

BEFORE THE NATIONAL GREEN TRIBUNAL WESTERN ZONE

BENCH PUNE

E.A. 7/2022

IN

O.A. 190/2016

Maj. Gen. S.C.N. Jatar (Retd.)

...

Applicant

Versus

The Municipal Corporation of City Pune

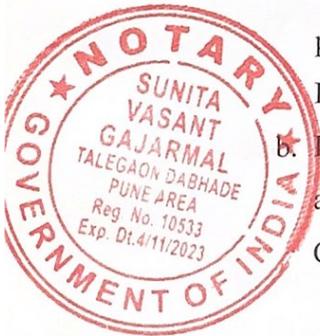
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Respondents

AFFIDAVIT ON BEHALF RESPONDENT NO. 5

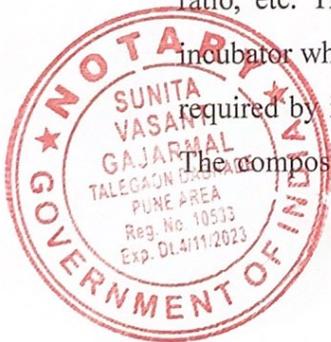
I Mr. Bipin Vijay Salunke, Age: 40 years, Occupation: Director Ecoman Enviro Solutions Pvt. Ltd., having office at: G 1002, Queenstown, Udyog Nagar, Chinchwad, Pune-411033, do state of solemn affirmation that:

1. I am relying on the Affidavit filed by me in O.A. 190/2016 dated 18.9.2017. The same is annexed herewith as **"Annexure A."**
2. I say and submit that the present Execution Application, the Applicant is seeking the compliance of following directions:
 - a. State Pollution Control Board needs to take appropriate action for violation of Solid Waste Management Rules by way of initiating prosecution and recovery of compensation on the basis of 'Polluter Pays Principal'
 - b. Direction to Central Pollution Control Board to have interaction with all the State Pollution Control Boards on the subject of Waste Controlling Processes.



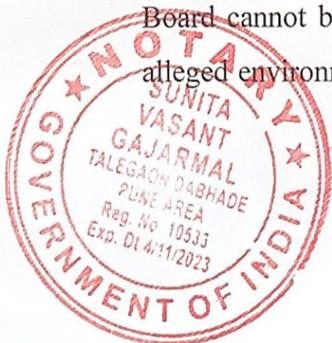


3. I say and submit that the present Execution Application has been filed for the compliance of order dated 3.2.2022 by this Hon'ble Tribunal. The scope of the present application cannot be expanded by considering merits of the matter.
4. I say and submit that as per the Agreement between the Respondent No. 1 and the present Respondent, the present Respondent is supposed to process the organic waste to convert it into compost. The process adopted and the compost is within the parameters prescribed by law. I further say that as per the above-mentioned agreement the local authority bears the responsibility to handover segregated organic waste which the present Respondent was supposed to process. It is further submitted that the role of the present Respondent is very limited in view of the agreement entered into. It is the Respondent No. 1 who has Consent to Establish and Consent to Operate from the Respondent No. 2. The processing plant is owned by the Respondent No. 1. In other words, the present Respondent has only provided its technical support with design, supply, installation, operation and maintenance of the plant. In other words, the present Respondent is acting as an 'Agent' of the Respondent No. 1 and hence the Respondent No. 1 is the authority responsible and liable for any loss and/or damage caused in view of Principle of "Vicarious liability".
5. I say and submit that the parameters of compost as per SWM Rules 2016, contain heavy metals like arsenic, cadmium, chromium, copper, lead, nickel, etc and other parameters like carbon, nitrogen, potassium, phosphate, C:N ratio, etc. The composting machine of the present Respondent is like an incubator which maintains perfect heating, mixing and ventilation conditions required by its thermophilic bacteria for natural and biological composting. The composting machine of the present Respondent does not produce any



such parameters. The parameters in the output compost depend on the input organic waste. The more balanced the input organic waste the more balanced is the output compost. If the input organic waste is unsegregated or has inorganic material / heavy metals, the same will obviously be found in the output compost. I further say that as per the above- mentioned agreement the Respondent No.1 bears the responsibility to handover segregated organic waste which the present Respondent was supposed to process and if any heavy metals due to unsegregated waste are found in the output compost, the responsibility of the same is of the Respondent No.1.

6. Without prejudice to whatever stated herein above, I say and submit that without admitting; for the sake of arguments, if it is considered that the compost procured from the organic waste exceeds the concentration limits; the same cannot be said to be violating the Standards prescribed for the Compost in the Solid Waste Management Rules. I say and submit that the Schedule II of the Solid Waste Management Rule, 2016, specified that Compost (Final Product) exceeding the standards prescribed can be utilized for the purposes other than growing food crops. The same is annexed herewith as **"Annexure B."** Hence, alternatively it is contended that the composting process and the end product cannot be said to be in violating the prescribed standards.
7. It is further stated that considering the nature and scope of the present application the Respondent No. 2 cannot decide the alleged 'violator'. It is for this Hon'ble Tribunal to adjudicate the matter on merit as far as identifying and fixing the responsibility of 'Polluter'. State Pollution Control Board cannot be the adjudicating authority to decide party responsible for alleged environmental violation. If the Respondent No. 2 decides as to who



is the polluter it would amount to adjudicating the issue involved beyond the power and authority of Respondent No. 2.

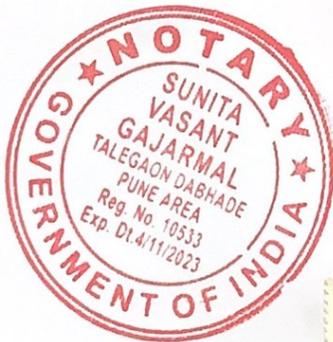
8. I say and submit that any fixation of liability on the basis of 'Polluter Pays Principal' in the present proceeding will not be maintainable as the same would amount to adjudication under the original jurisdiction of this Hon'ble Tribunal. I say and submit that in view of the order under execution the only compliance to be done by the Respondent No. 2 is to do the mathematical calculation for assessment of compensation and initiate prosecution as per due process of law.

Solemn Affirmed on this the 2nd day of February, 2023.

Affiant

I know the Affiant

Advocate



BEFORE ME

Sunita

SUNITA VASANT GAJARMAL
ADVOCATE & NOTARY
NOTARY GOVT. OF INDIA
Regd. No. 10533

NOT REGISTERED
SERIAL NUMBER ST
02/2/2023



BEFORE THE NATIONAL GREEN TRIBUNAL,

WESTERN BENCH, PUNE AT PUNE.

Application No. 190/2016

Maj Gen. S C N Jatar (Retd) ----- Applicant

V.

PMC and others ----- Respondents

The say on behalf of respondent no. 5 is as under:

1. The contents of the application (Exh.1) are neither true nor correct nor bonafide. Moreover, the same are misleading and misconceived and as such are denied.
2. It is respectfully submitted that the respondent number 5 is a private limited company, registered under the provisions of the Companies Act, 1956. The registered office of the respondent number 5 is 'G-1002, Queenstown, UdyogNagar, Chinchwad, Pune-411033.' The factory of the respondent number 5 is situated at 'Gat number 189, behind Jyotiba Temple, Jyotibanagar, BhalekarChowk, Talawade, Pune 412114.' Mr. Bipin Vijay Salunke and Mrs. Sulabha Vijay Salunke are the directors of the respondent number 5. The respondent number 5 has passed the resolution dated 15/07/2017, thereby authorizing Mr. Bipin Vijay Salunke to represent the respondent number 5 before this Hon'ble Tribunal as authorized representative of the respondent number 5.
3. The respondent number 5 deals in the field of waste management. The particulars of the business of the respondent number 5 is that of the Manufacturing, Selling, Trading and Providing Service of Composting Machines, which converts organic waste into compost. The respondent no. 5 is a leading company in the field of decentralized Solid Waste Management with advanced technology of composting since its establishment in 2009. The current clientele of the respondent no. 5

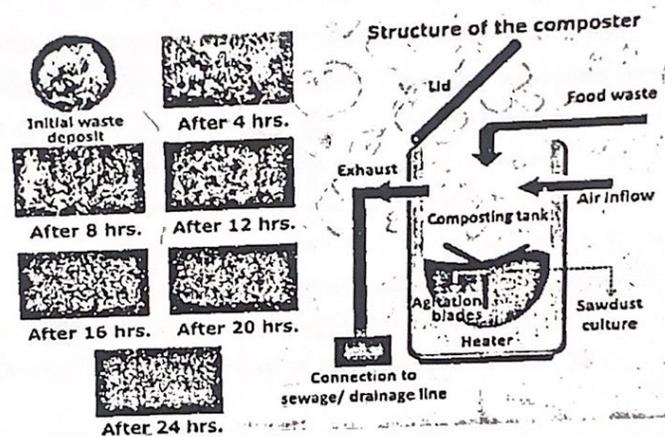
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includes various municipal corporations and prestigious clients all over India with more than 500 installations across India. The respondent no. 5 has developed a unique solution for decentralized Solid Waste Management. In this solution, organic waste is processed at source (in the Ward, Locality, Vegetable Market, Township etc.) by the Composting Machine and converted into compost.

4. The composting machine (the commercial name of the machine of respondent number 5 is 'FOODIE') consists of various parts, including stainless steel tank, stainless steel shaft, geared motor, heaters, control panel and exhaust blower and other sundry parts and hardware. All the parts are assembled in the factory of the respondent number 5, situated on the aforesaid address. All the parts, which are used in the composting machine are branded and of good quality. It is pertinent to note here that, the respondent number 5 has acquired necessary ISO certification from the competent authority, depicting that the composting machine of the respondent number 5 is of good quality and without any defect.
5. The aforesaid composting machine works as follows-the composting system of the respondent no. 5 is a biological process in which thermophillic bacteria converts organic waste into compost. The compost looks like dry soil and is an excellent medium for growing plants. The composting machine of respondent no. 5 is fully automatic, which uses special thermophillic bacteria to break down and decompose all kinds of organic waste into raw compost within 24 hrs with a volume reduction of 80-90%. The entire process is natural and biological. The special thermophillic bacteria thrive in high temperature. The said composting machine has a U-shaped composting tank, with a humidity sensor, heater, mixing blades and an exhaust system. When organic waste is added to the said composting machine, moisture is sensed by the humidity sensor, due to which heater turns ON and the composting tank gets heated. Due to this, the water content in the organic waste is evaporated and it goes out to the atmosphere as water vapor through the exhaust system. As any organic (food) waste contains 70-80% water content, it achieves 70% volume reduction at this stage itself. At the same time, the special thermophillic bacteria decompose the remaining organic waste into raw compost within 24 hours. That's how 80-90% volume reduction is achieved. The process

is completely noiseless as there is no crushing or grinding involved. The blades are just for evenly mixing the waste. The diagram of the same is as follows:



6. The respondent number 5 has installed approximately 500 plus composting machines across India. The respondent number 5 also exports the composting machines abroad, including Gulf countries, African countries and also to Europe and the United States of America. There are absolutely no complaints about the functioning and the quality of the composting machine and also about the compost prepared by the said machines. In other words, the composting machines are fulfilling all the environmental criteria set across the globe. Similarly, the compost produced by the composting machine of the respondent number 5 is also as per the norms set by global environment standards. The plantation done with the help of the compost produced from the composting machines of respondent number 5 has given very good results for all its clients using the machine globally. There are absolutely no complaints regarding the quality and functioning of the composting machines and also about the quality of the compost produced by the composting machine and also about the plantation done with the help of compost produced from the composting machines of the respondent number 5.

7. It is respectfully submitted that the compost produced by the composting machines of the respondent number 5 is of good quality and falls under MSWM Rules, 2016 and the same is very suitable for plantation. Similarly, the compost produced by the composting machines of the respondent number 5 is free from pathogens, for which the compost should be maintained at high temperature (above 60°C) for more than 72 hours. The compost produced by the composting machine of this respondent number 5 is the only guaranteed compost, which is free from pathogens as it is produced under controlled environment using in-vessel composting technology and all parameters are measured by sensors and controlled by PLC (Programmable Logic Controller) & controllers and hence, the same is safe for human touch or interaction. All other composts produced from traditional methods do not have any measurements carried out by the instruments and can never be guaranteed of being pathogenic free.

8. It is respectfully submitted that the entire technology used by respondent number 5 is completely natural and biological. The respondent number 5 does not add anything to the input waste. The respondent number 5 neither adds any chemicals nor anything else in the composting machine along with the waste. In this background, the output compost depends upon input waste quality. Therefore, if the waste is not properly segregated and added to the composting machine, the result is obvious. The housing societies / clients using the machine who properly segregate the waste produce very good quality of compost. The respondent number 5 has also installed a machine at the official residence of The Hon'ble Prime Minister of India at 7 Race Course Road and the compost produced from the same is of good quality and used as per instructions, for gardening purpose. The respondent number 5 is an approved vendor under 'Swachh Bharat' and is also mentioned on the official website of 'Swachh Bharat' as registered vendor and hence, the quality of the machine and compost cannot be questioned. Recently, the Urban Development Ministry of Govt. Of India has done rate contract of composting machine vendors through National Seeds Corporation and respondent number 5 is selected under the same. The respondent number 5 is also ready to give a free demo machine for trial at the office of this Hon'ble Tribunal and respondent number 5 is confident that the compost produced by the same will be of good quality, if properly segregated waste is added to the composting machine.

9. The respondent number 5 uses an *electro-mechanical machine and its special thermophilic bacteria to fasten and enhance the composting process*. The compost produced from such machines have been tested in National Accreditation Board for Attesting and Calibration Laboratories (NABL) approved laboratory and is always found to be within the parameters of the MSWM Rules 2016, except for pH, as the bacteria used by the respondent number 5 is of acidic type. For the same, the respondent number 5 has always given all its customers SOP (Standard Operating Procedure) of how to use compost, which is also mentioned in the printed user manual of the respondent number 5.
10. It is respectfully submitted that the compost can be used immediately after mixing with soil in the ratio 1:10 (Compost: Soil) and compost can also be used after maturing for 20-30 days. The process of fixing compost from waste is free from noise and as the outlet of the machine is connected to the drainage line, there is absolutely no odour during the composting process as it is a closed loop system. From the outlet of the machine only carbon dioxide is left out along with some water vapour and no gases are produced as it is aerobic digestion and hence, there is no air pollution. Similarly, the compost is also free from any pungent odour. There is no generation of leachate from the composting machine and therefore, there is no question of any pollution. As the composting machine is installed in rain protected shed, there is no question of rain water seeping into the composting machine resulting into any pollution. Therefore, the composting machine of respondent no. 5 is completely environment friendly.
11. The sole purpose of the composting machine manufactured & sold by the respondent no. 5 is to decentralize the waste management as the waste is segregated and treated at source itself, thus, reducing the secondary transport of the waste, eventually reducing the pollution caused by it. As the organic waste is processed at source, and the same does not end up in the landfills, resulting into reduction of methane emissions. The organic waste is converted to good quality compost and goes back to soil, thus completing the ecological loop after following the 3 R principles, principle of reduce, principle of reuse and principle of recycle.

12. Considering all these facts and in the light of the aforesaid facts, this respondent will now proceed to file para-wise say to the application of the applicant. The contents of the paragraphs written hereinabove are without prejudice to each other and also without prejudice to the contents written herein below.
13. The contents of para numbers 1 to 5 are matter of facts and record and as such no comments are warranted upon the same from this respondent.
14. The contents of para numbers 6 to 8 are denied for want of knowledge. Moreover, the same are not concerned with this respondent. This respondent is not party to the correspondence exchanged between the applicant and the respondent number 2 and hence, this respondent is not in a position to offer any comment upon the contents of the said paragraphs.
15. The contents of para number 9 are specifically denied. It is denied that the respondent number 2 has not complied with the MSW rules, 2000 and the SWM Rules, 2016. The contents of sub paragraph number a & b are specifically denied. It is respectfully submitted that as per rules, the organic waste should be composted at the source itself and if the end result of any organic waste processing is compost, no special approval is needed. Similarly, as per rules and notification dated 25/09/2000 and —/—/2016, if the compost has parameters beyond the specified limit, such composts should be used for plantation and purposes other than food crops, such as floriculture, gardening, forest, nursery, etc. and hence, the compost is acceptable except for food crops. The respondent number 2 has monitored the composting machine plant on the point of odour and nuisance. There is no odour or any nuisance outside the composting machine plant. Inside the plant, when garbage is loaded in the machine, there will be some odour. It is respectfully submitted that the respondent number 5 is running 7 plants (Vadgaon Sheri, Koregaon Park – each 3 TPD, Peshwe Park – 10TPD, Tarachand Hospital – Red Cross, VadgaonBudhruk, Pashan&Ghole Road – each 5TPD) for PMC and there is no complaint from citizens since the date of operation of the plants till today. In this background, it is false to say that there are complaints from the citizens as alleged by the applicant in the said para. The respondent

nos. 1 and 2 have carried out chemical analysis of the compost. At the cost of repetition, it is respectfully submitted that the compost produced by composting machines plant is well within rules and standards.

16. The contents of para number 10 are specifically denied. The interpretation of the rules carried out by the applicant in the said para is denied. Moreover, the contents of the said para are not related with this respondent. It is respectfully submitted that the composting machine plants are as per rules and standard and there is no irregularity and/or illegality in establishing the composting machine plants either by respondent number 1 or respondent number 2 or respondent number 5.
17. The contents of para number 11 are specifically denied. The contents of the said paragraph are not related with this respondent. It is respectfully submitted that the respondent numbers 1, 2 and 5 have tested the compost produced by the composting machine plants and the composts produced by the composting machine plant are as per rules and standards for compost. It is respectfully submitted that when the composts were tested by the respondent number 2 as per the order of this Hon'ble Tribunal, only Chromium was found at the Wadgaon Sheri, Koregaon Park, Peshawe Park, Tarachand sites. It is respectfully submitted that the Chromium percentage can be reduced by addition of natural zeolite, lime, sodium sulphite, bamboo charcoal and bamboo vinegar, red mud, coal flyash, etc. It is respectfully submitted that natural zeolite is good amendment because it has ability to exchange sodium and potassium with toxic metals. Similarly, when the composts were tested by the respondent number 2 as per the order of this Hon'ble Tribunal, the C:N ratio was found to be excellent and in optimum range. The optimum range is below 20 and at all sites, it is below 20 except for the Tarachand site, it is 20.61, which is marginally higher. Similarly, when the composts were tested by the respondent number 2 as per the order of this Hon'ble Tribunal, the pH for all sites was found in acidic range. As stated earlier, the pH for the good composts should be in the neutral range of 6.5 – 7.5. The compost of composting machine plants of respondent number 1 is below 6.5 and therefore, the same is acidic. Such composts should not be used directly, but matured by storing and proper aeration for 30 days. The composts can also be used by diluting with the soil or any other organic materials like

sawdust or dried crushed leaves. Regarding Koregaon Park site, when the compost was tested by the respondent number 2 as per the order of this Hon'ble Tribunal, Nickel, Lead and Copper were also noticed at higher range. At no other site, any other heavy metals were noticed. This shows that there are some inorganic materials in processing like batteries, consumer electronics, ceramics, lightbulbs, house dust, paint chips, plastics, and pigments etc which are coming into waste stream. Thus, it can be speculated that, at Koregaon Park site, the waste is not properly segregated. It is respectfully submitted that, for checking heavy metals like mercury in the compost, repeated tests are required to be carried out, to ascertain, as only 1 g of compost is taken for analysis out of 500 g of sample collected. As per agreement between respondent number 1 and 5, the respondent number 5 has tested the composts of all sites and the results of all sites are within the standards prescribed by rules.

18. The contents of para number 12 are specifically denied. It is respectfully submitted that the composting machine plants meet all the standards prescribed by the rules.
19. The contents of para numbers 13 to 18 are specifically denied. It is respectfully submitted that the applicant has no authority to carry out tests of composts and the results of the tests carried out by the applicant cannot be verified and hence, the same cannot be authenticated. It is respectfully submitted that considering the contents of para numbers 13 to 18, this Hon'ble Tribunal has passed an order directing the respondent number 2 to carry out tests of the composts produced by the composting machine plants installed by the respondent number 5 for the respondent number 1, and accordingly, the respondent number 2 has carried out the tests and submitted its report before this Hon'ble Tribunal and necessary clarifications are also given by this respondent to the result of the said reports. This respondent also reserves its right to explain the same at the time of arguments, if required.
20. The contents of para number 19 are matter of fact and record and as such no comments are warranted upon the same from this respondent.

21. The contents of para number 20 are specifically denied. It is denied that the respondent number 5 has not carried out analysis of the compost from each site as per agreement. It is denied that analysis of heavy toxic metals has not been done by this respondent. The rest of the contents of the said para are denied. It is respectfully submitted that it is expected on the part of this respondent to carry out test of compost every 3 months. It is respectfully submitted that initially this respondent was unable to carry out such tests because the plants were not stabilized. Now, this respondent is carrying out regular tests and the results of such tests shows that the compost is as per the standards set out by rules. The applicant is no authority in testing the compost and the applicant cannot doubt the veracity of the analysis of the compost from NABL approved laboratory. It is a wrong assumption of the applicant that the compost is harmful. The applicant has levelled reckless allegations against the respondents without reading the guidelines issued by this respondent for using the compost.
22. The contents of para number 21 are specifically denied. It is denied that the results of analysis of this respondent in respect of 7 plants are erratic and unreliable. It is denied that the veracity of readings is doubtful as alleged by the applicant in the said para. It is denied that all other analysis show that the results are not as per the specified standards especially pH value, C:N ratio, nitrogen, phosphorus. It is denied that carbon content is abnormally high as alleged by the applicant in the said para. It is denied that high C:N ratio means that nitrogen is not sufficient for optimal growth of the microbial populations and hence, composts will remain relatively cool and degradation or decomposition will proceed at a slow rate. It is denied that pH ratio is generally low. It is denied that the compost is wholly harmful. The rest of the contents of the said para are denied. All the assumptions mentioned in the said para by the applicant are wrong and appropriate explanation is already given above by this respondent.
23. The contents of para number 22 are specifically denied. It is denied that the respondent numbers 1 and 2 have fallen prey to unsubstantiated claims by the respondent number 5 regarding the compost maturation in 24 hours. It is denied that the motives are perplexing. The rest of the contents of the said para are denied. At the cost of repetition it is respectfully submitted that the compost is of good quality as per the standards set out by the

rules. The compost prepared by the compost machine plants is excellent for plantation. It is respectfully submitted that all the composting companies across India and around the globe, use electro-mechanical machines for composting, using 24 hours method and thermophilic bacteria.

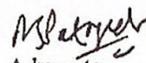
24. The contents of para number 23 are specifically denied. It is respectfully submitted that the applicants have not disclosed the details of the so-called experts. The alleged opinions of the so-called experts mentioned in the said paragraph are specifically denied. It is respectfully submitted that the opinions taken by the applicant from the so-called experts are not binding upon the respondents for the simple reason that the same are taken behind the back of the respondents. The alleged opinions by the so-called experts are irrelevant for the decision of the present application because the composting machine plants are fulfilling all the criteria set out by the rules.
25. The contents of para number 24 are specifically denied. The opinions mentioned in the said paragraph are not binding upon this respondent. The said opinions are prepared without informing this respondent.
26. The contents of para number 25 are specifically denied. All inferences drawn by the applicant in the said paragraph are unwarranted and the same are whimsical. All the inferences mentioned in the said para are baseless. Appropriate explanation has already been given above to show that the inferences mentioned in the said paragraph are wrong and false.
27. The contents of para number 26 are specifically denied. It is denied that the respondent numbers 1 and 2 have failed to carry out chemical analysis of the composts. The rest of the contents of the said para are repetitions of contents of earlier paragraphs for which appropriate reply has already been given.
28. The contents of para number 27 are specifically denied. It is denied that this respondent is adopting new technology. On the contrary the technology used by this respondent is old and settled in the market.

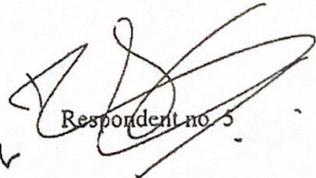
29. The contents of para number 28 are specifically denied. The contents of the said paragraph are repetitions of the contents of earlier paragraphs for which appropriate reply has already been given.
30. The contents of para number 29 are denied. The ground numbers 1 to 6 mentioned in para number 29 are specifically denied being repetitions of contents of earlier paragraphs for which appropriate reply has already been given.
31. The contents of para number 30 are specifically denied. It is denied that the application is within limitation.
32. The contents of para number 31 to 35 are specifically denied. The applicant be put to the strict proof thereof.
33. With reference to prayer clause, the prayer numbers 1 to 6 are illegal and as such are denied. The applicant is not entitled to claim the same and the same should not be given to the applicant.
34. The contents of Rejoinder dated 04/07/2017 are specially denied. The applicant has levelled reckless allegations in the rejoinder without understanding the working of the composting machine. All the assumptions raised by the applicant are unwarranted and baseless. Moreover, the applicant has not studied properly and has levelled reckless allegations on the working of the machine. The composting machine has a storage capacity of 10 to 15 days, depending on the organic waste type. Therefore, there is no need to remove the compost daily. The composting machine can take full load daily as mentioned above. The composting happens in 24 hours and the compost can be removed after 24 hours. But, need or necessity to remove the composts is only after a few days as there is storage capacity.
35. Taking into consideration all aforesaid facts and documents, the application filed by the applicant be dismissed with costs and costs of the present application be allowed to these respondent(s) from the applicant.

This say.

Pune

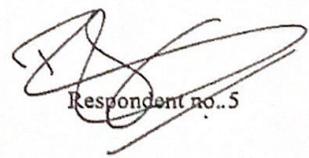
Date: 18/09/2017


Advocate


Respondent no. 5

VERIFICATION

1. Mr. Bipin Vijay Salunke, Age: 34 years, Occupation: Director, Ecoman Enviro Solutions Pvt. Ltd., Office at: G-1002, Queenstown, Udyog Nagar, Chinchwad, Pune 411033, do hereby state on solemn affirmation that whatever stated above in para numbers 1 to 35 are true and correct to the best of my knowledge, information and belief and hence, I have signed today on the same on this 18th day of September, 2017.


Respondent no..5

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SCHEDULE II

[see rule 16 (1), (b), (e), 16 (4)]

Standards of processing and treatment of solid waste

- A. **Standards for composting.** - The waste processing facilities shall include composting as one of the technologies for processing of bio degradable waste. In order to prevent pollution from compost plant, the following shall be complied with namely: -
- The incoming organic waste at site shall be stored properly prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;
 - Necessary precaution shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard;
 - In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of waste to the temporary processing site or temporary landfill sites which will be again reprocessed when plant is in order;
 - Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclable high calorific fractions to be segregated and sent to waste to energy or for RDF production, co-processing in cement plants or to thermal power plants. Only rejects from all processes shall be sent for sanitary landfill site(s).
 - The windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay of 50 cm thick having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;
 - Ambient air quality monitoring shall be regularly carried out. Odour nuisance at down-wind direction on the boundary of processing plant shall also be checked regularly.
 - Leachate shall be re-circulated in compost plant for moisture maintenance.
 - The end product compost shall meet the standards prescribed under Fertilizer Control Order notified from time to time.
 - In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely: -

| Parameters | Organic Compost (FCO 2009) | Phosphate Rich Organic Manure (FCO 2013) |
|------------------|----------------------------|--|
| (1) | (2) | (3) |
| Arsenic (mg/kg) | 10.00 | 10.00 |
| Cadmium (mg/kg) | 5.00 | 5.00 |
| Chromium (mg/kg) | 50.00 | 50.00 |
| Copper (mg/kg) | 300.00 | 300.00 |
| Lead (mg/kg) | 100.00 | 100.00 |
| Mercury (mg/kg) | 0.15 | 0.15 |
| Nickel (mg/kg) | 50.00 | 50.00 |
| Zinc (mg/kg) | 1000.00 | 1000.00 |
| C/N ratio | <20 | Less than 20:1 |
| pH | 6.5-7.5 | (1:5 solution) maximum 6.7 |

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|--|--|--|
| Moisture, percent by weight, maximum | 15.0-25.0 | 25.0 |
| Bulk density (g/cm ³) | <1.0 | Less than 1.6 |
| Total Organic Carbon, percent by weight, minimum | 12.0 | 7.9 |
| Total Nitrogen (as N), percent by weight, minimum | 0.8 | 0.4 |
| Total Phosphate (as P ₂ O ₅) percent by weight, minimum | 0.4 | 10.4 |
| Total Potassium (as K ₂ O), percent by weight, minimum | 0.4 | - |
| Colour | Dark brown to black | - |
| Odour | Absence of foul Odor | - |
| Particle size | Minimum 90% material should pass through 4.0 mm IS sieve | Minimum 90% material should pass through 4.0 mm IS sieve |
| Conductivity (as dsm-1), not more than | 4.0 | 8.2 |

* Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

- B. Standards for treated leachates.** -The disposal of treated leachates shall meet the following standards, namely: -

| S. No | Parameter | (Mode of Disposal) | | |
|-------|---|----------------------|---------------|---------------|
| | | Inland surface water | Public sewers | Land disposal |
| (1) | (2) | (3) | (4) | (5) |
| 1. | Suspended solids, mg/l, max | 100 | 600 | 200 |
| 2. | Dissolved solids (inorganic) mg/l, max. | 2100 | 2100 | 2100 |
| 3 | pH value | 5.5 to 9.0 | 5.5 to 9.0 | 5.5 to 9.0 |
| 4 | Ammonical nitrogen (as N), mg/l, max. | 50 | 50 | - |
| 5 | Total Kjeldahl nitrogen (as N), mg/l, max. | 100 | - | - |
| 6 | Biochemical oxygen demand (3 days at 27 °C) max.(mg/l) | 30 | 350 | 100 |
| 7 | Chemical oxygen demand, mg/l, max. | 250 | - | - |
| 8 | Arsenic (as As), mg/l, max | 0.2 | 0.2 | 0.2 |
| 9 | Mercury (as Hg), mg/l, max | 0.01 | 0.01 | - |
| 10 | Lead (as Pb), mg/l, max | 0.1 | 1.0 | - |
| 11 | Cadmium (as Cd), mg/l, max | 2.0 | 1.0 | - |
| 12 | Total Chromium (as Cr), mg/l, max. | 2.0 | 2.0 | - |
| 13 | Copper (as Cu), mg/l. max. | 3.0 | 3.0 | - |
| 14 | Zinc (as Zn), mg/l, max. | 5.0 | 15 | - |
| 15 | Nickel (as Ni), mg/l, max | 3.0 | 3.0 | - |
| 16 | Cyanide (as CN), mg/l, max. | 0.2 | 2.0 | 0.2 |
| 17 | Chloride (as Cl), mg/l, max. | 1000 | 1000 | 600 |
| 18 | Fluoride (as F), mg/l, max | 2.0 | 1.5 | - |
| 19 | Phenolic compounds (as C ₆ H ₅ OH) mg/l, max. | 1.0 | 5.0 | - |

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[Signature]