

Nagarjuna Road,
Kakinada - 533 003.
India,
Phone : 2360390
Fax : 0884 - 2362084, 2365020
CIN : L24129AP2006PLC076238



23rd September 2016

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

Sub: Environmental Statement for the period April 2015 – March 2016

Sir,

We are herewith submitting the Environmental Statement of NFCL, Kakinada in the prescribed format, Form-V for the period April 2015 – March 2016.

Thanking you

Yours Sincerely
for NAGARJUNA FERTILIZERS AND CHEMICALS LIMITED

G V S Anand

G V S Anand
Senior General Manager (Operations)

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.

→ DGM (LAB & ENV.) / MANAGER(ENV.)

FORM-V
(See Rule - 14)

Environmental Statement for the financial year ending 31st March, 2016

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
CO₂ : Giammarco Vetrocoke Process
MHI – KS1
Product : Fertilizer Grade Urea

Customized Fertilizer Plant: Mixing Unit
Product : Customized Fertilizer (CF)

Year of establishment : Commercial production from Unit I started
in August 1992
Commercial production from Unit II
started in March 1998
Commercial production from CDR Plant
started in March 2009.
Commercial Production from Customized
Fertilizer started in March 2012

Production Capacity (Revamp) : 4560 MTPD Urea
400 MTPD Customized Fertilizer

Date of the last environmental report submitted : Environment Statement for the FY 2014-15
was submitted on 29th August, 2015.

Part-B**Water and Raw Material consumption**

i) Water Consumption (including Rain Water) in 2015-16 (m³/Day)

Process	-	4398
Cooling	-	13976
Domestic	-	1989

Sr. No	Water consumption per unit of Product (m ³ /MT)	During the previous financial year 2014-15	During the current financial year 2015-16
1.	For Urea	5.659	5.555
2.	For Customized Fertilizer	0.520	0.113

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 2014-15	During the current financial year 2015-16
1.	Natural Gas	Urea	734.836 Sm ³ /MT at 8200.0 kCal/Sm ³	703.806 Sm ³ /MT at 8200.0 KCal/Sm ³
2.	Naphtha	Urea	Nil	Nil
3.	LSHS	Urea	Nil	1.355 Kg / MT at 10105 Kcal / Kg
4.	DAP, MOP, Urea, Dolomite / 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.

Part-C**Pollution discharge to environment / unit of output**

Quantity of effluent discharged:

Effluent water generation (Urea) : 0.58 m³/MT of Urea (During the Financial Year 2015 – 16)

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*	21.0	No Deviation
Oil Content	2.0	3.4	No Deviation
Total Chromium**	< 0.01	< 0.01	No Deviation
Phosphate (as P)	0.41	0.7	No Deviation
Vanadium (as V)	0.058	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)	0.189	22.1	No Deviation
SO ₂ Emission (Process Stacks) [#]	0.0001	-	No Deviation
SO ₂ Emission (Boiler & HRSG) [#]	0.0001	-	No Deviation

Product (Customized Fertilizer)			
Dust (CF Plant Stack)	-	21.2	No Deviation
Emission (Process Stacks)	NA	NA	NA

[#] Value expressed in terms of kg of SO₂/MT of Urea produced

Part-D**Hazardous Wastes**

Specified under The Hazardous and other Wastes (Management and Trans Boundary Movement) Rules 2016

Hazardous Wastes	Total Quantity			
	During the previous financial year (2014-15)		During the current financial year (2015-16)	
	Generated	Disposed	Generated	Disposed
From Process (Spent Catalyst)	14.990 MT	14.990 MT	87.912 MT	87.912 MT
Used Lube oil	9.482 MT	9.482 MT	21.595 MT	21.595 MT
CDR Plant Reclamation waste	6.76 MT	6.76 MT	9.67 MT	9.67 MT
Detoxified containers (MS Drums)	107 Nos.	107 Nos.	496 Nos.	496 Nos.
Spent Activated Carbon	Nil	Nil	15.33	15.33
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 (2014-15)	During the current financial year (2015-16)
From Process	Nil	Nil
From pollution control facility	Approx. 3 MT	Approx. 7 MT
Quantity recycled or re-used		
Chromium sludge	NA	NA
Arsenic sludge	NA	NA
Carbon	NA	NA
Siliceous Sludge ⁺	156 MT	225 MT
Others	Approx. 3 MT	Approx. 7 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:

87.912 MT Spent Catalysts was generated during the year 2015-16 and it was disposed to SPCB / CPCB authorized vendor.

CDR Plant Reclamation Waste:

9.67 MT of reclamation waste from Carbon Di Oxide Recovery Plant was disposed to APPCB authorized TSDF vendor during this year.

Spent Activated Carbon:

Activated carbon is used in Ammonia plant I & II, CDR Plant and in DM plant. In ammonia process, the activated carbon is used to purify K_2CO_3 solution whereas in CDR Plant, the activated carbon is used to purify KS1 Solution. In DM plant, activated carbon is used for the physical adsorption of chlorine and organic matter from the water. 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 and disposed to cement industries / vendors authorized by CPCB or SPCB. 15.33 MT of Spent carbon generated during this year was disposed to a cement industry authorized by APPCB.

Waste Oils:

In the complex, oils are being used mainly for lubrication purposes. In the process plants, the lubricating oils are centrifuged and reused in the process, hence quantity of waste oils generated is less when compared to the quantities in use. The waste oils generated from the process plants are reused in the bagging plant area for the lubrication of stitching thread. The used oil is also applied as protective film to the steel material stored open in steel yard balance. Waste oil is disposed to oil recyclers authorised by APPCB and CPCB. 21.595 MT Waste Oil was disposed to oil recyclers authorized by APPCB during the year 2015-16.

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 2015-16, 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 (2015-16) was 5.555 m³/MT of urea against the Indian Fertilizer Industry average (for natural gas based units) figure of 8.0 m³/MT of Urea; thereby conserving raw water. The Specific Effluent Generation (2015-16) was 0.58 m³/MT Urea against CPCB norm 4.0 m³/MT Urea and the Indian Fertilizer Industry average (for natural gas based units) figure of 1.5 m³/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 24 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.

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 2015 was submitted to APPCB on 18th January 2016.

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 and other Wastes (Management and Trans Boundary Movement) Rules 2016.

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.
