

**FORM-V**

**(See Rule 14)**

**Environmental Statement for the Financial Year ending  
The 31<sup>st</sup> March 2019.**

**PART-A**

<p>(i) Name and address of the Owner / Occupier of the industry, operations or process.</p> <p>Telephone Nos.</p> <p>Fax No.</p>	<p><b>Sri Sameer Goel Managing Director Coromandel International Limited, Coromandel House, 3<sup>rd</sup> Floor 1-2-10, Sardar Patel Road Secunderabad-500003. 040-27841368.</b></p> <p><b>040-27701541</b></p>
<p>(ii) Industry category-- Primary/ Secondary</p>	<p>Primary</p>
<p>(iii) Production Capacity</p>	<p>19, 25,000 MT/Annum.</p>
<p>(iv) Year of establishment</p>	<p>1981</p>
<p>(v) Date of last environmental Statement submitted</p>	<p>20.09.2018.</p>

## PART-B

### Water and Raw Material Consumption

#### (I) Water Consumption M<sup>3</sup>/d (Average):

Process	:	1127
Cooling	:	57.25
Domestic@	:	549

@ includes Green Belt, Potable water, CSR activities and other purposes.

Name of the Product	Water Consumption per unit of products during the	
	Previous financial year 2017-18	Current financial Year 2018-19
DAP, 14:35:14, 10:26:26, and 17:17:17	0.396 M <sup>3</sup> /MT	0.402 M <sup>3</sup> /MT

#### (II) Raw Material Consumption:

Name of the Raw material	Name of products	Consumption of raw materials per unit of out put (Kg/MT) of product	
		During the Previous financial year (2017-18)	During the current financial year (2018-19)
Phosphoric Acid 100% P <sub>2</sub> O <sub>5</sub>	DAP	463.73	462.93
	20:20:0	200.84	200.86
	14:35:14	352.54	352.75
	10:26:26	261.66	262.63
	DAP'Z	464.3	460.71
	28:28:0	280.66	283.8
	17:17:17	179.2	179.4
	10:26:26 Z		256.03
	12:32:16		321.29
Anhydrous Ammonia	DAP	221.05	220.61
	20:20:0	228.27	227.46
	14:35:14	167.1	170.82
	10:26:26	119.47	119.72
	DAP'Z	222.93	219.59
	28:28:0	131.25	132.58
	17:17:17	122.64	132.17
	10:26:26 Z		119.74
	12:32:16		148.16
Sulphuric Acid	DAP	27.68	31.23
	20:20:0	452.15	432.71
	14:35:14	29.17	38.49

	10:26:26	11.74	12.96
	DAP'Z	33.8	28.32
	28:28:0	25.32	32.98
	17:17:17	119.9	163.06
	10:26:26 Z		18.41
	12:32:16		16.37
<b>Name of the Raw material</b>	<b>Name of products</b>	<b>Consumption of raw materials per unit of output (Kg/MT)</b>	
		<b>During the Previous financial year (2017-18)</b>	<b>During the Present financial year (2018-19)</b>
MAP	DAP	0	0
	20:20:0	0	0
	10:26:26	0	0
Murate of Potash	17:17:17	288.44	310.14
	14:35:14	239.23	238.64
	10:26:26	439.53	445.06
	12:32:16	No Production	270.74
	14:28:14	No Production	No Production
	10:26:26Z	No Production	438.1

### PART-C

#### Pollution Discharged to Environment per unit of output (Parameters as specified in the Consent issued by APPCB)

#### 2018-19 WATER

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharges (mass/Volume)	Percentage variation from standards with reasons	
			Standards	% Variation (+/-)
PH	Zero Liquid Discharge Plant	7.33	6.5 to 8.0	- 8.35%
TSS		72.83	100 mg/L	-27.17%
Oils & Grease		Nil	10 mg/L	-100%
BOD		38.26	100 mg/L	-61.74%
COD		97.40	250 mg/L	-61.04%

14m<sup>3</sup>/day is the water quantity generated from intermittent bleed off from cooling tower, boiler blow down, and Softeners regeneration. The water is collected in respective pits and pumped back to DAP plant for use in process.

**No liquid effluents are discharged from the process plant.**

## (b) Air:

## 2018-19 DAP PLANT STACK:

Pollutants	Quantity of pollutants discharged (MT/day) *			Concentration of pollutants in discharge (mg/Nm <sup>3</sup> )			Percentage variation from standards with reasons.			
	Train			Train			Standards mg/Nm <sup>3</sup>	% Variation (+/-)		
	A	B	C	A	B	C		Train		
	A	B	C	A	B	C		A	B	C
NH <sub>3</sub>	0.174	0.126	0.143	33.04	28.69	32.61	323	-89.77	-91.12	-89.90
Fluorine	0.003	0.003	0.004	0.71	0.67	0.94	25.0	-97.16	-97.33	-96.24
SPM	0.255	0.240	0.269	58.06	54.45	61.20	115	-49.51	-52.66	-46.78

\* 22 production hours per day for each train and release of stack gas volume of 2 Lakhs Nm<sup>3</sup>/Hr is considered for calculating quantity of pollutants discharged per day in each stream of the DAP plant.

## II. PRODUCT HANDLING PLANT:

POLLUTANTS	Concentration of pollutants in discharge (mg/Nm <sup>3</sup> )				Percentage variation from standards with reasons	
	Bag. Plant - 1 Stack-I	Bag. Plant 2 Stack-II	Bag. Plant-3 Stack-III	Screen House	Standards (mg/Nm <sup>3</sup> )	% Variation (+/-)
SPM	42.34	46.29	47.01	52.38	115	Stack-I: (-) 63.18 Stack-II: (-) 59.75 Stack-III: (-) 59.12 Sc. House: (-) 54.45

### III. Pollution load of our DAP Plant per ton of finished product for the year 2018-19.

Sl. No.	Description	Load in Kg. Per MT of finished Product.
1.	Ammonia loss	0.066
2.	Fluorine	0.002
3.	SPM	0.136

#### PART – D

#### Hazardous Wastes

(As specified under Hazardous Wastes/Management and Handling Rules, 1989)

Hazardous Wastes	Total Quantity in liters during the	
	Previous financial year 2017-18	Current financial year 2018-19
a. From process **	800 Liters	1430 Liters
b. From Pollution Control facilities	Nil	Nil

\*\* Used lubrication Oils are the only hazardous waste generated from the plant and disposed to authorised reprocessor M/s Lakshmi lubs, Vijayawada.

#### PART – E

#### Solid Wastes

Source	Total Quantity during the	
	Previous financial year 2017-18	Current financial year 2018-19
a) From process	NIL.	NIL.
b) From pollution control Facilities.	Not Applicable	Not Applicable
c)		
i) Quantity recycled or re-utilised within the unit in MT. @	5.80	
ii) Sold	NIL	NIL
iii) Disposed	@	@

- @ The solid waste generated in the raw water treatment plant, is the mud settled in the clarifloculator due to addition of coagulation agents lime and alum for turbidity removal in the raw water. The recovered solid waste is used for green belt development.

#### **PART – F**

**Please specify the characteristics (in terms of composition of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.**

1430 litres of Used lubrication oil is disposed to A.P Pollution Control Board authorised reprocessor M/s Durga Industry, Kotapadu.

The solid waste generated in the raw water treatment plant, is the mud settled in the clarifloculator due to addition of coagulation agents lime and alum for turbidity removal in the raw water. It basically constitutes fine mud particles with coagulation agent lime powder will be collected in clarifier blow down pit. 5.80 MT of sludge is removed during this year from the clarifloculator used for green belt development as manure.

#### **PART – G**

**Impact of the Pollution Control measures taken on conservation of natural resources and on the cost of production.**

Due to effective process control measures for conservation of natural resources in the plant, the following reduction in the specific consumption norms were achieved.

1. Coromandel, Kakinada makes use of solar energy as a non source of energy. We are having Solar water heating facility for the Boiler feed water heating purpose. This helps in reducing natural gas consumption for preheating purpose. The temperature of water can be increased up to 80 deg producing 120000 liters per day.
2. Beside this for reducing grid power reduction industry has taken the following initiatives.
  - a.) Installed 450 no's of LED energy saving lights resulted in savings of 277777 units per year.
  - b.) Installed 40 no's of IE3 motor installations of below 5HP ratings resulted in savings of 92592 units per year.
  - c.) Installed BLDC, replacing conventional fans resulted in savings of 36900 units per year.
3. The emission levels through stack are maintained well below the APPCB stipulated limits as indicate under Part-C, with implementation of Plant trip interlock. The system was incorporated for Ammonia release through stacks by 3 level engineering controls i.e High level Alarm at 200 ppm, PR trips at 250 ppm and Plant trips at 300 ppm. So as to ensure no abnormal release of Ammonia in to the atmosphere which is the way below the PCB norms.

4. Ammonia sensors are placed at strategic locations across the pipe line at ship unloading area and at prominent areas of the plant.

Plant has identified the time bound objectives under ISO 14001: 2015, ISO 45001:2018 and ISO 9001: 2015 from time to time and implementing the same for continual improvement of environmental performance and also to conserve the natural resources.

**Due to the efforts put up by the Company, towards improved efficiency and reduction in natural resources conservation has bagged the following prestigious awards**

YEAR	AWARDS AND ACCOLADES
2017-18	“Best Management Award” by Government of Andhra Pradesh.
	<b>EHS Excellence Award</b> 4 Star rated from CII, Chennai.
	Coromandel, Kakinada awarded with “ <b>India Biodiversity Award</b> ” on Conservation of Wild Spices by National Biodiversity Board, Government of India.
	CSR Times Award for Best Corporate in Green and Environment Stewardship for its CSR initiative on “ <b>Coromandel Birds Paradise</b> ”
2018-19	“Best Management Award” by Government of Andhra Pradesh.
	Coromandel, Kakinada awarded with “ <b>Andhra Pradesh Biodiversity Award</b> ” on conservation of Wild Spices by A P State Biodiversity Board. Vijayawada.
	“ <b>EHS Excellence Award</b> ” 4 Star rated received from CII, Chennai.
	“ <b>Environmental Best Practices Award</b> ” received from CII, Chennai.
	Coromandel, Kakinada has received an Appreciation certificate for “ <b>Outstanding service with a commitment</b> ” from the <b>District collector</b> during republic day celebrations for conducting District Offsite emergency mock drill in a successful and safe manner
	Coromandel, Kakinada received the “ <b>Strong Commitment Award for Model 5S Company</b> ” from Kanda Sen, ABK, AOTS.

**PART – H**

**Additional measures / investment proposal for environmental protection including abatement of pollution; prevention of pollution:**

	<b>Brief details of additional measures implemented</b>	<b>Investment in Rs in Lakhs</b>	<b>Expected Positive Impact</b>
1	Coromandel has installed three online continuous ambient air monitoring stations - The three AAQM stations were connected to the APPCB server.	Approx.Rs100 Lakhs	Maintain Ambient Air Quality well below the standards
2	We have developed and maintaining around 15 Acres of Green belt towards the north side of the plant.	Rs 150 Lakhs	Increased Biodiversity and maintain clean air
3	Coromandel has installed online Stack monitoring station in C Train and connected to APPCB server and CPCB servers	Rs 18 Lakhs	Stack emission monitoring and maintain all below the limits
4	Coromandel has installed online Stack monitoring stations in A & B Trains	Approx. 55 Lakhs.	Self regulation on emissions and transparency to stake holders
5	Coromandel has installed Web Cameras for better monitoring of liquid effluent discharges at Plant sumps.	Rs 5.5 lakhs	Self regulation on emissions and transparency to stake holders
6	Modification of Dedusting lines at Bagging Plant.1 to create dust free environment in working areas	Rs 25 lakhs	Maintain emissions well below the norms
7	Protection and survival of the Green Belt without disturbing Wet land Eco system	Rs 35-40 Lakhs ever year.	Will increase Biodiversity and maintains clean air.
8	Replacement of B Train Tail Gas Scrubber Stack Top portion	Rs 30 Lakhs	For better Emission monitoring and Condition monitoring of Stacks.
9	Replacement of Screen House Dedusting Stack and connected Scrubbers & Ducts.	Rs 40 Lakhs	For better Emission monitoring and Condition monitoring of Stacks.



<b>10</b>	Replacement of Acid Tailing at Sumps and Drains	Rs 25 Lakhs	To avoid land contamination.
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### PART – I

#### **Any other particulars for improving the quality of environment.**

Coromandel has already taken up the following initiatives to control the pollution and to protect the Environment. Coromandel is continuously putting efforts in maintaining the Environment friendly atmosphere.

**1.**Coromandel has installed solar water heating plant During the Year 1998 to supply pre-heated Boiler feed water to Boilers. This reduced the consumption of natural gas.

**2.**LSHS fuel was replaced by Natural Gas in the year 2001 - 02, for steam generation in Boiler and hot air generation in Combustion Chambers thereby reducing the emissions of green house gases, CO and Sulphur dioxide.

**3.**New Tail Gas Scrubbing systems were installed in February 2002 for improving the scrubbing efficiencies of stack gases, thereby reducing the stack emissions.

**4.**Coromandel has implemented Environmental Management System ISO 14001 – 1996 version in the year, 2004 and Certified by M/s. DNV. The System was later upgraded to 2004 version in the year, 2007. Various Objectives & Targets were taken year wise to improve Environmental conditions in the plant.

**5.**Coromandel has implemented Process Safety Management Systems on voluntary basis in the year, 2005 for effective control of the Safety Managements systems within the plant to ensure the environmental Safety in and around the plant.

**6.**Coromandel has certified for OHSAS 18001 – 1999 by M/s. DNV Auditors in the Year 2006-07 and later upgraded to 2007 version in the year, 2009. The Company has identified the risk associated with respect to the Occupational Health and Safety pertaining to the plant. Risk associated with the systems operations were also taken into consideration and necessary Control measures adopted and Training to the personnel was given.

**7.**Coromandel has under gone for surveillance audit of Integrated Management System by M/S DNV Auditors in the year of 2016-17.

**8.**Coromandel has mutually associated with Egree foundation for Identification, Development and Protection of Birds Habitat in green belt and development of bund method in water logged areas for protection of wet land Eco System.

**9.** Due to the Efforts taken by Coromandel in this Bird conservation, Plant has received so much appreciations from local and Statutory Bodies.

**10.** As on date 4000 Birds were recorded within the Coromandel premises out of which a few spices have been identified as rare, endangered which are in the verge of extinction.

**11.** Coromandel has under gone for Recertification audit of Integrated Management System by M/S DNV Auditors in the year of 2017-18.

**12.** Coromandel has under gone for New Version of Integrated Management System of ISO 14001: 2015, ISO 45001:2018 and ISO 9001: 2015 in the year of 2018-19.

**13.** Coromandel Biodiversity was picturized by Discovery Channel and telecasted in their channel as **“Between Soil and Sky – The Coromandel Story”** in the year of 2018-19.

**The following Environment improvement measures were undertaken during the year 2018-19.**

1. As a part of Environmental awareness campaign **“World Environmental Day”** was celebrated in plant on 5<sup>th</sup> June, 2018. On this occasion, Environment rally organized by APPCB, Regional Office, Kakinada and our employees participated in the rally. Various Competitions were conducted to Employees & Contract Workmen and prizes were distributed to the winners of the competition.
2. Coromandel Employees are actively participated in **“World Earth Day”** on 22<sup>nd</sup> April,2018, which was organized by APPCB, Regional office, Kakinada
3. .As a part of **“Vanamahotsavam Day”** on 17<sup>th</sup> July 2018. More than 1000 saplings were planted in North side greenbelt.
4. The Company is also maintaining **“lawn in Kakinada Town Railway station”** as a part of Corporate Social Responsibility.
5. Participated in **“International Coastal Clean Up Day”** on 21st September 2018 at NTR Beach, Kakinada.
6. As a part of Vinayaka Chavithi, 1000 no s Clay Idles are distributed to Employees and Contract workmen.

## 7. Health Checkups during 2018-19.

<b>Health Checkups done during 2018- 19</b>				
<b>S. No</b>	<b>Date</b>	<b>Type of Health checkup</b>	<b>Beneficiary type</b>	<b>Number of beneficiaries</b>
1.	March'19	Eye camp	Employees, Contract workmen	117
2.	March'19	Kidney function awareness	Non-management staff	95
3.	Jan' 19	Hepatitis B vaccination	Employees, Contract Workmen	150
4.	Dec'18	Cardiac screening 2D echo, employees' spouse	Employees spouse	65
5.	Dec'18	World AIDS day	Contract workmen	102
6.	Nov'18	Diabetic awareness session	Contract Workmen	177
7.	October'18	Typhoid vaccination	Contract workmen	38
8.	October' 18	Pulmonary function test	Contract Workmen	254
9.	August' 18	Audiometry test	Contract Workmen	149
10.	June '18	Hepatitis vaccination 2 <sup>nd</sup> dose	Employees, Contract Workmen	426
11.	June '18	Eye camp	Contract workmen	385
12.	May' 18	Awareness on Snake bite	Employees, contract workmen	200
13.	May'18	Awareness on Glaucoma	Contract workmen	170
14.	April'18	Dental Camp	Contract workmen	95
15.	April'17	Cardiac Awareness Camp	Employees	54
16.	April'18	Spirometry	Contract workmen, Employees	78

## **Corporate Social Responsibility Initiatives**

Coromandel International Limited (Coromandel) upholds the Group's tradition by earmarking a part of its income for carrying out its social responsibilities. We believe that social responsibility is not just a corporate obligation that has to be carried out but it is one's dharma. Therefore, our philanthropic endeavors are a reflection of our spiritual conscience and this provides us a way to discharge our responsibilities to the various sections of the society.

Coromandel has been carrying out Corporate Social Responsibility (CSR) activities for a long time through AMM Foundation, an autonomous charitable trust, in the field of Education and Healthcare, while also pursuing CSR activities for the benefit of community around its local areas of operations in Kakinada.

These are certain activities & support provided by Coromandel that benefits the surrounding community and have helped the society in large for improvisation in their community and are being successfully carried out. The following are the positive key inputs:

### **Livelihood Generation**

The initiative for women employment was designed to provide information and awareness on various skills and train women and the skill development for community youth. These had an impact on the society as a large and helped in the economic condition of the family.

### **Education**

- The Coromandel Girl Child Education Scheme (CGCES) is one of the oldest and successfully running across Government schools in and around Kakinada. It is to encourage IX and X students to continue their education and to recognise their talents and motivate their parents to send them to school.
- Infrastructural development activities in Government schools to ensure quality of education to all.

### **Healthcare**

- The Coromandel Medical Centres at Kakinada is running successfully in the practice of preventive healthcare and inculcate awareness towards leading healthy lifestyle. The CMC's cater to medical needs of the community which offer Out-patient facilities, injections/IV fluids, Nebulization and instant sugar testing.
- Need based Multi-specialty community medical camp is being organized across all villages surrounding Coromandel to benefit the surrounding communities.

### **Water Supply**

- Provision for safe drinking water through installations of RO water facilities in Government schools have been implemented.
- Installations of RO facilities at the neighborhood communities in Kakinada have largely impacted the communities by providing access to safe drinking water.

### **Social Infrastructure**

- Coromandel has been supporting health and hygiene in government schools through construction of toilets in Government schools.

### **Environmental Protection**

- Coromandel believes in making a difference to the environment and change lives for the better. Towards this, coverage under the Green Belt was expanded by 19 acres planting about 8,800 saplings across the manufacturing sites.
- Kakinada unit got a rare and unique recognition by United Nations Development Programme (UNDP) by turning a factory into bird sanctuary.

### **Details of Major Initiatives:**

**Coromandel Medical Centre** - Health care has been identified as one of the main focus areas for the communities in the locations. To increase health seeking behavior among the people and support healthy living for the benefit of the poor and the needy among the surrounding communities. Coromandel Medical Centre (CMC) had been set up to look after the initial medical requirements of people living in the surrounding areas of the Coromandel plant. The center will cater to the primary health issues of the public in the villages nearby. These initiatives are the outcome of the baseline study undertaken which accentuated the lack of healthcare facilities as one of the prime challenges and a concern for communities. The CMC cater to the medical needs of communities located in the vicinity. The center is providing medical services with and are supported by in-house pharmacy, Diagnostic services where the services are provided to the public, on cost to cost basis. The center is open to all people who would want to avail quality medical services. These Centers offer out-patient facilities including Injections/IV Fluids, Nebulization and ECG services and consultation for ten rupees by a qualified Doctor. On an average, more than 2400 people avail the services on a monthly basis.

**Girl Child Education Scholarship Scheme** - The Coromandel Girl Child Education Scheme (CGCES) has been conceptualized with the aim of providing educational assistance to girls in the neighborhood villages across the plant locations, to encourage them to continue their education. Among children not attending school there are twice as many girls as boys, and among illiterate adults there are twice as many women as men. Offering girls basic education is one sure way of giving them much greater power – of enabling them to make genuine choices over the kinds of lives they wish to lead. The Coromandel Girl Child Education Scheme has reached out to more than 5000 girls since inception and 2112 girls in 2018-19.

**Individual Household Toilets for the community** - The construction of Individual toilets has had a positive impact on the environmental sanitation conditions of the communities in Sari gam, Ankles war, Ranipet and Kakinada. Beneficiaries expressed their sincere thanks to Coromandel for taking the initiatives for the improvement of sanitation conditions and were very happy to improve their quality of life.

- Over 523 families have individual household toilets at their homes.

- Approximately 2000 family members are enjoying the accessibility to individual toilets and also privacy.
- The rural and tribal communities live in clean and healthy neighborhoods.
- Over 2000 persons have abandoned open defecation.
- The children, women, and the aged gained accessibility to the individual toilets.
- More than 2000 rural and tribal community members have increased awareness on proper sanitation.
- The rural and tribal communities are able to maintain personal hygiene.

**Safe Drinking Water Facility for schools & the community** - Priority was given to areas where no drinking water distribution systems exists across the plant locations, where quality of drinking water is not fit for human consumption, based on the ground water condition (dissolved solids), used RO & UV technology. As part of disinfection of water, integrated ultra-filtration technology along with ultra violet treatment for water and disinfection of water is also an integral part of water treatment plant. Coromandel encouraged PPP and involved local community for maintenance of RO Plant. Support and supplement Govt. schemes to provide Safe Potable Water of 20 liters for Rs. 2/- to each household. Coromandel has provided a supportive role in strengthening the program and to facilitate between the vendor, community and rural water supply department. Coromandel supported this comprehensive intervention as it is cost effective and saving lives. Coromandel established 24 RO Plants and reaching to 4200 families and 3318 school children.