

EHS/MoEF/15-04

Dec'1, 2016

Regional Office, (South Eastern Zone)
Ministry of Environment and Forests and Climate Change
1st Floor and 2nd Floor, HEPC Building
Cathedral Garden Road
Nunganbakkam, Chennai -600034

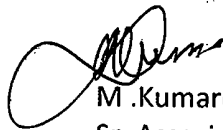
Dear Sir,

Sub: Half-Yearly EC(Environmental Clearance) compliance report – regd.
Ref: EC No: F No.J-11011/314/2007-IA-II(I) dt 31.08.2007

Please find attached herewith half-yearly condition wise compliance report of EC (Environmental Clearance) of Complex Fertilizer Plant from 2700 MTPD to 3900 MTPD.

Thanking You,

Yours faithfully,
For Coromandel International Limited



M. Kumaresan
Sr. Associate Vice President- Manufacturing

Enc:a/a

MPK/KRS

cc: Member Secretary, APPLB
zonal office, APPLB
Regional office, VSE, APPLB



MoEF-EC- COMPLIANCE STATUS OF Environmental Clearance (EC) issued by MoEF for enhanced production capacity of complex fertilizer plant from 2700 MTPD to 3900 MTPD

Reference: Ref: J11011/314/2007-IA II (1) dt.31.08.2007

A.) SPECIFIC CONDITIONS:

	CONDITION	COMPLIANCE STATUS
i)	The expansion of the project shall be based on process improvement, technology innovation, improving on stream-hours maximization of equipment capacity and continuous supply of raw materials. No Sulphuric acid and phosphoric acid plant shall be installed for additional requirement of Sulphuric and phosphoric acid. Due to enhancement of production pollution load shall not increase from the existing load.	<p>Expansion of the project carried out through the following process improvements and technology innovations :-</p> <p>Usage of higher capacity pipe-reactor with improved technology. Decreasing recycle ratio from 4.5 to 3.0. Upgrading drives for Dryer, bucket elevators, installation of new piping, pre-heaters and higher efficiency scrubber nozzles. Also enhanced infrastructure to handle the additional quantity of raw materials, bulk and finished products.</p> <p>No Sulphuric acid and phosphoric acid plant would be installed for additional requirement of Sulphuric acid and phosphoric acid.</p> <p>Any shortfall of Sulphuric acid and phosphoric acid shall be purchased from either Indian suppliers or imported.</p>
ii)	The project authorities shall install efficient scrubbing system to control fluorine emission and bag filters for dust control in phosphoric acid plant.	<p>Installed Bag - filters at Rock-grinding Section to meet the norms specified by the statutory authorities i.e. 50 mg / Nm³. At present, the gaseous emissions at the exit of fumes scrubber is less than 5 mg / Nm³.</p> <p>Presently the efficiency is 99%</p>

	CONDITION	COMPLIANCE STATUS
iii)	Multi stage scrubbing system shall be installed to control ammonia, fluorine and suspended particulate matter in fertilizer plant.	<p>Multi-stage (Four-stage) scrubbing system was incorporated for 'A' & 'B' Trains in the year 2001 and for C-Train, in the year 2000, at installation stage. Presently, the emissions of ammonia and fluorine from all the stacks are within the limits specified by the statutory authorities.</p> <p>The efficiency is more than 95%.</p> <p>Monitoring the fluoride emissions and meeting the standard of 5 mg/Nm³ from the stack of phosphoric acid plant and reports are being submitted to APPCB. In case of emergency plant will s/d immediately.</p> <p>There are 12 stacks present in the company. Out of the 12 stacks the process stacks are 7 nos. The gaseous emissions are being monitored on continuous basis with in house laboratory. Further, MoEF approved third party analysis is also carried out on monthly basis and the reports are submitted regularly.</p> <p>Complex A, Complex-B & Complex C train were installed with online stack analyzer and the data uploading to APPCB/ CPCB websites through cloud server.</p> <p>SAP-I & SAP-II installed with online stack analyzer and connected to APPCB websites.</p> <p>Since for PM and F, reliable technology is yet to be identified, it can be provided based on the guidance given by CPCB, New Delhi.</p>

EHS/MoEF/15-04

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Thanking You,

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M .Kumaresan
Sr. Associate Vice President- Manufacturing

Enc:a/a

MPK/KRS

CC: Member Secretary, APPCB
Zonal Office, APPCB
Regional Office, VSP, APPCB



	CONDITION	COMPLIANCE STATUS
iv)	The project authority shall install dust collection system in fertilizer bagging plant.	<p>We implemented Pipe reactor technology for improving the granulation and reduce the dust level.</p> <p>We have additionally implemented product dust prevention system by bringing modifications & improvements in the manufacturing process</p> <p>Additional product dust screens are arranged to remove the dust even before it reaches bagging plant.</p> <p>Product granulation aids (chemicals) are added to increase the granule strength as a result the product dust formation drastically reduced.</p> <p>We added de-dusting and scrubbing system for recovery of dust in the granulation plant.</p> <p>With the above actions we avoided dust formation and avoided installation of bag filters in bagging section .</p> <p>We installed AAQ station and the values are well within the limits and the data is uploaded to APPCB website.</p>
v)	The Sulphuric Acid Plant shall be based on double conversion double absorption technology and anodically protected acid coolers shall be provided. Start-up scrubbers shall be installed in both Sulphuric acid plants to minimize SO ₂ emission during start-up.	Installed alkali scrubbers in both the plants and SO ₂ emissions are below the APPCB limits and network connected to APPCB
vi)	The project authority shall install high efficiency scrubber nozzles, additional tail gas scrubber, improve the scrubber efficiency by optimizing the L/G ratio, install additional cyclones in scrubbing system,	Installed higher efficiency scrubber nozzles. Improved L/G ratio through installing higher capacity scrubber circulation pumps and standby cyclones kept in place.

	CONDITION	COMPLIANCE STATUS
	and install mist eliminators in scrubbers.	
vii)	Permission of the competent authority shall be obtained for drawl of additional quantity of 250m ³ /d existing Tatipudi and Meghadrigedda reservoirs.	No additional water is required from Municipal Corporation and existing quantities are adequate to meet additional requirement.
viii)	The gaseous emissions (SO ₂ , SO ₃ , NO _x , NH ₃ , F, fertilizer dust) and particulate matter from various process units shall conform to the standards prescribed by the concerned authorities from time to time. Emission data shall be periodically monitored and reports submitted to Ministry's Regional Office, CPCB and SPCB.	All gaseous emissions and particulate matter data from various process units are being monitored by third party and online stack. Data is being sent to APPCB, R.O every month before 5 th , along with monthly returns.
ix)	All the wastewaters generated from the various processes shall be recycled / reuse in the plant and zero discharge shall be maintained. The domestic wastewater shall be treated in septic tanks and treated waste shall be used for irrigation in the greenbelt.	Zero effluent discharge from complex fertiliser plant and effluents from Sulfuric acid & Phosphoric acid will be treated and discharged into sea. New ETP constructed and kept in operation
x)	The proponent shall not withdraw groundwater for the plant and if it requires, the permission from the competent authority CGWA / SGWB shall be obtained.	Plant operations not required ground water.
xi)	The company shall develop the greenbelt in atleast 25% land area to mitigate the effect of fugitive emissions and noise as per the guidelines CPCB.	Out of the 428 acres, the revised land area is 338 (after demarking from VPT) and the green belt is developed in 126 acres area which is more than 33%. Hence Complied.
xii)	The company shall implement all the recommendations made in the Charter on Corporate Responsibility for Environmental Protection (CREP) for fertilizer industries	All the recommendations are being complied Annexure-I

B) GENERAL CONDITIONS:

	CONDITION	COMPLIANCE STATUS
i)	The project authorities shall strictly adhere to the stipulations of the SPCB/state government or any statutory body.	*CFO valid up to 31.10.2021.
ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations 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 conditions imposed and to add additional environmental protection measures required, if any.	No further expansion would be taken up without prior environment clearance.
iii)	At no time, the emissions 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.	In case of any upset in the process resulting in increase of emissions, the plant is stopped immediately for taking necessary actions.
iv)	The locations of ambient air quality monitoring stations shall be reviewed in consultation with the State Pollution Control Board (SPCB) and additional stations shall be installed, if required, in the downwind direction as well as where maximum ground level concentrations are anticipated.	1) Installed four online monitoring AAQM stations i.e three in inside the plant and fourth at Mulagada village. AAQM station in Mulagada Village Damaged due to Hud-Hud Cyclone, Letter Sent to m/s HZL with CC to EE, VSP 2) Bagging AAQM installation completed, connected to APPCB website. At Mulagada, currently observing the CPCB methodology of Monitoring and complying. 3) In addition to the above, at 2 AAQMS-- it is also being monitored by MoEF approved agency as per the CPCB guidelines. (Annexure-II)
v)	Dedicated scrubbers and stacks of appropriate height as per the Central Pollution Control Board guidelines shall be provided to control the emissions from various vents. The scrubbed water shall be sent to ETP for further treatment.	Installed stacks to the scrubbers as per the CPCB guidelines. Scrubbing liquid generated in the complex plant is reused in the process. In Phosphoric Acid, The fluorine recovery is done converting it to

	CONDITION	COMPLIANCE STATUS
		Hydro-flouro silicic acid.
vi)	All the storage tanks will be under negative pressure to avoid any leakages. Breather valves, N ₂ blanketing and secondary condensers with brine chilling system shall be provided for all the storage tanks to minimize vapor losses. All liquid raw material shall be stored in storage Tanks and Drums.	Installed atmospheric ammonia storage tanks to store ammonia. Ammonia sensors are located at various locations within the factory premises.
vii)	The company shall undertake following Waste Minimization measures.	Installed grinding unit to recycle filter cake into granulation plant
	➤ Metering and control of quantities of active ingredients to minimize waste.	Constructed acid recovery pits to reuse in the process
	➤ Reuse of by-products from the process as raw materials or as raw material substitutes in other processes	Identified dedusting points and connected to cyclones
	➤ Use of automated filling to minimize spillage.	Water meters and energy meters provided to water lines and pollution control equipments
	➤ Use of "Close Feed" system into batch reactors.	No
	➤ Venting equipment through vapor recovery system.	
	➤ Use of high-pressure hoses for equipment cleaning to reduce wastewater generation.	
viii)	Fugitive emissions in the work zone environment, product, and raw materials storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the State Pollution Control Boards/Central Pollution Control Board.	Being measured quarterly as per factories act 1948 Standards and also procured workplace monitoring equipment to monitor frequently.
ix)	The project authorities shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000 and Hazardous Waste (Management and Handling) Rules, 1989, as amended from time to time. Authorization from the SPCB shall be obtained for collection, treatment, storage, and disposal of hazardous wastes.	Maintaining FORM-3 and FORM-13 as per Hazardous waste management rules.

	CONDITION	COMPLIANCE STATUS
x)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Being monitored monthly and suggested ear plugs wherever necessary and implemented double door system to all control rooms
xi)	The company shall develop rainwater-harvesting structures to harvest the run off water for recharge of ground water.	Noted
xii)	Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained as per the Factories Act.	Dedicated OHC is available within the factory premises with full time doctor availability. Regularly conducting Annual medical check-up for employees and contract workmen according to Factories act
xiii)	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment. The eco-development plan should be submitted to the SPCB within three months of receipt of this letter for approval.	1) Four stage scrubbing system in complex plant to minimize ammonia emissions 2) Changeover to dry gypsum disposal system from wet disposal system. 3) Installed pipe conveyors to transfer raw sulfur, rock phosphate & product to minimize the dust pollution as well as spillages 4) Community welfare measures being taken up through CSR activities
xiv)	The project proponent shall also comply with all the environmental protection measures and safeguards proposed in the EIA / EMP report.	Environmental protection measures undertaken according to the APPCB directions
xv)	A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Environmental Management Cell is present headed by AGM-EHS and Emissions & Effluents being monitored by in-house laboratory.

	CONDITION	COMPLIANCE STATUS
xvi)	The project authorities shall earmark adequate funds to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	The Project was supported with Internal Fund Allocations. All the projects were completed by 2009-10.
xvii)	The implementation of the project vis-à-vis environmental action plans 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.	Noted and compliance report being sent to respective boards.
xviii)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at 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 newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	Advertised in prominent news papers in local language and also English, and copies were forwarded to Regional Office, MoEF, bangalore and SPCB.
xix)	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.	The additional production is envisaged through process modifications and optimization of process parameters. The investment made in this project is met through internal resources. All the projects were completed by 2009-10.

MoEF Approved Lab Ambient Air Quality Data 2016-17

SI.No.'s	Location parameter	Caferitia/SSC					Near DG Sets					near gate No. 13				
		Pm2.5	Pm10	so2	Nox	NH3	Pm2.5	Pm10	so2	Nox	NH3	Pm2.5	Pm10	so2	Nox	NH3
1	April'16	25.6	49	13.3	16.9	0.1	30.7	62.8	15.8	20	0.07	32.2	73.15	11	18.7	0.09
2	May'16	30.8	62.6	18.5	23.9	0.05	29.2	58.4	20.6	27.9	0.08	31.9	72.6	16	26.4	0.05
3	June'16	34	69	20.3	26.2	0.1	28	56	19.5	26.5	0.07	30	69	15.2	25.1	0.05
4	July'16	33	68	19.3	25.7	0.09	29	60	19.2	26	0.07	33	70	14.9	24.6	0.05
5	August'16	35	74	19.9	25	0.08	31	66	20.9	26.1	0.07	36	75	15.5	23.9	0.06
6	September'16	34	72	18.5	25.1	0.09	35	71	19.85	25.6	0.08	39	81	15.1	24.2	0.05

Registered Office :

B-115, 116, 117 & 509, Annapoorna Block, Aditya Enclave, Ameerpet, Hyderabad - 530038.
Ph. : (O) 040-23748555 / 23748616, Fax : 040-23748666, Email : teamlabs@gmail.com

ISO 9001 : 2008, ISO 14001 : 2004 and OHSAS 18001 : 2007 Certified Organization
Laboratory Recognised by Ministry Environment, Forests and Climate Change, Gol, New Delhi

TEST REPORT

Test Report No. TLC/V/Env/CIL/11/0916

dt.01.10.2016

Description of Test: Ambient Air quality Monitoring inside the CFL

Name of the client: Coromandel International Limited, Visakhapatnam

Location of sampling: Stations as per details given

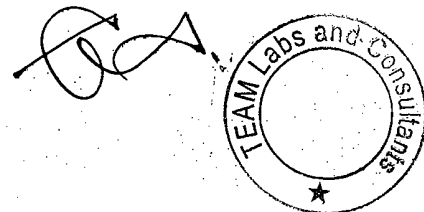
Period of Monitoring : For the Month of SEPTEMBER-2016

Summary of Ambient Air quality Monitoring Data for the Month of SEPTEMBER-2016

Parameters		AAQ-1 Station at the Top of Cafeteria	AAQ-2 Station near DG sets	AAQ-3 Station at Gate -13
PM2.5	Minimum	30	30	37
	Maximum	38	39	44
	98%tile	38	39	44
	Average	34	35	39
PM 10	Minimum	68	64	75
	Maximum	80	78	86
	98%tile	80	78	86
	Average	72	71	81
SO ₂	Minimum	15.2	16.5	12.6
	Maximum	22.1	23.1	16.8
	Average	18.5	19.85	15.1
	98%tile	22.1	23.1	16.8
NO _x	Minimum	22.4	24.3	21.5
	Maximum	28.5	27.2	26.5
	98%tile	28.5	27.2	26.5
	Average	25.1	25.6	24.2
NH ₃	Minimum	0.08 mg/M ³	0.06 mg/M ³	0.04 mg/M ³
	Maximum	0.11 mg/M ³	0.10 mg/M ³	0.06 mg/M ³
	98%tile	0.11 mg/M ³	0.10 mg/M ³	0.06 mg/M ³
	Average	0.09 mg/M ³	0.08 mg/M ³	0.05 mg/M ³

All values are expressed in $\mu\text{g}/\text{m}^3$
except Ammonia

For TEAM Labs and Consultants



Registered Office :

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TEST REPORT

Test Report No. TLC/V/Env/CIL/11/0816

dt.01.09.2016

Description of Test: Ambient Air quality Monitoring inside the CFL

Name of the client: Coromandel International Limited, Visakhapatnam

Location of sampling: Stations as per details given

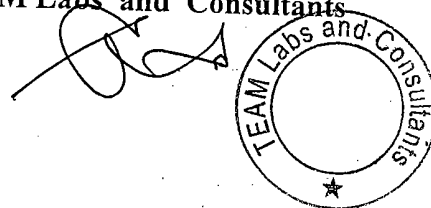
Period of Monitoring : For the Month of AUGUST-2016

Summary of Ambient Air quality Monitoring Data for the Month of AUGUST-2016

Parameters		AAQ-1 Station at the Top of Cafeteria	AAQ-2 Station near DG sets	AAQ-3 Station at Gate -13
PM2.5	Minimum	30	27	30
	Maximum	41	34	42
	98%tile	41	34	42
	Average	35	31	36
PM 10	Minimum	62	59	64
	Maximum	84	74	85
	98%tile	84	74	85
	Average	74	66	75
SO ₂	Minimum	15.8	15.8	12.8
	Maximum	24.0	27.5	18.0
	Average	19.9	20.9	15.5
	98%tile	24.0	27.5	18.0
NO _x	Minimum	20.8	23.3	21.5
	Maximum	28.9	29.0	26.1
	98%tile	28.9	29.0	26.1
	Average	25.0	26.1	23.9
NH ₃	Minimum	0.08 mg/M ³	0.04 mg/M ³	0.04 mg/M ³
	Maximum	0.10 mg/M ³	0.10 mg/M ³	0.09 mg/M ³
	98%tile	0.10 mg/M ³	0.10 mg/M ³	0.09 mg/M ³
	Average	0.08mg/M ³	0.07 mg/M ³	0.06 mg/M ³

All values are expressed in $\mu\text{g}/\text{m}^3$ except Ammonia

For TEAM Labs and Consultants



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ISO 9001 : 2008, ISO 14001 : 2004 and OHSAS 18001 : 2007 Certified Organization
Laboratory Recognised by Ministry Environment, Forests and Climate Change, Govt, New Delhi**TEST REPORT**

Test Report No. TLC/V/Env/CIL/11/0716

dt.03.08.2016

Description of Test: Ambient Air quality Monitoring inside the CFL

Name of the client: Coromandel International Limited, Visakhapatnam

Location of sampling: Stations as per details given

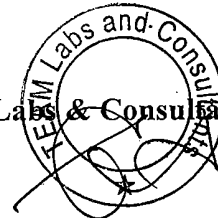
Period of Monitoring: For the Month of JULY-2016

Summary of Ambient Air quality Monitoring Data for the Month of JULY-2016

Parameters		AAQ-1 Station at the Top of Cafeteria	AAQ-2 Station near DG sets	AAQ-3 Station at Gate -13
PM2.5	Minimum	27	24	29
	Maximum	40	35	37
	98%tile	40	35	37
	Average	33	29	33
PM 10	Minimum	60	55	64
	Maximum	74	69	78
	98%tile	74	69	78
	Average	68	60	70
SO ₂	Minimum	13.2	15.7	12.9
	Maximum	25.1	28.7	17.2
	Average	19.3	19.2	14.9
	98%tile	25.1	28.7	17.2
NO _x	Minimum	18.6	24.6	22.6
	Maximum	30.0	27.5	26.0
	98%tile	29.9	27.5	25.9
	Average	25.7	26.0	24.6
NH ₃	Minimum	0.08 mg/M ³	0.05 mg/M ³	0.03 mg/M ³
	Maximum	0.11 mg/M ³	0.08 mg/M ³	0.08 mg/M ³
	98%tile	0.11 mg/M ³	0.08 mg/M ³	0.08 mg/M ³
	Average	0.09 mg/M ³	0.07 mg/M ³	0.05 mg/M ³

All values are expressed in $\mu\text{g}/\text{m}^3$
except Ammonia

For Team Labs & Consultants



Labs and Consultants

610

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Laboratory Recognised by Ministry Environment, Forests and Climate Change, Gol, New Delhi

TEST REPORT

Test Report No. TLC/V/Env/CIL/11/0616

dt.04.07.2016

Description of Test: Ambient Air quality Monitoring inside the CFL

Name of the client: Coromandel International Limited, Visakhapatnam

Location of sampling: Stations as per details given

Period of Monitoring : For the Month of JUNE-2016

Summary of Ambient Air quality Monitoring Data for the Month of JUNE-2016

Parameters		AAQ-1 Station at the Top of Cafeteria	AAQ-2 Station near DG sets	AAQ-3 Station at Gate -13
PM2.5	Minimum	27	23	27
	Maximum	40	33	34
	98%tile	40	33	34
	Average	34	28	30
PM 10	Minimum	61	50	65
	Maximum	75	61	75
	98%tile	75	61	75
	Average	69	56	69
SO ₂	Minimum	13.5	16.0	13.2
	Maximum	26.8	29.3	17.5
	Average	26.7	28.1	17.4
	98%tile	20.3	19.5	15.2
NO _x	Minimum	19.0	25.1	23.1
	Maximum	30.6	28.1	26.5
	98%tile	30.5	28.1	26.4
	Average	26.2	26.5	25.1
NH ₃	Minimum	0.09 mg/M ³	0.06 mg/M ³	0.03 mg/M ³
	Maximum	0.12 mg/M ³	0.09 mg/M ³	0.08 mg/M ³
	98%tile	0.12 mg/M ³	0.09 mg/M ³	0.07 mg/M ³
	Average	0.10 mg/M ³	0.07 mg/M ³	0.05 mg/M ³

All values are expressed in $\mu\text{g}/\text{m}^3$
except Ammonia

For TEAM Labs and Consultants



BHAGAVATHI ANA LABS

TEST REPORT

Test Report No. BALL/V/Env/CIL/11/0516

dt.04.06.2016

Description of Test: Ambient Air quality Monitoring inside the CFL
Name of the client: Coromandel International Limited, Visakhapatnam
Location of sampling: Stations as per details given
Period of Monitoring : For the Month of MAY-2016

Summary of Ambient Air quality Monitoring Data for the Month of MAY-2016

Parameters		AAQ-1 Station at the Top of Cafeteria	AAQ-2 Station near DG sets	AAQ-3 Station at Gate -13
PM2.5	Minimum	24.8	24.0	28.8
	Maximum	36.8	33.6	36.0
	98%tile	36.8	33.4	35.7
	Average	30.8	29.2	31.9
PM 10	Minimum	55.8	52.2	68.4
	Maximum	68.4	63.9	78.9
	98%tile	68.1	63.5	78.5
	Average	62.6	58.4	72.6
SO ₂	Minimum	12.3	16.8	13.9
	Maximum	24.4	30.8	18.4
	Average	24.2	29.5	18.3
	98%tile	18.5	20.6	16.0
NO _x	Minimum	17.3	26.4	24.3
	Maximum	27.8	29.6	27.9
	98%tile	27.7	29.6	27.8
	Average	23.9	27.9	26.4
NH ₃	Minimum	0.08 mg/M ³	0.06 mg/M ³	0.03 mg/M ³
	Maximum	0.11 mg/M ³	0.09 mg/M ³	0.08 mg/M ³
	98%tile	0.11 mg/M ³	0.09 mg/M ³	0.08 mg/M ³
	Average	0.05 mg/M ³	0.08 mg/M ³	0.05 mg/M ³

All values are expressed in $\mu\text{g}/\text{m}^3$
except Ammonia

For Bhagavathi Ana Labs Pvt Ltd.

Bhagavathi Ana Labs Pvt. Ltd. Central Laboratory - Industrial Testing Division
(A Bureau Veritas Group Company)

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BHAGAVATHI ANA LABS

TEST REPORT

Test Report No. BALI/V/Env/CIL/H/0416

dt.04.05.2016

Description of Test: Ambient Air quality Monitoring inside the CFL

Name of the client: Coromandel International Limited, Visakhapatnam

Location of sampling: Stations as per details given

Period of Monitoring: For the Month of APRIL-2016

Summary of Ambient Air quality Monitoring Data for the Month of APRIL-2016

Parameters		AAQ-1 Station at the Top of Cafeteria	AAQ-2 Station near DG sets	AAQ-3 Station at Gate -13
PM2.5	Minimum	21	24	29
	Maximum	30	34	36
	Average	25.6	30.7	32.2
	98%tile	30.0	34.0	35.7
PM 10	Minimum	41	56	69
	Maximum	53	58	79
	Average	49.0	62.8	73.15
	98%tile	54.0	68.0	78.6
SO ₂	Minimum	7.8	11.9	9.9
	Maximum	17.3	19.5	13
	Average	13.3	15.8	11.0
	98%tile	17.3	19.4	12.8
NO _x	Minimum	12.3	18.7	17.2
	Maximum	19.7	20.9	19.7
	Average	16.9	20.0	18.7
	98%tile	19.7	20.9	19.7
NH ₃	Minimum	0.04 mg/M ³	0.05 mg/M ³	0.04 mg/M ³
	Maximum	0.09 mg/M ³	0.07 mg/M ³	0.09 mg/M ³
	Average	0.10 mg/M ³	0.1 mg/M ³	0.06 mg/M ³
	98%tile	0.10 mg/M ³	0.07 mg/M ³	0.09 mg/M ³

All values are expressed in $\mu\text{g}/\text{m}^3$
except Ammonia

For Bhagavathi Ana Labs Pvt Ltd.

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CHARTER ON CORPORATE RESPONSIBILITY FOR ENVIRONMENT PROTECTION

Wastewater Management

1	Efforts will be made for conservation of water, particularly with a target to have consumption less than 8, 12 and 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 feedstock, 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.	Our ammonia plant was shut down during May 1999 and was subsequently dismantled during the first quarter of 2003. Hence, not applicable to us.
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.	Urea plant was shut down during the year 1997 and dismantled in the year 2000. Hence, not applicable to us.
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.	All our cooling towers in our plant are of non-chromate base type. Installed fluorine recovery unit and effluent treatment plant for the removal of fluoride at source level.
4	Proper and complete nitrification and de-nitrification will be ensured, wherever such process is used for effluent treatment, by September 2003.	Not applicable to us
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.	Ground water monitoring through 5 piezo wells around the plant and reports are furnishing to APPCB regularly.

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.	Plant effluent drains are separated from storm water drains. Plant drains are recycled and in some cases routed to ETP for treatment. Installed dry gypsum disposal system in place of wet disposal and commissioned cooling tower for barometric condensers.
7	The industries, where waste water/effluent flows through the storm water drains even during the dry season will install continuous systems for monitoring the storm water quality for pH, ammonia and fluoride. If required, storm water will be routed through effluent treatment plant before discharging. An action plan will be submitted by June 2003 and necessary action will be taken by June 2004.	Commissioned new ETP and kept in operation

Air Pollution Management

1	All the upcoming urea plants will have urea prilling towers based on natural draft so as to minimize urea dust emissions.	Not applicable to us
2	The existing urea plants, particularly, the plants having forced draft prilling towers, will install appropriate systems (e.g. scrubber, etc.) for achieving existing norms of urea dust emissions. In this regard, industries will submit action plan by June 2003 and completion of necessary actions by June 2004.	Not applicable to us
3	The sulphuric acid plants having SCSSA system will switch over to DCDA system by March 2004 to meet the emission standard for SO ₂ as 2 kg / tonne of H ₂ SO ₄ produced. An action plan for this will be submitted by June 2003.	Our sulfuric acid plant was switched over to DCDA in the year 1975 to achieve 1 Kg of SO ₂ per tonne of Sulfuric acid. Hence not applicable.

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 are having capacity upto 300 tpd. An action plan will be submitted by June 2003 and emission levels will be complied with by September 2004.	In 2002, the converter and absorber are up rated and modified to get less than 1 Kg/MT without scrubber. The current SO ₂ emission levels in old sulfuric acid plant (1400 MTPD) and as well as new sulfuric acid plant (300 MTPD) is less than 0.65 Kg/MT of acid produced and hence not applicable.
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.	Stack at old sulfuric acid plant was installed based on the CPCB guidelines in the year 1989, which was replaced with a new one in the year 2002. Followed CPCB guidelines for the new sulfuric acid plant stack height also.
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.	Presently the particulate emissions at rock phosphate grinding unit are well below the limit of 50 mg/Nm ³ . Hence, no action is called for.
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 (25mg/NM ³).	The present fluoride stack emission levels in the phosphoric acid plant as well as from Complex plant are well within the limit of 5 mg/Nm ³ . Hence, no action is called for.
8	Continuous SO ₂ emission monitoring systems will be installed in sulphuric acid plants (having capacity 200 tpd and above) by March 2004. Action plan for this will be submitted by June 2003.	Installed online SO ₂ analyzer of Rosemont make in the year 1989, which was replaced with a new one in the year 2002 and also installed SO ₂ online analyzer for the new sulphuric acid plant during commissioning of the plant in the year 2005 and network connected to PCB server
9	Regular monitoring of ambient air quality with regard to SO ₂ , NO _x , and PM, SO ₃ , fluoride and acid mist will be carried out.	Being monitored regularly and installed online AAQM stations and network connected to PCB server

Solid Waste Management

1	Gypsum will be effectively managed by providing proper lining, dykes with approach roads and monitoring of groundwater quality around storage facilities. Accumulated gypsum will be properly capped. In this regard, action plan will be submitted by June 2003 and for compliance by December 2003.	Switched over to dry gypsum disposal system in year 2009 and 5 acres of land lined with HDPE lining with garland drainage system. The collected leachate recycling to phosphoric acid plant.
2	An action plan for proper handling, storage and disposal of spent catalyst having toxic metals will be submitted by June 2003 and implemented by September 2003. The industry will also explore recovery/buy-back of spent catalyst by September 2003.	Spent vanadium pentoxide generated in sulfuric acid plant is collected in drums wrapped with polythene cover and stored in a covered shed as per Hazardous waste Management guidelines. The same is being disposed to TSDF of M/s. Coastal Waste Management, Project, Visakhapatnam (A division of M/s Ramky Enviro Engineers Ltd.). Exploring disposal to CPCB approved / Chattisgarh Pollution control Board approved recycler this year.
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.	Usage of solid sulfur is mostly replaced with molten sulfur. Sulfur muck generated during occasional use of solid sulfur is separately stored on lined pad and the same is being reused as filler in the granulator plant on continuous basis.
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.	Not applicable to us