Road
533 003
2360390
"NAAGFERTS"
Fax 0884 - 2365020 (Materials)
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NAGARJUNA GROUP
Nagarjuna Fertilizers and Chemicals Limited

CIN: L24129AP2006PLC076238

29th August 2015

To
Member Secretary,
A.P. Pollution Control Board,
Paryavarana Bhavan,
A-3, I.E., Sanath Nagar,
Hyderabad – 500 018.

Dear Sir:

Sub: Environmental Statement for the period Apr' 2014 – Mar' 2015

We are herewith submitting the Environmental Statement of NFCL, Kakinada in the prescribed format, Form-V for the period Apr' 2014 – Mar' 2015.

Thanking you

Yours Sincerely
for NAGARJUNA FERTILIZERS AND CHEMICALS LIMITED

R. Raghavan
Vice President (Operations & Projects)

Encl: a/a

Cc: Environmental Engineer,
A.P. Pollution Control Board,
2-532, Santhi Nagar,
Ramanaiah Peta,
Kakinada.

Cc: Joint Chief Environmental Engineer,
APPCB, Zonal Office,
Behind RTA Office, Madhavadhara,
VUDA Colony,
Visakhapatnam.

→ AGM (QC & ENV.)

FORM-V
(See Rule - 14)

Environmental Statement for the financial year ending 31st March, 2015

Part-A

Name and address of the owner / occupier of the Industry		: K. Rahul Raju Managing Director Nagarjuna Fertilizers and Chemicals Limited, Nagarjuna Road, Kakinada - 533 003. Corporate Office: Nagarjuna Fertilizers and Chemicals Limited, Nagarjuna Hills, Hyderabad - 500 082, Andhra Pradesh.
Industry Category		: Primary : STC Code: NA Secondary : SIC Code: NA
Name of the Operation or Process	Ammonia	: M/s Haldor Topsoe Technology
	Urea	: M/s. Snamprogetti's (Spa) Ammonia Stripping Process
	CO_2	: Giammarco Vetrocoke Process MHI – KS1
	Product	: Fertilizer Grade Urea
	Customized Fertilizer Plant:	Mixing Unit
	Product	: Customized Fertilizer (CF)
Year of establishment		: Commercial production in Unit I started in August 1992 Commercial production in Unit II started in March 1998 Commercial production in CDR Plant started in March 2009. Commercial Production of Customized Fertilizer started in March 2012
Production Capacity (Revamp)		: 4560 MTPD Urea 400 MTPD Customized Fertilizer

Date of the last environmental report submitted : *For Plant-I, Plant-II and CDR Plant, the Environment Statement for the FY 2013-14 was submitted on 20th August, 2014.

*For CFG Plant, the Environment Statement for the FY 2013-14 was submitted on 23rd September, 2014.

*Till 31st March 2014, separate Consents for Operations (CFO) were granted by APPCB in line with to our applications submitted to them. However, in February 2014, while applying for the renewal of both the consents, an application, requesting for the grant of a common CFO for Plant-I, Plant-II, CDR Plant and CFG Plant was forwarded to APPCB and subsequently, a combined consent vide No. APPCB / VSP / KKD / 10300 / HO / CFO /2014 - 602 dated 28.11.2014 was granted by APPCB. This CFO is valid till 31st March 2017.

Part-B

Water and Raw Material consumption

i) Water Consumption (including Rain Water) in 2014-15 (m^3/Day)

Process - 3139
Cooling - 9511
Domestic - 1973

Sr. No	Water consumption per unit of Product (m^3/MT)	During the previous financial year 2013-14	During the current financial year 2014-15
1.	For Urea	5.325	5.659
2.	For Customized Fertilizer	0.207	0.520

ii) Raw material consumption:

Sr. No.	Name of Raw material	Name of product	Consumption of raw material per unit of Output	
			During the previous financial year 2013-14	During the current financial year 2014-15
1.	Natural Gas	Urea	687.635 Sm^3/MT at 8200.0 kCal/Sm^3	734.836 Sm^3/MT at 8200.0 kCal/Sm^3
2.	Naphtha	Urea	Nil	Nil
3.	LSHS	Urea	0.00974 MT/MT at 9600.0 kcal/kg	Nil
4.	DAP, MOP, Urea, Dolamite / Bentanite	Customized Fertilizer	Raw Material Requirement depends on the product grade	Raw Material Requirement depends on the product grade

Natural Gas is used as both feed and fuel from August 2009 in our complex.

Vice President (Operations)
Nagarjuna Fertilizers and Chemicals

Part-C

Pollution discharge to environment / unit of output

Quantity of effluent discharged:

Effluent water generation (Urea) : 0.61 m^3/MT of Urea (During the FY 14 – 15)
Effluent water generation (CF) : Liquid effluent (Scrubbing Water) is recycled back to process.

a. Liquid Effluent (Urea Plant)

Pollutants	Concentration (g/MT of Urea)	Concentration (mg/L)	% of Variation from standards with reasons
Total Kjeldahl Nitrogen (as N)	0.012*	19.0	No Deviation
Oil Content	1.8	2.9	No Deviation
Total Chromium**	< 0.01	< 0.01	No Deviation
Phosphate (as P)	0.43	0.7	No Deviation
Vanadium (as V)	0.006	0.01	No Deviation

* *Value expressed in terms of kg/MT of Urea produced*
** *Chemicals used in cooling water treatment adopted at NFCL are free of Chromium*

b. Air Emissions:

Pollutants	Concentration (kg/MT of Urea)	Concentration (mg/Nm^3)	% of Variation from standards with reasons
Product (Urea)			
Urea Dust (Prill Tower)	0.204	21.6	No Deviation
SO_2 Emission (Process Stacks)#	0.0006	-	No Deviation
SO_2 Emission (Boiler & HRSG)#	0.0006	-	No Deviation
Product (Customized Fertilizer)			
Dust (CF Plant Stack)	-	32.0	No Deviation
Emission (Process Stacks)	NA	NA	NA

Value expressed in terms of kg of SO_2/MT of Urea produced

Part-D

Hazardous Wastes

Specified under The Hazardous Wastes (Management, Handling and Trans Boundary Movement) Rules 2008, (amended in 2010)

Hazardous Wastes	Total Quantity			
	During the previous financial year (2013-14)		During the current financial year (2014-15)	
	Generated	Disposed	Generated	Disposed
From Process (Spent Catalyst)	35.490 MT	35.490 MT	14.990 MT	14.990 MT
Used Lube oil	17.609 MT	17.609 MT	9.482 MT	9.482 MT
CDR Plant Reclamation waste	13.33 MT	13.33 MT	6.76 MT	6.76 MT
Detoxified containers (MS Drums)	133 No's	133 No's	107 No's	107 No's
Spent Activated Carbon	12.74 MT	12.74 MT	Nil	Nil
From pollution control facilities	Nil	Nil	Nil	Nil

Note: 1. No hazardous waste is stored in the plant area.
2. The disposal of hazardous waste is done to the SPCB/CPCB authorized agencies.
3. No Hazardous waste is generated from Customized Fertilizer Plant.

Part-E
Solid Wastes

Solid Wastes	Total Quantity	
	During the previous financial year (2013-14)	During the current financial year (2014-15)
From Process	Nil	Nil
From pollution control facility	Approx. 22 MT	Approx. 3 MT
Quantity recycled or re-used		
Chromium sludge	NA	NA
Arsenic sludge	NA	NA
Carbon	NA	NA
Siliceous Sludge[+]	260 MT	156 MT
Others	Approx. 22 MT	Approx. 3 MT

[+] Fertile siliceous sludge from Clariflocculator of Pre-Treatment Plant is used in Green belt for land filling.
[++] Waste from CF Plant

Part-F

Specify the characteristics (in terms of concentration and generation) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes:

Spent Catalyst:

14.99 MT Spent Catalysts were generated during the year 2014-15 and were disposed to SPCB / CPCB authorized vendors. The present quantity of spent catalyst, as on March 31, 2015 is Nil.

CDR Plant Reclamation Waste:

6.76 MT of reclamation waste from Carbon Di Oxide Recovery Plant was disposed to APPCB authorized TSDF vendor during this year. The present quantity of reclamation waste, as on March 31, 2015 is Nil.

Spent Activated Carbon:

Activated carbon is used in Ammonia Plant (I and II), CDR Plant and DM plant. It is used for purification of K_2CO_3 solution in Ammonia plant, KS1 solution in CDR plant and for physical adsorption of chlorine and organic matter in DM plant. The activated carbon removed from the above processes is packed in containers with proper lining. The containers are labeled prominently and stored in a well-marked, covered and protected area. The spent carbon removed from process plants is disposed to APPCB authorized vendors. Spent activated carbon was not generated during this year.

Waste Oils:

Oil is used for lubrication purposes in the plant. The waste oils generated from the process are reused in the bagging plant for the soaking of stitching threads and for application as a protective film on the steel material stored in open condition in the steel yard against weathering. In the process area, oil is centrifuged and reused. Hence, the quantity of oil which is actually disposed as waste from each the plant at any time is small. The used oil is sold to the recyclers authorized by APPCB. 9.482 MT Waste Oil was disposed to oil recoverers authorized by APPCB during the year 2014-15.

Used Batteries: Used Lead Acid Batteries are returned to the supplier through a buy back scheme / disposed to the vendor/s authorised by SPCB. During the financial year 2014-15, all the used batteries were returned to the supplier through the buy back scheme and hence, no batteries were disposed to vendor/s authorised by SPCB.

PTP (Pre Treatment Plant) Sludge:

The raw water supplied from the Samalkot summer reservoir contains fine clay, which is filtered in the pretreatment plant. The sludge generated from the process is siliceous and alluvial in nature and hence, it is very fertile. Considering the fertile nature of the generated sludge, it is used for land filling of low-lying areas in the green belt.

Solid Waste from CF Plant:
Hazardous Waste is not generated in CF Plant. Dust collected in the cyclone separators is recycled back in to the process.

Part-G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production:

As a result of recycling and reuse of water, the Specific Water Consumption (2014-15) was 5.659 m^3/MT of urea against the Indian Fertilizer Industry average (for natural gas based units) figure of 8.0 m^3/MT of Urea; thereby conserving raw water. The Specific Effluent Generation (2014-15) was 0.61 m^3/MT Urea against CPCB norm 4.0 m^3/MT Urea and the Indian Fertilizer Industry average (for natural gas based units) figure of 1.5 m^3/MT of Urea. As the process is based on state of the art technology, the complex consumes less energy and this helps in conserving raw materials, especially natural gas. The raw water treatment plant is designed for a turbid matter of 2000 NTU and the average turbidity of incoming water was around 20 NTU.

CF Plant has pollution control equipments for safeguarding the environment and for avoiding material loss. The air from dryer and the cooler is taken to dedicated dust scrubbers through dedicated cyclones for removal of dust. After scrubbing the air with circulating water in scrubber, the dust free air is sent to stack. The dust collected in the cyclone separators as well as the scrubbing media is recycled back in to process.

Part-H

Additional measures / investment proposal for environmental protection including abatement of pollution, Prevention of pollution

The first plant and second plants in NFCL complex were commissioned in July 1992 and March 1998 respectively. CDR plant was commissioned in March 2009. All the pollution control & monitoring equipment were installed at the time of project stage itself and are upgrading / improving them as per recent developments. The emphasis is on reduction of consumption of raw water and generation of liquid effluent by way of increasing the cycles of concentration in cooling towers, Sand Filters back wash water recycle back to raw water tanks, DM Plant rinse water, Boilers blow down water & CDR effluent water diverted as CT makeup, rain water harvesting, energy conservation etc.

The measures were taken up for environmental protection, improvement of Spec. Energy Consumption, Spec. Water Consumption, Spec. Effluent Generation, reduction of waste generation, spillages & emissions in the complex.

Measures were taken to reduce the noise pollution. Silencers were installed on the compressors to reduce noise pollution during start-ups and shutdowns. Insulation of the compressor suction & discharge lines was taken up to bring down the noise during normal running condition. Wet De-dusting systems at the top of the prilling towers & product handling areas as well as Dry De-dusting systems at prilling towers bottom (near conveyor) are operated to bring down the dust emissions.

Vice President (Operations)
Nagarjuna Fertilizers and Chemicals

NFCL is certified for all the three systems viz. Quality, Environment, Occupational Health & Safety.

NFCL was certified with ISO 14001:1996 by M/s. BVQI in May 2000 and it was subsequently upgraded to ISO 14001:2004 in April 2006. As a part of this, Operational Control Procedures were established and Environment Objectives were taken up for improving the environmental performance in the complex.

In May 2001, NFCL was certified with OHSAS 18001:1999 from M/s. BVQI and subsequently upgraded to OHSAS 18001:2007 in June 2009.

For further improvement of overall performance, NFCL has implemented Process Safety Management System from Oct'07 and this system addresses the inherent Safety of the Chemical Process Industries.

NFCL is also certified for RC 14001:2008 Responsible Care Management System from M/s ULMSS from March 2012.

Part-I

Improving the quality of the Environment

APPCB has awarded NFCL with the Air and Water Consent for Operation as well as the Hazardous Wastes Handling Authorization on 28.11.2014, which are valid up to 31st March 2017.

We received Bio Medical Waste Authorization from APPCB, RO, Kakinada on 05.04.14 and it is valid up to 31st March 2017. Bio Medical Waste Annual report (Form – II) for the year 2014 was submitted to APPCB on 17th January 2015.

We comply with all the conditions stipulated by the APPCB / MoEFCC and there has been no deviation in Air & Water Pollution parameters as specified in The E.P. Act 1986 as well as the Hazardous Wastes (Management, Handling and Trans Boundary Movement) Rules 2008, (amended in 2010).

As a part of continual improvement, the review of Environmental Aspects/Impacts was initiated and coupled with Significant Aspects for taking up as Operational Control Procedures and Environmental Objectives.

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Vice President (Operations)
Nagarjuna Fertilizers and Chemicals