Environmental and Social Due Diligence Report

Project Number: 47083-004
July 2020

INDIA: Accelerating Infrastructure Investment Facility in India – Tranche 3

Jindal Urban Waste Management (Visakhapatnam) Ltd.
(Part 2 of 3)

Prepared by India Infrastructure Finance Company Limited for the India Infrastructure Finance Company Limited and the Asian Development Bank.

ANDHRA PRADESH POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A - 3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018

Phone: 23887500
Website :www.appcb.ap.nic.in

CONSENT ORDER FOR ESTABLISHMENT

Order No. 410 /APPCB/CFE/RO-VSP/HO/2017 **Dt: 20.03.2017**

Sub: APPCB – CFE - **M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V) Bheemunipatnam (M), Visakhapatnam District** – Consent for Establishment (CFE) of the Board under Sec.25 of Water (P & C of P) Act, 1974 and Under Sec.21 of Air (P&C of P) Act, 1981 - Issued - Reg.

Ref:
1. Industry's lr. dt. 18.02.2017 and 20.02.2017.
2. Industry's revised application received through Single Desk received on 20.02.2017.
3. R.O's inspection report dt. 23.02.2017.
4. CFE Committee meeting held on 09.03.2017.
5. R.O. mail dt. 14.03.2017.

1. In the reference 2nd cited, a revised application was submitted to the Board seeking Consent for Establishment (CFE) for **MSW based power plant** with installed capacity as mentioned below, with a project cost of Rs. 172.935 Crores (Rs. 172.92 crores + Rs. 0.015 crore).

S.No	Name of the Products and By-products	As per CFE order 11.01.2017	As per Revised CFE Application
	Products		
1.	Electricity (Fuel: MSW	15 MWH	15 MWH / 360 MW/day
	By- products		
1.	Chlorinated Hard Plastics	16.2 TPD	6.50 TPD
2.	Metal	---	0.32 TPD
3.	Brick and Paver blocks	---	20000 Nos

2. As per the application, the above activity is to be located at Sy. Nos. 410 & 415, Kapuluppada (V) Bheemunipatnam (M), Visakhapatnam District in an area of 69120.30 Sq. m. (17.08 Acres).

3. The above site was inspected by the Asst, Environmental Engineer-III, Regional Office, Visakhapatnam, A.P Pollution Control Board on 22.02.2017 and observed that the site is surrounded by

North : Hillock
South : Dumping Yard of GVMC
East : Dumping Yard of GVMC
West : Maridi Eco Industries (Andhra) Pvt. Ltd.,

4. The Board, after careful scrutiny of the application, verification report of Regional Officer and recommendations of the CFE Committee, hereby issues **CONSENT FOR ESTABLISHMENT** to your activity Under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. **This order is issued to produce products as mentioned at para (1) only.**

5. This Consent Order now issued is subject to the conditions mentioned in Schedule 'A' and Schedule 'B'.

6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

7. **This order is valid for period of 7 years from the date of issue.**

Encl: Schedule 'A'
Schedule `B'

MEMBER SECRETARY

To

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited,
Jindal ITF Center, 28, Shivaji Marg,
Delhi Industrial Area,
WEST DELHI-110015.
megha.gupta@jindalitf.com

Copy to: 1. The JCEE, Z.O., Visakhapatnam for information and necessary action.
2. The E.E., R.O, Visakhapatnam for information and necessary action.

SCHEDULE - A

1. The proponent shall obtain Consents for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sec. 21/22 of the Air (P&C of P) Act, 1981, before commencement of the activity.

2. Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil liability.

3. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe valves, sewers, drains shall be leak proof. Dyke walls shall be constructed around storage of chemicals.

4. The rules and regulations notified by Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act, 1991 shall be followed.

SCHEDULE – B

Water:

1. The source of water is the treated waste water from STP being operated by GVMC at Marikivalasa (V), Visakhapatnam and the maximum permitted water consumption is as following:

Sl.No	Purpose	Quantity
1.	Cooling tower make-up	332.14 KLD
2.	Boiler make-up	37.86 KLD
3.	Domestic (Plant)	3.255 KLD(Recycled)
4.	Process(Bricks Plant)	30.00 KLD(Recycled)
5.	Washings (Floor & Road washings)	6.975 KLD(Recycled)
6.	Fire fighting makeup	65.10 KLD (Recycled)
7.	Sludge Thickener	34.00 KLD
8.	Bottom ash cooling	75.00 KLD
9.	Green belt development	21.00 KLD
	Total (Fresh +Recycled)	**605.33KLD**

2. The maximum waste water generation shall not exceed the following:

Sl.No	Source	Quantity
1.	Cooling tower bleed of and SSF rejects	69.71 KLD
2.	Boiler blow down	21.12 KLD
3.	Domestic (Plant)	3.00 KLD
4.	Washings (Floor & road washings)	6.00 KLD
5.	DM Plant regeneration	14.50 KLD
	Total	**114.33 KLD**

Treatment & Disposal

Source of effluent	Treatment	Mode of final disposal
Leachate	350 KLD Leachate Treatment Plant (LTP) consists of Influent Leachate storage tank, mesh screens, (Moving bed bio reactor) MBBR, Secondary clarifier, Carbon filters & Sand Filters	re-circulated by spraying on composting heap to maintain sufficient moisture content.
Cooling tower bleed off, SSF rejects, Boiler blow down, DM Plant regeneration	Neutralization pit	used for firefighting system makeup, Brick plant and Domestic
Washings (Floor & road washings)	-----	Diverted to MSW storage pits
Domestic	Septic tank	Soak pit
Leachate (as mentioned in the EMP)	Influent Leachate storage tank; Mesh Screens; Oil & Grease Trap Moving Bed Bio film Reactor; Secondary clarifier; Sump Tank; Carbon filter and Sand Filter; Sludge drying beds.	Re-circulated for ash quenching.

3. The effluents generated from the cooling shall be treated to the surface water standards and domestic waste water shall be treated to the on land for irrigation standards, as stipulated under Schedule VI of Environment (Protection) Rules, 1986, notified by Ministry of Environment and Forests, Government of India vide G.S.R.422 (E), dt.19.05.1993 and its amendments thereof.

4. The proponent shall regularly monitor the ground water quality for mercury and other heavy metals (Hg, Cr, As, Pb, etc) around the Municipal Solid Waste Landfill including surface water bodies in the vicinity. The monitoring data shall be compared with baseline data and requisite measures shall be implemented to prevent any kind of direct/ indirect contamination of water resources in the project surroundings.

5. Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned below.

   a) Industrial cooling, boiler feed.

   b) Domestic purposes.

   c) Processing, whereby water gets polluted and pollutants are easily bio- degradable.

   d) Processing, whereby water gets polluted and the pollutants are not easily bio-degradable.

6. The industry shall provide digital flow meters with totalisers at inlet of Leachate treatment system for the purpose of measuring quantity of effluents.

Air:

7. The Air pollution Control equipment shall be installed along with the commissioning of the activity and shall comply with the following for controlling air pollution.

I)	Emissions from fuel burning		
Sl. No	Details of Stack	Stack-1	Stack-2
a)	Attached to:	Boilers	D.G.Set
b)	Capacity	2nos X 48 TPH	1 x 1500 KVA
c)	Name of the Fuel :	Municipal solid wastes	HSD
d)	Stack height above ground (m.)	65 m (RCC Common stock)	7.75 m above roof
e)	Air Pollution Control Equipment:	Turbo reactor with lime injection followed by the Bag House with activated carbon coating bags (For each boiler)	Acoustic enclosures

8. **Continuous online monitoring equipment shall be provided for the stack attached to Boiler for Sox, NOx, PM2.5 and PM10. Data thus generated shall be connected to CPCB and APPCB websites for display as per CPCB directions dt.05.02.2014.**

9. Regular monitoring of ground level concentration of SO2, NOx, PM10 & PM2.5 shall be carried out in the impact and buffer zone and records shall be maintained. If at any stage these levels are found to exceed the prescribed limits, requisite restorative measures shall be implemented immediately. The location of the monitoring stations shall be fixed in consultation with the Regional Officer of the Board. Consolidated daily reports shall be submitted to the concerned Regional Officer on monthly basis.

10. The proponent shall ensure compliance of the National Ambient Air quality standards notified by MoEF; GoI vide notification No. GSR 826(E), dated. 16.11.2009 during construction and regular operational phase of the project.

11. The industry shall take following mitigation measures to control fugitive emissions during construction and operational stage:

    - Vehicles shall be managed to avoid traffic congestions and shall provide parking facilities.
    - Mechanical water sprinkling shall be provided on roads and at dusty construction material storage areas, for suppression of dust. Mechanized handling equipment shall be used for loading & unloading operations.
    - Vehicles shall comply with emission standards and shall have valid PUC certification.
    - Procurement of machinery / construction equipment shall be in accordance to the specifications confirming to source noise levels of 85 dB(A).

12. In plant control measures for dust suppression like black top / concrete roads, Water Sprinkling system shall be provided for controlling fugitive emissions from all vulnerable sources.

13. All the dusty raw materials and solid waste shall be accommodated under roof shed with required safety ventilation as approved by the competent authorities. There shall not by any open piling.

14. A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.

15. The generator shall be installed in a closed area with a silencer and suitable noise absorption systems. The ambient noise level shall not exceed 75 dB(A) during day time and 70 dB(A) during night time.

16. **The MSW shall be stored in a closed area with a negative pressure with the air flow routed through the boiler to prevent odour as mentioned in the EMP report.**

Solid Waste:

17. The proponent shall comply with the following:

S. No	Solid / Hazardous waste	Quantity	Mode of final disposal
1.	Used Oil / Waste Lubrication Oil	0.5 KL/Year	Sold out to authorized recyclers / re processors
2.	Boiler Ash	Fly ash: 32.05 TPD	Disposed to Brick manufacturing units.
		Bottom Ash: 128.16 TPD	Disposed to Scientific land fill facility.
3.	Used Lead Acid Batteries	4nos/Annum	Returned to dealers on buy back system

18. Adequate safety measures shall be provided in the plant area to check / minimize spontaneous fires in MSW storage yard, especially during summer season.

19. The proponent shall install silo of capacity (200 tons) with breather bags to collect and store ash and its distribution.

20. The following rules and regulations notified by the MoE&F, GoI shall be implemented.

    a) Hazardous waste and other wastes (Management and Transboundary Movement) Rules, 2016.
    b) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
    c) Fly Ash Notification, 2016.
    d) Batteries (Management & Handling) Rules, 2010.

e) E-Waste (Management) Rules, 2016.
f) Construction and Demolition waste Management Rules, 2016.
g) Solid Waste Management Rules, 2016.

Other Conditions:

21. **The CFE order No. 410 /APPCB/CFE/RO-VSP/HO/2017, dt. 11.01.2017 is cancelled.**

22. **The industry shall comply with the following:**

- The proponent shall start construction work of the project after obtaining Authorization under Solid Waste Management Rules, 2016 for establishment of storage, handling and management of Municipal Solid Waste.

- The project proponent is informed to take action as per the provisions of the EIA Notification, 2006 and its amendments thereof, with regard to the Environmental Clearance (EC), for the required components.

23. Green belt shall be developed all along the boundary & vacant spaces with tall growing trees with good canopy and it shall not be less than 33% of the total area.

24. The proponent shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.

25. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.

26. Notwithstanding anything contained in this conditional consent, the Board hereby reserves its right and power under Sec.27(2) of Water (Prevention and Control of Pollution) Act, 1974 and under Sec.21(4) of Air (Prevention and Control of Pollution) Act, 1981 to revoke the order, review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions or revoke the order in the interest of environment protection.

27. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules,1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution)Act,1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

MEMBER SECRETARY

To

M/s. Jindal Urban Waste Management (Visakhapatnam) Limited,
Jindal ITF Center, 28, Shivaji Marg,
Delhi Industrial Area,
WEST DELHI-110015.
megha.gupta@jindalitf.com

अजय नारायण झा
AJAY NARAYAN JHA, IAS

सत्यमेव जयते

सचिव
भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Secretary
Government of India
Ministry of Environment, Forest and Climate Change

D.O.No. 22-19/2017-IA-III

3rd July, 2017

Dear Shri Mishra,

Please refer to the D.O. letter No. Q-15014/2/2017-CPHEEO dated 14.02.2017 requesting to revisit the process of prior environmental clearance for Solid Waste Management Treatment and Processing Facilities.

2. The matter has been examined by the Expert Group constituted in the Ministry in its meeting held on 14.06.2017. The Expert Group has submitted its recommendations. The recommendations of the Expert Group have been examined in the Ministry.

3. The Environment Impact Assessment Notification, 2006 in the Schedule at item 7(i) mentions Common Municipal Solid Waste Management Facility (CMSWMF) as Category B project for which State Environment Impact Assessment Authority (SEIAA) is empowered to appraise the project for grant of prior environmental clearance.

4. The municipal solid waste management involves various steps like door to door collection, segregation, composting, refuse derived fuel (RDF) making, waste to energy generation through waste to energy plants and disposal in scientific landfills. The above activities, except landfill site, if proposed as standalone activities are not covered under item 7(i) of EIA Notification, 2006, hence do not require prior environmental clearance. In case the activities of composting, RDF making and waste to energy plant (up to capacity of 15 MW) are proposed at an existing landfill site, they do not attract the provisions of the EIA Notification, 2006.

5. If the activities of incineration, RDF making and waste to energy plant are proposed along with the new site of solid waste disposal/ landfill, it is advisable to obtain an integrated prior environmental clearance for these projects.

contd...2/-

इंदिरा पर्यावरण भवन, जोर बाग रोड़, नई दिल्ली-110 003 फोन : (011) 24695262, 24695265, फैक्स : (011) 24695270
INDIRA PARYAVARAN BHAWAN, JOR BAGH ROAD, NEW DELHI-110 003 Ph. : (011) 24695262, 2465265, Fax : (011) 24695270
E-mail : secy-moef@nic.in, ajay.jha@nic.in, Website : moef.gov.in

6. It has been seen that locating a landfill site or municipal solid waste disposal site is a contentious issue and there is a tendency to locate them far from the habitation but near forest, rivers, ponds, wetlands and low lying areas etc. which are ecologically sensitive sites and require proper environmental management. Since, the forests, rivers, ponds, wetland and low lying areas are critical from environmental point of view, it may not be appropriate to exempt this activity of municipal solid waste disposal site or landfill site from the requirement of prior environmental clearance.

7. I believe this will expedite the achievement of the objectives of the Swachh Bharat Mission.

With regards,

Yours sincerely,

(A.N. Jha)

Shri Durga Shankar Mishra
Secretary,
Ministry of Urban Development,
Nirman Bhawan,
New Delhi-110011.

Annexure - VIII: Authorization Under Solid Waste Management Rules, 2016

ఆంధ్రప్రదేశ్ కాలుష్య నియంత్రణ మండలి
ANDHRA PRADESH POLLUTION CONTROL BOARD
D. No. 33 - 26 - 14 D / 2, Chalamalavari Street, Kasturbaipet,
Mogalrajpuram, Vijayawada - 520 010
Phone No: 0866 - 2436216 / 17

Form-II
AUTHORISATION

[As Per Rule 21(3)]

UNDER SOLID WASTE MANAGEMENT RULES, 2016

-1535

File No. 03
Dated: 27.12.2018
Authorisation No. 03/APPCB/MSW/2018

To

M/s. Jindal Urban Waste Management (Visakhapatnam) Ltd,
Jindal ITF Center, 28, Shivaji Marg,
Delhi Industrial Area,
West Delhi – 110015.

Reference to your authorization application number 3572/PCB/RO/VSP/2018–4063, Dated 14.05.2018.

The A.P. Pollution Control Board after examining the proposal hereby authorizes, M/s. Jindal Urban Waste Management (Visakhapatnam) Ltd, having administrative office at Delhi Industrial Area, West Delhi, for municipal solid waste based Waste to Energy Plant of capacity of 15.0 MWH Electric Power generation and to produce other by-products. The facility is spread in an extent of 17.08 Acres of leased land located at Sy. No. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District.

The authorisation is hereby granted to the facility of (Waste to Energy Plant) proposed by M/s. Jindal Urban Waste Management (Visakhapatnam) Ltd, to use municipal solid waste as a fuel.

The authorisation is subject to the terms and conditions attached and such conditions as may be otherwise specified in these rules and the standards laid down in Schedules-I and II under these rules.

The A.P. Pollution Control Board may, at any time, revoke any of the conditions applicable under the authorisation and shall communicate the same in writing.

Any violation of the provision of the Solid Waste Management Rules, 2016 will attract the penal provision of the Environment (Protection) Act, 1986 (29 of 1986).

This authorization is valid for period of **One Year i.e up to 31.12.2019.**

Sd/-
MEMBER SECRETARY

Date: 27.12.2018.
Place: Vijayawada.

// T.C.F.B.O //

JOINT CHIEF ENVIRONMENTAL ENGINEER
UH-II

28/12/18

TERMS AND CONDITIONS OF THE AUTHORISATION

General Conditions:

1. This authorization is valid for period of One Year i.e up to 31.12.2019.
2. The facility shall not add on (or) dispose the solid waste of new local bodies to the existing 4 Nos. of local bodies having concessional agreement with Waste to Energy Plant facility.
3. The operator of the facility shall apply for renewal of Authorization at least Sixty days prior to the expiry of the Authorization.
4. The Andhra Pradesh Pollution Control Board may at any time revoke/ stipulate any of the conditions applicable in the authorization under Solid Waste Management Rules, 2016 and may communicate the same in writing.
5. The operator of the facility shall adhere to the conditions stipulated in CFE/ CFO of the Board and shall adhere to the conditions made in land lease agreement with the Lead Urban Local Body.
6. The operator of the Facility shall obtain the CFO of the Board and shall renew the same from time to time.
7. The Operator of the facility shall dispose the Liquid and Solid wastes generated from the facility as per the CFE/ CFO Order stipulated by the Board and maintain the record of wastes and report the same time to time to the Board.
8. The operator of the facility shall ensure to maintain buffer zone as per the CPCB guidelines on the provision of Buffer Zone around waste processing disposal facilities. Additional green belt buffer shall be maintained towards residential areas in view of public safety.
9. The operator of the facility shall be taken every possible efforts in implementing for minimizing the inert waste generation at source.
10. The operator of the facility shall ensure to cover the vehicles transporting the solid waste from different local bodies and shall not litter solid waste along the village roads/ State highway/ national highways and vacant private and Government sites.
11. The operator of the facility shall not store Solid waste openly, received from the different municipalities within the premises and the solid waste shall not be segregated at the facility.
12. The operator of the facility is not permitted to maintain any transit point in and around the facility premises. Temporary storage facility for solid waste shall be established for the waste processing facility in consultation with the Lead Urban Local Body to accommodate the waste in case of non-operation of waste processing and during emergency or natural calamities.
13. The operator of the facility shall store solid waste in Bins provided for storage as and when receipt of the waste at facility and shall be used subsequently.
14. The operator of the facility shall take all necessary measures for preventing odour nuisance and shall be lifted without any delay.
15. The operator of the facility shall ensure to procure combustible waste and shall take all possible measures to minimize the mixing of other recyclable/ compostable wastes into the combustible waste being used as fuel for power generation.
16. The operator of the Facility shall not prepare Refuse Derived Fuel and shall not provide compost plant with in the facility premises.
17. The operator of the facility shall modify the mode of waste collection/ treatment/ disposal as per new modifications suggested by the CPCB/ SPCB from time to time.
18. The proponent of the Waste to Energy Plant facility shall prepare and furnish the DPR for the Waste Energy Plant within one month after the date of issue of this authorization.
19. The Waste to Energy Plant shall strictly adhere to the provisions of Solid Waste Management Rules, 2016 and the solid waste shall be collected/ treated/ disposed as per the DPR only.
20. The Board reserves the right to suspend or cancel the authorization any time, if the Lead urban local body or operator of the facility fails to operate the facility as per the conditions stipulated in authorization issued under Solid Waste Management Rules' 2016.
21. Any violation of the provisions of the Solid Wastes Management Rules, 2016, the operator of the facility will attract the penal provision of the Environment (Protection) Act, 1986.

22. The operator of the facility shall design and set up the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Urban Development.

23. The operator of the Facility shall adopt new technology for solid waste processing and shall obtain prior consent of the Board as and when modifications are proposed in solid waste processing & disposal.

24. The operator of the Facility shall allow only non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill sites those meeting the specifications as given in Schedule–I, however, every effort shall be made to recycle or reuse the rejects to achieve the desired objective of zero waste going to landfill.

25. The operator of the facility shall segregate the hazardous items like chlorinated plastics, batteries, etc. and shall take measures not to mix with other combustible wastes.

26. The operator of the facility shall take necessary measures to prevent off-site migration of gases and to avoid the smell nuisance during handling of solid waste proposed to store in core area.

27. The operator of the facility shall dispose the sanitary landfills as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and as per the manual on solid waste management prepared by the Ministry of Urban Development.

28. The operator of the facility shall be responsible for the safety and environmentally sound operations of the solid waste processing and treatment facilities as per the guidelines issued by the Central Pollution Control Board from time to time and the Manual on Municipal Solid Waste Management published by the Ministry of Urban Development and updated from time to time.

29. The operator of the solid waste processing and treatment facility shall submit annual report in Form-III each year by 30th April to the State Pollution Control Board or Pollution Committee and concerned Lead Urban Local Body.

30. A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five Tones per day of installed capacity. This will be maintained within the total area of the municipal solid waste based waste to energy plant.

31. The biomedical waste shall be disposed off in accordance with the Bio-medical Waste Management Rules, 2016, as amended from time to time. The Hazardous Waste shall be managed in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time. The E-waste shall be managed in accordance with the e-Waste (Management) Rules, 2016 as amended from time to time.

32. The approach and internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.

33. The facility shall provide waste inspection facility to monitor waste brought in for power generation, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipment. The operator of the facility shall maintain records on MSW received and used for power generation and waste received and inert waste generation.

34. Provisions like Separate weigh bridge to measure quantity of waste brought at the facility and inert waste disposed to the Sanitary Landfill Facility, fire protection equipment and other facilities as may be required shall be provided.

35. Utilities such as drinking water and sanitary facilities (preferably washing/ bathing facilities for workers) and lighting arrangements for easy operations during night hours shall be provided.

36. Safety provisions including health inspections of workers at facility shall be carried out at regular intervals.

37. Provisions for parking, cleaning, washing of transport vehicles carrying solid waste shall be provided. The wastewater so generated shall be treated to meet the prescribed standards by providing ETP for the waste water generated from the facility.

Special Conditions:

38. The operator of the facility shall identify land for disposal of fly and bottom ash generated to the tune of 160.21 TPD and shall dispose in scientific manner, such land details and mode of disposal and precautionary measures taken for disposing ash shall be furnished with in one month time of issue of this order.

39. The operator of facility shall prepare and furnish the DPR for Waste to Energy Plant within one month time of issue of this order.

40. The operator of the facility shall maintain records on solid waste received at the Facility and to characterize the same and ensure the suitability of waste for power generation. The consolidated report shall be submitted to the Board on monthly basis.

41. Under any circumstances, the operator of the facility shall not use halogenated plastic materials for incineration. Proper segregation of PVC material shall be adopted prior to feeding in to the Boiler and segregated Hazardous waste shall be sent for co-processing in cement plants or to the common incinerators duly following the procedure prescribed under the HOWM Rules, 2016.

42. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.

43. **Criteria for waste to energy process:**

(1) Non-recyclable waste having calorific value of 1500 k.cal/ kg or more shall not be disposed of on landfills and shall only be utilized for generating energy.

44. **Criteria for Pollution Prevention.-**

(1) The operator of the facility shall made provisions for management of leachates including its collection and treatment. The treated leachate shall be recycled or utilized as permitted, otherwise shall be released into the sewerage line, after meeting the standards specified in Schedule- II. In no case, leachate shall be released into open environment.

S. N	Parameter	Standards (Mode of Disposal) All values are mg/l except for pH		
		Inland surface water	Public sewers	Land disposal
(1)	(2)	(3)	(4)	(5)
1.	Suspended solids, mg/l, max	100	600	200
2.	Dissolved solids (inorganic) mg/l, max.	2100	2100	2100
3	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4	Ammonical nitrogen (as N), mg/l, max.	50	50	-
5	Total Kjeldahl nitrogen (as N), mg/l, max.	100	-	-
6	Biochemical oxygen demand (3 days at 27°C) max.(mg/l)	30	350	100
7	Chemical oxygen demand, mg/l, max.	250	-	-
8	Arsenic (as As), mg/l, max	0.2	0.2	0.2
9	Mercury (as Hg), mg/l, max	0.01	0.01	-
10	Lead (as Pb), mg/l, max	0.1	1.0	-
11	Cadmium (as Cd), mg/l, max	2.0	1.0	-
12	Total Chromium (as Cr), mg/l, max.	2.0	2.0	-
13	Copper (as Cu), mg/l, max.	3.0	3.0	-
14	Zinc (as Zn), mg/l, max.	5.0	15	-
15	Nickel (as Ni), mg/l, max	3.0	3.0	-
16	Cyanide (as CN), mg/l, max.	0.2	2.0	0.2
17	Chloride (as Cl), mg/l, max.	1000	1000	600
18	Fluoride (as F), mg/l, max	2.0	1.5	-
19	Phenolic compounds (as C_6H_5OH) mg/l, max.	1.0	5.0	-

(2) The operator of the facility shall made arrangement to prevent leachate runoff from the facility entering any drain, stream, river, lake or pond. In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concern authority.

45. **Criteria for Water Quality Monitoring.-**

(1) Before establishing the Waste processing facility, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 meter of the periphery of facility shall be periodically monitored covering different seasons in a year that is, summer, monsoon and post-monsoon period to ensure that the ground water is not contaminated.

(2) The Operator of the facility shall use the treated sewage water of Greater Visakhapatnam Municipal Corporation (GVMC), for vehicle washing, those used for transporting the solid waste.

(3) Usage of ground water in and around the facility for any purpose (i.e. including drinking and irrigation) shall be considered only after ensuring its quality. The following specification for drinking water quality shall apply for monitoring purpose.

S.No	Parameters	Standards All values are mg/l except for p[H]
1	Arsenic	0.01
2	Cadmium	0.01
3	Chromium (as Cr^{6+})	0.05
4	Copper	0.05
5	Cyanide	0.05
6	Lead	0.05
7	Mercury	0.001
8	Nitrate as No_3	45.0
9	p[H]	6.5-8.5
10	Iron	0.3
11	Total hardness (as $CaCO_3$)	300.0
12	Chlorides	250
13	Dissolved solids	500
14	Phenolic compounds (As C_6H_5OH)	0.001
15	Zinc	5.0
16	Sulphate (as SO_4)	200

46. **Criteria for Ambient Air Quality monitoring.-**

(1) Ambient air quality at the facility and at the vicinity shall be regularly monitored. Ambient air quality shall meet the standards prescribed by the Central Pollution Control Board for Industrial area.

S.No	Parameters	Acceptable levels
I.	Sulphur dioxide	120 ug/m^3 (24 hours)
II.	Suspended Particulate Matter	500 ug/m^3 (24 hours)
III.	Methane	Not to exceed 25 per cent of the lower explosive limit (equivalent to 650 mg/m^3) (24 hours)
IV.	Ammonia dially average 9sample duration 24 hrs)	0.4 mg/m^3 (400 ug/m^3)
V.	Carbon monoxide	1 hour average : 2 mg/m^3 8 hour average : 1 mg/m^3

47. **Criteria for plantation at MSW Based Waste to Energy Plant:-**

(1) Selection of locally adopted non-edible perennial plants that are resistant to drought and extreme temperature shall be allowed to grow;

(2) The plants grown should be such variety that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilized.

(3) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition:

(4) Plantation to be made in sufficient density to minimize soil erosion.

48. Greenbelts shall be developed all around the boundary of the facility of MSW based Waste to Energy Plant in consultation with State Pollution Control Board as per the condition of Schedule-II of Solid Waste Management Rules, 2016.

49. The incoming organic waste at site shall be stored properly prior to further processing/ disposing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate

treatment and disposal facility as per the condition of Schedule-II of Solid Waste Management Rules, 2016.;

50. Necessary precaution shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard as per the condition of Schedule-II of Solid Waste Management Rules, 2016.

51. In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of waste to the temporary processing site or temporary landfill sites which will be again reprocessed when plant is in order as per the condition of Schedule-II of Solid Waste Management Rules, 2016;

52. Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors / Recyclers. The non-recyclable high calorific fractions to be segregated and sent to waste to energy. Only rejects from all processes shall be sent for sanitary landfill site(s) as per the condition of Schedule-II of Solid Waste Management Rules, 2016.

53. Ambient air quality monitoring shall be regularly carried out. Odour nuisance at down-wind direction on the boundary of processing plant shall also be checked regularly as per the condition of Schedule-II of Solid Waste Management Rules, 2016

54. The Emission from incinerators / thermal technologies in solid waste treatment / disposal facility shall meet the following standards, namely:-

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
SO_2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 g/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 NO_2 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.
Sb+As+Pb+Cr+Co+Cu +Mn+Ni+V+their compounds	0.5 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

NOTE.- All values corrected to 11% oxygen on a dry basis

Note:

(a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits.

(b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(c) Incineration of chlorinated plastics shall be phased out within two years.

(d) if the concentration of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal facility.

(e) Only low sulphur fuel like LDO, LSHS, Diesel, bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.

(f) The CO2 concentration in tail gas shall not be more than 7%.

(g) 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.

(h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

(i) Odour from sites shall be managed as per guidelines of CPCB issued from time to time.

Sd/-
MEMBER SECRETARY

To

M/s. Jindal Urban Waste Management (Visakhapatnam) Ltd,
Jindal ITF Center, 28, Shivaji Marg,
Delhi Industrial Area,
West Delhi – 110015.

// T.C.F.B.O //

JOINT CHIEF ENVIRONMENTAL ENGINEER
UH-II

28/12/15

Annexure - IX: Letter Regarding Treated Sewage Water Supply

GREATER VISAKHAPATNAM MUNICIPAL CORPORATION
VISAKHAPATNAM

From
The Commissioner,
Greater Visakhapatnam
Municipal Corporation,
Visakhapatnam.

To
The President Projects,
Jindal Urban Waste
Management (Visakhapatnam)
Ltd.,
Visakhapatnam.

Sir,

Lr. Rc.No. 27/2016-17/GVMC/CE/SE(P)/EE(PD-III) dt: 10-10-2018

Sub: GVMC – SWM – Establishment of Waste to Energy Plant at Kapuluppada – Supply of Secondary treated Sewage water to Waste to Energy Plant – Regarding.

Ref: 1) Letter Jindal Urban Waste Management (Visakhapatnam) Ltd. Dt: 09-10-2018.

2) LOA issued vide Rc.No. 25/2018-19/SE(P)/EE(PD-III) dt: 28-09-2018 to M/s Sri. Sri. Vigneswara Constructions, Nandyal.

*****

Jindal Urban Waste Management (Visakhapatnam) Ltd., vide reference 1st cited requested for confirmation of supply of Water for the Plant operations by the end of March 2019. It is to inform that letter of acceptance was issued vide reference 2nd cited for "Supply, Deliver, Laying and jointing of 200mm dia DI K9 Piping for supply of secondary treated Sewage Water from 2MLD STP at Marikavalsa to Waste to Energy Plant at Kapullappada dumping yard including pump sets" with an estimated cost of Rs. 199.6 Lakhs .

In view of the above GVMC assures to supply required quantity of 500KLD of secondary treated sewage water by the end of March 2019.

Yours sincerely,

10/10/18

for Commissioner

Executive Engineer (PD-III)

Executive Engineer (PD-III),
Greater Visakhapatnam
Municipal Corporation.