



CHAMBAL FERTILISERS AND CHEMICALS LIMITED

SM-EQC/13A/123/
July 30th, 2020

211663

The Regional Officer,
Rajasthan Pollution Control Board,
Plot No. Special 2A, Road No.6,
Paryavaran Marg, Indraprasth Industrial Area,
KOTA - 324 005.

Sub : **Environmental Audit Statement
(Combined for Phase-I & Phase-II)**

Dear Sir,

Enclosed please find Environmental Audit Statement for the financial year 2019 - 2020 for both the phases (I & II) in the Form-V duly filled in for your perusal and records.

Hope you will find the above in order.

Thanking You,

Yours faithfully,

For "**CHAMBAL FERTILISERS AND CHEMICALS LTD.**"

Rajnish Chaba
General Manager-Technical

SM-EQC/13A/123/ 332047

cc : The Member Secretary,
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri,
JAIPUR-302004

FORM NO.V
(See rule 14)

Environmental Statement for the financial year ending the 31st March 2020

PART-A

i)	NAME AND ADDRESS OF THE OWNER / OCCUPIER OF THE INDUSTRY, OPERATION OR PROCESS.	MR. GAURAV MATHUR JOINT MANAGING DIRECTOR CHAMBAL FERTILISERS AND CHEMICALS LTD. P.O.GADEPAN, PIN 325 208 DISTT. KOTA (RAJ).
ii)	INDUSTRY CATEGORY PRIMARY - STC CODE SECONDARY - SIC CODE	RED CATEGORY.
iii)	PRODUCTION CAPACITY (UNITS-MT) # 01 Phase-I 02 Phase-II # As per consent	AMMONIA - 2000x365 = 730000 TPA UREA - 3500x365 = 1277500 TPA AMMONIA - 1900x365 = 693500 TPA UREA - 3300x365 = 1204500 TPA
iv)	YEAR OF ESTABLISHMENT (COMMERCIAL PRODUCTION DECLARED) 01 Phase -I 02 Phase-II 03 Stage-I revamp Gadepan-I Commissioned 04 Stage-I revamp Gadepan-II Commissioned	01.01.1994 20.10.1999 31.03.2009 28.04.2009
v)	DATE OF THE LAST ENVIRONMENTAL STATEMENT SUBMITTED.	30.07.2019 (Combined for Phase-I & Phase-II)

PART -B

WATER AND RAW MATERIAL CONSUMPTION

1. WATER CONSUMPTION M³/DAY

Category	Phase-I (M3/Day)	Phase-II (M3/Day)
PROCESS	3459.9	2593.2
COOLING	12473.9	11471.7
DOMESTIC	180.8	180.6

For details see table: 1 A & 1 B

Name of Product	Water Consumption per MT of product output			
	PHASE-I		PHASE-II	
	During the Financial year 2018-2019	During the Financial year 2019-2020	During the Financial year 2018-2019	During the Financial year 2019-2020
Urea	4.94M3 / MT	5.19 M ³ / MT	4.74 M3/ MT	4.91 M3/ MT

2. RAW MATERIAL CONSUMPTION

Name of Raw Material	Name of Product	Consumption of Raw Material per MT of product output	
		During the Financial Year 2018-2019	During the Financial Year 2019-2020
PHASE-I			
i) Natural Gas, SM3/MT of Urea	UREA	663.832	697.394
ii) Naphtha, Kg/MT of Urea		0.000	0.000
PHASE-II			
i) Natural Gas, SM3/MT of Urea	UREA	650.402	638.762
ii) Naphtha, Kg/MT of Urea		0.00	0.000

PART - C

Pollutants discharged to environment / unit of output
(Parameters as specified in the Consent issued)

- a) WATER POLLUTANTS
b) AIR POLLUTANTS

For details see table: 2 A, 2 B
For details see table: 3 A, 3 B & 4

PART-D

HAZARDOUS WASTE

[As specified under Hazardous & Other wastes (Management and Transboundary Movement), Rules, 2016]

Hazardous Wastes	Total Quantity					
	During the Financial Year 2018-2019			During the Financial Year 2019-2020		
a) From Process	21.384 MT of Used Oil (Phase-I & II)	NIL MT Spent Catalyst was generated	88 Nos of discarded container was generated	31.68 MT of Used Oil (Phase-I & II)	198.411 MT Spent Catalyst was generated	143 Nos of discard contain was genera
b) From Pollution Control facilities	NIL			NIL		

For details see Table -5

PART – E

SOLID WASTES

	Total Quantity (MT)	
	During the Financial Year 2018-2019	During the Financial Year 2019-2020
a) From Process		
i) Water Pre-Treatment clarifier sludge	47.0 MT	38.0MT
ii) DM Plant used Resin	8.40 KL	18.3 KL
iii) From Sewage treatment plant (Phase - I & II).	1.80 MT	2.1 MT
b) From Pollution Control Facility	NIL	NIL
c)		
i) Quantity recycled or reutilized within the unit	48.80 MT	40.1 MT
ii) Sold	NIL	NIL
iii) Disposed	8.40 KL	18.3 KL

PART – F

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

1. **Hazardous Waste**
2. **Solid Waste**



FOR DETAILS SEE TABLE : 5

PART – G

Impact of the Pollution abatement measures taken on conservation of Natural resources and the cost of production.

Smooth operation of Pollution abatement measures has resulted in following impact in conservation of Natural resources and the cost of production.

- a) Complete recycle of Ammonia and Urea Plant Process condensates after treatment in the plant itself resulting in recovery of Ammonia, CO₂ and Urea and also serves as water conservation measure.
- b) Complete recycle of Turbine and other steam condensates to conserve water and chemicals.

- c) Due to Natural Draft Prilling Towers, emission of Urea dust is very low, which conserves the natural resource and increase the production.
- d) Due to use of clean fuel and state of art technology, emissions are minimized.
- e) Proper schedule of preventive maintenance and centrifuging of oil on all critical machines is there to minimize used oil generation.
- f) Reduction in Raw water consumption has been achieved by:
 - (i) Maximum recycling of Service Water, Air Compressor Interstage Condensate etc., which were earlier being drained in surface drain.
 - (ii) Using Service water from sample coolers in Ammonia, SPG and Urea Plant as recycle to Cooling Towers.
 - (iii) Using surface drain water for Green Belt Development in different plant area like: Bagging, ETP & Cooling Towers by installing portable pumps.
 - (iv) Using Boiler blow downs as cooling tower make up.
 - (v) Using treated effluent for irrigation of green belt, lawns and demonstration farm.
 - (vi) Providing Push type cock valves instead of normal valves for washbasins in certain areas and sensor based flushing system in toilets.
 - (vii) Recycling backwash water from Sand filters to raw water reservoir in WPT plant.
 - (vii) Optimization of regeneration cycle of Ion-exchangers beds in DM plant to reduce effluent generation by modifying flow-measuring instruments.
- g) Reduction of power consumption by optimum use of electrical lights in plants by installing timers.
- h) By proper collection of spilled urea & recycled back in process from different locations in bagging plant.
- i) Running of Cooling towers on High cycle of concentration and reducing of water losses through blowdown.

PART – H

Additional Measures / Investment proposal for environmental protection including abatement of Pollution, prevention of Pollution.

Efficient measures for abatement of pollution were implemented under the original project in 1993 & 1999 for Phase-I & Phase-II respectively. These are working satisfactorily. However, following additional measures have been taken during Revamping of Phase-1 Plants for energy conservation during annual turn around in March 2009.

Phase-I

Sr. No	SCHEME
1	Installation of Variable Frequency Drive (VFD) for Ammonia Feed Pumps in 11-Unit of Urea-I plant
2	Installation of Variable Frequency Drive (VFD) in Lean & BFW Pumps in Lean Solution in Ammonia-I plant
3	Installation of Ammonia product heater in Ammonia-I plant
4	Up-rating of Synthesis gas compressor in Ammonia-I plant
5	Installation of additional cooling tower cell for Ammonia-I plant
6	Replacement of Low temperature shift converter and Methanator catalyst with new catalyst in Ammonia-I plant.
7	Modification of Methanator outlet nozzle to reduce the pressure drop across reactor in Ammonia -I plant
8	Complete overhauling of Gas turbine-II along with the replacement of rotor (upgraded) and 1st & 2nd stage buckets
9	Installation of KRES & New secondary reformer.
10	By bringing down flue gas temperature from 175°C to 122°C - Replacement of Combustion Air pre-heater. - Installation of Additional NG Feed & Fuel preheat coil.
11	Installation of Additional converter and Loop Boiler.
12	To increase the operating pressure of Process condensate stripper up to 0.9 Kg/cm ² g from 0.2 Kg/cm ² g and recover heat in DM water.
13	Measures to reduce pressure drop in Front End. - BFW Pre-heaters (E-211) configuration change from series to parallel. - Parallel line from methanator to Synthesis gas compressor for reducing Pressure drop
14	Variable frequency drive - Aux. Boiler FD fan in O&U - Cold Ammonia Pump (P-501) - Condensate export pump (P-13)
15	Replacement of wear rings of Cooling Tower pumps with non-metallic material (PEEK)
16	Usage of C-3 Off gasses as fuel in Ammonia-I plant

17	Installation of Pre-concentrator and MP Pre-decomposer.
18	Installation of Variable Frequency Drive (VFD) in Ammonia feed pumps in 21-Unit of Urea-I plant
19	Replacement of Ammonia converter basket from two bed basket to three bed basket in Ammonia-I plant.
20	Replacement of high pressure steam line insulation.
21	Installation of Light Emitting Diode (LED) lamps, tubes and lighting fixtures replacing conventional lights in Gadepan complex.
22	Replacement of Air Compressor 2nd & 3rd stage intercoolers in Ammonia-I
23	Installation of additional hydrolyzer preheater in Urea-I.

Phase-II

SR. NO.	SCHEME
1	De-bottlenecking of cooling water network in Ammonia-II by installation of additional 36" cooling water pipeline along with additional pump.
2	Installation of additional cooling tower cell for Urea-II plant
3	FD fan suction duct replacement with new one to reduce the cycle variation in combustion air pressure in Ammonia-II plant
4	Installation of additional Converter and Loop Boiler in Ammonia-II Plant.
5	Replacement of bare tube bundles with finned tube bundles in Boiler Feed Water Pre-heaters in Ammonia-II Plant.
6	Re-passing of process air coils in convective section of Primary Reformer of Ammonia-II plant
7	Installation of low pressure decomposer Pre-heater in Urea-II Plant.
8	Installation of vapor absorption machine for suction air chilling of Process Air Compressor in Ammonia-II and CO2 chilling in Urea-II plant.
9	Installation of HT motor for Urea Cooling Tower pump in Gadepan-II.
10	Installation of additional cooling tower cell for Ammonia-II plant
11	Replacement of two fouled carbamate condensers in Urea-II plant.
12	Installation of additional quench water cooler in Ammonia-II.
13	Installation of Vortex mixer in Urea-I '21' unit reactor.

PART-I

Any other particulars for improving the quality of the Environment.

The possible areas of resource conservation and the source of Pollutants are identified, assessed and subsequently proper arrangements for their control are incorporated. Some actions taken in direction to improve the quality of Environment at CFCL are:

- Accredited ISO-14001:2015 [Environmental Management System] for both Phase-I & Phase-II plants and township.
- Accredited ISO-9001:2015 [Quality Management System] for both Phase-I & Phase-II plants.
- Achieved OHSAS-18001:2007 (Occupational Health and Safety Management System) for both Phase-I & Phase-II plants and township.
- Uttam Bandhan project as Socio-economic development of the villages to uplift the living standard of surrounding villagers.
- CFCL has a systematic program of developing flora, fauna and landscaping.
- CFCL has a systematic procedure for safe collection and storage of spent lubricating oil. Centrifuges are provided to all machines to reduce the spent oil generation. Oil drums are stored in main concreted and dyked area.
- CFCL is adopting a systematic procedure for Collection & Segregation of Solid waste. Separate bins have been provided for metallic / non-metallic waste, Combustible / non-combustible waste thus resulting into a better management of the same.
- Preparation of NADEP compost by recycling biodegradable horticulture waste
- Continuous development of flora & fauna by tree plantation and green belt development. More than 40% of land has already been covered under Green Belt Development, Gardens and Landscaping.
- Installation of Bio Gas Plant in the township for processing and treatment of Kitchen waste.

CFCL has bagged various prestigious environment/Safety awards, as detailed below:

- Rajasthan CSR Excellence Award 2019
- "Shiksha Vibhushan" State Bhamashah Award 2019

- ASSOCHAM Best NGO Award 2019 for Skill Development
- 2nd CII Energy Circle National Energy Efficiency Circle Competition" at New Delhi on 17-18 May 2018, "Winner" in the Best Energy Efficient Case Study category.
- "FIRST PRIZE" Rajasthan Energy Conservation Award 2018
- 2018 Indywood CSR Excellence Award
- 2018 Rajasthan Government CSR Excellence Award
- 2018 Best Industry Partner in Skill Development by Government of Rajasthan
- 2018 Bhamashah Award By Government of Rajasthan
- 2018 Rajasthan Government CSR Excellence Award
- 2017 Environment Protection award" from Fertilizer Association of India (FAI).
- BSE Skoch Award for "Environment Management and CSR" 2017
- "Environment Protection award" SSP Plant for the year 2014-15 & 2015-16 from Fertilizer Association of India (FAI)
- "Rajasthan Energy Conservation Award-2015" by Govt. of Rajasthan, department of energy, Jaipur.
- "Environment Protection award" for the year 2013-14 from Fertilizer Association of India (FAI).
- CFCL won "National Award for Prevention of Pollution for the year 2010-11" under Fertilizer category, and awarded by Ministry of Environment & Forest (Govt. of India).
- CFCL won "FICCI Safety system Excellence award for Manufacturing 2013" by FICCI, New Delhi.
- "National Award for Excellence in Water Management 2012" by Confederation of Indian Industry (CII).
- "FAI Award for Best overall Performance of an operating fertilizer unit for nitrogen (Ammonia and Urea)" (Runners Up Award) for the year 2011-12 and 2017~18 from Fertilizer Association of India (FAI)
- "Environment Protection award" for the year 2011-12 from Fertilizer Association of India (FAI) (1st for third consecutive year)
- "Environment Protection award" for the year 2010-11 from Fertilizer Association of India (FAI).
- "FAI Award for Best overall Performance of an operating fertilizer unit for nitrogen (Ammonia and Urea)" (Runners Up Award) for the year 2010-11 from Fertilizer Association of India (FAI)
- "National Award for Excellence in Water Management 2011" by Confederation of Indian Industry (CII).
- "Special Commendation" for the Golden Peacock Award for Sustainability – 2011.
- "National Award for Excellence in Energy Managemet-2011" by Confederation of Indian Industry (CII), Hyderabad for Gadepan-II plant.
- "Golden Peacock Award for Corporate Social Responsibility" for the year 2009.

- "Environment Protection award" for the year 2009-10 from Fertilizer Association of India (FAI).
- "Best Technical Innovation Award" for the year 2009-10 from The Fertilizers Association of India (FAI).
- "2nd Best Video Film - Environment" for the year 2009-10 from The Fertilizers Association of India (FAI).
- "Greentech Environment Gold Award 2010" for outstanding achievement in Environment Management by Greentech Foundation, New Delhi.
- "Rajasthan Energy Conservation Award-2009" by Govt. of Rajasthan, department of energy, Jaipur for Gadepan-II plant.
- "IFA Green Leaf Trophy Award" for excellence in safety, health and environment. CFCL has been Ranked 4th for 2009 International Fertilizer Association's Green Leaf Trophy Award Laureate for excellence in safety, health and environment in fertilizer production.
- "Sword of Honour for the year 2008" by British Safety council for excellence in Occupational Health & Safety Management system.
- "Five Star Safety (Awarded with 5 - Star Rating)" – in the year 2008 by British Safety Council.
- CFCL has been awarded runner up in the category of Accident Free Year by NATIONAL SAFETY AWARDS (NSA) for the year 2006.
- "Greentech Safety Gold Award 2008" for the year 2007 from Greentech Foundation.
- "Good Green Governance (G3) Awards- 2007" – for the year 2007 from Srishti.
- "Sword of honor for the year 2007" by British Safety Council.
- "Five Star Safety (Awarded with 5 - Star Rating with 92.9% Points)" – in the year 2007 by British Safety Council.
- "Greentech Environment Gold Award 2007" for the year 2006-07 from Greentech Foundation.
- "Good Green Governance (G3) Awards- 2006" – for the year 2006 from Srishti.
- "FAI Award for Best Performance among Nitrogenous fertiliser plants" (Runners Up Award) for the year 2005-06 from Fertiliser Association of India (FAI)
- "Golden Peacock Eco-Innovation Award (GPEIA)"– for the year 2006 from World Environment Foundation on "VRIKSHAMITRA".
- "Five Star Safety (Awarded with 5 - Star Rating with 95.2% Points)" – in the year 2006 by British Safety Council.
- "Golden Peacock Environment Management Award (GPEMA)"– for the year 2005 from World Environment Foundation.
- "Environment Protection award" for the year 2004-05 from Fertiliser Association of India (FAI).

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

Table : 1-A UREA PRODUCTION AND WATER CONSUMPTION [PHASE-I]

MONTHS	PRODUCTION	WATER CONSUMPTION			
		PROCESS	COOLING WATER	DOMESTIC	TOTAL
	MT	M3	M3	M3	M3
Apr-19	1032	43113	104753	5956	153422
May-19	42199	102329	313342	6322	421993
Jun-19	61730	87039	320536	5989	413564
Jul-19	96289	93933	367571	5391	466895
Aug-19	92082	90966	361373	5668	458007
Sep-19	87834	94921	346085	5488	446494
Oct-19	96550	89692	378978	5484	474154
Nov-19	92035	89294	340454	5278	435026
Dec-19	95363	97019	322532	4920	424471
Jan-20	97719	95131	318867	5359	419357
Feb-20	93592	85763	308358	4817	398938
Mar-20	94895	88850	332105	5310	426265
TOTAL	951320	1058050	3814554	65980	4938583.8
AVERAGE	79277	88171	317880	5498	411549

Specific Water Consumption for 2019-20 for Phase-I is 5.19 M³/MT of Urea

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

Table - I B UREA PRODUCTION AND WATER CONSUMPTION [PHASE-II]

MONTHS	UREA PRODUCTION	WATER CONSUMPTION			
		PROCESS	COOLING WATER	DOMESTIC	TOTAL
	MT	M3	M3	M3	M3
Apr-19	87421	95410	402311	5956	503677
May-19	92302	83099	405111	6322	494532
Jun-19	88756	72982	351414	5989	430385
Jul-19	88571	79465	289695	5391	374551
Aug-19	90437	75604	338756	5668	420028
Sep-19	86035	78660	353324	5488	437472
Oct-19	90059	75373	397533	5484	478390
Nov-19	87552	72745	317899	5278	395922
Dec-19	85815	78761	336476	4843	420080
Jan-20	78471	79314	309581	5359	394254
Feb-20	84139	70367	308780	4817	383964
Mar-20	84998	72412	321790	5310	399512
TOTAL	1044556	934192	4132670	65903	5132765.3
AVERAGE	87046	77849	344389	5492	427730

Specific Water Consumption for 2019-20 for Phase-II is 4.91 M³/MT of Urea

CHANGEL FERTILIZER AND CHEMICALS LIMITED

TABLE 2A INDUSTRIAL TREATED EFFLUENT ANALYSIS

Months	Parameters	Eff. Qty. (M3)	PH Range	TSS mg/l	FRC mg/l	O & G mg/l	Zinc mg/l	PO ₄ P mg/l	TAN as N mg/l	TKN as N mg/l	NO ₂ as N mg/l	COD mg/l	BOD mg/l	Free Ammoniacal Nitrogen mg/l	Iron as Fe mg/l
Apr-19	a) Observed value	156139	7.5-7.9	74.4	NT	1.10	0.15	1.11	20.3	30.8	7.0	59.5	8.1	0.81	0.46
	b) Qty. Kg/Day	-	-	387.2	-	5.7	0.77	5.8	105.4	160.3	38.5	309.6	42.3	7.8	2.3
	c) % Variation (*)	-	-	-25.6	-	50.0	-85.2	-77.8	-59.5	-69.2	-29.8	-76.2	-72.9	-79.8	-88.5
May-19	a) Observed value	164673	7.6-7.9	77.8	NT	1.50	0.14	1.07	13.7	31.1	7.0	57.5	7.8	0.55	0.33
	b) Qty. Kg/Day	-	-	413.0	-	8.0	0.72	5.7	72.8	165.1	37.2	305.3	41.4	2.91	1.8
	c) % Variation (*)	-	-	-22.3	-	-89.0	-86.5	-78.6	-72.6	-68.9	-30.0	-77.0	-74.0	-86.3	-91.8
Jun-19	a) Observed value	156813	7.5-7.8	87.5	NT	1.30	0.16	1.46	5.6	20.9	6.4	44.0	9.2	0.58	0.28
	b) Qty. Kg/Day	-	-	426.3	-	6.8	0.84	7.6	29.3	109.3	33.5	290.1	48.1	3.0	1.4
	c) % Variation (*)	-	-	-18.5	-	-90.0	-84.0	-70.8	-88.8	-79.1	-36.0	-82.4	-69.3	-85.5	-93.0
Jul-19	a) Observed value	166145	7.5-7.8	71.0	NT	1.30	0.12	1.10	14.4	14.4	5.8	60.3	7.2	0.58	0.36
	b) Qty. Kg/Day	-	-	380.5	-	7.0	0.66	5.9	77.3	147.0	31.1	323.2	38.7	3.1	1.9
	c) % Variation (*)	-	-	-29.0	-	-87.0	-87.6	-78.0	-71.1	-72.6	-42.0	-75.9	-75.9	-85.5	-91.0
Aug-19	a) Observed value	162472	7.5-7.8	76.5	NT	1.50	0.16	1.18	16.0	29.6	6.6	64.2	7.7	0.84	0.30
	b) Qty. Kg/Day	-	-	400.9	-	7.9	0.63	6.2	83.6	154.9	34.3	336.3	40.1	3.35	1.57
	c) % Variation (*)	-	-	-23.5	-	-85.0	-84.3	-76.2	-88.0	-70.5	-34.5	-74.3	-74.5	-84.0	-92.5
Sep-19	a) Observed value	188918	7.6-7.9	76.8	NT	1.30	0.13	1.13	16.4	31.7	6.1	65.1	7.7	0.73	0.37
	b) Qty. Kg/Day	-	-	483.6	-	8.2	0.89	7.1	145.7	199.9	38.7	410.2	48.4	4.60	2.33
	c) % Variation (*)	-	-	-23.2	-	-90.0	-85.8	-77.5	-83.2	-68.3	-38.6	-73.9	-74.4	-81.8	-90.8
Oct-19	a) Observed value	150177	7.2-7.8	73.3	NT	1.3	0.14	1.15	11.7	28.0	6.9	62.8	7.7	0.47	0.30
	b) Qty. Kg/Day	-	-	354.9	-	6.5	0.69	5.6	56.7	136.6	33.4	304.4	37.4	2.28	1.45
	c) % Variation (*)	-	-	-26.8	-	-87.0	-85.8	-77.1	-76.6	-72.0	-31.0	-74.9	-74.3	-88.3	-92.5
Nov-19	a) Observed value	152358	7.6-7.9	76.8	NT	1.20	0.12	1.15	11.5	28.9	6.5	66.6	8.0	0.46	0.33
	b) Qty. Kg/Day	-	-	391.1	-	6.1	0.59	5.9	58.6	147.4	33.0	309.1	40.9	2.34	1.68
	c) % Variation (*)	-	-	-23.3	-	-90.0	-88.5	-77.0	-77.0	-71.1	-35.3	-73.4	-73.3	-88.5	-91.8
Dec-19	a) Observed value	148233	7.6-7.9	77.6	NT	1.40	0.14	1.17	14.3	28.5	6.5	67.7	8.0	0.57	0.35
	b) Qty. Kg/Day	-	-	371.1	-	6.7	0.68	5.6	68.3	141.3	31.3	323.7	38.3	2.7	1.67
	c) % Variation (*)	-	-	-22.4	-	-88.0	-86.8	-76.6	-71.4	-70.5	-34.6	-72.9	-73.3	-85.8	-91.3
Jan-20	a) Observed value	144887	7.6-7.9	76.3	NT	1.70	0.19	1.18	18.6	32.3	6.6	72.4	8.4	0.74	0.40
	b) Qty. Kg/Day	-	-	365.7	-	7.9	0.88	5.5	87.0	150.8	31.0	338.1	39.4	3.46	1.87
	c) % Variation (*)	-	-	-21.8	-	-83.0	-81.3	-76.5	-62.8	-67.7	-33.8	-71.1	-71.9	-81.5	-90.0
Feb-20	a) Observed value	157132	7.6-7.9	71.3	NT	1.50	0.15	1.13	19.3	35.4	6.0	65.3	7.8	0.77	0.33
	b) Qty. Kg/Day	-	-	399.8	-	8.4	0.84	6.3	108.3	198.4	33.4	366.5	43.9	4.32	1.85
	c) % Variation (*)	-	-	-28.8	-	-86.0	-85.0	-77.4	-61.4	-34.7	-40.5	-73.9	-73.9	-80.8	-91.8
Mar-20	a) Observed value	150380	7.6-7.9	74.6	NT	1.90	0.19	1.19	18.6	36.9	6.7	67.0	7.9	0.74	0.41
	b) Qty. Kg/Day	-	-	361.9	-	9.2	0.91	5.8	90.2	179.0	32.7	324.8	38.5	3.6	2.0
	c) % Variation (*)	-	-	-25.4	-	-81.0	-81.2	-76.3	-62.8	-63.1	-32.6	-73.2	-73.5	-81.5	-89.8
AVG.	a) Observed value	158244	7.2-7.9	75.8	NT	1.4	0.15	1.2	15.2	30.2	6.5	62.7	8.0	0.6	0.35
	b) Qty. Kg/Day	-	-	394.7	-	7.3	0.77	6.1	79.5	157.4	33.8	325.9	41.5	3.33	1.82
	c) % Variation (*)	-	-	-85.8	-	-85.1	-76.6	-69.6	-69.8	-69.8	-34.9	-74.9	-74.4	-84.1	-91.2

NOTE:-

- (a) The Parameters are analysed as per the Consent to Operate vide Letter No. F (PLG)/Koda (Digod)/61/2014-2015/3973.3973, Order No. 2017-2018/PDF/123 Dated 01.08.2017, F (PLG)/Koda (Digod)/281/2014-2015/3877.3975 Order No. 2017-2018/PDF/125 Dated 01.08.2017 & F (HSWY)/Koda (Digod)/31/2015-2016/3974.3976 Order No. 2017-2018/PDF/124 Dated 01.08.2017
- (b) Unit mg/l except pH, T-T: Not Traceable, Heavy metals like Arsenic, Chromium, Cyanide, Copper and Vanadium Below Detection Limit (BDL). Final treated effluent stored in open Holding Pond.
- (c) Negative values indicate better performance parameters over standards

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE- 2 B DOMESTIC TREATED EFFLUENT ANALYSIS

Months	Parameters	Eff. Qty.	pH Range	TSS	TRC	O & G	NO ₃ as N	COD	BOD
		(M3)		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
		LIMIT	5.5-9.0	100	1.0 mg/l	10 mg/l	10 mg/l	250 mg/l	30 mg/l
Apr-19	a) Observed value	18246	7.0-7.7	48.9	0.38	5.8	5.8	27.1	7.9
	b) Qty. Kg/Day	~	~	29.7	0.23	3.5	3.5	11.5	4.8
	c) % Variation (*)	~	~	-51.1	-61.7	-41.9	-42.0	-89.2	-73.8
May-19	a) Observed value	20354	7.0-7.7	55.1	0.36	5.5	6.1	25.3	7.7
	b) Qty. Kg/Day	~	~	36.2	0.24	3.6	4.0	16.6	5.0
	c) % Variation (*)	~	~	-44.9	-64.0	-44.8	-38.9	-89.9	-74.5
Jun-19	a) Observed value	20095	7.0-7.9	57.3	0.36	5.1	5.5	27.0	7.5
	b) Qty. Kg/Day	~	~	38.3	0.24	3.4	3.7	18.1	5.0
	c) % Variation (*)	~	~	-42.8	-64.5	-49.3	-44.6	-89.2	-74.9
Jul-19	a) Observed value	19481	7.0-7.8	57.1	0.33	4.7	5.4	25.9	7.9
	b) Qty. Kg/Day	~	~	35.9	0.21	2.9	3.4	16.3	5.0
	c) % Variation (*)	~	~	-42.9	-66.9	-53.3	-46.0	-89.6	-73.7
Aug-19	a) Observed value	19972	6.9-7.8	53.0	0.35	4.4	5.3	24.3	7.9
	b) Qty. Kg/Day	~	~	34.1	0.23	2.8	3.4	15.6	5.1
	c) % Variation (*)	~	~	-47.0	-64.5	-56.3	-46.9	-90.3	-73.6
Sep-19	a) Observed value	18708	7.0-7.9	41.7	0.36	4.5	5.2	24.0	8.0
	b) Qty. Kg/Day	~	~	26.0	0.22	3.2	3.2	15.0	5.0
	c) % Variation (*)	~	~	-58.3	-64.5	-54.9	-48.1	-90.4	-73.3
Oct-19	a) Observed value	19495	7.0-7.9	36.0	0.34	4.6	4.4	24.0	7.9
	b) Qty. Kg/Day	~	~	22.6	0.21	2.9	2.8	15.1	5.0
	c) % Variation (*)	~	~	-64.0	-66.5	-54.5	-56.1	-90.4	-73.6
Nov-19	a) Observed value	18415	7.0-7.6	31.1	0.34	3.9	5.3	25.5	7.9
	b) Qty. Kg/Day	~	~	19.1	0.21	2.4	3.2	15.6	4.9
	c) % Variation (*)	~	~	-68.9	-66.2	-61.1	-47.3	-89.8	-73.6
Dec-19	a) Observed value	20210	7.1-7.6	30.6	0.37	4.0	5.1	25.7	7.9
	b) Qty. Kg/Day	~	~	20.0	0.24	2.6	3.3	16.8	5.2
	c) % Variation (*)	~	~	-69.4	-63.1	-59.8	-49.4	-89.7	-73.6
Jan-20	a) Observed value	25856	7.2-7.6	30.1	0.37	4.2	5.0	27.1	7.9
	b) Qty. Kg/Day	~	~	25.1	0.31	4.2	4.2	22.6	6.6
	c) % Variation (*)	~	~	-69.9	-62.6	-57.9	-49.6	-89.2	-73.6
Feb-20	a) Observed value	23830	7.1-7.5	30.6	0.36	4.1	5.0	26.2	7.9
	b) Qty. Kg/Day	~	~	25.2	0.29	3.3	4.1	21.5	6.5
	c) % Variation (*)	~	~	-69.4	-64.5	-59.4	-50.1	-89.5	-73.6
Mar-20	a) Observed value	24196	7.2-7.6	34.9	0.37	4.1	5.3	26.8	8.0
	b) Qty. Kg/Day	~	~	27.2	0.29	3.3	4.1	20.9	6.2
	c) % Variation (*)	~	~	-65.1	-63.4	-58.8	-47.2	-89.3	-73.4
AVG.	a) Observed value	20738	6.9-7.9	42.2	0.36	4.6	5.3	25.7	7.9
	b) Qty. Kg/Day	~	~	28.3	0.24	3.2	3.6	17.5	5.4
	c) % Variation (*)	~	~	-57.8	-64.4	-54.3	-47.2	-89.7	-73.8

NOTE :-

(a) The parameters are analysed as per the Consent to Operate vide Letter No. F (PLG)/Kota (Digod)/6(1)/2014-2015/3971-3975, Order No. 2017-2018/PDF/123 Dated 01.08.2017, F (PLG)/Kota (Digod)/28(1)/2014-2015/3977-3979, Order No. 2017-2018/PDF/125 Dated 01.08.2017 & F (HSW)/Kota (Digod)/3(1)/2015-2016/3974 -3976, Order No. 2017-2018/PDF /124 Dated 01.08.2017

(b)* Negative values indicate better performance parameters over standards.
 (c) Unit mg/l except pH, Bioassay test complied.

CHAMBAL FERTILISER AND CHEMICALS LIMITED

TABLE: 3A STACK MONITORING [UREA PLANT]

Months	POLLUTANTS		UREA PRILLING TOWER-I		UREA PRILLING TOWER-II	
			UREA DUST	AMMONIA	UREA DUST	AMMONIA
	LIMIT		50 mg/ NM3	175 mg/NM3	50 mg/ NM3	175 mg/NM3
Apr-19	a) Observed value	(mg/NM3)	NOP	NOP	42.5	61.15
	b) Qty.	(Kg/Day)			1147.5	1651.1
	c) Variation *	(%)			-15	-65.1
May-19	a) Observed value	(mg/NM3)	41.7	63.5	42.04	66.62
	b) Qty.	(Kg/Day)	1002.2	1525.8	1135.1	1798.7
	c) Variation *	(%)	-16.65	-63.7	-15.92	-61.9
Jun-19	a) Observed value	(mg/NM3)	42.03	63.3	42.4	60.05
	b) Qty.	(Kg/Day)	1010.7	1522.2	1145.5	1621.4
	c) Variation *	(%)	-15.94	-63.8	-15.15	-65.7
Jul-19	a) Observed value	(mg/NM3)	43.58	63.12	43.5	62.1
	b) Qty.	(Kg/Day)	1048.0	1517.9	1174.5	1676.7
	c) Variation *	(%)	-12.84	-63.9	-13	-64.5
Aug-19	a) Observed value	(mg/NM3)	42.95	56.8	43.6	61.84
	b) Qty.	(Kg/Day)	1032.9	1364.7	1176.1	1669.7
	c) Variation *	(%)	-14.1	-67.6	-12.88	-64.7
Sep-19	a) Observed value	(mg/NM3)	42.32	66.24	41.5	62.0
	b) Qty.	(Kg/Day)	1017.7	1592.9	1119.2	1673.3
	c) Variation *	(%)	-15.36	-62.1	-17.1	-64.6
Oct-19	a) Observed value	(mg/NM3)	44.1	66.3	42.45	61.2
	b) Qty.	(Kg/Day)	1061.1	1593.2	1146.2	1651.7
	c) Variation *	(%)	-11.75	-62.1	-15.1	-65.0
Nov-19	a) Observed value	(mg/NM3)	42.175	57.375	43.1	61.68
	b) Qty.	(Kg/Day)	1014.2	1379.8	1164.2	1665.4
	c) Variation *	(%)	-15.65	-67.2	-13.76	-64.8
Dec-19	a) Observed value	(mg/NM3)	42.26	62.34	42.2	55.6
	b) Qty.	(Kg/Day)	1016.3	1499.2	1139.4	1501.9
	c) Variation *	(%)	-15.48	-64.4	-15.6	-68.2
Jan-20	a) Observed value	(mg/NM3)	43.125	60.7	44.04	62.94
	b) Qty.	(Kg/Day)	1037.1	1459.7	1189.1	1699.4
	c) Variation *	(%)	-13.75	-65.3	-11.92	-64.0
Feb-20	a) Observed value	(mg/NM3)	42.2	60.7	43.1	61.3
	b) Qty.	(Kg/Day)	1014.8	1460.3	1163.0	1655.1
	c) Variation *	(%)	-15.6	-65.3	-13.85	-65.0
Mar-20	a) Observed value	(mg/NM3)	42.0	61.88	42.2	60.8
	b) Qty.	(Kg/Day)	1010.5	1488.1	1140.1	1641.6
	c) Variation *	(%)	-15.96	-64.6	-75.9	-65.3
AVG.	a) Observed value	(mg/NM3)	42.5	62.1	42.7	61.4
	b) Qty.	(Kg/Day)	1147.8	1677.6	1153.3	1658.8
	c) Variation *	(%)	-75.71	-64.50	-75.59	-64.89

NOTE: (a) NOP denotes for 'Not In Operation'.
 (b) *Negative values indicate better performance results over standards.

CHAMBAL FERTILISER AND CHEMICALS LIMITED

TABLE: 3B STACK MONITORING [STEAM & POWER GENERATION PLANT]

MONTHS	POLLUTANTS	NOx				
		AB-I	AB-II	AB-III	HRSG-I	HRSG-II
	LIMIT	50 PPM	50 PPM	50 PPM	50 PPM	50 PPM
Apr-19	a) Observed value (ppm)	NOP	NOP	34.7	43.15	42.2
	b) Qty. (Kg/Day)			236.4	744.3	728.0
	c) Variation * (%)			-30.6	-13.7	-15.6
May-19	a) Observed value (ppm)	42.6	NOP	35.6	43.1	44.2
	b) Qty. (Kg/Day)	314.9		242.8	743.5	762.5
	c) Variation * (%)	-14.8		-28.72	-13.8	-11.6
Jun-19	a) Observed value (ppm)	NOP	43	37.1	44.3	NOP
	b) Qty. (Kg/Day)		317.9	252.7	764.2	
	c) Variation * (%)		-14	-25.8	-11.4	
Jul-19	a) Observed value (ppm)	43.7	43.02	35.2	44.5	NOP
	b) Qty. (Kg/Day)	323.3	318.0	239.9	768.0	
	c) Variation * (%)	-12.53	-13.96	-29.56	-10.96	
Aug-19	a) Observed value (ppm)	42.1	42.9	35.0	44.9	NOP
	b) Qty. (Kg/Day)	311.2	317.4	238.2	774.5	
	c) Variation * (%)	-15.8	-14.13	-30.05	-10.2	
Sep-19	a) Observed value (ppm)	42.3	39.4	35.0	44.2	NOP
	b) Qty. (Kg/Day)	312.7	291.1	238.1	762.5	
	c) Variation * (%)	-15.4	-21.25	-30.1	-11.6	
Oct-19	a) Observed value (ppm)	42.8	42.5	34.1	45.56	46.5
	b) Qty. (Kg/Day)	316.1	314.5	232.4	785.9	607.0
	c) Variation * (%)	-14.48	-14.92	-31.76	-8.88	-7.0
Nov-19	a) Observed value (ppm)	43.9	42.5	36.6	44.15	NOP
	b) Qty. (Kg/Day)	324.4	313.8	249.1	761.6	
	c) Variation * (%)	-12.25	-15.1	-26.85	-11.7	
Dec-19	a) Observed value (ppm)	41.6	43.5	37.6	44.475	NOP
	b) Qty. (Kg/Day)	307.4	321.4	255.8	767.2	
	c) Variation * (%)	-16.85	-13.05	-24.9	-11.05	
Jan-20	a) Observed value (ppm)	43.0	41.5	34.9	44.95	NOP
	b) Qty. (Kg/Day)	317.5	306.8	237.9	775.4	
	c) Variation * (%)	-14.1	-17	-30.15	-10.1	
Feb-20	a) Observed value (ppm)	42.7	42.3	34.8	45.25	NOP
	b) Qty. (Kg/Day)	315.7	312.9	236.9	780.6	
	c) Variation * (%)	-14.6	-15.35	-30.45	-9.5	
Mar-20	a) Observed value (ppm)	42.1	41.9	35.5	44.975	NOP
	b) Qty. (Kg/Day)	311.1	309.8	242.0	775.8	
	c) Variation * (%)	-15.85	-16.2	-28.95	-10.05	
AVG.	a) Observed value (ppm)	42.7	42.3	35.5	44.5	44.3
	b) Qty. (Kg/Day)	315.4	312.4	241.8	766.9	764.2
	c) Variation * (%)	-14.7	-15.5	-29.0	-11.1	-11.4

NOTE : NOP denotes for 'Not In Operation'.

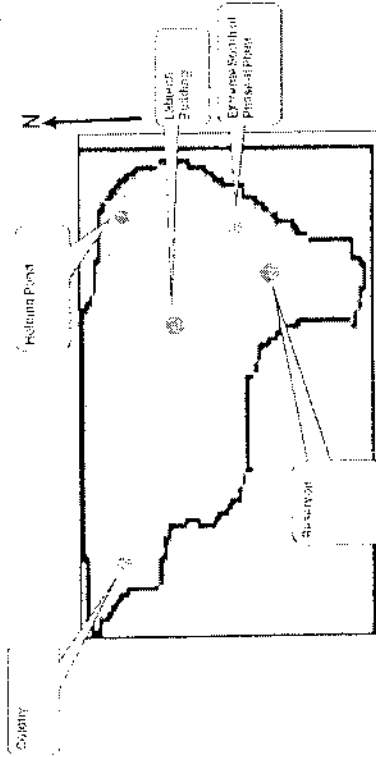
*Negative values indicate better performance results over standards.

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE: 4 AMBIENT AIR MONITORING FOR THE YEAR 2019-20

S.NO	PARAMETER	LIMIT	NORTH SIDE OF HOLDING POND		LAB TECH		SOUTH SIDE OF COOLING TOWER-II		RAW WATER RESERVOIR		COLONY		
			MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	AVG.
1	PM <10.0 Micron]	Annual. Avg. 60 µg / m ³	59.9	16.5	62.2	19.8	58.8	16.6	58.5	18.5	59.8	17.8	36.8
2	PM <2.5 Micron]	Annual. Avg. 40 µg / m ³	48.5	12.2	45.5	13.9	42.5	11.5	43.2	10.9	43.8	12.2	25.6
3	SOX	Annual. Avg. 50 µg / m ³	7.5	2.5	8.8	2.9	6.9	2.8	6.9	2.6	6.7	2.6	4.4
4	NH3	Annual. Avg. 100 µg / m ³	56.6	20.9	64.5	23.2	62.2	21.9	59.8	18.8	63.6	17.7	37.3
5	NOX	Annual. Avg. 40 µg / m ³	12.2	3.9	12.7	2.9	10.6	3.4	12.2	3.4	12.7	3.5	6.1

Note : Five nos. of AAQMS are functional inside the premises of CFCL.



AMBIENT AIR MONITORING LOCATIONS AT CFCL [NOT TO SCALE]

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE: 5 GENERATION OF HAZARDOUS WASTE

HAZARDOUS WASTE					
Financial Year 2018-2019			Financial Year 2019-2020		
USED OIL	SPENT CATALYST	DISCARDED CONTAINER	USED OIL	SPENT CATALYST	DISCARDED CONTAINER
MT	MT	Nos	MT	MT	Nos
21.384	NIL	88.0	31.680	198.411	143.0

NOTE:-

1. OPENING BALANCE OF USED OIL WAS NIL FOR THE YEAR 2019-20. 31.680 MT OF USED OIL WAS GENERATED AND SAME WAS DISPOSED OFF FOR REPROCESSING TO CPCB / SPCB AUTHORIZED PARTIES DURING THE YEAR 2019-20.
2. USED OIL GENERATED FROM VARIOUS MACHINES & RECOVERED OIL FROM OIL SEPARATOR UNIT AT ETP ARE STORED IN DRUMS. USED OIL CONTAINS TRACES OF MOISTURE AND SEDIMENTS
3. No OIL SLUDGE GENERATED AT THE OIL RECOVERY PLANT.
4. 198.411 MT CATALYSTS WERE GRNERATED AND DISPOSED OFF DURING THE YEAR 2019-20.
5. OPENING BALANCE OF DISCARDED CONTAINERS WAS NIL FOR THE YEAR 2019-20. 143.0 Nos OF EMPTY CONTAINERS WERE GENERATED AND 143.0 Nos WERE DISPOSED TO RAJASTHAN WASTE MANAGEMENT PROJECT CTDF, UDAIPUR.

TABLE: 5 GENERATION OF SOLID WASTE

SOLID WASTE							
During Financial Year 2018-2019				During Financial Year 2019-2020			
USED RESIN (DM PLANT)	RAW WATER & CLARIFIER SLUDGE	STP SLUDGE		USED RESIN (DM PLANT)	RAW WATER & CLARIFIER SLUDGE	STP SLUDGE	
		PHASE-I	PHASE-II			PHASE-I	PHASE-II
KL	MT	MT	MT	KL	MT	MT	MT
8.40	47.0	1.20	0.6	18.30	38.0	1.30	0.6

NOTE:-

1. FORMATION OF SLUDGE IN CLARIFIERS WAS LOW DUE TO LOW TURBIDITY IN RAW WATER. IT IS ACCUMULATED AND USED AS MANURE ALONG WITH STP SLUDGE IN HORTICULTURE.
2. SAND FILTER BACK WASH AND CLARIFIER BLOWDOWN RECYCLE BACK TO RAW WATER RESERVOIR UNDER WATER SAVING SCHEME
3. RAW WATER SLUDGE IS ACCUMULATED AND USED AS MANURE ALONG WITH STP SLUDGE.
4. WASTE RESIN STORED IN CONCRETE FLOORING PIT.



CHAMBAL FERTILISERS AND CHEMICALS LIMITED

SM-EQC/13A/118/
July 21, 2020

211646

The Regional Officer,
Rajasthan Pollution Control Board,
Plot No. Special 2A, Road No.6,
Paryavaran Marg, Indraprasth Industrial Area,
KOTA - 324 005.

Sub : Environmental Audit Statement -Unit-III (CFG#3)

Dear Sir,

Enclosed please find Environmental Audit Statement for the financial year 2019 -2020 for the Unit -III (CFG#3) in the Form-V duly filled in for your perusal and records.

Hope you will find the above in order.

Thanking You,

Yours faithfully,

For "**CHAMBAL FERTILISERS AND CHEMICALS LTD.**"

Rajnish Chaba
General Manager-Technical

SM-EQC/13A/118/ 332035
CC: The Member Secretary,
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri,
JAIPUR-302004

FORM NO.V
(See rule 14)

PART-A

Environmental Statement for the financial year ending the 31st March 2020

i)	NAME AND ADDRESS OF THE OWNER / OCCUPIER OF THE INDUSTRY, OPERATION OR PROCESS.	MR. GAURAV MATHUR JOINT MANAGING DIRECTOR CHAMBAL FERTILISERS AND CHEMICALS LTD. P.O.GADEPAN, PIN 325 208 DISTT. KOTA (RAJ).
ii)	INDUSTRY CATEGORY PRIMARY - STC CODE SECONDARY - SIC CODE	RED CATEGORY.
iii)	PRODUCTION CAPACITY (UNITS-MT) # Phase-III # As per consent	AMMONIA - 2200x365 = 803000 TPA UREA - 4000x365 = 1460000 TPA
iv)	YEAR OF ESTABLISHMENT (COMMERCIAL PRODUCTION DECLARED) Phase -III	01.01.2019
	DATE OF THE LAST ENVIRONMENTAL STATEMENT SUBMITTED.	18.09.2019

PART - B

WATER AND RAW MATERIAL CONSUMPTION

1. WATER CONSUMPTION M³/DAY

Category	(M3/Day)
PROCESS	2047.1
COOLING	8327.8
DOMESTIC	180.8

For details see table: 1

Name of Product	Water Consumption per MT of product output	
	PHASE-III*	
	During the Financial Year 2018-2019	During the Financial Year 2019-2020
Urea	3.52 M3/ MT Urea	3.45 M3/ MT Urea

Note: * Commencement of production with unit-III (CFG#3) plant with effect from January 01, 2019

2. RAW MATERIAL CONSUMPTION

Name of Raw Material	Name of Product	Consumption of Raw Material per MT of product output	
		During the Financial Year 2018-2019	During the Financial Year 2019-2020
PHASE-III			
Natural Gas, SM3/MT of Urea	UREA	588.12 SM3/MT urea	583.573 SM3/MT urea

PART - C

Pollutants discharged to environment / unit of output

PART - C**Pollutants discharged to environment / unit of output
(Parameters as specified in the Consent issued)**

- a) **WATER POLLUTANTS** - For details see table: 2 A, 2 B
 b) **ATR POLLUTANTS** - For details see table: 3 A, 3 B & 4

PART-D**HAZARDOUS WASTE**

[As specified under Hazardous & Other wastes (Management and Transboundary Movement), Rules, 2016]

Total Quantity (Hazardous Waste)					
During the Financial Year (FY 2018-2019)					
a) From Process	Used Oil (MT)	Spent Catalyst (MT)	Chemical sludge from waste water treatment (MT)	Discarded container (Nos)	Contaminated Cotton rags or other cleaning materials (MT)
	NIL	NIL	~	NIL	NIL
b) From Pollution Control facilities (RO-ZLD Plant)			1973.77 MT		
During the Financial (FY 2019-2020)					
	Used Oil (MT)	Spent Catalyst (MT)	Chemical sludge from waste water treatment (MT)	Discarded container (Nos)	Contaminated Cotton rags or other cleaning materials (MT)
	26.73 MT	NIL	~	NIL	1.30 MT
c) From Pollution Control facilities (RO-ZLD Plant)			4372.58 MT		

Note: Commencement of production with unit-III (CFG#3) plant with effect from January 01, 2019
 For details see Table -5

PART - E**SOLID WASTES**

	Total Quantity (MT)	
	During the Financial Year 2018-2019*	During the Financial Year 2019-2020
a) From Process		
i) Water Pre-Treatment clarifier sludge	NIL	2.0 MT
ii) DM Plant used Resin	NIL	NIL
iii) From Sewage treatment plant (Phase - III)	0.10 MT	0.10 MT

e)		
i) Quantity recycled or reutilized within the unit	0.10 MT	2.10 MT
ii) Sold	NIL	NIL
iii) Disposed	NIL -	NIL

PART - F

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

- | | | |
|---------------------------|---|-----------------------------|
| 1. Hazardous Waste | : | } FOR DETAILS SEE TABLE : 5 |
| 2. Solid Waste | : | |

PART- G

Impact of the Pollution abatement measures taken on conservation of Natural resources and the cost of production.

Smooth operation of Pollution abatement measures has resulted in following impact in conservation of Natural resources and the cost of production.

- a) Complete recycle of Ammonia and Urea Plant Process condensates after treatment in the plant itself resulting in recovery of Ammonia, CO₂ and Urea and also serves as water conservation measure.
- b) Complete recycle of Turbine and other steam condensates to conserve water and chemicals.
- c) Due to Natural Draft Prilling Towers, emission of Urea dust is very low, which conserves the natural resource and increase the production.
- d) Due to use of clean fuel and state of art technology, emissions are minimized.
- e) Proper schedule of preventive maintenance and centrifuging of oil on all critical machines is there to minimize used oil generation.
- f) Reduction in Raw water consumption has been achieved by:
 - Maximum recycling of Service Water, Air Compressor Interstage Condensate etc., which were earlier being drained in surface drain.
 - Using surface drain water for Green Belt Development in different plant area like: Bagging, ETP & Cooling Towers by installing portable pumps.
 - Using Boiler blow downs as cooling tower make up.
 - Using treated domestic effluent for irrigation of green belt.
 - Push type cock valves for washbasins and sensor based flushing system in toilets.
 - Recycling backwash water from Sand filters to raw water reservoir in WPT plant.
- g) Reduction of power consumption by LED electrical lights in plants by installing timers.
- h) By proper collection of spilled urea & recycled back in process from different locations in bagging plant.
- i) Running of Cooling towers on High cycle of concentration and reducing of water losses through blowdown.

PART - H

Additional Measures / Investment proposal for environmental protection including abatement of Pollution, prevention of Pollution.

- Efficient measures for abatement of pollution were implemented under the original project in 2019 for Phase-III. These are working satisfactorily
- Replacement of Methanator Effluent Cooler in Ammonia-III

PART-I

Any other particulars for improving the quality of the Environment.

The possible areas of resource conservation and the source of Pollutants are identified, assessed and subsequently proper arrangements for their control are incorporated. Some actions taken in direction to improve the quality of Environment at CFCL are:

- CFCL has a systematic procedure for safe collection and storage of spent lubricating oil. Centrifuges are provided to all machines to reduce the used oil generation. Oil drums are stored in main concreted and dyked area.
- CFCL is adopting a systematic procedure for Collection & Segregation of Solid waste. Separate bins have been provided for metallic / non-metallic waste, Combustible / non-combustible waste thus resulting into a better management of the same.
- Bio Gas plant installed for Kitchen waste (biodegradable waste).
- Continuous development of flora & fauna by tree plantation and green belt development. More than 35% of land has already been covered under Green Belt Development, Gardens and Landscaping.

CFCL has bagged various prestigious environment/Safety awards, as detailed below:

- "FAI Award for Best overall Performance of an operating fertilizer unit for nitrogen" (Runners Up Award) 2017~18 from Fertilizer Association of India (FAI)
- "2016~17 Environment Protection award" from Fertilizer Association of India (FAI).
- "Environment Protection award" for the year 2013-14 from Fertilizer Association of India (FAI).
- CFCL won "National Award for Prevention of Pollution for the year 2010-11" under Fertilizer category, and awarded by Ministry of Environment & Forest (Govt. of India).
- "FAI Award for Best overall Performance of an operating fertilizer unit for nitrogen (Ammonia and Urea)" (Runners Up Award) for the year 2011-12
- "Environment Protection award" for the year 2010-11 from Fertilizer Association of India (FAI).
- "FAI Award for Best overall Performance of an operating fertilizer unit for nitrogen (Ammonia and Urea)" (Runners Up Award) for the year 2010-11 from Fertilizer Association of India (FAI)
- "Environment Protection award" for the year 2009-10 from Fertilizer Association of India (FAI).

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

Table : 1 UREA PRODUCTION AND WATER CONSUMPTION [UNIT-III]

MONTHS	PRODUCTION	WATER CONSUMPTION
	MT	M3
Apr-19	119051	373476
May-19	103020	368296
Jun-19	115147	367728
Jul-19	121780	374659
Aug-19	121572	374165
Sep-19	99854	363158
Oct-19	120397	365896
Nov-19	116328	411531
Dec-19	116905	387923
Jan-20	114272	389754
Feb-20	104213	383717
Mar-20	17461	216087
TOTAL	1270000	4376388
AVERAGE	105833.33	364699.0

Specific Water Consumption for 2019-20 for Phase-III is 3.45 M³/MT of Urea

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE- 2 A INDUSTRIAL TREATED EFFLUENT ANALYSIS
(PHASE-III PLANT IS A ZERO LIQUID DISCHARGE PLANT)

Months	Parameters	Eff. Qty. (M3)	pH Range	TSS mg/l	FRC mg/l	O & G 10 mg/l	Zinc 1.0 mg/l	PO ₄ as P mg/l	TAN as N 50 mg/l	TKN as N 100 mg/l	NO ₃ as N 10 mg/l	COD mg/l	BOD mg/l	Free Ammonical Nitrogen mg/l	Iron as Fe mg/l
Apr-19	a) Observed value	59178	7.5-7.9	74.4	NT	1.10	0.15	1.11	20.3	30.8	7.0	59.5	6.1	0.91	0.46
	b) Qty. Kg/Day	-	-	144.3	-	2.1	0.29	2.1	39.3	59.7	13.6	115.3	15.7	1.6	0.9
	c) % Variation (*)	-	-	-25.6	-	-90.0	-85.2	-77.8	-59.5	-69.2	-29.8	-76.2	-72.9	-79.8	-88.5
May-19	a) Observed value	59158	7.6-7.9	77.8	NT	1.50	0.14	1.07	13.7	31.1	7.0	57.5	7.8	0.55	0.33
	b) Qty. Kg/Day	-	-	145.4	-	2.9	0.26	2.0	26.2	59.3	13.4	109.7	14.9	1.05	0.6
	c) % Variation (*)	-	-	-22.3	-	-89.0	-86.5	-78.6	-72.6	-68.9	-30.0	-77.0	-74.0	-86.3	-91.8
Jun-19	a) Observed value	64072	7.5-7.8	81.5	NT	1.30	0.16	1.46	5.6	20.9	6.4	44.0	9.2	0.58	0.28
	b) Qty. Kg/Day	-	-	174.1	-	2.8	0.34	3.1	12.0	44.6	13.7	94.0	19.6	1.2	0.6
	c) % Variation (*)	-	-	-18.5	-	-90.0	-84.0	-70.8	-88.8	-79.1	-36.0	-82.4	-69.3	-85.5	-93.0
Jul-19	a) Observed value	56362	7.5-7.8	71.0	NT	1.30	0.12	1.10	14.4	27.4	5.8	60.3	7.2	0.58	0.36
	b) Qty. Kg/Day	-	-	136.0	-	2.5	0.24	2.1	27.6	52.5	11.1	115.5	13.8	1.1	0.7
	c) % Variation (*)	-	-	-29.0	-	-87.0	-87.6	-78.0	-71.1	-72.6	-42.0	-75.9	-75.9	-85.5	-91.0
Aug-19	a) Observed value	56931	7.6-7.8	76.5	NT	1.50	0.16	1.19	16.0	29.6	6.6	64.2	7.7	0.64	0.30
	b) Qty. Kg/Day	-	-	140.5	-	2.8	0.29	2.2	29.4	54.3	12.0	117.9	14.0	1.18	0.55
	c) % Variation (*)	-	-	-23.5	-	-85.0	-84.3	-76.2	-68.0	-70.5	-34.5	-74.3	-74.5	-84.0	-92.5
Sep-19	a) Observed value	43810	7.6-7.9	76.8	NT	1.30	0.14	1.13	18.4	31.7	6.1	65.1	7.7	0.73	0.37
	b) Qty. Kg/Day	-	-	112.2	-	1.9	0.21	1.6	26.8	46.4	9.0	95.1	11.2	1.07	0.54
	c) % Variation (*)	-	-	-23.2	-	-90.0	-85.8	-77.5	-63.2	-68.3	-38.6	-73.9	-74.4	-81.8	-90.8
Oct-19	a) Observed value	53875	7.2-7.8	73.3	NT	1.3	0.14	1.15	11.7	28.0	6.9	62.8	7.7	0.47	0.30
	b) Qty. Kg/Day	-	-	127.3	-	2.3	0.25	2.0	20.4	48.7	12.0	109.2	13.4	0.82	0.52
	c) % Variation (*)	-	-	-26.8	-	-87.0	-85.8	-77.1	-76.6	-72.0	-31.0	-74.9	-74.3	-88.3	-92.5
Nov-19	a) Observed value	55084	7.6-7.8	76.8	NT	1.20	0.12	1.15	11.5	28.9	6.5	66.6	8.0	0.46	0.33
	b) Qty. Kg/Day	-	-	140.9	-	2.2	0.21	2.1	21.1	53.1	11.9	122.2	14.7	0.94	0.61
	c) % Variation (*)	-	-	-23.3	-	-90.0	-88.5	-77.0	-71.0	-71.1	-35.3	-73.4	-73.3	-88.5	-91.8
Dec-19	a) Observed value	67295	7.6-7.8	77.6	NT	1.40	0.14	1.17	14.3	29.5	6.5	67.7	8.0	0.57	0.35
	b) Qty. Kg/Day	-	-	168.5	-	3.0	0.31	2.5	31.0	64.1	14.2	147.0	17.4	1.2	0.76
	c) % Variation (*)	-	-	-22.4	-	-88.0	-85.8	-76.6	-71.4	-70.5	-34.6	-72.9	-73.3	-85.8	-91.3
Jan-20	a) Observed value	56685	7.6-7.9	78.3	NT	1.70	0.19	1.18	18.6	32.3	6.6	72.4	8.4	0.74	0.40
	b) Qty. Kg/Day	-	-	148.1	-	3.2	0.35	2.2	35.2	61.1	12.5	137.0	15.9	1.40	0.76
	c) % Variation (*)	-	-	-21.8	-	-83.0	-81.3	-76.5	-62.8	-67.7	-33.8	-71.1	-71.9	-81.5	-90.0
Feb-20	a) Observed value	58721	7.6-7.9	71.3	NT	1.50	0.15	1.13	19.3	35.4	6.0	65.3	7.8	0.77	0.33
	b) Qty. Kg/Day	-	-	149.4	-	3.1	0.31	2.4	40.5	74.1	12.5	136.9	16.4	1.61	0.69
	c) % Variation (*)	-	-	-28.8	-	-85.0	-85.0	-77.4	-81.4	-64.7	-40.5	-73.9	-73.9	-80.8	-91.8
Mar-20	a) Observed value	21304	7.6-7.9	74.6	NT	1.90	0.19	1.19	18.6	36.9	6.7	67.0	7.9	0.74	0.41
	b) Qty. Kg/Day	-	-	51.3	-	1.3	0.13	0.8	12.8	25.4	4.6	46.0	5.5	0.5	0.3
	c) % Variation (*)	-	-	-26.4	-	-81.0	-81.2	-76.3	-62.8	-63.1	-32.6	-73.2	-73.5	-81.5	-89.8
AVG.	a) Observed value	54706	7.2-7.9	75.8	NT	1.4	0.15	1.2	15.2	30.2	6.5	62.7	8.0	0.6	0.35
	b) Qty. Kg/Day	-	-	136.7	-	2.5	0.27	2.1	26.8	53.6	11.7	112.1	14.4	1.14	0.62
	c) % Variation (*)	-	-	-18.8	-	-85.8	-85.1	-76.6	-69.6	-69.8	-34.9	-74.9	-73.4	-84.1	-91.2
Total Effluent Quantity (M3): 656475 M³															
Total effluent quantity generated from Phase-III Plant along with part of Phase-I & Phase-II Effluent (309811 M3) treated from RO-ZLD Plant and Recycled as Cooling tower make up															

NOTE:-
 (a) The parameters are analysed as per the Consent to Operate vide Letter No. F(PLG)/Kotla(Digoo)/(1)/2012-2013/654-656, Order No. 2018-2019/PDF/3830 Dated 01.05.2018
 (b) NT - Not traceable
 (c) Unit mg/l except pH, NT - Not Traceable, Heavy metals like Arsenic, Chromium, Cyanide, Copper and Vanadium Below Detection Limit (BDL).
 (d) * Negative values indicate better performance parameters over standards.

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE-2 B DOMESTIC TREATED EFFLUENT ANALYSIS

Months	Parameters	Eff. Qty.	pH Range	TSS	TRC	O & G	NO ₃ as N	COD	BOD
		(M3)		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
		LIMIT	5.5-9.0	100	1.0 mg/l	10 mg/l	10 mg/l	250 mg/l	30 mg/l
Apr-19	a) Observed value	7112	7.2~7.7	45.8	0.40	4.9	5.0	25.8	8.1
	b) Qty. Kg/Day	~	~	10.9	0.09	1.2	1.2	6.1	1.9
	c) % Variation (*)	~	~	-54.2	-60.0	-50.8	-50.2	-89.7	-72.9
May-19	a) Observed value	7452	7.1~7.7	52.8	0.42	5.1	6.1	25.1	8.6
	b) Qty. Kg/Day	~	~	12.7	0.10	1.2	1.5	6.0	2.1
	c) % Variation (*)	~	~	-47.3	-57.7	-49.5	-39.3	-90.0	-71.5
Jun-19	a) Observed value	5873	7.1~7.8	51.3	0.43	4.6	6.2	27.7	8.3
	b) Qty. Kg/Day	~	~	10.0	0.08	0.9	1.2	5.4	1.6
	c) % Variation (*)	~	~	-48.8	-57.0	-54.3	-38.0	-88.9	-72.3
Jul-19	a) Observed value	5664	7.1~7.6	48.8	0.44	4.5	5.4	25.6	8.3
	b) Qty. Kg/Day	~	~	8.9	0.08	0.8	1.0	4.7	1.5
	c) % Variation (*)	~	~	-51.2	-55.8	-55.4	-46.2	-89.8	-72.5
Aug-19	a) Observed value	6197	7.1~7.5	48.3	0.42	4.6	4.6	23.2	8.3
	b) Qty. Kg/Day	~	~	9.6	0.08	0.9	0.9	4.6	1.7
	c) % Variation (*)	~	~	-51.8	-57.7	-54.3	-53.8	-90.7	-72.4
Sep-19	a) Observed value	5230	7.1~7.5	38.4	0.36	4.2	5.3	23.5	8.0
	b) Qty. Kg/Day	~	~	6.7	0.06	0.7	0.9	4.1	1.4
	c) % Variation (*)	~	~	-61.6	-64.0	-58.2	-47.2	-90.6	-73.3
Oct-19	a) Observed value	2698	7.1~7.5	30.3	0.37	3.8	4.4	24.0	7.7
	b) Qty. Kg/Day	~	~	2.6	0.03	0.3	0.4	2.1	0.7
	c) % Variation (*)	~	~	-69.8	-62.6	-61.8	-55.8	-90.4	-74.3
Nov-19	a) Observed value	3250	7.1~7.4	33.0	0.37	3.9	4.7	23.0	8.2
	b) Qty. Kg/Day	~	~	3.6	0.04	0.4	0.5	2.5	0.9
	c) % Variation (*)	~	~	-67.0	-63.0	-61.3	-53.5	-90.8	-72.6
Dec-19	a) Observed value	2330	7.1~7.5	33.2	0.36	4.3	4.5	23.7	8.0
	b) Qty. Kg/Day	~	~	2.5	0.03	0.3	0.3	1.8	0.6
	c) % Variation (*)	~	~	-66.8	-63.5	-57.2	-54.8	-90.5	-73.3
Jan-20	a) Observed value	2846	7.1~7.5	29.0	0.35	4.0	5.0	23.7	8.2
	b) Qty. Kg/Day	~	~	2.7	0.03	0.4	0.5	2.2	0.8
	c) % Variation (*)	~	~	-71.0	-65.5	-60.3	-49.8	-90.5	-72.6
Feb-20	a) Observed value	1398	7.1~7.5	29.6	0.48	3.4	5.1	25.0	8.6
	b) Qty. Kg/Day	~	~	1.4	0.02	0.2	0.2	1.2	0.4
	c) % Variation (*)	~	~	-70.4	-52.1	-65.7	-49.0	-90.0	-71.5
Mar-20	a) Observed value	2280	7.1~7.5	35.4	0.33	3.8	4.7	25.4	8.0
	b) Qty. Kg/Day	~	~	2.6	0.02	0.3	0.3	1.9	0.6
	c) % Variation (*)	~	~	-64.6	-67.4	-62.0	-52.6	-89.8	-73.3
AVG.	a) Observed value	5615	7.1~7.7	44.7	0.38	4.6	5.3	25.4	8.2
	b) Qty. Kg/Day	~	~	8.71	0.07	0.89	1.00	4.67	1.52
	c) % Variation (*)	~	~	-55.4	-99.6	-95.4	-94.7	-74.6	-91.8

NOTE :-

(a) The parameters are analysed as per the Consent to Operate vide Letter No.F(PLG)/Kota(Digod)/4(1)/2012-2013/654-656 and Order No : 2018-2019/PDF/3830
File No: F(HSW)/Kota(Digod)/4(1)/2018-2019/2834-2836 and authorization no.RPCB/HWM/2018-2019/HSW/HSW/131.

(b)* Negative values indicate better performance parameters over standards.
(c) Unit mg/l except pH, Bioassay test complied.

TABLE: 3A STACK MONITORING

UREA PLANT				
Months	POLLUTANTS	UREA PRILLING TOWER-III		
		UREA DUST	AMMONIA	
		LIMIT	50 mg/ NM3	175 mg/NM3
Apr-19	a) Observed value (mg/NM3)	42.2	62.1	
	b) Qty. (Kg/Day)	1569.8	2309.2	
	c) Variation * (%)	-15.6	-64.5	
May-19	a) Observed value (mg/NM3)	41.82	62.9	
	b) Qty. (Kg/Day)	1555.7	2340.6	
	c) Variation * (%)	-16.4	-64.0	
Jun-19	a) Observed value (mg/NM3)	42.8	57.8	
	b) Qty. (Kg/Day)	1591.2	2150.2	
	c) Variation * (%)	-14.5	-67.0	
Jul-19	a) Observed value (mg/NM3)	43.4	60.9	
	b) Qty. (Kg/Day)	1613.6	2266.4	
	c) Variation * (%)	-13.3	-65.2	
Aug-19	a) Observed value (mg/NM3)	44	61.9	
	b) Qty. (Kg/Day)	1636.8	2302.7	
	c) Variation * (%)	-12	-64.6	
Sep-19	a) Observed value (mg/NM3)	43.2	64.0	
	b) Qty. (Kg/Day)	1606.1	2379.9	
	c) Variation * (%)	-13.7	-63.4	
Oct-19	a) Observed value (mg/NM3)	43.1	64	
	b) Qty. (Kg/Day)	1603.3	2380.8	
	c) Variation * (%)	-13.8	-63.4	
19	a) Observed value (mg/NM3)	43.0	62.9	
	b) Qty. (Kg/Day)	1598.1	2340.6	
	c) Variation * (%)	-14.1	-64.0	
Dec-19	a) Observed value (mg/NM3)	41.9	60.5	
	b) Qty. (Kg/Day)	1557.8	2249.7	
	c) Variation * (%)	-16.3	-65.4	
Jan-20	a) Observed value (mg/NM3)	43.1	63.5	
	b) Qty. (Kg/Day)	1604.1	2362.9	
	c) Variation * (%)	-13.8	-63.7	
Feb-20	a) Observed value (mg/NM3)	41.3	63.2	
	b) Qty. (Kg/Day)	1537.3	2351.0	
	c) Variation * (%)	-17.4	-63.9	
Mar-20	a) Observed value (mg/NM3)	41.6	54.4	
	b) Qty. (Kg/Day)	1547.5	2023.7	
	c) Variation * (%)	-16.8	-68.9	
AVG.	a) Observed value (mg/NM3)	42.6	61.5	
	b) Qty. (Kg/Day)	1585.1	2288.1	
	c) Variation * (%)	-14.8	-64.9	

TABLE: 3B STACK MONITORING

MONTHS	STEAM & POWER GENERATION PLANT		AMMONIA PLANT
	POLLUTANTS	HRSG-III	REFORMER-III
		NOx	NOx
	LIMIT	100 mg/NM3	400 mg/NM3
Apr-19	a) Observed value	73.3	140.3
	b) Qty. (Kg/Day)	1308.2	2488.6
	c) Variation * (%)	-26.7	-64.9
May-19	a) Observed value	72.3	149.5
	b) Qty. (Kg/Day)	1289.9	2652.6
	c) Variation * (%)	-27.7	-62.6
Jun-19	a) Observed value	68.8	146.8
	b) Qty. (Kg/Day)	1227.6	2605.2
	c) Variation * (%)	-31.2	-63.3
Jul-19	a) Observed value	69.0	146.7
	b) Qty. (Kg/Day)	1231.3	2602.3
	c) Variation * (%)	-31.0	-63.3
Aug-19	a) Observed value	73.5	135.4
	b) Qty. (Kg/Day)	1311.9	2403.0
	c) Variation * (%)	-26.5	-66.1
Sep-19	a) Observed value	77.6	129.8
	b) Qty. (Kg/Day)	1385.2	2302.8
	c) Variation * (%)	-22.4	-67.6
Oct-19	a) Observed value	68.5	132.3
	b) Qty. (Kg/Day)	1223.0	2346.5
	c) Variation * (%)	-31.5	164.5
Nov-19	a) Observed value	78.3	140.2
	b) Qty. (Kg/Day)	1397.1	2486.8
	c) Variation * (%)	-21.7	-65.0
Dec-19	a) Observed value	79.1	138.6
	b) Qty. (Kg/Day)	1410.8	2459.4
	c) Variation * (%)	-20.9	-65.3
Jan-20	a) Observed value	78.7	133.5
	b) Qty. (Kg/Day)	1404.4	2381.9
	c) Variation * (%)	-21.3	-66.6
Feb-20	a) Observed value	73.4	146.8
	b) Qty. (Kg/Day)	1309.1	2620.1
	c) Variation * (%)	-26.6	-63.3
Mar-20	a) Observed value	79.7	131.4
	b) Qty. (Kg/Day)	1421.8	2331.9
	c) Variation * (%)	-20.3	-67.1
AVG.	a) Observed value	74.3	139.3
	b) Qty. (Kg/Day)	1326.7	2471.2
	c) Variation * (%)	-25.7	-65.2

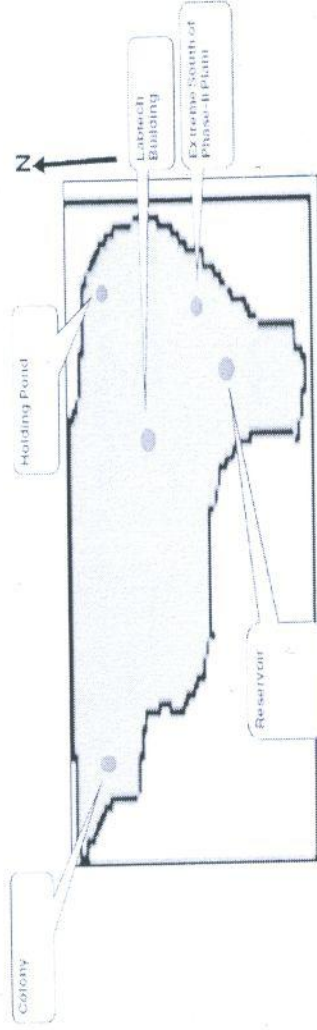
NOTE : *Negative values indicate better performance results over standards

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE: 4 AMBIENT AIR MONITORING FOR THE YEAR 2019-20

S.NO	PARAMETER	LIMIT	NORTH SIDE OF HOLDING POND			LAB TECH			SOUTH SIDE OF COOLING TOWER-II			RAW WATER RESERVOIR			COLONY		
			MAX.	MIN.	AVG.	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.
1	PM <10.0 Micron]	Annual Avg. 60 µg / m3	59.9	16.5	38.5	62.2	19.8	39.2	58.8	16.6	36.1	58.5	18.5	36.9	59.8	17.8	36.8
2	PM <2.5 Micron]	Annual Avg. 40 µg / m3	48.5	12.2	26.8	45.5	13.9	27.1	42.5	11.5	25.3	43.2	10.9	26.2	43.8	12.2	25.6
3	SOX	Annual Avg. 50 µg / m3	7.5	2.5	4.2	8.8	2.9	4.3	6.9	2.8	4.2	6.9	2.6	4.1	6.7	2.6	4.4
4	NH3	Annual Avg. 100 µg / m3	56.6	20.9	36.9	64.5	23.2	42.1	62.2	21.9	39.7	59.8	18.8	37.7	63.6	17.7	37.3
5	NOX	Annual Avg. 40 µg / m3	12.2	3.9	6.1	12.7	2.9	6.1	10.6	3.4	6.0	12.2	3.4	6.0	12.7	3.5	6.1

Note : Five nos. of AAQMS are functional inside the premises of CFCL.



AMBIENT AIR MONITORING LOCATIONS AT CFCL [NOT TO SCALE]

CHAMBAL FERTILIZER AND CHEMICALS LIMITED

TABLE: 5 A GENERATION OF HAZARDOUS WASTE

HAZARDOUS WASTE									
Financial Year 2018-2019					Financial Year 2019-2020				
Used Oil	Spent Catalyst	Chemical sludge from waste water treatment	Discarded container	Contaminated Cotton rags or other cleaning materials	Used Oil	Spent Catalyst	Chemical sludge from waste water treatment	Discarded container	Contaminated Cotton rags or other cleaning materials
MT	MT	MT	Nos	MT	MT	MT	MT	Nos	MT
~	~	1973.77	~	~	26.730	~	4372.580	~	1.3

Note: Commencement of production with unit-III (CFG#3) plant with effect from January 01, 2019

Remarks:

- Opening balance of Used Oil was Nil for the FY 2019-20 .
- Used oil generated from various machines & recovery oil from oil separator unit at ETP are stored in drums. Used oil contains traces of moisture and sediments.
- No Oil sludge generated at oil recovery plant.
- Chemical sludge from waste water treatment generated for R.O.-ZLD Plant during the FY 2019-20. Chemical Sludge contains mainly Calcium, Magnesium, phosphate, sulphate, chloride etc
- Catalyst was not generated during the FY 2019-20.
- Opening balance of discarded container was nil for the year 2019-20 .
- Opening balance of Contaminated Cotton rags or other cleaning materials was nil for the year 2019-20 .

TABLE: 5 B GENERATION OF SOLID WASTE

SOLID WASTE						
During Financial Year 2018-2019			During Financial Year 2019-2020			
DM PLANT USED RESIN	RAW WATER & CLARIFIER SLUDGE	STP SLUDGE	DM PLANT USED RESIN	RAW WATER & CLARIFIER SLUDGE	STP SLUDGE	
		PHASE-III			PHASE-III	
KL	MT	MT	KL	MT	MT	
NIL	NIL	0.10	NIL	2.0	0.10	

NOTE:-

- Formation of sludge in clarifiers was low due to low turbidity in raw water . It is accumulated and used as manure along with STP sludge in horticulture.
- Sand filter backwash and clarifier blowdown water recycle back to raw water under water saving scheme .
- Raw water sludge is accumulated and used as manure along with STP sludge.
- Waste water resin stored in concrete flooring pit.