IFFCO
पूर्णतः सहकारी स्वामित्व
Wholly owned by Cooperatives

इंडियन फारमर्स फर्टिलाइजर कोआपरेटिव लिमिटेड
INDIAN FARMERS FERTILISER COOPERATIVE LIMITED

Ref: AP/Tech/Env-Audit /2023-24

Date: 23.09.2024

To,

The Member Secretary,
U. P. Pollution Control Board,
TC 12v, Vibhuti khand,
Gomti Nagar, Lucknow-226010

Subject: Environmental Statement for the year 2023-24.

Dear Sir,

We are submitting herewith the Environmental Statement of our unit for the year 2023-24 under rule 14 of Environment (Protection) Rule, 1986 for your kind reference.

Regards,

Your's faithfully
For IFFCO Aonla Unit

(Rakesh Puri)
Sr. Executive Director

Encls: As Above.

Copy to:

1. The Member Secretary, Central Pollution Control Board, East Arjun Nagar, CBD Cum Office Complex, Sahadara, Delhi-110033.
2. The Incharge, Central Pollution Control Board, Regional Office (Central Zone) PICUP Bhawan, Ground Floor, B-Block, Vibhuti Khand, Gomti Nagar, Lucknow-226010
3. The Regional Officer, U.P. Pollution Control Board, 1219/1, E-Block, Rajendra Nagar, Bareilly-243122
4. The Director, Ministry of Environment & Forests, Regional Office, Kendriya Bhavan, 5th Floor, Sector-H, Aliganj, Lucknow - 2324047

(FORM – V)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING ON "31st MARCH 2024"

(Part – A)

I. Name and address of the owner of Industry

Mr. Rakesh Puri
Senior Executive Director
IFFCO Aonla Unit,
Paul Pothan Nagar,
Post: IFFCO Township
Distt : Bareilly (U.P.)
Pin Code: 243403

II. Last date of Environmental Audit. : 31.03.2024

III. Year of Establishment (Start of Commercial Production)

Aonla - I	:	16.07.1988
Aonla –II	:	25.12.1996
Capacity Enhancement	:	October, 2008
Modernization & Expansion for Production of Nano Fertiliser	:	01.01.2023

(Part – B)

WATER AND RAW MATERIAL CONSUMPTION

CATEGORY WISE WATER CONSUMPTION

Table-I

Water consumption (m^3/day)	Financial Year 2022-23	Financial Year 2023-24
Plant	3990.70	3603.22
Cooling water	19891.63	20015.75
Domestic	2967.56	3056.59
Miscellaneous	2420.13	2486.387

FINISHED PRODUCT

Table –II

Name of the Product	Unit	Production Capacity
UREA	MT	2326500
Nano Urea	KL	36500

RAW MATERIAL CONSUMPTION

Table – III

Name of Raw Material	Unit	Yearly Consumption	
		Financial Year 2022-23	Financial Year 2023-24
(1)	(2)	(3)	(4)
Raw Water (Plant + Cooling)	m^3	8277744	8143319
Total Raw Water	m^3	10244250	10166500
Natural Gas	Sm^3	1382888581	1386154390

CONSUMPTION OF RAW WATER & RAW MATERIAL PER UNIT OF FINISHED PRODUCT

Table – IV

Name of Raw material	Unit (Per MT of Urea Production)	Consumption of Raw Material per unit of finished product	
		Financial Year 2022-23	Financial Year 2023-24
(1)	(2)	(3)	(4)
Raw Water (Plant + Cooling)	m^3 /MT of Urea	3.531	3.448
Total Raw Water	m^3 /MT of Urea	4.371	4.305
Natural Gas	Sm^3 /MT of Urea	590.040	588.26

(Part – C)

POLLUTION GENERATED

LIQUID EFFLUENT:

The annual average concentration of pollutants in treated effluent discharged and their percentage decrease / increase in comparison to the MINAS for the year 2023-24 are given in Table – V as below: -

Table – V

Pollutants	MINAS	State Pollution Control Board (UPPCB)	Annual Average concentration of Pollutants	%increase/ decrease (+)/(-) of pollutants
♦ Total Suspended Solids, mg/l (max)	100	100	76.33	-23.67
♦ pH	6.5 - 8.5	5.5 - 9.0	7.55	-
♦ Temp	-	<40.0°C	25.00	-
♦ BOD for 5 days at 20°C mg/l (max)	-	30	14.71	-50.97
♦ Oil & Grease, mg/l (max)	10	10	NT	-
♦ Colour	-	absent	absent	-
♦ Total Chromium (as Cr), mg/l (max)	-	0.5	NT	-
♦ Hexavalent Chromium (as Cr), mg/l (max)	-	0.1	NT	-
♦ Zinc (as Zn), mg/l (max)	-	5.0	0.02	-99.60
♦ Ammonical Nitrogen (as N), mg/l (max)	50	50	7.92	-84.16
♦ Free Ammonia (as N), mg/l	2.0	4.0	0.16	-96.00
♦ TKN (as N), mg/l	75	100	15.30	-84.70
♦ COD, mg/l	-	250	123.83	-50.47
♦ Dissolve Phosphate as P, mg/l	-	5.0	0.80	-84.00
♦ Chloride as Cl, mg/l	-	1000	288.50	-71.15
♦ Nitrate Nitrogen, mg/l	10	-	0.16	-98.40
♦ Cynide as CN, mg/l	0.1	0.2	NA	-

- It is emphasized from the above table – V, the average annual concentrations of pollutants in treated liquid effluent discharged are considerably less than the prescribed standards.

- Approx 65% of the treated effluent is utilized in the irrigation of Green Belt developed in and around the plant and township in year 2023-24. The balance is let out to river Aril.
- Use of Chromate based corrosion inhibitor in cooling water treatment has been phased out since March 1999. The eco-friendly, non-chromate based corrosion inhibitors are being used in cooling water treatment since then. Hence, there is no generation of Chromate sludge.

AIR-EMISSION:

AVERAGE VALUES OF UREA DUST EMISSION

Table-VI

Plant	Unit	Standard	Results
Urea Prill Tower Aonla –I	mg/Nm^3	50	31.62
Urea Prill Tower Aonla –II	mg/Nm^3	50	31.90

It is evident from the above table-VI, the annual average concentration of Particulate Matter i.e. Urea Dust in prill tower emissions is well below the prescribed limits.

STACKS MONITORING:

AVERAGE VALUES OF STACK ANALYSIS

Table –VII

Plant	Parameters	Standard	Average Values
a) Ammonia- I (Primary Reformer Stack)	♦ NOx, mg/Nm3	400	119.30
	♦ SOx, ppm	Not Prescribed	Traces
b) Ammonia- II (Primary Reformer Stack)	♦ NOx, mg/Nm3	400	115.00
	♦ SOx, ppm	Not Prescribed	Traces
c) Ammonia- II (GT-HRU Stack)	♦ NOx, ppm	Not Prescribed	23.72
	♦ SOx, ppm	Not Prescribed	Traces
d) SGPG Plant (Steam Generation Stack)	♦ NOx, ppm	Not Prescribed	68.00
	♦ SOx, ppm	Not Prescribed	Traces
e) SGPG Plant (GT-HRSG – I Stack)	♦ NOx, ppm	Not Prescribed	57.32
	♦ SOx, ppm	Not Prescribed	Traces
f) SGPG Plant (GT-HRSG – II Stack)	♦ NOx, ppm	Not Prescribed	54.02
	♦ SOx, ppm	Not Prescribed	Traces

It is evident from the above table – VII that the annual average concentration of Pollutants in stacks emissions are well below the prescribed standards.

AMBIENT AIR MONITORING:

AVERAGE VALUES OF AMBIENT AIR ANALYSIS

Table – VIII

Parameters	Unit	NAAQS Standards (Annual Average)	Location			
			Ammonia Storage Area	Transport Office	GET Hostel (Township)	Guest House (Township)
PM_{10}	$\mu g/Nm^3$	60	52.65	55.34	50.12	40.62
$PM_{2.5}$	$\mu g/Nm^3$	40	34.20	36.40	32.10	29.09
NH_3	$\mu g/Nm^3$	100	13.64	14.69	11.95	9.88
SO_2	$\mu g/Nm^3$	50	4.82	4.97	4.51	3.93
NO_2	$\mu g/Nm^3$	40	6.19	6.55	5.83	4.92

It is evident from the above table–VIII that the annual average concentration of pollutants in Ambient Air are well below the prescribed limits of National Ambient Air Quality Standards (NAAQS).

GROUND WATER MONITORING:

The samples of ground water are collected from various locations in and around the plant and analyzed for NO_3 and Cr^{+6}. The average annual results are as follows:

Table-IX

Parameters	Unit	Standard	Annual Average Analysis
Nitrate as NO_3	mg/l	10	<0.50
Chromium as Cr^{+6}	mg/l	0.1	NT

(Part-D)

HAZADOUS WASTES

As specified under Hazardous and other wastes (Management and Transboundary movement) Rules, 2016.

Table-X

Hazardous wastes		Financial Year (2022-23)				Financial Year (2023-24)			
From process	**Unit**	**Stock as on 01.04.22**	**Qty. Generated**	**Qty Sold**	**Stock as on 31.03.23**	**Stock as on 01.04.23**	**Qty. Generated**	**Qty Sold**	**Stock as on 31.03.24**
(A) Spent oil (Reclaimed & reused/sold)	m^3	38.43	53.34	88.20	3.57	3.57	69.30	68.25	4.62
(B) Spent Catalyst	MT	4.40	52.86	52.86	4.40	4.40	387.08	391.48	Nil
(C) Chromate sludge containing Hydroxides of Fe Al, Cr, Zn & Ca		Use of Cr+6 compounds has been discontinued since March, 1999. Hence, there is no chromate sludge formation.				Use of Cr+6 compounds has been discontinued since March, 1999. Hence, there is no chromate sludge formation.			

(Part-E)

COMPOSITION AND QUANTITY OF HAZARDOUS WASTES

(Please indicate composition and quantity of hazardous wastes solids & liquids with description of methodology adopted for their treatment.)

(1) SOLID HAZARDOUS WASTES

At IFFCO Aonla, the solid hazardous wastes are spent catalysts. These catalysts are generated as and when exchanged / replaced. These are being kept in sealed covered drums on cemented platform under a shed in plant premises and are sold to recyclers having authorisation from CPCB.

(2) LIQUID HAZARDOUS WASTES

At IFFCO Aonla, the liquid hazardous wastes are only spent lube oil. The spent lube oil is generated as and when exchanged / replaced. These are being kept in sealed covered drums on cemented platform under shed and sold to recyclers having authorisation from CPCB.

The annual statement of hazardous wastes for the year 2023-24 has been submitted to U. P. Pollution Control Board on 21.06.2024. The details of spent catalysts and spent lube oil are given in Table-X as above.

(Part – F)

COST OF POLLUTION CONTROL MEASURES PER MT OF UREA PRODUCTION DURING 2023-24

Cost of pollution control measures per MT of Urea production for the year 2023-24 is Rs. 102.67.

(Part – G)

PROPOSALS FOR YEAR 2024-25 FOR ENVIRONMENT PROTECTION WHICH IS RELATED TO POLLUTION CONTROL AND CONSERVATION OF NATURAL RESOURCES

- Plantation of minimum 6,250 tree saplings for gap filling and replacement of dead wood trees in factory and township area.
- To control urea spillage below 200 MT/month.
- To control water consumption below 4.80 m^3/MT urea production.
- To produce minimum 31,900 kg of vermi-compost from Bio-degradable household solid waste and horticulture waste generated in IFFCO Aonla Township & Plant canteen.
- To recover minimum 1,46,000 MT CO_2 from stack flue gases of Ammonia Plant-I Primary Reformer through CDR unit and minimizing the emission of CO_2 into the atmosphere.
- To increase awareness on environmental issues and conservation of natural resources amongst employees, trainees, contractors' staff and other concerned persons to minimum 175 participants.
- To reduce 350 MWh annual electrical Power Consumption by replacement of conventional electrical devices with energy efficient devices in plant and township.
- To generate a minimum 2100 MWh Solar Power from existing Roof-top Solar Power Plants installed in Plant & Township.
- To recycle minimum 7.6 lakh M^3 of treated sewage in the plant as Cooling Tower make-up.
- In compliance with EC, ETP is being upgraded by the installation of an RO-based Wastewater Treatment Plant of capacity 100 m3/hr. The treated water shall be recycled as Cooling Tower make-up water.
- More utilisation of "Treated waste water" in horticulture use.
- Consumption of "Natural Resources more efficiently".
- Safe storage and disposal of hazardous wastes.

(Part – H)

MEASURES TAKEN FOR ENVIRONMENT PROTECTION, POLLUTION CONTROL AND CONSERVATION OF NATURAL RESOURCES IN IFFCO AONLA UNIT

The environment management systems at IFFCO Aonla aim for the abatement of pollution at the source of generation itself. The following measures are being taken regularly for pollution control, environmental protection and conservation of natural resources. The measures taken are: -

1. Zero effluent technology, based on recycling and reuse of the wastes generated in the main plants since design stage.
2. Utilization of resources prudently so that waste generation is minimized.
3. Treatment of waste water containing Ammonia & Urea as contaminants generated from urea plants through Deep Urea Hydrolyser and Distillation Tower (Provided separately in both the urea plants). Recovered Ammonia and Carbon Dioxide are reused in the production of urea, whereas remaining waste water containing ammonia and urea in the range of 5-10 PPM and <1 PPM respectively is reused as Boiler Feed Water after polishing in DM Plant.
4. Treatment of Process Condensate from ammonia plants by Process Condensate Stripper (Provided separately in both ammonia plants) and reusing stripped process condensate as Boiler Feed Water after polishing in DM Plant.
5. Reusing steam condensate from all the Ammonia & Urea plants and turbine condensate from both urea plants as Boiler Feed Water after polishing in DM Plant.
6. Treatment of Turbine condensates from both Ammonia Plants in A. C. Filtration & Mechanical Filtration units provided in both Ammonia plants and reusing it as Boiler Feed Water.
7. Collection of Oil containing water and spilled oil from the compressor houses in oil collection pit provided separately in all ammonia and urea plants. The oil is separated through "Disc Oil Separator". Reclaimed oil is sold to recyclers as per CPCB guidelines. The remaining waste water is pumped to ETP for further treatment.
8. Neutralization of Acidic and Alkaline waste water generated in D M Plant after regeneration of exhausted cation and anion resins in DM Plant.
9. Cooling water treatment is based on Eco-friendly, Non-chromate based corrosion inhibitors. Hence, there is no generation of hazardous and toxic Chromate sludge.
10. Treatment of occasional waste water generated during upset and startup/shutdown condition of the plants having ammonia as contaminant in Effluent Treatment Plant through Air/Steam stripping.
11. The treated waste water is kept stored in two nos. of LDPE lined lagoons (Guard-Ponds) of capacity 85,000 m^3 each. Approx 65% of this treated effluent is used in the irrigation of green belt developed in and around plant and township; Balance is let out to river Aril through "V" notch.
12. Regular monitoring of quality of liquid effluent, storm drain water, ground water, stack flue gases, urea prill tower emission, ambient air by IFFCO's own laboratory. The quality of liquid effluent, gaseous emissions & ambient air is also being cross checked by an U.P. Pollution Control Board/ MoEF & CC authorised laboratory. The concentrations of pollutants always remain well below the standard limits. The reports are being submitted to regulatory authorities.
13. All pollution control devices in the plants are kept in perfectly good condition to control pollution. Their performances are being monitored regularly by our laboratory and plant personnel.
14. Provided built in safety logics and guards in the plant operations and safe shut down/start up procedures.

15. Education and training of employees, contractor workers etc. regarding environmental issues. Generating awareness for Environment Protection in surrounding villages.

16. The conversion of household garbage along with plant canteen wastes, vegetable market and Horticulture wastes into "Vermi-Compost".

17. The hazardous spent catalysts are kept in sealed covered drums on the cemented platform under a shed and being sold to recyclers as per CPCB guidelines.

18. A carbon Dioxide Recovery unit (CDR) for recovering 450 MT Carbon Dioxide per day from the Ammonia Plant Primary Reformer stack flue gas was commissioned in December, 2006. During 2023-24, 183967 MT Carbon Dioxide is recovered from the stack flue gas and is utilized in the production of Urea.

19. Energy Saving Schemes have been implemented during the years 2005-06 to 2007-08 during turnaround of the plants without affecting the normal operations. The Energy Saving Scheme has been registered with UNFCCC as CDM project. A sum of 54,759 MT GHG emission reduction from April 2005 to April 2007 has been claimed as Voluntary Emission Reduction and a sum of US $320340.15 has been credited to IFFCO's account on 21st April, 2008.

    The reduction in GHG emission for the period 15.04.2007 to 31.12.2007 i.e. 23434 MT has been certified as Certified Emission Reduction (CER) and a sum of US $ 158,179 credited to the IFFCO account.

    GHG Emission Reduction for the period 01.01.2008 to 30.09.2008 i.e. 33892 MT has been verified as CER and a sum of US $ 228,771 credited in IFFCO account

20. IFFCO Aonla Unit has upgraded the sewage treatment system with MBR-based STP having Primary, Secondary, and Tertiary treatment units. Treated sewage is being fully recycled in the plant as cooling tower make-up water.

21. For the conservation of water, seven Roof-top Rain Water Harvesting Systems installed at GET Hostel, Kendriya Vidyalaya/Tiny Tots School, Hospital, Guest House/New Club, Anand Bhawan Club, Open Air Theatre & Administration Building are in operation in IFFCO Aonla. Two Rain Water Harvesting Systems have been installed for underground recharging of rain water of storm drains in the township.

22. Online monitoring system has been installed at IFFCO Aonla Unit for effluent quality & flow and connected to CPCB server http://cpcbrtdms.nic.in/. Online monitoring system for urea dust (PM) emission was installed on one Prill Tower on trial basis as per CPCB directions. The trial of the system was unsuccessful.

GREEN BELT DEVELOPMENT

Green belt has been developed all along the factory and township. The width of the green belt varies from 80 M to 250 M. Additional afforestation is being carried out every year to fill up left out area and replacement of dead wood trees in factory and township. In year 2023-24, total 7,157 saplings have been planted.

INTERNATIONAL ACCREDITATION

IFFCO Aonla Unit is certified with ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 for its Quality Management Systems (QMS), Environment Management Systems (EMS) and Occupational Health & Safety Management Systems (OHSMS) respectively by M/s QS Zurich A.G under Integrated Management System and the certificate is valid upto 11.03.2027. IFFCO Aonla Unit is also certified with ISO 50001:2018 for its Energy Management System (EnMS) by M/s BSI Group India Pvt. Ltd., New Delhi and the certificates is valid upto 17.01.2025.

ENVIRONMENTAL STATEMENT

- There is no adverse environmental impact on Eco-system due to plant operation since its inception.
- All the pollution Control devices in plants are being kept in perfectly good working condition and their performance is being monitored regularly.
- Network of irrigation pipeline of approx. 20 Kms. in plant and township to utilise treated waste water/effluent. Approx. 65% of treated effluent has been used in irrigation of green belt in and around the factory and township during 2023-24.
- Ammonia and Hydrogen detectors have been installed at crucial locations in the plants for early leak detection of leakages, if any.
- A series of lectures are being taken regularly for environmental awareness for the employees, contractor's staff, students, nearby villagers etc.

ENVIRONMENTAL AWARDS:

IFFCO Aonla has won many awards in the field of Environment. The awards won during last three years are as under: -

- FAI Environmental Protection Award 2022-23 (winner) for Nitrogenous Fertiliser Plant from The Fertilizer Association of India.
- FAI Environmental Protection Award 2021-22 (Winner) for a Nitrogenous Fertilizer Plant from The Fertiliser Association of India.
- "CII National Awards for Excellence in Water Management" for the year 2020 for outstanding work on water resource management.
- 20th Annual Greentech Environment Award-2020 (Winner Award) in Fertiliser sector from Greentech Foundation, New Delhi, for outstanding achievement in Environment Management.
- FAI Environmental Protection Award-2019 (Winner) in fertilizer sector from The Fertiliser Association of India for outstanding achievement in Environment Management.
- Most Innovative Environmental Project Award from Confederation of Indian Industry (CII) under CII Environmental Best Practices Award-2019, for Utilization of Process Heat for Concentrating recovered Urea Melt Solution.
- 3 Leaves award by Centre for Science and Environment (CSE).
- 19th Annual Greentech Environment Award-2019 (Winner Award) in Fertiliser sector from Greentech Foundation, New Delhi, for outstanding achievement in Environment Management.