



हिंदुस्तान उर्वरक एवं रसायन लिमिटेड
HINDUSTAN URVARAK & RASAYAN LTD.

(A Joint Venture of NTPC, CIL, IOCL, FCIL & HFCL)
P.O.-Barauni Urvarak Nagar, Begusarai-851115 (Bihar)

Date: 28.09.2024
5

To,

Mr. Suresh P Roy,
Regional Officer,
Bihar State Pollution Control Board,
Barauni Industrial area,
Begusarai.

Ref: MoEF&CC, Environmental Clearance Letter No. J-11011/371/2016-IAII (I) dated 29.08.2017.

Sub: Environmental Statement for the financial year ending 31st March 2024.

We are submitting herewith the environmental statement for the financial year ending 31st March 2024 in respect of Ammonia & Urea production plant.

This is for your kind information.

Thanking you.

For & on behalf of
HURL, Barauni.

Srinu
7/25/09/2024

Srinu Pitta
Manager (Environment & Quality Control)

Encl: Environmental Statement for the financial year ending 31st March 2024.

ENVIRONMENTAL STATEMENT FOR THE PERIOD 01.04.2023 TO 31.03.2024

(Submitted as per Rule-14 of the Environment (Protection) Amendment Rules, 1993 of the Environment (Protection) Act, 1986 (29 of 1986) published vide Notification dated 22.04.1993-G.S.R. 386(E) in the Gazette of India (Extraordinary) Part-II Section-3 Subsection (i). No.155 dated 28.04.1993 by the Ministry of Environment and Forests, Government of India: read with the Notification dated 13.02.1993 G.S.R. 329 (E) of the Gazette of India (Extraordinary) Part-II Section-3 Subsection (i) No. 120 dated 13-03-1993)

"FORM - V"
(See Rule 14)

PART-A

GENERAL INFORMATION

1. Company Name : Hindustan Urvarak & Rasayan Limited
2. Occupier's Name : Shri. Sanjai Kumar Gupta
3. Registered Office of the Company: Hindustan Urvarak & Rasayan Limited
with address Core-2, 2nd Floor, SCOPE Minar Laxmi Nagar
District Centre, New Delhi, Delhi 110092
Tel.: 011-22502267
4. Factory Address : Hindustan Urvarak & Rasayan Limited
Barauni, Urvarak Nagar, Begusarai-851115
5. Production capacity : Ammonia- 2200 MTPD
Urea-3850 MTPD
6. Establishment Year : Hindustan Urvarak & Rasayan Limited (HURL) was
incorporated on 15th June, 2016 as joint venture
company by CIL, NTPC, IOCL as the lead promoters
with HFCL & FCIL as two other partners
7. Date of Last Environmental Statement submitted : 6th environmental statement.

PART - B

Water and Raw Materials Consumption

(1) Water consumption m³/day:

Category	During the previous* financial year (2022-23)	During the current financial year (2023-24)
Process (m ³ /Day)	10840	14711
Cooling (m ³ /Day)	8818	12862
Domestic (m ³ /Day)	4213	941

Water consumption per MT of Product Output:

Name of Product	During the previous * financial year (2022-23) (m ³ /MT)	During the current financial year (2023-24) (m ³ /MT)
Urea	5.29	5.06

(2) Raw Material Consumption -

* Nature of consumption	Process Raw Material Consumption per unit of product output		
	Quality of product	During the previous* financial year (2022-23)	During the current financial year (2023-24)
Natural Gas	Natural Gas	1011 Sm ³ /MT	622 Sm ³ /MT

* Industry may use codes if disclosing details of raw materials would violate contractual obligations, otherwise all industries have to name the raw materials used.

PART - C

Pollution discharged to environment/unit of output.

(Parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
(a) Water	Nil	NA	NA
(b) Air	Ambient Air Quality Monitoring data near site is attached as Annexure-1.	Ambient Air Quality Monitoring data near site is attached as Annexure-1.	Within prescribed standards (24/8/1 hourly Avg.)

STACK EMISSION TEST:

The emission data is attached as Annexure-1.

PART - D

HAZARDOUS WASTES

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

Hazardous Wastes	Total Quantity (kg)	
	During the previous* financial year (2022-23)	During the current financial year (2023-24)
(a) From process	Nil	Nil
(b) From pollution control facilities	Nil	Nil

PART - E

SOLID WASTE

	Total Quantity	
	During the previous* financial year (2022-23)	During the current financial year (2023-24)
a) From process	NA	~100 MT (Chemical sludge from waste water treatment)
b) From pollution control facilities	NA	NA
c) Quantity recycled or reutilized within the Unit.	NA	NA
d) Sold	NA	NA
e) Disposed	NA	NA

* Previous year Data is from 13.11.2022 to 31.03.2023

PART - F

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

HURL has adopted waste management plan conforming to different National and local regulations. An Agreement was made with M/s MSTC, Various Wastes mentioned in the Authorization no. HW/B-1934 Patna-10 dated 20.07.2022 shall be sold/disposed as the need arises.

PART - G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

HURL is monitoring parameters such as groundwater, surface water and ambient air quality within the plant premises and also outside premise as per EC norms.

PART - H

Additional measures / investment proposed for environmental protection including abatement of pollution, prevention of pollution.

Some of the measures adopted in the design stage itself of the project are mentioned below:

- Plant is based on zero liquid discharge concept i.e.; all effluent water is being treated and reused.

- Continuous monitoring of particulate matter, NO_x & SO_x from all stacks; particulate matter and NH₃ from prilling tower will be done to control emission as per norms.
- Installation of gas detectors at different locations to check fugitive emissions.

PART - I

Any other particulars in respect of environment protection and abatement of pollution.

Plant is based on natural gas as a raw material with state-of-the-art technology to minimize impact on surrounding environment. As per environment management plan (EMP) all required pollution control measures are adopted as integral part of the plant in design stage itself.

World Environment Day was celebrated at HURL Barauni by planting various plants (200 No's) in our Township. The report was submitted to Board via mail dated 05.06.2024.

Plantation drive (Plantation of 7000 saplings) is going on to promote #Ek Ped Maa Ke Naam#Plant4Mother campaign initiated by Hon'ble Prime Minister.



Name & signature of the Occupier

Seal

SANJAI KUMAR GUPTA
Project Head
Hindustan Urvarak & Rasayan Ltd.
Urvarak Nagar, Barauni, Begusarai
(Bihar) 851115



S.K.G.
25/09/2024

Annexure-1

Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea (2200 MTPD & 3850 MTPD) plant of HURL at Barauni

This Compliance Report is the fulfilments of the condition of the Environmental Clearance (EC) vide File No.EC [IA/BR/IND2/61377/2016, J-11011/371/2016-IA II (I)] for the period of May 2023 to March 2024 This report has been prepared by Nitya Laboratories by collecting respective samples in consultation with the State Pollution Control Board (SPCB) officials and Hindustan Urvarak and Rasayan Limited (HURL) officials During the above mentioned period the analysis of the environmental parameters has been conducted by the MOEF&CC recognized Laboratory at Nitya Laboratories, Jammu .

The proposed project is located at Barauni and was commissioned on 18 November 2022 with the capacity of 2200MTPD Ammonia and 3850MTPD Urea in the District Begusarai in the state of Bihar. The commercial production has started from 19 November 2022 with the board name APNA UREA.The area falls in the agricultural belt of the Bihar.

The compliance report fulfils the 19 Nos of Specific Conditions and 17 Nos. of General Conditions led by Ministry of Environment, Forests and Climate Change Rainwater Harvesting and Ground Water charging has been proposed as per Standard Guidelines:

- Guidelines on Artificial Recharge of Water, Central Water Ground Board, Ministry of Water Resources, Gol (2000)
- Manual on Artificial Recharge of Ground Water, Central Water Ground Board, Ministry of Water Resources, Gol (2007)
- Rain Water Harvesting and Conservation Manual Consultancy Services Organization, CPWD, Gol (2002)

The Environmental Monitoring report of 11 months w.r.t Air. Water and Noise have been presented separately with the average values. The environmental conditions and the compliance have been found normal as per the Standards. The Air Quality results have been presented through a self-explanatory table with the NAAQ Standards w.r.t the parameter PM₁₀, PM_{2.5}, NO_x, SO_x, C₆H₆, CO, Benzo(a) pyrene (BAP), NH₃, Ozone, Nickel, Arsenic and Lead. Three sets each of Ground Water Samples and Surface Water Samples have been collected, analyzed in a self-explanatory table, and compared with Drinking Water Standards (IS:10500:2012) The analysis consists of eight nos. of physical parameters, thirteen no's of chemical parameters, nine no's of Heavy metals and three no's of miscellaneous parameters. Noise Quality has also been measured at six different locations in the periphery of the project area. The results have been presented through self-explanatory table consisting of the Standard NAAQS w.r.t noise.

The above report with respect to Air. Water and Noise represents the average values of different sampling stations collected at different time during the study period of May 2023 to March 2024.



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CORPORATE OFFICE & CENTRAL LABORATORIES :-

Plot No. 118, Church Road, Behind Kausik Vatika, Bhagat Singh Colony, Ballabgarh, Faridabad - 121004, Haryana, India

+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com

Annexure-1

Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea
(2200 MTPD & 3850 MTPD) plant of HURL at Barauni

TABLE- 1

Location of Air Quality Monitoring Stations

Sr. No.	Location of Station	Frequency
1.	HURL Admin Building(SA1)0	Twice a Week
2.	Simariya Village(SA2)	Twice a Week
3.	HURL Residential Township(SA3)	Twice a Week
4.	Chackbali Refinery Road(SA4)	Twice a Week
5.	Chakiya Village (SA5)	Twice a Week
6.	Bihat Village (SA6)	Twice a Week



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PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA

+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

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HURL BARAUNI, AIR QUALITY DATA – May 2023 – March 2024

Month	Parameters		NAAQS	HURL Admin Building (SA1)	Simariya Village (SA2)	HURL Residential Township (SA3)	Chackbali Refinery Road (SA4)	Chakiy a Village (SA5)	Bihat Village (SA6)
			Standar ds						
May 2023	PM10	µg/m ³	100	89.67	87.68	90.65	88.56	89.10	91.69
	PM2.5		60	50.12	51.69	45.69	48.65	52.06	54.38
	SO ₂		80	16.20	17.66	16.96	18.16	20.76	21.45
	NO _x		80	26.57	22.46	24.56	25.69	28.66	26.46
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m ³	1	ND	ND	ND	ND	ND	ND
	CO	mg/m ³	2	0.42	0.39	0.38	0.40	0.51	0.55
	NH ₃	µg/m ³	400	139.66	12.66	11.66	136.62	28.56	33.20
	Ozone		180	20.26	23.58	21.69	24.26	26.36	25.86
	Ni	ng/m ³	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m ³	1	ND	ND	ND	ND	ND	ND
June 2023	PM10	µg/m ³	100	93.71	91.63	91.58	93.1	92.5	93.11
	PM2.5		60	52.67	50.96	48.24	53.43	51.47	50.16
	SO ₂		80	18.17	18.52	17.78	19.02	19.17	19.63
	NO _x		80	27.18	24.45	22.2	27.6	30.25	27.87
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m ³	1	ND	ND	ND	ND	ND	ND
	CO	mg/m ³	2	0.43	0.47	0.39	0.45	0.53	0.52
	NH ₃	µg/m ³	400	142.13	13.05	13.87	139.8	30.11	34.4
	Ozone		180	22.14	22.54	20.58	23.08	24.72	24.33
	Ni	ng/m ³	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m ³	1	ND	ND	ND	ND	ND	ND
July 2023	PM10	µg/m ³	100	69.70	69.77	69.71	70.01	69.81	69.82
	PM2.5		60	45.80	43.83	43.34	45.21	44.47	43.95
	SO ₂		80	13.22	13.49	13.30	14.21	14.14	14.91
	NO _x		80	22.48	19.16	17.56	22.60	25.58	22.73
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m ³	1	ND	ND	ND	ND	ND	ND



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	CO	mg/m ³	2	0.27	0.28	0.26	0.27	0.35	0.30
	NH ₃	μg/m ³	400	137.07	10.65	10.86	134.91	25.05	29.23
	Ozone		180	17.15	17.38	15.46	17.71	19.60	19.40
	Ni	ng/m ³	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	μg/m ³	1	ND	ND	ND	ND	ND	ND
Aug 2023	PM10	μg/m ³	100	67.47	67.70	67.82	67.93	67.70	67.71
	PM2.5		60	44.08	42.13	41.97	43.73	42.70	41.95
	SO ₂		80	11.37	11.91	12.20	12.50	12.55	13.01
	NO _x		80	20.36	17.30	15.96	21.31	24.08	20.97
	C ₆ H ₆		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m ³	1	ND	ND	ND	ND	ND	ND
	CO	mg/m ³	2	0.23	0.23	0.22	0.20	0.25	0.23
	NH ₃	μg/m ³	400	138.76	10.50	10.65	75.48	23.38	27.82
	Ozone		180	15.36	15.97	14.30	16.47	18.15	17.77
	Ni	ng/m ³	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	μg/m ³	1	ND	ND	ND	ND	ND	ND
Sep. 2023	PM10	μg/m ³	100	64.66	64.40	64.78	64.81	64.67	64.82
	PM2.5		60	41.45	38.46	39.00	40.55	39.53	38.83
	SO ₂		80	12.97	12.16	11.06	11.86	11.66	11.17
	NO _x		80	18.21	14.87	13.37	18.25	21.52	17.65
	C ₆ H ₆		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m ³	1	ND	ND	ND	ND	ND	ND
	CO	mg/m ³	2	0.18	0.18	0.17	0.16	0.20	0.19
	NH ₃	μg/m ³	400	51.91	12.36	10.78	72.36	20.70	24.53
	Ozone		180	12.96	13.55	11.47	13.52	15.22	15.32
	Ni	ng/m ³	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	μg/m ³	1	ND	ND	ND	ND	ND	ND
Oct 2023	PM10	μg/m ³	100	66.53	67.08	66.67	67.54	67.14	67.25
	PM2.5		60	43.30	41.35	44.48	49.13	42.18	44.51
	SO ₂		80	15.87	14.51	13.53	14.64	14.44	14.04
	NO _x		80	20.96	17.68	16.94	21.22	24.43	20.17
	C ₆ H ₆		5	ND	ND	ND	ND	ND	ND
	BAP		ng/m ³	1	ND	ND	ND	ND	ND

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	CO	mg/m3	2	0.26	0.24	0.22	0.20	0.25	0.23
	NH3	µg/m3	400	54.55	14.50	13.22	75.20	23.26	27.11
	Ozone		180	16.01	16.93	14.38	16.00	18.38	17.46
	Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m3	1	ND	ND	ND	ND	ND	ND
Nov 2023	PM10	µg/m3	100	70.35	71.15	71.18	71.85	71.18	71.36
	PM2.5		60	47.17	45.15	47.90	48.31	46.10	49.36
	SO2		80	19.82	18.73	18.05	18.97	18.75	18.26
	NOx		80	25.20	21.82	20.82	25.21	28.58	24.57
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m3	1	ND	ND	ND	ND	ND	ND
	CO	mg/m3	2	0.37	0.35	0.36	0.32	0.39	0.33
	NH3	µg/m3	400	58.42	19.05	17.68	78.75	27.30	31.27
	Ozone		180	19.82	19.87	18.45	20.37	22.36	22.07
	Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m3	1	ND	ND	ND	ND	ND	ND
Dec 2023	PM10	µg/m3	100	72.68	73.20	73.04	73.65	73.58	72.95
	PM2.5		60	49.90	47.65	50.15	51.04	48.50	50.14
	SO2		80	22.51	21.05	20.74	22.11	21.66	21.14
	NOx		80	27.90	24.04	24.21	27.90	31.65	27.18
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m3	1	ND	ND	ND	ND	ND	ND
	CO	mg/m3	2	0.58	0.54	0.47	0.44	0.52	0.45
	NH3	µg/m3	400	60.15	22.04	20.50	80.83	30.33	34.08
	Ozone		180	22.81	22.09	21.60	23.04	25.31	25.14
	Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m3	1	ND	ND	ND	ND	ND	ND
Jan 2024	PM10	µg/m3	100	68.39	67.31	67.43	68.38	68.90	67.97
	PM2.5		60	46.03	43.92	44.88	46.01	43.90	45.20
	SO2		80	18.56	18.31	18.22	19.39	18.06	17.79
	NOx		80	24.83	28.12	24.40	24.60	20.47	20.56
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m3	1	ND	ND	ND	ND	ND	ND

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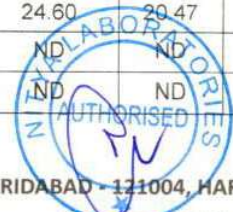
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	CO	mg/m3	2	0.34	0.41	0.35	0.46	0.44	0.37
	NH3	µg/m3	400	74.59	26.73	29.70	55.32	17.93	17.47
	Ozone		180	18.64	21.96	20.89	19.93	17.97	18.38
	Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m3	1	ND	ND	ND	ND	ND	ND
Feb 2024	PM10	µg/m3	100	64.44	63.36	62.94	62.88	61.60	62.06
	PM2.5		60	42.25	40.28	42.93	42.20	40.54	40.94
	SO2		80	16.43	16.08	15.65	16.46	15.51	15.60
	NOx		80	21.73	18.89	18.31	22.08	24.45	20.86
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m3	1	ND	ND	ND	ND	ND	ND
	CO	mg/m3	2	0.39	0.33	0.29	0.24	0.32	0.24
	NH3	µg/m3	400	51.11	16.44	15.70	68.78	22.41	25.04
	Ozone		180	17.56	16.90	16.14	16.68	18.29	17.80
	Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m3	1	ND	ND	ND	ND	ND	ND
Mar 2024	PM10	µg/m3	100	61.56	60.40	59.94	59.88	58.85	59.06
	PM2.5		60	39.39	38.88	40.26	39.53	38.14	37.98
	SO2		80	13.80	13.35	12.65	13.71	12.51	13.05
	NOx		80	18.61	15.81	15.31	19.20	21.45	17.06
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m3	1	ND	ND	ND	ND	ND	ND
	CO	mg/m3	2	0.36	0.30	0.25	0.21	0.29	0.21
	NH3	µg/m3	400	48.16	13.94	12.74	65.44	19.41	22.09
	Ozone		180	21.56	13.93	13.30	13.74	15.29	14.83
	Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
	As		6	ND	ND	ND	ND	ND	ND
	Pb	µg/m3	1	ND	ND	ND	ND	ND	ND
Avg.	PM10	µg/m3	100	69.91	69.60	69.51	70.00	69.54	69.63
	PM2.5		60	45.20	43.26	44.30	45.91	43.75	44.30
	SO2		80	16.27	15.81	15.32	16.29	15.85	15.86
	NOx		80	22.75	21.24	18.91	23.00	25.25	21.96
	C6H6		5	ND	ND	ND	ND	ND	ND
	BAP	ng/m3	1	ND	ND	ND	ND	ND	ND

CORPORATE OFFICE & CENTRAL LABORATORIES :-

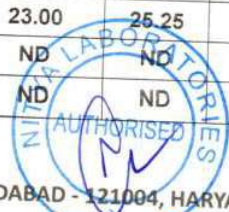
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Annexure-1

Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea
(2200 MTPD & 3850 MTPD) plant of HURL at Barauni

CO	mg/m3	2	0.34	0.34	0.31	0.30	0.35	0.31
NH3	µg/m3	400	81.69	16.06	16.35	84.69	24.00	27.30
Ozone		180	18.44	18.46	16.50	18.05	19.53	19.25
Ni	ng/m3	20	ND	ND	ND	ND	ND	ND
As		6	ND	ND	ND	ND	ND	ND
Pb	µg/m3	1	ND	ND	ND	ND	ND	ND

TABLE - 2



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+91-129-2241021

+91-9013591021, +91-9013552273

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(2200 MTPD & 3850 MTPD) plant of HURL at Barauni

Noise Monitoring Assessment Schedule

Sr. No.	Source	Frequency
1.	HURL Admin Building (SN 1)	Once in a Month
2.	HURL Simariya Village (SN 2)	Once in a Month
3.	HURL Township (SN 3)	Once in a Month
4.	HURL Mahna Village (SN 4)	Once in a Month
5.	HURL Chakiya Village (SN 5)	Once in a Month
6.	Near Bihat Village(SN 6)	Once in a Month



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+91-129-2241021

+91-9013591021, +91-9013552273

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HURL BARAUNI, NOISE DATA May 2023 – March 2024								
Month	Parameters	Prescribed Limits in db(A) as per NAAQS Ind./Res. Area	HURL Admin Building (SA1)	Simariya Village (SA2)	HURL Residential Township (SA3)	Chackba li Refinery Road (SA4)	Chaki ya Villag e (SA5)	Bihat Village (SA6)
May-2023	24 hrs. Avg Leq Value db (A)	-	48.60	48.94	45.13	47.44	42.90	56.52
	Day time Avg Leq Value db (A)	75/55/65	52.63	54.69	46.37	50.69	45.69	60.36
	Night time Avg Leq Value db (A)	70/45/55	44.58	43.20	43.89	44.23	40.12	52.69
June-2023	24 hrs. Avg Leq Value db (A)	-	49.90	50.72	44.30	46.09	42.05	54.88
	Day time Avg Leq Value db (A)	75/55/65	54.54	56.08	45.23	49.74	44.53	58.90
	Night time Avg Leq Value db (A)	70/45/55	43.65	45.36	43.37	42.45	41.56	50.86
July-2023	24 hrs. Avg Leq Value db (A)	-	68.04	64.25	65.85	58.87	59.70	56.30
	Day time Avg Leq Value db (A)	75/55/65	71.89	68.90	70.12	63.96	65.42	60.45
	Night time Avg Leq Value db (A)	70/45/55	64.21	59.10	61.58	53.78	53.98	52.16
Aug-2023	24 hrs. Avg Leq Value db (A)	-	69.32	65.98	67.58	58.93	61.33	56.66
	Day time Avg Leq Value db (A)	75/55/65	72.66	70.12	71.96	65.74	67.41	61.98
	Night time Avg Leq Value db (A)	70/45/55	65.98	61.85	63.20	52.13	55.26	51.35
Sep-2023	24 hrs. Avg Leq Value db (A)	-	70.23	68.05	65.44	61.04	61.10	59.09
	Day time Avg Leq Value db (A)	75/55/65	73.69	72.65	69.98	67.85	65.89	63.98
	Night time Avg Leq Value db (A)	70/45/55	66.78	63.69	60.39	54.23	57.46	54.21
Oct-2023	24 hrs. Avg Leq Value db (A)	-	68.12	53.96	67.15	62.47	63.67	57.56
	Day time Avg Leq Value db (A)	75/55/65	72.45	58.12	71.52	68.69	67.98	62.69
	Night time Avg Leq Value db (A)	70/45/55	64.56	45.64	62.58	55.87	59.21	53.12

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

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Nov-2023	24 hrs. Avg Leq Value db (A)	-	66.78	69.89	65.85	64.69	62.38	60.37
	Day time Avg Leq Value db (A)	75/55/65	70.60	72.10	69.45	70.23	66.41	65.36
	Night time Avg Leq Value db (A)	70/45/55	62.58	66.89	60.88	56.73	57.25	55.65
Dec-2023	24 hrs. Avg Leq Value db (A)	-	66.96	68.45	67.39	65.88	58.89	58.21
	Day time Avg Leq Value db (A)	75/55/65	71.80	70.58	71.36	72.12	64.53	63.68
	Night time Avg Leq Value db (A)	70/45/55	63.96	63.89	62.85	58.96	55.24	53.81
Jan-2024	24 hrs. Avg Leq Value db (A)	-	68.36	68.11	66.29	65.12	60.95	59.11
	Day time Avg Leq Value db (A)	75/55/65	72.45	71.88	70.52	70.96	66.36	64.48
	Night time Avg Leq Value db (A)	70/45/55	64.78	65.24	63.89	60.11	56.71	55.10
Feb-2024	24 hrs. Avg Leq Value db (A)	-	65.14	67.90	68.51	64.36	63.18	59.88
	Day time Avg Leq Value db (A)	75/55/65	71.23	72.56	71.84	69.35	68.21	66.36
	Night time Avg Leq Value db (A)	70/45/55	62.89	64.11	65.11	58.69	57.88	54.19
Mar-2024	24 hrs. Avg Leq Value db (A)	-	66.97	66.36	67.33	65.43	62.58	61.58
	Day time Avg Leq Value db (A)	75/55/65	70.12	71.48	72.85	70.26	69.63	67.96
	Night time Avg Leq Value db (A)	70/45/55	63.66	63.39	63.92	60.59	56.23	56.39
Average	24 hrs. Avg Leq Value db (A)	-	64.29	64.55	62.70	60.25	58.03	58.21
	Day time Avg Leq Value db (A)	75/55/65	68.55	68.61	66.45	65.42	62.91	63.28
	Night time Avg Leq Value db (A)	70/45/55	60.69	60.24	59.23	54.70	53.72	53.59



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Plot No. 118, Church Road, Behind Kausik Vatika, Bhagat Singh Colony, Ballabgarh, Faridabad - 121004, Haryana, India

+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com

Annexure-1

Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea
(2200 MTPD & 3850 MTPD) plant of HURL at Barauni

TABLE - 3

Ground Water Quality Assessment Schedule

Sr. No.	Source	Parameters	Frequency
1.	HURL Plant (Bore-well)	As per IS: 10500	Once in a Month
2.	HURL Township (Hand Pump)	As per IS: 10500	Once in a Month
3.	Chakiya Village (Hand Pump)	As per IS: 10500	Once in a Month



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+91-129-2241021

+91-9013591021, +91-9013552273

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HURL BARAUNI, GROUND WATER QUALITY DATA AVERAGE RESULT May 2023 – March 2024

(Results are expressed in mg/l, unless otherwise stated)

Sr. No.	Parameters	Average Analysis Results			Requirement (Acceptable)/ Permissible Limits (IS: 10500:2012)
		HURL Plant (Bore-well) GW-1	HURL Township (Hand Pump) GW-2	Chakiya Village (Hand Pump) GW-3	
PHYSICAL					
1.0	pH	7.28	7.19	7.23	6.5-8.5
2.0	Temperature	25.75	26.14	26.87	-
3.0	Color	<5	<5	<5	5/15
4.0	Odor	Agreeable	Agreeable	Agreeable	Agreeable
5.0	Taste	Agreeable	Agreeable	Agreeable	Agreeable
6.0	Turbidity (NTU)	ND	ND	ND	1/5
7.0	Total Suspended Solids	15.00	19.50	22.90	-
8.0	Total Dissolved Solids	876.00	542.10	567.40	500/2000
CHEMICAL					
1.0	P-Alkalinity as (CaCO ₃)	ND	ND	ND	-
2.0	Total Alkalinity as (CaCO ₃)	257.80	301.60	240.80	200/600
3.0	Chloride as Cl	61.90	46.90	52.70	250/1000
4.0	Sulphate as (SO ₄)	28.19	33.48	55.70	200/400
5.0	Nitrate as (NO ₃)	0.59	0.48	1.09	45/NR
6.0	Fluoride as (F)	ND	ND	ND	1.0/1.5
7.0	Total Hardness as (CaCO ₃)	264.00	262.50	231.90	200/600
8.0	Calcium as Ca	92.70	84.60	81.60	-
9.0	Magnesium as Mg	40.85	36.83	37.80	-
10.0	Sodium as Na	31.50	27.56	38.43	-
11.0	Potassium as K	2.98	2.89	4.19	-
12.0	Silica as SiO ₂	20.46	16.70	18.68	-
13.0	Iron as Fe	ND	0.23	0.25	0.3/NR



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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

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HEAVY METALS					
1.0	Manganese as Mn	ND	ND	ND	0.1/0.3
2.0	Total Chromium as Cr	ND	ND	ND	0.05/NR
3.0	Lead as Pb	ND	ND	ND	0.01/NR
4.0	Zinc as Zn	0.43	0.27	0.33	5.0/15
5.0	Cadmium as Cd	ND	ND	ND	0.003/NR
6.0	Copper as Cu	ND	ND	ND	0.05/1.5
7.0	Nickel as Ni	ND	ND	ND	0.02/NR
8.0	Arsenic as As	ND	ND	ND	0.01
9.0	Selenium as Se	ND	ND	ND	0.01/NR
OTHERS					
1.0	Oil & Grease	ND	ND	ND	0.01/0.03
2.0	Phenolic compound as C6H6OH	ND	ND	ND	0.001/0.002
3.0	Total Coliform (MPN/100 ml)	Absent	Absent	Absent	-

NR= No Relaxation, *Calcium as Ca, ** Magnesium as



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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

www.nityalab.com

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Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea (2200 MTPD & 3850 MTPD) plant of HURL at Barauni

TABLE - 4

Surface Water Quality Assessment Schedule

Sr. No.	Source	Parameters	Frequency
1.	Ganga River	As per IS: 10500	Once in a Month
2.	Bihat Village (Pond)	As per IS: 10500	Once in a Month
3.	Baya Nallah	As per IS: 10500	Once in a Month

HURL BARAUNI, Surface Water Quality Data Average Result May 2023 – March 2024

(Results are expressed in mg/l, unless otherwise stated)

Sr. No.	Parameters	Average Analysis Results			Requirement (Acceptable)/P ermissible Limits (IS: 10500:2012)
		Ganga River (SW1)	Bihat Village (Pond) (SW2)	Baya Nallah (SW3)	
PHYSICAL					
1.0	pH	7.66	7.69	7.72	6.5-8.5
2.0	Temperature	26.47	26.90	26.58	-
3.0	Color	<5	23.10	<5	5/15
4.0	Turbidity (NTU)	32.40	34.20	<1	1/5
5.0	Total Suspended Solids	17.10	51.48	30.05	-
6.0	Total Dissolved Solids	280.00	974.30	277.30	500/2000
CHEMICAL					
1.0	Total Alkalinity as (CaCO ₃)	145.70	268.30	143.70	200/600
2.0	Chloride as Cl	35.70	213.59	33.30	250/1000
3.0	Sulphate as (SO ₄)	22.89	43.22	20.79	200/400
4.0	Nitrate as (NO ₃)	1.08	0.65	0.33	45/NR
5.0	Fluoride as (F)	ND	ND	ND	1.0/1.5
6.0	Total Hardness as (CaCO ₃)	162.90	247.10	156.30	200/600
7.0	Calcium as Ca	65.60	61.41	69.70	-
8.0	Magnesium as Mg	15.54	42.25	8.19	-

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+91-129-2241021

+91-9013591021, +91-9013552273

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9.0	Dissolved Oxygen	5.58	3.20	4.80	-
10.0	COD	30.20	108.90	49.10	-
11.0	BOD (3 days at 27°C)	6.38	25.60	10.90	-
12.0	Sodium as Na	29.89	39.68	27.36	-
13.0	Potassium as K	2.69	3.58	2.36	-
HEAVY METALS					
1.0	Iron as Fe	0.20	ND	ND	0.3/NR
2.0	Manganese as Mn	ND	ND	ND	0.1/0.3
3.0	Total Chromium as Cr	ND	ND	ND	0.05/NR
4.0	Lead as Pb	ND	ND	ND	0.01/NR
5.0	Zinc as Zn	0.39	0.53	0.31	5.0/15
6.0	Cadmium as Cd	ND	ND	ND	0.003/NR
7.0	Copper as Cu	ND	ND	ND	0.05/1.5
8.0	Nickel as Ni	ND	ND	ND	0.02/NR
9.0	Arsenic as As	ND	ND	ND	0.01
10.0	Selenium as Se	ND	ND	ND	0.01/NR
OTHERS					
1.0	Oil & Grease	ND	ND	ND	0.01/0.03
2.0	Phenolic compound as C6H6OH	ND	ND	ND	0.001/0.002
3.0	Total Coliform (MPN/100 ml)	388.00	726.00	1036.00	-

NR= No Relaxation, *Calcium as Ca, ** Magnesium as Mg



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☎ +91-129-2241021

☎ +91-9013591021, +91-9013552273

✉ labsnitya@gmail.com

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Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea (2200 MTPD & 3850 MTPD) plant of HURL at Barauni

TABLE - 5

Flue Gas Monitoring Assessment Schedule

Sr. No.	Source	Parameters	Frequency
1.	Primary Reformer	PM, SO _x , NO _x & CO	Twice in a Month
2.	Prill Tower	PM & Ammonia	Twice in a Month
3.	HRSG-1	PM, SO _x , NO _x & CO	Twice in a Month
4.	HRSG-2	PM, SO _x , NO _x & CO	Twice in a Month

HURL BARAUNI, Flue Gas Monitoring Data Average Result May 2023 – March 2024

Month	Parameters		NAAQS	Primary Reformer	HRSG-1	HRSG-2
			Standards			
May 2023	PM	mg/Nm ³	-	ND (DL-1)	ND (DL-5)	ND (DL-5)
	NO _x		-	58	80	93
	SO ₂		-	ND (DL-1)	ND (DL-1)	ND (DL-1)
	CO		-	9	22	26
June 2023	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	298	88	115
	SO ₂		-	ND (DL-1)	3	9
	CO		-	212	9	12
July 2023	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	54	111	96
	SO ₂		-	ND (DL-1)	ND (DL-1)	ND (DL-1)
	CO		-	10	46	36
Aug 2023	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	86	103	103
	SO ₂		-	ND (DL-1)	3	6
	CO		-	ND (DL-1)	35	15
Sep 2023	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	68	101	99
	SO ₂		-	ND (DL-1)	6	9
	CO		-	ND (DL-1)	9	10
Oct	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

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2023	NO _x		-	66	99	101
	SO ₂		-	2	8	6
	CO		-	ND (DL-1)	10	9
Nov 2023	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	61	87	98
	SO ₂		-	3	6	5
	CO		-	ND (DL-1)	12	10
Dec 2023	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	66	78	82
	SO ₂		-	2	4	3
	CO		-	ND (DL-1)	10	12
Jan 2024	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	56	68	78
	SO ₂		-	4	3	7
	CO		-	ND (DL-1)	8	15
March 2024	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	65	74	74
	SO ₂		-	7	9	6
	CO		-	ND (DL-1)	6	12
Average	PM	mg/Nm ³	-	ND (DL-5)	ND (DL-5)	ND (DL-5)
	NO _x		-	87.80	88.90	93.90
	SO ₂		-	3.60	5.25	6.38
	CO		-	77.00	16.70	15.70

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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

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Env. STATEMENT for CTO Compliance for the period May 2023 – March 2024 for Ammonia –Urea (2200 MTPD & 3850 MTPD) plant of HURL at Barauni

HURL BARAUNI, Flue Gas Monitoring Data Average Result May 2023 – March 2024

Month	Parameters		NAAQS	Prill Tower
			Standards	
May 2023	PM	mg/Nm ³	-	45.00
	NH ₃		-	78.00
June 2023	PM	mg/Nm ³	-	60.00
	NH ₃		-	80.00
July 2023	PM	mg/Nm ³	-	49.00
	NH ₃		-	86.00
Aug 2023	PM	mg/Nm ³	-	46.00
	NH ₃		-	81.00
Sep 2023	PM	mg/Nm ³	-	42.00
	NH ₃		-	74.00
Oct 2023	PM	mg/Nm ³	-	44.00
	NH ₃		-	68.00
Nov 2023	PM	mg/Nm ³	-	42.00
	NH ₃		-	58.00
Dec 2023	PM	mg/Nm ³	-	38.00
	NH ₃		-	48.00
Jan 2024	PM	mg/Nm ³	-	39.00
	NH ₃		-	48.00
March 2024	PM	mg/Nm ³	-	36.00
	NH ₃		-	52.00
Average	PM	mg/Nm ³	-	44.10
	NH ₃		-	67.30



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+91-129-2241021

+91-9013591021, +91-9013552273

labsnitya@gmail.com

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Environmental Monitoring for New Ammonia Urea Plant of M/s HURL at Barauni
(April 2023)



TABLE- 3.4
Ambient Air Quality Monitoring Data

Period of Monitoring: April 2023
Location: Admn. Building HURL (SA1)

DAY	DATE	Parameters											
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	C ₆ H ₆ (µg/m ³)	Benzo (a)pyrene (ng/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	Ozone (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Lead (µg/m ³)
NAAQ Standards	→	100	60	80	80	05	01	02	400	180	20	06	1.0
Mon/Tue	03/04.04.23	144	70	13.5	24.4	<0.01	<0.01	0.38	131.4	17.6	BDL	BDL	BDL
Fri/Sat	07/08.04.23	128	60	11.6	19.2	<0.01	<0.01	0.33	115.2	16.8	BDL	BDL	BDL
Mon/Tue	10/11.04.23	146	71	13.8	24.7	<0.01	<0.01	0.41	142.0	19.8	BDL	BDL	BDL
Fri/Sat	14/15.04.23	128	62	14.8	24.0	<0.01	<0.01	0.60	236.2	20.9	BDL	BDL	BDL
Mon/Tue	17/18.04.23	110	54	12.3	19.4	<0.01	<0.01	0.53	157.9	17.5	BDL	BDL	BDL
Fri/Sat	21/22.04.23	132	63	13.8	22.2	<0.01	<0.01	0.37	102.2	16.0	BDL	BDL	BDL
Mon/Tue	24/25.04.23	100	50	11.3	18.8	<0.01	<0.01	0.61	155.6	20.7	BDL	BDL	BDL
Fri/Sat	28/29.04.23	136	68	15.3	23.9	<0.01	<0.01	0.54	190.0	18.8	BDL	BDL	BDL
No. of observations		8	8	8	8	8	8	8	8	8	8	8	8
Min. Concentration		100	50	11.3	18.8	<0.01	<0.01	0.33	102.2	16.0	BDL	BDL	BDL
Max. Concentration		146	71	15.3	24.7	<0.01	<0.01	0.61	236.2	20.9	BDL	BDL	BDL
Average		127.9	62.3	13.3	22.1	<0.01	<0.01	0.47	153.8	18.5	BDL	BDL	BDL
98 th percentile		146.0	70.7	15.2	24.7	<0.01	<0.01	0.61	229.7	20.8	BDL	BDL	BDL

NOTE: BDL = Below Detection Limit

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Environmental Monitoring for New Ammonia Urea Plant of M/s HURL at Barauni
(April 2023)

TABLE - 3.5
Ambient Air Quality Monitoring Data

Period of Monitoring: April 2023
Location: Simariya Village (SA2)

DAY	DATE	Parameters											
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	C ₆ H ₆ ($\mu\text{g}/\text{m}^3$)	Benzene (C_6H_6) (ng/m^3)	CO (mg/m^3)	NH ₃ ($\mu\text{g}/\text{m}^3$)	Ozone ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)	As (ng/m^3)	Lead ($\mu\text{g}/\text{m}^3$)
NAAQ Standards		100	60	80	80	05	01	02	400	180	20	06	1.0
Mon/Tue	03/04.04.23	129	64	13.4	23.1	<0.01	<0.01	0.30	<20	17.5	BDL	BDL	BDL
Fri/Sat	07/08.04.23	123	60	14.7	20.7	<0.01	<0.01	0.27	<20	16.5	BDL	BDL	BDL
Mon/Tue	10/11.04.23	116	57	15.3	30.5	<0.01	<0.01	0.52	<20	22.8	BDL	BDL	BDL
Fri/Sat	14/15.04.23	115	55	17.4	23.5	<0.01	<0.01	0.58	<20	20.2	BDL	BDL	BDL
Mon/Tue	17/18.04.23	120	58	14.3	16.0	<0.01	<0.01	0.45	<20	18.9	BDL	BDL	BDL
Fri/Sat	21/22.04.23	124	63	13.7	16.6	<0.01	<0.01	0.25	<20	19.2	BDL	BDL	BDL
Mon/Tue	24/25.04.23	106	54	12.4	16.8	<0.01	<0.01	0.47	<20	22.3	BDL	BDL	BDL
Fri/Sat	28/29.04.23	113	56	15.0	22.4	<0.01	<0.01	0.51	<20	18.9	BDL	BDL	BDL
No. of observations		8	8	8	8	8	8	8	8	8	8	8	8
Min. Concentration		106	54	12.4	16.0	<0.01	<0.01	0.25	<20	16.5	BDL	BDL	BDL
Max. Concentration		129	64	17.4	30.5	<0.01	<0.01	0.58	<20	22.8	BDL	BDL	BDL
Average		118.3	58.5	14.5	21.2	<0.01	<0.01	0.42	<20	19.5	BDL	BDL	BDL
98 th percentile		128.1	64.0	17.1	29.5	<0.01	<0.01	0.57	<20	22.7	BDL	BDL	BDL

NOTE: BDL = Below Detection Limit

Handwritten notes in Hindi: "जांच के लिए नमूने भेजे जायेंगे" (Samples will be sent for analysis).



Environmental Monitoring for New Ammonia Urea Plant of M/s HURL at Barauni
(April 2023)



TABLE - 3.6
Ambient Air Quality Monitoring Data

Period of Monitoring: April 2023
Location: HURL Township (SA3)

DAY	DATE	Parameters											
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	C ₆ H ₆ (µg/m ³)	Benzo (a)pyrene (ng/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	Ozone (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Lead (µg/m ³)
NAAQ Standards	→	100	60	80	80	05	01	02	400	180	20	06	1.0
Mon/Tue	03/04.04.23	102	50	12.3	19.3	<0.01	<0.01	0.27	<20	15.4	BDL	BDL	BDL
Fri/Sat	07/08.04.23	108	53	11.9	18.5	<0.01	<0.01	0.25	<20	16.1	BDL	BDL	BDL
Mon/Tue	10/11.04.23	113	56	15.3	23.4	<0.01	<0.01	0.32	<20	17.9	BDL	BDL	BDL
Fri/Sat	14/15.04.23	105	51	16.0	21.5	<0.01	<0.01	0.43	<20	18.0	BDL	BDL	BDL
Mon/Tue	17/18.04.23	95	49	13.0	16.4	<0.01	<0.01	0.33	<20	18.2	BDL	BDL	BDL
Fri/Sat	21/22.04.23	117	58	11.3	15.8	<0.01	<0.01	0.20	<20	15.7	BDL	BDL	BDL
Mon/Tue	24/25.04.23	90	46	10.8	14.9	<0.01	<0.01	0.29	<20	19.0	BDL	BDL	BDL
Fri/Sat	28/29.04.23	110	56	13.0	19.6	<0.01	<0.01	0.42	<20	17.5	BDL	BDL	BDL
No. of observations		8	8	8	8	8	8	8	8	8	8	8	8
Min. Concentration		90	46	10.8	14.9	<0.01	<0.01	0.20	<20	15.4	BDL	BDL	BDL
Max. Concentration		117	58	16.0	23.4	<0.01	<0.01	0.43	<20	19.0	BDL	BDL	BDL
Average		105.1	52.4	12.9	18.7	<0.01	<0.01	0.31	<20	17.2	BDL	BDL	BDL
95 th percentile		116.5	57.8	15.9	23.1	<0.01	<0.01	0.42	<20	18.9	BDL	BDL	BDL

NOTE: BDL = Below Detection Limit

(I) - 100% (100% of the total amount of the sample) is to be analyzed for the presence of the above mentioned parameters. The results of the analysis shall be reported to the concerned authority.

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Environmental Monitoring for New Ammonia Urea Plant of M/s HJURL at Barauni
(April 2023)



TABLE - 3.7
Ambient Air Quality Monitoring Data

Period of Monitoring: April 2023
Location: Chakballi - Mahana Road (SA4)

DAY	DATE	Parameters												
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	C ₆ H ₆ ($\mu\text{g}/\text{m}^3$)	Benzo (a)pyrene (ng/m^3)	CO (mg/m^3)	NH ₃ ($\mu\text{g}/\text{m}^3$)	Ozone ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)	As (ng/m^3)	Lead ($\mu\text{g}/\text{m}^3$)	
NAAQ Standards		100	60	80	80	30	05	01	02	400	180	20	06	1.0
Mon/Tue	03/04.04.23	162	78	16.0	25.4	<0.01	<0.01	<0.01	0.41	130.0	18.4	BDL	BDL	BDL
Fri/Sat	07/08.04.23	141	68	14.3	24.3	<0.01	<0.01	<0.01	0.36	164.9	19.3	BDL	BDL	BDL
Mon/Tue	10/11.04.23	184	90	17.1	27.0	<0.01	<0.01	<0.01	0.40	131.0	21.0	BDL	BDL	BDL
Fri/Sat	14/15.04.23	159	77	16.6	25.9	<0.01	<0.01	<0.01	0.58	170.3	19.5	BDL	BDL	BDL
Mon/Tue	17/18.04.23	176	85	14.5	20.7	<0.01	<0.01	<0.01	0.41	123.8	21.7	BDL	BDL	BDL
Fri/Sat	21/22.04.23	155	75	13.7	21.0	<0.01	<0.01	<0.01	0.43	134.6	18.4	BDL	BDL	BDL
Mon/Tue	24/25.04.23	132	65	12.6	20.3	<0.01	<0.01	<0.01	0.35	125.7	22.1	BDL	BDL	BDL
Fri/Sat	28/29.04.23	177	84	17.8	25.4	<0.01	<0.01	<0.01	0.58	176.0	21.1	BDL	BDL	BDL
No. of observations		8	8	8	8	8	8	8	8	8	8	8	8	8
Min. Concentration		132	65	12.6	20.3	<0.01	<0.01	<0.01	0.35	123.8	18.4	BDL	BDL	BDL
Max. Concentration		184	90	17.8	27.0	<0.01	<0.01	<0.01	0.58	176.0	22.1	BDL	BDL	BDL
Average		160.8	77.8	15.3	23.8	<0.01	<0.01	<0.01	0.44	144.5	20.2	BDL	BDL	BDL
98 th percentile		182.7	89.3	17.7	26.8	<0.01	<0.01	<0.01	0.58	175.2	22.0	BDL	BDL	BDL

NOTE: BDL = Below Detection Limit

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Handwritten text: (Name of the person who has signed the report) (Date of signing) (Signature) (Designation) (Address) (Phone No.)

Handwritten signature



Environmental Monitoring for New Ammonia Urea Plant of M/s HURL at Barzani
(April 2023)



TABLE - 3.8
Ambient Air Quality Monitoring Data

Period of Monitoring: April 2023
Location: Chakiya Village (SA5)

DAY	DATE	Parameters											
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	C ₆ H ₆ (µg/m ³)	Benzo (a)pyrene (ng/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	Ozone (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Lead (µg/m ³)
NAAQ Standards	→	100	60	80	80	05	01	02	400	180	20	06	1.0
Mon/Tue	03/04.04.23	116	57	14.9	30.5	<0.01	<0.01	0.43	37.6	19.7	BDL	BDL	BDL
Fri/Sat	07/08.04.23	125	61	14.7	24.2	<0.01	<0.01	0.34	38.6	18.5	BDL	BDL	BDL
Mon/Tue	10/11.04.23	137	68	16.8	28.5	<0.01	<0.01	0.46	24.7	21.9	BDL	BDL	BDL
Fri/Sat	14/15.04.23	115	62	17.3	29.3	<0.01	<0.01	0.77	41.2	22.2	BDL	BDL	BDL
Mon/Tue	17/18.04.23	128	64	15.1	22.0	<0.01	<0.01	0.38	31.3	24.1	BDL	BDL	BDL
Fri/Sat	21/22.04.23	133	68	14.1	22.4	<0.01	<0.01	0.55	30.3	18.2	BDL	BDL	BDL
Mon/Tue	24/25.04.23	105	56	15.6	26.3	<0.01	<0.01	0.44	25.4	20.0	BDL	BDL	BDL
Fri/Sat	28/29.04.23	122	66	16.5	32.1	<0.01	<0.01	0.71	42.0	25.4	BDL	BDL	BDL
No. of observations		8	8	8	8	8	8	8	8	8	8	8	8
Min. Concentration		105	56	14.1	22.0	<0.01	<0.01	0.34	24.7	18.2	BDL	BDL	BDL
Max. Concentration		137	68	17.3	32.1	<0.01	<0.01	0.77	42.0	25.4	BDL	BDL	BDL
Average		122.8	62.6	15.6	26.9	<0.01	<0.01	0.51	33.9	21.3	BDL	BDL	BDL
98 th percentile		136.2	67.8	17.2	31.9	<0.01	<0.01	0.76	41.9	25.2	BDL	BDL	BDL

NOTE: BDL = Below Detection Limit

Handwritten signature and notes in Urdu, including the name 'Mr. J. J.' and a date '10/10/23'.

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Environmental Monitoring for New Ammonia Urea Plant of M/s HURL at Barauni
(April 2023)



TABLE - 3.9
Ambient Air Quality Monitoring Data

Period of Monitoring: April 2023
Location: Bihat Village (SA6)

DAY	DATE	Parameters											
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	C ₆ H ₆ ($\mu\text{g}/\text{m}^3$)	Benzo (a)pyrene (ng/m ³)	CO (mg/m ³)	NH ₃ ($\mu\text{g}/\text{m}^3$)	Ozone ($\mu\text{g}/\text{m}^3$)	Ni (ng/m ³)	As (ng/m ³)	Lead ($\mu\text{g}/\text{m}^3$)
NAAQ Standards		100	60	80	80	05	01	02	400	180	20	06	1.0
Mon/Tue	03/04.04.23	116	52	16.0	23.4	<0.01	<0.01	0.53	35.5	18.5	BDL	BDL	BDL
Fri/Sat	07/08.04.23	120	57	14.7	21.5	<0.01	<0.01	0.41	48.6	23.6	BDL	BDL	BDL
Mon/Tue	10/11.04.23	134	67	17.8	34.0	<0.01	<0.01	0.59	31.6	21.3	BDL	BDL	BDL
Fri/Sat	14/15.04.23	106	52	13.9	24.5	<0.01	<0.01	0.61	36.6	21.1	BDL	BDL	BDL
Mon/Tue	17/18.04.23	130	66	15.5	26.5	<0.01	<0.01	0.50	42.0	24.0	BDL	BDL	BDL
Fri/Sat	21/22.04.23	138	68	15.0	24.1	<0.01	<0.01	0.47	36.5	17.8	BDL	BDL	BDL
Mon/Tue	24/25.04.23	102	52	14.4	22.9	<0.01	<0.01	0.54	39.7	22.5	BDL	BDL	BDL
Fri/Sat	28/29.04.23	121	61	17.8	24.6	<0.01	<0.01	0.65	39.4	22.4	BDL	BDL	BDL
No. of observations		8	8	8	8	8	8	8	8	8	8	8	8
Min. Concentration		102	52	13.9	21.5	<0.01	<0.01	0.41	31.6	17.8	BDL	BDL	BDL
Max. Concentration		138	68	17.8	34.0	<0.01	<0.01	0.65	48.6	24.0	BDL	BDL	BDL
Average		120.8	59.4	15.6	25.2	<0.01	<0.01	0.54	38.7	21.4	BDL	BDL	BDL
98 th percentile		137.1	67.6	17.8	33.0	<0.01	<0.01	0.64	47.7	24.0	BDL	BDL	BDL

NOTE: BDL = Below Detection Limit

(Signature)
 Director, Barauni
 HURL, Barauni
 (District and Electric Street Light)
 (Water Treatment Plant)

(Signature)



4.2 Characterization of Ground Water Samples

The physico-chemical characteristics of 03 nos. of ground water samples are given hereunder:

Table - 4.2

PHYSICO-CHEMICAL CHARACTERISTICS OF GROUND WATER SAMPLES

Date of Sample Collection: 29-04-2023

(Results are expressed in mg/l, unless otherwise stated)

Sl. No	Parameters	Analysis Results			Requirement (Acceptable / Permissible Limits) (IS:10500:2012)
		HURL-Bore Well (GW1)	Hand Pump - HURL Township (GW2)	Hand Pump - Chakiya Village (GW3)	
PHYSICAL					
1	pH	7.5	7.3	7.4	6.5-8.5
2	Temperature (°C)	28.7	28.2	28.5	-
3	Colour, HU	<5	<5	<5	5/15
4	Odour	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	Agreeable	Agreeable	Agreeable	Agreeable
6	Turbidity (NTU)	<1	<1	<1	1/5
7	Total Suspended Solid	NT	NT	NT	-
8	Total Dissolved Solids	280	760	410	500/2000
CHEMICAL					
1	P- Alkalinity as CaCO ₃	NIL	NIL	NIL	-
2	Total Alkalinity as CaCO ₃	152	540	324	200/600
3	Chloride as Cl	36	58	22	250/1000
4	Sulphate as SO ₄	40	82	36	200/400
5	Nitrate as NO ₃	1.6	2.4	2.0	45/NR
6	Fluoride as F	<0.4	<0.4	<0.4	1.0/1.5
7	Total Hardness as CaCO ₃	168	476	292	200/600
8	Ca. Hardness as CaCO ₃	96	320	190	75/200*
9	Mg. Hardness as CaCO ₃	72	156	102	30/100**
10	Sodium as Na	33	100	44	-
11	Potassium as K	4	13	6	-
12	Silica as SiO ₂	12	8	10	-
13	Iron as Fe	0.23	0.52	0.65	0.3/NR
HEAVY METALS					
1	Manganese as Mn	BDL	BDL	BDL	0.1/0.3
2	Total Chromium as Cr	BDL	BDL	BDL	0.05/NR
3	Lead as Pb	BDL	BDL	BDL	0.01/NR
4	Zinc as Zn	0.20	0.22	0.26	5.0/15
5	Cadmium as Cd	BDL	BDL	BDL	0.003/NR
6	Copper as Cu	BDL	BDL	BDL	0.05/1.5
7	Nickel as Ni	BDL	BDL	BDL	0.02/NR
8	Arsenic as As	BDL	BDL	BDL	0.01/0.05
9	Selenium as Se	BDL	BDL	BDL	0.01/NR
OTHERS					
1	Mineral Oil	Absent	Absent	Absent	0.5/NR
2	Phenolic Compound as C ₆ H ₅ OH	BDL	BDL	BDL	0.001/0.002
3	Coliform (MPN/100ml)	<100	<100	<100	-

(Signature)
आकाश चौकर
राजकीय विश्लेषक
पर्यावरणीय प्रयोगशाला
(केन्द्रीय प्रदूषण नियंत्रण बोर्ड)
प्रोजेक्टरा एण्ड डेवलपमेंट इण्डिया लिमिटेड
(भारत सरकार का उपक्रम)

(Signature)



4.3 Results & Discussion

The range of concentration of important parameters of 03 nos. of ground water samples were observed as follows:

TABLE - 4.3
Ground Water Quality at a Glance in Comparison to IS: 10500 (2012)

Parameters	Range of recorded Concentration (Results expressed in mg/l except pH)			No. of Samples exceeding Acceptable limits as per IS:10500:2012	No. of Samples exceeding Permissible Limits as per IS:10500:2012
	Min.	Max	Requirement (Acceptable / Permissible) Limits (IS:10500:2012)		
pH	7.3	7.5	6.5 - 8.5	3/3	0/3
Total Dissolved Solids	280	760	500 / 2000	1/3	0/3
Total Alkalinity as CaCO ₃	152	540	200 / 600	2/3	0/3
Total Hardness, as CaCO ₃	168	476	200 / 600	2/3	0/3
Chloride as Cl	22	58	250 / 1000	0/3	0/3
Sulphate as SO ₄	40	82	200 / 400	0/3	0/3
Nitrate as NO ₃	1.6	2.4	45 / NR	0/3	0/3
Iron as Fe	0.23	0.65	0.3 / NR	2/3	-

The physico-chemical characteristics of the ground water samples were in good agreement with IS:10500 (2012). All the parameters are within the limits specified under Drinking Water Standard (IS:10500-2012). As regards heavy metals, Fe has been recorded with higher concentration and crossed the acceptable limit at all the locations. The ground water after proper filtration and disinfection can be safely used for potable and drinking purposes.



5.2 Characterization of Surface Water Samples

The physico-chemical characteristics of 03 nos. of Surface water samples are given hereunder:

Table - 5.2

PHYSICO-CHEMICAL CHARACTERISTICS OF SURFACE WATER SAMPLES

Date of Sample Collection: 29-04-2023

(Results are expressed in mg/l, unless otherwise stated)

Sl. No.	Parameters	Ganga River SW1	Bihat Village (Pond) SW2	Baya Nala SW3	Requirement (Acceptable / Permissible Limits) (IS:10500:2012)
PHYSICAL					
1	Temperature (°C)	28.3	28.0	28.1	-
2	Colour, HU	<5	<5	<5	5/25
3	Turbidity (NTU)	6	8	10	1/5
4	pH	7.2	7.6	7.4	6.5-8.5
5	Total Dissolved Solids	200	650	540	500/2000
6	Suspended Solids	20	34	30	-
CHEMICAL					
1	Total Alkalinity as CaCO ₃	140	326	300	200/600
2	Chloride as Cl	20	136	110	250/1000
3	Sulphate as SO ₄	14	54	32	200/400
4	Nitrate as NO ₃	1.3	3.6	2.6	45/NR
5	Fluoride as F	<0.4	<0.4	<0.4	1.0/1.5
6	Total Hardness as CaCO ₃	150	192	176	200/600
7	Calcium Hardness as CaCO ₃	76	130	106	75/200
8	Magnesium Hardness as CaCO ₃	74	62	70	30/100
9	Dissolve Oxygen (DO)	7.2	6.6	6.4	-
10	COD	3.8	12.6	9.5	-
11	BOD ₅ (3 days at 27 °C)	1.4	4.1	3.0	-
12	Sodium as Na	15	165	135	-
13	Potassium as K	2	21	17	-
HEAVY METALS					
1	Iron as Fe	0.10	0.18	0.14	0.3/NR
2	Manganese as Mn	BDL	BDL	BDL	0.1/0.3
3	Total Chromium as Cr	BDL	BDL	BDL	0.05/NR
4	Lead as Pb	BDL	BDL	BDL	0.01/NR
5	Zinc as Zn	0.16	0.38	0.30	5.0/15
6	Cadmium as Cd	BDL	BDL	BDL	0.003/NR
7	Copper as Cu	BDL	BDL	BDL	0.05/1.5
8	Nickel as Ni	BDL	BDL	BDL	0.02/NR
9	Arsenic as As	BDL	BDL	BDL	0.01/0.05
10	Selenium as Se	BDL	BDL	BDL	0.01/NR
OTHERS					
1	Mineral Oil	BDL	BDL	BDL	0.5/NR
2	Phenolic Compounds	BDL	BDL	BDL	0.001/0.002
3	Coliform Organisms (MPN/100ml)	690	900	1040	-



5.3 Results & Discussion

All the physico-chemical characteristics of 03 nos. of surface water samples showed great resemblance with respect to the characteristics like temperature, turbidity, pH, colour, odour, chloride, sulphate, total alkalinity, total hardness, TDS and heavy metals, etc. The range of concentrations of the parameters of surface water characteristics were observed as follows:

TABLE - 5.3
Surface Water Quality at a Glance

Parameters	Range of recorded Concentration (Results expressed in mg/l except pH)		Requirement (Acceptable / Permissible) Limits (IS:10500:2012)	No. of Samples exceeding Acceptable limits as per IS:10500:2012	No. of Samples exceeding Permissible Limits as per IS:10500:2012
	Min.	Max.			
pH	7.2	7.6	6.5-8.5	3/3	0/3
Turbidity	6	10	1/5	3/3	3/3
Total Dissolved Solids	200	650	500 / 2000	2/3	0/3
Total Alkalinity as CaCO ₃	140	326	200 / 600	2/3	0/3
Total Hardness, as CaCO ₃	150	192	200 / 600	0/3	0/3
Chloride as Cl	20	136	250 / 1000	0/3	0/3
Sulphate as SO ₄	14	54	200 / 400	0/3	0/3
Nitrate as NO ₃	1.3	3.6	45/NR	0/3	0/3
Iron as Fe	0.10	0.18	0.3 / NR	0/3	-

TABLE - 5.4
Characterization of SWQ as per Bathing Standard Prescribed by CPCB (Series PCLS:02/2010)

Criteria	Prescribed Limit	Remarks
Coliform MPN/100 ml	Desirable - 500 Permissible - 2500	Recommended
pH	6.5-8.0	Slightly higher than the Standard
DO	5 mg/l or more	Recommended
BOD _{3 days at 27 °C}	3 mg/l or less	No SW recommended for bathing



TABLE - 6.4
AMBIENT NOISE LEVEL DATA - AROUND BOUNDARY WALLS

Sl. No.	Name of Location	Noise Level, dB(A)	
		Day	Night
1.	Eastern Boundary	55.8	45.4
2.	Western Boundary	56.3	45.1
3.	Northern Boundary	57.2	48.8
4.	Southern Boundary	56.0	46.5

Table - 6.5
SUMMARY OF AMBIENT NOISE LEVEL

Sampling Locations	24-hrs Avg L _{eq} Value dB(A)	Day time L _{eq} Value dB(A)	Night time L _{eq} Value dB(A)	Prescribed Limits in dB(A) as per NAAQS		
				Category of Area	Day Time	Night Time
Admn. Building HURL (SN1)	53.3	54.7	47.0	Industrial Area	75	70
Simariya Village (SN2)	50.7	52.1	44.2	Residential Area	55	45
HURL Township (SN3)	49.5	51.0	42.2	Residential Area	55	45
Mahana Village (SN4)	51.7	53.1	45.0	Residential Area	55	45
Chakiya Village (SN5)	52.5	54.1	43.8	Residential Area	55	45
Bihat Village(SN6)	52.3	53.8	44.4	Residential Area	55	45

6.3 STANDARD FOR NOISE

The Government of India, in exercise of its power under section 16(2)(h) of the Air (Prevention and Control of Pollution) Act 1981, notified the ambient air quality standards in respect of noise (which has been included as an air pollutant under section 20 of the Amended Air Act of 1987) as follows:

Table - 6.6

Area	Category of Area	Limits in Decibels, dB (A)	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

NOTE:

1. Day Time is reckoned between 6 AM and 10 PM.
2. Night Time is reckoned between 10 PM and 6 AM.



6.2 Results

The recorded results are as follows.

Table - 6.2
AMBIENT NOISE LEVEL DATA DURING DAY TIME (HOURLY)

Time (Hrs)	Noise Level, dB(A)					
	SN ₁	SN ₂	SN ₃	SN ₄	SN ₅	SN ₆
6.00-7.00	49.1	46.3	45.1	46.7	47.2	47.5
7.00-8.00	50.4	46.9	45.6	47.8	48.3	48.1
8.00-9.00	50.9	47.5	46.8	48.4	48.9	48.7
9.00-10.00	50.1	48.3	48.1	49.2	51.2	50.5
10.00-11.00	52.2	49.7	50.7	50.7	52.7	51.6
11.00-12.00	53.8	52.0	52.6	53.1	54.1	53.8
12.00-13.00	54.8	54.0	53.9	55.0	56.1	55.7
13.00-14.00	56.6	55.8	54.8	56.9	58.0	57.6
14.00-15.00	59.6	56.2	55.4	57.3	57.5	57.8
15.00-16.00	58.3	55.2	53.4	56.3	57.4	57.0
16.00-17.00	57.0	54.8	52.1	55.9	57.0	56.6
17.00-18.00	54.4	52.2	50.2	53.3	54.3	54.0
18.00-19.00	54.0	50.5	47.5	51.5	52.5	52.2
19.00-20.00	53.6	48.5	46.3	48.9	49.9	50.1
20.00-21.00	52.3	47.5	45.6	48.0	49.0	49.2
21.00-22.00	51.8	47.0	44.6	47.4	47.9	48.3
Minimum	49.1	46.3	44.6	46.7	47.2	47.5
Maximum	59.6	56.2	55.4	57.3	58.0	57.8
Average	53.7	50.8	49.6	51.7	52.6	52.4
L_{eq} (Day)	54.7	52.1	51.0	53.1	54.1	53.8

Table - 6.3
AMBIENT NOISE LEVEL DATA DURING NIGHT TIME

Time (Hrs)	Noise Level, dB(A)					
	SN ₁	SN ₂	SN ₃	SN ₄	SN ₅	SN ₆
22.00-23.00	49.9	45.7	43.8	46.6	44.7	46.5
23.00-24.00	47.8	44.7	42.5	46.1	43.4	44.6
24.00-1.00	46.9	43.0	41.3	44.3	43.0	44.1
1.00-2.00	44.0	42.3	41.2	42.7	42.5	42.5
2.00-3.00	45.2	43.5	41.1	43.9	42.5	42.7
3.00-4.00	45.8	44.0	41.4	44.4	43.3	43.3
4.00-5.00	46.5	44.6	42.3	45.0	44.3	43.9
5.00-6.00	47.5	45.1	43.2	45.6	45.9	45.9
Minimum	44.0	42.3	41.1	42.7	42.5	42.5
Maximum	49.9	45.7	43.8	46.6	45.9	46.5
Average	46.7	44.1	42.1	44.8	43.7	44.2
L_{eq} (Night)	47.0	44.2	42.2	45.0	43.8	44.4

आमोस प्रोक्टर
सर्वकारी विश्लेषक
पर्यावरणीय प्रयोगशाला
(केन्द्रीय प्रमुख नियंत्रण बोर्ड)
प्रोमोटेड एण्ड रेगुलेटेड इन्डिया लिमिटेड
पिस्त सरकार का उपकरण