

Status of Action Plan for CEPI Cuddalore SIPCOT, (Phase-1 & 2) area as on 28.02.2015

Action plan for improvement of Air Quality					
Sl. No	Industries	Issues	Action Plan	Status	Remarks
1	TANFAC Ltd	To reduce HF in the air emission.	To provide Dry scrubbing system (Short Term)	Dry scrubbing system provided at the cost of 35 lakhs	Action Plan Completed and being monitored. The HF Emission in the Central absorption Tower was 3.58 mg/m ³ , in the stack survey conducted on 04.07.2014.
2	Clariant Chemicals	To reduce SO ₂ emission in the boiler flue gas	Fuel conversion from Coal to Bio fuel (Short Term)	8 TPH coal fired boiler is modified to handle Bio Briquette fuel at a cost of 15 lakhs.	Action Plan Completed and being monitored. Stack monitoring survey conducted on 10.04.2014, 07.11.2014, reveals that the SO ₂ concentration is 2.1 mg/Nm ³ , 3.0 mg/ Nm ³ , respectively. Before implementation the SO ₂ concentration was 55 mg/ Nm ³
3	SPIC Ltd	To reduce mycelia odour	To provide Double drum dryer (Short Term)	Double drum drier provided to dry wet mycelia at a cost of 100 lakhs.	Action Plan Completed and being monitored. The unit is under closure since January'2010 onwards and It is submitted and recommended that the a direction under section 33A of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 may be issued to the unit

					vide this office Letter Dated:17.02.2015 for the Storage of the wastewater along with sludge in the Anaerobic Digester and Biological Conditioning Tank of the Effluent Treatment Plant.
4	Pioneer Jellice	To reduce animal bone odour	Incineration through boiler. (Short Term)	Vents of bone washer & raw bone storage godown are connected with suction blower and incinerated in the boiler at a cost of 1.5 lakhs.	Action Plan Completed and being monitored.
5	Asian Paints Ltd	To reduce VOC emission	To connect all storage tanks vents and reuse (Short Term)	Vents of Formaldehyde storage tanks (5 Nos) & Methanol storage tanks (4 Nos) connected to Reactor for the production of Formaldehyde using Methanol through suction air blower.	Action Plan Completed and being monitored. The ambient VOC analysis conducted 09.04.2014 and 12.11. 2014 reveals that the VOC level is between 0.026 to 0.059 PPM in the Ambient Air of inside the premises.
6	Shasun Pharmaceuticals	To reduce VOC emission	Stabilisation of Waste (Short Term)	Entire accumulated quantity 2130 tons of waste are stabilized using lime and Fly ash with ratio of 1:1:0.15 and disposed to TSDF, Gumudipoondi from April 2011 to till date.	Action Plan Completed and being monitored. Hazardous solid waste are stabilized and sent to TSDF, Gummidipoondi regularly.

		Bio- Filter modification	<p>Bio filter is replaced with Primary & Secondary Activated Carbon Filter (ACF) at a cost of 50 lakhs.</p> <p>The unit has identified reactors and reflux condensers are provided to eliminate the emissions and reactors are connected with Activated carbon filter (to scrub the VOC emissions).</p>	Action Plan Completed and being monitored.
		Aeration tank to be covered	Aeration tank covered and provided with a vent fitted to a carbon filter at a cost of 50 lakhs.	Action Plan Completed and being monitored.
		Reduction of VOC like Chloroform	<p>The unit authorities stated that the several trail has been conducted to reduce the emission of VOC's by using other solvents. The outcome of the trails has reduced the yield of the production and increased the impurities in the products.</p>	<p>The unit authorities stated that the emission of VOCs has been reduced by modified distillation system.</p>
		Process modification by changing raw materials.		

7	Tagros chemical	To reduce VOC emission	Solvent Recovery System proposed (Short Term)	All the solvent reactor/tank has been provided primary, secondary and tertiary followed by vent condensers with circulation of celled brain/water at - 20°C to recover the following solvents. i) Hexane, ii) CTC iii) EDC, iv) Toluene v) IPA, vi) TEA vii) Acrylonitrile at a cost of 145 lakhs.	Action Plan Completed and being monitored. The ambient VOC analysis conducted 07.05.2014 and 08.11.2014 reveals that the VOC level is between 0.035 to 0.372 PPM in the Ambient Air of inside the premises.
8	Victory Chemicals	To reduce SO ₂ from Kiln emission.	Fuel conversion from Furnace oil to Bio fuel. (Short Term)	Work to be started.	The unit is under closure since 14.12.2010.

Action plan for Treated Trade Effluent to achieve the standards

Sl.No.	Industries	Issues	Action Plan	Status	Remarks
1	Loyal Super Fabrics	To reduce the level of BOD, COD & Sulphides in the treated trade effluent	To provide Chlorination treatment (Short Term)	Chlorinator and Electrochemical Reactor provided at a cost of 23.5 lakhs	Being monitored. ROA of treated effluent achieves the standards for the samples collected from January 2014 to December 2014.

2	Arkema Peroxides	To reduce the level of TSS in the treated trade effluent.	To provide filter system (Short Term)	PSF provided at the outlet of ETP at a cost of 1.5 lakhs	Being monitored. TSS in the treated effluent achieves the standards for the samples collected from January 2014 to December 2014 reveals that out of 12 samples collected. The parameters of BOD, COD, TRC has been exceeded in 1 sample out of 12 samples collected.
3	Pandian Chemicals	To reduce the level of TSS in the treated trade effluent.	To provide filter system (Short Term)	PSF provided at the outlet of ETP at a cost of 2.0 lakhs	Being monitored. TSS in the treated effluent achieves the standards for the samples collected from January 2014 to December 2014 reveals that out of 11 samples collected. TRC has not exceeded out of 11 samples collected.
4	Pioneer Jellice	To reduce the level of TSS, BOD, COD, TKN, Ammoniacal Nitrogen & Sulphides in the treated trade effluent.	To provide UASBR, Nitrification & De-Nitrification Reactor & Clarifier (Long Term)	Provided UASBR, Nitrification & De-Nitrification Reactor & Clarifier at a cost of 800 Lakhs and put into regular operation since March 2011.	Being monitored. 12 samples have been collected from January 2014 to December 2014. The ROA reveals that Sulphides are exceeding in 2 samples out of 12 samples collected.

Other Action Points

S.No	Action points (including source & mitigation measures)	Short term/ Long term	Responsible stake holders	Cost in Lakhs	Status
1	To connect real time on-Line monitoring (provided/existing sensor) data to Care Air Centre	Short term	Industries	40	Connected
2	Desilting of existing storm water drain	Short term	SIPCOT	1	Periodically done
3	Providing weather monitoring stations	Short term	SIPCOT	1.25	Provided by the Cuddalore SIPCOT Industries Association
2	CAAQMS at Kudikadu & Pachayankuppam village	Long term	TNPCB	240	Yet to be completed
3	Strengthening of DEL/upgradation of monitoring facilities 1). G.C / M.S. - 1 No. 2). VOC samplers - 6 Nos. Strengthening staffs to monitor & maintain the AAQ stations Requirement 1).Deputy Manager -1. 2).Env.Scientist - 3 3).Field Asst. - 3 4).Admn. Staff -1 (Category GA) 5).Office Asst - 1	Long term	TNPCB	176	DEL is upgraded in to AEL and the pre-assessment audit has been completed and final audit date is not yet finalized for the Obtaining of NABL accreditation.

4	Renovation of storm water drains in SIPCOT area by using cement concrete wall on either side and covered with RCC	Long term	SIPCOT	478	The tender has been finalized. The renovation of storm water drains in SIPCOT area by using cement concrete wall on either side and covered with RCC is under progress and the work will be completed before August 2015.
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Additional Action Plan incorporated in December 2014

a. Action plan for meeting marine disposal standards in respect of TSS, BOD, COD, Ammonical Nitrogen, etc., in CUSECS

The main function of the CUSECS (Cuddalore SIPCOT Industries Common Utilities Ltd) is to collect the treated trade effluent discharged from the member units through different sumps and transport through pipeline to final sump-6 and dispose the same at a distance of 1 km into sea (Bay of Bengal). Since this is only a common collection and disposal facility, no treatment is carried out by the CUSECS. The designated pumping capacity of the facility is 500 m³/hr. presently eleven units discharge their treated trade effluent and one unit discharge its treated sewage through CUSECS. Due to continuous monitoring and action of the Board, various action plans were implemented by all the CUSECS member industries to achieve the marine disposal standards.

The Report of analysis of treated trade effluent collected from CUSECS member units from January 2014 to December 2014 reveals that M/s.Arkema Peroxides India Ltd., all other member unit achieves the marine disposal standards prescribed by the Board in respect of the parameter TSS,BOD, COD, Ammoniacal Nitrogen & TKN consistently.

The Report of analysis of the combined treated trade effluent let out through CUSECS sump-6 collected from January 2014 to December 2014 reveals the following.

Period	No. of samples	No of CUSECS sump-6 samples exceeding marine disposal standards					
		TSS mg/L	BOD mg/L	COD mg/L	Sulphide mg/L	Ammonical Nitrogen mg/L	TKN mg/L
Jan'14 to Dec'14	40	2	Nil	Nil	4	Nil	Nil

It was recommended to Board office to issue suitable direction to M/s Pioneer Jellice India (P) Ltd to provide adequate RO system and reject management system and ***it has been implemented and being operated.***

b. As per the action plan, most of the task as mentioned in action plan is reported as completed. Therefore, TNPCB is monitoring and submitting the report every year.

As requested by the CPCB an **expert committee** was constituted by the Board comprising of 1.Dr.K.Narayanan-Chairman, 2.Dr.V.Nehru Kumar-member and 3.Mr.G.Rengasamy - member for verification on the implementation of CEPI Action Plan. The committee visited the area on 03.03.2011 and 04.03.2011 and report already furnished.

b. Monitoring of VCM (Air Pollutant) emitted by M/s. Chemplast Sanmar Limited (PVC Plant)

Unloading of VCM from ship to plant site.	VCM monitoring is done at i) emergency shutdown valve at Land fall point ii)T-Joint at Land fall point near River Uppanar iii) emergency shutdown valve at VCM storage tank area & iv) PVC drier area in the plant by the Board.
	Ambient VCM monitoring is done at Surrounding 7 villages during unloading of VCM from MTF using Mobile GC by the unit.
Regular monitoring by the unit	VCM monitoring is done at 10 points in the work place using GC.
	VCM monitoring is done in the i) Centrifuge effluent and ii) Stripper outlet once in a quarter.
	VCM monitoring is done at the i) PVC drier stack and ii) VGA stack once in three months.
	VCM monitoring is done at ambient air once in three months.
LDAR (Leak detection and repair Monitoring) carried out by the unit.	LDAR study was conducted by the unit through CVR Labs Pvt. Ltd., during 18.06.2014 to 20.06.2014 from jetty to plant area. It was informed that about 2670 points were studied for the study and no components were detected more than the standard values of 3000 ppmv and 5000 ppmv. It was indicated that the actual VOC emission from leaks is 3.685 kg/year.

d. Action Plan to control high NOx and SPM from M/s. Loyal Super Fabrics (Textile Dyeing unit) to be incorporated.

The unit M/s. Loyal Super Fabrics has installed two Boilers of capacity (3 T/Hr & 4 T/Hr) provided with dust collector and a common stack of 30 m height. Similarly the unit has provided two Thermic Fluid heaters of capacity (20 Lac. KCal/Hr and 30 Lac K Cal/Hr) with dust collector and a common stack of 25 m height. The unit utilizes fire wood as fuel. In addition the unit has provided wet bottom scrubbers to reduce SPM and gaseous pollutant. The stack monitoring conducted reveals the following.

Source	SPM mg/Nm ³		NOx mg/Nm ³	
	Date of survey		Date of survey	
	15.05.2014	11.11.2014	15.05.2014	11.11.2014
<i>Thermic Fluid Heater Stack</i>	26	144	8.0	15.0
Boiler Stack	17.0	94	6.0	17.0

The unit has been advised to provide Mechanical dust collector to control the emissions from Boiler stack & Thermic fluid heater stack and the installation work has been completed.

e. TNPCB should submit the report regarding improvement in effluent quality due to "Provision of Chlorination treatment" in M/s.Loyal Super Fabrics, as the activity is said to be completed.

The Report of analysis of the treated trade effluent collected from the unit during 2014 reveals that the unit satisfies the standards prescribed by the Board consistently.

The sludge generation was 8.84 tons/month before introduction of Chlorination treatment. After Chlorination treatment the generation of sludge is reduced to 4.78 tons. About 54% of sludge reduction was noticed due to Chlorination treatment.

f. TNPCB should review the status of Closed industries pertaining w.r.t. Hazardous Waste, Raw materials, Semi processed materials, process waste, etc., lying within their premises, if any.

The status of closed industries with respect of Hazardous Waste, Raw materials, Semi processed, process waste etc., lying within the premises.

Sl. No.	Name and address of the unit	Details on the left out materials noticed	Method of storage	Status of the unit/Action taken for disposal
01	M/s. DSQ Beverages,C-18, SIPCOT Industrial Complex, Cuddalore - 5.	Ethyl Alcohol about 80 KL	Stored in a closed shed with lock & key under the control of excise Tahsildhar	Under the possession of IDBI, Mumbai. Managing Director SIPCOT to expedite necessary action for the disposal of the same.
02	M/s. Vardhman Life Science (P) Limited (Earlier in the name of M/s. J.K. Pharma Chem Limited)Plot.No.A-7, A-10, A-12 & A-15, SIPCOT Industrial Complex, Cuddalore - 5.	The sludge of 23.85 T removed from the cleaning of ETP is being collected in HDPE bags.	Collected in HDPE bags and stored in the ETP area.	Disposed to TSDF, Gummidipoondi during March 2011
03	M/s. Pentafour Products Limited, (Phosphoric Division), A-3/1, SIPCOT Industrial Complex, Cuddalore - 5.	1) Phosphoric acid - 10KL. 2) Sulphur - 100 Kg 3) Surfactants - 2 tons.	There is no storage inside the premises..	Official liquidator Hon'ble High Court, Mumbai. Managing Director SIPCOT to expedite necessary action for the disposal of the same.
04	M/s. Tantech Agro Chemicals Limited, Plot No.B-11/2, B-	Iso Butyl acetophenone (Product)	Stored in barrels.	Disposed to Beneficiaries.

	13 SIPCOT Industrial Complex, Cuddalore - 5.	ETP sludge- 78.82 Tons	Collected in HDPE bags & stored in the Premises.	Disposed to TSDF, Gummidipoondi during March'2012
05	AUROBINDO PHARMA LIMITED - (unit X) Plot No.B/2 SIPCOT Industrial Complex Cuddalore. 607 005.	ETP Sludge- 23.094 tons	Collected in HDPE bags & stored in the Premises.	Disposed to TSDF, Gummidipoondi during May'2012. Presently, the unit has taken over by M/s.Kawman Pharma Ltd.,
		Spent Carbon - 2.196 tons	Collected in HDPE bags & stored in the Premises.	
06	M/s. T.H. Infrastructure (P) Ltd., [Formerly as SPIC Ltd., (Pharmaceuticals Division)], Plot No. C/14-16, SIPCOT Industrial Complex, Cuddalore.	Spent Carbon - 48.1	Collected in HDPE bags & stored in the Premises.	Unit was taken over by New Management M/s. TH Infra structure (P) Ltd. Requested to dispose the waste after obtaining authorization of the Board. Further, It is submitted and recommended that the a direction under section 33A of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 may be issued to the unit vide this office Letter Dated:17.02.2015
		Distillation Residue - 4.48 tons	Stored in barrels.	
		Wastewater with Sludge - 765 M ³	Anaerobic Digester and Biological Conditioning Tank of the Effluent Treatment Plant	
07	Victory Chemicals Ltd, A14/C, SIPCOT Industrial Complex Cuddalore -5.	Barite mud- 2060 tons	Stored in the premises	Recommended to Board to issue direction to the unit under Section 5 of The Environment (Protection) Act, 1986 vide this office letter dated 11.09.2012 to dispose the waste to

				TSDf, Gummidipoondi after obtaining authorization of the Board.
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g. Detailed health impact study should be carried out through a reputed agency.

Cuddalore SIPCOT Industries Association (CSIA) has been addressed to conduct detailed Health Impact Study through reputed agency. It is informed that CSIA has already initiated and contacted NIOH & Public Health Foundation of India for conducting health study. Study yet to be conducted.

h. Present status and future plan for green belt development should be incorporated as per the norms fixed in the master plan of the area with respect to area under greenbelt, number and type of saplings

The industries in SIPCOT, Cuddalore has developed adequate green belt. As a whole in a total area of **179 hectares, 69 hectares** of land ie) **38.54%** of the area is developed with green belt with **1,59,120** number of trees.

i. Power back up should be provided at all pumping stations for CETPs & STPs to avoid overflow of untreated effluent during power failure in all clusters.

M/s. CUSECS has provided standby generators in all the pumping sumps. CUSECS is a common facility to collect, convey and dispose the treated trade effluent into sea for marine disposal.

i. Action for prevention of solvent leakages in industries. Control of Solvent emission should be incorporated in the action plan for Cuddalore.

The following units were requested to conduct **Leak Detection and Repair monitoring (LDAR)** study through third party to identify vulnerable leak points and to control solvent leak by taking in plant control measures.

S.No.	Industries	Status of conducting LDAR study	Remarks
1	M/s Asian Paints Limited (Penta Division)	Conducted from 20/10/2012 to 22/10/2012	Satisfies the MoEF /CPCB guidelines
2	M/s Clariant Chemicals (India) Ltd,	Conducted on 21.03.2014	Satisfies the MoEF /CPCB guidelines
3	M/s Shasun Pharmaceuticals Ltd.,	Conducted on 05.03.2013	Satisfies the MoEF /CPCB guidelines
4	M/s. Tagros Chemicals India Limited, (Unit-I)	Conducted on 06.11.2012	Satisfies the MoEF /CPCB guidelines
5	M/s.Indo International Fertilizers Ltd	Conducted on 21.11.2013 to 22.11.2013	Satisfies the MoEF /CPCB guidelines
6.	M/s.Chemplast Sanmar Ltd (PVC Division)	Conducted on 18.06.2014 to 20.06.2014	Satisfies the MoEF /CPCB guidelines

Further Action Initiated

1. A Continuous Ambient Air Quality Monitoring station was installed & put into operation by M/s. Chemplast Sanmar Ltd, SIPCOT Cuddalore to monitor SO₂, NO_x, PM₁₀, PM_{2.5}, Ozone, Benzene & VCM.
2. M/s. Shasun Pharmaceuticals Ltd had disposed the entire accumulated quantity of ETP sludge/MEE solids 1568 tons to TSDF, Gummidipoondi.
3. M/s. Loyal Super Fabrics had disposed the entire accumulated quantity of 3237 tons of ETP sludge to cement industries for Co-processing.
4. The industries closed by themselves namely M/s. **Tantech Agro Chemicals Ltd** has disposed the accumulated hazardous waste (ETP Sludge)-78.82 tons to TSDF, Gummidipoondi during March'2012 and **M/s. Aurobindo Pharma Ltd** has disposed the accumulated hazardous waste (ETP Sludge)-23.094 tons and Spent Carbon-2.196 tons to TSDF, Gummidipoondi during May'2012
5. Leak Detection And Repair Monitoring (LDAR) study was conducted by M/s. Chemplast Sanmar Ltd (PVC Plant) on 18.06.2014, M/s. Asian Paints Ltd ., on 20.10.12 & M/s. Clariant Chemicals India Ltd on 21.03.2014 for the control of fugitive VOC emission.
6. Post audit study on Micro level Ground Water Quality / Ground water movement in Cuddalore SIPCOT was conducted by SIPCOT Industries Association and report awaited.
7. All the units were requested to furnish the adequacy report on the existing ETP as done through competent external agencies and to ensure the performance status of the individual components of the ETP.
8. All the units were requested to furnish the stability certificate of the each component of Effluent Treatment Plant / Zero Liquid Discharge System from an approved Chartered Engineer to this office within a week time.
9. All the units were requested to conduct stack monitoring survey through competent external agencies for all consented stack before and after the Air Pollution Control measures and the report on the performance of APC measures shall be furnished.

10.All the Zero Liquid Discharge units were requested to computerize the EMFM readings to assess the quantity of effluent generation, quantity of treated water taken for reuse & quantity of rejects generated.

11.River Uppanar water samples were monitored at 5 locations from origin to the downstream of SIPCOT are on 10.11.2011 for Mercury and the values were found as BDL (Deactable Limit-0.001 mg/L).

12.Bore well water samples in SIPCOT area were monitored at 4 locations on 10.11.2011 for Mercury and the values were found as BDL (Deactable Limit-0.001 mg/L).

13.CPCB officials from South Zonal office at Bangalore inspected SIPCOT, Cuddalore on 15.05.2012 to 17.05.2012 to assess the status of implementation of CEPI Action Plan at Cuddalore.

14.The following additional on line monitoring sensors are provided by the units as below :

S.No.	Industries	Stack sensor	Ambient Sensor
1.	Clariant Chemicals India Ltd	Boiler - SPM Milling Plant Stack - SPM Process Reactor Stack - SO₂	TVOC - 4 No.
2.	TANFAC Industries Ltd	Gen Set - SO₂ HF Monitor - 3 Nos. for both Cryolite and AlF₃ Plant	TVOC - 2 No. Ambient HF monitor - 1 No
3.	Chemplast Sanmar Ltd, PVC Plant	1.Stack attached to the Boiler of 38 T/hr - SPM, SO₂, NOx, CO & CO₂ 2.Stack attached to the PVC Dryer - SPM & VCM 3.Stack attached to Vent Gas Absorption System - VCM.	SO₂, NO_x, PM₁₀, PM_{2.5}, Ozone, CO, VCM & Benzene
4.	Tagros Chemicals India Ltd	Scrubber Stack - SO₂ & Cl₂ Coal Boiler - SPM & SO₂ Fire Wood Boiler - SPM	TVOC - 4 Nos.
5.	Shasun	1. Scrubber Stack -	TVOC - 4 Nos.

	Pharmaceuticals Ltd	<p>Mercaptan</p> <p>2. Boiler (6 T/hr & 10 T/hr) Common Stack - SPM</p> <p>3. Thermic fluid heater stack- SPM, SO₂</p> <p>4. Production Block I & II common Stack - HCl sensor</p> <p>5. Organic emission (PB-I & II) ACF filter-TVOC.</p> <p>6. Acid fumes (PB-III) scrubber common stack - HCL sensor</p>	
6.	Bayer Material Science Pvt Ltd	Thermic Fluid Boiler- SO₂	Process Plant area TVOC - 1 No.
7.	Pioneer Jellice India (P) Ltd	Boiler stack - SPM	--
8.	DFE Pharma LLP	Boiler stack - SPM	Terrace of MCC Plant - TVOC 1 No.
9.	Loyal Super fabrics	1. Boiler stack - SPM 2. Thermic heater - SPM	--
10.	Arkema Peroxides India Ltd		<p>1. Ware House - II & IV - TVOC 1 No. - HCL 1 No.</p> <p>2. Ware House II, IV & V - Temperature Detector with Alarm system.</p>
11.	Asian Paint Ltd	Stack attached to the Boiler - SPM, SO₂, NO_x ,	<p>Process Plant Area, Raw Material Storage Area - TVOC 2 Nos.</p> <p>CAAQM Station - 1 Nos. (SO₂, NO_x, PM₁₀, PM_{2.5})</p>
12.	Indo International Fertilizers Ltd	Boiler (3 T/hr oil fired) stack - SO₂	

15. Recommendations on District Level Committee members for the formation of District Level committee to monitor CEPI action plan was submitted to Board office.
16. Recommendations were submitted to Board office to issue necessary directions to the unit M/s. Tagros Chemicals India Ltd under the Environment (Protection) Act, 1986 to dispose the accumulated Distillation Residue & Process waste/residue tons to TSDF, Gummidipoondi for incineration or to Cement units for Co incineration. After the issue of direction, the unit is being disposing the accumulated and generation sludge on regular basis.
17. Recommendations were submitted to Board office to issue necessary directions to the unit M/s. Victory Chemicals Ltd (Closed unit) under the Environment (Protection) Act, 1986 on 11.09.2012 to dispose the accumulated Barite mud sludge of 2060 tons to TSDF, Gummidipoondi within three months after obtaining authorization of the Board.
18. M/s. Loyal super Fabrics were requested to provide Mechanical Dust collector of adequate capacity to control particulate matter emission from the boiler stack & Thermic Fluid Heater stack. The installation work of Mechanical Dust collector to control particulate matter emission from the boiler stack & Thermic Fluid Heater stack is under progress.
19. M/s. Sudhakar Chemicals Ltd was requested to provide chemical treatment for sulphate reduction in the treated trade effluent. The unit is under closure for the past one year.
20. M/s. Arkema Peroxides India Ltd has been requested to segregate the sulphate bearing trade effluent and provide chemical treatment for sulphate reduction in the treated trade effluent. The work has been completed.
21. M/s. Loyal Super Fabric has been instructed to furnish a proposal for providing Reverse Osmosis Plant so as to reduce 50% of water consumption along with time schedule for the completion of the same. M/s. Loyal Super Fabric has provided the Electro Chemical Oxidation Treatment to replace Chlorination method and the trail is being carried out.
22. M/s. Asian Paint India Ltd has reduced the generation of trade effluent from 135 KLD of trade effluent to 126 KLD in the expansion activities. The

decrease of 9 KLD in the quantity of effluent generation is due to utilizing the evaporator distillate for Acetaldehyde dilution in the Formaldehyde Plant instead of using raw water.

- 23.M/s. Asian Paint India Ltd has been instructed to install Continuous Ambient Air Quality Monitoring Station (PM_{2.5}, PM₁₀, SO₂, NO_x) at the predominant wind direction and connect the same to CARE Air Centre, TNPC Board, Chennai.
- 24.M/s. Bayer Materials Science Ltd has gone for Zero Liquid Discharge System from the month of July 2013 and provided Electro Magnetic Flow Meters at required locations.
- 25.M/s. Bayer Materials Science Ltd has been instructed to connect the online sensors provided for SO₂ in the Thermopac Boiler, Ambient TVOC in the process area, ETP Inlet Flow and RO Permeate pH with CARE AIR Centre, TNPC Board, Chennai.
- 26.M/s.Chemplast Sanmar Ltd has been instructed to conduct health evaluation studies once in three years by independent competent agencies/institutions to monitor the impact of VCM exposure covering all the villages within a radius of 5KM of the plant and the results of study to be furnished to the District Collector, The Health Department and Tamil Nadu Pollution Control Board.
- 27.M/s.Chemplast Sanmar Ltd has been instructed to conduct a comprehensive environmental audit for the expanded quantity of PVC production focusing on the performance of the pollution control measures, in plant control measures and mass balance for VCM.
- 28.M/s.Indo International Fertilizer Ltd has been instructed to connect the online SO₂ sensor provided for the Boiler (3 T/hr oil fired) stack to the Care Air Centre, Tamil Nadu Pollution Control Board, Chennai.
- 29.M/s.Pioneer Jellice India Ltd has provided Rotary Vacuum Drum Filter (3.4 Meters length and 3 Meter dia) for dewatering of sludge arising from Effluent Treatment Plant.

- 30.M/s. Pioneer Jellice India Ltd has provided Reverse Osmosis System and Reject Management system.
- 31.M/s. Shasun Pharmaceutical Ltd has been instructed to provide Continuous Ambient Air Quality monitoring system in the predominant wind direction with PM_{2.5}, PM₁₀, SO₂, NO_x, TVOC and HCl and the sensors shall be connected with CARE AIR Centre, Tamilnadu Pollution Control Board, Chennai.
- 32.M/s. Shasun Pharmaceutical Ltd has been instructed to provide separate dedicated drains along internal roads (covering the Process Block area & ETP area) to collect accidental chemical spillages and may be taken to ETP for treatment and this drain should not have any access to reach outside the premises.
- 33.M/s. Tagros Chemicals India Ltd has been instructed to follow scientific method for collection and charging of intermediate stage products between reactors for subsequent reactions so as to ensure that the materials are transferred in a closed loop system to avoid VOC emission and also instructed to stop the present practice of collecting intermediate stage products in barrels for subsequent processing.