



Yogendra Pal Singh
Scientist 'D'

F. No. J-11011/83/2017-IA.II (I)

Government of India
Ministry of Environment, Forest and Climate Change
(IA Division)

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Dated: 31st May, 2017

To,

The Managing Director
M/s The Andhra Sugars Limited,
(Chemicals and Fertilizers Division),
Saggonda Village, Gopalapuram Mandal,
West Godavari District, Andhra Pradesh

Sub: Expansion of Chlor-Alkali Plant and inclusion of Synthetic Organic Chemicals manufacturing unit at Sy. No. 132-134 and 137, Saggonda Village, Gopalapuram Mandal, West Godavari District, Andhra Pradesh by M/s. The Andhra Sugars Limited (Chemicals and Fertilizers Division) - Terms of References - reg.

Ref.: Your online proposal no. IA/AP/IND2/62105/2017 dated 28th January, 2017.

Sir,

This has reference to your online proposal no. IA/AP/IND2/62105/2017 dated 28th January, 2017 along with project documents including Form I, draft Terms of References and Pre-feasibility Report (PFR) regarding the above mentioned project.

- It is noted that the proposal is for Terms of Reference for Expansion of Chlor-Alkali Plant and inclusion of Synthetic Organic Chemicals manufacturing unit at Sy. No. 132-134 and 137, Saggonda Village, Gopalapuram Mandal, West Godavari District, Andhra Pradesh by M/s The Andhra Sugars Limited (Chemicals and Fertilizers Division).
- As per Form 1 and PFR, the PP proposed to expand manufacturing capacity of existing facility and inclusion of synthetic organic chemicals in existing area of 320 acres with capital investment of ₹ 800 crores. Employment Potential for present proposal is 250 Nos. It is reported that, River Godavari is towards east of the site at a distance of 4 Km from the site flowing from north to south. Kovvada Canal Flows from SW to NE direction of the site at a distance of 5 km in north direction. Vinjaram Reserved forest is at a distance of 8.5 Km towards NE Direction of the site. Polavarm Reserved forest is at distance of 7.4 Km towards NW direction of the site. There are no ecologically sensitive areas like National Parks, Sanctuaries within 10 km radius of the site.
- It is reported that the total water requirement will be increased from 3360 KLD to 9252 KLD after expansion, consisting of 8428 KLD fresh water and 824 KLD of recycled water and same shall be met from River Godavari in addition to reuse of treated wastewater. The total power requirement will be met from AP TRANSCO and back up DG sets of capacity 1 x 4750 kva and and 3 x 1000 kva are provided to cater to energy requirement during load shut downs. Coal/Husk will be used as fuel for proposed 1 x 25 TPH boiler. Consumption of coal is 120 TPD. Expansion includes enhancement of process equipment, storage facility and utilities. It is informed that, the baseline study

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for ambient air quality, surface, ground water quality, noise, ecology and soil quality will be carried out during March 2017 to June 2017.

5. It is reported that, the PP has obtained Environmental Clearance for Expansion of Caustic Soda Plant of capacity 400 TPD vide Letter No. J-1101/245/2005-IA.II (I) dated 08.02.2006. The unit obtained consent for operation vide Letter No. APPCB/VSP/RJY/44/CFO/HO/2016 dated 09.02.2016.

6. All Chlor-alkali industry (³300TPD production capacity if a unit located outside the notified industrial area/ estate) are listed at S.N. 4(d) of Schedule of Environmental Impact Assessment (EIA) Notification under Category 'A'. All Synthetic Organic Chemicals Industry located outside the notified industrial area/estate are listed at S.N. 5 (f) of Schedule of Environmental Impact Assessment (EIA) Notification under Category 'A' and is appraised at Central Level by Expert Appraisal Committee (EAC).

7. The existing and proposed products and capacity are:

S. No.	Product Name	Capacity (TPD)		
		Existing	Proposed	Total after expansion
1.	Caustic Soda	400	400	800
2.	Caustic Potash	--	100	100
3.	Liquid Chlorine	240	4	244
4.	Hydrochloric Acid (33%)	600	400	1000
5.	Caustic Soda Flakes	140	140	280
6.	Hydrogen Gas (bottling)	2.83	1.0	3.83
7.	Liquid Hydrogen	1.0	1.0	2.0
8.	Sodium Hypochlorite	20	20	40
9.	Sulphuric Acid	300	--	300
10.	Poly Aluminum Chloride	90	--	90
11.	Sodium Chlorate	--	60	60
12.	1. Chlorinated Paraffin Wax (52%)	--	20	20
	2. Hydrochloric Acid (33%)	--	30	30
13.	1. Mono Chloro Acetic Acid	--	20	20
	2. Hydrochloric Acid (33%)	--	33	33
14.	Chloro Methanes :	--		
	1. Methyl Chloride		10	10
	2. Methylene Chloride		61	61
	3. Chloroform		56	56
	4. Carbon tetrachloride		7.6	7.6
	5. Hydrochloric Acid (33%)		65.8	65.8

List of Utilities

S. No	Utility	Existing	Proposed	After Expansion
1	Husk Fired Boilers (TPH)	1 x 15 1 x 10	--	1 x 15 1 x 10
2	Coal/Husk Fired Boiler (TPH)		1 x 25	1 x 25
3	Oil Fired Boiler (TPH)	1 x 6	--	1 x 6
4	Waste Heat Recovery Boiler (TPH)	1 x 15	--	1 x 15
5	Incinerator (Kg/hr)	--	1 x 383	1 x 383
6	DG Sets (KVA)*	1 x 4750 3 x 1000	--	1 x 4750 3 x 1000

* DG sets will be used during load shut down by APTRANSCO

8. The project proposal and Draft Terms of Reference (TOR) was considered by the Expert Appraisal Committee (Industry - 2) in its 21st meeting held during 27th - 29th March, 2017. The Committee prescribed the following **Additional TOR with public hearing along with Standard TOR** as available in the Ministry website for preparation of EIA-EMP report:

Additional TOR

- i. A plan for implementation of Zero Liquid Discharge shall be submitted.
- ii. Lay out plan for Green belt of 10 m width along the periphery of the unit shall be submitted. Total 33 % of the area of the unit shall be ensured for green cover with perennial trees. 20000 plants shall be planted in the area in a span of five years.
- iii. Draft EIA/EMP report shall be submitted to SPCB for conduct of Public hearing. The points raised during the Public hearing/Public consultation shall be properly addressed in the final EIA/EMP report.
- iv. Risk Assessment Plan shall be submitted.
- v. A well equipped environment management cell shall be formed with a regular post of Environmental Manager having post graduate qualification in person in Environmental Sciences/ Environmental Engineering.
- vi. Revised water balance shall be submitted. Loss of water in cooling water and boiler shall be reduced with induction of better technology.
- vii. PP shall submit the copy of certified compliance report from the Regional Office of Ministry.

9. These **'TORs along with Public hearing'** shall be considered for the preparation of EIA/EMP for the above referred project, in addition to all the relevant information as per the 'General Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Public hearing has to be conducted as per the provisions of the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the final EIA report.


10. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India/National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other Organization(s)/Laboratories including their status of approvals etc.


31.5.2017

(Yogendra Pal Singh)
Scientist 'D'

Copy to:

- The Member Secretary, Andhra Pradesh Pollution Control Board, Paryavaran Bhawan, A-III, Industrial Estate, Sanath Nagar, Hyderabad.
- Guard File/Monitoring File/Website/Record File


31.5.2017

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4(d): STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR CHLOR ALKALI PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

A. STANDARD TERMS OF REFERENCE

- 1) Executive Summary
- 2) Introduction
 - i. Details of the EIA Consultant including NABET accreditation
 - ii. Information about the project proponent
 - iii. Importance and benefits of the project
- 3) Project Description
 - i. Cost of project and time of completion.
 - ii. Products with capacities for the proposed project.
 - iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
 - iv. List of raw materials required and their source along with mode of transportation.
 - v. Other chemicals and materials required with quantities and storage capacities
 - vi. Details of Emission, effluents, hazardous waste generation and their management.
 - vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
 - viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
 - ix. Hazard identification and details of proposed safety systems.
 - x. Expansion/modernization proposals:
 - a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing Iexisting operation of the project from SPCB shall be attached with the EIA-EMP report.
 - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4) Site Details

- i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
- ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
- iii. Details w.r.t. option analysis for selection of site
- iv. Co-ordinates (lat-long) of all four corners of the site.
- v. Google map-Earth downloaded of the project site.
- vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
- ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area.
- x. Geological features and Geo-hydrological status of the study area shall be included.
- xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
- xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii. R&R details in respect of land in line with state Government policy.

5) Forest and wildlife related issues (if applicable):

- i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)
- ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland **(in case of projects involving forest land more than 40 ha)**

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

- iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
 - iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon
 - v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area
 - vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.
- 6) Environmental Status
- i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
 - ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO₂, NO_x, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
 - iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
 - iv. Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
 - v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
 - vi. Ground water monitoring at minimum at 8 locations shall be included.
 - vii. Noise levels monitoring at 8 locations within the study area.
 - viii. Soil Characteristic as per CPCB guidelines.
 - ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
 - x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
 - xi. Socio-economic status of the study area.

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7) Impact and Environment Management Plan

- i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
- ii. Water Quality modelling - in case of discharge in water body.
- iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
- iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- v. Details of stack emission and action plan for control of emissions to meet standards.
- vi. Measures for fugitive emission control
- vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xii. Action plan for post-project environmental monitoring shall be submitted.

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- xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.
- 8) Occupational health
- i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers
 - ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
 - iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
 - iv. Annual report of health status of workers with special reference to Occupational Health and Safety.
- 9) Corporate Environment Policy
- i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
 - ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
 - iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.
 - iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.
- 10) Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.
- 11) Enterprise Social Commitment (ESC)
- i. Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

- 12) Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
- 13) A tabular chart with index for point wise compliance of above TOR.

B. SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR CHLOR ALKALI INDUSTRIES

1. Details on demand of the product- chlorine and its associated products.
2. Details on raw materials used in the production of chlorine (sodium chloride, potassium chloride, etc.), its storage and handling.
3. Details of proposed source - specific pollution control schemes (salt washing, filtration, cell ventilating as, chlorine handling and safety, etc.) and equipments to meet the national standards.
4. Details on products to be made and handling-chlorine, caustic soda, etc.
5. Details on tail gas treatment.
6. Details on requirement of energy and water along with its source and authorization from the concerned department.
7. In case of modernization of existing mercury based chlor-alkali plants with membrane cell Process (MBCP) industries or new unit in the existing industry premises, remediation measures adopted to restore then environmental quality of the ground water, soil, crop, air, etc., are affected due to salinity and detailed compliance to the prior environmental clearance/ consent conditions.
8. Details on ground water quality and surface water quality of near by water sources and other surface drains. The parameters of water quality may include Residual chlorine*, TDS*, alkalinity*, pH* & Mercury* (in water & sediment), etc. (*- As applicable)
9. Details on existing ambient air quality and expected, emissions for PM10, PM2.5, SO2*, NOx*, CO2*, CO*, Chlorine*, acid mist* etc., and evaluation of the adequacy of the proposed pollution control devices to meet standards for point sources and to meet AAQ standards. (*-As applicable)
10. Specific programme to monitor safety and health protection of workers.
11. Risk assessment should also include leakages and location near to caustic soda plant & proposed measures for risk reduction
12. Details of the emergency preparedness plan for chlorine/ Hydrogen storage, handling and transportation and on- site and off- site disaster management plan.
