

# **COMPREHENSIVE ACTION PLAN FOR VOC CONTROL IN MAHUL – CHEMBUR AREA**

## **1.0 Background :**

Maharashtra Pollution Control Board has received frequent complaints from residents of Village Mahul, regarding smell nuisance and air pollution. The residents have filed an application no. 40 (WZ) of 2014 in National Green Tribunal, Western Zone Bench, Pune on the above issue against Company operating tankages in the area (viz Sea Lord Logistics Ltd).

Honourable National Green Tribunal, Western Bench, Pune have given judgement vide M.A No. 55/2015 dt 18.12.2015 taking a holistic view, of the complexity of the situation in the Mahul-Ambapada-Chembur area and given directions to the Maharashtra Pollution Control Board to formulate a Comprehensive Action Plan to control the air pollution in the area with a focus on VOC control and get the same approved from Central Pollution Control Board.

## **2.0 Summary of Findings till Date :**

MPCB had appointed an Expert Committee to look into the complaints and analyse and identify causes for the foul odour experienced by the residents. The Expert Committee has identified following high VOC emitting sources in the Mahul- Trombay area.

- 1) Two refineries viz Hindustan Petroleum Corporation Ltd (HPCL) and Bharat Petroleum Corporation Ltd (BPCL)
- 2) Tankages in vicinity viz Sea Lord Containers Ltd (SCL), Aegis Logistics Ltd (ALL) and Chembur Terminal Trombay Ltd (CTTL)
- 3) Other industries in vicinity viz Rashtriya Chemicals and Fertilizers Ltd (RCF), Tata Power Ltd
- 4) Other activities such as LPG Bottling of both HPCL and BPCL

**Volatile organic compounds (VOCs)** emission possibilities and existing control measures and monitoring protocol have been reviewed and presented in chapter 4 of the Action Plan document. The review of the refineries (HPCL and BPCL) is based upon the five areas identified in GSR 186 (E) dt18.03.2008 for VOC control from Petroleum Refineries viz :

- Process emissions
- Storage emissions
- Emissions during Loading and Unloading
- Fugitive emissions
- Flaring

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The storage units (SCL, ALL and CTTL) and manufacturing and storage tanks of other industries (RCF, Tata Power Ltd) were reviewed with respect to the provisions of GSR 186 (E) dt 18.03.2008 for VOC control for Petroleum Refineries & GSR 820 (E) dt 09.11.12 for Petrochemical Plants (in absence of any other VOC control guidelines for other type of industries) and the findings presented in chapter 4.

**As can be seen, lot of anomalies were observed during the site visit made by MPCB Expert committee and it is observed that the Refineries as well as Storage units are not complying the standards fully as laid down, although the time frame for implementing the same is over. In order to have source reduction in VOC s emitted the other industrial units like RCF need to be evaluated for VOC control in a scientific manner.**

**This brings into focus a need for having concerted study of each of the above aspects and working a concrete action plan for implementation with the industry in order to ensure that overall VOC emissions are reduced.**

**There is a need to work out a base case scenario (current situation estimate of VOC emissions) and then evaluate the reduction after implementation of VOC control strategies as per the above legislations.**

## **3.0 Comprehensive Action Plan (CAP) for VOC Reduction:**

Table 1.0 presents a Comprehensive Action Plan for VOC emission reduction.

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**TABLE 1.0 – COMPREHENSIVE ACTION PLAN FOR VOC CONTROL IN MAHUL- CHEMBUR AMBAPADA AREA**

Sr. No.	Source	Action Points to be covered	Timeframe start Date	Work completion Date	Agency
<b>1.0</b>	<b>Inventory of VOC Emissions&amp;associated Ambient air Quality Assessments</b>				
	<b>Inventory of VOC Emissions&amp;associated Ambient air Quality Assessments</b>	<ul style="list-style-type: none"> <li>• Identify different Sources of VOC emissions in the area along with types of VOCs which might be released from each of these sources.</li> <li>• Ascertain the secondary photochemical transformations likely to take place</li> <li>• Prepare a program for ambient air quality assessment of VOCs and hydrocarbons for Mahul-Trombay- Chembur area</li> <li>• Undertake monitoring of Ambient air quality for a period of three years by following protocol as developed during CEPI studies by MPCB for Navi Mumbai and other Regions</li> <li>• Ascertain likely health impacts which might occur due to release of said VOCs</li> <li>• Analyse the various VOC parameters in ambient air</li> <li>• KEM authority to carryout health impact studies accordingly.</li> </ul>	2 months	3 years from submission of work plan and monitoring program	NEERI
<b>2.0</b>	<b>Health Impact Assessment Studies</b>				
	<b>Health Impact Assessment Studies</b>	<ul style="list-style-type: none"> <li>• Updating census of Population in Mahul- Chembur area - Updating of municipal maps and listing of residential and non-residential addresses</li> <li>• Identify target population across the area with special emphasis on Cheteshwar Coop Hsg Society, Mahul and Ambapada area</li> <li>• Preparation of questionnaire, undertaking primary surveys to understand common health ailments experienced by the populace</li> <li>• Identify sample population for detailed study and</li> </ul>	2 months	3 years from submission of work plan and monitoring program	KEM Hospital , MCGM

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Sr. No.	Source	Action Points to be covered	Timeframe start Date	Work completion Date	Agency
		Identify Health impact parameters (biological exposure indices) for detailed study Prepare a program for health assessment of target population and monitor over three year period <ul style="list-style-type: none"> <li>• Analysis of statistical data.</li> <li>• Submission of findings on health impacts due to exposure of high VOCs</li> </ul>			
<b>3.0</b>	<b>Assessment of VOC Control Status and Preparing Action Plan for Implementation of Source VOC Reduction</b>				
<b>3.1</b>	<b>Storage Terminals (SCL, ALL and CTTL)</b>	<b>In- Plant Studies</b> <ul style="list-style-type: none"> <li>• Study with respect to compliance as per GSR186 (E) dt 18.03.2008 for Fugitive Emissions, Storage tanks and Loading and Unloading areas.</li> <li>• Evaluate efficiency of VOC control Technologies implemented and other International best practices (like API etc) to ascertain load to environment from present day activities and possible reduction after implementation of control measures.</li> <li>• Evaluate other aspects of their activities which may generate VOC emissions such as Pigging, Tank washing, LPG Bottling etcwrt International Best Practices to ascertain load to environment from existing operations and proposed reduction with control</li> <li>• Suggest alternative control and self monitoring techniques</li> <li>• Work out Phased action plan for implementation</li> </ul>	15 days	2 months from start	IIT Mumbai, ICT Mumbai or NEERI
<b>3.2</b>	<b>Refineries (HPCL and BPCL)</b>	<b>In- Plant Studies</b> <ul style="list-style-type: none"> <li>• Study with respect to compliance as per GSR186 (E) dt 18.03.2008 for Fugitive Emissions, Storage tanks</li> </ul>	15 days	4 months from start	IIT Mumbai, ICT Mumbai or NEERI

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		<p>and Loading and Unloading areas.</p> <ul style="list-style-type: none"> <li>• Evaluate efficiency of VOC control Technologies implemented and other International best practices (like API etc) to ascertain load to environment from present day activities and possible reduction after implementation of control measures.</li> <li>• Evaluate other aspects of their activities which may generate VOC emissions such as Pigging, Tank washing, LPG Bottling etc wrt International Best Practices to ascertain load to environment from existing operations and proposed reduction with control</li> <li>• Suggest alternative control and monitoring techniques</li> <li>• Work out Phased action plan for implementation</li> </ul>			
3.3	<b>Other Units (RCF Ltd, TPL etc)</b>	<p><b>In- Plant Studies</b></p> <ul style="list-style-type: none"> <li>• Study with respect to compliance as per GSR186 (E) dt 18.03.2008 for Fugitive Emissions, Storage tanks and Loading and Unloading areas.</li> <li>• Evaluate efficiency of VOC control Technologies implemented and other International best practices (like API etc) to ascertain load to environment from present day activities and possible reduction after implementation of control measures.</li> <li>• Evaluate other aspects of their activities which may generate VOC emissions such as Pigging, Tank washing, LPG Bottling etc. wrt International Best Practices to ascertain load to environment from existing operations and proposed reduction with control</li> <li>• Suggest alternative control and monitoring</li> </ul>	15 days	4 months from start	IIT Mumbai, ICT Mumbai or NEERI

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Sr. No.	Source	Action Points to be covered	Timeframe start Date	Work completion Date	Agency
		techniques • Work out Phased action plan for implementation			
<b>4.0</b>	<b>Development of Standards</b>				
<b>4.1</b>	<b>Development of Standards</b>	<ul style="list-style-type: none"> <li>• Ascertain existing status of refineries and other units wrt GSR 186 (E) dt 18.03.2008 (VOC control from Refineries) and GSR 820 (E) dt 09.11.12 for existing activities/operations observed in the area.</li> <li>• Evaluate VOC control Technologies provided wrt International best practices (like API etc)</li> <li>• Evaluate other aspects of their activities which may generate VOC emissions such as Pigging, Tank washing, LPG Bottling etc wrt International Best Practices as they are not covered in present Legislation</li> <li>• Suggest alternative control and monitoring techniques</li> <li>• Develop Standards for emissions and notify them after review with CPCB/stakeholders</li> <li>• Work out Phased action plan for implementation</li> </ul>	15 days	8 months	IIT Mumbai, ICT Mumbai or NEERI

The bar chart showing the various works involved is presented below:

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**BAR CHART – COMPREHENSIVE ACTION PLAN FOR VOC CONTROL IN MAHUL- CHEMBUR AMBAPADA AREA**

No.	Details as given above	Months																	
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
1	Inventory of VOC Emissions & associated Ambient air Quality Assessments																		
2	Health Impact Assessment Studies																		
3	Assessment of VOC Control Status and Preparing Action Plan for Implementation of Source VOC Reduction																		
4	Development of Standards																		