

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,  
Principal Bench, New Delhi  
In  
Original Application No. 306/2016**

**In the Matter of:**

**Social Action for Forest and Environment (SAFE)**

**Applicant(s)**

**Vs.**

**Union of India & Ors.**

**Respondent(s)**

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**(Divya Sinha)**  
Scientist 'E'

Central Pollution Control Board,  
Parivesh Bhawan, East Arjun Nagar,  
Delhi-110032

**Place:** Delhi

**Date:** 01<sup>st</sup> February, 2021

In compliance of the Hon'ble NGT Original Application No. 306/2016 & M.A. No. 380/2017 (I.A. No. 8/2007) in W.P. (C) No. 426/1992, D. K. Joshi vs Chief Secretary of U.P & Ors.order Dated: 10.08.2020, inspection & status report of Municipal Solid Waste processing facility (Bio-mining of legacy waste at existing dumping site) located at Kuberpur and Status of in-situ remediation(bio-remediation and phy-remediation) of drains in Agra

The Hon'ble National Green Tribunal (NGT) in the matter of Original Application No. 306/2016 & M.A. No. 380/2017 (I.A. No. 8/2007) in W.P. (C) No. 426/1992, D. K. Joshi vs Chief Secretary of U.P & Ors. directed as below:

*"...10. Let further action be taken, which may be overseen by the Oversight Committee. CPCB Regional Office Agra may visit the sites and examine whether remediation (bio-mining of legacy waste and in-situ remediation of drains) is being done as per norms and give its report to this Tribunal before the next date by email. The Oversight Committee may furnish its report as on 31.12.2020 before the next date by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in) preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The Oversight Committee may also forward a copy of its report to the Chief Secretary so that monitoring at the level of Chief Secretary will also take place...."*

In compliance of the above NGT order and direction of Central Pollution Control Board, Regional directorate (N) Lucknow, Central Pollution Control Board, Project Office, Agra, a three member team of Sh. Kamal Kumar, Sc-D, Dr. Vipul Kumar Singh, SSA, Sh. Adarsh Kumar, JSA carried out Inspection of Municipal Solid Waste processing site at Kuberpur, Agra and 67 drains during December 14, 15, 18, 19, 20, 2020 and collected information.

Detailed report is presented as below:

1. Status of bio-mining work of legacy waste at Kuberpur, Agra.
2. Status of in-situ remediation of drains in Agra.

*Handwritten signatures and initials: "H", "ml", and "an"*

## 1. Status of Bio-mining work of legacy waste at Kuberpur, Agra:

In compliance of the above NGT order and direction of Central Pollution Control Board, Regional directorate (N) Lucknow, Central Pollution Control Board, Project Office, Agra carried out Inspection of Municipal Solid Waste processing site at Kuberpur, Agra on December 18, 2020 to get the updated status of bio-mining process of legacy waste (inspection of MSW facility pictures at annexure-1.1, Pic.-1 to Pic.-10). Team inspected the facility and collected information from Agra Nagar Nigam (ANN), Agra & representative of operating agencies. On the basis of the detailed information, observed & collected about Bio-mining & Composting processing of MSW disposal & Facility site, Kuberpur report is as below.

### 1.1 Background:

Within jurisdiction of Agra Nagar Nigam, about 712 TPD solid waste is getting generated, which is mainly being disposed in the open dumpsite located at Kuberpur, Agra. Kuberpur site having total area of 72 Acres, which was planned earlier as an Integrated Waste Processing cum Sanitary Landfill site. The capacity of 750 TPD waste processing plant was installed for processing of incoming waste, whereas a small Sanitary landfill covering an area of 15000 Sq.m was developed to fill the residual inert coming out from processing plant. Kuberpur site became operational for use in December 2011.

- However, in 2013 the concessionaire stopped operating Processing Plant thereafter untreated mixed waste was dumping at this site. As informed by the representative of firm, M/s Spaak Super Infra India Pvt. Ltd., the DPR of the project was made in year 2017 and it was estimated that the accumulated waste in this dumpsite is about 8.0 Lakh MT.
- After tendering process in year 2018, the agreement for biomining and bioremediation project for this MSW dumping site was signed between Agra Nagar Nigam and M/s Spaak Super Infra India Pvt. Ltd. on Dated 27.06.2019. (Annexure-1.2)
- For Waste processing and composting, another agreement was signed between Agra Nagar Nigam and Kaaps Agra Waste Processing Pvt. Ltd in April 2020. (Annexure-1.3)
- This Kuberpur site is still active and receiving waste from entire jurisdiction of Agra Nagar Nigam in a demarcated parcel of land.

  2

- As informed by operator that they have valid consent to operate issued by UPPCB but not provided to the inspection team for record.
- At present both firms are operating at Municipal Solid Waste dumping site of Kuberpur, Agra for disposal of legacy waste by bio-mining and composting process.

## 1.2. Observations:

### (i) Process of Bio-mining of Legacy waste:

They are making Windrows of Legacy waste by the help of Poclain machines at the site. Then, Inoculums was sprinkled on that and turning of waste is carried out as per standard protocol. After stabilization (Appx. 4-5 weeks) of the waste, it was processed through 06 no. of (25-60 TPH) which have total capacity of 235 TPH.

The methodology of screening is being executed through trommeling method of different sieve size. Initially, belt conveyor of 1500 mm at feeding stage is installed to feed trommel of >125 mm. The rejects of >125 mm size get stored while <125 mm get feed into 35 mm trommel through conveyor. The same processes are getting replicated again and process it for further 6 mm through another trommel. The rejects of 125 mm, 35 mm and >6 mm is treated as segregated combustible fraction (SCF) and inert, while remaining <6 mm fraction is bio-earth which can be used as soil conditioner in field application except agriculture practices. All segregated waste is being stored in processing site at present.

Test Certificate of Shriram Institute for Industrial Research, Delhi for segregated combustible fraction (SCF) (No. C1/0000212087) and Legacy waste (No. C1/0000212088) as provided by M/s Spaak Super Infra India Pvt. Ltd. are attached herewith as Annexure-1.4 (a)-(c).

Testing of SCF and less than 6 mm fraction has been carried out by the operator and it is observed that SCF does not meet parameters for maximum Ash content as specified by MoHUA and less than 6 mm fraction does not meet most of the paraments (e.g. TOC, Nitrogen, Arsenic, Cadmium, Copper, Nickel) as specified in schedule II of SWM Rules, 2016.

*Abhishek*      *anil*      *An*

**(ii) Waste processing and Composting:**

The present Waste processing and Composting facility is designed for processing of 300 tons per day. The facility is equipped with pre-sorting Trommels to handle mixed waste. They are using sprinkle of leachates and other additives as per their standard protocol to for composting from organic portion of waste. The processing facility is facilitated with weighing bridge, presorting, windrow yard, some area with wind barrier also, the processing section along with finishing and packaging section.

At the time of inspection, as informed by the representative of operating agency M/s Spaak Super Infra India Pvt. Ltd. the volume of leachate generating daily is not so high at present, so whole of the leachate volume collected in storage tank at dumpsite are being used to sprinkle on the organic waste material in order to speed up the decomposition process in making compost from fresh waste. No leachate was observed going outside of the plant from dumpsite and meets surface water/sewer/land.

Analytical Report of Laboratory of Kaaps Agra Waste Processing Pvt. Ltd for organic compost (Date. 23.11.2020) as provided by M/s Kaaps Agra Waste Processing Pvt. Ltd is attached herewith as Annexure-1.5.

Testing of compost has been carried out by the operator and it meets the parameters specified in SWM Rules, 2016.

**1.3. Summary:**

- Presently ANN is carrying out collection & transportation of MSW from Agra city and MSW is being dumped at Kuberpur disposal & treatment site along with legacy waste. Due to the legacy waste volume is increasing continuously, there is need to speed up the processing of bio-mining work by firm.
- At the site, processing work of MSW was being carried out with 06 no. of Trommels (25-60 TPH) which have total capacity of 235 TPH.
- Three types of rejects is being coming out after trommeling i.e soil enricher (<6 mm), Segregated Combustible Fraction (SCF) of <35 mm and C&D Waste above 35mm.

*Abir*      *ml*      *an*

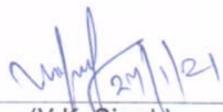
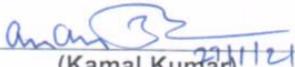
- 300 TPD Plant for Compost making from organic portion of MSW was found functional at the site. However, Appx. 4000 MT of compost was found stored at the site.
- It is estimated that Appx. 4.0 Lakh Ton volume of unprocessed legacy waste is still present at the Kuberpur site. The hired firm processed about 50% of legacy waste till date.
- After processing of MSW, RDF (Refused derived fuel) is left at the end, which is non-decomposable and having calorific value. At present, Appx. 16000 - 18000 MT of RDF is stored at the site.
- Representative of firm told that the soil enricher portion will be sold to nursery/NHAI/Other civil contract.
- For the collection of leachates (liquid portion) coming out from MSW dump, underground Leachate collection tank (capacity 85 KL) is available at the site. As informed by the representative of firm, they are using Leachate to sprinkle on the organic waste material for speed up the decomposition process.

#### 1.4. Suggestions

- About 50% of legacy waste has been processed till date. As informed by the representative of the firm that about 12 more months will be required for the completion of rest of the MSW legacy waste processing work; so there is need to increase the processing speed as well as capacity of bio-mining processing work.
- At present, segregated waste is not disposed out and all the segregated portions of waste are found stored at processing site. Proper and timely disposal of stored segregated waste i.e. SCF, RDF, Compost is required as soon as possible.
- There is a scope for improvement in processing by increasing no. of trommels and their capacity, wind barrier/ blockage to stop floating of small plastic materials etc. from dumping & windrows sites.
- Properly Leachate collection and treatment is required at legacy waste site and at fresh MSW stored site also.
- The housekeeping at different sections of site requires maintaining as per Municipal Solid Waste (Management and Handling) Rules, 2016.

*Al* *ml* *a*

- The process operation for legacy waste to be improved upon so as to ensure that the screened fractions meet the desired requirements.
- Proper records related to quantity of waste treatment, quantity of screen fractions produced and their utilization be maintained by the operator. Similar records be maintained for leachate management.
- Appropriate direction may be given to concern agencies for compliance of the Municipal Solid Waste (Management and Handling) Rules, 2016.

 (Adarsh Kumar) JSA Central Pollution Control Board, Project Office, Agra	 (V.K. Singh) SSA Central Pollution Control Board, Project Office, Agra	 (Kamal Kumar) Scientist-D Central Pollution Control Board, Project Office, Agra
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Pic.-1-MSW project site at Kuberpur, Agra- Bio-mining work is under progress



Pic-2-Windrows making of Legacy waste by the Poclair Machine

*Handwritten signature* 7



**Pic-3-Legacy waste dumping site**

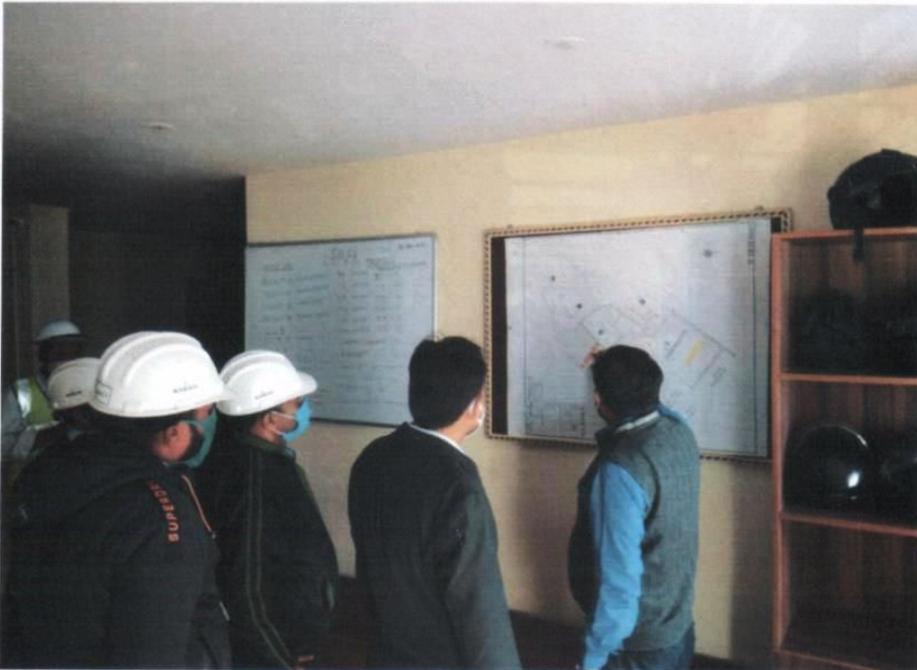


**Pic-4- Over view of Legacy waste dumping site**

*Handwritten signatures and initials in blue ink.*



Pic-5- Greenery developed at Ongoing work at site



Pic-6-Site plan at Ongoing site

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*Handwritten signature*



Pic-7-Trommeling at plant



Pic-8-Ongoing work at the plant-2

*Handwritten notes in blue ink: "Al", "ml", and "a".*



Pic-9-RDF Storage



Pic-10-Composting Plant

*Handwritten signatures or initials in blue ink.*

COA No: 241/B/2013

Date - 18/6/2013

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# Concession Agreement

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**Volume-II**  
**Bioremediation, Capping  
and Scientific Closure of  
Existing Dump site at  
Kuberpur Land fill Site  
at Agra.**

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Agra Municipal Corporation, Agra

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AB ml an



राज्य उत्तर प्रदेश UTTAR PRADESH

EX 165924

MUKESH K.  
DY. CASHIER

AGREEMENT

8 JULY 2019  
This Concession Agreement mutually agreed and entered into on 7 day of July two thousand and Nineteen at Agra.

BETWEEN

TASURY, AGRA

The Agra Municipal Corporation, a body established under the Uttar Pradesh Municipal Corporation Act, 1959 and having its head office at Agra. Hereinafter referred to as "AMC" or "the Concessing Authority" which expression shall unless excluded by or repugnant to the context, be deemed to include its successors and assigns) represented by its [ ] of the first Part;

AND

Spaak Super Intra India Private Limited, a company incorporated under provisions of the companies Act 1956, having its registered office at Shop No. 2/129, Ground Floor, DDA Janta House, Pul Prabhadpur, Lal Mohal, South Delhi, Delhi 110044 IN hereinafter referred to as "Concessionaire" which expression shall unless repugnant to the context include its successors and permitted assigns. OF THE OTHER PART

*[Handwritten signature]*  
TASURY, AGRA



*[Handwritten initials]*



## आगरा नगर निगम

फोन : 0562-2850670, 2520516  
 फैक्स : 0562-2850499  
 ई-मेल : amcagra1@gmail.com

### Letter of Award

LOA No. 1387/D/SOM/2019

Date 04/11/2019

To,  
 Kaaps Agra Waste Processing Pvt Ltd,  
 GF-50, Block-V, Eros Garden,  
 Charnwood Village, Faridabad,  
 Haryana 121009

Sub : Letter of Award of Tender For Installation of 300 TPD Windrow Processing System at Kuberpur Dump Site, Agra

Dear Sir,

With ref to Tender No. 12-07-2019 / Nagar Nigam / 19-07-2019 / 1, we, Nagar Nigam Agra, are pleased to inform you that M/s Kaaps Agra Waste Processing Pvt Ltd is L1 in Technical as well as in Financial Bid and your bid for "Installation of 300 TPD Windrow Processing System at Kuberpur, Agra" is hereby accepted with the following particulars, CPCB Guidelines / suggestions and Directions given by Hon'ble NGT as set forth in your bid :

**Concession Period:** 45 days for Plant Establishment from the date of signing of Concession Agreement plus 3 Year for running the plant for processing 300 TPD waste

**Price:** As per Annexure - I

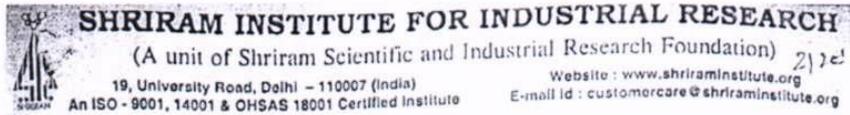
**Payment Terms:** As Per Annexure-I

Therefore you are requested to make concession agreement within next 07 days from the date of receipt of LOA so that further process for "Installation of 300 TPD Windrow Processing System at Kuberpur, Agra" may take place.

Yours

Municipal Commissioner  
 Agra Municipal Corporation,  
 Agra

*Handwritten signatures and initials*



## TEST CERTIFICATE

NO : C1/0000212087

Issued To :  
 Client Code : (AGRA01S3341)  
 SPAAK SUPER INFRA INDIA PVT LTD  
 KUBERPUR DUMPING SITE,  
 VILL- CHHALESAR  
 NEAR MATHURA-FIROZABAD HIGHWAY  
 AGRA  
 UTTAR PRADESH--  
 Kind Attn: MR M K JHA

Date : 29-02-2020  
 Job No : 2001-1-421-2756  
 Booking No : RG1920/1/12286  
 Booking Date : 18-01-2020  
 Customer Ref No : -  
 Customer Ref Dt : 17-01-2020

Sample Particulars:

One sample of "Segregated Combustible Fraction (SCF)" drawn by our representative on 28-01-2020 was received.

- |                               |  |
|-------------------------------|--|
| 1. Name & address of the Site | : M/s. Kuberpur Dumping Site<br>Village-Chhalesar<br>Near Mathura- Firozabad Highway, Agra |
| 2. Site Representative        | : Mr. Vivek Dha (Environmental Specialist)   |
| 3. Location of Sampling       | : SCF Storage Yard   |

S.No.	Tests	Results	Protocol/Test Method
1.	Total Moisture, % by mass (on received basis)	23.1	ASTM D 7348 guidelines
2.	Ash Content, % by mass (on dry basis)	32.6	ASTM D 7348 guidelines
3.	Gross Calorific Value, Kcal/kg (on dry basis)	3670	IS-1350 Part-II, 2017
4.	C:N Ratio, % by mass (on dry basis)	298:01	ASTM D 5373 guidelines by calculation
5.	Carbon (as C), % by mass	60.9	ASTM D 5373 guidelines
6.	Hydrogen (as H), % by mass	4.2	ASTM D 5373 guidelines
7.	Nitrogen (as N), % by mass	<0.5	ASTM D 5373 guidelines
8.	Sulphur (as S), % by mass	<0.5	ASTM D 5373 guidelines
9.	Oxygen (as O), % by mass	1.9	ASTM D 5373 guidelines By Calculation

Note:- Test Parameter Bulk Density could not be done due to matrix of sample.

DOR: 29.01.2020  
 DOC: 29.02.2020

*(Signature)*  
 AUTHORIZED SIGNATORY  
 EMPLOYEE CODE: (6015)

QC-01 (Rev.05)  
 Scanned copies/publications or any other copies should be accompanied by reference to the original report.  
 Phone : 91-11-27000100, 27667267, 27667800

Fax : 91-11-27667207

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**SHIRAM INSTITUTE FOR INDUSTRIAL RESEARCH**  
(A unit of Shiram Scientific and Industrial Research Foundation)

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 An ISO - 9001, 14001 & OHSAS 18001 Certified Institute E-mail id : customercare@shiram institute.org

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21201

TEST CERTIFICATE

NO : C1/0000212088

Issued To :  
 Client Code : IAGITA01S3341 Date : 29-02-2020  
 SPAAK SUPER INERA INDIA PVT LTD Job No : 2001-I-421-2757  
 KUBERPUR DUMPING SITE, Booking No : RG1920/1/12286  
 VILL- CHHALESAR Booking Date : 18-01-2020  
 NEAR MATHURA-FIROZABAD HIGHWAY Customer Ref No. :-  
 AGRA Customer Ref Dt. : 17-01-2020  
 UTTAR PRADESH--  
 Kind Attn: MR M K JHA

Sample Particulars:

The sample of "Legacy Waste" drawn by our representative on 28.01.2020 was received.

1. Name & address of the Site : M/s. Kuberpur Dumping Site  
Village-Chhalesar  
Near Mathura- Firozabad Highway, Agra
2. Site Representative : Mr. Vivek Ojha (Environmental Specialist)
3. Location of Sampling : Trommel -I Screening Machine

S.No.	Tests	Results	FCO Standards	Protocol/ Method of test
1.	Colour	Dark Brown	Dark Brown to Black	As per FCO Guidelines
2.	Odour	Absent	Absence of odour	
3.	Particle Size, % by mass (Pass through 4.0 mm IS sieve)	100	Pass through 4.0 mm IS Sieve	
4.	Bulk Density, gm/cc	1.02	0.7-0.9	
5.	Total organic Carbon, % by mass	.5	>15.0 %	
6.	Total Nitrogen (as N), % by mass	0.6	>1 %	
7.	Total Phosphate (as P <sub>2</sub> O <sub>5</sub> ) % by mass	1.4	>0.5 %	
8.	Potassium (as K <sub>2</sub> O), % by mass	0.4	>0.8 %	
9.	C:N Ratio	10.1:01	20:01	

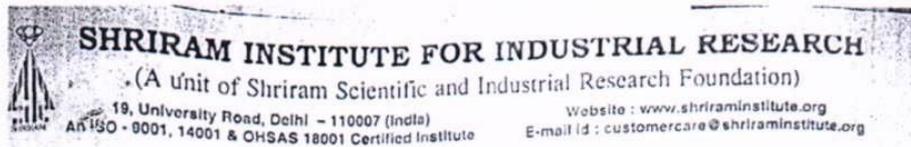
*R.K. Sharma*  
 AUTHORISED SIGNATORY  
 EMPLOYEE CODE: (6915)

CC-01 (Rev-03)

1-2  
 should always be accompanied by reference to the original report.

Phone : 91-11-27000100, 27667267, 27667860

Fax : 91-11-27667267



## TEST CERTIFICATE

NO : CI/0000212088

S.No.	Tests	Results	FCO Standards	Protocol/ Method of Test
10.	pH (1:5)	7.3	6.5-7.3	As per FCO Guidelines
11.	E. Conductivity (1:5) µmhos/cm	4800	<4000	
12.	Moisture Content at 105°C	18.4	25 %	
13.	Arsenic (as As <sub>2</sub> O <sub>3</sub> ), mg/kg	<0.05	<10.0	
14.	Cadmium (as Cd), mg/kg	7	<5.0	
15.	Chromium (as Cr), mg/kg	258	<50.0	
16.	Copper (as Cu), mg/kg	363	<300	
17.	Mercury (as Hg), mg/kg	<0.02	<0.15	
18.	Nickel (as Ni), mg/kg	98	<50	
19.	Lead (as Pb), mg/kg	98	<100	
20.	Zinc (as Zn), mg/kg	478	<1000	

\*\*\*\*\*

DOR: 29.01.2020  
 DOC: 29.02.2020

*[Signature]*  
 AUTHORISED SIGNATORY  
 EMPLOYEE CODE: ( )

GC-01 (Rev-05)

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Revised specifications in any other states should be authorized by reference to the original report

Phone : 91-11-27000100, 27667267, 27667860

Fax : 91-11-27667207

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**KAAPS AGRA WASTE PROCESSING PLANT**

Address-Vill-Chalesar, Near Slaughter House,  
Mathura-Firozabad Road, Agra-282006, U.P.

**Analytical report (Organic Compost)**

Date of Sampling - 23/11/2020

Sample No. - 15/11/20/06

Date of Analysis - 25/11/20-5/12/20

S.No.	Parameters	Results	Standards(FCO)
1.	Arsenic (mg/kg)	—	10.00
2.	Cadmium (mg/kg)	—	5.00
3.	Chromium (mg/kg)	—	50.00
4.	Copper (mg/kg)	—	300.00
5.	Lead (mg/kg)	—	100.00
6.	Mercury (mg/kg)	—	0.15
7.	Nickel (mg/kg)	—	50.00
8.	Zinc (mg/kg)	—	1000.00
9.	C/N ratio	14.27	<20
10.	pH	7.1	6.5-7.5
11.	Moisture (%/kg)	20-21	15.0-25.0
12.	Bulk density (gm/cm <sup>3</sup> )	0.99	<1.0
13.	Carbon (%/kg)	12.85	12.0 Min.
14.	Nitrogen (%/kg)	0.9	0.8 Min.
15.	Phosphate (%/kg)	0.5	0.4 Min.
16.	Potassium (%/kg)	0.5	0.4 Min.
17.	Colour	Dark black	Dark brown to black
18.	Odour	Absent	Absence of foul odour
19.	Particle size	Passed	Min. 90% pass through 4.0 mm IS sieve
20.	Conductivity (as dsm <sup>-1</sup> )	3.9	4.0

Lab Incharge  
Abhishek Kumar  
(Abhishek Kumar)

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## **2. Status of in-situ remediation of drains:**

### **2.1. Background:**

In compliance of the above NGT order and direction of Central Pollution Control Board, Regional directorate (N) Lucknow, team of Central Pollution Control Board, Project Office, Agra carried out Inspection of 67 no. drains located in different parts of Agra on dt. 14.12.2020, 15.12.2020, 19.12.2020 and 20.12.2020 where in-situ remediation of drains (Bio-remediation process only at present) work is going on by Agra Nagar Niagam (ANN) through their two number of hired firms for one year, namely:-

1. Layers Enviro & Organics, A-75 Sec-15, Noida-201301 (*Sanction Date: 16.03.2020 for 10 drains out of these 7 drains partially tapped & 3 drains untapped*)
2. Sign-Age (India) Pvt. Ltd, 13 Shikha Apartment, IP Extension, Patparganj, Delhi-110092. (*Sanction Date: 20.08.2020 for 57 drains untapped*)

On the basis of observation and collected information during inspection, following status report was compiled.

As per the information provided by Agra Nagar Nigam (ANN), there are total 90 no. of drains are existing in Agra, out these 23 drains are tapped/partially tapped and waste water is diverted to STPs for treatment & disposal of effluents. Team of CPCB, Project Office, Agra inspected remaining 67 no. of untapped/partially tapped drains (<20MLD – Minor Drain) located in different parts of Agra to know the status of remediation work of drains being carried out. The team collected information from Nagar Nigam, Agra & representative of operating agencies. Further details of drains, flow (as per ANN), location/dosing points are enclosed as annexure -2.1. In first phase, on randomly basis, waste water samples of 21 no. drains were collected and sent to laboratory of Central Pollution Control Board, Regional directorate (N) Lucknow for detailed analysis.

### **2.2. In-situ remediation of drains:**

In situ treatment methods such as microbial bio-remediation and phytoremediation are most favorable methods for alternative biological treatment technology of drains. They are not only useful in improving water quality of drains / rivers but are also helpful in rejuvenation of the ecology of a river system. Majority of inspected drains are narrow, very shallow, usually shorter in length and often covered /or passed beneath roads.



Similarly, due to unplanned growth, untreated sewage/ industrial discharge also flow into them these drains could be broadly categorized as mixed drains carrying sewage and industrial effluent both.

### **2.3. Bio-remediation work:**

For treatment of dissolved impurities in waste water, hired firms are using some blend of organic solution containing enzymes derived from plant materials for dosing purpose in waste water at certain location of drains. Containers with different capacities and different outflow rate are used by them to mix the blend of organic solution in flowing waste water of drains.

As informed by representative of firm, this complex bio-solution is produced by fermentation of raw selected kitchen waste, sugar (brown sugar, jaggery or molasses sugar) and water under controlled condition and through special process (Composition not provided). Since it is made by blending of bio-compounds in certain ratios, it carries multiple types of enzymes/ proteins, which has the property to break down pollutants of all types present in waste water. When it is diluted 1000 times in water (One liter of bio-organic solution in 1,000 liters of water) and kept overnight, microbes are multiplied. These microbes have life for five days and process continues for cleaning of water. As reported by him, this bio organic-solution helps to reduce smell & pollution load in effluents. At present, only Bio-remediation work is going on in 67 drains in Agra city.

### **2.4. Phyto-remediation work:**

Phyto-remediation is a cheaper and feasible sustainable method for removal of dissolved as well as suspended impurities. At the same time, it is eco-friendly as it uses plants for cleaning nature.

As informed by the operators, Phyto-remediation work will start in February- 2021 at the downstream side of all the drains towards river Yamuna. Certain species of plants like: Poplar tree, Indian Grass, Sunflower, Indian Mustard, Citronella, Canna, Hibiscus, Tulsi and Ashwagandha are proposed to be planted at downstream side of all the drains.

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## 2.5. Observations:

- M/s Layers Enviro & Organics was awarded contract for bio-remediation work in 10 no. of drains in March-2020 & they started dosing in to drains since October-2020, as they reported to inspection team. The operator has not started Phyto-remediation work at present. Copy of award letter issued by ANN to M/s Layers Enviro & Organics is attached as Annexure-2.2.
- M/s Sign-Age (India) Pvt. Ltd was awarded contract for bio-remediation work in 57 no. of drains in August-2020 & they started dosing in to drains since October-2020, as they reported to inspection team. The operator has started construction of check dams on drains and plantation work is yet to begin for phyto-remediation work. Copy of award letter issued by ANN to M/s Sign-Age (India) Pvt. Ltd is attached as Annexure-2.3.
- It was found that these 67 no. drains (Annexure-2.4) were not fully tapped however, some were partially tapped. For bio-remediation, dosing by diluted enzymes through containers and dropping system (containers capacity 100 ltr. – 1000 ltr.) at the selected points of drains were going on. Capacity of enzymes containers was not sufficient at some drains in Trans Yamuna and continuous dropping of enzymes was also not observed at some drains. In some drains enzymes container's tap was not working.
- Non-steady or time-varying flow problems are common at some drains of the residential locations. No flow was observed in 10 small drains, however merging of 04 no. drains and 02 no. drains (separately) were found at Trans Yamuna area during visit. In Foundry Nagar area, 05 drains were found not reaching to Yamuna River. Local farmers were found using waste water of drains for irrigation in agriculture purpose.
- Inspection team felt relatively less smell at downstream side of all the drains in comparison to upstream area, it may be due to action of enzymes dosing.
- No measuring devices were installed in any drains. Containers were placed on top end of selected point and diluted enzymes dosing is being done through taps by dropping and allowed for naturally mixing, however at some points, more drains were found merging at the downstream direction. It may be the possible reason behind the

Dr. A. A.

results of high values at downstream side in comparison to upstream side of the drain (after treatment).

- No screening system was found at any drains, due to this enormous amount of suspended, floating materials were flowing in drains.
- Samples were collected in the presence of agency representative before the dosing point and at the end of 21 no. drains as final outlet point. The analysis was carried out for pH, SS, BOD, COD, Total Nitrogen, Ammonium Nitrogen and Faecal Coliforms at RD-Lucknow laboratory.
- The laboratory results show that discharge effluents of 21 drains are not meeting the General Standard for discharge of Environmental Pollution Part-A: Effluent, for Inland surface water for BOD, COD, TSS, Total Nitrogen, and Ammonium Nitrogen. In some drains reduction in BOD, COD and TSS was observed. However in some drains final results values are higher than the inlet, it happened because in that drains some other drain's effluent are merging just before the final discharge point. Details results with drain list are attached as annexure-2.5 (07 pages) & 2.6.

#### **2.6. Suggestions:**

- The analysis results of drains discharge samples shows that effluent is not meeting the discharge standard norms, so there is need to improve Bio-remediation process and immediately start the phyto-remediation process in all drains to treat the discharge effluent as per norm before discharge to Yamuna River.
- The ANN should ensure that operating agencies are doing work as per agreement to fulfil the discharge effluent norm. At the time of field inspection, some of the drains were found merging to other drain and some of drains were found not reaching to the river Yamuna due to use of their waste water for irrigation purpose by local farmers.
- No constructed check dams were observed on the downstream side of drains during the inspection. This type of bioremediation requires retention time of about 20 -30 hours, therefore may be suitable for drains with low flow or for drains those have check dams to slow down the flow rates and increase the retention time.

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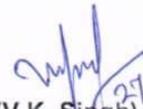
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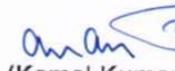
- Dumping of municipal solid waste and presence of suspended objects in drains are common problems need to be screened. Installation of screens at required places in all drain must be done.
- Operating firms have not started phyto-remediation step at present. Plantation at downstream of drains will also help to reduce the suspended objects and pollution load which confluence with river Yamuna. It will also help by removal of organic compounds and nutrients from wastewater through bio-sorption/uptake.
- There is need to install online flow meter or V notch at suitable places on drains and maintenance of record.
- There is need to install organic solution container of sufficient capacity (as per drain flow) with steady flow valve at the site for proper dosing in to the drain as per running flow.
- Online sensors of waste water parameters should be installed at the downstream of important/major flow drains like Mantola drain, Bhairo Nala etc.
- Performance evaluation of the bio-remediation process needs to be done on periodically basis by ANN.
- Appropriate direction may be given to concern agencies for compliance of the norms, as no untreated effluents should go to Yamuna River.

  
(Adarsh Kumār)  
JSA

Central Pollution Control Board,  
Project Office, Agra

  
(V.K. Singh)  
SSA

Central Pollution Control Board,  
Project Office, Agra

  
(Kamal Kumar)  
Scientist-D

Central Pollution Control Board,  
Project Office, Agra

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Annexure -2.1

Sr. No.	Drain name	Appx. Flow (MLD)	Location in Agra	
1	Mantola (Baluganj Drain)	3.222	Ramleela Ground (In front of Agra Qila)	
2	Taj West gate	1.1	Near Jalaal Bukhari Dargaah	
3	Kahiraati Tola	1.352	Near Jal Nigam Pumping station	
4	Peepal mandi	1.3	Near Belan Ganj market	
5	Chhatta	0.3	Near Chhatta Police station	

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6	Transport nagar	1.708	Near Strechy Bridge	
7	Seksariya	0.6	Near Petha House, Yamuna kinara road	
8	Jeevni Mandi	0.05	Jeevni Mandi	
9	Water works	0.6	Near water works premises	
10	Bhairon Drain	0.5	Near Jeevni Mandi	

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11	Khemchand Toffy factory	0.033	Near Jeevni Mandi to waterworks road	
12	Almaree factory	0.04	Near Jeevni Mandi to waterworks road	
13	Krishna Colony	1	Near Jeevni Mandi to waterworks road	
14	Radha Nagar	0.31	Near Balkeshwar road	
15	New Radha Nagar	0.06	Near Balkeshwar road, Balkeshwar road	

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16	Lohia nagar	0.097	Bankebihari ki Bagichi, Balkeshwar road	
17	Lohia nagar-2	0.201	Rathore wali gali, Balkeshwar road	
18	Manoharpur	1.312	Near HP Gas store	
19	Bahadurpur Village	0.037	Near Residential colony Yamuna	

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20	Poiya Ghat-1	0.034	Nagla Talfi	
21	Poiya Ghat-2	0.014	Nagla Talfi	
22	Shambhoonath Junior Highschool	0.015	Yamuna vihar colony, Foundry Nagar	
23	Gokul Nagar Nala	0.387	Foundry Nagar	

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24	Dharwale baba-2	0.003	Near Jaaharveer Temple, Foundry Nagar	
25	Ganesh Nagar	0.239	Foundry Nagar	
26	Dharwale baba-1	0.166	Foundry Nagar	
27	New Radha Nagar	0.045	Foundry Nagar	

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28	Peeli Pokhar	0.189	Peeli Pokhar	
29	Islam nagar	0.494	Peeli Pokhar	
30	Moti Mahal-6	0.001	near Mehtaab Bagh	
31	Moti Mahal-8	0.185	near Mehtaab Bagh	

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32	Moti Mahal-7	0.271	Nagla Devjeet	
33	Moti Mahal-1	0.044	Mehtaab bagh Road	
34	Indira memorial school	0.15	Yamuna bridge nala	
35	Moti Mahal-2	0.051	Mehtaab bagh Road	

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36	Moti Mahal-4	0.129	Mehtaab bagh Road	
37	Moti Mahal-3	0.005	Mehtaab bagh Road	
38	Moti Mahal-5	0.025	Mehtaab bagh Road	
39	Rambagh	0.779	Beneath Jawahar Bridge	

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40	Artoni	0.21	Near National highway-2	
41	Kailash mandir	0.013	Near Sikandra	
42	Wyepur	1.436	Near Sikandra	
43	KK nagar	0.6	Near Akbar tomb	

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44	Gailana	0.242	Service road, By-pass	
45	Kamayani	0.404	By-pass agra	
46	Eklavya Water plant	0.022	Near dayal bagh	
47	Jaswant Ki Chhatri-1	0.029	Near Balkeshwar	
48	Jaswant Ki Chhatri-2	0.016	Near Balkeshwar	

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49	Jaswant Ki Chhatri-3	0.012	Near Balkeshwar	
50	Lohia Nagar Bankebihari Bagichi	0.097	Near Balkeshwar	
51	Balaji Ka makaan wali drain	0.13	Near Balkeshwar	
52	Mau Nala-1	0.113	Near Hindi sansthan raod	

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53	Mau Nala-2	0.575	Near Hindi sansthan raod	
54	Ambedkar park Drain	0.78	Near Jalma	
55	Jaalma Drain	0.52	Near Jalma Institute	
56	Katra wazeer khan-1	0.017	Itmad-daullah rambagh raod	

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57	Katra wazeer khan-2	0.011	Itmad-daullah rambagh raod	
58	Cheeni Roza- 1	1.033	Rambagh-Itmad road	
59	Cheeni Roza- 2	0.031	Rambagh-Itmad road	
60	Gali Atmaram bageechi-1	0.084	Rambagh-Itmad road	
61	Gali Atmaram bageechi-2	0.01	Rambagh-Itmad road	

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62	Gali Subedaar nagar Drain	0.147	Near Itmad-daullah	
63	Shyam lal vidhya mandir	0.138	Near Itmad-daullah	
64	Nursery mandir-1	0.065	Itmad-daullah rambagh raod	
65	Nursery mandir-2	0.008	Itmad-daullah rambagh raod	
66	Dayanand Ashram	0.209	Itmad-daullah rambagh raod	

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67	Belan Ganj	0.600	Near Yamuna kinara road	
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## AGRA NAGAR NIGAM

Phone : 0562-2850670, 2520616  
 Fax : 0562-2850499  
 E-mail : amcagra1@gmail.com

Ref No.: 39/D/SBM/2020

Date: 16.03.2020

To,  
 LAYERS ENVIRO & ORGANICS  
 A-75, SECTOR-15  
 NOIDA-201301

**Sub: Work Order regarding BIO-REMEDIATION CUM PHYTO-REMEDIATION treatment of 10 drains against your Proposal dated 25<sup>th</sup> Feb.2020**

Greetings for the day,

As per quoted proposal & detailed report, and as per sanction of Municipal Commissioner dt. 14.03.2020, we hereby wish to allocate the subject work to you for BIO-REMEDIATION CUM PHYTO-REMEDIATION Treatment of 10 Drains at Taj fort Corridor, Yamuna bank road.

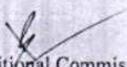
We request you to kindly begin the work sooner and complete it upto 31 March 2020. Kindly submit bills in accordance. The safety of manual laborers engaged by you for this work will be your responsibility.

**Scope of work defined under Treatment:**

- (i) Reduce BOD/COD/TSS level of river/drains.
- (ii) Reduce emission of deadly gases and foul smell, improving air quality and reduce mosquitoes and flies.
- (iii) Improve general health of the people residing along river/drains and contain diseases like malaria, dengue, Chikungunya etc.
- (iv) Civil Construction i/c Construction of check dam & plantation as per proposal.

We look forward to an enriching association in future too.

Regards,

  
 Additional Commissioner  
 Nagar Nigam Agra

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आगरा नगर निगम  
AGRA MUNICIPAL CORPORATION

Ph.No : 0562-2354630/2354646  
Fax No : 0562-2354646  
E-mail : [amcagra@yahoo.co.in](mailto:amcagra@yahoo.co.in)  
[amcagra1@gmail.com](mailto:amcagra1@gmail.com)

### Letter of Award

LOA No:- 114(2)/D/SBM/2020

Date:- 20-08-2020

To:

Sign-Age (India) Pvt.Ltd.  
13 Shikha Apartment,  
I.P. Extension, Patparganj, Delhi-110092

Dear Sir,

This is notify you that your Bid/offer dated 07-08-2020 for execution of the Sign-Age (India) Pvt. Ltd. 13 Shikha Apartment, I.P. Extension, Patparganj, Delhi-110092 for the Contract To Engage firms for Bio-Remediation and Phyto-remediation of 57 drains at different locations with different capacity, around 18.00 MLD waste water, Price of Rupees 77,55,600/- (Seventy Seven Lakh fifty two thousands six hundred rupees only/- + G.S.T as applicable as corrected and modified in accordance with the instructions to Bidders /Offerers (Concessionaire) is hereby accepted by Agra Nagar Nigam .

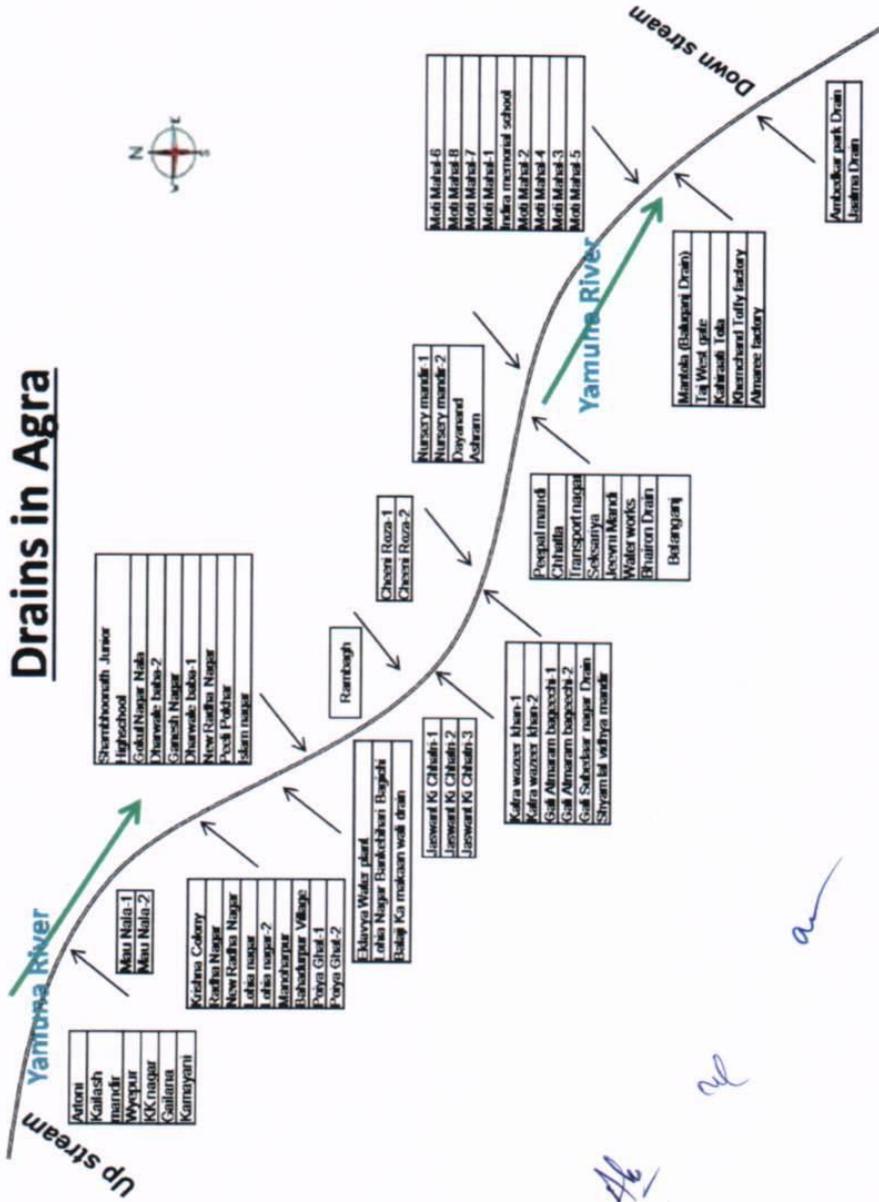
You are requested to furnish the Performance Security for an amount equal to 10% of the contract price in the form and manner as per terms and conditions of the tender documents within 10 days from the date of issue of this LOA. Execute the contract agreement within 7 days from the date of issue of this LOA.

All other terms and conditions shall be binding on you as per the tender document. Please acknowledge receipt.

Yours.

For Agra Nagar Nigam

Additional Municipal Commissioner



Annexure -2.5

केन्द्रीय प्रदूषण नियंत्रण बोर्ड औद्योगिक प्रयोगशाला Central Pollution Control Board Zonal Laboratory	
Doc No. CB/ZLN/OR/7.8/2/1 Amendment no. : 00/05	Issue No. : 01 Amendment Dt: 00
Dt of Issue 08.12.2020	Page No. : 1 of 1
Approved by : TM	Issued by: QM
विक्रम प्रबन , विभूति खण्ड, गोमती नगर, लखनऊ PICUP Bhawan, Vibhuti Khand, Gomtinagar, Lucknow	
फोन : 0522 : 4087600,4087700	Phone : 0522-4087600,4087700
फैक्स : 0522 : 4087602	Fax : 0522 - 4087602

S.No. W/2020/127

WASTEWATER  
TEST REPORT

Date of test report: 23/12/2020		Date/period of testing: 17-23/12/2020										
1	परियोजना /Project/ Test Programme	Drain										
2	नमूने का स्रोत /मूलज /सुरिता /अन्य/Sample Source (STP/ETP/Drain/any other)	Mantola Nala,Taj Mahal West Gate, Khairati Tola										
3	नमूने का प्रकार /ग्रैब/कम्पोजिट/Type of Sample (Grab/Composite)	Grab										
4	नमूने एकत्र करने वाले व्यक्ति का विवरण/ Sample Collected/Deposited by	Sh. A. Ranjan, Project Office, Agra										
5	नमूना एकत्रीकरण की तिथि/Date of Sample collection	15/12/2020										
6	प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory	16/12/2020										
7	नमूना एकत्रण पद्धति/Sampling procedure.....Please Refer.....	CBZLN/SOP/7.32 & CBZLN/SR/7.31 Issue No. 01										
8	विश्लेषण हेतु आदेशनकर्ता/Analysis indented by	Sh. Kamal Kumar, Incharge, P.O., Agra										
क्र. सं. / S. No.	पैरामीटर /Parameter	इकाई /Unit	नमूने का विवरण/कोड प्रस्तावि /Description of sample/Code etc.									
			POA/20/ D/I/01	POA/20/ D/O/01	POA/20/ D/C/01	POA/20/ D/I/02	POA/20/ D/O/02	POA/20/ D/C/02	POA/20/ D/I/03	POA/20/ D/O/03	POA/20/ D/C/03	
1.	पी एच/ pH		7.02 (20.8°C)	7.12 (20.6°C)	---	7.27 (20.5°C)	7.12 (20.6°C)	---	6.90 (20.5°C)	7.53 (20.5°C)	---	
2	तापमान/ Temperature *	*से.°C	19.5	20.5	20.5	20.5	18.7	18.7	19.2	17.8	17.8	
3	एस.एस./ SS	मि.ग्र./ लि. /mg/l	283	143	---	666	539	---	545	63.2	---	
4	कुल नाइट्रोजन /Total Nitrogen	मि.ग्र./ लि. /mg/l	41.4	44.2	---	80.0	84.0	---	46.0	35.2	---	
5	अमोनियम नाइट्रोजन /Ammonium Nitrogen (NH <sub>4</sub> -N)	मि.ग्र./ लि. /mg/l	29.4	33.4	---	63.0	72.7	---	31.8	21.6	---	
6	सी.ओ.डी. /COD	मि.ग्र./ लि. /mg/l	357	323	---	834	830	---	545	76.5	---	
7	बी.ओ.डी. /BOD	मि.ग्र./ लि. /mg/l	211	188	---	359	342	---	354	27.1	---	
8	फीकल कोलीफॉर्म /F-Coliforms	MPPN/100ml	---	---	4.9x10 <sup>1</sup>	---	---	---	1.1x10 <sup>7</sup>	---	4.9x10 <sup>6</sup>	

विश्लेषण विधि हेतु सं.प.स./Test methods followed are appended overleaf

\*Analysed/measured at site by sampling team.

CODE	Description
POA/20/D/I/01	Mantola Nala Drain Inlet
POA/20/D/O/01	Mantola Nala Drain Outlet
POA/20/D/C/01	Mantola Nala Drain Outlet
POA/20/D/I/02	Tajmahal West gate Drain Inlet
POA/20/D/O/02	Tajmahal West gate Drain Outlet
POA/20/D/C/02	Tajmahal West gate Drain Outlet
POA/20/D/I/03	Khairati Tola Drain Inlet
POA/20/D/O/03	Khairati Tola Drain Outlet
POA/20/D/C/03	Khairati Tola Drain Outlet

End of Test Report

(Manju Srivastava) 23/12/2020  
जारीकर्ता बनाने वाले को हस्ताक्षर/ Prepared by (Name & Sign)

(श्री. के. शर्मा)  
अधिकृत हस्ताक्षरकर्ता / Authorized Signatory

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

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केन्द्रीय प्रदूषण नियंत्रण बोर्ड औद्योगिक प्रयोगशाला Central Pollution Control Board Zonal Laboratory	
Doc No. CB/ZLNQR/7.8/2/1	Issue No. : 01
Amendment no. : 00/05	Amendment Dt. 00
Date of Issue : 08.12.2020 Page No. : 1 of 1	
Approved by : TM Issued by: QM	
शिवपुर भवन, विभूति खण्ड, गोमती नगर, लखनऊ PICUP Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow	
फ़ोन : 0522 - 4087600, 4087700 Phone : 0522 - 4087600, 4087700	
फैक्स : 0522 - 4087602 Fax : 0522 - 4087602	

S.No. W/2020/128

**WASTEWATER  
TEST REPORT**

Date of test report: 23/12/2020		Date/period of testing: 17-23/12/2020									
1	परियोजना /Project/ Test Programme	Drain									
2	नमूने का स्रोत /सूत्र/ सारिना /समय/Sample Source (STP/ETP/Drain/any other)	Peepal Mandi, Chhatta, Transport Nagar (Belan Gani)									
3	नमूने का प्रकार /ग्रैब/कम्पोजिट/Type of Sample (Grab/Composite)	Grab									
4	नमूने एकत्र करने वाले व्यक्ति का विवरण/ Sample Collected/Deposited by	Sh. A. Ranjan, Project Office, Agra									
5	नमूना एकत्रीकरण की तिथि/Date of Sample collection	15/12/2020									
6	प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory	16/12/2020									
7	नमूना एकत्रण पद्धति/Sampling procedure..... Please Refer.....	CB/ZLN/SOP/7.1/1 & CB/ZLNQR/7.1/1 Issue No. 01									
8	निरीक्षण हेतु आदेशकर्ता/Analysis intended by	Sh. Kamal Kumar, Incharge, P.O., Agra									
क्र. सं. / S. No.	पैरामीटर /Parameter	इकाई /Unit	नमूने का विवरण/कोड /विवरण /Description of sample/Code etc.								
			POA/20/D/1/04	POA/20/D/3/04	POA/20/D/C/04	POA/20/D/1/05	POA/20/D/O/05	POA/20/D/C/05	POA/20/D/4/06	POA/20/D/O/06	POA/20/D/C/06
1	पी एच: pH		6.78 (20.6°C)	6.95 (20.6°C)	---	7.12 (20.7°C)	6.99 (20.7°C)	---	6.98 (20.9°C)	6.90 (21.2°C)	---
2	तापमान: Temperature *	°C	20.3	20.3	20.3	19.8	19.9	19.9	19.2	22.4	22.4
3	एस एस / SS	mg/L	293	254	---	226	479	---	1876	273	---
4	कुल नाइट्रोजन: Total Nitrogen	mg/L	64.8	32.3	---	15.1	10.6	---	6.16	7.28	---
5	अमोनियम नाइट्रोजन: Ammonium Nitrogen (NH <sub>4</sub> -N)	mg/L	8.40	8.32	---	12.9	7.08	---	3.83	4.40	---
6	सी.ओ.डी. /COD	mg/L	251	305	---	179	750	---	231	147	---
7	बी.ओ.डी. /BOD	mg/L	95.8	161	---	83.2	279	---	96.5	69.3	---
8	फ़िलम फॉर्मिंग /F.Coliforms	MPN/100ml	---	---	4.5x10 <sup>3</sup>	---	---	3.3x10 <sup>3</sup>	---	---	1.3x10 <sup>2</sup>

\*विश्लेषण के लिए अनुसंधान/ Test methods followed are appended overleaf

\*Analysed/measured at site by sampling team.

CODE	Description
POA/20/D/1/04	Peepal Mandi Drain Inlet
POA/20/D/3/04	Peepal Mandi Drain Outlet
POA/20/D/C/04	Peepal Mandi Drain Outlet
POA/20/D/1/05	Chatta Drain Inlet
POA/20/D/O/05	Chatta Drain Outlet
POA/20/D/C/05	Chatta Drain Outlet
POA/20/D/1/06	Transport Nagar (Belan Ganj) Inlet
POA/20/D/O/06	Transport Nagar (Belan Ganj) Outlet
POA/20/D/C/06	Transport Nagar (Belan Ganj) Outlet

End of Test Report

(Manju Srivastava)  
Prepared by (Name & Sign)

Authorized Signatory

केन्द्रीय प्रदूषण नियंत्रण बोर्ड अंचलिक प्रयोगशाला		Central Pollution Control Board Zonal Laboratory	
Doc No. CBZLN/QR/7.8/2/1	Issue No. : 01	D. of Issue : 04.12.2020	Page No. : 1 of 1
Amendment no. : 00/05	Amendment Et. : 00	Approved by : TM	Issued by: QM
पिकम भवन, विभूति खण्ड, गौरीती नगर, लखनऊ		PICUP Bhawan, Vibhuti Khand, Confinager, Lucknow	
फोन : 0522 : 4087600-4087700		Phone : 0522- 4087600,4087700	
फैक्स : 0522 : 4087602		Fax : 0522 - 4087602	

**WASTEWATER  
TEST REPORT**

S.No. W/2020/129

Date of test report: 23/12/2020	Date/period of testing: 17-23/12/2020
1. परियोजना /Project/Test Programme	Drain
2. नमूने का स्रोत /सूत्र /संग्रहण /स-4/Sample Source (STP/ETP/Drain/any other)	Sakseriya/InerCollege),Jeevni Mandi, Water Works
3. नमूने का प्रकार /घटक/कम्पोजिट/Type of Sample (Grab/Composite)	Grab
4. नमूने एकत्र करने वाले व्यक्ति का विवरण /Sample Collected/Deposited by	Sh. A Ranjan, Project Office, Agra
5. नमूना एकत्रीकरण की तिथि/Date of Sample collection	15/12/2020
6. प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory	16/12/2020
7. नमूना एकत्रण पद्धति/Sampling procedure..... Please Refer.....	CBZLN/SOP/33 & CBZLN/QR/7.8/1 Issue No. 01
8. विश्लेषण हेतु आवेदनकर्ता/Analysis indicated by	Sh. Kamal Kumar, Incharge, P.O., Agra

क्र. सं. S. No.	पैरामीटर Parameter	इकाई Unit	नमूने का विवरण/नोट/व्याप्ति Description of sample/Code etc.									
			POA/20/D/07	POA/20/D/07	POA/20/D/07	POA/20/D/08	POA/20/D/08	POA/20/D/08	POA/20/D/09	POA/20/D/09	POA/20/D/09	POA/20/D/09
1.	pH		6.59 (20.8°C)	6.88 (20.8°C)	---	7.11 (20.7°C)	7.05 (20.8°C)	---	7.12 (20.8°C)	5.88 (23.9°C)	---	
2.	तापमान Temperature *	°C	20.3	20.5	20.5	20.5	19.5	19.5	20.2	19.5	19.6	
3.	एस.एस. SS	मि.ग्र./लि. mg/l	269	293	---	310	123	---	150	220	---	
4.	कुल नाइट्रोजन Total Nitrogen	मि.ग्र./लि. mg/l	13.4	11.8	---	46.5	44.2	---	29.2	21.2	---	
5.	अमोनिया नाइट्रोजन Ammonium Nitrogen (NH <sub>4</sub> -N)	मि.ग्र./लि. mg/l	10.3	5.49	---	37.4	33.8	---	17.7	12.0	---	
6.	सी.ओ.डी /COD	मि.ग्र./लि. mg/l	258	254	---	114	206	---	172	306	---	
7.	बी.ओ.डी /BOD	मि.ग्र./लि. mg/l	163	157	---	225	153	---	91.7	125	---	
8.	फिकल कॉलोनीफॉर्म/ F-coliforms	MPN/100ml	---	---	4.9x10 <sup>7</sup>	---	---	7.9x10 <sup>7</sup>	---	---	4.6x10 <sup>7</sup>	

विश्लेषण के लिए शुद्ध वायु प्रयोग किया गया। Test methods followed are appended overleaf

\* Analysed/measured at site by sampling team.

CODE	Description
POA/20/D/07	Sakseriya Drain Inlet
POA/20/D/07	Sakseriya Drain Outlet
POA/20/D/07	Sakseriya Drain Outlet
POA/20/D/08	Jeevni Mandi Drain Inlet
POA/20/D/08	Jeevni Mandi Drain Outlet
POA/20/D/08	Jeevni Mandi Drain Outlet
POA/20/D/09	Water Works Drain Inlet
POA/20/D/09	Water Works Drain Outlet
POA/20/D/09	Water Works Drain Outlet

End of Test Report

(Munju Srivastava) 23/12/2020

*(Signature)*  
23/12/2020  
(श्री. के. कश्यप)  
अधिकृत, एन. एन. ए. प्रयोगशाला  
एन. एन. ए. प्रयोगशाला

अधिकृत, एन. एन. ए. प्रयोगशाला  
Authorized Signatory

Note 1. The results in the Test Report relate only to the items tested.

Note 2. The report shall not be considered valid unless it is countersigned by the authorized signatory of the laboratory.

*(Handwritten initials)* 45

केन्द्रीय प्रदूषण नियंत्रण बोर्ड औद्योगिक प्रयोगशाला Central Pollution Control Board Zonal Laboratory	
Doc No. CBZLN/QR/7.8/2/1 Amendment no. 00/05	Issue No. : 01 Amendment Dt. 00
Di of Issue : 18.12.2020 Approved by: TM	Page No. : 1 of 1 Issued by: QM
रिक्त भवन, विभूति खण्ड, गोमती नगर, लखनऊ PICLP Bhawan, Vibhuti Khand, Guntinagar, Lucknow	
फोन : 0522 - 4087600, 4087700 फैक्स : 0522 - 4087602 Phone : 0522- 4087600,4087700 Fax : 0522 - 4087602	

S.No. W/2020/130

WASTEWATER  
LESL REPORT

Date of test report: 23/12/2020	Date/period of testing: 17-23/12/2020
1. परियोजना /Project Test Programme	Drain
2. नमूने का स्रोत /सूत्रण /स्त्रिना /अव्यय/Sample Source (SIP/ETP/Drain/any other)	Bharon Nala, Khem Chand Toffy Factory (near Krishna Nagar), Almari Factory (near Krishna Factory)
3. नमूने का प्रकार /विद्य/कम्पोजिट/Type of Sample (Grab/Composite)	Grab
4. नमूने एकत्र करने वाले व्यक्ति का विवरण/ Sample Collected/Deposited by	Sh. A. Ranjan, Project Office, Agra
5. नमूना एकत्रीकरण की तिथि/Date of Sample collection	15/12/2020
6. प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory	16/12/2020
7. नमूना एकत्रण पद्धति/Sampling procedure.....Please Refer.....	CBZLN/SOP/7.8/2 & CBZLN/SOP/7.8/1 Issue No. 01
8. विश्लेषण हेतु आवेदनकर्ता/Analysis indentified by:	Sh. Kamal Kumar, Incharge, P.O., Agra

क्र. सं. S. No.	पैरामीटर Parameter	इकाई Unit	नमूने का विवरण/सूत्रण Description of sample/Code etc.								
			POA/20/D/1/010	POA/20/D/0/010	POA/20/D/C/010	POA/20/D/1/11	POA/20/D/0/11	POA/20/D/C/11	POA/20/D/1/12	POA/20/D/0/12	POA/20/D/C/12
1.	पि. एच./pH		7.07 (21.1°C)	7.08 (21.0°C)	---	6.64 (20.7°C)	6.85 (20.8°C)	---	7.7 (20.7°C)	6.71 (20.8°C)	---
2.	तापमान/ Temperature	°C	20.3	20.3	20.3	19.3	19.3	19.3	19.3	19.3	19.3
3.	एस.एस./SS	mg/l	215	211	---	417	1634	---	389	895	---
4.	कुल नाइट्रोजन Total Nitrogen	mg/l	25.7	22.9	---	34.7	23.5	---	20.7	13.0	---
5.	अमोनियम नाइट्रोजन Ammonium Nitrogen (NH <sub>4</sub> -N)	mg/l	18.4	14.5	---	20.6	16.6	---	11.2	8.09	---
6.	सी.ओ.डी. /C.O.D	mg/l	306	433	---	633	604	---	366	709	---
7.	बी.ओ.डी. /B.O.D	mg/l	140	161	---	293	266	---	182	393	---
8.	फोकल कॉलॉनीफॉर्म F-Coliform	MPN/100ml	---	---	1.3x10 <sup>3</sup>	---	---	3.3x10 <sup>3</sup>	---	---	1.1x10 <sup>3</sup>

विश्लेषण हेतु प्रयुक्त विधियाँ/ Test methods followed are appended overleaf

\*Analysed/measured at site by sampling team:

CODE	Description
POA/20/D/1/010	Bharon Nala Inlet
POA/20/D/0/010	Bharon Nala Outlet
POA/20/D/C/010	Bharon Nala Outlet
POA/20/D/1/11	Khem Chand Toffy Factory Drain Inlet
POA/20/D/0/11	Khem Chand Toffy Factory Drain Outlet
POA/20/D/C/11	Khem Chand Toffy Factory Drain Outlet
POA/20/D/1/12	Almari Factory Drain Inlet
POA/20/D/0/12	Almari Factory Drain Outlet
POA/20/D/C/12	Almari Factory Drain Outlet

End of Test Report

(Manju Srivastava) 23/12/2020  
आख्या बनाने वाले के हस्ताक्षर/ Prepared by (Name & Sign)

(श्री. के. सदान)  
अधिकृत-ई. एवं प्रमो. प्रयोगशाला  
क. प्र. नि. बोर्ड, लखनऊ  
अधिकृत हस्ताक्षरकर्ता/ Authorized Signatory

Note: The results in the Test Report are valid only for the purpose mentioned.

Handwritten signatures and initials.

केन्द्रीय प्रदूषण नियंत्रण बोर्ड औद्योगिक प्रयोगशाला		Central Pollution Control Board Zonal Laboratory	
Doc No. CB/ZLN/QR/7.8.2/1	Issue No. : 01	Dt of Issue : 08.12.2020	Page No. : 1 of 1
Amendment no. : 00/05	Amendment Dt: 00	Approved by : TM	Issued by: QM
पिबप भवन, विभूति कण्ड, गोमती नगर, लखनऊ फोन : 0522 - 4007600, 4007700 फैक्स : 0522 - 4087602		PICUP Bhawan, Vibhuti Khand, Gomatinar, Lucknow Phone : 0522-4087600,4087700 Fax : 0522 - 4087602	

**WASTEWATER  
TEST REPORT**

S.No. W/2020/131

Date of tes. report: 23/12/2020		Date/period of testing: 17-23/12/2020	
1 परियोजना /Project / Test Programme Drain			
2 नमूने का स्रोत /सूत्र /निरता /अव्य/Sample Source (SIPE/TP/Drain/are other)		Krishna Colony, Radha Nagar (Bal Keshwar Road), New Radha Nagar (Bal Keshwar)	
3 नमूने का प्रकार /शैव/कम्पोजिट/Type of Sample (Grab/Composite) Grab			
4 नमूने एकत्र करने वाले व्यक्ति का विवरण/ Sample Collected/Deposited by		Sh. A Ranjan, Project Office, Agra	
5 नमूना एकत्रीकरण की तिथि/Date of Sample collection		15/12/2020	
6 प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory		16/12/2020	
7 नमूना एकत्रण पद्धति/Sampling procedure.....Please Refer.....		CB/ZLN/SIP/7.8.2 & CB/ZLN/QR/3/Issue No. 01	
8 विश्लेषण हेतु आवेदनकर्ता/Analysis intended by		Sh. Kamal Kumar, Incharge, P.O., Agra	

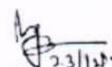
क्र. सं. S. No.	पैरामीटर Parameter	एकक Unit	नमूने का विवरण/Code description of sample/Code etc.								
			POA/20/D/O/13	POA/20/D/O/13	POA/20/D/C/13	POA/20/D/O/14	POA/20/D/O/14	POA/20/D/C/14	POA/20/D/O/15	POA/20/D/O/15	POA/20/D/C/15
1	पी एच/ pH		6.93 (20.9°C)	6.83 (20.8°C)	---	6.96 (20.8°C)	6.72 (21.5°C)	---	7.35 (20.7°C)	7.31 (20.8°C)	---
2	तापमान/ Temperature *	°क.°	19.6	19.8	19.8	19.8	19.6	19.6	19.7	19.6	19.6
3	एस.एस./ SS	मि.ग./ लि.	428	732	---	389	364	---	1151	318	---
4	कुल नाइट्रोजन/ Total Nitrogen	मि.ग./ लि.	17.9	19.6	---	15.6	19.1	---	54.9	31.4	---
5	अमोनियम नाइट्रोजन/ Ammonium Nitrogen (NH <sub>4</sub> -N)	मि.ग./ लि.	12.2	12.9	---	8.40	14.2	---	29.1	19.8	---
6	सी.ओ.डी. / COD	मि.ग./ लि.	451	806	---	266	674	---	631	416	---
7	बी.ओ.डी. / BOD	मि.ग./ लि.	205	424	---	136	102	---	379	258	---
8	सूक्ष्मजीव/ F-Coliforms	MPN/100ml	---	---	1.7x10 <sup>3</sup>	---	---	7.9x10 <sup>3</sup>	---	---	7x10 <sup>3</sup>

*विश्लेषण हेतु प्रयुक्त पद्धतियाँ/ Test methods followed are appended overleaf*

\* Analysed/measured at site by sampling team.

CODE	Description
POA/20/D/I/13	Krishna Colony Drain Inlet
POA/20/D/O/13	Krishna Colony Drain Outlet
POA/20/D/C/13	Krishna Colony Drain Outlet
POA/20/D/I/14	Radha Nagar Drain Inlet
POA/20/D/O/14	Radha Nagar Drain Outlet
POA/20/D/C/14	Radha Nagar Drain Outlet
POA/20/D/I/15	New Radha Nagar Drain Inlet
POA/20/D/O/15	New Radha Nagar Drain Outlet
POA/20/D/C/15	New Radha Nagar Drain Outlet

End of Test Report

  
(Manju Srivastava)

अनुसंधान करने वाले को हस्ताक्षर: Prepared by (Nairu & Singh)

  
(श्री. के. शर्मा)  
अधिकारी एवं प्रमुख प्रयोगशाला  
के. पी. नि. बोर्ड, लखनऊ

अधिकृत हस्ताक्षरकर्ता/ Authorized Signatory

*Handwritten signatures and initials*

केन्द्रीय प्रदूषण नियंत्रण बोर्ड आंचलिक प्रयोगशाला		Central Pollution Control Board Zonal Laboratory	
Doc No. CB/ZLNQR.7.8.2/1	Issue No. 01	Date of Issue : 08.12.2020	Page No. : 1 of 1
Amendment no. : 00/05	Amendment Dt: 00	Approved by : TM	Issued by: QM
विकास भवन, विभूति बघड, मोमती नगर, लखनऊ		FICHP Bhawna, Vibhati Khand, Gontinagar, Lucknow	
फ़ोन : 0522 : 4087600,4087700		Phone : 0522 - 4087600,4087700	
फैक्स : 0522 : 4387602		Fax : 0522 - 4087602	

**WASTEWATER  
IISL REPORT**

S.No. W/2020/132

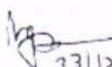
Date of test report: 23/12/2020		Date/period of testing: 17-23/12/2020									
1	परियोजना /Project/Test Programme	Drain									
2	नमूने का स्रोत /Source (STP/ETP/Drain/any other)	Lohiya Nagar (Bal Keshwar), Lohiya Naga: (Rathor Wali Gali Balkeshwar), Manoharpur									
3	नमूने का प्रकार /Type/कम्पोजिट/Type of Sample (Grab/Composite)	Grab									
4	नमूने एकत्र करने वाले व्यक्ति का विवरण / Sample Collected/Deposited by	Sh. A. Ranjan, Project Office, Agra									
5	नमूना एकत्रीकरण की तिथि/Date of Sample collection	15/12/2020									
6	प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory	16/12/2020									
7	नमूना एकत्रण पद्धति/Sampling procedure ..... Please Refer.....	CB/ZLN/SOP/7.32 & CB/ZLNQR.7.3/1/Issue No. 01									
8	विश्लेषण हेतु आवेदनकृत/Analysis indentified by	Sh. Kamal Kumar, Incharge, P.O., Agra									
क्र. सं. / S. No.	पारामीटर /Parameter	इकाई /Unit	नमूने का विवरण/कोड इत्यादि /Description of sample/Code etc.								
			POA/20/D/I/16	POA/20/D/O/16	POA/20/D/C/16	POA/20/D/I/17	POA/20/D/O/17	POA/20/D/C/17	POA/20/D/O/18	POA/20/D/O/18	POA/20/D/C/18
1	पी एच/pH		7.45 (7.0-6°C)	7.25 (20.7°C)	---	7.03 (21.0°C)	7.05 (21.0°C)	---	7.12 (20.9°C)	7.11 (20.8°C)	---
2	तापमान/ Temperature *	°C	26.1	20.6	20.6	19.2	19.4	19.4	18.8	18.9	18.9
3	एस.एस./SS	मिली.ग्र./ml	175	239	---	429	177	---	55.1	63.6	---
4	कुल नाइट्रोजन/ Total Nitrogen	मिली.ग्र./ml	24.0	21.8	---	24.6	19.6	---	13.4	19.0	---
5	अमोनियम नाइट्रोजन/ Ammonium Nitrogen (NH <sub>4</sub> -N)	मिली.ग्र./ml	14.1	11.7	---	3.5	11.9	---	7.16	8.64	---
6	सी.ओ.डी. /COD	मिली.ग्र./ml	229	266	---	360	350	---	146	222	---
7	बी.ओ.डी. /BOD	मिली.ग्र./ml	138	142	---	168	151	---	83.0	108	---
8	जीवाणु जीवीकोर्म/ E.C. Coliforms	MPN/100ml	---	---	1.3x10 <sup>5</sup>	---	---	2.2x10 <sup>8</sup>	---	---	1.3x10 <sup>5</sup>

विश्लेषण हेतु हेतु कृत्य... Test methods followed are appended over/leaf

\*Analysed/measured at site by sampling team.

CODE	Description
POA/20/D/I/16	Lohiya Nagar Drain Inlet
POA/20/D/O/16	Lohiya Nagar Drain Outlet
POA/20/D/C/16	Lohiya Nagar Drain Outlet
POA/20/D/I/17	Lohiya Nagar Drain Inlet
POA/20/D/O/17	Lohiya Nagar Drain Outlet
POA/20/D/C/17	Lohiya Nagar Drain Outlet
POA/20/D/I/18	Manoharpur Drain Inlet
POA/20/D/O/18	Manoharpur Drain Outlet
POA/20/D/C/18	Manoharpur Drain Outlet

End of Test Report

  
(Manu Sivastava)  
23/12/2020

  
(Kamal Kumar)  
23/12/2020  
अधिकृत हस्ताक्षरकर्ता/ Authorized Signatory

आवश्यक बचाने वाले को हस्ताक्षर/ Prepared by (Name & Sign)  
Note: 1. The results in this Test Report shall only be valid if the

अधिकृत हस्ताक्षरकर्ता/ Authorized Signatory

केन्द्रीय प्रदूषण नियंत्रण बोर्ड औचलिक प्रयोगशाला		Central Pollution Control Board Zonal Laboratory	
Doc No. CB-ZLN/QR/7.8/2/1	Issue No. : 01	Dt of Issue : 08.12.2020	Page No. : 1 of 1
Amendment no. : 00/05	Amendment Dt: 00	Approved by : TM	Issued by: QM

पिका भवन, विभूति खण्ड, गोमती नगर, लखनऊ  
 फोन : 0522 : 4087600,4087700  
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**WASTEWATER  
 TEST REPORT**

S.No. W/2020/133

Date of test report: 23/12/2020	Date/period of testing: 17-23/12/2020
1 परियोजना /Project/Test Programme	Drain
2 नमूने का स्रोत /सूत्र/समिति /अवस्था/Sample Source (STP/ETP/Drain/any other)	Bahadurpur village, Poiya Ghat (Nagla Talfi), Poiya Ghat Nala-2 (Nagla Talfi)
3 नमूने का प्रकार /ग्रैब/कम्पोजिट/Type of Sample (Grab/Composite)	Grab
4 नमूने एकत्र करने वाले व्यक्ति का विवरण/ Sample Collected/Deposited by	Sh. A. Ranjan, Project Office, Agra
5 नमूना एकत्रीकरण की तिथि/Date of Sample collection	15/12/2020
6 प्रयोगशाला में नमूना प्राप्ति की तिथि/Date of sample receipt in laboratory	16/12/2020
7 नमूना एकत्रण पद्धति/Sampling procedure.....Please Refer.....	CBZLN/SO/17.32 & CBZLN/QR/7.8 Issue No.01
8 विश्लेषण हेतु आवेदनकर्ता/Analysis indented by	Sh. Kamal Kumar, Incharge, P.O. Agra

क्र. सं. S. No.	पैरामीटर Parameter	इकाई Unit	नमूनों का विवरण/कोड द्वारा/ Description of sample/Code etc.									
			POA/20/D/I/19	POA/20/D/O/19	POA/20/D/C/19	POA/20/D/I/20	POA/20/D/O/20	POA/20/D/C/20	POA/20/D/I/21	POA/20/D/O/21	POA/20/D/C/21	
1	पी एच/ pH		7.62 (20.9°C)	7.50 (21.1°C)	---	7.70 (21.0°C)	7.65 (21.0°C)	---	7.72 (21.0°C)	7.53 (21.1°C)	---	
2	तापमान/ Temperature *	°C	18.9	18.7	18.7	18.7	18.6	18.6	18.3	18.3	18.3	
3	एम.एस./ SS	mg/l	276	156	---	235	107	---	271	159	---	
4	कुल नाइट्रोजन/ Total Nitrogen	mg/l	80.0	56.0	---	54.3	52.0	---	82.9	54.3	---	
5	अमोनियम नाइट्रोजन/ Ammonium Nitrogen (NH <sub>4</sub> -N)	mg/l	54.8	31.7	---	25.1	22.6	---	64.1	26.8	---	
6	सी.ओ.डी. /COD	mg/l	317	301	---	343	289	---	228	230	---	
7	बी.ओ.डी. /BOD	mg/l	152	131	---	168	96.0	---	130	122	---	
8	फीकल कॉलोनीफॉर्म/ F-C.ohiforms	MPN/100ml	---	---	4.9x10 <sup>4</sup>	---	---	7.9x10 <sup>4</sup>	---	---	1.1x10 <sup>4</sup>	

विश्लेषण विधि हेतु उप.प.स. Test methods followed are appended overleaf

CODE	Description
POA/20/D/I/19	Bahadurpur Village Drain Inlet
POA/20/D/O/19	Bahadurpur Village Drain Outlet
POA/20/D/C/19	Bahadurpur Village Drain Outlet
POA/20/D/I/20	Poiya ghat Drain Inlet
POA/20/D/O/20	Poiya ghat Drain Outlet
POA/20/D/C/20	Poiya ghat Drain Outlet
POA/20/D/I/21	Poiya ghat Nala 2 Inlet
POA/20/D/O/21	Poiya ghat Nala-2 Outlet
POA/20/D/C/21	Poiya ghat Nala-2 Outlet

\*Analysed/measured at site by sampling team.

End of Test Report

(Manju Srivastava)  
 23/12/2020

(श्री. के. कुमार)  
 23/12/2020  
 प्रमुख-ई, एन प्रमोटी प्रयोगशाला  
 के. प्र. वि. बोर्ड, लखनऊ

आख्या बनाने वाले को हस्ताक्षर/ Prepared by (Name & Sign)

अधिकृत हस्ताक्षरकर्ता/ Authorized Signatory

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

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Annexure -2.6

**Table-1: Results of outlet of 21 no. drains**

Sl. No	Parameter	Unit	Mantola Drain Outlet	Tajmahal west gate drain outlet	Khairatitol a drain outlet	Peepalm andi drain outlet	Chhatta drain outlet	Transport nagar drain outlet	Sakseriya drain outlet	Jeevnim andi drain outlet	Waterworks drain outlet	Bhairon drain outlet	Effluent discharge standards
1	pH		7.12 (20.6 °C)	7.12 (20.6 °C)	7.53 (20.5 °C)	7.08 (21.0 °C)	6.85 (20.8 °C)	6.71 (20.8 °C)	6.88 (20.8 °C)	7.09 (20.8 °C)	6.88 (20.9 °C)	6.83 (20.8 °C)	5.5 – 9.0
2	SS	mg/l	143	539	63.2	211	1634	895	293	123	220	732	100
3	Total Nitrogen	mg/l	44.2	84	35.2	22.9	23.5	13	11.8	44.2	21.2	19.6	100
4	Ammonium Nitrogen	mg/l	33.4	72.7	21.6	14.5	16.6	8.09	9.49	33.8	12	12.9	50
5	COD	mg/l	323	830	76.5	433	604	709	254	206	306	806	250
6	BOD	mg/l	188	342	27.1	161	266	393	157	133	125	424	30
7	F Colliforms	MPN/100ml	4.9x10 <sup>7</sup>	1.1x10 <sup>7</sup>	4.9x10 <sup>6</sup>	1.3x10 <sup>8</sup>	3.3x10 <sup>7</sup>	1.1x10 <sup>8</sup>	4.9x10 <sup>7</sup>	7.9x10 <sup>7</sup>	4.6x10 <sup>7</sup>	1.7x10 <sup>8</sup>	--
	Compliance status as per std.		Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	

*Ab re a*

Cont....

Sl. No.	Parameter	Unit	Table-2: Results of outlet of 21 no. drains										Effluent discharge standards	
			Khemch and toffy factory drain outlet	Almari factory drain outlet	Krishna colony drain outlet	Radha nagar drain outlet	New Radha nagar drain outlet	Lohiya nagar drain outlet	Lohiya nagar (rather wall gali) drain outlet	Manoha rpur drain outlet	Bahadur pur village drain outlet	Poiya ghat drain outlet		Poiya ghat -2 drain outlet
1	pH		6.72 (21.5°C)	7.31 (20.8 °C)	6.95 (20.6°C)	6.99 (20.7°C)	6.90 (21.2°C)	7.25 (20.7°C)	7.05 (21.0°C)	7.11 (20.8°C)	7.50 (21.1 °C)	7.65 (21.0°C)	7.53 (21.1 °C)	5.5 – 9.0
2	SS	mg/l	264	318	254	479	273	239	177	63.6	156	107	159	100
3	Total Nitrogen	mg/l	29.1	31.4	32.3	10.6	7.28	21.8	19.6	19	56	52	54.3	100
4	Ammonium Nitrogen	mg/l	14.2	19.8	8.32	7.08	4.4	11.7	11.9	8.64	31.7	22.6	26.8	50
5	COD	mg/l	674	416	305	750	147	260	350	222	301	289	230	250
6	BOD	mg/l	302	258	161	279	69.3	142	151	108	131	96	122	30
7	F Coliforms	MPN/100ml	7.9x107	1.7x108	4.5x105	3.3x107	1.3x106	1.3x108	2.2x108	1.3x108	4.9x107	7.9x107	1.1x107	--
	Compliance status as per std.		Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	Not meeting	

*Handwritten signatures and initials in blue ink.*

Item Nos. 02 &amp; 03

Court No. 1

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

(By Video Conferencing)

Original Application No. 306/2016

(With report dated 05.08.2020)

Social Action for Forest  
and Environment (SAFE)

Applicant(s)

Versus

Union of India & Ors.  
(Earlier titled as D.K. Joshi Vs. Union of India & Ors.)

Respondent(s)

**AND**

M.A. No. 380/2017 (I.A. No. 8/2007)

IN

W.P. (C) No. 426/1992

(Received on transfer from the Hon'ble Supreme Court)

D. K. Joshi

Applicant(s)

Versus

Chief Secretary of U.P &amp; Ors.

Respondent(s)

Date of hearing: 10.08.2020

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

Applicant(s): Ms. Meera Gopal, Advocate

Respondent(s): Ms. Priyanka Swami, Advocate for State of UP  
Mr. Pradeep Misra and Mr. Daleep Dhyani, Advocate for UPPCB  
Mr. Rajkumar, Advocate for CPCB.**ORDER**

E-520450-VA

1. This order is being passed in continuation of order dated 02.03.2020. The issue for consideration is compliance of Solid Waste Management Rules, 2016, Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 and Bio-medical Waste Management Rules, 2016 in the city of Agra as well as the areas coming under the Cantonment Board, Agra and eco-sensitive zone of Taj Trapezium Zone.

2. The matter was last considered on 02.03.2020 in the light of earlier proceedings and status report filed by State of U.P. on 23.10.2019. The Tribunal noted that there were deficiencies in taking steps for dealing with solid and liquid waste resulting in continuing damage to the environment and public health. Reference was made to earlier orders including order passed on 10.01.2020, in the presence of the Chief Secretary, UP, laying down specific timelines and providing consequences for failure to take necessary steps in the matter.

3. Accordingly, further status report has been filed by the Nagar Nigam, Agra and the Department of Urban Development, UP. However, in view of the report filed by the Oversight Committee constituted by this Tribunal<sup>1</sup> on 05.08.2020, it will be suffice to refer to the same. The Oversight Committee has referred to interaction with the concerned State Authorities and noted the key areas requiring immediate attention as follows:

- Complete implementation of ward wise action plan.
- Starting up of Waste to Energy Plant (500 TPD).

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<sup>1</sup> Constituted by this Tribunal in terms of order dated 24.10.2019 in O.A. No. 670/2018, *Atul Singh Chouhan v. MoEF&CC*

- Remediation of legacy waste at Kuberpur dumpsite
- Phytoremediation of 57 drains.

4. The Committee noted that one of the perceived difficulties in taking prompt action was order of the Hon'ble Supreme Court in *W.P. No. 13381 of 1984, MC Mehta v. UOI & Ors.* placing moratorium on expansion and setting up of new industry with a view to control air pollution by Taj Trapezium Zone Area ('TTZA'). Even though the Hon'ble Supreme Court, vide order dated 06.12.2019, made it clear that projects for essential amenities should go ahead, the State of UP lack clarity and applied for further clarification which was unnecessary and was resulting in avoidable delay.

5. We are in agreement with the approach of the Oversight Committee. The order of the Hon'ble Supreme Court dated 06.12.2019<sup>2</sup> is absolutely clear that Environmental Clearance ('EC') can be granted within TTZ for securing basic living conditions of TTZ's residents which clearly include drinking water supply, sewerage treatment plant, drainage system, solid waste disposal, Common Effluent Treatment Plant, Bio Medical Waste Treatment Facility, and Waste to Energy Plants etc. The order is reproduced below for ready reference :-

***"6. Learned Counsel for Uttar Pradesh thus submits that in view of compliance of the 'conditional' status quo order, the State Government and other statutory authorities may now be permitted to grant environmental clearances which are necessary for providing essential public facilities including drinking water supply, sewerage treatment plant, drainage system, solid waste disposal, Common Effluent Treatment Plant, Bio Medical Waste Treatment Facility, and Waste to Energy Plants etc.***

***7. In light of the aforementioned amenities being crucial for securing basic living conditions of TTZ's residents, we are of the opinion***

<sup>2</sup> I.A. No. 103908/2019 in *W.P. No. 13381 of 1984 in MC Mehta v. UOI & Ors.*

**that there need not be any impediment for granting necessary clearances for the same. We are conscious of the fact that citizens have a fundamental right to such essential amenities; and how counter intuitively, not allowing construction of such basic infrastructure can itself create new polluting waste and threaten the environment.**

8. As regards permission for establishing non-polluting industrial units, it appears to us that only those small, micro and macro level industries which are both non-polluting and eco-friendly and which have necessary clearances from all statutory authorities as well as concurrence of the Central Empowerment Committee and NEERI, can be setup within the notified industrial area.

9. We, thus, clarify that since the interim order dated 22nd March 2018 directing maintenance of status quo was passed to ensure timely submission of the Vision Plan by the State of U.P. and the said direction already stands complied with, **there shall be no impediment for the authorities to consider pending environmental clearances which are necessary to secure essential amenities within TTZ.** Simultaneously, the State and other statutory authorities are free to consider requests for relocating eco-friendly non-polluting industrial units, subject to them meticulously complying with environmental laws and all norms/conditions.”

6. In view of above clear orders of the Hon'ble Supreme Court, the authorities may expeditiously take further action in the matter.

7. We note that as far as legacy waste remediation is concerned, about the 50% thereof has already been remediated and the remaining is likely to be completed by December, 2020. Let leachate treatment also be taken care of.

8. Summary of compliance status and recommendations of the Committee are reproduced below:-

**“Summary of the Compliance Status in O.A. No. 306/2016**

<b>S. No.</b>	<b>Directions by Hon'ble NGT</b>	<b>Compliance Status (yes/No)</b>	<b>Reasons for non-compliance</b>
1.	Status of installation of the Screens to prevent dumping of	Yes	All the drains falling directly into river Yamuna have screens installed. Regular cleaning arrangements made.

	solid waste into the River Yamuna along with the arrangements for regular collection of waste		
2.	Status of ward wise action plan with regards to Treatment capacity of Solid waste	Partially complied	A detailed action plan for each ward was prepared comprising of micro level planning for comprehensive solid waste management in the city, which includes 100% door to door collection and transportation along with the route/ Map dedicated for the designated vehicle. AMC is developing centralized processing capacity as well as it is promoting onsite decentralized processing methods and at present approximately 52.70 TPD waste is being processed through de-centralized method.
3.	Status of treatment of capacity of Solid Waste	Partially complied	The total waste generated in Agra 712 TPD. Existing functional treatment capacity is 472.7 TPD. The existing gap in the treatment is 239 TPD, which shall be covered through waste to energy plant of 500 TPD (which is sanctioned and approved but the work be started after obtaining NOC / Consent). The matter is pending in Hon'ble Supreme Court.
4.	Status of purchase of 262 vehicles for DTDC and implementation on of IT based adaptor for DTDC collection	Yes	The work of DTDC is being done by 110 newly purchased motorized Vehicles + 150 other motorized vehicles + 1700 Tricycles having 6 buckets + 1000 Hand carts with 4 dustbins.
5.	Status of installation of QR code in the respective households (earlier 3,50,000 households) installation of GPS in vehicles involved in transporting solid waste (earlier 98 vehicles) and dustbins equipped with RFID tag (earlier 1,044 dustbins)	Majority complied	As per information, 332,855 Households are tagged with QR Code. 150 Vehicles used for primary collection and transportation are equipped with the GPS monitoring system. Also, 1044 community bins are RFID Tagged for better monitoring of the solid waste management.
6.	Status of byelaws on user charges and spot fines	Yes (the enforcement of sanitation)	Bye-Laws have been notified in Agra regarding User Charges and spot fines . The details of penalty collected are as

	etc.	practices is done regularly)	follows : -Rs. 320,556 through spot fines for violations under various offences related to sanitation,  -Rs. 559,000 for littering,  -Rs. 36,06,650 for violation of plastic ban and  - Rs. 11,58,100 for Garbage Burning. The enforcement of sanitation practises is done regularly.												
7.	Status of closing of existing landfill sites and bio-mining legacy waste	Partially complied	The project of Bio-remediation of legacy waste costing Rs. 27.35 Cr. had been approved. <b>Estimated legacy waste at Kuberpur dump site is 8 Lakh tons out of which 4 Lakh tons had been remediated and rest of the waste is shaped in windrows for primary treatment in the area of 12 Acres. The complete legacy waste remediation is planned to be completed by December 2020.</b>												
8.	Status of Temporary Moratorium in TTZ area, establishment of STPs, Solid Waste, C & D waste and processing plants	Partially complied	To fill the gap of MSW processing a writ application no: 13381/1984 was submitted to Hon'ble Supreme Court for obtaining Consent/ NOC to set-up the waste to energy plant of 10MW Capacity. Agreement with the selected concessionaire M/s Spark Brason, done for the processing of MSW and Construction & Demolition waste. Processing plants shall be made operational as soon as the orders from Hon'ble Supreme Court are received. Thus, the status of setting up of various projects is still awaited due to temporary moratorium.												
9.	Gap deficit in Agra with reference to water supply	Partially complied	With the completion of various projects related to strengthening water supply system in city of Agra, the installed water treatment capacity is now 513 MLD, which is sufficient to cater to the demand till year 2032. Thus, the issue related to water supply in the city, is now confined to the proper distribution of the water only.  The Govt. of U.P. has sanctioned following projects under AMRU Programme that are under various stages of planning and execution:-												
			<table border="1"> <thead> <tr> <th>S.</th> <th>Name of</th> <th>SAAP</th> <th>Cost of</th> <th>Proposed</th> <th>Present</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	S.	Name of	SAAP	Cost of	Proposed	Present						
S.	Name of	SAAP	Cost of	Proposed	Present										

No.	Scheme	Year	Scheme	work	status
1	2	3	4	5	6
1	Agra Water Supply Scheme (Phase - 1)	2015-16	11.64	27263 no. water supply house connection	Completed and handed over to Jalkal Vibhag
2.	Agra Water Supply Scheme (Phase - 3)	2016-17	11.379	OHT-3 no. CWR-4 no. ZPS - 4 RM 6.16 Km DS-85 Kh HC 9461 no.	Work in progress and shall be completed upto year 2022
3.	Agra Water Supply Scheme (Phase - 4)	2017-20	61.87	OHT-4 no. CWR-2 no. RM 11 Km DS-89 Kh HC 11121 no.	Work in progress and shall be completed upto year 2022

**Smart City Works (Agra Nagar Nigam, Agra)**

S. No.	Name of Scheme	Project Year	Cost of Scheme	Proposed work	Present status
1	2	3	4	5	6
1	Pilot 24*7 water supply in ABD area	2019-21	140-67	OHT-7 no. ZPS - 2 RM 6.0 Km (1200 mm dia) DS-140.76 Km HC 17300 no.	work in progress and shall be completed upto year 2021

Thus, schemes of approx. Rs 328 Crore for coverage water supply have been sanctioned in recent past and the projects are being implemented.

10.	Status of Sewage treatment in Agra	Partially complied	<p>❖ Currently, the population of Agra city is about 19.90 lacs. The generation of sewage as per norms of CPHEEO is 80% of per capita water consumption. The per capita water consumption norm is 150 lpcd. So for 19.9 lacs population the requirement of sewage treatment capacity comes out to 238 MLD. But due to bulk consumers, floating population and private sources, discharge of 90 drains is about 286 MLD including sewer discharge.</p> <p>❖ The installed capacity of 9 STPs is 220.75 MLD. For proper sewage maintenance and operation of the installed STPs the state government</p>
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has introduced One City One Operator scheme and based on competitive bidding process the work in city of Agra has been awarded to M/s VA Tech Wabag Ltd.

❖ Under Namami Gange Programme a DPR of Rs. 1174.45 Crore was earlier prepared and approved by NMCG. But due to operation and maintenance work of existing assets been awarded to M/s VA Tech wabag Ltd., a revised DPR of Rs. 842.25 Cr. has been approved by NMCG, New Delhi on 06.05.2020 in which work of tapping of 23 nos untapped drains and const. of 177.60 MLD STPs (to meet the demand of year 2035) have been covered for which bid document & tendering process is being done by Transaction Advisor M/s Deloitte Touche Tohmatsu India LLP, Gurgaon appointed by NMCG. The above sanctioned project will be carried out on Hybrid Annuity based PPP mode, funded by World Bank.

❖ For improvement of the sewer network connectivity in the city of Agra the state government has sanctioned projects of Rs. 425.56 Crore under AMRUT scheme for laying new sewer line and house connections. Under this sanctioned amount five projects have been proposed out of which three projects related to Sewer House Connections are completed and two projects are under progress which are proposed to be completed by the year 2021. The work shall be monitored to be completed as per timeline proposed in DPR. (By the year 2021).

**Present Status of Scheme under AMRUT**

S. No.	Name of Scheme	Proposed Work	Progress	Remarks
1	Sewer house connection Agra (part - I)	28079 Nos. (SHCs)	Completed	-
2.	Sewer house connection Agra (part - II)	11780 Nos. (SHCs)	Completed	-
3.	Construction of house connecting chambers and sewer house connection from households to HCC in Agra City	13051 Nos. (SHCs)	Completed	-

			(Part - III)				
			4.	Sewer house connecting chambers in Agra City (part - IV)	7627 Nos. (SHCs)	62% Done	Work in progress
			5.	Agra Western Zone Sewerage Scheme	251.00 Km. (Sewer line 47827 Nos. (SHCs)	25% Work on sewer line completed	Work in progress
			<p>❖ Another project of Rs 100.04 Crore of Sewerage strengthening work in Tajganj area in the city has been sanctioned by Agra Municipal Corporation under its Smart City Mission programme and work is under progress to be completed by May 2021.</p> <p>❖ <b>The Bio/ Phyto remediation work on the 11 drains started from the month of March 2020 and on 57 drains the EOI has been called through e-Tender, which is scheduled to be opened on 25<sup>th</sup> July 2020.</b></p>				
11	Status of Performance guarantee of Rs. 25 Crores	No.	A stay order has been granted in this matter. Past projects of almost approximately 1700 crore has been sanctioned under different schemes for complying to meet the norm related to water/sewer waste management.				

## **VI. RECOMMENDATIONS OF THE OVERSIGHT COMMITTEE**

1. The Oversight Committee noted the status mentioned by Secretary, Urban Development, U. P. that there is an urgent need to augment the treatment capacity of Solid Waste in the Agra. The total solid waste generation in Agra is 712 TPD while the existing functional treatment capacity is 472.7 TPD (420TPD through Centralized treatment facility 300 TPD for wet waste & 120 TPD for dry waste, 35TPD through De-centralized treatment facilities and 17.7 TPD through home composting). The State Government must address the issue of infrastructure gaps by installation of more treatment plants/facilities.
2. In Agra ward wise action plan has been formulated and each ward in the Municipal Corporation, Agra was prepared comprising the micro level planning for comprehensive solid waste management in the city. At present approximately 52.7 TPD waste is being processed through de-centralized method. The Committee recommends the State

Government to implement the action plan effectively and within timelines.

3. As far as installation of QR code is concerned, the concerned department has tagged 332855 households thereby ensuring it in most of the households. However, the Committee directs all households to be tagged with QR code within a month.
4. The Committee directs complete remediation of legacy waste dump at Kuberpur site to be done within the timeline i.e. Dec, 2020 and if possible before that. Further, UPPCB to conduct an on-site inspection and submit the progress report to the Committee within one month.
5. Regarding the gap with reference to water supply, the total demand for year 2020 is 397 MLD while 360 MLD of water is being supplied to the people of Agra. With the completion of various projects related to strengthening water supply system in city of Agra, the installed water treatment capacity is now 513 MLD, which is sufficient to cater the demand till year 2032. Still, proper water supply is not ensured till date. While supply of water is no longer a problem, the problem lies in lack of water distribution network commensurate with the augmented supply. The construction on the new sanctioned distribution projects needs to be expedited. The Committee directs immediate action on this matter. District Magistrate must look into the issue personally and ensure compliance within stipulated timelines.
6. Phytoremediation in drains was to commence from 1.04.2020 and in case of noncompliance compensation to be paid. It has been informed that only in 11 drains work has started. The Committee directs CPCB to assess and impose EC accordingly as well as submit the report within one month.

**The Member Secretary, UPPCB is directed to send this report to the Registrar General, National Green Tribunal, Principal Bench, New Delhi for placing the same before the Hon'ble Tribunal with a copy to the Chief Secretary, Government of Uttar Pradesh for necessary action. The report also be uploaded on the website of the Committee."**

9. We are of view that while Bio/Phyto (*in-situ*) remediation work has commenced on 11 drains and is likely to commence on 57 drains as per above report, total drain being 90, the remaining drains also need to be

covered for such work at the earliest, as soon as current monsoon is over.

10. Let further action be taken, which may be overseen by the Oversight Committee. CPCB Regional Office Agra may visit the sites and examine whether remediation (bio-mining of legacy waste and *in-situ* remediation of drains) is being done as per norms and give its report to this Tribunal before the next date by email. The Oversight Committee may furnish its report as on 31.12.2020 before the next date by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in) preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The Oversight Committee may also forward a copy of its report to the Chief Secretary so that monitoring at the level of Chief Secretary will also take place.

List for further consideration on 03.02.2021.

A copy of this order be sent to the Chief Secretary UP and Justice SVS Rathore, former Judge Allahabad High, and CPCB, Regional Office, Agra, by email.

Adarsh Kumar Goel, CP

S. P. Wangdi, JM

Dr. Nagin Nanda, EM

August 10, 2020  
Original Application No. 306/2016  
&  
M.A. No. 380/2017 (I.A. No. 8/2007)  
IN  
W.P. (C) No. 426/1992  
A