BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

EXECUTION APPLICATION NO.05/2018 (THC)
IN
ORIGINAL APPLICATION NO.40/2014

IN THE MATTER OF:-

CHARUDUTT KOLI   APPLICANT(S)

VS.

M/s SEA LORD CONTAINERS LTD.   RESPONDENT(S)

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18/3/20

(DINBANDHU GOUDA)
SCIENTIST -E
CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR,
DELHI-110032

PLACE: DELHI
DATED: 18.03.2020

A

Report of CPCB w.r.t. Environmental Damages Cost Assessment of Volatile Organic Compounds' Emissions from Specific Industries at Mahul and Ambapada Region of Mumbai, in compliance of Hon'ble NGT order dated 06.11.2019, in the matter of Execution Application NO.05/2018 ($_{THC}$) In O.A. No. 40/2014 Charudutt Koli vs. M/s Sea Lord Containers Ltd.

In the above matter regarding VOC emissions in account of loading storage and unloading operations of hazardous chemicals at various stage. In Hon'ble NGT on 15.07.2019 directed as under:

> "*Learned counsel for the Units have expressed willingness to carry out the suggestions in the report of the CPCB. Learned counsel for BPCL seeks longer timeline for which there is no justification. The problem has been continuing since long and final order of this Tribunal is in operation for the last four years. In spite of such a long time, damage is continuing. There is no justification to give further timeline longer than what has been suggested by CPCB.*
>
> *We make it clear that CPCB must refer to the earlier reports and data base and consider the observations in the orders of the Hon'ble Supreme Court and assess the value of the damage to the environment and public health and the proportion in which the amount is required to be recovered from the identified contributors to the pollution. BPCL and HPCL may deposit the amount with CPCB in terms of orders of the Hon'ble Supreme Court. CPCB in consultation with MPCB may evolve source standards for chemical storage terminals in accordance with the direction in PARA 57(g) of the judgement of this Tribunal dated 18.12.2015, if not already done.*
>
> *The parties including the applicant are liberty to furnish their respective viewpoint to the CPCB on or before 31.07.2019. On 14.08.2019, in the*

office of CPCB, the parties will be allowed to peruse the viewpoint of each other, including the documents already submitted from 11.00 AM to 1.00 PM.

The CPCB will be at liberty to take the help of such experts as may be considered necessary and may file its report by October 31, 2019 by e-mail at judicial-ngt@gov.in."

CPCB in its status report filed on 30.10.2019 had sought extension of six months to submit its final report maintaining that the NEERI has to conduct the requisite study for which time is required. Hon'ble NGT observed and directed vide order dated 06/11/2019 as under.

"We are of the view that since there is serious deterioration of air quality in the area, impacting the health of the citizens, leisurely approach is unwarranted. The study, as already directed by this Tribunal, has to be conducted expeditiously. Already four years have gone by and no further time can be lost. The CPCB must carry out the study in-house with the association of such expert/Institutions as may be necessary. The study may now be completed positively within two months. The study should include all the issues mentioned in the order dated 15.07.2019."

As per directions of Hon'ble NGT, CPCB was required to study the following issues

1. Database on VOCs (estimated generation)
2. Estimated monetary value of VOC impact on the environment
3. VOC impact on public health in the area and its estimated compensation

Accordingly, in compliance of the Hon'ble NGT order, an in-house Technical Committee of CPCB was constituted to study all the issues mentioned in the order dated 15.07.2019.

Report w.r.t. Environmental Damages Cost Assessment of Volatile Organic Compounds

The outcome of the study conducted by CPCB is as follows:

1. Estimation of VOCs by Individual Industries:

The VOC estimation was done by adopting USEPA Method AP-42 based on emission factors of VOC. An **emissions factor** is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The methodology followed for assessment of the environment damage and restoration involved the following four steps:

i. Activity rate analysis using questionnaire survey & estimation of VOC emissions
ii. VOCs Emission Modelling
iii. Environmental damage cost estimation due to VOC emissions
iv. Suggestion for preparing comprehensive action plan to restore the environment

NEERI, the expert institute fully conversant with VOCs in Mahul area was associated to conclude and validate extent of damage done to the environment and apportionment as well, to propose the recovery the cost of environmental damage from individual contributing industries.

1. Data Collection:

A questionnaire (**Annexure-I**) was developed, to obtain data related to emission/monitoring, tank and unit specific data etc. from the four industries in the Mahul area viz. Hindustan Petroleum Corporation Ltd. (HPCL), Bharat Petroleum Corporation Ltd. (BPCL), Aegis Logistics Ltd. (ALL) and Sealords Containers Ltd. (SCL).

Simultaneously, a site visit was also carried out to understand the functioning of the industries, their storage system and VOC recovery system.

2. VOC Emissions Estimation:

In this study, emission estimation of VOCs was carried out by using USEPA AP-42 method, for which specific data for making calculations was to examined and analysed. Accordingly, a comprehensive excel sheet (**Annexure-II**) was developed having all the parameters for calculation and was shared with all the industries. The data provided by four major industries viz. HPCL, BPCL, ALL and SCL was used to calculate the estimated emissions, from storage tanks, process vents, loading gantries, wastewater water treatment plant etc. Wherever information was lacking, necessary assumptions as listed in the respective sections, were also made to facilitate calculations.

The various formulae used for estimation of emissions and the values estimated by CPCB with the assistance of Experts from CSIR-NEERI are summarized in **Table 1.1** and **Table 1.2** respectively.

Table 1.1: Calculation for emissions from different types of tanks, process units, flares, ETP, loading gantries and leakages

EMISSION ESTIMATION FROM FIXED ROOF TANK		
Losses from FRT	**Formula**	**Variables**
Standing Storage Loss	$LS = 365\ VV*WV*KE*KS$	LS = standing storage loss, lb/yr VV = vapor space volume, ft3 WV = vapor density, lb/ft3 KE = vapor space expansion factor, dimensionless KS = vented vapor saturation factor, dimensionless 365 = constant, d/yr
Working Loss	$LW=0.0010*MV*PVA*Q*KN*KP$	MV = vapor molecular weight, lb/lb-mole; PVA = vapor pressure at daily average liquid surface

		temperature, psia
		Q = annual net throughput (tank capacity [bbl] times annual turnover rate), bbl/yr
		KN = turnover factor, dimensionless:
		N = number of turnovers per year, dimensionless
		$N = 5.614Q /VLX$
		VLX = tank maximum liquid volume, ft3
		D = diameter, ft
		HLX = maximum liquid height, ft
		0.75 For crude oils; for all other organic liquids,
		$KP = 1$
		KP = working loss product factor, dimensionless,

EMISSION ESTIMATION OF FLOATING ROOF TANK

Losses of Floating Roof Tank	Formula	Variables
Withdrawal Loss	$$Lwd = \frac{(0.943) QC_S W_L}{D} \left[1 + \frac{N_C F_C}{D}\right]$$	LWD = withdrawal loss, Q = annual throughput CS = shell clingage factor WL = average organic liquid density D = tank diameter NC = number of fixed roof support columns FC = effective column diameter
Rim Seal loss	$LR= (KRa+KRb*vn) DP* MV KC$	LR = rim seal loss, lb/yr KRa = zero wind speed rim seal loss factor, lb-mole/ft-yr; KRb = wind speed dependent rim seal loss factor, lb-mole/(mph)n-ft-yr; v = average ambient wind speed at tank site, mph; D = tank diameter, ft MV = average vapor molecular weight, lb/lb-

		mole; KC = product factor; [0.4 for crude oils; 1 for all other organic liquids] n = seal-related wind speed exponent, dimensionless; P* = vapor pressure function, dimensionless
Deck fitting loss	**LF = FF* P*MV*KC**	FF = total deck fitting loss factor, lb-mole/yr FF = [(NF1 KF1) + (NF2 KF2) + ... + (NFnf KFnf)]
CRU	VOCs emissions = Density of VOCs*Emission from industry (Data given by industry)	
CCU	VOCs emissions = Emissions Factor of compound*Capacity of unit	
SRU	VOCs emissions = VOCs emission factor*Emission from industry*365 days	
Flares	VOCs emissions = Emissions Factor of compound*Capacity of unit	
Leakages	Measured values of leak VOC's from different units provided by industries. (No calculations done for this, as its value input)	
Loading Gantries	LL=12.46*SPM/T	**Where, S=saturation factor P= True vapor pressure of liquid loaded M=molecular weight T= temperature**
Wastewater from different processes (HPCL, BPCL, ALL, SCL)	Closed ETP, (Considered as a Tank and calculation was done as a fixed roof Tank)	

Table1.2: Emission Estimation of Tanks, ETP, Flares, Gantry, LDAR, CRU, CCU, and SRU after control measures

S.No.	Sources of VOC	HPCL (kg/day)	BPCL (kg/day)	Sea lord (kg/day)	Aegis (kg/day)
1.	Tanks	110	113.83	0.103	369
2.	ETP	8	27	0.16	2.61
3.	Flare	1.9	0.47	-	
4.	Product Gantry	NA	10.35	1.73	4.39
5.	LDAR	0.16	15.83	-	-
6.	CCU		9.07	-	-
	Total in Kg/day	120	176.55	1.993	376

2.0 Estimation of environmental damage cost

The Estimation of environmental damage cost was worked out based on environmental and health impacts due to VOC emissions.

Environmental damage cost assessment (EDCA) is carried out by following the 3 steps as under:

i) Identification of pollutant and its load: The concentration of pollutant types emitted beyond the standards is analyzed.

ii) Selection of the EDCA method: Based on the likely occurring damages from the type of pollutants released, suitable method is selected out of various methods scrutinized.

iii) Assessment of damage costs in monetary terms, due to the release of pollutants is quantified.

Various studies were also referred by CPCB, to arrive at the damage costs. Studies referred were mainly based on Estimates of Willingness to pay (WTP)/Willingness to Accept (WTA). It attempts to translate people's preferences for environmental goods, living environment and willingness to avoid environmental health effects and is considered as the complete valuation approach. The following table 2.1 and 2.2 summarize the list of carcinogenic and non-carcinogenic VOC pollutants that are released from such industries.

Table 2.1: List of Carcinogenic VOC Pollutants [Ref: USEPA]

S. No.	Carcinogen Pollutants	Cancer risk $(\mu g/m^3)^{-1}$	Limit ($\mu g/m^3$) and chances of getting Cancer	
			Limit ($\mu g/m^3$)	Chances of getting Cancer
1.	Benzene (EPA)	$2.2 \times 10^{-6} - 7.8 \times 10^{-6}$	0.13 – 0.45	$1/10^6$
			1.3 – 4.5	$1/10^5$

Sr.No	Pollutant			
			13–45	$1/10^4$
2.	Formaldehyde (EPA)	1.3×10^{-5}	0.08	$1/10^6$
			0.8	$1/10^5$
			8	$1/10^4$
3.	1,3 Butadiene (EPA)	3×10^{-5}	-	-
4.	Acetaldehyde (EPA)	2.2×10^{-6}	0.5	$1/10^6$
			5	$1/10^5$
			50	$1/10^4$
5.	Methyl chloride(EPA)	4.7×10^{-7}	2.0	$1/10^6$
			20	$1/10^5$
			200	$1/10^4$

Table 2.2: List of Non- Carcinogenic VOC Pollutants [USEPA]

Sr.No	Non-Carcinogen Pollutants	Reference Concentration($\mu g/m^3$)
1	Ethylbenzene	1000
2	Hexane	200
3	Methyl bromide	5
4	Phenol	6
5	Xylenes	300

3. Modelling for Estimating Emissions:

AERMOD model was applied to calculate the concentration of each pollutant by considering the following assumptions.

Following assumptions were made for running AERMOD Model:

i.   10 km reduces around the area source for calculating the VOC concentration.

ii. The base elevation is taken as an average of that area base elevation. For each company, 441 receptors are taken and each receptor area is 1km*1km concentrations of each company that is calculated from the AERMOD.

iii. Emission releasing height is assumed as maximum 20m and min as 12m for all industries.

iv. Terrain option is taken as flat and WebGis taken as SRTM (Globally 30m) version 3.

To calculate the number of persons effecting for cancer due to the industries, the population density per sq.km of that area is required. The density of Mumbai is 32000 Persons/Sq.km, which was considered for calculating the number of people affected by carcinogenic pollutants.

In Maharashtra, the minimum treatment cost for Cancer is 1 lakh INR. The number of people affecting cancer is multiplied by minimum treatment cost for cancer of Maharashtra. By these formulae damage, the cost assessment of each pollutant is calculated.

Due to non-carcinogenic pollutants, people exposed to the concentration will be affected by different diseases like irritative & sensory effects, damage to the liver, kidneys and central nervous system, respiratory effects. Damage cost due to non-carcinogenic was calculated by the value of statistical life (VSL). The average expenditure for hospitalized and non-hospitalized is about Rs. 31028 and Rs 809 for Maharashtra state from the NSSO report.

As per NSSO report, 47 people were hospitalized and 953 were non-hospitalized per thousand number of affected people, per year in Maharashtra state.

In the WTP/WTA study, population size taken is 32000 and sample size taken is 312. The confidence level is 95% with the confidence interval of 5%. The statistical description of the Survey is summarized below in **Table 3.1**.

Table 3.1 : Statistical Description of Sample Survey	
Parameter	**Value**
Mean	306.4231
Standard Error	30.73766
Median	175
Mode	100

First Quartile	100
Second Quartile	175
Third Quartile	500
Minimum	10
Maximum	2000
Count	130
Largest (1)	2000
Smallest (1)	10
Confidence Level (95 %)	60.81522

4. Environmental Damage Cost :

The methodology developed by CPCB, was first applied to test its applicability followed by discussion with the Experts of CSIR-NEERI. Thereafter, the damage cost was calculated based on the actual data collected and analysed during the study. In case of emissions, where WTP/WTA method could not be made applicable, the damage cost was calculated based on Environmental Price of that particular emission. The following **Table 4.1** summarizes the overall value of environmental damage cost/ton of pollutant as calculated by the in-house committee of CPCB with the assistance of CSIR-NEERI.

Table 4.1: Damage Cost for VOC pollutants in Rupees

Environmental Damages	Rs./Ton of pollutant	European study converted (Rs./ton)
First Quartile (Lower Range)	12,00,000	11,46,805
Second Quartile (Medium Range)	21,00,000	18,55,127
Third Quartile (Upper Range)	60,00,000	23,04,854

Note: Environmental damage cost is calculated by taking WTP value Second quartile (Median range) i.e 21 lakh.

5. Conclusion:

The damage cost calculated in the present study, was reviewed by in-house committee of CPCB on March 09, 2020, in a meeting with the experts of CSIR-NEERI. The suggestions made by the Experts were incorporated and the following Environmental Damage Cost w.r.t. individual industries (Table 4.2) , for the last five years, was finalized on 11/03/2020:

Table 4.2: Environmental Damage Cost for Individual Industries.

S. No.	Name of the Company	Total VOC Emissions (Kg/day), based on the present level of emissions	Total VOC Emissions (t/year), based on the present level of emissions	Environmental Damage Cost (Rs. Crores /ton)	Damage Cost/year, (Rs in Crores)	Damage Cost for 5 years, (Rs. in Crores)	Deterrent factor	Total damage Cost Payable (Rs in Crores)
1.	HPCL	120	43.8	0.21	9.19	45.95	2	91.90
2.	BPCL	176.55	64.441	0.21	13.53	67.65	2	135.30
3.	AEGIS	376	137.24	0.21	28.82	144.1	2	288.2
4.	SEALORD	1.993	0.727	0.21	0.15	0.76	2	1.52

The damage cost summarized above has been estimated considering the efficiencies with Best Available Technologies (BAT) for VOC recovery system installed by individual industries as on date. However, since the BATs have been implemented by the industries on different sources within the plant premises in stages, suggesting that prior to implementation of VOC recovery system on all the sources of VOCs, the industries were causing much higher damage to the environment & public health. Keeping in view this factor, the environmental damage calculated for the last five years, based on the present emission level has been multiplied by a factor of 2, to make it deterrent.

Further, since the industries have now implemented Best Available Technologies (BAT), the environmental damage on account of release of present level of VOCs may be unavoidable, unless or until, the comprehensive action plan prepared by CPCB in consultation with MPCB is implemented, to prevent damage to environment and public health.

It was also directed by Hon'ble NGT that :

"*CPCB in consultation with MPCB may evolve source standards for chemical storage terminals in accordance with the direction in PARA 57(g) of the judgement of this Tribunal dated 18.12.2015, if not already done.*"

It is submitted that CPCB has already prepared a comprehensive action plan for implementation, in order to restore the environment of the area under reference. The deadline of complete implementation of the comprehensive action plan is December, 2020.

This report is submitted for consideration of Hon'ble NGT

18/3/20

Dinabandhu Gouda
Scientist E, CPCB, Delhi

March 18, 2020

<u>Estimation and Environmental Damage Cost Assessment of Volatile Organic Compounds (VOCs) Emissions from Specific Industries at Mahul and Ambapada Region of Mumbai</u>

Comprehensive questionnaire is prepared on above stated matter which will be shared with the industries present in of Mahul and Ambapada of Mumbai region. All concerned industries are directed to share information based on questions given below. Industries can strike out the questions not relevant to their functioning and can add in case any point is missed out in the questionnaire for emission estimation.

S. No.		Comment
I.	**INDUSTRY INFORMATION**	
1.	Name of the industry with address	
2.	Year of establishment	
3.	Capacity of plant	
4.	Operation hours of the industry	
5.	Consent to Establish	
6.	Consent to Operate	
7.	Plan of expansion/upgradation (if Yes, reason)	
8.	Any plan of changing the process/process capacity and why?	
9.	Layout of the industry	
10.	Piping and Instrumentation Diagrams (P&IDs)	
11.	Pipeline network of the industry (water)	
12.	Crude capacity of refinery	
13.	Detail of products (qualitative and quantitative data)	
14.	Detail of by-products (qualitative and quantitative data)	
15.	Process detail of the industry (layout and process flow diagram)	
16.	Process detail of treatment units (air, water and solid with flow diagram)	
17.	Mode of transportation of crude	
18.	Mode of transportation of products	
19.	Mode of transportation for disposal of solid waste	
20.	Effluent and solid waste disposal methods	
21.	Where effluent and solid waste disposed?	
22.	Is there any pollutant specific to a particular industry type which is not removed by the current treatment process?	
23.	Raw material unloading parameters, equipments, SOP, type of unloading, mode of transportation, if marine vessel then what is the condition of the vessel and location of unloading?	
24.	Product loading parameters, equipments, SOP, type of loading, type of tanker loading, if marine vessel then what is the condition of the vessel	
25.	VOC control devices installed and planning to install in upgraded	

	unit	
26.	Tree cover in plant area and around	
27.	Details of Production shut down for maintenance and maintenance carried out on pollution control units	
28.	Details of stacks (Number, Height, types of pollutant released etc.)	
29.	Type of flare, process detail of units connected to flare (e.g., volume, composition of process streams etc.)	
II.	**LPG BOTTLING DATA**	
1.	Details of LPG filling/Refilling data	
2.	Total number of vehicles plying each day	
3.	Safety measurements details	
III.	**EMISSION/MONITORING**	
1.	Online meteorological records	
2.	Average ambient wind speed at tank site	
3.	Average ambient temperature	
4.	Daily minimum ambient temperature	
5.	Pollutants monitored online	
6.	Detail of Monitoring station (if present)	
7.	Mode of monitoring air and water	
8.	How frequent is the monitoring carried out? (Continuous, Weekly, Monthly, Quarterly etc.)	
9.	Monitoring data of air and water (one year), crude assays, lab analysis, online monitoring (1st and 3rd party)	
10.	VOC Emissions due to Equipment Leaks LDAR Testing(Values of LDAR)	
11.	Emission measurement method	
12.	Continuous Emission Monitoring data	
13.	Emission design standards by MPCB	
IV.	**Emission by industry**	
14.	VOC Emissions due to Equipment Leaks LDAR Testing	
15.	VOCs emission from CCU	
16.	VOCs emission from SRU	
17.	VOCs released from Flares units (Type of compounds e.g. Benzene, Toluene, etc)	
18.	Emissions due to Equipment leaks (Incident Reports)	
19.	Emission capacity for flare units	
20.	VOCs emissions value/Emission factor (Pollutants which are targeted)	
21.	Stationary Combustion Emission estimate method	
22.	Sulphur Recovery Plant Emissions, Coking Unit Emission, Catalytic Cracking Unit Emission estimate Method	
V.	**TANKS AND UNIT SPECIFIC DATA (Raw and Product Storage**	
1.	Tank condition/fitting information	
2.	Installation records	

3.	Maintenance records	
4.	Modifications of tanks (if any)	
1.	Total number of storage tanks, complete storage tank details	
2.	Type of Tank and type of seal	
3.	Dimension of tanks (L×W×H)	
4.	Roof outage of the tank	
5.	Tank paint solar absorptance	
6.	Daily total insolation factor	
7.	Daily vapor temperature	
8.	Daily average liquid surface temperature	
9.	Tank vapor space volume	
10.	Vapor density	
11.	True vapor pressure	
12.	Shell linage factor	
13.	Flow meter or stored material level records	
14.	Process Vents, types, numbers and other details	
15.	Stored liquid properties such as vapor pressure, API gravity, constituent concentrations etc.	
16.	Stored material throughputs	
17.	Degassing information	
18.	Process throughput	
19.	Annual throughput	
20.	Number of fixed roof support columns	
21.	Effective column diameter	
22.	Number of fixed roof support columns	
23.	Details of incidents of leakages recorded in last year	
24.	Turnover of tank per year	
25.	Density of product	
26.	Services of gantries (Tank details of each services and throughput of each tank)	
27.	Total tank capacity at gantries	
28.	Vapor pressure and temperature at gantries site	

*Industry is requested to submit all the details pertaining to the data point. Wherever descriptive answer is required, the same can be shared as an additional sheet to this questionnaire.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Tank No	Service	Type of Tank	TYPE OF SEAL	Tank Diameter	Tank Diameter	Tank Height	Tank Height	Liquid Height	Liquid Height	Tank Capacity	Turnover per year	Throughput	Product withdrawal shell clinging	density of product	density of product	Zero Wind speed rim seal	Wind speed dependent rim seal	Average ambient wind speed	Seal wind speed exponent	True Vapor Pressure	Atmospheric pressure	Vapor Pressure function	Molecular weight of vapor	Total Deck fitting loss factor	Product Factor
2									(M)	(Ft)	bbls	/yr	bbl/yr	bbl/100 0ft2	Kg/m3	lb/gal	(lbmole/ (ft-yr)	(lbmole /(mph)^n	mph	-	psia	psia	-	lb/lbmole	lb-mole/yr	-
3				D			H		H'				N	Q	C	Xho	WL	KRa	KRb	v	n	PVA	PA	P*	Mv	FF	Kc
4	Type of Tank																									
5																										
6																										
7	EFRT																									
8	EFRT																									
9	EFRT																									
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Item No. 02   Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Execution Application No. 05/2018 (THC)
IN
Original Application No. 40/2014

(With report dated 30.10.2019)

Charudatt Koli   Applicant(s)

Versus

M/s Sea Lord Containers Ltd.   Respondent(s)

Date of hearing: 06.11.2019

CORAM: **HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
           HON'BLE MR. JUSTICE S.P WANGDI, JUDICIAL MEMBER
           HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
           HON'BLE DR. NAGIN NANDA, EXPERT MEMBER
           HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER**

For Applicant(s):   Mr. Nikhil Nayyar, Sr. Advocate with Mr.
                         Sangram Singh R. Bhonsle, Ms. Aditee V.
                         Dongrawat, Ms. Samridhi S. Jain, Advocates

For Respondent(s):   Mr. Atmaram N.S Nadkarni, ASG with Mr. Rajat
                         Navet, Mr. S.S Rehello, Advocates for BPCL
                         Mr. Rajkumar, Advocate for CPCB
                         Mr. S. Sukumaran, Mr. Anand Sukumar,
                         Advocates for MCGM
                         Ms. Liz Mathew, Mr. Navneet R., Advocates for R-
                         1&2, SeaLord and Aegis
                         Mr. Mukesh Verma, Advocate for MPCB
                         Mr. Krishnan Venugopal, Sr. Advocate, Mr.
                         Sanjay Kapur, Mr. Bharath Gangadhar,
                         Advocates for HPCL

ORDER

1.   The issue for consideration is the remedial steps to be taken for
       control of air pollution in the outskirts of Mumbai, in and around
       villages Ambapada and Mahul. The major contributor to the air
       pollution are said to be the logistic services, storing oil, gas and
       chemical items, as well as oil companies releasing emissions. The

emissions include Volatile Organic Compounds (VOCs) on account of loading, storage and unloading operations of hazardous chemicals at various stages.

2. The matter has been put up for consideration in continuation of the earlier proceedings for execution of judgement of this Tribunal dated 18.12.2015 for preparation and execution of action plan for control of air pollution. The Tribunal found that there is deterioration of ambient air quality, threatening the health of the residents in the area.

3. On 15.07.2019, this Tribunal considered the steps taken till then and directed:

> "17. Learned counsel for the Units have expressed willingness to carry out the suggestions in the report of the CPCB. Learned counsel for BPCL seeks longer timeline for which there is no justification. The problem has been continuing since long and final order of this Tribunal is in operation for the last four years. In spite of such a long time, damage is continuing. There is no justification to give further timeline longer than what has been suggested by CPCB.
>
> 18. We make it clear that CPCB must refer to the earlier reports and data base and consider the observations in the orders of the Hon'ble Supreme Court and assess the value of the damage to the environment and public health and the proportion in which the amount is required to be recovered from the identified contributors to the pollution. BPCL and HPCL may deposit the amount with CPCB in terms of orders of the Hon'ble Supreme Court. CPCB in consultation with MPCB may evolve source standards for chemical storage terminals in accordance with the direction in PARA 57(g) of the judgement of this Tribunal dated 18.12.2015, if not already done.
>
> 19. The parties including the applicant are liberty to furnish their respective viewpoint to the CPCB on or before 31.07.2019. On 14.08.2019, in the office of CPCB, the parties will be allowed to peruse the viewpoint of each other, including the documents already submitted from 11.00 AM to 1.00 PM.

> *20. The CPCB will be at liberty to take the help of such experts as may be considered necessary and may file its report by October 31, 2019 by e-mail at judicial-ngt@gov.in."*

4.   The CPCB has filed status report dated 30.10.2019. The status report mentions that the MPCB has issued direction under Section 33 A of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 31 A of the Air (Prevention and Control of Pollution) Act, 1981 to both BPCL and HPCL on 19.10.2019 for not completing the target work in stipulated time as per the approved Action Plan. The CPCB has sought extension of six months to submit its final report. It is mentioned that the NEERI has to conduct requisite study for which time is required.

5.   We are of the view that since there is serious deterioration of air quality in the area, impacting the health of the citizens, leisurely approach is unwarranted. The study, as already directed by this Tribunal, has to be conducted expeditiously. Already four years have gone by and no further time can be lost. The CPCB must carry out the study in-house with the association of such expert/Institutions as may be necessary. The study may now be completed positively within two months. The study should include all the issues mentioned in the order dated 15.07.2019.

6.   We note the stand of the Maharashtra State PCB that pollution was still being caused in the area by the BPCL and HPCL for which notice dated 19.10. 2019 was issued. While on behalf of the BPCL and HPCL, it is stated that steps have been taken, this needs to be looked into by the concerned authority.

List for further consideration on 05.02.2020.

Adarsh Kumar Goel, CP

S.P Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

Saibal Dasgupta, EM

November 06, 2019
Execution Application No. 05/2018 (THC)
In Original Application No. 40/2014
AK