STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY (SEIAA), ODISHA.

(Constituted vide Order No. S.O. 3387 (E) Date 15.12.2015 of Ministry of Environment Forest & CC, Govt. of India, Under Environment Protection Act, 1986.)
Qr. No. 5RF-2/1, Unit - IX, Bhubaneswar - 751022
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Ref. No. 3728/SEIAA Date 25.10.17
~~File No: 16242/10-IND2/06-2016~~

To

Mr. D.P. Modani,
M/s Grasim Industrial Ltd.,
Chemical Division, Post-Jayashree,
Dist-Ganjam-761025

Sub: Proposal for expansion of production capacity of Caustic Soda from 72,000 TPA to 105,000 TPA, its Bi-product and value added derivatives by M/s. Grasim Industries Ltd, Ganjam - Environmental Clearance Regarding.

Ref: Online Proposal No: SIA/OR/IND2/16242/2016

Sir,

This has reference to your Online Proposal No: SIA/OR/IND2/16242/2016 dated 17.06.2016 and letter no. Nil dated 16.06.2016, letter no. 1568(1) dated 10.01.2017 and letter no. 373 dated 09.06.2017 seeking environmental clearances for the above mentioned project under EIA Notification 2006. The proposal has been appraised as per the provisions under the EIA Notification 2006 and on the basis of the documents enclosed with the application such as Form-1, Prefeasibility Report and clarifications furnished in response to the observations of the State Expert Appraisal Committee, Odisha.

As per the application submitted by the project proponent, M/s Grasim Industries Ltd. (GIL) has proposed for expansion of Ganjam Chlor Alkali Plant. The project proponent will increase the production capacity of Caustic Soda from 72,000 TPA to 105,000 TPA and also plans to produce new products like Poly Aluminium chloride, Calcium Chloride, Carbon Dioxide, Stable Bleaching Powder (SBP) and Chlorinated Paraffin (CP). The project proponent in his application has further submitted that Environmental Clearance for the existing plant capacity has been granted by MoEF & CC, Govt. of India on dt. 23.08.2007 for a production capacity of 72,000 TPA of Caustic Soda under the

provision of EIA Notification,1994. Membrane Cell technology is being used since January 2011and same technology will be adopted for proposed expansion unit. The unit is located at Ganjam Notified Area Council (NAC), Ward No. 10; Block - Chhatrapur; Ganjam, Odisha. The Latitude: is 19°22'46.90"N and Longitude: 85° 3'13.43"E. Rushikulya River- is 250 m from main plant and NH-16 is 0.5 km. The product and bi-product of existing and proposed expansion project is summarized as follows:

Name of product	Production Capacity (TPA)		
	Existing (a)	Proposed (b)	Total (a + b)
Caustic Soda	72,000	33,000	105,000
Liquid Chlorine	46,350	26,650	73,000
Hydrochloric Acid	60,000	30,000	90,000
Hydrogen Gas- Million NM3	21.17	9.83	31.0
Sodium Hypochlorite	32400	1300	33700
Poly Aluminum	-	73,000	73,000
Chloride- 10 % liquid Calcium Chloride	-	18,250	18,250
Carbon Di Oxide	-	7,300	7,300
Stable Bleaching Powder	-	18,250	18,250
Chlorinated Paraffin's	-	18,250	18,250

The total land area under GIL-Ganjam plant is 130 acres. The main plant is located in an area of 30 acres. The proposed expansion will be constructed with the available land of main plant. No additional land will be required for the project. The existing water requirement for the plant is 2360 KLD. After the expansion, total industrial requirement is expected to be 3500 KLD. Water for the plant will be sourced from bore well near Kalyanpur. Construction phase water requirement will be 60-70 KLD and same will be sourced from existing supply of the plant. The existing power requirement for the plant and residential colony is 16 MW. After, expansion, total power requirement for the plant will be 30 MW. The required power is sourced from 132 KV power line from OPTCL. The existing back up DG set is 750+180 KVA. The existing manpower for the plant is 287. After expansion, total man power requirement will 331. The man power requirement during peak construction phase will be 60.The existing and proposed expansion unit will also use the

Membrane Cell technology. The primary raw materials are salt (NaCl) and water (demineralised water).

During manufacturing of caustic soda, hydrogen and chlorine gas as co- products are generated. HCl will be produced by using Hydrogen and Chlorine gases from Chlor-alkali Unit. The sodium hypochlorite is by product of this unit. The Hydrogen gas will be used in the boiler. The air emission from the process is waste chlorine gas and HCl vapour and this will be treated through alkali scrubber and water scrubber.

The raw materials required for Chlorinated Paraffin (CP) is paraffin and liquid chlorine. During the manufacturing process CP is the main product and HCl is the by-product. The air emission from the process is waste Cl_2 gas and HCl vapour; this will be treated through Alkali Scrubber and Water Scrubber. PAC is manufactured by chemical reaction between alumina hydrate powder and hydrochloric acid. Emission- HCl vapour from this unit will be absorbed in Water Scrubber.

Stable Bleaching Powder (SBP) is manufactured as a consequence of composite chemical reaction between hydrated lime and liquid chlorine. Emission of Cl_2 gas from the unit will be treated through Water Scrubber and then Caustic Scrubber. The raw materials for $CaCl_2$ are $CaCO_3$ and HCl. Emission –HCl vapour from the unit will be treated through Water Scrubber and then Caustic Scrubber. After scrubbing CO_2 gas will be generated as a by-product.

The air emission from the plant will be Cl_2 gas and HCl vapour. The Cl_2 will be treated through Caustic scrubber and emission rate will be 3 mg/Nm^3 (standard 15 mg/Nm^3). HCl will be treated trough water scrubber and emission rate will be 10 mg/Nm^3 (standard 35 mg/Nm^3). The quantity of effluent generated from the existing unit is 95 KLD and after expansion the volume will be remain same. The effluent will be treated through ETP (capacity 150 KLD) and treated effluent will be discharge to Guard Pond for Solar evaporation.

The solid waste generated from the process is brine sludge (8.5 tons/ day), which is non-hazardous in nature and same will be disposed in the captive landfill site. The hazardous waste from the industrial process will be (i) used/spent oil, (ii) contaminated cotton rags or other cleaning materials and (iii) spent resin. Hazardous waste will be stored and disposed as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016. The total greenbelt and plantation area of the plant is approximately 28.62 acres; i.e. 22.02% of the total project site. Additional 14.28 acres plantation will be carried out to achieve 33% greenbelt area.

The ToR for the project was issued by the SEAC, Odisha on 09.12.2016 for undertaking a detailed EIA study. Public hearing was conducted on dated 23.05.2017 and the final EIA report was submitted to SEIAA, Odisha on dated 09.06.2017. The project proponent made a detailed presentation on the project before the SEAC on 21.07.2017 ,21.08.2017 and 12.09.2017.

Considering the information/documents furnished and additional clarifications provided during presentations made by the consultant M/s ERM India Private Ltd., Building 10A, 4th floor, DLF Cyber City, Gurgaon on behalf of the project proponent, the State Expert Appraisal Committee (SEAC) after due considerations of the relevant documents submitted by the project proponent and clarifications /documents furnished to it have recommended for grant of environmental clearance for the project valid for a period of 07 years with necessary stipulated conditions.

The State Environment Impact Assessment Authority (SEIAA) after considering the proposal and recommendations of SEAC, Odisha hereby accords Environmental Clearance in favour of the project for a period of 7 (seven) years under the provisions of EIA Notification 2006 and 2009 and subsequent amendments thereto subject to strict compliance of all conditions as follows.

Stipulated Conditions:

A. Specific Conditions:

1. Manufacturing process of chloro-alkali shall be based on membrane cell. No mercury cell shall be used.
2. The project proponent shall not establish the expansion project over mercury contaminated sites for which, OSPCB has stipulated condition for remediation.
3. A study shall be carried out indicating impact of drawl of 1140 m^3/day of additional ground water on the salinity of water due to ingress of saline water and submit the same to the SEIAA within three months from the date of issue of this letter.
4. Project proponent shall carry out regular monitoring of the ground water and soil around secured landfill for Hg content in the water.
5. Prior Permission for the drawl of additional 1140 m^3/d of CGWA/ Water Resource Department, Govt. of Odisha shall be obtained.
6. The project proponent shall obtain Permission and recommendation of the Archeological Survey of India regarding impact of proposed expansion on the Potaghad archeological site.
7. The project proponent shall conduct a feasibility study for alternative sources of water to minimize the impact on ground water resources for proposed expansion project. After conducting feasibility study, they shall prepare an Action Plan for sourcing of water.
8. The project proponent shall explore the alternative of the possibility to install desalination plant to minimize ground water drawal.
9. The project proponent shall increase the height of embankment of existing reservoir

to avoid the overflow.

10. The project proponent shall conduct the hydrological study for pre monsoon (April) and monsoon (November) of the area and submit the report to SEIAA, Odisha by June -2018 as proposed.
11. In the proposed expansion unit, 525 KLD of RO reject shall be generated which shall be further treated by 2nd RO. The 2nd RO product of 395KLD shall be utilized in the cooling make up and reject of 130 KLD shall be utilized in the industrial process like, cylinder washing, fire hydrant make up and wash rooms for flushing.
12. Adequate air pollution control measures alongwith adequate stack shall be provided to boiler to control particulate emissions within 50 mg/Nm^3. The waste gasses shall be discharged into atmosphere through stack of adequate height as per CPCB/OSPCB guidelines.
13. The proponent shall take steps to increase the hydrogen utilization as fuel in the boiler.
14. Adequate scrubbing system shall be provided to control Cl_2 emissions less than 15 mg/$Nm^3$and control HCl emissions less than 35 mg/Nm^3. Online Chlorine analyser along with alarm indicator shall be installed in the chlorine stack with a minimum reading of 1 ppm and will be connected to the DCS control room. Efficiency of scrubber shall be monitored regularly and maintained properly.
15. The gaseous emissions (SO_2, NOx, Cl_2, HCl) and particulate matter from boiler and process stack shall conform to the norms prescribed by the CPCB/ OSPCB from time to time. At no time, the emission levels shall go beyond the prescribed standards. The system shall be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped. 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. Stack monitoring shall be done regularly and report shall be submitted to OSPCB and the Ministry's regional office at Bhubaneswar.
16. In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored and records maintained. The emissions shall conform to the limits stipulated by the OSPCB.
17. Proper hood along with suction facility and scrubbing arrangement should be provided in the chlorine storage area. Alarm for chlorine leakage if any in the liquid chlorine storage area shall be provided along with automatic start of the scrubbing system.
18. The project proponent shall provide solar light system for all common areas, street lights, villages, parking around project area and maintain the same regularly. The proponent shall use Solar / Renewable energy of 5 % of the expected actual power requirement
19. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets

to mitigate the noise pollution.

20. The company shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically on the MoEF & CC website. It shall simultaneously be sent to the Regional office of MOEF&CC, Bhubaneswar the respective Zonal office of CPCB and the OSPCB. The levels of PM_{10}, SO_2, NO_X, Cl_2, HCl, and CO in ambient air and emissions from the stacks shall be monitored and/ displayed at a convenient location near the main gate of the company and at important public places.
21. Efforts shall be made to reduce the fresh water requirement by adopting 3 R's (Reduce, Reuse and Recycle) concept.
22. Industrial effluent generation shall not exceed $95m^3$/day and treated in ETP. Treated effluent shall be recycled/ reused within the factory premises. Treated effluent shall be collected in the guard pond. Regular water quality monitoring of guard pond shall be carried out and Water quality of treated effluent shall meet the norms prescribed by CPCB/OSPCB. Domestic wastewater shall be treated in STP. Water quality of treated effluent shall be monitored regularly.
23. No effluent shall be discharged outside the premises and 'Zero' discharge concept shall be adopted.
24. Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
25. The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous & Other Wastes (Management and Trans-boundary Movement) Rules, 2016for management of Hazardous wastes and prior permission from OSPCB shall be obtained for disposal of solid / hazardous waste.
26. The proponent shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended. All Transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.
27. The company shall undertake following waste minimization measures :-
    (i) Metering and control of quantities of active ingredients to minimize waste.
    (ii) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
    (iii) Use of automated filling to minimize spillage.
    (iv) Use of Close Feed system into batch reactors.
    (v) Venting equipment through vapour recovery system.
    (vi) Use of high pressure hoses for equipment clearing to reduce wastewater generation.
28. The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.
29. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
30. Green belt shall be developed in 42.90 acres (33% of total area as proposed) as per the CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around the proposed pesticide unit to mitigate the odour problem. Selection of plant species shall be as per the CPCB guidelines.

31. All the commitments made during the Public Hearing / Public Consultation meeting held on 23rd May, 2017 shall be satisfactorily implemented and adequate budget provision should be made accordingly.
32. At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.
33. The Company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/ procedure to being into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.
34. Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.

B. General Conditions:

1. The project authorities shall strictly adhere to the stipulations made by the Odisha State Pollution Control Board.
2. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed by the unit.
3. No further expansion or modifications in the plant shall be carried out without prior approval of the MoEF & CC, Govt. of India. In *case* of deviations or alterations in the project proposal from those submitted to the SEIAA, Odisha for clearance, a fresh reference shall be made to the SEIAA, Odisha to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
4. The locations of ambient air quality monitoring stations shall be decided in consultation with the Odisha State Pollution Control Board (OSPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.
5. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
6. The Company shall harvest rainwater from the roof-tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.

7. During transfer of materials, spillages shall be avoided and garland drains be constructed to avoid mixing of accidental spillages with domestic wastewater and storm water drains.
8. Usage of Personnel Protection Equipments by all employees/ workers shall be ensured.
9. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
10. The company shall also comply with all the environmental protection measures and safeguards proposed in the project report submitted to the SEIAA, Odisha. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.
11. The company shall undertake CSR activities and all relevant measures for improving the socioeconomic conditions of the surrounding area.
12. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
13. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
14. The company shall earmark sufficient funds for recurring cost per annum to implement the conditions stipulated by the SEIAA, Odisha as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
15. A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal.
16. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF & CC, Bhubaneswar the respective Zonal Office of CPCB and the Odisha State Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
17. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the Odisha State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of MoEF & CC, Bhubaneswar by e-mail.
18. The project proponent shall inform the public that the project has been accorded environmental clearance by the SEIAA, Odisha and copies of the clearance letter are available with the SPCB and may also be seen at Website of the SEIAA, Odisha and the Odisha State Pollution Control Board (OSPCB).This shall be advertised within

seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

19. The project authorities shall inform the Regional Office of MoEF & CC, Bhubaneswar as well as to the SEIAA, Odisha, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
20. The above conditions shall 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 & Other Wastes (Management And Transboundary Movement) Rules, 2016 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.
21. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

The above mentioned stipulated conditions shall be complied in a time-bound manner. Failure to comply with any of the conditions mentioned above may result in cancellation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

Yours faithfully,

Member Secretary

Memo No 3729/SEIAA /Dt. 25.10.17

Copy to

1. Joint Secretary (Environment), Ministry of Environment, Forests and Climate Change Govt. of India, Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj, New Delhi-110003 for information.
2. Principal Secretary, Forests & Environment Dept., Government of Odisha for information.
3. Chairman, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
4. Additional Principal Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment & Forests, A-31, Chandrasekharpur, Bhubaneswar for information.
5. Chairman, Central Pollution Control Board, CBD-cum-office Complex, East Arjun Nagar, New Delhi-110032 for information.
6. Collector, Ganjam, for kind information and necessary action.
7. Chairman/Member/Member Secretary, SEIAA for kind information.
8. Chairman, SEAC/Secretary, SEAC, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar for kind information.
9. Guard file for record.

Member Secretary