

**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)

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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 from MoEF&CC, expert from IIT Delhi and

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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 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Date</th> <th style="width: 70%;">Power Generation range (MW) 6 AM- 6 PM</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25.02.2020</td> <td style="text-align: center;">18.3-20.9</td> </tr> <tr> <td style="text-align: center;">26.02.2020</td> <td style="text-align: center;">19.1-20.1</td> </tr> </tbody> </table>	Date	Power Generation range (MW) 6 AM- 6 PM	25.02.2020	18.3-20.9	26.02.2020	19.1-20.1
Date	Power Generation range (MW) 6 AM- 6 PM							
25.02.2020	18.3-20.9							
26.02.2020	19.1-20.1							

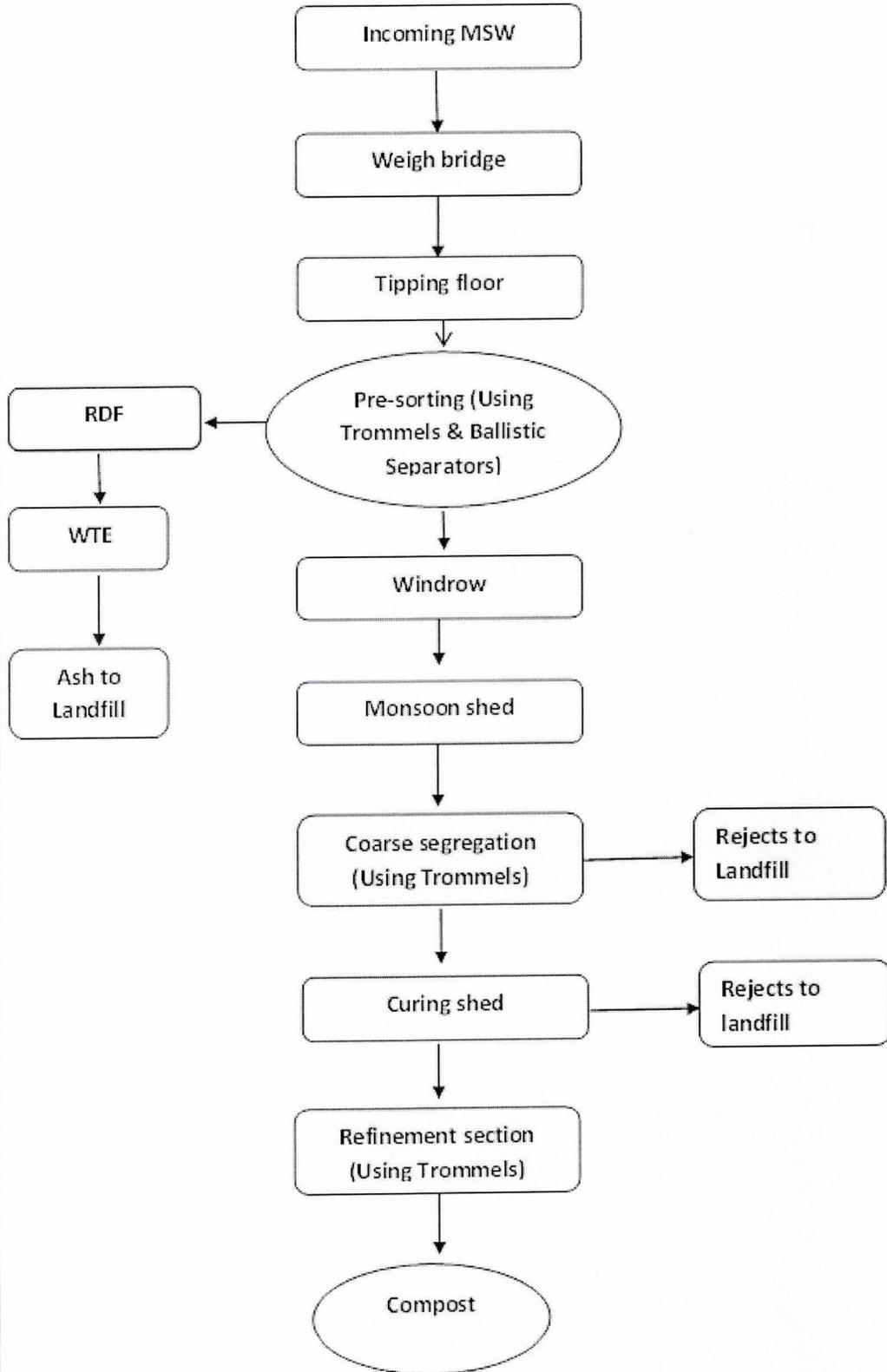
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Process Flow Diagram:

DMSWSL PLANT PROCESS FLOW SHEET



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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 ash are 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			
<p>During the inspection on 25-26, February, 2020 following observations were made.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>d) Both the boilers along with pollution control devices of the waste to energy plant were found operating at the time of inspection.</p> <p>e) Radioactive sensors, installed at entrance of the facility were operational during inspection</p> <p>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.</p>			

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- 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,SO₂,NO_x 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 PM₁₀ 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, so as to reduce PM₁₀& 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#)

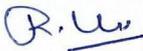
Name & designation of inspecting officer(s)	(Ratnesh Kumar), Sc.'B', Delhi	(Ramesh Chandra) EE, DPCC Delhi
Signature		



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	29.4, 27.3
2.	Hydrogen Chloride	CPCB	50 mg/Nm ³	50 mg/Nm ³	Feb, 2020	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		26.0 2.20 20
12.	Total Organic Compounds (as C) at 11% O ₂		20 mg/Nm ³	20 mg/Nm ³	3.4	

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

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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 $\mu\text{g}/\text{m}^3$)	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.

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Waste to Energy Plant Ghazipur

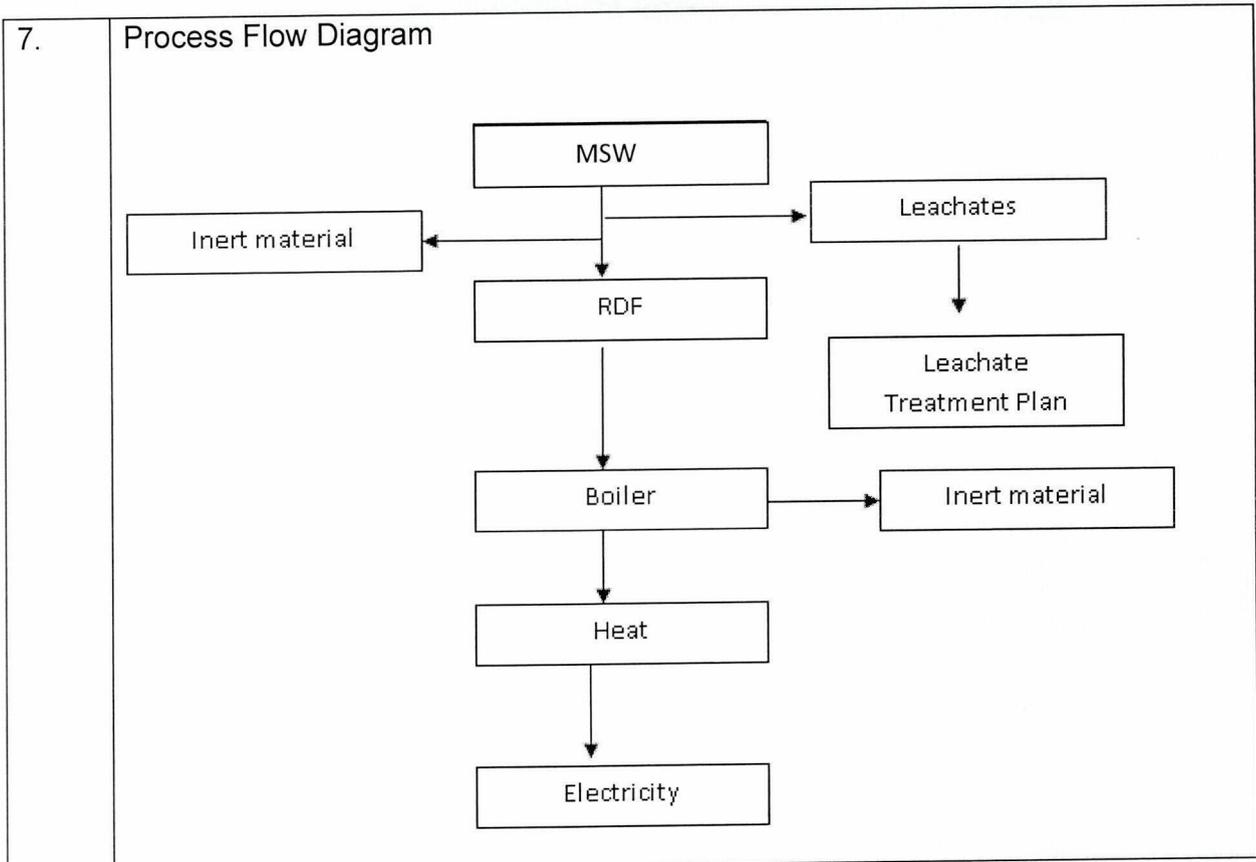
CENTRAL POLLUTION CONTROL BOARD, DELHI



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	<p>Details of power generation ranges during the said inspection</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Date</th> <th style="text-align: center;">Power Generation range (MW) 6 AM- 6 PM</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">05.03.2020</td> <td style="text-align: center;">3.43 - 7.94</td> </tr> <tr> <td style="text-align: center;">06.03.2020</td> <td style="text-align: center;">0.01 - 6.69</td> </tr> </tbody> </table>	Date	Power Generation range (MW) 6 AM- 6 PM	05.03.2020	3.43 - 7.94	06.03.2020	0.01 - 6.69
Date	Power Generation range (MW) 6 AM- 6 PM							
05.03.2020	3.43 - 7.94							
06.03.2020	0.01 - 6.69							

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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.

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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. 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. 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, NO_x and Pb values of stack emission to well within limit.

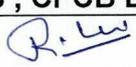
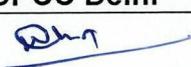
Name & designation of inspecting officer(s)	(Ratnesh Kumar), Sc.'B', CPCB Delhi	(Ramesh Chandra) EE, DPCC Delhi
Signature		

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/Nm ³	50 mg/Nm ³	5-6 March, 2020	48.4, 53.7
2	HCL	CPCB	50 mg/Nm ³	50 mg/Nm ³		3.5
3	SO ₂	CPCB	100 mg/Nm ³	200 mg/Nm ³		16.1, 51.6
4	NO _x (NO and NO ₂ expressed as NO ₂)	CPCB	350 mg/Nm ³	400 mg/Nm ³		105.9, 872.6
5	Carbon Monoxide	CPCB	100 mg/Nm ³	100 mg/Nm ³		-
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	0.5 mg/Nm ³	0.5 mg/Nm ³		0.347
8	Cd+Th+their compounds	CPCB	0.05 mg/Nm ³	0.05 mg/Nm ³		.007
9	Pb	CPCB	0.1 mg/Nm ³	Not prescribed		0.112
10	Hg	CPCB	0.02mg/Nm ³	0.05mg/Nm ³		BDL

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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}	March 5-6, 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 SO₂ is < 4ug/m³

*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.

R. Kumar

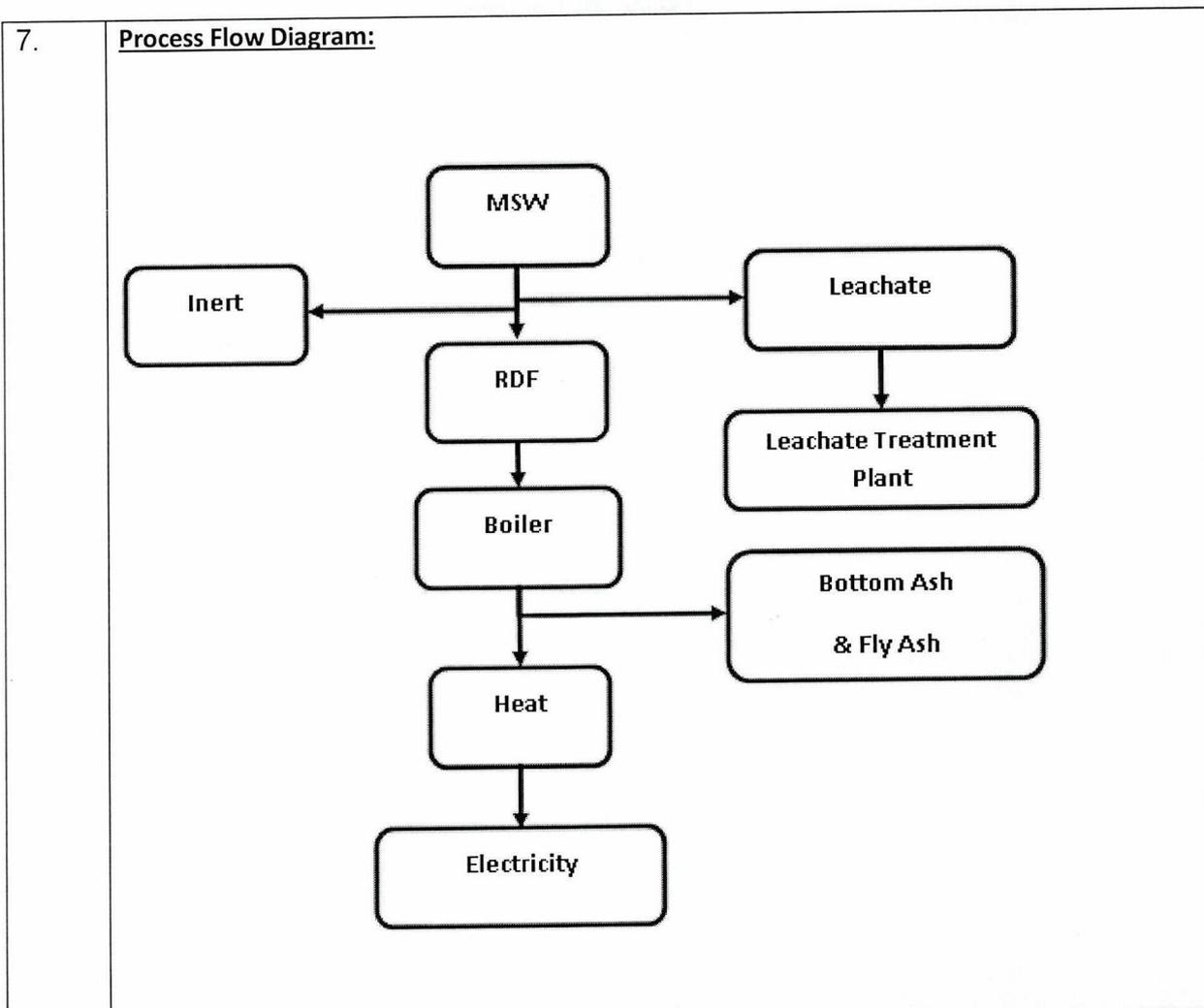
R. Kumar

Waste to Energy Plant Okhla

CENTRAL POLLUTION CONTROL BOARD, DELHI																		
																		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025 Lat. 28.553672 & Long. 77.280838																
2.	Name of the occupier/contact person with Telephone Fax E-mail	Mr. Sandeep Dutt Mob. 09958360016 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																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 25%;">Date</th> <th colspan="3">Power Generation (MW)</th> </tr> <tr> <th style="width: 25%;">Time</th> <th style="width: 25%;">Minimum</th> <th style="width: 25%;">Maximum</th> </tr> </thead> <tbody> <tr> <td>12.03.2020</td> <td>6 AM to 6 PM</td> <td>17.68</td> <td>21.20</td> </tr> <tr> <td>13.03.2020</td> <td>6 AM to 6 PM</td> <td>17.84</td> <td>21.63</td> </tr> </tbody> </table>				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
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															

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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	

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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		
<p>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.</p> <p>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.</p> <p>c) All the three boilers along with pollution control devices were found operational. The temperature of furnace was maintained between 950-1050°C.</p> <p>d) The Dioxin & Furans value of stack emission monitoring exceeded the permissible limit. Concentration of remaining parameters are within limits.</p> <p>e) The PM₁₀ 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.</p> <p>f) Continuous ambient air quality monitoring station is not yet installed at the unit</p> <p>g) Online Continuous emission monitoring system (OCEMS) has been installed and found operational during the inspection.</p> <p>h) Quenched Bottom Ash, Fly Ash and segregated inert are disposed of at Jaitpur site.</p> <p>i) Radioactive sensors are installed at gate no. 2 of plant.</p> <p>j) Plant has installed water sprinkling system for dust settlement.</p> <p>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.</p> <p>l) Analysis report of Fly ash & Bottom ash reveals that all parameters were well within the limit.</p> <p>m) Plant has maintained considerable greenery inside the premises and along boundary wall.</p>		
15. Recommendations		
<p>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</p> <p>ii. The plant should take necessary measures to reduce fugitive emissions specifically during material handling, so as to reduce PM₁₀& PM_{2.5} value concentrations in ambient air.</p>		

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- 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	12-13 March, 2020	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.	Dioxin & 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		

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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.

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

**M.A. No. 1168 of 2017
In
Original Application No. 22 of 2013 T_{HC}**

**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, Adv.
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
<p align="center">Item No. 12</p> <p align="center">October 09, 2017</p> <p align="center">SS & SN</p>	<p align="center"><u>M.A. No. 1168 of 2017</u></p> <p>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.</p> <p>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.</p> <p>With the above directions M.A. No. 1168 of 2017 stands disposed of. No order as to cost.</p> <p align="right">.....,CP (Swatanter Kumar)</p>

	<p>Item No. 12</p> <p>October 09, 2017</p> <p>SS & SN</p>	<p>.....,JM (Dr. Jawad Rahim)</p> <p>.....,JM (Raghuvendra S. Rathore)</p> <p>.....,EM (Bikram Singh Sajwan)</p>
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**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
<p>Item No. 6 September 27, 2018 R</p>	<p>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:</p> <p style="text-align: center;">“Recommendations:</p> <ol style="list-style-type: none"> 1. <i>To ensure better efficiency of the Plant and Power generation the unit should feed segregated wastes.</i> 2. <i>Plant should adopt technologies to reduce Moisture Content in RDF.</i> 3. <i>Fly ash utilization should be done rather than dumping it on landfill site.</i> 4. <i>Unit shall install Fly ash bricks manufacturing unit.</i> 5. <i>Flow meters shall be installed at inlet and outlet of Leachete treatment plant.</i> 6. <i>Plant should adopt technologies to improve calorific value of RDF.</i> 7. <i>Plant shall be designed for 30-35 years.”</i> <p>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</p>

<p>Item No. 6 September 27, 2018</p> <p>R</p>	<p>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.</p> <p>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.</p> <p>The application is disposed of.</p> <p>....., CP (Adarsh Kumar Goel)</p> <p>.....,JM (S.P. Wangdi)</p> <p>.....,EM (Dr. Nagin Nanda)</p> <p>27.09.2018</p>
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