

INSPECTION REPORT OF THE JOINT COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (SOUTHERN ZONE) IN RESPECT OF O.A NO. 261 OF 2020 (SZ) TAKEN UP SUO MOTU BASED ON THE NEWS ITEM IN DINAMALAR, CHENNAI EDITION DATED 03.12.2020, UNDER THE CAPTION "THE UNTREATED EFFLUENTS FROM TANNERIES SITUATED IN NAGALKENI, PAMMAL DISCHARGED INTO THE CANAL".

1. ORDERS OF THE HON'BLE TRIBUNAL

It is respectfully submitted that the Hon'ble National Green Tribunal (SZ), Chennai in its order dated 17.12.2020 in the matter of O.A.No. 261 of 2020 inter alia stated that:

1. *"The above case has been Suo Motu registered by this Tribunal on the basis of the newspaper report published in Dinamalar, Chennai edition dated 03.12.2020, under the caption "The untreated effluents from tanneries situated in Nagalkeni, pammal discharged into the canal alleging that on account of the illegal discharge of untreated effluents from the leather factory in Nagalkeni, Pammal Chennai which flows into Adayar River has been polluted. The news report was with a photograph published which showed the pathetic condition of the water being discharged into the Adayar River near Thiruneermalai and the Hon'ble Tribunal observed that there arose a substantial question of environment which required the interference of the Hon'ble Tribunal for resolving the same.*
5. *In order to ascertain the genuineness of the allegations made in the newspaper report, the Hon'ble Tribunal appointed a Joint Committee comprising (1) The District Collector, Chengalpet District or a Senior Officer not below the rank of Assistant Collector or Sub Divisional Magistrate deputed by the District Collector, (2) a Senior Officer from the Tamil Nadu State Pollution Control Board (TNPCB) as designated by its Chairman, (3) a Senior Officer of the level of Superintending Engineer of Public Works Department (PWD) and Water Resources Organisation (WRO) and (4) the Municipal Commissioner from Pammal Municipality to inspect the area as well as the industries in that area and submit a factual as well as action taken report, if there is any violation found.*
6. *The committee is directed to inspect the tanneries and other industries in that area and ascertain as to whether they are having the necessary pollution control mechanism and whether they are discharging untreated sewage into the drain which ultimately reaches the Adyar River causing pollution and whether there are effluent treatment systems provided in the industries, if any, and whether they are meeting the norms by collecting the effluent at the inlet and outlet level so as to ascertain the water quality which reaches the Adyar river at canal mouth which opens to the Adyar River*
7. *They are also directed to ascertain whether the Effluent Treatment Plant (ETP) if any provided by the industries are operating in an effective manner, confirming the norms provided by the regulating authorities*
8. *The committee is also directed to collect the water samples at the mouth of the Adyar River, where the alleged canal meets the river and if there is any contamination, find out the source and also suggest the remedial measures for restoring the water quality to the potable level.*
9. *If the committee finds any of the industries violating the pollution norms and are responsible for the unauthorised discharge, then take action against them including imposition of environmental compensation and take steps to recover the same apart from taking other*

statutory activities in accordance with law and incorporate the nature of action taken in the report.

10. The Commissioner, Pammal Municipality will be the nodal agency for co-ordination and also for providing necessary logistics for this purpose"

2. COMPLIANCE OF THE DIRECTION

It is respectfully submitted that in due compliance of the orders of the Hon'ble National Green Tribunal, samples were collected by the officials of Tamil Nadu Pollution Control Board along with the Members of the committee as constituted by the Hon'ble Tribunal at the inlet and outlet of the Common effluent treatment plant (CETP) for Tanneries at Pammal operated and maintained by M/s.Pallavaram Tanners Industrial Effluent treatment Company Limited for handling the trade effluent generated from 119 member Tannery units functioning in and around Nagalkeni and Pammal area of Pammal Village ,Pallavaram Taluk ,Chengalpattu District and at the Nattu Kalvai (canal) mouth which opens to the Adyar River on 21/01/2021.

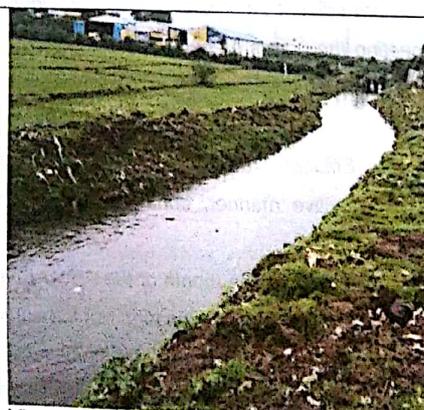
Collection of sample to ascertain the quality of the effluent at the inlet and outlet of the Common Effluent Treatment Plant (CETP) and at the mouth of the Nattu Kalvai (canal) which opens to the Adyar River.



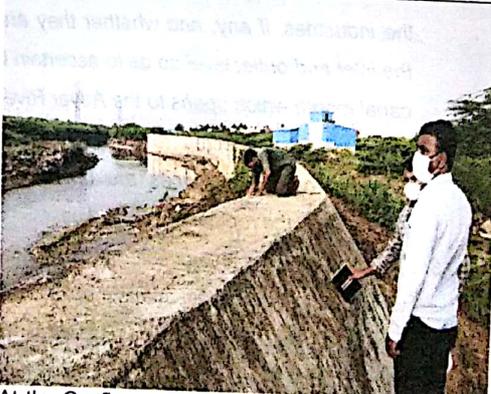
At the inlet of Common Effluent Treatment Plant



At the Outlet of Common Effluent Treatment Plant



View of Nattu Kalvai (canal) leading to Adyar River



At the Confluence Point of the Nattu Kalvai (canal) with Adyar River

Statement showing the value of the Physico chemical parameters analysed

Sl. No	Parameters	Units	Point of Collection			TNPCB Standards (Inland Surface Water)
			Raw Effluent at the inlet of CETP	Treated Effluent at the outlet of CETP	At canal mouth which opens to the Adyar River	
1	pH @ 25°C	No.	7.50	8.83	7.88	5.5-9
2	Total Suspended Solids @ 105°C	mg/L	930	24	14	100
3	Total Dissolved Solids @ 180°C	mg/L	6534	4918	1570	2100
4	Chloride as Cl	mg/L	1712	1125	391	1000
5	Sulphate as SO ₄	mg/L	666	700	240	1000
6	Oil & Grease	mg/L	<1.0	<1.0	<1.0	10
7	BOD @ 27°C	mg/L	252	17	11	30
8	COD	mg/L	1440	160	152	250
9	Copper as Cu	mg/L	<0.033	<0.033	<0.033	3
10	Zinc as Zn	mg/L	<0.05	<0.05	<0.05	1
11	Cadmium as Cd	mg/L	<0.013	<0.013	<0.013	2
12	Lead as Pb	mg/L	<0.07	<0.07	<0.07	0.1
13	Nickel as Ni	mg/L	<0.05	<0.05	<0.05	3
14	Total Chromium Cr	mg/L	<0.01	<0.01	<0.01	2
15	Hexavalent Chromium Cr ⁺⁶	mg/L	<0.01	<0.01	<0.01	0.1
13	Percent Sodium	%	55	78	63	-
14	Ammonical Nitrogen as NH ₃ -N	mg/L	<2	<2	<2	50
15	Total Kjeldhal Nitrogen as N	mg/L	<2	<2	<2	100
16	Phenolic compounds as Phenols	mg/L	<0.10	<0.10	<0.10	1.0
17	Sulphides as S ⁻²	mg/L	<1	<1	<1	2.0
14	D.O	mg/L	-	-	4.5	5mg/l and above

Statement showing the value of the Bacteriological parameters analysed

Sl. No	Parameters	Units	Point of Collection	Primary Water Quality Criteria for Bathing Waters prescribed by Central Pollution Control Board
			At canal mouth which opens to the Adyar River	
1	Total Coliform	MPN /100 ml	230	500 or less.
2	Faecal Coliform	MPN /100 ml	45	500 (desirable) 2500 (Maximum Permissible)

Report of analysis of the treated effluent sample collected at the final outlet of the Common Effluent Treatment Plant (CETP) reveals that the Physico chemical parameters analysed satisfy the Inland surface water standards prescribed by the Board ,except TDS and Chlorides and the water sample collected at canal mouth which opens to the Adyar River was analysed for Physico chemical parameters which satisfy the Inland surface water standards prescribed by the Board.

Furthermore the water sample collected at canal mouth which opens to the Adyar River was analysed for Bacteriological parameter (Total Coliform and Faecal Coliform) and it meets the Primary Water Quality Criteria for Bathing Waters prescribed by Central Pollution Control Board.

3. REPORT OF THE PUBLIC WORKS DEPARTMENT:

It is respectfully submitted that the said Nattu Kalvai (canal) is the surplus course of Thiruneermalai Eri which joins Adyar River .The sewage/sullage from the Nagalkeni and pammal area and the treated effluent from the said Common Effluent Treatment Plant are discharged into the said canal .Public Works Department normally carries out maintenance work in the form of removal of sediments for the free flow of water during every pre-monsoon period as a pre-monsoon maintenance work. For better maintenance of the canal,it was suggested that the said CETP shall extend the pipe line carrying treated effluent upto Adyar river along the banks of the canal at an elevated level.

PWD has proposed to provide retaining wall on the both sides of the said Nattu kalvai (canal) which is a surplus course of thiruneermalai Eri under Comprehensive Flood Mitigation Project with an amount of Rs.2000 crores. Detailed Project Report has been sent to Government and after approval from the World Bank, the said project scheme will be executed.

4. REPORT OF TAMILNADU POLLUTION CONTROL BOARD

It is respectfully submitted that there are about 144 Tannery units located at Pammal and Nagalkeni areas. Due to financial constraints and inadequacy of land for providing Effluent treatment plant to treat the trade effluent, the said tannery units joined and formulated a company in the name of M/s Pallavaram Tanners Industrial Effluent Treatment Company Limited to establish a Common Effluent Treatment Plant at S.F.No;190/1,Pammal Village, Pallavaram Taluk ,Chengalpattu District. Accordingly Common Effluent Treatment Plant was established with an investment of Rs.7.5 crores and commissioned during the year 1995 with the capacity of 3000KLD generated from the said 144 member tannery units. Consent was issued to the said CETP by the Board for its activity vide proceeding No.CETP-1/F.1600/ANNA/W&A/91 dated 05.12.1996.The said tannery units generally carries out semi finished to finished leather activity, the process involves shaving, wetting, drumming, setting, buffing, coloring, measuring & packing.

It is respectfully submitted that there are seven collection well with standby DG sets which collects the pre treated effluent pumped from the member units located in and around Nagalkeni and Pammal area and from the said collection wells, the pretreated trade effluent is pumped to the collection well of the Common Effluent Treatment Plant. The member unit has pretreatment units comprising of collection tank, settling tank and sludge drying beds. Each member units has Electromagnetic flow meter to quantify the effluent discharge into the CETP conveyance main. The collected pretreated effluent in the collection tank of the Common Effluent Treatment Plant

is subjected to Physico-Chemical ,Biological ,Tertiary treatment followed by Ultra filtration ,Reverse Osmosis system.

It is respectfully submitted that as the parameter such as TDS, Chlorides and Sulphates exceeds the standards in the treated effluent, it was directed by the Board to provide Mechanical Evaporation system. Accordingly the CETP company has provided, commissioned the Multi Effect Evaporation system and crystallizer to evaporate the RO Reject from 12.08.2013 so as to achieve Zero Liquid Discharge. In spite of reaching higher concentration in the forced circulation evaporation system, crystals of salt are not formed and only highly concentrated high viscous liquid is formed which ultimately clogged the evaporator system. Less concentration of sodium chloride salt in the effluent is reported to be one of the reasons for the non formation of crystallized salts. Hence the said CETP has discontinued the operation of the Multi Effect Evaporation system and there after treated effluent along with the RO reject is discharged into the Adyar River through under ground pipe line at a distance of 4KMs from the CETP. The CETP has installed online monitoring system at the outlet point for continuous monitoring of the Effluent quality and connected the same to the CARE AIR CENTRE at TNPCB Guindy, Chennai-32.

It is respectfully submitted that the CETP comprises of treatment units viz Mechanical Screen, Receiving sump, Drum Screen, Equalization tank, Dissolved Air Flotation system, Aeration Tank, Secondary Clarifier, Reactor clarifier, Dual Media Filter, Ultra filtration and Reverse Osmosis system. The CETP has provided a pilot plant for removal of colour using ozonation process on a trial basis. To prevent the discharge of treated effluent into the Adyar River .CETP has proposed to implement the new proposal of mixing/dilution scheme i.e. transportation of the treated trade effluent to the CMWSSB(Chennai Metropolitan Water Supply and Sewerage Board) STP Complex at Perungudi and mixing the same with the treated sewage from the STP at Perungudi to bring down the parameters such as TDS ,Chlorides and Sulphates to achieve the inland surface water standards and to discharge into Buckingham canal, and dispose finally into the sea. Accordingly Board vide letter No:T1/TNPCB/F.1600/MMN/RL/2017 dated 03.07.2017 has accorded permission for diluting the treated trade effluent with the treated sewage from the Pallavaram Municipality STP and also issued direction that CETP shall complete the works related to dilution activity and other up gradation works within a time limit of 30.09.2020.The said permission was extended upto 31.12.2021 by the Board for the completion of the said activity.

It is respectfully submitted that the CETP has obtained funds from the Government of India under the scheme of Indian Footwear Leather Accessories Development Program (IFLADP) to implement the above said dilution project along with the up gradation of the treatment units in the Common Effluent Treatment Plant such as providing of additional Aeration tank with Jet Aspirator System with the capacity of 6MLD, Removal of colour from the treated effluent by providing ozonation system. CMWSSB was entrusted with the work of implementation of scheme for dilution/mixing of the treated tannery effluent conveyed from Common Effluent Treatment Plant (CETP) at Pallavaram with the Treated Domestic Sewage at Perungudi STP for TDS control and viable Environmental Management as a deposit work for the total cost estimate of Rs.18.71 crores.The said scheme comprises of laying of 200mm dia C.I pumping main to a length of 13.67KM from CETP Pallavaram to the Existing STP at Perungudi , Construction of Collection Sump , Construction of mixing tank ,Construction of Effluent Sump and Providing of

online monitoring system at the inlet and outlet of the mixing tank at the STP complex at Perungudi.



Mechanical Bar Screen



Dissolved Air Flotation (DAF)



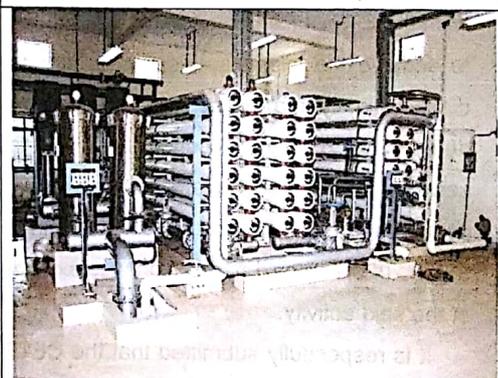
Existing Aeration Tank with Jet Aspirator System



Existing Aeration Tank with Jet Aspirator System (Another view)



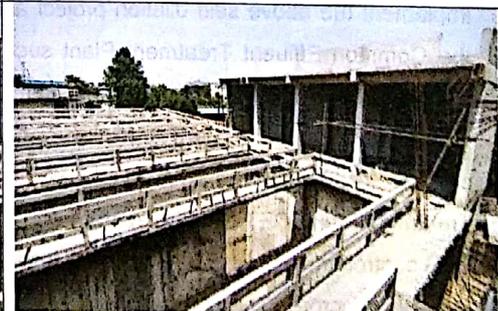
Existing Ultra Filtration (UF) System



Existing Reverse Osmosis (RO) System



Construction of Aeration Tank -6MLD



Construction of Aeration Tank -6MLD (Another view)



Ozone Generator-Pilot Plant



Ozone Reactor-Pilot Plant



Construction of Treated and Ozone Reaction Tank



Construction of Treated and Ozone Reaction Tank (Another view)



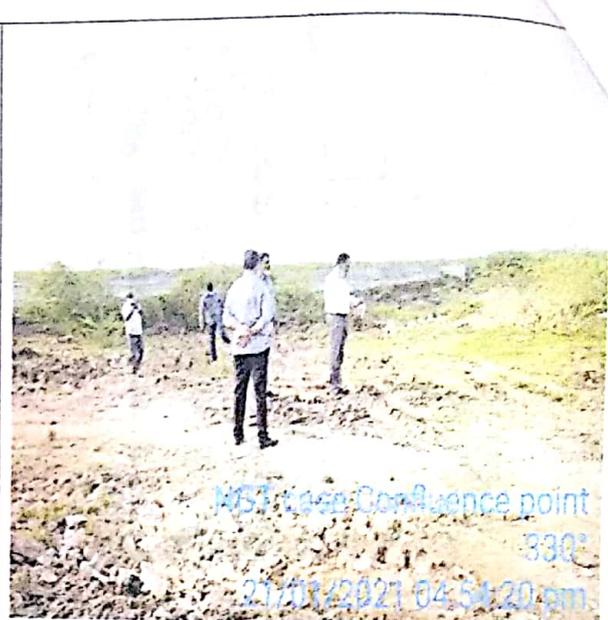
Receipt of the Oxygen Generation Plant for the Ozonation system at site



Receipt of the Ozonation System at site for colour removal

5. JOINT INSPECTION OF THE COMMITTEE

The members of the Joint Committee have carried out the inspection in the area in question on 21.01.2021.



6. OBSERVATIONS BY THE COMMITTEE

During the time of inspection, the committee observed the following

1. Out of 144 members Tannery units at nagalkeni and pammal area, only 119 member units were found operating carrying out the process of semi finished to finished leather.
2. Each member tannery unit is having pretreatment system comprising of Collection tank, Settling tank, Sludge Drying Beds and fitted with Electromagnetic flow meter to assess the quantity of trade effluent pumped into the CETP conveyance main for treatment.
3. Seven collection well with standby DG sets situated at various location in the Nagalkeni and Pammal area collects the pumped pretreated effluent from the member tannery units and pump the same to the collection well of the Common Effluent Treatment Plant.
4. Effluent collected in the collection well is screened using a mechanical screen followed by drum screen and then the trade effluent pumped into the Dissolved Air Flotation system (DAF) for removal of suspended solids. Then the effluent reaches the Aeration tank - 9.8MLD capacity followed by secondary clarifier & Reactor clarifier. Then the effluent is passed through the Dual Media Filter (DMF). Treated trade effluent is then collected in the final collection tank. One third of the above treated trade effluent is further subjected to Ultra filtration and Reverse Osmosis, RO permeate thus obtained is distributed to the

- member units through lorry tankers to utilize the same in their process. RO reject along with the treated trade effluent is pumped through pipe line to Nattu Kalvai(canal) and discharged into the Adyar River.
5. CETP has installed online monitoring system at the final outlet to measure the parameters such as PH, TDS, TSS, BOD, and COD and connected the same to the CARE AIR CENTRE (CAC) at TNPCB, Guindy, and Chennai-32.
 6. Treated effluent from the CETP is conveyed through the closed pipe line runs to a length of 2.5KM in the Nattu Kalvai(canal),then flows along with sewage/sullage in the earthen drain of the Nattu Kalvai for another 1.5KM and joins Adyar River. As ascertained from the CETP that earlier pipe line has been laid upto Adyar River, The said portion of 1.5KM pipe line got damaged due to heavy rain.
 7. CETP is having a inhouse Environmental laboratory to monitor the day to day operation.
 8. The CETP carrying out the upgradation works such as installation of additional Aeration tank -6MLD capacity to increase the treatment efficiency.
 9. The CETP has received the components of ozonation system for removal of colour in the treated effluent and yet to be erected.
 10. As ascertained from the CETP that to prevent the discharge of treated effluent into the Adyar River .it was proposed to implement the new proposal of mixing/dilution scheme i.e. transportation of the treated trade effluent to the CMWSSB (Chennai Metropolitan Water Supply and Sewerage Board) STP Complex at Perungudi and mixing the same with the treated sewage from the STP at Perungudi to bring down the parameter such as TDS, Chlorides and Sulphates to the inland surface water standards and to discharge into Buckingham canal, and dispose finally into the sea.
 11. As ascertained that CMWSSB was entrusted with the work of implementation of scheme for dilution/mixing of the treated tannery effluent conveyed from Common Effluent Treatment Plant (CETP) at Pallavaram with the Treated Domestic Sewage at Perungudi STP for TDS control and viable Environmental Management as a deposit work for the total cost estimate of Rs.18.71 crores.
 12. As ascertained that the CETP has proposed to provide Online monitoring system at the inlet and outlet of the proposed Mixing tank.

7. RECOMMENDATIONS:

Based on the above observation, the joint committee submits the following recommendation before the Hon'ble National Green Tribunal (Southern Zone)

1. CETP shall complete and commission the mixing/dilution project activity(i.e. laying of pipe line from the Common Effluent Treatment Plant to Perungudi STP, Construction of Effluent tank, collection tank & mixing tank along with online monitoring system) within 31.12.2021
2. CETP shall complete and commission the Up-gradation of the additional Aeration tank of capacity-6MLD with jet aspirator system within three months.
3. CETP shall erect and commission the Ozonation system for the removal of colour from the treated effluent within three months.
4. CETP shall relay the pipe line carrying the treated effluent along the banks of the Nattu Kalvai at a elevated level upto Adyar River for disposal within a month time till the implementation of the mixing/dilution project.

5. TNPCB shall monitor the progress on the upgradation of the CETP and for the early completion of the mixing/dilution project activity.
6. Pammal municipality shall plug the unauthorized sewage/sullage discharge into the Nattu Kalvai and provide community soak pits at vulnerable points to prevent the flow of sewage/sullage in the Nattu Kalvai leading to Adyar River till the implementation of the underground sewerage system.
7. Pammal Municipality shall levy fine on the violators dumping solid waste and disposing sewage into the Nattu Kalvai under Local body Acts.
8. PWD shall provide retaining wall on either side of the Nattu Kalvai (Canal), surplus course of Thiruneermalai Eri leading to Adyar River as proposed.


**Commissioner,
 Pammal
 Municipality**


**District
 Environmental
 Engineer,
 Tamil Nadu
 Pollution Control
 Board,
 Maraimalai
 Nagar**


**Superintending
 Engineer of Public
 Works Department
 and Water
 Resources
 Organization**


**Revenue
 Divisional
 Officer,
 Tambaram,
 Chengalpattu
 District.**


**District
 Collector,
 Chengalpattu
 District**