

As per the direction of office order no. G33074/C-4/NGT/95/2020 dated 07.07.2020 on the recommendation of oversight committee constituted in the matter of OA No. 136/2015 & OA No. 06/2017 Titled Nagar Palika Parishad, Vrindavan & others Vs Madhu Mangal Shukla & others, Hon'ble National Green Tribunal order dated 25.02.2020, Site inspection of the Municipal Solid Waste Treatment and Disposal Facility at Nagla Kolhu Mathura and Trenching ground at Maant road Vrindavan Mathura were being conducted on dated 09.07.2020 and 10.07.2020. Ambient air quality monitoring, ground water and leachate water samples were collected during inspection. Detail report and recommendations/suggestions along with annexures are enclosed for further necessary action please.

Vinay Dubey
Scientific Assistant
Central Lab UPPCB
Lucknow

Manoj Kumar Chaurasia
Regional Officer(I/c)
UPPCB
Firozabad

Arvind Kumar
Regional Officer
UPPCB
Mathura

**REPORT ON MUNICIPAL SOLID WASTE TREATMENT AND DISPOSAL FACILITY
AT NAGLA KOLHU MATHURA AND STATUS OF LEGACY WASTE ON TRENCHING
GROUND AT MAANT ROAD VRINDAVAN MATHURA**



U P POLLUTION CONTROL BOARD

JULY, 2020

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EXECUTIVE SUMMERY

Over the last two decades rapid urbanization, change in lifestyles and rise in population has resulted in generation of huge quantities of municipal solid waste. The quantity of MSW generated is much higher than the quantity collected, transported and disposed, leading to pilling up of uncollected waste in streets, public places and drains. Even the collected waste is mostly dumped on the outskirts of town/cities and has created serious environmental and public health problems. Studies have shown that a high percentage of individuals who live near or on disposal sites are infected by gastrointestinal parasites, worms, and other pathogenic organisms. The insanitary methods adopted for the disposal of municipal solid waste are therefore, a serious health concerns. The poorly maintained landfill sites are causes of surface and ground water contamination, and air pollution.

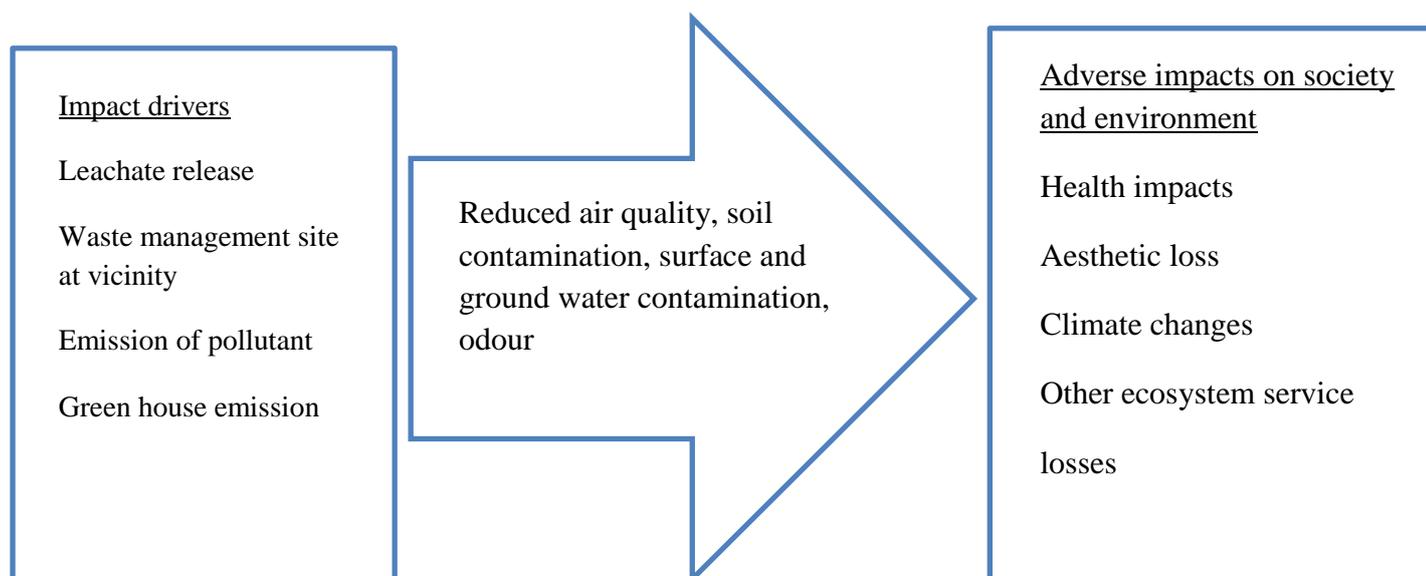


Fig 1 Externalities due to municipal dump site

Technical assessment study is being carried out of municipal solid waste facility at Nagla Kolhu. Material recovery, composting, status of landfill and leachate treatment stratus are explained in details. Based on observations, few recommendations and suggestion are given. Fresh unsegregated intermixed solid waste windrow calculation is made based on CPHEEO manual guidelines. MSW facility was not operative since long in the past due to various issues, waste was continuously dumped at Nagla Kolhu which resulted into formation of heaps of waste at site. This

legacy waste assessment was carried out by third party. Based on contour mapping, 2.25 lakh cubic meters is dumped at the plant site, occupied almost 60% area of the plant. There is an urgent need to bio remediate this legacy waste. Air quality monitoring, ground water samples and leachate quality assessment is being carried out. Results are analysed in result & discussion section. Environmental clearance general and specific conditions of MSW facility Nagla Kolhu and compliance status of various provisions under Municipal Solid Waste (Management and Handling) Rules 2000 and SWM Rules, 2016 is being assessed.

Bio-remediation of dumped waste at trenching ground at Maant road, Vrindavan was started on 6 Feb, 2020 and treatment of all 11259 MT of waste achieved by 24th June, 2020. At present, Trenching ground does not have any waste to bio-remediate. Summary of existing and proposal activities regarding solid waste disposal by Municipal Corporation Mathura Vrindavan are attached as Annexure 3.

1.0 INTRODUCTION

Solid waste management is one of the most challenging issues in urban cities, which are facing a serious pollution problem due to the generation of huge quantities of solid waste. In current Scenario, Solid waste management is turning crucial due to increasing waste generation rate and complexity of handling the same. Municipal Solid waste dumpsite processes various adverse effects on natural environment mainly due to poor/obsolete waste handling technologies. Greenhouse gases (GHG) emissions, air and soil quality deterioration, ground water leaching, etc. are inevitable due to illicit practices such as open burning, non-engineered dump sites. These practices serve as breeding ground for health vectors causing severe health issues. Solid waste management rules were setup based on waste classes namely; Hazardous waste, Municipal waste, E-waste, Plastic waste, Construction and demolition, and biomedical waste focusing on the type of treatment and disposal to be followed without disturbing the natural environment.

The city of Mathura-Vrindavan is situated along the bank of river Yamuna. It is located at a distance of 145 km South-East from National Capital Delhi and a distance of about 330 km in South-East direction from state capital Lucknow. The city is well connected by Delhi, Lucknow, Agra and the other cities of the state by road and railway network. NH-19 is passes through the city. The Municipal solid waste generated from the city of Mathura-Vrindavan is transported and treated at MSW facility at Nagla Kolhu. After construction of the plant in year 2012, It was handed over by then Nagar Palika Parishad to M/s Mathura Nagar Waste Processing Company Limited for the management, operation & processing of MSW. The company filed arbitration suit in the year 2014 which is pending in the Hon'ble High Court. Since then the waste was continuously dumped at MSW plant which resulted into formation of heaps of waste at site.

Municipal Corporation Mathura Vrindavan was then constituted in the year 2017 through notification: 1799/9-7-17-8 (seema vistaar) 2016, Lucknow dated 12/05/17. After formation of Municipal corporation the task of collection, segregation, transportation, management, operations & processing of MSW at Nagla Kolhu was handed over to M/s SVM intrastate company in November 2018 but as per nagar nigam representative, due to inefficient and negligent behaviour of the company towards the terms mentioned in the contract for processing and disposal of MSW, the Municipal Corporation was bound to terminate the contract with the company. Due to not running the plant to its capacity which further added into the dump of Legacy waste at the plant site. Municipal Corporation after the termination of contract has taken over the operations of MSW plant at Nagla Kolhu.

2.0 OBJECTIVE OF STUDY

The report focuses on the following:

- Technical assessment of MSW facility at Nagla Kolhu- Segregation, treatment, disposal, legacy waste, quality of leachate.
- Environmental Compliance of MSW facility- Air, Water and MSW rules.
- Technical and environmental assessment of Legacy waste at trenching ground of Maant road, Vrindavan.

3.0 STUDY AREA

Municipal Solid Waste Facility (Lat 27.5078; Long 77.7083) is located at Nagla kolhu, Laxmi Nagar, Mathura. The facility covers total area of 27 Acres land. Fig 2 shows the Municipal solid waste facility located at Nagla Kolhu, Laxmi Nagar, Mathura. The facility was constructed in year 2012 and receives the municipal solid waste collected from Mathura-Vrindvan region.

Municipal solid waste trenching ground (Lat 27.55892; Long 77.68556) is located at Maant road, Vrindavan. This dumping ground covers total area 2.0 acres. Fig 3 shows the municipal solid waste trenching ground at Maant road, Vrindavan. The trenching ground consists of 5 no. of trenches having reported total capacity of 16,369.71 cum.

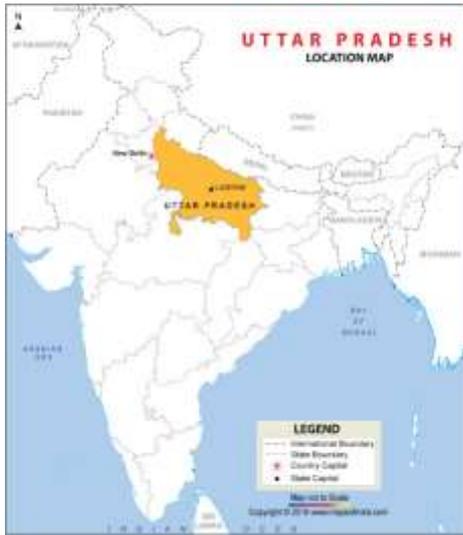


Fig 2 Municipal Solid Waste Facility at Nagla Kolhu



Fig 3 Trenching Ground at Maant Road, Vrindavan

4.0 PRESENT SCENARIO

Municipal solid waste plant of processing capacity 185 MT/D municipal solid waste into compost is situated at Nagla Kolhu, Laxmi Nagar, Mathura. The plant is currently controlled and operated by Municipal Corporation Mathura Vrindavan. Based on ward wise waste collection report (logbook), MSW collected from Mathura-Vrindavan region as follows:

Table 1 Total wards waste collection data

S.No.	Date of collection	No. of wards	Quantity (MT/D)
1	01.09.19	70	260.02
2	01.10.19	70	265.04
3	01.11.19	70	265.04

Table 2 Monthly waste collection data

S.No.	Month of collection	Total dry waste (MT)	Total wet waste (MT)	Total Hazardous waste (MT)	Total waste (MT)	Quantity (MT/D)
1	Feb, 2020	2314.37	5400.13	14.73	7729.23	266.53
2	March, 2020	2207.34	5089.4	14.29	7311.03	235.84
3	April,2020	952.26	2250.44	8.94	3211.64	107.06
4	May, 2020	990.92	2242.09	9.16	3242.17	104.59
5	June, 2020	1204.87	2782.13	9.18	3996.18	133.21

4.1 Collection & Transportation Mechanism

Municipal Corporation is ensuring effective door to door collection of waste through mechanised vehicles complying the rules of SWM rules, 2016. At present Municipal corporation has 50 primary vehicles covered with separate compartments along with handcarts dedicated for door to door collection. Secondary vehicle is used to collect waste from designated site through mechanised motor vehicles which includes Loader (14 nos.), Tractor (34 nos.), Dumper truck (03 nos.), Truck mounted road sweeping machine (02 nos.), Dumper placer (08 nos.) and Refuse collector (02 nos.). Following the number of motorized vehicles are proposed to increase capacity of door to door collection, but due to BSIV compliance and corona virus outbreak delivery of primary vehicles are delayed.

4.2 Solid Waste Process Plant

Municipal solid waste treatment & processing plant at Nagla kolhu is spread in the area of 27 acres land, out of this land area 05 acres land allotted for bio compost processing activity.

At the time of inspection plant was under maintenance for 3-4 days, therefore non-operational. As reported in the literature, Unsegregated MSW contains 55% compostable material, 20% flammable material, 15% solid material including inerts and 5% glass and plastics each.

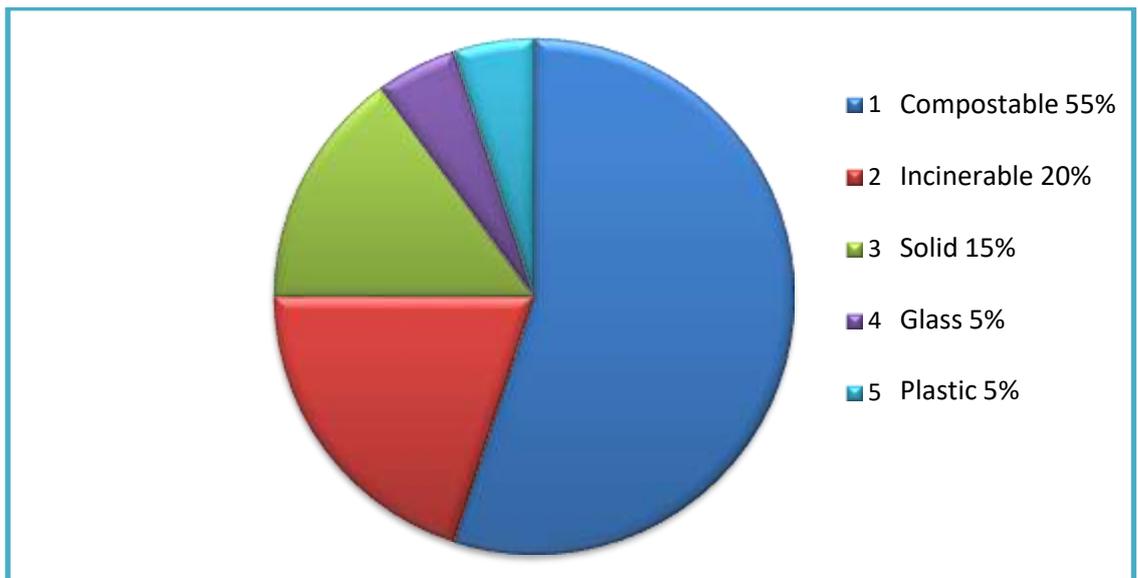


Fig 4 Composition of Municipal Solid Waste

4.3 Operational Status of Different Units of Plant

Detailed inspection was carried out on dated 09.07.2020 and 10.07.2020 by the authorised officials of UP Pollution Control Board. MSW facility established at Nagla Kolhu has following different divisions of processing of waste:

1. C& D(Construction & Demolition) waste processing
2. RDF(Refused Derived Fuel) shredding
3. Composting Section
4. Landfill Site
5. Lechate Treatment
6. Legacy Dumped Waste

4.4 C&D (Construction & Demolition) Waste Processing

Construction and demolition(C&D) waste generally constitutes about 10-20% of total urban solid waste. C&D waste may be utilised for making bricks, pavement blocks, construction material such as aggregates etc. C&D machine at time of inspection found non-operative. Representative could not able to explain the capacity of processing and records of electricity consumed. No C&D processed waste were stored in the premises at the time of inspection.

Benefits of processing of construction and demolition waste

- i) C&D waste can be put to a profitable use,
- ii) given the scarcity of sand and stone for construction, thereby saving natural resources.
- iii) It prevents public nuisance and traffic congestion issues arising from indiscriminate dumping of C&D waste.
- iv) It saves valuable space at landfill sites.
- v) It reduces cost of bulk transportation if recycled close to source of generation.



Fig 5 C&D machine

4.5 RDF(Refused Derived Fuel) Shredding

The SWM Rules, 2016 defines refused derived fuel (RDF) as fuel derived from combustible waste fraction of solid waste like non-recyclable plastic (not including PVC), paper cardboard, cotton, labels and other corrugated materials. These fractions are separated by different processing steps such as screening, shredding in uniform size, dehydrating and compacting of solid waste. It is used as a fuel for either steam or electricity



generation or as alternate fuel in industrial furnaces or boilers (co- processing or co-incineration of waste in cement, lime, and steel industry and for power generation). The composition of RDF is a mixture that has higher concentrations of combustible materials than those in the parent mixed MSW.

One number of shredding machine was found installed within the premises and non-operative during inspection. Shredded material was stored in the premises. RDF

shredded material sold to the agency authorised for processing. No RDF is produced within premises but only raw material is prepared. No record of RDF raw material prepared is maintained.

4.6 Composting Section

Composting is a process of controlled decomposition of the organic waste, typically in aerobic conditions, resulting in the production of stable humus-like product, i.e., compost. Composting transforms organic waste into a soil-like material called compost. The land allotted for composting section is 5 acre out of total 27 acres of MSW facility area. This section consists of two dedicated sheds and pucca RCC composting platform.

4.6.1 Pre-Shorting Machine (01 No.)

Pre-shortening machine consists of 100 mm trommel screen along with conveyor belt system to classify sizes of solids bigger than 100 mm. Mainly bricks, stones, metallic aggregates and fuel derived waste is separated in this machine.

4.6.2 Semi-Finished Machine (01 No.)

After inoculum and windrow formation over compost pad, waste is input to semi-finished machine. Semi-finished machine also consists of trommel screen of size 16 mm. Pre-sorted material is fed to semi-finished screen to classify the solids of bigger than 16 mm from the MSW.

4.6.3 Finished Machine (01 No.)

Semi-finished material is fed to 04 mm trommel screen for final screening and wastage/inert is sent to landfill. Finished material is kept in the form of windrow for composting process. Approx. 80 ton finished material was stored in the premises during inspection. Composting platform was found to be stocked with unsegregated waste.



Fig 8 Schematic of 100 mm Trommel



Fig.9 Conveyor Belt



Fig.10 Finished screen & Cyclone system

4.7 Intermixed Unsegregated Solid Waste Windrow Sizing Calculation

As plant was not operative. Fresh MSW was stored at compost platform in the form of windrows.

In general, as the average windrow shape is between in an oval and trapezoid. A factor of 0.66 is assumed to estimate windrow volumes and so the equation for volume becomes:

$$\text{Volume} = \text{Height} \times \text{Width} \times \text{Length} \times 0.66$$

$$\text{Compost Pad Area} = \text{Length} \times \text{Width}$$

$$= 75 \times 70 \text{ sq. m}$$

(75 % compost pad area occupied and height of SW heap 7.5 m)

$$\text{Compost storage volume} = 0.75 \times 75 \times 70 \times 7.5$$

$$= 29531.25 \text{ cubic meter}$$



Fig.11 Windrow

4.8 Landfill Site

Landfill allows only the non-usable, 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. On storage it can generate leachate, hazardous gases so it needs to be stored in SLF (Sanitary landfill). The sanitary landfill sites shall meet the specifications as given in Schedule-I, of MSW rules 2016.

During inspection it was found that Landfill is not utilized to store land fillable waste frequently. Proper arrangement of leachate collection and gas collection/flaring arrangement were not made. The dimensions of the existing landfill (50 x 50 x7 m) seems not sufficient to store land fillable waste for 20-25 years as one half cell of the land fill is already occupied.



Fig.12 Landfill area



Fig.13 Landfill Cell

4.9 Leachate Treatment

Leachate is the storm water or excess water generated during processing activity. Leachate is a complex liquid that contains excessive concentrations of biodegradable and non-biodegradable products including organic matter, phenols, ammonia nitrogen, phosphate, heavy metal and sulphide which if not properly treated and safely disposed could lead to ground water contamination. Sanitary landfill and compost area are the two places from where leachate is generated. During inspection, it was observed that leachate drain is choked with waste and therefore no passage to reach leachate tank area. Leachate waste water was found stagnant in the drain and also there is no approach road to leachate tank. It was explained to the inspection team that leachate is collected from the tank and transferred via jetting machine to STP adjacent to the MSW facility for treatment. There is no permanent pipeline from collection tank to STP. It was also observed that there is no arrangement of collection of leachate generated from landfill area to this so called collection tank for further treatment.



Fig. 14 Leachate drain sample collection

4.10 Legacy Dump Waste

Due to non-operation of MSW plant in the past many years (since 2014), there was continuous dumping of waste resulted into formation of heaps which is termed as Legacy waste. Third party survey was carried out at Nagla Kolhu by Municipal Corporation. Report stated that there is a total legacy waste of about 2.25 lakh cubic meter (Contour mapping data is enclosed



Fig. 15 Legacy waste at Nagla Kolhu

as Annexure 4) which stands around 1.8 lakh MT. It was observed during inspection that most area of the plant is occupied by legacy waste; there is not sufficient space available for windrow composting and landfill site.

According to Municipal Commissioner, Department has initiated tender process for selection of agency for the treatment and disposal of legacy waste. (Letter enclosed as Annexure 3). Remediation of legacy waste will proposed to be done via Bio- mining. Bio-mining and reclamation whereby solid wastes are excavated and processed.

5.0 MUNICIPAL SOLID WASTE TRENCHING GROUND AT MAAT RAOD VRINDAVAN

This dumping ground (Lat 27.55892; Long 77.68556) covers total area 2.0 acres. The trenching ground consists of 5 no. of trenches having reported total capacity of 16,369.71 cum. During inspection, all the trenches were found cleaned, waste finished. As per representative, treatment of legacy waste through bio-remediation was started on 6th Feb, 2020 and the treatment of 11259 MT of legacy waste was achieved by 24th June 2020. This work was allotted to M/s Aayushi hygiene and care pvt. Ltd. New delhi and M/s Patheya, New delhi on NGT OA - 136/2015 & 06/2017 Hon'ble NGT directions.



Fig 16 Trenching pits

6.0 ENVIRONMENTAL COMPLIANCE

- Conditional Environmental Clearance (EC) was granted by SEIAA, UP vide reference no. 438/SEAC/208/2008 dated 20.03.2009 after the public hearing conducted on 11.11.2008 to the Sanitary landfill and composting at near STP, Baldev road, Tah. & Dist. Mathura.
- In compliance to the general conditions of EC, Consent to Establishment (CTE) was granted to the plant UPPCB ref. No. 21528/C4/NOC-675/13 dated 03.04.2013.
- In compliance to the CTE conditions, Plant has not obtained Consent to operate- Air and Water under the provisions of Air (prevention & control of pollution) Act 1981 and Water (prevention & control of pollution) Act 1974.
- Plant has not developed 33% green cover in compliance of CTE conditions; in fact 500 meters buffer zone is also not available around the solid waste plant.

Table 3 Compliance of EC general & specific conditions

S. No.	Environmental Clearance Condition	Compliance Status
General Conditions		
1	It should be clearly specified that the project proponent would ensure that all the standards related to ambient air quality and emission/effluent standards as prescribed by MoEf are strictly complied with.	Partially complied
2	The project proponent will have to ensure that they obtain No Objection certificate from the U.P. Pollution Control Board before start of construction.	Complied
3	The Proposed land use should be in accordance to the prescribed land use.	Complied
4	Proper operation & maintenance of the project shall be ensured after construction phase. Conditions and guidelines for operation and penalties for non-compliance should be specifically prescribed.	-
5	Information with respect to this clearance & other related documents shall be communicated by the project proponents to the concerned agencies (other than SEIAA and SEAC) as prescribed in the EIA notification No. SO 1533E dated 14/09/2006.	-
6	In addition to the proposed compensatory plantation (3 Trees planted for every tree cut) it shall be ensured that 33% of total lands in the project areas are planted with shade giving and ecologically friendly trees.	Not complied
7	A specific waste collection and transportation system should be ensured for conveying the waste scientifically and in a safe manner to the proposed MSW landfill site.	Complied
8	Leachate should be collected and disposed in a manner such that it may not contaminate the ground water.	Not complied
9	The general conditions attached to the list of the proposed activities requiring environmental clearance as given in gazette notification dated 14/09/06 issued by Govt. of India and which read as follows should be strictly complied with- "Any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-state boundaries and international boundaries." Should not be violated," In case of any violation clearance shall be obtained from The Government of India, as prescribed.	-
10	The standards regarding ground water, ambient air, leachate quality and	Partially complied

	compost quality shall be duly followed as per Municipal Solid Wastes (M&H) Rules, 2000.	
11	A comprehensive EIA shall be undertaken and the environment management plan and detailed project report (DPR) revised accordingly also taking into view the conditions stipulated in this clearance. This report shall be submitted to this authority by March, 2010, failing which this clearance will automatically be cancelled. The comprehensive EIA should address to all the issue raised in the public hearing held on 11/12/2008 to which project proponent were a party. The DPR and the EMP should be suitably revised to incorporate and mitigate the observations/objections made in the public hearing also.	Complied
12	The project proponents will set up a separate environmental management cell for effective implementation of the EMP etc. as well as stipulated environmental safeguards under the supervision of a senior executive.	Complied
13	A three monthly monitoring report should be submitted to the Authority regarding the implementation of the stipulated conditions.	-
14	The EIA Authority may stipulate any other conditions or environmental safeguards subsequently, if deemed necessary, which should be complied with.	-
15	The Authority reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of Authority.	-
16	Full support should be extended to concerned officers/authorities by the project proponents during their inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigative measures and other Environmental protection activities.	-
17	In the event of a change in project profile or change in the implementation agency, a fresh reference should be made to the Authority prior to change.	-
18	Regular noise levels should be monitored during construction and operation phase.	
19	Specifications regarding selection of landfill site, facilities at the site, specifications for land filling, pollution prevention, water quality monitoring, ambient air quality monitoring, plantation at land full site, closure of landfill site and post care, leachate treatment and disposal should be strictly in compliance to the provisions of the Muncipal Solid Wastes (M&H) Rules, 2000. A report in this regards should be prepared and submitted to the Authority within 3 months.	Partially complied
Specific Conditions		
1	As the proximity to the cultural monuments regarded as a sensitive issue, the landfill site should be developed at a safe distance from their boundaries. Landfill site should also be situated at safe distance from human settlements and that a no entry zone be created so that general public does not enter into the area.	Complied
2	Boilers will not be used.	Complied
3	Green belt should be developed in 33% of the total project area.	Not complied
4	Suitable conditions for odour control should be imposed. Herbals sanitizer and composting enzymes will be used to minimize odour.	Not complied
5	All the street lighting should be solar and that CFLs should be used.	Not complied
6	For the leachate treatments, it has been proposed that mechanical aeration leachate treatment will be followed. Necessary conditions for the sewage treatment should also be imposed.	-
7	The project proponent will duly follow post clearance monitoring as per Municipal Solid Waste Rules, 2000.	Not complied
8	The following points may also be considered while making the comprehensive EIA report and this report should be submitted by March, 2010.	-
9	Wind speed and direction changes with time and space depending on the topography and seasons. Wind rose should, therefore be made for each month separately for each sampling site. There should be at least 2 sites in the down	-

	wind prominent direction.	
10	CO measurement should be made by NDIR and eight hourly average with 98 percentile should be given.	-
11	Methods used for analysis should be specifically provide.	-
12	98 percentile values should be taken into consideration for comparison with standards.	-
13	Impact of project on quality of life should be given.	-
14	Leq should be determined from 24 hours days-night data at each site twice a week.	-

Table 4 Compliance with reference to Municipal Solid Waste (Management & Handling) Rules, 2000

Schedule I

S. No.	Compliance Criteria	Status
1.	Setting up of waste processing and disposal facilities.	Waste processing & disposal site was commissioned in year 2012.
2.	Monitoring the performance of waste processing and disposal facilities-Once in six months	Complied
3.	Improvement of existing landfill site as per provision of these Rules.	-
4.	Identification of landfill site for future use and making site(s) ready for operation.	-

Schedule II

S. NO.	Parameters	Compliance Criteria	Status
1.	Collection of Municipal Solid Waste	(i) Organizing house-to-house collection of municipal solid waste through any of the methods like community bin collection, house-to-house collection.	Partial Complied
		(ii) Devising collection of waste from slums and squatter areas or localities including hotels, restaurants, office complexes and commercial areas.	Partial Complied
		(iii) Wastes from slaughterhouses, meat and fish markets, fruits and vegetable markets, which are biodegradable in nature shall be managed to make use of such waste.	Not Complied
		(iv) Bio-medical wastes and industrial waste shall not be mixed with municipal solid waste and such wastes shall follow the rules separately specified for the purpose.	Complied <i>(BMW facility is provided in City Mathura)</i>
		(v) Waste (garbage, dry leaves) shall not be burnt	Partial Complied
		(vi) Stray animals shall not be allowed to move around waste storage facilities or at any other place in the city or town and shall be managed in accordance with the State laws.	Complied
2.	Segregation of Municipal Solid Waste	In order to encourage the citizens, municipal authority shall organize awareness programmes for segregation of waste and shall promote recycling or reuse of segregated materials.	Partially Complied
3.	Storage of Municipal Solid Waste	Municipal authorities shall establish and maintain storage facilities in such a manner as they do not create unhygienic and in sanitary conditions around it. Following criteria shall be taken into account while establishing and maintaining storage facilities namely.	Partial Complied

4.	Transportation of Municipal Solid Waste	Vehicles used for transportation of waste shall be covered. Waste should not be visible to public, or exposed to open environment preventing their scattering.	Partial Complied
5.	Processing of Municipal Solid Waste	Municipal authorities shall adopt suitable technology or combination of such technology or combination of such technology to make use of wastes so as to minimize burden on landfill i.e. biodegradable waste shall be processed by composting, vermin-composting, anaerobic digestion etc.	Complied <i>(Waste processing plant to compost is proposed and plastic to fuel plant is operational)</i>
6.	Disposal of Municipal Solid Waste	Land filling shall be restricted to non-biodegradable, inert waste and other waste that are not suitable either for recycling or for biological processing.	Complied

Schedule III

S. No.	Specification for Landfill Sites	MSW facility, Mathura
1.	Site Selection	Solid Waste treatment & processing plant identified by Municipal Corporation is at Nagla Kolhu, Mathura spread in the area of 27 acres. Operating and control by Municipal corporation Mathura Vrindavan respectively. The site was developed as per the CPCB guidelines.
2.	Facilities at the Site	Approach & other internal roads and fence/boundary wall at dumpsite exist inside the sites. Weigh bridge working in good condition and record related dumping of MSW was maintained properly at both the sites. Facilities provided at site: (i) Protection to prevent entry of unauthorized person and stray animals in managed properly through boundary wall.
3.	Specification for land filling	SLF was found not properly line laid over the High density Polyethylene Liner (HDPE) geomembrane but leachate collection arrangements are not done.
4.	Pollution Prevention	Water Quality Parameters: Piezometric holes were not provided; hence ground water from nearby area was collected. Air Quality Data: The values of PM, SO ₂ , NO ₂ almost complying the standards.

7.0 RESULTS AND DISCUSSION

7.1 Ambient Air Quality

Ambient air quality monitoring was conducted at MSW facility, Nagla Kolhu in upwind direction as well as in downwind direction with respect to Sulphur di-oxide, Nitrogen di-oxide and particulate matter (PM10) concentrations (Annexure-8). Sulphur di-oxide and Nitrogen di-oxide concentrations are not observed in appreciable quantity due to cloudy and rainy weather. Downwind concentration (SO₂, NO₂) was measured higher than upwind concentration (SO₂, NO₂) at MSW facility. PM10 concentrations in downwind as well as in upwind direction were higher than standard prescribed.

7.2 Ground Water Quality

Result of the physico-chemical and heavy metal parameters of ground water samples collected in front of the gate of MSW facility and from the house near MSW facility are presented in Annexure-9. Physico-chemical parameters in terms of pH, Turbidity, Total dissolved solids (TDS), Conductivity, Ca, Mg, Cl⁻, F⁻ and alkalinity are complying Drinking Water-Specification (IS10500 : 2012) Acceptable and Permissible Limit in both samples except in sample of front gate of MSW facility in terms of TDS (2400 mg/l), Mg (195.9 mg/l), Alkalinity(730 mg/l) & Conductivity (3912) concentrations.

Heavy metal concentration in terms of Cr, Cu, Cd, Pb, Fe, Ni, and Zn are beyond the specified standards (IS10500 : 2012) in sample of front gate of MSW facility with respect to Cd, Pb, Ni and also beyond to a lesser extent in sample from the house near MSW facility in terms of Cd, Pb, Ni and Fe concentrations.

Total coliform and Fecal coliform in both ground water samples were detected 70 MPN/100 ml and 700 MPN/100 ml respectively. As per rule, repeated sampling is required to verify the total coliform bacteria in ground water samples.

The result of bore well sample collected from inside STP compound, in front of trenching ground dumpsite at Vrindavan are also presented in Annexure-9. Physico-chemical parameters in terms of TDS, Ca, Mg, F⁻, alkalinity & conductivity are beyond Acceptable and Permissible Limit of IS10500 : 2012. Heavy metals in terms of Cd, Pb, Ni and Fe concentrations are exceeding the

Specification (IS10500 : 2012). The presence of Total coliform (130 MPN/100 ml) and Fecal coliform (20 MPN/100 ml) in ground water sample warrants repeated sampling for verification.

7.3 Leachate Analysis

In order to assess leachate water quality, two samples (untreated leachate & outlet of receiving STP adjacent to MSW facility) were analysed. The results are presented in Annexure-10. The excess colour, physic-chemical and heavy metal concentrations are obvious in untreated leachate water sample. The results (as discussed above) of ground water samples collected in and around the MSW facility imply the possibility of spillage/mixing of untreated leachate into the ground water of the area.

The analysis of results of sample of STP outlet adjacent to MSW facility (STP receives leachate) indicates that water quality doesn't conform the standards in terms of BOD, COD, and Fecal coliform concentrations.

8.0 RECOMMENDATIONS & SUGGESTIONS

1. Facility shall have to maintain its daily record inventory of MSW receipt, compost made, RDF raw material, C&D waste processed and landfilled amount.
2. There is an instant attention is required towards handling of leachate. Dedicated tank shall have connection from the sources of generation and permanent pipeline upto STP for treatment in order to avoid ground water contamination.
3. It is mandatory to develop a buffer of wide green cover along the periphery of the facility to arrest fugitive particulate matter from spreading out and effectively suppress the foul odour.
4. In view of the health hazards associated with handling of MSW it is mandatory to equip the workers with adequate safety equipment and providing them with facility of medical check-ups.
5. All waste transport vehicles can be made to operate on renewable source of energy instead of fossil fuels. To start with, a beginning should be made at least by using locally available CNG instead of imported diesel oil or petrol.
6. Bio-remediation of legacy waste shall be carried out in scientific manner. Proper shed shall be provided in the bioremediation area, in absence of which work may be hampered during rain.
7. Municipal Corporation shall spend large part of the budget in waste treatment and disposal as budget on street cleaning, waste collection and transportation.
8. Municipal Corporation shall only collect segregated waste from resident welfare, market association, gated community, hotels and restaurants. Impose penalty for non-compliance.
9. Under the provisions of solid waste management rules 2016, the bulk generators have made responsible for the treatment and disposal of solid waste within their own premises. Such bulk generators are required to be identify and made to comply the Rules, 2016 so that their solid waste is treated & disposed as per norms within their premises. This will improve overall sanitary conditions and environmental improvement.
10. The onsite treatment of biodegradable solid waste by bulk generators through organic waste convertors or any suitable technique like composting, bioremediation etc, will help in reduction of quantity of waste to be treated in the common facility. The recyclable component of solid waste shall be disposed off either by authorised recyclers or can be used for construction of roads.
11. Segregation of solid waste into biodegradable & recyclable streams which is mandatory under the provisions of Solid Waste Management Rules, 2016.

12. Local body shall establish waste deposition centre for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous waste at this centre for its safe disposal.
13. Landfill shall satisfy all the requirements of engineered sanitary landfill, for the final disposal of rejects/inerts. Restrict the quantum of waste disposal in landfill and ensure that no biodegradables are land filled.
14. There shall be dedicated alternative of electricity, which can be utilised in the operation of machinery in case of electricity interruption.
15. Municipal Corporation shall immediately obtain Consent to operate air and water as well as authorisation under SWM rule, 2016 from UPPCB.
16. Local bodies are required to submit annual report to SPCB on or before 31st May every year and SPCB in turn, have to send their consolidated report for the year to CPCB.
17. Technical workshops, seminars, interactive sessions involving local residents and floating population of tourists shall be organised at regular intervals in order to spread awareness on environmental issues.
18. Deployment of additional safaikarmis and additional waste transport vehicles shall be made during festival period keeping floating population rise.

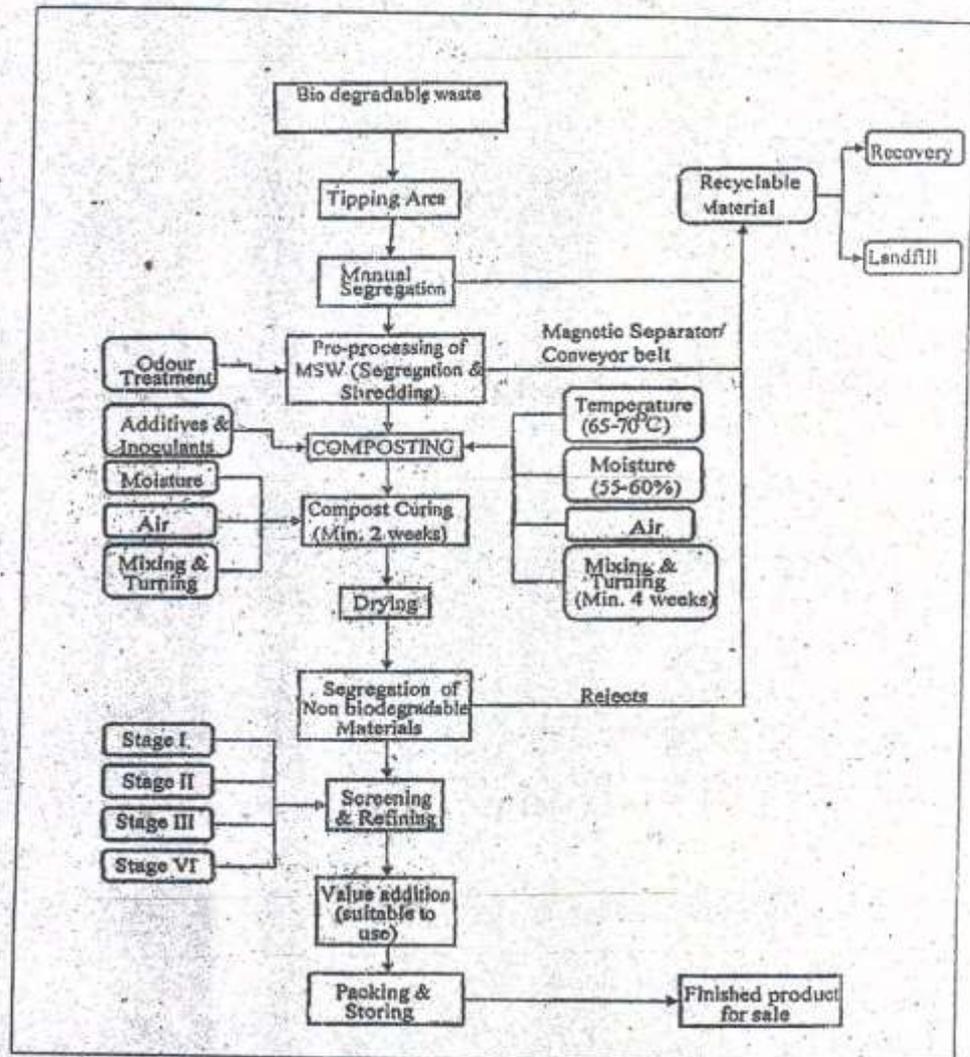


Figure E-1 Process Design for MSW Compost

Annexure 2

Objective 3: To oversee the status and condition of Municipal solid waste treatment and disposal in the district as per Hon'ble NGT directions

S. No.	Name and Location of Sites	Capacity	Date of Work Commencement (dd/mm/yyyy)	Target Date of Completion (dd/mm/yyyy)	Current Status (in detail)	Compliance =1: Non-Compliance =2	If Non-Compliance then Compensati on Imposed (Yes=1; No=2)	Compensati on realized	Remarks
1	Solid Waste Management Plant Nagla Kolhu Mathura	180 TPD	-	-	Operational	1	-	-	SWM plant of capacity 180 TPD is operational.
2	Plastic to Fuel plant Nagla Kollhu Mathura	6 TPD	-	-	Operational	1	-	-	Plastic to Fuel Plant of capacity 6 TPD is operational.
3	Organic Waste to compost Plant, Mandi Samiti Mathura	1 TPD	-	-	In Tender Process	1	-	-	
4	Organic Waste to compost Plant, Mandi Samiti Vrindavan	1 TPD	-	-	In Tender Process	1	-	-	
5	Organic Waste to compost Plant, Nazariatal Sonant Ground	5 TPD	-	-	In Tender Process	1	-	-	

	Vindayan Zone								
6	Material Recovery Facility (MRF), Vindayan Zone		-	-	In Tender Process	1			
7	Recycling Unit Matlura		04/07/2020	04/10/2020	Work Order issued	1	-		Work Order issued to M/S. 21Century Polymers
8	Transfer Station Vindayan Zone		-	-	In Tender Process	1			
9	Material Recovery Facility (MRF), Hazarimal Somani Vindayan				Operational	1			MRF at Hazarimal Somani is Operational

Note: Provide specific details or information in the remarks column

२०१९



कार्यालय : नगर निगम मथुरा-वृन्दावन, मथुरा

पत्र संख्या : ३३४/न.भा.क./न०नि०म०वृ०-मथुरा/२०१९-२०.
सेवा में,

दिनांक : २९/७/१९

सचिव,
उ०प्र० शासन
नगर विकास विभाग
लखनऊ।
ठोस अपशिष्ट प्रबन्धन के सम्बन्ध में।

विषय
महोदय,

कृपया इस कार्यालय के पत्र सं०-११३० दिनांक १८.०३.२०१८, १२२० दिनांक १७.१०.२०१८, १५६२ दिनांक १२.०२.२०१९, २८ दिनांक १६.०४.२०१९ एवं २३५ दिनांक २५.०५.२०१९ का सन्दर्भ ग्रहण करने का कष्ट करें, जिसके द्वारा नगर निगम मथुरा-वृन्दावन के नगला कोल्हू स्थित सॉलिड वेस्ट प्रोसेसिंग प्लांट पर एकत्रित लीगेसी वेस्ट के निस्तारण हेतु अवगत कराया गया है।

अवगत कराना है कि, पूर्ववर्ती नगर पालिका परिषद मथुरा द्वारा जे०एन०यू०आर०एम० योजना के अन्तर्गत वर्ष २०१२ में प्लांट का निर्माण कार्य कार्यदायी संस्था सी०एंडडी०एस० शाखा उ०प्र० जलनिगम मथुरा के द्वारा पूर्ण कराया गया। प्लांट निर्माण से पूर्व नगर पालिका परिषद, मथुरा द्वारा प्लांट के प्रबन्धन एवं संचालन हेतु पर्यावरणीय अनापत्ति प्राप्त की गई, तत्पश्चात नगर पालिका द्वारा वर्ष २०१३ में प्लांट प्रबन्धन एवं संचालन हेतु सी० मथुरा नगर वेस्ट प्रोसेसिंग कं०लि०, मथुरा को हस्तांतरित कर दिया गया। माह जून २०१४ में उक्त संस्था द्वारा प्लांट का संचालन कार्य बन्द कर आर्बिटेशन का वाद दायर कर दिया गया, जिसका प्रकरण मा. उच्च न्यायालय में लम्बित है। वर्ष २०१४ से नगर पालिका परिषद मथुरा द्वारा अपशिष्ट उक्त प्लांट पर ही एकत्रित किया जाता रहा, जिस कारण उक्त स्थान पर काफी अधिक मात्रा में अपशिष्ट एकत्रित हो गया। नगर निगम द्वारा उक्त प्लांट मार्च २०१९ में एस०पी०एम० इन्फ्रस्ट्रेट प्र० लि० को संचालन एवं प्रबन्धन हेतु हस्तांतरित किया गया है। प्लांट पर अत्यधिक मात्रा में कचरा एकत्रित हो जाने के कारण प्लांट का अधिकांश भाग कचरे से घिरा हुआ है, जिस कारण प्लांट संचालन कार्य बाधित हो रहा है। प्लांट पर प्रतिदिन आने वाले कचरे के निस्तारण हेतु विन्डोज कम्पोस्टिंग एवं आर०डी०एफ० के लिए भी भूमि शेष नहीं है, जिस कारण कूड़े का निस्तारण उचित रूप से नहीं हो पा रहा है।

दिनांक ०४.०७.२०१९ को श्री टी०पी० सिंह जी, अध्यक्ष, उ०प्र० सॉलिड वेस्ट मैनेजमेन्ट कमेटी के द्वारा मथुरा क्षेत्र का भ्रमण किया गया है, भ्रमण के दौरान मा. अध्यक्ष महोदय द्वारा उक्त प्लांट पर एकत्रित लीगेसी वेस्ट का निस्तारण वैधानिक तरीके से एक माह के अन्दर कराने एवं प्लांट का स्थानांतरण किसी अन्य स्थान पर कराये जाने हेतु निर्देशित किया गया है।

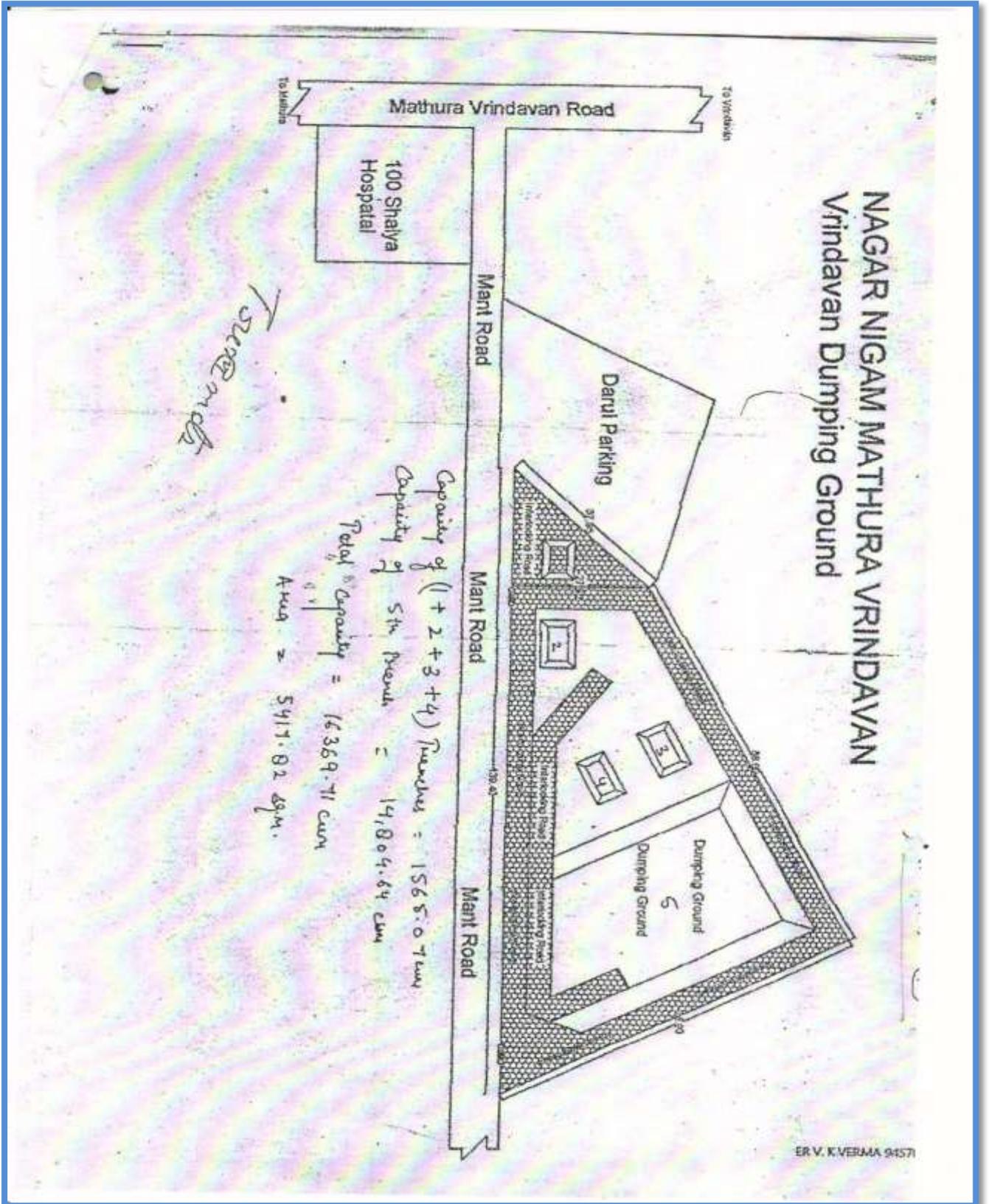
अतः उक्त एकत्रित कचरे (लीगेसी वेस्ट) (जिसकी मात्रा लगभग एक लाख टन है) का निस्तारण अधिलम्ब किया जाना अतिआवश्यक है, कृपया लीगेसी वेस्ट के निस्तारण हेतु उचित मार्गदर्शन करने का कष्ट करें।

(रवीन्द्र कुमार मीरठ)
आई०ए०एस०
नगर आयुक्त
नगर निगम मथुरा-वृन्दावन
मथुरा

Annexure 4

SOLID WASTE QUANTITY OF MATHURA NAGAR NIGAM PLANT

SN.	CONTOUR LVL.	SLOPE QTY. (cumt.)	CLEAR QTY. (cumt.)	TOTAL QTY.
1	100.00 -100.50	397.10	19181.67	19578.77
2	100.50-101.00	71.77	19038.11	19109.88
3	101.00-101.50	23.26	18991.59	19014.85
4	101.50-102.00	38.91	18913.50	18952.41
5	102.00-102.50	207.66	18498.44	18706.10
6	102.50-103.00	507.84	17467.75	17975.59
7	103.00-103.50	346.06	16620.77	16966.83
8	103.50-104.00	1096.43	14171.23	15267.66
9	104.00-104.50	1446.69	11689.39	13136.08
10	104.50-105.00	977.33	9734.72	10712.05
11	105.00-105.50	602.72	8529.28	9132.00
12	105.50-106.00	641.89	7254.50	7896.39
13	106.00-106.50	721.20	5803.08	6524.28
14	106.50-107.00	902.25	3998.57	4900.82
15	107.00-107.50	870.81	2256.94	3127.75
16	107.50-108.00	1128.47	0.00	1128.47
OTHER SIDE OF ROAD (Short area)				
1	100.00-101.50	0.00	21979.50	21979.50
2	101.50-102.00	253.25	0.00	253.25
3	102.00-102.50	202.25	181.50	383.75
4	102.50-103.00	50.00	81.50	131.50
5	103.00-103.50	42.00	0.00	42.00
GRAND TOTAL (Cumt.)				224919.93



Annexure 6

Provisions under SWM rules, 2016 to impose penal action against the defaulter:

The following are penal action provisions on each non-compliance observed at waste Generator level in compliance with SWM Rules, 2016.

Sr.	Rule/Bye Laws no.	Offences	Applicable to	Will be Fine for Each default (in Rupees)
1	Rule 4 (1)(a) of SWM Rules	Failure to segregate and store waste and handover segregated waste in accordance with the rules	Residential	Penalty will be imposed by local body
			Marriage /Party Halls, festival halls, Party Lawns, Exhibition and fairs with area less than 5,000SqM	Penalty will be imposed by local body
			Clubs, Cinema halls, Community Halls, Multiplexes and other such places with area less than 5,000SqM	Penalty will be imposed by local body
			Other non-residential entities With area less than 5,000SqM	Penalty will be imposed by local body
2.	Rule 4 (1)(a)(b) and (d) of SWM Rules	Failure to deal with sanitary waste in accordance with the rule	Residential	Penalty will be imposed by local body
		Failure to deal with horticulture waste and garden waste in accordance with the rule	Non-residential	Penalty will be imposed by local body
3.	Rule 4 (1)(c) of SWM Rules	Failure to deal with construction and demolition waste in accordance with the rule	Residential	Penalty will be imposed by local body
			Non-residential	Penalty will be imposed by local body.
4.	Rule 4 (2) of SWM Rules	Open burning of solid	Violator	Penalty will be

		waste		imposed by local body.
5.	Rule 4(4) of SWM Rules	Organizing an event or gathering of more than one hundred person at unlicensed place without following the prescribed procedure	Person (s), who has/ve organized such event or gathering or, on whose behalf such event or gathering has been organized and the event manager(s), if any, who has/ve organized such event or gathering	Penalty will be imposed by local body.
6.	Rule 4 (5) of SWM Rules	Street vendor failing to deal with waste in accordance with the rule	Violator	Penalty will be imposed by local body
7.	Bye-Law 13 (1) read the Rule 15 (g) of SWM rules	Littering	Offender	Penalty will be imposed by local body
8.	Rule 4 (6) of SWM Rules	Failure to deal with waste in accordance with the rule	Resident Welfare Association	Penalty will be imposed by local body
			Market Association	Penalty will be imposed by local body
9.	Rule 4(7) of SWM rules	Failure to deal with waste in accordance with the rule	Gated community	Penalty will be imposed by local body
			Institution	Penalty will be imposed by local body
10.	Rule 4(8) of SWM rules	Failure to deal with waste in accordance with the rule	Hotel	Penalty will be imposed by local body
			Restaurant	
11.	Rule 17(2) of SWM rules	Selling or marketing of disposable products without a system of collection back the packaging waste generated due to their production	Manufacturer and/or Brand owner	Penalty will be imposed by local body
12.	Rule 17(3) of SWM rules	Failure to take measure in accordance with the rule	Manufacturer and/or Brand owner and/or marketing companies	Penalty will be imposed by local body
13.	Rule 18 of SWM rules	Failure to replace fuel requirement by refused derived fuel	Industrial Unit	Penalty will be imposed by local body







CENTRAL LABORATORY
UTTAR PRADESH POLLUTION CONTROL BOARD
TC-12 V, VIBHUTI KHAND, GOMTI NAGAR, LUCKNOW

AMBIENT AIR TEST REPORT

1. उद्योग का नाम व पता / Name & Address of Industry- Municipal Solid Waste Dumping and processing Ground Nagala kolhu, Trans Yamuna, Laxmi Nagar, Mathura
2. नमूना एकत्रण करने वाले व्यक्ति का विवरण / Sample Collected by- Shailesh Maurya, M.A., N.Shukla, M.A., P.K.Mishra, S.A. & Vinay Dubey, S.A.
3. नमूना एकत्रीकरण की तिथि / Date of Sample Collection- 09-07-2019 to 10-07-2019
4. प्रयोगशाला में नमूना प्राप्ति की तिथि / Date of Sample receipt in Laboratory- 10-07-2019
5. Further details of sample location and Test methods followed are appended overleaf-

S. No.	Monitoring Location	Area Category	Sulphur di-oxide ($\mu\text{g}/\text{m}^3$)	Nitrogen di-oxide ($\mu\text{g}/\text{m}^3$)	Particulate Matter PM10 (Equal or less than 10 micron) ($\mu\text{g}/\text{m}^3$)
1.	Up wind direction Municipal Solid Waste Dumping and processing Ground Trans Yamuna, Laxmi Nagar, Mathura (Near Road Side Main Gate.)	-	9.8	23	167
2.	Down wind direction Municipal Solid Waste Dumping and processing Ground Trans Yamuna, Laxmi Nagar, Mathura, (Periphery near processing area)	-	12.7	36	186
STANDARDS			80	80	100

Weather- Cloudy and Rainy

परीक्षण करने वाले के हस्ताक्षर / Analysed by.....

Shailesh Maurya
17/07/2020 (S.A.)

अधिकृत हस्ताक्षरकर्ता / Authorised Signatory.....

A. S. G.
17/7/2020

मुख्य पर्यावरण अधिकारी
केन्द्रीय प्रयोगशाला

Rajendra
17.07.2020

A. S. G.
17/7/2020

Note: 1. The results in the Test Report relate only to the items tested. 2. The Report shall not be reproduced-except in full, without the written permission of laboratory.

AIR TESTING			
AMBIENT AIR			
S.N.	Parameters	Test Method	Range of Detection
1.	Sulphur dioxide (SO ₂)	IS Method No. 5182 (Part-2) 2001	04-1050 µg/m ³
2.	Nitrogen dioxide (NO ₂)	IS:5182 Part(6) 2006	9-750 µg/m ³
3.	Perticulate Matter (PM ₁₀) Less than 10 microns	IS:5182 Part (23) 2006	05-1000 µg/m ³

.....End of report-----



CENTRAL LABORATORY, U.P. POLLUTION CONTROL BOARD
T.C.-12 V, Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone: 0522-2720832, 2720480



TEST REPORT: WATER LABORATORY (GROUND WATER)

S.No.
Dt. of compilation of test report ... 20/7/2020 Certificate No. TC-6345
Dt./period of testing, 13/7/2020 - 20/7/2020

1. नमूने का स्रोत/समूह/सतह/सिंचन/समूह Sample Source (Tubewell/Dugwell/Shallow Pump/Supply Water /Handpump/ any other specify) : Hand pump
2. नमूने का प्रकार (ग्राब/संयोजित/एकीकृत) Type of Sample (Grab/Composite/Integrated) : Grab
3. नमूने का संग्रह करने वाले व्यक्ति का नाम/नमूना संग्रहण/ Sample Collected by : S.N. Vaidya, Bhubay (SA), S.N.P.K. Mishra (SA), S.N.A. Mishra (SA), S.N.M. Mishra (SA), S.N.M. Mishra (SA)
4. नमूने का रंग/गंध/रस/रंग/सुंघने योग्य/ Colour & Odour : ...
5. नमूने का पैकेटिंग/ मात्रा/ पैकेटिंग (प्लास्टिक/कमि/अन्य) Quantity & Packing (Plastic Jar/can/Any Other) : 2 Lt + 1 MPN bottle + 1 Lt for H.M.
6. नमूने का संग्रहण की तिथि/ Date of Sample Collection : 10/7/2020
7. विश्लेषण का प्रकार/ Analysis Indented by : Central Lab U.P.C.B. Lucknow, S.N. Mishra, S.N. Mishra, S.N. Mishra
8. नमूने का प्राप्त करने की तिथि/ Date of Sample receipt in Laboratory : 13/7/2020
9. विश्लेषण विधि/ method of analysis : APHA, AWWA, WEF, 23rd Edition, 2017

क्र. सं. / S. No.	परिचय / Parameter	एकक / Unit	Drinking Water Standards IS 10500:2012		Results नमूने का मान/ संख्या/ संख्या Code No./Sampling Point U.P.C.B. Lucknow, 13/7/2020 Shastri, H.P. Department of MSW Bhubay, P. near gate Mushra	Detection Range
			परिचय (Acceptable limit)	परिचय (Limit)		
1	pH, 4500 B ⁺ B Electrometric Method		6.5-8.5	No relaxation	7.41	02-12
2	खुरदरापन / Turbidity, 2130 B Nephelometric Method	NTU	1.00	5.00	2.1	1-500NTU
3	रंग/ Colour, 2120 B Visual Comparison Method	Hazen	5.00	15.00	5.0	5-10000 Hazen
4	चालकता/ Conductivity, 2510 B Laboratory Method	µS/cm	NS	NS	3912.0	0.1 -10000 µS/cm
5	लट्टक/ Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 °C	mg/l	NS	NS	14.0	5.0 -10000 mg/l
6	घुलनशील/ Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 °C	mg/l	500.0	2000.0	2400.0	5.0 -10000 mg/l
7	कुल/ Total Solids, 2540 B Total Solids dried at 103-105 °C	mg/l	NS	NS	/	5.0 -10000 mg/l
8	कठोरता/ Hardness, 2340 C EDTA Titrimetric Method	mg/l	200.00	600.00	900.0	0.0 -5000 mg/l
9	कैल्शियम/ Calcium, 3500 -Ca B EDTA Titrimetric Method	mg/l	NS	NS	33.6	0.0 -1000 mg/l
10	मैग्नेशियम/ Magnesium, 3510 -Mg B Calculation Method	mg/l	NS	NS	195.9	0.0 -1000 mg/l
11	सोडियम/ Sodium Na, 3500-Na B Flame Emission Photometric Method	mg/l	NS	NS	/	1.0 -100 mg/l
12	पोटैशियम/ Potassium K, 3500-K B Flame Emission Photometric Method	mg/l	NS	NS	/	1.0 -100 mg/l
13	क्लोराइड/ Chloride as Cl ⁻ , 4500-Cl ⁻ B Argentometric Method	mg/l	250.00	1000.00	550.0	1.0 -500 mg/l
14	फ्लोराइड/ Fluoride as F ⁻ , 4500-F D SPADNS Method	mg/l	1.00	1.50	0.746	0.1-10 mg/l
15	सल्फेट/ Sulphate as SO ₄ ²⁻ , 4500-SO ₄ ²⁻ E Turbidimetric Method	mg/l	200.00	400.00	/	0.1 -200 mg/l
16	फॉस्फेट/ Phosphate as P, 4500 P D Stannous Chloride Method	mg/l	NS	NS	/	0.01-50 mg/l
17	नाइट्रेट/ Nitrate, 4500-NO ₃ ⁻ B Ultraviolet Spectrophotometric Method	mg/l	45.00	No relaxation	/	0.05-100 mg/l
18	अमोनिया/ Ammonia, 4500 NH ₃ -F Phenale Method	mg/l	0.50	No relaxation	/	0.1-50 mg/l
19	अम्लता/ Alkalinity, 2320 B Titrimetric Method	mg/l	200.00	600.00	730.0	20-5000 mg/l
20	कुल/ Total Chromium (T.Cr), 3111 B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.05	No relaxation	0.0394	0.05-1000 mg/l
21	कॉपर/ Copper (Cu), 3111- B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.05	1.50	0.0092	0.01-1000 mg/l
22	कैडमियम/ Cadmium (Cd), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.003	No relaxation	0.0182	0.01-1000 mg/l
23	लेड/ Lead (Pb), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.01	No relaxation	0.161	0.01-1000 mg/l
24	आयरन/ Iron (Fe), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.30	No relaxation	0.2724	0.05-1000 mg/l
25	निकेल/ Nickel (Ni), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.02	No relaxation	0.1674	0.04-1000 mg/l
26	ज़िंक/ Zinc (Zn), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	5.0	15.0	0.0414	0.01-1000 mg/l
27	कुल/ Total Coliform, 9221 B Multiple Tube Fermentation Technique	MPN/100 ml	Nil	No relaxation	70	<1 B MPN/100 ml & above
28	फेकल/ Fecal Coliform, 9221 E Multiple Tube Fermentation Technique	MPN/100 ml	Nil	No relaxation	70	<1 E MPN/100 ml & above

अनुसंधान/ Analyzed by: [Signature] 20/7/2020
 अनुमोदित/ Authorized Signatory: [Signature] 20/7/2020

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CENTRAL LABORATORY, U.P. POLLUTION CONTROL BOARD
T.C.-12 V, Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone: 0522-2720832, 2720480



TEST REPORT: WATER LABORATORY (GROUND WATER)

S.No.

DL of compilation of test report ... 20/7/2020

Certificate No. TC-6345
DL/period of testing 13/7/2020 to 20/7/2020

1. स्रोत का शीट/समय/स्थान/संख्या Sample Source (Tubewell/Dugwell/Shallow Pump/Supply Water /Handpump/ any other specify) Hand pump
2. स्रोत का अर्थ (ग्रैब/संयोजित/संगठित) Type of Sample (Grab/Composite/Integrated) Grab
3. स्रोत क्या वहाँ से सही स्रोत का निर्माण/ Sample Collected by Sn. Vinay Dubey (S.A), Sn. P.K. Mishra (S.A), Sn. Akhwar (R.O.M) Sn. Manoj Kumar Choudhary (S.O) Esiogahad.
4. रंग/गंध का वर्णन/ Colour & Odour
5. कणिका स्रोत की मात्रा/ Quantity & Packing (Plastic Jerican/Any Other) 2 Lt. + 1 MPN bottle + 1 Lt. for H.M.
6. स्रोत संकलन की तिथि/ Date of Sample Collection 09/7/2020
7. विश्लेषण के प्रकार/ Analysis intended by Central Lab U.P.P.C.B. Lucknow, R.O. Mathura, R.O. Firozabad
8. संकलन की तिथि/ Date of Sample receipt in Laboratory 13/7/2020
9. विश्लेषण विधि/ method of analysis APHA, AWWA, WEF, 23rd Edition, 2017

क्र. सं. / S. No.	परिचय / Parameter	इकाई / Unit	Drinking Water Standards IS 10500:2012		Results स्रोत का स्रोत सं. / संकलन बिंदु Code No./Sampling Point U.P.P.C.B./10/439/AB/2020 I.M. Hand pump near house, Sn. Vinay Dubey, Nagla, Mathura	Detection Range
			अव्यय (Acceptable limit)	परिचय/ Limit		
1	pH, 4500 H ⁺ B Electrometric Method		6.5-8.5	No relaxation	7.84	0-12
2	धुंधल/ Turbidity, 2130 B Nephelometric Method	NTU	1.00	5.00	1.0	1-5000 NTU
3	रंग/Colour, 2120 B Visual Comparison Method	Hazen	5.00	15.00	5.0	5-10000 Hazen
4	चालकता/ Conductivity, 2510 B Laboratory Method	µS/cm	NS	NS	1910.0	0.1-10000 µS/cm
5	लट्टिका स्रोत/ Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 °C	mg/l	NS	NS	10.0	5.0-10000 mg/l
6	घुलित स्रोत/ Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 °C	mg/l	500.0	2000.0	1606.0	5.0-10000 mg/l
7	कुल स्रोत/ Total Solids, 2540 B Total Solids dried at 103-105 °C	mg/l	NS	NS	/	5.0-15000 mg/l
8	कठोरता/ Hardness, 2340 C EDTA Titrimetric Method	mg/l	200.00	600.00	348.0	0.0-5000 mg/l
9	कैल्शियम/ Calcium, 3500 -Ca B EDTA Titrimetric Method	mg/l	NS	NS	50.4	100-1000 mg/l
10	मैग्नेशियम/ Magnesium, 3500 -Mg B Calculation Method	mg/l	NS	NS	57.72	10.0-1000 mg/l
11	सोडियम/ Sodium Na, 3500-Na B Flame Emission Photometric Method	mg/l	NS	NS	/	1.0-100 mg/l
12	पोटैशियम/ Potassium K, 3500-K B Flame Emission Photometric Method	mg/l	NS	NS	/	1.0-100 mg/l
13	क्लोराइड/ Chloride as Cl ⁻ , 4500- Cl ⁻ B Argentometric Method	mg/l	250.00	1000.00	28.0	5.0-500 mg/l
14	फ्लोराइड/ Fluoride as F ⁻ , 4500- F D SPADNS Method	mg/l	1.00	1.50	0.394	0.1-15 mg/l
15	सल्फेट/ Sulphate as SO ₄ ²⁻ , 4500- SO ₄ ²⁻ E Turbidimetric Method	mg/l	200.00	400.00	/	0.1-200 mg/l
16	फॉस्फेट-III/ Phosphate as P, 4500 P D Stannous Chloride Method	mg/l	NS	NS	/	0.01-50 mg/l
17	नाइट्रेट/ Nitrate, 4500- NO ₃ ⁻ B Ultraviolet Spectrophotometric Method	mg/l	45.00	No relaxation	/	0.05-100 mg/l
18	अमोनिया/ Ammonia, 4500 NH ₃ -F Phenate Method	mg/l	0.50	No relaxation	/	0.1-50 mg/l
19	क्षारीयता/ Alkalinity, 2320 B Titrimetric Method	mg/l	200.00	600.00	384.0	20-5000 mg/l
20	कुल क्रोमियम/ Total Chromium (T.Cr), 3111 B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.05	No relaxation	0.0186	0.05-1000 mg/l
21	कॉपर/ Copper (Cu), 3111- B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.05	1.50	0.006	0.01-1000 mg/l
22	कैल्शियम/ Cadmium (Cd), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.003	No relaxation	0.0094	0.01-1000 mg/l
23	लेड/ Lead (Pb), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.01	No relaxation	0.0972	0.01-1000 mg/l
24	आयरन/ Iron (Fe), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.30	No relaxation	0.3876	0.05-1000 mg/l
25	निकेल/ Nickel (Ni), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	0.02	No relaxation	0.1006	0.04-1000 mg/l
26	ज़िंक/ Zinc (Zn), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	mg/l	5.0	15.0	0.0598	0.01-1000 mg/l
27	कुल कोलिफॉर्म/ Total Coliform, 9221 B Multiple Tube Fermentation Technique	MPN/100 ml	Nil	No relaxation	700	<1.8 MPN/100 ml & above
28	फेकल कोलिफॉर्म/ Fecal Coliform, 9221 E Multiple Tube Fermentation Technique	MPN/100 ml	Nil	No relaxation	700	<1.8 MPN/100 ml & above

विश्लेषण के द्वारा/ Analysed by

अधिकृत हस्ताक्षर/ Authorized Signatory

प्रमुख अधिकारी/Chief Executive Officer, C.E.O. Central Laboratory

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CENTRAL LABORATORY, U.P. POLLUTION CONTROL BOARD
T.C.-12 V, Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone: 0522-2720832, 2720480



TEST REPORT: WATER LABORATORY (GROUND WATER)

S.No.

Dt. of compilation of test report 20/7/2020

Certificate No. TC-6345
DL/period of testing... 12/7/20 - 20/7/20

1. नमूने का स्रोत/समग्र नमूना/संकेत नमूना Sample Source (Tubewell/Dugwell/Shallow Pump/Saply Water /Handpump/ any other specify) ... Borewell
2. नमूने का प्रकार (गैर/संयोजित/एकीकृत) / Type of Sample (Grab/Composite/Integrated) ... Grab
3. नमूने एकत्र करने वाले व्यक्ति का नाम/ Sample Collected by ... Sn. Vinay Dubey (SA), Sn. P.K. Mishra (SA)
4. व्यक्ति नमूने का एक एत नमूना/ Colour & Odour ... Sn. Girish Kumar (E.O. Mathura), Sn. Manoj K. Chandra (E.O. Ferozabad)
5. व्यक्ति नमूने की मात्रा एवं पैकेजिंग/ Quantity & Packing (Plastic Jar/can/Any Other) ... 2 Lt. + 1 MPN bottle + 1 Lt. for H.M.
6. नमूने एकत्र की तिथि/ Date of Sample Collection ... 09/7/2020
7. विश्लेषण हेतु अनुरोध/ Analysis indented by ... Consultant Lab, U.P.P.C.B. Lucknow, Dr. Mathura, A.C. Ferozabad
8. नमूने प्राप्त की तिथि/ Date of Sample receipt in Laboratory ... 13/7/2020
9. विश्लेषण विधि/ method of analysis ... APHA, AWWA, WEF, 23rd Edition, 2017

क्र. सं. / S. No.	पैरामीटर / Parameter	इकाई / Unit	Drinking Water Standards IS 10500:2012		Results नमूने का मान / प्रमाण मान Code No./Sampling Point U.P.C.B. 141103/1448/ABC/2020 Borewell, Inside the S.M.L.O. S.T. ... Mathura	Detection Range
			Equipment (Acceptable limit)	Permissible Limit		
1	pH / pH, 4500 H ⁺ B Electrometric Method		6.5-8.5	No relaxation	7.63	02-12
2	धुंधलापन / Turbidity, 2130 B Nephelometric Method	एन.टी.यू. / NTU	1.00	5.00	2.8	1-500NTU
3	रंग / Colour, 2120 B Visual Comparison Method	हैज़न / Hazen	5.00	15.00	5.0	5-10000 Hazen
4	चालकता / Conductivity, 2510 B Laboratory Method	मैक्रो सेंटीम्यू / सी.एम.एस. / $\mu\text{S/cm}$	NS	NS	5755.0	0.1 - 10000 $\mu\text{S/cm}$
5	लवणक सिलिका / Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 °C	ग्राम/ली. / mg/l	NS	NS	16.0	5.0 - 10000 mg/l
6	घुलनशील सिलिका / Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 °C	ग्राम/ली. / mg/l	500.0	2000.0	3250.0	5.0 - 10000 mg/l
7	कुल सिलिका / Total Solids, 2540 B Total Solids dried at 103-105 °C	ग्राम/ली. / mg/l	NS	NS	/	5.0 - 15000 mg/l
8	कठोरता / Hardness, 2340 C EDTA Titrimetric Method	ग्राम/ली. / mg/l	200.00	600.00	808.0	10.0 - 5000 mg/l
9	कैल्शियम / Calcium, 3500 -Ca B EDTA Titrimetric Method	ग्राम/ली. / mg/l	NS	NS	52.0	10.0 - 1000 mg/l
10	मैग्नेशियम / Magnesium, 3500 -Mg B Calculation Method	ग्राम/ली. / mg/l	NS	NS	162.7	10.0 - 1000 mg/l
11	सोडियम / Sodium Na, 3500 -Na B Flame Emission Photometric Method	ग्राम/ली. / mg/l	NS	NS	/	1.0 - 100 mg/l
12	पोटैशियम / Potassium K, 3500 -K B Flame Emission Photometric Method	ग्राम/ली. / mg/l	NS	NS	/	1.0 - 100 mg/l
13	सिलिका / Chloride as Cl ⁻ , 4500 -Cl ⁻ B Argentometric Method	ग्राम/ली. / mg/l	250.00	1000.00	500.0	5.0 - 300 mg/l
14	फ्लोरो / Fluoride as F ⁻ , 4500 -F D SPADNS Method	ग्राम/ली. / mg/l	1.00	1.50	1.842	0.1-1.0 mg/l
15	सल्फेट / Sulphate as SO ₄ ²⁻ , 4500 -SO ₄ ²⁻ E Turbidimetric Method	ग्राम/ली. / mg/l	200.00	400.00	/	0.1 - 200 mg/l
16	फॉस्फेट / Phosphate as P, 4500 P D Stannous Chloride Method	ग्राम/ली. / mg/l	NS	NS	/	0.01 - 50 mg/l
17	नाइट्रेट / Nitrate, 4500 -NO ₃ ⁻ B Ultraviolet Spectrophotometric Method	ग्राम/ली. / mg/l	45.00	No relaxation	/	0.05-100 mg/l
18	अमोनिया / Ammonia, 4500 NH ₃ -F Phenate Method	ग्राम/ली. / mg/l	0.50	No relaxation	/	0.1 - 50 mg/l
19	अम्लता / Alkalinity, 2320 B Titrimetric Method	ग्राम/ली. / mg/l	200.00	600.00	608.0	20-5000 mg/l
20	कुल क्रोमियम / Total Chromium (T.Cr), 3111 B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	0.05	No relaxation	0.0426	0.05-1000 mg/l
21	कॉपर / Copper (Cu), 3111 -B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	0.05	1.50	0.0132	0.01-1000 mg/l
22	कैडमियम / Cadmium (Cd), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	0.003	No relaxation	0.0284	0.01-1000 mg/l
23	लेड / Lead (Pb), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	0.01	No relaxation	0.2142	0.02-1000 mg/l
24	आयरन / Iron (Fe), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	0.30	No relaxation	0.5552	0.05-1000 mg/l
25	निकेल / Nickel (Ni), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	0.02	No relaxation	0.2038	0.04-1000 mg/l
26	ज़िंक / Zinc (Zn), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	ग्राम/ली. / mg/l	5.0	15.0	0.1348	0.01-1000mg/l
27	कुल कोलिफॉर्म / Total Coliform, 9221 B Multiple Tube Fermentation Technique	एम्पीएन/100 मि.ली. / MPN/100 ml	Nil	No relaxation	130	<18 MPN/100 ml & above
28	फेकल कोलिफॉर्म / Faecal Coliform, 9221 E Multiple Tube Fermentation Technique	एम्पीएन/100 मि.ली. / MPN/100 ml	Nil	No relaxation	20	<18 MPN/100 ml & above

अनुसंधान के समान / Analyzed by: *Dr. Anshu K. Singh* 20/7/2020

अनुमोदित हस्ताक्षर / Authorized Signatory: *Ranjay* 20/7/2020

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CENTRAL LABORATORY, U.P. POLLUTION CONTROL BOARD
T.C-12 V, Vaidhul Khand, Gomti Nagar, Lucknow-226010
Phone: 0522-2720832, 2720480



TEST REPORT: WATER LABORATORY (SURFACE WATER)

S.No. Certificate No. TC-6345
Dt. of compilation of test report ... 20/7/2020 Dt. period of testing 13/7/2020 - 20/7/2020

1. Name of site (well no./can./pond/river/STP/any other specify) ... Surface water
2. Name of user (Institution/Industry/Type of Sample (Solid/Composite/Solvent)) ... Gxsb
3. Name and address of firm/Sample Collected by ... Sri. Vinay Dubey (SA), Sri P.K. Mishra (SA) Sri A. Kumar (AO Lucknow), Sri M. K. Chandra (AO Firozabad)
4. Name of site (Institution/Industry/Type of Sample (Solid/Composite/Solvent)) ...
5. Name of site (Institution/Industry/Type of Sample (Solid/Composite/Solvent)) ... 2 Lt + 1 MPN bottle + 1 Lt for HM
6. Name of firm / Date of Sample Collection ... 10/7/2020
7. Name of institution / Analyte Indicated by ... Central Lab Lucknow, RO Mathura, RO Firozabad
8. Name of site (Institution/Industry/Type of Sample (Solid/Composite/Solvent)) ... 13/7/2020
9. Name of firm / Date of Sample receipt in Laboratory ...
10. Name of firm / Standards followed are appended overleaf
11. Name of firm / Method of analysis ... APHA, AWWA, WEF 23rd Edn. 2457; IS 3025 Part 40 for BOD

S.No.	Symbol/Parameter	Unit/Code	Results upto 4th dec. 2020 Lab No. Sampling Point UPPCL/CL/2/43 ABC, 2020 Kachhda water near Pumping Point at Nagla Kollan, Mathura	Detection Range
1	pH, pH, 4500 B (4-5 to 6.99) Electrode Method		7.69	0-12
2	Turbidity, 2480B (2.22 to 2.12) Nephelometric Method	NTU / NTU	38.0	1-500 NTU
3	Colour, 2120B (2-6 to 2-3) Visual Comparison Method	PCU / Hazen	80.0	5-10000 Hazen
4	Conductivity, 2510B (2-50 to 2-50) Laboratory Method	µS/cm	1	0.1 - 2000 µS/cm
5	Total Solids, 2540 B (2-70 to 2-70) Total Suspended Solids dried at 103-100°C	mg/l / mg/l	162.0	2.5 - 20000 mg/l
6	Total Dissolved Solids, 2540C (2-69 to 2-70) Total Dissolved Solids dried at 180°C	mg/l / mg/l	3922.0	2.5 - 10000 mg/l
7	Total Solids, 2540 B (2-48 to 2-49) Total Solids dried at 103-100°C	mg/l / mg/l	1	2.5 - 15000 mg/l
8	Total Hardness, 2540 C (2-48 to 2-50) EDTA Titrimetric Method	mg/l / mg/l	252.0	30.0 - 5000 mg/l
9	Calcium Hardness, 3500 C (2-5-69 to 2-70) EDTA Titrimetric Method	mg/l / mg/l	54.4	20.0 - 1000 mg/l
10	Magnesium Hardness, 3500 D (2-8-80) Calculation Method	mg/l / mg/l	27.84	10.0 - 1000 mg/l
11	Total Phosphate, 3500 B (2-39 to 2-100) Phosphomolybdate Method	mg/l / mg/l	1	1.0 - 100 mg/l
12	Orthophosphate, 3500 K (2-39 to 2-90) Phosphomolybdate Method	mg/l / mg/l	1	1.0 - 100 mg/l
13	Chloride, 4500 Cl (4-75 to 4-76) Argentometric Method	mg/l / mg/l	55.0	20 - 500 mg/l
14	Fluoride as F ⁻ , 4500 F (2-4-86 to 4-87) Spade Method (4500 F (2-4-90 to 4-91) Selective Electrode Method)	mg/l / mg/l	/	0.1 - 10 mg/l
15	Sulphate as SO ₄ ²⁻ , 4500 SO ₄ ²⁻ (4-129 to 4-130) Turbimetric Method	mg/l / mg/l	/	0.1 - 200 mg/l
16	Phosphate-P, 4500 P (4-123 to 4-124) Barium Chloride Method	mg/l / mg/l	/	0.01 - 50 mg/l
17	Nitrate-Nitrogen, 4500 NO ₃ ⁻ (4-127 to 4-128) Cadmium Spectrophotometric Method	mg/l / mg/l	/	0.05 - 100 mg/l
18	Nitrite-Nitrogen, 4500 NO ₂ ⁻ (4-129 to 4-130) Phenolic Method	mg/l / mg/l	/	0.1 - 50 mg/l
19	Alkalinity, 3200 B (2-57 TO 2-58) Titrimetric Method	mg/l / mg/l	480.0	20.0 - 5000 mg/l
20	Iodine, 4500 I (4-144 to 4-145) Iodometric Method	mg/l / mg/l	1	0.2 - 14.0 mg/l
21	BOD, 5 day 20°C, IS 3025 Part 44; 1993 Biochemical Oxygen Demand	mg/l / mg/l	52.8	1.0 - 1000 mg/l
22	COD, 5220 B (4-17 to 5-19) Open Reflux Method	mg/l / mg/l	287.2	1.0 - 1000 mg/l
23	Total Chromium, Cr, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	NB	0.05 - 1000 mg/l
24	Copper, Cu, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	0.672	0.01 - 1000 mg/l
25	Aluminum, Al, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	0.063	0.01 - 1000 mg/l
26	Lead, Pb, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	0.338	0.05 - 1000 mg/l
27	Zinc, Zn, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	16.645	0.05 - 1000 mg/l
28	Nickel, Ni, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	0.409	0.05 - 1000 mg/l
29	Iron, Fe, 3111 A+B (3-16 to 3-21) Atomic Absorption Spectrometry	mg/l / mg/l	1.472	0.05 - 1000 mg/l
30	Total coliform	MPN/100ml	2100000	
31	Fecal coliform	MPN/100ml	1300000	

Checked & signed/Analysed by: [Signature] 20/7/20

Authorised/Authorized Signature: [Signature] 20/7/20

you return signed / Chief Executive Officer
Technical Manager

Note: 1. The results in the Test Report relate only to the items tested. 2. The report shall not be reproduced except in full, without the written permission of Laboratory. 3. The test report pertains to the sample as received in Lab.



CENTRAL LABORATORY, U.P. POLLUTION CONTROL BOARD
T.C.-12 V, Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone: 0522-2720832, 2720480



TEST REPORT: WASTE WATER LABORATORY

S.No.
Dt. of compilation of test report 20/7/2020

Certificate No. TC-6345

Dt./period of testing 12/7/2020-17/7/2020

1. इन्डस्ट्री/एन.टी.पी. का नाम एवं पता / Name and Address of Industry/S.T.P. 16 MLD STP, Laxmi Nagar, Trans Yamuna, Mathura
2. नमूने का प्रकार (गैब/कम्पोजिट/इंटीग्रेटेड) / Type of Sample (Grab/Composite/Integrated) Grab
3. नमूने एकत्र करने वाले व्यक्ति का विवरण / Sample Collected by Dr. Anand K. K. Mathura, Dr. Manoj Chakraborty, Dr. Vinay Dubey, Dr. P.K. Mishra ST
4. एकत्रित नमूने का रंग एवं गंध / Colour & Odour: Pale
5. एकत्रित नमूने की मात्रा एवं पैकिंग / Quantity & Packing (Plastic Jerican/Any Other) 2 LIT LIT + MPN bottle
6. नमूने एकत्रण की तिथि / Date of Sample Collection: 9.7.2020
7. विश्लेषण हेतु आवेदनकर्ता / Analysis indented by: Dr. V.P.O.C.S. Mathura
8. प्रयोगशाला में नमूना प्राप्ति की तिथि / Date of Sample receipt in Laboratory: 12.7.2020
9. विश्लेषण विधि / method of analysis APHA, AWWA, WEF, 23rd Edition, 2017. IS 3025(Part-44): For BOD

क्र.सं. / S.N. No.	पैरामीटर / Parameter	इकाई / Unit	Results	Standards
			नमूने का संकेत सं. / एकाग्र स्थान Code No./Sampling Point <u>UPPCL, Laxmi Nagar, 16 MLD STP, 2020</u> <u>Outlet of STP</u>	
1	पी.एच./pH, 4500 H ⁺ B Electrometric Method	-	8.20	6.5-9.0
2	सस्पेंडेड सॉलिड / Suspended Solids, 2540 D Total Suspended Solids dried at 103-105°C	मिग्रा./ली. / mg/l	61.0	100.0 mg/l
3	डिसॉल्वेड सॉलिड / Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 °C	मिग्रा./ली. / mg/l	1948.0	-
4	टोटल सॉलिड / Total Solids, 2540 B Total Solids dried at 103-105 °C	मिग्रा./ली. / mg/l	2009.0	-
5	बीओडी / BOD, 3 day 27 °C IS 3025 (Part 44): 1993 Bio chemical Oxygen Demand	मिग्रा./ली. / mg/l	76.0	30.0 mg/l
6	सीओडी / COD, 5220 B Open Reflux Method	मिग्रा./ली. / mg/l	274.0	250.0 mg/l
7	Total Coliform (Most Probable Number)	एम्.पी.एन. / 100 मिली / MPN/100 ml	4500	-
8	Fecal Coliform (Most Probable Number)	एम्.पी.एन. / 100 मिली / MPN/100 ml	2000	<1000 MPN/100 ml
9	टोटल क्रोमियम / Total Chromium (T.Cr), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	N/D	-
10	कॉपर / Copper (Cu), 3111- B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	0.002	-
11	कैडमियम / Cadmium (Cd), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	0.023	-
12	लेड / Lead (Pb), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	0.255	-
13	आयरन / Iron (Fe), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	0.398	-
14	निकेल / Nickel (Ni), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	0.270	-
15	ज़िंक / Zinc (Zn), 3111-B Atomic Absorption Spectrometry (Direct Air-Ac Flame Method)	मिग्रा./ली. / mg/l	0.105	-

The Environment (Protection) Rules, 1986 Source: <http://cpcb.nic.in/GeneralStandards.pdf> ;

(2) Besides these standards, refer EPA standards for specific industry Source : cpcb.nic.in/Industry_Specific_Standards.php

परिष्कारण के समार / Analysed by: ADY 20/7/2020

अधिकृत हस्ताक्षर / Authorised Signatory: ADY 20/7/2020

ADY 20/07/2020

मुख्य अधिकारी/प्रमुख प्रयोगशाला / C.E.O. Central Laboratory

Note: 1. The results in the Test Report relate only to the items tested. 2. The report shall not be reproduced in full, without the written permission of laboratory. 3. The test report pertains to the sample as received in Lab.

संलग्नक - (1) स्पेस/प/६०
 State Level Environment Impact Assessment Authority, Uttar Pradesh

Directorate of Environment
 Dr. Bhim Rao Ambedkar Park, Varanasi
 Vinect Khand-1, Gomti Nagar, Lucknow -
 Phone : 91-522-2300541, Fax : 91-522-2300541
 E-mail : up.seiaa@yahoo.com

Ref. No. ⁴³⁸ /SEAC/208/2008

Date ^{20/2} 2009

To,
 Shri V.P. Singh,
 General Manager,
 Construction and Design Services,
 U.P. Jal Nigam, 2, Lal Bahadur Shastri Marg,
 Lucknow-226001.

Sub.: Regarding Environmental Clearance for Solid Waste Management Scheme in Mathura.

Dear Sir,

Please refer to your letter No. 227/G-2-07/26 dated 24/05/2008 addressed to the Member Secretary, State Level Environment Impact Assessment Authority, UP and letter no. 304/G-2-10/01 dated 30-06-08 addressed to the Director, Directorate of Environment on the subject as above. The State Level Expert Committee has considered your application and has been given to understand that:

- (1) The Environmental clearance is sought for development of sanitary land fill and composting at near S.T.P, Baldev Road, Tehsil Mathura, District-Mathura.
- (2) The proposed project is spread over an area of 27 acres.
- (3) The proposed compost plant will be designed to process 100 TPD of Municipal Solid Wastes.
- (4) During the presentation the project proponent made a detailed presentation on the Environmental Impact of the project, response to the Additional Terms of References provided to the project proponent, compliance to the Municipal Solid Waste Handling Rules, 2000 and the Environment Management Plan.
- (5) All the recommendations made in the Environment Impact Assessment Report must necessarily be implemented and the project should comply fully with the Municipal Solid Waste Handling Rules, 2000.

Based on the recommendations of the State Level Expert Committee the State Level Environment Impact Assessment Authority has decided to grant the Environmental Clearance to the project to the effective implementation of the following conditions:

a. General Conditions:

1. It should be clearly specified that the project proponent would ensure that all the standards related to ambient air quality and emission/effluent standards as prescribed by MoEF are strictly complied with.
2. The project proponent will have to ensure that they obtain No Objection certificate from the U.P. Pollution Control Board before start of construction.
3. The proposed land use should be in accordance to the prescribed land use.
4. Proper operation & maintenance of the project shall be ensured after construction phase. Conditions and guidelines for operation and penalties for non-compliance should be specifically prescribed.



5. Information with respect to this clearance & other related documents shall be communicated by the project proponents to the concerned agencies (other than SEIAA and SEAC) as prescribed in the EIA notification No. SO 1533(E) dated 14/09/2006.
6. In addition to the proposed compensatory plantation (3 Trees planted for every tree cut) it shall be ensured that 33% of total lands in the project areas are planted with shade giving and ecologically friendly trees.
7. A specific waste collection and transportation system should be ensured for conveying the waste scientifically and in a safe manner to the proposed MSW landfill site.
8. Leachate should be collected and disposed in a manner such that it may not contaminate the ground water.
9. The general conditions attached to the list of the proposed activities requiring environmental clearance as given in gazette notification dated 14/09/06 issued by Govt. of India and which read as follows should be strictly complied with - "Any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) Inter-State boundaries and international boundaries." Should not be violated." In case of any violation clearance shall be obtained from The Government of India, as prescribed.
10. The standards regarding ground water, ambient air, leachate quality and compost quality shall be duly followed as per Municipal Solid Wastes (M&H) Rules, 2000.
11. A comprehensive EIA shall be undertaken and the environment management plan and detailed project report (DPR) revised accordingly also taking into view the conditions stipulated in this clearance. This report shall be submitted to this authority by March, 2010, failing which this clearance will automatically be cancelled. The comprehensive EIA should address to all the issues raised in the public hearing held on 11/12/2008 to which project proponent were a party. The DPR and the EMP should be suitably revised to incorporate and mitigate the observations/objections made in the public hearing also.
12. The project proponents will set up a separate environmental management cell for effective implementation of the EMP etc. as well as stipulated environmental safeguards under the supervision of a senior experienced executive.
13. A three monthly monitoring report should be submitted to the Authority regarding the implementation of the stipulated conditions.
14. The EIA Authority may stipulate any other conditions or environmental safeguards subsequently, if deemed necessary, which should be complied with.
15. The Authority reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of Authority.
16. Full support should be extended to concerned officers/authorities by the project proponents during their inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigative measures and other Environmental protection activities.
17. In the event of a change in project profile or change in the implementation agency, a fresh reference should be made to the Authority prior to change.
18. Regular noise levels should be monitored during construction and operation phase.
19. Specifications regarding selection of landfill site, facilities at the site, specifications for land filling, pollution prevention, water quality monitoring, ambient air quality monitoring, plantation at landfill site, closure of landfill site and post care, leachate treatment and disposal should be strictly in compliance to the provisions of the Municipal Solid Wastes (M&H) Rules, 2000. A report in this regards should be prepared and submitted to the Authority within 3 months.

b. Specific Conditions:

1. As the proximity to the cultural monuments regarded as a sensitive issue, the landfill site should be developed at a safe distance from their boundaries. Landfill site should also be situated at safe distance from human settlements and that a no-entry zone be created so that general public does not enter into the area.
2. Boilers will not be used.
3. Green belt should be developed in 33% of the total project area.



4. Suitable conditions for odour control should be imposed. Herbals sanitizer and composting enzymes will be used to minimize odour.
5. All the street lighting should be solar and that CFLs should be used.
6. For the leachate treatment, it has been proposed that mechanical aeration leachate treatment will be followed. Necessary conditions for the sewage treatment should also be imposed.
7. The project proponent will duly follow post clearance monitoring as per Municipal Solid Waste Rules, 2000.
8. The following points may also be considered while making the comprehensive EIA report and this report should be submitted by March, 2010.
9. Wind speed and direction changes with time and space depending on the topography and seasons. Wind rose should, therefore be made for each month separately for each sampling site. There should be at least 2 sites in the down wind prominent direction.
10. CO measurement should be made by NDIR and eight hourly average with 98 percentile should be given.
11. Methods used for analysis should be specifically provide.
12. 98 percentile values should be taken into consideration for comparison with standards.
13. Impact of project on quality of life should be given.
14. Leq should be determined from 24 hours days-night data at each site twice a week.

The Authority felt that necessary statutory clearances should be obtained and submitted before start of any construction activity and that if this condition is violated, the clearance shall be automatically deemed to have been cancelled. It should also be insured that approved plans and proposals as per provisions of para-3 of appendix-5 of the notification No S.O. 1533 dated 14/09/2006 are submitted with 03 months of the receipt of this letter failing which the clearance shall be automatically deemed to have been cancelled.

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

This is to request you to take further necessary action in matter as per provision of Gazette Notification No. S.O. 1533(E) dated 14.09.06 issue by Govt. of India.

(Dr. C.S. Bhatt)
Member Secretary,
SEIAA

Copy for necessary action to:

1. The Principal Secretary, Environment, U.P. Govt., Lucknow.
2. Dr. Nalini Bhatt, Director, Ministry of Environment & Forests, Govt. of India, Parvathan Bhawan, CGO Complex, Lodhi Road, New Delhi.
3. Regional Office, Ministry of Environment & Forests, (Central Region), Kendriya Bhawan, 5th Floor, Sector-H, Allganj, Lucknow.
4. The Member Secretary, U.P. Pollution Control Board, PICUP Bhawan, Gomti Nagar, Lucknow.
5. Administrative Officer, Directorate of Environment for Monitoring and Web Update.

(Dr. Yashpal Singh)
Secretary, SEAC



संलग्नक - (2)

जात
20/04/13

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड,

पिकप भवन, तृतीय तल, बी ब्लॉक, विभूति खण्ड,
गोमती नगर, लखनऊ

संदर्भ संख्या F21528 /सी-4/NOC-675/13 दिनांक 3-4-13

सेवा में,

मैसर्स मथुरा नगर वेस्ट प्रोसेसिंग कम्पनी,
नगला-कोल्ह रोड, लखी-नगर,
यमुना पार, तहसील-महावन,
मथुरा

21
NOC-735
09/04/13

विषय : पर्यावरणीय प्रदूषण की दृष्टि से पूर्व से कम प्रदूषण स्तर संबंधी उत्पाद परिवर्तन हेतु अनापत्ति प्रमाण-पत्र निर्गमन। जल(प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1988 तथा वायु (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1986 के अन्तर्गत उद्योग स्थापना से पूर्व सहमति।

महोदय,

कृपया उपरोक्त विषयक अपने आवेदन पत्र दिनांक-02.02.2013 को प्राप्त है, का संदर्भ लें। आपके आवेदन पर विचार किया गया तथा कृपया अवगत हों कि उद्योग को पर्यावरण प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तों एवम् सामान्य शर्तों (संलग्नक) के अन्तर्गत अनापत्ति स्वीकृत की जाती है।

1. अनापत्ति प्रमाण-पत्र निम्नलिखित विशिष्ट विवरणों के साथ ही प्रेषित किया जा रहा है -

(क) स्थल-उत्पन्न धूल/टॉपसॉइल का नियंत्रण स्तर-वर्षा में 100 ग्राम प्रति घन मीटर

जल-संयोजक स्तर

(ख) उद्योग-उत्पन्न धूल/टॉपसॉइल का नियंत्रण स्तर-वर्षा में 100 ग्राम प्रति घन मीटर

(ग) मुख्य कच्चे माल : 100 टन/दिन

6/5

mb
9/4/13

(ड.) प्रयुक्त ईंधन : नैचुरल गैस मात्र।

उपर्युक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः अनापत्ति प्रमाण-पत्र आवश्यक होगा।

२. उद्योग में सभी आवश्यक यंत्र, संयंत्र, हरित पट्टिका, उत्प्रवाह शुद्धिकरण संयंत्र तथा वायु नियंत्रण व्यवस्था की स्थापना में की गयी प्रगति रिपोर्ट इस कार्यालय में प्रत्येक माह की दसवीं तक निरंतर प्रेषित करें।
३. उद्योग इकाई में परीक्षण उत्पादन तब तक प्रारम्भ नहीं करें जब तक कि वह बोर्ड से जल एवं वायु अधिनियमों के अन्तर्गत सहमति प्राप्त न कर लें। यदि उद्योग उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्रावधानों के अन्तर्गत उद्योग के विरुद्ध बिना किसी पूर्व सूचना के विधि-कार्यवाही की जा सकती है।
४. घरेलू उत्प्रवाह, सेप्टिक टैंक एवं सोक पिट के माध्यम से बोर्ड द्वारा निर्धारित मानकों के अनुकूल शुद्धिकृत कर निस्तारित किया जाये।
५. प्रदूषण नियंत्रण हेतु प्रस्तावित वायु प्रदूषण नियंत्रण संयंत्र तथा निर्माण कार्य आपूर्ति के लिए दिये गये आदेश की प्रति इस कार्यालय में एक माह में अवश्य प्रस्तुत की जाये।
६. उद्योग में नैचुरल गैस के अतिरिक्त अन्य किसी प्रकार के ईंधन का प्रयोग नहीं किया जाये। यद्यपि त्रैपेजियम क्षेत्र में किसी भी नये प्रदूषणकारी श्रोत की स्थापना प्रतिबंधित है। संचालन से पूर्व सरकार से पर्यावरणीय स्वीकृति प्राप्त किया जाना अनिवार्य है।
७. उद्योग पर्यावरण एवम् वन मंत्रालय भारत सरकार से अनुमति प्राप्त कर राज्य बोर्ड को प्रेषित करें।
८. उद्योग से देय जल, वायु सहमति शुल्क सहित जल उपकर का भुगतान किया जाये।
९. प्रस्तावित प्रोजेक्ट के संचालन से आस पास के क्षेत्रों पर किसी भी प्रकार का विपरीत प्रभाव/कुप्रभाव न पड़े।
१०. नगरीय ठोस अपशिष्ट निस्तारण व्यवस्था का निर्माण कार्य वहाँ के प्रथम सतही भू-जल स्तर से कम से कम दो मीटर ऊँची रखी जाये। जिससे लीचेट आदि उत्प्रवाह के कारण भूजल प्रदूषित न हो पावे।
११. नगरीय अपशिष्ट नियम के अन्तर्गत प्राधिकार प्राप्त कर ही संचालन किया जाये।

अनापत्ति प्रमाण पत्र आदेश मैसर्स मथुरा नगर वेस्ट प्रोसेसिंग कम्पनी, मथुरा

3.

12. लोक चुनवायी दिनोंक-११.११.२००८ में इंगित बिन्दुओं व पर्यावरणीय स्वीकृति में इंगित शर्तों का अनुपालन सुनिश्चित किया जाये व प्रत्येक माह सत्यापित सूचना बोर्ड को प्रेषित की जाये। लीघेट व इर्च एवम् संयंत्र वासिंग उत्प्राह के शुद्धिकरण हेतु शुद्धिकरण संयंत्र स्थापित कर पुनः प्रयोग में लाया जाये। इस हेतु पूर्ण विवरण १५ दिन में जमा करें।
13. ट्रायल सहमति प्राप्त कर ही संचालन किया जाये।
14. उद्योग परिसर के कम से कम 33 प्रतिशत क्षेत्रफल में उ०प्र०शासन के पत्र दिनोंक-२२.०२.२००५ के अनुपालन में हरित पट्टिका व वृक्षारोपण किया जाये।
15. जल निगम, नगर पालिका परिषद व कम्पनी के बीच हुए समझौतों का पालन किया जाये। एग्रीमेन्ट के क्लॉज 8.15 के अनुसार कम्पनी को प्रदूषण नियंत्रण अधिनियमों के अनुपालन का दायित्व चिन्हित है। अतः टी०टी०जेड अथॉरिटी से भी आवश्यक अनुमति प्राप्त कर प्रेषित करें।

कृपया ध्यान दें कि उपर्युक्त लिखित विशिष्ट शर्तों एवम् सामान्य शर्तों का प्रभावी एवम् संतोषजनक अनुपालन न करने पर बोर्ड द्वारा निर्गत अनापत्ति प्रमाण पत्र निरस्त कर दिया जायेगा। बोर्ड का अधिकार सुरक्षित है कि अनापत्ति की शर्तों में संशोधन किया जाये अथवा निरस्त कर दिया जाय। उपर्युक्त विशिष्ट एवं सामान्य शर्तों के संबंध में उद्योग द्वारा इस कार्यालय में एक माह तक प्रथम अनुपालन आख्या अवश्य प्रेषित की जाए। अनुपालन आख्या नियमित प्रेषित की जाए अन्यथा अनापत्ति निरस्त कर दी जाएगी।

भवदीय,

सदस्य सचिव

पृष्ठांकन सं०

/एन०ओ०सी०

तददिनोंक :

प्रतिलिपि :

1. महाप्रबन्धक, जिला उद्योग केन्द्र, मथुरा।
2. क्षेत्रीय अधिकारी, उ०प्र०प्रदूषण नियंत्रण बोर्ड, मथुरा।

मुख्य पर्यावरण अधिकारी,
मथुरा-०