

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI
Original Application No. 131 of 2020 (SZ)**

IN THE MATTER OF:

M. Jayachandran,
Ranipet District and Anr.

... Applicant(s)

With

The Ministry of Environment,
Forest & Climate Change and Ors.

...Respondent(s)

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Place: Chennai
Date: 11-2-2021


(Dr.R.Sridhar)
Scientist 'D'

MoEF&CC, Regional Office, Chennai

REPORT OF THE JOINT COMMITTEE REGARDING HON'BLE NGT (SZ) ORDER DATED 30-07-2020 IN THE MATTER OF ORIGINAL APPLICATION NO.131 OF 2020 (SZ) TITLED AS JEYACHANDRAN VS THE MIN. OF ENV. FOREST & CLIMATE CHANGE AND ORS.

1. BACKGROUND

The Hon'ble NGT, vide its order dated 30-07-2020 (**Annexure-1**) has constituted a joint committee comprising of 1) the District Collector, Ranipet or a Senior Officer not below the rank of Assistant Collector or Sub Divisional Magistrate of that area designated by him 2) a Senior Scientist of Pollution Control Board designated by the Chairman of Tamil Nadu Pollution Control Board, 3) Superintending Engineer of Public Works Department and Water Resources Organization, 4) Senior officer from the Ministry of Environment, Forest & Climate Change (MoEF & CC), Regional Office, Chennai and 5) a Senior Scientist from Central Pollution Control Board, Regional Office, Chennai with the following directions to:

- (i) Inspect the unit in question and also the Pulianganu Eri, Palaar and Ponniyar which were polluted on account of this and submit a factual as well as action taken report to this Tribunal, if any violation is found.
- (ii) Go into the question as to whether there was any illegal discharge of trade effluents into the water bodies or public drain illegally by the eighth respondent and the nature of contamination caused to the water bodies on account of the illegal activity, assess the damage caused to the environment and environment compensation and ascertain as to whether the eighth respondent is strictly complying with all the pollution control norms including the condition imposed by the authorities.
- (iii) Ascertain as to whether there is any unauthorized extraction of ground water and while assessing the environmental compensation, this aspect also may be considered by the committee.
- (iv) Take water samples from the water bodies as well as from the drain where the industries is situated and after conducting the analysis, if there is any contamination found, the remedial measures to rectify the same may also be recommended.

2. JOINT COMMITTEE

The MoEF&CC, Regional Office, Chennai, as the nodal agency, requested all concerned authorities for the nomination of the officials for the joint committee and site inspection. As per the nominations received, the joint committee consists of the following members:

1.	Thiru, K. Elambahavath, I.A.S Sub-Collector, Ranipet
2.	Shri G. Ravichandran District Environmental Engineer (DEE), TNPCB, Vellore.
3.	Shri. Ravimanohar Superintending Engineer, Public Works Department (PWD), Water Resource Organisation (WRO), Pennaiyar Basin Circle, Tiruvannamalai, TN (As intimated, Shri N. Suresh, SE (PWD) who was nominated as member earlier, has been transferred)
4.	Dr. R. Sridhar Scientist 'D', Regional Office, MoEF&CC, Chennai
5.	Dr. R. Rajkumar Scientist 'D' Central Pollution Control Board (CPCB), Regional Directorate, Chennai

3. JOINT COMMITTEE'S INSPECTION AND ACTION TAKEN REPORT:

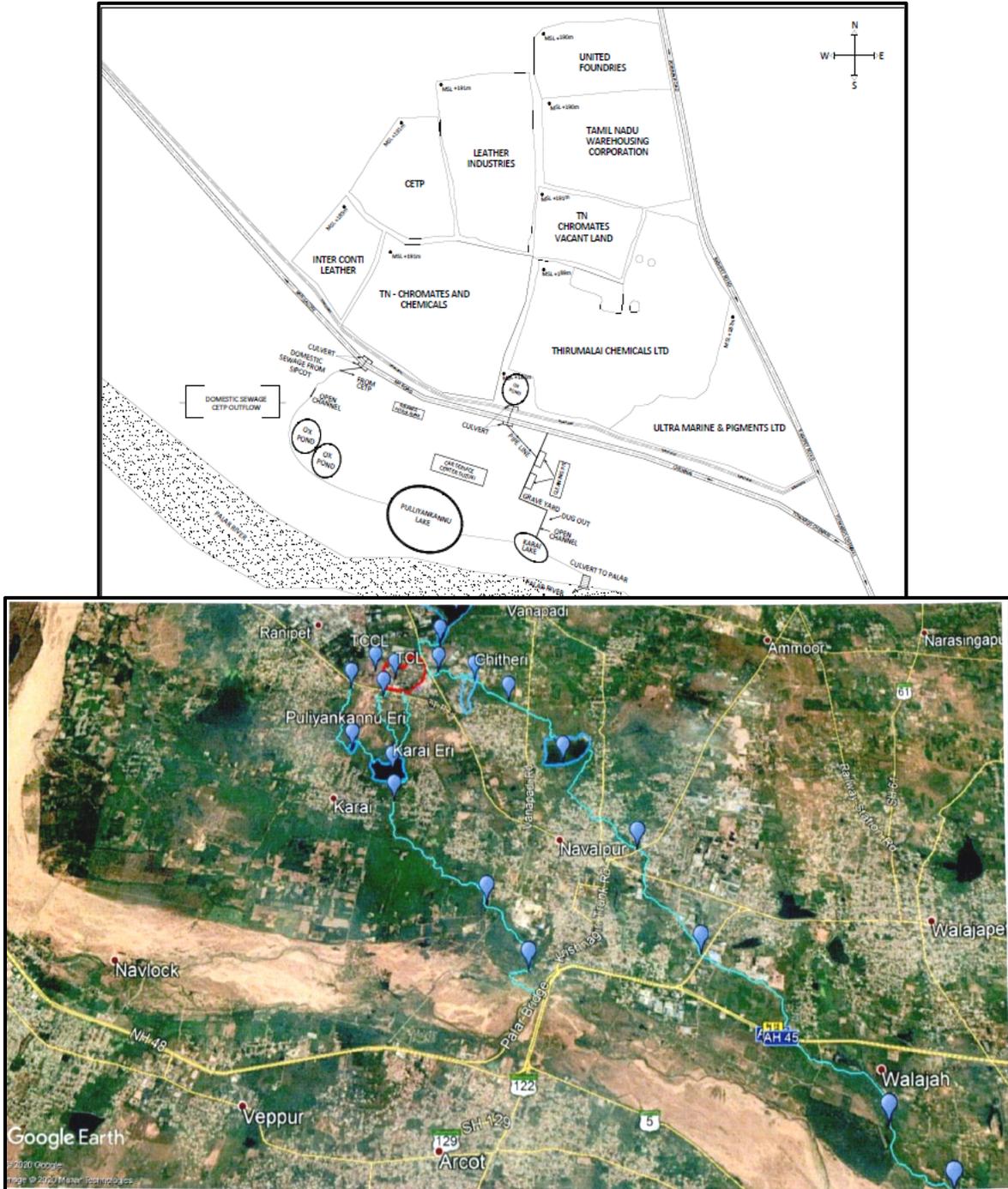
The committee members jointly inspected the industrial unit M/s Thirumalai Chemicals (TCL) Ltd, SIPCOT Industrial Complex, Ranipet (Tamil Nadu) on 07-10-2020. Photos taken during the site inspection and sample collection are at **Annexure-2**. As per the order, the water quality analysis in nearby waterbodies as well as from the drain was carried out by the committee with help of extensive sampling and analysis by MoEF&CC /CPCB recognized and NABL accredited laboratory. Earlier, the committee approached the National Environmental Engineering Research Institute (NEERI) Zonal Office, Chennai for the sampling and analysis and since NEERI wanted more than six months-time, the analysis was done by the NABL accredited laboratory. Accordingly, water and soil samples in nearby water bodies and drains were collected by the committee on 16-12-2020 and got analyzed.

4. INDUSTRY PROFILE AND LOCATION DETAILS

TCL is a producer of petrochemicals and food acidulants. The 47- acre manufacturing site is located 125 km west of Chennai on the NH 40. TCL started manufacturing from 1976. The company produces the same product, Phthalic anhydride (Dicarboxylic anhydride) from beginning. The later additions of dicarboxylic acids, Fumaric acid and malic acid are recovered from the waste gases from Phthalic anhydride manufacture. TCL got consent to operate from 1986

and got renewed continuously. In 1996, it obtained EC from MoEF for expansion of its production capacities. The renewal of consents regularly continued.

Fig. 1 Map showing the location details of TCL with other industry cluster & water bodies



5. IMPACT OF INDUSTRIAL EFFLUENT ON WATER BODIES

5.1. Information on products manufactured by TCL:

TCL Ranipet is manufacturing Phthalic anhydride (Dicarboxylic anhydrides) 354 tons/day, Fumaric Acid of 16 Tons/day and Malic Acid (Dicarboxylic Acids) of 12Tons/day for which industry is using raw material as O-Xylene (322.4 Tons/day and Maleic Anhydride 10.93 Tons/day.

Phthalic anhydride: Phthalic anhydride is manufactured using O-Xylene vapours mixed with air react in the presence of catalyst at high temperature. In this process, only the possibility of contaminants is getting into ETP is O-xylene and Phthalic anhydride. By the dehydration, phthalic acid can be converted into phthalic anhydride and both are water soluble and the possibilities of presence in Raw effluent.

Malic Acid: Malic Acid is being manufactured in two different methods in which first method is from Maleic anhydride hydrolysis process to produce Maleic Acid and then Maleic acid is hydrolysed to form Malic Acid. The second method is from Fumaric Acid hydrolysis process to produce Malic Acid. On completion of the reaction the reactants are separated from the products by cooling and centrifuging and then recrystallizing by centrifuging and drying. The collected mother liquor is sent to ETP which may contain traces of Malic Acid. In this, maleic anhydride is a colourless crystalline flake and in water it reacts to form Maleic acid. Maleic acid forms colourless prismatic crystals dissolved in water, maleic acid is a very strong organic acid.

Fumaric Acid: Fumaric Acid is manufactured from scrubber solution of Phthalic anhydride plant by isomerization. The fumaric acid solution while cooling will precipitate and then will centrifuge and separate Fumaric acid crystals and mother liquor. The collected mother liquor is sent to ETP which may contain traces of Fumaric Acid.

The overall production of all three products together is 382 Tons/day in which Phthalic anhydride production is 93% (354 tons/day), 4% (16 Tons/day) is Fumaric Acid and 3% (12 Tons/day) is Malic Acid. In Phthalic anhydride production the possible effluent contamination is Phthalic acid and O-xylene and rest 7% production may generate effluent contamination is Maleic acid and Malic Acid.

Water consumption and effluent generation: The total water consumption per day is around 2275 KL/day in which around 1965 KL/day is the cooling tower evaporation loss in which Phthalic division cooling tower is 1962 KL/day and Chemical division cooling tower is 13 KL/day. In overall water consumption around 86% is showing as CT evaporation loss. The process water

evaporated in the wet scrubber is showing around 64 KL/day and process steam leaks is around 13 KL/day which is around 3.4% of total water consumption. The overall effluent generated in TCL combining all processes is around 220KL/day in which process effluent is 145KL/day, Cooling tower blow down is 42KL/day and DM plant reject water is around 33KL/day.

The capacity of the storage tanks which is already stored effluent is 6668KL and Cooling tower circulation sump tanks capacity of 800KL (4 tanks and each have 200KL). Based on the effluent generation (145KL/day) in the process and the storage tanks capacity, the current effluents are stored is around 46 days process effluent. Also, DM plant reject water generation is around 33KL/day and the stored quantity in the CT circulation sump is around 800KL which is almost 25 days DM reject.

Analysis of raw effluent: The raw effluent of TCL has been analysed and found Phthalic Acid (431.2mg/L), Fumaric Acid (94.2) and Maleic Acid (141.7mg/L) based on the raw material used and products manufactured. Also, in raw effluent, presence of TDS (7280mg/L) and COD (3432mg/L) clearly indicates the effluent contains good amounts of organics. Apart from TDS and COD, the Chloride (2811mg/L) and Sodium (1730mg/L) contents are high in the raw effluent that may be due to DM plant reject water discharge.

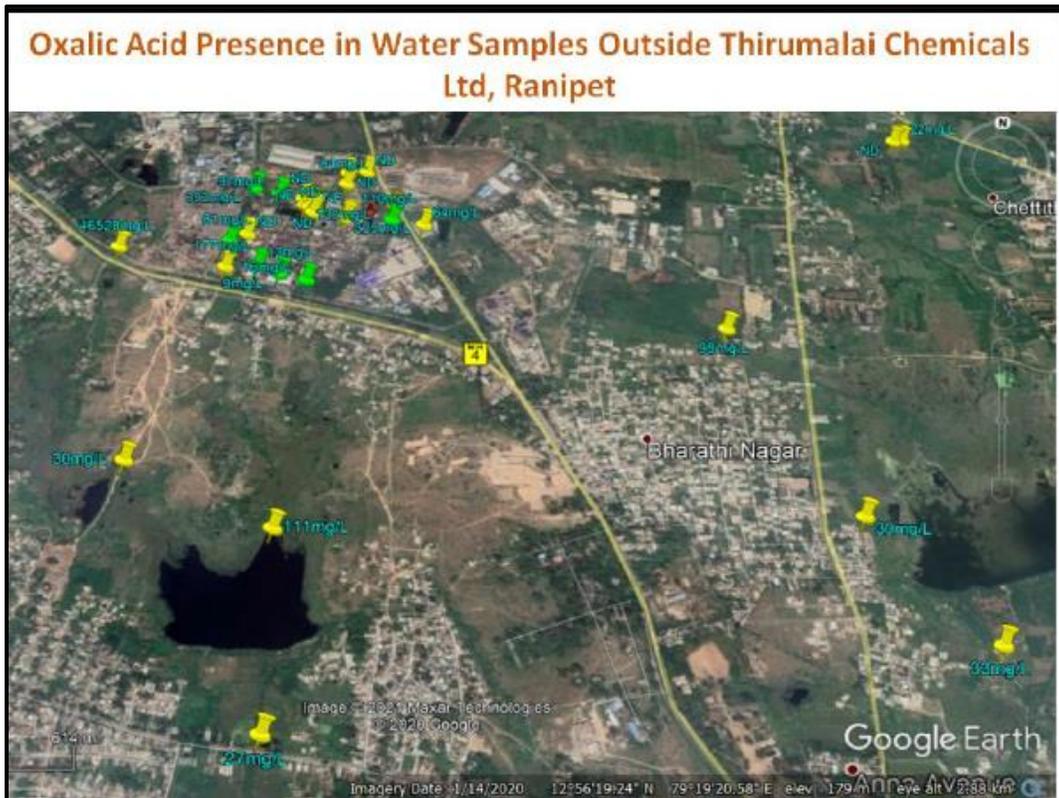
The effluents stored in the storage tanks has also been characterized and found Phthalic acid and Maleic acid presence in all storage tanks samples collected within the industry and it clearly indicates that the water stored in the storage tanks are industry effluent only. Only the cooling tower circulation sump water got detected oxalic acid but as per the consent order no oxalic acid either as raw material or product is being used in this industry. The samples collected within the industry found high COD values due to organic acids present whereas the outside collected samples got detected very less COD which indicates the outside samples may be impacted either by tannery effluent discharges or any other inorganic based industries discharges. The TDS and COD ratio in within industry collected samples are around 1: 5.7 whereas the water samples collected outside the industry is around 1:21 which clearly indicates the samples collected outside the industry found high TDS and COD values indicates the samples are in inorganic in nature and this may be due to other sources also including tannery effluent.

5.2. Water sample collection and analysis:

The samples are collected both downstream and upstream monitoring wells within the industry and characterized. The average Oxalic Acid concentration on the upstream monitoring wells is 172mg/L and Downstream is 30mg/L which clearly indicates the oxalic acid presence may be from the outside sources. The average TDS concentration on the upstream monitoring wells is

3370mg/L and Downstream is 1413mg/L which also indicates the high TDS presence may be from the outside sources. In the monitoring well samples (both up & downstream) Phthalic anhydride, Fumaric Acid, Maleic acid and Malic acid is not get detected. Total Chromium got detected high concentration (18mg/L) at the upstream monitoring well No.4 out of all monitoring wells which is NW corner of the plant and also it is very nearby defunct unit of M/s Tamil Nadu Chromates and Chemical Company Ltd (TCCL) and this is the only source for Chromium contamination.

The water samples were collected outside the industry on different identified locations (including Puliyan kannu Eri, Karai Eri, Thandalam Eri and Palar) and analyzed and found that that oxalic acid is present in almost all the locations at the concentration range between 20.6 to 46528mg/L which clearly indicates the oxalic acid may be from other sources like tanneries apart from the industry. The maximum concentration of 46528mg/L got detected outside Drain near road side - opp to continental leather as well as outside of Thirumalai chemicals-NW Corer of the plant- Both Thirumalai chemicals & Tamil Nadu Chromates and Chemical Company Ltd (TCCL) Discharge mixing point discharged / Letting out into common drain (Public) got detected the oxalic acid concentration of 1364mg/L.



Four numbers of soil samples were collected within the industry nearby the Xylene storage tanks area and found oxalic acid present at high concentration (1145.6mg/L) nearby Isoprine Tank No.15 and 153.6mg/L is present at right corner of the open area. Phthalic anhydride, Fumaric Acid, Maleic acid and Malic acid is not get detected in the soil samples. Total Chromium got detected in the soil samples in the range between 6.8 to 77mg/L which may be due to contamination from chromium-waste dumpsite.

The sediment samples are collected outside the industry and got detected oxalic acid in most of the locations. Out of all samples, the Karai Eri sediment sample got detected oxalic acid at high concentration of 3410mg/L.

The industry may have generated more effluent than presently approved process effluent quantity that may be reason the raw effluents are stored in the storage tanks. Also, DM plant reject contains high amount of sodium and chloride which cannot be able to treat in normal RO membrane and it requires sea water membrane for effective removal of chloride. Overall, the industry has to increase their effluent treatment plant with seawater membrane RO system and in future they should not to store any effluent in the storage tanks.

The results detailed in **Tables 1-7** are given in **at Annexure-3** and Maps showing the sampling location are given at **Annexure-4**.

5.3 Findings of the analysis:

- 1) The unit is designed for 720 KLD of treatment capacity (Consent to operate granted for 560 KLD), whereas after direction from TNPCB the unit is segregating the organic & inorganic waste stream and upgrading the treatment capacity 600 KLD which is under trail run.
- 2) The stagnated samples collected on 11.11.20 shows the discharge of untreated effluent on the own land inside the industry premises. The same is confirmed by comparing with the inlet effluent characteristics of ETP.
- 3) Oosing water from the discharge land was collected at three different locations and Phthalic acid presence is identified at one location.
- 4) Even though phthalic acid, fumaric acid & Malic acid were present in the samples collected inside premises, their impact due to over flow during the rainy season outside the premises and other water bodies not identified, since these organic pollutants are highly bio-degradable in nature. Moreover, these pollutants' bio-degradability may also increase after mixing with untreated sewage.

- 5) During the study, Oxalic acid presence is identified in most of the location around the SIPCOT industrial area and its downstream and in all water bodies. To identify the sources of oxalic acid, inlet effluent samples of Common Effluent Treatment Plant (CETP) were collected and same is found, which shows the oxalic acid pollution is due to Tanneries/CETPs.
- 6) Presence of Chromium VI were also identified in the water bodies, which is due to the continuous seepage water flowing from openly stored sludges present in the closed unit of M/s Tamilnadu Chromate and Chemical Ltd., (TCCL).
- 7) Untreated sewage flow from nearby residential areas is also polluting the water bodies.
- 8) The drains/ channels connecting to the water bodies belongs to SIPCOT industrial area as well as the other local bodies found grown with bushes/plants, which results industries taking chances for illegal discharge.
- 9) The surface water bodies namely Puliyanankannu lake, Karai lake, Sitheri lake and their drains were not properly maintained. Due to improper maintenance of drains, the water flow is affected, which leads to formation of wetland.

6. OBSERVATION BY THE MEMBER AND SUB-COLLECTOR, RANIPET ADDRESSING ILLEGAL DISCHARGE OF TRADE EFFLUENTS

(Detailed report received from the Sub-Collector, Ranipet with images/photos are given at **Annexure-5**).

The Committee Member (Sub-Collector Ranipet) has brought out the following observations and conclusions during his inspection along with DEE, TNPCB conducted on 11.11.2020 which was conducted based on a compliant received from local resident at that time:

D). Open Discharge of Effluent inside the Company premises

	OBSERVATION	CONCLUSION
1.	<p>A huge quantity of effluent water stagnated on open ground in the yard area in the north corner of the plant. Earthen embankments have been created to seep down into the ground.</p>	<p>The company claim that the stagnated water at the open ground in the yard area is external seepages coming into their plant from the West, N.West, because of the extensive slopes of land, the external underground seepages flow from West to East and from Northwest to South East from outside of TCL and through TCL.</p> <p>The test report revealed that the wastewater stored in open ground by earthen embankments in the yard area contains <i>Fumaric acid</i> to the concentration of 261.42 mg/l & 158.40 mg/l and <i>Phthalic Anhydride</i> 14.70 mg/l & 5.40 mg/l. Fumaric acid and Phthalic Anhydride are the main products of the plant. Fumaric acid, Maleic acid and Phthalic Anhydride are manufactured only by the respondent's company, no other company in the surrounding area manufactures the above said chemicals.</p> <p>The report of analysis revealed that signature pollutants of the company i.e., Fumaric acid and Phthalic Anhydride were present in the water. Hence it is proved that the water stagnated on the open ground by earthen embankment is nothing but the trade effluent generated at the manufacturing process in the plant. The stagnated water contains TDS 24324 mg/l and 24132 mg/l/. These harmful trade effluent were stagnated in open ground to seep down into the soil, which will result the contamination of groundwater.</p>
2.	<p>A huge quantity of water from DM plant reject/ untreated or partially treated effluent stored in 6 Raw water tanks. 4 temporary PVC pipelines were found. Some pipelines connected with 2 pumps operating in the DM plant reject</p>	<p>There were eight samples collected at Storage Tank - MA Raw water Pink, Storage Tank - PA-II Raw water Left side, Storage Tank - PA-II Raw water Right side, Raw water Collection tank I Pink, Raw water Collection tank II Pink, Raw water Collection tank II I Black and DM Plant discharge pipe line near raw water storage tank.</p>

<p>collection tank. A demo was done by the plant officials that how the water pumped through these temporary PVC pipes to raw water tanks.</p>	<p>The company claimed that Untreated/ partly treated, high TDS feed for the various sections of the new ETP plant is needed for testing. They further claimed that about 5200 KL stored in the tanks for treatment for commissioning activities, and tuning the new ZLD plants. The raw effluent generated during the ongoing manufacturing process itself enough for testing the new ETP Plant. There is no need of storing such huge quantity of effluent in raw water tank. The company did not obtain any prior permission from TNPCB for storing such high TDS untreated/partially treated effluent in raw water tanks. The raw water tanks fitted with temporary inflow PVC pipes. A demonstration was done by the plant authorities how the partially treated effluent, DM Plant regeneration water pumped into raw water tanks.</p> <p>They were asked to pump back the water as claimed by the company to ETP and RO plant for further treatment. No one is able to pump back the water in reverse direction into ETP/RO Plant as claimed by the company. There is no such pipeline for pumping back water to ETP/RO Plant.</p> <p>As per the TNPCB norms the pipelines should have indicated with clear colour codings. The plant authorities did not follow any such colour coding for raw effluent, DM plant regeneration water and raw water making distinct from other pipelines.</p>
<p>3. Effluent/blowdown wastewater was pumped up into unused MA cooling tower storage tanks. 4 of such tanks filled up half and drained on open ground.</p>	<p>The test report revealed that the wastewater stored in MA Cooling Tower Storage tank end compartment contains <i>Fumaric acid</i> to the concentration of 851.16 mg/l. MA Cooling Tower Storage tank Middle compartment contains <i>Fumaric acid</i> to the concentration of 348.80 mg/l and <i>Phthalic Anhydride</i> 49.19 mg/l. Fumaric acid and Phthalic Anhydride are the main products of the plant. Fumaric acid, Maleic acid and Phthalic Anhydride are manufactured only by the respondents company, no other company in the surrounding area manufactures the above said chemicals. The company claimed that the “MA Cooling Tower storage tank is used to store residual cooling system</p>

		<p>waters and muds flushed and drained from the systems”. This report proves that the wastewater stored in the MA Cooling Tower storage tank contains the signature pollutants of the plant <i>i.e., Fumaric acid and Phthalic Anhydride</i>. The claim of the company is disproved by the fact revealed in the test report. Hence, the wastewater is nothing but the effluent generated by the manufacturing process.</p> <p>The company also claimed that the MA Cooling Tower ground Concrete tank is in excellent condition and is used to the residual cooling systems water and mud flushed and drained from the systems.</p> <p>The MA Cooling Storage Tanks were found to be leaking and discharging effluent from the Concrete tanks to open ground and rain water drains. Hence, the company’s claim is not true.</p>
4.	<p>Wastewater stagnated inside the xylene storage tank's parapet walls. A heap of salt sediments, sludge were kept packed and stored inside the parapet walls.</p>	<p>Google Earth Satellite Historical Imagery of Xylene Tank Farm was analysed.</p> <p>There was no water stagnation found in the Xylene Tank Farm area inside the parapet wall from the year 2016 to 2019. In January of 2020, water stagnation was found in the Xylene Tank Farm area inside the parapet wall. It is pertinent to note that the water stagnation in the Tank Farm area is a recent phenomenon.</p> <p>The company also claimed that the external seepages were found in the dyke wall area of the O-Xylene storage tanks. The company passed the burden to external seepages. However, the report of analysis revealed that the seepages stored near the isoprene storage tank area, O-Xylene Storage tanks 13 & 14 area contains <i>Fumaric acid</i> to the concentration of 246.65 mg/l & 99.50 mg-l and <i>Phthalic Anhydride</i> 11.46 mg/l. Fumaric acid, Maleic acid and Phthalic Anhydride are manufactured only by the respondent’s company, no other company in the surrounding area manufactures the above said chemicals. Hence, it is proved that the seepages found in the dyke wall area</p>

		<p>of O-Xylene and Isoprene storage tanks contains raw effluents of the plant.</p> <p>The Chemical analysis of the sedimented salt and the effluent water stored in the raw water tank are matched with each other. Sodium, Chlorides, Potassium are found effluent water stored in the raw water tanks, and the sediment sludges found inside the parapet wall of the Xylene Tank area.</p> <p>It was found that the water stagnation mark was found for 1 meter depth inside the parapet wall, a clear stain and water marking found in the walls. Parapet wall was built up with random rubble masonry for 3 meter height. The parapet walls have been constructed for the safety purpose to hold the liquid, if any accidental spills from the xylene tanks. It is evident that 1 meter depth water stagnation has happened. It could not have happened without any artificial pumping into the parapet wall area.</p> <p>Hence, it is corroborated that a large column of effluent water has been kept stagnated into the parapet wall area until it seeps into groundwater. It resulted in the salt dissolved in the effluent deposited at the bottom of the parapet wall area. It was scraped by the Company authorities and kept stored in Polythene bags.</p>
5.	The DM plant rejects are pumped through 2 water pumps in collection tanks.	<p>The company claimed that Untreated/ partly treated, high TDS feed for the various sections of the new ETP plant is needed for testing. They further claimed that about 5200 KL stored in the tanks for treatment for commissioning activities, and tuning the new ZLD plants. The raw effluent generated during the ongoing manufacturing process itself enough for testing the new ETP Plant. There is no need of storing such huge quantity of effluent in raw water tank. The company did not obtain any prior permission from TNPCB for storing such high TDS untreated/partially treated effluent in raw water tanks. The raw water tanks fitted with temporary inflow PVC pipes. A demonstration was done by the plant authorities how the partially treated effluent,</p>

	<p>DM Plant regeneration water pumped into raw water tanks.</p> <p>They were asked to pump back the water as claimed by the company to ETP and RO plant for further treatment. No one is able to pump back the water in reverse direction into ETP/RO Plant as claimed by the company. There is no such pipeline for pumping back water to ETP/RO Plant.</p> <p>As per the TNPCB norms the pipelines should have indicated with clear colour codings. The plant authorities did not follow any such colour coding for raw effluent, DM plant regeneration water and raw water making distinct from other pipelines.</p>
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II). Underground cement pipeline opposite to the company:

The Joint Committee inspected the company and the water bodies in the vicinity on 07.10.2020. It was found that an underground cement pipeline along with the road in SIPCOT land opposite to the alleged company ended in earthen drain nearby cremation ground. A joint inspection conducted by the Sub Collector, Ranipet and the Project Officer, SIPCOT on 13.10.2020. The Project Officer, SIPCOT submitted a report on 01.12.2020 is detailed below:

Sl.No	Details asked	Reply by Project Officer
1.	To furnish the Pipeline Layout map from the origination to end point	Pipeline layout map from the origination to end point is enclosed
2.	To furnish the Length, Breadth Depth and Dimension of the pipeline	The details of length, Breadth depth and dimension of the pipe line is shown in the layout enclosed.
3	To furnish the answers for the following queries: What is the purpose of the pipeline?	There is a possible of carrying the proposal for disposal of effluent from this oxidation pond from M/s. thirumalai Chemicals Ltd and effluent may also be let out from this pipeline.
	Who did request the SIPCOT to construct that pipeline?	Details are not available in this office.
	When was it constructed?	There is no records available in this office.
	How much amount spent for the construction?	Not ascertained

	Who did spend the money?	Not ascertained
	Who did execute the work?	Not ascertained
	Who did grant permission to lay pipeline in SIPCOT land, Panchayat land?	We have not given any permission to lay pipeline
4.	To furnish the map of the SIPCOT, Ranipet, Phase-I, Industrial Estate	Layout map enclosed

It is learnt from the report submitted by the Project Officer, SIPCOT that **the underground cement pipeline from Thirumalai Chemicals Ltd to the water drain canal of Karai Lake was laid without any permission.** The Project Officer, SIPCOT submitted a layout map of the underground cement pipeline. The pipeline has 504m length, 300mm diameter and 16 manholes. The pipeline carries water from the unused oxidation pond near the Thirumalai Chemicals Ltd to the water drain to Karai lake. A local enquiry made with the residents of the localities. The facts ascertained from the report submitted by the Project Officer, SIPCOT and the local enquiry are detailed below: -

1. The Thirumalai Chemicals Ltd has constructed the underground cement pipeline without any permission from SIPCOT and Local body.
2. The company has laid an underground pipeline clandestinely to let out the effluent into the water body.
3. The pipeline was connected with the oxidation pond nearby Thirumalai chemicals ltd. The oxidation pond is situated very next to the effluent treatment plant (ETP) of the company. It is possible to discharge effluent to the oxidation pond from where the effluent is carried/taken through the pipeline. The local resident complained to Sub Collector Ranipet in June 2019 about illegal discharge of effluent through the unused oxidation pond. Hence, it was closed by the directions of DEE, TNPCB Vellore.

7. ENVIRONMENTAL COMPENSATION PAID FOR THE DAMAGE CAUSED TO THE ENVIRONMENT:

Earlier, on 25.09.2019, for a public complaint of illegal discharge of the trade effluents outside the industry premises by TCL, action was taken by the Sub- Divisional Magistrate under Section 133 of Code of Criminal Procedure and directed the industry not to open the unit without resorting to making the ZLD system effective. Thereafter, an interim injunction order which was issued by the Sub-Collector was revoked on 05.10.2019 upon hearing the explanation and submission of action plans by TCL. It was submitted by the TCL that incident of discharge of

waste effluent happened was due to forces attributable to nature resulting in sudden increase in hydraulic load to Effluent Treatment Plant as were taking rain water into our ETP.

In this regard for the above complaint, the Tamil Nadu Pollution Control Board, vide order dated 13-11-2019 (**Annexure-6**), had issued the industry certain directions under Section 33A of the Water (Prevention and Control of Pollution) Act, 1974 as amended, and imposed a penalty of Rs.18.6 Lakhs for the following violation but have not issued any directions to close the unit.

- (i) The unit has failed to operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system.
- (ii) The display of flow meters provided at inlet of ETP (Equalization Tank) and outlet (Sand filter bed) was found to rusted and display not clear
- (iii) The online connectivity of ETP, R.O and RMS were found to not display readings from 22-9-2019
- (iv) The unit has discharged effluent/waste water outside the premises by not maintaining ZLD into channel confluenting with drain water of defunct unit M/s Tamil Nadu Chromates and Chemicals Ltd. This directly reaches lakes of Karai/Puliyankannu which is used by public and villages and violation of consent order conditions issued to the unit.

As directed by the TNPCB, an amount of Rs. 18,60,000 (Rupees Eighteen lakhs sixty thousand only) was paid by TCL as environmental compensation on 13-12-2019.

Further, for repeated complaints and violations, the TNPCB, on 9-12-2020 (**Annexure-7**), issued stringent directions, under the Water (Prevention and Control of pollution) Act, 1974 as amended, to the TCL to: (i) Restrict the production of 50 % of its consented quantity so as to achieve zero liquid discharge consistently till the commencement & effective functioning of newly constructed ZLD components (ii) Furnish the bank Guarantee for Rs. 10 lakhs (Rupees Ten Lakhs) to the Board for the compliance of the following conditions:

- (i) The unit shall construct and commence the new ZLD components for effective functioning so as to achieve Zero liquid discharge
- (ii) The unit shall operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times.
- (iii) The operation of the unit shall not attract any public complaints.
- (iv) The unit shall comply with recommendations of the Hydro-geological study report.
- (v) The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa.

- (vi) The unit shall provide suitable no. of Piezometric wells at the upstream and downstream side of the unit premises, so as to assess the ground water quality.
- (vii) The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of the unit.
- (viii) The unit shall revamp the storm water drain within the unit premises after detailed study on the carrying capacity with respect to surface runoff.
- (ix) The unit has to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.
- (x) The unit shall comply with conditions mentioned in the renewal of consent order vide proc.dated 03.07.2019.
- (xi) The unit shall strictly comply with conditions mentioned in the renewal of consent order vide proc. dated 13.11.2019.

In this regard, for non-compliance of consent order conditions, discharges noticed in violation of consent conditions, exceedance of mainly prescribed standards /consent limits, internal discharge to the environment -land, water and air resulting into acute injury or damage to the environment and injection of treated /partially treated /untreated effluents to the ground water and based on repeated violations caused by the unit, **as directed by the TNPCB, vide order dated 8-1-2021, an amount of Rs. 17,40,000 (Rupees Seventeen lakhs forty thousand only) was paid by TCL as environmental compensation on 22-1-2021 (Annexure-8).**

8. COMPLIANCE WITH ALL THE POLLUTION CONTROL NORMS INCLUDING THE CONDITION IMPOSED BY THE AUTHORITIES.

The unit has obtained the following consents/authorization:

- 1) Consent Under Air Act which is valid upto 30.09.2020
- 2) Consent Under Water Act which is valid upto 30.09.2020
- 3) Authorization Under HW rules which is valid upto 10.02.2025

The Committee reviewed the status of compliances of various directions issued by the TNPCB (Proc. No. T5/TNPCB/F.0892/VLR/RL/W/2019 dated 13-11-2019) arising out of the public complaint on 23-9-2019 alleging discharge of waste water from the unit causing surface/ground water pollution and subsequent interim injunction order issued by the Court of Sub-Divisional Magistrate (Ranipet Division) on 8-11-2019. Compliance status of the conditions issued by the TNPCB on 09-12-2020 is given at **Annexure-9**.

9. CONCLUSIONS AND RECOMMENDATIONS:

- 1) The overall grievance in this case is regarding the pollution caused to the water bodies namely Karai Eri, Pulianganu Eri, Palaar and Ponnigar on account of the illegal activities conducted by the industrial unit M/s Thirumalai Chemicals Ltd (TCL).
- 2) From the sample analysis, it was observed that the industry's land inside their own premises was polluted due to discharge of untreated effluent. The same was confirmed by comparing with the inlet effluent characteristics of Effluent Treatment Plant. Oosing water from the discharge land was collected at three different locations and Phthalic acid presence is identified at one location.
- 3) Even though phthalic acid, fumaric acid & Malic acid were present in the samples collected inside premises, their impact, due to over flow during the rainy season outside the premises and other water bodies, was not traceable/observed, since these organic pollutants are highly bio-degradable in nature. Moreover, these pollutants' bio-degradability may also increase after mixing with untreated sewage. Hence, the impact could not be traced in the samples collected at water bodies.
- 4) **Oxalic acid pollution:** The study found that presence of Oxalic acid in most of the location around the SIPCOT industrial area and its downstream areas and in all water bodies. To identify the sources of oxalic acid, CETP inlet effluent samples were collected and same is found, which shows the oxalic acid pollution is due to Tanneries/CETPs. Compliance status of pollution norms for Tanneries/CETPS in SIPCOT will be covered as part of another NGT Joint Committee in the matter of OA No.186/2020 (SZ).
- 5) **Chromium contamination:** Presence of Chromium was also identified in the water bodies, which is due to the continuous seepage water flowing from openly stored sludges present in the defunct unit of M/s Tamil Nadu Chromate & Chemical Ltd., (TCCL). Detail study was already carried out under the National Clean Energy Fund (NCEF) project by CPCB for remediation of chromium contaminated site. The report was submitted to TNPCB and TN State government with request to take up remediation work. The status report was already filed in the matter of OA No. 186/2020 (SZ).
- 6) Untreated sewage flow from nearby residential areas is also polluting the water bodies. The drains/ channels connecting to the water bodies belongs to SIPCOT industrial area as well as the other local bodies found grown with bushes/plants, which results industries taking chances for illegal discharge.

- 7) For improper effluent management and violations noticed in consent conditions, the unit paid environmental compensation twice to the TNPCB. An amount of Rs. Rs. 17,40,000 (Rupees Seventeen lakhs forty thousand only) was paid by TCL as environmental compensation on 22-1-2021. The unit, for the similar violations, had paid an amount of Rs. 18,60,000 (Rupees Eighteen lakhs sixty thousand only) to the TNPCB as environmental compensation on 13-12-2019.
- 8) **Recommendations to TCL:** As the unit was observed for non-compliance of consent order conditions, discharges noticed in violation of consent conditions, internal discharge to the environment -land, water and air resulting into acute injury or damage to the environment and injection of treated /partially treated /untreated effluents to the ground water and based on repeated violations, the unit was directed by TNPCB to restrict the production of 50 % of its consented quantity so as to achieve zero liquid discharge consistently till the commencement & effective functioning of newly constructed ZLD components. As the unit is in the process of establishing ZLD system and started trial runs for validation of the equipment to achieve Zero liquid discharge with respect to treating effluents, the unit shall be allowed to operate in full load only after ensuring the complete/full-fledged operation of upgraded ETP by TNPCB. The full-fledged operation of ZLD system should be commenced within four months-time by the TCL. Further, the conditions issued by TNPCB are to be complied within three-months times.
- 9) After commissioning of upgraded ETP, adequacy test needs to be carried out by an independent govt academic/research institution like IIT Madras and to certify that the unit has achieved 100% ZLD capacity.
- 10) TCL shall, in consultation with reputed institute such as IIT, Madras, prepare a DPR within three months-time, for the remediation of the land where the untreated effluent was discharged within the industry site and execute the task of remediation of contaminated site, under the supervision of TNPCB. The entire cost for the study and remediation shall be borne by the industry as per polluter pays principle.
- 11) **Recommendations to SPICOT & SIDCO:** The drains belong to the SIPCOT & SIDCO shall be maintained properly and ensure these drains shall not carry any untreated effluent/sewage other than the storm water.
- 12) **Recommendations to Local bodies & PWD:** For management of sewage inflow which is causing eutrophication of lake or pond by having adequate infrastructure for treatment of sewage through adequate capacity of sewage treatment plants (STPs) or combination of other low-cost treatment technologies for ensuring discharge norms notified under Environment (Protection) Act, 1986 and same should be ensured by the concerned local or urban body.

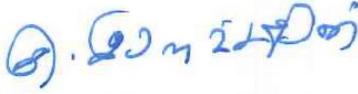
PWD shall carry out periodic dredging /de-weeding activities in ponds and lakes for proper restoration and management.

- 13) **Recommendations to TNPCB:** TNPCB shall be directed to carry out the detailed study on mapping of oxalic acid in the entire area SIPCOT, SIDCO area, Ranipet & nearby towns/villages and also to identify any other sources other than tanneries. A Detailed Project Report shall be prepared and accordingly remediation shall be suggested & carried out by TNPCB. For this, the entire study and remediation cost shall be borne by the tanneries/CETPs and other such identified source of industries that are using oxalic acid.
- 14) **Recommendations to Govt. of Tamil Nadu:** Remediation of Chromium contamination site shall be carried out by Govt. of TN as per the status report filed in the matter of OA No. 186/2020 (SZ).

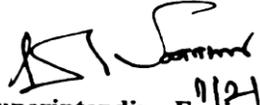
By considering the above facts and observation of the Joint Committee, the Hon'ble Tribunal may pass appropriate Order (s)/Direction (s) as deemed fit.



B. Shrinivas
Sub-Collector, Ranipet



G. Govindaraj
District Environmental
Engineer (DEE), TNPCB,
Vellore.



K. S. Srinivas
11/2/21
Superintending Engineer,
PWD, Water Resource
Organisation (WRO), 1/c
Pennaiyar Basin Circle,
Tiruvannamalai



R. Thevar
Scientist 'D',
Regional Office, MoEF&CC,
Chennai



N. Jeyaraj
Scientist 'D'
Central Pollution Control Board (CPCB),
Regional Directorate, Chennai

Item No.4:

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

Original Application No. 131 of 2020 (SZ)

(Through Video Conference)

IN THE MATTER OF:

M. Jayachandran,
Ranipet District and Anr.

... Applicant(s)

With

The Ministry of Environment,
Forest & Climate Change and Ors.

...Respondent(s)

Date of hearing: 30.07.2020.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER

For Applicant(s):

M/s. S. Sai Sathya Jith.

For Respondent(s):

M/s. M. Mani Gopi for R2 to R4, R7.

M/s. C. Kasirajan through

M/s. Meena for R5, R6.

ORDER

1. The grievance in this application is regarding the pollution caused to the water bodies namely Palaar and Ponnaiyaar on account of the illegal activities conducted by the eight respondent.
2. It is alleged in the application that eight respondent has been conducting a Petrochemical Industry, since 1976 and he is flagrantly violating all environmental laws, not providing any necessary pollution control mechanism. Though, they claim to be a Zero Liquid Discharge unit, in fact, they are clandestinely discharging the untreated effluents into the rain water drains by providing illegal underground pipe provided which ultimately reach the above said rivers polluting the water in the river.
3. It is also alleged in the application that huge amount of ground water is being extracted unauthorizedly by the eighth respondent without getting necessary permission from the authorities, though it is an over exploited area.
4. On earlier occasion this was found out and action was taken and they have been directed to maintain the ZLD in their unit. Sub Divisional Magistrate had even initiated proceeding under Section 133 of Code of Criminal Procedure and

ultimately passed an absolute order under Section 138 of Code of Criminal Procedure by order dated 14.10.2019 in RC No. A6/4232/2019 wherein the Sub Divisional Magistrate had reiterated the nature of violation committed by the eighth respondent and the public nuisance caused on account of their illegal activities and directed them not to open the unit without resorting to making the ZLD system effective. On the basis of this order, though Pollution Control Board had issued proceeding giving them only certain directions and also imposing a penalty of Rs.18.6 Lakhs for the violation but have not issued any directions to close the unit.

5. So under such circumstances, applicant has no option but to approach this Tribunal seeking the following reliefs:-

- (i) *To declare the operations of the 8th respondent unit as illegal, unauthorized and in violation of the Environment Protection Act, 1986.*
- (ii) *To grant permanent injunction and restrain the 8th respondent unit from carrying on further activities.*
- (iii) *To direct the respondent authorities to order for permanent closure of the operations of the 8th respondent industry for violations of environmental law.*
- (iv) *To direct the 8th respondent to pay environmental compensation as may be determined by this Hon'ble Tribunal.*

- (v) *To direct the respondent (1) to (7) to initiate criminal prosecution against the 8th respondent for violations of the provisions of the environmental legislations.*
- (vi) *Pass such further or other orders as this Hon'ble Tribunal may deem fit and necessary in the interest of justice."*

6. When the matter came up for hearing today through Video Conference for admission, Sri. Sai Sathya Jith represented the applicant, Sri. M. Mani Gopi represented respondents 2, 3, 4 & 7 and Sri. C. Kasirajan through M/s. Meena represented respondents 5 & 6.
7. On going through the allegations, we are satisfied that there arises a substantial question of environment which requires the interference of this Tribunal to resolve the issue.
8. Further, the order passed by the Sub Divisional Magistrate as mentioned above shows the extent of pollution and public nuisance caused to the water bodies on account of the illegal activity of the eighth respondent.
9. So considering the circumstances, we admit the matter.
10. Issue notice to the respondents 1 & 8, as other respondents entered appearance through standing counsel.
11. The applicant is directed take steps to serve notice on the respondents 1 & 8 by Registered Post with Acknowledgment

and if possible by Dusthi and produce the proof of service to this Tribunal by filing an affidavit as per rules.

12. The applicant is also directed to serve copies of the application to the standing counsel appearing for the respondents within a week.

13. The applicant is also directed to produce necessary requisite to this Tribunal along with postal cover with sufficient postal stamps within a week so as to enable the Tribunal to send notice to the respondents 1 & 8.

14. In order to ascertain the present state of affairs and nature of damage caused and assess the environmental compensation, we feel it appropriate to appoint a Joint Committee comprising of 1) the District Collector, Ranipet or a Senior Officer not below the rank of Assistant Collector or Sub Divisional Magistrate of that area designated by him 2) a Senior Scientist of Pollution Control Board designated by the Chairman of Tamil Nadu Pollution Control Board, 3) Superintending Engineer of Public Works Department and Water Resources Organization, 4) Senior officer from the Ministry of Environment, Forest & Climate Change (MoEF & CC), Regional Office, Chennai and 5) a Senior Scientist from Central Pollution Control Board, Regional Office, Chennai to inspect the unit in question and also the Puliyanaganu Eri

Palaar and Ponniyar which were polluted on account of this and submit a factual as well as action taken report to this Tribunal, if any violation is found.

15. The Committee is directed to go into the question as to whether there was any illegal discharge of trade effluents into the water bodies or public drain illegally by the eighth respondent and the nature of contamination caused to the water bodies on account of the illegal activity, assess the damage caused to the environment and environment compensation and ascertain as to whether the eighth respondent is strictly complying with all the pollution control norms including the condition imposed by the authorities.
16. The committee is also directed to ascertain as to whether there is any unauthorized extraction of ground water and while assessing the environmental compensation, this aspect also may be considered by the committee.
17. The Committee is also directed to take water samples from the water bodies as well as from the drain where the industries is situated and after conducting the analysis, if there is any contamination found, the remedial measures to rectify the same may also be recommended.

18. The Ministry of Environment, Forest & Climate Change (MoEF & CC), Regional Office, Chennai will be the nodal agency for co-ordination and providing necessary logistics for this purpose.
19. The committee is directed to submit a report to this Tribunal within a period of three months i.e., on or before 28.10.2020 by e-filing.
20. The applicant is also directed to submit a set of papers to the committee members within a week.
21. The Registry is directed to communicate this order to the members of the committee immediately by e-mail so as to enable them to comply with the direction.
22. For appearance of parties and also for consideration of report, post on 28.10.2020.

.....J.M.
(Justice K. Ramakrishnan)

.....E.M.
(Sri Saibal Dasgupta)

**O.A. No.131/2020,
30th July, 2020. Mn.**

Annexure-2



Runoff water collection tank



ETP

Construction of sub-surface Storm Water Drain around the Unit



Construction of upstream and downstream Peizo metric wells



Table -1

Water Samples Collected Outside the Thirumalai Chemicals Ltd, Palar River and CETP

S.No.	Location	Oxalic Acid (mg/L)
1	Sump located at the end of boundary	0.00
2	Outside of Thirumalai chemicals-NW Corer of the plant	1364.36
3	Outside Drain near road side - opp to continental leather	46528.00
4	Outlet of Pulliyankannu Eri- Contribution from CETP	29.93
5	Outlet of Karai Eri	110.63
6	Karai Eri (At Eri)	20.64
7	Drains which is coming from Industry	0.00
8	Water sample drain from Tannery	22.41
9	Culvert near Anjaneya temple nearby TCL Eastern gate	63.71
10	Anjaneya temple Continuation- Flow is high	97.53
11	Water sample- Rear end of Thandalam Eri	29.73
12	Discharge channel from Thandalam Eri	32.86

Sampling Station: River Palar

Location	PH	EC (us/cm)	Total Dissolved Solids (mg/l)	Colour	Total Alkalinity (mg/l)	COD (mg/l)	BOD (mg/l)	Sodium (mg/l)	Potassium (mg/l)	TS (mg/l)	Oxalic acid (mg/l)	Chromium (mg/l)
upstream area	8.03	1495	920	20 hazen	289	39	9.1	198	12	8.0	44.407	BLQ (LOQ: 0.005)
Downstream area	7.87	3680	2120	Yellow	294	66	16.3	394	45	25.0	94.335	0.02

S.No	Sample Location	Sample Description	COD (mg/l)	TDS (mg/l)	OXALIC ACID (mg/l)
1	CETP Phase 1	Inlet	5415	9900	239.5
2	CETP Phase 2	Inlet	5486	10500	216.5

S. N	LOCATION	Maleic Acid (mg/L)	Fumaric Acid (mg/L)	Phthalic Acid (mg/L)	Oxalic Acid (mg/L)	Chromium (mg/L)
1	Pond No: 2 Water sample Maleic anhydride Plant-Sump Circulation Pond (Each tank capacity 150KL)	79.54	BLQ	1064.72	325.09	0.13
2	Pond No: 4 Water sample Maleic anhydride Plant-Sump Circulation Pond (Each tank capacity 150 KL)	BLQ	BLQ	943.04	123.26	0.14
3	Borewell- UPSTREAM WELL NO:3 (monitoring well within industry nearby raw water collection tank)	BLQ	BLQ	0.00	126.89	BLQ
4	PA II Raw water tank 811 KL Each tank 1&2	14.21	BLQ	621.27	BLQ	0.01
5	PA II Raw water tank -2	20.72	BLQ	466.61	BLQ	BLQ
6	PA II Raw water tank -3	33.62	BLQ	645.19	BLQ	0.03
7	Rain water collection tank 2100KL Compartment 1 &2	BLQ	BLQ	789.71	BLQ	0.09
8	Fire Water tank 2 - Compartment 1 capacity 2100 m3	11.38	BLQ	283.04	BLQ	0.01
9	Fire Water tank 2 - Compartment 2 capacity 2100 m3	BLQ	BLQ	1096.04	BLQ	0.03
10	1m depth water oosing taken place and same water is collected	BLQ	BLQ	0.00	84.03	BLQ
11	Water samples collected at soil sampling locations as oosed water	BLQ	BLQ	0.00	BLQ	BLQ
12	Water sample on soil sampling pit(oosing)	BLQ	BLQ	40.59	BLQ	BLQ
13	water sample: Sump located at the end of boundary &there from letting out into outside premises	BLQ	BLQ	86.37	BLQ	BLQ
14	Upstream well no :4 - MA Plant gate (Near Warehouse)	BLQ	BLQ	0.00	110.43	BLQ

15	Upstream well no:2 (Monitoring well) Near raw water collection tank	BLQ	BLQ	0.00	97.52	BLQ
16	Upstream well no :1 (monitoring well)- NW Corner of the plant (Security Tower)	BLQ	BLQ	0.00	352.07	18.12
17	Raw effluent at Equalization tank	141.69	94.25	431.22	BLQ	0.07
18	Monitoring well-Downstream well no:4 SW Corer of the plant (Near ETP Area)	BLQ	BLQ	0.00	81.01	0.88
19	Monitoring well-Downstream well no :3 Near Run off water pit- Opp to Common work shop	BLQ	BLQ	0.00	12.38	0.01
20	Monitoring well-Downstream well no:2.0 - Plant 145 Bagging Warehouse opposite	BLQ	BLQ	0.00	9.06	BLQ
21	Monitoring well-Downstream well no :1 Near Security gate	BLQ	BLQ	0.00	16.13	0.01

Table- 3. Soil Samples Collected Inside the Thirumalai Chemicals Ranipet						
S.NO	LOCATION	Maleic Acid (mg/L)	Fumaric Acid (mg/L)	Phthalic Acid (mg/L)	Oxalic Acid (mg/L)	Chromium (mg/L)
1	Soil sample Surface at Xylene Storage tank 13 & 14	BLQ	BLQ	BLQ	0.00	77.13
2	Soil sample near Isoprine tank no:15	BLQ	BLQ	BLQ	1145.60	17.26
3	Near Xylene Storage tank no 13& 14 Soil sample Collected at 1 m depth (3location sample are composite and taken as one sample)	BLQ	BLQ	BLQ	0.00	14.01
4	Soil sample near to sample No:13	BLQ	BLQ	BLQ	153.56	23.67
5	Soil sample at a depth of where 2 day before contaminated water stagnated nearly drain (Sample collected at 5 location at 1m depth & composite	BLQ	BLQ	BLQ	0.00	6.80
6	Soil sample collected Oosed water	BLQ	BLQ	BLQ	0.00	13.87

Table- 4. Soil Samples Collected Outside the Thirumalai Chemicals		
S.NO	LOCATION	Oxalic Acid (mg/L)
1	Soil sample Surface at Xylene Storage tank 13 & 14	0.00
2	Soil sample near Isoprime tank no:15	1145.60
3	Near Xylene Storage tank no 13& 14 Soil sample Collected at 1 m depth (3location sample are composite and taken as one sample)	0.00
4	Soil sample near to sample No:13	153.56
5	Soil sample at a depth of where 2 day before contaminated water stagnated nearly drain (Sample collected at 5 location at 1m depth & composite	0.00
6	Soil sample collected OOSD water	0.00
7	Outlet of Pulliyankannu Eri	305.43
8	Outlet of Karai Eri (Which is connected to TCL outlet drains 7 other industries drains	204.31
9	Karai Eri sediment	3410.29
10	Sediment sample -Outlet from Industry-outside the CPD well water discharging	40.63
11	Sediment sample -outside of the thirumalai chemical- NW corner of the Plant- both thirumalai chemical & TCL discharge Mixing point discharge/Letting out into common drain (public)	142.39
12	Sediment sample - water sample at drains which is coming from TCL	60.37
13	Sediment sample - water sample at drains which is coming from tannery	151.85
14	A culvert near Anjaneya temple nearby TCL Eastern gate	0.00
15	Sediment - Anjaneya temple continuation -Flow is high	327.02
16	Sediment sample - Rear end of the Thandalam Eri	38.78
17	Sediment sample - Discharge channel from Thandalam Eri	49.96

S.N	LOCATION	TDS (mg/l)	Chloride (mg/l)	Sodium (mg/l)	COD (mg/l)
1	Outlet from industry- Outside the CPD well water discharging	3700	1144	740	28
2	Outside of Thirumalai chemicals-NW Comer of the plant- Both thirumalai chemicals & TCL Discharge mixing point discharged / Letting out into common drain (Public)	2040	402	270	BDL (DL:4 .0)
3	Outside Drain near road side - opp to continental leather	2700	763	530	133
4	Outlet of Pulliyankannu Eri- Contribution from CETP	2460	351	410	60
5	Outlet of Karai Eri (Which is connected to TCI Outlet drains 7 other industries drains)	2020	442	270	0
6	Karai Eri (At Eri)	2000	452	280	137
7	Water sample at drains which is coming from TCL	8000	6425	1860	1053
8	Water sample at drain which is coming from tannery	2500	803	350	26
9	Water - A culvert near Anjaneya temple nearby TCL Eastern gate	7700	3062	1610	53
10	Water - Anjaneya temple Continuation- Flow is high	3400	542	440	68
11	Water sample- Rear emd of Thandalam Eri	990	246	117	0
12	Discharge channel from Thandalam Eri	1020	296	156	0

Table-6. Soil Samples Collected Outside the Thirumalai Chemicals Ranipet					
S.NO	LOCATION	Water Soluble Solids (mg/kg)	Chloride (mg/kg)	Sodium (mg/kg)	Oil &Grease (mg/kg)
1	Outlet of Pulliyankannu Eri	4683	320	909	BDL(DL:4.0)
2	Outlet of Karai Eri (Which is connected to TCL outlet drains 7 other industries drains	3667	80	644	BDL(DL:4.0)
3	Karai Eri sediment	6467	200	1113	BDL(DL:4.0)
4	Sediment sample -Outlet from Industry-outside the CPD well water discharging	6767	2364	2030	BDL(DL:4.0)
5	Sediment sample -outside of the thirumalai chemical- NW corner of the Plant- both thirumalai chemical & TCCL discharge Mixing point discharge/Letting out into common drain (public)	3853	84	585	BDL(DL:4.0)
6	Sediment sample - water sample at drains which is coming from TCL	8754	3889	2788	BDL(DL:4.0)
7	Sediment sample - water sample at drains which is coming from tannery	28151	801	4715	BDL(DL:4.0)
8	A culvert near Anjaneya temple nearby TCL Eastem gate	16569	7306	5504	BDL(DL:4.0)
9	Sediment - Anjaneya temple continuation -Flow is high	3180	160	536	BDL(DL:4.0)
10	Sediment sample - Rear end of the Thandalam Eri	3980	80	157	BDL(DL:4.0)
11	Sediment sample - Discharge channel from Thandalam Eri	6244	80	598	BDL(DL:4.0)

Table-7. Water Samples Collected Within the Thirumalai Chemicals Ranipet					
S.NO	LOCATION	TDS (mg/l)	Chloride (mg/l)	Sodium (mg/l)	COD (mg/l)
1	Pond No: 2 Water sample Maleic anhydride Plant-Sump Circulation Pond (Each tank capacity 150KL)	28420	15862	5200	5600
2	Pond No: 4 Water sample Maleic anhydride Plant-Sump Circulation Pond (Each tank capacity 150 KL)	27790	15059	5750	6947
4	PA II Raw water tank 811 KL Each tank 1&2	13490	7279	2490	2293
5	PA II Raw water tank -2	8810	4518	2740	1493
6	PA II Raw water tank -3	10750	4819	2720	124
7	Rain water collection tank 2100KL Compartment 1 &2	17860	10090	4170	169
8	Fire Water tank 2 - Compartment 1 capacity 1050 m3	8720	3815	2280	844
9	Fire Water tank 2 - Compartment 2 capacity 1050 m3	22180	11897	8570	4632
10	Upstream well no :4 - MA Plant gate (Near Warehouse)	5330	2811	1080	9
11	Upstream well no:2 (Monitoring well) Near raw water collection tank	1740	622	320	BLQ
12	Upstream well no :1 (monitoring well)- NW Corner of the plant (Security Tower)	1280	271	310	32
13	Raw effluent at Equalization tank	7280	2811	1730	3432
14	Monitoring well-Downstream well no:4 SW Corner of the plant (Near ETP Area)	635	151	93.7	9
15	Monitoring well-Downstream well no :3 Near Run off water pit- Opp to Common work shop	1970	512	370	BLQ
16	Monitoring well-Downstream well no:2.0 - Plant 145 Bagging Warehouse opposite	1910	592	370	BLQ
17	Monitoring well-Downstream well no :1 Near Security gate	1210	361	181	37

Maps showing sampling locations inside and outside the industry premises and water bodies

Fig.2. Map showing water samples collected within TCL Unit

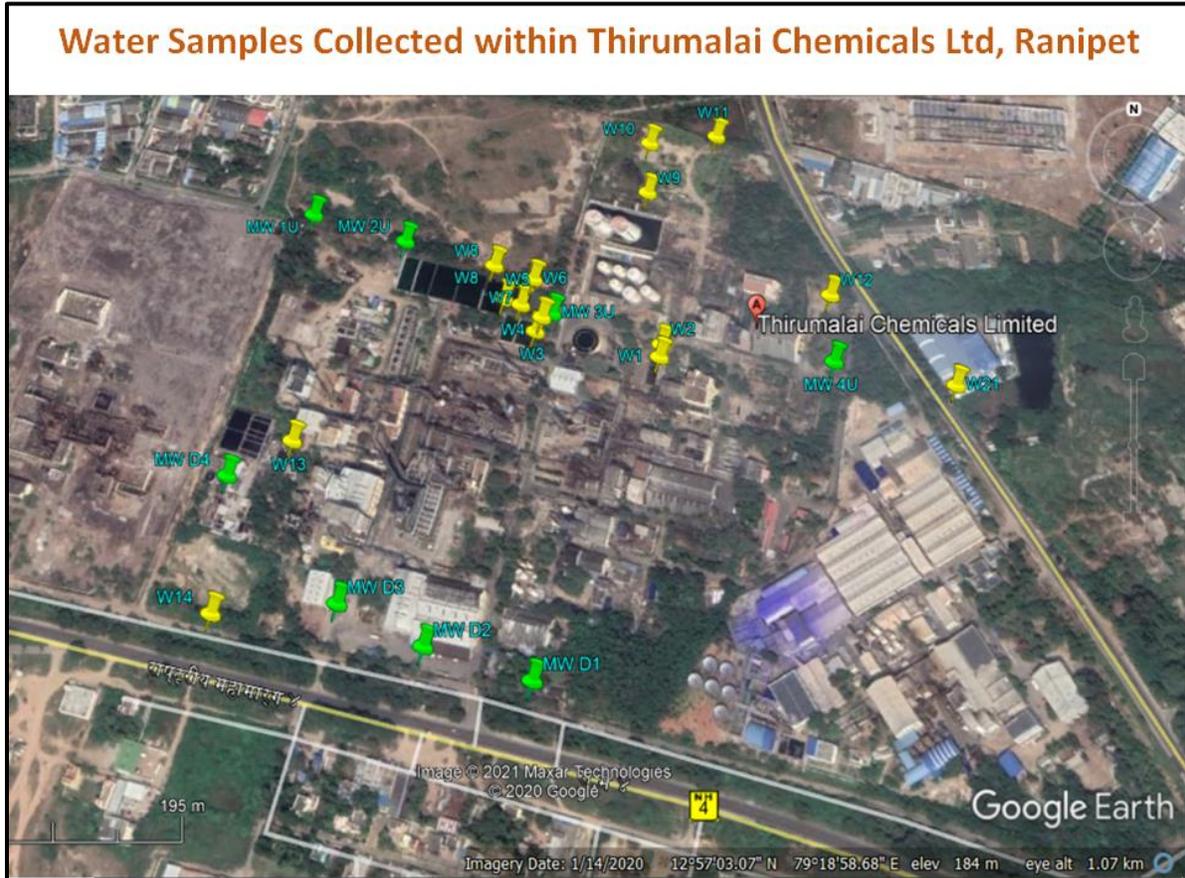


Fig.3. Map showing water samples collected outside TCL Unit

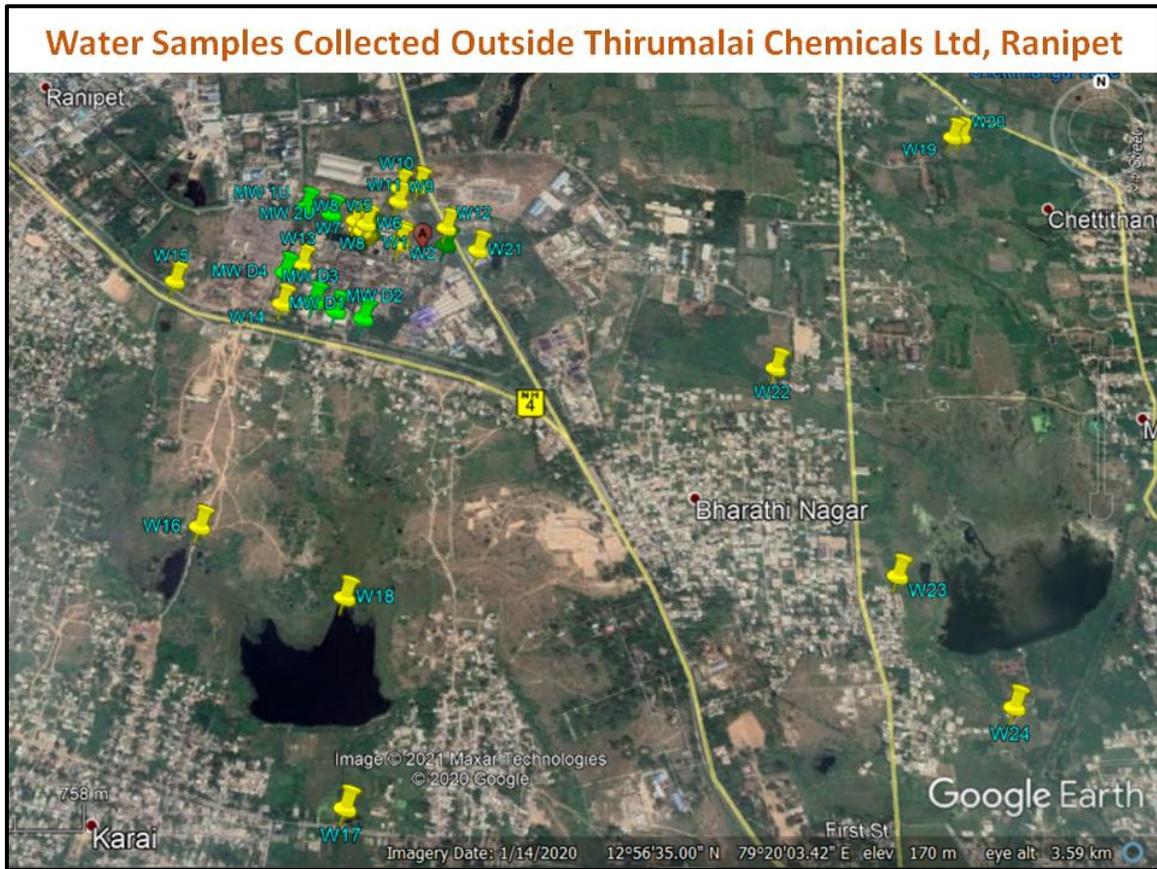
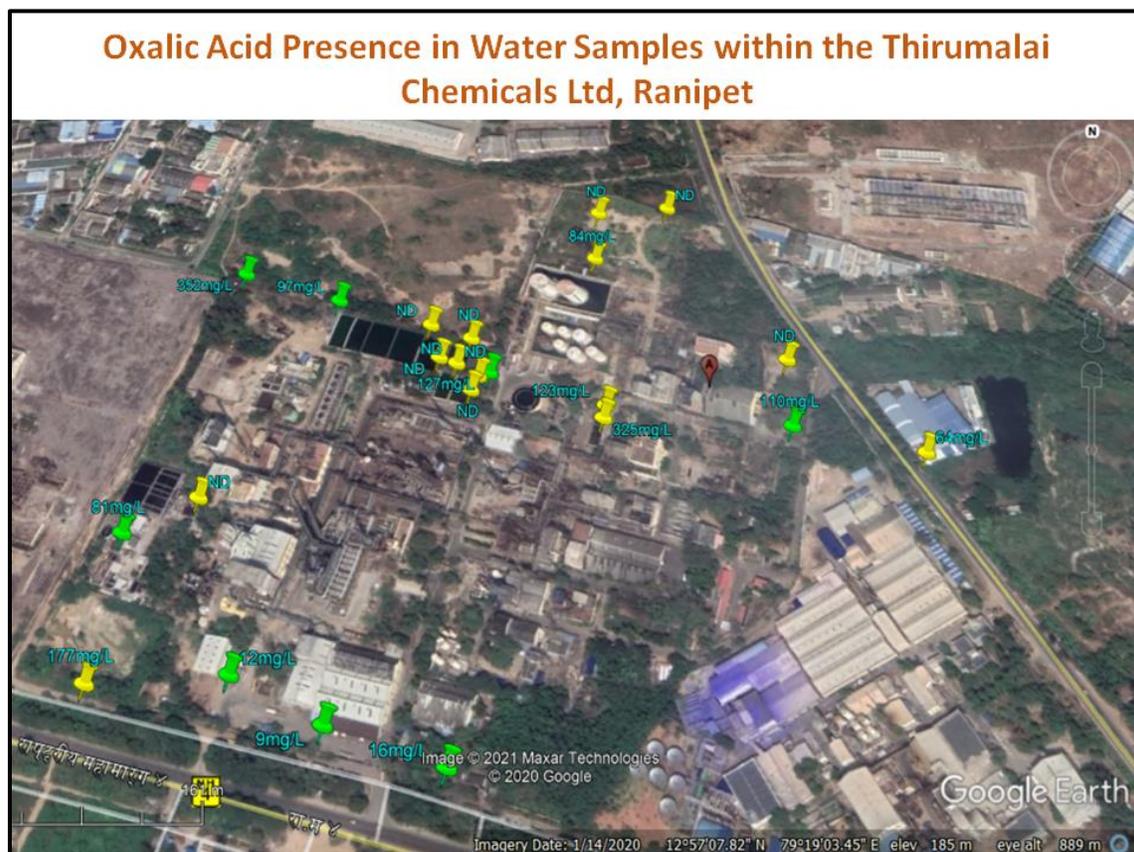


Fig.4 Map showing Oxalic Acid presence in water samples within TCL Unit



Annexure-5

Joint Committee enquiry in OA.131/2020 before NGT, Southern Bench.

Findings of Committee Member Mr. K. Elambhavath, I.A.S., Sub Collector Ranipet.

D). Open Discharge of Effluent inside the Company premises

For the purpose of Joint Committee inquiry, NEERI scientists were called for to assess the factory site and water bodies. During the inspection on 11.11.2020, 11.30 AM, it was found the following things:

1. A huge quantity of effluent water stagnated on open ground in the yard area in the north corner of the plant. Earthen embankments have been created to seep down into the ground.
2. A huge quantity of water from DM plant reject/ untreated or partially treated effluent stored in 6 Raw water tanks. 4 temporary PVC pipelines were found. Some pipelines connected with 2 pumps operating in the DM plant reject collection tank. A demo was done by the plant officials that how the water pumped through these temporary PVC pipes to raw water tanks.
3. Effluent/blowdown wastewater was pumped up into unused MA cooling tower storage tanks. 4 of such tanks filled up half and drained on open ground.
4. Wastewater stagnated inside the xylene storage tank's parapet walls. A heap of salt sediments, sludge were kept packed and stored inside the parapet walls.
5. The DM plant rejects are pumped through 2 water pumps in collection tanks.

During the visit, waste water & sludge samples have been collected by the officials of TNPCB in the presence of Sub Collector, Ranipet from the following locations which were sent to MoEF & CC approved private lab M/s. Glens Innovation Labs Private Limited, Chennai.

Meanwhile, The Joint Chief Environmental Engineer (I/c) (Monitoring) Vellore inspected the plant on 19.11.2020 and submitted his report to TNPCB, Chennai (**Annexure I**)

M/s. Thirumalai Chemicals Ltd submitted a letter (**Annexure II**) to Sub Collector, Ranipet on 20.11.2020. In which, the company submitted a reply to some specific queries raised in inspection on 11.11.2020.

The specific observations raised in inspection on 11.11.2020 are hereby reproduced. The explanation submitted by the company and the report of analysis received from the accredited laboratory (**Annexure III**) is corroborated to check whether the explanation is acceptable or not.

Observation-1

A huge quantity of effluent water stagnated on open ground in the yard area in the north corner of the plant. Earthen embankments have been created to seep down into the ground.



Explanation by the company

These are external seepages coming into our plant from the West, N.West, because of the extensive slopes of land, the external underground seepages flow from West to East and from Northwest to South East from outside of TCL and through TCL.

These are from the **huge black effluent lakes** to our north and west, (visible even from Google Earth maps) combined with other discharge flows from various units therein, we have complained to all authorities about this for many years and last year.

These are present for over 15-20 years. These surface and Sub surface black waters take the path of least resistance and it is very difficult to predict perfectly through hydrogeology as the paths also change over the years based on underground soil changes, leach-out, and cross constructions over a period of time, and soil, strata changes

These are open and well known. These seep up or flow at different locations including in our site, across Highway culvert, near RIL Bunk area Public lands, all the way to the Eris.

To protect our steel Tankages, We have done crude rubble bund to ensure that this external seepage water during the rain does not flow laterally into/ under the critical tanks, and gets evaporated during dry seasons. But it is very difficult to control these as below.

Report of Analysis

There were two samples collected nearby tank no.13 and 14 and O-Xylene storage tank area. The main findings of the test report as follows: -

Sl.No	Sample Code	PH	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	Fumaric Acid (mg/l)	Maleic Acid (mg/l)	Phthalic Anhydride (mg/l)
1.	O-Xylene Storage Yard- open earthen Pit	6.91	24324	6885	2066	261.42	BDL- DL-5	14.70
2.	Open earthen Pit nearby storage tank13&14	7.13	24132	10984	3295	158.40	BDL- DL-5	5.40



Test samples collected at the open ground.



Huge stagnated water found in the Open earthen Pit nearby storage tank13&14

Findings

The company claim that the stagnated water at the open ground in the yard area is external seepages coming into their plant from the West, N.West, because of the extensive slopes of land, the external underground seepages flow from West to East and from Northwest to South East from outside of TCL and through TCL.

The test report revealed that the wastewater stored in open ground by earthen embankments in the yard area contains *Fumaric acid* to the concentration of 261.42 mg/l & 158.40 mg/l and *Phthalic Anhydride* 14.70 mg/l & 5.40 mg/l. Fumaric acid and Phthalic Anhydride are the main products of the plant. Fumaric acid, Maleic acid and Phthalic Anhydride are manufactured only by the respondent's company, no other company in the surrounding area manufactures the above said chemicals.

The report of analysis revealed that signature pollutants of the company i.e., Fumaric acid and Phthalic Anhydride were present in the water. Hence it is proved that the water stagnated on the open ground by earthen embankment is nothing but the trade effluent generated at the manufacturing process in the plant. The stagnated water contains TDS 24324 mg/l and 24132 mg/l. These harmful trade effluent were stagnated in open ground to seep down into the soil, which will result the contamination of groundwater.

Observation – 2

Effluent/blowdown wastewater pumped up into unused MA cooling tower storage tanks. 4 of such tanks filled up half and drained on open ground.



Explanation by the company

Solid mud in the old MA Plant cooling tower sump

This is an old above ground concrete sump of the idled cooling tower of our MA plant - not operating for the last 13 years. We have removed most of the Plants equipment, but this above ground Concrete Tank is in excellent condition is used to **store residual cooling systems waters and muds flushed and drained from the system**. This is the normal procedure in Cooling Tower systems cleaning.

The Tank can also be used for any other such storages If to be emptied, material is transferred to the ETP-ZLD for treatment and recovery,

Report of Analysis of samples

There were two samples collected on 11.11.2020 from the MA Cooling tower storage tank end compartment and middle compartment. The main findings from the samples as detailed below:-

Sl.No	Sample Code	PH	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	Fumaric Acid (mg/l)	Maleic Acid (mg/l)	Phthalic Anhydride (mg/l)
1.	EN20110023.05	4.79	57030	11639	3143	851.16	BDL-DL-5	BDL-DL-5
2.	EN20110023.06	5.652	31450	8689	2433	348.80	BDL-DL-5	49.19

Findings

The test report revealed that the wastewater stored in MA Cooling Tower Storage tank end compartment contains *Fumaric acid* to the concentration of *851.16 mg/l*. MA Cooling Tower Storage tank Middle compartment contains *Fumaric acid* to the concentration of *348.80 mg/l* and *Phthalic Anhydride 49.19 mg/l*. Fumaric acid and Phthalic Anhydride are the main products of the plant. Fumaric acid, Maleic acid and Phthalic Anhydride are manufactured only by the respondents company, no other company in the surrounding area manufactures the above said chemicals. The company claimed that the “**MA Cooling Tower storage tank is used to store residual cooling system waters and muds flushed and drained from the systems**”. This report proves that the wastewater stored in the MA Cooling Tower storage tank contains the signature pollutants of the plant *i.e., Fumaric acid and Phthalic Anhydride*. The claim of the company is disproved by the fact revealed in the test report. Hence, the wastewater is nothing but the effluent generated by the manufacturing process.

The company also claimed that the MA Cooling Tower ground Concrete tank is **in excellent condition** and is used to the residual cooling systems water and mud flushed and drained from the systems.



Rear side of the MA Cooling Tower Storage Tank. The stored effluent or wastewater discharged on open ground and drains.

The MA Cooling Storage Tanks were found to be leaking and discharging effluent from the Concrete tanks to open ground and rain water drains. Hence, the company's claim is not true.

Observation – 3

Wastewater stagnated inside the Xylene Storage tank's parapet wall. A heap of salt sediments, sludge were kept packed and stored inside the parapet walls.



Packed Sludges/Sediments in Xylene Tank Farm Area



Close view of the sediment.

Explanation by the company

Solid and sludge waste on ground in the tank farm dyke area, and removed, packed in bags covered by tarpaulin.

As these Seepages have started coming even into the Tank farm (within the dyke) area itself we have regularly scraped these out when rains stop, and bagged them along with back soil to remove them, protect our Tanks.

This is scraped and packed for removal. We are also taking up inspection of the OX Tank base plate and foundation as these are very critical issues for tanks health. The mud and sludge collected after scrapping the area to check the soil conditions were stored in these bags for safe approved disposal after necessary drying.

Report of Analysis

There were two samples collected at the wastewater stagnated at open ground in the yard area and nearby tank no.13 and 14 and O-Xylene storage tank area. The main findings of the test report as follows:-

Sl.No	Sample Code	PH	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	Fumaric Acid (mg/l)	Maleic Acid (mg/l)	Phthalic Anhydride (mg/l)
1	Near Isoprene storage tank	7.07	24820	10738	3114	246.65	BDL-DL-5	11.46
2	O-Xylene Storage Tank 13 & 14 Dyke wall	7.26	25800	3770	943	99.50	BDL-DL-5	BDL-DL-5

Findings

Google Earth Satellite Historical Imagery of Xylene Tank Farm was analysed. The satellite images are detailed below:



Google Earth Satellite Historical Imagery of Xylene Tank Farm on 27.03.2016- No water stagnation



Google Earth Satellite Historical Imagery of Xylene Tank Farm on 20.12.20172016- No water stagnation



Google Earth Satellite Historical Imagery of Xylene Tank Farm on 07.03.20182016- No water

stagnation



Google Earth Satellite Historical Imagery of Xylene Tank Farm on 30.03.2019-2016- No water stagnation



Google Earth Satellite Historical Imagery of Xylene Tank Farm on 14.01.2020- water stagnation found inside the parapet wall area

There was no water stagnation found in the Xylene Tank Farm area inside the parapet wall from the year 2016 to 2019. In January of 2020, water stagnation was found in the Xylene Tank Farm area inside the parapet wall. It is pertinent to note that the water stagnation in the Tank Farm area is a recent phenomenon.

The company also claimed that the external seepages were found in the dyke wall area of the O-Xylene storage tanks. The company passed the burden to external seepages. However the report of analysis revealed that the seepages stored near the isoprene storage tank area, O-Xylene Storage tanks 13 & 14 area contains *Fumaric acid* to the concentration of 246.65 mg/l & 99.50 mg-l and *Phthalic Anhydride* 11.46 mg/l. **Fumaric acid, Maleic acid and Phthalic Anhydride are manufactured only by the respondent's company, no other company in the surrounding area manufactures the above said chemicals. Hence, it is proved that the seepages found in the dyke wall area of O-Xylene and Isoprene storage tanks contains raw effluents of the plant.**

The Chemical analysis of the sedimented salt and the effluent water stored in the raw water tank are matched with each other. **Sodium, Chlorides, Potassium** are found effluent water stored in the raw water tanks, and the sediment sludges found inside the parapet wall of the Xylene Tank area.



It was found that the water stagnation mark was found for **1 meter depth inside the parapet wall, a clear stain and water marking** found in the walls. Parapet wall was built up

with random rubble masonry for 3 meter height. The parapet walls have been constructed for the safety purpose to hold the liquid, if any accidental spills from the xylene tanks. It is evident that 1 meter depth water stagnation has happened. It could not have happened without any artificial pumping into the parapet wall area.

Hence, it is corroborated that a large column of effluent water has been kept stagnated into the parapet wall area until it seeps into groundwater. It resulted in the salt dissolved in the effluent deposited at the bottom of the parapet wall area. It was scraped by the Company authorities and kept stored in Polythene bags.

Observation – 4

A huge quantity of water from DM plant reject/ untreated or partially treated effluent stored in 6 Raw water tanks. 4 (four) temporary PVC pipe lines were found. Some pipelines connected with 2 pumps operating in the DM plant reject collection tank. A demo was done by the plant officials, that how the water pumped through these temporary PVC pipes to raw water tanks.





Rainwater collection tank stored effluent

Effluent is being pumped into Raw water tank

Explanation by the company

High TDS water stored in the water tanks

As informed in earlier visits and now, we are in the process of commissioning a second and new ETP with new technology to augment our capability and create a backup for the old ETP unit. These are complex systems with 3 suppliers/ and 3 latest technologies

Similar systems are operational in many good large Petro-chem units in India (Sanmar Reliance, & some Public sector companies) and Overseas.

To ensure the continuous testing and guarantee runs, **we need very large quantities of Untreated/ partly treated, high TDS feed for the various sections of the ETP plant.** Such testing is needed for a month during commissioning to ensure all troubleshooting is done and corrections are implemented in the new equipment for improved performance and for the performance to get stabilized and sustained in the new ETP. The daily test needs will be 400-600 M3/day we are storing also RO rejects water in the Tanks for accumulation and running at peak load for an extended run for testing the performance of our new ETP system as described above,

About 5200 KL is stored in the tanks for treatment for commissioning activities, and tuning the new ZLD plants. These are at the Instructions of our Executive Director and executed by the Factory Manager and Off-sites team. No other such large surplus tanks are available for this critical ETP testing

Report of Analysis

There were eight samples collected at Storage Tank - MA Raw water Pink, Storage Tank - PA-II Raw water Left side, Storage Tank - PA-II Raw water Right side, Raw water Collection tank I Pink, Raw water Collection tank II Pink, Raw water Collection tank II I Black and DM Plant discharge pipe line near raw water storage tank.

Sl. No	Location	PH	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	Fumaric Acid (mg/l)	Maleic Acid (mg/l)	Phthalic Anhydride (mg/l)
1.	Storage Tank - MA Raw water Pink	6.82	30800	4836	1306	BDL-DL-5	BDL-DL-5	BDL-DL-5
2.	Storage Tank - PA-II Raw water Left side	6.78	36300	4590	1102	129.90	BDL-DL-5	67.29
3.	Storage Tank - PA-II Raw water Right side	6.95	34300	4467	1430	44.12	BDL-DL-5	BDL-DL-5
4.	Raw water Collection tank I Pink	6.94	16410	1328	372	9.10	BDL-DL-5	82.76
5.	Raw water Collection tank II Pink	8.27	13180	1311	367	BDL-DL-5	39.97	BDL-DL-5
6.	Raw water Collection tank II I Black	7.16	31100	3115	967	57.93	BDL-DL-5	132.71
7.	DM Plant discharge pipe line near raw water storage tank	6.58	44000	10000	2800	166.43	BDL-DL-5	27.23

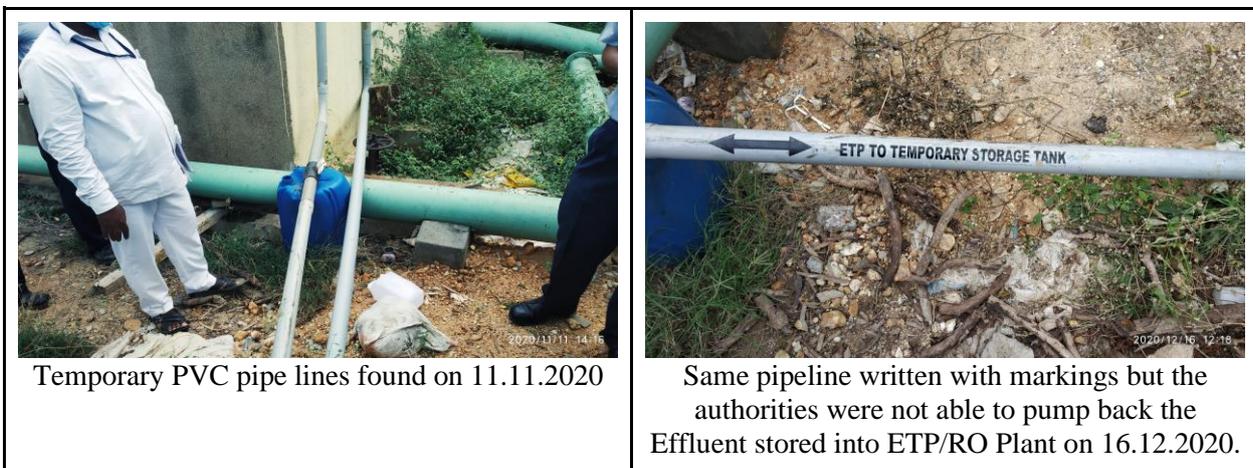
Findings

The company claimed that Untreated/ partly treated, high TDS feed for the various sections of the **new ETP plant is needed for testing. They further claimed that about 5200 KL stored in the tanks for treatment for commissioning activities, and tuning the new ZLD plants. The raw effluent generated during the ongoing manufacturing process itself enough for testing the new ETP Plant. There is no need of storing such huge quantity of effluent in**

raw water tank. The company did not obtain any prior permission from TNPCB for storing such high TDS untreated/partially treated effluent in raw water tanks. The raw water tanks fitted with temporary inflow PVC pipes. A demonstration was done by the plant authorities how the partially treated effluent, DM Plant regeneration water pumped into raw water tanks.

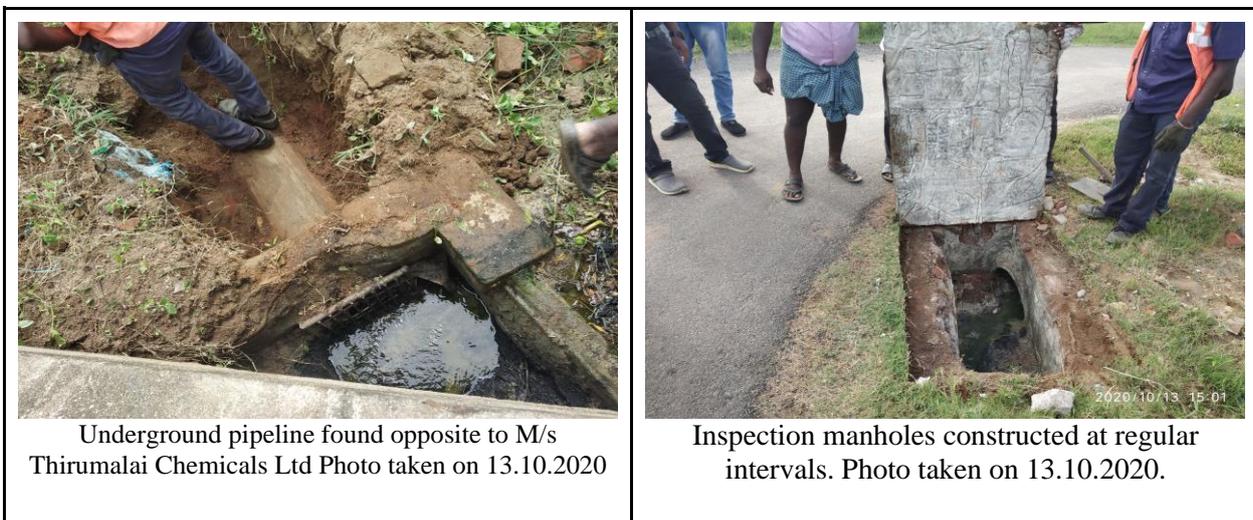
They were asked to pump back the water as claimed by the company to ETP and RO plant for further treatment. **No one is able to pump back the water in reverse direction into ETP/RO Plant as claimed by the company. There is no such pipeline for pumping back water to ETP/RO Plant.**

As per the TNPCB norms the pipelines should have indicated with clear colour codings. The plant authorities did not follow any such colour coding for raw effluent, DM plant regeneration water and raw water making distinct from other pipelines.



II). Underground cement pipeline opposite to the company.

The Joint Committee inspected the company and the water bodies in the vicinity on 07.10.2020. It was found that an underground cement pipeline along with the road in SIPCOT land opposite to the alleged company ended in earthen drain nearby cremation ground. A joint inspection conducted by the Sub Collector, Ranipet and the Project Officer, SIPCOT on 13.10.2020.





Inspection manholes found at the unused bush grown park opposite to M/s Thirumalai Chemicals Ltd. Photo taken on 13.10.2020.



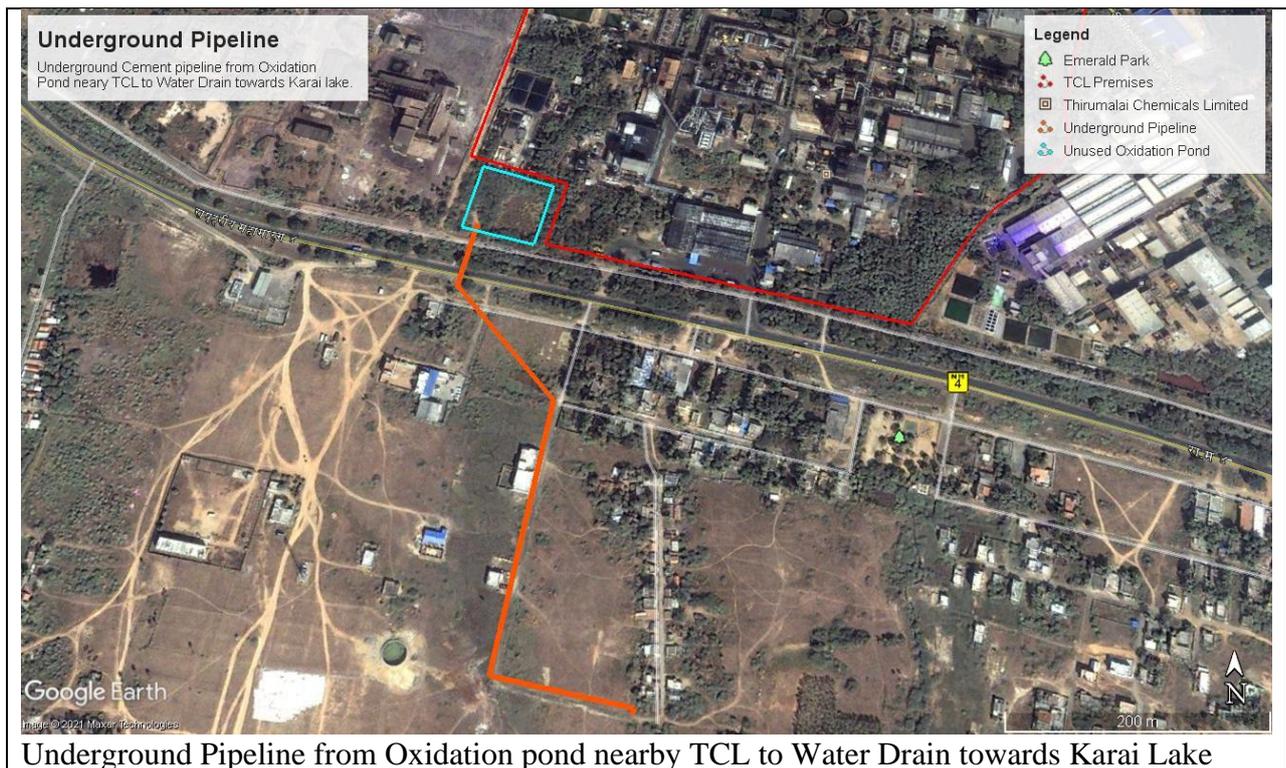
Final let out drain near cremation ground which leads to Karai Lake. Photo taken on 13.10.2020.

The Project Officer, SIPCOT was requested to the following details for the purpose of the inquiry of the Joint Committee. The Project Officer, SIPCOT submitted a report on 01.12.2020 (**Annexure IV**) is detailed below:-

Sl.No	Details	Reply by Project Officer
1.	To furnish the Pipeline Layout map from the origination to end point	Pipeline layout map from the origination to end point is enclosed
2.	To furnish the Length, Breadth Depth and Dimension of the pipeline	The details of length, Breadth depth and dimension of the pipe line is shown in the layout enclosed.
3	To furnish the answers for the following queries: a) What is the purpose of the pipeline?	There is a possible of carrying the proposal for disposal of effluent from this oxidation pond from M/s. thirumalai Chemicals Ltd and effluent may also be let out from this pipeline.
	b) Who did request the SIPCOT to construct that pipeline?	Details are not available in this office.
	c) When was it constructed.	There is no records available in this office.
	d) How much amount spent for the construction?	Not ascertained
	e) Who did spent the money?	Not ascertained

	f) Who did execute the work?	Not ascertained
	g) Who did grant permission to lay pipeline in SIPCOT land, Panchayat land?	We have not given any permission to lay pipeline
4.	To furnish the map of the SIPCOT, Ranipet, Phase-I, Industrial Estate	Layout map enclosed

It is learnt from the report submitted by the Project Officer, SIPCOT that **the underground cement pipeline from Thirumalai Chemicals Ltd to the water drain canal of Karai Lake was laid without any permission.** The Project Officer, SIPCOT submitted a layout map of the underground cement pipeline. The pipeline has 504m length, 300mm diameter and 16 manholes. The pipeline carries water from the unused oxidation pond near the Thirumalai Chemicals Ltd to the water drain to Karai lake.



A local enquiry made with the residents of the vicinity.

Mr. Paul Sathian S/o Gunamani Manuel residing at No.B9, Emerald Nagar, Sipcot, Ranipet gave a statement (**Annexure V**) before Sub Collector, Ranipet on 04.12.2020. In which, he has stated that he has been residing in the above said address for 30 years. Approximately 12 years ago 2007-2008, one Mrs. Sumathi, a resident of Arunthathiyar Colony,

Emerald Nagar, died due to cancer. While taking her body to cremation ground, a large flow of chemical effluent flowed across the way to cremation ground, which impeded the passage. Hence, the Arunthathiyar colony people quarrelled with the Thirumalai Chemicals company officials. The company officials laid a temporary cement pipe to pass through the chemical effluent water. After that the officials from Thirumalai chemicals Ltd laid a permanent cement pipeline with manhole chambers to let out the effluent into Karai lake. The labourers of Thirumalai chemicals ltd., frequently inspected the chambers and rectified chokes.

Mr. Bakthavachalam S/o Anniyappan Naidu residing at No.302 Kovil Street, Puliyanakannu Karai Village, Ranipet gave a statement (**Annexure VI**) before Sub Collector, Ranipet on 04.12.2020. In which, he has stated that he has been residing in the above said address for the past 40 years. In 2007-2008 years Thirumalai Chemicals Ltd, clandestinely laid an underground pipeline to let out chemical effluent into Karai, Puliyanakannu lakes. They laid a pipeline with cement chambers through Emerald nagar about 500m length. In 2014, people from Puliyanakannu village gathered and broke the cement chambers and filled with boulders and soil. In the next year itself, Thirumalai Chemicals Ltd repaired the cement pipeline and chambers. The cement pipe line and chamber was constructed by the building contractor of Thirumalai Chemicals Ltd, one Mr.Rajendiran residing at Lalapet Village of Walajah Taluk. The Company maintained the pipeline and incurred all the expenditure for construction and maintenance of the pipeline.

Findings

The facts ascertained from the report submitted by the Project Officer, SIPCOT and the local enquiry are detailed below:-

1. The Thirumalai Chemicals Ltd has constructed the underground cement pipeline without any permission from SIPCOT and Local body.
2. The company has laid an underground pipeline clandestinely to let out the effluent into the water body.
3. The pipeline was connected with the oxidation pond nearby Thirumalai chemicals ltd. The oxidation pond is situated very next to the effluent treatment plant (ETP) of the company. It is possible to discharge effluent to the oxidation pond from where the effluent is carried/taken through the pipeline. The local resident complained to Sub Collector Ranipet in June 2019 about illegal discharge of effluent through the unused oxidation pond. Hence, it was closed by the directions of DEE, TNPCB Vellore.

IR.No:F.0892VLR/RL/JCEE-M/VLR/2019 Dated:21/11/2020

Ref: 1. Board's Proc.No:T5/TNPCB/F.0892/VLR/RL/W/2019, Dated.13.11.2019.

2. Board's Letter.No.T1/TNPCB/F.0892/VLR/2020, Dated.26.08.2020.



Submitted to the Member Secretary
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Tamil Nadu Pollution Control Board Inspection Report

1	a	Name of the Inspecting Officer	M.Malaiyandi, JCEE(M)a/c and		
	b	Designation	C.Tholkappiyan , AEE, O/o.DEE, Vellore.		
	c	District office	Vellore		
2		Date of Inspection	19.11.2020		
3	a	Name of the Industry	M/s. THIRUMALAI CHEMICALS LIMITED		
	b	<u>Factory address:</u> No. 25/A, SIPCOT Industrial Complex, Ranipet, Walajah Taluk, Ranipet District.			
4	a	Category Classification	Red	Large	
	b	Type of the industry	1057-Petrochemicals Manufacturing (including processing of Emulsions of oil and water)		
5		Name of the Occupier of the unit present during inspection.	Thiru. PA. Ganesh Rao, Head PA - Technology, Thiru. Somaprasad - ETP In charge		
6	Products manufactured / consented				
	a	Main Products manufactured:			
		Main Products manufactured:	Quantity	Actual Production	
		Dicarboxylic Anhydrides	10620 MT/M	Within the consented quantity	
		Dicarboxylic Acids	1925 MT/M	Within the consented quantity	
		Dicarboxylic Acid Salts	150 MT/M	Within the consented quantity	
	b	By / Intermediate products manufactured			
7	a	Quantity of effluent consented in KLD & Point of disposal			
	i)	Sewage	13.00 – On land for gardening		
	ii)	Trade effluent	560.0 – RO Permeate – 476 – Recycling to process RO Rejects – 84 – Multiple Effect Evaporator		
	b	Sources of trade effluent: From Food ingredients plant(Organic), DM plant regeneration and cooling tower bleed off(In organic)			
8	Performance of STP				
	<i>Nature of Effluent</i>	<i>Sl. No.</i>	<i>Components of ETP</i>	<i>Nos.</i>	<i>Status of functioning</i>
	(1)	(2)	(2)	(3)	(5)
	Sewage	1	Bar Screen	1	In operation
		2	Raw Sewage Collection Sump	1	In operation
		3	Bio Aeration Tank	1	In operation
		4	Secondary Settling Tank	1	In operation
		5	Final Feed Collection Tank	1	In operation
		6	Pressure Sand Filter	1	In operation
		7	Activated Carbon Filter	1	In operation
		8	Sludge Drying Beds	2	In operation
		9	Treated Collection Tank	1	In operation

Performance of ETP

<i>Nature of Effluent</i> (1)	<i>Sl. No.</i> (2)	<i>Components of ETP</i> (2)	<i>Nos.</i> (3)	<i>Status of functioning</i> (5)
Trade Effluent	1	Bar Screen	1	In operation
	2	Oil and Grease trap (Manual)	1	In operation
	3	Equalization Tank	1	In operation
	4	Neutralization Tank	1	In operation
	5	Primary Clarifier	1	In operation
	6	Anaerobic Filter	2	In operation
	7	Pre Aeration Tank	1	In operation
	8	Clariflocculator	1	In operation
	9	Submerged Aerobic Filter	1	In operation
	10	Aeration Tank	1	In operation
	11	Secondary Clarifier	1	In operation
	12	Chlorine Contact Tank	1	In operation
	13	Sludge Thickener	1	In operation
	14	Final Bar Screen	1	In operation
	15	Final Oil and Grease Trap	1	In operation
	16	Blending Tank	1	In operation
	17	Filter Press	1	In operation
	18	Collection Cum reaction tank	2	In operation
	19	Chlorination Vessel	1	In operation
	20	Filter Press	1	In operation
	21	Collection tank	1	In operation
	22	Dosing tanks	3	In operation
	23	Reverse Osmosis Unit	1	In operation
	24	R.O. First Stage	12	In operation
	25	R.O. Second Stage	6	In operation
	26	RO Rejects Collection Tank	1	In operation
	27	RO Rejects Receiving Tank	1	In operation
	28	MEE (Triple Effect-FCE)	1	In operation
	29	Crystallizer	1	In operation
	30	Basket Centrifuge	1	In operation
	31	Centrifuge ML Collection Tank	1	In operation
	32	ATFD	1	In operation

Sources of Emission and Air Pollution Control Measures provided:

9

<i>Sl. No.</i>	<i>Source of Emission</i>	<i>APC measures provided</i>	<i>Stack top dimension (in metres)</i>	<i>Stack ht. above ground (in metres)</i>	<i>Status of functioning</i>
1	Phthalic Anhydride Reactor-I	Stack with scrubber	2.4	47	In operation
2	Phthalic Anhydride Reactor-II	Stack with scrubber	1.2	47	In operation
3	Phthalic Anhydride Reactor-III	Stack with scrubber	0.8	30	In operation

4	Thermic Heater	Fluid	Cyclone Separator with Stack	0.63	46	In operation
5	Oil Heating Unit		Cyclone Separator with Stack	0.60	30	In operation
6	Oil Heating Unit		Cyclone Separator with Stack	0.60	30	In operation
7	Maleic Anhydride Reactor		Stack with scrubber	1.0	30	In operation
8	Super Heater (MA Plant)		Cyclone Separator with Stack	0.60	30	In operation
9	Steam Super Heater		Cyclone Separator with Stack	0.68	46	In operation
10	Boiler 6 T/Hr		Cyclone Separator with Stack	0.68	46	In operation
11	Boiler 4.076 T/Hr		Cyclone Separator with Stack	0.3	12	In operation
12	D.G.Set 1100 KVA		Stack	0.3	11.65	In operation
13	D.G. Set 1150 KVA		Stack	0.4	11.65	In operation
14	D.G. Set 1000 KVA		Stack	0.3	11.65	In operation
15	D.G. Set 1000 KVA		Stack	0.3	11.65	In operation

10 Remarks on the maintenance of Log Books, Records and separate energy meter for Effluent Treatment Plant.

Log Books, Records maintained for the operation of the ETP, RO and RMS.

11 Remarks on the Disposal of Solid Wastes / Hazardous Wastes :

Kindly refer any other information.

12 Remarks on Waste minimization, in plant measures and House Keeping.

The unit has been instructed to improve the housekeeping inside and outside the premises.

13 Details of Complaints if any:

General complaint petitions received often from nearby Public through District Administration against the discharge of trade effluent from ETP in to nearby water sources.

14 Violation of conditions stipulated in the Consent Orders issued under Water/Air Act, if any:

Sl. No	Conditions stipulated in the latest RCO issued dated 03.07.2019	Compliance as on 19.11.2020
Water Act:		
1.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously and the treated sewage shall be discharged on Industry's own land for Gardening, green belt development after satisfying the standards prescribed by the Board.	Complied. The treated sewage samples collected from the STP by the Board in the past periods are meeting all the standards prescribed by the Board.
2.	The unit shall regularly analyse the treated sewage through Board's lab and furnish ROA of the same.	Complied.
3.	The unit shall operate and maintain the ETP along with RO plant and MEE efficiently and continuously and ensure that the RO permeate and Multiple Effect Evaporator (MEE) condensate shall be recycling for process after satisfying the standards prescribed by the Board.	Not Complied. The unit has discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank, thus the unit is not operating the RO plant followed by MEE to achieve zero discharge.
4.	The unit shall ensure that RO reject shall be sent to MEE for further treatment.	Not Complied. The unit has discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank, thus the unit is not operating the RO plant followed by MEE to achieve zero discharge.
5.	The unit shall achieve zero discharge at all times and shall not discharge any treated/untreated effluent outside the premises of the unit.	Not Complied. The unit has discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank, thereby not achieving zero discharge.

6.	The unit shall regularly analyse the treated trade effluent through Board's lab and furnish RoA of the same.	Complied.
7.	The unit shall ensure the connectivity of EMFM provided at the inlet and out let of ETP, MEE inlet, MEE distillate, MEE concentrate, MEE centrifuged mother liquor and MEE steam inlet with Care Air Centre of TNPCB / CPCB portals and provide proper data at all times.	Complied. EMFMs connected to TNPCB & CPCB portals.
8.	The unit shall operate and maintain the separate EMFM provided at the line for the collection and pumping of seepage water to the Equalization tank and maintain the log book for the same.	Complied.
9.	The unit shall operate and maintain the EMFMs provided at all the sources connected to Effluent water and maintain the log book for the same.	Complied.
10.	The unit shall operate and maintain the ATFD for concentrating the mother liquor generated from the crystalliser efficiently and continuously.	Not Complied. The unit has discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank, thus the unit is not operating the RO,MEE followed by ATFD to achieve zero discharge.
11.	The unit shall collect the ground water from Piezometric wells provided around the ETP and Vermi composting unit and analyse the same so as to ascertain the ground water quality and furnish report to Board.	Complied.
12.	The Hazardous waste generated shall be properly disposed as per the Authorization obtained under Hazardous waste (MH&TM) Rules, 2008 and shall comply with the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Not Complied. The hazardous waste such as ETP sludge and salt residue stored on open land near O-Xylene storage tank.
13.	The unit shall ensure that the non Hazardous solid waste is disposed scientifically for further beneficial purposes without any accumulation.	Not Complied. The hazardous waste such as ETP sludge and salt residue stored on open land near O-Xylene storage tank.
14.	The unit shall comply with the conditions imposed in Hazardous and other Wastes (Management Handling & Trans Boundary Movement) Rules, 2016.	Kindly refer item no 15 of IR.
15.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,.	Complied.
16.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied. The unit has remitted the consent fee as per the revised G.O.
Air Act:		
1.	The unit shall operate and maintain the Air Pollution Control measures /Acoustic measures efficiently and continuously so	Complied. Air pollution control measures were in operation.

	as to satisfy Ambient Air Quality / Emission/Ambient Noise Level Standards prescribed by the Board.	The AAQ/SM/ANL survey conducted by the Board lab on 12.12.2019 reveals that the parameters are well within the standards prescribed by the Board.
2.	The unit shall conduct periodical survey for Ambient Air Quality/ Noise Level/ Stack Emission as per the MoEF Notification 2009 and submit the report to the Board without fail.	Complied.
3.	The unit shall ensure the connectivity of online monitoring system for the emission parameter PM, SO _x , CO and NO _x attached to Thermic Fluid Heaters and provide proper data to Care Air Centre of TNPCB, Chennai / CPCB at all times.	Complied. OCEMS for the parameters PM, SO _x , NO _x & CO connected to TNPCB and CPCB portals were found in operation.
4.	The unit shall ensure the connectivity of VOC/CO monitors provided at the process stacks such as PA1, PA2 and PA3 with Care Air Centre of TNPCB, Chennai / CPCB and provide proper data at all times.	Complied. OCEMS for the parameters VOC & CO connected to TNPCB and CPCB portals were found in operation.
5.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied. The unit has remitted the consent fee as per the revised G.O.

15 Violation of conditions stipulated in the authorization issued under the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 if any:

The unit has obtained Hazardous Waste Authorization vide Board's Proc. dated. 11.02.2020 with validity up to 10.02.2025 for handling of Tarry residues and still bottoms from distillation(1.2)-15 T/A, Used or spent oil (5.1) – 5.4T/A, Chemical sludge from waste water treatment (35.3) - 124 T/A, Total Petroleum Hydrocarbons (TPH) (C5-C36) equal to (or) more than 5000 mg/kg (B2) - 0.100 T/M & Wastes or residues containing oil (5.2) - 2T/A including for the category No.28.4 & 28.5.

Sl. No	Conditions stipulated in the latest HWA issued dated 11.02.2020	Compliance as on 19.11.2020
1	The unit shall dispose the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers and necessary endorsement shall be made in respect of the quantity transacted in the original letter of registration issued to the recycling unit lifting used oil.	Complied. The unit is disposing the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers.
2	The unit shall dispose hazardous waste category (1.2) Tarry residues and still bottoms from distillation to M/s. Gujarat Enviro Protection and Infrastructure Limited, Ranipet as reported.	Complied.
3	The unit shall dispose hazardous waste categories 5.2(Wastes or residues containing oil), (35.3) Chemical sludge from waste water treatment and (B2) Total Petroleum Hydrocarbons (TPH) (C5-C36) equal to (or) more than 5000 mg/kg to M/s. TNWML, Gummidipoondi as reported	Complied.
4	The unit shall dispose hazardous waste category (5.1) used/spent oil to the authorized recyclers as reported.	Complied. The unit is disposing the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers.

5	The hazardous wastes shall be stored in a closed designated area, without exposure to rain, sunlight etc.	Not Complied. The unit has stored the ETP Sludge and Salt residue on open land near O-Xylene(Main Raw Material) storage tank.
6	The unit shall dispose the Used/Spent oil to only those industries, which are having valid registration certificate, as re-processors with Environmentally Sound management facilities to reprocess used/spent oil.	Complied. The unit is disposing the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers.
7	The unit has to ensure that the used/spent oil disposed shall confirm the standards suitable for the reprocessing of used/spent oil.	Complied.
8	The unit shall ensure that adequate fire safety measures have been provided to avoid any fire accidents in the unit.	Complied.
9	The unit shall maintain the Hazardous waste display Boards in front of the factory clearly indicating the same regularly as mandated by the Hon'ble Supreme Court order dated 14.10.2003.	Complied.
10	The Hazardous wastes shall be stored in a compatible container on an impervious platform in closed shed which shall be provided with requisite fire protection system, personal protective equipment and safety system.	Not Complied. The unit has stored the ETP Sludge and Salt residue on open land near O-Xylene(Main Raw Material) storage tank.
11	The person authorized shall comply with all the conditions stipulated in the authorization and other conditions of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Not Complied. The unit has stored the ETP Sludge and Salt residue on open land near O-Xylene(Main Raw Material) storage tank.
12	The unit shall maintain Form 3 and submit Form 4 prescribed under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
13	The Hazardous wastes shall be disposed only with manifest that shall be maintained in Form-10 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
14	The manifest shall be endorsed by the dispatcher, transporter and receiver of hazardous wastes. The endorsed copy of the manifest shall be furnished to TNPCB as and when such disposal is made.	Complied.
15	The unit shall ensure that all provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended are complied with while handling hazardous waste.	Not Complied. The unit has stored the ETP Sludge and Salt residue on open land near O-Xylene(Main Raw Material) storage tank.
16	The authorization is subject to the terms and conditions as may be specified in the Rules for the time being in force under the Environment (Protection) Act, 1986 and the conditions mentioned in the Schedule A & B.	Complied.

17	The unit shall not store the Hazardous waste generated outside the premises of the unit.	Not Complied. The unit has stored the ETP Sludge and Salt residue on open land near O-Xylene (Main Raw Material) storage tank.
18	The unit shall dispose the accumulated quantity of hazardous wastes immediately.	Complied.
19	The unit shall not store the hazardous waste not exceeding 90 days and maintain a record of transfer, storage and disposal of Hazardous waste.	Not Complied. The unit has stored the ETP Sludge and Salt residue on open land near O-Xylene (Main Raw Material) storage tank.
20	The unit shall renew and have valid agreements with Hazardous waste facilitators at all times.	Complied.
21	The unit shall possess valid consents of the board under Water and Air Acts at all times.	Not Complied. The latest RCO validity is 31.03.2020. The unit is functioning without valid consent of the Board.

16 Details of Samples collected, if any and Date/Time of collection and point of collection:

Kindly refer any other information.

17 Any other special information if any.(May include observations/suggestions made during inspection on the performance of ETP/APC Measures).

The unit of M/s.Thirumalai Chemicals Limited has obtained consent of the Board for manufacturing the following products and finally renewed valid up to 31.03.2020.

1. Dicarboxylic Anhydrides - 10620 MT/M
2. Dicarboxylic Acids - 1925 MT/M
3. Dicarboxylic Acid Salts - 150 MT/M

The unit is functioning without valid consent of the Board under both Acts.

The unit has also obtained Hazardous Waste Authorization vide Board's Proc. dated. 11.02.2020 with validity up to 10.02.2025 for handling of Tarry residues and still bottoms from distillation(1.2)-15 T/A, Used or spent oil (5.1) - 5.4T/A, Chemical sludge from waste water treatment (35.3) - 124 T/A, Total Petroleum Hydrocarbons (TPH) (C5-C36) equal to (or) more than 5000 mg/kg (B2) - 0.100 T/M & Wastes or residues containing oil (5.2) - 2T/A including for the category No.28.4 & 28.5.

Further, the directions under section 33A of the Water (Prevention & Control of Pollution) Act, 1974 as amended has been issued to the unit vide Board's Proceeding dated.13.11.2019 (**Copy enclosed as Annexure-I**) to comply with the following conditions within the period of 3 months from date of receipt of direction.

1. The unit shall conduct the Hydro-geological study through a competent agency and furnish report.
2. The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa.
3. The unit shall provide suitable no. of Piezometric wells at the upstream and downstream side of the unit premises, so as to assess the ground water quality.
4. The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit.
5. The unit shall revamp the storm water drain within the unit premises after detailed study on the carrying capacity with respect to surface runoff.
6. The unit shall segregate the different stream of trade effluent at source itself based on the characteristic of effluent generated and revamp the existing ETP with latest state of are of treatment technology so as to achieve ZLD at all times.
7. The unit has to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.
8. The unit shall operate the ETP continuously and efficiently so as to achieve Zero Liquid

Discharge (ZLD) system at all times.

9. The operation of the unit shall not attract any public complaints.
10. The unit has to pay Environmental Compensation of Rs.18.6 Lakhs for the violations caused by the unit within one month.

Further it was extended vide Board's Letter dated.26.08.2020 (**Copy enclosed as Annexure-II**) for another 3 months to comply all the directions issued vide Board's Prc dated 13.11.2019 from date of receipt of the letter.

Meanwhile, based on the frequent complaint received from the public against the unit regarding discharge of untreated trade effluent outside the premises, the unit was surprisingly inspected by the Sub Collector, Ranipet & DEE, TNPCB, Vellore on 11.11.2020 and the following observations were reported by the Sub Collector, Ranipet through WhatsApp.

During the plant visit we found following things:

1. A huge quantity of effluent water stagnated on open ground in the yard area in the north corner of the plant. Earthen embankments have been created to seep down into the ground.
2. A huge quantity of water from DM plant reject/untreated or partially treated effluent stored in 6 Raw water tanks. 4 temporary PVC pipe lines were found. Some pipelines connected with 2 pumps operating in DM plant reject collection tank. A demo was done by the plant officials that how the water pumped through these temporary PVC pipes to raw water tanks.
3. Effluent/blow down waste water was pumped up into a unused MA cooling tower storage tanks. 4 of such tanks filled up half and drained on open ground.
4. Waste water stagnated inside the O-xylene storage tank's parapet walls. A heap of salt sediments, sludge are kept packed and stored inside the parapet walls.
5. The DM plant rejects are pumped through 2 water pumps in collection tanks.

Also, waste water & sludge samples have been collected by the officials of TNPCB in the presence of Sub Collector, Ranipet from the following locations which were sent to MoEF & CC approved private lab M/s. Glens Innovation Labs Private Limited, Chennai.

A. Waste water samples location:

1	O-Xylene Storage Yard-Open earthen Pit	Stagnated effluent samples from open land collected.
2	O-Xylene Storage Tank 7 & 8 -Dyke wall	
3	Near Isoprene storage tank	
4	O-Xylene Storage Tank 13 & 14 Dyke wall	
5	MA Plant Cooling Tower End- Pink	Effluent stored in an impervious tank collected.
6	MA Plant Cooling Tower Middle- Pink	
7	Open earthen Pit nearby storage tank 13 &14	Stagnated effluent sample from open land collected.
8	Storage Tank-MA Raw water Pink	Effluent stored in an impervious tank collected.
9	Storage Tank-PA-II Raw water Left side	
10	Storage Tank-PA-II Raw water Right side	
11	Raw water Collection tank I Pink	
12	Raw water Collection tank II Pink	
13	Raw water Collection tank II I Black	Stagnated effluent sample from open land collected.
14	DM Plant discharge pipe line near raw water storage tank	
15	DM Plant Reject water storage tank	Effluent stored in an impervious tank collected.
16	Lime dosing tank at DM Plant	

B.Sludge samples location:

1	Powder form-Salt residues -storage tank 13 &14	Openly stored sludge/salt residue samples collected.
2	Sludge storage tank 13 &14	
3	Semi solid- storage tank 13 &14	
4	Powder form-Salt residues -storage tank 13 &14	

The photographs taken during the time of inspection on 11.11.2020 are submitted below:



Untreated trade effluent stored on open land with an earthen embankments near O-Xylene (Main Raw Material) storage tank



Storage of ETP Sludge and salt residue on open land near O-Xylene (Main Raw Material) storage tank

The report of analysis for the samples collected on 11.11.2020 received from the M/s. Glens Innovation Labs Private Limited is attached as **Annexure-III**, which reveals that the TDS is in the range between 24,132 mg/L & 35,631 mg/L, COD is in the range between 3720 mg/L & 10,984 mg/L in the coloured effluent stagnated on open land near the O-Xylene storage tank, in the northern side of the unit (Samples serial no.1 to 4, 8 & 14).

From the above, it could be ascertained that the unit is not achieving the zero liquid discharge and discharging the untreated trade effluent on their open land for open percolation within the premises.

In this regard, the unit has been addressed by the DEE, Vellore vide his letter dated.16.11.2020 instructed to take immediate action to comply with the short falls noticed during inspection (**Copy enclosed as Annexure-IV**).

Further, the unit was inspected by the JCEE (M)a/c along with Thiru.C.Tholkappian, Assistant Environmental Engineer, Vellore on 19.11.2020 and the following were observed.

1. The unit was under operation.
2. The ETP components followed by RO & RMS were found in operation.
3. The Air Pollution control measures provided were found in operation.
4. The coloured effluent was found to be stagnated within the unit premises in the northern corner of the unit in an earthen embankment as shown in the following photographs and onsite TDS was measured and found to be in the range of between 12,000 mg/L and 22,000 mg/L.
5. A Tanker fitted with a flexible hose attached to motor was found to be noticed in the place where untreated effluent stored and it was reported that the stored effluent is being pumped out and taken for further treatment. No records have been furnished by the unit in this regard.



Untreated effluent stored on open ground with an earthen embankments near O-Xylene (Main Raw Material) storage tank



On site TDS measurement showing the value of 21640 mg/L & 12660 mg/L in the untreated effluent stored on open land.

The compliance of directions issued by the Board vide Proc.dated.13.11.2019 and action taken reply received from the unit(**Copy enclosed as Annexure-V**) are furnished below:

Sl. No	Directions issued	Reply by the unit 21.11.2020	Action taken by the unit as on 19.11.2020
1	The unit shall conduct the Hydro-geological study through a competent agency and furnish report.	Completed. Hydrogeological Study by Dr. Ganapathy (Director – Centre for Disaster Mitigation and Management, V.I.T. University) is completed and report has been submitted to TNPC Board.	Study report furnished, but the recommendations yet to be completed.
2	The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa.	Complete by End of Oct '20 We are located at a low lying area, about 18-23 feet below the other industries, located in the northern and eastern part of the estate. Hence, provision of a Garland drain around our premises is not technically feasible and will not stop any sub surface rain water into our property. However on the recommendations of Dr. Ganapathy (Hydrogeologist) we are now constructing a sub surface storm water drain on TN Chromate dump side outside our premises. This is being done now and will be completed by the end of Oct 2020.	Garland drains not yet provided. However sub surface storm water drain on TN Chromate dump side outside the unit premises constructed.
3	The unit shall provide suitable no. of Piezometric wells at the upstream and downstream side of the unit premises, so as to assess the ground water quality.	Completed. Eight nos. of Peizometric wells have been provided at locations recommended by DEE, TNPCB. Four at the upstream and 4 nos., at the downstream. These are progressively completed and tested regularly and records kept.	Eight numbers of Peizometric wells have been provided. However, Peizometric wells have not been provided as per norms.
4	The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit.	Completed. 1.85 lakh sq. ft of roof area has been covered into five zones for collection of rain water for re-use.	The unit is yet to provide rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises. However it was reported that 1.85 Lakh sq. ft of roof area has been covered for collection of rain water for re-use.
5	The unit shall revamp the storm water drain within the unit premises after detailed study on the carrying capacity with respect to surface runoff.	Completed. Storm water drains in the plant is modified to receive all the ground only excess rain water from our complex. All the storm water shall reach	Entire storm water collection through drains & disposal through scientific manner within the unit premises are to be completed after

		<p>the final runoff point at the eastern end.</p> <p>A subsurface collection tank of holding capacity 300,000 Litres is constructed at final runoff point at the eastern end. A pump is installed to take back the collected rain water for re-cycle. This is under commissioning.</p>	<p>detailed study on the carrying capacity with respect to surface runoff.</p>
6	<p>The unit shall segregate the different stream of trade effluent at source itself based on the characteristic of effluent generated and revamp the existing ETP with latest state of are of treatment technology so as to achieve ZLD at all times.</p>	<p><u>Complete by Nov '20</u></p> <p>We already have a comprehensive ZLD plant, including ETP, Pretreatment, filtration, RO, MEE, and Rejects water solid separation.</p> <p>We have started expanding from Nov2019. This is being augmented with modern DTRO (Disk and Tube Reverse Osmosis), Evaporation and ATFD. The trade effluent is segregated into two major streams: Organic and Inorganic.</p> <p>The existing ETP will take the organic stream.</p> <p>The inorganic stream will be treated in the augmented DTRO line. The rejects of both the streams will be evaporated and dried in the new and existing ATFDs.</p> <p>This argumentation part of ZLD will be commissioned by November 2020.</p>	<p>The unit is now segregating the organic & inorganic stream of trade effluent.</p>
7	<p>The unit has to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.</p>	<p><u>Completed.</u></p> <p>Certain modifications have been implemented in the anaerobic contact filter on the recommendations of a Consultant, and the quality of influent into the aerobic treatment system is now improved.</p> <p>An advanced anaerobic system is being implemented after study by experts. We hope to complete early 2021.</p>	<p>To be carried out.</p>
8	<p>The unit shall operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times.</p>	<p>Agreed and being complied.</p>	<p>The unit has discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank, thereby not achieving zero discharge.</p>
9	<p>The operation of the unit shall not attract any public complaints.</p>	<p>---</p>	<p>General complaint petitions received often from nearby Public through District Administration against the discharge of trade effluent from ETP in to nearby water sources.</p>

10	The unit has to pay Environmental Compensation of Rs.18.6 Lakhs for the violations caused by the unit within one month.	Completed. Environmental Compensation of Rs.18.6 Lakhs <u>paid</u> .	The unit has remitted the Environmental Compensation of Rs.18.6 Lakhs.
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In view of the above, it is submitted and recommended that either of the following directions under section 33A of the Water (Prevention & Control of Pollution) Act, 1974 as amended may please to be issued to unit.

1. Directions for closure and disconnection of power supply to the unit till the compliance of directions/conditions of renewal consent already issued by the Board.
2. Directions to restrict the production to 50% of its consented quantity so as to achieve zero liquid discharge consistently till the commencement & effective functioning of newly constructed ZLD components.

Encl: As stated



**Joint Chief Environmental Engineer(M)a/c,
TNPC Board, Vellore.**



From: Thirumalai Chemicals Ltd

November 20, 2020

Thiru Elambahavath , IAS
The Sub-Collector and RDO
Ranipet District, TamilNadu

Our Ref: TCL/NGT-COM/RDO/131/2020/02

Dear Sir,

Sub: NGT Order 131/2020 - Visit of Yourself, NEERI and other committee members to our plant on 11 November 2020

Please refer to your visit immediately after the visit of officials from NEERI on 11 November 2020.

Some of our senior persons were not available on that day:

- Mr PMC Nair (Executive Director- Mfg) is in Mumbai with a major family Health/ Surgery.
- Mr Naresh: Factory Manager, was recently released after 2 weeks of COVID from CMC and is home quarantined.
- Mr NR Vijayakumar (Site Manager) was not available, due to personal visit to family in native place.

Our team had the following persons present for discussions:

- a. S Venkatraghavan – President (Food Ingredients) from Chennai office.
- b. Mr PA Ganesh Rao – Phthalic Anhydride Technology Head.
- c. Mr J Somaprasad – Supervisor from ETP.
- d. Mr V Nirmal Gandhi – Head - Environment Technology

The first 3 persons available, could not answer some of your questions as they do not work in those areas: our Xylene Tank Yard / Water Tanks / Non-Functional Old units-Offsites, which far away from our Plants/ ETP units.

- When Mr Nirmal Gandhi Head Environment offered to answer these questions, you had stated that you did not want to hear his answers / lectures and walked away.

Our team has been very busy commissioning a large new additional ETP and there were several major activities being done at that time on a war footing to ensure the complex system is operational by early December; added is the unwillingness of Experts from 3 Mumbai- Ahmedabad suppliers to travel to site.

You and the DEE of TNPCB had inspected areas inside these rear areas; specifically:

- the shutdown (old) MA plant cooling water ground level tank / sump
- Open Yard behind our raw material O-Xylene storage tank Farm
- O-Xylene storage tanks and dykes around it.
- The Old and New Plants, Raw Water storage tanks and areas around them

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For some of the queries raised by you, we would like to provide detailed explanations:

1. Solid mud in the old MA Plant cooling tower sump

This is an old above ground concrete sump of the idled cooling tower of our MA plant - not operating for the last 13 years. We have removed most of the Plants equipment; but this above ground Concrete Tank is in excellent condition is used to store residual cooling systems waters and muds flushed and drained from the system. This is the normal procedure in Cooling Tower systems cleaning.

The Tank can also be used for any other such storages.

If to be emptied, material is transferred to the ETP-ZLD for treatment and recovery.

2. Pipeline into the above MA cooling tower sump

The Pipe is from "blowdown pit " of a similar PA II cooling tower (not Operational, under dismantling).

During maintenance residual water was pumped into the MA plant cooling tower sump to enable emptying; or carry out any cooling Tower cleaning, repairs. The procedure is same as above.

3. Source of Black sludges pooling in the yard outside the Xylene Tank, and inside the Xylene dyke area (see note below)

These are external seepages coming into our plant from the West, N.West; because of the extensive slopes of land, the external underground seepages flow from West to East and from Northwest to South East from outside of TCL and through TCL.

These are from the **huge black effluent lakes** to our north and west, (visible even from Google Earth maps) combined with other discharge flows from various units therein; we have complained to all authorities about this for many years and last year.

These are present for over 15-20 years. These surface and Sub surface black waters take the path of least resistance and it is very difficult to predict perfectly through hydrogeology as the paths also change over the years based on underground soil changes, leach-out, and cross constructions over a period of time, and soil, strata changes .

These are open and well known. These seep up or flow at different locations including in our site, across Highway culvert, near RIL Bunk area, Public lands, all the way to the Eris.

- To protect our steel Tankages, We have done crude rubble bund to ensure that this external seepage water during the rain does not flow laterally into/ under the critical tanks, and gets evaporated during dry seasons. But it is very difficult to control these, as below.

4. Solid and sludge waste on ground in the tank farm dyke area; and removed/ packed in bags covered by tarpaulin.

As these Seepages have started coming even into the Tank farm (within the dyke) area itself we have regularly scraped these out when rains stop, and bagged them along with back soil to remove them , protect our Tanks.

This is scraped packed for removal. We are also taking up inspection of the OX Tank base plate and foundation as these are very critical issues for Tanks health.

The mud and sludge collected after scrapping the area to check the soil conditions were stored in these bags for safe approved disposal after necessary drying.

5. High TDS water stored in the water tanks:

As informed in earlier visits and now, we are in the process of commissioning a second and new ETP with new technology to augment our capability and create a backup for the old ETP unit. These are complex systems with 3 suppliers/ and 3 latest technologies.

Similar systems are operational in many good large Petro-chem units in India (Sanmar, Reliance, & some Public sector companies) and Overseas.

To ensure the continuous testing and guarantee runs, we need very large quantities of Untreated/ partly treated, high TDS feed for the various sections of the ETP plant. Such testing is needed for a month during commissioning to ensure all trouble shooting is done and corrections are implemented in the new equipment for improved performance and for the performance to get stabilized and sustained in the new ETP. The daily test needs will be 400-600 M3/day; we are storing also RO rejects water in the Tanks for accumulation and running at peak load for an extended run for testing the performance of our new ETP system as described above.

About 5200 KL is stored in the tanks for treatment for commissioning activities, and tuning the new ZLD plants. These are at the Instructions of our Executive Director and executed by Factory Manager and Off-sites team. No other such large surplus tanks are available for this critical ETP testing.

Your team now and earlier have seen how huge and complex the new ETP systems are.

We request you and the Government of Tamilnadu & and the TNPCB, to consider our appeal and relieve us from these external seepages from these black lakes; as we are unfairly made responsible for damage caused by them.

Please let us know if you will need any other information.

Thanking You,

For Thirumalai Chemicals Limited



S. Venkatraghavan.



Glens Innovation Labs Pvt Ltd.

ORIGINAL

TEST REPORT



Report No : EN20110023-01

Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-01

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-001

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.91	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	34900	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	24324	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	180	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	2832	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	1949	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	10397	mg/L

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TEST REPORT

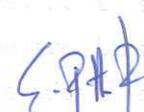
Report No : EN20110023-01

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	7860	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	220	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	6885	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	2066	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	16	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	1.23	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	261.42	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	14.70	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....
Page 2 of 2


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TEST REPORT

Report No : EN20110023-02 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-02

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-002

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

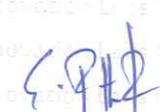
Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.73	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	46800	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	35631	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	175	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	4171	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	4060	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	17595	mg/L

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TEST REPORT

Report No : EN20110023-02

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	11200	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	280	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	9426	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	2639	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	19	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	3.43	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	205.40	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	32.63	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2

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TEST REPORT

Report No : EN20110023-03 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-03

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-003

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

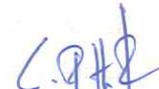
Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	7.07	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	33200	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	24820	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	133	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	1416	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	3370	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	11097	mg/L

Page 1 of 2


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TEST REPORT

Report No : EN20110023-03 Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	7140	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	240	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	10738	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	3114	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	24	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	1.46	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	246.65	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	11.46	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2


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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-04 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar,Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-04

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-004

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

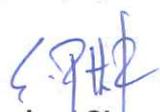
Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	7.26	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	34400	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	25800	mg/L
4	Colour	by visual examination	Light yellow	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	117	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	2716	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	1218	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	11197	mg/L

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-04

Report Date : 12 Oct 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	7820	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	320	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	3770	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	943	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	25	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	0.09	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	99.50	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....
Page 2 of 2


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TEST REPORT

Report No : EN20110023-05 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-05

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-005

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	4.79	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	89800	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	57030	mg/L
4	Colour	by visual examination	Reddish	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	776	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	1028	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	1523	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	23193	mg/L

Page 1 of 2


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TEST REPORT

Report No : EN20110023-05

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	14500	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	600	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	11639	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	3143	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	12	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	3.08	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	851.16	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2


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TEST REPORT

Report No : EN20110023-06 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-06

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-006

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.52	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	44000	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	31450	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	393	mg/L
6	Total Hardness as CaCO ₃	APHA 23rd Edition Part 2340 C : 2017	3996	mg/L
7	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 RA : 2014	2538	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	15295	mg/L

Page 1 of 2


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TEST REPORT

Report No : EN20110023-06

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	9180	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	360	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	8689	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	2433	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	8	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	3.70	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	348.80	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	49.19	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2

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TEST REPORT

Report No : EN20110023-07 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-07

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-007

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	7.13	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	32500	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	24132	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	215	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	2076	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	2220	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	10897	mg/L

Page 1 of 2


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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-07

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	6720	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	400	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	10984	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	3295	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	12	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	0.87	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	158.40	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	5.40	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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 Manager - Lab

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-08 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-08

Date/time of Collection : 11 Nov 2020

11:30 to 15:20

Sample Identification : VLR-008

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.82	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	30800	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	23270	mg/L
4	Colour	by visual examination	Light yellow	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	127	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	2910	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	934	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	9397	mg/L

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-08

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	6980	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	680	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	4836	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	1306	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	5	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	0.43	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-09 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-09

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-009

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.78	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	36300	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	23750	mg/L
4	Colour	by visual examination	Light yellow	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	75	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	2076	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	711	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	13190	mg/L

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-09

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	6450	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	420	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	4590	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	1102	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	5	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	1.89	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	129.90	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	67.29	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-10 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-10

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-010

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.95	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	34300	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	24230	mg/L
4	Colour	by visual examination	Light yellow	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	112	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	3201	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	660	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	11996	mg/L

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-10

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	6330	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	420	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	4467	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	1430	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	BDL(DL:4.0)	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	0.56	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	44.12	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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ORIGINAL

GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-11 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar,Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-11

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-011

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.94	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	16410	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	12180	mg/L
4	Colour	by visual examination	Reddish	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	55	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	1067	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	1015	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	4599	mg/L

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TEST REPORT

Report No : EN20110023-11

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	3560	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	410	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	1328	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	372	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	BDL(DL:4.0)	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	0.06	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	9.10	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	82.78	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-12 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-12

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-012

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

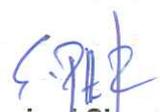
Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	8.27	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	13180	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	9620	mg/L
4	Colour	by visual examination	Light yellow	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	75	mg/L
6	Total Hardness as CaCO ₃	APHA 23rd Edition Part 2340 C : 2017	582	mg/L
7	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 RA : 2014	3492	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	2749	mg/L

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-12

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	2300	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	560	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	1311	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	367	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	5	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	0.06	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
17	Malic acid	GL/EN-INS/SOP/58	39.97	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-13 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-13

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-013

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	7.16	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	31100	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	21890	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	118	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	970	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	3857	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	8797	mg/L

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TEST REPORT

Report No : EN20110023-13

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	6440	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	500	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	3115	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	997	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	BDL(DL:4.0)	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	0.26	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	57.93	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	132.71	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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TEST REPORT

Report No : EN20110023-14 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-14

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-014

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	6.58	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	44000	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	32700	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	1651	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	6615	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	1218	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	16095	mg/L

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-14

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 – Na B : 2017	8890	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 – K B : 2017	490	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	10000	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	2800	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	5	mg/L
14	Phenolic compounds as C6H5OH	APHA 23rd Edition Part 5530 C : 2017	2.50	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	166.43	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	27.23	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-15 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-15

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-015

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	7.34	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	9180	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	6540	mg/L
4	Colour	by visual examination	Black	-
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	74	mg/L
6	Total Hardness as CaCO ₃	APHA 23rd Edition Part 2340 C : 2017	737	mg/L
7	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 1986 RA : 2014	406	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	3099	mg/L

Page 1 of 2

Authorized Signature

E. Prithvirajan
Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-15

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	1810	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	480	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	2295	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	666	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	12	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	0.08	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	15.00	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2


 Authorized Signature
 E. Prithvirajan
 Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-16 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Water

Sample Description : Trade Effluent

Sample No : EN20110023-16

Date/time of Collection : 11 Nov 2020
11:30 to 15:20

Sample Identification : VLR-016

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	APHA 23rd Edition Part 4500 H+ B : 2017	7.38	-
2	Electrical Conductivity	APHA 23rd Edition Part 2510 B : 2017	5550	µS/cm
3	Total Dissolved solids	APHA 23rd Edition Part 2540 C : 2017	3625	mg/L
4	Colour	APHA 23rd Edition Part 2120 B : 2017	10	Hazen
5	Total suspended solids(TSS)	APHA 23rd Edition Part 2540 D : 2017	3	mg/L
6	Total Hardness as CaCO3	APHA 23rd Edition Part 2340 C : 2017	1261	mg/L
7	Total Alkalinity as CaCO3	IS 3025 (Part 23): 1986 RA : 2014	274	mg/L
8	Chloride as Cl	APHA 23rd Edition Part 4500 Cl - B : 2017	1600	mg/L

Page 1 of 2

Authorized Signature

E. Prithvirajan
Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-16

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Sodium as Na	APHA 23rd Edition Part 3500 - Na B : 2017	990	mg/L
10	Potassium as K	APHA 23rd Edition Part 3500 - K B : 2017	140	mg/L
11	Chemical oxygen demand	APHA 23rd Edition Part 5220 B,C : 2017	131	mg/L
12	Biochemical Oxygen demand at 27°C for 3 days	IS 3025 (Part 44): 1993 RA : 2014	33	mg/L
13	Oil and Grease	APHA 23rd Edition Part 5520 B:2017	BDL(DL:4.0)	mg/L
14	Phenolic compounds as C ₆ H ₅ OH	APHA 23rd Edition Part 5530 C : 2017	BDL(DL:0.001)	mg/L
15	O-xylene	GL/EN-INS/SOP/30	BDL(DL:20.0)	µg/L
16	Fumaric acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
17	Malic acid	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L
18	Phthalic anhydride	GL/EN-INS/SOP/58	BDL(DL:5.0)	mg/L

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2

Authorized Signature

E. Prithvirajan
Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-17 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar,Vellore-632006

Sample Name : Hazardous Waste

Sample No : EN20110023-17

Date/time of Collection : 11 Nov 2020
13:00 to 13:10

Sample Identification : VLR-017

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	GL/EN-INS/SOP/092	7.42	-
2	Electrical Conductivity	GL/EN-INS/SOP/091	8610	µS/cm
3	Total Dissolved solids	GL/EN-INS/SOP/041	29719	mg/kg
4	Total Hardness as CaCO ₃	GL/EN-INS/SOP/102	8125	mg/kg
5	Total Alkalinity as CaCO ₃	GL/EN-INS/SOP/002	506	mg/kg
6	Chloride as Cl	GL/EN-INS/SOP/097	10367	mg/kg
7	Sodium as Na	GL/EN-INS/SOP/095	6382	mg/kg
8	Potassium as K	GL/EN-INS/SOP/095	1396	mg/kg

Authorized Signature

E. Prithvirajan
Manager - Lab



GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-17

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Oil and Grease	GL/EN-INS/SOP/106	BDL(DL:10.0)	mg/kg
10	Phenolic compounds as C6H5OH	GL/EN-INS/SOP/062	BDL(DL:0.1)	mg/kg
11	O-xylene	GL/EN-INS/SOP/33	BDL(DL:20.0)	µg/kg
12	Fumaric acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
13	Malic acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
14	Phthalic anhydride	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2

Authorized Signature

E. Prithvirajan
Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-18 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Hazardous Waste

Sample No : EN20110023-18

Date/time of Collection : 11 Nov 2020
13:00 to 13:10

Sample Identification : VLR-018

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	GL/EN-INS/SOP/092	7.6	-
2	Electrical Conductivity	GL/EN-INS/SOP/091	8210	µS/cm
3	Total Dissolved solids	GL/EN-INS/SOP/041	16010	mg/kg
4	Total Hardness as CaCO ₃	GL/EN-INS/SOP/102	6159	mg/kg
5	Total Alkalinity as CaCO ₃	GL/EN-INS/SOP/002	992	mg/kg
6	Chloride as Cl	GL/EN-INS/SOP/097	2380	mg/kg
7	Sodium as Na	GL/EN-INS/SOP/095	2044	mg/kg
8	Potassium as K	GL/EN-INS/SOP/095	161	mg/kg

Authorized Signature

E. Prithvirajan
Manager - Lab



GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-18

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Oil and Grease	GL/EN-INS/SOP/106	BDL(DL:10.0)	mg/kg
10	Phenolic compounds as C6H5OH	GL/EN-INS/SOP/062	BDL(DL:0.1)	mg/kg
11	O-xylene	GL/EN-INS/SOP/33	BDL(DL:20.0)	µg/kg
12	Fumaric acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
13	Malic acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
14	Phthalic anhydride	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2

Authorized Signature

E. Prithvirajan
Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-19 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar,Vellore-632006

Sample Name : Hazardous Waste

Sample No : EN20110023-19

Date/time of Collection : 11 Nov 2020
13:00 to 13:10

Sample Identification : VLR-019

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	GL/EN-INS/SOP/092	8.25	-
2	Electrical Conductivity	GL/EN-INS/SOP/091	1376	µS/cm
3	Total Dissolved solids	GL/EN-INS/SOP/041	8906	mg/kg
4	Total Hardness as CaCO ₃	GL/EN-INS/SOP/102	1533	mg/kg
5	Total Alkalinity as CaCO ₃	GL/EN-INS/SOP/002	1383	mg/kg
6	Chloride as Cl	GL/EN-INS/SOP/097	1777	mg/kg
7	Sodium as Na	GL/EN-INS/SOP/095	1106	mg/kg
8	Potassium as K	GL/EN-INS/SOP/095	223	mg/kg

Page 1 of 2

Authorized Signature

E. Prithvirajan
Manager - Lab

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-19

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Oil and Grease	GL/EN-INS/SOP/106	BDL(DL:10.0)	mg/kg
10	Phenolic compounds as C6H5OH	GL/EN-INS/SOP/062	BDL(DL:0.1)	mg/kg
11	O-xylene	GL/EN-INS/SOP/33	BDL(DL:20.0)	µg/kg
12	Fumaric acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
13	Malic acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
14	Phthalic anhydride	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....
Page 2 of 2


 Authorized Signature
 E. Prithvirajan
 Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-20 Report Date : 20 Nov 2020

SAMPLE NOT DRAWN BY LABORATORY

Customer Name : M/S. Tamil Nadu Pollution Control Board

Customer Address : Auxilium College Road (Opposite to Auxilium College) Gandhi Nagar, Vellore-632006

Sample Name : Hazardous Waste

Sample No : EN20110023-20

Date/time of Collection : 11 Nov 2020
13:00 to 13:10

Sample Identification : VLR-020

Sample Received on : 12 Nov 2020

Sample Condition : Fit for Analysis

Test Started on : 12 Nov 2020

Sample Quantity : 2 Litre

Test Completed on : 19 Nov 2020

Test result

S.No	Test Name	Test Method	Results	Units
1	pH @ 25°C	GL/EN-INS/SOP/092	7.77	-
2	Electrical Conductivity	GL/EN-INS/SOP/091	4820	µS/cm
3	Total Dissolved solids	GL/EN-INS/SOP/041	19027	mg/kg
4	Total Hardness as CaCO ₃	GL/EN-INS/SOP/102	13495	mg/kg
5	Total Alkalinity as CaCO ₃	GL/EN-INS/SOP/002	1789	mg/kg
6	Chloride as Cl	GL/EN-INS/SOP/097	3378	mg/kg
7	Sodium as Na	GL/EN-INS/SOP/095	2385	mg/kg
8	Potassium as K	GL/EN-INS/SOP/095	855	mg/kg


 Authorized Signature
 E. Prithvirajan
 Manager - Lab



GLens Innovation Labs Pvt Ltd.

TEST REPORT

Report No : EN20110023-20

Report Date : 20 Nov 2020

S.No	Test Name	Test Method	Results	Units
9	Oil and Grease	GL/EN-INS/SOP/106	BDL(DL:10.0)	mg/kg
10	Phenolic compounds as C6H5OH	GL/EN-INS/SOP/062	BDL(DL:0.1)	mg/kg
11	O-xylene	GL/EN-INS/SOP/33	BDL(DL:20.0)	µg/kg
12	Fumaric acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
13	Malic acid	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg
14	Phthalic anhydride	GL/EN-INS/SOP/60	BDL(DL:5.0)	mg/kg

Note: BDL-Below Detection Limit, DL- Detection Limit

.....End of Report.....

Page 2 of 2


 Authorized Signature
 E. Prithvirajan
 Manager - Lab

#.6/1, 1st Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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Tax Invoice

(ORIGINAL FOR RECIPIENT)

 GLens Innovation Labs Pvt Ltd No.6/1, 1st Floor, Sri Jothi Complex, Murugesan Nagar, Balavinayagar Street, Arumbakkam, Chennai - 600106 GSTIN/UIN: 33AAGCG8023N1ZF State Name : Tamil Nadu, Code : 33	Invoice No.	Dated
	GTN/20-21/12/01	1-Dec-2020
Buyer Thirumalai Chemicals Limited 25 A, Sipcot Industrial Complex, Ranipet, Tamil Nadu 632403. GSTIN/UIN : 33AAACT2015M1ZM State Name : Tamil Nadu, Code : 33 Place of Supply : Tamil Nadu	Supplier's Ref.	Mode/Terms of Payment 100% Against Invoice.
	Buyer's Order No.	Other Reference(s) Referred by : DEE, TNPCB, Vellore
	Terms of Delivery As Per Mail Confirmation.	Dated

Sl No.	Description of Goods	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	Trade Effluent analysis VLR-001 to VLR 016	998346	16 Qnty	4,000.00	Qnty		64,000.00
2	Hazardous Waste VLR-017 to VLR 020 Sample Received Date : 12-11-2020 Sample Number : EN20110023	998346	4 Qnty	4,000.00	Qnty		16,000.00
							80,000.00
					TN CGST Output @ 9%	9 %	7,200.00
					TN SGST Output @ 9%	9 %	7,200.00
Total			20 Qnty				₹ 94,400.00

Amount Chargeable (in words) E. & O.E
INR Ninety Four Thousand Four Hundred Only

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
998346	80,000.00	9%	7,200.00	9%	7,200.00	14,400.00
Total	80,000.00		7,200.00		7,200.00	14,400.00

Tax Amount (in words) : **INR Fourteen Thousand Four Hundred Only**

Company's PAN : **AAGCG8023N**

Company's Bank Details
 Bank Name : **HDFC Bank A/C**
 A/c No. : **50200025295293**
 Branch & IFS Code: **E-City Phase 1 & HDFC0003781**
 for **GLens Innovation Labs Pvt Ltd**

Declaration
 We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

Authorized Signatory

This is a Computer Generated Invoice



Tax Invoice

(DUPLICATE FOR TRANSPORTER)

 GLens Innovation Labs Pvt Ltd No.6/1,1st Floor,Sri Jothi Complex, Murugesan Nagar, Balavinayagar Street, Arumbakkam, Chennai - 600106 GSTIN/UIN: 33AAGCG8023N1ZF State Name : Tamil Nadu, Code : 33	Invoice No. GTN/20-21/12/01	Dated 1-Dec-2020
	Supplier's Ref.	Mode/Terms of Payment 100% Against Invoice.
Buyer Thirumalai Chemicals Limited 25 A, Sipcot Industrial Complex, Ranipet, Tamil Nadu 632403. GSTIN/UIN : 33AAACT2015M1ZM State Name : Tamil Nadu, Code : 33 Place of Supply : Tamil Nadu	Buyer's Order No.	Other Reference(s) Referred by : DEE, TNPCB,Vellore
	Terms of Delivery As Per Mail Confirmation.	

Sl No.	Description of Goods	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	Trade Effluent analysis VLR-001 to VLR 016	998346	16 Qnty	4,000.00	Qnty		64,000.00
2	Hazardous Waste VLR-017 to VLR 020 Sample Received Date : 12-11-2020 Sample Number : EN20110023	998346	4 Qnty	4,000.00	Qnty		16,000.00
							80,000.00
					TN CGST Output @ 9%	9 %	7,200.00
					TN SGST Output @ 9%	9 %	7,200.00
Total			20 Qnty				₹ 94,400.00

Amount Chargeable (in words)

INR Ninety Four Thousand Four Hundred Only

E. & O.E

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
998346	80,000.00	9%	7,200.00	9%	7,200.00	14,400.00
Total	80,000.00		7,200.00		7,200.00	14,400.00

Tax Amount (in words) : **INR Fourteen Thousand Four Hundred Only**

Company's PAN : **AAGCG8023N**

Company's Bank Details

Bank Name : **HDFC Bank A/C**

A/c No. : **50200025295293**

Branch & IFS Code: **E-City Phase 1 & HDFC0003781**

for **GLens Innovation Labs Pvt Ltd**

Declaration

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.



This is a Computer Generated Invoice

Tax Invoice

(TRIPLICATE FOR SUPPLIER)

 GLens Innovation Labs Pvt Ltd No.6/1, 1st Floor, Sri Jothi Complex, Murugesan Nagar, Balavinayagar Street, Arumbakkam, Chennai - 600106 GSTIN/UIN: 33AAGCG8023N1ZF State Name : Tamil Nadu, Code : 33	Invoice No.	Dated
	GTN/20-21/12/01	1-Dec-2020
	Supplier's Ref.	Mode/Terms of Payment
		100% Against Invoice.
Buyer	Buyer's Order No.	Other Reference(s)
Thirumalai Chemicals Limited 25 A, Sipcot Industrial Complex, Ranipet, Tamil Nadu 632403. GSTIN/UIN : 33AAACT2015M1ZM State Name : Tamil Nadu, Code : 33 Place of Supply : Tamil Nadu		Referred by : DEE, TNPCB, Vellore
	Terms of Delivery	
	As Per Mail Confirmation.	

Sl No.	Description of Goods	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	Trade Effluent analysis VLR-001 to VLR 016	998346	16 Qnty	4,000.00	Qnty		64,000.00
2	Hazardous Waste VLR-017 to VLR 020 Sample Received Date : 12-11-2020 Sample Number : EN20110023	998346	4 Qnty	4,000.00	Qnty		16,000.00
							80,000.00
	TN CGST Output @ 9%				9 %		7,200.00
	TN SGST Output @ 9%				9 %		7,200.00
	Total		20 Qnty				₹ 94,400.00

Amount Chargeable (in words) E. & O.E

INR Ninety Four Thousand Four Hundred Only

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
998346	80,000.00	9%	7,200.00	9%	7,200.00	14,400.00
Total	80,000.00		7,200.00		7,200.00	14,400.00

Tax Amount (in words) : **INR Fourteen Thousand Four Hundred Only**

Company's PAN : AAGCG8023N Declaration We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.	Company's Bank Details Bank Name : HDFC Bank A/C A/c No. : 50200025295293 Branch & IFS Code: E-City Phase 1 & HDFC0003781 for GLens Innovation Labs Pvt Ltd
	

This is a Computer Generated Invoice

PARAMTERS - WATER																				
S.NO	AMPLE CODE	LOCATION ID	PH	EC (uS/cm)	TDS (mg/l)	Colour	TSS (mg/l)	Total Hardness (mg/l)	Total Alkalinity (mg/l)	Chloride (mg/l)	Sodium (mg/l)	Potassium (mg/l)	COD (mg/l)	BOD (mg/l)	Oil and Grease (mg/l)	Phenol (mg/l)	O-XYLENE (ug/l)	Fumaric Acid (mg/l)	Maleic Acid (mg/l)	Pthalic Anhydride (mg/l)
1	EN20110023.01	VLR-001	6.91	34900	24324	BLACK	180	2832	1949	10397	7860	220	6885	2066	16	1.23	BDL-DL-20	261.42	BDL-DL-5	14.70
2	EN20110023.02	VLR-002	6.73	46800	35631	BLACK	175	4171	4060	17595	11200	280	9426	2639	19	3.43	BDL-DL-20	205.40	BDL-DL-5	32.63
3	EN20110023.03	VLR-003	7.07	33200	24820	BLACK	133	1416	3370	11097	7140	240	10738	3114	24	1.46	BDL-DL-20	246.65	BDL-DL-5	11.46
4	EN20110023.04	VLR-004	7.26	34400	25800	LIGHT YELLOW	117	2716	1218	11197	7820	320	3770	943	25	0.09	BDL-DL-20	99.50	BDL-DL-5	BDL-DL-5
5	EN20110023.05	VLR-005	4.79	89800	57030	REDDISH YELLOW	776	1028	1523	23193	14500	600	11639	3143	12	3.08	BDL-DL-20	851.16	BDL-DL-5	BDL-DL-5
6	EN20110023.06	VLR-006	6.52	44000	31450	BLACK	393	3996	2538	15295	9180	360	8689	2433	8	3.70	BDL-DL-20	348.80	BDL-DL-5	49.19
7	EN20110023.07	VLR-007	7.13	32500	24132	BLACK	215	2076	2220	10897	6720	400	10984	3295	12	0.87	BDL-DL-20	158.40	BDL-DL-5	5.40
8	EN20110023.08	VLR-008	6.82	30800	23270	LIGHT YELLOW	127	2910	934	9397	6980	680	4836	1306	5	0.43	BDL-DL-20	BDL-DL-5	BDL-DL-5	BDL-DL-5
9	EN20110023.09	VLR-009	6.78	36300	23750	LIGHT YELLOW	75	2076	711	13190	6450	420	4590	1102	5	1.89	BDL-DL-20	129.90	BDL-DL-5	67.29
10	EN20110023.10	VLR-010	6.95	34300	24230	LIGHT YELLOW	112	3201	660	11996	6330	420	4467	1430	BDL	0.56	BDL-DL-20	44.12	BDL-DL-5	BDL-DL-5
11	EN20110023.11	VLR-011	6.94	16410	12180	REDDISH YELLOW	55	1067	1015	4599	3560	410	1328	372	BDL	0.06	BDL-DL-20	9.10	BDL-DL-5	82.78
12	EN20110023.12	VLR-012	8.27	13180	9620	LIGHT YELLOW	75	582	3492	2749	2300	560	1311	367	5	0.06	BDL-DL-20	BDL-DL-5	39.97	BDL-DL-5
13	EN20110023.13	VLR-013	7.16	31100	21890	BLACK	118	970	3857	8797	6440	500	3115	997	BDL	0.26	BDL-DL-20	57.93	BDL-DL-5	132.71
14	EN20110023.14	VLR-014	6.58	44000	32700	BLACK	1651	6615	1218	16095	8890	490	10000	2800	5	2.50	BDL-DL-20	166.43	BDL-DL-5	27.23
15	EN20110023.15	VLR-015	7.34	9180	6540	BLACK	74	737	406	3099	1810	480	2295	666	12	0.08	BDL-DL-20	BDL-DL-5	BDL-DL-5	15.00
16	EN20110023.16	VLR-016	7.38	5550	3625	10 Hazen	3	1261	274	1600	990	140	131	33	BDL	BDL-DL-0.01	BDL-DL-20	BDL-DL-5	BDL-DL-5	BDL-DL-5
PARAMTERS - SLUDGE (WATER LEACHATE)																				
S.NO	AMPLE CODE	LOCATION ID	PH	EC (uS/cm)	TDS (mg/kg)	Total Hardness (mg/kg)	Total Alkalinity (mg/kg)	Chloride (mg/kg)	Sodium (mg/kg)	Potassium (mg/kg)	Oil and Grease (mg/kg)	Phenol (mg/kg)	O-XYLENE (ug/kg)	Fumaric Acid (mg/kg)	Maleic Acid (mg/kg)	Pthalic Anhydride (mg/kg)				
17	EN20110023.17	VLR-017	7.42	8610	29719	8125	506	10367	6382	1396	BDL	BDL-DL-0.1	BDL-DL-20	BDL-DL-5	BDL-DL-5	BDL-DL-5				
18	EN20110023.18	VLR-018	7.6	8210	16010	6159	992	2380	2044	161	BDL	BDL-DL-0.1	BDL-DL-20	BDL-DL-5	BDL-DL-5	BDL-DL-5				
19	EN20110023.19	VLR-019	8.25	1376	8906	1533	1383	1777	1106	223	BDL	BDL-DL-0.1	BDL-DL-20	BDL-DL-5	BDL-DL-5	BDL-DL-5				
20	EN20110023.20	VLR-020	7.77	4820	19027	13495	1789	3378	2385	855	BDL	BDL-DL-0.1	BDL-DL-20	BDL-DL-5	BDL-DL-5	BDL-DL-5				







Selfless Service
to Industries

State Industries Promotion Corporation of Tamil Nadu Limited

(A Government of Tamil Nadu Undertaking)

Project Office : SIPCOT INDUSTRIAL COMPLEX, Ranipet

SIPCOT Industrial Complex, Ranipet - 632 403, Ranipet District.

Phone : 04172-244203, Fax : 04172-244298, Email : porp@sipcot.in

Regd. Office : 19-A, Rukmani Lakshmiipathy Road, Post Box No. 7223, Egmore, Chennai - 600 008.

Phone : 28554787, Fax : 044-28513978, 42177333, Website : www.sipcot.in, GST. Reg. No : 33AAACS4643J1ZF

PO/RPT/Thirumalai Chemicals Ltd/ 2020

Dt. 01.12.2020

To
The Sub-Collector,
Ranipet.

Respected Sir,

Sub: SIPCOT Industrial Complex, Ranipet –Pollution Ranipet SIPCOT-
OA.No.131/2020 filed by Th. Jayachandran and Anr against M/s.
Thirumalai Chemicals Ltd and others in National Green Tribunal,
South Zone, Chennai-Orders issued-Inquiry of the Joint Committee-
Details called for-Submitted-Reg.

Ref: Your Lr. No. Rc.No.A5/2799/2020, Dt. 09.10.2020.

With reference to the above, we submit herewith the following:

Sl.No	Details	Reply
1.	To furnish the Pipeline Layout map from the origination to end point.	Pipeline layout map from the origination to end point is enclosed.
2.	To furnish the Length, Breadth Depth and Dimension of the pipeline.	The details of length, Breadth, depth and dimension of the pipe line is shown in the layout is enclosed.
3.	To Furnish the answers for the following queries: a. What is the purpose of the pipeline?	There is a possible of carrying the proposal for disposal of effluent from this oxidation pond from M/s. Thirumalai Chemicals Ltd and effluent may also be let out from this pipe line.
	b. Who did request the SIPCOT to construct that pipeline?	Details are not available in this office.
	c. When was it constructed?	There is no records available in this office.

..2..

Sl.No	Details	Reply
	d. How much amount spent for the construction?	Not ascertained.
	e. Who did spend the money?	Not ascertained.
	f. Who did execute the work?	Not ascertained.
	g. Who did grant permission to lay pipeline in SIPCOT land, Panchayat land?	We have not given any permission to lay pipe line.
4.	To furnish the map of the SIPCOT, Ranipet, Phase-I Industrial Estate	Layout map enclosed.

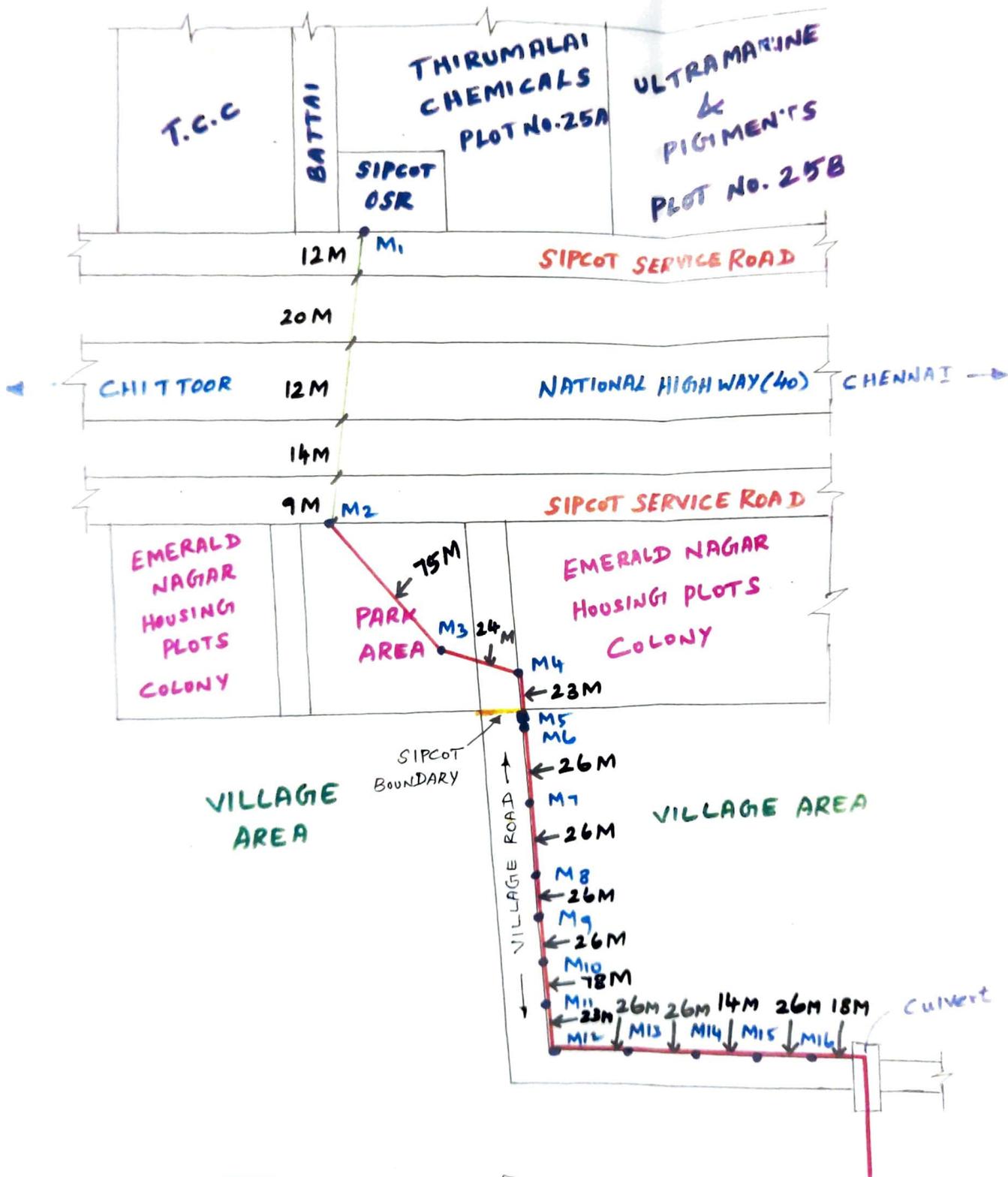
This is submitted for kind perusal please.

Encl: Layout

S. Rajan
1/12/20.

Yours Faithfully,

A. Karthi 1/12/20
Project Officer,
SIPCOT, Ranipet.



MAN HOLE SIZE [1.50M x 1.00M]

PIPE DIAMETER [300MM]
LALD AT 3FT DEPTH

POLIYAN KANNU

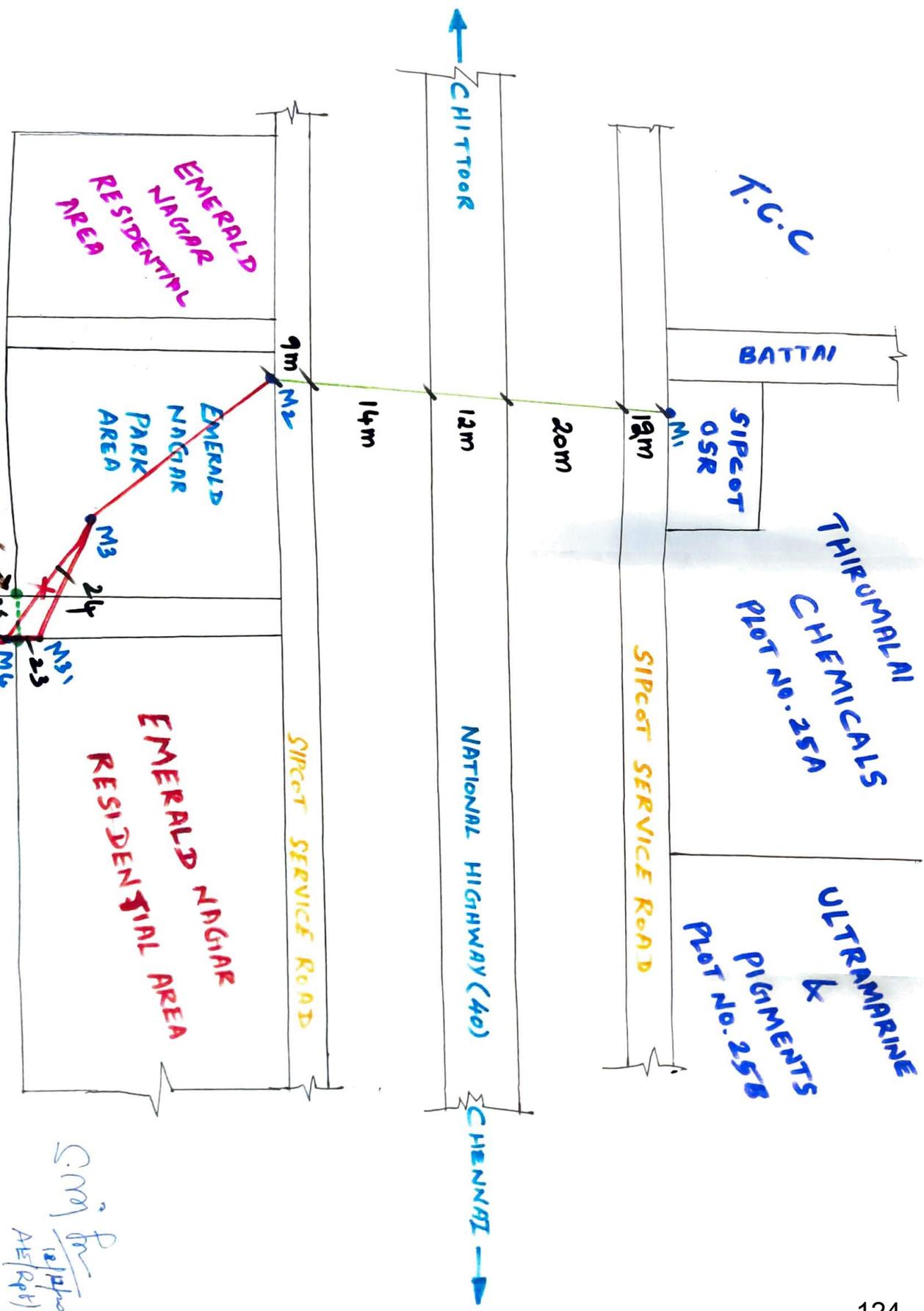
ERT

ASSISTANT ENGINEER
SIPCOT PROJECT OFFICE
SIPCOT, RANIPET

PROJECT OFFICER
SIPCOT PROJECT OFFICE
SIPCOT, RANIPET

- MANHOLE SIZE [1.53M X 1.00M]
- PIPE DIAMETER [300MM]
- LAID AT 3FT DEPTH

VILLAGE AREA
 BOUNDARY
 SIPCOT



S.M.J for
 12/12/20
 A.E./R.S.

இராணிப்பேட்டை மாவட்டம், வாலாஜா வட்டம், நவ்லாக் ஊராட்சி சிப்காட்-எமரால்டு நகர், கதவு எண்.B9 என்ற முகவரியில் வசித்து வரும் குணமணி மனுவேல் மகன் பால் சத்தியன் ஆகிய நான் கொடுத்துக்கொண்ட வாக்குமூலம்

தேசிய பசுமை தீர்ப்பாயம் அசல் வழக்கு எண்.131/2020 படி அமைக்கப்பட்ட கூட்டுக்குழு, இராணிப்பேட்டை சிப்காட் பகுதியில் இயங்கி வரும் திருமலை கெமிக்கல்ஸ் நிறுவனத்தில் மேற்கொண்ட ஆய்வு தொடர்பாக இராணிப்பேட்டை சார் ஆட்சியர் அவர்கள் 04.12.2020 தேதியன்று என்னை விசாரணை செய்வதை தெரிந்துக் கொண்டேன்.

நான் திருமலை கெமிக்கல்ஸ் நிறுவனத்தின் எதிர்ப்புறம் உள்ள எமரால்டு நகரில் சுமார் 30 வருடங்களாக வசித்து வருகிறேன். மேற்படி திருமலை கெமிக்கல்ஸ் நிறுவனத்திலிருந்து இரசாயனக் கழிவு நீர் எங்கள் எமரால்டு நகர் வழியாகும், அருந்ததியர் காலனி பகுதியை ஒட்டியுள்ள கால்வாய் வழியாகவும் வெளியேற்றப்பட்டு அருகிலுள்ள புளியங்கண்ணு ஏரியில் கலக்கப்பட்டு வந்தது. இந்நிலையில் சுமார் 12 வருடங்களுக்கு முன்பு 2007-2008 காலகட்டத்தில் அருந்ததியர் காலனி பகுதியில் வசித்து வந்த திருமதி. சுமதி என்ற பெண் புற்றுநோய் பாதிப்புக்குள்ளாகி இறந்துவிட்டார். அவரது சடலத்தை அருகில் உள்ள சுடுகாட்டில் அடக்கம் செய்வதற்காக எடுத்துச் செல்லும்போது சுடுகாட்டிற்கு செல்லும் வழியின் குறுக்கே மேற்படி திருமலை கெமிக்கல்ஸ் நிறுவனத்தில் இருந்து வெளியேற்றப்படும் இரசாயன கழிவு நீர் வெள்ளமாக ஓடியதால், சுடுகாட்டுக்கு செல்ல வழி இல்லாத காரணத்தினால் அருந்ததியர் காலனி பொதுமக்கள் அனைவரும் ஒன்று சேர்ந்து மேற்படி நிறுவனத்திடம் சென்று முறையிட்டார்கள், அதற்கு உடனடியாக மேற்படி திருமலை கெமிக்கல்ஸ் நிறுவனத்தினர் சுடுகாட்டுக்குச் செல்லும் பாதையின் குறுக்கே தற்காலிகமாக சிமெண்ட் பைப்புகள் அமைத்து இரசாயன கழிவுகளை வெளியேற்றி சுடுகாட்டிற்கு செல்லும் பாதையை சீர் செய்தனர். பிறகு ஒரு வார காலத்திற்குள் மேற்படி திருமலை கெமிக்கல்ஸ் நிறுவனத்தினர், தங்கள் நிறுவனத்திலிருந்து வெளியேறும் இரசாயனகழிவு நீரை வெளியேற்றுவதற்கு வசதியாக நிறுவனத்தின் அருகிலிருந்து எதிர்புறம் உள்ள எமரால்டு நகர் வழியாக அருந்ததியர் காலனி பகுதி வரை நிரந்தரமாக சிமெண்ட் பைப்புகளை புதைத்து அதற்கான சேம்பர்களை கட்டி கழிவு நீரை வெளியேற்றி அருகிலுள்ள புளியங்கண்ணு ஏரியில் கலக்கும்படி விட்டுவிட்டனர். அவ்வப்போது திருமலை கெமிக்கல்ஸ் நிறுவனத்தின் அதிகாரிகள் மற்றும் தொழிலாளர்கள் வந்து, இந்த பைப்லைன் மற்றும் சேம்பர்களில் ஏற்பட்டுள்ள பழுதுகளை சரி செய்து பராமரித்து வருகின்றனர்.

//படித்து பார்த்தேன் சரி//படிக்க கேட்டேன் சரி//



என் முன்பாக



சார் ஆட்சியர்
இராணிப்பேட்டை,

இராணிப்பேட்டை மாவட்டம், வாலாஜா வட்டம், புளியங்கண்ணு காரை நெ.302 கோவில் தெரு என்ற முகவரியில் வசித்து வரும் அன்னியப்பன் நாயுடு மகன் பக்தவச்சலம் ஆகிய நான் கொடுத்துக்கொண்ட வாக்குமூலம்

தேசிய பசுமை தீர்ப்பாயம் அசல் வழக்கு எண்.131/2020 படி அமைக்கப்பட்ட கூட்டுக்குழு, இராணிப்பேட்டை சிப்காட் பகுதியில் இயங்கி வரும் திருமலை கெமிக்கல்ஸ் நிறுவனத்தில் மேற்கொண்ட ஆய்வு தொடர்பாக இராணிப்பேட்டை சார் ஆட்சியர் அவர்கள் 04.12.2020 தேதியன்று என்னை விசாரணை செய்வதை தெரிந்துக் கொண்டேன்.

நான் மேற்படி நவ்லாக் புளியங்கண்ணு கிராமத்தில் பூர்வீகமாக வசித்து வருகிறேன். எங்கள் பகுதியில் உள்ள புளியங்கண்ணு, காரை ஏரிகளில் சிப்காட் தொழிற்பேட்டையில் உள்ள திருமலை கெமிக்கல்ஸ் நிறுவனத்தின் இரசாயன கழிவுநீர் கடந்த 40 வருடங்களுக்கும் மேலாக கலந்து மிகப்பெரிய அளவில் சுற்றுச்சூழல் சீர்கேடு ஏற்படுத்தி வருகிறது. சுமார் 12 ஆண்டுகளுக்கு முன்பு வரையில் திருமலை கெமிக்கல்ஸ் நிறுவனத்தின் இரசாயன கழிவுநீர் மழைநீர் வடிகால் கால்வாய்களின் வழியாக நேரடியாக எங்கள் பகுதியில் உள்ள புளியங்கண்ணு, காரை ஏரிகளில் விடப்பட்டிருந்தது. இந்நிலையில் மேற்படி நிறுவனத்தினால் ஏற்பட்ட சுற்றுச்சூழல் சீர்கேடு பிரச்சினைகளால் பாதிப்புக்குள்ளான எங்கள் பகுதி மக்கள் தொடர்ச்சியாக போராடி வந்த நிலையில் கடந்த 2007-2008 காலகட்டத்தில் திருமலை கெமிக்கல்ஸ் நிறுவனத்திலிருந்து யாருக்கும் தெரியாதபடி இரசாயன கழிவு நீரை வெளியேற்றி அருகிலுள்ள புளியங்கண்ணு, காரை ஏரிகளில் கலக்கும் திட்டத்துடன் திருமலை கெமிக்கல்ஸ் நிறுவனத்தின் அருகிலிருந்து எம்ரால்ட் நகர் அருந்ததியர் குடியிருப்பு வரையில் சுமார் 500 மீட்டர் நீளத்திற்கு சிமெண்ட் பைப்லைன் புதைத்து அதற்கு சிமெண்ட் சேம்பர்கள் அமைத்து அதன் வழியாக நிறுவனத்தில் இருந்து வெளியேற்றப்படும் இரசாயன கழிவு நீரை புளியங்கண்ணு பகுதியிலுள்ள காரை ஏரியில் கலக்கச் செய்து வந்தனர். இந்நிலையில் கடந்த 2014 ஆம் ஆண்டு புளியங்கண்ணு பகுதி மக்கள் ஒன்று சேர்ந்து மேற்படி நிறுவனத்தில் இருந்து வெளியேற்ற பயன்படுத்தி கொண்டிருந்த சிமெண்ட் பைப் லைன்கள் மற்றும் சிமெண்ட் சேம்பர்களை உடைத்து, மண் மற்றும் கற்களை கொண்டு அடைத்து இரசாயன கழிவு நீர் வெளியே வராத வகையில் மூடினர். ஆனால் அடுத்த வருடமே மேற்படி திருமலை கெமிக்கல்ஸ் நிறுவனத்தினர் சேதமடைந்த அந்த சிமெண்ட் பைப் லைன் மற்றும் சேம்பர்களை சரிசெய்து தொடர்ச்சியாக இந்த பைப் வழியாக கழிவு நீரை வெளியேற்றி புளியங்கண்ணு பகுதியில் உள்ள காரை ஏரியில் விட்டு வந்தனர். மேற்படி சிமெண்ட் பைப் லைன் மற்றும் சிமெண்ட் சேம்பர்கள் யாவும் திருமலை கெமிக்கல்ஸ் நிறுவனத்தினரின் ஏற்பாட்டிலேயே நிறுவனத்தில் ஒப்பந்த அடிப்படையில் கட்டிடம் கட்டும் வேலை செய்துவந்த வாலாஜா வட்டம், வாலாபேட்டை

ச. இய்யா 4/12/20

A. S. S.

கிராமத்தைச் சேர்ந்த கட்டிடம் கட்டும் ஒப்பந்ததாரர் திரு.ராஜேந்திரன் என்பவரால் அமைக்கப்பட்டது. இந்த பைப் லைன் அமைப்பதற்கான முழு செலவும் திருமலை கெமிக்கல்ஸ் நிறுவனத்தினேரே ஏற்றுக்கொண்டு பிறகு ஏற்படும் அனைத்து பராமரிப்பு செலவுகளையும் மேற்படி நிறுவனத்தினேரே கவனித்து வருகின்றனர்.

//படித்து பார்த்தேன் சரி//படிக்க கேட்டேன் சரி//



என் முன்பாக



சார் ஆட்சியர்
இராணிப்பேட்டை,



Proc. No.: T5/ TNPCB/F.0892/VLR/RL/W/2019 Dated: 13.11.2019

Sub: TNPC Board – Industries – M/s. Thirumalai Chemicals Limited, S.F. No. 287, SIPCOT Industrial Complex, Navlock Village, Walajah Taluk, Ranipet, Vellore District – Directions under Section 33 A of the Water (Prevention and Control of Pollution) Act, 1974 as amended – Issued – Reg.

Ref: 1. Bd. Proc. No.T5/TNPCB/F.0892VLR/RL/VLR/W&A/2019 Dt:03.07.2019
2. Complaint received from the Public on 23.09.2019
3. Lr. No. JCEE(M)/ TNPCB/ VLR/ F.J.004VLR/ 2019 Dated:24.09.2019
4. Interim injunction orders under Section 142 CrPC and 133 of CrPC issued by the Court of Sub Divisional Magistrate, Ranipet Division, Ranipet.
5. Revocation of the interim injunction imposed on the unit u/s 142 CrPc vide order dt. 04.10.2019 issued by the Court of Sub Divisional Magistrate, Ranipet Division, Ranipet.
6. Lr. No. ACEE II/TNPCB/RL/F.No.001/2019/dt.15.10.2019

Whereas the unit of M/s. Thirumalai Chemicals Limited, S.F. No. 287, SIPCOT Industrial Complex, Navlock Village, Walajah Taluk, Ranipet, Vellore District has obtained renewal of consent of the Board with validity upto 31.03.2020 vide reference 1st cited.

Whereas the Revenue Divisional Officer, Ranipet informed that a complaint was received from the Public on 23.09.2019 alleging discharge of waste water from the unit to the nearby open drain and finally confluence with Puliyanakannu Lake and pollutes the surface water/ground water. In this regard, communication was received from the Sub Collector (R.D.O), Ranipet, about the discharge of trade effluent along with rain water run off to outside the premises of the unit of M/s Thirumalai Chemicals Ltd.,(TCL), Ranipet on 23.09.2019. Based on that the unit of M/s. Thirumalai Chemicals Limited was inspected by TNPCB officials and R.D.O., Ranipet and during inspection of the unit the following were observed:

1. The unit was found siphoning out the partially treated effluent from secondary clarifier through temporary hose pipe and to discharge it outside the premises through an outlet at south-west corner of unit, near the ETP (adjacent to the old security cabin of the unit) and confluence with a drain running on the western side of the unit.

Further, the leachate (Chromium contaminated) generated from the defunct unit of M/s Tamil Nadu Chromates & Chemicals Ltd., is also flowing constantly into the said drain and mixed along with this partially treated effluent of M/s Thirumalai Chemicals Ltd., and finally confluences with Puliyanakannu lake located at downstream of the unit.

2. Stagnation of effluent was noticed in the ETP area nearby of aeration tank, secondary clarifier, Sludge thickener.
3. verflow of effluent was found from the filter press area and got stagnated in the drain located adjacent to Sludge Drying Beds (SDB).

4. Overflow of effluent was noticed in equalization tank.
5. The storm water drain running within the unit premises from the Northern end leading to Southern end carrying rain water run-off got mixed with Filtrate Collection Tank and got overflowed and discharged outside the premises.
6. It was reported that on 23.09.2019 rainfall was high during evening time, in SIPCOT, Ranipet area.

Samples were collected by the Revenue Divisional Officer & TNPC Board Officials on 23.09.2019. The report of analysis of the samples collected from the outlet located on the Southwest corner of the unit nearby ETP before discharge in to the drain running between the defunct unit of M/s. Tamilnadu Chromates and Chemicals Company Limited and the Western side of the unit revealed the presence of Toluene of 4.7 µg/l, TDS of 3,416 mg/lit, Chlorides -1,180.5 mg/lit, Phenolic compounds -17.778 mg/lit and BOD of 42 mg/lit. It was inferred that the parameters such as TDS, Chlorides, Phenolic compounds and BOD are exceeding the discharge standards prescribed by the Board and not achieved Zero Liquid Discharge. Further, the presence of Toluene with concentration of 4.7 µg/l in the sample of Sludge drying bed leachate collection system and the presence of m & p-Xylene with concentration of 2.6 µg/l was observed in the sample of overflow from Sludge drying bed confirming that the unit's effluent was discharged outside the unit's premises.

Whereas unit was inspected during 24.9.2019 by TNPC Board Officials and has recommended to impose Environmental Compensation to the unit to the tune of Rs.18.6 Lakhs for the following violations caused by the unit vide reference 3rd cited.

1. The unit has failed to operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system.
2. The display of flow meters provided at inlet of ETP (Equalisation tank) and outlet (Sand filter bed) was found to be rusted and display not clear.
3. The Online connectivity of ETP, R.O and RMS were found to be not display readings from 22.09.2019.
4. The unit has discharged effluent/waste water outside the premises by not maintaining Zero Liquid Discharge into channel confluenting with drain water of defunct unit M/s Tamil Nadu Chromates and Chemicals Ltd., This directly reaches lakes of Karai/Puliyankannu, which is used by public and villages, and violation of consent order conditions issued to the unit.

Whereas interim injunction orders under Section 142 CrPC and 133 of CrPC have been issued by the Court of Sub Divisional Magistrate, Ranipet Division, Ranipet to the unit of M/s Thirumalai Chemicals Ltd., 25A, SIPCOT Industrial Complex, Ranipet, Vellore District to suspend the manufacturing process and to stop letting out of the untreated trade effluent water and also to stop water supply to the above said unit.



TAMILNADU POLLUTION CONTROL BOARD



Whereas the unit was also inspected by the Additional Chief Environmental Engineer, TNPC Board on 30.9.2019 and observed the following:

1. The unit was not in operation, due to orders issued by the Sub Collector, Ranipet under section 142 CrPC and 133 of CrPC.
2. The unit has operated the aeration tank and the diffused aeration system so as to maintain the biomass alive and rest of the unit's of ETP were not in operation.
3. There is no discharge of any waste water / rain water runoff from the unit premises.
4. There is no water stagnation noticed in and around the ETP area.
5. The Leachate (yellow coloured) generated from the defunct unit of M/s.Tamilnadu Chromates & Chemicals Ltd., was found to flow in the open drain running along the Western and Southern side of M/s. Thirumalai Chemicals Limited, and finally confluence with the Puliyanakannu lake.
6. Samples were collected in the following locations.
 - i. Outlet of Secondary clarifier (inlet to gravity sand filter)
 - ii. Open drain adjacent to Culvert located on the southern side of M/s Thirumalai Chemicals Limited.
 - iii. Channel located at Western side of M/s. Thirumalai Chemicals Limited and to Advanced Environmental Lab, TNPC Board, Chennai for analysis.

In the meanwhile the Court of Sub Divisional Magistrate, Ranipet has revoked the interim injunction imposed on the unit of M/s Thirumalai Chemicals Limited u/s 142 CrPC vide order dt. 04.10.2019 and ordered that,

1. Respondents 1 and 5, to start the manufacturing process and to adhere the zero liquid discharge norms in all seasons.
2. The project officer, SIPCOT, Ranipet, to resume the water supply to the above said plant of the respondent 1 to 5.
3. Tahsildar, Walajah to remove the seal of the water supply unit to the plant.

Based on that the unit of M/s Thirumalai Chemicals Limited has resumed its operation on 06.10.2019.

Whereas based on the inspection of the unit, the Additional Chief Environmental Engineer-II, TNPC Board has recommended to issue necessary direction to the unit under Water (Prevention and Control of Pollution) Act, 1977 as amended subject to certain conditions vide reference 6th cited.

Therefore, in exercise of powers conferred under Section 33 A of the Water (Prevention and Control of Pollution) Act, 1974 as amended, the Board issues the following directions to the unit **M/s. Thirumalai Chemicals Limited, S.F. No. 287, SIPCOT Industrial Complex, Navlock Village, Walajah Taluk, Ranipet, Vellore District** to comply with the following conditions within the period of THREE MONTHS from date of receipt of this direction.

1. The unit shall conduct the Hydro-geological study through a competent agency and furnish report.
2. The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice- Versa.
3. The unit shall provide suitable no. of Piezometric wells at the upstream and downstream side of the unit premises, so as to assess the ground water quality.
4. The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit.
5. The unit shall revamp the storm water drain within the unit premises after detailed study on the carrying capacity with respect to surface runoff.
6. The unit shall segregate the different stream of trade effluent at source itself based on the characteristic of effluent generated and revamp the existing ETP with latest state of art of treatment technology so as to achieve ZLD at all times.
7. The unit has to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.
8. The unit shall operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times.
9. The operation of the unit shall not attract any public complaints.
10. The unit has to pay Environmental Compensation of Rs.18.6 Lakhs for the violations caused by the unit within one month.

Failure to comply with the above said directions will attract action in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974.

The receipt of the proceeding shall be acknowledged.

Rajiv
For Chairman
 2.11.19
 15.11.19

✓ To

The Managing Director,
 M/s. Thirumalai Chemicals Limited,
 No.25A, SIPCOT Industrial Complex,
 Navlock Village, Walajah Taluk,
 Ranipet, Vellore District - 632 403.

Copy to

1. The Joint Chief Environmental Engineer (Monitoring),
 Tamil Nadu Pollution Control Board,
 Vellore Region - Requested for further follow-up and report
2. The District Environmental Engineer,
 Tamil Nadu Pollution Control Board,
 Vellore.
3. File



TAMILNADU POLLUTION CONTROL BOARD

Annexure-7^{by RPAJ}



Proc. No.: T5/ TNPCB/F.0892/VLR/RL/W&A/2020, Dated: 09.12.2020

SUB: TNPCB – Industries – **M/s. Thirumalai Chemicals Limited**, S.F. No. 287, SIPCOT Industrial Complex, Navlock Village, Walajah Taluk, Ranipet District – Certain directions under Section 33(A) of the Water (Prevention and Control of Pollution) act, 1974 as Amended - Issued – Regarding.

REF: 1. Proceedings No.T5/TNPCB/F.0892VLR/RL/VLRW&A/2019 Dt: 03/07/2019
2. Proc. No.: T5/ TNPCB/F.0892/VLR/RLW/2019 Dated: 13.11.2019
3. Letter No.: T5/ TNPCB/F.0892/VLR/RLW/2019 Dated: 26.08.2020
4. DEE's Letter No.DEE/TNPCB/VLR/F.VLR 0005/RL/2020/dt.16.11.2020
5. JCEE (M)'s IR.No:F.0892VLR/RL/JCEE-M/VLR/2019Dated:21.11.2020

Whereas the consent was renewed to the unit of M/s. Thirumalai Chemicals Limited, S.F. No. 287, SIPCOT Industrial Complex, Navlock Village, Walajah Taluk, Ranipet District valid up to 31.03.2020 vide reference first cited subject to comply with certain conditions. The same was extended up to 30.09.2020 due to COVID -19 pandemic lock down.

Whereas, directions under section 33A of the Water (Prevention & Control of Pollution) Act, 1974 as amended has been issued to the unit vide reference second cited to comply with certain conditions within a period of 3 months and it was extended vide reference third cited for another 3 months to comply.

Whereas, based on the frequent complaints received from the public against the unit regarding discharge of untreated trade effluent outside the premises, the unit was inspected by the Sub Collector, Ranipet & DEE, TNPCB, Vellore on 11.11.2020 and certain lapses were reported by the Sub Collector, Ranipet through WhatsApp.

No. 76, MOUNT SALAI, GUINDY, CHENNAI - 600 032.
Tel : 22353134, 22353135, 22353136, 22353137, 22353138, 22353139, 22343140, 22353141
Fax : 044 - 22353068
Email : tnpceb@md3.vsnl.net.in Web : www.tnpceb.gov.in

Whereas, during the inspection, the waste water & sludge samples have been collected by the officials of TNPCB in the presence of Sub Collector, Ranipet from different locations which were sent to MoEF & CC, Gol approved private lab for analysis which reveals that the TDS is in the range between 24,132 mg/L & 35,631 mg/L, COD is in the range between 3720 mg/L & 10,984 mg/L in the coloured effluent stagnated on open land near the O-Xylene storage tank, in the northern side of the unit. So, it could be ascertained that the unit is not achieving the zero liquid discharge and discharging the untreated trade effluent on their open land for open percolation. In this regard, the unit has been addressed by the DEE, Vellore vide reference fourth cited instructed to take immediate action to comply with the short falls noticed during above inspection.

Whereas, the unit was inspected by the Joint Chief Environmental Engineer(M)/Vellore and reported vide reference fifth cited that the unit was under operation, the ETP components followed by RO & RMS & APC measures were found in operation; The coloured effluent was found to be stagnated within the unit premises in the northern corner of the unit in an earthen embankment and onsite TDS was measured and found to be in the range of between 12,000 mg/L and 22,000 mg/L; A Tanker fitted with a flexible hose attached to motor was found to be noticed in the place where untreated effluent stored and it was reported that the stored effluent is being pumped out and taken for further treatment. No records have been furnished by the unit in this regard.

Whereas, JCEE (M) has furnished the compliance status of directions issued by the Board to the unit vide Board's Proc.dated.13.11.2019 and he has reported that, the recommendations of the Hydro geological Study report is yet to be completed, not provided the Garland drains, Piezo metric wells at the upstream and downstream areas have not been provided as per norms; not provided rain water harvesting system; the unit stated that the entire storm water collection through drains & disposal through scientific manner within the unit premises are yet to be completed & to be done after detailed study on the carrying capacity with respect to



surface runoff, The unit is yet to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system, further reported that the unit has discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank, thereby not achieving zero discharge and complaint petitions received often from nearby Public and also through District Administration against the discharge of trade effluent from ETP in to nearby water sources.

Whereas, JCEE (M)/Vellore has furnished compliance status of the renewal of consent issued to the unit vide Board's proc. dated 03.07.2019 and Hazardous waste Authorization issued to the unit vide proc. dated 11.02.2020 and reported that the unit has discharged the untreated trade effluent on land for open percolation near OXylene storage tank, thus the unit is not operating the RO plant, MEE followed by ATFD; the unit is not achieving zero discharge. The hazardous waste such as ETP sludge and salt residue are stored on open land near OXylene storage tank. The unit is functioning without valid consent of the Board.

Therefore, as recommended by the JCEE (M)/Vellore, in exercise of the powers conferred under Section 33 A of Water (P&CP) Act 1974 as amended in 1988, Board issues the following directions to the unit of **M/s. Thirumalai Chemicals Limited**, S.F. No. 287, SIPCOT Industrial Complex, Navlock Village, Walajah Taluk, Ranipet District:

- I. **The unit shall restrict the production to 50 % of its consented quantity so as to achieve zero liquid discharge consistently till the commencement & effective functioning of newly constructed ZLD components.**
- II. **The unit shall furnish the bank Guarantee for Rs.10 lakhs (Rupees. Ten Lakhs) immediately valid for a period of ONE YEAR to the Board in the format enclosed for the compliance of the following conditions:**
 1. **The unit shall construct and commence the newly ZLD components for effective functioning so as to achieve Zero Liquid Discharge.**

2. The unit shall operate the existing ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times and ensure that there shall not be any discharge of treated /untreated effluent in to the outside of the premises.
3. The operation of the unit shall not attract any public complaints.
4. The unit shall comply with the recommendations of Hydro-geological study report.
5. The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice- Versa.
6. The unit shall provide suitable no. of Piezometric wells as per the norms at the upstream and downstream side of the unit premises, so as to assess the ground water quality.
7. The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit.
8. The unit shall complete the entire storm water collection through drains & disposal through scientific manner within the unit premises after detailed study on the carrying capacity with respect to surface runoff.
9. The unit shall replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.
10. The unit shall strictly comply with the conditions mentioned in the renewal of consent order issued vide proc. dated 03.07.2019
11. The unit shall strictly comply with the conditions mentioned in the direction issued vide proc. dated 13.11.2019.



Failure to comply with the above said directions, will lead to issue of further directions for closure and stoppage of power supply to your unit under section 33 A of Water (P&CP) Act 1974 as amended in 1988.

The receipt of the proceeding shall be acknowledged.

Encl: Bank Guarantee format.

[Signature]
For Chairman
Sg
10/12/20

To

The Managing Director,
M/s. Thirumalai Chemicals Limited,
No.25A, SIPCOT Industrial Complex,
Navlock Village, Walajah Taluk,
Ranipet – 632 403.

Copy to

- ✓ 1. The Joint Chief Environmental Engineer (M),
Tamil Nadu Pollution Control Board,
Vellore Region – **Requested for further follow-up and report to Board.**
2. The District Environmental Engineer,
Tamil Nadu Pollution Control Board,
Vellore.
3. Technical file.

No. 76, MOUNT SALAI, GUINDY, CHENNAI - 600 032.

Tel : 22353134, 22353135, 22353136, 22353137, 22353138, 22353139, 22343140, 22353141

Fax : 044 - 22353068

Email : tnpcb@md3.vsnl.net.in Web : www.tnpcb.gov.in

Bank Guarantee Format

TO BE TYPED IN Rs.100/- NON - JUDICIAL STAMP PAPER

THIS DEED OF GUARANTEE made on the _____ day of _____ dated 20 _____ by _____ of the one part in favour of TNPC Board of other part.

WHEREAS M/s. _____ running an industry at _____ has approached the TNPC Board for the purpose of _____ and the TNPC Board having agreed to consider the request of the industry of M/s. _____ under the terms and conditions put forth in the schedule enclosed hereunder.

AND WHEREAS in accordance with clause _____ of the conditions put forth in the schedule enclosed hereunder the industry M/s. _____ is desirous of furnishing a Bank Guarantee from _____ for the sum of Rs. _____ towards security deposit valid for _____ months.

AND WHEREAS at the request of the industry holder the Bank has agreed to give its guarantee as hereinafter contained. Now this deed witnesses as follows:

We (Bank name and address is to be typed here) (Herein after referred to as the Bank) do hereby undertake to pay the Board an amount not exceeding Rs. _____ (amount to be typed in figures & words) against any non-fulfillment of the conditions contained in the schedule, wholly or partly by the said industry M/s. (full address of the unit is to be type here) and we, (Bank name and address is to be typed here) do hereby undertake to pay the amount due payable under this guarantee without any demur, merely on demand from the Board stating that the amount claimed is due by non-fulfillment of the conditions in the schedule wholly or partly by the said industry.

Any such demand made on the Bank shall be conclusive as regards the amount due payable by the Bank under this guarantee. However our liability under this guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said schedule and that it shall continue to be enforceable till all dues of the Board under the schedule have been fully performed and its claim satisfied or discharged or till the Tamil Nadu Pollution Control Board (Office/Department) certifies that the terms and conditions of the said schedule have been fully and properly carried out by the said industry and accordingly discharges the guarantee. Unless a demand or claim under the guarantee is made on us in writing on or before (date of expiry of bank guarantee to be typed here) we shall be discharged from all liability under this guarantee thereafter.

We (Bank name and address is to be typed here) further agree with the Board that the Board shall have full liberty without our concern and without affecting in any manner our obligation hereunder to every one of the terms and conditions of the said

schedule or to the extent the time of performance by the said industry from time to time or to postpone for any time or from time to time any of the powers exercised by the Board against the said industry and forbear and enforce any of the terms and conditions relating to the said schedule and we shall not be relieved of our liability by reason of any such variation, or extension being granted to the said industry or for any forbearance, act or omission on the part of the Board or any indulgence by the Board.

We (Bank name and address is to be typed here) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Board in writing.

(Banker Seal with Signature)

(Banker Name and Code Number)

SCHEDULE TO THE BANK GUARANTEE NO.

M/s.-----

Name of the Industry which applied for the consent of the Board	Bank guarantee Rupees	Terms and condition
(full address of the unit is to be typed here)	Rs.....	<p>The unit shall comply with the following conditions:</p> <ol style="list-style-type: none"> 1. The unit shall construct and commence the newly ZLD components for effective functioning so as to achieve Zero Liquid Discharge. 2. The unit shall operate the existing ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times and ensure that there shall not be any discharge of treated /untreated effluent in to the outside of the premises. 3. The operation of the unit shall not attract any public complaints. 4. The unit shall comply with the recommendations of Hydro-geological study report. 5. The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa. 6. The unit shall provide suitable no. of Piezometric wells as per the norms at the upstream and downstream side of the unit premises, so as to assess the ground water quality. 7. The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit. 8. The unit shall complete the entire storm water collection through drains & disposal through scientific manner within the unit premises after detailed study on the carrying capacity with respect to surface runoff.

		<p>9. The unit shall replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.</p> <p>10. The unit shall strictly comply with the conditions mentioned in the renewal of consent order issued vide proc. dated 03.07.2019</p> <p>11. The unit shall strictly comply with the conditions mentioned in the direction issued vide proc. dated 13.11.2019.</p>
--	--	--

(Banker Seal with Signature)

(Banker Name and Code Number)



Thirumalai Chemicals Limited

5th Floor, SPIC House, 88, Mount Road, Guindy, Chennai - 600 032, Tamil Nadu, India
Telephone : +91 44 6605 7700, +91 44 2230 1242 / 47 / 48 Fax : +91 44 2230 1240
Email : info@thirumalaichemicals.com Website : www.thirumalaichemicals.com
CIN:L24100MH1972PLC016149

Annexure-8

20th January 2021

The Chairman,
Tamil Nadu Pollution Control Board,
No. 76, Mount Salai, Guindy,
Chennai 600032



Original handed out
to Ms. Rathi (EE)
29/01/2021

Ref: Letter No: TNPCB/C/2021/01/001 dated 20-01-2021

Dear Sir,

Sub: Bank Guarantee No: LOBG801012005190 dated 08-January-2021 for INR 10 Lakhs

Ref:1: Your Letter T5/TNPCB/F.0892/VLR/RLW&A/2020 dated 08.01.2021

Ref:2: Your Letter T5/TNPCB/F.0892/VLR/RLW&A/2020 dated 09.12.2020

This has reference to the above letters T5/TNPCB/F.0892/VLR/RLW&A/2020 dated 09.12.2020 and 08.01.2021 received by us on 16th January 2021. We are enclosing a Bank Guarantee (BG) No: LOBG801012005190 dated 08-January-2021 for INR 10,00,000/- (Rs 10 Lakhs) issued by IDFC First Bank and valid for one year till 07.01.2022. The same has been prepared and being submitted without prejudice to our rights to challenge the contents contained in Ref:1&2 dated 08.01.2021 & 09.12.2020.

The request for the BG was made to our bank during middle of December 2020. The bank had confusion as to who should sign the Schedule referred to in the BG. We discussed this with the JCEE & P.S Technical to Chairman to check if the Board would accept the BG with the schedule signed by us. This delayed the process and hence the BG and the Schedule for the BG with the conditions mentioned in the letter has been signed by us. Please acknowledge receipt of the BG and the Schedule.

We reiterate that the enclosed BG No: LOBG801012005190 dated 08-January-2021 drawn by IDFC First Bank Limited, Harrington Road, Chetpet Branch amounting to Rs.10,00,000/- (Rs.10 Lakhs) is issued without prejudice to our rights to challenge the contents contained in Ref:1&2 dated 08.01.2021 & 09.12.2020.



Thirumalai Chemicals Limited

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Email : info@thirumalaichemicals.com Website : www.thirumalaichemicals.com
CIN:L24100MH1972PLC016149

Yours faithfully,

For Thirumalai Chemicals Limited

S Venkatraghavan- President

Encl: Bank Guarantee from IDFC First Bank, Schedule of conditions accepted by us



Thirumalai Chemicals Limited

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CIN : L24100MH1972PLC016149

Schedule of the Bank Guarantee No. LOBG801012005190 Dated 08.01.2020

Name of The Industry Which applied for the Consent of the Board	Bank Guarantee Rupees	Terms and Conditions
Thirumalai Chemicals Ltd No.25 A, Sipcot Industrial Complex, Ranipet, Tamilnadu - 632 403.	Rs. 10,00,000/- (Rupees Ten Lakhs Only)	<p>The unit shall comply with the following conditions:</p> <ol style="list-style-type: none">1. The unit shall construct and commence the newly ZLD components for effective functioning so as to achieve Zero Liquid Discharge.2. The unit shall operate the existing ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times and ensure that there shall not be any discharge of treated /untreated effluent in to the Outside of the premises.3. The unit shall comply with the recommendations of Hydro-geological study report.4. The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa.5. The unit shall provide suitable no. of Piezometric wells as per the norms at the upstream and down stream side of the unit premises, so as to assess the ground water quality.



Thirumalai Chemicals Limited

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Email : info@thirumalaichemicals.com Website : www.thirumalaichemicals.com
CIN:L24100MH1972PLC016149

		<ol style="list-style-type: none">6. The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit.7. The unit shall complete the entire storm water collection through drains & disposal through scientific manner within the unit premises after detailed study on the carrying capacity with respect to surface runoff.8. The unit shall replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.9. The unit shall strictly comply with the conditions mentioned in the renewal of consent order issued vide proc. dated 03.07.2019.10. The unit shall strictly comply with the conditions mentioned in the direction issued vide Proc. Dated 13.11.2019.
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For THIRUMALAI CHEMICALS LTD.

Authorised Signatory.

Covering Letter for Bank Guarantee Issuance

Date : 08/01/2021

To,
Tamil Nadu Pollution Control Board
No.76, Mount Road,
Guindy, Chennai-600032

Dear Sirs,

BG No.	LOBG801012005190
Date of Issue	08/01/2021
Amount of BG	INR 1,000,000.00
Expiry Date	07/01/2022
Claim Expiry Date	07/01/2022
Name & Address of the Applicant	THIRUMALAI CHEMICALS LTD 5th Floor Spic House No 88 Mount Road Guindy Chennai India

1. We forward herewith the above Inland Bank Guarantee in original issued by us in your favour.
2. The above guarantee is issued subject to the condition that the banks liability is restricted to the amount mentioned above and in the said guarantee. Our guarantee shall remain in force till the expiry date. Unless a demand or claim under the guarantee is made on the bank in writing and delivered to the bank on or before the Expiry/Claim expiry date, the bank shall be discharged from all liability under the said guarantee thereafter.

Please Note :

3. The beneficiary in their own interest should verify the genuineness of this guarantee from following office of the bank in writing.

IDFC FIRST Bank Limited, 7th Floor, KRM Towers 1, Harrington Rd Chetpet, Chennai-600031, India

4. BG confirmation can also be sought by sending email to wbo.chennai@idfcbank.com.

For IDFC FIRST Bank Limited



Authorised Signatory





தமிழ்நாடு 6 தமிழ்நாடு TAMILNADU

124 DEC. 2020

AX 745579

IDFC First Bank Ltd

A

A. SATISH KUMAR
SENIOR MEMBER
LIC No. 11/0103/96
TRIPUDISE, CHENNAI-600 005.
Phone: 28552346, 45566661

This non-judicial stamp paper forms an integral part of Bank Guarantee no. LOBG801012005190 issued by IDFC FIRST Bank Limited on 08-Jan-2021 in favour of Tamil Nadu Pollution Control Board on behalf of THIRUMALAI CHEMICALS LTD for an aggregate amount of INR 1,000,000.00 on terms and conditions as prescribed herein.

For IDFC FIRST Bank Limited

D. Suresh
191756
AUTHORISED SIGNATORY

For IDFC FIRST Bank Limited

D. Suresh
112940
AUTHORISED SIGNATORY

1 To,
2 Tamilnadu Pollution Control Board,
3 No.76, Mount Road,
4 Guindy, Chennai-600 032

5 THIS DEED OF GUARANTEE made on the 8th day of January, 2021 by IDFC FIRST Bank Limited, having its
6 registered office at IDFC FIRST Bank Limited, KRM Tower, 7th Floor, No. 1, Harrington Road, Chetpet,
7 Chennai - 600 031, Tamil Nadu, India and having a branch office at IDFC FIRST Bank Limited, KRM Tower,
8 7th Floor, No. 1, Harrington Road, Chetpet, Chennai - 600 031, Tamil Nadu of the one part in favour of
9 Tamilnadu Pollution Control Board (hereinafter called TNPC Board) of other part.

10 WHEREAS M/s.Thirumalai Chemicals Ltd running an industry at No.25 A, SIPCOT Industrial Complex,
11 Ranipet, Tamilnadu, -632 403 has approached the TNPC Board for the purpose of consent to operate and
12 TNPC Board having agreed to consider the request of the industry and the of M/s.Thirumalai
13 Chemicals Ltd under the terms and conditions put forth in the schedule.

14 AND WHEREAS in accordance with clause of the conditions put forth in the schedule the industry
15 M/s.Thirumalai Chemicals Ltd is desirous of furnishing a Bank Guarantee for the sum of Rs.10,00,000/-
16 (Rupees Ten Lakhs Only) towards security deposit valid for 12 months i.e. up to 07.01.2022.

17 AND WHEREAS IDFC FIRST Bank Limited at the request of the industry M/s. Thirumalai Chemicals Ltd
18 the Bank has agreed to give its guarantee as hereinafter contained. Now this deed witnesses as follows:

19 We IDFC FIRST Bank Limited, having its registered office at IDFC FIRST Bank Limited, KRM Tower, 7th
20 Floor, No. 1, Harrington Road, Chetpet, Chennai - 600 031, Tamil Nadu, India and having a branch office
21 at IDFC FIRST Bank Limited, KRM Tower, 7th Floor, No. 1, Harrington Road, Chetpet, Chennai - 600 031,
22 Tamil Nadu (Herein after referred to as the Bank) do hereby undertake to pay the Board an amount not
23 exceeding Rs.10,00,000/- (Rupees Ten Lakhs Only) against any non-fulfillment of the conditions contained
24 in the schedule, wholly or partly by the said industry M/s. Thirumalai Chemicals Ltd, No.25A, Sipcot
25 Industrial Complex, Ranipet, Tamil Nadu 632 403. and we, IDFC FIRST Bank Limited do hereby undertake
26 to pay the amount due payable under this guarantee without any demur, merely on demand from the
27 Board stating that the amount claimed is due by non-fulfillment of the conditions in the schedule wholly
28 or partly by the said industry,

29 Any such demand made on the Bank shall be conclusive as regards the amount due payable by the Bank
30 under this guarantee. However our liability under this guarantee herein contained shall remain in full force
31 and effect during the period that would be taken for the performance of the said schedule and that it shall
32 continue to be enforceable till all dues of the Board under the schedule have been fully performed and its
33 claim satisfied or discharged or till the Tamil Nadu Pollution Control Board (Office/Department) certifies
34 that the terms and conditions of the said schedule have been fully and properly carried out by the said
35 industry and accordingly discharges the guarantee. Unless a demand or claim under the guarantee is
36 made on us in writing on or before 07.01.2022 we shall be discharged from all liability under this guarantee
37 thereafter.



38 We IDFC FIRST Bank Limited further agree with the Board that the Board shall have full liberty without
39 our concern and without affecting in any schedule or to the extent the time of performance by the said
40 industry from time to time or to postpone for any time or from time to time any of the powers exercised
41 by the Board against the said industry and forbear and enforce any of the terms and conditions relating to
42 the said schedule and we shall not be relieved of our liability by reason of any such variation, or extension
43 being granted to the said industry or for any forbearance, act or omission on the part of the Board or any
44 indulgence by the Board.

45 We IDFC FIRST Bank Limited lastly undertake not to revoke this guarantee during its currency except with
46 the previous consent of the Board in writing.

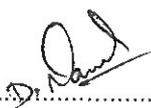
47 Notwithstanding anything contained hereinabove;

48 (1) Our liability under this bank guarantee shall not exceed INR 10,00,000/- (Rupees Ten Lakhs Only)

49 (2) This bank guarantee shall be valid up to 07.01.2022; and

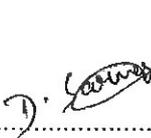
50 (3) We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and
51 only if you serve upon us a written claim or demand at IDFC FIRST Bank Limited, KRM Tower, 7th Floor,
52 No. 1, Harrington Road, Chetpet, Chennai - 600 031, Tamil Nadu on or before 07.01.2022.

53 For IDFC FIRST Bank Limited,
54 Authorized Signatories

55 Signature..... 

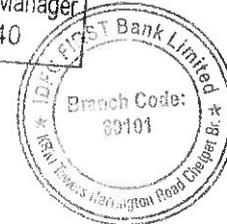
Name.....

Name : Navaneeth Krishnan D
Designation : Manager
Employee Code : 101756

56 Signature..... 

Name.....

Name : Sarveswaran D
Designation : Trade Desk Manager
Employee Code : 112940





Thirumalai Chemicals Limited

5th Floor, SPIC House, 88, Mount Road, Guindy, Chennai - 600 032, Tamil Nadu, India
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CIN:L24100MH1972PLC016149

24th January 2021

The Chairman,
Tamil Nadu Pollution Control Board,
No. 76, Mount Salai, Guindy,
Chennai 600032



Ref: Letter No: TNPCB/C/2021/01/002 dated 24-01-2021

Dear Sir,

Sub: Without Prejudice – Furnishing of Environmental Compensation pursuant to your letter
Dated 08.01.2021

Ref: 1. Your Letter T5/TNPCB/F.0892/VLR/RL/W&A/2020 dated 09.12.2020

2. Your Letter T5/TNPCB/F.0892/VLR/RL/W&A/2020 dated 08.01.2021

This has reference to the above letter dated 08.01.2021 bearing reference number Letter No. T5/TNPCB/F.0892/VLR/RL/W&A/2020 received by us on 16th January 2021. In the said letter you have made several allegations against our company and the same are strongly refuted by us. In the same letter, you have also directed us to pay a sum of Rs. 17,40,000/- as Environmental Compensation.

We are enclosing along with this letter a DD no: 266385 dated 22.01.2021 issued by Standard Chartered Bank, Mumbai 400001 for a sum of Rs. 17,40,000/- towards Environmental Compensation as sought for by you for alleged contravention of the terms of Consent to Operate in your letters dated 09.12.2020 and 08.01.2021.

We would like to bring to your attention that we have responded to your letter dated 09.12.2020 vide our letter dated 13.12.2020, in which we have issued a detailed response to all the contentions raised by you in your letter dated 09.12.2020.

We submit that the instant amount is being paid to you without prejudice to our rights to challenge the letter dated 08.01.2021 and the contents therein referenced above before an appropriate judicial forum.



Thirumalai Chemicals Limited

5th Floor, SPIC House, 88, Mount Road, Guindy, Chennai - 600 032, Tamil Nadu, India
Telephone : +91 44 6605 7700, +91 44 2230 1242 / 47 / 48 Fax : +91 44 2230 1240
Email : info@thirumalaichemicals.com Website : www.thirumalaichemicals.com
CIN:L24100MH1972PLC016149

Yours faithfully,

For Thirumalai Chemicals Limited

S Venkatraghavan- President

Encl: DD no: 266385 dated 22.01.2021 issued by Standard Chartered Bank, Mumbai 400001

By the order of

THIRUMALAI CHEMICALS LIMITED
3RD FLOOR, RR TOWERS-IV, NEAR NISSAN
SERVICE CENTRE, T V K INDUSTRIAL
ESTATE GUINDY, CHENNAI-600032

TNPB-ENVIRONMENTAL COMPENSATION FUND

/INDIA

22 JAN 2021

Customer Reference:
SCB Reference:
Delivery Method:
Payment Summary:

Page 1 of 1

PITHCHIN01A00214
IN24884Q0000145
Pickup by Custome

Gross Amount		1,740,000.00
Remitting Bank Charges	less	0.00
Value Added Tax	less	0.00
Net Amount	less	1,740,000.00
Discount		0.00

Dear Sir/Madam,

Standard Chartered Bank has attached a cheque 266385 in the amount of INR **1,740,000.00 payable to yourself as instructed by **THIRUMALAI CHEMICALS LIMITED**

Payment Description:

REFERENCE	DATE	INVOICE REFERENCE & DESCRIPTION	AMOUNT (Rs.)
-----------	------	---------------------------------	--------------

TOTAL: Rs. 1,740,000.00

Standard
Chartered

Standard Chartered Bank

STS - Pay Centre, Mumbai - 400001

Limited Cashier's Order

Not Negotiable Account Payee Only

TNPB-ENVIRONMENTAL COMPENSATION FUND

Valid for three months from the date of issue

दिनांक
Date 2 2 0 1 2 0 2 1

Pay को या उनके आदेश पर Or Order

One million seven hundred forty thousand and 00/100 Only

रुपये Rupees

अदा करें।

₹ **1,740,000.00

For Standard Chartered Bank

खाता सं.
A/c No. 22205562937

Payable At Par At All SCB Branches In India

Cust Ref PITHCHIN01A00214
DD Number 266385

On a/c of THIRUMALAI CHEMICALS LIMITED

Please sign above

⑈ 266385⑈ 000036000⑈ 735525⑈ 16



TAMIL NADU POLLUTION CONTROL BOARD

OFFICE OF :

DOC TYPE :

OFFICE CODE :

CODE :

CASH RECEIPT NO.

108176

ACCOUNTS				S.L.			

Date :

29-01-2021

Received from

Thirumalai Chemicals Ltd., TV K.

Industrial Estate, Guindy, Chennai-38.

the sum of Rupees

Seventeen Lakh forty thousand only.

in cash / by D.D. / Banker's Cheque No

266385

dated

28-1-21.

drawn on

Standard Chartered

Payable at

Chennai

towards Cess / EMD / SD / Consent Fee to Air / Water / Analysis fees / AAQS / VEM Test Fees / ETI / Other

TNPCC Environmental Compensation

Fund A/c:

Rs. 1740000/-

Signature &

Seal

TAMIL NADU POLLUTION CONTROL BOARD,
75, MOUNT SALAI, CHENNAI-600 032



Compliance status of the conditions issued by the TNPCB on 09-12-2020

S.N.	Directions issued by TNPCB	Compliance status
	TNPCB's directions issued on 9-12-2020	
1	The unit shall construct and commence the new ZLD components for effective functioning so as to achieve Zero liquid discharge	Being complied. The new ETP has started trial runs for validation of the equipment to finally achieve Zero liquid discharge with respect to treating their own effluents.
2	The unit shall operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times.	The Sub collector, Ranipet & DEE, TNPCB, Vellore had inspected on 11.11.2020 and found that the unit discharged the untreated trade effluent on land for open percolation near O-Xylene storage tank. Now the unit has restricted the effluent generation to 50% of consented quantity. All the components of ETP, RO, MEE and ATFD are under operations. At present, no bye-pass of effluent from the treatment system noticed.
3	The operation of the unit shall not attract any public complaints.	General complaint petitions received often from nearby Public through District Administration against the discharge of trade effluent from ETP in to nearby water sources.
4	The unit shall comply with recommendations of the Hydro-geological study report.	Complied with recommendations of Preliminary report by Dr Ganapathy of VIT. As suggested, a sub-surface storm water drain is in operation.
5	The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa.	Sub surface storm water drain was constructed on one-side (TN Chromate dumpsite side) of the unit premises. The unit has identified a Hydro-Geologist expert Dr S Sankaran (Retired Chief Scientist of NGRI) to work with VIT, Vellore's Environment Department to do a study of the SIPCOT water shed. TCL assured that within six-month time
6	The unit shall provide suitable no. of Piezometric wells at the upstream and downstream side of the unit	Complied.

	premises, so as to assess the ground water quality.	Eight nos. of Peizometric wells have been provided.4 nos at the upstream and 4 nos., at the downstream. Water Samples collected and analyzed.
7	The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of the unit.	Complied. The unit has made arrangement to collecte the rain water from 1.85 lakh sq. ft. of roof area in the Six zones of the unit premises and same was reused as raw water for process.
8	The unit shall revamp the storm water drain within the unit premises after detailed study on the carrying capacity with respect to surface runoff.	Complied. The unit has revamped the existing storm water drains and provided subsurface collection tank of holding capacity 300,000 Liters at final runoff point at the South western side and there is a rainwater outlet point in the eastern side near Ponnai Road. Pumps were installed to take back the collected rain water.
9	The unit has to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.	To be complied The unit has informed that the work order was placed on Paques Environment Technology India Pvt. Ltd., Chennai to study the anaerobic system for improvement.
10	The unit shall comply with conditions mentioned in the renewal of consent order vide proc.dated 03.07.2019	Compliance status on Water Act, HWA and Air Act are given below:
	WATER ACT:	
	1. The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously and the treated sewage shall be discharged on Industry's own land for Gardening, green belt development after satisfying the standards prescribed by the Board.	Complied. All the components of sewage treatment plant were under operation. The treated sewage samples collected from the STP by the TNPC Board. The ROA of the treated sewage reveals that the parameters mostly meet the standards prescribed by the Board. Treated sewage utilizing for Gardening, green belt development.

	<p>2.The unit shall regularly analyse the treated sewage through Board’s lab and furnish ROA of the same.</p>	<p>The treated sewage samples collected from the STP by the TNPC Board.</p> <p>The ROA of the treated sewage reveals that the parameters mostly meet the standards prescribed by the Board.</p>
	<p>3.The unit shall operate and maintain the ETP along with RO plant and MEE efficiently and continuously and ensure that the RO permeate and Multiple Effect Evaporator (MEE) condensate shall be recycling for process after satisfying the standards prescribed by the Board.</p>	<p>The unit has restricted the effluent generation to 50% of consented quantity as per the TNPCB direction issued on 09-12-2020.</p> <p>All the components of ETP, RO, MEE and ATFD are under operations. At present, no bye-pass of effluent from the treatment system noticed.</p>
	<p>4. The unit shall ensure that RO reject shall be sent to MEE for further treatment.</p>	<p>The unit has restricted the effluent generation to 50% of consented quantity as per the TNPCB direction issued on 09-12-2020.</p> <p>RO reject disposed through MEE followed by ATFD so as to recover salt.</p> <p>At present, no bye-pass of effluent from the treatment system noticed.</p>
	<p>5.The unit shall achieve zero discharge at all times and shall not discharge any treated/untreated effluent outside the premises of the unit.</p>	<p>The unit has restricted the effluent generation to 50% of consented quantity as per the TNPCB direction issued on 09-12-2020.</p> <p>All the components of ETP,RO,MEE and ATFD are under operations. At present, no bye-pass of effluent from the treatment system noticed.</p>
	<p>6.The unit shall regularly analyse the treated trade effluent through Board’s lab and furnish RoA of the same.</p>	<p>Complied.</p> <p>Samples collected and analysis through the TNPC Board.</p>
	<p>7.The unit shall ensure the connectivity of EMFM provided at the inlet and out let of ETP, MEE inlet, MEE distillate, MEE concentrate, MEE centrifuged mother liquor and MEE steam inlet with Care Air Centre of TNPCB / CPCB portals and provide proper data at all times.</p>	<p>Complied.</p> <p>EMFMs connected to TNPCB & CPCB portals.</p>
	<p>8. The unit shall operate and maintain the separate EMFM provided at the line for the collection and pumping of seepage water to the</p>	<p>Complied.</p>

	Equalization tank and maintain the log book for the same.	The unit has operated and maintained the EMFM provided and also maintained the log book for the same.
	9. The unit shall operate and maintain the EMFMs provided at all the sources connected to Effluent water and maintain the log book for the same.	Complied. The unit has operated and maintained the EMFM provided at all the sources connected to Effluent and also maintained the log book for the same.
	10. The unit shall operate and maintain the ATFD for concentrating the mother liquor generated from the crystalliser efficiently and continuously.	ATFD is under operation
	11. The unit shall collect the ground water from Piezometric wells provided around the ETP and Vermi composting unit and analyse the same so as to ascertain the ground water quality and furnish report to Board.	Eight nos. of Piezometric wells have been provided. 4 nos. at the upstream and 4 nos., at the downstream. Water Samples collected and analyzed.
	12. The Hazardous waste generated shall be properly disposed as per the Authorization obtained under Hazardous waste (MH&TM) Rules, 2008 and shall comply with the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	The unit has been generally complied the conditions stipulated in the HW Authorization. The unit has stored the hazardous waste in an impervious yard covered with roof shed in a area earmarked place within the premises. The unit has marked each container holding the hazardous wastes with marking "Hazardous Wastes". The storage area has fenced and a sign of danger should be placed at the storage site. The containers holding the hazardous wastes kept in good condition. The unit has install hazardous waste display board at the entrance of the factory and updated the same regularly. The unit is maintaining the Form-3 and submitted form-IV.
	13. The unit shall ensure that the non- Hazardous solid waste is disposed scientifically for further beneficial purposes without any accumulation.	Complied. No Accumulation of solid waste found within the premises.
	14. The unit shall comply with the conditions imposed in Hazardous and other Wastes (Management Handling & Trans Boundary Movement) Rules, 2016. Compliance of Conditions stipulated in the latest HWA issued dated 11.02.2020	

	<p>(1)The unit shall dispose the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers and necessary endorsement shall be made in respect of the quantity transacted in the original letter of registration issued to the recycling unit lifting used oil.</p>	<p>Complied.</p> <p>The unit is disposing the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers.</p>
	<p>(2) The unit shall dispose hazardous waste category (1.2) Tarry residues and still bottoms from distillation to M/s. Gujarat Enviro Protection and Infrastructure Limited, Ranipet as reported.</p>	<p>Complied.</p>
	<p>(3)The unit shall dispose hazardous waste categories 5.2(Wastes or residues containing oil), (35.3) Chemical sludge from waste water treatment and (B2) Total Petroleum Hydrocarbons (TPH) (C5-C36) equal to (or) more than 5000 mg/kg to M/s. TNWML, Gummidipoondi as reported</p>	<p>Complied.</p>
	<p>(4)The unit shall dispose hazardous waste category (5.1) used/spent oil to the authorized recyclers as reported.</p>	<p>Complied.</p> <p>The unit is disposing the Used/Spent Oil to the units having valid authorization of the Board and registration certificate as recyclers.</p>
	<p>(5) The hazardous wastes shall be stored in a closed designated area, without exposure to rain, sunlight etc.</p>	<p>The unit has stored the hazardous waste in an impervious yard covered with roof shed in a area earmarked place within the premises.</p>
	<p>(6) The unit shall dispose the Used/Spent oil to only those industries, which are having valid registration certificate, as re-processors with Environmentally Sound management facilities to reprocess used/spent oil.</p>	<p>Complied.</p> <p>The unit is disposing the Used/Spent Oil to pollution control Board authorized recycler only.</p>
	<p>(7) The unit has to ensure that the used/spent oil disposed shall confirm the standards suitable for the reprocessing of used/spent oil.</p>	<p>Complied.</p>

	(8) The unit shall ensure that adequate fire safety measures have been provided to avoid any fire accidents in the unit.	Complied. The unit has provided adequate fire safety measures as per the onsite emergency planning approved by Inspector of factory.
	(9) The unit shall maintain the Hazardous waste display Boards in front of the factory clearly indicating the same regularly as mandated by the Hon'ble Supreme Court order dated 14.10.2003.	Complied. The unit has install hazardous waste display board at the entrance of the factory and updated the same regularly.
	(10) The Hazardous wastes shall be stored in a compatible container on an impervious platform in closed shed which shall be provided with requisite fire protection system, personal protective equipment and safety system.	The unit has marked each container holding the hazardous wastes with marking "Hazardous Wastes". The storage area has fenced and a sign of danger should be placed at the storage site. The containers holding the hazardous wastes kept in good condition.
	(11) The person authorized shall comply with all the conditions stipulated in the authorization and other conditions of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
	(12) The unit shall maintain Form 3 and submit Form 4 prescribed under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied. The unit is maintaining the Form-3 at the site and submitted form-IV to TNPC board.
	(13) The Hazardous wastes shall be disposed only with manifest that shall be maintained in Form-10 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied. The industry has follow Manifest system to transport the HOW and submitted Form 10
	(14) The manifest shall be endorsed by the dispatcher, transporter and receiver of hazardous wastes. The endorsed copy of the manifest shall be furnished to TNPCB as and when such disposal is made.	Complied. The unit has provided the information of the hazardous nature of the wastes and measures to be taken in case of an emergency as Transport Emergency (TREM) card to the transporter. The industry has follow Manifest system to transport the HOW and submitted Form 10

	(15) The unit shall ensure that all provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended are complied with while handling hazardous waste.	Complied
	(16) The authorization is subject to the terms and conditions as may be specified in the Rules for the time being in force under the Environment (Protection) Act, 1986 and the conditions mentioned in the Schedule A & B.	Complied.
	(17) The unit shall not store the Hazardous waste generated outside the premises of the unit.	Complied.
	(18) The unit shall dispose the accumulated quantity of hazardous wastes immediately.	The unit has stored hazardous waste on site for a maximum period of 90days a maximum quantity of 10,000kgs.
	(19) The unit shall not store the hazardous waste not exceeding 90 days and maintain a record of transfer, storage and disposal of Hazardous waste.	Complied. The unit has stored hazardous waste on site for a maximum period of 90days a maximum quantity of 10,000kgs.
	(20) The unit shall renew and have valid agreements with Hazardous waste facilitators at all times.	Complied.
	(21) The unit shall possess valid consents of the board under Water and Air Acts at all times.	Not Complied. The latest RCO validity is 30.09.2020. The unit has applied for renewal of consent which is pending with TNPCB.
	15. The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco- friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Complied The unit has not used the 'use and throwaway plastics' and the same was display in the employees assemble areas.

	16. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied. The unit has remitted the consent fee as per the revised G.O.
	AIR Act	
	1. The unit shall operate and maintain the Air Pollution Control measures /Acoustic measures efficiently and continuously so as to satisfy Ambient Air Quality / Emission/Ambient Noise Level Standards prescribed by the Board.	Complied. Air pollution control measures were in operation. The AAQ/SM/ANL survey conducted by the Board lab on 12.12.2019 reveals that the parameters are well within the standards prescribed by the Board.
	2. The unit shall conduct periodical survey for Ambient Air Quality/ Noise Level/ Stack Emission as per the MoEF Notification 2009 and submit the report to the Board without fail.	Complied. The unit has conducted the survey Ambient Air Quality/ Noise Level/ Stack Emission through TNPCBoard Lab yearly twice.
	3. The unit shall ensure the connectivity of online monitoring system for the emission parameter PM, SO _x , CO and NO _x attached to Thermic Fluid Heaters and provide proper data to Care Air Centre of TNPCB, Chennai / CPCB at all times.	Complied. OCEMS for the parameters PM, SO _x , NO _x & CO connected to TNPCB and CPCB portals were found in operation.
	4. The unit shall ensure the connectivity of VOC/CO monitors provided at the process stacks such as PA1, PA2 and PA3 with Care Air Centre of TNPCB, Chennai / CPCB and provide proper data at all times.	Complied. OCEMS for the parameters VOC & CO connected to TNPCB and CPCB portals were found in operation.
	5. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied. The unit has remitted the consent fee as per the revised G.O.

11	The unit shall strictly comply with conditions mentioned in the renewal of consent order vide proc..dated 13.11.2019	Action taken by the unit are detailed below:
	1. The unit shall conduct the Hydro-geological study through a competent agency and furnish report.	Complied with recommendations of Preliminary report by Dr Ganapathy of VIT. As suggested, a sub-surface storm water drain is in operation.
	2.The unit shall provide garland drains around the unit premises to ensure that there is no seepage of water from outside premises into the unit and vice-Versa.	Sub surface storm water drain was constructed on one-side (TN Chromate dumpsite side) of the unit premises. The unit has identified a Hydro-Geologist expert Dr S Sankaran (Retired Chief Scientist of NGRI) to work with VIT, Vellore's Environment Department to do a study of the SIPCOT water shed. TCL assured that within six-month time.
	3.The unit shall provide suitable no. of Piezometric wells at the upstream and downstream side of the unit premises, so as to assess the ground water quality.	Complied. Eight nos. of Peizometric wells have been provided.4 nos at the upstream and 4 nos., at the downstream. Water Samples collected and analyzed.
	4. The unit shall provide proper rain water harvesting system in the unit premises to tap the rain water, treat and reuse for beneficial purpose, so as to avoid the rain water runoff outside the premises of unit.	Complied. The unit has made arrangement to collected the rain water from 1.85 lakh sq. ft. of roof area in the Six zones of the unit premises and same was reuse as raw water for process.
	5. The unit shall revamp the storm water drain within the unit premises after detailed study on the carrying capacity with respect to surface runoff.	Complied. The unit has revamped the existing storm water drains and provided subsurface collection tank of holding capacity 300,000 Liters at final runoff point at the South western side and there is a rainwater outlet point in the eastern side near Ponnai Road. Pumps were installed to take back the collected rain water.
	6.The unit shall segregate the different stream of trade effluent at source itself based on the characteristic of effluent generated and revamp the existing ETP with latest state of are of treatment technology so as to achieve ZLD at all times.	Complied

	7.The unit has to replace the existing anaerobic contact filter with suitable advanced anaerobic treatment system so as to improve the quality of influent into aerobic treatment system.	To be complied. The unit has informed that the work order was placed on Paques Environment Technology India Pvt. Ltd., Chennai to study the anaerobic system for improvement.
	8.The unit shall operate the ETP continuously and efficiently so as to achieve Zero Liquid Discharge (ZLD) system at all times.	The unit has restricted the effluent generation to 50% of consented quantity as per the TNPCB direction issued on 09-12-2020. All the components of ETP,RO,MEE and ATFD are under operations. At present, no bye-pass of effluent from the treatment system noticed.
	9.The operation of the unit shall not attract any public complaints.	General complaint petitions received often from nearby Public through District Administration against the discharge of trade effluent from ETP in to nearby water sources.
	10. The unit has to pay environmental compensation of Rs.18.6 lakhs for the violations caused by the unit within one month.	Complied.
