

## Report on Oil Spill in Arabian Sea



MSC Chitra the out bound merchant vessel collided with M V Khalija III at around 5 nautical miles from the shore at 9.50 a.m. dt. 07/08/2010, when the latter was sailing towards the MbPT off Mumbai Harbour for berthing. At the time of incidence, MSC Chitra was carrying 2662 tonnes of fuel oil, 284 tonnes of diesel oil and 88 tonnes of lubricant oil. The accident resulted in oil spill and falling of cargos in sea from MSC Chitra. The collision has led to large quantities of oil spilling in the sea. The oil spill has caused considerable damage to the Marine Ecosystem and to 110 Km shoreline of four districts, Mumbai City, Mumbai Suburban, Thane & Raigad. It has washed to the shore, damaging shoreline, beaches & Mangroves.

As per the information from the Coast Guard, MSC Chitra was carrying about 1,200 cargos, out of which nearly 300 to 400 cargos fell in sea. Out of the fallen cargos some were submerged

and majority of them were floating. Some cargos of the damaged ship also had hazardous materials as the vessel has been reported to carry IMDG cargos of Class 3, 6 and 8 and pesticides, which might have reached the water body and in some cases, few containers have been washed ashore. It has created a problem for transporting channel and has a threat of severe environmental accident.

**MPCB team:**

The team of MPCB officials was formed comprising of Dr. Y. B. Sontakke, Regional Officer (HQ), I/c HSM Division-overall coordinator, Dr. A. R. Supate, Principal Scientific Officer, Shri. B. B. Nimbarte, Regional Officer, Navi Mumbai, Shri. Wadde, Regional Officer, Mumbai and Shri. S. S. Doke, Regional Officer, Raigad on the job of finding out the facts and consequences.

Member Secretary, Maharashtra Pollution Control Board had directed all the above officers to take necessary steps for combating the issue arised due to collision of the ships.

**Directions by officials:**

Hon'ble Chairperson & Secretary, Env't. Dept has taken initiative and directed all officials to get required information for taking further remedial measures & line of action.

The Board has informed District Collectors of Mumbai, Mumbai Suburban, Thane & Raigad for collecting the samples, maintaining protocol while collecting the samples and remedial measures to be taken for the cleanup mechanism at the coast.

The Directorate General of Shipping has initiated an investigation of the incidence.

**Steps taken by coast guard:**

The coast guard carried out anti-pollution operations by spraying dispersants on the thick oil slick. The coast guard provided five ships and two helicopters equipped with anti-pollution dispersal spray systems.

The traffic was suspended at the harbor, as fallen containers were floating in the channel.

Fishing associations were also requested not to carry out fishing activities.

**Steps taken by MPCB:**

The Board has filled FIR against defaulter ships on 08.08.2010 at Yellow Gate Police Station under provision of Environment (Protection) Act, 1986.

Board has issued show cause notice vide no. BO/P&LDIVN./B-5544 dt. 27/08/2010 to the MSC Chitra (Agency) Pvt. Ltd., Compania Naviera Citra S. A. Panama, through the Vessel's Agents, MSC Agency (I) Pvt. Ltd., Navi Mumbai – 400 707.

The Board has informed the Director General (Shipping) & M/s. Mumbai Port Trust for taking necessary actions on 11/08/2010.

The Regional Officers, Raigad, Mumbai, Navi Mumbai & Thane with their staff were deployed for closely monitoring the situation at the coast.

The board has also collected 1092 samples from 23 locations so far from the above mentioned four districts for that the report is also communicated to the Government.

The monitoring of the Phosphine gas which has boiling point – 87.50C spontaneously flammable in air and the vary wide range of explosion limits and toxic is carried out at Raigad, Navi Mumbai & Mumbai.



Elephanta Island



**Hon'ble Minister for Environment and Forests, Govt. of India and Hon. Environment Minister, Maharashtra State, Secretary Environment Department Maharashtra, Member Secretary MPCB, MPCB Officials, International Experts & District Collectors** have sought visit to the various locations where pollution has caused severe damage including the Elephanta Island.

The situation arise due to oil spill and its impact on coastal environment was assessed and remedial measures best available are discussed with experts. Accordingly he directed the Authorities Concerned.





The Chief Minister, Govt, of Maharashtra, Minister for Environment, Govt. of Maharashtra, Secretary, Env. Dept., Govt. of Maharashtra, Member Secretary, Maharashtra

Pollution Control Board are continuously taking the follow-up of the progress of work and cleanup.

The Secretary, Env. Dept., Govt. of Maharashtra has conducted several meetings with the MPCB Officials, District Collectors, ITOPF UK, P & I Club, International Legal Experts frequently to assess the situation.

The Member Secretary, MPCB has directed all the concerns and District Collectors for speeding up clean up. The Board has already issued the work order to NEERI and NIO for conducting Environmental Impact Assessment and Risk Assessment in the affected areas due to pollution.

**Affected areas and its Assessment:**

The Field Officers of the Maharashtra Pollution Control Board along with the Revenue Authorities and Local Body officials reported the following affected sites due to oil spill and hazardous material.

- a. Geeta Nagar, Mumbai
- b. Vashi, Navi Mumbai
- c. Coloba, Mumbai
- d. U S Club, Mumbai
- e. Navy Nagar, Mumbai
- f. Uran, Raigad
- g. Elephanta Caves, Mumbai
- h. Kihim Beach, Raigad
- i. Awas Beach, Raigad
- j. Revas Beach, Raigad
- k. Mandwa Beach, Raigad
- l. Dighodi Beach, Raigad

## **Clean-up Operations**

### **A. Sites:**

The officials jointly taken up clean-up operations at the following sites.

- a. Geeta Nagar, Mumbai –MPCB (12-08-2010) The situation Inspected.
- b. Vashi, Navi Mumbai –
- c. Coloba, Mumbai
- d. U S Club, Mumbai
- e. Navy Nagar, Mumbai
- f. Uran, Raigad
- g. Elephanta Caves, Mumbai
- h. Kihim Beach, Raigad – Local Grampanchayat – 12.08.2010
- i. Awas Beach, Raigad - Local Grampanchayat – 12.08.2010
- j. Revas, Mandwa, Awas - MSC Chitra (Agency) India. Pvt. Ltd., companies representative & team carried out the cleaning operation of Pesticide Bottles at beaches. And they have deployed security personnel's at all locations where containers are beached.

### **B. Manpower deputed:**

The following supervisory manpower was deputed by the various Government Offices at various places.

- a. MCGM – 15
- b. MPCB, HQ – 2
- c. MPCB – Mumbai – 5
- d. MPCB - Navi Mumbai – 5
- e. MPCB, Raigad – 7
- f. Collector Raigad – 15
- g. Collector Thane – 2
- h. Collector Mumbai – 2



**C. Materials and Equipments provided:**

Various Government offices provided 4 lakhs gunny bags and equipments for clean-up operations.

**D. Material noticed / found at various locations:**



STATUS OF "M.V.MSC CHITRA" CONTAINERS DT 20-10-2010								
TYPE OF CONTAINERS	TOTAL NO. OF CONTAINERS OVERBOARD	NO.OF CONTAINERS FLOATING	NUMBER OF CONTAINERS SUNK	NO.OF CONTAINERS ASHORE/BEACHED	TOTAL NO.OF CONTAINERS RETRIEVED/RECOVERED	TOTAL NO OF CONTAINERS ASHORE /SECURED	TOTAL NO. OF CONTAINERS DISCARDED FROM MSC CHITRA	TOTAL NO. OF CONTAINERS ASHORE/SECURED (DISCARDED FROM MSC CHITRA)
GENERAL	185		40	47	66	13	166	151
DANGEROUS FULL	9				1		20	20
DANGEROUS MTY	4			2		2	1	1
EMPTY	107			13	3	3	80	80
REEFERS	1			1				
<b>GRAND TOTAL</b>	<b>306</b>		<b>40</b>	<b>63</b>	<b>70</b>	<b>18</b>	<b>267</b>	<b>261</b>

Mailed by Mr. Anshuman Baruah, MSC Agency (India) Pvt. Ltd. Dt. 20/10/2010

Apart from containers pesticide bottles have been found at Navghar, Rewas and Awas etc. involved in clean up operations. The packets of biscuits and eatables have been reported to be found at almost all the places across the Mumbai Coast, Raigad Coast, Navi Mumbai Coast.

**Status of the Bottles Found as on 20-10-2010 for the sweep search from Alibaug to Srivardhan.**

Bottle Type	Aluminium Phosphide	Other Pesticides	Empty	Grand Total
1.5 kg	138			138
1.0 ltr		92		92
500 ml		122		122
250ml		103		103
100gms		658		658
Mty 1.5kg			1	1
Mty 250ml			1	1
Mty 100gms			58	58
<b>Grand Total</b>	<b>138</b>	<b>975</b>	<b>60</b>	<b>1173</b>

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**E. Various Agencies engaged in the clean-up operations:**



IOC, TERI, D.G. Shipping Personnel, officials of the Maharashtra Pollution Control Board, District Collectorate Offices, Local Bodies and Police Department etc. involved in clean up operations. Besides that National Institute of Oceanography and National Environment Engineering Research Institute have been appointed by the Maharashtra Pollution Control Board to carry out Environment Impact Assessment Study and Risk Assessment and remedial measures.

**The beach cleaning mechanism shall be carried out by following ways:**

- (a) The floating oil shall be cleaned with the help of gunny bags and collected in one big drum, and stored for inspection to be carried out by insurance agent.
- (b) The rocks and other fixed natural banks of the coastal areas shall be washed with hot water jet pumps and the spilled oil to be cleaned with the help of gunny bags or mopping / absorbing material.
- (c) The material which has reached to the coast due to tidal currents shall be physically collected and stored in drums . This information to be communicated to DG shipping & MbPT.
- (d) The floating solid waste will be collected and sent to BMC / Local Authority's MSW site.

(e) The pesticides bottles are getting cleaned by the team of MSC Chitra Agency (I) Pvt. Ltd. at Revas, Mandwa, Alibag, Dighodi, Awas Beaches.

(f) **Bio remediation is carried out by the TERI at the coastal regions:**

Bioremediation activity carried out at Awas beach on 20/08/2010 by TERI with Indian Oil Corporation Ltd.

- Decomposition done with the help of oil zapper media which is degrading the oil attached with garbage, and mud.
- For decomposing the site is made of dimensions 13.5 meters long, 5 meters wide and 1.5, meters deep.
- Before dumping waste the HDP black colour sheet spread over the site after it soil layer of 5 cm spread at bottom.
- After the soil layer the waste mixed will oil dumped and the media oil zapper mixed with waste.
- The collection of waste done with help of JCB.
- Collected material brought by cadets under the guidance of military Officers and TERI officials.
- Plastic material like segregated and kept aside near the pit.
- The bioremediation activity done from 9.00 am to 5.00 pm with help of near about 100 cadets and 4 workers with the supervisions of TERI, Indian oil, and military officials.
- 25 bags (50 Kg each) of oil zapper added in the decomposing site and 20 kg nutrient also added along with waste collected in range of approximately one km.
- The site will be monitored by TERI after every 15 days for decomposing situation and pit is kept open.
- During the collection of waste on the site two aluminum container found which is handed to panchayat people.



Pit Prepared for the bioremediation with working cadets and TERI



Oil Zapper the media used



Cadets working with worker for mixing the oil mixed material



Collected material near the site



Cadets working along the beach to collect the waste



JCB working along the beach for collection of waste



Side before cleaning activity



Cadets separating the waste





Collected material near site by JCB and cleaned site



Collected material Putting in pit by cadets



Cadets working near pit



Site of pit



Pit after the completion of bioremediation.



Pit after the completion of bioremediation.

**F. Continuous follow up with various Government Departments to co-ordinate clean up activities:**

Meetings are being organized under the chairmanship of D.G. Shipping and the Mumbai Port Trust with other Government Officials to expedite extensive surveys and sampling and to take follow up of clean up operations from the day first of the incidence of collision of the above two ships on 7/8/2010 till date and may continue till the clean-up operations are completed in all respect.

The impact of the incidence is severe. Study and mitigation of the impact is time consuming task. The work is already assigned for Environment Impact Assessment study on pollution due to oil spill and other hazardous substances to NIO and NEERI is under progress.