

COMPLIANCE REPORT
ON
ENVIRONMENT CLEARANCE

(MoEF & CC File No J11011/154/2016-IAII (I) dated 29/08/2017)

For the period

April' 2023 – to – Sept' 2023

Submitted

to

MoEF & CC, Regional Office (ECZ), Ranchi

Ammonia Urea Fertilizer Plant
(2200MTPD Ammonia & 3850MTPD Urea)
SINDRI

Nov' 2023



हिंदुस्तान उर्वरक एवं रसायन लिमिटेड
HINDUSTAN URVARAK & RASAYAN LTD.
(A joint Venture of NTPC, CIL, IOCL, FCIL & HFCL)



Hindustan Urvarak & Rasayan Limited

(A Joint Venture of NTPC, CIL, IOCL, FCIL & HFCL)

Office of The Project Head, Sindri Project, HURL

Old FCIL Office Complex, PO- Sindri,

Dhanbad Jharkhand-828122, Tel: -0326-2245454

GST Reg. No.: - 20AADCH9368N1Z6

Ref. No.: HURL/SND/23-24/ 880

Date: 30.11.2023

To,

The Scientist - D

Ministry of Environment, Forest and Climate Change,
Regional Office (ECZ), Bungalow No. A-2, Shyamali Colony,
Ranchi – 834002.

Subject: Ammonia (2200 MTPD) Urea (3850 MTPD) Fertilizer Project at Sindri in District Dhanbad, Jharkhand of M/s Hindustan Urvarak & Rasayan Limited (HURL)- Compliance Report for April 2023 – September 2023.

Ref: MoEF&CC, Environmental Clearance Letter No. J11011/154/2016-IAII (I) dated 29.08.2017.

Dear Sir,

With reference to the subject as mentioned above, please find attached herewith the compliance report for the period April 2023 – September 2023.

Yours faithfully

(Goutam Majee)

Vice President – Tech. & Prod.

Hindustan Urvarak & Rasayan Ltd. (HURL)

Old FCIL Office Complex, Sindri

PO-Sindri, Dist.- Dhanbad-828122

Telephone – 0326-2245454

COMPLIANCE OF EC CONDITIONS FOR THE PERIOD APRIL 2023 - SEPTEMBER 2023

Sl. No.	COMPLIANCE CONDITIONS	Status
A	SPECIFIC CONDITIONS	
i)	Emissions-limits for the pollutants from the Diesel Generator Sets and the stack height shall be in conformity with the extant statutory regulations and/or the CPCB guidelines in this regard.	<p>Diesel Generator Sets are being used only in case of total Power Failure for safe shutdown of the Plants. Normally, the Complex Power requirement is being met from two incoming Grids (DVC Power) and Natural Gas based own Captive Power Generation (2 Gas Turbines). The details of analysis report of DG Stack are enclosed as Annexure – A.</p> <p>Adequate stack height provided to ensure the statutory regulations & guidelines.</p>
ii)	To control source emissions, scrubber and/or other suitable pollution control device shall be installed to meet the prescribed Particulate Matter emission norms of 50 mg/Nm ³ , and also the NAAQS.	<p>Fully Complied and this has considered in the Design itself.</p> <p>Design consideration include scrubbers, adequate height of prilling tower and other gas sensors/control measures in the Plant to meet emission norms as per NAAQS. The details of analysis report of emissions is enclosed as Annexure – A.</p>
iii)	Fresh water requirement shall not exceed 5.36 cum/ton of Urea production. Fresh water for plant operation shall be sourced from Damodar River only after the required permission from the concerned authority. During construction phase, ground water may be used after prior permission in this regard from the concerned regulatory authority.	<p>The water supply through existing FCIL's pump house from Damodar River to project site is being used.</p> <p>6.6 MGD water drawal agreement has already been done with DVC.</p> <p>However, Fresh water requirement does not exceed and within the 5.36 cum/ton of Urea production.</p>
iv)	As already committed by the project proponent, no waste/treated water shall be discharged outside to ensure ZLD. The effluent discharge, if any, shall meet the standards for 'Nitrogenous Fertilizer Industry' prescribed under the Environment (Protection) Rules, 1986.	<p>The HURL, Sindri project has considered and executed with provisions of ZLD and therefore there will be no discharge outside the project boundary.</p> <p>Entire waste water generated treating up to tertiary level in the ETP inside the plant & being sent to RO and ZLD Units for further reuse.</p>
v)	The project proponent shall develop Greenbelt in an area of 33% i.e. nearly 132 acres out of 400 acres of plant area of the project. The greenbelt of 30 m width around periphery shall be provided.	<p>We have already planned for development of green belt in 33% area around plant periphery and is under implementation. The Complex is already having some jungle Area. Total plantation contract with forest department: 100.742 Acres (i.e. 40.77-Hectare)</p> <p>a) 44.478 Acres (i.e. 18-Hectare) status:</p>



Sl. No.	COMPLIANCE CONDITIONS	Status
		<p>Plantation was completed in 2022. But survival rate was very low. Presently the forest department again initiated Plantation and is under process.</p> <p><i>b) 56.265 Acres (i.e. 22.77-Hectare) status:</i> 37.065 Acres area plantation completed & survival rate is more than 90%.</p>
vi)	5000 trees per year in 5 years shall be planted in nearby villages with the consultation of the villagers. Survival rate of plants shall be reported to RO, MoEF&CC in 6 monthly compliance reports.	Plantation of trees in nearby villages is under active consideration and will be taken up during this Financial Year.
vii)	All the commitments made during Public Hearing/Public Consultation meeting held on 24 th April, 2017 shall be satisfactorily implemented and adequate budget provision should be made accordingly.	<p><i>Being complied</i></p> <p>The commitments made during Public Hearing/Public Consultation meeting held on 24th April, 2017 are being complied for which adequate budget provision was considered in the in the project cost. Details of Expenditure on public hearing issue is enclosed as Annexure – B.</p> <p>Further various initiatives are in active consideration with District Officials for Education & skill development, Infrastructure for basic necessities, societal empowerment- women empowerment, creation of sustainable livelihood opportunities/avenues, sustainable agriculture and other rural areas activities etc.</p> <p>In this regard a letter was submitted with refer no HURL/SND/ CER/CSR/23-24/222 dated 13th May 2023 to get No Objection Certificate.</p>
viii)	At least 2.5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details shall be prepared and submitted to the Ministry's Regional Office at Ranchi. Implementation of such program shall be ensured accordingly in a time bound manner.	<p>All the initiatives taken for addressing the PH issues area a part of the ESC. A budget provision of Rs. 50 crores have been made for taking various initiatives for fulfilment of the ESC obligations as well as the PH issues. After exhausting this corpus, HURL is committed to provide adequate additional funds for more initiatives as per the Policy as may be required from time to time for fulfilment of these obligations.</p> <p>As part of the same, necessary discussions have been initiated with District Authorities for obtaining NOC for developing the nearby Schools.</p>
ix)	A regular environment manager having post graduate qualification in	The environmental management activities of the plant are being looked after by a permanent

Sl. No.	COMPLIANCE CONDITIONS	Status
	environmental sciences/environmental engineering to be appointed for looking after the environmental management activities of the proposed plant.	Manager level officer Dr. Naga Raju Batti, Manager (<i>Env. & Quality Control</i>). Environmental Monitoring work has been outsourced to an external agency. Action has also been taken for further strengthening the team.
x)	Continuous online (24 X 7) monitoring system for emissions and effluent generation shall be installed for flow/discharge measurement and the pollutants concentration within the plant. Data shall be uploaded on company's website and provided to the respective RO of MoEF & CC, CPCB and SPCB.	The Continuous Emission Monitoring System (CEMS) has been installed in the plant. However, its' connectivity to the CPCB portal is still under progress and is being expedited.
xi)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	The issue was adequately addressed in the Detailed Project Report and RRA conducted for the Project. All the recommendations are being complied. Plant is equipped with adequate measures for control of failure/hazards. Firefighting facilities are implemented as per norms.
xii)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Regular Occupational health surveillance of the workers is being done and records are maintained as per the factories Act.
xiii)	Storage of hazardous raw material shall not exceed more than 7-days.	<i>Complied.</i> Natural gas is being used as fuel and is being supplied continuously through pipeline, for which all safeguards for fire protection are taken. Hazardous chemicals, if any, used for cooling water treatment are stored with adequate safety provisions.
xiv)	Urea dust shall be controlled by prescribed standard technique.	<i>Complied.</i> Adequate height and width of prilling tower has been provided to control the Urea Dust.
xv)	In Urea Plant, particulate emissions shall not exceed 50 mg/Nm ³ . Monitoring of Prilling Tower shall be carried out as per CPCB guidelines.	Particulate Emissions are within the 50 mg/Nm ³ . Urea Prilling tower Emissions are being monitored as per the CPCB Guidelines; analysis reports attached as Annexure – A .
xvi)	The levels of PM10 (Urea dust), SOx, NOx, Ammonia, Ozone and HC shall be monitored in the ambient air and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the results of monitored data on its website and shall update the same periodically. It	The levels of PM10 (Urea dust), SOx, NOx, Ammonia, Ozone and HC in the ambient air are being monitored since the construction phase in consultation with JSPCB since April 2018, by external agencies, having CPCB recognised Laboratories.

Sl. No.	COMPLIANCE CONDITIONS	Status
	shall simultaneously be sent to the Regional office of MoEF&CC, the respective Zonal office of MoEF&CC and SPCB.	The results are currently being displayed near to the main gate of the plant. The data is also being uploaded on HURL's website and updated periodically. Simultaneously, it is also sent to the regional office of MoEF & CC, Govt. of India and JSPCB. The analysis of Ambient air quality studied by M/s. PDIL Noida is enclosed as Annexure – C .
xvii)	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits stipulated by the SPCB.	Adequate protection measures are incorporated in the design itself and all the fugitive emissions are connected to Flares and they are burnt before releasing to Atmosphere. <ul style="list-style-type: none"> ➤ The Complex is designed with 4 Flares (2 in Ammonia Plant, 1 in Urea Plant and 1 in Ammonia Storage Area) to handle the Fugitive Emissions. ➤ Water sprinkling systems provided at Ammonia/Chemicals Storage Tanks. ➤ Cyclone separators shall be installed at Urea Conveyor Line and Bagging Plant for de-dusting. Air Quality is being monitored in work zone environment as per monitoring plan for assessment of pollution level. The emissions are conforming to the limits stipulated by JSPCB. The analysis of Ambient air quality studied by M/s. PDIL Noida is enclosed as Annexure – C .
xviii)	The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2016 and amended as on date for management of Hazardous wastes. Measures shall be taken for fire-fighting facilities in case of emergency.	HURL has entered into an agreement with M/s. <i>Nialaynarayan Polychem LLP</i> for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2016, for management of Hazardous wastes. Adequate fire-fighting facilities have been provided and maintained for meeting the emergencies.
xix)	Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile-sewage treatment plant, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.	The plant is at the operation stage. However, all necessary compliances were ensured during the construction phase. Majority of the construction wastes have been removed in an environmentally friendly manner. However, the remaining construction wastes have been kept at designated places and being disposed as per provisions of Construction and Demolition Waste Management Rules, 2016.
B. GENERAL CONDITIONS		
i)	The Project authorities shall strictly adhere to the stipulations made by the State	It is being complied regularly.

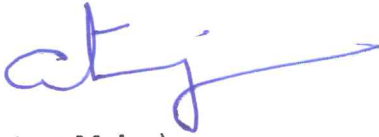
Sl. No.	COMPLIANCE CONDITIONS	Status
	Pollution Control Board (SPCB), State Government and any other statutory authority.	
ii)	No further expansion or modifications in the plant shall not be carried out without prior approval of the MoEF&CC. In case of deviations or alterations in the project proposal from those submitted to MoEF&CC for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted, there is No further expansion or modifications in the plant is envisaged at this stage. However, as & when required, a fresh reference shall be made to the MoEF & CC, Govt. of India.
iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations is installed in the upwind and downwind direction as well as. Where maximum ground level concentrations are anticipated.	It is being complied regularly from the 6-locations which were proposed and studied by PDIL Noida, Govt. of India U/T in consultation with the JSPCB. However, HURL has submitted a request letter to Jharkhand State Pollution Control Board (JSPCB) for fixation of 03-Permanent Ambient Air Quality monitoring Stations (Letter Ref. No. HURL/SND/E&QC/JSPCB/2022-23/01 dated 17.05.2023). Suggested that, out of 06 – Locations, fixed 03-Locations in 120° Angle around the Urea Prilling tower at the Plant Boundaries. The approval from the JSPCB is still awaited.
iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated is November, 2009 shall be followed.	<i>Being complied</i>
v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	The noise levels are maintained within the standard prescribed limits by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels conformed to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time) The analysis of Ambient air quality studied by M/s. PDIL Noida is enclosed as Annexure – C .
vi)	The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	<i>Complied</i> Inside the Plant, Roofs of all buildings have the provision of Rainwater Harvesting.



Sl. No.	COMPLIANCE CONDITIONS	Status
vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	Training is an essential aspect and ongoing Activity. All Employees are imparted on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees is being undertaken on regular basis.
viii)	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing be implemented.	Being Complied.
ix)	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.	CSR activities shall be undertaken as and when applicable. However, some initiatives are under implementation as well as under consideration aimed at improving the socio-economic conditions of the surrounding area, as part of fulfilment of the obligations under ESC/ PH issues.
x)	The company shall undertake all eco-developmental measures including community welfare measures for overall improvement of the environment.	All eco-developmental measures including community welfare measures for overall improvement of the environment will be undertaken by involving local villages and administration as per rule and Government guidelines.
xi)	A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	The EC conditions relating to establishment of Environmental Cell have been complied with and the following arrangement for environment cell is in place. 1) At present environment cell is headed by Mr. Goutam Majee, V P Technical, who is reporting to Mr. Suresh Pramanik (Project Head). & 2) Dr. Naga Raju Batti, Manager (Env. & Quality Control) 3) Mr. Aman Singh, Lab Asst - I (Env. & Quality Control) Further, Process has already been initiated for strengthening the team Full-fledged laboratory facilities are established to carry out the Environmental Management and Monitoring functions.

Sl. No.	COMPLIANCE CONDITIONS	Status
xii)	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management, pollution control measures shall not be diverted for any other purpose.	Being complied
xiii)	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad / Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions, representations, if any, were received while processing the proposal.	Complied.
xiv)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by email) to the respective Regional Office of MoEF & CC, the respective Zonal Office of Environmental Clearance and six-monthly compliance status reports shall be posted on the website of the company.	Being Complied. Regular six-monthly compliance report is being submitted to MOEF & CC zonal office (both in hard copies as well as by email) and posted on the website of the company.
xv)	The environmental statement for each financial year ending 31 st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF & CC by email.	Being complied. The Environment Statement has been submitted for the financial year ending 31 st March' 2023 in Form - V . Also, the same has been uploaded on HURL's website.
xvi)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://moef.nic.in . This shall be	Complied

Sl. No.	COMPLIANCE CONDITIONS	Status
	advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	
xvii)	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Complied



(Goutam Majee)

Vice President – Tech. & Prod.

Hindustan Urvarak & Rasayan Ltd. (HURL)

Old FCIL Office Complex, Sindri

PO-Sindri, Dist. - Dhanbad-828122

Telephone – 0326-2245454



Annexure - A

Hindustan Urvarak & Rasayan Limited., Sindri
(A Joint Venture of NTPC, CIL, IOCL, FCIL & HFCL)
Environment & Quality Control Dept.

Dt. 11.10.2023

Emission Quality Analysis Report

Month	Parameter	Captive Power Plant		Ammonia Plant (Reformer)	Urea Prill Tower
		HRSG - 1	HRSG - 2		
		(Standard: PM < 150 mg/Nm ³)			(PM < 50 mg/Nm ³)
April	Particulate Matter (PM)	< 5	< 5	< 5	42
May		< 5	< 5	< 5	46
June		< 5	< 5	< 5	38
July		< 5	< 5	< 5	41
Aug		< 5	< 5	< 5	36
Sept.		< 5	< 5	< 5	39

Devilal

Devilal
Asst. Manager (Env. & QC)



N. Raju

(Dr. Naga Raju Batti)
Manager (Env. & QC)
HURL., sindri

N. Raju

Expenditure incurred under
Public Hearing commitment
Sindri Project, HURL

S No.	Item description	Quantity	Amount (including GST) (in Rs.)	Purchase done by	Instructions received from Dist. Admin./ HURL internal decision/ if other case- (please specify)	Action taken with date
1	Covid-19 Testing Kits	10000 nos.	7,84,000.00	HURL	Dist. Admin	Handed over to Civil Surgeon, Dhanbad on 15 May 2021
2	3-Ply Nose Masks	15,000 Nos.	21,300.00	HURL	HURL internal decision	Distribution to nearby Locality of Sindri by P&S/ Safety department HURL started from 31 May2021
3	N-95 Nose Masks	1,000 Nos.	19,990.00	HURL	HURL internal decision	Distributed to nearby Locality of Sindri by P&S/ Safety department HURL started from 31 May2021
4	Infrared Thermometer (IR)	20 Nos.	13,900.00	HURL	HURL internal decision	Distribution will be done to nearby Society/ Locality of HURL
5	Hand Sanitizer	400 Nos. (500ml each)	22,000.00	HURL	HURL internal decision	Distribution will be done to nearby Society/ Locality of HURL
6	Pulse Oximeter	30 Nos.	48,000.00	HURL	HURL internal decision	Distribution will be done to nearby Society/ Locality of HURL
7	Sanitization works for Community	06 Nos.	1,48,762.20	HURL	HURL internal decision	sanitization of nearby Locality of Sindri by P&S / Safety department HURL started from 20 May2021
8	Face Shield	50 Nos.	3,150.00	HURL	HURL internal decision	sanitization of nearby Locality of Sindri by P&S / Safety department HURL started from 20 May2021



S No.	Item description	Quantity	Amount (including GST) (in Rs.)	Purchase done by	Instructions received from Dist. Admin./ HURL internal decision/ if other case- (please specify)	Action taken with date
9	Hiring of Ambulance for 02 Months	01 No.	1,50,000.00	HURL	HURL internal decision	Proposal initiated by HR department for catering the need medical emergency during Covid pandemic of nearby locality of Sindri
10	3-Ply Nose Masks & Hand Sanitizer	20,000 Nos. & 1000 Nos. (250 ml each)	95,900.00	HURL	HURL internal decision	Distribution will be done to nearby Society/ Locality of HURL
11	5 Litres Oxygen Concentrator	5 nos	3,03,500.00	HURL	Addi. Seceretary Home, Prision and Dis. Mgmt. Deptt.	Handed over to District Administration after procurement of the same
12	Pulse Oxymeter	25 nos	23,625.00	HURL	Addi. Seceretary Home, Prision and Dis. Mgmt. Deptt.	Handed over to District Administration after procurement of the same
13	Oxygen Plant	02 nos.	71,68,000.00	HURL	Dist. Admin	Handed over to District Administration after procurement of the same
14	Street light	94 sets	9,66,320.00	HURL	HURL internal decision	-
GRAND TOTAL (in Rs.)			97,68,447.20			



This Compliance Report is the fulfillments of the condition of the Environmental Clearance (EC) vide File No. EC [IA/JH/IND2/54024/2016, J-11011/154/2016-IA II(I)] for the period of April 2023 to September 2023. This report has been prepared by Projects and Development India Limited (PDIL) 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 CPCB accredited Laboratory at PDIL Noida under the strict supervision of the Government Analysts.

The proposed project is located at Sindri with the capacity of 2200MTPD Ammonia and 3850MTPD Urea in the District Dhanbad in the state of Jharkhand. The area falls in the agricultural belt of the Jharkhand.

The compliance report fulfills the 19 Nos. of Specific Conditions and 17 Nos. of Standard 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 green belt proposed by MoEF&CC is under review for selection of suitable plant species in consultation with local experts of the area.

The Environmental Monitoring report of 6 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, SO₂. No abnormal value has been recorded during the study period. 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 IS10500:2012. The analysis consists of five No. of physical parameters, thirteen No. of chemical parameters, nine No. of Heavy metals and three No. of miscellaneous parameters. No abnormal value has been recorded except for value of TDS & Hardness recorded beyond desirable limits at one location near old ammonia cooling tower of FCIL. 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 April 2023 to September 2023.



Compliance of EC conditions for the period April 2023 - September 2023 for Proposed Ammonia-Urea (2200MTPD & 3850 MTPD) plants of HURL at Sindri

ANNEXURE-C

HURL, SINDRI, AIR QUALITY DATA: APRIL 2023- SEPTEMBER 2023

MONTH	Parameters	Admn. Building HURL Gate (SA1)	Railway Phatak (inside the Plant) (SA2)	Domgarh Gate (inside the Plant) (SA3)	Settling Tank (SA4)	PDIL Guest House(SA5)	Sindri Basti Village(SA6)	NAAQ Standard
APRIL 2023	PM10	103.6	106.1	98.8	95.8	101.6	94.6	100
	PM 2.5	60.5	61.4	56.6	55.1	58.3	53	60
	SO2	13.1	15.2	14.2	14.9	15	14.9	80
	NOx	26.4	30.2	27.6	23.4	25.5	22.6	80
	NH3	74.5	60.1	65	50.3	37.8	44.3	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	1.04	1.1	0.85	0.85	0.89	0.78	2
	Ozone	27.7	27.7	27	23.5	24.6	23.4	180
	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
	Lead	BDL	BDL	BDL	BDL	BDL	BDL	1
MAY 2023	PM10	88.6	74.9	81.9	68.1	66.4	62.3	100
	PM 2.5	42.6	40.7	43.6	36.7	33	34.1	60
	SO2	12.5	12.9	14.3	12.9	12.9	12.3	80
	NOx	23.4	25.3	27.6	21.5	21.2	20.9	80
	NH3	32.4	50.3	36.9	32.7	32.9	31.9	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	0.9	1.2	1.3	0.68	0.66	0.48	2
	Ozone	24	26.9	24.5	22	21.7	21.5	180
	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
	Lead	BDL	BDL	BDL	BDL	BDL	BDL	1
JUNE 2023	PM10	80.6	79	82.6	59	74.8	65.6	100
	PM 2.5	39.8	37.8	43	30.3	36.3	30.6	60
	SO2	12.5	13.8	13.5	12.6	12.2	12.7	80
	NOx	23.9	24.5	23.4	20.5	21.3	21.9	80
	NH3	26.2	41.4	24.6	26	22.2	24	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	1.11	1.02	1.33	0.5	0.52	0.57	2
	Ozone	21	23.9	25.5	18.1	21.4	21.6	180
	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
	Lead	BDL	BDL	BDL	BDL	BDL	BDL	1
JULY 2023	PM10	61.4	75.9	72.3	42.3	59.7	52.3	100
	PM 2.5	28.9	34.1	35.8	21.2	28.7	26	60
	SO2	12.2	12.3	12.2	11.5	11.6	11.6	80
	NOx	19.3	21.9	23.1	16.6	19.5	20	80
	NH3	BDL	BDL	BDL	BDL	BDL	BDL	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	0.85	0.86	1.31	0.61	0.57	0.58	2
	Ozone	21.7	19.4	23	17.7	18.9	18.9	180

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Compliance of EC conditions for the period April 2023 - September 2023 for Proposed Ammonia-Urea (2200MTPD & 3850 MTPD) plants of HURL at Sindri

	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
	Lead	BDL	BDL	BDL	BDL	BDL	BDL	1
AUGUST 2023	PM10	64.9	53.3	62.3	39.9	42	36.8	100
	PM 2.5	27.8	25.4	28.7	22.9	20	18	60
	SO2	11.2	11.3	12.4	10.9	11.2	9.9	80
	NOx	19.8	20.1	22.1	17.1	18.3	16.2	80
	NH3	18	17.4	14.4	14.3	14.7	12	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	0.45	0.79	1.1	0.54	0.52	0.46	2
	Ozone	20.1	20.4	20.8	17.5	19.1	15.6	180
	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
Lead	BDL	BDL	BDL	BDL	BDL	BDL	1	
SEPTEMBER 2023	PM10	76.27	68.23	81.39	61.27	59.86	56.99	100
	PM 2.5	38.04	34.19	39.58	30.63	29.93	28.37	60
	SO2	14.44	16	15.68	14.57	14.49	12.61	80
	NOx	17.76	19.93	19.03	17.08	17.12	16.02	80
	NH3	19.57	19.02	15.51	15.41	16.33	13.06	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	0.4	0.45	0.5	0.27	0.3	0.32	2
	Ozone	17.24	16.85	18.22	16.62	16.16	14.55	180
	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
Lead	BDL	BDL	BDL	BDL	BDL	BDL	1	
AVG. APRIL 2023 TO SEPTEMBER 2023	PM10	79.23	76.24	79.88	61.06	67.39	61.43	100
	PM 2.5	39.61	38.93	41.21	32.81	34.37	31.68	60
	SO2	12.66	13.58	13.71	12.90	12.90	12.34	80
	NOx	21.76	23.66	23.81	19.36	20.49	19.60	80
	NH3	34.13	37.64	31.28	27.74	24.79	25.05	400
	C6H6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
	Benzo (α)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
	CO	0.79	0.90	1.07	0.58	0.58	0.53	2
	Ozone	21.86	22.53	23.17	19.24	20.31	19.26	180
	Ni	BDL	BDL	BDL	BDL	BDL	BDL	20
	As	BDL	BDL	BDL	BDL	BDL	BDL	6
Lead	BDL	BDL	BDL	BDL	BDL	BDL	1	

NOTE: BDL = Below Detection Limit. ($\mu\text{g}/\text{m}^3$) = PM₁₀, PM_{2.5}, SO₂, NO_x, NH₃, C₆H₆, Lead, Ozone
 ng/m³ = Arsenic (As), Benzo(α)Pyrene, Ni
 (mg/m³) = CO.

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**HURL, SINDRI, GROUND WATER QUALITY DATA
AVG. (APRIL 2023 TO SEPTEMBER 2023)**

ANNEXURE-C

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

Sl. No	Parameters	Analysis Results			Requirement (Acceptable) / Permissible Limits (IS:10500:2012)
		Near Instrumentation Coke Oven & Amm. Storage (Hand Pump) (GW1)	Near Domgarh Mandir (Hand Pump) (GW2)	Rohraband (Hand Pump) (GW3)	
PHYSICAL					
1	pH	7.4	7.5	7.3	6.5-8.5
2	Temperature (°C)	28.4	28.7	28.9	-
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	521.5	541.5	434.8	500/2000
CHEMICAL					
1	P- Alkalinity as CaCO ₃	NIL	NIL	NIL	-
2	Total Alkalinity as CaCO ₃	246.2	302.0	276.3	200/600
3	Chloride as Cl	122.2	96.0	46.5	250/1000
4	Sulphate as SO ₄	45.5	62.0	39.5	200/400
5	Nitrate as NO ₃	4.5	4.5	4.4	45/NR
6	Fluoride as F	0.5	0.5	0.5	1.0/1.5
7	Total Hardness as CaCO ₃	431.0	482.0	312.7	200/600
8	Ca. Hardness as CaCO ₃	273.5	302.0	192.5	75/200
9	Mg. Hardness as CaCO ₃	157.5	180.0	121.8	30/100**
10	Sodium as Na	19.0	7.0	31.3	-
11	Potassium as K	3.3	1.0	5.0	-
12	Silica as SiO ₂	31.0	15.0	34.2	-
13	Iron as Fe	0.3	0.2	0.3	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	0.36	0.38	0.34	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,	BDL	BDL	BDL	0.5/NR
2	Ph.Compound as C ₆ H ₅ OH	BDL	BDL	BDL	0.001/0.002
3	Coliform (MPN/100ml)	<50	<50	<50	-

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HURL, SINDRI, SURFACE WATER QUALITY DATA
AVG. (APRIL 2023 TO SEPTEMBER 2023)

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

Sl. No.	Parameters	Nimtand Village (Pond) SW1	Seven Lake (Pond) SW2	Damodar River SW3	Requirement (Acceptable) / Permissible Limits (IS:10500:2012)
PHYSICAL					
1	Temperature (°C)	30.5	30.1	30.5	-
2	Colour, HU	14	13	17	5/15
3	Turbidity (NTU)	17	15	20	1/5
4	pH	7	7	7	6.5-8.5
5	Total Dissolved Solids	194	236	208	500/2000
6	Suspended Solids	52	58	60	-
CHEMICAL					
1	Total Alkalinity as CaCO ₃	122	144	129	200/600
2	Chloride as Cl	26	35	34	250/1000
3	Sulphate as SO ₄	23	26	23	200/400
4	Nitrate as NO ₃	4	5	4	45/NR
5	Fluoride as F	0	0	0	1.0/1.5
6	Total Hardness as CaCO ₃	160	171	186	200/600
7	Calcium Hardness as CaCO ₃	104	110	112	75/200
8	Magnesium Hardness as CaCO ₃	56	61	74	30/100**
9	Dissolve Oxygen	5	6	7	-
10	COD	20	23	24	-
11	BOD (3 days at 27 °C)	6	7	7	-
12	Sodium as Na	11	22	9	-
13	Potassium as K	2	4	2	-
HEAVY METALS					
1	Iron as Fe	0.29	0.27	0.28	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	0.34	0.36	0.40	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	Oil & grease	BDL	BDL	BDL	0.5/NR
2	Phenolic Compound	BDL	BDL	BDL	0.001/0.002
3	Coliform Organisms (MPN/100ml)	792	900	1008	-

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Compliance of EC conditions for the period April 2023 - September 2023 for Proposed Ammonia-Urea (2200MTPD & 3850 MTPD) plants of HURL at Sindri

ANNEXURE- C

HURL, SINDRI, NOISE QUALITY DATA FROM APRIL 2023- SEPTEMBER 2023

MONTH	Parameters	Admn. Building HURL Gate (SA1) (Industrial Area)	Railway Phatak (inside the Plant) (SA2) (Industrial Area)	Domgarh Gate (inside the Plant) (SA3) (Industrial Area)	Settling Tank (SA4) (Industrial Area)	PDIL Guest House (SA5) (Residential Area)	Sindri Basti Village (SA6) (Residential Area)	Prescribed Limits in dB(A) as per NAAQS (Ind. / Res. Area)
APRIL 2023	24-hrs Avg L_{eq} Value dB(A)	57.3	54.9	58.7	52.6	52	52.8	-
	Day time L_{eq} Value dB(A)	58.8	56.1	60.2	53.6	53.3	54.2	75/55
	Night time L_{eq} Value dB(A)	50.8	50	51.4	49.7	47.5	47.2	70/45
MAY 2023	24-hrs Avg L_{eq} Value dB(A)	56.6	53.7	58.1	51.5	52.2	53.4	-
	Day time L_{eq} Value dB(A)	58.2	55.3	59.8	52.9	53.7	54.8	75/55
	Night time L_{eq} Value dB(A)	46.9	46	47.8	45.7	45.1	46.8	70/45
JUNE 2023	24-hrs Avg L_{eq} Value dB(A)	53.9	56	57.6	52.2	53.5	52.1	-
	Day time L_{eq} Value dB(A)	55.1	57.3	59	53.2	54.7	53.3	75/55
	Night time L_{eq} Value dB(A)	49.4	50.6	51.2	49	49	47.7	70/45
JULY 2023	24-hrs Avg L_{eq} Value dB(A)	52.8	52.7	55.9	51.5	53.7	51.6	-
	Day time L_{eq} Value dB(A)	54	53.8	57.2	52.5	55	52.7	75/55
	Night time L_{eq} Value dB(A)	47.9	48.4	50.1	48.5	48.8	47.9	70/45
AUGUST 2023	24-hrs Avg L_{eq} Value dB(A)	56.6	53.7	58.1	51.5	52.2	53.4	-
	Day time L_{eq} Value dB(A)	57.4	54.5	59	52.1	52.9	54.3	75/55
	Night time L_{eq} Value dB(A)	46.1	45.2	47	44.9	44.4	46	70/45
SEPTEMBER 2023	24-hrs Avg L_{eq} Value dB(A)	57.6	50.7	55.1	50.5	49.2	51.4	-
	Day time L_{eq} Value dB(A)	61.5	54.5	59	52.1	52.9	54.3	75/55
	Night time L_{eq} Value dB(A)	46.1	45.1	47.1	44.8	44.2	45.9	70/45
AVG. (APRIL 2023 TO SEPTEMBER 2023)	24-hrs L_{eq} Value dB(A)	55.8	53.62	57.25	51.63	52.13	52.45	-
	Day time L_{eq} Value dB(A)	57.5	55.25	59.03	52.73	53.75	53.93	75/55
	Night time L_{eq} Value dB(A)	47.87	47.55	49.1	47.1	46.5	46.92	70/45

FBam

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