (North District) and senior Delhi Pollution Control Committee (DPCC) officials, with approximately 300 participants. A total of 685 written representations were received and addressed through a detailed Public Hearing Action Plan. Concerns regarding air pollution, health risks, waste management, and employment were comprehensively considered, and appropriate mitigation measures were incorporated into the Environmental Management Plan. The EAC, in its appraisal, fully considered all objections and responses before recommending the EC, evidencing full application of mind and due diligence.

5. The Project employs state-of-the-art pollution control systems along with continuous and real-time monitoring mechanisms to ensure that all emissions remain within prescribed statutory limits. Municipal solid waste will be handled and processed within enclosed facilities, and the waste stream is largely free from hard plastics owing to prior manual segregation by rag pickers and primary segregation at

source. Odour, dust and gaseous emissions will be effectively controlled through appropriate engineering and operational measures. Water bodies and surrounding ecological habitats will be protected, and comprehensive safeguards are in place to ensure the health and safety of workers.

6. Further it is respectfully submitted that the Central Pollution Control Board (hereinafter referred to as 'CPCB') in exercise of its statutory powers under the applicable environmental laws, has expressly recognized Waste-to-Energy facilities as an integral component of the country's solid waste management framework. CPCB in its revised Classification of Industrial Sector 2025 has introduced a distinct "Blue Category" for "Essential Environmental Service" under which Waste-to-Energy Facilities have specifically been included. Such facilities are established for prevention, control and abatement of environmental pollution arising from domestic and municipal waste and are essential for scientific processing, treatment, recovery and disposal of solid waste in accordance with the Solid Waste Management Rules, 2016. These facilities have been recognised to contribute to environmental protection, public health, resource recovery, energy generation and promotion of circular economy and sustainable development. It has also been clarified by CPCB that such classification does not exempt these facilities from environmental oversight, and that they continue to remain subject to prescribed emission norms, consent conditions, compliance monitoring, and regulatory supervision by the

7

competent authorities. The aforesaid statutory recognition by CPCB clearly establishes that Waste-to-Energy projects form part of the regulated environmental infrastructure of the country and are undertaken in larger public and environmental interest.

7. The Project will generate 30 MW of renewable energy, create local employment opportunities, improve sanitation and hygiene, and enhance green cover in the region. It is designed to manage waste scientifically, protect public health, reduce environmental pollution, and contribute to sustainable urban development. The WtE plant, therefore, represents a holistic solution for the management of MSW that balances environmental, social, and economic objectives, ensuring compliance with statutory and scientific standards.

8. It is further submitted that the land on which the project is proposed is located within a designated industrial area and has been duly earmarked for setting up a Waste-to-Energy facility. The site is suitable and compatible with the nature of the proposed activity. It is also relevant to note that a similar Waste-to-Energy plant, namely Delhi MSW Solution Limited, is already operational at the same location. The existence and functioning of this facility demonstrate that such projects are permissible in the area and can operate safely with minimal impact on nearby residential pockets. The siting of the present project is therefore neither arbitrary nor illegal.

9. The approved Zonal Development Plan for Zone P-I (Narela Sub-City), notified by the Ministry of Urban Development, specifically

earmarks a site of about 35 Acres for solid waste management near the Narela-Bawana Industrial Area Phase-II. The Plan recognizes Narela and Bawana as major industrial clusters and promotes the adoption of scientific methods for solid waste disposal. At the same time, the Plan also acknowledges the existence of villages, census towns, and large residential areas within the zone. The solid waste management site has been deliberately located near the industrial area, and not in residential zones. Therefore, the proposed Waste-to-Energy project complies with the approved land-use plan and represents a balanced arrangement between residential areas, industrial activities, essential public utilities and green buffer zones.

10. Further, it is important to highlight that the Central Pollution Control Board (CPCB) has introduced a revised classification system for industries, including a new "Blue Category" for industries providing essential environmental services. Waste-to-Energy facilities are recognized under Category B as part of domestic solid waste management. This classification reflects the regulatory recognition of WtE projects as environmentally essential services that help abate pollution and improve public health.

PARAWISE REPLY

1. That the contents and averments made in Paragraph I & II of the appeal are denied for the want of knowledge.

2. That the contents and averments made in Paragraph III are a matter of record and does not warrant any response from the Answering Respondent.

3. That the contents and averments made in Paragraph III.1 are baseless, misleading and specifically denied.

- It is submitted that the proposed Waste-to-Energy (WtE) project is a greenfield project for generation of electricity from Municipal Solid Waste (MSW) and is not connected with, dependent upon, or an expansion of any existing facility. The project has been conceived as part of the statutory framework for scientific management of municipal solid waste and to reduce the burden on existing landfill sites in North-West Delhi which are already operating at or beyond their intended capacity. It is further submitted that the Central Pollution Control Board, under its revised sectoral classification issued in 2025, has categorized Waste-to-Energy facilities under the Blue Category, recognizing them as Essential Environmental Services established for prevention, control, and abatement of pollution arising from domestic and municipal waste, and for protection of public health and promotion of sustainable development.

- The proposed Waste-to-Energy (WtE) Project incorporates a comprehensive set of mitigation and environmental management measures to minimize any potential

environmental impacts during both the construction and operational phases. The project has been designed with state-of-the-art air pollution control infrastructure, including Flue Gas Cleaning Systems (FGCS) for treatment and control of gaseous emissions, and Continuous Emission Monitoring Systems (CEMS) for real-time monitoring of emission levels, so as to ensure continuous compliance with the applicable statutory emission standards and environmental regulations. The air pollution control systems are designed to effectively control particulate matter as well as gaseous pollutants and to ensure that stack emissions remain within the limits prescribed under the Municipal Solid Waste Rules, 2016. Further, the environmental studies undertaken for the project indicate that the predicted incremental air pollutant concentrations during plant operations remain minimal and within permissible limits. During the construction and operational phases, regular water sprinkling shall be undertaken to suppress fugitive dust emissions, with increased frequency during windy conditions and peak summer months. All vehicles engaged in transportation of raw materials and other project-related materials shall be covered with tarpaulin sheets and shall be regularly maintained in accordance with prescribed schedules, with valid Pollution Under Control (PUC) certificates. In addition, the project provides for covered sheds for handling loose materials, dedicated dust suppression systems, and development of peripheral

plantation and green belt areas, all of which are aimed at further minimizing environmental impacts and enhancing the surrounding ecological environment.

- Further, prior to submission of the project proposal, Respondent No. 3 conducted a detailed ecological, biodiversity, and environmental baseline study within a 10 km radius of the project site as part of the Environmental Impact Assessment process. The study identified nearby residential habitations including Bawana (JJ Colony), Sanoth, Holambi Kalan, Ghoga, and Holambi Khurd, and assessed the likely environmental sensitivity of the surrounding area. The study further identified ecologically relevant areas in the vicinity of the project site, including Bawana Reserve Forest (1.70 km in the North direction), Ghoga Reserve Forest (3.12 km in the North direction), Sultanpur Reserve Forest (4.29 km in the South-West direction), and Narela Reserve Forest (9.01 km in the North-East direction). Significantly, the study confirmed that no National Park, Wildlife Sanctuary, Biosphere Reserve, Eco-Sensitive Zone, or any other notified ecologically sensitive area exists within a 10 km radius of the project site. In addition, the study also mapped sensitive man-made receptors in the surrounding area, including healthcare institutions, educational institutions, and community facilities. The same included Sandhyashi Hospital (1.26 km East), Jivan Hospital (1.32 km North-West), Bawana MCD

Hospital (2.46 km West-North-West), Siddhartha Hospital (2.10 km West), St. Omina Public School (1.26 km East), and Rana Public School (7.35 km South-East). These environmental and social receptors were specifically considered while assessing the potential impacts of the project and while designing the mitigation measures.

- Further, the Project Proponent has proposed development and maintenance of a substantial green belt over approximately 24,281.14 sq. m. (approximately 6 acres / 2.43 hectares), constituting nearly 40% of the total project area. The proposed green belt shall function as an effective pollutant sink and natural barrier against air pollution, odour, and noise, while also improving the local environmental conditions and aesthetics. The green belt development has been planned in consonance with the guidelines issued by the Central Pollution Control Board, including the Guidelines for Buffer Zone around Waste Processing Facilities, 2019, which recommend multi-tier plantation using native and pollution-tolerant species. Plantation shall be undertaken simultaneously with project construction and shall be extended to all available vacant areas after completion of the project.

- The Appellant's allegation that the Environmental Clearance (EC) was recommended by the Expert Appraisal Committee

13

without due application of mind or detailed scrutiny is emphatically denied. It is submitted that the Project Proponent undertook a comprehensive Environmental Impact Assessment (EIA) strictly in accordance with the EIA Notification, 2006, covering all requisite baseline studies, environmental assessments, and risk analyses. The EIA comprehensively examined the potential impacts of the project on air quality, water resources, ecology, traffic, ambient noise, and public health during both the construction and operational phases, and prescribed detailed precautionary, mitigation, monitoring, and management measures, including advanced pollution control systems, water conservation measures, effluent management systems, scientifically designed waste handling mechanisms, and alternative environmental safeguards aimed at minimizing ecological impact. It is further submitted that the Expert Appraisal Committee (EAC), after due consideration of the EIA Report, risk assessment studies, environmental baseline data, public consultation proceedings, and compliance with all statutory requirements, applied its expert and independent judgment and recommended grant of Environmental Clearance subject to stringent terms and conditions. There has been no concealment or suppression of any material information by Respondent No. 3, and the allegation to the contrary is a bald assertion unsupported by any credible material on record.

14

- The Appellant's contention that the objections raised were not considered while granting the Environmental Clearance (EC) is vehemently denied. It is submitted that the project has complied with the due procedure under the EIA Notification, 2006. The project was initially presented for approval of the Terms of Reference (ToR) before the Expert Appraisal Committee on 31.10.2023. Subsequently, the Draft EIA report was submitted to the Delhi Pollution Control Committee (DPCC) for conducting the Public Hearing. The final EIA report was prepared based on one season data generated by NABL/MoEF&CC accredited laboratories, in accordance with CPCB guidelines, and incorporates the public concerns raised during the public hearing. The public hearing was conducted in strict compliance with the provisions of the EIA Notification, 2006 and its amendments, and was duly advertised in Nav Bharat Times (Hindi) and Times of India (English) on 26.11.2024. The Project Proponent has submitted detailed clarifications and responses to the issues raised during the Public Hearing, along with a time-bound Action Plan and budgetary allocations to address the concerns. The same is reproduced herein below for the kind perusal of this Hon'ble Court.

Public Hearing points raised and comments of the project proponent held at Bawana, Delhi

15

Category	Key Concerns Raised	Responses Provided
Air Pollution	Now a days where pollution is on its peak and where we the residents specially those who are living near to Industrial area are already exhausted due to pollution emerging by Industrial units.	Ambient Air quality monitoring system will be installed in plant for tracking pollution levels that ensures compliance with environmental regulations and ensures protection of public health under EHS program of the proposed project.
Health	There is already a big Landfill is working here, and AQI is also in dangerous zone.,	Development of new landfill sites has also not been allowed by Delhi High Court. All emission parameters from the plant shall be within the prescribed limits. Ambient Air quality monitoring system will be installed in plant for tracking pollution levels, ensuring compliance with environmental regulations, and protecting public health.

16

Employment	I am excited about the waste to power plant's potential to create jobs & generate clean energy	Noted with thanks and Employment will be provided to local people
Waste Handling and Management:	The collection, transportation, and processing of waste at such a large scale could create health risks for workers and residents, especially if safety protocols are not strictly followed.	Waste will be received in closed hook loader in the plant. MSW will be stored in an enclosed pit which is maintained under negative pressure, which prevents the escape of any odour. Regular spray inoculum on the waste will be done. Plant will install spray system for odour management The WTE plant will not emit odour.

Therefore, the Environmental Clearance (EC) has been granted only after due consideration of the objections raised by the public all of which have been appropriately addressed.

- The allegation that no cumulative impact assessment or carrying capacity study has been undertaken for the Bawana project area is denied. The EIA report includes a detailed baseline environmental assessment of the Bawana industrial

area, documenting existing land use, industrial activity, ambient air quality, noise levels, traffic density, and background pollution loads within the industrial cluster. Furthermore, the Project Proponent has carried out comprehensive studies to assess the anticipated environmental impacts, including a cumulative impact assessment, evaluation of project alternatives, and identification of pollution minimization strategies. The EIA report prescribes detailed mitigation and monitoring measures through the Environmental Management Plan (EMP), thereby addressing the environmental carrying capacity of the area in a practical and project-specific manner. Based on this extensive analysis and supporting studies, the Expert Appraisal Committee, exercising its expert judgment, recommended the grant of Environmental Clearance.

4. That the contents and averments made in Paragraph No. IV(1) are baseless, misleading and hence denied. It is submitted that the Environmental Clearance dated 18.06.2025 granted in favour of Respondent No. 3 has been issued strictly in accordance with law, after following the due procedure prescribed under the EIA Notification, 2006, and upon detailed appraisal by the Expert Appraisal Committee. All potential environmental and health impacts were duly assessed through the Environmental Impact Assessment, Public Hearing, and Environmental Management Plan and appropriate mitigation measures have been incorporated as

conditions of the Environmental Clearance. The impugned Environmental Clearance does not suffer from any infirmity, nor does the Project pose any unassessed or unaddressed environmental or health risks.

5. That the contents and averments made in Paragraph No. IV(2) are denied for the want of knowledge.

6. That the contents and averments made in Paragraph No. IV(3) are baseless, misleading and hence denied. It is submitted that the Environmental Clearance dated 18.06.2025 granted in favour of Respondent No. 3 has been issued strictly in accordance with law and in full compliance with the procedure prescribed under the EIA Notification, 2006. The project was duly examined and appraised by the Expert Appraisal Committee. All potential environmental and health impacts were assessed through the Environmental Impact Assessment study, public hearing, and Environmental Management Plan, and appropriate mitigation measures have been incorporated as conditions in the Environmental Clearance.

7. That the contents and averments made in Paragraph No. IV(4) and IV(5) are a matter of record.

8. That the contents and averments made in Paragraph IV(6) are matters of record, save and except the allegation that the project site is adjacent to dense human habitation, which is specifically denied. It is submitted that the project site is located within a duly notified

industrial area and is not situated in close proximity to dense residential habitation, as falsely alleged by the Appellant. It is further submitted that under the applicable statutory framework, the determination of the buffer zone around solid waste processing facilities is required to be undertaken by the concerned local authority in consultation with the State Pollution Control Board / Pollution Control Committee, having regard to the site-specific facts, surrounding land use, environmental sensitivity, and other relevant considerations. There is no uniform or mandatory fixed buffer distance prescribed under law that is mechanically applicable to all such projects. In support of the aforesaid submissions, reliance is placed upon the reply dated 11.11.2024 filed by the Central Pollution Control Board in O.A. No. 536 of 2024 before the National Green Tribunal in the matter titled News Item titled "Waste to Energy: Smokescreen or Solution?" published in Indian Development Review dated 27.03.2024, wherein CPCB has, inter alia, clarified the regulatory position concerning Waste-to-Energy facilities, including the determination of buffer zones and applicable environmental safeguards. A copy of the said reply dated 11.11.2024 is annexed herewith and marked as **ANNEXURE R/3-2.**

9. That the contents and averments made in Paragraph No. IV(7), IV(8) and IV(9) are a matter of record.

10. That the contents and averments made in Paragraph No. IV(10) admitted only to the limited extent that the subsequent meeting of

the Expert Appraisal Committee (EAC) was held and the revised proposal submitted by the Answering Respondents was considered therein. Save and except the same, all other allegations and averments are denied. It is specifically denied that the EAC failed to apply its mind while considering the proposed Waste-to-Energy project at Bawana. On the contrary, the record of the EAC proceedings itself shows that the proposal was subjected to detailed scrutiny at multiple stages and the environmental, ecological, and public health implications of the project were carefully examined before permitting the project to proceed further. It is submitted that in its 46th meeting held on 04.09.2023, the EAC, after considering the project proposal, deferred the matter and raised multiple concerns relating to the environmental sensitivity of the project site, project capacity, and protection of surrounding ecological features. In response thereto, the Project Proponent undertook necessary modifications, including reduction of the proposed project capacity from 50 MW to 30 MW, and submitted a revised site layout plan specifically ensuring that the existing natural drain (nallah) in the vicinity of the project site would remain unaffected and undisturbed. Thereafter, in its subsequent meeting held on 31.10.2023, the EAC considered the revised proposal and specifically examined issues relating to ambient air quality, proximity of surrounding habitations, and the presence of nearby Reserve Forests, namely Bawana Reserve Forest (1.70 km), Ghoga Reserve Forest (3.12 km), and Sultanpur Reserve Forest (4.29 km) from the project site. Significantly, the EAC did not grant Environmental Clearance at

that stage. It only issued Terms of Reference (ToR) for carrying out a comprehensive Environmental Impact Assessment (EIA), cumulative impact assessment, risk assessment, and preparation of an Environmental Management Plan (EMP) before the proposal could be considered further. The aforesaid proceedings clearly establish that the EAC applied its expert and independent judgment, required modification of the project design, and mandated detailed scientific studies before proceeding further with the project. The project was not approved until the Project Proponent addressed the environmental concerns identified by the EAC, revised the project parameters, and undertook to conduct comprehensive environmental studies and mitigation planning. The issuance of the ToR itself demonstrates that prior to grant of any Environmental Clearance, detailed environmental assessment and risk mitigation measures were mandated in order to safeguard the ecology, environment, and public health.

11. That the contents and averments made in Paragraph IV(11) & IV(12) of the appeal are a matter of record.

12. That the contents and averments made in Paragraph (IV)13-(IV)15 are misleading, exaggerated and hence denied. It is submitted that the representations referred to by the Petitioners were received by the Delhi Pollution Control Committee in the normal course of its statutory functioning and were duly placed on record by the concerned authority. The mere receipt of such representations, in

fact, demonstrates that the statutory consultation process was duly followed. It is further submitted that all representations and objections received by the competent authority were taken into consideration, and the Project Proponent furnished written clarifications and responses wherever required, which form part of the record considered during appraisal in accordance with the EIA Notification, 2006. The manner of receipt, compilation, and processing of representations is within the exclusive domain of the statutory authorities and does not, in any manner, reflect any lapse or omission on the part of the Project Proponent. It is further submitted that mere submission of representations or objections, irrespective of the number of signatories, does not by itself establish any procedural irregularity, illegality or environmental non-compliance, nor does it invalidate the public hearing or the environmental appraisal carried out in accordance with law. Without prejudice to the above, the averments concerning the public hearing held on 27.12.2024 are also specifically denied. It is submitted that the said public hearing was conducted strictly in accordance with the provisions of the EIA Notification, 2006, under the supervision and control of the competent statutory authorities. Any temporary logistical, administrative, or operational adjustments necessitated on account of weather conditions or other unforeseen exigencies do not, in law or on facts, render the public hearing arbitrary, irregular, or invalid, particularly when the hearing was ultimately conducted and adequate opportunity was afforded to members of the public to participate, raise objections, and have their views duly recorded. The

Petitioners have failed to place on record any credible material whatsoever to establish that the public hearing was not conducted, that public participation was obstructed, or that the objections raised by members of the public were ignored or not considered by the competent authorities. It is emphatically denied that there was any attempt to exclude, influence, intimidate, or prevent participation of the public. On the contrary, the statutory authorities, along with the Project Proponent, acted bona fide, ensured transparency in the process, and duly considered and responded to all oral as well as written objections in accordance with law.

13. That the contents and averments made in Paragraphs IV(16) to IV(18) are false, misleading, and contrary to the official record, and are therefore specifically denied, save and except to the extent they relate to matters of record.

- It is submitted that the public hearing scheduled on 27.12.2024 was lawfully conducted and duly concluded under the supervision of the Additional District Magistrate (North District), Government of NCT of Delhi, and senior officials of the Delhi Pollution Control Committee (DPCC), strictly in accordance with the provisions of the EIA Notification, 2006. The presence of competent authorities, including the ADM (North District), Additional Director, DPCC, and Environmental Engineer, DPCC and other concerned officials is duly reflected in the official proceedings and is a matter of

24

record. It is specifically denied that the request for postponement of the public hearing was arbitrarily refused. The official proceedings clearly record that due to incessant rainfall, certain persons present requested postponement or shifting of the venue. However, after due consideration, the ADM (North District), in compliance with Point 3.3 of Appendix IV of the EIA Notification dated 14.09.2006, declined such request, as the statutory framework does not permit change of venue or postponement of the public hearing on the scheduled date except in circumstances expressly provided therein. Accordingly, the public hearing lawfully continued at the duly notified venue and concluded at about 3:00 pm in accordance with law. It is further denied that the public hearing was inaccessible, exclusionary, or conducted in a manner so as to prevent public participation. The official record reflects that approximately 300 members of the public were present during the hearing. It is further recorded that despite repeated requests by the ADM (North District), several attendees voluntarily chose not to mark their attendance. Therefore, any inability to record the attendance of every individual present cannot be attributed either to the statutory authorities or to the Project Proponent.

- It is also denied that the presentation made on behalf of the Project Proponent was inaudible or that the opportunity of public participation was curtailed. The official proceedings

specifically record that certain members of the public were unwilling to view the presentation, and in view thereof, the Project Proponent verbally explained the salient features of the project. The proceedings further record that despite repeated directions issued by the ADM to maintain order and permit orderly participation, the hearing was marked by interruptions, commotion, and vociferous opposition from certain participants.

- It is further denied that objections raised by members of the public were suppressed, ignored, or not recorded. On the contrary, the official proceedings expressly record the nature of objections raised, including concerns relating to proximity to habitations, possible health impacts, groundwater contamination, alleged non-depiction of villages in the Draft EIA Report, and cumulative pollution load in the Bawana Industrial Area. The fact that such objections were summarized in the proceedings, rather than recorded verbatim, is consistent with the established statutory procedure governing public hearings and does not amount to suppression or non-consideration.

- It is further submitted that the allegation that members of the public were prevented from submitting written representations is wholly false. The official record confirms that five written representations were received during the

public hearing itself, and 680 written objections/suggestions were received pursuant to the public notice dated 26.11.2024, out of which 677 were received through email and 3 through post. All such representations were duly tabulated, examined, and responded to by the Project Proponent, and thereafter forwarded along with the proceedings to the Ministry of Environment, Forest and Climate Change (MoEF&CC) for appraisal and consideration.

- It is submitted that the public hearing continued for approximately four hours, from 11:00 AM to 3:00 PM, and concluded only after objections were heard, written representations were received, and all statutory formalities were completed. The presence of videography, photography, public address systems, police personnel, and senior statutory officers further establishes that the entire process was conducted in a transparent, fair, and lawful manner. The videography of the complete proceedings has also been preserved and forwarded to the MoEF&CC along with the official record, ensuring complete transparency and verifiability.

Therefore, the reliance placed by the Appellants on Annexure A/11 is selective and misleading, as the complete proceedings clearly shows that objections were heard, recorded, responded to and

forwarded to the MoEF&CC for consideration and this is just an attempt to derail a public project.

14. That the contents and averments made in Paragraph Nos. IV(19)-IV(21) of the appeal are misleading, baseless and hence denied. It is submitted that respondent No. 3, being a project proponent is neither concerned with nor privy to any such political correspondences and the alleged communications, even if made, are matters between the concerned individuals and authorities and have no bearing on the statutory appraisal of the project. The Appellants are selectively placing such letters and representations on record with the apparent intent to create a misleading narrative and to derail a project of public importance, despite the project having undergone a comprehensive statutory scrutiny process. The project in question is in the nature of essential public infrastructure and is intended to serve a public purpose.

15. That the contents and averments made in Paragraph No. IV(22) are baseless, misleading and hence denied. It is submitted that Respondent No. 3, being merely the Project Proponent, had no role, involvement, or participation in any such correspondence, and the same is irrelevant for the purposes of the statutory environmental appraisal process. It is submitted that the Environmental Clearance was granted only after due appraisal and detailed scrutiny by the competent authorities in accordance with the provisions of the EIA Notification, 2006, upon consideration of the Environmental Impact

Assessment (EIA) Report, public hearing proceedings, risk assessment studies, and the Environmental Management Plan (EMP), along with all other relevant statutory requirements.

16. That the contents and averments made in Paragraph No. IV(23) are baseless, misleading and vehemently denied. It is specifically denied that the Expert Appraisal Committee (EAC) failed to apply its mind to the relevant considerations or ignored the alleged health impacts of the proposed project on the population residing in the vicinity of the project site. It is submitted that the Minutes of the 25th Meeting of the Expert Appraisal Committee (Thermal Sector) held on 27th May, 2025 constitute an extensive and detailed document running into approximately 60 pages, which clearly demonstrates due application of mind by the EAC. The said Minutes comprehensively examine multiple aspects of the proposed project, including, inter alia, the environmental site setting, baseline environmental studies, anticipated impacts, and the mitigation measures proposed by the Project Proponent. It is further submitted that the EAC specifically considered the entire public consultation process, including the number of representations received, the nature of objections raised, details of persons who supported and opposed the project, and the responses furnished by the Project Proponent. The EAC also examined the Action Plan prepared in accordance with the Office Memorandum dated 30.09.2020 issued by the Ministry of Environment, Forest and Climate Change, addressing the concerns emerging from public consultation. After detailed deliberations and

appraisal of all relevant material placed before it, the EAC recorded elaborate reasons and recommendations, and, in view of the foregoing, recommended the instant proposal for grant of Environmental Clearance under the provisions of the EIA Notification, 2006, subject to submission of requisite written information on the PARIVESH portal and compliance with specific and general conditions tailored to the project-specific requirements. In light of the above, it is submitted that the allegations raised by the Appellants are founded on a selective and incomplete reading of the record, while conveniently ignoring the detailed analysis and reasoned conclusions reflected in the Minutes of the EAC meeting.

- That the contents and averments made in Paragraph IV(23(a)) of the appeal are baseless, misleading and hence denied. It is denied that the Minutes of Meeting dated 27.05.2025 do not reflect consideration of the concerns raised at earlier stages of appraisal. It is submitted that the appraisal process undertaken by the Expert Appraisal Committee (EAC) is cumulative, continuous, and iterative in nature, and the minutes of the 25th EAC Meeting cannot be read in isolation but must be read in conjunction with the earlier meetings and proceedings, including the 46th EAC Meeting held on 04.09.2023, wherein specific concerns relating to site suitability, environmental sensitivity, and project configuration were raised by the Committee. Pursuant thereto, the Project Proponent furnished additional studies, clarifications, revised technical

submissions, and compliance documents, which were duly considered by the Committee before proceeding further. The very fact that the proposal was deferred at the earlier stage and reconsidered only after submission of the requisite information clearly establishes that the EAC exercised due diligence, applied its independent expert judgment, and consciously evaluated all relevant environmental concerns before recommending the project.

- That the contents and averments made in Paragraph No. IV(23(b)) are false, misleading and hence denied. It is submitted that a detailed demographic, socio-economic and population impact assessment was comprehensively carried out and documented in the Final EIA/EMP Report, which formed the basis of appraisal. The EIA Report contains an extensive and granular socio-economic baseline study covering a 10 km radius study area, in accordance with the EIA Notification, 2006 and applicable Terms of Reference. The study area comprises 82 habitations (53 villages and 29 urban areas/Census Towns) spread across the Narela and Saraswati Vihar sub-districts of North-West Delhi and Sonipat and Kharkhoda sub-districts of Haryana. The villages and urban areas assessed include, inter alia, JJ Colony, Ghoga, Sanoth, Khera Khurd, Holambi Khurd, Holambi Kalan, Iradat Nagar alias Naya Bans, Budhan Pur, Chand Pur, Mamoor Pur, Rohini Sector-11, and several others located both within the

vicinity and the buffer zone of the project site. Accordingly, the allegation that the EAC did not consider the number of affected persons is factually incorrect, as the population likely to be impacted by the project was comprehensively identified, quantified and analysed in the EIA Report, which was before the Committee at the time of appraisal and recommendation. The EAC is not required to reproduce every underlying dataset verbatim in its minutes, as the minutes record the conclusions of the appraisal, while the underlying scientific data remains part of the official appraisal record.

- That the contents and averments made in Paragraph IV(23(c)) are misconceived, baseless and hence denied. It is submitted that the "summary of issues raised during public consultation" recorded in the Minutes of the EAC is a consolidated summary of the principal and recurring objections raised during the public consultation process. The same was considered along with the detailed Public Hearing Action Plan submitted by the Project Proponent in accordance with the Office Memorandum dated 30.09.2020 issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) .During its 25th Meeting held on 27.05.2025, the Expert Appraisal Committee (Thermal Sector), after detailed deliberations, examination of the EIA/EMP, baseline environmental studies, risk assessment, epidemiological study, public consultation proceedings, written

representations, videography of the public hearing, and the Action Plan submitted by the Project Proponent in accordance with the MoEF&CC Office Memorandum dated 30.09.2020, recommended the project for grant of Environmental Clearance under the provisions of the EIA Notification, 2006, subject to strict compliance with specific and general conditions. The Committee imposed stringent safeguards, including installation of a comprehensive Flue Gas Treatment System, PTFE bag filters with 130% design capacity, Continuous Emission Monitoring System (CEMS), Continuous Ambient Air Quality Monitoring Stations (CAAQMS), maintenance of a 60-metre stack height, compliance with emission standards prescribed under the Solid Waste Management Rules, 2016, and implementation of a Zero Liquid Discharge system. The EAC further directed protection of the natural nallah passing through the project site by prohibiting discharge of leachate, wastewater, or solid waste, strengthening of embankments, and development of a green belt along its periphery, and also mandated protection of the Western Yamuna Canal, situated approximately 32 metres from the project site. The Committee additionally mandated development of a minimum 40% green belt in consultation with the Forest Department, implementation of a Wildlife Conservation Plan with an allocated budget of Rs. 60 lakhs, and plantation of fruit-bearing trees to support local fauna. Further, based on the epidemiological assessment, the

EAC also directed implementation of health and safety measures including annual medical examinations, use of personal protective equipment, tie-ups with local hospitals, health insurance and ESI coverage for workers, and community health initiatives within a 5 km radius of the project site. The Committee also imposed detailed risk and disaster management measures, including fire safety systems, dyking of fuel storage areas, compliance with NFPA-85E standards, periodic safety audits, and mock drills. All the aforesaid safeguards and conditions have been incorporated into the project and made binding and enforceable conditions of the Environmental Clearance.

- That the contents and averments made in Paragraph IV(23(d)) of the appeal are baseless, misleading and hence denied. It is denied that the representations received during the public consultation were not included or considered by the Expert Appraisal Committee (EAC). The public hearing was duly advertised in widely circulated newspapers and conducted on 27.12.2024 under the chairmanship of the Additional District Magistrate (North District), GNCTD, with approximately 300 persons in attendance. The Minutes of the public hearing records that 685 representations were received from the public prior to the hearing, in addition to 5 representations received during the hearing, and clearly set out an abstract indicating the number of persons who supported (334) and opposed

(351) the project. The names of the persons supporting or opposing the project are also annexed and form part of the Minutes, thereby evidencing due consideration of public participation. It is further denied that the EAC ignored or excluded these representations. The Committee considered the consolidated and thematic list of objections reflecting the principal concerns of the public, including air pollution, health impacts, waste handling and management, and employment, along with the clarifications and responses submitted by the Project Proponent. The EAC, being an expert appraisal body, is not required to reproduce each individual objection verbatim in its Minutes, particularly where a large number of representations raise overlapping and common issues. The project was recommended only after the EAC was satisfied that detailed environmental studies had been carried out, impact assessments on the environment and local population had been undertaken, and adequate mitigation measures and safeguards were proposed and made enforceable through specific conditions.

- That the contents and averments made in Paragraph IV(23(e)) are a matter of record. It is submitted that the Project Proponent had initially submitted a proposal for the Waste-to-Energy project, which was considered by the EAC in its 46th Meeting held on 04.09.2023. At that stage, the Committee deferred the proposal after observing that the proposed layout

appeared to involve diversion of a natural stream/nallah, and that the originally proposed capacity required reconsideration in light of the environmental sensitivity of the area. Pursuant thereto, the Project Proponent undertook extensive environmental studies, monitoring, and technical assessment, including detailed examination of the natural nallah/stream, nearby ponds, groundwater, and surface water bodies. Groundwater samples were collected from existing hand pumps, and surface water samples were collected from the Western Yamuna Canal as well as the nallah passing through the project site, and the analysis was carried out in accordance with prescribed scientific standards for examination of water and wastewater. Based on the revised studies and submissions, the Project Proponent specifically assured the EAC that no diversion of the nallah would take place, and that all precautions would be taken to ensure that no leachate, wastewater, effluent, or solid waste would be discharged into the nallah or surrounding water bodies. The Committee took note of the fact that the Western Yamuna Canal is located approximately 32 metres from the project site, and after due consideration of the revised studies and safeguards, recorded that no diversion of the nallah was involved. However, the EAC imposed specific and binding safeguards, including protection of the nallah, strengthening of embankments, development of a green belt along its entire periphery, and an express prohibition on discharge of any leachate, wastewater,

or solid waste into the nallah or adjoining water bodies, thereby making protection of the natural drainage system and surrounding water bodies an enforceable condition of the project.

17. That the contents and averments made in Paragraph No. IV(24) are a matter of record.

18. That the contents and averments made in Paragraph No. IV(25) are admitted only to the limited extent that Respondent No. 3 had vide letter dated 20.06.2025, duly informed the Delhi Pollution Control Committee regarding the grant of Environmental Clearance. However, the appellant's reliance upon an internal file noting to suggest that the said communication or copy of the Environmental Clearance was received only on 02/03.07.2025 is merely speculative and does not establish any irregularity or omission on the part of Respondent No. 3.

19. That the contents and averments made in Paragraph No. IV(26) are misleading, baseless and hence denied. The Appellants, in their own petition, have admitted that they were actively submitting representations, attending the public hearing, and vociferously raising objections and concerns in relation to the Project. In light of their active participation in the statutory process, it is difficult to accept that they were entirely unaware of the grant of Environmental Clearance, which was issued on 18.06.2025 and was available in the public domain.

20. That the contents and averments made in paragraph No. IV(27) are denied for the want of knowledge

21. That the contents and averments made in Paragraph Nos. IV(28)-IV(31) are denied for the want of knowledge and lack of relevancy to the present case. It is submitted that the letters submitted by the petitioners are extraneous to the process of grant of Environmental Clearance which has been granted accordance with statutory law.

22. That the contents and averments made in Paragraph No. IV(32) are baseless, misleading and hence denied. The proposed Waste-to-Energy (WtE) project at Bawana, Delhi has been designed with a view to scientifically and safely manage municipal solid waste (MSW), thereby reducing the problems associated with unprocessed waste disposal in landfills. The project aims to eliminate environmental and health hazards arising from open dumping, landfilling or burning of MSW, which are of concern to both regulators and society at large. The project employs state-of-the-art technology, including RDF combustion-based incineration with advanced air pollution control systems, to ensure that emissions such as furans, dioxins, and particulate matter are strictly controlled and maintained within permissible limits as per statutory standards. MSW will be stored in enclosed concrete pits under negative pressure, with airflow routed through the boiler to prevent odour or gas escape, and specialized inoculum will be used to minimize odour. Further, the project is based on a Zero Liquid Discharge

(ZLD) concept, ensuring that no untreated wastewater is released into the environment. All effluents generated will be treated and reused in plant operations, conserving freshwater resources. The project also ensures protection and conservation of nearby water bodies, including the nallah and Western Yamuna Canal, in line with the EAC's conditions. The WtE plant will process 3000 TPD of MSW, thereby significantly improving sanitation and hygiene in Northwest Delhi, reducing reliance on landfills, and enhancing environmental aesthetics. The project will contribute to renewable energy generation by producing 30 MW of electricity, create employment opportunities, and implement social and environmental initiatives, including plantation of approximately 4,860 trees over 6 acres, increasing green cover and improving the local environment. In the view of the above, allegations regarding massive uncontrolled toxic emissions are misplaced as the project has been planned and designed in accordance with all the applicable environmental regulations, scientific standards and public safety considerations with a view to specifically control such emissions.

23. That the contents and averments made in Paragraph No. IV(33) are baseless, misleading and hence denied. It is submitted that the above averments are generic and incomplete, as it proceeds on the assumption that emissions from waste incineration are uncontrolled. It is submitted that the proposed project has been specifically designed with advanced emission control and flue gas cleaning systems to ensure that all such emissions remain well within the

limits prescribed under the Solid Waste Management Rules, 2016 and applicable MoEF&CC norms. The Project Proponent has undertaken a comprehensive assessment of all potential emissions from the proposed Waste-to-Energy (WtE) plant and their impacts on human health and the environment in a transparent manner The study identifies major emissions, including nitrogen oxides (NOx), sulphur dioxide (SO_2), carbon dioxide (CO_2), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), heavy metals, hydrogen chloride (HCl), as well as polychlorinated dibenzodioxins (PCDDs) and dibenzofurans (PCDFs). For each emission, state-of-the-art control measures have been proposed and implemented. NOx formation will be controlled through Selective Non-Catalytic Reduction (SNCR) in the boiler; SO_2 and HCl will be removed using hydrated lime in the flue gas cleaning system; particulate matter will be captured using bag filters; heavy metals will be absorbed by activated carbon; and dioxins and furans will be destroyed through high-temperature combustion (>950°C) with sufficient gas residence time and pre-processing of waste to remove PVC. Additionally, VOC and CO formation will be minimized by maintaining an optimal air supply during combustion. In addition, the project is designed to significantly reduce CO_2 emissions compared to conventional waste dumping. While uncontrolled MSW disposal generates approximately 1,610 kg of CO_2 per ton of waste, the proposed WtE facility produces only about 220 kg of CO_2 per ton, thereby contributing positively to the reduction of greenhouse gas emissions. In view of the above, the apprehension

that the proposed Project would cause harmful emissions is misplaced and speculative, ignoring the comprehensive pollution control measures and regulatory safeguards incorporated into the project design.

Further, it is submitted that the project proponent has carried out extensive ambient air quality (AAQ) monitoring at eight locations around the project site in Bawana, Delhi. The results indicate that concentrations of key gaseous pollutants such as sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO) were consistently within the permissible limits prescribed under the National Ambient Air Quality (NAAQ) Standards for industrial, residential, and rural areas. Furthermore, heavy metals such as mercury (Hg) were found to be below detectable limits, demonstrating that the project does not pose a risk of toxic contamination to ambient air. These findings, along with the state-of-the-art air pollution control measures proposed for the plant, including multistage treatment and continuous monitoring, ensure that the operation of the Waste-to-Energy project will not adversely impact the surrounding environment or public health. Thus, the proposed WtE project is environmentally responsible from its very inception, with all necessary mitigation measures to ensure emissions are controlled well within permissible limits, while simultaneously reducing the public health and environmental risks associated with uncontrolled waste dumping and open burning.

41

Emissions	Source	Effect on Health	Proposed Control System
Nitrogen oxides (NOx)	• The nitrogen content of the fuel. • Reaction of nitrogen and oxygen in the high temperature zone of boiler.	• Acidification contributes to the formation of ambient ozone. • Poisons the blood if inhaled.	• SNCR in the boiler is advised to control the Nox formation.
Sulphur di-oxide (SO_2)	• The Sulphur content of the fuel. Sulphur present in the fuel is the main cause of the formation of SOX mainly in the form of SO2. • The combustion process: temperature, oxygen concentration and duration.	• Acidification • Health effects due to inhalation.	• The same is carried by the flue gas in the reactor tower where the treatment of hydrated lime causes the removal of the SOX from the flue gas.
Carbon dioxide (CO_2)	• The carbon content of the fuel.	• Contributes to the greenhouse effect.	• Generally, WtE project is having the lower

42

	• CO2 is the prime component of flue gas. Same is formed by the oxidation of the carbon in the fuel.		contribution to the CO2 with respect to the MSW dumping (MSW at dumping site generated 1610 kg of CO2 per ton of waste, whereas the incineration produces only 220 kg CO2 for the same mass of waste.)
Carbon Monoxide (CO)	• In the combustion process, CO forms when the air supply is less than the stoichiometric requirement.	• Harmful to the cardiovascular system.	• Supply of air will be maintained above stoichiometric air requirement to prevent incomplete combustion of carbon.
Volatile Organic Compound (VOC)	• The combustion process: created when the oxygen supply is scarce.	• Carcinogenic contributes to the formation of secondary Air pollutants. • Methane is a VOC that contributes to the greenhouse effect.	• Supply of air will be maintained above stoichiometric air requirement to prevent incomplete combustion of carbon.

			• Methane formation occurs due to waste dumped at the landfill site that has the potential of the 1,610 of CO2 equivalent. When the same is treated & used in WtE plant, it will get reduced to 220 of CO2 equivalent.
Particulate Matter	• The ash content of the waste. • The combustion processes.	• Harmful if inhaled.	• Use of bag filter for Capture of particulate matter.
Heavy Metals (Cd, Pb, Hg etc.)	• Fuel: The heavy metal content of the MSW/ RDF	• Most heavy metals are toxic to human.	• Activated carbon doses in the FGCS to capture the heavy metals & control the emissions well in the limit as per the SWM Rules, 2016.
Hydrogen	• Generally formed by	• Acidification.	• It is controlled by the injection of

44

Chloride (HCl)	combustion of the chloride present in the kitchen waste after reaction with Hydrogen.		lime in the FGCS, which removes all the acidic gases.
Dioxins & Furans	• The PVC content in the waste, i.e. the Chlorinated material in the fuel. • It is formed by the oxidation of the PVC in the furnace.	• Can cause cancer while accumulating in Fatty tissues in human.	• For the complete destruction of dioxins and furans: a. Proper segregation of waste in pre-processing section. b. Reduction in moisture is ensured in storage pit and drying zone of boiler. c. Maintained temperature more than 950 °C with gas resistance time not less than 2 seconds. d. Injection of activated carbon in pollution control device.

45

24. That the contents and averments made in Paragraph No. IV(34) are baseless, misleading and hence denied. It is respectfully submitted that the averments made in the present paragraph are misleading and based on an incomplete appreciation of the CPCB classification framework. The Pollution Index referred to by the Applicant is a comparative and indicative parameter used by CPCB for regulatory categorisation and does not, by itself, reflect the actual environmental impact of a specific project, which is determined by site-specific studies, prescribed emission standards, and compliance mechanisms. It is submitted that the re-categorisation of Waste to Energy (WtE) projects under the Blue Category by the CPCB is a conscious and reasoned policy decision, recognising that such facilities perform essential environmental services, particularly in urban areas where scientific management of municipal solid waste is a critical concern. The Blue Category status reflects the role of WtE plants in reducing landfill dependency, preventing open dumping and burning of waste, and mitigating uncontrolled emissions from waste, rather than their pollution potential in isolation. Further, while the indicative Pollution Index for WtE plants may be high due to the nature of the waste handled, actual emissions from the proposed project are strictly regulated under the Solid Waste Management Rules, 2016 and other applicable environmental norms. The project incorporates state-of-the-art pollution control technologies, continuous emission monitoring systems, and multiple safeguards to ensure that emissions of particulate matter, NOx, SOx, dioxins, furans and other pollutants

remain within permissible limits. It is therefore denied that the proposed project poses a serious threat to the health and well-being of surrounding residents. On the contrary, by scientifically processing municipal solid waste and reducing the environmental hazards associated with landfills and open burning, the Project is expected to result in net environmental and public health benefits for the region.

25. That the contents and averments made in paragraph No. IV(35) does not warrant any response from the respondent.

26. That the contents and averments made in Paragraph V(A) are baseless, misleading and hence denied. While there is no dispute with the settled legal position that the right to life under Article 21 of the Constitution includes the right to a clean and healthy environment, it is submitted that the said right is not absolute and must be harmonised with the principle of sustainable development, as has been consistently recognised by the Hon'ble Supreme Court, including in M.C. Mehta v. Union of India (2019). It is submitted that the proposed Waste to Energy project has been granted Environmental Clearance only after a comprehensive appraisal in accordance with the Environment Impact Assessment Notification 2006 and applicable environmental laws. Project proponent before executing the project has carried out detailed baseline studies, impact assessments, public consultation, and expert evaluation by the competent authority have been carried out and stringent

conditions have been imposed to ensure protection of air quality, public health and the environment. The project incorporates state-of-the-art air pollution control systems, continuous emission monitoring, and compliance with the emission norms prescribed under the Solid Waste Management Rules, 2016 and CPCB guidelines. The apprehension that the proposed project will aggravate existing environmental conditions in Bawana or adversely impact the health of residents is unsupported by any scientific data or material on record. On the contrary, the project is designed to address the very environmental concerns raised by the Applicants, by reducing open dumping and burning of municipal solid waste, mitigating emissions from landfills, and scientifically managing waste in a regulated and monitored manner. In the absence of the proposed project, unprocessed municipal waste would continue to be disposed of in an unscientific manner, posing far greater risks to air quality and public health. The reliance placed by the Applicants on judicial precedents is selective and misplaced as the Hon'ble Supreme Court has consistently held that environmental protection and development must go hand in hand, subject to regulatory safeguard. The proposed projects falls within the framework of sustainable development with strict regulatory oversight to ensure principles of environment are not violated.

27. That the contents and averments made in Paragraph V(B) are baseless, misleading and hence denied. It is submitted that with respect to the buffer zone, it will be decided on a case-to-case basis

by the local body in consultation with the State Pollution Control Board. There is no prescribed or fixed buffer distance in this regard.

28. That the contents and averments made in paragraph V(G) are baseless, misleading and hence denied. Reliance placed by the Applicants on the judgement of Rayons Enlighting Humanity (supra) is misplaced. From a bare perusal of the judgement, it is evident that the judgement does not lay down any absolute prohibition on the establishment of Municipal Solid Waste Management or Waste-to-Energy projects in the vicinity of residential areas. In fact, the requirements laid down by this Hon'ble Tribunal in Rayons Enlighting Humanity is fulfilled in the present case. The project site has undergone detailed assessment including baseline environmental studies, impact assessment, public consultation, and appraisal by the Expert Appraisal Committee. The project proponent has examined site-specific factors, surrounding land use, potential environmental and public health impacts, mitigation measures to counter the same and based on a detailed scrutiny of the above, the EAC has thereafter recommended the project for Environmental Clearance subject to strict and enforceable conditions. Further, It is denied that the proposed Project would lead to environmental damage or public nuisance. On the contrary, the project has been mandated to comply with stricter environmental standards, including advanced air pollution control systems, continuous emissions monitoring, zero liquid discharge, odour control measures, and green belt development, precisely to

ensure that no adverse impact is caused to nearby residential or institutional areas.

29. That the contents and averments made in paragraph V(H) and (I) are baseless, misleading and hence denied. It is respectfully submitted that the reliance placed on the judgment in Tarun Bharat Chauhan & Anr. v. Union of India & Ors., O.A. No. 282 of 2013, as affirmed by the Hon'ble Supreme Court in Nagar Ayukt Nagar Nigam Ghaziabad v. Tarun Bharat Chauhan & Ors. is misplaced and clearly distinguishable on facts and law. First, the project considered in Tarun Bharat Chauhan pertained to a municipal solid waste management facility proposed in an area surrounded by dense residential construction, where lakhs of people were residing in approved residential layouts. The Hon'ble Tribunal, on a careful appreciation of the facts of that case, found that the site itself was unsuitable under the applicable Rules and Manual, and that the location would inevitably result in air pollution, foul odour and contamination of groundwater. The judgment is site-specific facts and cannot be read as an absolute prohibition against all solid waste or waste-to-energy projects. In contrast, the present project is a Waste-to-Energy (WtE) greenfield project, which has been planned, appraised and approved as a regulated environmental infrastructure project. The project site is located within a notified industrial area, and not within or abutting a dense residential zone as was the case in Tarun Bharat Chauhan. The location of the project is consistent with the applicable planning norms and land-use classification for

SD

industrial activities. Secondly, the present project has undergone the full statutory Environmental Impact Assessment process, including baseline environmental studies, impact assessment, public consultation and expert appraisal by the Expert Appraisal Committee (EAC). The EAC, after detailed deliberation, recommended the project subject to stringent, project-specific and enforceable environmental conditions, thereby ensuring protection of public health and the environment. Thirdly, Waste-to-Energy projects are recognised by regulatory authorities as an integral component of scientific solid waste management and sustainable development. The Central Pollution Control Board (CPCB), in its classification framework, has categorised Waste-to-Energy plants as Blue Category industries, recognising that they perform essential environmental services by reducing landfill burden, preventing open dumping and open burning of waste, and enabling recovery of energy from waste. This recognition clearly distinguishes WtE projects from conventional solid waste dumping or processing facilities considered in earlier cases. Fourthly, the principle of sustainable development, repeatedly emphasised by the Hon'ble Supreme Court and this Hon'ble Tribunal, requires a balanced approach between environmental protection and the need for essential infrastructure. In the present case, the project incorporates state-of-the-art pollution control technologies, continuous emissions monitoring, zero liquid discharge, odour control measures and green belt development, thereby addressing the very concerns that weighed with the Tribunal in Tarun Bharat Chauhan. Accordingly,

51

it is submitted that the judgment in Tarun Bharat Chauhan does not apply to the facts of the present case.

30. That the contents and averments made in paragraph V(J) are denied to the extent that the project in question poses serious health and environmental risks including air pollution and groundwater contamination. It is submitted that these allegations are merely based on speculations and remains unsupported by any scientific material on record. Each project's impacts and mitigation measures have been detailed, addressing air pollution, water pollution, noise and waste management practices. Mitigation strategies include advanced pollution control technologies, regular maintenance and comprehensive waste treatment processes, ensuring compliance with environmental standards and minimizing the cumulative impact on the environment and local communities. With respect to ambient air quality, it is submitted that the baseline levels of particulate matter in the NCT of Delhi are already elevated due to multiple regional and urban sources. The air dispersion and emission modelling carried out as part of the EIA demonstrates that the incremental contribution attributable to the proposed project is insignificant. Further, the installation of advanced air pollution control systems will ensure that stack emissions of particulate matter and gaseous pollutants remain well within the standards prescribed under the Solid Waste Management Rules, 2016. The predicted incremental concentrations of pollutants such as NO_2, SO_2 and CO during the operational phase are minimal, and detailed mitigation

measures for each of these pollutants have already been specified in the EIA Report as well as the preceding paragraphs. To further mitigate air pollution, the Project Proponent has proposed specific measures during both construction and operational phases. During the construction phase, dust and vehicular emissions shall be controlled through regular sprinkling of water, use of Pollution Under Control (PUC) certified vehicles, transportation of materials only through covered vehicles, and periodic maintenance of earth-moving machinery and construction vehicles. During the operational phase, a comprehensive Flue Gas Cleaning System (FGCS) shall be installed for control of particulate matter and gaseous emissions. In addition, effective odour management measures have been proposed, including fogging of fragrance solutions and spraying of bio-inoculum (EM culture), a consortium of beneficial microorganisms, to prevent odour nuisance from waste handling and storage areas.

With regard to the water environment, it is submitted that the potential impacts on water quality during both construction and operation have been duly assessed in the EIA Report. The study area has been classified into Safe, Semi-Critical and Over-Exploited zones, and in order to avoid any additional stress on groundwater resources, the Project Proponent has made a categorical commitment that no groundwater shall be extracted at any stage of the project. The project shall utilize STP-treated water from Delhi Jal Board and blowdown water from Pragati Power Corporation Limited for both

construction and operational requirements. All internal drains shall be properly lined and cemented to eliminate any risk of groundwater contamination. To prevent surface water contamination, mitigation measures have been proposed for both phases of the project. During the construction phase, excavation and levelling activities shall be undertaken during the non-monsoon season, storm water drains shall be constructed to channelize runoff into settling pits, construction waste shall be managed in a planned manner, and adequate sanitation facilities shall be provided for construction workers. During the operational phase, the project has been designed on a Zero Liquid Discharge (ZLD) basis, whereby all wastewater generated from various plant sections shall be collected in a common pit, adequately treated, and fully reused within the plant premises, with no discharge of effluent outside the site. The use of treated wastewater in lieu of freshwater further contributes to conservation of natural water resources.

The EIA Report also provides for an Environmental Monitoring Plan during the construction phase, including quarterly monitoring of groundwater and surface water at the project site, the Western Yamuna Canal and additional identified locations, along with a dedicated budgetary allocation.

31. That the contents and averments made in paragraph V(K) are baseless, misleading and hence denied. At the outset, it is denied

54

that precautionary principle in the present case needs to invoked for the following reasons:-

It is respectfully submitted that the proposed project is located at Bawana, which is a notified and designated industrial area developed by the competent authority and is not situated in close proximity to densely populated residential areas. Industrial areas such as Bawana are earmarked for activities involving waste processing and energy generation, which is subject to certain statutory safeguard.

It is submitted that certain reports, while they acknowledge the presence of potentially toxic pollutants from these plants, these studies do not reject WtE as a concept. On the contrary, they acknowledge that the release of pollutants and consequent health risks are contingent upon inadequate technology, poor waste segregation, and weak regulatory enforcement and are not inevitable outcomes of WtE projects. The studies expressly recognise the technological feasibility of effective pollution mitigation, noting that modern air pollution control systems are capable of achieving very high removal efficiencies for particulate matter, dioxins, NOx, VOCs, and heavy metals, and that emission levels can be maintained within prescribed limits with appropriate technology selection and operation. The criticisms in the study are context-specific, aimed at mass-burn incineration under conditions of poor segregation, high moisture content, and weak enforcement, and therefore do not justify

55

a blanket prohibition of WtE projects. Moreover, several reports show that WtE plants have been successfully implemented in several European countries under strict emission standards, maintaining pollutant levels within permissible limits without adverse public health impacts, which clearly indicates that the key challenge in governance and compliance and not in the technology itself. In light of the judgment of the Hon'ble Supreme Court in Pragnesh Shah, the precautionary principle requires preventive action where there is a credible risk of harm, but does not mandate rejection of projects where available scientific data shows that such risks can be effectively mitigated through regulatory controls, monitoring, and compliance mechanisms. Accordingly, a properly sited WtE project in a designated industrial area, equipped with modern pollution control technologies and subject to strict regulatory oversight, cannot be equated with an environmentally hazardous activity per se.

32. That the contents and averments made in Paragraph V(L)-(M) is misleading, baseless and hence denied. In compliance with the said requirement, the Project Proponent has carried out 'a detailed environmental sensitivity assessment within a 10 KM of the project site, the results of which can be seen in Table 11.2 of the EIA report. It is specifically recorded that no National Park, Wildlife Sanctuary, Biosphere Reserve or similar notified ecological sensitive area exists within a 10 km radius of the project site. The EIA Report clearly lists Ghoga RF, Bawana RF, Sultanpur RF, and Narela RF, along with

56

their respective distances and directions from the project site. This shows that there has been no suppression or concealment of information regarding reserve forests. Similarly, sensitive man-made receptors such as hospitals and educational institutions have been specifically identified, mapped, and disclosed. Without prejudice, it is submitted that the existence of nearby habitations, villages, and urban settlements has never been concealed. On the contrary, the EIA Report clearly acknowledges villages within a 5 km radius of the project site and provides detailed demographic data for the entire 10 km study area based on Census 2011, including population, number of villages, and census towns. The proximity of residential areas, social infrastructure, and land-use patterns has been transparently disclosed and properly assessed in the baseline, impact assessment, and mitigation sections of the EIA Report.

Further, allegations that the Project Proponent has provided misleading information in Form B by stating that the project will not have adverse effects on the well-being of the people who live nearby, on vulnerable groups and on the local communities is denied. it is submitted that disclosures made under Items 14 and 15 of the application have been made after due assessment in accordance with the EIA Notification and the requirements mandated under Terms of Reference. The proposed project is located within a duly notified industrial area, away from residential settlements, hospitals, schools and other sensitive receptors and has been designed with adequate buffers and mitigation measures so as not to adversely affect the

living conditions or wellbeing of people in the surrounding area, including vulnerable groups such as children and the elderly. It is further submitted that a comprehensive assessment of potential impacts arising from dust, emissions, odour and other pollutants has been undertaken in the EIA Report, supported by baseline studies, emission modelling and risk assessment. The predicted incremental contribution of the proposed project to ambient air quality and other environmental parameters has been found to be minimal and well within the prescribed regulatory limits, particularly in view of the installation of advanced pollution control systems and strict operational safeguards.

Further, assessment of cumulative impacts of other industries is a requirement under the Terms of Reference and the same has been complied by the Project Proponent. The EIA report has identified and assessed key existing and proposed projects within the prescribed 15 Km radius, including the existing 24 MW Waste-to-Energy plant operated by Delhi Municipal Solid Waste Solutions Limited (DMSWSL), which has sought expansion up to 60 MW, the Treatment, Storage and Disposal Facility (TSDF) operated by Tamil Nadu Waste Management Limited, and the gas-based power plant of Pragati Power Corporation Limited (PPCL). The proposed project has been evaluated in conjunction with the above facilities to understand the cumulative environmental load. The EIA Report contains a detailed Cumulative Environmental Impact Assessment, which examines combined impacts on air quality, water resources,

noise levels and waste management practices, and prescribes mitigation measures for each parameter. These include the deployment of advanced pollution control technologies, stringent operational controls, regular maintenance protocols and comprehensive waste treatment systems to ensure continued compliance with statutory environmental standards. It is shown that even when considered cumulatively with other industrial activities in the area, the environmental impacts attributable to the proposed project remain within permissible limits and do not pose any significant additional burden on the environment or local communities. Thus, the allegation with respect to suppression or misrepresentation is baseless.

Further, the Terms of Reference require the Project Proponent to disclose details of settlement in 10 Km area as well as conduct a study of the Cumulative Environmental Impact Assessement study of all existing and proposed projects within 15Km radius of the project, both of which has duly been complied with the Project Proponent.

33. That the contents and averments made in Paragraph V(N)-(O) are denied as being inapplicable to the present facts and circumstances. It is submitted that, as already elaborated in the preceding paragraphs, the Project Proponent has acted in a transparent manner and has duly disclosed all material information relating to the project, including the anticipated environmental impacts, proposed

mitigation measures, and the presence of existing and nearby facilities. There has been no concealment or misrepresentation of any relevant information at any stage of the project appraisal process.

34. That the contents and averments made in paragraph V(P)-(R) are misleading, baseless and denied. It is submitted that the baseline Ambient Air Quality and site-specific meteorological data have been collected and presented strictly in accordance with the approved Terms of Reference (ToRs), the EIA Notification, 2006 and the applicable CPCB guidelines. There is no regulatory requirement mandating that baseline air quality data must be collected only during a specific season, including the winter season. The requirement is to collect data for one complete season other than the monsoon, which has been duly complied with by conducting monitoring during the pre-monsoon season (March to May 2023), a recognised and accepted season for baseline environmental assessment. It is denied that the choice of the monitoring period was intended to understate existing pollution levels. The EIA Report transparently discloses the duration, locations and methodology of monitoring, and there has been no concealment or misrepresentation of facts. Seasonal variation in air quality is a known and acknowledged phenomenon, and baseline data for a representative non-monsoon season is the accepted regulatory norm for environmental impact assessment and subsequent impact prediction. Without prejudice, it is further submitted that the assessment of air

quality impacts is not confined to baseline monitoring alone. Detailed air dispersion modelling has been undertaken using conservative assumptions to assess the incremental contribution of the proposed project over and above the existing background concentrations. The modelling shows that the incremental increase attributable to the project is negligible and remains well within the National Ambient Air Quality Standards. It is further denied that the presence of existing industrial units has been ignored. The EIA Report expressly accounts for the existing 24 MW Waste-to-Energy plant, the Treatment Storage Disposal Facility (TSDF) and the Pragati Power Corporation Limited (PPCL) power station as part of the baseline and cumulative impact assessment. The cumulative pollution load has been assessed and adequate mitigation measures, including installation of advanced air pollution control systems and continuous emission monitoring, have been proposed to ensure strict regulatory compliance. The contention that baseline data collected during winter months alone would reveal a materially different or aggravated impact attributable to the proposed project is based merely on speculations.

35. That the contents and averments made in paragraph No. V(S)-(U) are baseless, misleading and hence denied. At the outset, it is submitted that the project site is located within a notified industrial area duly earmarked and developed by the Delhi State Industrial and Infrastructure Development Corporation (DSIIDC), where industrial activities and infrastructure projects are permissible as per the

applicable planning framework. With respect to the CPCB Guidelines dated 2019 on buffer zones around waste processing and disposal facilities, it is submitted that the said guidelines are advisory in nature and are required to be applied contextually, keeping in view site-specific conditions and surrounding land-use patterns. A detailed assessment of potential impacts on nearby populations has been undertaken, and appropriate mitigation measures have been proposed in the Environmental Management Plan to address air quality, noise, traffic, odour, and other environmental aspects. It is denied that the presence of residential areas in the vicinity has been concealed or ignored. The EIA Report acknowledges the existence of nearby housing areas, and the impact assessment has been carried out considering the overall environmental setting of the project area. It is further submitted that the sensitivity maps and tables in the EIA Report are illustrative in nature and intended to highlight major sensitive receptors. The absence of specific naming of every residential cluster does not render the EIA Report deficient, particularly when comprehensive baseline data and impact assessment have been undertaken. It is also submitted that the project has been appraised by the Expert Appraisal Committee and the competent authority, who, after examining the EIA Report and related documents, were satisfied that the siting of the project is environmentally acceptable and that adequate safeguards have been incorporated. The project further incorporates greenbelt development, pollution control systems, and

62

operational safeguards, which collectively ensure protection of surrounding areas.

36. That the contents and averments made in Paragraph V(V)-(W) are misleading, baseless and hence denied.

37. That the contents and averments made in Paragraph V(X) are misleading, baseless and hence denied. The EIA Study has been prepared in accordance with the approved Terms of Reference and recognised methodologies, and it takes into account existing and proposed projects within the prescribed study area. It is denied that the EIA merely lists impacts of individual projects. The Study identifies major existing projects in the area, including the operational 24 MW Waste-to-Energy plant, the TSDF, and the PPCL power station, and assesses their combined influence on key environmental components such as air quality, water resources, noise, and waste management, with reference to baseline conditions and incremental loads from the proposed project. It also considers sensitive man-made receptors and human habitations through a socio-economic lens and conducts a detailed impact assessment study on different stakeholders. It is further submitted that a cumulative impact assessment necessarily builds upon individual impact evaluations and integrates them to assess the overall environmental burden. The CIA is to be read along with the baseline data, modelling studies, and mitigation measures set out in the EIA/EMP Report, and does not operate in isolation.

63

38. That the contents and averments made in Paragraph V(Y)-(Z) are denied to the extent that the judgements relied upon by the Applicants are distinguishable from the present case. The Project Proponent has carried a comprehensive Cumulative Impact Assessment (CIA) in accordance with the approved Terms of Reference. The CIA Study explicitly considers the existing 24 MW WtE plant, the TSDF facility, the Pragati Power Corporation Limited, and other relevant projects within a 15 km radius, and evaluates their combined impacts on air quality, water resources, noise, and waste management. Appropriate mitigation measures have been proposed for both construction and operational phases.

39. That the contents and averments made in Paragraph V(AA) are baseless, misleading and hence denied. It is further submitted that the alleged expansion of the DMSWSL Waste to Energy Plant is itself only under consideration and has not received any statutory approval. In any event, any such expansion would be subject to an independent appraisal process in accordance with law. Cumulative impact assessment is intended to evaluate the combined effects of existing and reasonably foreseeable activities and does not require speculative assessment of unapproved or conceptual projects. It is submitted that the EIA Study, when read as a whole, clearly shows that cumulative impacts on air quality, noise, traffic, and other environmental parameters have been assessed and that appropriate mitigation measures have been proposed.

64

40. That the contents and averments made in Paragraph V(BB) and V(CC) are misleading, baseless and hence denied. Reliance placed on the Hon'ble Supreme Court's judgement in Hanuman Laxman Aroskar v. Union of India is misplaced and distinguishable from the present facts and circumstances. It is submitted that in the present case the recommendations of the EAC is based on proper and informed appraisal process carried in accordance with the EIA Notification 2006. The EAC has duly examined the EIA/EMP Report, the Cumulative Impact Assessment, the compliance with the approved Terms of Reference, and the mitigation measures proposed for all identified environmental components. The project proponent made detailed presentations before the EAC and furnished clarifications to specific queries raised by the Committee, which were duly considered before arriving at its recommendation. The EAC has actively applied its expert judgment, scrutinised the environmental baseline data, impact predictions, cumulative impact assessment and sector-specific mitigation measures, and thereafter recommended the project subject to appropriate safeguards and statutory compliances. The EAC's recommendation is thus neither mechanical nor unreasoned, but is based on material on record and expert evaluation. Similarly, the observations of this Hon'ble Tribunal in Samata v. Union of India support, rather than undermine, the present recommendation. The EAC has adopted a balanced approach by duly considering both environmental protection and sustainable development. The project has been recommended only

after ensuring the incorporation of advanced pollution control measures, a Zero Liquid Discharge system, continuous environmental monitoring, and compliance with all applicable regulatory standards. There is nothing on record to indicate that any relevant factor was ignored or that the decision was influenced by extraneous considerations. It is further submitted that the EAC is not required to reproduce the entire EIA analysis verbatim in its minutes. What is required is due consideration of relevant environmental aspects, which has been done in the present case.

41. That the contents and averments made in Paragraph V (DD) are misleading, baseless and hence denied. It is submitted that in its 46th meeting held on 04.09.2023, the EAC deferred consideration of the proposal while raising specific concerns relating to project capacity, proximity to existing waste-to-energy facilities and civil colonies, and diversion of a natural stream/nallah. Pursuant to which, the Project Proponent vide letter dated 17.10.2023 comprehensively addressed each of the concerns raised by the EAC. In compliance with the EAC's observations, the project capacity was substantially revised and reduced from ~~110~~ 50 MW to 30 MW. Further, the proposed diversion of the natural stream/nallah was categorically abandoned, and a revised project layout ensuring no alteration to the existing drainage pattern was submitted and duly considered. The revised proposal was also examined in light of the fact that the project site is located within a notified industrial area and has been specifically earmarked for a Solid Waste Management facility in the

Zonal Development Plan of Zone "P1", Narela, by the Delhi Development Authority. Additionally, alternative sites were analysed, and the Bawana site was found to be the most environmentally and techno-economically suitable owing to the availability of authorised land with the Municipal Corporation of Delhi, absence of ecologically sensitive areas, use of treated sewage without reliance on fresh water resources, and planned compliance with advanced pollution control measures. Upon appraisal of the revised submissions, updated project configuration, and compliance documents, the EAC, in its meeting dated 27.05.2025, was satisfied that the earlier concerns stood adequately resolved and accordingly recommended the grant of Environmental Clearance. Merely because the later minutes do not reproduce the earlier observations verbatim does not indicate non-application of mind.

42. That the contents and averments made in Paragraph V (EE) are misleading, baseless and hence denied. It is submitted that the EAC duly considered the project proposal, including its capacity and potential cumulative impacts, and thereafter recommended the project for grant of Environmental Clearance after being satisfied that the environmental impacts were acceptable and capable of being effectively mitigated. It is submitted that pursuant to the observations of the EAC, the Project Proponent revised the project capacity from 50 MW to 30 MW, thereby substantially reducing the scale of the project and its potential environmental footprint. The fact that the project was thereafter recommended by the EAC itself

demonstrates that the earlier concerns stood adequately addressed. It is further submitted that the Project Proponent has undertaken extensive study of cumulative impacts through scientific, technical, and socio-economic assessments. Based on such studies, the project incorporates advanced pollution control technologies and environmental safeguards, which are designed to counter and minimize cumulative impacts arising from existing industries and activities in the surrounding area. It is incorrect to suggest that the concerns recorded by the EAC in its meeting dated 04.09.2023 continue to subsist. Clearance was granted only after the Project Proponent comprehensively addressed such concerns to the satisfaction of the EAC. It is further submitted that the alleged expansion of the existing 24 MW Waste to Energy plant is itself only under consideration and has not received any statutory approval. In any event, any such expansion would be subject to an independent statutory appraisal. The Appellants' attempt to aggregate hypothetical capacities to allege environmental risk is speculative and misconceived. The environmental acceptability of the present 30 MW project has been independently assessed on its own merits as well as through cumulative impact analysis.

43. That the contents and averments made in Paragraph V(FF) are misconceived, baseless and hence denied. The observations of the EAC regarding proximity to habitations was made in the context of ensuring adequate safeguards and cannot be treated as an absolute prohibitions with respect to the location of the project. The project

site is located within a duly notified DSIIDC industrial area which has been specifically earmarked for Solid Waste Management facilities under the approved Zonal Development Plan of Zone "P-I", Narela. Pursuant to the observations of the EAC, the Project Proponent retained the same site but incorporated enhanced mitigation measures to address potential impacts on nearby habitations, including reduction in project capacity, increased green belt development, adoption of advanced air pollution control systems, provision of a 60-metre stack, Air Cooled Condenser technology, Zero Liquid Discharge design and continuous ambient air quality and emission monitoring. These measures were specifically appraised by the EAC before recommending the project. Further the Project Proponent is committed to the development of a greenbelt that will act as a pollution sink. This project also acts as a substitute to the landfill that existed here earlier, and by way of its mitigation factors will produce less emissions than the landfill.

44. That the contents and averments made in Paragraph V(GG) are misconceived, baseless and hence denied. Further, it is submitted that Project Proponent did not claim that the proposed project would "mitigate" existing pollution in isolation. Rather, it was explained that the proposed Waste-to-Energy plant would be equipped with state-of-the-art air pollution control systems, including flue gas cleaning systems, designed to ensure emissions well within the limits prescribed under the Solid Waste Management Rules, 2016 and CPCB norms. The EAC after considering these technical

submissions, was satisfied that the incremental contribution of the proposed project to ambient air pollution would be insignificant and adequately controlled. With regard to the issue of dioxins and furans, it is submitted that the Project Proponent clarified that non-combustible and non-permissible waste streams, including hard plastics not suitable for incineration, would be segregated and managed in accordance with applicable regulatory standards. This is consistent with modern waste management practices and the operational safeguards prescribed for Waste-to-Energy facilities.

45. That the contents and averments made in Paragraph V(HH) are baseless, misleading and hence denied. The concerns regarding the natural nallah passing through the project site and the proximity of the Western Yamuna Canal passing has fully been addressed in the EIA report as well as by the EAC by recommending the project. The proposed project has been planned on a Zero Liquid Discharge system wherein all wastewater from boiler blowdown, DM plant, floor washings, sewage, and leachate will be collected, treated in the Leachate Treatment Plant (LTP) and reused within the plant premises. No effluent is proposed to be discharged outside the site, ensuring that there is no cross-contamination of the nallah or the Western Yamuna Canal, which supplies water to large parts of Delhi. During the construction phase, proper stormwater management will be implemented with lined drains and settling pits to prevent silt or debris from entering the nallah. Further, the project proposes green belts and vegetative buffers around the site to act as

70

an additional barrier against dust and accidental spillages. The project will also utilize treated wastewater from DJB and blowdown water from PPCL, conserving freshwater resources while ensuring compliance with CPCB, SWM Rules 2016, and MoEF&CC standards. Independent environmental monitoring will be conducted to continuously verify surface and groundwater quality, ensuring transparency and regulatory compliance.

46. That the contents and averments made in Paragraph V(II) are baseless, misleading and hence denied. The Public Hearing was conducted on 27.12.2024 in compliance with the EIA Notification, 2006 (Para 7, Appendix IV) under the supervision of the Additional District Magistrate, North Delhi. All arrangements for safety, videography, seating, and logistics were provided. While inclement weather occurred, the EIA Notification does not mandate rescheduling. Participants were given full opportunity to raise concerns and submit representations, and written submissions from 680 persons were duly considered and addressed by the project proponent.

47. That the contents and averments made in Paragraph V(JJ)-(KK) are baseless, misleading and hence denied. It is respectfully submitted that the EAC did undertake scrutiny of the public hearing outcome. The Minutes of the meeting dated 27.05.2025 explicitly note that the EAC viewed the videography of the public hearing, deliberated on the issues raised both during the hearing and in the written

representations, and examined the action plan proposed by the project proponent. The EAC's recommendation to implement the public hearing action plan in a time-bound manner reflects its due consideration of all concerns raised. The action plan itself (EIA/EMP Report, Chapter 7, Table 7.1(a), Annexure XVIII) addresses a wide range of issues including air pollution, health, employment, waste handling, sanitation, greenbelt development, drinking water, and skill development. The fact that the Minutes contain a concise summary does not imply that the EAC did not apply its mind but has merely summarised the deliberations while relying on detailed record and proponent's response for the assessment.

48. That the contents and averments made in Paragraph V(LL) are baseless, misleading and hence denied. It is respectfully submitted that the public hearing was conducted in accordance with the provisions of the EIA Notification, 2006. While there was heavy rainfall on the day of the hearing, the Additional District Magistrate and DPCC ensured that the venue remained open and the hearing was conducted from 11:00 AM to 3:00 PM, in compliance with statutory requirements. Public notices were widely issued in advance in both English and Hindi newspapers, and the Draft EIA/EMP Report was made available to all concerned Departments, Authorities, and the public for inspection well before the hearing. Additionally, the project proponent responded to all queries raised during the hearing and also addressed written representations

received prior to and during the hearing. The videography of the hearing, detailed responses, and the action plan submitted by the project proponent ensure that all public concerns, including those of villagers unable to attend due to rain, have been formally recorded and considered. Further, it is submitted that recommendation of a project is the responsibility of the EAC, based on detailed appraisal of all available records, including the Draft and Final EIA/EMP Reports, outcomes of public consultation, and clarifications provided by the project proponent, along with proposed mitigation measures. The EAC applied its mind to all concerns raised, and its acceptance or rejection of specific clarifications or action plans does not in any manner imply that the villagers' representations were not considered, especially when recommending the project, the project proponent was subjected to strict conditions which it was bound to follow while executing the project.

49. That the contents and averments made in Paragraph V(MM)-(NN) are baseless, misleading and hence denied. For the sake of brevity, it is reiterated that the EAC carefully considered the Final EIA/EMP Report, the public hearing videography, all written representations, and the project proponent's action plan. The one-page summary in the minutes does not capture the full scrutiny undertaken. The EAC reviewed the proposed mitigation measures and responses to public concerns in detail before recommending the project. Acceptance or rejection of the action plan does not mean the representations of the villagers were ignored. In fact the plan was created after

consideration of the concerns of all representatives and aims to improve the Project further to address these anxieties.

50. That the contents and averments made in Paragraph VV(OO) are baseless, misleading and hence denied. It is submitted that the EAC was fully aware of the surrounding land-use and the presence of nearby habitations and examined the same during appraisal. The EIA Report, along with baseline studies and site-specific information, was placed before the EAC, and no material deficiency warranting resubmission was found. It is denied that any information regarding nearby habitations was concealed. Merely because certain residential clusters are not individually marked in a particular table or figure does not imply suppression of facts, especially when the overall land-use pattern and surrounding features have been disclosed and assessed. The EAC, after considering the objections raised during public hearing and the material on record, was satisfied that adequate assessment had been undertaken and that appropriate mitigation measures were proposed.

51. That the contents and averments made in Paragraph V(QQ) are baseless, misleading and hence denied. To avoid repetition, it is submitted that the project proponent in compliance with the Terms of Reference has undertaken as Cumulative Environmental Impact Assessment (CIA) covering existing and proposed projects within the prescribed study area. The CIA Study identifies and assesses key existing and proposed projects that have the potential to contribute

to cumulative impacts, including major industrial and infrastructure facilities in the vicinity. The assessment evaluates cumulative impacts across relevant environmental components such as air quality, water resources, noise, and waste management, along with corresponding mitigation measures. The EAC examined the CIA Study as part of its appraisal of the Final EIA/EMP Report, sought clarifications wherever required and was satisfied that the study met the requirements of the ToR and established EIA methodology. Merely because the EIA focuses on significant contributors rather than listing every minor unit does not render it incomplete or unscientific. The EAC's acceptance of the CIA Study reflects its expert judgment that the cumulative impacts were adequately assessed and mitigated.

52. That the contents and averments made in Paragraph V(RR) are baseless, misleading and hence denied. The Terms of Reference issued by the competent authority require submission of ambient air quality and meteorological data for one complete season and there is no mandatory requirement under the EIA Notification, 2006 or the ToRs to generate baseline air quality data specifically for the winter season. In compliance with the ToRs, the project proponent generated site-specific ambient air quality data for the March-May 2023 season through a NABL/MoEF&CC-accredited laboratory, in accordance with CPCB guidelines, and the same was duly disclosed in the EIA Report. The EAC examined the baseline air quality data, the air dispersion modelling, and the proposed pollution control

measures, including advanced emission control systems and continuous ambient air quality monitoring. The EAC's acceptance of the baseline data reflects its expert view that the data was sufficient for proper impact assessment. The claim that Waste-to-Energy projects are inherently "highly polluting" is incorrect and overlooks the strict regulatory framework applicable to such projects, including stringent emission norms and continuous monitoring requirements. The EAC examined the suitability of the project location, the cumulative pollution load and the proposed mitigation measures and sought clarifications wherever necessary. The fact that additional winter-season data was not required does not indicate any lapse or non-application of mind considering the fact thar the harsher summer conditions were considered especially when all statutory requirements were complied with.

53. That the contents and averments made in Paragraph V(SS)-(TT) are baseless, misleading and hence denied. With respect to the CPCB Guidelines dated 2019 on buffer zones, it is submitted that the said guidelines are advisory in nature and are required to be applied contextually, having regard to site-specific conditions. There has been no uniform buffer distance of 500 metres in all cases, particularly for Waste-to-Energy facilities located within notified industrial areas earmarked for solid waste management infrastructure. The project site is situated within a DSIIDC industrial area duly designated for such facilities under the approved planning framework. It is further submitted that the EAC did consider the

proximity of habitations, cumulative pollution load and the adequacy of mitigation measures, including advanced air pollution control systems, continuous emission monitoring, prescribed stack height, green belt development and compliance with ambient air quality standards. The absence of an express reference to the 2019 CPCB Guidelines or a specific ToR on buffer zones in the meeting minutes does not amount to non-consideration of statutory requirements, particularly when the overall environmental safeguards and siting considerations were duly appraised.

54. That the contents and averments made in Paragraph V (UU) are baseless, misleading and hence denied. It is submitted that before undertaking the project, three alternative sites were evaluated to identify the most environmentally and techno-economically suitable location for the proposed Waste-to-Energy project. Upon comparative assessment, the Bawana site was found to be the most suitable due to the availability of adequate authorized land with the Municipal Corporation of Delhi within the DSIIDC industrial area, proximity to a treated water source from PPCL, thereby eliminating the need for withdrawal of fresh water for industrial use (except for drinking purposes), and the absence of any ecologically sensitive areas in the vicinity. The EAC was satisfied that, with the prescribed safeguards, the proposed project would operate within the applicable National Ambient Air Quality Standards and would not aggravate the existing pollution levels in the area. Thus, the allegation that this proposed project will significantly aggravate the existing pollution

77

is based on speculations and remains unsupported by any scientific studies.

55. That the contents and averments made in Paragraph V (VV) are baseless, misleading and hence denied. It is submitted that the Ambient Air Quality monitoring data for eight locations, as set out in the EIA Report was generated in accordance with CPCB-prescribed methodologies and forms part of the baseline environmental scenario of the study area. The recorded exceedances of PM_{10} and $PM_{2.5}$ levels reflect the prevailing regional and urban air quality conditions in and around Bawana and adjoining areas and are not attributable to the proposed project, which was not operational during the monitoring period. The purpose of baseline monitoring under the EIA framework is to capture existing environmental conditions so as to enable assessment of incremental impacts of the proposed activity and to design appropriate mitigation measures. The EAC considered this baseline data in conjunction with dispersion modelling, cumulative impact assessment and the proposed pollution control measures. The assessment focused on whether the incremental contribution of the proposed 30 MW Waste-to-Energy project, over and above the existing background concentrations, would remain within the permissible limits prescribed under the National Ambient Air Quality Standards. It is further submitted that exceedance of baseline ambient air quality standards does not, per se, constitute a statutory bar on grant of environmental clearance under the EIA Notification, 2006. On the

contrary, such baseline conditions mandate stringent safeguards, which were duly incorporated, including advanced air pollution control systems, compliance with Waste-to-Energy emission norms, continuous emission and ambient air quality monitoring, and regulatory oversight by statutory authorities.

56. That the contents and averments made in Paragraph V (WW)-(XX) are baseless, misleading and hence denied. It is submitted that there is no statutory requirement under the EIA Notification, 2006 mandating a carrying capacity study for every project proposed in an industrial area. Such studies are required only when specifically directed by the regulatory authority or where projects are proposed in ecologically sensitive or legally restricted areas. In the present case, the project site is located within a notified industrial area designated for solid waste management facilities. The EAC considered the existing industrial activities, population within the study area, and cumulative environmental impacts through the approved EIA and CIA studies. Baseline environmental data and impact predictions were examined to assess whether the incremental pollution load from the proposed project would remain within permissible limits. The mere presence of other industries or a large population in the vicinity does not automatically necessitate a separate carrying capacity study. The EAC was satisfied that with the proposed mitigation measures and regulatory safeguards, the area could sustain the proposed 30 MW Waste-to-Energy project.

57. That the contents and averments made in Paragraph V (YY)-(EEE) are baseless, misleading and hence denied. For the sake of brevity, it is submitted that the public hearing conducted on 27.12.2024 was carried out in substantial compliance with the procedure prescribed under the EIA Notification, 2006 and Appendix IV thereto. The mere existence of logistical difficulties or adverse weather conditions on the date of the public hearing does not, by itself, vitiate the legality or validity of the public consultation process, particularly when the statutory requirements were duly followed. The public hearing was duly notified in advance in accordance with the EIA Notification, and the venue, date and time were fixed and publicised as per the prescribed procedure. The hearing was conducted by the competent authority, and attendance of the persons present at the venue was duly recorded. A presentation on the project and the Executive Summary of the EIA Report was made on behalf of the project proponent, and members of the public who were present were afforded an opportunity to raise questions, seek clarifications and place their objections on record. It is denied that the public hearing was conducted in a manner intended to curtail participation or exclude public views. The EIA Notification does not mandate postponement or cancellation of a public hearing merely because some members of the public were unable to attend due to external factors such as inclement weather. The requirement under law is to provide a reasonable opportunity for participation, which was duly complied with. There is also no provision under the EIA Notification that mandates adjournment of a public hearing upon

oral demands made during the proceedings. With regard to the alleged change of venue, it is submitted that the hearing was conducted at the notified venue under the supervision of the authorities concerned. Any confusion or inconvenience alleged by the applicants does not establish a procedural illegality, particularly when the hearing was actually held, attended by several participants, and formally concluded in accordance with Appendix IV. It is further denied that written representations were refused or ignored. The EIA Notification expressly contemplates two components of public consultation, namely: (a) the public hearing, and (b) receipt of written responses from concerned persons having a plausible stake. The opportunity to submit written objections was available independently of physical participation in the hearing, and all representations received within the stipulated time were forwarded to the regulatory authority for consideration. The allegation that the proceedings were abruptly terminated or that the summary of proceedings was not read out in its entirety is misconceived. The minutes of the public hearing were prepared by the competent authority and form part of the official record. There is a statutory presumption of regularity attached to official acts, and vague allegations regarding audibility or dissatisfaction with the conduct of proceedings cannot be a ground to invalidate the public consultation process. It is further submitted that the concerns raised during the public hearing were duly forwarded to the Expert Appraisal Committee and examined during the appraisal process. The project proponent addressed the material issues raised through

clarifications, mitigation measures and safeguards, which were taken into account by the EAC while recommending the project for environmental clearance. The EAC, as an expert body, is not bound to accept every objection raised during the public hearing, but is required to consider them, which was duly done. The reliance placed on the judgments in Hanuman Laxman Aroskar v. Union of India, Samarth Trust v. Union of India, and T. Mohana Rao v. MoEF is misplaced. There is no dispute regarding the importance of public consultation as a component of participatory democracy. However, these judgments do not lay down that every alleged imperfection or inconvenience in the conduct of a public hearing would automatically vitiate the environmental clearance. What is required is substantial compliance with the procedure and meaningful consideration of public concerns, both of which are satisfied in the present case. In the absence of any material evidence demonstrating that the public hearing was conducted in violation of mandatory statutory provisions or that material objections were suppressed or ignored, the public consultation process cannot be seen as a mere formality or rendered invalid. Thus, the environmental clearance process remains valid and in conformity with the EIA Notification, 2006.

58. That the contents and averments made in Paragraph V (FFF) are baseless, misleading and hence denied. Waste-to-Energy is a well-established technology recognized worldwide for its ability to safely process large quantities of municipal solid waste. Several studies

82

have confirmed that, when operated with appropriate safeguards, the technology is not inherently harmful. Delhi faces a serious waste management challenge, and the proposed project will help process 3,000 TPD of MSW, reducing dependence on landfills and associated environmental risks. The project incorporates strict regulatory compliance, advanced pollution control technologies, and real-time monitoring to ensure that emissions remain within prescribed standards, thereby protecting public health and the surrounding environment.

59. That the contents and averments made in Paragraph V (GGG) are baseless, misleading and hence denied. It is submitted that the affidavit filed by CPCB in O.A. No. 536/2024 pertains to a general, nation-wide assessment of operational Waste-to-Energy plants and their compliance status and does not relate to or evaluate the present project. It is further submitted that any instances of non-compliance, if observed in respect of certain existing Waste-to-Energy plants, cannot be mechanically extrapolated to the present project, which has been independently appraised and granted Environmental Clearance after due consideration of its specific design, technology, pollution control systems, and proposed safeguards. It is submitted that the present project incorporates advanced air pollution control devices, continuous emission monitoring systems, and strict operational safeguards, all of which are mandated as conditions of the Environmental Clearance. The project is required to comply with the emission standards prescribed under the Solid Waste

Management Rules, 2016 and other applicable norms, and is subject to regular monitoring by statutory authorities. It is further submitted that the CPCB report itself recognizes that Waste-to-Energy plants are capable of complying with stipulated norms provided adequate operation, maintenance, and pollution control measures are in place. The present project has been designed precisely on this basis.

60. That the contents and averments made in Paragraph V (HHH) are baseless, misleading and hence denied. It is submitted that the reliance placed by the Appellants on any investment decision taken by a third-party financial institution in relation to unrelated projects is misplaced and has no relevance to the present project. It is further submitted that the International Finance Corporation has also supported and financed Waste-to-Energy projects in several parts of Europe. In any event, investment decisions taken by financial institutions in respect of independent projects do not determine the legality, environmental compliance, or grant of Environmental Clearance for the present project under the applicable laws in India.

61. That the contents and averments made in Paragraph V (III) are baseless, misleading and hence denied. The proposed 30 MW Waste-to-Energy project is located in a designated industrial area, not within residential neighborhoods. The site was selected after evaluating multiple alternate locations, and the Bawana site was found most suitable in terms of land availability, water source, and absence of ecologically sensitive areas. The project design ensures

that emissions and effluents remain within prescribed limits, protecting nearby communities.

62. That the contents and averments made in Paragraph V (JJJ) are baseless, misleading and hence denied. Waste-to-Energy technology is well-established and recognized globally as a safe method for processing large quantities of municipal solid waste. Several scientific studies confirm that, with proper safeguards, the technology does not pose inherent health hazards. The project incorporates advanced pollution control measures, continuous environmental monitoring, and compliance with all regulatory standards to minimize any risk to human health.

63. That the contents and averments made in Paragraph V (KKK) are baseless, misleading and hence denied. The judgment cited pertains to projects located within residential areas. In contrast, the present project is in an industrial zone earmarked for solid waste processing. The comparison is therefore not applicable. The project has been appraised by the EAC considering human habitation in the vicinity, and appropriate safeguards have been incorporated.

64. That the contents and averments made in Paragraph V (LLL) are baseless, misleading and hence denied. The project incorporates necessary buffer measures, advanced pollution control, and continuous monitoring to mitigate any potential environmental impact. The precautionary principle has been duly addressed through the project's design and regulatory compliance. There is no

evidence that the project will cause irreversible harm to the environment or public health.

65. That the contents and averments made in Paragraph 36 are baseless, misleading and hence denied. At the outset, it is submitted that the present Appeal is barred by limitation and is liable to be dismissed on this ground alone. Under Section 16 of the National Green Tribunal Act, 2010, an appeal against the grant of Environmental Clearance is required to be filed within 30 days from the date of its communication. The proviso to Section 16 empowers this Hon'ble Tribunal to condone delay only up to a further period of 60 days, and that too upon the appellant demonstrating "sufficient cause" for not approaching the Tribunal within the initial limitation period. Thus, the maximum permissible period for filing an appeal is 90 days from the date of communication of the Environmental Clearance, beyond which this Hon'ble Tribunal has no jurisdiction to entertain the appeal. In the present case, the Environmental Clearance was granted and uploaded on the Parivesh Portal on 18.06.2025, which constitutes valid communication in law. Accordingly, the statutory period of 30 days expired on 17.07.2025. The Appeal has admittedly been filed only on 10.09.2025, i.e. after a lapse of 85 days from the date of communication, resulting in a delay of 55 days beyond the initial limitation period of 30 days. The burden squarely lies on the Appellants to establish "sufficient cause" for the entire period of delay by furnishing a cogent and satisfactory explanation, preferably on a day-to-day basis. Even assuming, without admitting, the

Appellants' contention that they acquired knowledge of the Environmental Clearance on 04.07.2025, the appeal ought to have been filed by 03.08.2025. However, the Appeal was actually filed only on 10.09.2025, resulting in an unexplained delay of at least 38 days even on the Appellants' own showing. No satisfactory or day-to-day explanation has been furnished for this period. The plea of lack of knowledge in any event does not hold. The Appellants were actively participating in and closely monitoring the Environmental Clearance process, as is evident from their own representations dated 15.12.2024, 27.12.2024, 03.01.2025, 27.01.2025 and 28.04.2025. Having been fully aware of the proceedings, the Appellants cannot now feign ignorance of the grant of Environmental Clearance. The present plea is clearly an afterthought, raised only to overcome the bar of limitation. In view of the above, the application for condonation of delay is devoid of merit and liable to be rejected.

66. **Reply to Main Prayer:** That the prayer sought by the Appellants for setting aside the Environmental Clearance is misconceived, baseless is therefore denied. It is submitted that the Environmental Clearance has been granted by the competent authority only after due appraisal, detailed scrutiny, and compliance with the statutory procedure prescribed under the applicable environmental laws, including the EIA Notification, 2006. The Appellants have failed to establish any illegality, procedural irregularity, material

87

suppression, or violation of any statutory provision so as to warrant interference by this Hon'ble Tribunal.

67. **Reply to interim prayer:** That the prayer seeking grant of interim relief or stay of the impugned Environmental Clearance is wholly misconceived and is therefore denied. It is submitted that the Appellants have failed to establish any prima facie case, balance of convenience, or irreparable injury so as to warrant grant of any ad-interim or interim relief by this Hon'ble Tribunal. It is further submitted that project-related operations have commenced at the project site as on date, and therefore, the apprehensions sought to be raised by the Appellants are purely premature, speculative, and based entirely on conjectures and assumptions. The Appellants have failed to place any material on record to demonstrate any immediate environmental harm or urgency warranting interference at this stage. Accordingly, the prayer for interim relief or stay deserves to be rejected.

Jindal Urban Waste Management (Bawana) Ltd.

PETITIONER

THROUGH

UNUC Legal LLP
Advocate for the Petitioner
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New Delhi – 110049
Mob.: 9810881396
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NEW DELHI
DATE: 20 .05.2026

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

APPEAL NO. 62 OF 2025

IN THE MATTER OF:

Rajpal Saini & Anr ...Applicants

Versus

Union of India & Ors. ...Respondents

AFFIDAVIT

I, Ramesh Chandra, S/o Late Shri Shiv Dutt Naudiyal, aged about 56 years, being the Authorized Representative of Respondent No. 3 Company, having its corporate office at Jindal ITF Centre, 28, Shivaji Marg, Moti Nagar, New Delhi – 110015, do hereby solemnly affirm and state as under:

1. That I am the duly Authorized Representative of Respondent No. 3 and am duly authorized to file the present Reply on behalf of Respondent No. 3. In such capacity, I am well acquainted with the facts and circumstances of the present case and am competent and authorized to swear this Affidavit.

2. That the accompanying Reply has been prepared under my instructions. I have read and understood the contents thereof, and the facts stated therein are true and correct to my knowledge, derived from the records maintained by Respondent No. 3, and based on information believed by me to be true.

BOOK NO. 02
PAGE NO. 43
SERIAL NO. 208/26

NOTARY BALJIT SINGH AREA DELHI REGD. NO. 10916 EXP. DT. 13/06/20 GOVT. OF INDIA

Jindal Urban Waste Management (Bangalore) Ltd.

3. That the annexures and documents filed along with the accompanying Reply are true and correct copies of their respective originals.

Jindal Urban Waste Management (Bawana) Ltd.

DEPONENT

VERIFICATION

Verified at New Delhi on this 20 MAY 2026 that the contents of the above Affidavit are true and correct to my knowledge and belief, based on the records of the company. No part of this Affidavit is false and nothing material has been concealed therefrom.

Jindal Urban Waste Management (Bawana) Ltd.

DEPONENT

NOTARY BALJIT SINGH AREA-DELHI REGD. NO. 10615 EXP. DT. 03/06/29 GOVT. OF INDIA

ATTESTED
BALJIT SINGH
NOTARY DELHI-R-10615
Govt. of India
NEW DELHI
20 MAY 2026

My Commission will expiry on 03-06-2029

Solemnly Affirmed Sworn Before me

Singh

Notary Public New Delhi India

2025 INSC 2

REPORTABLE

IN THE SUPREME COURT OF INDIA

CIVIL APPELLATE JURISDICTION

CIVIL APPEAL NOS. 7463-7464 OF 2023

MUNICIPAL CORPORATION OF DELHI ...APPELLANT(S)

VERSUS

GAGAN NARANG & ORS. ETC. ...RESPONDENT(S)

J U D G M E N T

B.R. GAVAI, J.

1. The present appeals filed under Section 125 of the Electricity Act, 2003[1] arise out of the Impugned common final judgment and order of the Appellate Tribunal for Electricity at New Delhi[2] dated 31st August 2023 passed in DFR No. 245 of 2023 and DFR No. 247 of 2023 which were both filed by the Respondent No. 1 herein- Mr. Gagan Narang. The APTEL

[1] 'The Act' hereinafter
[2] 'APTEL' hereinafter

disposed of the appeals and set aside the orders of the Delhi Electricity Regulatory Commission[3] dated 6th and 7th March 2023. Vide the order dated 6th March 2023 the DERC had dismissed the petition filed by Waste to Energy Research & Technology Council[4] challenging the authority of the Appellant herein - Municipal Corporation of Delhi[5], to issue the tariff-based bid and Request for Proposal[6] for setting up the Waste to Energy[7] project at Narela Bawana, Delhi. Vide order of 7th March 2023, the DERC had approved the bid tariff of Rs. 7.38/KWh for the project and had directed the Distribution Licensee to negotiate the terms of the Power Purchase Agreement[8] with the Appellant-MCD.

2. Shorn of details, the facts leading to the present appeals are:

2.1 The Appellant-MCD organized a meeting with the Distribution Licensees in Delhi and other stakeholders on 14th May 2022. It was agreed that a tariff-based bidding model may be adopted and the details about the same, including the volume

[3] 'DERC' hereinafter
[4] 'WTERT' hereinafter
[5] 'Appellant-MCD' hereinafter
[6] 'RfP' hereinafter
[7] 'WTE' hereinafter
[8] 'PPA' hereinafter

of waste, total power generation, and other considerations for the proposed project were decided. It was further decided that the sale of power be distributed amongst the Distribution Licensees as per their 'Renewable Purchase Obligation'. The Appellant was authorized to conduct the bidding process as per the regulations and requirements of Section 63 of the Act for the proposed WTE project. The same was put in writing and was detailed in the Minutes of Meeting dated 30th May 2022.

2.2 The Appellant-MCD, issued the Notice Inviting Tender[9] and the RfP dated 15th July 2022 whereby the tariff-based bids for procurement of power under WTE project for Solid WTE Processing Facility with a minimum 28 MW capacity in Narela Bawana, New Delhi, for 3000 (+/- 20%) TPD of MSW[10] were invited. The documents for the same were sent to the DERC for its consideration.

2.3 The DERC, vide letter dated 24th August 2022 directed the Appellant-MCD to file a petition for approval of PPA, RfP, etc. The letter also contained the details of the petitions filed by South Delhi Municipal Corporation and the East Delhi Waste

[9] 'NIT' hereinafter
[10] 'Project' hereinafter

Processing Co. Ltd. seeking similar approvals, which were granted by the DERC through separate orders. An evaluation committee was also constituted for the evaluation of bids and other related issues. The Appellant-MCD issued a notice that the bidding process dated 15th July 2022 were closed and a new NIT was issued on 21st October 2022 with identical terms as the earlier NIT.

2.4 The WTERT filed a Petition No. 65 of 2022 before the DERC *inter alia* challenging the authority of the Appellant-MCD for issuing the tariff-based bid and the RfP in setting up the Project. During the pendency of this petition, the bidding process was undertaken, and on 14th November 2022, bids were received from M/s JITF Urban Infrastructure Ltd. and M/s JBM Renewables Pvt. Ltd. A meeting of the Evaluation committee was held, and the documents submitted by the bidders keeping in mind the requirement of the RfP document were discussed, and on recommendation of the committee, the bids of both the bidders were declared to be technically qualified and their bids were allowed to be opened. The Regional Centre for Urban &

Environmental Studies[11] calculated the levelized tariff based on the RfP and the same was communicated and calculated as:

Name of the Bidder	**Levelized Tariff (Rs/KWh)**
M/s JITF Urban Infrastructure Limited	7.380
M/s JBM Renewable Pvt. Limited	9.909

2.5 The Financial Bids were evaluated by the Evaluation Committee and its recommendation report dated 26th November 2022 was issued. It was stated in the report that in accordance with the terms of the RfP, the "Lowest Bidder" for a project was to be the qualified bidder and the lowest evaluated levelized tariff shall be the selected bidder for the Project. M/s JITF Urban Infrastructure Limited was selected to be the lowest bidder with a levelized tariff bid of Rs. 7.380/KWh. It was further mentioned that a meeting of the Evaluation Committee was held on 6th October 2022 for the consideration of the Financial Model for price bid evaluation prepared by RCUES. The representative of RCUES presented the financial model and after deliberation, the committee reached a consensus on the key assumptions taken

[11] 'RCUES' hereinafter

and had arrived at a levelized tariff of Rs. 6.73/KWh. Since, there existed a difference between the tariff according to the financial model and the tariff by the lowest bidder, a justification/calculation for arriving at the quoted bid was requested from M/s JITF Urban Infrastructure Limited, and the same was considered by the committee. It was further mentioned, that after detailed deliberations, the committee was of the opinion that the bids had been received through a competitive bidding process and the lowest bid of Rs. 7.380/KWh was arrived at, through a competitive and transparent bidding process. It was further mentioned that the Appellant-MCD herein has no benefit or loss accruing out of this as the power is to be procured by the Distribution Companies in accordance with the approval of tariff by DERC. The report was then forwarded to the DERC as the final approval was to be given by it.

2.6 Pursuant to the same, the Appellant-MCD filed a Petition No. 72 of 2022 before the DERC for the approval of the bidding process of the Project.

2.7 The DERC, vide order dated 6th March 2023, dismissed the Petition No. 65 filed by WTERT and *inter alia* held that the

Appellant-MCD is mandated under the Solid Waste Management Rules, 2016[12] to construct, operate, and maintain the solid waste processing facilities. Vide order dated 7th March 2023, the DERC in Petition No. 72 filed by the Appellant-MCD herein, approved the bid tariff of Rs. 7.38/KWh for the project and directed the Distribution Licensee to negotiate terms of the PPA with the Appellant-MCD and place a signed copy of the PPA before the DERC within three months.

2.8 Aggrieved, two separate appeals were filed by the Respondent No. 1 herein bearing DFR Nos. 245 of 2023 and 247 of 2023 against the orders dated 7th March 2023 and 6th March 2023 respectively.

2.9 The APTEL, vide the Impugned common final judgment and order dated 31st August 2023 disposed of the appeals and set aside both the orders dated 6th and 7th March 2023 passed by the DERC on the ground that the DERC lacked jurisdiction to entertain and adjudicate upon a petition filed by the Appellant-MCD herein.

2.10 Aggrieved, the present appeals are filed under Section 125 of the Electricity Act, 2003.

[12] 'SWM Rule 2016' hereinafter

3. We have heard Mr. Ramji Srinivasan, learned Senior Counsel appearing for the Appellant and Mr. Basava Prabhu Patil, learned Senior Counsel appearing for the Respondent No.1, Mr. Krishna M. Singh, Ms. Ishita Jain, Mr. Buddy Ranganathan, Mr. Suresh Chandra Tripathi, learned counsel appearing for Respondent Nos. 2, 3, 4 & 5, and 9 respectively and Mr. Pukhrambam Ramesh Kumar, learned counsel for the applicant.

4. Mr. Ramji Srinivasan, learned Senior Counsel appearing for the Appellant submits that the APTEL has grossly erred in restricting the applicability of Sections 63 and 86(1)(b) of the Act only to the distribution licensee[13] or generating company insofar as the filing of application for adoption of tariff is concerned. He submits that the provisions of Section 86(1)(b) of the Act would reveal that a wide power is bestowed upon the State Commission to regulate electricity purchase and procurement process of Discoms including the price at which electricity shall be procured from the generating companies or licensees or from other sources.

[13] 'Discoms' hereinafter

5. Learned Senior Counsel further submits that the Appellant-MCD, which is a statutory body under the Delhi Municipal Corporation Act, has been put under statutory obligation under Rule 15(v)(b) of the SWM Rules 2016 to proceed for setting up of the WTE projects. It is submitted that this statutory duty has also been recognized by this Court in the case of ***Pune Municipal Corporation v. Sus Road Baner Vikas Manch and others***[14].

6. The learned Senior Counsel further submits that Rule 6.4(1)(ii) and (2) of the National Tariff Policy 2016 mandates Discoms to procure 100% of the power produced from all WTE plants either through Section 62 (normative tariff process) or through Section 63 (competitive based mechanism).

7. It is further submitted that Section 175 of the Act itself provides that the provisions of the Act are in addition to and not in derogation of any other law for the time being in force. It is, therefore, submitted that the mandate for setting up the WTE project by MCD has to be read in consonance with the provisions of the Environment (Protection) Act, 1986 and the Rules framed thereunder.

[14] (2024) 9 SCC 1

8. It is submitted that for WTE projects, no guidelines have been framed by the Central Government for conducting the bidding and accordingly the DERC has exercised its powers to regulate under Section 86(1)(b) of the Act to approve the bidding process and adopt the tariff. It is submitted that this is in tune with the judgment of this Court in the case of ***Energy Watchdog v. Central Electricity Regulatory Commission and others***[15], wherein this Court has held that in a situation when there are no guidelines, then the general regulatory powers under Section 79(1)(b) can be exercised by the Commission. It is, therefore, submitted that by the same analogy the State Commission can exercise such powers in view of Section 86(1)(b) of the Act.

9. The learned Senior Counsel submits that the APTEL has failed to take into consideration the larger issue of public interest. It is submitted that WTE project was necessary for processing the unprocessed municipal solid waste which is increasing day by day.

10. It is further submitted that the DERC vide its order dated 6th March 2023 had held that the Appellant-MCD under Rule

[15] (2017) 14 SCC 80

15(v) of the SWM Rules 2016 was performing its statutory functions to conduct the bidding process for the Project and that there is no bar in the National Tariff Policy that WTE project cannot be set up under Section 63 of the Act. It is submitted that on an earlier occasion also the DERC has approved the bidding process with regard to Tehkhand WTE at Okhla which is under operation and supplying electricity to all Delhi Discoms.

11. Mr. Basava Prabhu Patil, learned Senior Counsel appearing for the Respondent No.1, on the contrary, submits that the APTEL has rightly held that the Appellant-MCD was not entitled to make an application for adoption of tariff under Section 63 of the Act. It is submitted that the APTEL rightly held that it is only the Discoms or generating companies who are entitled to invoke the provisions of Section 63 of the Act. The learned Senior Counsel submits that in view of Rule 6.4(2) of the National Tariff Policy, 2016, it is exclusively for the Ministry of Power to provide a mechanism for adoption of tariff for WTE projects. It is, therefore, submitted that the DERC has no jurisdiction to entertain the application filed by the present Appellant-MCD. He, therefore, prays for the dismissal

of the present appeals.

12. The limited question that falls for consideration in the present appeals is that, whether the application under Section 63 of the Act could have been made by the present Appellant-MCD which is a "local authority" within the meaning of Section 2(41) of the Act.

13. For appreciating the rival controversy, it will be necessary to consider the nature of the Project which the Appellant-MCD was implementing. For the said purpose, it will be relevant to refer to clauses (q) and (v) of Rule 15 of the SWM Rules 2016, which read thus:

> "**15.** ***Duties and responsibilities of local authorities and village panchayats of census towns and urban agglomerations***.—The local authorities and Panchayats shall—
> ***
> (*q*) transport segregated bio-degradable waste to the processing facilities like compost plant, biomethanation plant or any such facility. Preference shall be given for on site processing of such waste;
> ***
> (*v*) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation or various components of solid waste adopting suitable technology including the following

> technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimise transportation cost and environmental impacts such as—
>
> (*a*) bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable waste;
>
> (*b*) waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;"

14. It could thus be seen that the SWM Rules 2016 require that, while making provisions for solid waste disposal, the authorities shall give a preference to decentralized processing to minimize transportation cost and environmental impacts such as, waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns.

15. It is further to be noted that the "Tariff Policy" notified by the Ministry of Power on 28th January 2016 is in compliance with the mandate of Section 3 of the Act. It could further be

seen that under the said "Tariff Policy", a provision has been made for renewable sources of energy generation including Co-generation from renewable energy sources. It will be relevant to refer to Rule 6.4 of the said "Tariff Policy", which reads thus:

> "**6.4 Renewable sources of energy generation including Co-generation from renewable energy sources:**
>
> (1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.
>
> Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs.
>
> (i) Within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for purchase of solar energy from the date of notification of this policy which shall be such that it reaches 8% of total

consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time.

(ii) Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.

(iii) It is desirable that purchase of energy from renewable sources of energy takes place more or less in the same proportion in different States. To achieve this objective in the current scenario of large availability of such resources only in certain parts of the country, an appropriate mechanism such as Renewable Energy Certificate (REC) would need to be promoted. Through such a mechanism, the renewable energy based generation companies can sell the electricity to local distribution licensee at the rates for conventional power and can recover the balance cost by selling certificates to other distribution companies and obligated entities enabling the latter to meet their renewable power purchase obligations. The REC mechanism should

also have a solar specific REC.

(iv) Appropriate Commission may also provide for a suitable regulatory framework for encouraging such other emerging renewable energy technologies by prescribing separate technology based REC multiplier (i.e. granting higher or lower number of RECs to such emerging technologies for the same level of generation). Similarly, considering the change in prices of renewable energy technologies with passage of time, the Appropriate Commission may prescribe vintage based REC multiplier (i.e. granting higher or lower number of RECs for the same level of generation based on year of commissioning of plant).

(2) States shall endeavor to procure power from renewable energy sources through competitive bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from renewable energy sources from projects above the notified capacity, shall be done through competitive bidding process, from the date to be notified by the Central Government.

16. It can thus be seen that clause (1) of Rule 6.4 provides that the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of

a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. It further provides that the cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs and that the long-term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with Ministry of New and Renewable Energy (MNRE).

17. Certain exceptions have been made to the applicability of the said clause. One of the exceptions is that, the Distribution Licensee(s) shall compulsorily procure 100% of the power produced from all the Waste-to-Energy plants in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.

18. It is further to be noted that the following provision has been made in SWM Rules 2016:

> "**9. Duties of the Ministry of Power.-** The Ministry of Power through appropriate mechanisms shall,-
>
> (a) decide tariff or charges for the power generated from the waste to energy plants

based on solid waste.

(b) compulsory purchase power generated from such waste to energy plants by distribution company."

19. It could thus be seen that under the SWM Rules 2016, a duty is cast upon the Ministry of Power to decide tariff or charges for the power generated from the waste to energy plants based on solid waste and compulsory purchase of power generated from such waste to energy plants by distribution company.

20. Thus, it is to be noted that the Project, for which bids were invited by the Appellant-MCD, was proposed to be set up by the Appellant-MCD in pursuance of its statutory obligations under the SWM Rule 2016.

21. A perusal of the record would reveal that the Appellant-MCD issued NIT for the competitive tariff bidding process for setting up of the Project for procurement of power by Discoms in the NCT of Delhi as part of Discom's Renewal Purchase Obligation[16]. The said project was on Design, Build, Finance, and Operate basis and was to be transferred back to the Appellant-MCD after 25 years.

[16] "RPO" for short

22. It is further to be noted that after the bid was conducted in consonance with the decision taken in the meeting dated 14th May 2022, wherein the Discoms authorized the Appellant-MCD to proceed with the same, on 3rd August 2022, the bidding documents were sent to the DERC for its consideration. Based on the same, the DERC vide letter dated 24th August 2022 directed the Appellant-MCD to file a Petition for adoption of tariff. The DERC, further informed the Appellant-MCD about similar petitions filed by East Delhi Processing Limited seeking similar approvals.

23. After M/s JITF Urban Infrastructure Ltd. emerged as a L-1 bidder at the levelized tariff of Rs.7.380/KWh, the Appellant-MCD filed a Petition No. 72 of 2022 before the DERC for adoption of tariff and approving the draft PPA. The DERC vide its order dated 7th March 2022 adopted the tariff of Rs.7.380/KWh and directed the Discoms and the successful bidder to renegotiate the terms of the PPA.

24. Insofar as the petition of the WTERT is concerned, the DERC specifically rejected the contention of the WTERT to the effect that since the Appellant-MCD was not an authorized distribution licensee, it cannot float the impugned tender. It

was further sought to be argued that the Bidding procurement under Section 63 of the Act was impermissible in case of 'waste to energy' power.

25. The DERC relying on the provisions of Rule 15 of the SWM Rules 2016 specifically rejected the said contention and held that the Appellant-MCD was performing its statutory obligations.

26. While allowing the applications filed by the Respondent No. 1, the APTEL interpreted Section 63 of the Act and held that since the Appellant-MCD was neither a distribution licensee nor a generating company, it had no jurisdiction to file an application under Section 63 of the Act for adoption of tariff.

27. For appreciating the correctness of the findings of the APTEL, it will be apposite to refer to Section 63 of the Act, which reads thus:

> "**63. Determination of tariff by bidding process.-** Notwithstanding anything contained in section 62, the Appropriate Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government."

28. It could thus be seen that under Section 63 of the Act, the Appropriate Commission is entitled to adopt the tariff if such

tariff has been determined through a transparent process of bidding in accordance with the guidelines issued by the Central Government.

29. It could be seen that a plain reading of Section 63 of the Act would reveal that it does not restrict invoking of the provisions of Section 63 only to Discoms or generating companies.

30. It is a settled principle of law that the first and foremost principle of interpretation is that of literal interpretation. When the statute read in a literal manner is capable of giving meaning to the provision that the legislation intended to and does not lead to any absurdity, it is not permissible by judicial interpretation to add, alter, or delete any words to such a statute. Reliance in this respect could be placed on the judgment of this Court in the case of ***Punjab State Power Corporation Limited and another vs. Emta Coal Limited***[17] wherein this Court has observed thus:

> "**23**. The principle of giving a plain and literal meaning to the words in a statute is well-recognised for ages. Though there are a number of judgments, we may gainfully refer to the judgment of this Court delivered by Das, J. as early as 1955

[17] (2022) 2 SCC 1

in *Jugalkishore Saraf* v. *Raw Cotton Co. Ltd.* [*Jugalkishore Saraf* v. *Raw Cotton Co. Ltd.*, (1955) 1 SCR 1369 : AIR 1955 SC 376] : (AIR p. 381, para 6)

> "*6.* … The cardinal rule of construction of statutes is to read the statute literally, that is by giving to the words used by the legislature their ordinary, natural and grammatical meaning. If, however, such a reading leads to absurdity and the words are susceptible of another meaning the Court may adopt the same. But if no such alternative construction is possible, the Court must adopt the ordinary rule of literal interpretation."

24. Though there are various authorities on the said subject, we do not wish to burden the present judgment by reproducing those. In our considered view, if the words used in Section 11 of the said Act are construed in plain and literal term, they do not lead to an absurdity and as such, the rule of plain and literal interpretation will have to be followed. We find that in case the interpretation as sought to be placed by Shri Rohatgi is to be accepted, it will do complete violence to the language of Section 11 of the said Act. If it is held that under Section 11 of the said Act, a prior contractor is entitled to continue if his performance is found to be satisfactory and if there is nothing against him, then it will be providing something in Section 11 of the said Act which the statute has not provided for. It will also lead to making the words "may elect, to

adopt and continue" redundant and otiose.

25. It is a settled principle of law that when, upon a plain and literal interpretation of the words used in a statute, the legislative intent could be gathered, it is not permissible to add words to the statute. Equally, such an interpretation which would make some terms used in a statute otiose or meaningless, has to be avoided. We therefore find that if an interpretation as sought to be placed by EMTA is to be accepted, the same would be wholly contrary to the principle of literal interpretation. There are number of authorities in support of the said proposition. However, we refrain from referring to them in view of the following observations made by this Court in a recent judgment in *Ajit Mohan* v. *Delhi Legislative Assembly* [*Ajit Mohan* v. *Delhi Legislative Assembly*, (2022) 3 SCC 529 : 2021 SCC OnLine SC 456] : (SCC para 240)

> "*240*. … In our view if the proposition of law is not doubted by the Court, it does not need a precedent unless asked for. If a question is raised about a legal proposition, the judgment must be relatable to that proposition — and not multiple judgments."

As such, the contention in that regard is found to be without merit."

31. Upon a plain reading of Section 63 of the Act, it would

reveal that the power of the Appropriate Commission thereunder is, notwithstanding anything contained in Section 62.

32. It can thus be seen that the intention of the legislature is to empower the Appropriate Commission to adopt the tariff if such tariff has been determined through a transparent process of bidding in accordance with the guidelines issued by the Central Government.

33. The legislative purpose appears to be that when the power is being produced through a process of bidding it has to be done in a transparent manner. Another requirement is that the same must be done in accordance with the guidelines issued by the Central Government.

34. This Court in the case of ***Energy Watchdog*** (supra) has held that when there are no guidelines, then the Central Commission can exercise power under Section 79(1)(b) of the Act. The provisions of Section 86(1)(b) of the Act are analogous with Section 79(1)(b) of the said Act.

35. A plain reading of Section 63 of the Act would not show that the legislature intended to restrict the invocation of the jurisdiction of the State Commission only by the Discoms or

generating companies. In our view, the interpretation as placed by the APTEL is adding words in the provisions of Section 63 of the Act which the legislature did not intend to.

36. As already stated herein above, when a provision in the statute upon its plain reading is capable of giving a meaning to it as intended by the legislature, then it will not be permissible for the courts to add, alter, or delete the words to the said provision. In any case, upon a plain reading of the provisions of Section 63 of the Act, the meaning which we gather does not result in any absurdity. In such a situation, addition of words in the statute by judicial interpretation is wholly impermissible.

37. Apart from that, we are of the view that APTEL could not have read the provisions of Section 63 of the Act in isolation. The provisions of Section 63 will have to be read in harmony with the provisions of Section 86(1)(b) of the Act, which reads thus:

> "**86. Functions of the State Commission**.-(1) The State Commission shall discharge the following functions, namely:-
> (a) .....
> (b) regulate electricity purchase and procurement process of distribution licensees including the price at which

> electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;"

38. A perusal of the provision of Section 86(1)(b) of the Act would reveal that a duty is cast upon the State Commission to regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State.

39. It could thus be seen that the duty cast upon the State Commission is to regulate:

(i) the electricity purchase and procurement process of distribution licensees;

(ii) the price at which electricity shall be procured from the generating companies or licensees, or;

(iii) from other sources through agreements for purchase of power for distribution and supply within the State.

40. The legislative intent behind Section 86(1)(b) of the Act is to empower the State Commission to regulate all matters

regarding the electricity purchase and procurement processes.

41. As held by this Court in the case of ***Jaipur Vidyut Vitran Nigam Limited and others v. MB Power (Madhya Pradesh) Limited and others***[18], the State Commission is not a mere post office, but a duty is cast upon it to balance the interests of consumers on one hand and that of generators or Discoms on the other hand. If the provisions of Section 63 of the Act are read in harmony with the provisions of Section 86(1)(b) of the Act, the legislative intent that could be gathered is that the State Commission while exercising its powers under Section 63 of the Act shall adopt the tariff when it has been determined in the bidding process. However, while adopting the same it will have to be satisfied that the same is done in a transparent manner. It will also have to be examined as to whether the interests of the generators/Discoms on one hand are balanced with the interests of the consumers.

42. In our view, reading the Section 63 of the Act in the manner in which it has been interpreted by the APTEL, would impose unnecessary restrictions on the powers and duties of the State Commission under Section 86(1)(b) of the Act, which

[18] (2024) 8 SCC 513

are of a very wide amplitude.

43. In this respect, we may refer to the judgment of this Court in the case of ***Sanjay Ramdas Patil v. Sanjay and others***[19] wherein this Court after referring to the earlier judgments of this Court has observed thus:

> "**25.** In *Balasinor Nagrik Coop. Bank Ltd.* v. *Babubhai Shankerlal Pandya* [*Balasinor Nagrik Coop. Bank Ltd.* v. *Babubhai Shankerlal Pandya*, (1987) 1 SCC 606] , this Court observed thus : (SCC p. 608, para 4)
>
> > "*4*. … It is an elementary rule that construction of a section is to be made of all parts together. It is not permissible to omit any part of it. For, the principle that the statute must be read as a whole is equally applicable to different parts of the same section."
>
> **26.** Again in *Mohan Kumar Singhania* v. *Union of India* [*Mohan Kumar Singhania* v. *Union of India*, 1992 Supp (1) SCC 594 : 1992 SCC (L&S) 455] , this Court observed thus : (SCC p. 624, para 67)
>
> > "*67*. We think, it is not necessary to proliferate this judgment by citing all the judgments and extracting the textual passages from the various textbooks on the principles of Interpretation of Statutes. However, it will suffice

[19] (2021) 10 SCC 306

to say that while interpreting a statute the consideration of inconvenience and hardships should be avoided and that when the language is clear and explicit and the words used are plain and unambiguous, we are bound to construe them in their ordinary sense with reference to other clauses of the Act or the Rules as the case may be, so far as possible, to make a consistent enactment of the whole statute or series of statutes/rules/regulations relating to the subject-matter. Added to this, in construing a statute, the Court has to ascertain the intention of the law-making authority in the backdrop of the dominant purpose and the underlying intendment of the said statute and that every statute is to be interpreted without any violence to its language and applied as far as its explicit language admits consistent with the established rule of interpretation."

27. In *Sultana Begum* v. *Prem Chand Jain* [*Sultana Begum* v. *Prem Chand Jain*, (1997) 1 SCC 373] , this Court observed thus : (SCC pp. 381-82, para 15)

"*15*. On a conspectus of the case-law indicated above, the following principles are clearly discernible:

(1) It is the duty of the courts to

avoid a head-on clash between two sections of the Act and to construe the provisions which appear to be in conflict with each other in such a manner as to harmonise them.

(2) The provisions of one section of a statute cannot be used to defeat the other provisions unless the court, in spite of its efforts, finds it impossible to effect reconciliation between them.

(3) It has to be borne in mind by all the courts all the time that when there are two conflicting provisions in an Act, which cannot be reconciled with each other, they should be so interpreted that, if possible, effect should be given to both. *This is the essence of the rule of "harmonious construction*".

(4) The courts have also to keep in mind that an interpretation which reduces one of the provisions as a "dead letter" or "useless lumber" is not harmonious construction.

(5) To harmonise is not to destroy any statutory provision or to render it otiose."

(emphasis in original)

28. In *Jagdish Singh* v. *Lt. Governor* [*Jagdish Singh* v. *Lt. Governor*, (1997) 4 SCC 435] , this Court observed thus : (SCC p. 441, para 7)

> "*7.* … It is a cardinal principle of construction of a statute or the statutory rule

that efforts should be made in construing the different provisions, so that, each provision will have its play and in the event of any conflict a harmonious construction should be given. Further a statute or a rule made thereunder should be read as a whole and one provision should be construed with reference to the other provision so as to make the rule consistent and any construction which would bring any inconsistency or repugnancy between one provision and the other should be avoided. One rule cannot be used to defeat another rule in the same rules unless it is impossible to effect harmonisation between them. The well-known principle of harmonious construction is that effect should be given to all the provisions, and therefore, this Court has held in several cases that a construction that reduces one of the provisions to a "dead letter" is not a harmonious construction as one part is being destroyed and consequently court should avoid such a construction."

29. In *CIT* v. *Hindustan Bulk Carriers* [*CIT* v. *Hindustan Bulk Carriers*, (2003) 3 SCC 57] , this Court observed thus : (SCC pp. 73-74, paras 16-21)

"*16*. The courts will have to reject that construction which

will defeat the plain intention of the legislature even though there may be some inexactitude in the language used. (See *Salmon* v. *Duncombe* [*Salmon* v. *Duncombe*, (1886) LR 11 AC 627 (PC) : 55 LJPC 69 : 55 LT 446] , AC at. 634, *Curtis* v. *Stovin* [*Curtis* v. *Stovin*, (1889) LR 22 QBD 513 (CA) : 58 LJQB 174 : 60 LT 772] referred to in *S. Teja Singh case* [*CIT* v. *S. Teja Singh*, AIR 1959 SC 352 : (1959) 35 ITR 408] .)

17. If the choice is between two interpretations, the narrower of which would fail to achieve the manifest purpose of the legislation, we should avoid a construction which would reduce the legislation to futility, and should rather accept the bolder construction, based on the view that Parliament would legislate only for the purpose of bringing about an effective result. (See *Nokes* v. *Doncaster Amalgamated Collieries Ltd.* [*Nokes* v. *Doncaster Amalgamated Collieries Ltd.*, 1940 AC 1014 : (1940) 3 All ER 549 (HL) : 109 LJKB 865 : 163 LT 343] referred to in *Pye* v. *Minister for Lands for New South Wales* [*Pye* v. *Minister for Lands for New South Wales*, (1954) 1 WLR 1410 : (1954) 3 All ER 514 (PC)] .) The principles indicated in the said cases were reiterated

by this Court in *Mohan Kumar Singhania* v. *Union of India* [*Mohan Kumar Singhania* v. *Union of India*, 1992 Supp (1) SCC 594 : 1992 SCC (L&S) 455] .

18. The statute must be read as a whole and one provision of the Act should be construed with reference to other provisions in the same Act so as to make a consistent enactment of the whole statute.

19. The court must ascertain the intention of the legislature by directing its attention not merely to the clauses to be construed but to the entire statute; it must compare the clause with other parts of the law and the setting in which the clause to be interpreted occurs. (See *R.S. Raghunath* v. *State of Karnataka* [*R.S. Raghunath* v. *State of Karnataka*, (1992) 1 SCC 335 : 1992 SCC (L&S) 286] .) Such a construction has the merit of avoiding any inconsistency or repugnancy either within a section or between two different sections or provisions of the same statute. It is the duty of the court to avoid a head-on clash between two sections of the same Act. (See *Sultana Begum* v. *Prem Chand Jain* [*Sultana Begum* v. *Prem Chand Jain*, (1997) 1 SCC

373] .)

> *20*. Whenever it is possible to do so, it must be done to construe the provisions which appear to conflict so that they harmonise. It should not be lightly assumed that Parliament had given with one hand what it took away with the other.
>
> *21*. The provisions of one section of the statute cannot be used to defeat those of another unless it is impossible to effect reconciliation between them. Thus a construction that reduces one of the provisions to a "useless lumber" or "dead letter" is not a harmonised construction. To harmonise is not to destroy."

30. It could thus be seen that it is more than well settled that it is the duty of the Court to construe the statute as a whole and that one provision of the Act has to be construed with reference to other provisions so as to make a consistent enactment of the whole statute. It is the duty of the Court to avoid a head-on clash between two sections and construe the provisions which appear to be in conflict with each other in such a manner so as to harmonise them. It is further equally settled that while interpreting a particular statutory provision, it should not result into making the other provision a "useless lumber" or a "dead letter". While construing the provisions, the Court will have to ascertain the intention of the law-making authority in the backdrop of

> dominant purpose and the underlying intendment of the statute."

44. We are, therefore, of the considered view that when the provisions of Section 63 of the Act are read in harmony with the provisions of Section 86(1)(b) of the Act, the powers of the State Commission cannot be curtailed by interpreting that the same can be invoked only by the Discoms or the generating companies.

45. It will further be relevant to refer to the provisions of Section 174 and 175 of the Act, which read thus:

> "**174. Act to have overriding effect.-** Save as otherwise provided in section 173, the provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force or in any instrument having effect by virtue of any law other than this Act.
>
> **175. Provisions of this Act to be in addition to and not in derogation of other laws.-** The provisions of this Act are in addition to and not in derogation of any other law for the time being in force."

46. A perusal of Section 174 of the Act would reveal that, save as otherwise provided in Section 173, the provisions of the Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force

or in any instrument having effect by virtue of any law other than the Act.

47. Section 175 of the Act provides that the provisions of the said Act are in addition to and not in derogation of any other law for the time being in force.

48. In our view, there is no inconsistency between the provisions of Section 63 of the Act and Rule 15 of the SWM Rules 2016. The provisions of Rule 15 of the SWM Rules 2016, which are enacted under the Environment (Protection) Act, 1986, mandate the appellant to undertake WTE project(s).

49. It can thus be seen that insofar as the WTE projects are concerned, the provisions under the Act will have to be read in addition to the provisions under Rule 15 of the SWM Rules 2016 and not in derogation thereof.

50. Apart from that, Rule 6.4 of the Tariff Policy, which is notified in compliance with the mandate of Section 63 of the Act, the distribution licensees are mandated to compulsorily procure 100% of the power produced from all the WTE plants in the State in the ratio of their procurement of power from all sources including their own. Not only that, the Appropriate Commission is also required to provide suitable regulatory

framework for encouraging such other emerging renewable energy technologies.

51. It will also be relevant to refer to the provisions of Section 86(1)(e) of the Act, which read thus:

> "**86. Functions of the State Commission**.-(1) The State Commission shall discharge the following functions, namely:-
> (a) .....
>
> (e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;"

52. It can thus be seen that the provisions of Section 86(1)(e) of the Act read with Rule 6.4 of the Tariff Policy provide for promoting cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee.

53. We are of the considered view that the APTEL has failed to take into consideration all these aspects of the matters.

54. In any case, the APTEL has grossly erred in treating the present Appellant-MCD as a total stranger. The WTE project was on Design, Build, Finance and Operate basis. The ownership of the said Project was always to be with the Appellant-MCD and the operation of the facility is required to be transferred back to the Appellant-MCD after 25 years. The reasoning given by the APTEL, that if the application of the Appellant-MCD for adoption of tariff was held to be tenable, then it would amount to permitting any stranger to apply under Section 63 of the Act, is factually not correct. The APTEL failed to take into consideration that the Appellant-MCD was establishing the said Project in order to perform its statutory obligations. The plain reading of Section 63 of the Act would reveal that the Appropriate Commission has to adopt the tariff only after being satisfied that such a tariff has been determined through a transparent process of bidding in accordance with the guidelines issued by the Central Government.

55. The DERC, after taking into consideration all the relevant factors, had granted its approval to the tariff with certain conditions. The relevant factors which were taken into consideration by the DERC while granting the approval were:

(i) the mandate of Rule 15 of the SWM Rules 2016;

(ii) the financial evaluation report which was sent by the Bidding Evaluation Committee;

(iii) the certificate on the conformity that the bidding process had been completed by following the transparent process; and

(iv) that there was a mandate under the NTP to the effect that the entire power generated by the WTE project was to be procured by the Discoms.

However, the same has been upset by the APTEL only on a hyper-technical ground.

56. The APTEL also failed to take into consideration that the WTE project in question was in the larger public interest thereby providing for disposal of the huge quantity of waste generated in the city of Delhi.

57. Since we are inclined to allow the appeals of the appellant on the aforesaid grounds, we do not find it necessary to go into the contention of the appellant with regard to locus of the Respondent No.1 in filing the appeals before the APTEL.

58. In the result, we pass the following order:

(i) the appeals are allowed;

(ii) the Impugned common final judgment and order of the Appellate Tribunal for Electricity at New Delhi dated 31st August 2023 passed in DFR No. 245 of 2023 and DFR No. 247 of 2023 is quashed and set aside;

(iii) the orders of the Delhi Electricity Regulatory Commission dated 6th March 2023 in Petition No. 65 of 2022 and 7th March 2023 in Petition No. 72 of 2022 are affirmed.

59. Pending application(s), if any, shall stand disposed of.

.....J
(B.R. GAVAI)

.....J
(K.V. VISWANATHAN)

NEW DELHI;
JANUARY 02, 2025

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
ORIGINAL APPLICATION No. 536/2024

In the matter of:

NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024

Index

(Filed by Adv. Suman Arora)
On behalf of Central Pollution Control Board

Place: Delhi
Dated: 11.11.2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION No. 536/2024

In the matter of:

NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024

REPONSE ON BEHALF OF THE CENTRAL POLLUTION CONTROL BOARD, RESPONDENT No. 1.

1. That the Hon'ble NGT vide Order dated 15.05.2024 has issued notice to the Central Pollution Control Board (CPCB) in the instant matter. A copy of the said Order dated 15.05.2024 is annexed as **ANNEXURE – I.** That in compliance of the said order the reply by CPCB is being made in the succeeding paragraphs.

2. That, CPCB is a statutory Board constituted under Section 3 of The Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, and The Environment (Protection) Act, 1986.

Preliminary Submission:

3. Hon'ble NGT registered O.A No. 536/2024 suo-motu on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024 which highlighted the following issues:

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

- **Mixed Waste handling and High Moisture and Low Calorific Value of Waste:** WtE plants in India often receive mixed waste, including organic and recyclable materials, leading to inefficient burning and increased pollution. It has high moisture content and low calorific value, making it unsuitable for efficient combustion in WtE plants without supplementary fossil-fuel energy.
- **Air Pollution Due to Incineration of mixed waste:** Incineration of mixed waste produces toxic emissions, including carbon monoxide, nitrogen oxides, and Sulphur dioxide, leading to respiratory ailments and chronic lung diseases among nearby residents.
- **Bottom Ash Generation:** Inefficient burning results in the generation of a large amount of bottom ash, constituting 30-40% of the total feed. This ash can contaminate soil and groundwater and pose health risks to waste pickers.
- **Compliance to Stipulated Norms:** The article alleges potential violations of the Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

4.0 **CPCB's Response to Issues raised in the News Article:**

It may please be noted that the SPCBs/PCCs are required to submit the Annual Report on Solid Waste Management (SWM) in their jurisdiction as per provisions of SWM Rules 2016. Further CPCB has also monitored several Waste to Energy (WtE) plants in compliance of various Court Orders issued on the matter. Further in compliance of EPR Guidelines notified by MoEFCC as Amendment to PWM Rules, 2016 the Plastic Waste Processors including the Waste to Energy Plants are required to register on

the Centralised Extended Producer Responsibility (EPR) Portal for Plastic Packaging developed by CPCB.

CPCB has accordingly prepared the response to the Hon'ble NGT Order in subsequent paragraphs.

4.1 Mixed Waste handling and High Moisture and Low Calorific Value of Waste:

Waste receipt at WtE plants depends on level of segregation. Partial/not fully segregation leads to receiving wastes which may include organic and recyclable materials. Such unsegregated wastes may have higher moisture content and low calorific value, impacting combustion in WtE plants and emissions thereto.

4.1.1. **Provisions of Solid Waste Management Rules, 2016**

a. Related to segregation of waste

As per Clause 4 of the SWM Rules 2016, it is the responsibility of waste generators (individuals, households, event organizers, street vendors, resident welfare and market associations, gated communities and institutions with more than 5,000 m^2 area, hotels, and restaurants etc.) to segregate, and store the waste generated by them in three separate streams namely bio-degradable (wet waste), non-biodegradable (dry waste) and domestic hazardous wastes, in suitable bins and handover segregated wastes to authorized waste pickers or waste collectors as per the direction or notification by the local authorities.

Moreover, sanitary waste is required to be securely wrapped and placed in the dry or non-bio-degradable waste bin and construction waste is required to be stored separately and disposed of according

to the Construction and Demolition Waste Management Rules, 2016.

The purpose of "at-source segregation of waste" is to enable the efficient collection, transportation, processing, and disposal of municipal solid waste (MSW).

Further, clause 15 of SWM Rules, 2016 stipulates the duties and responsibilities of local authorities (Municipal Corporations, Municipal Councils, Village Panchayats, etc.), which include arranging for door-to-door collection of segregated solid waste from all households, including slums and informal settlements, as well as from commercial and institutional premises. They are required to direct waste generators to avoid littering and ensure waste is segregated at source for authorized waste pickers or collectors. Local authorities to set up material recovery facilities for sorting recyclable materials and transport segregated bio-degradable waste to processing facilities, prioritizing on-site processing. Additionally, they should educate workers and create public awareness campaigns to promote proper waste segregation, storage, and handover of segregated waste to appropriate parties. It is the responsibility of local to collect and transport segregated waste to processing and disposal facilities, usually managed by private contractors.

b. Related to Criteria for Waste To Energy Process

Clause 21 of SWM Rules, 2016 specifies the following criteria for waste to energy process:

Non-recyclable waste having calorific value of 1500 Kcal/kg or more shall not be disposed of on landfills and shall only be utilised

for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.

High calorific wastes shall be used for co-processing in cement or thermal power plants.

The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tonnes per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorisation.

The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

It is observed that although mixed waste is being sent for disposal at most of the WtE plants, these facilities have facilities for segregation of waste through mechanical and manual methods based on density, size, and magnetic properties with the help of manual sorting, magnetic separators and trommels. Segregation facilities provided in a typical WtE plant include the following:

- Pre-sorting using trommels and ballistic separators to segregate waste.
- Combustible materials form RDF sent to Boiler for generating energy
- Organic fraction sent to windrows for composting. Coarse segregation to remove larger particles.
- Refined compost undergoes further quality improvement.
- Remaining non-recyclable, non-compostable materials sent to landfill

Through aforementioned segregation measures, Refused Derived Fuel (RDF) of higher Calorific value than mixed MSW is fed into the combustion chamber of the boiler.

4.2. Air Pollution Due to Incineration of mixed waste:

Incineration of waste produces toxic emissions, including carbon monoxide, nitrogen oxides, and Sulphur dioxide.

4.2.1 Emission norms for incineration as per SWM Rules, 2016

Solid Waste Management Rules, 2016 (Para-C of Schedule-II) specify the emission standard for the incineration of municipal solid waste (MSW) in India as given in Table 2.0:

Table 2.0: Standard for incineration as per Para-C of Schedule-II of SWM Rules, 2016

Parameter	Emission standard	
(1)	(2)	(3)
Particulates	50 mg/Nm^3	Standard refers to half hourly average value
HCl	50 mg/Nm^3	Standard refers to half hourly average value
SO2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 mg/Nm^3	Standard refers to half hourly average value
	50 mg/Nm^3	Standard refers to daily average value
Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
HF	4 mg/Nm^3	Standard refers to half hourly average value

NOx (NO and NO2 expressed as NO2)	400 mg/Nm^3	Standard refers to half hourly average value
Total dioxins and furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

As per note (g) below Clause C (Schedule-II) of SWM Rules,2016

All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950 ^{0}C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

4.2.2 Details of air pollution control devices (APCD) provided in typical WtE facility

As per information provided by the registered WtE facilities on the EPR Portal, Air Pollution Control Devices (APCD) provided in a typical WtE plant include the following:

- **Scrubbers**: Used to remove acid gases from the flue gas stream.
- **Lime Spray Reactors**: Neutralize acidic components in the flue gases.

- **Activated Carbon Injection Systems**: Adsorb dioxins, furans, and heavy metals from the flue gases.
- **Bag Filters**: Capture and remove particulate matter, including the activated carbon particles.
- **Electrostatic Precipitators (ESP)**: Remove fine particulates from the flue gases using an electrostatic charge.
- **Reaction Towers**: Where additional treatment of flue gases occurs, often using a combination of activated carbon and other reagents.
- **Scrubbing Systems**: Ensure thorough removal of any residual contaminants from the flue gases.

4.2.3 Inspection of WtE plants

CPCB, in association with the concerned SPCB/PCC, in compliance of Hon'ble NGT Orders in OA No.640/2018 inspected three Waste-to-Energy (WtE) plants namely M/s Timarpur Okhla Waste Management Company Limited, M/s Delhi MSW Solutions Ltd., M/s East Delhi Waste Processing Company Ltd. The inspections reports for 2021 & 2020 are placed at **Annexure-II & Annexure II A respectively**

Overview of the Stack emission monitoring results of the three WtE plants is given below

M/s Delhi MSW Solutions Ltd, Bawana, Delhi.:

2020: All parameters found within stipulated norms

2022: Dioxin and Furans: 0.49 ngTEq/Nm^3 (exceeds limit of 0.1 ngTEq/Nm^3), Other parameters (PM, NOx, SO2, etc.) within stipulated norms.

M/s Timarpur Okhla Waste Management Company Limited, Okhla, Delhi:

2020: All parameters except Dioxin and Furan found within stipulated norms

2021: Dioxin and Furans: 0.99 ngTEq/Nm³ (exceeds limit of 0.1 ngTEq/Nm³), HCL: 198 mg/Nm³ (exceeds limit of 50 mg/Nm³), Other parameters (PM2.5, PM10, NOx, SO2, etc.) within stipulated norms.

M/s East Delhi Waste Processing Company Ltd., Ghazipur, Delhi:

2020: PM, NOx, Pb not meeting stipulated norms, Dioxin & Furan not monitored

2021: Dioxin and Furans: 0.49 ngTEq/Nm³ (exceeds limit of 0.1 ngTEq/Nm³), PM: 62.7 & 85.1 mg/Nm³ (exceeds limit of 30 mg/Nm³), NOx: 869 mg/Nm³ (exceeds limit of 350 mg/Nm³), HCL: 407 mg/Nm³ (exceeds limit of 50 mg/Nm³), Other parameters within stipulated norms.

The compliance status of WtE plants is observed to be fluctuating, complying in some cases and non-complying in the others. It is observed that WtE plants can comply with the stipulated norms provided necessary operation and maintenance practices are in place and adequate air pollution control measures are implemented.

4.3 Bottom Ash Generation

Inefficient burning results in the generation of a large amount of bottom ash, constituting 30-40% of the total feed. This ash can contaminate soil and groundwater and pose health risks to waste pickers.

a. Analysis of Bottom ash

The analysis reports of the bottom ash of the three units inspected by CPCB in Delhi (Refer **Annexure-II)** is given in Table 3.0:

Table 3.0 : Bottom Ash analysis

S.NO.	Parameters	Standard/Limit (mg/L*)	WtE facility (Timarpur)	WtE facility ((Bawana))	WtE facility (Ghazipur)
1.	Loss on ignition (for bottom ash only)	<5%	2.29	1.67	1.89
2.	Arsenic	5 mg/l	BDL	BDL	BDL
3.	Cadmium	1 mg/l	BDL	BDL	BDL
4.	Chromium	5mg/l	0.05	0.08	0.52
5.	Manganese	10mg/l	BDL	BDL	3.01
6.	Lead	5mg/l	0.03	BDL	0.08
7.	Selenium	1mg/l	BDL	BDL	BDL
8.	Copper	25mg/l	0.29	0.01	1.52
9.	Nickel	20mg/l	BDL	BDL	0.42
10.	Zinc	250mg/l	0.03	0.02	10.79
11.	Cobalt	80 mg/l	BDL	BDL	0.12
12.	Vanadium	24mg/l	BDL	BDL	BDL
13.	Antimony	15 mg/l	BDL	BDL	0.36

Based on the analysis of heavy metals, it is observed that the concentration of all the parameters are within the stipulated norms.

b. **Management of Bottom Ash:**

As per information provided in the Centralized EPR Portal for plastic packaging by registered WtE facilities, average ash generation from the incineration of municipal solid waste (MSW) in a typical WtE plant ranges from 22% to 25% of the incinerated quantity. The practices adopted for management of bottom ash in a typical WtE facility include the following:

- Bottom ash is collected from the combustion chamber in Waste-to-Energy (WtE) plants after the incineration of MSW
- A magnetic separator is employed to extract ferrous materials from the bottom ash.
- The remaining ash is sent to the bottom ash handling facility, where it is cooled and further processed.
- This process allows for the recycling of recoverable materials, such as metals.
- Non-recyclable bottom ash is disposed of in sanitary landfills or brick manufacturing

4.4 Compliance Status of WtE plants

As per the Annual Report provided by SPCBs/PCCs for the year 2021-22 , there are thirteen waste-to-energy plants operational in India (Andhra Pradesh – 2, Delhi-2, Goa-1, Haryana-1, Madhya Pradesh-1, Maharashtra -1, Telangana – 1, Uttar Pradesh-3, West Bengal-1).

Further in compliance to Hon'ble NGT order dated 15.5.24 in O.A No. 536/2024 matter, CPCB issued a letter dated 7.08.2024 to all SPCBs/PCCs requesting information on WtE plants in their

jurisdiction in the prescribed format. A copy of CPCB letter is attached as **Annexure-III**.

In response to the CPCB letter, 30 SPCBs/PCCs have provided the information & 06 SPCBs/PCCs namely Arunachal Pradesh, Delhi, Himachal Pradesh, Karnataka, Uttar Pradesh and Uttarakhand have not provided the requisite information.

The following 24 SPCBs/PCCs have reported that there is no operational municipal solid waste (MSW)-based Waste-to-Energy (WtE) plant in their regions, namely: Andaman & Nicobar, Assam, Bihar, Chandigarh, Chhattisgarh, DNH & DD, Goa, Jammu & Kashmir, Jharkhand, Kerala, Ladakh, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Puducherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, West Bengal, and Odisha.

06 SPCBs/PCCs, namely Gujarat, Madhya Pradesh, Telangana, Haryana, and Maharashtra & Andhra Pradesh have reported that they have operational municipal solid waste (MSW)-based Waste-to-Energy (WtE) plants. Summary of information provided by the 6 SPCBs/PCCs related to WtE plants is attached as **Annexure-IV.**

Based on the information provided by SPCBs/PCCs, there are 9 operational SWM based WtE plants in 6 States/UTs. It is observed that out of 9 WtE plants, 6 have been monitored by concerned SPCBs/PCCs. 5 WtE plants have been found compliant & one plant in Maharashtra was found non-compliant w.r.t. Particulate matter and action was taken by Maharashtra PCB.

5.0 Guidelines/Documents Prepared by CPCB

5.1 Buffer Zone Guidelines

CPCB amended Guidelines on "Provision on Buffer Zone around waste processing and disposal facilities and submitted to all SPCBs/PCCs for implementation. The purpose of this Guideline is to specify adequate separation distances between solid waste management facility and its surrounding area having different land usage characteristics. The guideline is placed at **Annexure-V**

5.2 Selection Criteria for waste processing technologies

CPCB has prepared a Guidelines on "Selection Criteria for Waste Processing Technologies,". This report provides detailed guidelines for selecting appropriate waste processing technologies including Waste to Energy based on various factors such as the quantity and characteristics of waste, physical and chemical properties, land availability, social factors, capital investment, and treatment duration. The Guidelines are placed at **Annexure VI**

6.0 Conclusions

a. Technology for Solid waste processing, including Waste to Energy, should be selected in compliance with the Guidelines developed by CPCB on the subject

b. ULBs to ensure that Segregated waste is disposed at the WtE plants. Necessary provisions for further segregation of waste, as necessary, should be made at the WtE plant.

c. The WtE facilities should ensure that proper operation & maintenance facilities are followed. It should further implement adequate air pollution control measures to ensure that the emissions from the plant meet the stipulated norms.

d. WtE plants should ensure maximum utilization of Bottom ash for beneficial purposes like bricks manufacturing etc. and minimise the quantity disposed in the landfills.

e. The WtE facility should develop adequate buffer zone in and around its premises, in compliance with the Guidelines developed by CPCB on the subject

f. The concerned SPCB/PCC should regularly monitor the WtE facilities to ensure that the WtE plants are complying with the stipulated norms

7. That the answering respondent CPCB craves the leave of this Hon'ble Tribunal to file additional reply, if so directed.

8. That, in the light of the above submissions, it is respectfully submitted that the answering respondent CPCB shall abide by the orders (s) and/or direction(s) passed by this Hon'ble Tribunal in the instant case.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

(Divya Sinha)
Scientist 'F"
Central Pollution Control Board

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION No. 536/2024

In the matter of:

NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024

AFFIDAVIT

I, **Divya Sinha** working as Scientist 'F' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying reply may be read part and parcel of the present affidavit.

3. That the accompanying reply has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

DEPONENT

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

VERIFICATION

11 NOV 2024

Verified at New Delhi on this day of _____ 2024 that the contents of the above reply are correct and true on the basis of the records of the case as mentioned in the day-to-day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

DEPONENT

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

ATTESTED
NOTARY PUBLIC
GOVT. OF INDIA
11 NOV 2024

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

Item No.06 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 15.05.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.

2. The matter relates to the utility of the waste to energy plants (WtE) and questions their suitability with respect to India's waste problem. As per the article, Waste-to-energy (WLE) technologies allow for the recovery of energy by burning or incinerating waste that cannot be recycled or composted. Their benefits are considered twofold. One, they offer an alternative waste disposal mechanism, diverting solid waste from landfills. Two, through the generation of electricity or heat by burning waste, they provide a renewable energy source that limits reliance on fossil fuels, thereby reducing greenhouse gas emissions. However, the article alleges that though WtE plants have seen relative success in the European Union, environmentalists and scientists have warned that they may not be a suitable solution for India's waste problem.

3. According to the news item, there are two pertinent issues with incineration as a waste management solution in India-

a. The quality of waste in India: As per the article, the potential of a WtE operation to meet its energy production target depends on the quality of its waste feedstock. Waste with low moisture content and high calorific value would be ideal for incineration. This includes materials such as non- recyclable plastics (multilayered packaging, plastic bags, styrofoam), contaminated non-usable household textile waste, and non-recyclable domestic hazardous waste, such as soiled paper, soiled cloth, pieces of leather, rubber, tyre, and non-usable wood.

However. Domestic waste in India typically contains high moisture content and has low calorific value, making it unsuitable for efficient combustion in WtE plants, The news item alleges that the WtE plants in India often receive mixed waste, which includes organic, recyclable material. It alleges that mixed waste has high moisture content and needs supplementary energy to incinerate or it won't burn well. This energy is typically fossil-fuel-based, which undermines the claim that electricity produced by WtE plants is altogether clean.

b. Health and Environmental implications: As per the article, incineration of mixed waste produces toxic particles, including carbon monoxide, nitrogen oxides, and sulphur dioxide due to inefficient burning. These particles can cause respiratory ailments and also lead to chronic lung diseases, such as asthma among people who live near WtE sites.

Another result of inefficient burning is the large discharge of bottom ash This could be as high as 30-40 percent of the total feed, which then ends up in open dump sites, contaminating the groundwater and soil with its toxic chemicals. It is also hazardous to waste pickers who work at these landfills.

4. The news item raise the question that if India doesn't have suitable waste for WtE plants and these plants are harmful to both human and environmental health, why are more of these facilities being built?

5. It states that In India, an estimated 55 million tonnes of municipal solid waste is generated annually by 377 million citizens residing in urban areas. With an urban population that's expected to grow to 600 million by 2030 and to 814 million by 2050, India is set to generate 165 million tonnes of waste by 2030 and 436 million tonnes by 2050. The waste composition and its characteristics are also subject to change drastically, with a rise in dry waste quantities, a trend observed in major cities. Therefore, there is an urgent need to adopt sustainable waste management practices, with incineration and land filling relegated to the back of the queue.

6. The above matter indicates violation of Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

7. The news item raises substantial issue relating to compliance of the environmental norms and implementation of the provisions of scheduled enactment.

8. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

9. Hence, we implead the following as respondents in this matter:

(i). Central Pollution Control Board, Through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

(ii). Ministry of Forest Environment and Climate Change, through its Secretary, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi- 110003.

(iii). National Environmental Engineering Research Institute, through its Director, Nehru Marg, Nagpur – 4400020.

(iv). Indian Institute of Technology, New Delhi, through its Director, Hauz Khas, New Delhi – 110016.

(v). Indian Institute of Technology, Mumbai, through its director, IIT Bombay, Powai, Mumbai – 400076.

10. Let notice be issued to the above respondents for filing their response at least one week before the next date of hearing.

11. List on 01.08.2024

Prakash Shrivastava, CP

Dr. Afroz Ahmad, EM

May 15, 2024
OA No.536/2024
HB

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

Original Application No. 640/2018

In

(Earlier O. A. No. 22/2013(THC))

In the matter of: -

Sukhdev Vihar Residents Welfare Association — Applicant(s)

Versus

State Of NCT of Delhi — Respondent(s)

Index

Sr. No.	Particulars	Page No.
1.	**Compliance Report** of Waste to Energy Plants in Delhi in Original Application No. 640/2018 (Earlier O. A. No. 22/2013(THC)) in the matter of Sukhdev Vihar Residents Welfare Association Vs State Of NCT of Delhi in compliance to the Hon'ble NGT orders dated 09.10.2017 & 27.09.2018 respectively.	
2.	**Annexure-I:** A copy of Hon'ble NGT orders dated 09.10.2017 & 27.09.2018.	

(Divya Sinha)
Scientist-E
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi- 110032.

Date: 22.03.2021
Place: Delhi

Compliance Report of Waste to Energy Plants in Delhi

(Period: September-October, 2020)

As per Hon'ble NGT Vide its Order dated 09/10/2017, in OA No. 22 of 2013 THC & dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013)

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest & Climate Change, Govt. of India)

'Parivesh Bhawan' C.B.D. Cum-Office Complex,

East Arjun Nagar, Shahdara, Delhi-110032

E-mail:divsinha@yahoo.com, Website- www.cpcb.nic.in

March, 2021

1. Background

1.1. Hon'ble NGT in its order dated 09/10/2017 in OA No. 22 of 2013 THC, directed Central Pollution Control Board to collect and analyse the samples of ambient air quality once in four months, and they shall also conduct at least two surprise inspections and analysis be made in a year from M/s. Timarpur Okhla Waste Management Company Ltd.

1.2. Further Hon'ble NGT vide its order dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013), issued the following directions:

i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection of Waste to Energy (WtE) Plants at Delhi has been conducted by the CPCB and the DPCC. Findings of reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*

ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for reliving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"*

iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

In view of above directions, monitoring was planned during September & October, 2020 of Okhla, Bawana & Gazipur WtE plants. However, due to non-working of the Waste to Energy Plant Ghazipur on 16.09.2020 monitoring could not be carried out. The remaining two plants viz. Okhla & Bawana were subsequently monitored by CPCB & DPCC joint inspection team during September, 21-22, 2020 and September 24-25, 2020 respectively. The members of joint committee i.e. representatives from MoEF & CC , expert from IIT Delhi and representative of Sukhdev Vihar RWA (For Okhla Waste to Energy Plant) were informed vide email dated September 11, 2020 regarding the inspection schedule. Representative from MoEF &CC, expert from IIT Delhi were not present during the inspection of Waste to Energy Plants Okhla & Bawana and representative of RWA Sukhdev Vihar was not present during inspection of Okhla. Further, subsequent to Ghazipur Plant becoming

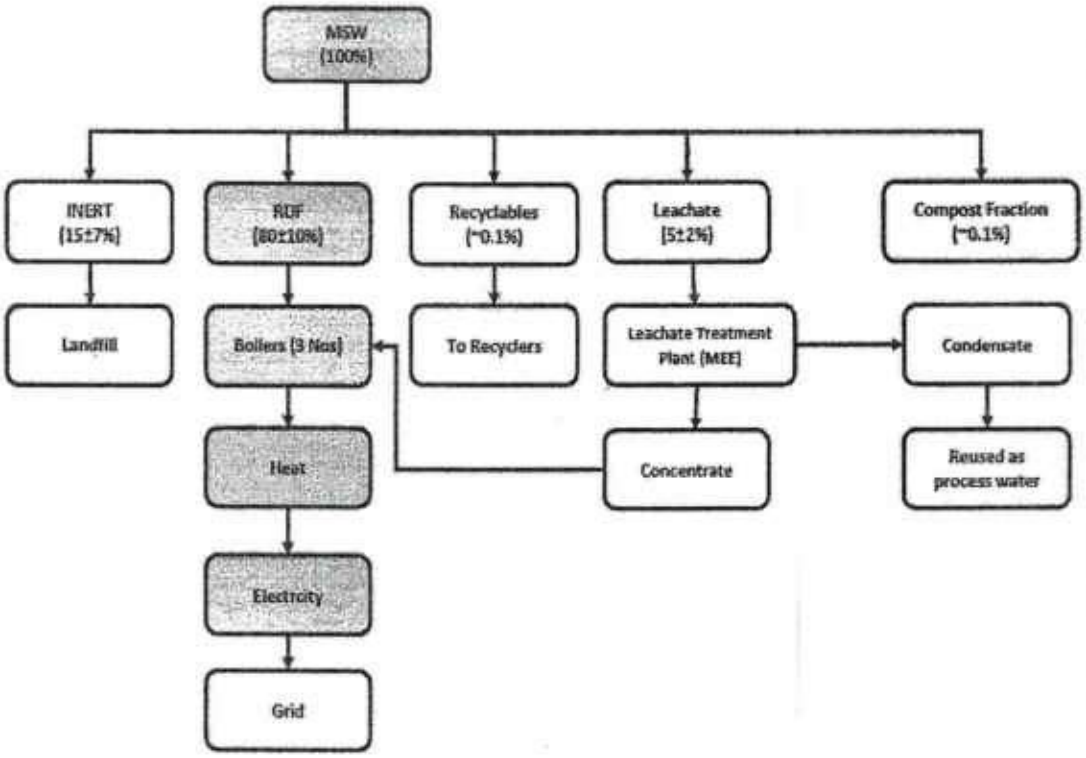
operational, joint inspection team from CPCB, DPCC and expert from IIT, Delhi monitored the plant on October 13-14, 2020. The inspection reports of the three WtE plants is given in the following sections.

Waste to Energy Plant Okhla

CENTRAL POLLUTION CONTROL BOARD, DELHI

1	Name and address of the industry	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025
	Coordinates (Longitude & Latitude)	Lat. 28.553672 & Long. 77.280838
2.	Name of the occupier/contact person with	Mr. Sandeep Dutt
	Telephone	Mob. 09958360016
	Fax	
	E-mail	Sandip.dutt@jindalcopolis.com
3.	Date of inspection / monitoring	September 21-22, 2020
4.	Installed processing Capacity (as per consent)	As per DPCC Authorization letter dated 21.05.2020 the unit has capacity to process 1950 TPD MSW for subsequent generation of 23 MW power.
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
21.09.2020	6 AM to 6 PM	18.94	21.61
22.09.2020	6 AM to 6 PM	18.68	21.11

7.	**Process Flow Diagram** The unit has own segregation setup of MSW having two trommels with ballastic separators for segregation of MSW and production of RDF. The detailed materials flow sheet is as given below: 

8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant (Three boilers connected to one stack)	60 mtrs	Scrubber followed by bag filters	Stack Monitoring Conducted by CPCB team & results are tabulated at **Table – 1**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality (Conducted at two locations namely Sukhdev Vihar & STP Okhla)	Ambient Air Quality Status are tabulated at **Table-2**

11.	Continuous Ambient Air Quality Station	**CAAQMS not yet installed**
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are tabulated at **Table-3**

Table 1: Analysis results of the stack emission monitoring of the WtE plant Okhla

S. No.	Parameters	Monitor by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values	
					21-22 September, 2020	Stack	
1.	PM	CPCB	30 mg/Nm^3	50 mg/Nm^3		10.7	4.4
2.	Hydrogen Chloride		50 mg/Nm^3	50 mg/Nm^3		198	
3.	SO_2		100 mg/Nm^3	200 mg/Nm^3		BDL	BDL
4.	NO_x (NO and NO_2 expressed as NO_2)		350 mg/Nm^3	400 mg/Nm^3		90.3	85.6
5.	CO		100 mg/Nm^3	100 mg/Nm^3		1.8	
6.	HF		0.5 mg/Nm^3	4 mg/Nm^3		BDL	
7.	Sb + As + Pb +Cr+ Co+ Cu+ Mn + Ni+ V+ their compounds		0.5 mg/Nm^3	0.5 mg/Nm^3		0.012	
8.	Cd + Th +their compounds		0.05 mg/Nm^3	0.05 mg/Nm^3		-	
9.	Pb		0.1 mg/Nm^3	Not prescribed		0.004	
10.	Hg		0.02 mg/Nm^3	0.05 mg/Nm^3		BDL	
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm^3	0.1 ngTEq/Nm^3	22-10.2020	**0.99**	
12.	Total Organic Compounds(as C) at 11%O_2		20mg/Nm^3	20mg/Nm^3		7.2	

Table-2. 24 hourly average values of ambient air quality monitoring

Date of sampling	Monitored by	Parameters	Prescribed Standard* (in µg/m³)	Measured values	
				Sukhdev Vihar Location-I	STP Okhla Location-II
21-23 September 2020	CPCB	PM_{10}	100	85.66	72.33
		$PM_{2.5}$	60	78	39
		NO_2	80	41.66	28.33
		SO_2	80	8.166	39

**National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.*

Table 3: Analysis results of Bottom ash and Fly ash

Date of sampling	Parameters	Standard/Limit	Measured values	
21.09.2020	Loss on Ignition (for Bottom ash only)	<5%*	2.29%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	BDL
	Cadmium	1 mg/l#	BDL	BDL
	Chromium	5 mg/l#	0.05	0.26
	Manganese	10 mg/l#	BDL	BDL
	Lead	5 mg/l#	0.03	0.05
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.29	BDL
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	0.03	0.15
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	BDL	BDL

*Standards prescribed by DPCC in the Consent to Operate.
#Concentration Limit to categorise as hazardous waste as per the Hazardous and Other Wastes (Management and Tran boundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act	Valid till 24.09.2024
II	Under Air Act	Valid till 24.09.2024

14. Observations:

a. The processing capacity of the plant is 1950 TPD. However as informed, the plant received only 1652.51 TPD of mixed Municipal Solid Waste (MSW) on 21.09.2020.

b. As informed, total RDF generation in the plant is approximately 1350 TPD. As per the logbook RDF used as fuel in boilers on 21.09.2020 & 22.09.2020 is tabulated at **Table 4**:

Table 4: RDF Feed Record

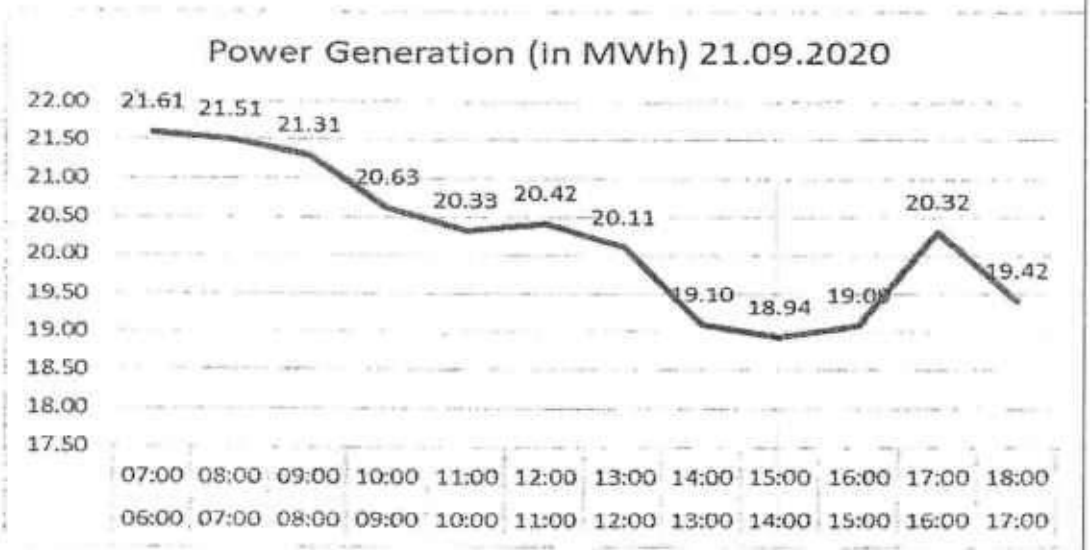
RDF Feed (21-09-2020)					
S. No	**Feeding Duration**		**Boiler 1**	**Boiler 2**	**Boiler 3**
1	06:00	07:00	17.8	17.3	17.6
2	07:00	08:00	17.1	17.8	17.2
3	08:00	09:00	16.9	16.8	16.7
4	09:00	10:00	17.4	16.7	17.7
5	10:00	11:00	17.0	18.2	19.1
6	11:00	12:00	18.0	17.0	16.9
7	12:00	13:00	17.4	18.0	17.5
8	13:00	14:00	18.0	17.2	17.8
9	14:00	15:00	18.0	16.8	16.1
10	15:00	16:00	17.6	17.2	17.9
11	16:00	17:00	23.4	16.4	17.7
12	17:00	18:00	17.2	16.6	17.7
	Total Feed		**215.8**	**206.0**	**209.9**

RDF Feed (22-09-2020)					
S. No	**Feeding Duration**		**Boiler 1**	**Boiler 2**	**Boiler 3**
1	06:00	07:00	24.8	18.2	18.5
2	07:00	08:00	17.2	18.6	18.8
3	08:00	09:00	21.6	18.0	17.7
4	09:00	10:00	17.3	18.2	22.7
5	10:00	11:00	16.6	18.6	15.5
6	11:00	12:00	18.4	20.8	18.1
7	12:00	13:00	18.7	18.6	17.8
8	13:00	14:00	19.0	18.6	22.4
9	14:00	15:00	25.2	18.2	18.2
10	15:00	16:00	18.6	23.8	18.5
11	16:00	17:00	18.1	18.3	18.6
12	17:00	18:00	18.3	18.6	18.3
	Total Feed		**233.8**	**228.5**	**225.1**

c. All the three boilers along with pollution control devices were found operational.

d. The temperature of furnace was maintained between 950-1050°C.

e. Details of power generation during the said inspection is plotted at **Figure 1.**



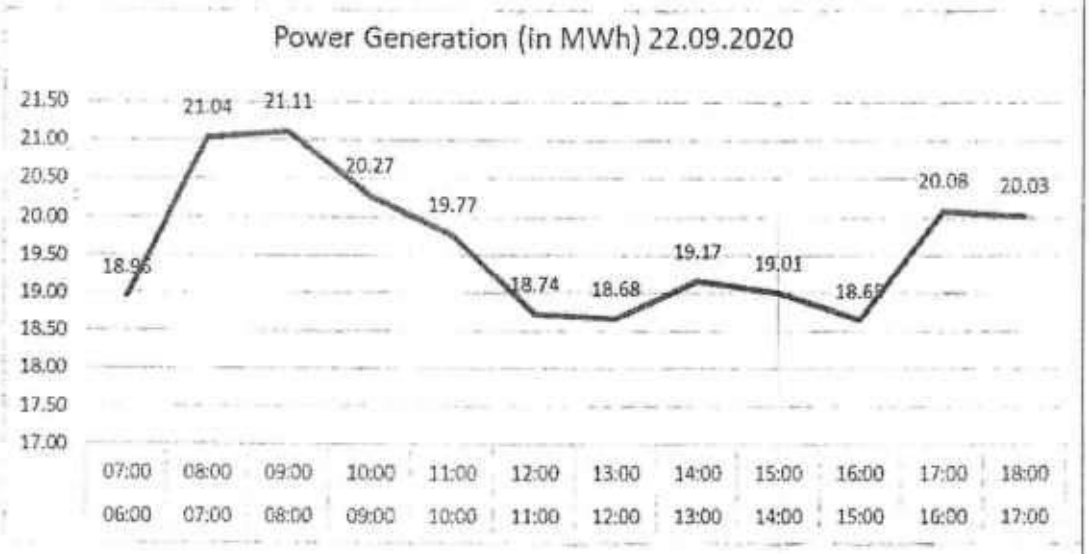


Figure 1: Time vs. power generation plot dated 21 & 22nd September, 2020

f. It is observed that power generation during the monitoring (18.5-21.5 MW) less than the rated power generation capacity (23 MW) of the plant.

g. Stack emission monitoring results are given in **Table 1**. Following are the observations:

i. The Dioxin and Furans values (**0.99 ngTEq/Nm^3**) of stack monitoring exceeded the permissible limit (**0.1 ngTEq/Nm^3**) monitored by Shriram Institute of Industrial Research (SRI), Delhi.

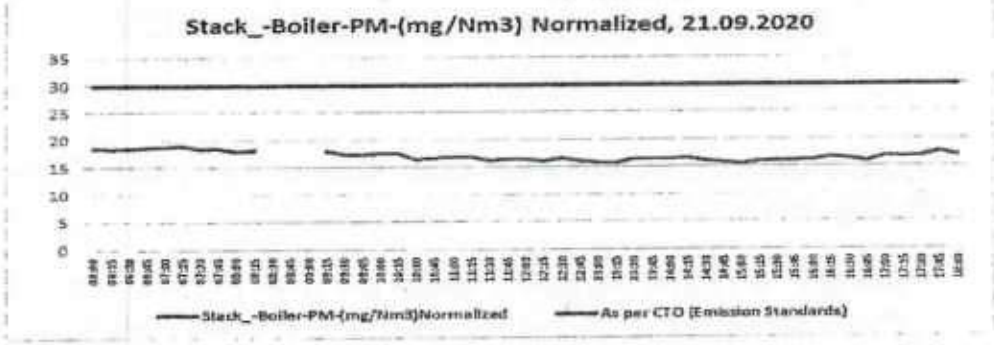
ii. **HCL parameter (198 mg/Nm^3) of stack emission monitored by CPCB exceeded the prescribed limit** (50 mg/Nm^3)

iii. Remaining parameters were within the stipulated norms.

h. Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCl in the stack emission had been installed and it was found working at the time of inspection. Result obtained from OCEMS on 21.09.2020 is plotted at **Figure-2.** Comparison of OCEMS data with joint monitoring results is also tabulated in **Table 5**. Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCl level as per actual monitoring is higher than that reported by OCEMS. Also levels of PM, SO_2 and NOx as per actual monitoring is higher than that reported by OCEMS.

Table-5: Comparison of OCEMS and joint monitoring data of Stack emission

Sl. No.	Parameters	OCEMS	Joint inspection results
1.	PM mg/Nm^3	15-20	4.4-10.7
2.	HCL mg/Nm^3	10-30	198
3.	NO_x mg/Nm^3	150-200	85-90
4.	SO_2 mg/Nm^3	40	BDL



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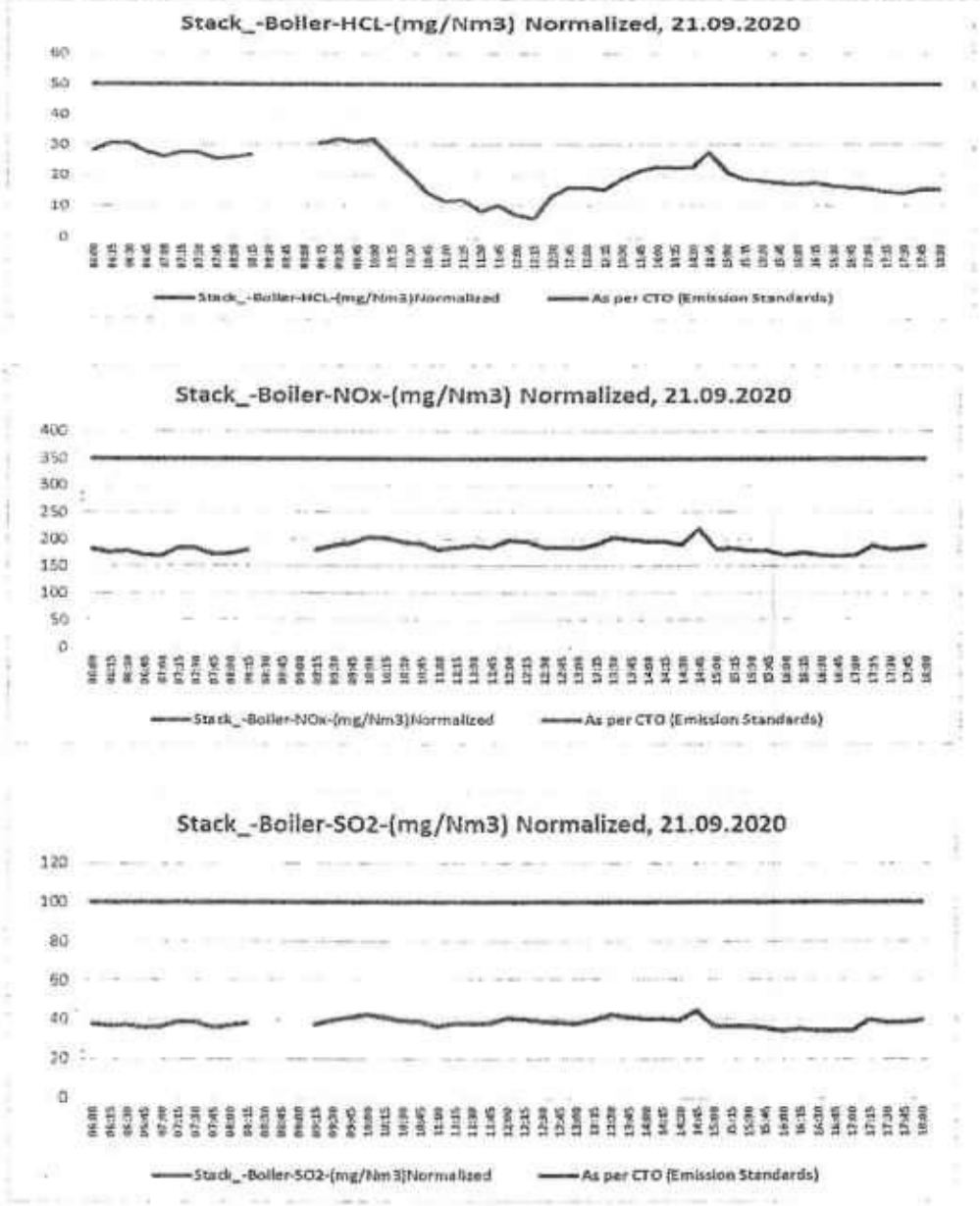


Figure-2: Online Continuous Emission Monitoring System (OCEMS) data for PM, SO_2, NO_x and HCL on 21.09.2020.

i. Ambient Air Quality monitoring results are given in **Table 2.** It is observed that PM2.5 (**78 µg/m³**) exceeded the prescribed limit (60 µg/m³) at Sukhdev Vihar monitoring station. Remaining parameters were found within the limit of both monitoring stations (STP Okhla & Shukdev Vihar).

j. M/s. Timarpur Okhla Waste to Energy plant has placed order to M/s JITF ECOPOLIS for purchase of Continuous Ambient Air Quality Monitoring Station (Copy enclosed).

k. Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash are in **Table-3.** It is observed that monitored levels of all the parameters are within the specified limit.

l. Fly ash bricks manufacturing unit is installed but was not operational during the inspection.

m. Plant has installed water sprinkling system for dust settlement.

n. To control the emission of flue gas, the unit is using $Ca(OH)_2$ and Hydrophobic Organic Carbon (HOC) as dosing and approximately 172 Kg/h and 54.2 Kg/h of $Ca(OH)_2$ and HoC used for dosing during inspection on 21.09.20.

o. During inspection, Multi effect evaporator (MEE) was found operational for treatment of leachate and the treated water was reused as process water.

p. As informed average 250 MT of inerts are produced every day and disposed of at Jaitpur site.

q. Radioactive sensors are installed at gate no. 2 of plant.

r. Plant has maintained considerable greenery inside the premises and along boundary wall.

15. Recommendations

i. Plant to properly control production process and pollution control equipment to ensure that all parameters including Dioxin & Furans and HCl are within the stipulated norms.
ii. Plant should implement necessary measures to improve ambient air quality (including $PM_{2.5}$ concentration) in and around the plant.
iii. OCEMS to be calibrated properly to ensure that OCEMS data matches with actual monitoring results.
iv. Okhla plants should utilize 100 % Fly ash for beneficial purposes like bricks manufacturing etc. and time bound Action Plan to be submitted for the same.
v. The plant to specify the timeframe within which the online continuous ambient air quality monitoring station shall be installed.

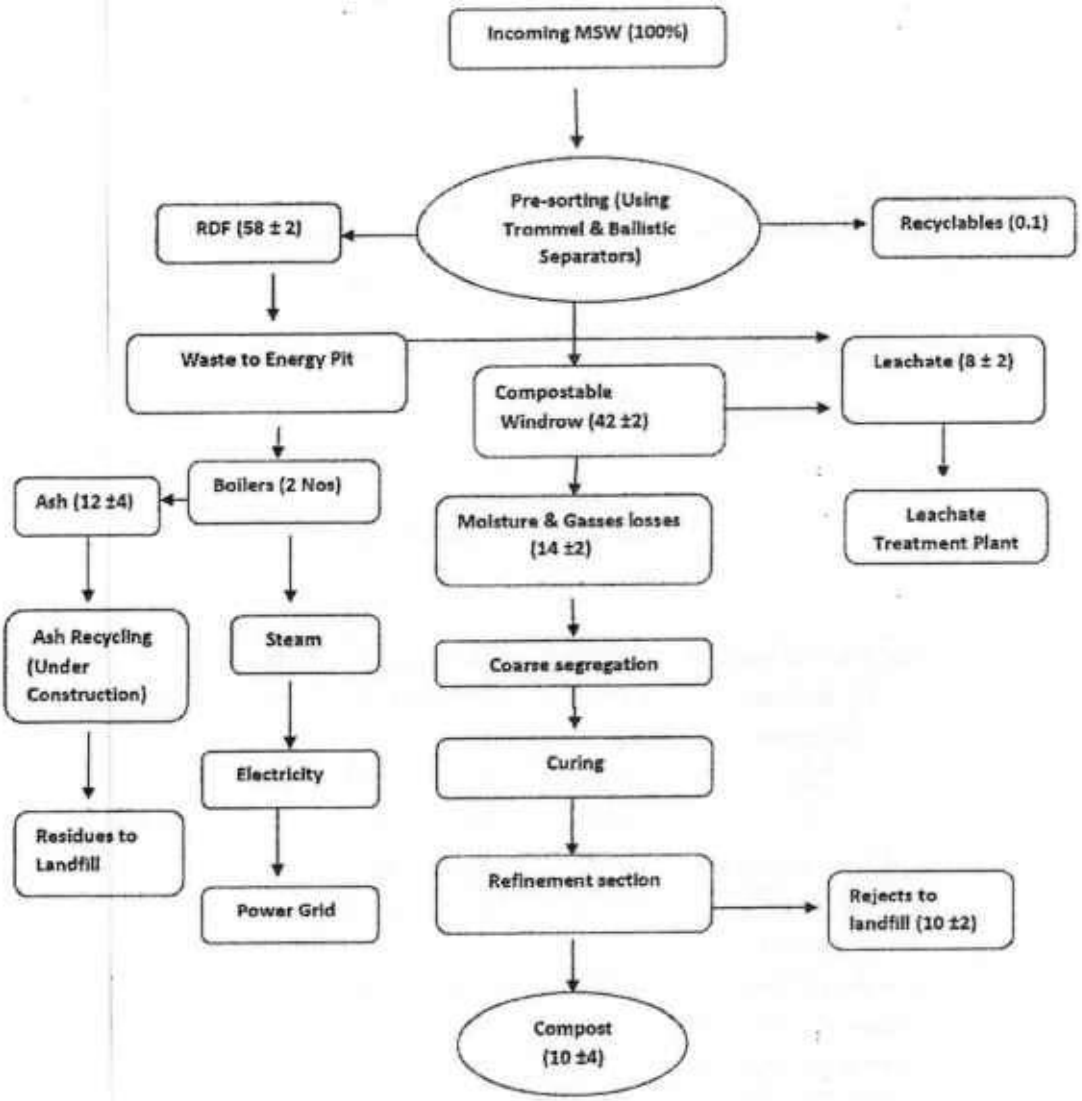
Waste to Energy Plant Bawana

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Delhi MSW Solutions Ltd. Pocket N-1, Sector-5, Bawana Industrial area, Behind Pragati Power Plant Delhi-110039 Latitude Extension: 28°47'58.36"N Longitudinal Extension: 77° 04'11.79"E
2.	Name of the occupier/contact person with Telephone Fax E-mail	K Vijay Kumar Reddy Mob. 9821124350 laboratorynarela@ramky.com
3.	Date of inspection and monitoring	September, 24-25, 2020
4.	Installed processing Capacity (as per consent)	2000 TPD Processing and Disposal facility with 24 MW Waste to Energy Plant
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
24.09.2020	6 AM to 1 PM	22.3	21.1
25.09.2020	6 AM to 6 PM	21.4	20.1

7. **Process Flow Diagram:**

The unit has own segregation setup of MSW having 13 trommels with 4 ballastic separators for segregation of MSW and production of RDF. The detailed materials flow sheet is as given below:



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant (Two boilers connected to one stack)	60 mtrs	Reaction Tower (lime Spray reactor), Activated Carbon Injection followed by Bag filters.	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SIIR, Delhi. Results are given in **Table-6**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality monitoring Conducted at two locations at near main gate of the plant and fire station Bawana	Ambient Air Quality Status given in **Table – 7**
11.	Continuous Ambient Air Quality Station	CAAQMS installed & was working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash result in **Table-8**

Table 6. Analysis results of the stack emission monitoring of the WTE plant Bawana

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values in mg/Nm³
1.	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	24-25 September, 2020	16.7, 12.8
2.	Hydrogen Chloride	CPCB	50 mg/Nm³	50 mg/Nm³		3.35
3.	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		BDL, BDL
4.	NO_X	CPCB	350 mg/Nm³	400 mg/Nm³		17.7, 82.0
5.	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		0
6.	Hydrogen Fluoride	CPCB	0.5 mg/Nm3	4 mg/Nm³		BDL
7.	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5mg/Nm³	0.5mg/Nm³		0.058
8.	Cd + Tl + their compounds	CPCB	0.05mg/Nm³	0.05mg/Nm³		-
9.	Pb	CPCB	0.1mg/Nm³	Not prescribed		0.006
10.	Hg	CPCB	0.02mg/Nm³	0.05mg/Nm³		BDL
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	28.10.2020	**0.49**
12.	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		5.1

* BDL for SO2 is <1.0 mg/Nm³, BDL for HF is <1.0 mg/Nm³, BDL for Hg < 1.0 µg/Nm³

Table 7: 24 hourly average ambient air quality monitoring conducted by CPCB at WtE Plant Bawana

Parameters	Date of sampling	Monitored by	Prescribed Standard* (in µg/m³)	Measured values	
				Fire Station Bawana Location-I	Near main gate Location-II
PM_{10}	23-25 September, 2020	CPCB	100	**131.33**	89.33
$PM_{2.5}$			60	**84.00**	40
NO_2			80	36.33	17.00
SO_2			80	11.66	10.66

**National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.*

Table 8: Analysis results of LOI and heavy metals in Bottom Ash and Fly Ash

Date of sampling	Parameters	Limit	Measured Values	
24 September, 2020	Loss on Ignition (for bottom ash only)	<5%*	1.67%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	BDL
	Cadmium	1 mg/l#	BDL	BDL
	Chromium	5 mg/l#	0.08	0.69
	Manganese	10 mg/l#	BDL	BDL
	Lead	5 mg/l#	BDL	BDL
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.01	BDL
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	0.02	0.04
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	BDL	BDL

BDL: for Lead <0.013 ug/l, Selenium < 0.019ug/l, for Copper < 0.003 ug/l, for Nickel < 0.003 ug/l, for Cobalt < 0.002 ug/l and Vanadium < 0.16 ug/l.
#Concentration Limit to categorize as hazardous waste as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy enclosed)	Valid till 05-05-2021
II	Under Air Act (Copy enclosed)	Valid till 05-05-2021

14. Observations

During the inspection on 24-25, September, 2020 following observations were made.

a) The processing capacity of the plant is 2000 TPD. However, the plant receipts 2794 MT and 2600 MT of Municipal Solid Waste on 24.09.2020 & 25.09.2020 respectively, which is more than the consented capacity of the plant.

b) The unit has own segregation setup of MSW having 6 trommels with blastic separators for segregation of MSW and production of RDF. Ferrous waste is segregated manually as well as through magnetic separator installed at conveyor belt of ballistic separators. Plant Machinery Details DMSWSL Bawana is tabulated in **table 9**:

Table 9: Detailed machinery used during segregation of MSW

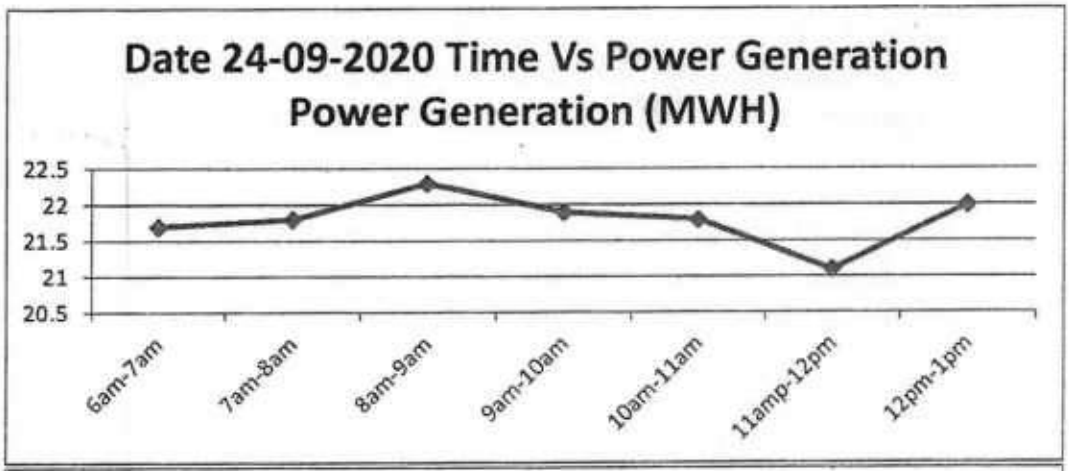
Section Wise	Equipment Name	Number of Machinery
Pre Sorting	Trommels- 50 mm	6 No's
	Ballastic Separator	4 No's
Preparatory Section	Trommels- 20 mm	4 No's
Refinement Section	Trommels- 4 mm	3 No's
Bio Mining	Puzolana	1 No's

c) As informed, total RDF generation in the plant is approximately 1500 TPD. As per the logbook RDF used as fuel in boilers on 24.09.2020 is tabulated at **Table 10**:

Table 10: RDF Feed Record on 24.09.2020

Sl. No.	Time	RDF Feeding (TPH)
1.	9-10 AM	54
2.	10-11 AM	52
3.	11-12 PM	56
4.	12-1.0 PM	58
5.	1.0-2.0 PM	56
6.	2.0-3.0 PM	52

d) Details of power generation ranges during the said inspection period is placed at **Figure 3**. It is observed that power during the monitoring was less than the (20-22.5 MW) below the rated power generation capacity (24 MW) of the plant-although the plant was processing waste at full capacity.



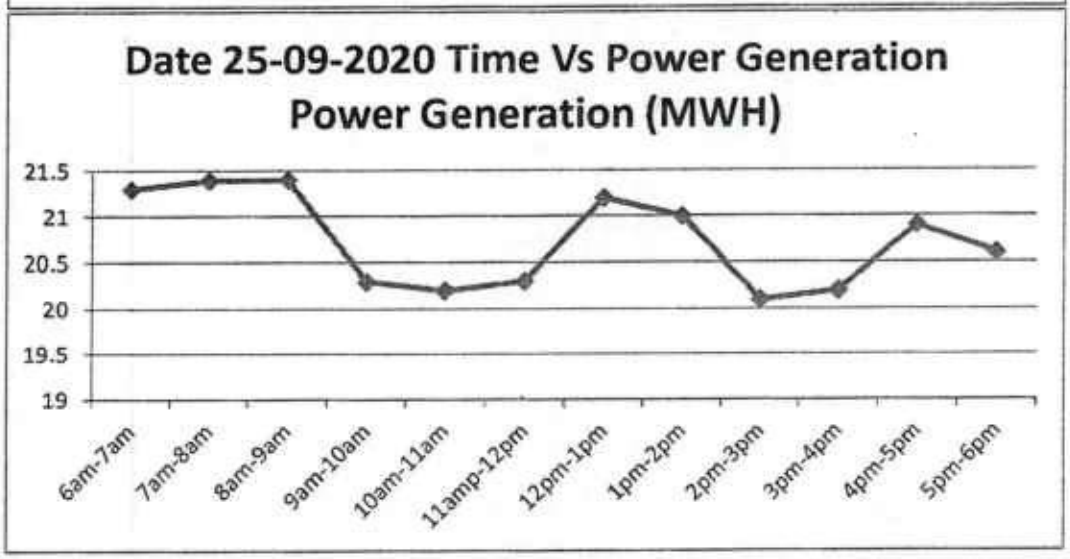


Figure 3: Time vs. power generation plot dated 24 & 25th September, 2020.

e) At the time of inspection on 24.09.2020, plant tripped due to grid fluctuation (High voltage) from 1 PM to 5.30 PM.

f) The two boilers and attached pollution control devices were found operational during monitoring. The temperature of furnace was maintained between 1142-1162°C.

g) Stack emission are tabulated in **Table 6**. It was observed that:

   I. Dioxin and Furans values (**0.49 ngTEq/Nm³**) are exceeding the permissible limit (**0.1 ngTEq/Nm³**) monitored by M/s. SRI, Delhi,

   II. Remaining parameters were within the stipulated norms.

h) Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCL in the stack emission had been installed and it was found working at the time of inspection. Result obtained from OCEMS on 25.09.2020 are plotted in **Figure-4.** Comparison of OCEMS data with joint monitoring results is tabulated in **Table 11**. Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCL level as per actual monitoring is less than that reported by OCEMS. Also levels of PM, SO2 and NOx as per actual monitoring is less than that reported by OCEMS.

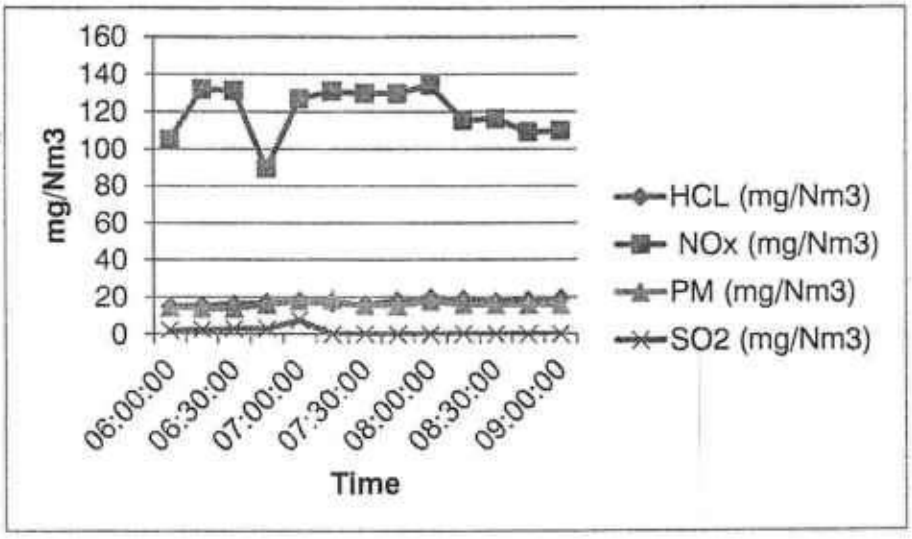


Figure 4: Online Continuous Emission Monitoring System (CEMS) data for PM, SO_2, NOx, and HCL on 24.09.2020.

Table 11: Comparision of OCEMS data and Joint monitoring data of Stack emission

Sl. No.	Parameters	OCEMS	Joint inspection results
1.	PM mg/Nm3	13.8-18.41	12.8-16.7
2.	HCL mg/Nm3	15.02-19.48	3.35
3.	NO_x mg/Nm3	89.4-131.94	17.7-82
4.	SO_2 mg/Nm3	0.01-7.6	BDL

i) Ambient Air quality monitoring results are given in **Table 7**. It is observed that PM2.5 (**84 µg/m³**) & PM_{10} (**131. 33 µg/m³**) exceeded the prescribed limit (60 µg/m³ &100 µg/m³) at Fire Station Bawana. Concentration levels of the remaining parameters are within the stipulated norms.

j) Online Continuous Ambient air quality monitoring station (CAAQMS) has been installed at facility & data is tabulated in **Table 12** for 25.09.2020. It observed that values of PM_{10} exceeded the standard limit at 12.00 noon (**176 µg/m³**), 2.30 PM (**166.5µg/m³**), 3.15 PM (**190.1µg/m³**) and 4.00 PM (**202.1µg/m³**) whereas the limit of $PM_{2.5}$ exceeded at 4.00 PM. Other parameters such as SO_2 (6-6.9 µg/m³), NOx (12.9-19.5µg/m³) were found well within the standard limit.

Table 12: Online Continuous Ambient air quality monitoring (CAAQMS) data on 25-09-2020

Time	Parameters						
	SO_2 µg/m³	NO µg/m³	NO_2 µg/m³	NO_x µg/m³	PM_{10} µg/m³	$PM_{2.5}$ µg/m³	CO mg/m³
12.00 noon	6.9	-1.2	15.9	14.7	**176**	56.4	-0.46
1.00 PM	6.6	-1.2	17.0	15.7	35.3	-1.0	-0.45
2.30PM	5.6	-1.1	13.9	12.9	**166.5**	-0.6	-0.42
3.15PM	6.0	-1.2	15.6	14.3	**190.1**	37.8	-0.38
4.00PM	6.9	-.4	19.9	19.5	**202.1**	**68.9**	-0.36

k) Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash

are in **Table-8.** It is observed that monitored levels of all the parameters are within the specified limit.

l) Segregated rejects, bottom ash and fly ash are disposed into the sanitary landfill site existing within the facility premise at Bawana.

m) Lime and activated carbon are used as a dosing agent in flue gas. Amount of dosing used at the said inspection is plotted as **Figure 5.** The quantity of lime and activated carbon doused is observed to be in the range of 572-667kg/h and 16-23 Kg/hr respectively.

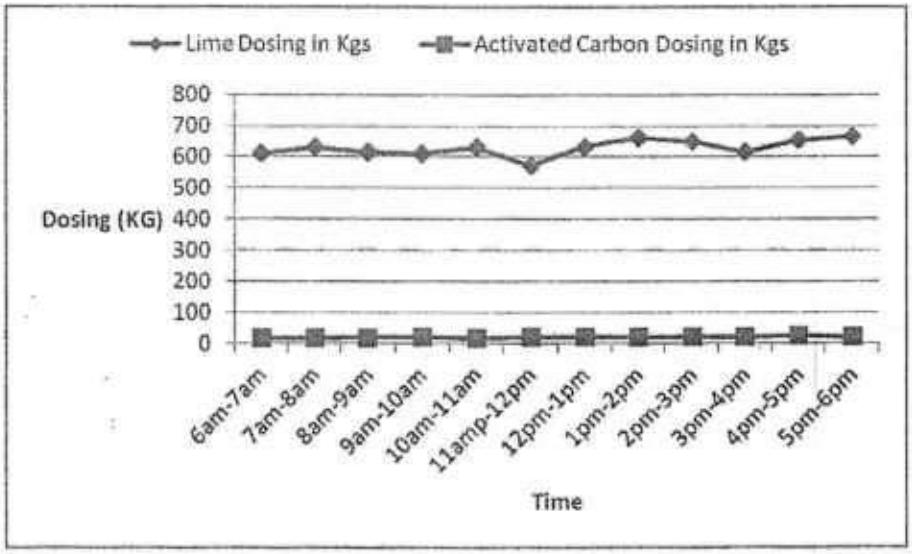


Figure-5: Amount of Lime and Activated Carbon used as dosing on 25-09-2020.

n) Leachate from Waste tipping floor, Windrows floor, sanitary landfill (within its premise) and the open pre-processed storage Area, are treated in the leachate treatment plant and treated water is being used for gardening, road wash etc.

o) Treated leachate analysis report is tabulated in **Table 13.** It has been observed that the values of TDS & Chloride of treated leachate exceeded the standard limit on Land disposal. It is observed that treated leachate is not complying the stipulated standards with respect to TDS & Chloride

Table: 13: Analysis report of treated leachate of Bawana WtE plant

S. No	Parameter	Land disposal (Standards as per SWM Rules, 2016)	Treated Leachate analysis report
1.	Suspended solids, mg/l, max	200	26
2.	Dissolved solids (inorganic) mg/l, max.	2100	**6744**
3.	pH value	5.5 to 9.0	
4.	Ammonical nitrogen (as N), mg/l, max.	-	1.7
5.	Total Kjeldahl nitrogen (as N), mg/l, max.	-	-
6.	Biochemical oxygen demand (3 days at 270 C) max.(mg/l)	100	25
7.	Chemical oxygen demand, mg/l, max.	-	261
8.	Arsenic (as As), mg/l, max	0.2	BDL
9.	Mercury (as Hg), mg/l, max	-	-
10.	Lead (as Pb), mg/l, max	-	BDL
11.	Cadmium (as Cd), mg/l, max	-	BDL
12.	Total Chromium (as Cr), mg/l, max.	-	0.02
13.	Copper (as Cu), mg/l, max.	-	BDL
14.	Zinc (as Zn), mg/l, max.	-	0.06
15.	Nickel (as Ni), mg/l, max	-	BDL
16.	Cyanide (as CN), mg/l, max.	0.2	-
17.	Chloride (as Cl), mg/l, max.	600	**1564**
18.	Fluoride (as F), mg/l, max	-	-
19.	Phenolic compounds (as C6H5OH) mg/l, max.	-	BDL

p) As informed, M/s. Waste to Energy plant Bawana has placed order to M/s. Spray Engineering Devices Limited for purchase of 200 KLD Low Temp Evaporator with Mechanical Vapor Recompression (MVR) System.

q) As informed, after segregation 80 MT of compost is being generated per day and sold to the market.

r) Radioactive sensors are installed at entrance gate of the plant & was found working on the date of inspection.

s) Storage and segregation process of MSW being done within a covered area.

t) The facility is collecting solid waste since 2009 and legacy waste of about 0.8 Million MT is being stored in an open area of about 9 acres. This waste is also being processed in the plant.

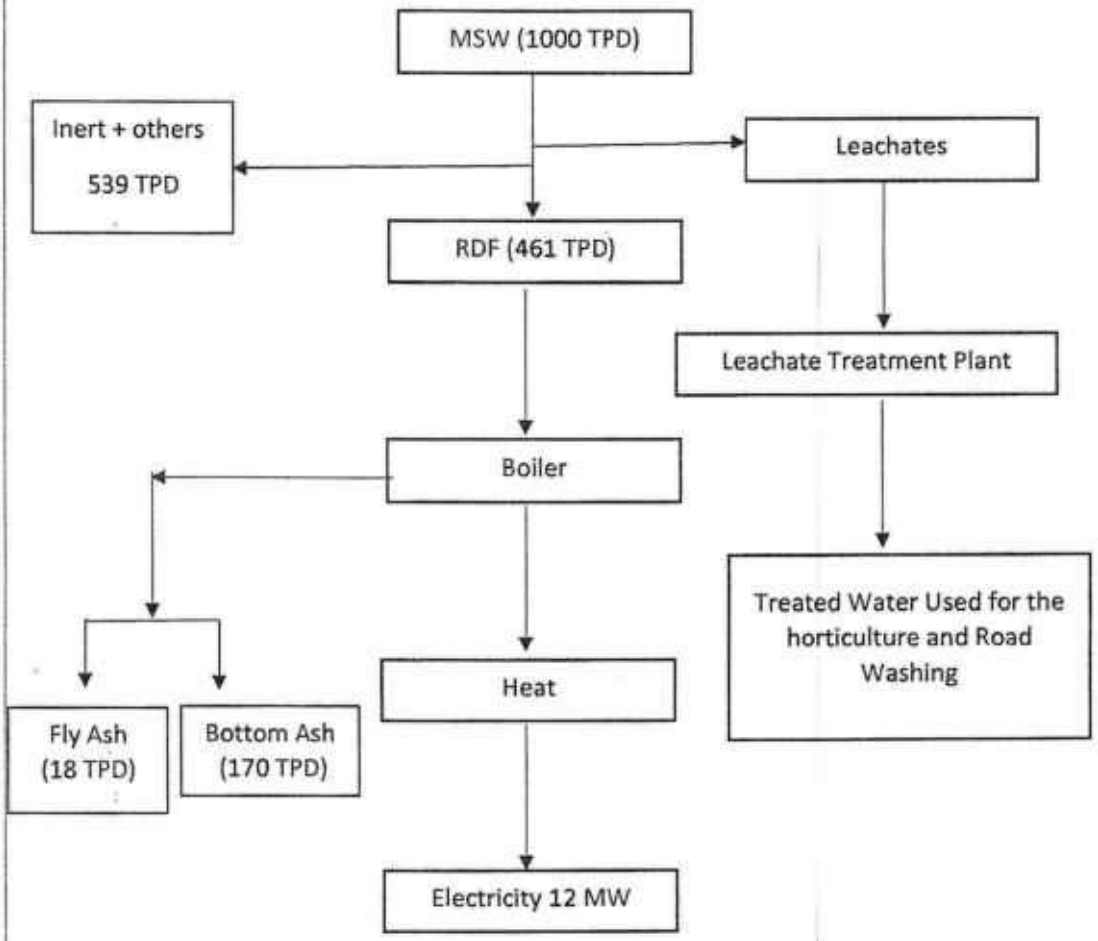
u) Plant has maintained considerable greenery inside the premises.

15. Recommendations

a) Plant should process the waste as per the consented capacity. The production process should be optimized so that power generated from the plant is as per the consented capacity of the plant.
b) Plant to properly control production process and pollution control measures to ensure that all parameters including Dioxin & Furans are within the stipulated norms.
c) Plant should implement necessary measures to improve ambient air quality (including $PM_{2.5}$ & PM_{10} concentration) in and around the plant.
d) OCEMS to be calibrated properly to ensure that OCEMS data matches with actual monitoring results.
e) Time bound action plan to be submitted for implementation of Fly ash and inert material utilization measures.
f) Time bound Action Plan to be submitted for installation of Mechanical Vapor Recompression (MVR) system for leachate treatment.

Waste to Energy Plant Ghazipur

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s East Delhi Waste Processing Company Ltd. Adjacent to Veterinary Hospital Behind Ghazipur DDA Flats Ghazipur, Delhi- 110096 Lat. 28.622653, Long. 77.323398
2.	Name of the occupier/contact person with Telephone Fax E-mail	Mr. Iype George 8448692608 Iype.George@ilfsindia.com
3.	Date of inspection and monitoring	October, 13-14, 2020
4.	Installed processing Capacity	1300MT of Municipal Solid Waste (MSW) per day for the generation of 12MW electricity.
5.	Production status (on date of inspection)	Operational
6a.	Power Generation Authorized	12MW
6b	Actual Power Generation	**Details of power generation ranges during the said inspection** Date: 13.10.2020 — Power Generation range (MW) 6 AM-6 PM: 3.45 – 8.75

7.	**Process Flow Diagram** The unit has segregation setup of MSW which consist of trommels with blastic separators for segregation of MSW and production of RDF. 

8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
One boiler connected with one stack of the waste to energy plant	60 meters	Scrubbing system	Given in **Table -14**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations (Ghazipur Police station location-1 & Delhi Transco Limited Ghazipur Location-2)	Ambient Air Quality results are given in **Table – 15**

11.	Continuous Ambient Air Quality Station	CAAQMS installed but was not working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are given in **Table - 16**

Table 14. Analysis results of the stack emission monitoring of the WTE plant, Ghazipur monitored and analyzed by CPCB.

S. No	Parameters	Monitored by	Standards as per consent to operate issued by DPCC	Standard as per Solid waste Management Rules,2016	Date of Sampling	Measured Values Stack-1 (Average)
1	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	13-14 October, 2020	**62.7, 85.1**
2	HCL	CPCB	50 mg/Nm³	50 mg/Nm³		**407**
3	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		BDL, 3.4
4	NOx (NO and NO2 expressed No2)	CPCB	350 mg/Nm³	400 mg/Nm³		**869**, 104.3
5	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		0
6	Hydrogen Fluoride	CPCB	0.5 mg/Nm³	4 mg/Nm³		BDL
7	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5 mg/Nm³	0.5 mg/Nm³		0.164
8	Cd+Th+their compounds	CPCB	0.05 mg/Nm³	0.05 mg/Nm³		0.002
9	Pb	CPCB	0.1 mg/Nm³	Not prescribed		0.019
10	Hg	CPCB	0.02 mg/Nm³	0.05 mg/Nm³		0.21
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	13.10.2020	**0.27**
12	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		9.4

* BDL for SO2 is <1.0 mg/Nm³, BDL for HF is <1.0 mg/Nm³, BDL for Hg < 1.0 µg/Nm³

Table 15. 24 hourly ambient air quality monitoring conducted by CPCB

Parameters	Date of Sampling	Monitored by	Prescribed Standard*	Measured values	
				Ghazipur Police station location-1	Delhi Transco Limited Ghazipur Location-2
$PM_{2.5}$	October 13-15	CPCB	60	**127**	**215**
PM10			100	**273.66**	**404**
NO2			80	42.833	31
SO2			80	BDL	15.66

BDL for SO2 is < 4ug/m3

**National ambient air quality standards as notified under the air (prevention and control of pollution) Act 1981.*

Table 16: Analysis results of LOI and heavy metals in Bottom ash and Fly ash

Date of sampling	Parameters	Limit	Measured values in %	
13.10.2020	Loss on ignition (For bottom Ash only)	<5%*	1.89	
			Bottom ash	Fly Ash
	Arsenic	5 mg/l #	BDl	BDL
	Cadmium	1 mg/l #	0.52	0.14
	Chromium	5 mg/l #	BDL	BDL
	Manganese	10 mg/l #	3.01	3.15
	Lead	5 mg/l #	0.08	0.04
	Selenium	1 mg/l #	BDL	BDL
	Copper	25 mg/l #	1.52	0.83
	Nickel	20 mg/l #	0.42	0.20
	Zinc	250 mg/l #	10.79	11.43
	Cobalt	80mg/l #	0.12	0.11
	Vanadium	24mg/l #	BDL	BDL
	Antimony	15mg/l #	0.36	0.05

Note: BDL for arsenic <0.022 mg/l BDL for Chromium<0.002 mg/l BDL for Manganese for Lead<0.013 BDL for Nickel BDL, 0.003 mg/l for Cobalt BDL< mg/l for Vanadium BDL<0.16 mg/l

#Concentration Limit of categorise as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under Environment (Protection) Act, 1986. Facility for fly ash and inert material utilization are yet to installed.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy enclosed)	Expired on 08-12-2018, applied for renewal of the same
II	Under Air Act (Copy enclosed)	Expired on 08.12.2018, applied for renewal of the same

14.0 Observations

a. The plant is operating without valid consent. The plant was given Consent-to Operate which was valid upto 08.12.2018. The unit has applied for renewal of Consent.

b. The unit has segregation setup of MSW which consist of trommels with blastic separators for segregation of MSW and production of RDF. However, the same was not operational at the time of inspection. Operator informed that the same is under maintenance.

c. Segregation of waste was being done in partially covered area.

d. The plant was receiving RDF from bio-remediation of waste from Ghazipur dumpsite. No MSW was received from EDMC on that day. Hence, the plant was operating at level much below as per its last consent.

e. The plant does not have composting facility for wet waste and disposing wet waste when generated in the dumpsite.

f. Average feed rate of the RDF to one boiler was observed at 33 MT/hr. As per the logbook total RDF used as fuel in boilers from 6 AM to 6 PM on 13.10.2020 is given in **Table 17**.

Table 17: RDF Feed Record

Time	Fuel Feed to Boiler MT
6:00 AM	35.28
7:00 AM	35.1
8:00 AM	33.25
9:00 AM	35.89
10:00 AM	36.25
11:00 AM	28.95
12:00 PM	31.25
1:00 PM	32.25
2:00 PM	32.65
3:00 PM	33.25
4:00 PM	31.58
5:00 PM	32.58
6:00 PM	31.58
Total Feed	**429.86**

g. Details of power generation ranges during the said inspection period is given in **Figure 6**. The power generation on 13.10.2020 was in the range of 3.45-8.75 MW which is much less than the rated power generation capacity of 12 MW. Captive power utilization of the plant is about 2 to 2.5 MW.

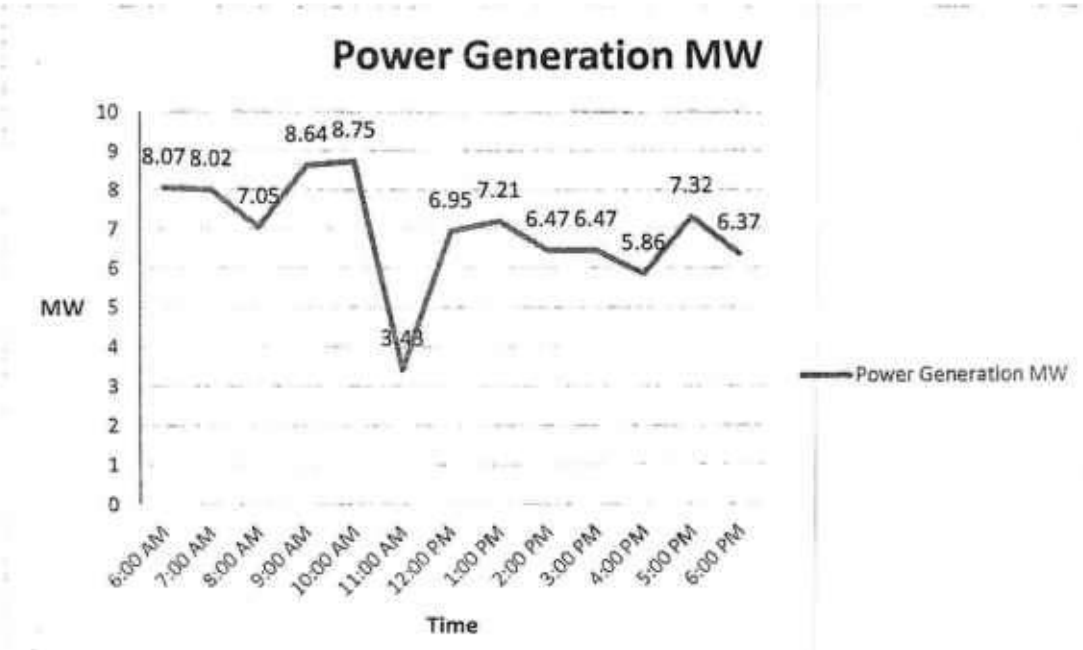


Figure 6: Time vs. power generation plot dated 13th October, 2020.

h. One boiler along with pollution control devices was found operational. The average temperature of furnace was maintained most of the time was 950° C.

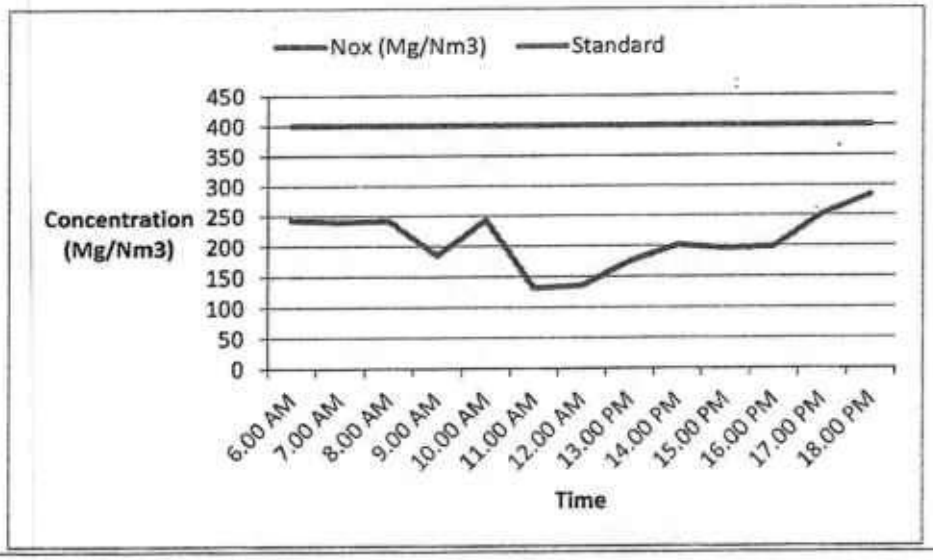
i. Stack emission results are given in **Table 14**. The following are the observations.

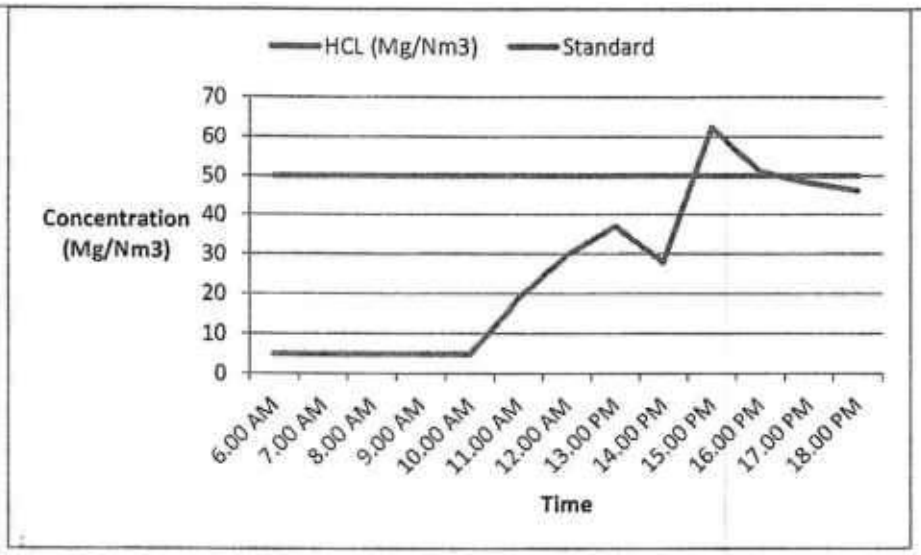
   i. **Dioxin and Furans** values (**0.27ngTEq/Nm³**) of stack monitoring exceeded the permissible limit (**0.1 ngTEq/Nm³**) monitored by M/s. SRI, Delhi.

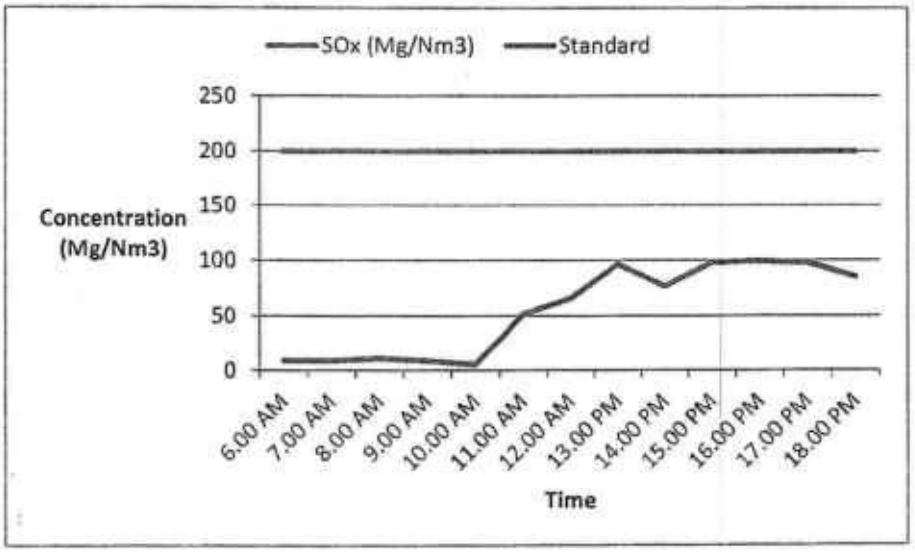
   ii. **PM (62.7 & 85.1** mg/Nm³**), NOx (869** mg/Nm³**) and HCl (407** mg/Nm³**) concentrations were exceeding the permissible limits** (30, 350 & 50 mg/Nm³ respectively)

   iii. Remaining parameters were well within the limit.

j. Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCl in the stack emission had been installed and it was found working at the time of inspection except for monitoring PM. Results obtained from OCEMS on 13.10.2020 are plotted in **Figure-7.** Comparison of OCEMS data with joint monitoring results is tabulated in **Table-18.** Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCl & NOx level as per actual monitoring was more than that reported by OCEMS. Whereas, SOx as per joint monitoring is lower than the OCEMS result.




HCL (Mg/Nm3)
Standard
Concentration (Mg/Nm3)
70
60
50
40
30
20
10
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time


SOx (Mg/Nm3)
Standard
Concentration (Mg/Nm3)
250
200
150
100
50
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time

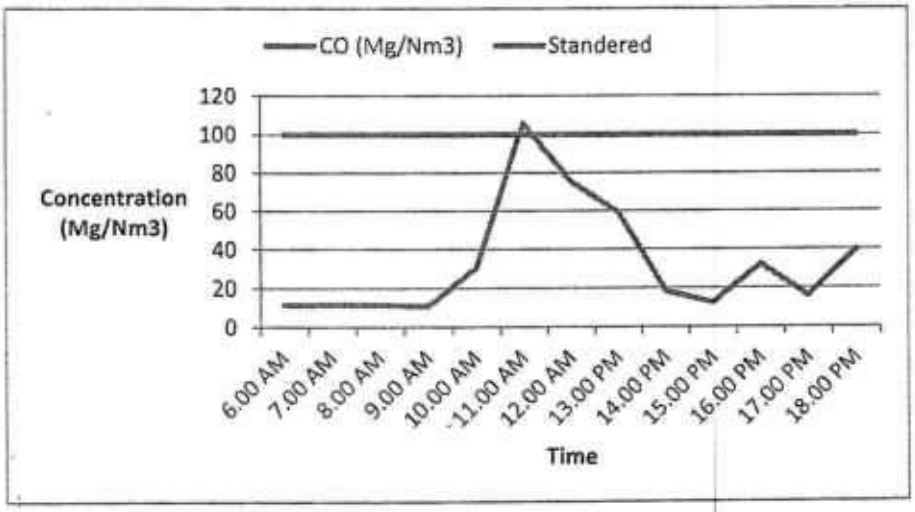

CO (Mg/Nm3)
Standered
Concentration (Mg/Nm3)
120
100
80
60
40
20
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time

Figure 7: Online Continuous Emission Monitoring System (OCEMS) data for NOx HCL, SOx, and CO on 13.10.2020.

Table 18: Comparison of OCEMS & Joint Monitoring data of the stack emission

Sl. No.	Parameters	OCEMS	Joint inspection results
1.	PM mg/Nm3	Not working	62.7-85.1
2.	HCL mg/Nm3	4.86-51.13	407
3.	NOx mg/Nm3	132.4-251.71	869-104.3
4.	SO2 mg/Nm3	5.79-98.25	BDL
5.	CO	11.35-105.61	Not monitored

j. Ambient Air quality monitoring results are given in **Table-15**. It is observed that PM2.5 & PM_{10} at Ghazipur Police station & Delhi Transco Ltd. (**127 µg/m³ & 215 ug/m³ and 273 ug/m³ & 404 ug/m³ respectively)** exceeded the standard of prescribed limit (PM2.5 : 60 µg/m³ & PM10 100 µg/m³). Concentration levels of the remaining parameters are within the stipulated norms.

k. Continuous Ambient Air Quality Monitoring Station (CAAQMS) was not operational during the inspection.

l. Lime, Powered Activated Carbon (PAC) and Urea are used as dosing agents in Flue gas. A graph has been plotted for Lime, Powered Activated Carbon (PAC) and Urea used on 13.10.2020 during 6.00AM to 6PM as shown in **Figure 8**. The quantity of Lime, activated carbon and urea doused is observed to be in the range of 140-168kg/h, 4-6 kg/h and 20-28.32 Kg/hr respectively.

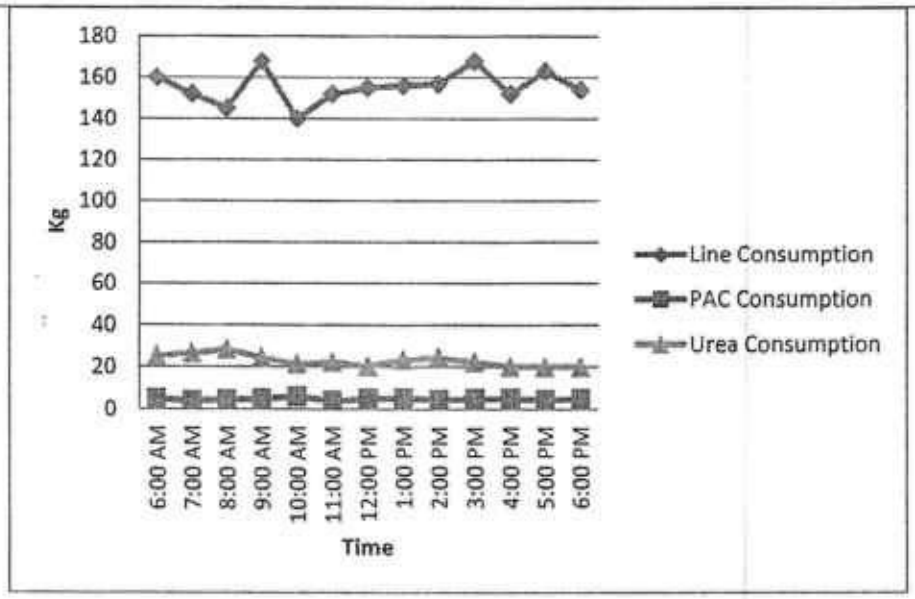


Figure-8: Amount of Lime, Activated Carbon and urea used as dosing on 13.10.2020.

m. Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash are given in **Table-16.** It is observed that monitored levels of all the parameters are within the specified limit.

n. The plant is dumping Bottom Ash, Fly Ash & inerts at Ghazipur Dumpsite. WtE plant Ghazipur is not utilizing Fly ash for beneficial purposes like bricks manufacturing etc.

o. Leachate Treatment plant has been installed and treated leachate is being used for gardening, road waste etc.

p. During inspection, Treated Leachate Treatment plant was found operational. Treated leachate analysis report is tabulated in **Table-19**. It has been observed that the value of TDS of treated leachate exceeded the standard limit on Land disposal.

Table 19: Analysis report of treated leachate

S. No	Parameter	Land disposal (Standards)	Treated Leachate analysis report
	Suspended solids, mg/l, max	200	47
	Dissolved solids (inorganic) mg/l, max.	2100	2532
	pH value	5.5 to 9.0	-
	Ammonical nitrogen (as N), mg/l, max.	-	3.0
	Total Kjeldahl nitrogen (as N), mg/l, max.	-	-
	Biochemical oxygen demand (3 days at 270 C) max.(mg/l)	100	18.2
	Chemical oxygen demand, mg/l, max.	-	92
	Arsenic (as As), mg/l, max	0.2	BDL
	Mercury (as Hg), mg/l, max	-	-
	Lead (as Pb), mg/l, max	-	BDL
	Cadmium (as Cd), mg/l, max	-	BDL
	Total Chromium (as Cr), mg/l, max.	-	BDL
	Copper (as Cu), mg/l, max.	-	0.03
	Zinc (as Zn), mg/l, max.	-	1.25
	Nickel (as Ni), mg/l, max	-	BDL
	Cyanide (as CN), mg/l, max.	0.2	-
	Chloride (as Cl), mg/l, max.	600	-
	Fluoride (as F), mg/l, max	-	-
	Phenolic compounds (as C6H5OH) mg/l, max.	-	BDL

q. Unit has not fixed radioactive sensors on the way of MSW loaded truck.

r. During inspection all drains within the premises were found chocked & MSW found scattered on roads inside the plant.

s. Plant has not maintained considerable greenery inside the premises.

15. Recommendations

i. The plant has to upgrade its production process and emission control measures to ensure that the emission levels of all parameters including (PM, HCL, NOx, Dioxin & Furans) are within the stipulated limits.
ii. Plant should implement necessary measures to improve air quality (PM2.5 & PM10) in and around the plant.
iii. OCEMS installed in the plant to be calibrated to ensure that OCEMS data matches with the actual monitoring results.
iv. The plant has to ensure that CAAQMS installed in their premises is operational at all times and the display board for the same should be made functional.
v. The plant should upgrade leachate treatment procedure so as to improve the treated leachate quality before spreading over land.
vi. The plant has to provide facility for treatment of wet waste.
vii. The segregation process of MSW of the plant has to be made operational to improve efficiency of the plant.
viii. The plant has to be obtained valid consent to operate from DPCC.
ix. The plant has to ensure that it is operational at full capacity when the joint inspection of the unit is carried out so that the monitoring results are conclusive.
x. Time bound Action Plan to be submitted for utilization of fly ash and inert material.
xi. Green Belt has to be developed around the plant as per Buffer zone Guidelines for waste processing processing facilities issued by CPCB.
xii. Unit has to fix radioactive sensors at suitable places to effectively monitor the entering in the plant.
xiii. House Keeping needs to be improved.

Name & designation of inspecting officer(s)	**(Ratnesh Kumar), Sc.'B', CPCB Delhi**	**(Ramesh Chandra) EE, DPCC Delhi**	**Atanu Dey, RA-I, CPCB**
Signature			

ANNEXURE-I

**BEFORE THE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI**

**M.A. No. 1168 of 2017
In
Original Application No. 22 of 2013 THC**

**Sukhdev Vihar Residents Welfare Association & Ors.
Vs.
State of NCT of Delhi & Ors.**

CORAM : HON'BLE MR. JUSTICE SWATANTER KUMAR, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE RAGHUVENDRA S. RATHORE, JUDICIAL MEMBER
HON'BLE MR. BIKRAM SINGH SAJWAN, EXPERT MEMBER

Present: **Applicant:** Ms. Alpana Podder, Adv. with Mr. Bhupender Kumar, LA, Central Pollution Control Board , Applicant in M.A.

Respondent. : Mr. Tarunvir Singh and Ms. Guneet Khehar, Advs.
Ms. Sakshi Popli, Adv. for Delhi Jal Board
Mr. Krishna Kumar Singh, Adv. for Ministry of Environment, Forest and Climate Change
Ms. Priyanka Swami, Adv. for Nagar Nigam Ghaziabad
Mr. Biraja Mahopatra, Adv. and Mr. Dinesh Jindal, LO for Delhi Pollution Control Committee

	Date and Remarks	Orders of the Tribunal
	Item No. 12 October 09, 2017 SS & SN	**M.A. No. 1168 of 2017** It is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Ferrons. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of ambient air quality once in four months, they shall also conduct at lease two surprise inspections and analysis be made in a year. With the above directions M.A. No. 1168 of 2017 stands disposed of. No order as to cost. .....,CP (Swatanter Kumar)

	Item No. 12 October 09, 2017 SS & SN	.....,JM (Dr. Jawad Rahim) .....,JM (Raghuvendra S. Rathore) .....,EM (Bikram Singh Sajwan)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 640/2018
(Earlier O.A. No. 22/2013)

Sukhdev Vihar Resident's Welfare Association
Vs.
State of Delhi & Ors.

CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL,CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present: Respondent: **Mr. Nilava Bandyopadhyay, Adv. for Project Proponent, Okhla Project**

	Date and Remarks	Orders of the Tribunal
	Item No. 6 **September 27, 2018** **R**	1. In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the Central Pollution Control Board and the Delhi Pollution Control Committee. Findings in the report are that the Waste-to-Energy Plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of the particulate matter. Following recommendations have been made: **"Recommendations:** 1. *To ensure better efficiency of the Plant and Power generation the unit should feed segregated wastes.* 2. *Plant should adopt technologies to reduce Moisture Content in RDF.* 3. *Fly ash utilization should be done rather than dumping it on landfill site.* 4. *Unit shall install Fly ash bricks manufacturing unit.* 5. *Flow meters shall be installed at inlet and outlet of Leachete treatment plant.* 6. *Plant should adopt technologies to improve calorific value of RDF.* 7. *Plant shall be designed for 30-35 years."* 2. The Central Pollution Control Board may send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste-to-Energy Plant for compliance and conduct another inspection within one

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
Principal Bench, New Delhi
In
Original Application No. 640/2018
(Earlier O.A. No. 22/2013)

In the Matter of: -

Sukhdev Vihar Resident's Welfare Association — **Applicant(s)**

Vs.

State of Delhi & Ors. — **Respondent(s)**

Index

Sr. No.	Particulars	Page No.
1.	**Compliance Report of Waste to Energy Plants in Delhi (Period: February-March, 2020)** in compliance to Hon'ble NGT, PB order dated 09.10.2017 and 27.09.2018 in the matter of O.A. No. 640/2018 (Earlier O.A. No. 22/2013) titled as Sukhdev Vihar Resident's Welfare Association. Vs. State of Delhi & Ors.	
2.	**Annexure-I:** A copy of Hon'ble NGT order dated 09.10.2017.	
3.	**Annexure-II:** A copy of Hon'ble NGT order dated 27.09.2018.	

(Divya Sinha)
Scientist 'E'
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi-110032

Place: Delhi
Date: 24th September, 2020

Compliance Report of Waste to Energy Plants in Delhi

(Period: February-March, 2020)

As per Hon'ble NGT Vide its Order dated 09/10/2017, in OA No. 22 of 2013 T_{HC} & dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013)

CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment, Forest &Climate Change, Govt. of India)
'Parivesh Bhawan' C.B.D. Cum-Office Complex,
East Arjun Nagar, Shahdara, Delhi-110032
E-mail:divsinha@yahoo.com, Website- www.cpcb.nic.in

September, 2020

1. Background

1.1. Hon'ble NGT in its order dated 09/10/2017 in OA No. 22 of 2013 T_{HC}, directed Central Pollution Control Board to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year" .

1.2. Further Hon'ble NGT vide its order dated September 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013), issued the following directions

i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection of Waste to Energy Plants at Delhi has been conducted by the CPCB and the DPCC. Findings of reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*

ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for reliving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"*

iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

In view of above directions, monitoring was planned during January, 2020.However, due to Delhi Assembly Election it could not be carried out. The Three Waste to Energy Plants were subsequently monitored by CPCB & DPCC joint inspection team during February-March 2020. The members of joint committee i.e. representatives fromMoEF&CC, expert from IIT Delhi and

representative of Sukhdev Vihar RWA (For Okhla Waste to Energy Plant) were informed vide email dated February 19 & March 09, 2020 regarding inspection schedule. Expert from IIT Delhi was present during inspection of Waste to Energy Plant Okhla. RWA representative did not join the inspection. The details of the monitoring have been covered in the following sections.

Waste to Energy Plant Bawana

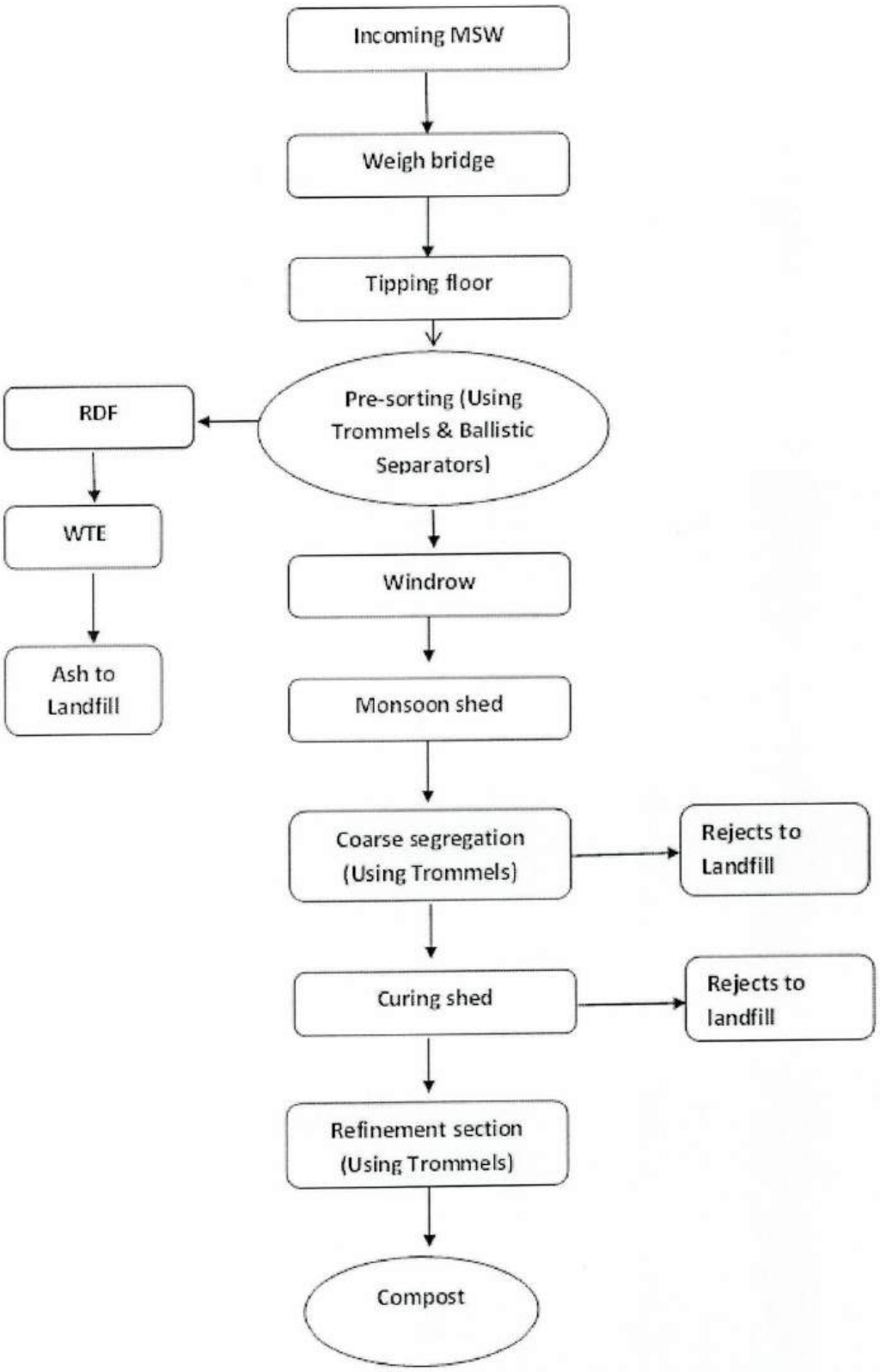
CENTRAL POLLUTION CONTROL BOARD, DELHI

1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Delhi MSW Solutions Ltd. Pocket N-1, Sector-5, Bawana Industrial area, Behind Pragati Power Plant Delhi-110039 Latitude Extension: 28°47'58.36"N Longitudinal Extension: 77° 04'11.79"E
2.	Name of the occupier/contact person with Telephone Fax E-mail	K Vijay Kumar Reddy Mob. 9821124350 laboratorynarela@ramky.com
3.	Date of inspection and monitoring	February 25-26, 2020
4.	Installed processing Capacity	2000 TPD Processing and Disposal facility with 24 MW Waste to Energy Plant
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation range (MW) 6 AM- 6 PM
25.02.2020	18.3-20.9
26.02.2020	19.1-20.1

7. Process Flow Diagram:

DMSWSL PLANT PROCESS FLOW SHEET



8. Air Pollution – Emission Sources & Control			
Sources of air pollution	**Chimney Details**	**APC Equipment**	**Emission Quality**
Stack of the Waste to Energy plant	60mtrs	Reaction Tower (lime Spray reactor), Activated Carbon Injection followed by Bag filters.	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SIIR, Delhi. Results are given in **Table-1**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations	Ambient Air Quality Status given in **Table - 2.**
11.	Continuous Ambient Air Quality Station	CAAQMS installed & was working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ashare given in **Table-3**

13. Status of validity & compliance of consent and authorization		
	Consent/Authorization	Validity
I	Under Water Act (Copy to be enclosed)	Valid till 05-05-2021
II	Under Air Act (Copy to be enclosed)	Valid till 05-05-2021

14. **OBSERVATIONS**

During the inspection on 25-26, February,2020 following observations were made.

a) The plant has obtained consent to operate dated 22.02.2017 for processing of 2000 Tons per day of solid waste and power generation of 24 MW. Consent of the plant is valid upto 05.05.2021.

b) The plant operated at full capacity during inspection.The plant processed 2430 MT and 2487 MT of Municipal Solid Waste on 25.02.2020 & 26.02.2020 respectively.

c) The rated capacity of the plant is 24MW, however the power generation at the time of inspection was in the range of 18.3- 20.1 MW; thus although the plant was operated at full capacity of waste feed, i.e., in terms of processing of waste, the corresponding power generation was not up to the installed capacity.

d) Both the boilers along with pollution control devices of the waste to energy plant were found operating at the time of inspection.

e) Radioactive sensors, installed at entrance of the facility were operational during inspection

f) The segregation sections of the plant were found operational during inspection. It was observed that the waste being fed into the boiler is segregated.

g) Ferrous waste is segregated manually as well as through magnetic separator installed at conveyor belt of ballistic separators.

h) The facility is collecting solid waste since 2009 and legacy waste of about 0.8 Million MT is being stored in an open area of about 9 Acres. This waste is also being processed in the plant

i) Since commencement of trial operation of boilers in June 2016, approximately 400-450 tons/day waste from the said stored waste is being used in the boilers. Project Proponent informed that legacy waste will be consumed in next one year.

j) Online Continuous Emission Monitoring System (CEMS) for PM,SO_2,NOx and HCL in the stack emission has been installed and the same was found working at the time of inspection.

k) Continuous Ambient air quality monitoring station (CAAQMS) has been installed & the same was found working, at the time of inspection.

l) Segregated rejects, bottom ash and fly ash are disposed into the sanitary landfill site existing within the facility premise at Bawana.

m) As per the monitoring results of stack emission, all parameters are complying with the stipulated norms

n) $PM_{2.5}$ and PM_{10} values of ambient air quality monitoring at both the locations were exceeded the permissible limits. Concentration levels of the remaining parameters are within the stipulated norms

o) Concentration value of Cadmium in the fly ash exceeds the permissible limit.

15.Recommendations

a) To ensure better efficiency of the Plant and optimum power generation the unit should further improve further waste segregation.

b) The plant should take necessary measures to reduce fugitive emissions specifically during material handling, soas to reduce PM_{10}& $PM_{2.5}$ value concentrations in ambient air

c) Required efforts to reuse the Bottom ash, Fly ash utilization should be made instead of dumping it on landfill site.

d) The plant should identify the source of cadmium and minimize the same so as bring the Cadmium concentration levels in fly ash within the stipulated limits. (1 mg/l#)

Name & designation of inspecting officer(s)	**(Ratnesh Kumar), Sc.'B', CPCB Delhi**	**(Ramesh Chandra) EE, DPCC Delhi**
Signature	R.Ku	

Table 1. Analysis results of the stack emission monitoring of the WTE plant Bawana.

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values in mg/Nm^3
1.	Particulate Matter	CPCB	30 mg/Nm^3	50 mg/Nm^3	25-26 Feb, 2020	29.4, 27.3
2.	Hydrogen Chloride	CPCB	50 mg/Nm^3	50 mg/Nm^3		1.3
3.	SO_2	CPCB	100 mg/Nm^3	200 mg/Nm^3		35.2, 32.8
4.	NO_X	CPCB	350 mg/Nm^3	400 mg/Nm^3		64.3, 144.2
5.	Carbon Monoxide	CPCB	100 mg/Nm^3	100 mg/Nm^3		0
6.	Hydrogen Fluoride	CPCB	0.5 mg/Nm^3	4 mg/Nm^3		BDL
7.	Sb+As+Pb+ Cr+Co+Cu+ Mn+Ni+V+their compounds	CPCB	0.5mg/Nm^3	0.5mg/Nm^3		0.005
8.	Cd + Th + their compounds	CPCB	0.05mg/Nm^3	0.05mg/Nm^3		BDL
9.	Pb	CPCB	0.1mg/Nm^3	Not prescribed		0.002
10.	Hg	CPCB	0.02mg/Nm^3	0.05mg/Nm^3		BDL
11.	Dioxin & Furans	M/s SIIR, Delhi	0.1ngTEq/Nm^3	0.1ngTEq/Nm^3	26.02.2020	0.0199 ng TEQ/Nm^3
12.	Total Organic Compounds (as C) at 11% O_2		20 mg/Nm^3	20 mg/Nm^3		3.4

* BDL for SO_2 is <1.0 mg/Nm^3, BDL for HF is <1.0 mg/Nm^3, BDL for Hg < 1.0 $\mu g/Nm^3$

Table 2: 24 hourly average ambient air quality monitoring conducted by CPCB at WtE Plant Bawana

Parameters	Date of sampling	Monitored by	Prescribed Standard* (in µg/m^3)	Measured values	
				Fire Station Bawana Location-I	Near main gate Location-II
PM_{10}	25-26 February, 2020	CPCB	100	**309.33**	**268.33**
$PM_{2.5}$			60	**216**	**203**
NO_2			80	55.5	43.88
SO_2			80	28.00	19.66

National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.

Table 3:Analysis results of LOI and heavy metals in Bottom Ash and Fly Ash

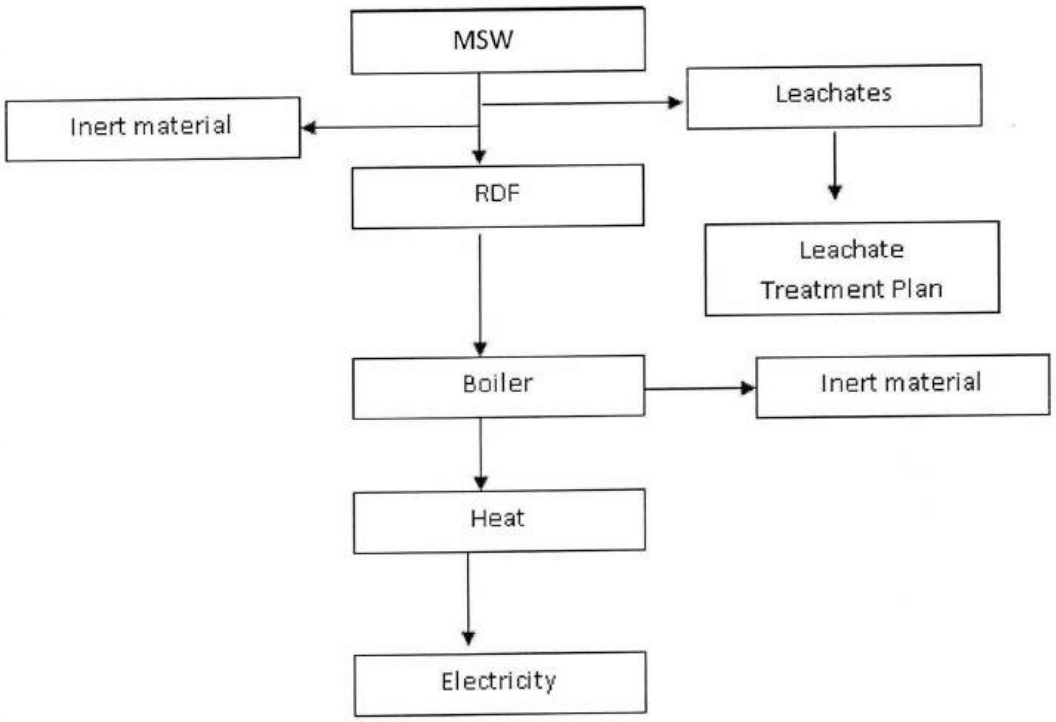
Date of sampling	Parameters	Limit	Measured Values	
25 Feb, 2020	Loss on Ignition (for bottom ash only)	<5%*	1.51%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	0.01	0.01
	Cadmium	1 mg/l#	0.01	**5.12**
	Chromium	5 mg/l#	0.01	0.20
	Manganese	10 mg/l#	0.95	1.23
	Lead	5 mg/l#	0.01	0.15
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.22	0.17
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250mg/l#	BDL	BDL
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	0.07	BDL
	Antimony	15 mg/l#	BDL	0.12

BDL: for Lead <0.013 ug/l, Selenium < 0.019ug/l, for Copper < 0.003 ug/l, for Nickel < 0.003 ug/l, for Cobalt < 0.002 ug/l and Vanadium < 0.16 ug/l.
#Concentration Limit to categorize as hazardous waste as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

Waste to Energy Plant Ghazipur

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s East Delhi Waste Processing Company Ltd. Adjacent to Veterinary Hospital Behind Ghazipur DDA Flats Ghazipur, Delhi- 110096 Lat. 28.622653, Long. 77.323398
2.	Name of the occupier/contact person with Telephone Fax E-mail	Mr. Iype George 8448692608 Iype.George@ilfsindia.com
3.	Date of inspection and monitoring	March 5-6, 2020
4.	Installed processing Capacity	1300MT of Municipal Solid Waste (MSW) per day for the generation of 12MW electricity.
5.	Production status (on date of inspection)	Plant was operating on 3.22 MW power generation capacity on 06.03.2020.
6a.	Power Generation Authorized	12MW
6b	Actual Power Generation	**Details of power generation ranges during the said inspection** Date: Power Generation range (MW) 6 AM- 6 PM 05.03.2020: 3.43 - 7.94 06.03.2020: 0.01 - 6.69

7.	Process Flow Diagram



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Two boilers connected with one stack of the waste to energy plant	60 meters	Scrubbing system	Given in **Table -4**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations	Ambient Air Quality results are given in **Table – 5**
11.	Continuous Ambient Air Quality Station	CAAQMS installed but was not working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are given in **Table - 6**

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy to be enclosed)	Expired on 08.12.2018, applied for renewal of the same
II	Under Air Act (Copy to be enclosed)	Expired on 08.12.2018, applied for renewal of the same.

14.0 Observations

I. The plant has been given Consent-to-Operate for processing of 1300 TPD of solid waste and subsequent generation of power. Consent to operate was valid upto 08.12.2018. The unit has applied for renewal of Consent.

II. The plant is not operational at full capacity. The plant received 301.13 T & 228.32 T of mixed municipal solid (MSW) waste on 05.03.2020 & 06.03.2020 respectively which was much less than the installed processing capacity of 1300 TPD.

III. The power generation is in the range of 0.01 – 7.94 MW which is much less than the rated power generation capacity of 12 MW. Captive power utilization of the plant is about 2 to 2.5 MW.

IV. PM, NO_X and Pb concentrations in stack emissions are exceeding the permissible limits.

V. All values monitored in ambient air are within the stipulated norms.

VI. Continuous Ambient Air Quality Monitoring Station (CAAQMS) was not operational during the inspection.

VII. Unit has not fixed radioactive sensors on the way of MSW loaded truck.

VIII. The plant is dumping Bottom Ash, Fly Ash &inerts in Ghazipur Dumpsite WtE plant Ghazipur is not utilizing 100% Fly ash for beneficial purposes like bricks manufacturing etc.

IX. Concentration value of Cadmium in the fly ash exceeds the permissible limit.

X. On 06.03.2020 the plant was suddenly shut down at 2.58 PM due to wet RDF & hence Dioxin & Furan Monitoring could not be carried out. The plant remain shut for more than a week and after that due to lock down the Dioxin & Furan monitoring was not carried out at Waste to Energy Plant Ghazipur.

Recommendations

i. The plant has to obtain valid consent to operate from DPCC.

ii. The plant has to ensure that it is operational at full capacity when the joint inspection of the unit is carried out so that the monitoring results are conclusive.

iii. The plant has to take necessary measures to ensure that the concentration levels of all monitored parameters in stack emission are within the stipulated limits.

iv. Theplant has to ensure that CAAQMS installed in their premises is operational at all times and the display board for the same should be made functional.

v. Unit has to fix radioactive sensors at some other suitable places from where all the trucks loaded with MSW should pass.

vi. WtE plant Ghazipur should utilize 100% Fly ash for beneficial purposes like bricks manufacturing etc.

vii. The plant should identify the source of cadmium and minimize the same so as bring the Cadmium concentration levels in fly ash within the stipulated limits. (1 mg/l[#])The plant should use the technology to bring PM, NOx and Pb values of stack emission to well within limit.

Name & designation of inspecting officer(s)	**(Ratnesh Kumar), Sc.'B', CPCB Delhi**	**(Ramesh Chandra) EE, DPCC Delhi**
Signature		

Table 4. Analysis results of the stack emission monitoring of the WTE plant, Ghazipur monitored and analysed by CPCB.

S. No	Parameters	Monitored by	Standards as per consent to operate issued by DPCC	Standard as per Solid waste Management rules,2016,	Date of Sampling	Measured Values Stack-1 (Average)
1	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	5-6 March, 2020	**48.4, 53.7**
2	HCL	CPCB	50 mg/Nm³	50 mg/Nm³		3.5
3	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		16.1, 51.6
4	NOx (NO and NO_2 expressed as NO_2)	CPCB	350 mg/Nm³	400 mg/Nm³		105.9, **872.6**
5	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		-
6	Hydrogen Fluoride	CPCB	0.5 mg/Nm³	4 mg/Nm³		BDL
7	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5 mg/Nm³	0.5 mg/Nm³		0.347
8	Cd+Th+their compounds	CPCB	0.05 mg/Nm³	0.05 mg/Nm³		.007
9	Pb	CPCB	0.1 mg/Nm³	Not prescribed		**0.112**
10	Hg	CPCB	0.02mg/Nm³	0.05mg/Nm³		BDL

Table 5: 24 hourly ambient air quality monitoring conducted by CPCB.

Parameters	Date of Sampling	Monitored by	Prescribed Standard*	Measured values	
				Ghazipur Police station location-1	Delhi Transco Limited Ghazipur Location-2
$PM_{2.5}$	March5-6, 2020	CPCB	60	33	35
PM_{10}			100	99.33	46
NO_2			80	28.33	37.5
SO_2			80	0.833	8.166

BDL for SO_2 is < 4ug/m^3

**National ambient air quality standards as notified under the air (prevention and control of pollution) Act 1981.*

Table 6: Analysis results of LOI and heavy metals in Bottom ash and Fly ash

Date of sampling	Parameters	Limit	Measured values	
05.03.2020	Loss on ignition (For bottom Ash only)	<5%*	3.60	
			Bottom ash	Fly Ash
	Arsenic	5 mg/l #	0.02	BDL
	Cadmium	1 mg/l #	0.02	**2.75**
	Chromium	5 mg/l #	BDL	0.08
	Manganese	10 mg/l #	0.36	1.48
	Lead	5 mg/l #	BDL	0.19
	Selenium	1 mg/l #	BDL	BDL
	Copper	25 mg/l #	0.21	0.03
	Nickel	20 mg/l #	BDL	BDL
	Zinc	250 mg/l #	0.11	0.24
	Cobalt	80mg/l #	BDL	BDL
	Vanadium	24mg/l #	0.24	0.08
	Antimony	15mg/l #	0.02	BDL

Note: BDL for Arsenic <0.022 mg/l BDL for Chromium<0.002 mg/l BDL for Manganese for Lead<0.013 BDL for Nickel BDL, 0.003 mg/l for Cobalt BDL< mg/l for Vanadium BDL<0.16 mg/l

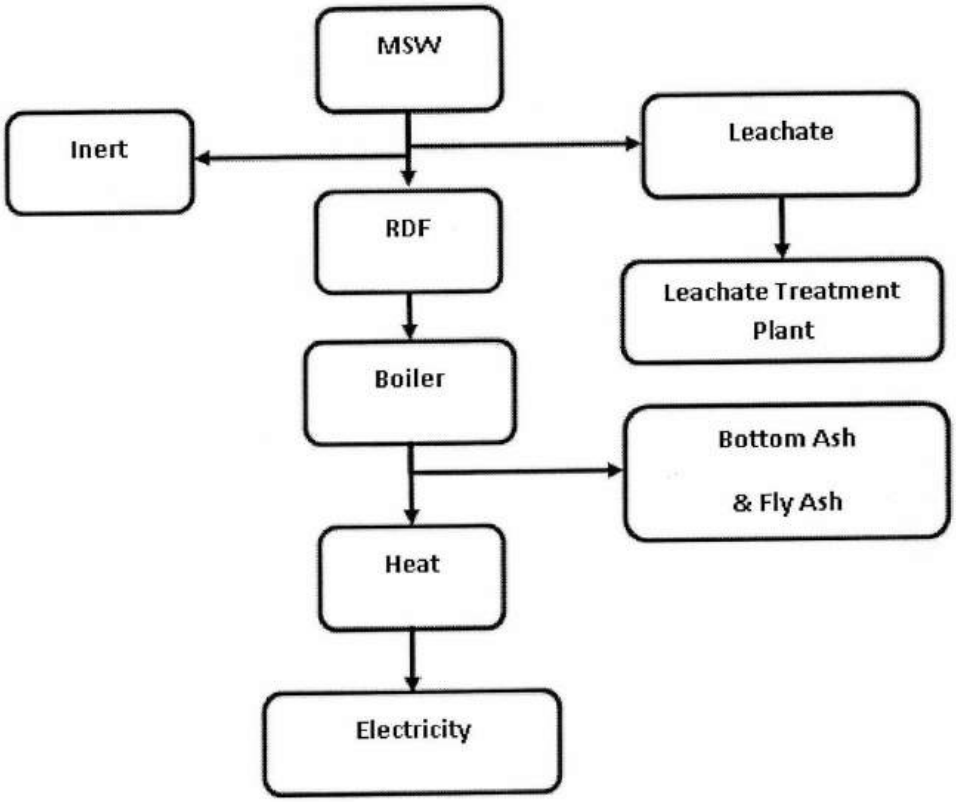
#Concentration Limit of categorise as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under Environment (Protection) Act, 1986. Facility for fly ash and inert material utilization are yet to be installed.

Waste to Energy Plant Okhla

CENTRAL POLLUTION CONTROL BOARD, DELHI

1	Name and address of the industry	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025
	Coordinates (Longitude & Latitude)	Lat. 28.553672 & Long. 77.280838
2.	Name of the occupier/contact person with	Mr. Sandeep Dutt
	Telephone	Mob. 09958360016
	Fax	
	E-mail	Sandip.dutt@jindalcopolis.com
3.	Date of inspection / monitoring	March 12-13, 2020
4.	Installed processing Capacity	As per DPCC Authorization letter the unit has capacity to process 1950 TPD MSW for subsequent generation of 16 MW power. **Vide letter dated 15.01.2020, MoEF&CC has amended Environmental Clearance for increase in Power Generation from 16 MW to 23 MW**
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
12.03.2020	6 AM to 6 PM	17.68	21.20
13.03.2020	6 AM to 6 PM	17.84	21.63

7.	**Process Flow Diagram:** 

8. Air Pollution – Emission Sources & Control

Sources of air pollution	**Chimney Details**	**APC Equipment**	**Emission Quality**
Stack of the Waste to Energy plant	60mtrs	Scrubber followed by bag filters	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SRIIR, Delhi Results are quoted at **Table – 7**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations	Ambient Air Quality Status are quoted at **Table-8**
11.	Continuous Ambient Air Quality Station	**CAAQMS not yet installed**

R.L

12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are quoted at **Table-9**

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	**Validity**
I	Under Water Act	Valid till 24.09.2024
II	Under Air Act	Valid till 24.09.2024

14. Observations

a) DPCC has renewed Consent-to-Operate of the plant vide consent order dated 21.05.2020 and it is valid upto 24.09.2024.
b) The plant received 1705 MT and 1630 MT, of mixed Municipal Solid Waste (MSW) on 12.03.2020 and 13.03.2020 respectively. The segregation system was working properly. However, complete segregation is not possible until MSW is segregated at source.
c) All the three boilers along with pollution control devices were found operational. The temperature of furnace was maintained between 950-1050°C.
d) The Dioxin & Furans value of stack emission monitoring exceeded the permissible limit.Concentration of remaining parameters are within limits.
e) The PM_{10} and $PM_{2.5}$values of ambient air quality monitoring at two locations were exceeded the permissible limit. Concentration of remaining parameters are within limits.
f) Continuous ambient air quality monitoring station is not yet installed at the unit
g) Online Continuous emission monitoring system (OCEMS) has been installed and found operational during the inspection.
h) Quenched Bottom Ash, Fly Ash and segregated inert are disposed of at Jaitpur site.
i) Radioactive sensors are installed at gate no. 2 of plant.
j) Plant has installed water sprinkling system for dust settlement.
k) Fly ash bricks manufacturing unit is installed but was not operational during the inspection. The plant operator informed that there is negligible market for fly ash bricks because of high manufacturing cost.
l) Analysis report of Fly ash & Bottom ash reveals that all parameters were well within the limit.
m) Plant has maintained considerable greenery inside the premises and along boundary wall.

15. Recommendations

i. The plant has to take necessary measures to ensure that the concentration levels of all monitored parameters in stack emissions are within the stipulated limits
ii. The plant should take necessary measures to reduce fugitive emissions specifically during material handling, so as to reduce PM_{10}& $PM_{2.5}$ value concentrations in ambient air.

iii. Continuous Ambient Air Quality monitoring station should be installed at the earliest. iv. Okhla plants should utilize 100% Fly ash for beneficial purposes like bricks manufacturing etc.		
Name & designation of inspecting officer(s)	**(Ratnesh Kumar),** **Sc.'B', CPCB Delhi**	**(Ramesh Chandra)** **EE, DPCC Delhi**
Signature		

Table :7 Analysis results of the stack emission monitoring of the WtE plant Okhla,

S. No.	Parameters	Monitor by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values
					12-13 March, 2020	Stack
1.	PM	CPCB	30 mg/Nm^3	50 mg/Nm^3		9.2 | 8.5
2.	Hydrogen Chloride		50 mg/Nm^3	50 mg/Nm^3		3.8
3.	SO_2		100 mg/Nm^3	200 mg/Nm^3		19.9 | 30.4
4.	NO_X (NO and NO_2 expressed as NO_2)		350 mg/Nm^3	400 mg/Nm^3		51.6 | 63.7
5.	CO		100 mg/Nm^3	100 mg/Nm^3		2
6.	HF		0.5 mg/Nm^3	4 mg/Nm^3		BDL
7.	Sb + As + Pb +Cr+ Co+ Cu+ Mn + Ni+ V+ their compounds		0.5 mg/Nm^3	0.5 mg/Nm^3		0.028
8.	Cd + Th +their compounds		0.05 mg/Nm^3	0.05 mg/Nm^3		BDL
9.	Pb		0.1 mg/Nm^3	Not prescribed		0.005
10.	Hg		0.02 mg/Nm^3	0.05 mg/Nm^3		BDL
11.	Dixon & Furan	M/s SIIR, Delhi	0.1ngTEq/Nm^3	0.1ngTEq/Nm^3	13.03.2020	**0.3037**
12.	Total Organic Compounds (as C) at 11% O_2		20mg/Nm^3	20mg/Nm^3		5.7

Table-8.: 24 hourly average values of ambient air quality monitoring

Date of sampling	Monitored by	Parameters	Prescribed Standard* (in µg/m^3)	Measured values	
				Sukhdev Vihar Location-I	STP Okhla Location-II
12-13 March, 2020	CPCB	PM_{10}	100	**136**	**164.66**
		$PM_{2.5}$	60	**69**	**80**
		NO_2	80	35.33	37.833
		SO_2	80	1.33	0.833

Table 9: Analysis results of Bottom ash and Fly ash

Date of sampling	Parameters	Standard/Limit	Measured values	
12.03.2020	Loss on Ignition (for Bottom ash only)	<5%*	2.36%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	0.01
	Cadmium	1 mg/l#	0.17	0.10
	Chromium	5 mg/l#	BDL	0.35
	Manganese	10 mg/l#	1.94	0.11
	Lead	5 mg/l#	BDL	BDL
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.21	1.34
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	BDL	2.16
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	0.03	0.26

*Standards prescribed by DPCC in the Consent to Operate.
#Concentration Limit to categorise as hazardous waste as per the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

Annexure 4737

**BEFORE THE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI**

**M.A. No. 1168 of 2017
In
Original Application No. 22 of 2013 THC**

**Sukhdev Vihar Residents Welfare Association & Ors.
Vs.
State of NCT of Delhi & Ors.**

CORAM : **HON'BLE MR. JUSTICE SWATANTER KUMAR, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE RAGHUVENDRA S. RATHORE, JUDICIAL MEMBER
HON'BLE MR. BIKRAM SINGH SAJWAN, EXPERT MEMBER**

Present: **Applicant:** **Ms. Alpana Podder, Adv. with Mr. Bhupender Kumar, LA, Central Pollution Control Board , Applicant in M.A.**

Respondent. : **Mr. Tarunvir Singh and Ms. Guneet Khehar, Advs.**
Ms. Sakshi Popli, Adv. for Delhi Jal Board
Mr. Krishna Kumar Singh, Adv. for Ministry of Environment, Forest and Climate Change
Ms. Priyanka Swami, Adv. for Nagar Nigam Ghaziabad
Mr. Biraja Mahopatra, Adv. and Mr. Dinesh Jindal, LO for Delhi Pollution Control Committee

	Date and Remarks	Orders of the Tribunal
	Item No. 12 **October 09, 2017** SS & SN	**M.A. No. 1168 of 2017** It is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Ferrons. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of ambient air quality once in four months, they shall also conduct at lease two surprise inspections and analysis be made in a year. With the above directions M.A. No. 1168 of 2017 stands disposed of. No order as to cost. .....,CP (Swatanter Kumar)

19

	Item No. 12 **October 09, 2017** SS & SN	.....,JM (Dr. Jawad Rahim) .....,JM (Raghuvendra S. Rathore) .....,EM (Bikram Singh Sajwan)

Annexure-II

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 640/2018
(Earlier O.A. No. 22/2013)

Sukhdev Vihar Resident's Welfare Association
Vs.
State of Delhi & Ors.

CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL,CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present: Respondent: **Mr. Nilava Bandyopadhyay, Adv. for Project Proponent, Okhla Project**

	Date and Remarks	Orders of the Tribunal
	Item No. 6 **September 27, 2018** **R**	1. In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the Central Pollution Control Board and the Delhi Pollution Control Committee. Findings in the report are that the Waste-to-Energy Plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of the particulate matter. Following recommendations have been made: **"Recommendations:** 1. *To ensure better efficiency of the Plant and Power generation the unit should feed segregated wastes.* 2. *Plant should adopt technologies to reduce Moisture Content in RDF.* 3. *Fly ash utilization should be done rather than dumping it on landfill site.* 4. *Unit shall install Fly ash bricks manufacturing unit.* 5. *Flow meters shall be installed at inlet and outlet of Leachete treatment plant.* 6. *Plant should adopt technologies to improve calorific value of RDF.* 7. *Plant shall be designed for 30-35 years."* 2. The Central Pollution Control Board may send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste-to-Energy Plant for compliance and conduct another inspection within one

21

	Item No. 6 **September 27, 2018** **R**	month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months. We do not find any ground to accept the prayer for relieving Central Pollution Control Board of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the Central Pollution Control Board to make any other appropriate arrangement for discharging its functions. This cannot be a ground to avoid responsibility under the binding directions of this Tribunal. 3. It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, Central Pollution Control Board may recommend the amount of environmental damage required to be paid by them. The application is disposed of. ....., CP (Adarsh Kumar Goel) .....,JM (S.P. Wangdi) .....,EM (Dr. Nagin Nanda) 27.09.2018

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

F. No. CM-13011/125/2024-LAW- HO-CPCB-HO **Date: 07.08.2024**

To,

The Members Secretary
SPCBs/PCCs (As per list)

Subject: Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-**reg**.

Sir,

This has reference to the Hon'ble NGT order dated 15.5.2024 in abovementioned subject. A copy of the order is enclosed as **Annexure-I.**

In this context, it is requested to provide the information related to Waste to Energy (WtE) plants in your State/UT including the monitoring details & compliance to the environmental norms in the enclosed format (**Annexure-II)**. The information may please be provided through email to **SWM.CPCB@GOV.IN** latest by August 10, 2024.

Your Faithfully,

Dy.
(Divya Sinha)
Director & DH (UPC-II)

Copy to:

1. DH, Law Div.
2. PS to MS: For information of MS, please

o/c

Dy.
(Divya Sinha)

List of SPCBs/PCCs

SN	State/UT
1	Andhra Pradesh Pollution Control Board D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada – 520 010
2	Arunachal Pradesh State Pollution Control Board Paryavaran Bhawan, Papu Hill, Yupia Road, Naharlagun- 791110
3	Assam Pollution Control Board Bamunimaidan, Guwahati, Assam - 781021
4	Bihar State Pollution Control Board Parivesh Bhawan, Plot No. NS-B/2, Paliputra Industrial Area, Patliputra, Patna (Bihar) - 800 023
5	Chhattisgarh State Environment Conservation Board Paryavas Bhavan, North Block Sector-19, Naya Raipur (C.G.) 492002
6	Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao - Bardez, Goa - 403511
7	Gujarat Pollution Control Board Paryavan Bhavan, Sector 10-A, Gandhinagar – 382 043
8	Haryana State Pollution Control Board C-11, Sector-6. Panchkula-134109, Haryana - 134109
9	Himachal Pradesh Pollution Control Board Him Parivesh, Phase-III, New Shimla, Himachal Pradesh 171009
10	Jammu & Kashmir Pollution Control Committee Summer Office: May-October Sheikh-ul-AIaCampus, Behind Govt. Silk Factory, Rajbagh, Srinagar (J&K) 190008 Winter office: November-April Parivesh Bhawan, Gladni, Transport Nagar, Narwal - 180006
11	Jharkhand State Pollution Control Board T.A Building, HEC, P.O. Dhurwa, Ranchi – 834004
12	Karnataka State Pollution Control Board Parisara Bhavan, 4th & 5th Floor, # 49, Church St., Bangalore - 560 001
13	Kerala State Pollution Control Board Plamoodu Jn., Pattom Palace P.O. Thiruvananthapuram-695 004
14	Madhya Pradesh Pollution Control Board Parayavaran Parisar, E-5, Arera Colony Bhopal – 462 016, Madhya Pradesh

15	Maharashtra Pollution Control Board Kalpataru Point, 2nd – 4th Floor, Opp. Cine Planet Cinema, Nr. Sion Circle, Sion (E), Mumbai – 400 022
16	Manipur Pollution Control Board Lamphelpat, Near Imphal West D.C. Office, Imphal - 795004
17	Meghalaya State Pollution Control Board ARDEN, Lumbyngngad Shillong – 793 014, Meghalaya
18	Mizoram Pollution Control Board New Secretariat Complex, Khatla Thlanmual Peng, Khatla, Aizawl - 796001, Mizoram
19	Nagaland Pollution Control Board Signal Point, Dimapur - 797112, Nagaland
20	Odisha State Pollution Control Board A-118, Nilakanta Nagar, Unit –VIII, Bhubaneshwar – 751012
21	Punjab Pollution Control Board Vatavaran Bhawan, Nabha Road, Patiala – 147 001, Punjab
22	Rajasthan State Pollution Control Board A-4, Jalane Dungri Institutional Area, Jaipur – 302 004, Rajasthan
23	Sikkim State Pollution Control Board Department of Forest, Environment & Wildlife Management Government of Sikkim, Deorali, Gangtok -737102
24	Tamil Nadu Pollution Control Board 76, Mount Salai, Guindy, Chennai-600032
25	Tripura State Pollution Control Board Vigyan Bhawan Pandit Nehru Complex, Gorkhabasti, PO: Kunjaban, Agartala- 799006
26	Telangana State Pollution Control Board Paryavaran Bhawan, A-3, I.E. Sanath Nagar, Hyderabad-500 018
27	Uttar Pradesh Pollution Control Board Building.No. TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226 010
28	Uttarakhand Pollution Control Board Gaura Devi Paryavaran Bhawan, 46 B IT Park, Sehstradhara Road, Dehradun -248001
29	West Bengal Pollution Control Board Paribesh Bhavan, 10A, Block-L.A.,

	Sector III, Bidhan Nagar, Kolkata - 700 106
30	Andaman & Nicobar Pollution Control Committee Department of Science & Technology, Dolly Gunj Van Sadan, Haddo P.O., Port Blair – 744102
31	Chandigarh Pollution Control Committee Paryavaran Bhawan, Ground Floor, Sector19 B, Madhya Marg, Chandigarh - 160019
32	Daman & Diu and Dadra & Nagar Haveli Pollution Control Committee Office of the Deputy Conservator of Forests, Moti Daman, Daman – 396220
33	Delhi Pollution Control Committee 4th floor, ISBT Building, Kashmiri Gate, Delhi – 110006
34	Lakshadweep Pollution Control Committee Department of Science, Technology & Environment, Kavarati-682555
35	Puducherry Pollution Control Committee Housing Board Complex, III Floor, Anna Nagar, Puducherry – 600 005
36	Ladakh Pollution Control Committee Skara Yokma, Near KBR Airport, UT of Ladakh, Leh-194101

Annexure-I 1739

Item No.06 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 15.05.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.

2. The matter relates to the utility of the waste to energy plants (WtE) and questions their suitability with respect to India's waste problem. As per the article, Waste-to-energy (WLE) technologies allow for the recovery of energy by burning or incinerating waste that cannot be recycled or composted. Their benefits are considered twofold. One, they offer an alternative waste disposal mechanism, diverting solid waste from landfills. Two, through the generation of electricity or heat by burning waste, they provide a renewable energy source that limits reliance on fossil fuels, thereby reducing greenhouse gas emissions. However, the article alleges that though WtE plants have seen relative success in the European Union, environmentalists and scientists have warned that they

a. The quality of waste in India: As per the article, the potential of a WtE operation to meet its energy production target depends on the quality of its waste feedstock. Waste with low moisture content and high calorific value would be ideal for incineration. This includes materials such as non- recyclable plastics (multilayered packaging, plastic bags, styrofoam), contaminated non-usable household textile waste, and non-recyclable domestic hazardous waste, such as soiled paper, soiled cloth, pieces of leather, rubber, tyre, and non-usable wood.

However. Domestic waste in India typically contains high moisture content and has low calorific value, making it unsuitable for efficient combustion in WtE plants, The news item alleges that the WtE plants in India often receive mixed waste, which includes organic, recyclable material. It alleges that mixed waste has high moisture content and needs supplementary energy to incinerate or it won't burn well. This energy is typically fossil-fuel-based, which undermines the claim that electricity produced by WtE plants is altogether clean.

b. Health and Environmental implications: As per the article, incineration of mixed waste produces toxic particles, including carbon monoxide, nitrogen oxides, and sulphur dioxide due to inefficient burning. These particles can cause respiratory ailments and also lead to chronic lung diseases, such as asthma among people who live near WtE sites.

4. The news item raise the question that if India doesn't have suitable waste for WtE plants and these plants are harmful to both human and environmental health, why are more of these facilities being built?

5. It states that In India, an estimated 55 million tonnes of municipal solid waste is generated annually by 377 million citizens residing in urban areas. With an urban population that's expected to grow to 600 million by 2030 and to 814 million by 2050, India is set to generate 165 million tonnes of waste by 2030 and 436 million tonnes by 2050. The waste composition and its characteristics are also subject to change drastically, with a rise in dry waste quantities, a trend observed in major cities. Therefore, there is an urgent need to adopt sustainable waste management practices, with incineration and land filling relegated to the back of the queue.

6. The above matter indicates violation of Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

7. The news item raises substantial issue relating to compliance of the environmental norms and implementation of the provisions of scheduled enactment.

8. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

(ii). Ministry of Forest Environment and Climate Change, through its Secretary, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi- 110003.

(iii). National Environmental Engineering Research Institute, through its Director, Nehru Marg, Nagpur – 4400020.

(iv). Indian Institute of Technology, New Delhi, through its Director, Hauz Khas, New Delhi – 110016.

(v). Indian Institute of Technology, Mumbai, through its director, IIT Bombay, Powai, Mumbai – 400076.

10. Let notice be issued to the above respondents for filing their response at least one week before the next date of hearing.

11. List on 01.08.2024

Prakash Shrivastava, CP

Dr. Afroz Ahmad, EM

May 15, 2024
OA No.536/2024
HB

Annexure: II

Information related to WtE plants									
Name of SPCB/PCC:									
S.No.	**Name of WtE Plant with address**	**CTE/CTO /Authorization Validity**	**Capacity of WtE (TPD) & Technology used & product formation (gas/ power / heat)**	**Average Calorific value of waste received at WtE facility (Kcal/kg)**	**Average bottom ash/fly ash generation (%) & Handling & disposal methods**	**Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring**	**Parameters monitored as specified in schedule-II of SWM Rules, 2016**	**Parameters found non complying the norms**	**Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)**
1									
2									
3									
4									
5									

Annexure-IV

Summary of Information provided by 5 SPCBs having operational WtE plants based on RDF (MSW based)

State	No. of operational based on RDF (MSW based) WtE plant	Whether monitored in last 5 Years	Parameters monitored as specified in schedule -II of SWM Rules, 2016	Non complying parameters	Details of Action taken
Gujarat	1	No	NA	NA	NA
Haryana	1	Yes, monitored on 15.03.2024	Stack Emission PM, HCl, SO2, CO, TOC, HF NOx, Cd+ Th + Their compound Hg, Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their Compounds, Total dioxins and furans Treated Leachate TSS, TDS, pH value Ammonical nitrogen Nitrogen, TKN, BOD, COD, Aresenic, Hg, Lead, Cd, Cr, Cu, Zinc, Nickel, Cyanide, Chloride, Fluoride, Phenolic Compound	NA	NA
Madhaya Pradesh	2	i. Not monitored ii. Monitored on 16.05.2024	i. NA ii. PM, CO, Nox, SO2	i. NA ii. Complying	i. NA ii. NA

State	No. of operational based on RDF (MSW based) WtE plant	Whether monitored in last 5 Years	Parameters monitored as specified in schedule -II of SWM Rules, 2016	Non complying parameters	Details of Action taken
Maharashtra	2	i. Monitoring through CEMS Stack Monitoring is carried out on 16.05.2024 and 28.06.2024. ii. Monitored on, 28/09/2021, 19/10/2021, 14/11/2021, 26/12/2022, 06/02/2023, 11/03/2023, 04/05/2023, 28/11/2023, 22/02/2024, 08/04/2024, 03/05/2024, 25/06/2024, 09/07/2024	i. HCL, PM, CO, NOX, SO2 ii. SO2, Nox, TPM	ii. NA iii. TPM	i. NA ii.Warnig Notice, Interim Direction, Forefetting Bank Guarantee
Telengana	1	Not provided	NA	Nil	NA
Andhra Pradesh	2	i. 20.09.2024 ii. 8.01.2024	i. PM, NOx, SOx ii.PM, NOx, SOx	i.Nil ii.Nil	i.NA ii. NA

Note: (*NA: Not applicable*)

Central Pollution Control Board

UPC-II

Date: 15-04-2019

OFFICE MEMORANDUM

SUBJECT: - " *Clarification on Buffer Zone* Guidelines " issued by CPCB.

CPCB issued guidelines on Buffer Zone around waste processing and disposal facilities in April, 2017.

Subsequently, Central Monitoring Committee constituted under Solid Waste Management Rules, 2016 suggested MOEF & CC to revisit the buffer zone in respect of distance. The Central Pollution Control Board in its 182nd meeting agreed for revisiting of Guidelines.

It is decided that following changes have been made as mentioned at page no.13 of aforesaid Guidelines;

1. **Land of 200-500 m from the boundary of the processing unit is excluded for setting up the facilities but it is mandatory outside the project site as "No development area" for 30 years.**
2. **"No development area" can be utilized for agriculture purpose.**

(A. Sudhakar)
Member Secretary

To,
(As per list attached)
All SPCBs/PCCs

AMENDED GUIDELINES ON THE PROVISION OF BUFFER ZONE AROUND WASTE PROCESSING AND DISPOSAL FACILITIES

Central Pollution Control Board
March, 2019

Contents

1. Introduction

Indian cities are expanding with the increase in population, economic activities and the resulting urbanization. Whereas population residing in urban areas was 11.4% of total population in 1901, it increased to 28.53% in the 2001 census and crossed 30% as per 2011 census, standing at 31.16%. There are 53 urban agglomerations in India with a population of 1 million or more as of 2011 against 35 in 2001. About 43 percent of the urban population of India lives in these cities. The unprecedented growth of these cities has posed several challenges for municipal authorities. Identification of suitable sites for waste management infrastructure in cities is one of the toughest challenges municipal authorities are facing at present. Lack of proper/ updated land use plan with urban authorities is a stumbling block in implementing solid waste management projects.

Most of the existing solid waste management facilities are practicing crude dumping of solid waste. In some cases where solid waste is processed, the situation is still alarming due to use of conventional treatment technologies coupled with poor operation and maintenance by the fund starved ULB. This situataion is giving rise to numerous environmental and public health concerns in and around urban areas. "Not in My Back Yard (NIMBY) syndrome" and litigations are common as public at large do not trust ULBs in providing credible waste management services. Majority of existing solid waste treatment plants and dumping sites, though initially away from habitation but now have no adequate buffer zone from these habitations. Buffer even where available have come under illegal encroachment in many cities and settling societies demand shifting the waste treatment facility itself. Thus there is a general public resistance to the location of waste management facility in any area. Lack of identified sites for municipal solid waste management in master plan compounds the problem.

Disposal of waste in landfills/ dumpsites without any treatment is still practiced even as it impacts on the surrounding environment. Waste management sites encompass waste processing/disposal facilities, which become sources of pollution in terms of air, water, land and noise besides emitting foul smell. Therefore, provision of buffer zone around these facilities is essentially required to protect people living in the surroundings from

exposure/impacts of such pollutants but also to ensure continued safe operations in the waste management facility by maintaining its "island character". Buffer zone also acts as barrier, absorber and to some extent as remedial measure against the fugitive emissions. Fugitive emissions of pollutants emitted during handling of waste, storage, transportation and movements of traffics.

Currently, no scientific basis is available for making provisions for buffer zone around waste processing/disposal facilities. The provisions recommended in the "Municipal Solid Waste Management Manual, 2016" were broadly drawn from the "Report of the Committee constituted by the Hon. Supreme Court of India in March 1999" on Solid Waste Management in Class 1 Cities in India.

In this context, the Government of India through CPCB has framed these guidelines on maintaining Buffer zone including green belt around waste management facilities. These guidelines will not only facilitate the ULBs in meeting the regulatory requirements, reduce the aforesaid nuisance value of the waste management facilities but also make an effort to enhance their aesthetic appeal. In addition to above, the siting criteria for setting up these facilities for waste processing/ landfill is adopted as mentioned in SWM Rules, 2016 at tailing part of these guidelines.

In some instances, the actual separation distance may vary from those recommended in these Guideline, due to site-specific constraints. In such cases, variations to the recommended separation distances may be acceptable, subject to detailed assessment by concerned authorities and to the satisfaction of the State Pollution Control Board/Committee.

2. Objective of the Guidelines

The purpose of this Guideline is to specify adequate separation distances between solid waste management facility and its surrounding area having different land usage characteristics.

To achieve the purpose, these Guidelines aim to:

- minimize the risk of adverse impacts on the environment (land, air, water, noise pollution) and the impacts on the Public Health
- inform and support strategic land use planning decisions and prevent encroachment of controlled areas
- Generate/ develop public acceptance for solid waste treatment and disposal infrastructure
- Encourage new technological innovations for processing facilities with minimal land requirement

3. Regulatory Framework

The buffer zone was first envisaged in 1982 after Indian task force developed the 'Core-Buffer-Multiple Use Zone' strategy. This strategy aimed at separating incompatible land uses, particularly in relation to wildlife. In this approach, the buffer zone would be under the wildlife park authorities' administration and controlled use of forest produce would be allowed. The multiple-use zone was located outside the park boundaries designated for rural development. With similar analogy, these buffer zone guidelines are framed for waste processing and disposal facilities. The existing regulatory provisions for these guidelines are given as under:

i. Provisions related to Buffer Zone specified in the **Solid Waste Management Rules**, 2016 mentioned as under;

- **Rule 11** Section (l)- **Duties of the Secretary–in-charge, Urban Development in the States and Union territories-** Notify buffer zone for the solid waste processing and disposal facilities of more than five tonnes per day in consultation with the State Pollution Control Board
- **Rule 12** Section (h)- **Duties of Central Pollution Control Board-** Publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tonnes per day of solid waste;

- The **distance/siting criteria's for setting up waste management facilities as** specified in Solid Waste Management Rules, 2016 at **Schedule I (A)(vii)**
- **Schedule I (A) (viii)**-The sites for landfill and processing and disposal of solid waste shall be incorporated in the Town Planning Department's land-use plans.
- **Schedule I (A) (ix)**-A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five tonnes per day of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. **The buffer zone shall be prescribed on case to case basis by the local body in consultation with concerned State Pollution Control Board**.
- **Schedule I (F)**-Criteria for ambient air quality monitoring

ii. The **Coastal Zone Regulation** notified by Ministry of Environment Forest And Climate Change also prohibits setting up and expansion of units or mechanism for disposal of wastes in High Tide Line (hereinafter referred to as the HTL) to 500 mts on the landward side along the sea front. Also dumping of city or town wastes including construction debris, industrial solid wastes, fly ash for the purpose of land filling and the like with high tide line shall be regulated by the concerned authority, where shall implement schemes for phasing out any existing practice, if any.

iii. The buffer zone guidelines for setting up processing and disposal facility also come under the purview of The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981.

iv. For setting up solid waste processing and disposal facilities, The Environment (Protection) Act, 1986 also need to be adhered to particularly from the angle of Environmental Clearances. Authorities concerned need to deliberate on the number of issues and criteria when siting a buffer zone as broadly categorized below:

a) Environmental considerations

- Distance from the flood plains, coastal regulation, wetland, Critical habitat areas, sensitive eco-fragile areas, highways, habitations, public parks and water sources

- Topography- Hilly areas, land availability and also the slope's landslide potential.
- Wind Speed and Direction- Wind direction is one of the important consideration as to the area that can be affected due to dust and odour.

b) *Proximity and access considerations*

- Transportation Network
- Utilities and Services

c) *Land-use considerations*

- Land Usage and Activities on Adjacent Sites
- Allowable Land Uses and Zoning
- Proximity to Airports
- Proximity to Other Waste Management Facilities

4. Existing Norms for Buffer Zone in India and Abroad

A.) Buffer Zone

The buffer zone, particularly in context of NIMBY syndrome in India, is one of the limiting conditions for obtaining Environmental Clearance for setting up solid waste processing and disposal facilities. At present, there are no published norms for buffer zone for solid waste management facilities by MoEFCC/ CPCB.

However, the "Manual on Municipal Solid Waste Management, 2016" published by CPHEEO, Ministry of Urban Development recommends certain provisions for buffer zone particularly the one of maintaining 500 m buffer zone around the waste processing facilities. In the given pace of urbanization in the country, getting such large piece of land is becoming increasingly difficult and costly. ULBs in setting up waste processing and disposal facilities expeditiously.

The provisions made for Buffer zone for solid waste processing and disposal facilities in various countries are tabulated below:

i. Landfill

International Solid Waste Association	500 m should be provided depending on the size of landfill, height, wind direction
South Australia	500m buffer distance shall be maintained between areas dedicated for waste disposal and the nearest surface water
Ontario, Canada	Buffer area shall be at least 100 m wide at every point, if that does not apply to a buffer area, if the buffer area is at **least 30 metres** wide at every point and a written report confirms that; (a) the buffer area provides adequate space for vehicle entry, exit, turning, access to all areas of the site and parking; (b) the buffer area provides adequate space on the surface of the site for all anticipated structures, equipment and activities; and (c) the buffer area is sufficient to ensure that potential effects of the landfilling operation do not have any unacceptable impact outside the site.
Malaysia	500m
South Africa	Buffer zone min 200m to 500m
Bangladesh	250m from the habitat
Hong Kong	250 m away from the edge of the waste (landfill boundary)

ii. Waste processing facilities

Canada	minimum buffer strip between composting facility boundary and adjacent property. For in-vessel Composting distance between active area and the nearest residential or institutional building shall be min 500m, nearest commercial or industrial building 250 m and nearest property boundary will be **min 100m.**

CANADA-Nova Scotia	In case of in-vessel composting facilities, where it can be demonstrated that particular equipment will not release odours generated from the composting process into the surrounding environment, the distance between the equipment and the nearest property boundary shall be a minimum of **30 metres**
Malaysia	production of compost from organic waste- 500m
Devon city Council (UK)	buffer distance 500m
China	300m buffer zone between incineration plants and local residents

From above, it i s observed that the minimum buffer area varies from 100 m to 500 m in case of both waste processing and disposal facilities.

B.) Facility Siting Criteria

In addition to the suitable provisions of the buffer zone, the SWM Rules, 2016 provides norms for siting criteria for landfills. The same is reproduced below for adoption while setting up **landfill facilities.**

Table 1. Criteria specified for identifying Suitable Land for Sanitary Landfill Sites (Not a treatment facility)

S. No.	Place	Minimum Siting Distance
1.	Rivers	100 m away
2.	Ponds, Lakes, water bodies	200 m
3.	Highway, **Habitations, Public Parks and water supply wells**	200 m from center line
4.	Flood Plains as recorded for the **last 100 years**, zone of coastal regulation, wetland, Critical habitat areas, and sensitive eco-fragile	Sanitary landfill site not permitted

	areas	
5.	Airport/ Airbase	20 km**

In a special case, **landfill site** may be set up within a **distance of 10 and 20 km** away from the Airport/Airbase after obtaining no objection certificate from the civil aviation authority/ **Air force as the case may be.

However, there is no such siting criteria applicable for setting up waste processing facilities.

5. Recommended Provisions for Buffer Zone

The Solid Waste Management Rules, 2016 specified the terminology of **Buffer Zone**, *as "**no development zone to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total land area allotted for the solid waste processing and disposal facility.**"*

Buffer Zone around the core waste processing area consists of utility area, open parks and green belts etc. Further, depending on feasibility of planning, the interface land use between the boundary of waste processing facility and sensetive receptors, can also be developed as an additional measure.The layout of buffer zone (utility area, open parks and green belts) including core waste processing area and optional interface land use is shown in the figure below:

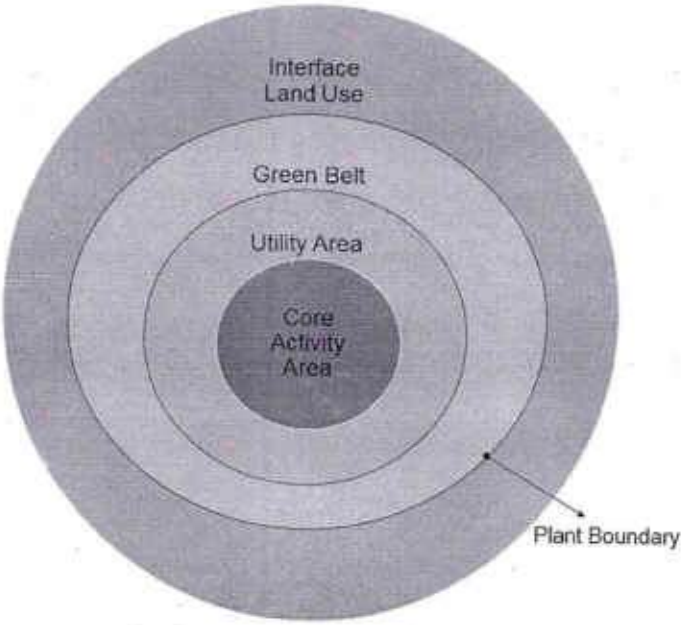


Figure 1 Depicts activity boundary, green belt and separation distance

For the purpose of these guidelines, the Buffer Zone, Separation Distance, Utility Area, Green belt and Interface Land use shall have the meanings set out below, unless otherwise provided, hereafter, for the exclusive interpretation of these Guidelines.

a) The **Buffer Zone** is generally defined as an area of restricted activities, depending on the activity in adjacent land uses. It also ensures long-term continuous availability of disposal sites by avoiding potential conflicts between waste disposal sites and adjacent lands with different users.

b) **Buffer Distance or Separation distance** is measured as the areal distance between the source of emission and sensitive receptors. For the purpose of these guidelines and addressing the required protection from adverse impacts, separation distance is measured from the tip of core SWM facility processing boundary, as the source of emission, to the nearest boundary of the property of sensitive receptors as shown in figure 1.

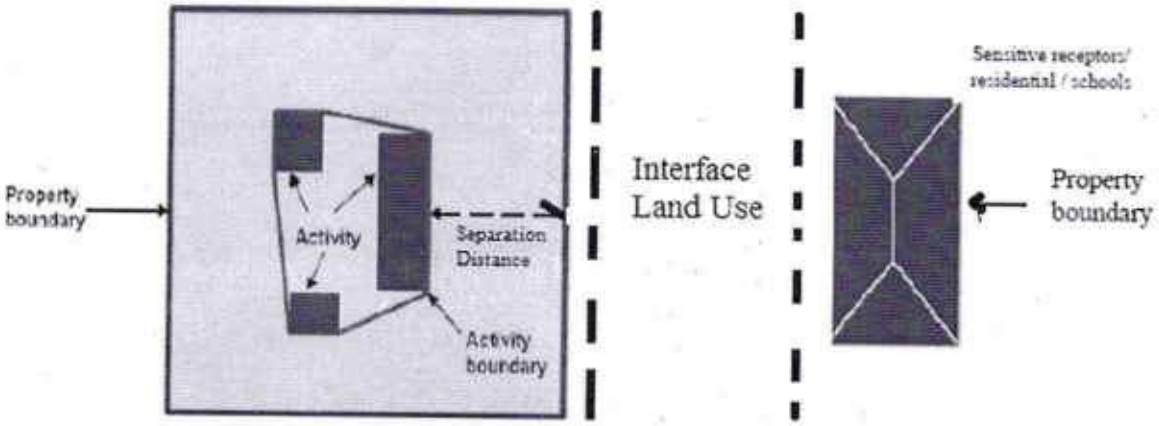


Figure 2. Core Plant activity area, buffer Zone and interface land use

c) **Core Waste Processing/Landfilling Area** typically requires space for receiving waste, storing waste, segregation of waste and treatment units within the facility. Similarly, for Landfilling it is the area of cell which is receiving the waste/inert.

d) **Utility Area** within the facility is designated area for the facility operations other that the core activities like. Weigh bridge, parking, vehicle cleaning, laboratory, emergency services etc.

e) **Green Belt** for the purpose of these guidelines shall refer to an area that is kept in reserve within the alloted land for setting up facility, around the core SWM processing area, for the purpose of plantation and landscaping to reduce the adverse effects from pollutants like air & noise, soil erosion control etc. It also works as a natural shield to protect people around the facility from these pollutants.

f) **Interface Land Use:** The buffer zone could be further augmented with interface land use area, where above beneficial and feasible as an additional optional measure, after due approval of the concerned authorities. The interface land use shall not generate significant emissions, nor warrants protection from them. The activities in the interface land use are **vehicle**

showrooms, service stations, warehouses, display homes, emergency services facilities, funeral, veterinary clinic and parks etc.

i. Separation Distances for Solid Waste Processing and Disposal Facilities

Ideally, a distance of 500 meter from the boundary of the Solid Waste Processing and Disposal Facility (sanitary landfill) should be maintained. However, on case to case basis a distance of minimum 200 meter from the Solid Waste Processing and Disposal Facility (sanitary landfill) can be considered subject to the condition that such facility meets the stipulated standards prescribed by State Pollution Control Board with respect to ambient air as well as for stack emissions.

The above provisions have been made keeping in view of high population density in urban areas, scarcity of land to set up such facilities and protest from local inhabitants in the area of processing/ disposal facility and is in line with those being adopted at international level. Besides, the following three conditions need to be ensured:

(a) the buffer area provides adequate space for vehicle entry, exit, turning, access to all areas of the site and parking;
(b) the buffer area provides adequate space on the surface of the site for all anticipated structures, equipment and activities; and
(c) the buffer area coupled with technological interventions is sufficient to ensure that potential effects of the processing/ landfilling operation do not have any unacceptable impact outside the site.

Note:

1. ***Land of 200-500 m from the boundary of the processing unit is excluded for setting up the facilities but it is mandatory outside the project site as " No development area" for 30 years.***
2. ***No Development area can be utilized for agriculture purpose.***

6. Green Belt

The buffer zone effectiveness is reinforced by the green belt within the solid waste processing and disposal boundaries. An important aspect of a green belt sometimes overlooked is that the plants constituting green belts are living organisms with limits to their tolerance towards air pollutants. For the purpose of these guidelines, the green belt shall refer to an area that is kept in reserve within and around the SWM facility for the plantation and landscaping to reduce the adverse effects from the activity area like air & noise pollution, soil erosion etc. The green belt is an effective pollution sink only within the tolerance limits of constituent plants. The philosophy is that when primary pollutants are taken care of, formation of secondary pollutants will not reach menacing proportions. Primary pollutants of concern are – SO_2, HF, NO_2, CO, CO_2, NH_3, H_2S, Cl, SPM and organics. **Annexure- 1** attached to these guidelines shows the selection criteria for plants near the processing facility.

These guidelines recommend minimum 10 metres green belt within and all around the facility along the boundary. Vegetation, shrubs, trees, and berms with high density greenery can be incorporated into green belt within facility limits to serve as visual barriers and to reduce noise levels. Depending on the monitoring of level of pollutants in ambient air after the boundary of facility, on case to case basis, suitable technological measures/ barriers to check pollutants need to be resorted. The important factors for developing green belt for agro-climatic conditions are stated below:

a) Criteria for Selection for Plant Species

- The plant species should be fast growing
- They should have thick canopy cover
- They should be perennial and evergreen
- They should have high carbon – CO_2 sink potential
- They should be effective in absorbing pollutants without significantly affecting their growth

b) Recommended plant species:

Keeping in view the nature of pollutants expected from the disposal site, a green belt of minimum 10 metre width is recommended and the following plant species can be selected for plantation:

- Acacia nilotica (Babul)
- Deldergia Sissoo (Shishum)
- Acacia auriculiformis (Australian Babul).
- Azadirachta Indica (Neem)
- Lagerstroemia speciosa (jamun)
- Prongamia pinnata (Karanji)

c) Recommended plant species Density around Processing & Disposal/ Landfill site:

These guidelines recommend the green belt width of minimum 10 meters within and all around processing and disposal facilities. The recommended minimum density of the green belt should be as discussed in the green belt model provided in the CPCB guidelines for developing green belts in 2000. These guidelines introduce the concept of a pollution attenuation coefficient for estimating the removal of pollutant while passing through the green belt. The formulation of pollution attenuation coefficient makes use of parameters such as leaf area, density of the tree plantation, deposition velocity of the pollutant on leaf surface and wind speed to the green belt. The model gives the dependence of the pollution attenuation factor of a green belt on various physical parameters of the green belt such as its height, width, distance from the pollution source and on atmospheric stability conditions and hence the model can be used to optimize the design of the green belt in obtaining the desired degree of attenuation of the pollution around an industry. The case to case basis CPCB guidelines for developing green belts (March, 2000) to be referred for optimal density applications.

7. Operationalization Framework

Solid Waste Management Rules, 2016 has empowered Central Pollution Control Board for maintaining buffer zones restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tonnes per day of solid waste. The guidelines will be updated, from time to time, and address environmental aspects of processing and disposal of solid waste to enable local bodies to comply with the provisions of SWM Rules, 2016.

i. Role of State Pollution Control Board

a) The SPCB shall link the buffer zone achievement with grant of Consent to operate and establish under stipulated norms;
b) The SPCB shall conduct periodic environmental monitoring around buffer zone and assess the impact on the sensitive receptors;
c) The SPCB shall bi-annually review the Green Belt condition within the facility premises and give suggestions to the ULBs for further improvements. Stringent measures and penalties as per the stipulated norms to be imposed in case of default;
d) The SPCB shall extend all necessary support to local authority for the site selection for the newly proposed waste processing and disposal facility;

ii. Role of Local Body/ Facility Operator

a) The ULB shall be responsible for the selection of site in close coordination with SPCB;
b) The ULB/ operator shall be responsible for green belt development and maintenance in the buffer zone;
c) The ULB shall direct the operator concerned, in case it outsources facility to comply with these guidelines

iii. Role of Town and Country Planning Department

a) Town and Country Planning Department shall allocate adequate land for waste

management facilities in the Master Land Use Plan;

b) Town and Country Planning Department shall make all efforts to restrict/ prohibit peri-urban growth near such facility;

c) Town and Country Planning Department shall be responsible for making provisions of Green Area development around such existing/ exhausted facilities to the extent feasible to minimize the impact of pollution to sensetive receptors.

8. Annexure-1- Selection criteria for plants near the processing facility

Table 2.6 Compilation of research in India indicating sensitive and tolerant species, with reference to industrial pollutants

Name of Plant	Sensitive	Tolerant	Reference
Mangifera indica	Coal dust		
Citrus limon		Coal dust	Rao, 1971
Phaseolus aureus (Green gram)	Petro coke		Prasad and Rao (1981)
Zea mays	Cement dust		Sree Rangaswamy et al. (1973)
Syzygium cumini	Cement dust		Jain et al. (1979)
Psidium guyava	Cement dust		Yunus and Ahmed (1980)
Triticum aestivum	Cement dust		Singh and Rao (1980 a)
Calotropis procera	Cement dust		Yusuf and Vyas (1982)
Cassia fistula	Cement dust		
Dalbergia sissoo	Cement dust		
Withania somnifera	Cement dust		
Glycine max	Cement dust		
Hordeum vulgare		0% fly ash	Singh and Rao (1979 a)
Portulaca sp			Bhatia (1978)
Triticum aestivum	Above 20% fly ash		
Trifolium aestivum		6g/m²/day fly ash	Pawar and Dubey (1982)
		4g/m²/day fly ash	Dubey et al. (1980)
Dolichos lablab		2g/m²/day fly - ash	Pawar et al. (mean) (1983)
Abelmoschus esculentus Var Pusa sawani	Cement and Coal dust	fly - ash	Pawar et al. (1982)
Cosmetho benghalensis	Air borne dust		Chopheker et al. (1980)
Brassica oleraceae	Urban		Garg and Varshney (1980)
Chenopodium album	sti		
Cicer arietinum			
Dolichos lablab			
Sonchus asper			
Withania somnifera			
Tabernaemontana coronaria	Polluted environment		Srivastava et al. (1980)
Calotropis procera		Polluted conditions	Yunus and Ahmed(1981)

(Contd...)

12

Table 2.5 (*Contd...*)

Name of Plant	Sensitive	Tolerant	Reference
Calotropis gigantea	Polluted areas		Bhirava Murthy and Kumar (1983)
Bare paddy, Var. Ratna	Urban dust		Das and Pattanayak (1978)
Mangifera indica		Dust Collector	Shetye and
Thespesia populnea			Chaphekar (1980)
Erythrina indica	Poor dust Collector		
Polyalthia longifolia			
Ficus benghalensis		Dust Collector	Das 1981 and Das et al. (1981)
Ficus infectoria			
Ficus religiosa			
Mangifera indica			
Tectona grandis			
Polyalthia longifolia			
Shorea robusta			
Terminalia arjuna			
Cassia fistula	Poor dust Collector		Das (1981) and Das et al. (1981)
Poinciana regia			
Sesbania sp.			
Pithecellobium dulce		Better dust collector	Rao (1971)
Argyrea speciosa			
Leucaena leucocephala			
Melilotus alba	Polluted area		Ghouse and Khan (1983)
Banana Crop.	SO_2 and dust From brick Kiln		Bedi et al. (1982)
Lycopersicum esculentum	SO_2 and dust from brick Kiln		Bell and Bedi (1981)
Mangifera indica	SO_2		Rao 1972 Shetye 1979 Giridhar (un published data) Pawar and Dubey (1983)
Helianthus annus	To pollute areas		Chapheker et al. (1980 a)
Crotalaria juncea			
Canvalina benghalensis			
Cyamopsis tetragonoloba			
Cicer arietinum	Fly ash SO_2		Dubey et al. (1982)

(*Contd....*)

13

Table 2.6 (Contd....)

Name of Plant	Sensitive	Tolerant	Reference
Medicago sativa (Alfa-alfa)	SO_2		Singh and Rao (1978, 1980)
Sorghum vulgare var CSH - 1	SO_2		Boralkar and Chaphekar (1978)
Glycine max	SO_2		Pandey and Rao (1979), Prasad and Rao (1982)
Phaseolus aureus	SO_2		Singh and Rao (1980)
Arachis hypogea	SO_2		Mishra (1980)
Dolichos lablab	SO_2		Banerjee and Chaphekar (1979)
Phaseolus aureus Var. Vaishakhee	SO_2		Boralkar and Chaphekar (1980)
Trigonella foenum-graecum	SO_2		Boralkar and Chaphekar (1983)
Pisum sativum	SO_2		Varshney and Varshney (1978)
Crossandra undulaefolia	SO_2		Chaphekar and Kamthan (1974)
Mirabilis jalapa			
Amaranthus spinosus	SO_2		Boralkar and Chaphekar (1980)
Spinacea oleracea			
Raphanus sativus	SO_2		Banerjee and Chaphekar (1979)
Commelina benghalensis			
Erythrina indica			
Barley, Cotton, Wheat, Aster, Cosmos, Verbena, Zinnia, Sweet Pea, Ipomoea purpurea, 4 oclock plant, Bean, Beet, Carrot, Chilli, Pumpkin, Radish Bhendi, Sunflower etc.	SO_2		Pandey and Vaidya (1979)
Most trees		SO_2	Pandey and Vaidya (1979)
Mangifera indica	SO_2		Chaphekar (1972)
Terminalia catappa			
Malachra capitata Datura			
Croton, Plumeria		SO_2	Chaphekar (1972)
Opuntia, Nerium			
Datura, Petunia, Alfalfa, cotton	SO_2		Vashisavi (1978)
Barley			

(Contd....)

14

Table 2.6 (Contd...)

Name of Plant	Sensitive	Tolerant	Reference
Dalbergia sissoo Terminalia arjuna Cassia fistula Cedrela toona Syzygium cumini Oat, Pea, Brinjal, Potato Cucurbit	SO_2		Yunus and Ahmed (1979)
Azadirachta indica Ficus religiosa Pithecolobium dulce Calotropis procera Trees, Bushes, crops of those areas		SO_2	Yunus and Ahmed (1979)
Phaseolus aureus Cicer arietinum	SO_2, O, SO_2+O	SO_2, O, SO_2+O	Agrawal and Rao (1983)
Oryza sativa Panicum miliaceum	SO_2, O, SO_2+O	SO_2, O, SO_2+O	
Solanum melongena Vicia faba Abelmoschus esculentus Var. Pusa savani	SO_2, O, SO_2+O SO_2, O, SO_2+O SO_2, O, SO_2+O		
Abelmoschus esculentus	SO_2, O_3, SO_2+O_3		Bolalkar and Shinde (1983)
Phaseolus aureus Triticum aestivum Brassica juncea	SO_2, HF, SO_2+HF		Sharma (1981)
Triticum aestivum	NO_2		Prasad and Rao (1979)
Triticum aestivum	NO_2+SO_2		Prasad (1980)
Dalbergia sissoo Madhuca indica	SO_2		Rao et al (1983)
Pisum sativum var. Bonneville, Pisum sativum var. T163 Hordeum vulgare Zea mays	NaF		
Lycopersicum esculentum Terminalia tomentosa Buchanania lanzan	NaF HF		Arya (1971) Pandey (1979)
Zea mays	HF		Rao and Pal (1978 b)
Gladiolus sp.	HF		Pandey and Rao (1980 a)

(Contd...)

Table 2.5 (*Contd...*)

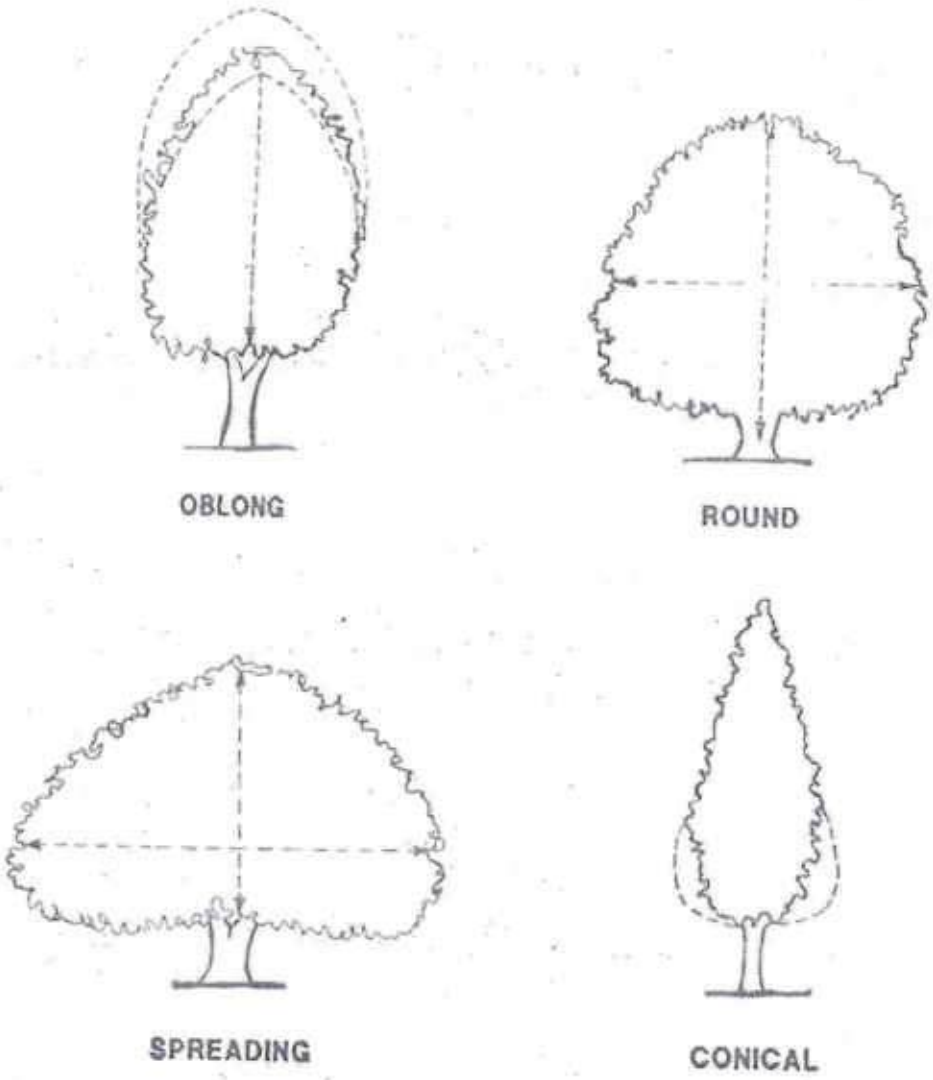
Name of Plant	Sensitive	Tolerant	Reference
Spinacia oleracea	Gasoline Vapour,		Prasad (1980)
Abelmoschus esculentus Cyamopsis tetragonoloba Crotolaria juncea Trigonella foenum-graecum	Ammonia		Chaphekar and Boralkar (1979)
Nerium indicum	SO_2		Varshney, (Unpublished)
Cynodon dactylon	HF		Meenakshy et al (1981)
Cicer arietinum Nasturtium indicum Petunia alba Tradescantia axillaris	SO_2		Varshney and Varshney (1981)
Madhuca indica	SO_2, fly-ash		Agrawal M (1989)
Cassia siamea Delonix regia Shorea robusta	— " —		
Acacia arabica		SO_2, fly-ash	
Acacia caechu Zizyphus sp			
Mangifera indica		Dust	Agrawal & Khanam (1989)
Ficus benghalensis L Ficus infectoria Roxb Holoptelia integrifolia Planch Ipomoea fistulosa Mart ex choisy Lagerstroemia sp Nyctanthes arbortristis L Peltophorum pterocarpum (DC) K Heyne		Dust	Ahmad Yunus et al (1991)
Tectona grandis L Terminalia arjuna W & A Thevetia nerifolia Juss Acacia arabica Willd Bougainvillea spectabilis Willd Hibiscus rosa sinensis Willd Morus alba		Dust	Ahmad Yunus et al (1991)

(*Contd...*)

Table 2.6 (Contd...)

Name of Plant	Sensitive	Tolerant	Reference
Nerium odorum Mill Thevetia peruviana Juss Dalbergia sissoo Roxb		Cement dust	
Azadirachta indica A.Juss Brassica campestris L Citrus aurantium L Delonix regia Raffin Syzygium cumini (L.) skeel Mangifera indica L Pisum sativum L Tabernaemontana coronaria Wall Trifolium pratense L Zizyphus mauritiana Lamk Helianthus annus L	Cement dust		Pandey, Misra et al (1984)
		fly ash	
Opuntia monacantha Opuntia dillenii Kalanchoe marmorata Crassula		SO_2	Raza S.H., Shyoja G. (1992)
Bryophyllum Aloe Bryophyllum tetrafiorum Euphorbia cattamindicae	SO_2		
Caesalpinia pulcherima Eugenia jambolana Polyalthia longifolia Pongamia pinnata	SO_2	SO_2	Murthy M.S.R. et al (1990) Raza S.H. et al (1991)
Caesalpinia pulcherima Pithecolobium dulce Cassia fistula Pongamia glabra Polyalthia longifolia	Dust	Dust	
Pithecolobium dulce Caesalpinia pulcherima Polyalthia longifolia Pongamia pinnata	SO_2	SO_2	Raza S.H. et al (1989)

Fig.5.1 TREE CANOPY SHAPES



The shapes given here are for convenience only. Many crown shapes range between those identified following viz. Oblong-Round, Round-Spreading, Conical-Oblong, etc. Some shapes also change with age or environmental stresses.

FIG. 5.1 TREE CANOPY SHAPES

FIG. 5.2 TYPICAL ROAD-SIDE PLANTATION

FINAL

"Selection Criteria for Waste Processing Technologies"

[In compliance with Hon'ble National Green Tribunal Order Dated 25th May & 1st August, 2016 in the Matter of OA No. 199 of 2014, Almitra H. Patel &Anr. Vs Union of India &Ors.]

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forests and Climate Change)
PARIVESH BHAWAN, EAST ARJUN NAGAR, SHAHDARA

CONTENTS

SELECTION CRITERIA OF WASTE PROCESSING TECHNOLOGIES

1.0 Introduction:

Selection of appropriate technology is one of the key considerations for success of a waste management system for a particular town/city besides taking consideration of other aspects like resource recovery, environmental soundness, financial support, involvement of stakeholders/ public and institutional capability.

Many waste processing technologies are available and in practice world-wide. However, efficiency of a particular technology depends upon the criteria for which it is designed and planned. The major criteria considered for selection of technologies are the waste quantity, waste characteristics, physical properties and composition of wastes, availability of land, social factors, capital investment, duration of treatment, products market, etc.

A wrong selection of waste processing technology can cause failure of the entire waste management system leading to bad economics and environmental cost.

2.0 SelectIon of Best Available Technology for Waste Processing

The available waste processing technologies can be broadly divided into two categories-

(1) Biological treatment and
(2) Thermal treatment.

The Biological treatment process is accomplished by allowing to micro-organisms to degrade waste components by creating conducive environment for growth of microbial organisms. In the biological process, the biodegradable organic portion

of waste is broken down into gaseous products (CO_2, Methane gas, etc) and water molecules leaving behind carbon rich byproduct called compost. The biological activities depend upon several criteria- C/N ration, pH value, moisture content, supply of oxygen, etc. Biological processes for waste treatment can be further divided into two categories-

(a) Aerobic treatment (in presence of Oxygen) and
(b) Anaerobic treatment (absence of Oxygen).

The thermal process of treatment is applied to destroy the harmful potential of wastes together with energy recovery. In this process, the waste components are incinerated in controlled oxygen supply so that maximum heat energy can be recovered without causing the air pollution. During incineration, the waste undergoes chemical changes to release gaseous byproduct, water vapour along with heat energy. The heat energy can be utilized for generating electricity through boiler. The efficiency of heat recovery depends upon the calorific value of incinerated waste.

Details of the available technologies are discussed below;

2.1 Aerobic Composting

Composting is the process of aerobic decomposition of biodegradable organic matter in a warm, moist environment by the action of bacteria, yeasts, fungi and other organisms. MSW in India has an initial C/N ratio of around 30:1, ideal for decomposition. The organisms involved in stabilization of organic matter utilize about 30 parts of carbon for each part of nitrogen. Compositing requires approx 25 m^2 area per ton of MSW (only for windrow formation for 21 days composting and maturity yard for 30 days stabilization). The additional area required is for machinery, packing and storage. Facilities also required for recycling and treatment of effluent (leachate) and sanitary landfill for rejects (inert materials,

sludge from ETP). The compost products should comply with the standards prescribed in the SWM Rules, 2016.

2.2 Vermi -composting

Vermi compost is the end-product of the breakdown of organic matter by particular species of earthworm. Vermi compost is a nutrient-rich, natural fertilizer and soil conditioner, cultured on a specially made vermi-bed. The earthworm species most often used are Eudrillus eugineae, Eisenia foetida or Lumbricus rubellus. It can treat any organic waste, not appreciably oily, spicy, salty or hard and that do not have excessive acidity and alkalinity. The C/N ratio preferred is 30:1 where, carbon matter comes from brown matter (wood products, saw dust, paper etc) and nitrogen from green matter (food scraps, leaves etc). Overabundance of greens generates ammonia. The moisture content of 40-55% is preferable and maintained by covering the tank with wet sack and sprinkle water as required. Vermi-compositing can be done in tank with size of 4m x 1m x 0.5m for waste input of 10kg/day of semi decomposed waste.

2.3 Biomethanation /Bio-waste Derived Fuel

It is a process based on anaerobic digestion of organic matter in which microorganisms break down biodegradable material in the absence of oxygen. The process is widely used to treat wastewater sludge and organic wastes because it provides volume and mass reduction of the input material. It produces methane and carbon dioxide rich biogas suitable for energy production and hence, is a renewable energy source. The nutrient-rich solids left after digestion can be used as a fertilizer. It generally treats Sorted organic fraction only (highly putrescible) for better gas yield. Fibrous organic matter is undesirable as the anaerobic microorganisms do not easily break down woody molecules such as lignin, cellulose, hemicelluloses, etc.. Preferred C/N ratio is 25-30. Moisture content should be >50% which implies on feed, gas production, system type, system efficiency. Area requirement for bio-methanation is approximately 25 m^2

2.4 Incineration

The incineration of MSW involves combustion of waste leading to volume reduction (90-95%) and recovery of heat to produce steam that in turn produces power through steam turbines (Bhide and Sunderesan 1983). Basically, it is a furnace for burning waste and converts MSW into ash, gaseous and particulate emissions and heat energy. The efficiency of the technology is linked to the waste characteristics and their properties such as moisture content and calorific values. It requires high temperature of the order of 800-1000^{o}C and sufficient air and mixing of gas stream. The minimum temperature for burning carbonaceous wastes to avoid release of smoke and prevent emissions of dioxin and furans is 850^{o}C. Depending on the nature of wastes and the operating characteristics of combustion reactor, the gaseous products derived from the combustion of MSW may include carbon dioxide (CO_2), water (H_2O, flue gas), oxygen (O_2), nitrogen oxides (NOx), sulphur dioxide (SO_2) and small. Minimum Moisture content should be <45%. Calorific value should be as high as possible; >1500 kcal/kg. Incineration of chlorinated plastic should be avoided as far as possible. The emission standards are prescribed in SWM Rules, 2016.

2.5 Plasma pyrolysis

Plasma pyrolysis or plasma gasification is a waste treatment technology that gasifies matter in an oxygen-starved environment to decompose waste material into its basic molecular structure. The process demands high electrical energy for creating high temperature by an electrical arc gasifier. It does not combust the waste as incinerators do. In a plasma converter, the arc breaks down waste primarily into elemental gas and solid waste (slag). The objective of the process is to generate net electricity, depending upon composition input wastes, and to

reduce the volumes of waste being sent to landfill sites. Relatively high voltage, high current electricity is passed between two electrodes, spaced apart, creating an electrical arc where temperatures as high as 13,871°C is reached. The temperature from one meter arc can reach up to ~4000°C. At these temperatures most types of waste are broken into basic elemental components in a gaseous form, and complex molecules are atomized - separated into individual atoms. Depending on the input waste (plastics tend to be high in hydrogen and carbon), gas from the plasma containment can be removed as Syngas, and may be refined into various fuels at a later stage. There has been issues of plasma systems regarding high temperatures requirement and short life of liners which are highly susceptible to both chlorine attack and to local variability in such high temperatures, not likely to last more than a year in service.

2.6 Pelletization /Production of Refuse Derived Fuel (RDF)

It is basically a processing method for mixed MSW, which can be very effective in preparing an enriched fuel feed for thermal processes like incineration or for use in industrial furnaces. It is a fuel produced by shredding municipal solid waste (MSW) and steam treatment for reducing moisture content. RDF consists largely of organic components of municipal waste such as plastics and biodegradable waste, which are compressed into pellets, bricks, or logs. Non-combustible materials such as glass and metals are removed during the treatment process with an air blow or other mechanical separation processing. The MSW collected for disposal is tested for its moisture content and when the moisture content is more than 35- 40%, it requires drying to produce fuel pellets with reasonable calorific/heating values. The reduction in moisture can be done artificially or by natural sun drying. The sun dried garbage is then uniformly fed into a rotary drying system i.e. Hot Air Generation burning oversize garbage or other fuel to further bring down the moisture level to about 10-12%. RDF is an alternative to WTE and is a potential waste management technology

3.0 Criteria for selection of Waste Processing Technology

For planning and designing of a waste management plan, some preliminary survey is required to be obtained from the city/town and accordingly selection of waste processing technologies can be done for the city/town. In case of waste quantity is found less than requirement, a regional plan may be prepared for clusters of towns to achieve the desired quantity of waste. In case of excessive generation of waste, the waste can be reduced by adopting decentralized treatment process (vermin-composting/Biogas) in pockets – within garden premises, large residential complex, etc. However, Integrated waste processing plants are capable of processing both organic and incinerable wastes.

The primary criteria for selection of waste processing technologies are as under;

1. Quantity of waste generation
2. Characteristics of waste (Physical and chemical property)
3. Based on land availability **(Annexure-I)**
4. Prevailing environmental conditions
5. Climatic condition and terrain
6. Social acceptance
7. Market for the products
8. Capital investment
9. Siting criteria
10. Environmental norms

The quantity of waste generation plays vital role in selection of waste processing technologies. Vermi-composting and Biogas plants are capable of handling effectively up to 30 Tonne/per day and suitable for small towns. Aerobic composting plants are found operational up to 500 Tonnes/day. The waste-to-Energy plants are found cost-effective for processing waste 500 Tonnes/day and above. The indicative land requirements for different composting technologies are given at **Annexure-I**.

Waste characteristics such as C/N ratio, moisture content, calorific value, etc. indicate the treatment technology to be adopted. The desirable C/N ratio for composting is 30:1 with moisture content 50-60%.; otherwise, the these parameters are maintained by addition of some selected wastes. The desirable calorific value of waste considered for incineration should not be less than 1500 Kcal/kg (SWM Rules, 2016). The desired calorific value of waste can be achieved practicing effective segregation of wastes. However, multiple technologies can be selected for a city for processing solid wastes in an integrated way depending upon the quantity and characteristics of wastes as under (Table-1);.

Table-1: Options for Integrated Technologies as per waste quantity generation

Sno.	Population range	Waste Gen.TPD	Composition	Technological options
1	Above 2 Million	>1100 TPD	Biodegradables 35 to 50 %	IWP comprising -BM +CC+ RDF. W to E plant for power, based on: gasification, pyrolysis, incineration and mass burning. RDF to cement industry Plastic to fuel oil
2	1 M to 2 Million	550 to 1100 TPD	Biodegradables 40 to 55 %	IWP comprising -BM +CC+ RDF. W to E plant for power, where wastes exceeds 500 TPD based on: gasification , pyrolysis, incineration and mass burning. RDF to cement industry Plastic to fuel oil
3	1 Lakh to 10 Lakh	30 to 550 TPD	Biodegradables 40 to 55 %	IWP-BM, CC + RDF as feed stock to power plant / cement industry. Plastic to fuel oil
4	50,000 to 1 Lakh	10 to 30 TPD	Biodegradables 45 to 60 %	BM, VC or CC RDF
5	Less than 50,000	Less than 10	Biodegradables 45 to 65 %	BM,VC / CC and RDF
6	Hill towns	State capitals	Biodegradables 30 to 50 %	BM, CC / RDF as feed stock. Plastic to fuel oil

*IWP- Integrated Waste Plant, BM- Biomethanation, VC- Vermi compositing,CC- Chemical Conversion, RDF- Refused Drive Fuel

From the above table, cities having population 1 lakh to above 2 million can adopt the most common technology to treat waste 500TPD to above 1100 TPD in an Integrated

way comprising waste treatment plants of Biomethanation, Chemical Conversion and Refused Drive Fuel. For treating the waste the composition of biodegradable waste should be varies from 30 to 60 % depending upon the generation of waste and the technologies those are in practice. For population less than 50,000 technologies like vermin-compositing and biomethanation can be used as they are more effective. The Hilly areas having land crisis, the technologies like biomethanation, vessel composting, static pile composting, RDF, etc. can be used. The desired characteristics of waste for various technologies are given at **Table-3 (Annexure-II).**

4.0 Key Criteria For Solid waste Incineration

MSW incineration projects are appropriate only if the following overall criteria are fulfilled:

- A mature and well-functioning waste management system has been in place for a number of years.
- Incineration is especially relevant for the dry bin content in a 2-bin system . For unsegregated waste, pre-treatment is necessary.
- The lower calorific value (LCV) of waste must be at least 1450 kcal/kg (6MJ/kg) throughout all seasons. The annual average LCV must not be less than 1700 kcal/kg (7 MJ/ kg) .
- The furnace must be designed in line with best available technologies to ensure stable and continuous operation and complete burn out of the waste and flue gases.
- The supply of combustible waste should be stable and amount to at least 500 tonnes/ day.
- Produced electricity and/ or stream can be sold at a sustainable basis (e.g. feeding into the general grid at adequate tariffs). It is possible to absorb the increased treatment cost through management charges, tipping fees
- Skilled staff can be recruited and maintained.

- Since the capital investment is very high, the planning framework of the community should be stable enough to allow a planning horizon of 25 years or more.
- Pre-feasibility study for the technology led to positive conclusions for the respective community.
- Strict monitoring systems are proposed and monitored.

5.0 Key Considerations for operation of Incinerators

Incineration of municipal solid waste should meet with the following criteria:

- Minimum gas phase combustion temperature of 850 °C and a minimum residence time of the flue-gases, of two seconds after the last incineration air supply.
- Optimum oxygen content (~lower than 6%) should be maintained in order to minimize corrosion and ensure complete combustion. The carbon monoxide content of the flue gas is a key indicator of the quality of combustion
- Fly ash acts as a catalyst for de-novo synthesis (at 200-450°C) of dioxins and furans. In order to reduce formation of dioxins and furans, it is imperative that maximum fly ash is removed before gases cool down to 200-450°C.
- The flue gases produced in the boilers should be treated by an elaborate flue gas treatment system.

6.0 Waste to Energy Initiatives:

The Ministry of New & Renewable Energy (MNRE) granted 5 waste to-Energy projects under their programme on energy recovery from municipal waste. Waste-to-Energy plants are intended to comply with international emission standards. Details of the 5 plants supported by MNRE are given below:

Delhi: Timarpur-Okhla Waste Management Co Pvt Ltd: an initiative of M/s Jindal ITF Ecopolis. The incineration plant was commissioned in January 2012 and is processing 2000 tons per day (TPD) for generating power of 16 MW.

Delhi, Ghazipur: out of the 2,000 TPD of waste received at the landfill site daily, the facility is processing 1,300 TPD to generate 750 TPD of RDF and 12 MW power. The project is under trial run with effect from March 2016. The operator is M/s ILFS on PPP mode.

Bangalore: BBMP has initiated installation of 8 MW power plant in Bangalore for processing 1000 TPD of waste. M/s Srinivasa Gayithri Resources Recovery Ltd is operator on PPP mode. The project is under installtion.

Pune: A 10 MW gasification plant is being set up in Pune with funds from MNRE. The plant will need 700 TPD of waste for production of 10 MW of electricity.

Hyderabad: 11 MW power plant, which will utilize 1,000 TPD of MSW, is being installed in the Nalagonda district. The plant will produce RDF for in-house incineration and power generation. The plant is currently under construction.

In general, three different designs can be distinguished. The nomenclature comes from the flow direction of the flue-gases in relation to the waste flow: unidirectional current; counter-current and medium current/centre flow furnace. The centre flow furnace is most ideal for mixed MSW which is highly variable in quality. A good mixture of all partial fluegas currents must be considered through mixture-promoting contours and/or secondary air injections.

References:

(i) Report of the Taskforce on Waste to Energy (Vol-I), Planning Commission , May, 2014
(ii) Manual on Solid Waste Management and Handling, Ministry of Urban Development (2000)
(iii) Solid Waste Management Rules, 2016

Annexure-I

Table-2: Indicative Land Requirements for Different Composting Technologies

Parameters	Windrow	Static	In-vessel	Vermicomposting
General	Simple Technology	Effective for farm and municipal use	Large- scale systems for Commercial applications	Suitable for quantities less than 50 TPD generation of mixed MSW
Amount of waste treated	1 ton-500 tons per Module	1 ton-500 tons per module	1 ton-300 tons per module	1 ton- 50 tons
Land Requirement	8 ha – 500 TPD	5 ha - 500 TPD (Less land required given faster rates and effective pile volumes)	4 ha - 500 TPD (Very limited land due to rapid rates and continuous operations)	2 ha: 50 TPD
Time	8 weeks	5 weeks	3 weeks (3-5 days in vessel; 3 weeks to mature)	8 weeks
Ambient Temperature	Not temperature sensitive	Not temperature sensitive	Not temperature sensitive	Temperature sensitive (30-40°C ideal range; 35-37°C specific to particular earthworm sp.)
Energy Input	Moderate	Moderate (2-3 hours aeration)	High	Low
Financial Implications	Moderate	Costly	Very Costly	Moderate. Purchase of exotic Earthworms suitable for MSW composting are expensive
Odour/ Aesthetic Issues	Odour is an issue if turning is inadequate	Moderate. Odour can occur but controls can be used such as pile insulation and filters on air system	Minimum. Odour can occur due to equipment failure or system design failure	None

(Source: Manual of MSW, May 2014)

Annexure-II

Table-3: SPECIFICATIONS FOR VARIOUS TYPE OF WASTE PROCESSING TECHNOLOGIES

S.No.	Method	MSW characteristics	C/N ratio	pH Control	Temperature required	Moisture Content
1	**Compositing**	Sorted organic fraction of MSW, preferable with same rate of decomposition	Between 25 – 50 initially. Release of ammonia and impeding of biological activity at lower ratios	7 – 7.5 (optimum). Not above 8.5 to minimize nitrogen loss in the form of ammonia gas	50-55°C for first few days and 55-60°C for the reminder composting period. Biological activity reduces significantly at higher temperature	55% (optimum)
2	**Incineration**	MSW with calorific value as high as possible; Volatile matter >40%; Fixed carbon <15%; Total inert <35%	Calorific Value-As high as possible; >1200 kcal/kg	_	850°C to 1400°C	As minimum as possible; <45%
4	**Pyrolysis**	_	_	6.5-8.5 (optimum)	elevated temperatures 700°C-900°C	_
5	**Gasification**	_	_	_	Temperature greater than 1000°C	_
6	**Biomethanation**	Sorted organic fraction only; Higher the putrescibility, better is the gas yield; Fibrous organic matter is undesirable as the anaerobic microorganisms do not break down woody molecules such as lignin	25-30 (preferable)	Acidogenic bacteria through the production of acids reduce the pH of the tank. Methanogenic bacteria operates in a stable pH range and temperature	Mesophilic bacteria act optimally around 37°-41°C or at ambient temperatures between 20°-45°C. Thermophilic bacteria act optimally around 50°-52° and at elevated temperatures up to 70°C. Mesophiles are more tolerant to changes in environmental conditions and hence more stable, but thermophiles act faster.	>50%; Implications on feed, gas production, system type, system efficiency

	Vermi composting	Any organic waste which are not appreciably oily, spicy, salty or hard and that do not have excessive acidity and alkalinity	30:1 (preferred). Brown matter (wood products, saw dust, paper etc) is rich in carbon and green matter (food scraps, leaves etc) in nitrogen.	Slightly alkaline state preferable. Correction by adding small dose of calcium carbonate	20 – 30oC	40-55% preferable; cover the tank with wet sack and sprinkle water as required

Advance Service of reply on behalf of Respondent No. 3 in Appeal No. 62 of 2025

UNUC Legal LLP <unuconsultants@gmail.com> 19:12 (0 minutes ago)

to secy-moef, msdpcc, Shibani, commissioner, ngtpb.cpcb, Suhasini, PRAMOD, bcc: varun

Good evening,

Please find attached reply on behalf of Respondent No. 3 M/s Jindal Urban Waste Management (Bawana) Ltd.to the petition filed by the appellant in the above captioned matter.

Kind regards

reply on behalf of respondent No. 3_Appeal No. 6...

UNUC LEGAL LLP
Advocates & Solicitors

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