

840/TN

F. No. J-11011/431/2008- IA II (I)  
**Government of India**  
**Ministry of Environment and Forests**  
**(I.A. Division)**



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**CGO Complex, Lodhi Road**  
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**Dated 1<sup>st</sup> January, 2009**

To,

M/s Sterlite Industries (India) Limited.  
 Copper smelter plant-II  
 SIPCOT Industrial Complex  
 Madurai Bypass Road  
 Tuticorin-628 002, Tamil Nadu

*21/1*  
*DD(S) c&p*

**E-mail : [sanjay.karn@vedanta.co.in](mailto:sanjay.karn@vedanta.co.in) Fax No.: 0461-2340203.**

**Subject : Expansion of Copper Smelter Plant (Phase-II) at SIPCOT Industrial Complex, Madurai Bypass Road, Tuticorin, Tamil Nadu by M/s Sterlite Industries (India) Limited - Environment clearance reg.**

**Ref. : Your letter no. SIIL/HSE/MOEF-GF/08/01 dated 25<sup>th</sup> April, 2008.**

Sir,

This has reference to your communication no. SIIL/HSE/MOEF-GF/08/01 dated 25<sup>th</sup> April, 2008 alongwith Form I, Pre-feasibility Report, EIA/EMP and related project documents and subsequent clarifications furnished by you vide your letters 19<sup>th</sup> September, 2008, 6<sup>th</sup> October, 2008, 3<sup>rd</sup> November, 2008, 21<sup>st</sup> November, 2008 and 12<sup>th</sup> December, 2008 for environmental clearance of the above mentioned project.

2.0 The Ministry of Environment and Forests has examined your application. It is noted that the proposal is for the expansion of Copper Smelter Plant (Phase-II), SIPCOT Industrial Complex, Madurai Bypass Road, Tuticorin, Tamil Nadu by M/s Sterlite Industries (India) Limited. The total land acquired from SIPCOT, Govt. of Tamil Nadu is 92.5 ha. Total cost of the proposed unit will be Rs. 2,400.00 Crores. Rs. 465.00 Crores are earmarked for environmental protection measures. The existing plant comprises of Copper smelter (1,200 TPD), Sulphuric acid plant (4,200 TPD), Phosphoric acid plant (800 TPD), Refinery (875 TPD), Rod Plant (410 TPD). Environmental clearance has been accorded for all Intermediate products. Another Copper smelter (1,200 TPD) will be installed in the proposed expansion. After expansion, following will be the details of existing and proposed production :

S. N.	Products	Quantity (TPD)		
		Existing	Expansion	Total
I	<b>Main Product</b>			
1	Copper anode	1,200	1,200	2,400
2	Copper cathode	875	1,525	2,400
3	Phosphoric acid	800	800	1,600
4	Continuous Copper rod	410	800	1,210

II	Intermediate Product			
1	Anode slime	1.75	3.0	4.75
2	Dore Anode	--	0.65	0.65
3	Selenium	--	1.2	1.2
4	Bismuth Bi-sulphate	--	1.8	1.8
5	Copper Telluride	--	0.6	0.6
6	Nickel Sludge	--	30	30
7	Nickel	--	1.5	1.5
III	By-Product			
1	Sulphuric acid	4,200	4,800	9,000
2	Ferro sand	2,400	3,000	5,400
3	Gypsum	3,200	4,200	7,400
4	Hydrofluoro- Silicic acid	25	80	105

3.0 Copper anodes will be produced from the imported copper concentrates through pyrometallurgical smelting process. The  $\text{SO}_2$  generated during the smelting of Cu will be converted into  $\text{H}_2\text{SO}_4$  by Double Conversion Double Absorption (DCDA) process. Part of  $\text{H}_2\text{SO}_4$  will be used for the production of Phosphoric acid from the imported rock phosphate using a Hemihydrate Di-Hydrate process. The casted Cu anodes will be dispatched to the refinery unit for further electrolytic refining to about 99.99% purity.

4.0 Electrostatic precipitator (ESP) will be provided to waste heat recovery boiler (WHRB) provided to Sulphuric acid (ISA) plant and ESP dust will be recycled back into ISA furnace. Multi-stage scrubbing system will be installed to treat the secondary gases from smelter particularly  $\text{SO}_2$ . Existing water requirement of 1.7 MGD will be from Tamirabarani River to be supplied by TWAD board. Total water requirement for proposed expansion will be 2.25 MGD and a Desalination plant (10,000  $\text{m}^3/\text{day}$ ) will be installed to meet peak demands. Existing water consumption is 5.9  $\text{m}^3/\text{T}$  of product. The entire wastewater generated will be treated in effluent treatment plant (ETP) and reused. 'Zero discharge' will be adopted. Lime grit generated from Milk of Lime preparation plant will be recycled back into ISA furnace. ETP cake, ETP slime, Spent Catalyst, Scrubber cake, Resin from Bismuth plant and toxic metal containing residue from Ion exchange material in water purification will be stored in secured land fills designed as per CPCB guidelines. ESP, WHRB and Gas coolers dust will be recycled back into Smelter. Metal slag will be recycled to smelter. Proper disposal of gypsum in environment-friendly manner will be ensured.

4.0 Public hearing is not required due to location of the project in the notified SIPCOT industrial area as per the Section (iii), Stage (3), Para (i) (b) of the EIA Notification, 2006.

5.0. The Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14<sup>th</sup> September, 2006 subject to strict compliance of the following specific and general conditions.

#### A. SPECIFIC CONDITIONS:

- i) All the environmental conditions stipulated by the Ministry in the Environmental clearance letter nos. J11012/11/94-IA.II(I) dated 16<sup>th</sup> January, 1995; J-11011/82/2003-IA-II(I) dated 22<sup>nd</sup> September, 2004 and J-11011/24/2006- IA II (I) dated 9<sup>th</sup> August, 2007 shall be strictly implemented and compliance reports submitted to the Ministry's Regional Office at Bangalore, TNPCB and CPCB. The

environment clearance letter no. J-11011/739/2007- IA II (I) dated 22<sup>nd</sup> February, 2008 is withdrawn due to proposed expansion.

- ii) The environmental clearance under Coastal Regulation Zone, if applicable, shall be obtained independently from the Ministry as well as State Govt. under Coastal Regulation Zone (CRZ) Notification, 1991 and subsequent amendments. A detailed study shall be carried out to assess the impact of intake of water for the desalination plant and discharge, if any, on the marine environment by an approved institution like National Institute of Oceanography and all the recommendations shall be implemented *in toto* and *pari passu*.
- iii) On-line stack monitoring facilities for Fluorine shall be provided. Total Fluoride emissions from the Phosphoric acid plant shall not exceed the prescribed standards i.e. 25 mg/Nm<sup>3</sup>. Scrubbers shall be provided to phosphoric acid Plant.
- iv) On-line continuous monitors to monitor SO<sub>2</sub>, SPM and NO<sub>x</sub> shall also be provided in furnace stack. The acid mist shall conform to the prescribed standard of 50 mg/Nm<sup>3</sup> in H<sub>2</sub>SO<sub>4</sub> plant. Electrostatic precipitators (ESP) and scrubbers shall be provided to control gaseous emissions to waste heat recovery boiler (WHRB) provided to Sulphuric acid (ISA) plant. All the scrubbed SO<sub>2</sub> shall be treated in effluent treatment plant (ETP). Data collected for Fluorine, SPM, SO<sub>2</sub>, NO<sub>x</sub> and acid mist as per emissions from specific plant shall be submitted regularly to the Ministry / Regional Office at Bangalore, CPCB and TNPCB. Fugitive emissions of SO<sub>2</sub> in ISA furnace shall be reduced by installing proper pollution control systems and using primary gas from the ISA smelter and converter into proposed Sulphuric acid plant. Gaseous emissions from the Sulphuric acid plant shall not exceed 1 kg/T of Sulphuric acid produced.
- v) Fugitive emissions from different sources including rotary holding furnace, converter, Smelter, Sulphuric acid plant, Phosphoric acid plant and various other furnaces shall be reduced by providing scrubbers. Multi-stage scrubbing system shall be installed to treat the secondary gases from smelter particularly Fluorine.
- vi) The Company shall achieve SO<sub>2</sub> emissions of 0.7 Kg/Ton of Sulphuric acid produced in the proposed expansion plant. On-line stack monitoring for SO<sub>2</sub> from the Sulphuric Acid Plant shall be carried out and instruments shall be calibrated properly.
- vii) Total water requirement for the existing smelter plant from Tamirabarani River to be supplied by TWAD board through dedicated pipelines shall not exceed 1.7 MGD and prior permission from the Competent Authority shall be obtained. Total additional water requirement for the proposed expansion shall not exceed 2.25 MGD and sourced from proposed Desalination Plant (10,000 m<sup>3</sup>/day). The entire wastewater generated including effluent from the gas cleaning plant and secondary gas scrubbers shall be treated in effluent treatment plant (ETP) and reused. Reverse osmosis plant shall be installed to treat the ETP wastewater and utility water. The liquid effluent from Sulphuric acid plant, Refinery section, Gas cleaning effluent and secondary gas scrubber effluent shall be reused in the plant after treatment. Domestic effluent shall be treated in sewage treatment plant (STP) and treated wastewater shall be used for the development of green belt. No wastewater shall be disposed off outside the premises. 'Zero discharge' shall be adopted as proposed.

- viii) Desalination plant (10,000 m<sup>3</sup>/day) capacity may be installed to meet peak demands. The water consumption shall not exceed 5.9 m<sup>3</sup>/T of product.
- ix) The ground water quality monitoring inside the campus and all around the landfill site particularly for pH and Fluoride levels alongwith other parameters shall be monitored and data submitted to the Ministry's Regional Office at Bangalore, CPCB and TNPCB. Leachates from secured landfill facility (SLF) shall be properly collected by providing garland drains and used in the process.
- x) Arsenic bearing sludge (200 TPD), scrubber cake (280 TPD), sludge from refinery ETP (15 TPD) shall be disposed off in the secured landfill facility (SLF) and SLF shall be controlled strictly as per design details of CPCB. ESP dust shall be recycled back into ISA furnace. Sludge generation from ETP, which is hazardous in nature shall be disposed off as per Hazardous Waste (Management & Handling) Rules, 2003. Also possibility shall be explored to recover metals from the waste.
- xi) Lime grit generated from Milk of Lime preparation plant shall be recycled back into ISA furnace. ETP cake, scrubber cake, spent catalyst Scrubber cake, Resin from Bismuth plant and other toxic substances shall be stored in secured landfill (SLF) designed as per the CPCB guidelines at the site till TSDF in Tamil Nadu is functional. The location and design of the landfill site shall be approved by the TNPCB as per Hazardous Wastes (Management and Handling) Rules, 2003. ESP, WHRB, gas coolers dust and metal slag should be recycled back to smelter to recover metal. All the phospho-gypsum shall be sold to cement manufacturers and other users. All the non-ferrous scrap from stores/workshop, spent oil and batteries shall be sold to the authorized recyclers / reprocessors.
- xii) Only non-hazardous slag shall be used for road construction. Toxic Chemical Leachability Potential (TCLP) test as per the CPCB guidelines shall be carried out before using slag for the road construction. Use of hazardous slag for road construction shall be immediately stopped.
- xiii) As proposed, green belt of adequate width and density shall be developed in 72.35 ha., out of total 194.78 ha in and around the project site to mitigate the impact of fugitive emissions as per CPCB guidelines in consultation with the DFO.
- xiv) All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Copper smelters shall be implemented.
- xv) The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

#### **B. GENERAL CONDITIONS :**

- i. The project authorities must strictly adhere to the stipulations made by the Tamil Nadu Pollution Control Board (TNPCB) and the State Government.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.

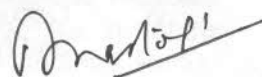
- iii. The gaseous emissions from various process units shall conform to the standards prescribed by the Ministry/CPCB/TNPCB which ever is more stringent. The TNPCB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission levels should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency.
- iv. Fugitive dust emissions in the handling area and at various transfer points shall be controlled by providing scrubbers, dust suppression system and ventilation system in work environment and monitored for prevailing contaminants regularly.
- v. Adequate number of influent and effluent quality monitoring stations shall be set up in consultation with the TNPCB. Regular monitoring shall be carried out for relevant parameters.
- vi. Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.
- vii. The company shall develop rainwater structures to harvest the run off water for recharge of ground water in consultation with the Central Ground Water Authority/Board.
- viii. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA report.
- ix. As proposed in EIA/EMP, Rs. 450.00 Crores earmarked for the environmental pollution control measures shall be exclusively used to implement the conditions stipulated by the Ministry of Environment and Forests and State Government. A time bound action plan alongwith the implementation schedule to comply with all the conditions stipulated herein shall be submitted to the Ministry's Regional Office at Bangalore. The funds so provided shall not be diverted for any other purpose.
- x. The implementation of the project vis-à-vis environmental action plans will be monitored by Ministry's Regional Office at Bangalore / TNPCB / CPCB. A six monthly compliance status report shall be submitted to the monitoring agencies.
- xi. The Project Proponent shall advertise in at least two local newspapers widely circulated in the region around the project; one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the TNPCB and may also be seen at Website of the Ministry and Forests at <http://envfor.nic.in>. The advertisement shall be made within 7 days from the date of issue of the clearance letter and a copy of the same should be forwarded to the Ministry's Regional Office at Bangalore.
- xii. The Project Authorities shall inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.

6.0. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

7.0. The Ministry reserves the right to stipulate additional conditions if found necessary. The company shall implement these conditions in a time bound manner.


8.0 Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.

9.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management & Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

  
(Dr. P. B. Rastogi)  
Director

Copy to :

1. The Secretary (Environment) Govt. of Tamil Nadu, Fort St. George, Chennai -560 560, Tamil Nadu.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110 032.
3. The Chairman, Tamil Nadu Pollution Control Board, 100, Anna Salai, Guindly, Chennai-600 032, Tamil Nadu.
- ✓ 4. The Chief Conservator of Forests (Central), Regional Office (SZ), Kendriya Sadan, 4<sup>th</sup> Floor, E&F Wings, 7<sup>th</sup> Main Road, 2<sup>nd</sup> Block, Koramangala, Bangalore - 560034, Karnataka.
5. Adviser IA (II), Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
7. Guard file
8. Monitoring file
9. Record file

  
(Dr. P. B. Rastogi)  
Director