GREENSTAR

Ref: S &E/E-23/20

Date: 29.04.2020

To
The Director
Ministry of Environment and Forest
I. A. Division
Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi - 110 003

Sub: Half Yearly Compliance Status Report for Environmental Clearance -Reg

Ref:

1. **Ministry's clearance Lr.No.J-11011/15/86/IA dated 28.07.87.**
2. **F.No. J-11011/171/2007- IA II (I) Dated : March 5, 2008**
3. **F.No J -11011/620/2009 IA-II(I) dated 18.03.2010.**
4. **F.No.J-11011/123/2014-IA-II(I),Dt:30.05.2018**
5. **No J -11011/620/2009 IA II (I) dated 11.01.2019**
6. **F.No. J-11011/171/2007- IA II (I) Dated : May 20, 2019**

Dear Sir,

With reference to the above Environmental Clearances, we are herewith submitting the Compliance Status Report (Half yearly compliance report) for the period ending October 2019 to March 2020.

Thanking you,

Yours faithfully,
For "**Greenstar Fertilizers Limited**"

E.Balu-E
29/04/2020

E.Balu
Chief Operating Officer
Encl:

1. Half Yearly Compliance Report
2. Half yearly monitoring report.

மாசுக்கட்டுப்பாடு வாரியம் அலுவலகம்
தூத்துக்குடி
11 MAR 2020
Pollution Control Board

CC: i) District Environmental Engineer, Tamil Nadu Pollution Control Board, Tuticorin.

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GREENSTAR FERTILIZERS LIMITED
SPIC NAGAR, TUTICORIN – 628 005

Sub: Environmental clearance for substantial expansion of Di-Ammonium Phosphate by retrofitting.

Ref: Ministry's clearance Lr.No.J-11011/15/86/IA dated 28.07.87.

Specific conditions:

S.NO	Specific conditions:	Compliance Status
1	A two stage fluoride removal system must be installed, to achieve fluoride concentration of 10 mg/l conform to the MINAS.	Two stage fluoride removal systems installed to recover fluorine in phosphoric acid plant and also to achieve fluoride concentration. We have achieved fluoride concentration of 10 mg/l to conform MINAS. Fluorine is recovered as Hydroflouro silicic acid and reacted with aluminum hydroxide to produce aluminum fluoride.
2	Thermal urea hydrolyser stripper must be installed in case of performance of the bio-hydrolyser system is not found satisfactory. Monthly report on the performance of the bio-hydrolyser should be made available to this Ministry and to the Central Pollution Control Board.	Process effluent generated in Urea plant is completely recycled to plant. Hence bio-hydrolyser treatment system has been removed since 2000. (Now the unit is with M/s SPIC Limited)
3	LSHS must be used in heaters/boiler/CPP. No fuel oil may be used.	We are using naphtha as fuel In our fired heaters. Regarding the boilers, earlier, LSHS was used in auxiliary boilers and off-site boilers but subsequent to the commissioning of fluidized catalytic units at Cochin Refineries, Indian Oil Corporation is unable to supply the requirement of LSHS for our boilers. LSHS non-availability has been presented to the Director, MOEF, New Delhi vide our letter ED/EMD/01 dt. 20-2-2001. We have also informed to the Ministry of Fertilizers and Chemicals vide our letter dt.24.08.2000. Hence, due to the non-availability of LSHS, fuel oil

		is being used in our auxiliary and off-site boilers. Because of various energy conservation methods in SPIC, the offsite boilers are stopped and kept as stand by and the total fuel oil consumption in our boilers has been reduced to nearly 8 KL/hr. (Now the unit is with M/s SPIC)
4	Existing lagoon outside the plant premises should not be used for effluent collection. The finally treated effluent should be discharged into the sea, via, guard ponds only.	Existing lagoon outside the plant premises is not used for effluent collection. The final treated effluent is reused in Greenstar plant for process. Occasionally it is discharged in to the sea via guard pond. (Now the unit is with M/s SPIC)
5	Sludge disposal site must be made impervious to prevent ground water contamination.	The generated Chromium and arsenic sludge are encapsulated in lined pit as per CPCB guidelines in the year 2006. We have adopted alternate technology and because of this chromium and arsenic are not used in the process at present. (Now the unit is with M/s SPIC)
6	Three fixed ambient air quality-monitoring stations should be set up in consultation with Tamilnadu Pollution Control Board for continuous monitoring of SO2, NH3 and SPM. Sensors should be provided to detect P_2O_5, SO2 and NH3 at vulnerable points within the battery limits of the plant.	We have installed 9 Nos of permanent ambient air monitoring stations. 4 along the plant boundary and 5 Nos. outside the plant premises, based on the wind rose diagram of the site in consultation with Tamilnadu Pollution Control Board. The constituents namely SO2, NO2, NH3, F, SPM are monitored regularly in nine stations simultaneously. We have provided ammonia gas monitors / sensors at vulnerable locations in Ammonia and Urea Plants. In addition to Ambient Air Quality Survey (AAQS), the Online AAQMS Unit also has been provided and ambient air quality data is being uploaded to TNPCB care air center since March 2012 and scrolling has been provided at the entrance of the factory to the general public. The parameters displayed are NH3, SO2, NOx, HF, PM10, and PM2.5 apart from Relative humidity, Temperature, Wind speed, Wind direction.

7	The unit should install continuous waste water monitoring system for measuring the following parameters. Flow, pH, Fluorine, AN, TKN and Arsenic.	Continuous on-line analyzer has been installed at the exit of Guard pond for the analysis of various parameters in the treated effluent like pH. The samples of final treated effluent are closely monitored once in two hours for flow, pH and Ammonical nitrogen. Flow meters with integrator have been provided at the inlet of IETP, sea disposal line and treated effluent reuse line and in garden water line. The parameters Fluoride, Sulphate, Phosphate, Chloride, Oil & grease, COD and BOD are analyzed in the discharged water regularly. Continuous on-line analyzer for pH, Ammonia,TSS and flow meter for treated effluent were installed and uploaded to TNPCB and CPCB. (Now the unit is with M/s SPIC)
8	Ground water should be monitored regularly in pH, TDS, Arsenic, Nitrate nitrogen and Fluoride.	Ground water is being monitored regularly. Samples from 19no. Sampling wells around the plant area are collected once in a month and complete analysis is done for pH, TDS, Nitrate nitrogen, Fluoride, and Arsenic.
9	Treated waste water samples should also be collected from upstream (100m) and downstream (100m) of the confluence point in the open channel before final discharge into sea for measuring pH, Ammoniacal nitrogen, Phosphate as P, Fluoride, Arsenic, Oil and grease.	Treated effluent from IETP is reused in Phosphatic Fertilizer plant to the maximum extent and a small quantity of the excess treated effluent is disposed off into sea through a sub-merged pipe line under pressure at a distance of 1 km, inside sea and not through open channel. At the discharge end, a multi-port diffuser is provided in the outfall. The quality of coastal water near the diffuser end and 100 meter away from diffuser in open sea is monitored for pH, AN, Phosphate, Fluoride, Arsenic, Oil and Grease. The treated effluent from guard pond is regularly monitored to ensure the quality before discharging into sea. (Now the unit is with M/s SPIC)
10	The project authorities should change over from vetrocoke system to any other system where arsenic is not used in the scrubbing solution. During such time as vetrocoke system is continuing, adequate measures must be adopted to fully control arsenical effluent	From July 1998 onwards glycine is used as the scrubbing solution instead of arsenic and hence there is no generation of arsenic bearing sludge. As per supreme court monitoring committee the entire Arsenic bearing waste available (115.70MT) has been stabilized, solidified and encapsulated in a lined concrete pit.

	discharge and sludge disposal.	(Now the unit is with M/s SPIC)
11	A green belt must be developed within the battery limits of the SPIC	Tree plantation has been done covering almost all The vacant areas in and around the plant and township. Diversified saplings have been planted and well maintained. Plantation area is around 33% of the plant area. Every year during World Environment Day plantation drive is being organized to develop green belt.
12	All monitoring reports must be sent to the State Pollution Control Board and this ministry regularly without fail.	Reports being sent to Tamilnadu Pollution Control Board once in a month and Quarterly Report is being sent to Central Pollution Control Board and Quarterly Monitoring reports are regularly sent to MOEF.
13	The ministry reserves the right to change the above stipulations or impose any additional condition(s) to protect the environment, if considered necessary at any time.	Agreed to follow / obey the condition(s) imposed by The Ministry to protect the environment.

GREENSTAR FERTILIZERS LIMITED
SPIC NAGAR, TUTICORIN – 628 005

ENVIRONMENTAL CLEARANCE FOR ENHANCED PRODUCTION AT SPIC, TUTICORIN

F.No. J-11011/171/2007- IA II (I) Dated : March 5, 2008

Half Yearly Compliance Status Report

S.No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
1	There shall be no addition of 'Pollution Load' due to the expansion. The unit shall shift to Natural Gas as fuel within next three years.	There is no addition in the 'Pollution Load' due to enhanced production as per the study report of IIT professor. The following actions were taken a) SPIC has already taken initiative for the conversion. Basic engineering has already been completed with M/s

		Haldor Topsoe. b) SPIC is in the process of getting natural gas from Ramanathapuram area through IOC. c) IOC is in the process of laying dedicated gas pipe line between Ramanathapuram to Tuticorin. d) Environmental clearance was obtained from MoEF for the changeover of feedstock from Naphtha to mixed feed stock (Naphtha and Natural gas) on 28.03.2017 e) We have obtained consent to establish for expansion vide consent order no. 1906227778730 for Air Act and Consent order no. 1906127778730 Water Act Dated : 07/11/2019. From Tamilnadu Pollution control Board. (Now the unit is with M/s SPIC)
2	The gaseous emission [SO_2, NO_x, NH_3, and Urea Dust & Fluoride] and particulate matter from various process units shall conform to the prescribed norms by the concerned authorities from time to time. At no time, the emission levels shall go beyond the stipulated standards. The stack height shall be as per the CPCB guidelines. In the event of failure of pollution control system[s] adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Further, the company shall interlock the production system with the pollution control devices.	The gaseous emissions (SO2, NOx, NH3 and Urea Dust & Fluoride) and particular matter from various process units are monitored on monthly basis and the emission levels are within limits. The unit will be put off in the event of failure of pollution control system and we will restart only after rectifying the control measures to achieve the desired efficiency. The stack height is as per CPCB guidelines. Interlocking system is provided in the pollution control devices. Company has taken all measures 1. Sulphuric acid plant converter catalyst (has been renewal at a cost of Rs.4.4 crores helped achieve less than 1.0 Kg/T of SO_2 emission. 2. Tail Gas scrubber has been installed at Sulphuric acid plant to keep the emission always under norms even during start up and shut down. 3. Reformer burners 90 numbers were replaced with low NOx burners. 4. Additional scrubber was provided in

		DAP and SSP plant to reduce fluoride emission. 5. To reduce Ammonia and urea dust in Prilling tower, spray water system is arranged. (Units - Ammonia and Urea plants are now with M/s. SPIC)
3	The limits for various pollutants should be within the prescribed limits. Set of dry and wet Cyclones along with a stack shall be provided. The total Particulate emission from all the plants shall be within 50 mg/Nm^3.	We have provided two sets dry cyclone and one set of wet cyclone with stacks to limit the pollutant within 50 mg/Nm3. (Now the unit is with M/s SPIC)
4	SO_2 emission level shall be 2 kg/T of the 100% H_2SO_4 produced and Acid Mist concentration shall be within 10 mg/nm^3. Monitoring of Prilling Tower shall be carried out as per the CPCB Guidelines. Recovered Hydrofluro Silicic Acid from the Fluorine recovery unit shall be reused in the process.	The SO2 emissions from Sulphuric acid plants stack is below 1Kg/T of H2 SO4 produced and acid mist concentration is within 10 mg/nm3. Sulphuric acid plant converter catalyst has been renewal at a cost of Rs.4.4 crores helped achieve less than 1.0 Kg/T of SO_2 emission. Online analyzers for particulate matter and ammonia have been installed in urea prilling tower and the real time data are connected to TNPCB and CPCB. Hydro-flurosilicic acid is recovered by operating the fluorine recovery unit and used for manufacturing of Aluminum Fluoride. (Urea plant is now with M/s. SPIC)
5	Regular monitoring of ambient air quality for SPM, RPM, SO_2, NO_x, NH_3, and Urea Dust & Fluoride shall be carried out. The location of existing ambient air quality monitoring stations shall be reviewed in consultation with the State Pollution Control Board and additional stations shall be set up, if required. It shall be ensured that stations are in the downwind directions as well as where maximum ground level concentration are anticipated.	Ambient Air Quality monitoring is being carried out regularly for SPM, RPM, SO_2, NO_x, NH_3, Urea Dust and Fluoride by our Environment monitoring cell manually twice a week at 9 locations, in which 4 locations are located inside the factory premises and 5 are outside the factory premises. The location of existing ambient air quality monitoring stations were set up in consultation with TNPCB and the predominant downwind direction and where maximum ground level concentrations are anticipated are also included. In addition to this Continuous Online ambient

		Air Quality monitoring stations are provided one each in M/s SPIC and M/s Greenstar and the data of PM10, PM2.5, SO_2, NH_3, and NO, NO_2, NOx, wind direction, wind speed, RH and temperature are transferred to Care Air Centre, TNPCB Chennai.
6	Fugitive emissions in the bagging plant shall be controlled through two wet de-dusting systems. Urea dust laden air from various dust emission points will be sucked through and sent to the dust chambers and scrubbers. The scrubber liquor will be sent for urea recovery system and urea plant. Cyclone separators/Bag Houses will be provided at transfer points for controlling urea dust. Dust collected at these points will be reprocessed in the urea plant.	Urea from plant is directly sent to Urea Bagging plant for bagging most of the time. It is transported through rubber belt soft conveyors. Only one transfer point is provided. Closed SS duct is provided in transfer points to avoid fugitive emissions. Electronic Packer scale weighers are provided which eliminates manual handling and avoid fugitive emission. Urea dust laden air from various dust emission points are sucked through and sent to the dust chambers and scrubbers. The scrubber liquor is sent for urea recovery system of urea plant. Cyclone separators are provided at transfer points for controlling urea dust. Dust collected at these points are collected and reprocessed in the urea plant. (Units- Urea plant and Urea Bagging plant are now with M/s. SPIC)
7	The fugitive emissions in the work zone environment, product, and raw material storage area shall be regularly monitored as per the guidelines of CPCB and data shall be submitted to the concerned authorities. The fugitive emissions shall be controlled and conform to the limits prescribed by the CPCB in future.	Adequate measures like routine maintenance, preventive maintenance of equipment etc. are taken to control fugitive emissions in the work zone environment, product raw material storage area. Regular monitoring of fugitive emission as per the guidelines of CPCB is carried out and data is submitted to the concerned authorities. The fugitive emission confirms to the limits prescribed by the CPCB.
8	There shall be no increase in the water consumption and waste water generation. Efforts shall be made for water conservation to achieve water consumption less than $8m^3$/ton of urea	There is no increase in water consumption and waste water generation. We have reduced water consumption by adopting various conservation measures and the present water consumption for Urea is less than 8 m3 per ton

	produced. All discharge of waste water shall be through the Marine outflow system. No effluent arising from the process plants and associated facilities shall be discharged to the storm water drain. The quality of storm water shall be regularly monitored.	of urea produced. The effluent is treated in integrated effluent treatment plant. Some portion of the treated effluent is discharged in to sea occasionally. Quality of Storm water is regularly monitored. (Now the unit is with M/s SPIC)
9	Regular monitoring of ground water by installing piezometric wells around the guard pond and sludge disposal sites for all relevant parameters including pH, fluoride and ARSENIC shall be periodically monitored and report shall be submitted to the concerned RO of the Ministry, CPCB and State Pollution Control Board. Adequate number of influent and effluent quality monitoring stations shall be set up in consultation with the State Pollution Control Board.	Ground water quality is monitored at 19 locations by our Environment Monitoring Cell on monthly basis. All the stipulated parameters are monitored. 4 Peizometric wells are located around the arsenic encapsulation and 4 Peizometric wells are provided around chromium encapsulation locations. Parameters including pH, fluoride and arsenic are periodically monitored and the report is submitted to the RO of the Ministry, CPCB and State Pollution Control Board.
10	2.5 TPA of Sulphur Sludge, 14m^3/yr of Spent Nickel Catalyst, 3m^3/yr of Spent Co, Mo Spent Catalyst, 20m^3/yr of Spent Iron Catalyst, 4m^3/yr of Spent ZnO Catalyst & 5m^3/yr V_2O_5 catalyst and 250 Kg/d of Calcium Carbonate sludge shall be sent to the Secured Landfill site within the premises. 30 Kl/yr of Used oil shall be stored in leak proof steel drums for sale to registered recyclers ad 700 Used batteries shall be sold to authorized reprocesses.	The sulphur sludge and calcium carbonate sludge is completely reused (in house) as filler material in DAP plant. Spent nickel catalyst, spent Co, Mo and spent iron catalyst and spent ZnO catalyst were sent to Tamil Nadu Waste Management Ltd. V2O5 catalyst of M/s Greenstar fertilizers Ltd, is sent to Tamil Nadu Waste Management Ltd. Used oil is stored and disposed to authorized recyclers. Used batteries are given to the approved recyclers.
11	All safety precautions, as submitted to Ministry shall be installed and undertaken. Adequate protection measures for handling of Ammonia vapours in case of process upset condition shall be undertaken. Safety valve exhaust and drains shall be connected to a separate close header from which Ammonia vapours shall be vented from vent stack after diluting the	All safety precautions as submitted to Ministry are implemented. Adequate protection measures for handling of Ammonia vapors in case of process upset condition are undertaken. Safety valves' exhaust and drains are connected to a separate closed header from which Ammonia vapor is vented from vent stack after diluting the stream.

	stream.	
12	The project authorities shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October 1994 and January 2000 and Hazardous Wastes [Management and Handling] Rules, 2003 along with Emergency Preparedness Rules. Authorization from the State Pollution Control Board must be obtained for collection / treatment / storage / disposal of hazardous wastes, if any.	All the rules and regulation under MSIHC Rules 1989 are being followed. On Site Emergency drills are being carried out as per approved plan. We have obtained separate authorization for M/s SPIC and M/s Greenstar Fertilizers Limited.
13	The company shall strictly follow all the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection [CREP].	✓ Water consumption of the unit per MT of Urea produced (Naphtha based) is less than 8 m^3/MT. ✓ The unit has adopted glycine based technology for absorption system in Ammonia plant in June 1998. ✓ Cooling water systems were switched over to non-Chromate based treatment programme in 1998. ✓ There is no process effluent in urea plant as everything is recycled back to the process. ✓ The nitrogenous fertilizer plant effluent mainly the cooling tower blow down is collected in effluent sumps and then sent to integrated effluent treatment plant for treatment ✓ No effluent is discharged into storm water drain. ✓ The storm water quality is monitored during the time of monsoon. ✓ Urea Prilling tower is based on forced draft system. The air pollution control equipment have been installed to

		reduce the concentration of pollutants. ✓ In M/s. Greenstar Fertilizers Limited phosphoric acid plant, four stage off gas recovery system has been installed in addition to turbulent contact absorber (TCA - 3) for scrubbing of fluoride present in emission gases The total fluoride concentration at the exit of TCA -3 and HH Off gas stack is maintained below 10 mg/Nm^3. ✓ Tail gas scrubber is provided in sulphuric acid plant at a cost of 80 lakhs. ✓ Gypsum is disposed to cement manufacturing units and is also utilized in agriculture as a soil conditioner. ✓ The spent catalysts are collected in mild steel drum and disposed to Tamilnadu Waste Management Limited. (Urea plant is now with M/s. SPIC)
14	The company shall install rainwater harvesting systems from the rooftops of the buildings and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	We have provided Rain water harvesting system for storm water collection as well as for roof top collection and the collected water is used for various activities.
15.	33% of the total land area shall be developed as green belt in consultation with DFO. The Green Belt shall be as per the CPCB Guidelines.	We have taken up plantations within the project sites and the colony areas by covering more than 33 % of the total land area. Area | SPIC | Greenstar | Township | Combined Total area (Hectares) | 47.11 | 56.28 | 118.723 | 222.113 Greenbelt Area (Hectares) | 15.98 | 19.6 | 103.648 | 139.228 % Greenbelt area | 33.92 % | 34.82% | 87.30% | 62.68%

B) General Conditions:

S.NO	GENERAL CONDITIONS	COMPLIACE STATUS
1	The project authorities shall strictly adhere to the stipulations made by the state pollution control board.	All the stipulations made by the state Pollution Control Board are strictly adhered.
2	No further expansion or modification in the plant shall be carried out without prior approval of the MoEF.	We ensure No further expansion or modification in the plant was carried out without prior approval of the MoEF.
3	The Project proponent shall also comply with all the Environmental protection measures and Safe guards recommended in the EIA / EMP report.	We have complied with all the Environmental protection measures and safe guards recommended in the EIA / EMP.
4	Industrial waste water shall be properly collected and treated so as to conform to the standards prescribed under the EP Act 1986 for Marine discharge norms.	Cooling tower blow down water is collected and treated in Integrated Effluent Treatment Plant and reused in M/s Greenstar Fertilizers Limited and a small portion of this is discharged into sea after confirming its quality. The treated and untreated effluent is also monitored by our Environment Monitoring Cell on monthly basis. In addition to this continuous online effluent monitoring system also has been installed for pH, Ammonical nitrogen, flow and TSS - real time data is being uploaded on the web site of TNPCB and CPCB. (Now the unit is with M/s SPIC)
5	The overall noise level in and around the plant area shall be kept well within the standard by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generations	Noise level is monitored at 4 locations along the factory boundary at day and night time. The noise levels are within limit. We have provided noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generations.
6	Proper Housekeeping and adequate occupational health programmes shall be carried out and records shall be maintained for at least 30 – 40 years. The programmes	We are maintaining good housekeeping. We have an Occupational Health (OH) Centre with a full time doctor and supporting staff. OH tests including lung

	shall include lung function and sputum test, besides the regular tests, once in 6 months, sufficient preventive measures shall be adapted to avoid direct exposure to dust etc.,	function test, sputum tests, audiometry and regular tests are carried out for all employees as per the Factory's Act and records are maintained. Preventive measures are adopted to avoid direct exposure.
7	A separate environmental management cell equipped with full-fledged laboratory facilities shall be set up under the control of a senior executive.	A separate environmental management cell equipped with full-fledged laboratory facilities is available. The Environment Management Cell is having 3 Environment engineers and Lab chemists and they are reporting to Senior Manager Safety and Environment, who in turn is reporting to the Top Management.
8	Adequate funds shall be ear marked to meet the capital cost and recurring cost per annum for the Environmental protection measures. The amount so earmarked shall be used judiciously to implement the conditions stipulated by the MoEF as well as the state Government. The funds so provided shall not be diverted for any other purpose.	We have allocated adequate funds are being provided to implement the conditions stipulated by the Ministry of Environment and forest as well as the State government along with the implementation schedule for all the conditions stipulated. The funds are not diverted for other purpose. Expenditures for Environmental protection measures include a) Flameproof AAQMS Apparatus for tank farm area at the cost of 2.0 lakhs. b) Bio Assay study was carried out at the exit of IETP – Rs 40,000 c) Revamping of AAQ monitoring station with new analyzers to measure additional parameters and erection of new display board and uploading of the data to Care Air Centre, TNPCB, Chennai at a cost of Rs. 55 Lakhs. d) We have installed another AAQ continuous monitoring station for

		M/s Greenstar Fertilizers Limited at a cost of Rs.55 Lakhs. e) Replacing of the SA Plant Converter Catalyst at a cost of Rs.4.4 crores. Analysis reports are being submitted to regional office on half yearly basis. f) SA Plant FAT modification job to increase SO_2 Absorption efficiency was carried out at a cost of Rs.1, 80,375. g) Startup scrubber has been provided in sulphuric acid plant at a cost of Rs.80 Lakhs. h) Online continuous emission monitoring of ammonia has been installed in both DAP and Complex fertilizers stack at a cost of Rs.30 lakhs (per stack) and Reformer stack SO2 analyzer at a cost of Rs.30 lakhs and NOx analyzer at the cost of 1 lakhs. i) Online continuous monitoring for HF has been installed in DAP and PA plant at a cost of Rs.30 lakhs. j) Online HF analyzer has been installed for ambient air monitoring at a cost of Rs.21lakhs k) Online PM analyzer has been installed in DAP and SSP plant RG mill stack at a cost of Rs.6.25 lakhs. l) Online HF analyzer ordered for SSP, DAP II and PA stacks at the

		cost of Rs. 45 lakhs.
9	The company shall under take the welfare measures and the community development measures for the local people in the vicinity of the project area.	We have undertaken many measures for improving the socio economic condition of the local people in the surrounding area. We are rendering community service like running health center, Cheshire home etc., free medical camps. Blood donation camps ,Eye camps Polio vaccination campaigns, tree plantation , distribution of groceries are being conducted by Spic Nagar Rotary club every year. M/s SPIC and Greenstar are conducting medical camp in near by villages such as Soosai nagar and Muthiapuram using Mobile health van M/s SPIC has constructed Toilet building, Hand washing unit under "Clean India project" carried out at Mukkani government school, Two numbers RO unit constructed at Kulayiankarisal govt school, 35 numbers of calibers and structures at a worth of 1.5 lakhs given physically challenged people, building, water tank at St Antony's High school in M. Xavierpuram. Synthetic water tank and accessories were provided by SPIC Nagar rotary club to M. Thangamal puram. Panchayat union primary School Pottalkadu and Panchayat union middle school has been adopted by SPIC Nagar Lions club. Free note books are being distributed every year to the poor students. Coastal Cleanup drive is being organized every year to put forth the importance of safeguarding the marine ecosystem. In coordination with District authorities, M/s SPIC has participated in Desilting of water bodies and removal seemaikaruvelam trees.

		In association with Tuticorin Administration has introduced Reverse Vending Machines at Muthu Nagar beach, Tuticorin for disposal of Waste Plastic Bottles at a cost of Rs. 12 lakhs to promote plastic free district drive. 24 hours drinking water facility for the Soosai nagar residents were provided and improved the existing common bathroom structure for better usage at a cost of Rs. 44,55,000. Wide spread programs were conducted on "Beat plastic pollution". We have also supported District administration for de silting of Uppathu odai canal. AM Foundation donates 'Container Primary Health care Centre – A first of its kind Medical Facility in South India to Tuticorin Corporation' at a cost of Rs. 4o Lakhs. Rotary club of SPIC nagar donates, Rs. 800000 for 8 year old child Heart Operation. We have Constructed Community Hall at nearby village at a cost of Rs. 12 lakhs . Solar power plant at a cost of Rs. 1.25 lakhs for old Age homes.
10	Concerned regional office of this Ministry state pollution control Board / CPCB shall monitor the implementation of the stipulated conditions. Six monthly compliance status report and monitoring data along with statistical interpretation shall be submitted to them regularly and shall be placed on the web site of the company	Compliance status report is being submitted regularly by the unit to MoEF, RO once in six months and for others on monthly basis. Compliance status report is uploaded on the Company's Website.
11	The project proponent should advertise in 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, informing that the project has been accorded environmental clearance by the ministry and copies of the clearance	Newspaper advertisements were given in two local newspaper and copies of the same were submitted to MoEF, RO.

	letter are available with the SPCB/ Committee may also be seen at the website of the ministry and forest at http/'enviro.nic/in. The advertisement should be made within seven days from the date of issue of the clearance letter and a copy of the same should be forwarded to the concerned regional office of the ministry.	
12	The project authorities shall inform the regional office as well as the ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Information was provided and Project was completed.

GREENSTAR FERTILIZERS LIMITED
SPIC NAGAR, TUTICORIN – 628 005

Sub: SSP Unit Environmental Clearance-Half Yearly Compliance Status Report

Ref: No J -11011/620/2009 IA-II(I) dated 18.03.2010 – In the name of M/s SPIC Limited

A.SPECIFIC CONDITIONS

S.NO	SPECIFIC CONDITION	COMPLIANCE STATUS
1	The gaseous emissions from various process units shall conform to the standards prescribed by the consent authorities from time to time. The state pollution control board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time the emissions level should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control measures are rectified to	The gaseous emission is monitored on monthly basis and the emission levels are within the limit and at no time the emission level has gone beyond the prescribed standards. We shall shut down the unit in the event of failure of any pollution control system adopted and it will be restarted only after ensuring the accurate functioning of the

	achieve the desired efficiency.	control measures provided.
2	There should be no process effluent generation. The scrubbed effluent from the fluorine scrubber shall be recycled back in the process. The domestic effluent after treatment shall be used for green belt development.	There is no process effluent generation in the Single Super Phosphate unit. The water used in the fluorine scrubber unit is recycled back in the process. The domestic effluent from plant and township is treated in 700 KLD sewage treatment plant and treated effluent is being utilized for gardening/green belt development.
3	The company shall achieve SO2 emission of 1Kg per tone of Sulphuric acid produced. The acid mist emission shall conform to the prescribed standards. The stack height for the sulphuric acid plant shall be provided as per the guidelines and on the basis of normal plant operation. The scrubbed gases should be left out at the same height of the plant.	Company had achieved the SO_2 emission at the level of below 1 Kg / T of Sulphuric acid produced by changing the entire converter catalyst at a cost of 5 crores. SO_2 emission is within the limit and Sulphuric Acid Plant stack height is asper the TNPCB guidelines, and the scrubbed gas is left out at the same height of the plant.
4	The company shall undertake monitoring of fluoride from the scrubber vents and the data shall be submitted to the RO / MOEF, state pollution control board/ CPCB.	Fluoride at the exit of scrubber vent is being monitored and the reports are submitted to MoEF and CPCB.
5	To control the total fluoride emission within the prescribed standards of 25 mg/NM3. The company shall install four stage fluorine scrubbers with 99.8% efficiency.	We have installed four stage fluorine scrubbers to control the fluoride emission and the emission level is within the prescribed standards. The scrubber efficiency is about 99.8%.
6	The company shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitoring data on it website and shall update the same periodically. It shall simultaneously be sent to the regional office of MOEF, the respective Zonal office of CPCB and the state pollution control board. The levels of SPM, RSPM, SO2, fluoride and NOx (Ambient levels) and emissions from the stacks shall be monitored and displayed at a convenient	We have installed continuous online AAQMS each in SPIC and Greenstar plants and the monitored data are hooked in to the TNPCB care air center since 2012 and 2015 respectively. Further the results of monitoring data are regularly submitted to the regional office of MoEF, CPCB and the State pollution control Board.

<table>
<tr><td></td><td>location near the main gate of the company and at important public places.</td><td>The online monitored data such as PM10, PM2.5, NOx, ammonia, NO, NO2, SO2, HF, wind speed, wind direction, temperature, relative humidity is displayed near the factory main entrance gate for the public.</td></tr>
<tr><td>7</td><td>The company shall monitor the SO2 emission from the sulphuric acid plant . Measures shall be taken to control the emission from the sulphuric acid plant. Monitoring of SO2 and fluoride should be carried out as per the CPCB guidelines.</td><td>We have installed on line stack monitoring equipment in the Sulphuric acid plant to measure SO2 emission and the monitored data is transmitted to care air center of TNPCB. Monitoring of SO2 and fluoride are carried out as per the CPCB guidelines.</td></tr>
<tr><td>8</td><td>Green belt of adequate width and density of about 33% of the plant area shall be provided to mitigate the effects of fugitive emissions all around the plant. The development of green belt should be in consultation with the DFO as per the CPCB guidelines.</td><td>SSP unit is located within the existing factory/facility and the company has developed greenbelt within the factory and colony area.
<table>
<tr><td>Area</td><td>SPIC</td><td>Greenstar</td><td>Township</td><td>Combined</td></tr>
<tr><td>Total area (Hectares)</td><td>47.11</td><td>56.28</td><td>118.723</td><td>222.113</td></tr>
<tr><td>Greenbelt Area (Hectares)</td><td>15.98</td><td>19.6</td><td>103.648</td><td>139.228</td></tr>
<tr><td>% Greenbelt area</td><td>33.92 %</td><td>34.82%</td><td>87.30%</td><td>62.68%</td></tr>
</table>
Greenbelt development has been carried out in consultation with the local DFO. The plantation works and survival are maintained good.</td></tr>
<tr><td>9</td><td>The company should take measures for harvesting the rain water to recharge the ground water.</td><td>Rain water harvesting facilities are made.</td></tr>
<tr><td>10</td><td>The company shall undertake eco developmental measures including community welfare measure in the project area for the overall improvement of the environment.</td><td>ECO development measures like tree plantation, community welfare programs like eye camps, blood donation camps, coaching camps for students, Environmental awareness programs, Environmental pamphlets, Medical health camps, are being</td></tr>
</table>

		carried out for the overall improvement of the Environment
11	Provision shall be made for the housing of the construction labours within the site with all the necessary infrastructure and facility, such as fuel for cooking, mobile toilet, mobile sewage treatment plant, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure which is to be removed after the completion of the project. All the construction waste shall be managed so that there is no impact on the surrounding environment.	The facilities/provisions such as drinking water and toilet facilities are being provided to the construction workers during the construction time. The construction waste is being managed within the project site without creating any adverse impact on the surrounding environment as stated.

B) GENERAL CONDITIONS

S.NO	GENERAL CONDITIONS	COMPLIANCE STATUS
1	The project authorities shall strictly adhere to the stipulations made by the state pollution control board.	All the stipulations made by the State Pollution Control Board are being adhered.
2	No further expansion or modification in the plant shall be carried out without prior approval of the MOEF. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of the conditions imposed	We ensure No further expansion or modification in the plant was carried out without prior approval of the MoEF .

	and to add additional environmental protection measures required, if any.	
3	At no time the emission shall exceed the prescribed limits. In the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	All measures are in place to adhere to the prescribed emission standards. In the event of failure of pollution control system, we will restart after the control measures are rectified to achieve the desired efficiency.
4	The location of ambient air quality monitoring stations shall be decided in consultation with the state pollution control board.(SPCB) and it shall be ensured that atleast one station is installed in the upwind and down wind direction as well as where maximum ground level concentrations are anticipated.	The location of ambient air quality monitoring stations were selected in consultation with TNPCB and these stations are covered up wind, downwind direction as well as where maximum ground level concentrations are anticipated. In addition to this, Continuous online Monitoring station is provided one in M/s SPIC and M/s Greenstar and the data of PM10, PM2.5, SO2, NH3,and NO, NO2, NOx, wind direction, wind speed, RH and temperature are transferred to care Air Center, TNPCB.
5	Dedicated scrubbers and stacks of appropriate height as per the central pollution board guidelines shall be provided to control the emissions from various vents. The scrubbed water shall be sent to ETP for further treatment.	Dedicated scrubbers and stacks of appropriate height as per the Central Pollution Control Board guidelines are provided. The scrubbed water is sent back to the process.
6	The overall noise level in and around the plant area shall be kept well within the standard by providing noise control measures including acoustic hoods, silencers, enclosures etc on all sources of noise generations. The ambient noise shall conform to the standards prescribed under Environment (Protection) Act, 1986 rules, 1989.	Noise level is monitored at 4 locations along the factory boundary at day and night time. The noise levels are within limits. We have provided noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generations.
7	The project proponent shall also	We have implemented all the environmental

	comply with all the environmental protection measures and safe guards proposed in the project report submitted to the ministry. All the recommendations made in the respect of environmental management and risk mitigation measures relating to the project shall be implemented.	protection measures and safe guards proposed in the project report and complied with. All the recommendations for environmental management and risk mitigation measures are being implemented.
8	The company will undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities will be undertaken by involving local villages and administrations.	We have undertaken the measures for improving the socio economic condition of the surrounding area. CSR activities are also undertaken. We are rendering community service like running health center, Cheshire home etc., free medical camps. Blood donation camps ,Eye camps Polio vaccination campaigns, tree plantation , distribution of groceries are being conducted by Spic Nagar Rotary club every year. M/s SPIC and Greenstar are conducting medical camp in near by villages such as Soosai nagar and Muthiapuram using Mobile health van M/s SPIC and Greenstar has constructed Toilet building, Hand washing unit under "Clean India project" carried out at Mukkani government school, Two numbers RO unit constructed at Kulayiankarisal govt school, 35 numbers of calibers and structures at a worth of 1.5 lakhs given physically challenged people, building, water tank at St Antony's High school in M. Xavierpuram. Synthetic water tank and accessories were provided by SPIC Nagar rotary club to M. Thangamal puram. Panchayat union primary School Pottalkadu and Panchayat union middle school has been adopted by SPIC Nagar Lions club. Free note books are being distributed every year to the poor students. Coastal Cleanup drive is being organized every year to put forth the importance of safeguarding the marine ecosystem. In coordination with District authorities, M/s SPIC has participated in Desilting of water bodies and removal seemaikaruvelam trees. In association with Tuticorin Administration has

		introduced Reverse Vending Machines at Muthu Nagar beach, Tuticorin for disposal of Waste Plastic Bottles at a cost of Rs. 12 lakhs to promote plastic free district drive. 24 hours drinking water facility for the Soosai nagar residents were provided and improved the existing common bathroom structure for better usage. Wide spread programs were conducted on "Beat plastic pollution". We have also supported District administration for de silting of Uppathu odai canal. AM Foundation donates 'Container Primary Health care Centre – A first of its kind Medical Facility in South India to Tuticorin Corporation' at a cost of Rs. 4o Lakhs. Rotary club of SPIC nagar donates, Rs. 800000 for 8 year old child Heart Operation. We have Constructed Community Hall at nearby village at a cost of Rs. 12 lakhs . Solar power plant at a cost of Rs. 1.25 lakhs for old Age homes.
9	The company shall undertake eco developmental measures including community welfare measure in the project area for the overall improvement of the environment.	Eco developmental measures such as plantation work in and around the SPIC nagar, community welfare measures are undertaken for the overall improvement of the environment.
10	A separate environmental management cell equipped with full-fledged laboratory facilities shall be set up to carry out the environmental management and monitoring functions.	A separate environmental management cell is equipped with full-fledged laboratory facilities. The Environment Management Cell is having 4 Environment engineers and 4 lab chemists and they are reporting to Senior Manager Safety and Environment.
11	The project authorities shall earmark adequate funds to implement the conditions stipulated by the ministry of environment and forest as well as state government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	We have allocated adequate funds to implement the conditions stipulated by the Ministry of Environment and Forest as well as state government along with the implementation schedule for all the conditions stipulated. The funds are not diverted for other purpose. Expenditures for Environmental protection measures include

		a) We have installed another AAQ continuous monitoring station for M/s Greenstar Fertilizers Limited at a cost of Rs.55 Lakhs. b) Replacing of the SA Plant Converter Catalyst at a cost of Rs.4.4 crores. Analysis reports are being submitted to regional office on half yearly basis. c) SA Plant FAT modification job to increase SO_2 Absorption efficiency was carried out at a cost of Rs.1, 80,375. d) Startup scrubber has been provided in sulphuric acid plant at a cost of Rs.80 Lakhs. e) Online continuous emission monitoring of ammonia has been installed in both DAP and Complex fertilizers stack at a cost of Rs.30 lakhs (per stack) and Reformer stack SO2 analyzer at a cost of Rs.30 lakhs and NOx analyzer at the cost of 1 lakhs. f) Online continuous monitoring for HF has been installed in DAP and PA plant at a cost of Rs.30 lakhs. g) Online HF analyzer has been installed for ambient air monitoring at a cost of Rs.21lakhs h) Online PM analyser has been installed in DAP and SSP plant RG mill stack at a cost of Rs.6.25 lakhs. i) Online HF anlyser ordered for SSP, DAP II and PA stacks at the cost of Rs. 45 lakhs.

12	The implementation of the project vis-à-vis environmental action plan shall be monitored by the concerned regional office of the ministry /SPCB/CPCB. A six monthly compliance status report shall be submitted to monitoring agencies and shall be posted on the website of the company.	Compliance status reports are being submitted regularly MoEF, RO and others. Compliance status report is uploaded on the Company's Website.
13	A copy of the clearance letter shall be sent by the proponent to the concerned panjayath, Zilla parishad/Municipal corporation, Urban local body and local NGO, if any, from whose suggestions/ representations, if any, are to be received while processing the proposal.	Copy of the clearance letter was sent to the local panchayat.
14	The project proponent shall also submit six monthly report on the status of compliance of the stipulated EC condition including results of monitored data (Both in hard copies as well as by e mail) to the respective regional office of the MOEF, respective Zonal offices of the CPCB and the state pollution control board.	We are submitting six monthly compliance reports on the status of the conditions stipulated by the Ministry's RO, respective Zonal offices of the CPCB and the state pollution control board.
15	The environmental statement for each financial year ending 31st March in form 5 as is mandated shall be submitted to the concerned state pollution control board, as prescribed under the Environment (Protection) Rules1986 as amended subsequently, shall also be put on the website of the company along with the status of the compliance of the environmental clearance conditions and shall also be	The annual environmental statement in form V is being submitted to MoEF and TNPCB. Form V has been uploaded on the company's website.

	sent to the respective regional offices of the MOEF by e mail.	
16	The project proponent shall inform the public that environmental clearance has been accorded by the ministry and copies of the clearance letter are available with the SPCB/Committee may also be seen at the website of the ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter at least in two local newspaper 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.	Newspaper advertisements were given in two local newspaper and copies of the same was submitted to RO, MoEF.
17	The project authorities shall inform the regional office as well as the ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Already informed. Project is completed. Date of commencement : 17.05.2010 Month of completion : October 2010

GREENSTAR FERTILIZERS LIMITED
SPIC NAGAR, TUTICORIN – 628 005

Sub: Expansion of Phosphoric Acid plant Half Yearly Compliance Status Report

Ref:F.No.J-11011/123/2014-IA-II(I),Dt:30.05.2018

S.NO	SPECIFIC CONDITION	COMPLIANCE STATUS
6.	In view of the above, the proposal for amendment /transfer of the Environmental clearances dated 5th March, 2008 and 18th March, 2010 need to be submitted for further action in to the matter.	This is a communication order informing that the project involves expansion of one of the intermediate product and hence there is no requirement of Environmental Clearance. In compliance to this we have obtained separate EC in the name of Greenstar and also obtained amendment in EC 2008 .

GREENSTAR FERTILIZERS LIMITED
SPIC NAGAR, TUTICORIN – 628 005

Sub: SSP Unit Environmental Clearance-Half Yearly Compliance Status Report

No J -11011/620/2009 IA II (I) dated 11.01.2019 - In the name of M/s Greenstar fertilizers Limited.

A. SPECIFIC CONDITIONS

S.No	SPECIFIC CONDITION	COMPLIANCE STATUS
6.	As per the relevant provisions of the EIA Notification,2006 the environmental clearance to the project 'Installation of Single Super Phosphate (SSP) Production unit of capacity 350 MTPD at downstream of existing acid plants at SPIC Nagar, Tuticorin Tamil Nadu, granted by the Ministry vide letter dated 18th March 2010, is hereby transferred from M/s Southern Petrochemical Industries Corporation Ltd to M/s	This is a communication order informing the transfer of the Single super phosphate in the name of M/s Greenstar Fertilizers Ltd., subject to the implementation of terms and conditions which are stipulated in Environment clearance dated 18th March 2010. A Separate compliance report for EC dated 18th march 2010

	Greenstar Fertilizers Limited, on the same terms and conditions under which prior environmental clearance was initially granted and for the same validity period.	is enclosed.

GREENSTAR FERTILIZERS LIMITED
SPIC NAGAR, TUTICORIN – 628 005

ENVIRONMENTAL CLEARANCE FOR ENHANCED PRODUCTION AT SPIC, TUTICORIN

F.No. J-11011/171/2007- IA II (I) Dated : May 20, 2019

Half Yearly Compliance Status Report

S.No.	CONDITIONS	COMPLIANCE STATUS
5.	Based on recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords approval to the amendment/ bifurcation of the environmental clearance dated 5th March 2008, as stated in para 3 above, with additional terms and conditions as under:- a) Total Fresh water requirement shall not exceed 3840 cum/day to be met through Tamil Nadu water supply and Drainage board from Thamiraparani river. Permission in this regard, shall be obtained from the concerned regulatory authority.	The present water consumption is 3840 m3/day and it is drawn from Tamiraparani river through TWAD. Permission has been obtained from TWAD. Copy is enclosed. There is no separate allocation for Greenstar. The water is drawn combined for both M/s SPIC ltd., and M/s Greenstar fertilizers ltd., and permission is obtained in this regard.
5 b)	As already committed by the project proponent, Zero liquid Discharge shall be ensured and no waste/ treated water shall be discharged outside the premises.	Greenstar Fertilizers Ltd., is following up Zero Liquid Discharge as indicated in the condition.
6.	All the other terms and conditions stipulated in the Environmental Clearance dated 5th March 2008 remain	This is a communication order informing the bifurcation of Environmental Clearance dated 5th March 2008

	unchanged.	between M/s Greenstar Fertilizers Ltd. And M/s SPIC ltd. We complied with all the conditions in the EC dated 05th march 2008.

Compliance of "Charter on Corporate Responsibility for Environmental Protection" by M/s. Greenstar Fertilizers Limited. Thoothukudi

I. WASTE WATER MANAGEMENT:

Sl.No.	Charter Condition	Status of Compliance
1.	Efforts will be made for conservation of water, particularly with a target to have consumption less than 8, 12 & 15 M^3/tonne of urea produced for plant based on gas, naphtha and fuel oil, respectively. In case of plants using Naphtha and Gas both as feed stocks, water consumption target of less than 10 M^3/tonne will be achieved. An action plan for this will be submitted by June 2003 and targets will be achieved by March 2004.	Water consumption per MT of Urea produced (Naphtha based) is less than 12 cu.m/MT urea production (Now the Unit is with M/S.SPIC Limited)
2.	Use of arsenic for CO_2 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.	The Unit has adopted glycine-based technology for absorption system in Ammonia Plant in June 1998. Cooling water systems was switched over to non-chromate based (Phosphate system) treatment programme since 1998. (Now the Unit is with M/S.SPIC Limited)
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	Oil is skimmed from ammonia and urea effluent collection sump before the effluent is sent to treatment plant. The concentration of oil in treated effluent is BDL (Below Detectable Limit) always. The Unit has already adopted non-chromate treatment programme in cooling water system from June 1998. (Now the Unit is with M/S.SPIC Limited)

Sl.No.	Charter Condition	Status of Compliance
4.	Proper and complete nitrification and de-nitrification will be ensured, wherever such process is used for effluent treatment, by September 2003.	In the Unit, nitrification and denitrification process is not adopted for effluent treatment. An exclusive Integrated Effluent Treatment Plant is in operation to treat the generated effluents. pH of effluents is raised by addition of milk of lime in hydrotreater followed by air stripping. There is no process effluent in urea plant as everything is recycled back to the process. (Now the Unit is with M/S.SPIC Limited)
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.	Regular Ground water monitoring is done once in a month both inside and outside factory premises. 23 no. sampling wells (10 nos in M/s SPIC and 13 nos M/s Greenstar) and 12 wells outside the factory. Samples are collected once in a month and analyzed for pH, Phosphate, Fluoride, Ammoniacal Nitrogen, Arsenic, Urea Nitrogen, Hexavalent chromium and Nitrate nitrogen. As per directions of TNPCB, monitoring wells have been provided in all the four directions of chromium sludge pond and Arsenic sludge encapsulated pit. Regular monthly samples are collected and analyzed by us and once in three months by TNPCB
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	The nitrogenous fertilizer plant effluent- mainly the cooling tower blow down, is collected in effluent sumps and then sent to Integrated Effluent Treatment Plant (IETP) for treatment. Similarly the phosphatic fertilizer plant effluent is recycled back to the system. No effluent is discharged into storm water drain. The storm water quality is monitored at the time of rains and is pumped to IETP and then reused.
7.	The industries, where waste water/effluent flows through the storm water drains even during the dry season will install continuous systems for	In the Unit, waste water/effluent does not flow through

Sl.No.	Charter Condition	Status of Compliance
	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.	the storm water drains. During rain, in Nitrogenous fertilizer plant, the storm water drain is diverted to Integrated effluent treatment plant for treatment and then reused. During rain, in Phosphatic fertilizer plant (now at M/s Greenstar) the rainwater is collected in a sump and pumped to gypsum slurry tank for slurrying gypsum.

II. AIR POLLUTION MANAGEMENT

Sl.No.	Charter Condition	Status of Compliance
1.	All the upcoming Urea Plants will have urea prilling towers based on natural draft so as to minimize urea dust emissions.	Provision of natural draft system is applicable to new upcoming Urea Plants The Urea Plant was commissioned in 1975. We had been taken several steps to reduce the pollution load below 50 mgms/Nm3 (Now the Unit is with M/S.SPIC Limited)
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 the Unit Urea prilling tower is based on forced draft system. The air pollution control equipment has been installed to reduce the concentration of pollutants. • The conventional distribution system at the top of prilling tower has been converted to acoustic granulation in 1988 to bring down dust emission. With this improved urea melt spray system "Satellites" namely the fine dust particles are reduced. • The fluidizing dryer hot air used for carrying of urea crystals to the top of prilling tower is sent to a set of cyclones, consisting of dry cyclones (4 Nos.) and wet cyclones (2 Nos.). Since the dry cyclones are operated under negative pressure by an induced draft fan, urea crystals and the dust particles are effectively separated by centrifugal action in cyclones. The hot air is then sent to wet cyclones, where clear water is circulated to absorb fine dust particles and ammonia. The fluidizing cooler air, which is used for cooling of urea prills, is sent through 4 Nos. of dust chambers. At the bottom of dust chamber, water level is maintained by a circulation pump. The pollutants, ammonia and urea dust are absorbed in water and the pollutant level in the exit is reduced. The

Sl.No.	Charter Condition	Status of Compliance
		particulate matter at the exit of prilling tower is well below the stipulated standard of 50 mg/NM^3 (Now the Unit is with M/S.SPIC Limited)
3.	The sulphuric acid plants having SCSA system will switch over to DCDA system by March 2004 to meet the emission standard for SO_2 as 2 kg/tonne of H_2SO_4 produced. An action plan for this will be submitted by June 2003.	DCDA process is adopted since 1994. Now it is under M/s Greenstar Fertilizers we had completely renewed the old catalyst and achieved SO_2 emission less than 1.0 kg/tonne of H_2SO_4 produced
4.	Sulphuric acid plants having DCDA system will improve the conversion and absorption efficiencies of the system as well as scrubbers to achieve SO_2 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.	Sulphuric acid manufacturing process is based on DCDA system. In order to improve the conversion efficiency further, fresh V_2O_5 catalyst was charged in Sulphuric Acid Plant converter. By this, the stipulated 1.0 kg/tonne of acid produced is complied with.
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 let out at the same height of the stack.	The stack height provided in SA plant is 60M which is sufficient to meet the stringent standard of 1.0 kg/ton of 100% H_2SO_4. Tail Gas scrubber has been installed at Sulphuric acid plant to keep the emission always under norms even during start up and shut down.
6.	An action plan for providing proper dust control systems at rock phosphate grinding unit in phosphoric acid plants/single super phosphate plants, so as to achieve particulate emission levels of 150 mg/NM^3 will be submitted by September 2003 and complied with by march 2004.	In Rock grinding section of Phosphoric Acid plant improved pulsejet bag filter was provided in 1995 to remove the particulate matter in the exhaust gas. The concentration of particulate matter in RG mill exhaust is less than the stipulated standard of 150 mg/NM^3.
7.	Particulate as well as gaseous fluoride will be monitored and adequate control systems will be installed by June 2004 to achieve the norms on total fluoride emissions (25 mg/NM^3)	Turbulent Contact Absorber (TCA) is provided for scrubbing of fluoride present in emission gases and continuous circulation is maintained. The total fluoride concentration at the exit of TCA-3 is maximum 2.1 mg/nm^3. Fluorine recovery unit is in operation since 1987 and the Hydro flurosilicic acid produced is converted into a value added product - Aluminium Fluoride.

Sl.No.	Charter Condition	Status of Compliance
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 03.	The Unit has provided continuous online analyzer for monitoring of SO_2 concentration in SA stack and is uploaded to TNPCB and CPCB
9.	Regular monitoring of ambient air quality with regard to SO_2, NOx, PM, SO_3, Fluoride and acid mist will be carried out.	Ambient air samples are collected twice in a week in all the 9 permanent ambient air stations. The parameters analysed are SO_2, NOx, PM, Fluoride and Ammonia. As part of CREP compliance, the parameters SO_3 and acid mist are also analysed by the Unit in ambient air. As per Supreme Court Monitoring Committee directions online display of Ambient Air Data has been started by the Unit. The parameters uploaded are Ambient temperature, relative humidity, Ambient Ammonia level,Ambient SO_2, NO_2, NOx,PM_{10}, $PM_{2.5}$ levels, Ambient HF.

III. SOLID WASTE MANAGEMENT

Sl.No.	Charter Condition	Status of Compliance
1.	Gypsum will be effectively managed by providing proper lining, dykes with approach roads and monitoring of ground water 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 Dec. 2003	Gypsum is disposed to cement manufacturing units as a substitute to lime stone to enhance the calcium oxide concentration in cement. Gypsum is also utilized in agriculture as a soil conditioner. By continuous disposal methods, the quantity of gypsum utilized is higher than the generation quantity and thereby the accumulation is reduced. The dykes are provided with approach roads for transportation of the material. In gypsum dyke area monitoring wells have been provided to check the ground water quality. Fluoride levels in the monitoring wells are well within the standard.
2.	An action plan for proper handling, storage and disposal of spent catalyst having toxic metals will	The spent catalysts are collected in mild steel drum sealed and disposed to M/s Tamilnadu waste management Ltd.

Sl.No.	Charter Condition	Status of Compliance
	be submitted by June 2003 and implemented by September 2003. The industry will also explore recovery/buy-back of spent catalyst by Sep. 2003.	We are having agreement with them.
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.	Carbon slurry is not generated in this Unit. As per our guidelines the Sulphur muck is used as a filler material in the Phosphatic fertilizer unit. (Now the unit at M/s Greenstar Fertilizers Ltd) Calcium carbonate waste generation is reduced by using imported lime.
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.	The Unit has adopted phosphate treatment system in cooling water system in 1998 and hence Chromium sludge generation has been avoided. The previously generated Chromium sludge in trivalent form is stored in an impervious pond inside the factory premises in an isolated area. The Chromium sludge from M/s. Tuticorin Alkali Chemicals and M/s. Tamilnadu Petroproducts Limited is also stored along with our Chromium sludge as per our directions. The capping of the impervious Chromium pond was taken up based on CPCB guidelines. Glycine absorption system is adopted in ammonia plant carbon dioxide removal section from 1998 and hence arsenic sludge generation has been eliminated completely. As per Supreme Court monitoring committee directions, the Arsenic bearing sludge, which has been collected in mild steel drum, seal welded and stored in an isolated area inside the factory premises with lock and key arrangement is stabilized, solidified and encapsulated in a lined concrete pit as per CPCB guidelines. (Now the Unit is with M/S.SPIC Limited)