



**Follow up & Status of Compliance w.r.t directions u/s  
5 of E(P)A 1986**

**CPCB  
South Zonal  
Office,  
Bangalore**

**M/s Vaniyambadi Tanners Enviro Control Systems  
Ltd, 183 Cutchery Road Extention, Valayampet  
Sector, Valayampet, Vaniambadi - 635751  
Tamil Nadu**

**Back Ground:**

M/s Vaniyambadi Tanners Enviro Control Systems Ltd. was inspected by a team of officials from CPCB, zonal office Bangalore on March 10, 2008. Based on the observations of inspection, the unit was issued the directions under section 5 of the E(P)A 1986 on August 18, 2008.

In reference to the compliance report submitted by the CETP, it was re- inspected by a team of CPCB zonal office Bangalore during October 05-08, 2009 and August 16-20, 2010 to verify the compliance made w.r.t CPCB directions. Based on the short comings observed during inspection, the unit was again issued modified directions under section 5 of the E(P)A 1986 vide on June 13, 2011 and directed to submit a time bound action plan for compliance within one month. In response to the directions, the unit submitted the compliance report vide their letter dated July 11, 2011.

The unit was again issued with the modified directions under section 5 of E (P)A 1986 on August 24, 2011 and directed to ensure compliance of the modified directions issued on June 13, 2012.

Tamil Nadu Pollution Control Board vide their letter dated December 12, 2012 has submitted the compliance status report informing that ZLD status has been achieved by M/s Vaniyambadi Tanners Enviro Control Systems Ltd.,

In this regard, HO informed the Zonal Office, Bangalore vide letters dated February 27, 2013 to verify the compliance status and submit report. A team of officials from Zonal Office (South) inspected the above mentioned CETP on June 21, 2013. During the inspection the CETP was in operation. The overall observations, details and compliance made w.r.t the directions issued u/s 5 of E(P)A 1986 are as follows:

1	Name/ address of CETP/ company:	M/s Vaniyambadi Tanners Enviro Control Systems Ltd, 183 Cutchery Road Extension, Valayampet Sector, Valayampet, Vaniyambadi – 635751, Tamil Nadu
2	Area occupied by CETP (plot area):	87.93 Acres

3	Total no. of staff (including operational & skilled persons):	71 Persons						
4	Contact person (Name, Designation, and Contact No, FAX, e mail):	Sh. N Abdur Rahman Plant Manager Mobile: 9443203792 Fax: 04174 232051/232392 Email: vanitec@gmail.com						
5	Status of CETP: operational or closed (if closed since when):	Operational						
6	Consent & Authorization: <ul style="list-style-type: none"> <li>Valid up to:</li> <li>Applied (date of application):</li> </ul>	The validity of the consent under Water and Air Act was expired on June 30, 2008.  The Hazardous waste authorization is valid till February 2015  The unit has applied for renewal of the consent on March 29, 2010						
7	Industrial area/estate (s) connected to CETP:	Vaniyambadi						
8	Type of industries in the connected industrial areas: <table border="1" data-bbox="354 1024 1471 1178"> <thead> <tr> <th>Industrial area/estate</th> <th>Type of industries</th> <th>Number of industries</th> </tr> </thead> <tbody> <tr> <td>Vaniyambadi</td> <td>Tanneries</td> <td>134</td> </tr> </tbody> </table>	Industrial area/estate	Type of industries	Number of industries	Vaniyambadi	Tanneries	134	
Industrial area/estate	Type of industries	Number of industries						
Vaniyambadi	Tanneries	134						
8.1	Number of member industries of CETP:	The CETP has 134 active member units						
9	Method of collection of effluent (pipeline/tanker): <ul style="list-style-type: none"> <li>If collection is by tankers, average No. of tankers/day:</li> <li>Capacity of tankers, m<sup>3</sup>:</li> </ul>	The unit receives effluent through gravity conveyance and pressure pipelines.						
10	Details of flow meters (Type, location and operational status):	The member units have Electromagnetic flow meter at the discharge point to CETP. The electromagnetic flow meters are provided at primary treatment, biological treatment, reverse osmosis plant and evaporator.						
11	Treatment capacity: MLD /  Design flow of CETP: m <sup>3</sup> /hr	The design capacity of the CETP is 4 MLD.  Design flow is 167 m <sup>3</sup> /hr						

12	Wastewater treated: MLD / Average flow reaching CETP m <sup>3</sup> /hr	The unit is treating wastewater of 2.5 MLD, and average flow of 104 m <sup>3</sup> /hr																		
13	Wastewater if bypassed in CETP from treatment: <ul style="list-style-type: none"> <li>Flow/volume of wastewater bypassing treatment units in CETP:</li> </ul>	During inspection no bypass of effluent was noticed.																		
14	Treatment units and dimensions (Attach flow chart also):	Flow chart is enclosed at <b>Annexure 1</b>																		
15	Details of chemicals used: <table border="1" data-bbox="305 583 1347 1003"> <thead> <tr> <th>No.</th> <th>Name of chemical</th> <th>Quantity, kg/day</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Non-Ferric Alum</td> <td>750- 1000</td> </tr> <tr> <td>2</td> <td>Polyelectrolyte anionic</td> <td>2.5</td> </tr> <tr> <td>3</td> <td>Antiscalant</td> <td>6</td> </tr> <tr> <td>4</td> <td>SBMS</td> <td>25- 30</td> </tr> <tr> <td>5</td> <td>Hydrochloric acid</td> <td>300- 500</td> </tr> </tbody> </table>		No.	Name of chemical	Quantity, kg/day	1	Non-Ferric Alum	750- 1000	2	Polyelectrolyte anionic	2.5	3	Antiscalant	6	4	SBMS	25- 30	5	Hydrochloric acid	300- 500
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16	Primary sludge management system: <ul style="list-style-type: none"> <li>Primary sludge generation rate (m<sup>3</sup>/day or tons/day):</li> <li>Number &amp; capacity of sludge drying beds:</li> <li>Details of any other methods for sludge thickening (filter press/rotary filters etc.)</li> <li>Quantity of sludge stored:</li> <li>Primary sludge disposal- <ul style="list-style-type: none"> <li>*(Secured landfill or TSDF):</li> <li>*(Co-incineration if any):</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>7.5 - 10 tons/day</li> <li>Nil</li> <li>Filter press of capacity 9.8 tons/day</li> <li>19800 Tons</li> <li>Secured landfill of area: 22400 m<sup>2</sup>. Capacity: 115000 tons</li> </ul>																		

17	<p>Excess Biological Sludge Management System:</p> <ul style="list-style-type: none"> <li>Excess Biological Sludge generation rate:</li> <li>Number and capacity of sludge drying beds:</li> <li>Details of any other methods for sludge thickening (filter press/rotary filters etc.)</li> <li>Quantity of sludge stored:</li> <li>Excess Biological Sludge Disposal:</li> </ul>	<ul style="list-style-type: none"> <li>300 m<sup>3</sup> once in two months</li> <li>Nil</li> <li>Filter Press</li> <li>Secured Landfill Facility</li> </ul>								
18	Conveyance system for disposal of treated wastewater: Drains/ Pipeline	Treated effluent is conveyed through Pipelines to the member unit for reuse.								
19	Method of Treated wastewater disposal: River/ Land/ Marine/ Others (Specify)	The treated effluent i.e., RO permeate is sent to member units through pipeline and RO reject is stored in a large lagoon.								
20	Capital cost with breakup of sources of funds:	<table border="1"> <tr> <td>Government on India subsidy under industrial infrastructure up gradation scheme</td> <td>Rs. 22,10,66,000/-</td> </tr> <tr> <td>Loan</td> <td>Rs. 12,23,68,000/-</td> </tr> <tr> <td>Member/ equity contribution</td> <td>Rs. 27,49,02,810/-</td> </tr> <tr> <td><b>Total</b></td> <td><b>Rs. 61,83,36,820/-</b></td> </tr> </table> <p>Details enclosed at <b>Annexure 2</b></p>	Government on India subsidy under industrial infrastructure up gradation scheme	Rs. 22,10,66,000/-	Loan	Rs. 12,23,68,000/-	Member/ equity contribution	Rs. 27,49,02,810/-	<b>Total</b>	<b>Rs. 61,83,36,820/-</b>
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<b>Total</b>	<b>Rs. 61,83,36,820/-</b>									
21	Operational cost:	Rs. 180 per Cu. m								
22	Date of Inspection	June 21, 2013								
23	Inspected by (Name & Designation):	<p>Mrs. H.D. Varalaxmi, Sc. C  Ms. Sowmya D, Sc. B  Ms. Anjana Kumari V, Sc. B</p>								

**Status of Compliance of directions issued on August 24, 2011:**

<b>Sl.N o.</b>	<b>Direction issued</b>	<b>Status of compliance at the time of inspection by CPCB Team</b>
(i)	All member units will ensure proper segregation of process effluent and chrome liquor followed by their respective treatment at the pre-treatment plants of individual member units and common chrome recovery plant to ensure compliance of the CETP inlet standards by the incoming effluent.	It is informed that all member units have installed pretreatment system to achieve prescribed limit. During inspection raw effluent received from the member units were collected and analyzed at CPCB Zonal office. The analysis result indicates that TSS concentration (1685 mg/l) in effluent received from member units was exceeding the prescribed norms (600 mg/l) which indicates that the inadequacy of pretreatment provided by the member units. <b>(Partially Complied)</b>
(ii)	To introduce a mechanism of assessing the effluent quality and quantity received from its member units and subsequently intimating SPCB regularly for necessary action the information of member units sending non-complying or excess effluent against the prescribed limit of 28 m <sup>3</sup> per tonne at the inlet of the CETP	The representatives of the CETP informed that the flow meters are installed at the discharge point of the each member units to quantify the raw effluent disposed to the raw effluent collection tank. However relevant documents such as quantity of fresh water consumption, treated water consumption and effluent generation from individual unit was not provided by the CETP. <b>(Partially Complied)</b>
(iii)	All member units shall install magnetic flow meters for measurement of effluent being conveyed to CETP and also maintain its record.	It is informed that all member units are having magnetic flow meter to measure effluent sent to the CETP. However relevant documents on quantity of effluent generation from individual units were not provided by the CETP. <b>(Partially Complied)</b>
(iv)	To ensure compliance of the surface	The CETP is treating the effluent through

		water disposal norms by the treated effluent and maintain records of operation of all the treatment units.	equalization, clari-flocculation, screens, pre-aeration, anoxic treatment, aeration, biological reaction through membrane bioreactor and Reverse osmosis. Permeate of the RO is supplied to the member units for reuse and RO reject is stored in a large lagoon since Multiple effect evaporator installed was under maintenance. Moisture content of the sludge generated was removed through filter press. The maintenance of the Secured landfill site was not satisfactory.  <b>(Partially Complied)</b>
	(v)	To take necessary steps to prevent deterioration of ground water quality of the surrounding area and submit quarterly status report on groundwater quality of CPCB/SPCB for necessary action.	The representatives of the CETP informed that the ground water quality in the surrounding area is monitored. However a relevant document on groundwater quantity monitoring was not provided by the CETP.  <b>(Partially Complied)</b>
	(vi)	To expedite the ongoing work of zero liquid discharge system and get it commissioned.	The CETP installed RO followed by MVRE and MEE to achieve zero discharge. However during inspection MVRE and MEE found under maintenance schedule and RO reject was stored in L-shape Lagoon that requires adequate treatment.  <b>(Partially Complied)</b>
	(vii)	To implement the recommendations of CETP regarding installation of automatic monitoring instruments, deployment of well trained and qualified staff and implementation of guidelines for health and safety of workers.	The CETP was maintained by qualified and dedicated staff.  <b>(Complied)</b>
	(viii)	The CETP will be operated only with valid consents under Water	The CETP was found in operation without valid consents under Water & Air Act. The

	(Prevention and Control of Pollution) Act 1974 and Air (Prevention and Control of Pollution) Act 1981.	validity of the consent was expired on June 2008. The CETP representative informed that, they have applied for renewal. . <b>(Not Complied)</b>
25	<p><b>OTHER OBSERVATIONS :</b></p> <ol style="list-style-type: none"> <li>1. M/s Vaniyambadi Tanners Enviro Control Systems Ltd, has 134 active members and receiving the effluent in the range 2500 KLD against the designed capacity of 4000 KLD. The unit receives effluent through the gravity conveyance and pressure pipelines.</li> <li>2. The unit was operational and the validity of consents under the Water &amp; Air Acts was expired on June 2008 and Authorization under Hazardous Waste is valid up to February 2015.</li> <li>3. The CETP comprises of rotary drum screen, equalization tank, effluent transfer pump, stilling chamber with flash mixers, poly dosing tank and alum dosing tanks, clariflocculator, pre aeration tank, rotary drum screen, Anoxic tank, aeration tank, membrane bio reactor, multiple effect evaporator, sludge sump, sludge holding tank, filter press, RO reject storage lagoon and secure landfill site.(Flow Chart of CETP enclosed at Annexure -1).</li> <li>4. The representatives of the CETP informed that the flow meters are installed at the discharge point of the each member units to quantify the raw effluent disposed to the raw effluent collection tank. However relevant documents such as quantity of fresh water consumption, treated water consumption and effluent generation from individual unit was not provided by the CETP.</li> <li>5. The trade effluents are received in collection sump through closed conduit and passed through screen chamber to remove suspended solids. The pretreated effluent being taken to equalization tank, alum (300-400 ppm) is added for precipitation and then pumped to flash mixer, polyelectrolyte (0.5-1 ppm) is dosed for coagulation of the solids and then sent to Primary Clarifier for settling and removal of suspended solids. The settled sludge is being pumped to filter press and taken to sludge drying beds. The primary clarifier outlet is then sent to aeration tank, the aerated effluent being treated in dual media filter and MBR at the rate of 25 m<sup>3</sup>/hr.</li> <li>6. The secondary treated effluent is treated through Membrane Bio reactor and RO. The RO permeate is supplied to the member units for reuse. Mechanical Vapour recompressor (MVR) and Multiple Effect Evaporator (MEE) was found under maintenance.</li> <li>7. Large quantity of RO reject is stored in L-shape Lagoon that requires adequate</li> </ol>	

treatment. About 28000 m<sup>3</sup> of pre-aerated effluent was stored in a lagoon provided with 4 aerators.

8. Around 220 tons of recovered salt from the Multiple Effect Evaporator was stored.
9. Chromium recovered from the member units was spread over impervious solar ponds that require proper management to prevent runoff during rainy season.
10. The sludge generated from the primary treatment unit is dewatered through filter press and dewatered sludge is disposed in the SLF. It was noticed that more than 70 % of the SLF was filled with sludge and stagnated water due to rain. The SLF is not provided with proper ramping system for proper disposal of wastes. Due to haphazard way disposal of wastes causing stagnation of rain water mixed with leachate which is required to pumped into CETP for treatment.
11. The effluent from different points of treatment system was collected and analyzed at the CPCB Zonal Office Laboratory. The analysis results are depicted below:

S.No.	Parameter (All parameters are in mg/l except pH)	Raw Effluent (from collection tank)	MBR Permeate	RO Feed	RO Permeate	RO Reject
1	pH	7.5	7.2	6.6	7	6.8
2	TSS	<b>1685</b>	136	174	-	528
3	TDS	15930	14146	15222	370	72332
4	BOD	2206	76	-	70	-
5	COD	4400	472	440	324	-
6	Chloride	11461	6192	-	-	-
7	Sulphate	3033	2424	2865	37.5	-
8	NH <sub>3</sub> - N	232.9	5.6	-	-	-
9	H. Cr	<b>BDL</b>	BDL	-	-	-
10	Sulphide	5.3	BDL	-	-	-
11	Copper	BDL	BDL	-	BDL	-
12	Cadmium	BDL	BDL	-	BDL	-
13	Chromium	7.17	0.15	-	BDL	-
14	Iron	0.39	BDL	-	BDL	-
15	Manganese	0.31	0.10	-	BDL	-
16	Nickel	BDL	BDL	-	BDL	-
17	Lead	BDL	BDL	-	BDL	-
18	Zinc	BDL	BDL	-	BDL	-
19	Cobalt	BDL	BDL	-	BDL	-
	<b>Parameter</b>	<b>Aeration tank- I</b>		<b>Aeration tank - II</b>		
	MLSS (mg/l)	22550		20990		
	SVI	44		46		

12. The Tamil Nadu State Pollution Control Board has prescribed norms for Total



	<p>Suspended solids as &lt; 600 mg/l for receiving effluent from member units. The above result shows that the raw effluent received from the member units are exceeding (TSS of 1685 mg/l) the permissible limits. The <b>Hexavalent</b> Chromium in the receiving effluent is Below Detectable Level.</p> <p>13. From the analysis results, the concentration of COD (324 mg/l) and BOD (70 mg/l) in the RO permeate found in higher side which indicates the poor efficiency w.r.t quality. Based on the TSS and TDS concentration of RO permeate and RO reject, the efficiency of RO is worked about 78% and generate 22% of RO reject which requires to be treated through MVR and MEE for achieving ZLD.</p> <p>14. Out of 8 directions, 1 direction is completely complied, 6 directions are partially complied and 1 direction is not complied.</p>
26	<p><b>Recommendations w.r.t specific observations made during follow up inspection:</b></p>
	<p>The CETP shall be directed to implement the following in a time bound manner :</p> <ol style="list-style-type: none"> <li>1. To obtain consent under the Water and Air Acts.</li> <li>2. To instruct the member units to pre-treat the effluent to the prescribed norms before conveying to the CETP.</li> <li>3. To introduce a mechanism of assessing the effluent quality and quantity received from its member units and subsequently intimating TNPCB regularly.</li> <li>4. To maintain proper records of effluent received from individual unit, RO permeate sent to member units and quantity of fresh water used for processing by their member units. And to made available all records to the officers of SPCB/CPCB during inspection.</li> <li>5. To rectify and commission the MVR and MEE immediately and to operate regularly to prevent the storage of RO reject in lagoons.</li> <li>6. To treat the RO reject stored in the lagoon through MVR and MEE to achieve ZLD.</li> <li>7. To provide 1 – 2 feet of free board at the solar ponds which are used for drying of recovered chromium from the member units and to provide adequate facility to prevent runoff during rainy season.</li> <li>8. To provide proper ramping system to carry waste, uniform spreading of the sludge and to improve the maintenance of the Secured Landfill Site.</li> <li>9. To pump and to treat the leachate collected in SLF regularly and to take appropriate steps to reduce the leachate generation in SLF.</li> </ol>



**Photographs of M/s Vaniyambadi Tanners Enviro Control Systems Ltd.**



**Fig 1: Effluent receiving tank**



**Fig 2: Flash mixer**



**Fig 3: Sieve filtration system**



**Fig 4: Secondary Clarifier**



Fig 5: Sieve filtration system



Fig 6: R.O Reject Storage Tank



Fig 7: R.O. Reject Collection



Fig 8 : Primary treated effluent storage tank



Fig 9: Solar Ponds for drying recovered chromium



Fig 10: SLF with rain water & leachate



Fig 13: Aeration Tank



Fig 14: Membrane Bio-reactor



Fig 15: R.O System



Fig 16: Drum filter before feeding to aeration



Fig 17: Filter Press Cake



Fig 18: Filter Press



Fig 19: MVRE under maintenance



Fig 20: Multi Effective Evaporator under repair



Fig 21: Salt storage shed