

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI.**

Original Application No. 213 of 2015(SZ)

C.P.Senthil,
Flushing Meadows Villa No.4,
Globus Gardens,
Kaikopalayam,
Coimbatore – 641 061.

...Applicant

Vs

Tamil Nadu State Pollution Control Board,
Represented by its Chairman,
No.76, Mount Salai, Guindy,
Chennai-600032 & others.

...Respondents

INDEX

S.No	Description	Page No.
1.	JOINT COMMITTEE AND INDEPENDENT REPORT OF SEWAGE TREATMENT PLANT (STP) AT M/s ELYSIUM PROPERTIES INDIA PVT. LTD., AS PER THE DIRECTION OF NGT (SZ) DATED JUNE 04, 2021 IN THE MATTER OF ORIGINAL APPLICATION NO. 213 OF 2015	1 - 10

**Filed by
Thiru. C. Kasirajan
Advocate, Chennai.**

JOINT COMMITTEE AND INDEPENDENT REPORT OF SEWAGE TREATMENT PLANT (STP) AT M/s ELYSIUM PROPERTIES INDIA PVT. LTD. AS PER THE DIRECTION OF NGT (SZ) DATED JUNE 04, 2021 IN THE MATTER OF ORIGINAL APPLICATION NO. 213 OF 2015

1.0 Preamble

The National Green Tribunal (NGT) Southern Zone, Chennai in the matter of O. A. No. 213 of 2015 in case of Sh. C. P. Senthil Vs Tamil Nadu Pollution Control Board and 2 others issued an order dated 04/06/2021 stating that:

“...It is not known as to how much time it will take to upgrade the STP. Under such circumstances, we direct the Pollution Control Board to give direction to the 3rd respondent to take alternate method of collecting the sewage that is being treated in that STP to be taken to some other STP which is having all facilities to treat such sewage on payment basis, so that discharge of treated sewage not conforming with the standard prescribed by the Tamil Nadu Pollution Control Board from this STP can be prevented for the time being.

On getting such direction from the Pollution Control Board, the 3rd respondent is directed to carry out the direction as interim measure to protect the environment. They are also directed to expedite the study to be conducted by the IIT Madras by engaging an expert from that institution and take steps to implement the same in the STP that is being operated by them.

They are also directed to submit a present status report, the steps taken by them to comply with the direction issued by the committee before the next hearing date.

In the mean time, the committee is also directed to inspect the unit again and find out whether any improvement has been made in the functioning of the STP and whether the discharge made by them is conforming with the standard prescribed and also conduct water analysis test of the inlet and outlet standard of the STP and also the point where the alleged treated sewage is discharged so as to ascertain as to whether the quality of water has been affected on account of the functioning of the 3rd respondent unit.

The Pollution Control Board is also directed to file their independent status report regarding the compliance of the directions issued by this Tribunal to be carried out by the 3rd respondent as a temporary measure and compliance of the same by the 3rd respondent before the next hearing date.

The committee, Tamil Nadu Pollution Control Board as well as the 3rd respondent are directed to file their respective reports as mentioned above on or before 27.07.2021 by e-filing....”.

2.0 Joint inspection by the committee

As per the order dated June 04, 2021 a joint inspection of STP facility located at Flushing Meadows, Vellanaipatty village was carried out by the joint committee members: Smt. Poornima B M, Scientist “D”, (CPCB, Regional Directorate, Chennai) and Smt. D. Jeyalakshmi (DEE, TNPCB,

Coimbatore North) along with Smt.V.P.Moiana Jeya Valli (AE, TNPCB, Coimbatore North) on August 04, 2021. The officials from CPCB and TNPCB carried out inspection in and around the STP facility and interacted with the operators. During inspection, STP was in operation and samples were collected by the team from the ETP components like Collection tank, aeration tank, outlet of the STP and the Bore wells located at backside of the basketball court & children park at eastern side.

3.0 Compliance verification

As per the direction of Hon'ble NGT(SZ) in its order dated December 22, 2016 the joint committee constituted by NGT comprising of CPCB and TNPCB officials inspected the STP at 'Flushing Meadows'(M/s. Elysium Properties India Pvt. Ltd.) on March 9, 2017 and the joint committee report was submitted to NGT summarizing the findings & recommendations. In continuation of the case, Honorable Tribunal in its order dated June04, 2021 directed the same committee to inspect the STP and to ascertain that, the recommendations/ suggestions made in the joint committee report have been complied by the third respondent. The status of compliance to the recommendations is depicted in table 1.

Table 1: Status of compliance by third respondent

<i>No.</i>	<i>Findings of the committee (09-03-2017)</i>	<i>Compliance status as on 18-08-2020 furnished by Joint committee</i>	<i>Compliance status as on 04-08-2021</i>
1	The STP is meeting the standard consented parameters (BOD and TSS) of TNPCB and the NH ₄ -N reported at outlet is 11.26 mg/L. The MLSS in the aeration tank is 58 mg/ L, which indicates the poor operation and maintenance of STP.	Not Complied The analysis result (Table 2) of sample collected on 18-08-2020 shows that the parameters of the STP outlet are meeting the standard prescribed by TNPCB. However, BOD and COD values are reported to be higher in the aeration tank than the values reported in the raw sewage. BOD: COD ratio of raw sewage is usually 0.3 to 0.8, but in this case it is 0.16 which is very unusual. Ammonia content also was unusually high in the aeration tank. If the ammonia concentration is > 1 mg/L, then a condition exists in the aeration tank that is limiting	The water samples were collected from various unit processes on 04/08/2021. The same was sent for analysis and awaiting for RoA.

		<p>the complete conversion of the influent waste into bacterial cells. The nitrifying bacteria, which convert ammonia to nitrate, require adequate DO throughout the aeration tank environment. The above observations and the very poor MLSS in the aeration tank suggest serious flaws in the operation and maintenance of the STP. While collecting inlet sample from collection tank, the committee observed floating plastic bio-media rings, which implies that the water from the clarifier tank is pumped/channelized to collection tank for dilution. The committee has pointed out the presence of plastic bio-media rings in clarifier tank in the 2017 report also. Bio-media is the active component of the aeration tank and it should be retained in the aeration/ bio-treatment tank for the optimal treatment of sewage. Presence of bio-media rings in clarifier/ collection tanks vouches to poor engineering/ design.</p>	
2	<p>The STP has facility of tertiary treatment which includes disinfection and polishing dual media filtration (pressure sand & activated charcoal filters), but treatment efficiency is very poor as the Total and Fecal Coliform counts are 79000 and 23000</p>	<p>TNPCB, District Office, Coimbatore could not sent the samples to TNPCB, Advanced Environmental Laboratory at Salem for total and fecal coliforms (TC & FC) analysis due to prevailing COVID-19 pandemic situation.</p>	<p>The water samples were collected from various unit processes on 04/08/2021. The same was sent for analysis and awaiting for RoA.</p>

	MPN/ 100 mL respectively.		
3	The existing STP is not constructed as per the engineering aspects and shall be augmented at the earliest for optimal and efficient treatment/ operation.	Not Complied The STP has not augmented and is operating with the existing facility without any rectifications or augmentations.	Not Complied The STP has not augmented and is operating with the existing facility without any rectifications or augmentations. The unit authority has informed during inspection that the unit has approached the institution M/s. Indian Institute of Technology, Madras as per Hon'ble NGT direction to get the remedial measures to augment the STP in the scientific manner.
4	The treatment components such as bar screen chamber, collection & equalization tanks, which are constructed below the ground level has to be provided with the facilities for periodic cleaning and removal of accumulated sludge.	Not Complied It was informed that the sludge is been removed once in six months by the third party engaged for the operation & maintenance of the STP. However no documents were provided for verification. During inspection, the appearance of the STP clearly shows sludge is not scientifically managed. MLSS levels in the aeration tank suggest poor sludge generation due to poor operation of STP.	Not Complied It was informed that the sludge is been removed once in six months by the third party engaged for the operation & maintenance of the STP. However no documents were provided for verification. During inspection, the appearance of the STP clearly shows sludge is not scientifically managed. The Sludge drying beds are filled with water only.
5	The equalization tank shall be provided with the coarse bubble diffusers for equalizing the wastewater	Not Complied The equalization tank is not provided with coarse bubble diffusers for equalizing the	Not Complied The unit has not utilized the existing equalization tank. The collection tank has been

	<p>before pumping into the aeration tank. Horizontal centrifugal, non- clog sludge, solids – handling pumps with open impellers shall be used which is more efficient and also reduces the noise pollution generated during operation. The pumps shall not be installed on tanks/ hollow space as it will amplify noise.</p>	<p>wastewater. The location of the pumps is also not changed.</p>	<p>used as collection cum equalization tank and Primary settling tank as informed by them. The equalization tank is not provided with full fledged coarse bubble diffusers for equalizing the wastewater. The same was under operation.</p>
6	<p>Aeration tank shall be designed and operated properly so that the bio-media (floating plastic media) is not carried away by the sewage to the subsequent treatment units. A safe provision like observation platform shall be made for aeration tank to verify the physical working condition.</p>	<p>Not Complied It was stated by the operator, that the technology presently adopted is conventional activated sludge process (ASP). However the floating bio-media rings were observed in raw sewage collection tank. The sludge recirculation to aeration tank for the maintaining MLSS in the aeration tank is also not provided. Observation/ inspection platform for the aeration tank is not provided to verify regulatory compliance and to assess the physical working condition.</p>	<p>Complied The unit has removed all the bio- media in the aeration tank. It was stated that they have changed from MBBR technology to Conventional Activated Sludge Process. Observation/ inspection platform for the aeration tank is provided to verify regulatory compliance and to assess the physical working condition.</p>
7	<p>The clarifier shall be revamped completely and constructed & operated scientifically.</p>	<p>Not Complied The clarifier is not revamped</p>	<p>Not Complied The clarifier is not revamped. The unit has engaged the institution M/s. Indian Institute of Technology, Madras as per Hon'ble NGT direction to get the remedial</p>

			measures to augment the STP in the scientific manner.
8	The sludge drying beds, filter press or sludge bio digester shall be incorporated to handle the excess sludge generated and not to divert the excess sludge to collection tank. Sludge/ MLSS return shall be scientifically managed with regular monitoring of aeration tanks parameters.	Not Complied It was informed that two sludge drying beds are provided. The operator could not show sludge/ MLSS return arrangement. The MLSS in the aeration tank was very poor on the day of inspection. This again indicates that the STP is not operated scientifically.	Not Complied The unit has provided 2 Nos of sludge drying beds but no sludge was found in the sludge drying beds and it was filled with water. Log book was not maintained regarding bio sludge disposal. The MLSS in the aeration tank was 250 mg/l
9	M/s Elysium shall be directed to engage a qualified firm/ agency for operating & maintaining the STP in consultation with TNPCB. The STP has to be operated regularly in a scientific manner to avoid septic conditions and resulting odour problems.	Complied M/s Elysium has engaged M/s. Eco Green Technology, Coimbatore for the operation & Maintenance of STP. However, operators are not well versed with the basics of operating an ASP based STP.	Complied M/s Elysium Properties has engaged M/s. Eco Green Technology, Coimbatore for the operation & Maintenance of STP.
10	M/s Elysium shall also be directed to make all provision for avoiding the entry of storm water into the STP which hampers the regular and efficient operation of the treatment system.	No information provided by the operator on the issue of storm water entry into STP. However, the unit has provided storm water drain in and around the premises.	Complied The unit has provided storm water drain in and around the premises.
11	The analysis of treated sewage shall be done periodically to know the performance of the STP and the results shall be submitted	Not complied	Not complied No results of treated sewage furnished to the Board. Water samples were collected from various unit processes on

	to TNPCB.		04/08/2021. The same was sent for analysis and awaited for RoA.
12	A provision or dual piping system shall be installed in the gated community for utilizing the treated sewage for toilet flushing. The sewage treated shall be reused completely in the community and at no point of time discharged outside the premises.	Not Complied Dual piping system is not installed for utilizing the treated sewage for toilet flushing though TNPCB has given specific condition to utilize 55KLD of treated sewage for toilet flushing. It is informed that the treated sewage is used for gardening inside the premises.	Not Complied The unit has not provided dual piping system for utilizing the treated sewage for toilet flushing. It was informed that the entire sewage of 90 KLD (35 KLD on land for irrigation +55 KLD Toilet flushing) was utilized for gardening. The unit has provided land of 1.2703 Hectare for gardening which is inadequate for the disposal of the entire sewage of 90 KLD as per the hydraulic loading rate of 35 KL/Hectare/Day.

4.0 Inspection of STP

The STP was inspected on August 04, 2021 by the same joint committee consisting of CPCB & TNPCB officials. The unit M/s. Elysium properties India Pvt. Ltd has developed a gated community and constructed 125 individual villas in 15 acres of land under the name "Flushing Meadows" at Vellanaipatty village, Annur taluk, Coimbatore district. Presently around 119 villas are occupied with an average of four members living in each villa. Important observations are listed below:



Collection Cum equalization and Primary settling tank



Aeration tank



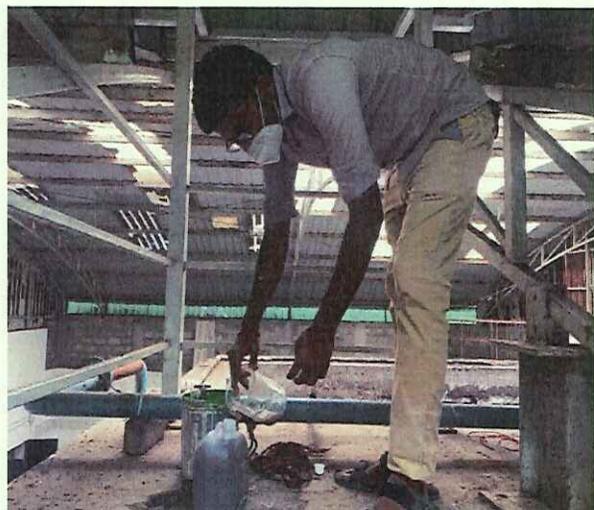
Secondary Clarifier and filter feed tank



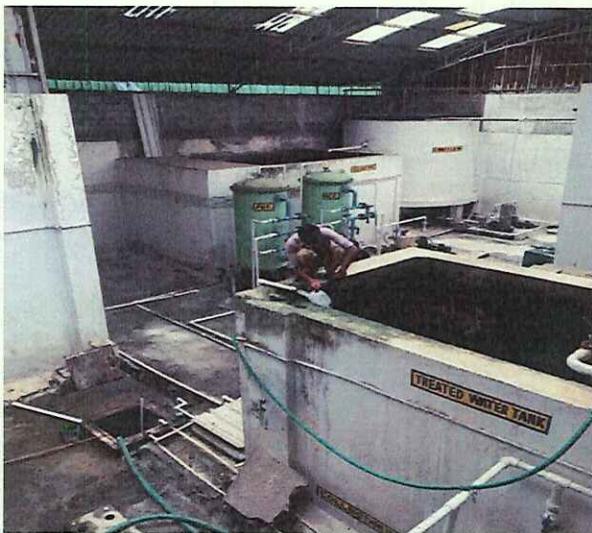
Sludge Drying Bed



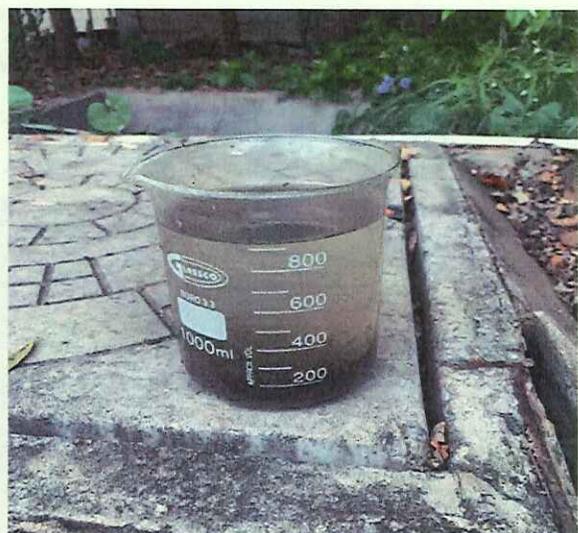
Sample collected from Collection tank



Sample collected from Aeration tank



Sample collected from Treated water tank



MLSS in the aeration tank

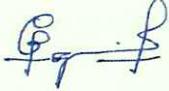
4.1 Observations:

- a) M/s Elysium properties has installed a STP of capacity 125 KLD to treat the sewage generated from the community and has obtained consent to operate from the TNPCB in the year 2014 with validity up to June 30, 2015, which was subsequently renewed on 29-06-2015 and valid up to 30-06-2017 (copy of the consent is annexed as Annexure 1) with specific condition to reuse 55 KLD treated sewage for toilet flushing. At present there is no valid consent to operate from the TNPCB.
- b) It was informed that M/s Elysium properties have engaged M/s Eco Green Technology, Coimbatore for the operation and maintenance of the STP located near to recreation facilities, inside the gated community.
- c) During inspection, STP was under operation with inlet load of 95 KLD. It was observed that all the components of STP were under operation.
- d) The unit has provided bar screen in the bar screen chamber before collection tank and the same was under operation.
- e) The unit has not utilized the existing equalization tank. The collection tank was used as collection cum equalization tank as informed by them.
- f) The collection cum equalization tank is not provided with full fledged coarse bubble diffusers as suggested by joint committee and it was partially provided for equalizing the wastewater and the same was not under operation.
- g) The unit has removed all the bio- media in the aeration tank. It was stated that they have changed from MBBR technology to Conventional Activated Sludge Process.
- h) Observation/ inspection platform for the aeration tank is provided to verify regulatory compliance and to assess the physical working condition. The STP has not made any arrangements for safe inspection platforms for other tanks. The clarifier, filter feed tank and sludge drying beds are not accessible for visual inspection which hampers regulatory inspections and daily operational checks by the operators
- i) MLSS in aeration tank was 250 mg/l on the day of inspection, the operator was unable to show the sludge recirculation/ return system for maintaining MLSS in aeration tank.
- j) The unit has provided two sludge drying beds. No Sludge was present in the sludge drying beds and it was filled with water. It shows that the unit has not managed the sludge properly.
- k) The unit has not provided dual piping system to reuse the treated water for toilet flushing.
- l) The unit has provided provision of fresh water pipe to dilute the treated water in the final treated water tank.
- m) The STP is constructed below the ground level and the ground water seepage is observed inside the STP. The unit has provided seepage water collection pit. Then the water is pumped into the pre filtration tank using flexible hose.

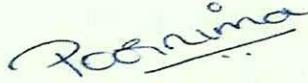
6.0 Findings and recommendations

From the conditions observed, it can be concluded that the unit has operated the STP and maintained the MLSS in the aeration tank. The Report of analysis of the samples collected from the STP and Borewells are awaited to assess the performance of the STP. The unit has entrusted IIT, Madras to conduct the study & augmentation of STP for optimal and efficient treatment/ operation. The Coimbatore Corporation has two STPs at Ondipudur and Ukkadam, the Ondipudur STP is located about 15 km and Ukkadam STP is about 20 km from this STP. There is no common STP operational at this Vellanaipatti Village Panchayat. The transportation of sewage to STPs operated by Coimbatore Corporation will be difficult due to distance. However, it should also be note that there could be possibilities of illegal dumping of sewage into open land, stream or any other water bodies and maintain the record will also be difficult. Hence the committee found not feasible to permit the unit for treating the sewage in some other places.

Report dated August 06, 2021.



V.P. Mohana Jeya Valli,
Assistant Engineer
TNPC Board
Coimbatore, North



Smt. Poornima B M
Scientist D
Central Pollution Control Board
Regional Directorate - Chennai



Smt. D. Jeyalakshmi District
Environmental Engineer
TNPC Board
Coimbatore, North

**THE HON'BLE NATIONAL GREEN
TRIBUNAL SOUTHERN ZONE,
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**Advocate for Respondent
No.TNPCB
Thiru. C. Kasirajan.**

Date:10.08.2021

Date of hearing on 11.08.2021

