MCF
Mangalore Chemicals
& Fertilizers Limited

10602/MOEF/1198
Dt 07.11.2023

The Additional Principal Chief Conservator of Forests (C),
Ministry of Environment, Forests & Climate Change,
4th Floor, E & F Wing,
Kendriya Sadan, Koramangala,
BENGALURU – 560 034

Dear Sir,

Sub: Conversion of Feed Stock from Naphtha to NG/RLNG in the Fertilizer Plant and Fuel from Furnace Oil to NG/RLNG in Steam Generating Boilers and Captive Power Plant and Enhancement in the production of Ammonia, Urea and Ammonium bicarbonate by M/s Mangalore Chemicals and Fertilizers Ltd. – EC No. J-11011/34/2010-IA II (I) dated 06.02.2013 - Half yearly report for the 1st half of 2023-24

We are enclosing herewith the six-monthly compliance reports for the period ending on 30th September, 2023.

Thanking you,

Yours faithfully,

S. GIRISH
CHIEF MANUFACTURING OFFICER

Encl: a/a

CC: 1. The Member Secretary
Karnataka State Pollution Control Board
#49, ParisaraBhavan, 4th& 5th Floor
Church Street
BENGALURU – 560 001

2. The Member Secretary
Central Pollution Control Board
"ParveshBhawan", C.B.D. Cum-office Complex
East Arjun Nagar, Shahdara
DELHI - 110 032

3. The Environmental Officer
Karnataka State Pollution Control Board
Plot No.10B, Baikampady Industrial Area
MANGALURU - 575 011.

INDUSTRY DETAILS

1	**The contact details with emails, telephone numbers, mobile numbers, fax numbers etc. of the responsible person of the project who is competent speak on behalf of the company and on environmental aspects**	**S. GIRISH,** **CHIEF MANUFACTURING OFFICER** **MANGALORE CHEMICALS & FERTILIZERS LTD.,** **PANAMBUR, MANGALURU -575 010.**
		Phone No.: 0824 – 2220602
		Fax No.: 0824 – 2407938
		s.girish@adventz.com
2	**Updated address of the project with all contact information, emails, details of Environmental management cell and GPS locations of the specified area**	**MANGALORE CHEMICALS & FERTILIZERS LTD,** **PANAMBUR, MANGALURU -575 010**
	STD Code, Phone	**0824 – 2220600**
	Fax No.	**0824 – 2407938**
	Details of Environmental Cell:	**We have a well-established Environment cell and well-equipped in-house laboratory with sophisticated modern Analytical Instruments for carrying out various environmental monitoring parameters in water, wastewater and air emissions. The cell is headed by JGM – EHS&QC and is managed by qualified and trained officers.**
3	**Email address of the company, email address of any two responsible persons including the project head and website**	**1. Sadanand I.M , GM-Production** **2. Harihara J, JGM- EHS&QC**
	Phone numbers of responsible persons	**1. 0824-2220611** **2. 0824-2220668**
	E-mail address of responsible persons	1. **Sadanand.im@adventz.com** **2. harihara.j@adventz.com**
	Website of the company	**www.mangalorechemicals.com**
4	**Land Balance Details:**	
	(a) Total land area	**192 acres**
	(b) Built up area	**77 acres**
	(c) Vacant Land	**51 acres**
	(d) Greenbelt area	**64 acres**
5	**Groundwater Usage**	**Groundwater is not used for any purpose**
6	**Green belt area**	**Developed and maintained about 64 acres of Greenbelt area with various varieties of trees. About 2000 saplings were planted during 2023-24 period.**
7	**Solid waste management**	**Annexure A**
8	**Rain Water harvesting**	**Implemented the schemes for harvesting roof water at our township and recharge bore wells. Total roof area covered is about 3500 m^2 and estimated water harvested is 13,300 m^3/year.**
9	**Solar Power generation**	**We have installed solar lightings at various locations inside the factory premises as well as in our township. Details are as below:** **1. At MCF Plant premises.** **a. Main plant – 251 kWp**

		b. Mangala Garden in front of Safety section-1no-10Watts (LED) c. Mangala Garden Machinery group section Back side -1No- 11Watts (CFL) d. Mangala Garden instrument back side -1No-11Watts (CFL) 2. At MCF Township premises a. Children park-1No-10Watts (LED) b. Main gate side-1no-10Watts (LED) c. Inside Sewage Treatment plant-1No-10Watts (LED) d. Near MCF Staff club-1No-10Watts (LED) 3. At MCF Guest house premises a. Mangala/Ambica guest house walkway -2No-10x2=20Watts (LED)
10	Details of action taken under CREP	Annexure A
11	Current status of the plant with production details	We have received NG as feedstock for Ammonia production. We have also received consent for operation from KSPCB for NG operation. Production of Ammonia for the period from April 2023 to September 2023: 1,43,499.14 MT

Compliance to Environmental Clearance issued by Government of India Ministry of Environment and Forests vide letter F.No. J-11011/34/2010-IA II (I) Dated 6th February, 2013 for Conversion of Feed Stock and Fuel to NG/RLNG in the Fertilizer Plant, at Panambur, Mangalore, Dakshina Kannada, Karnataka by M/s Mangalore Chemicals and Fertilizers Ltd.

SPECIFIC CONDITIONS:

Sl. No.	Conditions in the Environmental clearance letter	Compliance
i.	All the conditions stipulated in environmental clearance No. J-11011/105/2007-1A (II) dated 18th July, 2007, No.J-11011/133/2009-IA (I) dated 3rd June, 2009 and SEIAA:8:IND:2009 dated 30th July, 2009 accorded for the existing projects shall be implemented.	**All the conditions stipulated in the environmental clearance letter No.J-11011/105/2007-IA (II) dated 18th July, 2007 No.J-11011-11/113/2009-IA (II) dated 3rd June, 2009 and SEIAA: 8:IND:2009 dated 30th July, 2009, issued by MoEF & CC are complied with.**
ii.	The gaseous emissions (SO_2, NO_x, NH_3, HC and Urea dust) and particulate matter from various process units shall conform to the norms prescribed by the CPCB/SPCB from time to time. At no time, the emission levels shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective units shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack emissions shall be monitored regularly.	**The gaseous emission from various process units conform to the standards prescribed by the Karnataka State Pollution Control Board (KSPCB) /Central Pollution Control Board (CPCB). We have been monitoring the emissions of various stacks regularly and the analysis reports are being submitted to the KSPCB every month. Copy of the monitoring report September 2023 is enclosed as Annexure I.**
iii.	Adequate stack height shall be provided to Ammonia plant reformer, NG/RLNG fired gas turbine and Prilling Tower. Low NOx burners shall be provided to control NOx emissions.	**Stack heights are provided for Ammonia plant reformer, NG based gas generators and prill tower as per the guidelines stipulated. Low NOx burners are provided to control NOx emissions.**
iv.	In Urea Plant, particulate emissions shall not exceed 150 mg/Nm^3. Monitoring of Prilling Tower shall be carried out as per CPCB guidelines	**Monitoring of Particulate Matter in prill tower is being carried out as per CPCB guidelines. Values of particulate matter emission is well within the standard of 150 mg/Nm^3. Analysis report for the period April 2023 to September 2023 is attached as Annexure II.**
v.	Ambient air quality data shall be collected as per NAAQS standards notified by the Ministry vid G.S.R. No. 826(E) dated 16th November, 2009. The levels of PM_{10} (Urea dust), SO_2, NO_x, Ammonia, Ozone, CO and HC shall be monitored in the ambient air and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the results of monitored data on its website and shall update the same periodically. It shall	**4 No. of Ambient air quality monitoring stations have been set up and the Ambient air quality is being monitored regularly for Ammonia, PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, Ozone, Fluorine and Hydrocarbon as per the NAAQ standards by the NABL accredited MCF Environmental Laboratory. Ambient air quality data have been displayed near the main gate of the company. Ambient air quality data is being uploaded on**

	simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the Karnataka State Pollution Control Board (KSPCB)	**Company's website and hard copy is being submitted to Karnataka State Pollution Control Board every month. Ambient air quality report for the period April 2023 to September 2023 is attached. Annexure – III**
vi.	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 and conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions should conform to the limits stipulated by the KSPCB.	**Fugitive emissions from various sources are controlled by providing closed storage, handling and conveyance system. All the conveyer belts handling products are covered. Product storage Silo and bagging area are provided with the dust collectors and dust scrubbing system. Workplace monitoring is conducted regularly. The emissions conform to the limits stipulated.**
vii.	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.	**DG sets are provided with the stacks of 44 m AGL as per the CPCB guidelines. Acoustic enclosure is provided for mitigating the noise pollution in Captive Power Plant.**
viii.	Water requirement from Mangalore City Corporation after NG conversion shall not exceed 8448 m3/day and prior permission shall be obtained from the competent authority and a copy submitted to the Ministry's Regional Office at Bangalore.	**There is no increase in water consumption after the commissioning of NG conversion project. Water requirement will not exceed 8448 m3/day.**
ix.	Industrial wastewater shall be treated in the ETP. As proposed, Urea plant process condensate shall be treated in a deep hydrolyser followed by stripping. Ammonia plant process condensate (APC) shall be stripped with steam. Treated condensate shall be recycled/reused in the process. Utilities wastewater shall be treated in the ETP and treated effluent shall be recycled/reused. Treated effluent shall also be monitored for the parameters namely ammonical nitrogen, Nitrate, Fluoride, pH etc. As proposed, no effluent shall be discharged outside the factory premises and zero discharge concept shall be adopted. Sewage shall be treated in STP and treated water shall be recycled/reused within factory premises to achieve zero discharge except rainy season.	**The liquid effluent from Ammonia and Urea plants are treated in Process Condensate Stripper and deep Hydrolyser respectively. The treated effluent is reused. The treated effluent is regularly monitored for the parameters Ammonical nitrogen, Nitrate, Fluoride, pH etc. Analysis report is enclosed as Annexure VII. The wastewater from water treatment plant is treated in the wastewater recovery plant with RO, Ultra-filtration, Lamella Clarifier etc. The treated wastewater is being reused. The sewage effluent is treated in the upgraded Sewage Treatment Plant (STP) by adapting Membrane Bio-Reactor technology. The treated wastewater is reused.**
x.	All the effluents after treatment shall be routed to a properly lined guard pond for equalization and final control. In the guard pond, automatic monitoring system for flow	**All the effluent streams after treatment are reused in cooling tower as makeup. Online Continuous Effluent Monitoring system is installed for the treated water**

	and relevant pollutants (i.e. pH, ammonical nitrogen, etc.) shall be provided with high level alarm system.	**going to the Cooling Tower as makeup for monitoring of pH, Ammonical Nitrogen and TSS. Maximum and Minimum values from the analyser is attached as Annexure- IV.**
xi.	Regular monitoring of groundwater by installing piezometric wells around the guard pond and sludge disposal sites shall be periodically monitored and report shall be submitted to the concerned Regional Office of the Ministry, CPCB and SPCB.	**MCF is a Zero Liquid Effluent Discharge plant. Groundwater monitoring is carried out in the piezometric well water sample and the report is enclosed as Annexure V.**
xii.	The company shall construct garland drain all around the project site to prevent runoff of any chemicals containing waste into nearby water bodies. Effluent shall be properly treated and treated wastewater shall conform to CPCB standards.	**Garland drains are provided around the project area to prevent runoff of any chemicals.** **The liquid effluent from Ammonia and Urea plants are treated in Process Condensate Stripper and deep Hydrolyser respectively. The treated effluent is reused. The wastewater from water treatment plant is treated in the wastewater recovery plant with RO, Ultra-filtration, Lamella Clarifier etc. The treated wastewater is being reused.** **The sewage effluent is treated in the upgraded Sewage Treatment Plant (STP) by adapting Membrane Bio-Reactor technology. The treated wastewater is reused.**
xiii.	The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes. Measures shall be taken for firefighting facilities in case of emergency.	**We have valid authorization issued by the KSPCB under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.** **Fire hydrant system as per Tariff Advisory Committee (TAC) stipulation and fire tender and fire extinguisher facilities are available for firefighting in case of emergency.**
xiv.	Spent catalysts and used oil shall be sold to authorized recyclers/re-processors only	**Spent catalyst and Used oil are sold only to KSPCB/CPCB authorized recycler/re-processors.**
xv.	The company shall strictly comply with the rules and guidelines under Manufacture Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All Transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	**Rules and guidelines under Manufacture, Storage and Import of Hazardous chemicals (MSIHC) Rules, 1989 as amended time to time is complied with. The hazardous chemicals are transported as per the requirements of Motor Vehicle Act (MVA), 1989.**
xvi.	The company shall strictly follow all the recommendations mentioned in the Charter	**MCF has implemented all the recommendations made in the Charter**

	on Corporate Responsibility for Environmental Protection (CREP).	**of Corporate Responsibility for Environmental Protection (CREP) for fertilizer industries. Copy of compliance to CREP (Annexure A) is enclosed.**
xvii.	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the application norms.	**Fire hydrant system as per TAC stipulation is provided in plant area and periodic mock drills are being conducted. All plant personnel are periodically trained in firefighting, safety aspects, rescue operation and emergency response and handling procedures.**
xviii.	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	**MCF Occupational Health Centre consists of 7 beds and is manned by male nurses 24 x 7. Experienced doctor is available during general shift.** **Occupational health surveillance and periodic medical examination of all employees is being carried out and records are being maintained.** **General periodical medical examinations were conducted in the month of February and March 2023 for company employees**
xix.	Greenbelt shall be developed in 33% of the plant area. Selection of plant species shall be as per the CPCB guidelines.	**The company has planted about 63,000 trees like Teak, Mangium, Eucalyptus, Subabul, Acacia etc., developed in our green belt area. The area covered by the green belt is about 64 acres.**
xx.	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, crèche 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.	**Necessary infrastructure and facilities are provided to all the construction labour within the factory premises. Construction work will be systematically managed to avoid the impact on the surrounding environment.**

B. <u>GENERAL CONDITIONS:</u>

i.	The project authorities shall strictly adhere to the stipulations made by the Karnataka State Pollution Control Board.	**The stipulations made by the Karnataka State Pollution Control Board and the State Government are complied with.**
ii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations of alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference	**We have not carried out any expansion or modifications without the prior approval of the Ministry of Environment, Forest and Climate Change.**

	shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	
iii.	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	**4 Nos. of Ambient air quality monitoring stations have been set up in consultation with Karnataka State Pollution Control Board and the ambient air quality is being monitored regularly by in house NABL accredited Environmental Laboratory for Ammonia, PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, Fluorine and Hydrocarbon and the reports are being submitted to the KSPCB every month.**
iv.	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)	**The overall noise levels in and around the plant area is kept well within the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Noise Level around the boundary of the factory premises are measured regularly. Report is attached as Annexure VI.**
v.	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.	**We have completed the scheme for harvesting roof water at our township. The roof water is being used to recharge the bore wells. This scheme has been taken up for accomplishing our concern and social accountability for ground water conservation.**
vi.	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.	**Training programmes with respect to safety and health aspects of chemical handling are regularly imparted to all employees. Pre-employment and routine periodical medical examinations for all employees are being carried out and records are being maintained.**
vii.	Usage of Personnel Protective Equipment (PPEs) by all employees / workers shall be ensured.	**All the employees and workers are provided with necessary PPEs and usage of PPEs are ensured. Some of PPEs used in MCF are,** • **Shoes** • **Helmets** • **Dust masks** • **Goggles** • **Gloves** • **Canister masks** • **Self-Contained Breathing Apparatus** • **Firefighting suites**

		• **Acid handling suites etc.**
viii.	The company shall also comply with all the environment protection measures and safeguards proposed in the documents submitted to the Ministry. 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.	**We are complying all the environment protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management and risk mitigation measures viz.** • **Air quality monitoring including ambient air quality, stack emissions and meterology.** • **Water quality monitoring** • **Noise monitoring** • **Zero Liquid Effluent Discharge** • **Laboratory** • **Emergency procedures** • **Training** • **Health etc.** **are implemented.**
ix.	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.	**We have organized various CSR activities as per the CSR guidelines.** • **Provided school bags for students at Govt High School, Konghatta under the Mangala Raitha Pratibhe project.** • **Provided School Furnitures for Govt Higher Primary School ,Kamalpur ,Hospet and Govt Higher Primary School ,Hudedajali ,Koppal under the Akshara Mitra scheme** • **Provided Chairs for Govt First Grade College for women under the Akshara Mitra scheme.** • **Provided medical infrastructure to Medikeri Super Speciality ENT Center, Bengaluru.** • **Contribution to Arehole Prathishtana under community development programme.** • **Contribution to Ratha Bhavan at Vakkaleri Kolar Taluk under Mangala Raita Pratibhe program.**

x.	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	**We have undertaken many eco-developmental measures including community welfare measures in the project area. Some of the measures are,** • **Development of Miyawaki forest for Nagarika Salaha Samithi Trust under Environmental Sustainability initiative.** • **Creation of Public awareness film for educating and imparting awareness among the local public about safety & Environment aspects** • **Planting flower saplings along the median of National Highway** • **Development/maintenance of working models of industry at "Urban Ecopark" in Pilikula Nisargadhama.** • **Adoption of Animals –Feeding and maintaining Sambhar Deer species at Pilikula Biological Park.** • **Development of golf course at Pilikula.** • **Conducting Public Awareness program for educating the public about environment and safety aspects for the public in the neighboring villages, colleges etc.- Recent public awareness program was conducted on 15.09.2023 at A.J Institute of Engineering, Mangaluru.** • **Sanitation & Drinking water - Construction of toilets and providing drinking water to Government Schools under Swaccha Vidyalaya program**
xi.	A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions	**We have a well-established Environment cell and well-equipped in-house laboratory with sophisticated modern Analytical Instruments for carrying out various environmental monitoring parameters in water, wastewater and air emissions. The cell is headed by JGM – EHS&QC and is managed by qualified and trained Manager-Environment and officers.** **Regular meetings are conducted by the Environment cell. Last meeting was conducted on 18.08.2023**

xii.	The company shall earmark sufficient funds toward capital cost and recurring cost respectively to implement the conditions stipulated by the Ministry of Environment and Forests 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.	**The funds earmarked towards capital cost and recurring cost respectively to implement the conditions stipulated by the MoEF as well as the State Government / Karnataka State Pollution Control Board will not be diverted for any other purpose.** **Non-Recurring costs: Rs.27.65 crores are spent on Environmental Pollution Control Measures during NG conversion project.** **Recurring costs: Rs.3.0 crores.**
xiii.	A copy of the clearance letter shall be sent by the project proponent to the concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal.	**A copy of the clearance letter is sent to Zila Panchayat and Mangalore City Corporation and also a copy is made available to public by displaying at our company's website.**
xiv.	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, the respective Zonal Office of CPCB and the Karnataka State Pollution Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.	**Six monthly compliance status reports are submitted to monitoring agencies regularly and are posted in the website of the Company.**
xv.	The Environmental Statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned 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 respective Regional Offices of MoEF by e-mail.	**The Environment Statement for the year 2022-23 is submitted to KSPCB. It is posted on the website of the Company. It is also being sent to regional office of MOEF & CC at Bengaluru by Email.**
xvi.	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at www.moef.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least 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	**As per the condition we have advertised in English daily "Deccan Herald" and in Kannada daily "Prajavani" on 15.02.2013 about the Environmental Clearance accorded by the Ministry of Environment and Forests, Government of India for conversion of Feed Stock and Fuel to NG/RLNG in the Fertilizer Plant. A copy of the same has been forwarded to the Ministry's Regional Office, Bangalore vide letter No.10602/MoEF/1166 dated 19.02.2013.**

	concerned Regional Office of the Ministry.	
xvii.	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 the start of the project.	**We have received NG as fuel & feedstock to our plant in the month of December 2020 and the plant is running on NG as fuel & feedstock since then.**

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CHARTER ON CORPORATE RESPONSIBILITY FOR ENVIRONMENTAL PROTECTION (CREP)

Fertilizer Industry

Wastewater Management

Sl.No.	Stipulation	Compliance
1	Efforts will be made for conservation of water, particularly with a target to have consumption less than 8, 12 and 15 m3/tonne of urea produced for plant based on gas, naphtha and fuel oil, respectively. In case of plants using Naptha and Gas both as feed stocks, water consumption target of less than 10 m3/tonne will be achieved. An action plan for this will be submitted by June 2003 and targets will be achieved by March 2004.	In case of Mangalore Chemicals & Fertilizers (MCF) the average water consumption for the year 2016-17, 2017-18, 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 are, 5.31, 5.35, 5.75, 5.49, 6.20, 6.28, 6.99 m^3/MT of urea produced respectively. Thus, as our plants are based on Natural gas the water consumption is well within the target of less than 8 M^3/MT of Urea produced.
2	Use of arsenic for CO2 absorption in ammonia plants and chromate based chemicals for cooling systems, which is still continuing in some industries, will be phased out and replaced with non-arsenic and non-chromate systems by December 2003. In this regard, action plan will be submitted by June 2003.	We are using Benfield solution for CO_2 absorption in Ammonia plant ever since commissioning of our plants. Thus there is no source of arsenic. Hence there is no Arsenic waste generation or pollution due to arsenic from our industry. We have changed over chromate to non-chromate cooling water treatment programme in 1991. Thus there is no chromate waste generation or pollution due to chromate from MCF
3	Adequate treatment for removal of oil, chromium (till non-chromate based cooling system is in place) and fluoride will be provided to meet the prescribed standards at the source (end of respective process unit) itself. Action plan will be firmed up by June 2003 for compliance by March 2004.	We have procured mechanical oil skimmers for removing oil from oil separators in our plants. The oil content in final treated effluent is less than 10 ppm. We have changed over our Cooling Water treatment system from chromate to non chromate since 1991. Our DAP Plant is zero liquid effluent plant. We do not have Phosphoric Acid plant or any other process generating effluents bearing fluoride. Hence, chromium and fluoride are not present in our liquid effluent.

Sl.No.	Stipulation	Compliance
4	Proper and complete nitrification and de-nitrification will be ensured, wherever such process is used for effluent treatment, by September 2003.	MCF is employing thermal urea hydrolysis and steam stripping system for treating ammonia and urea bearing effluent streams from our Ammonia and Urea plants. We are not following any biological nitrification method for effluent treatment. Hence this clause is not applicable to MCF.
5	Ground water monitoring around the storage facilities and beyond the factory premises will be carried out at regular intervals particularly for pH, fluoride. CPCB will finalize the guidelines for groundwater monitoring by December 2003.	We are monitoring ground water by collecting and analyzing the well water outside our factory boundary. We are also analyzing the water from the test borewells provided near hermit storage area.
6	No effluent arising from process plants and associated facilities will be discharged to the storm water drain. The quality of storm water will be regularly monitored by all the industries.	We have achieved the aim of reusing the entire treated wastewater and the target of zero wastewater discharge during 2010. This is achieved by up gradation of our trade effluent and sewage treatment system by installation of Lamella clarifier, Ultrafiltration & Reverse Osmosis technology (RO) for treatment of trade effluent and Membrane Bio-reactor (MBR) technology for treatment of sewage effluent. The treated wastewater and sewage effluent streams are completely reused and there is no discharge of any effluent. The effluent streams are not discharged to storm water drain. The quality of storm water is being monitored regularly.
7	The industries, where waste water/effluent flows through the storm water drains even during the dry season will install continuous systems for monitoring the storm water quality for pH, ammonia and fluoride. If required, storm water will be routed through effluent treatment plant before discharging. An action plan will be submitted by June 2003 and necessary action will be taken by June 2004.	As mentioned in point No. 6 the effluent streams are not discharged to storm water drain. Hence this is not applicable to MCF.

Air Pollution Management

Sl.No.	Stipulation	Compliance
1	All the upcoming urea plants will have urea prilling towers based on natural draft so as to minimize urea dust emissions	Our Urea plant was commissioned in 1976 and hence not applicable to us.
2	The existing urea plants, particularly, the plants having forced draft prilling towers, will install appropriate systems (e.g. scrubber, etc.) for achieving existing norms of urea dust emissions. In this regard, industries will submit action plan by June 2003 and completion of necessary actions by June 2004.	In case of MCF, the SPM emission level from urea prilling tower is in the range of 50-90 mg/Nm^3 and is well within the stipulated limit of 150 mg/Nm^3. Hence dust scrubbing system is not necessary to our urea plant
3	The sulphuric acid plants having SCSA system will switch over to DCDA system by March 2004 to meet the emission standard for SO2 as 2 kg/tonne of H_2SO_4 produced. An action plan for this will be submitted by June 2003.	Our Sulphuric acid Plant was commissioned during 2006 and is DCDA technology.
4	Sulphuric acid plants having DCDA system will improve the conversion and absorption efficiencies of the system as well as scrubbers to achieve SO2 emissions of 2 kg/tonne of acid produced in case of plants having capacity above 300 tpd and 2.5 kg/tonne in case of plants having capacity upto 300 tpd. An action plan will be submitted by June 2003 and emission levels will be complied with by September 2004.	In our Sulphuric Acid plant SO_2 emission is <1.5 kg/tonne of acid produced
5	Stack height for sulphuric acid plants will be provided as per the guidelines and on the basis of normal plant operations (and not when the scrubbers are in use) by June 2003. The scrubbed gases are to be letout at the same height of the stack.	Stack height for sulphuric acid plant is provided as per the KSPCB guidelines and the scrubbed gases are letout at the same height of the stack.
6	An action plan for providing proper dust control system at rock phosphate grinding unit in Phos Acid/SSP Plants.	This is not applicable to MCF as we are not having Phosphoric Acid /Single Super Phosphate plants.
7	Particulate as well as gaseous fluoride will be monitored and adequate control systems	Present emission levels are well within the limits in our DAP plant. SPM level is

Sl.No.	Stipulation	Compliance
	will be installed by June 2004 to achieve the norms on total fluoride emissions (25mg/Nm^3)	in the range of 70-90 mg/Nm^3 and fluoride is <5 mg/Nm^3.
8	Continuous SO_2 emission monitoring systems will be installed in sulphuric acid plants (having capacity 200 tpd and above) by March 2004. Action plan for this will be submitted by June 2003.	Continuous SO_2 emission monitoring systems has been installed in our Sulphuric Acid plant and the system is working satisfactorily.
9	Regular monitoring of ambient air quality with regard to SO_2, NO_x, PM, SO_3, fluoride and acid mist will be carried out.	Monitoring ambient air quality with regard to SO_2, NO_x, SPM, fluoride and acid mist are being carried out.

Solid Waste Management

Sl.No.	Stipulation	Compliance
1	Gypsum will be effectively managed by providing proper lining, dykes with approach roads and monitoring of groundwater quality around storage facilities. Accumulated gypsum will be properly capped. In this regard, action plan will be submitted by June 2003 and for compliance by December 2003.	This is not applicable to MCF as there is no process plant which generates gypsum.
2	An action plan for proper handling, storage and disposal of spent catalyst having toxic metals will be submitted by June 2003 and implemented by September 2003. The industry will also explore recovery/buy-back of spent catalyst by September 2003.	Spent catalysts are sold to outside parties who are having Authorisation from CPCB for reprocessing the waste and recovery of metals.
3	Carbon slurry, sulphur muck and chalk will be properly managed and disposed of in properly designed landfill either within premises or in common facility. Action plan on this will be submitted by June 2003 and implemented by March 2004.	Sulphur Cake generated at Sulphuric Acid Plant is used as filler material in DAP Plant. There is no generation of Carbon slurry, and chalk at our industry
4	Existing stock of chromium and arsenic bearing sludge will be properly disposed by December 2003. Industries will also explore recovery of chromium from the sludge. CPCB will provide guidelines for proper disposal of the sludge.	Presently we are not generating any chromate sludge because cooling water treatment system has been changed over from chromate to non-chromate programme in September 1991. Chromate sludge generated prior to

Sl.No.	Stipulation	Compliance
		September 1991 was disposed in a secured on-site landfill during February 2006. We are using Benfield solution for CO_2 absorption in Ammonia plant ever since commissioning of our plants. Hence, we do not use any arsenic containing chemical in our plant and there is no arsenic bearing sludge generation.

Annexure-I (1)

September, 2023

A. Stack Emission Monitoring:

	Stack		PM, mg/Nm³	Fluorine, mg/Nm³
1	Urea Prill Tower	Fan A	62	--
		Fan B	77	--
		Fan C	70	--
		Fan D	88	--
2	DAP Stack		79	0.7
3	Incinerator Stack		15	--

	Stack	SO_2, mg/Nm³	NOx, mg/Nm³	Acid mist, mg/Nm³
1	Primary Reformer	BDL	93@3% O_2	--
2	IJT Boiler	Not in operation	--	--
3	Process Air Heater	BDL	--	--
4	Process N.G. Heater	BDL	--	--
5	Ammonia Converter start up heater	Not in operation	--	--
6	BHEL Boiler	BDL	98	--
7	DAP Package Boiler	Not in operation	--	--
8	Sulphuric Acid Plant Stack	581	--	24

B. Analysis of CPP Stack Emission:

Stack	SO_2, mg/Nm³	NOx, mg/Nm³	Stack	SO_2, mg/Nm³	NOx, mg/Nm³
DG # 1	Not in Operation		DG # 4	BDL	57
DG # 2	BDL	105	DG # 5	BDL	152
DG # 3	Not in Operation		DG # 6	BDL	89

C. Meteorological Data:

1	Relative Humidity, %	: 73.0 – 96.0
2	Wind Velocity, Km/Hr	: <1.0 – 12.2
3	Rainfall, mm	: 626.20
4	Barometric Pressure, mm of Hg	: 757.14 – 758.95
5	Maximum Temperature, °C	: 30.0 – 33.5
6	Minimum Temperature, °C	: 23.5 – 26.5

BDL - Below Detection Limit (5 mg/Nm³)

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Annexure I (2)

Location	Date	Particulate matter (PM_{10})	Particulate matter ($PM_{2.5}$)	Ammonia	Sulphur Dioxide	NO_x	Carbon Monoxide	Ozone (O_3)	Fluorine	Lead	Hydro carbon	Benzene	Arsenic (As)	Nickel (Ni)	Acid Mist
		$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	$\mu g/m^3$
Near CPP	02.09.2023	41	24	25	7	6	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	05.09.2023	40	21	27	6	8	<0.10	9	ND	ND	ND	ND	ND	ND	ND
	08.09.2023	38	20	23	5	6	<0.10	11	ND	ND	ND	ND	ND	ND	ND
	11.09.2023	40	18	25	<5	7	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	14.09.2023	38	20	24	7	8	0.10	12	ND	ND	ND	ND	ND	ND	ND
	18.09.2023	36	21	27	6	5	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	21.09.2023	39	25	30	5	8	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	25.09.2023	41	27	31	6	6	<0.10	12	ND	ND	ND	ND	ND	ND	ND
	29.09.2023	43	22	28	5	7	<0.10	10	ND	ND	ND	ND	ND	ND	ND
Near Canteen	02.09.2023	37	27	28	6	7	<0.10	13	ND	ND	ND	ND	ND	ND	ND
	05.09.2023	45	20	28	5	7	<0.10	14	ND	ND	ND	ND	ND	ND	ND
	08.09.2023	42	21	30	6	8	<0.10	9	ND	ND	ND	ND	ND	ND	ND
	11.09.2023	43	20	27	6	6	<0.10	12	ND	ND	ND	ND	ND	ND	ND
	14.09.2023	42	23	28	<5	9	<0.10	14	ND	ND	ND	ND	ND	ND	ND
	18.09.2023	40	24	29	7	6	<0.10	13	ND	ND	ND	ND	ND	ND	ND
	21.09.2023	37	29	35	5	7	<0.10	14	ND	ND	ND	ND	ND	ND	ND
	25.09.2023	36	31	36	7	6	<0.10	11	ND	ND	ND	ND	ND	ND	ND
	29.09.2023	39	30	30	6	7	<0.10	13	ND	ND	ND	ND	ND	ND	ND
Near Distribution Office	02.09.2023	49	29	30	5	8	<0.10	12	ND	ND	ND	ND	ND	ND	ND
	05.09.2023	49	22	32	<5	7	<0.10	12	ND	ND	ND	ND	ND	ND	ND
	08.09.2023	48	21	34	6	7	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	11.09.2023	45	22	30	5	8	<0.10	12	ND	ND	ND	ND	ND	ND	ND
	14.09.2023	46	21	32	<5	7	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	18.09.2023	43	26	28	6	7	<0.10	11	ND	ND	ND	ND	ND	ND	ND
	21.09.2023	42	31	37	6	5	<0.10	12	ND	ND	ND	ND	ND	ND	ND
	25.09.2023	44	33	38	5	5	<0.10	9	ND	ND	ND	ND	ND	ND	ND
	29.09.2023	46	31	32	6	6	<0.10	10	ND	ND	ND	ND	ND	ND	ND
Near 18 MG Reservoir	02.09.2023	35	17	21	5	<5	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	05.09.2023	33	18	19	<5	6	<0.10	11	ND	ND	ND	ND	ND	ND	ND
	08.09.2023	34	17	17	<5	6	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	11.09.2023	36	18	16	6	<5	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	14.09.2023	32	19	18	6	6	<0.10	11	ND	ND	ND	ND	ND	ND	ND
	18.09.2023	30	18	19	6	<5	<0.10	9	ND	ND	ND	ND	ND	ND	ND
	21.09.2023	32	19	22	<5	<5	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	25.09.2023	30	21	24	5	<5	<0.10	10	ND	ND	ND	ND	ND	ND	ND
	29.09.2023	32	17	20	<5	<5	<0.10	9	ND	ND	ND	ND	ND	ND	ND

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Annexure- II

Urea Prill Tower

Month	Stack	*SPM, mg/Nm³*
April 2023	Fan A	59
	Fan B	62
	Fan C	75
	Fan D	86
May 2023	Fan A	69
	Fan B	76
	Fan C	82
	Fan D	79
June 2023	Fan A	64
	Fan B	72
	Fan C	83
	Fan D	28
July 2023	Fan A	62
	Fan B	71
	Fan C	80
	Fan D	78
August 2023	Fan A	59
	Fan B	80
	Fan C	76
	Fan D	81
September 2023	Fan A	62
	Fan B	77
	Fan C	70
	Fan D	88

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Annexure - III

Ambient Air Quality inside MCF premises from April 2023 to September 2023

Details		Particulate Matter (size less than 10 µm) or PM_{10}, $\mu g/m^3$	Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$, $\mu g/m^3$	Ammonia $\mu g/m^3$	Sulphur Dioxide as (SO_2) $\mu g/m^3$	Oxides of Nitrogen as (NO_2) $\mu g/m^3$	Ozone (O_3) $\mu g/m^3$	Carbon Monoxide (CO) mg/m^3	Hydrocarbon $\mu g/m^3$	Fluorine $\mu g/m^3$
National Ambient Air Quality Standard for Industrial Area (24 hours)		100	60	400	80	80	100 (8 hour)	4 (1 hour)	Not specified	Not specified
April 2023	Maximum	59	29	58	7	14	16	<0.1	ND	ND
	Minimum	35	18	18	<5	<5	10	<0.1		
May 2023	Maximum	59	28	46	8	14	18	<0.1	ND	ND
	Minimum	30	18	17	<5	5	10	<0.1		
June 2023	Maximum	55	27	41	7	12	15	<0.1	ND	ND
	Minimum	32	16	15	<5	<5	9	<0.1		
July 2023	Maximum	51	29	37	8	9	13	<0.1	ND	ND
	Minimum	32	15	15	<5	<5	8	<0.1		
August 2023	Maximum	52	32	39	6	9	14	<0.1	ND	ND
	Minimum	30	19	20	<5	<5	9	<0.1		
September 2023	Maximum	49	33	38	7	9	14	<0.1	ND	ND
	Minimum	30	17	16	<5	<5	9	<0.1		

ND – Not detectable

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Annexure- IV

CONTINUOUS ONLINE MONITORING SYSTEMS

Values from Continuous online monitoring systems for the period: **01.04.2023 to 30.09.2023**

Month	Parameter	Analyser Values (in mg/l except for pH)	
		Min.	Max.
April 2023	pH	6.7	7.2
	Ammoniacal Nitrogen, mg/l	0.2	1.25
	TSS, mg/l	5	9
May 2023	pH	6.8	7.4
	Ammoniacal Nitrogen, mg/l	0.1	1.6
	TSS, mg/l	5	8
June 2023	pH	6.8	7.6
	Ammoniacal Nitrogen, mg/l	0.1	1.4
	TSS, mg/l	6	10
July 2023	pH	6.7	7.5
	Ammoniacal Nitrogen, mg/l	0.1	1.5
	TSS, mg/l	5	11
August 2023	pH	6.7	7.4
	Ammoniacal Nitrogen, mg/l	0.1	1.4
	TSS, mg/l	4.5	8
September 2023	pH	6.6	7.5
	Ammoniacal Nitrogen, mg/l	0.1	1.5
	TSS, mg/l	5	10.5

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Annexure- V

ANALYSIS OF GROUNDWATER SAMPLE

Date of sampling: 26.08.2023

Sl. No.	*Parameters*	*Borewell No. 1*	*Borewell No. 2*	*Borewell No. 3*
1	Chromium (Cr), ppm	<0.1	<0.1	<0.1
2	Nickel (Ni), ppm	<0.1	<0.1	<0.1
3	Lead (Pb), ppm	<0.1	<0.1	<0.1
4	Zinc (Zn), ppm	<0.1	<0.1	<0.1
5	Iron (Fe), ppm	<0.1	<0.1	<0.1
6	Cadmium (Cd), ppm	<0.1	<0.1	<0.1
7	Dissolved solids ,mg/l	13	10	16

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Annexure- VI

NOISE LEVELS AT PLANT BOUNDARY

Noise Levels monitored at the plant boundary for the period: **01.04.2023 to 30.09.2023**

Month	Location	Noise Level in dB(A)	
		Day	Night
April 2023	Near Administration Building	59	55
	Near Captive Power Plant	66	61
	Near Hermit Storage	58	55
	Near 18 MG Reservoir	56	51
	Near Main Gate	66	62
May 2022	Near Administration Building	56	51
	Near Captive Power Plant	64	60
	Near Hermit Storage	55	52
	Near 18 MG Reservoir	55	50
	Near Main Gate	65	60
June 2023	Near Administration Building	58	52
	Near Captive Power Plant	63	59
	Near Hermit Storage	55	51
	Near 18 MG Reservoir	57	50
	Near Main Gate	66	61
July 2023	Near Administration Building	58	50
	Near Captive Power Plant	64	58
	Near Hermit Storage	57	50
	Near 18 MG Reservoir	58	51
	Near Main Gate	64	60

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August 2023	Near Administration Building	60	53
	Near Captive Power Plant	63	57
	Near Hermit Storage	58	51
	Near 18 MG Reservoir	57	50
	Near Main Gate	66	58
September 2023	Near Administration Building	60	51
	Near Captive Power Plant	61	56
	Near Hermit Storage	59	50
	Near 18 MG Reservoir	58	50
	Near Main Gate	65	57

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Annexure- VII

ANALYSIS OF TREATED EFFLUENT FROM WASTEWATER RECOVERY UNIT

Date of sampling: 23.09.2023

Sl. No.	*Parameters*	*Lamella Clarifier*	*Urea Hydrolyser Stripper*	*Reverse Osmosis Unit*
1	pH	7.6	7.8	7.1
2	Turbidity, NTU	5.8	<1.0	<1.0
3	Total Dissolved Solids, ppm	46	<10	29
4	Ammoniacal Nitrogen, ppm	<5	<5	<5
5	Nitrate, ppm	<5	<5	<5
6	Fluoride, ppm	ND	ND	ND

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